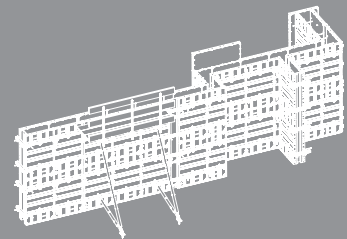
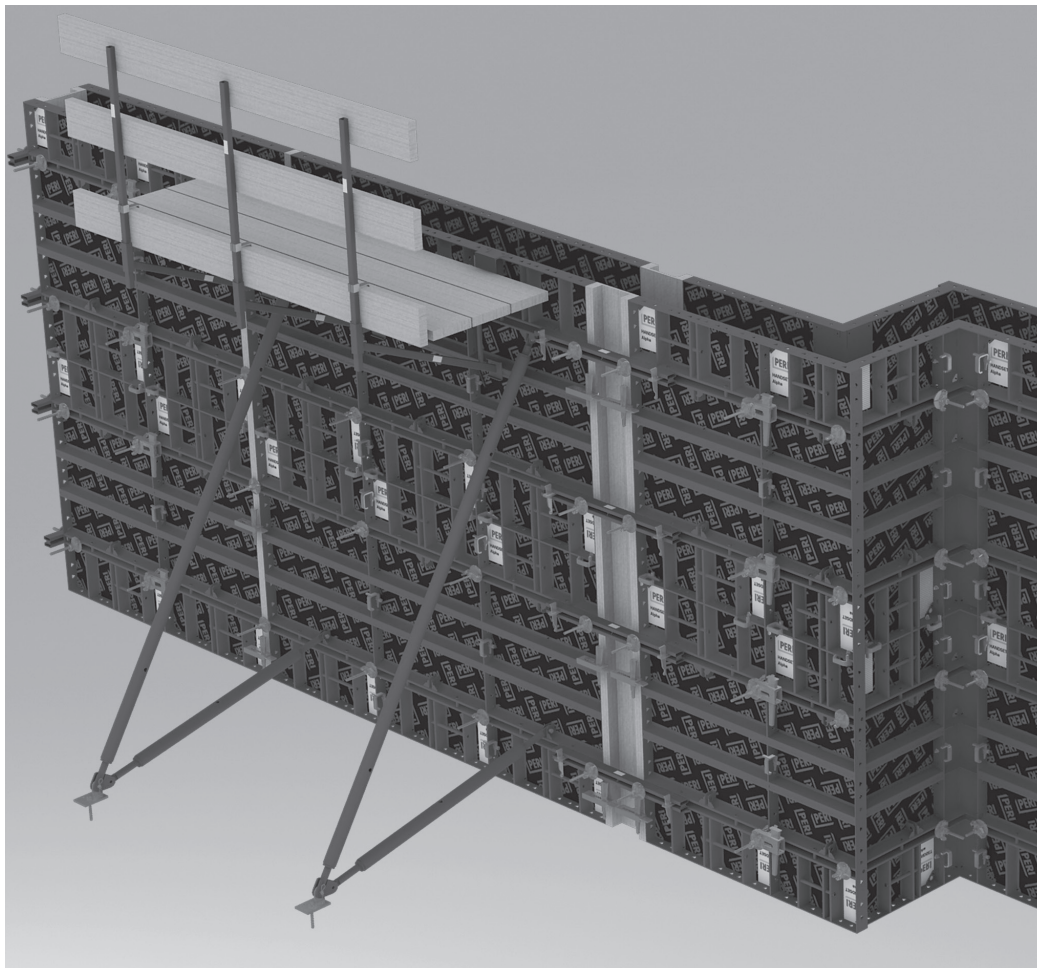


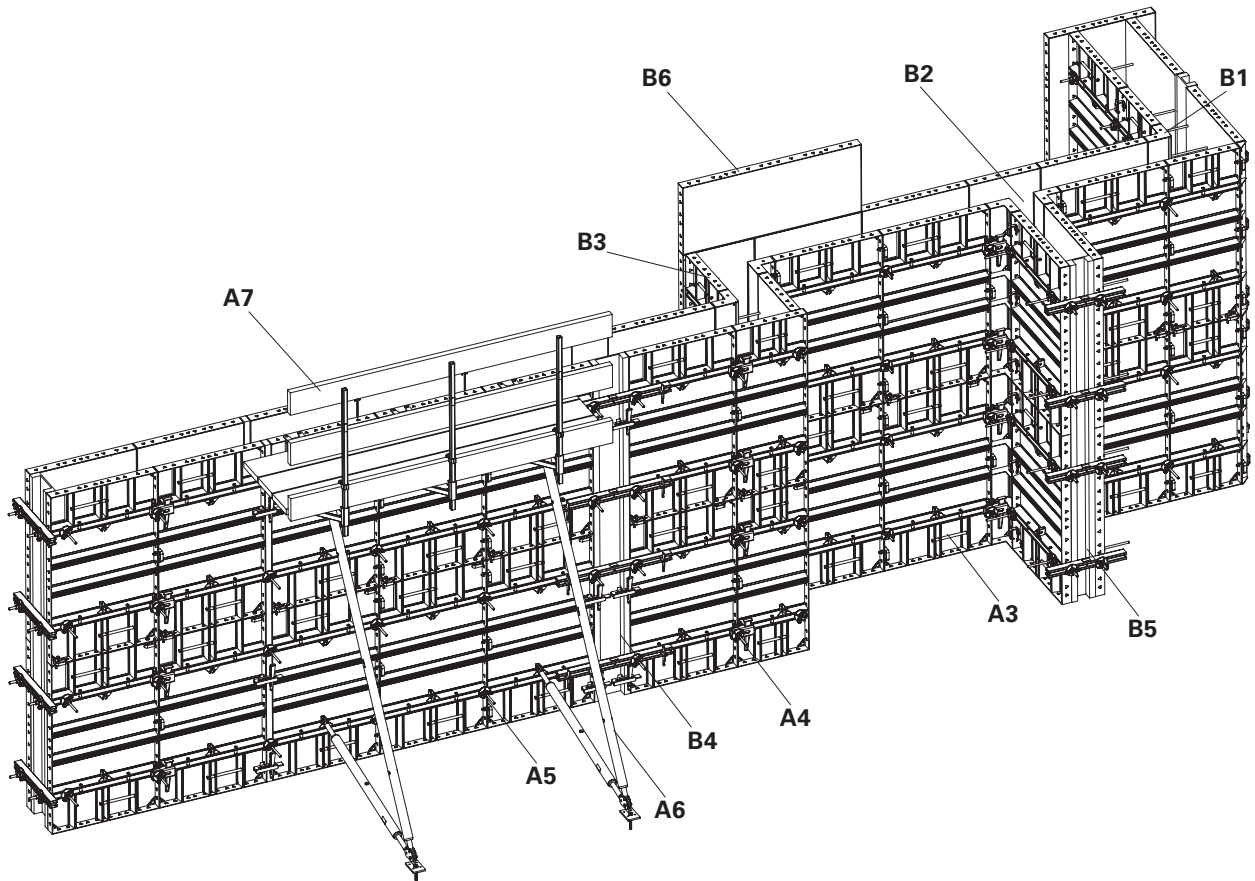
HANDSET Alpha

Panel Formwork System

Instructions for Assembly and Use – Standard Configuration – Issue 04 | 2020



Main components



- A3 Panel
- A4 Panel Connection
- A5 Tie System
- A6 Push-Pull Prop
- A7 Working and Concreting Scaffold
- B1 Corner
- B2 T-junction
- B3 Wall Offset
- B4 Length Compensation
- B5 Stopend Formwork
- B6 Height Extension

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Standard configuration H = 150 + 150

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Column formwork













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Component list




56

Key

Pictogram | Definition

-  Danger/Warning/Caution
-  Information
-  To be complied with
-  Load-bearing point
-  Visual check
-  Tip
-  Misapplication
-  Safety helmet
-  Safety shoes
-  Safety gloves
-  Safety glasses
-  Personal protective equipment to prevent falling from a height (PPE)

Arrows

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

* If not identical to the action arrow.

Safety instruction categories

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

Danger

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

Warning

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

Caution

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

Information

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

Set-up of the safety instructions

Signal word

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

Dimension specifications

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

Conventions

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

Presentational reference

The illustration on the front cover of these instructions is understood to be a system representation only. The assembly steps presented in these Instructions for Assembly and Use are shown in the form of examples with only one component size. They are valid accordingly for all component sizes contained in the standard configuration.

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

Target groups

Contractors

These Instructions for Assembly and Use are designed for contractors who use the formwork systems for

- assembling, modifications and dismantling, or
- e.g. concreting or
- for other operations, e.g. carpentry or electrical work.

Construction site coordinator

The Health and Safety 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 and ensures compliance with the protective measures.

Qualified persons

Due to the specialist knowledge gained from professional training, work experience and recent professional activity, the qualified person has a reliable understanding of safety-related issues and can correctly carry out tests. 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.

Technically qualified personnel

Formwork systems may only be assembled, modified or dismantled by personnel who are suitably qualified to do so. For the work to be carried out, the qualified workers 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!

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

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

Additional technical documentation

- Brochure/Flyer:
 - HANDSET Alpha
- Instructions for Use:
 - Crane Hook HSA
 - Pallets and Stacking Devices
 - Pallet Lifting Trolley
 - PERI Bio Clean
- Data Sheet: Anchor Bolt PERI 14/20 x 130
- Design Tables 2015 – Formwork and Shoring

Intended use

Product description

PERI products have been exclusively designed as technical work equipment for use in the industrial sectors only by suitably trained personnel.

PERI HANDSET Alpha is a lightweight modular panel formwork system suited for wall and column applications. It is designed in such a way that all panels are multi-purpose panels that can be used in any direction.

With 3 sizes in height and 3 sizes in width, it offers all possible configurations to meet different pour height requirements with less unutilized formwork area.

Therefore it is an efficient and economic system for construction site application.

Use of the HANDSET Alpha system:

- Within the permissible temperature limits of -20 °C to +60 °C.
- In good working order.

For panel connections, the following components are available:

Standard panel joint

Wedge clip HSA

Alignment clamp HSA

Compensation up to 10 cm

Compensation clamp HSA

HSA Compensation Waler 95

Length compensation between 10 cm to 30 cm

Compensation clamp HSA and

HSA Compensation Waler 95

Filler Support 18 HFS, Wedge Clip HSA

and HSA Compensation Waler 95

Features

The system meets all requirements with infills upto 30 cm, 90 degree internal and external corners, T-junctions, stop-ends and wall offsets.

The panel is made out of high-strength steel frames and formlining (12 mm ply with phenolic resin) which makes the system very robust. It also offers smooth concrete finish.

The panel has integrated ergonomic handles that ensures easy handling.

The panel has In-built brace connectors for fixing the push-pull props.

The triangular slots in the panels aids in assembling them easily both in horizontal and vertical directions.

Columns with dimensions ranging from 15 x 15 cm up to 90 x 90 cm can be formed using 90 cm wide panel, without requiring any special panels.

The low individual weights of the elements allow easy assembly and dismantling by hand with minimal training effort.

This makes the system very efficient even during non-availability of crane.

Technical data

- Panel heights: 300, 150, 120 cm
- Panel widths: 90, 60, 30 cm
- Perm. load of platforms and brackets: 150 kg/m²

Permissible fresh concrete pressure 60 kN/m² for walls, 75 kN/m² for columns (up to 60 x 60 cm) and 60 kN/m² for columns (from 65 x 65 cm to 90 x 90 cm) according to DIN EN18218

Evenness: Line 6 according to DIN EN18202.

Crane Hook HSA: max. load-carrying capacity 500 kg.

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

Fix box-outs recesses and mounting parts with double-headed nails; as a result, the nails can easily be subsequently removed, and damage to the formlining is largely avoided. Only use 50 mm nails or smaller.

Close all unused tie holes with plugs; this eliminates any subsequent cleaning or repair work. Tie 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 accidentally inserted between the reinforcement and formlining.

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

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

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

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

Do not clean components when suspended on a crane.

Instructions for use

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

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 shall be 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
- functionality.

Damaged components must be exchanged immediately on site and may no longer be used.

Safety components are removed only when they are no longer required.

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

- timber components: Strength Class C24 for Solid Wood according to EN 338.
- scaffold tubes: galvanised steel tubes with minimum dimensions of $\varnothing 48.3 \times 3.2$ mm according to EN 12811-1:2003 4.2.1.2.
- scaffold tube couplings according to EN 74.

Deviations from the standard configuration are only permitted after a further risk assessment has been carried out by the contractor. On the basis of this risk assessment, 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.

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

- create another risk assessment, with appropriate measures for ensuring the stability of the formwork system being carried out based on the results,
- and arrange for an extraordinary inspection by a qualified 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.

Utilization

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 coordinators must point out any possible mutual hazards and all work must be then coordinated.

Cross-system

Assembly, modification and dismantling work

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

On the basis of the risk assessment and 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 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.

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 designated PERI lifting gear. 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.

Storage and transportation

Store and transport components ensuring that no unintentional change in their position is possible. Detach load-bearing devices and lifting gear 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 load-bearing devices and lifting gear as well as only those load-bearing points provided on the component.

During the moving procedure,

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

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

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

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

Use guideropes when moving panels.

Position number in illustrations	Component name
10	Panel HSA 150 x 90
11	Panel HSA 150 x 60
12	Panel HSA 150 x 30
13	Internal Corner HSA 150
14	HSA External Corner 150
15	Internal Corner HSA 300
16	Panel HSA 300 x 90
17	Panel HSA 300 x 60
18	Panel HSA 300 x 30
19	Filler Support 18 HFS 150
20	Wedge Clip HSA
21	Alignment Clamp HSA
22	Tie System DW 15
23	Compensation Waler HSA 95
24	Compensation Clamp HSA
25	Holder Hook HSA
26	Tube Holder HSA
27	Tie Rod DW 15
28	Spacer Tube DR 22
29	Cone DR 22
30	Wingnut Counterplate DW 15
31	Tie Rod Wrench
32	Plugs
33	Push-Pull Prop
34	Base Plate
35	Scaffold Bracket HSA 80
36	Guardrail Post HSGP-2
37	Timber 3.8 x 3.8 cm
38	HSA Corner Connector DW 15
39	Filler Support 18 HFS 300
40	Timber 5 x 5 cm
41	Plywood (18 mm thickness)
42	Timber 5 x 6 cm
43	Timber 5 x 8 cm
44	Timber 10 x 8 cm
45	HSA Stopend Waler 65/95
46	Bolt and Nut (M20 x 35)
47	Stacking Aid HSA
48	Timber (cut-to-size)
49	Wingnut Pivot Plate DW 15
50	Crane Hook HSA
51	HSA External Corner 120
52	Anchor Bolt PERI 14/20 x 130



Please adhere to the PERI Instructions for Use for Pallets and Stacking Devices as well as Pallet Lifting Trolley! Manually-created transport units must be correctly stacked and secured!

Transport

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.



Information

Material damage!
Store and transport panels of the same size in one stack! (Fig. A2.01)

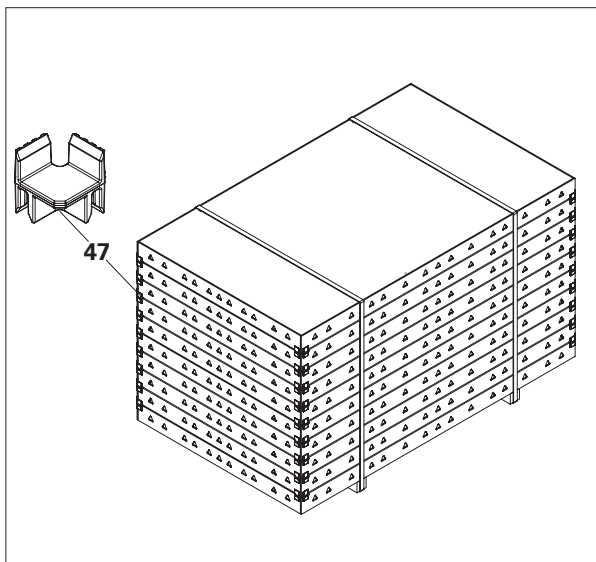


Fig. A2.01

Number of panels per stack:

Stacking of HANDSET Alpha panels of one size - 12 panels.
Use Stacking Aid HSA (47) in order to protect the panels. (Fig. A2.01)

The maximum height of stacking should not exceed 1.15 m.

Stacking height on truck:

2 stacks, one on top of each other.

Handling

For transporting HSA panels (10) without the use of a crane, the system is designed with integrated ergonomic handle (10.6) that ensures easy handling. (Fig. A2.02)

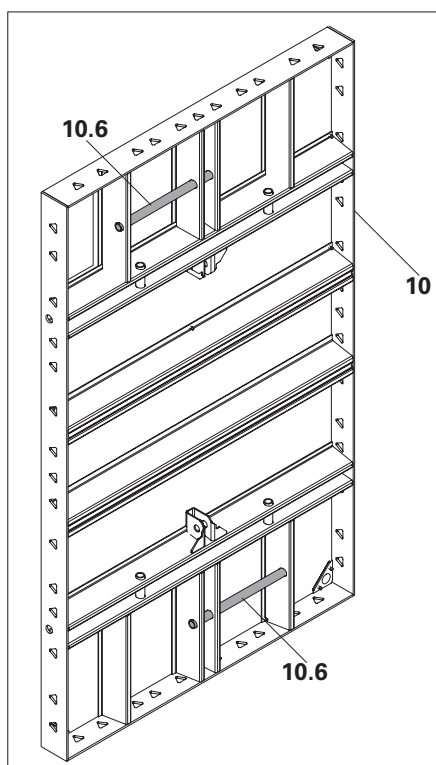


Fig. A2.02

Panel overview

An overview of the HANDSET Alpha range of panels shows the reduced number of individual panels: with only 3 sizes in height and 3 sizes in width, i.e. a total of only nine variants of multi-panels and three corner panels, it offers all possible combinations to meet the different pour height requirements with less unutilized formwork area.

All required adjustments for 90° corners, T-junctions as well as wall offsets can be realized with very few system components. The robust internal corner 20 x 20 makes an important contribution for reducing the number of system components to form 90° corners, T-junctions and Wall offsets.

		Width [cm]			
		90	60	30	Internal corner (20 x 20)
Height [cm]	300				
	150				
	120				

Panel HSA 150 x 90 cm

- 10 Panel
- 10.1 Anchor strut (W-profile)
- 10.2 Panel strut
- 10.3 Frame
- 10.4 Plywood
- 10.5 Triangular slots for Alignment Clamp HSA, Wedge Clip HSA, Compensation Clamp HSA, Scaffold Bracket HSA 80
- 10.6 Handle pipe for easy handling
- 10.7 Brace connector for fixing the push-pull props.
- 10.8 Stiffener pipe for connecting Compensation Waler HSA 95
- 10.9 Hole for HSA Corner Connector DW 15

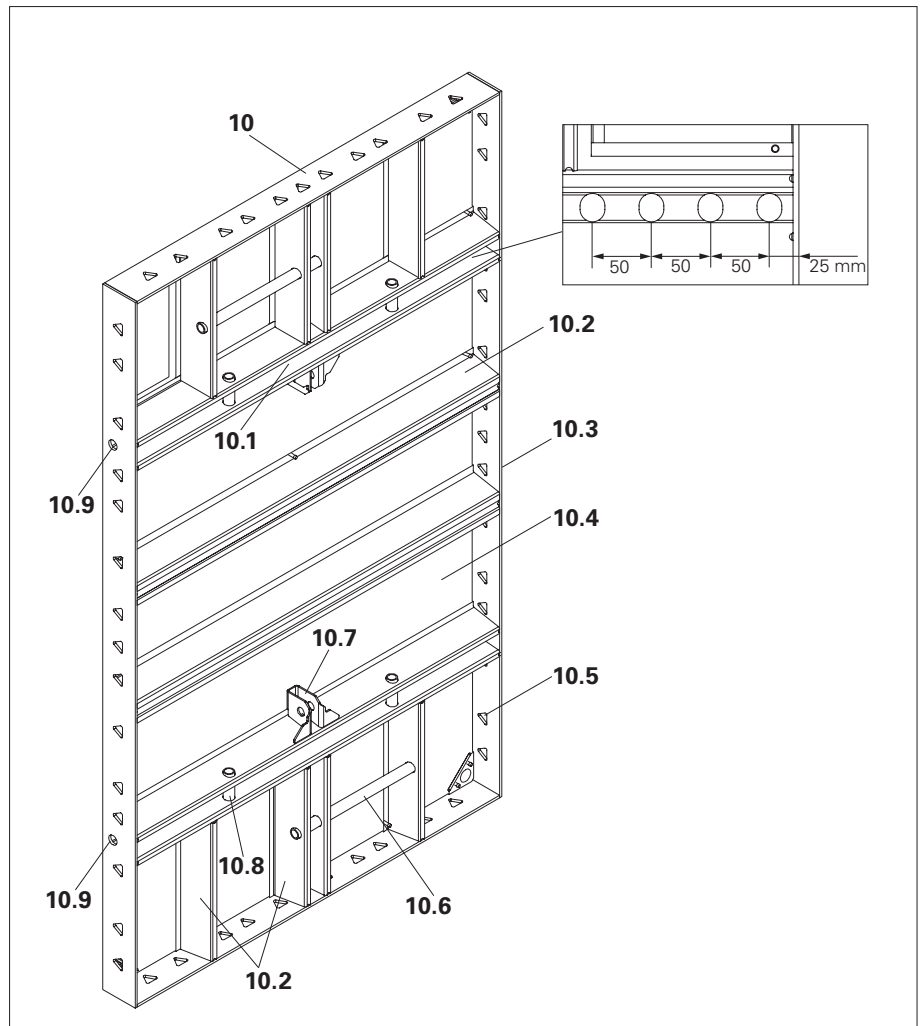


Fig. A3.01

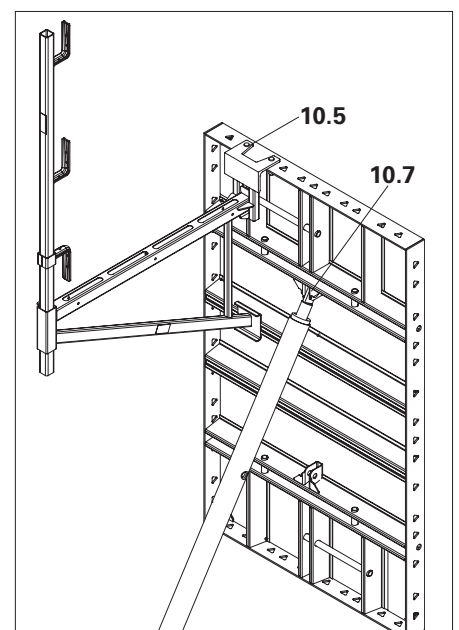


Fig. A3.02

Wedge Clip HSA

Areas of use:

- Standard panel joints
- Corners, T-junctions, wall offsets : see B1, B2, B3, C1, C2, C3
- Length compensation: see B4, C4
- Stopped formwork: see B5, C5
- Height extensions: see B6, C6
- Column formwork: see D1, D2

Number of wedge clip per standard panel joint

Vertical

- H = 120 cm: 2 x Wedge Clip
- H = 150 cm: 3 x Wedge Clip
- H = 150 + 150 cm: 6 x Wedge Clip

Horizontal

- W = 90 cm: 2 x Wedge Clip
- W = 60 cm: 2 x Wedge Clip
- W = 30 cm: 1 x Wedge Clip

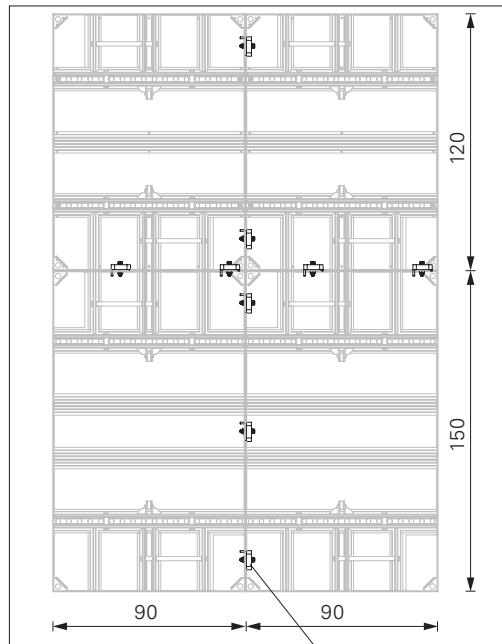


Fig. A4.01

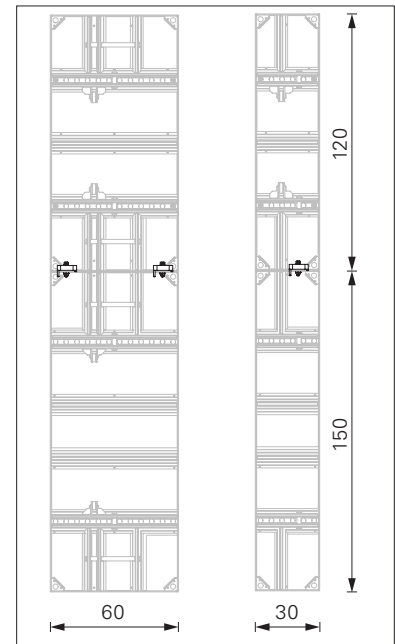
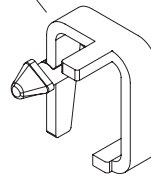


Fig. A4.02

20



Assembly

1. Use the triangular slots in the panel for fixing the wedge clip. (Fig. A4.01a)
2. Insert the wedge clip into the triangular slots always from the right side and turn the clip towards the panel, then drive the wedge to lock it into position. (Fig. A4.01b)
3. Hammer the wedge – 2 to 3 hammer blows using normal force. (Fig. A4.01c)
→ Wedge Clip HSA is now securely in position.

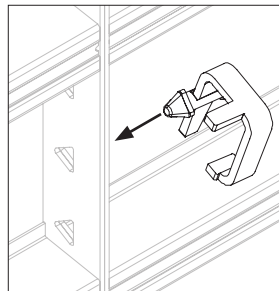


Fig. A4.01a

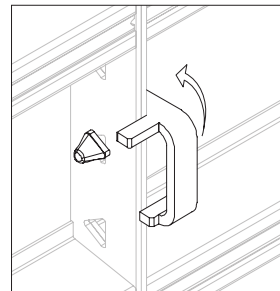


Fig. A4.01b

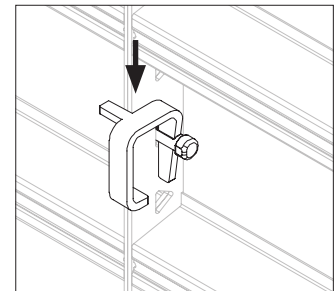


Fig. A4.01c

Alignment Clamp HSA

Areas of use:

- Standard panel joints
- Corners, T-junctions, wall offsets : see B1, B2, B3, C1, C2, C3
- Height extensions: see B6, C6
- Column formwork

The Alignment Clamp HSA (21) has a slot (21.1) which can also accommodate the Tie System DW 15 at the panel joints making the system very robust.

Number of alignment clamp per standard panel joint

Vertical

- H = 120 cm: 2 x Alignment Clamp
- H = 150 cm: 2 x Alignment Clamp
- H = 150 + 150 cm: 4 x Alignment Clamp

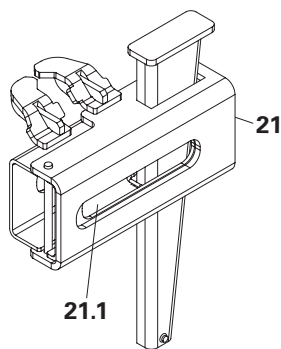


Use wedge clip (20) at intermediate location.

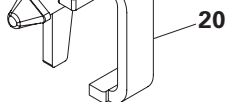
- H = 150 cm: 1 x Wedge Clip
- H = 150 + 150 cm: 2 x Wedge Clip



The Alignment Clamp HSA is meant for partial alignment. However the system is fully functional using Wedge Clip HSA alone.



21.1



20

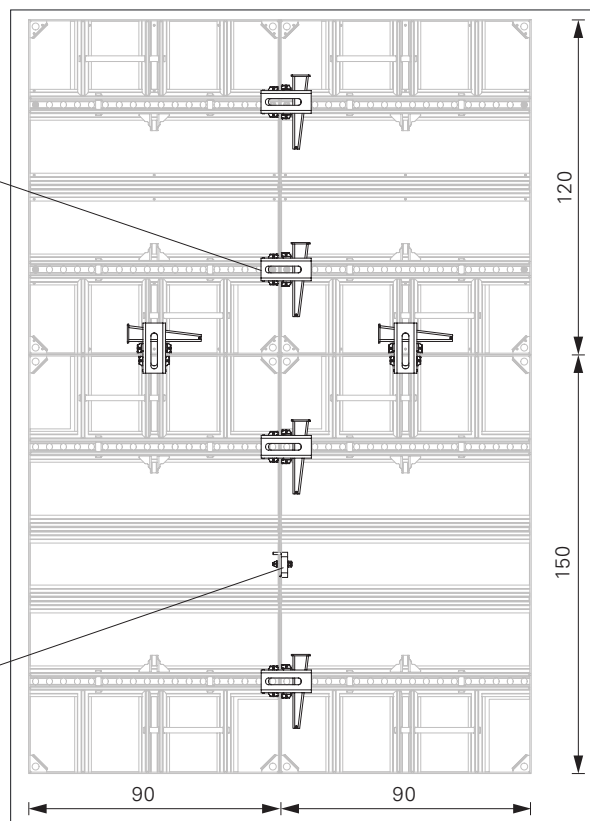


Fig. A4.03

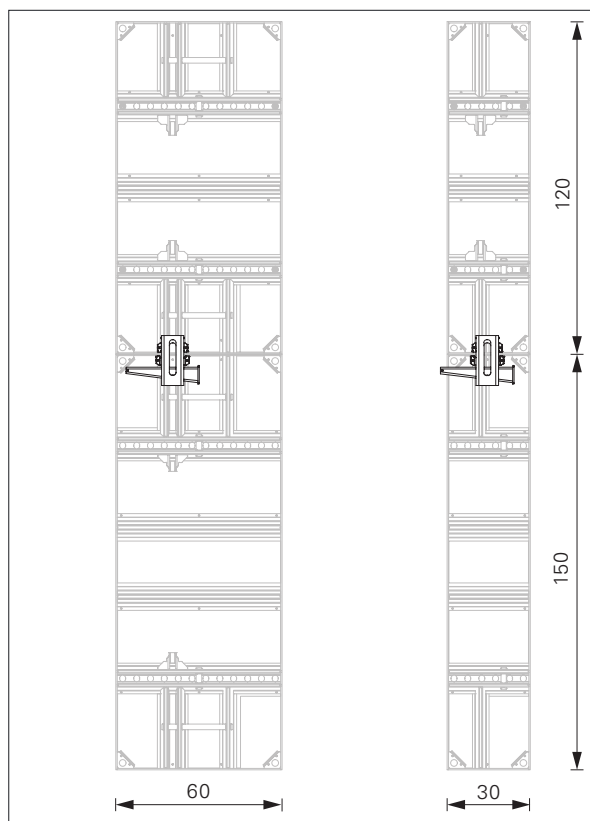


Fig. A4.04



When securing the wedge, the following effects occur due to the angle of the frame profile:

1. Panels are flush.
2. Panels are aligned without any additional walers.
3. Panels are tightly connected.

Assembly

1. Pull the wedge (21.3) upwards to open the clamping jaws (21.2)
2. Insert clamping jaws (21.2) into the triangular slot at anchor or panel strut location. (Fig.A4.05)
3. Hammer the wedge (21.3). (Fig.A4.06)
→ Alignment Clamp HSA (21) is now securely in position.

For panel joint where Tie system DW15 (tie rod + wingnut counterplate) is required, follow below steps:

5. Once the clamp is fixed at the panel joints, install the tie rod DW 15 (27) into the tie slot. (Fig. A4.07)
6. Put the wingnut counterplate DW 15 (30) and rotate clockwise. (Fig. A4.07) Perform the same operation on the opposite side.
7. Hammer the wingnut counterplate DW 15 (30) to ensure that the Tie system DW 15 (22) is perfectly tightened with the Alignment Clamp (21). (Fig. A4.08)

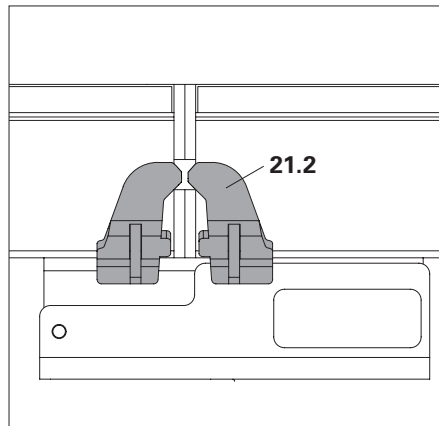


Fig. A4.05

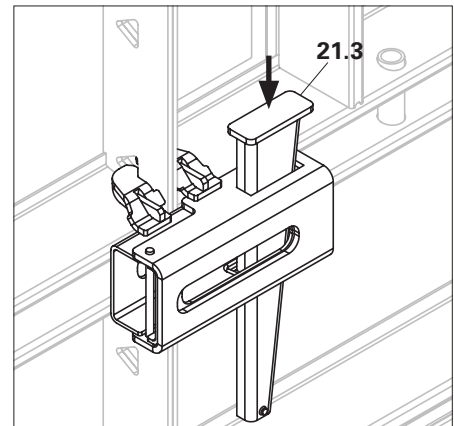


Fig. A4.06

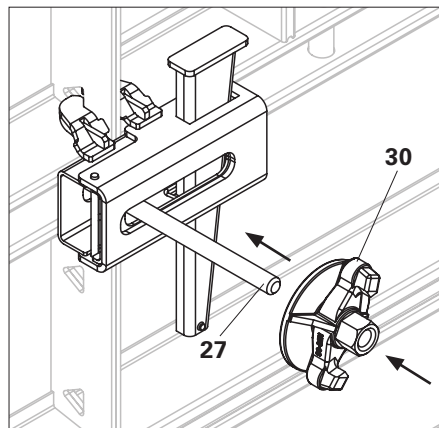


Fig. A4.07

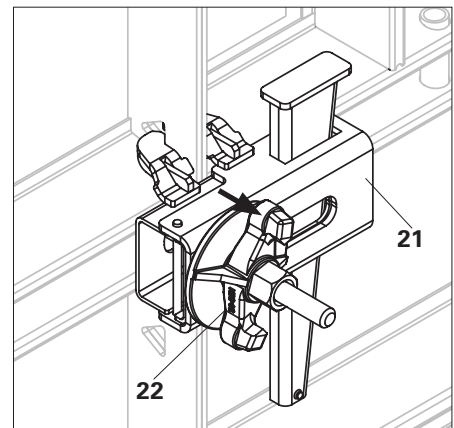


Fig. A4.08

HSA Corner Connector DW 15

Areas of use:

- Corners. see B1, C1
- Wall Offsets. see B3, C3
- Stopend Formwork. see B5, C5
- Column Formwork. see D1, D2

Assembly

1. Install the HSA Corner Connector DW 15 (38) through the hole (10.9) of Panel HSA (10) into the anchor strut (10.1) of other Panel HSA (10).
2. Put the Wingnut Counterplate DW 15 (30) at the other end and hammer it to ensure that it is perfectly tightened with the anchor strut (10.1)

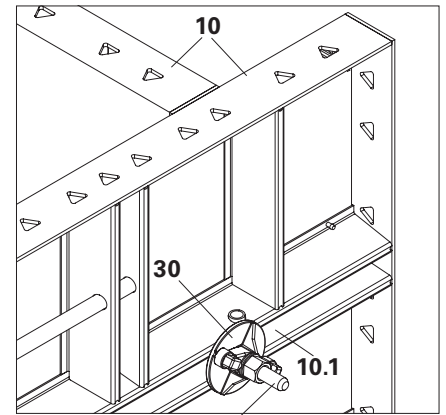
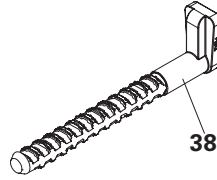


Fig. A4.09

38



Once in position, there should not be any gap between HSA Corner Connector DW 15 (38) and panel frame (10.3). (Fig. A4.09a)

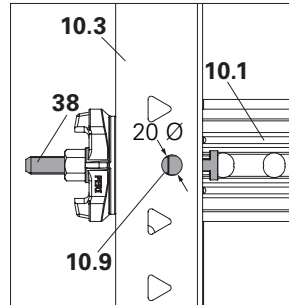


Fig. A4.09a

Compensation Waler HSA 95

The Compensation Waler HSA 95 (23) is used as a stiffening, aligning and force-transmitting panel connection.

Perm. bending moment: 1.38 kNm.

Areas of use:

- Length compensations between 10 cm and 30 cm. see B4
- Height extensions. see B6

For a height $H = 150 + 150$ cm
Only 4 compensation waler required.

Assembly

1. Attach the hooks (23.1) of compensation waler (23) to the stiffener pipe (10.8) of the panel. (Fig. A4.10)
 2. Hammer the wedge (23.2).
- Compensation Waler (23) is now securely in position. (Fig. A4.11)

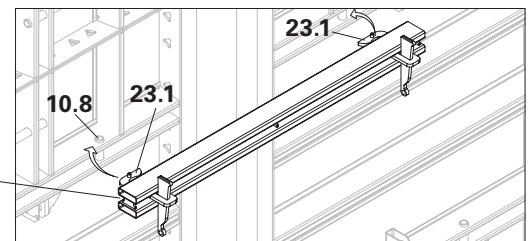
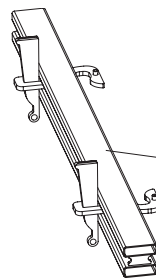


Fig. A4.10

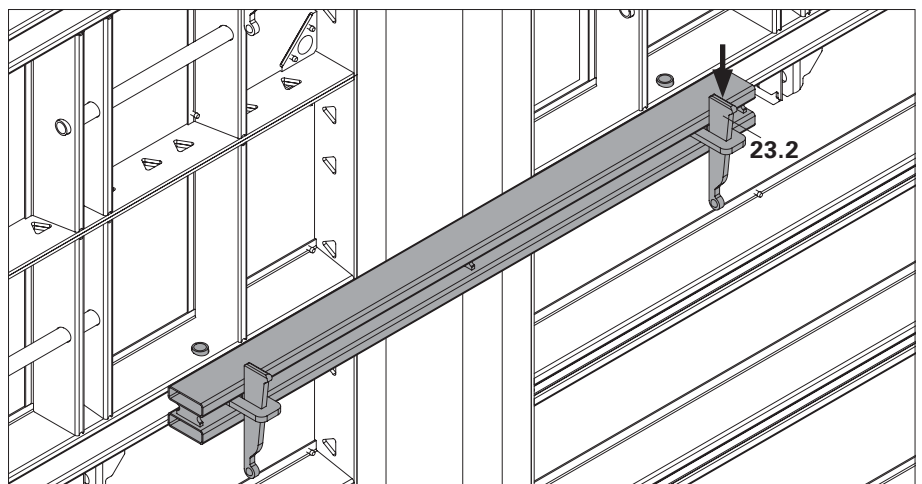


Fig. A4.11

Compensation Clamp HSA

Areas of use:

- Corners, T-junctions, wall offsets : see B1, B2, B3, C1, C2, C3
- Length compensations: see B4

For a height $H = 150 + 150$ cm
Only 4 compensation clamp required.

Assembly

1. Put the timber between the two panels for compensation.
2. Insert the clamping jaws (24.1) into the triangular slot at panel frame location. (Fig. A4.12)
3. Hammer the wedge.
→ Compensation Clamp HSA (24) is now securely in position.

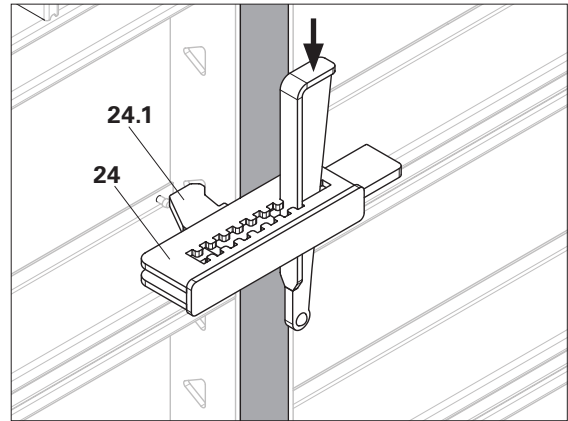
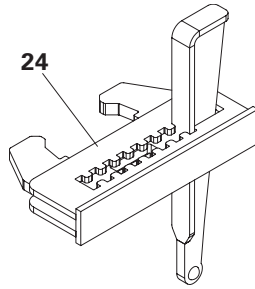


Fig. A4.12

Holder Hook HSA

Holder hook HSA (25) can be used for additional alignment along with PERI VT20 girder or any local formwork girder ($h = 20$ cm)

It can also be used as a lifting hook for the panels.

Assembly

1. Insert the Holder Hook HSA (25) into the triangular slots of the panel strut.
2. Position the formwork girders and insert the timber wedge (25.1). (Fig. A4.13a)



- Make sure to secure timber wedge (25.1) with nails as it might get loose due to vibration during concreting.

The panels are aligned flush to each other. (Fig. A4.13)

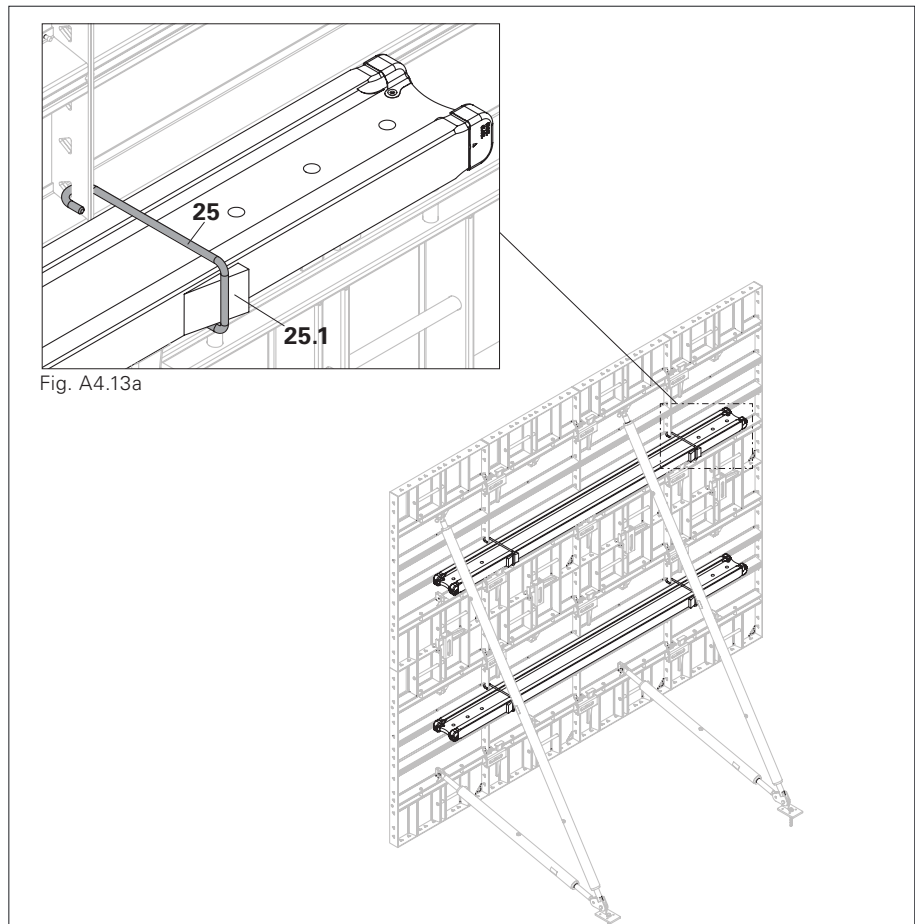


Fig. A4.13

Tube Holder HSA

Tube holder HSA (26) can be used for additional alignment along with the scaffold tube (NB 40) or square tube 50 x 50 mm.

Assembly

1. Insert the Tube Holder HSA (26) into the triangular slots of the panel strut location. (Fig. A4.14a)
2. Insert scaffold tube (NB 40) or square tube 50 x 50 mm into position and hammer the wedge to tighten.

The panels are aligned flush to each other. (Fig. A4.14)

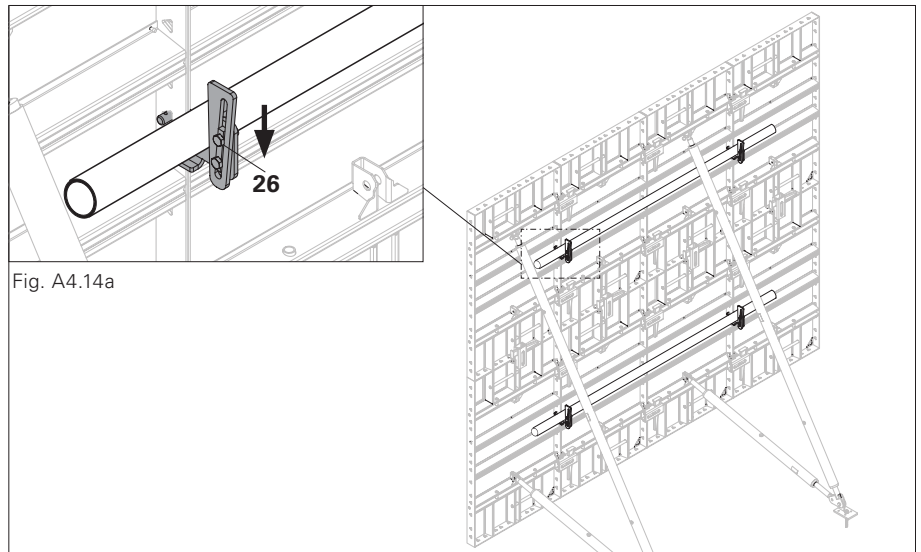


Fig. A4.14

HSA External Corner

The HSA External Corner is available in two sizes:

- HSA External Corner 150
- HSA External Corner 120

Areas of use:

- Corners : see B1, C1
- Column formwork: see D1, D2

Required no. of Wedge Clip HSA per side of HSA External Corner

H = 120 cm: 4 x Wedge Clip

H = 150 cm: 5 x Wedge Clip

H = 300 cm: 10 x Wedge Clip

Required components:

14	HSA External Corner 150	2x
20	Wedge Clip HSA (per side of HSA External Corner 150)	10x

Shown height = 300 cm (Fig. A4.15)

Required components:

14	HSA External Corner 150	1x
51	HSA External Corner 120	1x
20	Wedge Clip HSA (per side of HSA External Corner 150)	5x
20a	Wedge Clip HSA (per side of HSA External Corner 120)	4x

Shown height = 270 cm (150 + 120)
(Fig. A4.16)

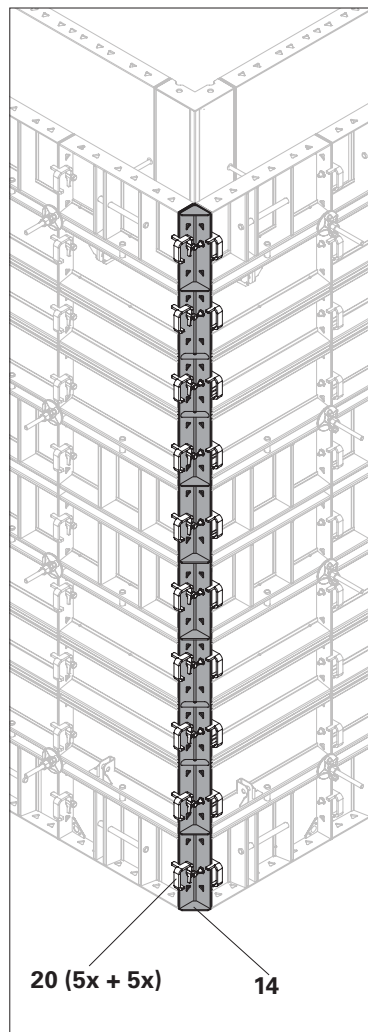


Fig. A4.15

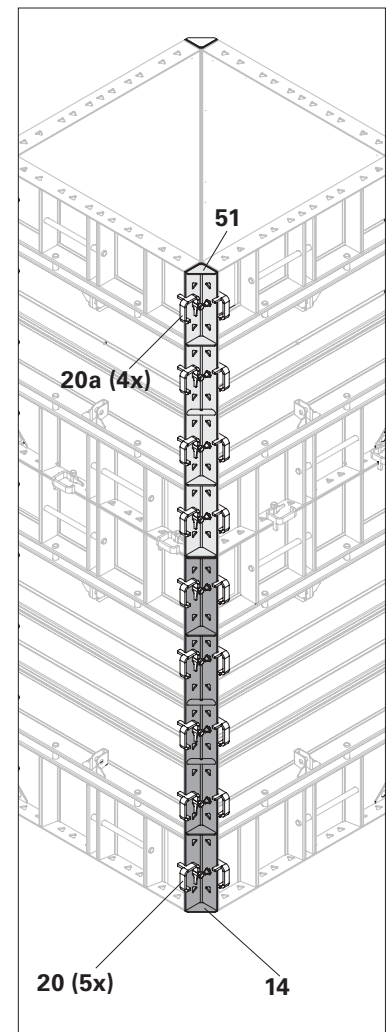


Fig. A4.16

Tie System

DW 15 - Perm. load: 90 kN

Also compatible with local Tie rod of 50 kN capacity.

Required components:

21	Alignment Clamp HSA	2x
27	Tie Rod DW 15	1x
28	Spacer Tube DR 22	1x
29	Cone DR 22	2x
30	Wingnut Counterplate DW 15	2x

(Fig. A5.01)

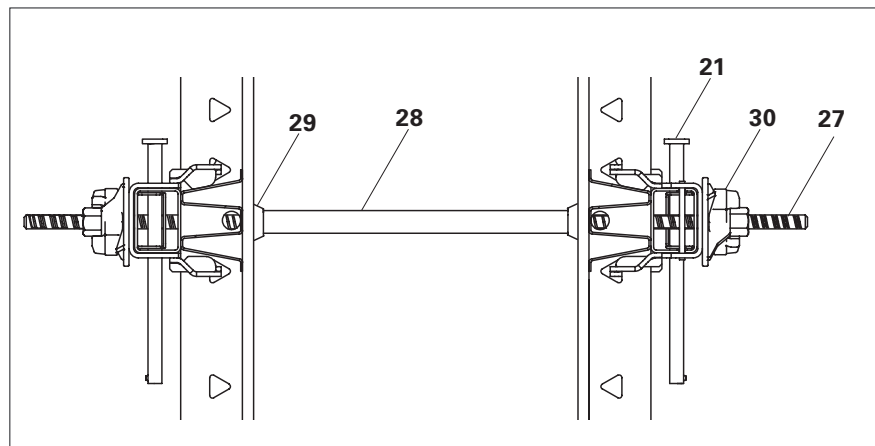


Fig. A5.01



Application

- Use only the required number of ties.
- Do not exceed permissible tie loads.
Comply with rate of rise.

Accessories

Tie Rod Wrench (31) for one-man anchor point operations from one side of the formwork.

Plugs (32) for closing unused tie holes.

(Fig. A5.02)

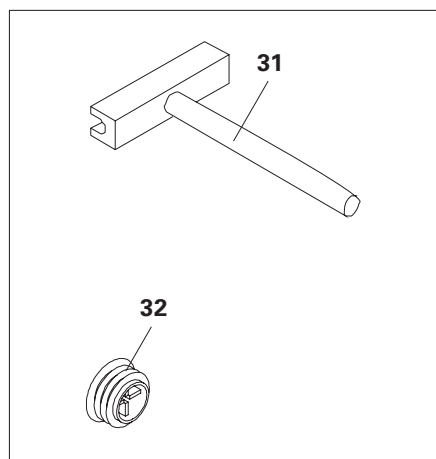


Fig. A5.02

Push-Pull Props and Kickers

Inbuilt Brace Connector Capacity:
10 kN

Push-pull-props and kickers are mounted in order to align the formwork as well as providing stability and resistance against wind loads.

The choice of the push-pull prop and kicker is determined by the height of the formwork.

Assembly

1. Fix Push-Pull Prop (33) and Kicker (33.1) to the in-built brace connector (10.7) of the panel by means of pins and cotter pins. (Fig. A6.01a) (Fig. A6.01b)
2. Fix other ends of the Push-Pull Prop and Kicker to the base plate.
3. Mount Base Plate (34), e.g. with PERI Anchor Bolts 14/20 x 130 (52). (Fig. A6.01c)

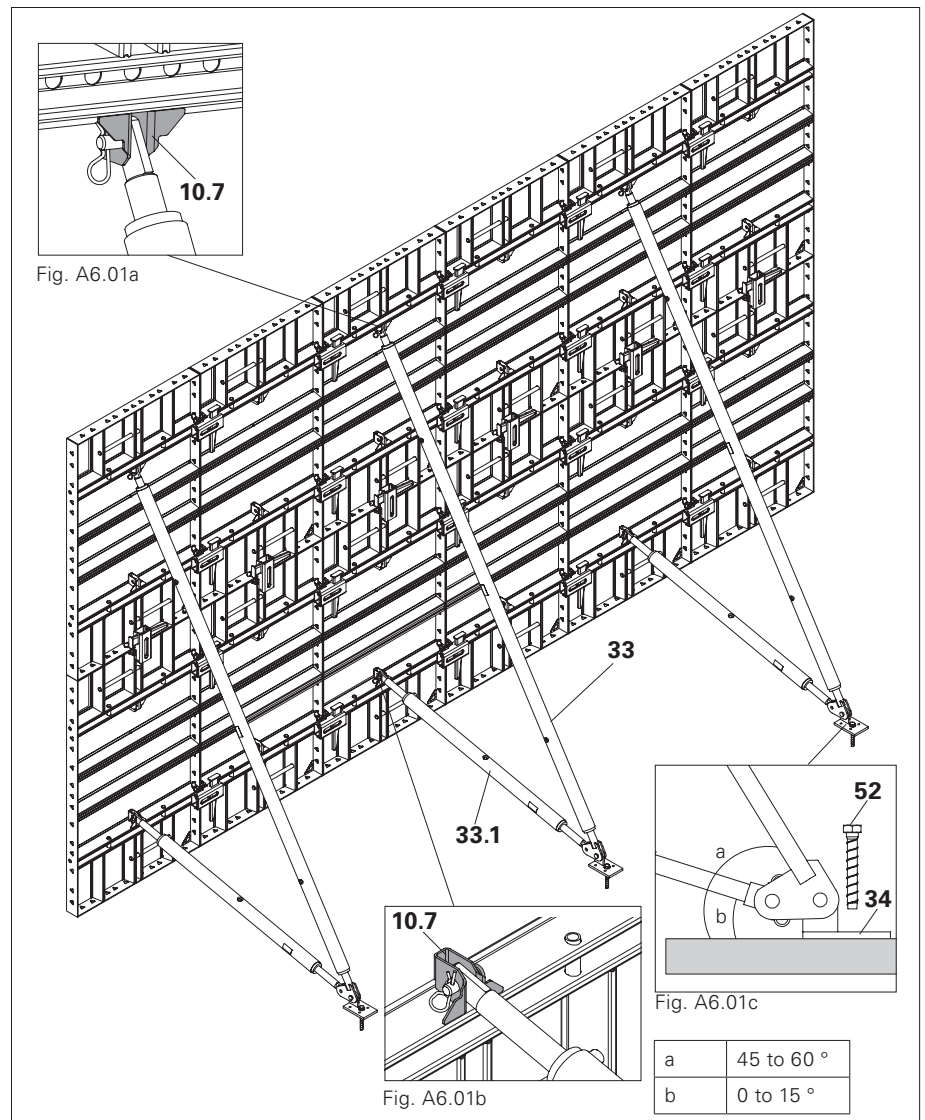


Fig. A6.01

a	45 to 60 °
b	0 to 15 °

Scaffold Bracket HSA 80

Permissible load: 150 kg/m²
Maximum width of influence 1.80 m



Warning

Risk of falling due to tilting of planking.
 This may result in serious injury.

- ⇒ Secure planking
- ⇒ Decking components and guardrails must be positioned and secured with nails so that any movement is prevented.

A concreting scaffold is erected on the formwork by means of the Scaffold Bracket HSA 80.

Required components:

35	Scaffold Bracket HSA 80	1x
36	Guardrail Post HSGP-2	1x
37	Timber 3.8 x 3.8 cm	1x

(Fig. A7.01)

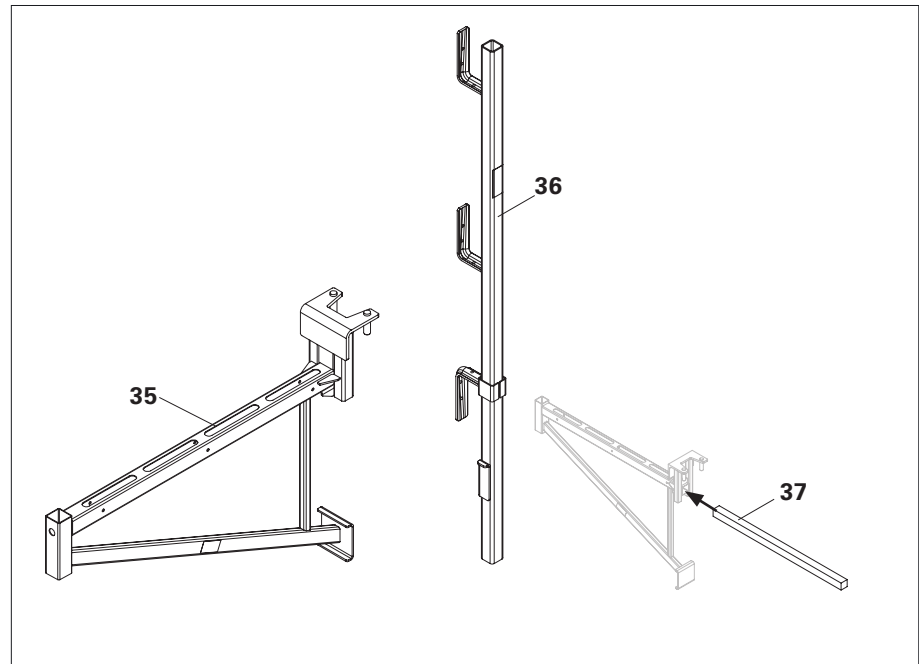


Fig. A7.01

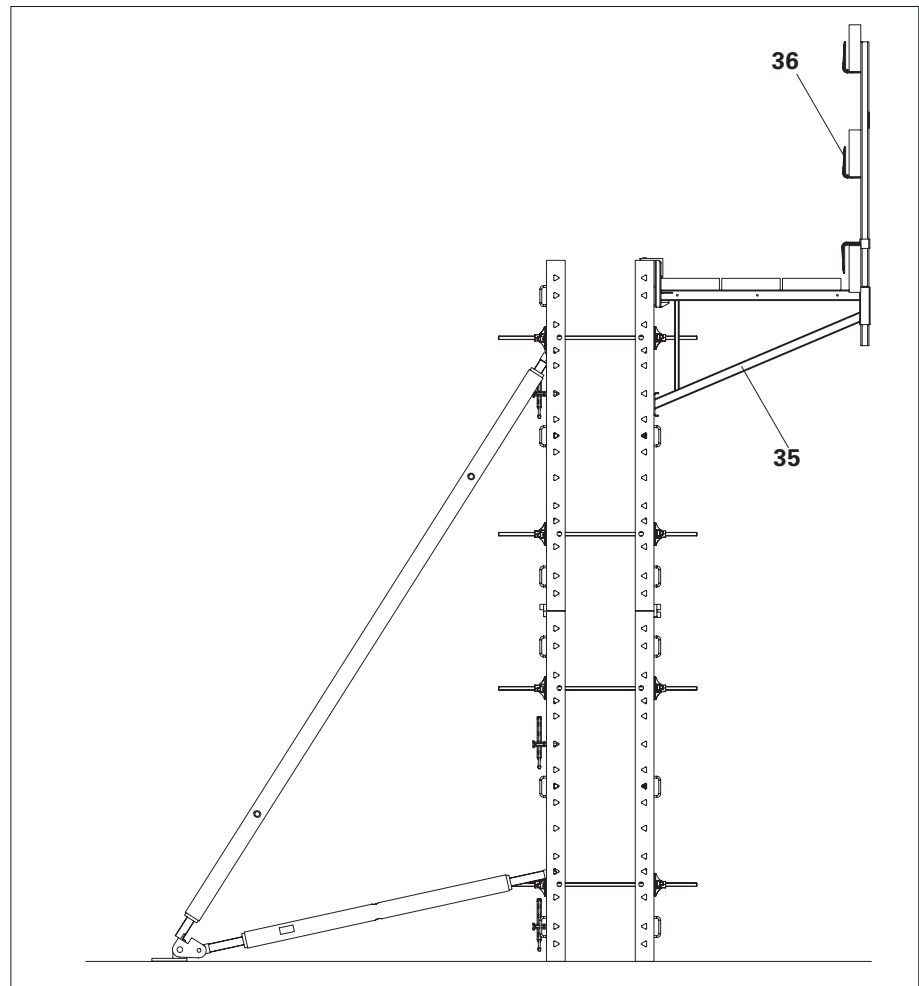


Fig. A7.02

Assembly

1. Insert the Timber (37) (size 3.8 x 3.8 cm) into the scaffold bracket tube (35.1). (Fig. A7.03)
Nail the timber from side to secure with scaffold bracket.
2. Insert the Guardrail Post HSGP-2 (36) into the holder pipe (35.3) of the scaffold bracket.
3. Insert the Scaffold Bracket (35) into the triangular slots at strut location. (Fig. A7.04)

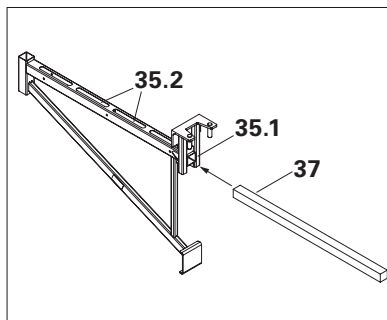


Fig. A7.03

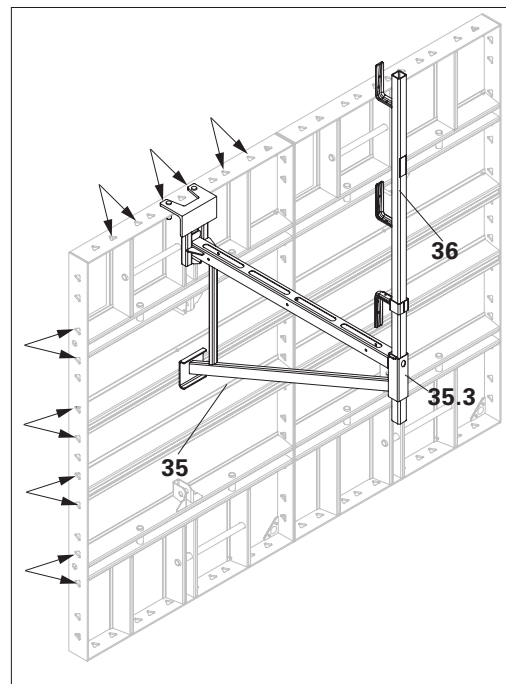


Fig. A7.04



The Scaffold Bracket (35) can be mounted on both the sides at the location as shown in arrow mark. Fig. A7.04

Assembly of decking and guardrail protection

1. Install planking from below over the complete width of the brackets.
→ There are slots (35.2) provided on the scaffold bracket to secure the planking with timber (37) using nails.
2. Install guardrails to the Guardrail post HSGP-2 and secure with nails.

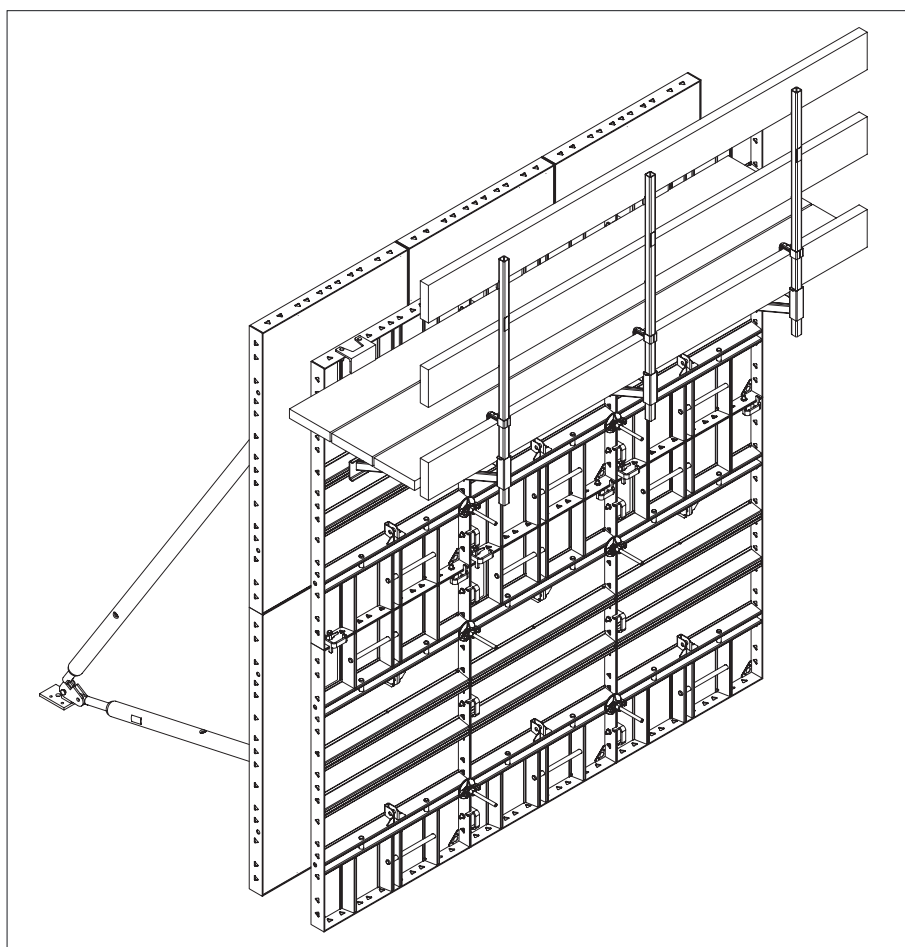


Fig. A7.05

B1 Corners

H = 150 + 150

90° corners

Wall thicknesses from 15 cm to 40 cm can be continuously formed.

For Compensation details, see B4.

Internal formwork

Shown height = 150 + 150 cm
(Fig. B1.02)

Required components:

13	Internal Corner HSA 150**	2x
20	Wedge Clip HSA	12x

External formwork

Shown height = 150 + 150 cm
(Fig. B1.03)

Required components:

11	Panel HSA 150 x 60	2x
12	Panel HSA 150 x 30	2x
38	HSA Corner Connector DW 15	4x
30	Wingnut Counterplate DW 15	4x
20	Wedge Clip HSA*	10x
20a	Wedge Clip HSA for next panel*	16x
24	Compensation Clamp HSA	8x
23	Compensation Waler HSA 95 (required where infill > 7.5 cm)	4x
44	Timber 10 x 8 cm (5 x 8 cm to be used for 15 cm thk wall)	1x

* Not taking into account horizontal connections.

** Make sure to use two nos. of Article no. 123844 and art. no. 130341 - M20 x 35 size bolt and nut (46) when lifting by Crane Hook HSA. (Fig. B1.02a)



For easy deshuttering:

- First remove (30, 38) then (11), and then remove (23).
- Next, take out the complete unit of (12), (44), (24) and (10) separately and place it on ground.
- Finally, dismantle the individual components.

Wall thickness 15 - 20 cm

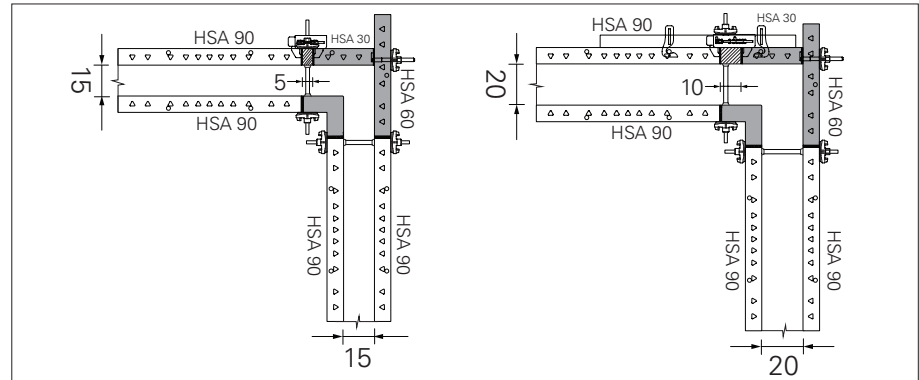


Fig. B1.01

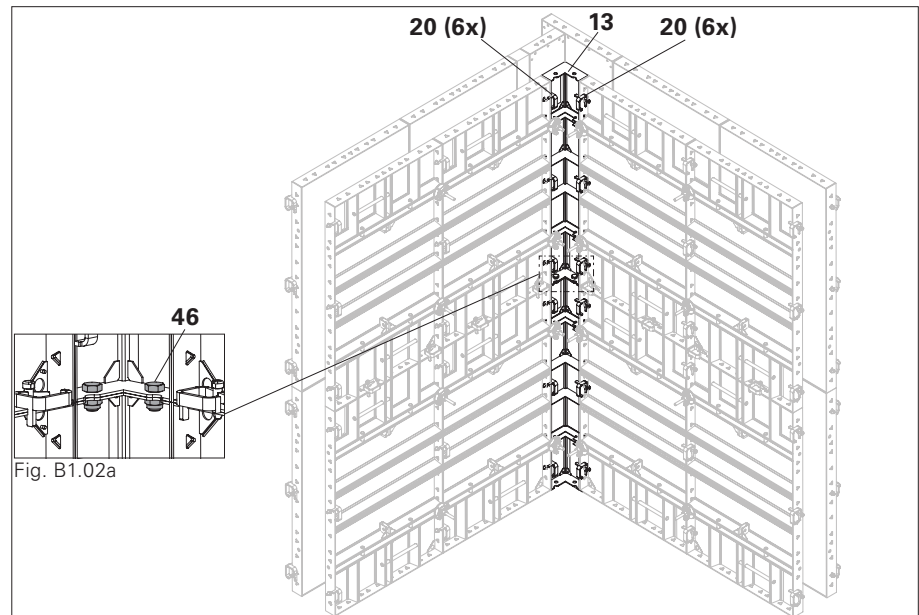


Fig. B1.02

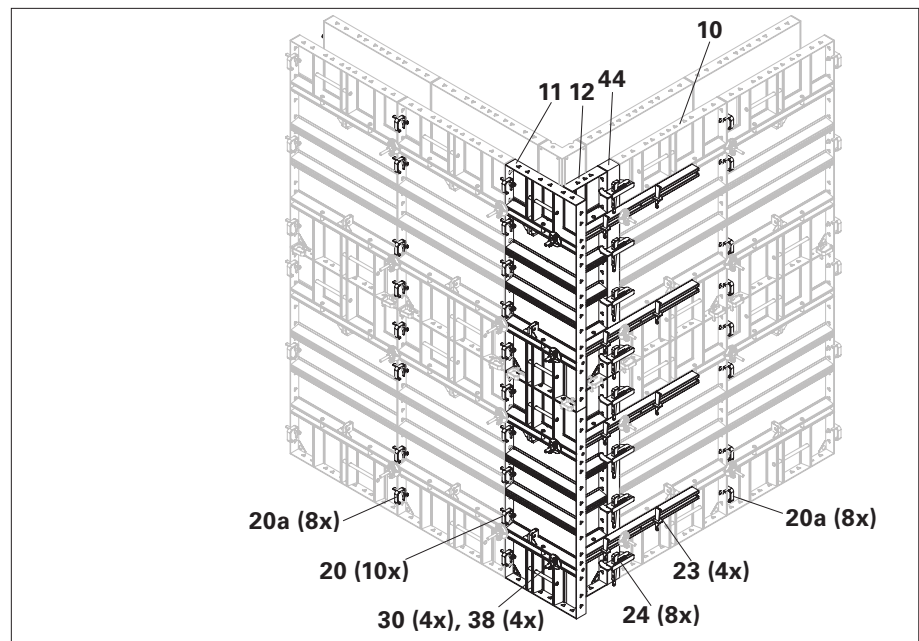


Fig. B1.03

B1 Corners

H = 150 + 150

Internal formwork

Shown height = 150 + 150 cm
(Fig. B1.05)

Required components:

13	Internal Corner HSA 150**	2x
20	Wedge Clip HSA*	6x
24	Compensation Clamp HSA	8x
23	Compensation Waler HSA 95 (required where infill > 7.5 cm)	4x
43	Timber 5 x 8 cm	1x
44	Timber 10 x 8 cm	1x

Wall thickness 25 cm

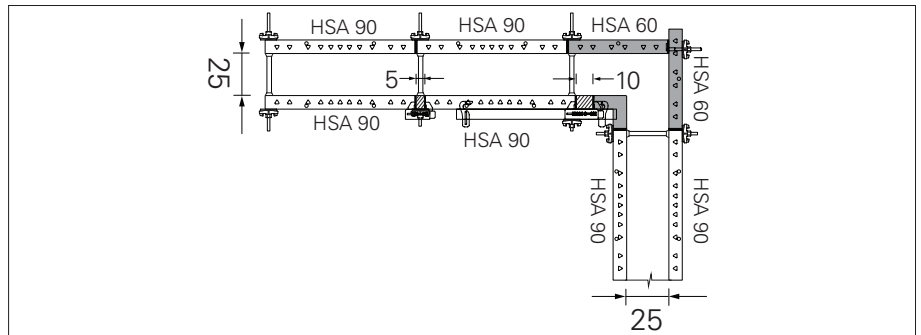


Fig. B1.04

External formwork

Shown height = 150 + 150 cm
(Fig. B1.06)

Required components:

11	Panel HSA 150 x 60	4x
38	HSA Corner Connector DW 15	4x
30	Wingnut Counterplate DW 15	4x
20	Wedge Clip HSA*	20x
20a	Wedge Clip HSA for next panel*	16x

* Not taking into account horizontal connections.

** Make sure to use two nos. of Article no. 123844 and art. no. 130341 - M20 x 35 size bolt and nut when lifting by Crane Hook HSA.

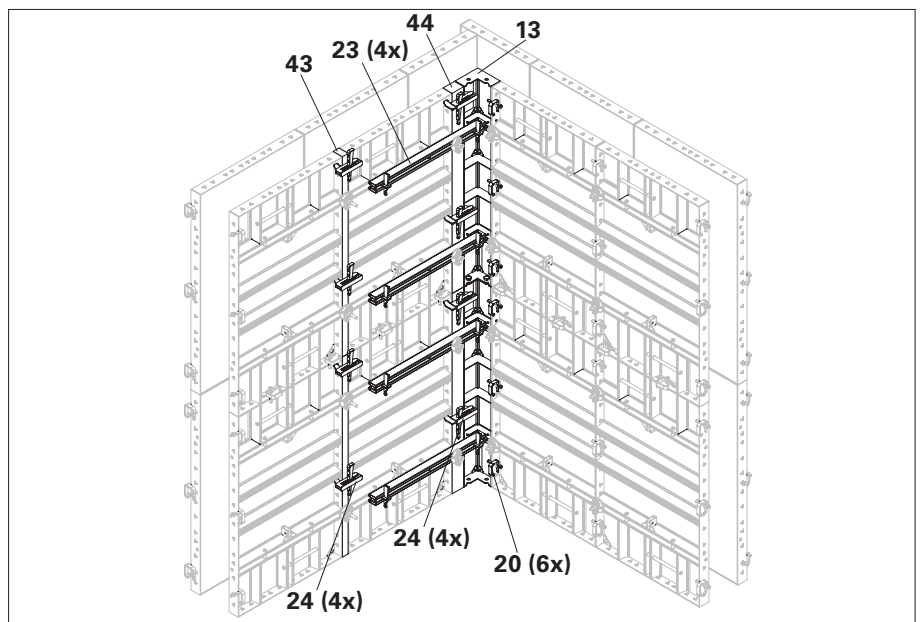


Fig. B1.05

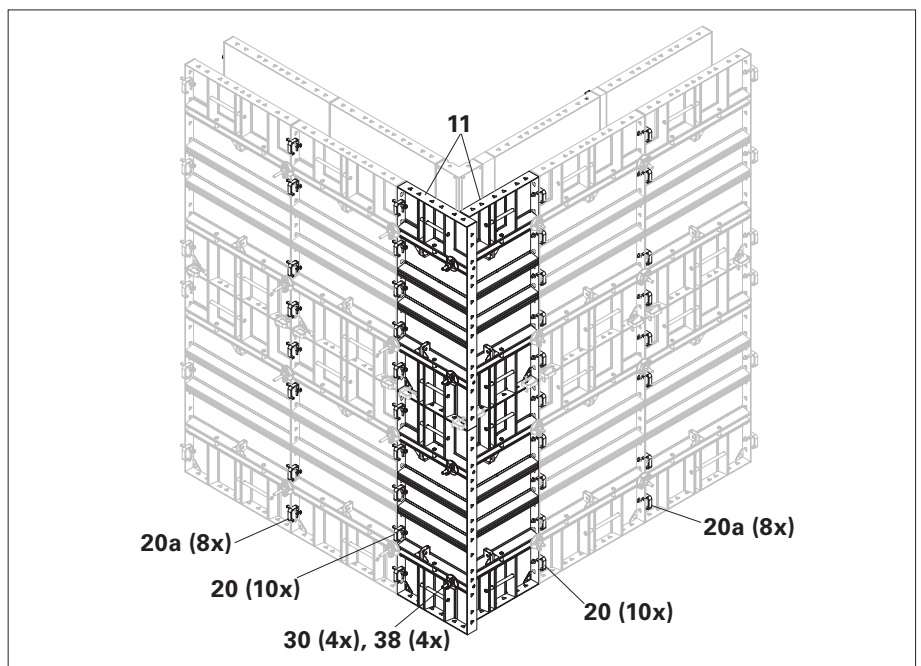


Fig. B1.06

B1 Corners

H = 150 + 150

Internal formwork

Shown height = 150 + 150 cm
(Fig. B1.08)

Required components:

13	Internal Corner HSA 150**	2x
20	Wedge Clip HSA*	6x
24	Compensation Clamp HSA	4x
23	Compensation Waler HSA 95 (required where infill > 7.5 cm)	4x
44	Timber 10 x 8 cm (5 x 8 cm to be used for 35 cm thk wall)	1x

External formwork

Shown height = 150 + 150 cm
(Fig. B1.09)

Required components:

11	Panel HSA 150 x 60	4x
	(Panel HSA 150 x 90 to be used for 35 cm thk wall on one side)	
38	HSA Corner Connector DW 15	4x
30	Wingnut Counterplate DW 15	4x
20	Wedge Clip HSA*	20x
20a	Wedge Clip HSA for next panel*	16x

* Not taking into account horizontal connections.

** Make sure to use two nos. of art. no. 123844 and art. no. 130341 - M20 x 35 size bolt and nut when lifting by Crane Hook HSA.

Wall thickness 30 - 35 cm

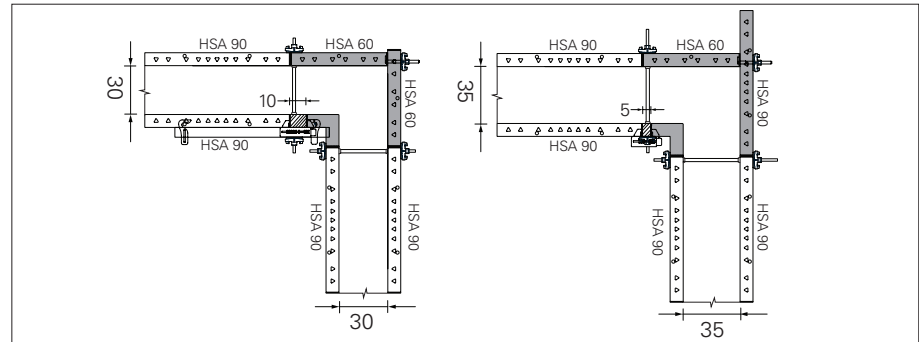


Fig. B1.07

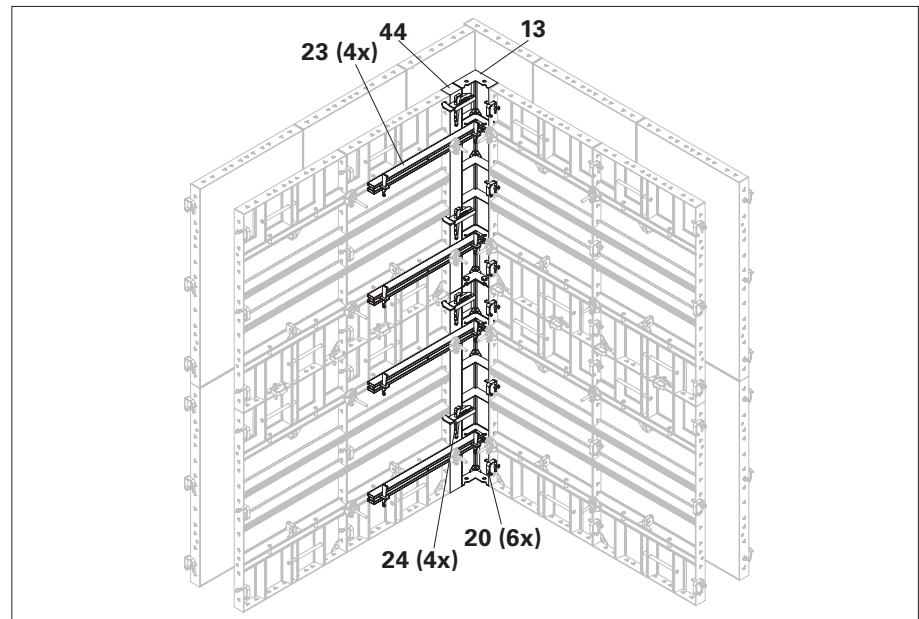


Fig. B1.08

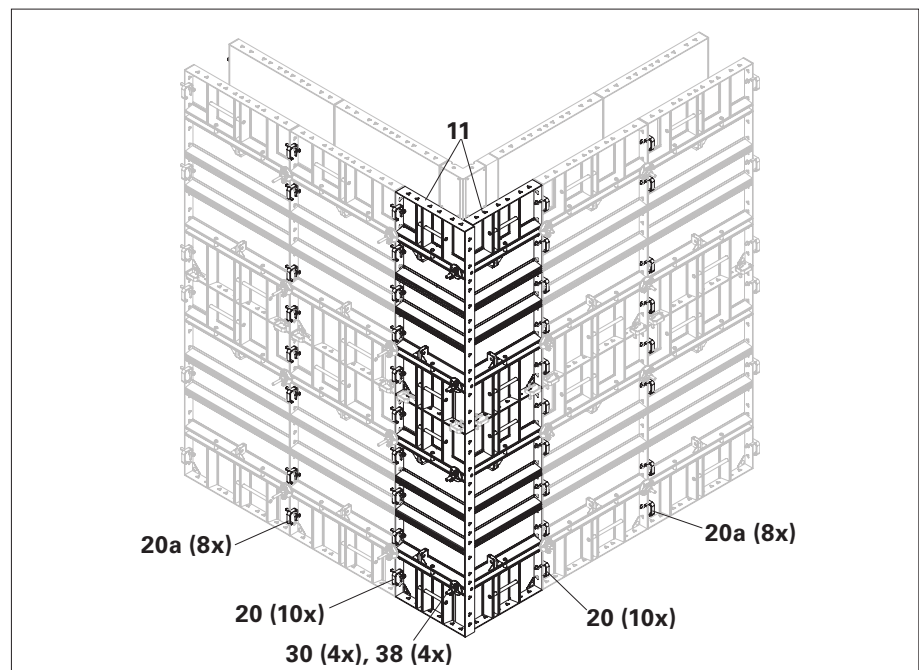


Fig. B1.09

B1 Corners

H = 150 + 150

Internal formwork

For Internal Formwork, refer Fig. B1.02

External formwork

(Option 1)

Using HSA Corner Connector DW 15

Shown height = 150 + 150 cm
(Fig. B1.11)

Required components:

10	Panel HSA 150 x 90	2x
11	Panel HSA 150 x 60	2x
38	HSA Corner Connector DW 15	4x
30	Wingnut Counterplate DW 15	4x
20	Wedge Clip HSA*	20x
20a	Wedge Clip HSA for next panel*	16x

External formwork

(Option 2)

Using External Corner HSA 150

Shown height = 150 + 150 cm
(Fig. B1.12)

Required components:

11	Panel HSA 150 x 60	4x
14	External Corner HSA 150	2x
20	Wedge Clip HSA*	40x
20a	Wedge Clip HSA for next panel*	16x

* Not taking into account horizontal connections.

Wall thickness 40 cm

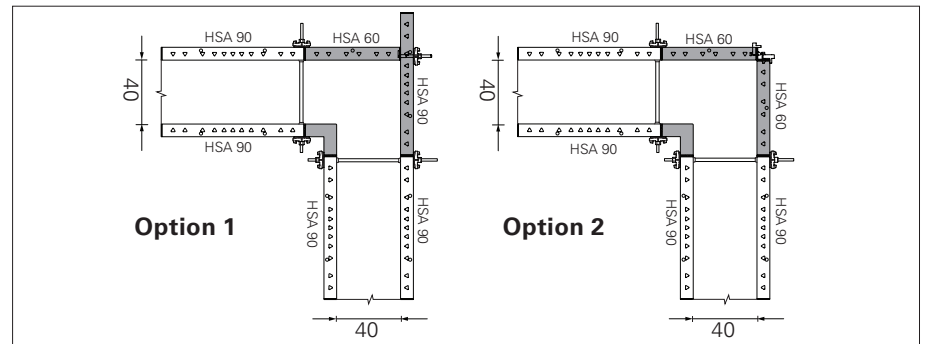


Fig. B1.10

Option 1

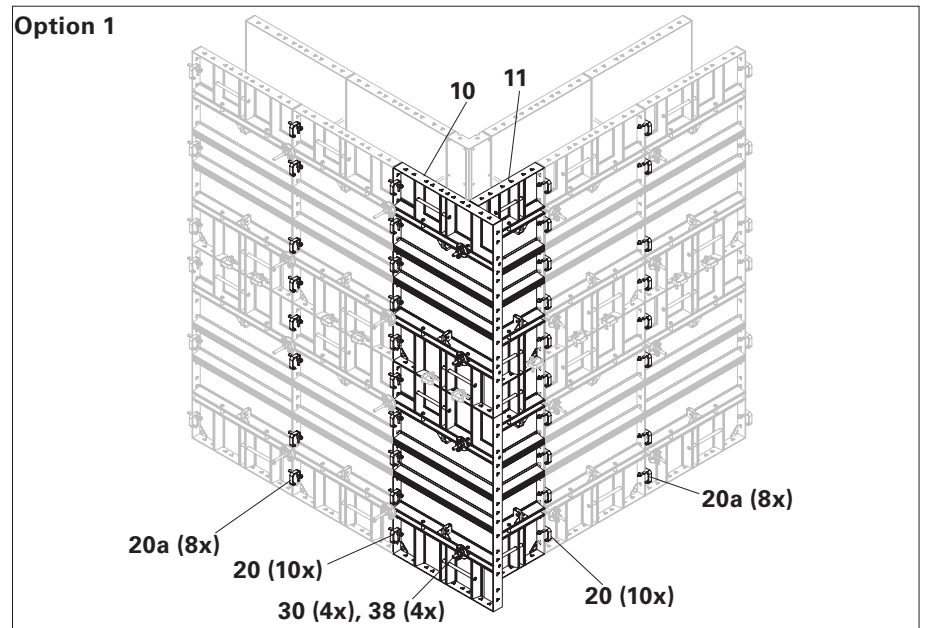


Fig. B1.11

Option 2

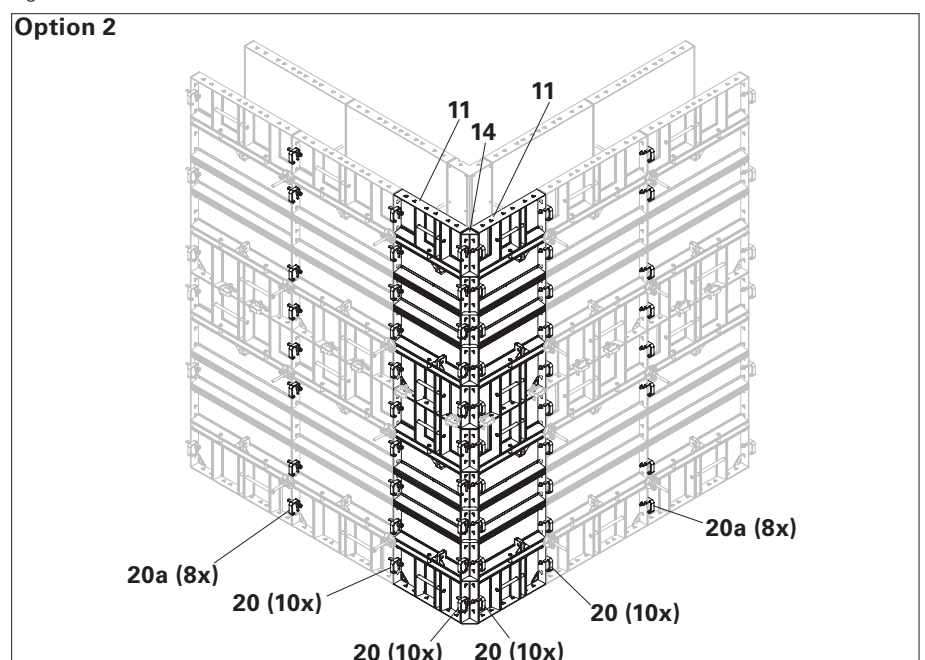


Fig. B1.12

B2 T-junctions, wall connections

H = 150 + 150

T-junctions

Wall thicknesses from 15 cm to 40 cm can be continuously formed. For Compensation, see B4.
(Fig. B2.01)

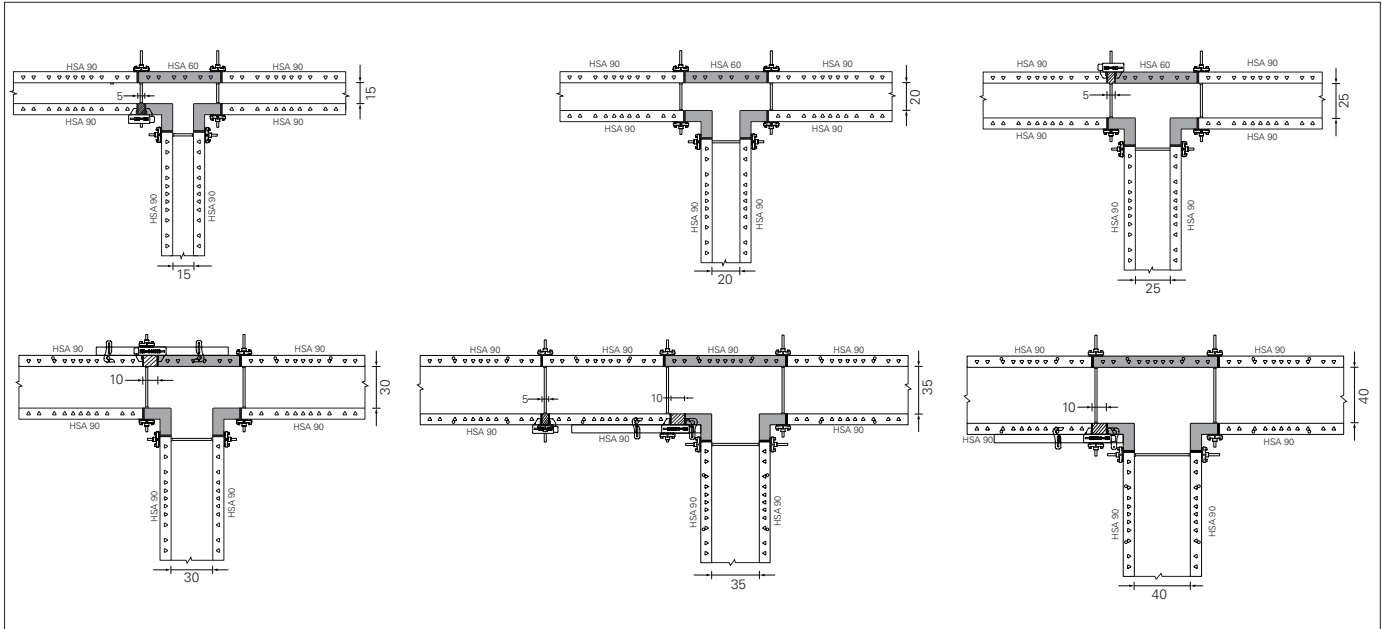


Fig. B2.01

Internal formwork

Shown height = 150 + 150 cm
(Fig. B2.02)

Required components:

13 Internal Corner HSA 150**	2x
20 Wedge Clip HSA	12x

Number per formwork side.

External formwork

Shown height = 150 + 150 cm
(Fig. B2.03)

Required components:

11 Panel HSA 150 x 60	2x
20 Wedge Clip HSA*	12x

Wall thickness 20 cm

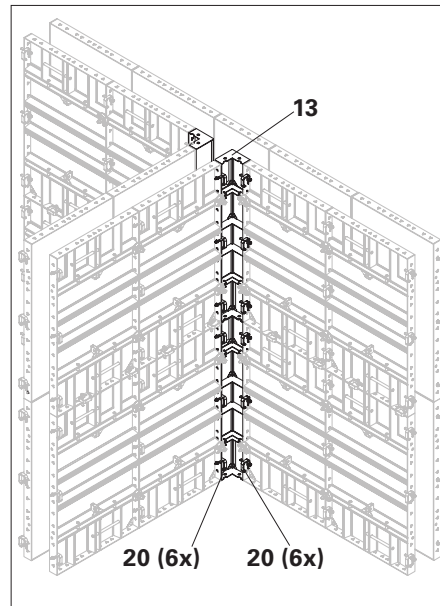


Fig. B2.02

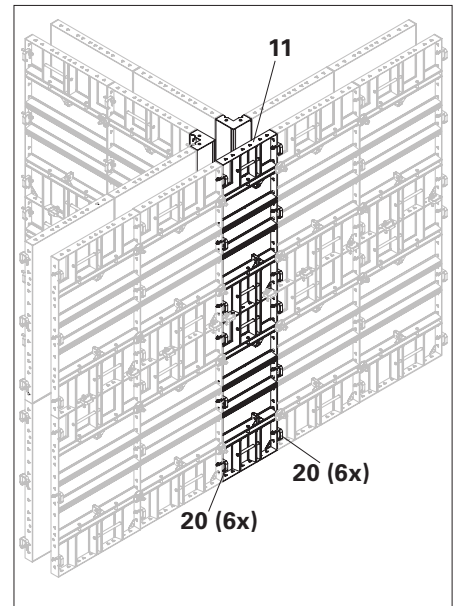


Fig. B2.03

* Not taking into account horizontal connections.

** Make sure to use two nos. of art. no. 123844 and art. no. 130341 - M20 x 35 size bolt and nut when lifting by Crane Hook HSA.

B2 T-junctions, wall connections

H = 150 + 150

Internal formwork

Shown height = 150 + 150 cm
(Fig. B2.04)

Required components:

13 Internal Corner HSA 150**	2x
20 Wedge Clip HSA	12x

Number per formwork side.

External formwork

With Panel HSA 150 x 60

Shown height = 150 + 150 cm
(Fig. B2.05)

Required components:

11 Panel HSA 150 x 60	2x
20 Wedge Clip HSA*	6x
23 Compensation Waler HSA 95	4x
24 Compensation Clamp HSA	4x
44 Timber 10 x 8 cm	1x

* Not taking into account horizontal connections.

** Make sure to use art. no. 123844 and art. no. 130341 - M20 x 35 size bolt and nut when lifting by Crane Hook HSA.

Wall thickness 30 cm

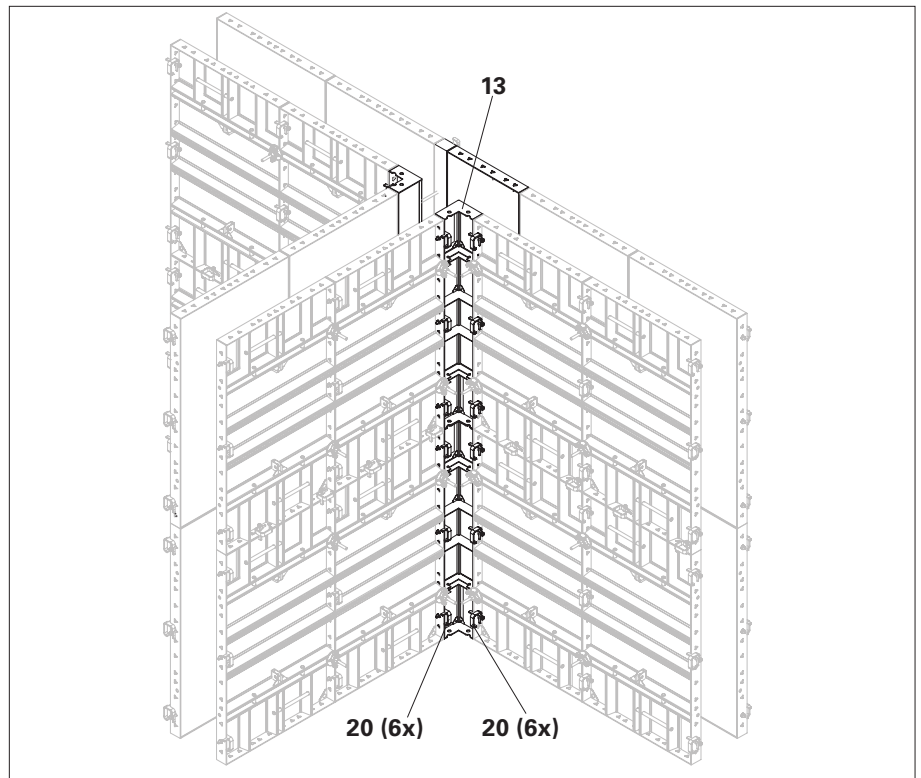


Fig. B2.04

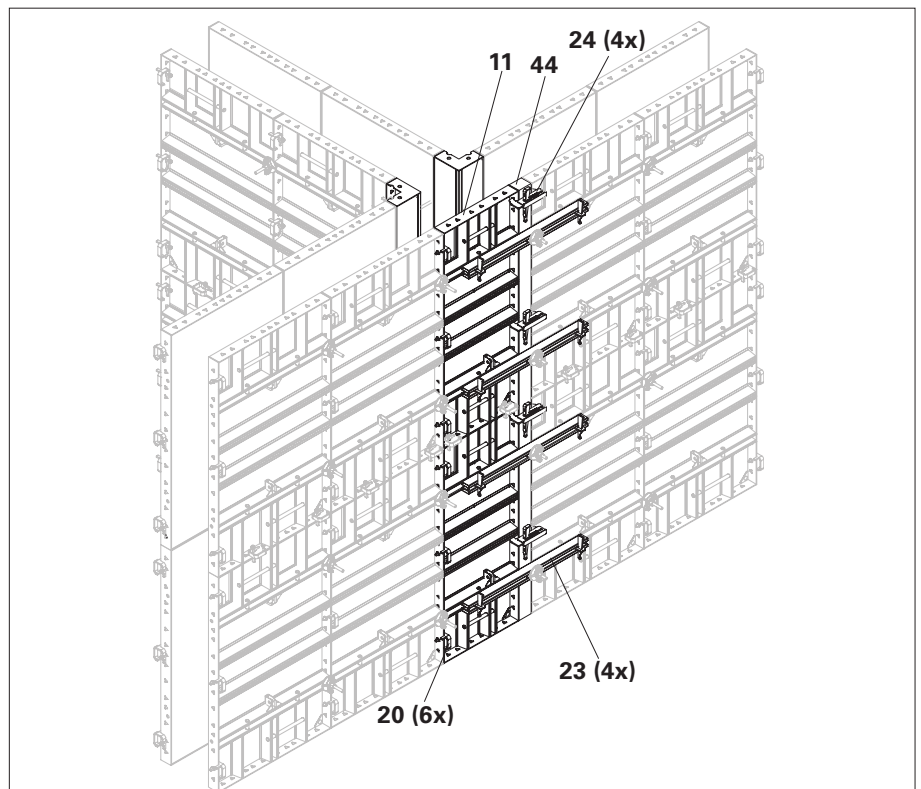


Fig. B2.05

B2 T-junctions, wall connections

H = 150 + 150

Interface with existing wall connection

Connection with Panel HSA 150 x 90
Shown height = 150 + 150 cm
(Fig. B2.06)



Offset hole need to be drilled at site on the panel with a distance of 125 mm from the end.

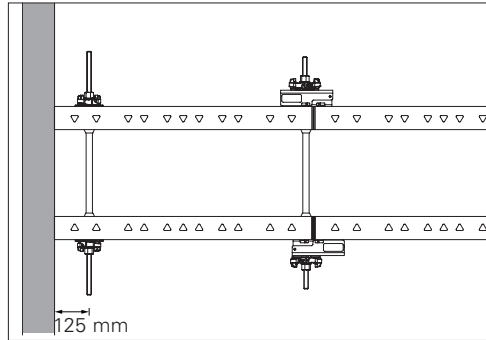


Fig. B2.06a

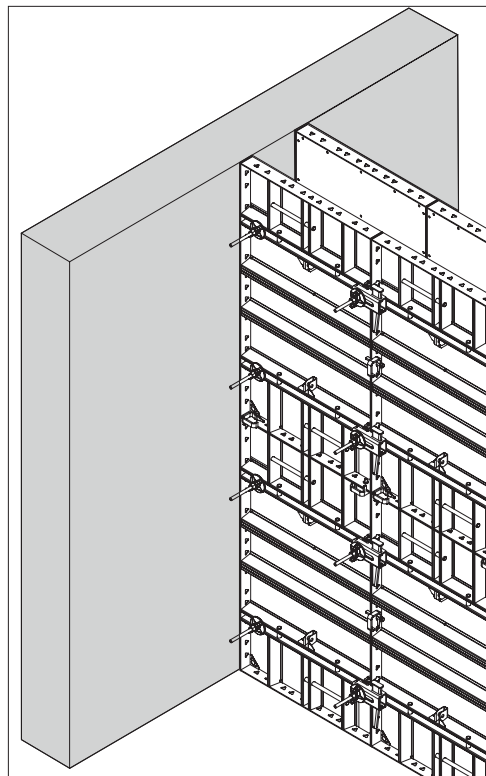


Fig. B2.06

B3 Wall offsets

H = 150 + 150

Wall offset 20 cm

Shown height = 150 + 150 cm
(Fig. B3.02)

Required components:

11	Panel HSA 150 x 60	2x
20	Wedge Clip HSA*	16x
20a	Wedge Clip HSA for next panel*	8x
13	Internal Corner HSA 150**	2x
30	Wingnut Counterplate DW 15	4x
38	HSA Corner Connector DW 15	4x

Number per formwork side

* Not taking into account horizontal connections.

** Make sure to use two nos. of art. no. 123844 and art. no. 130341 - M20 x 35 size bolt and nut when lifting by Crane Hook HSA.



For wall offsets > 20 cm, push-pull props are to be used.

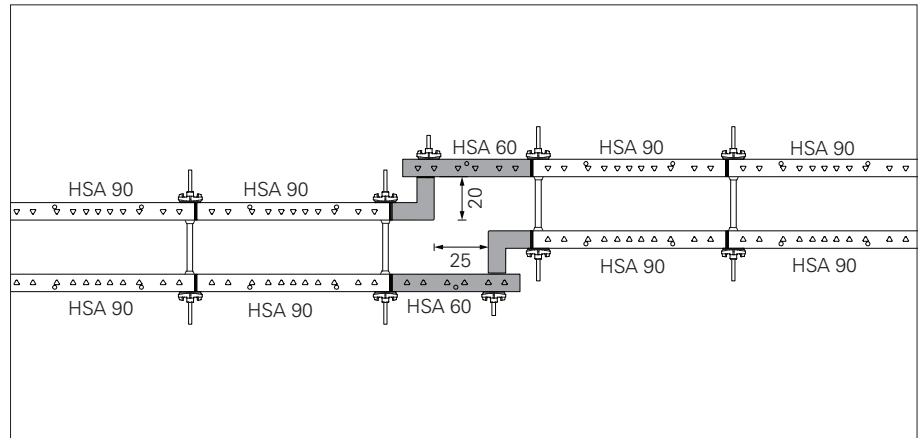


Fig. B3.01

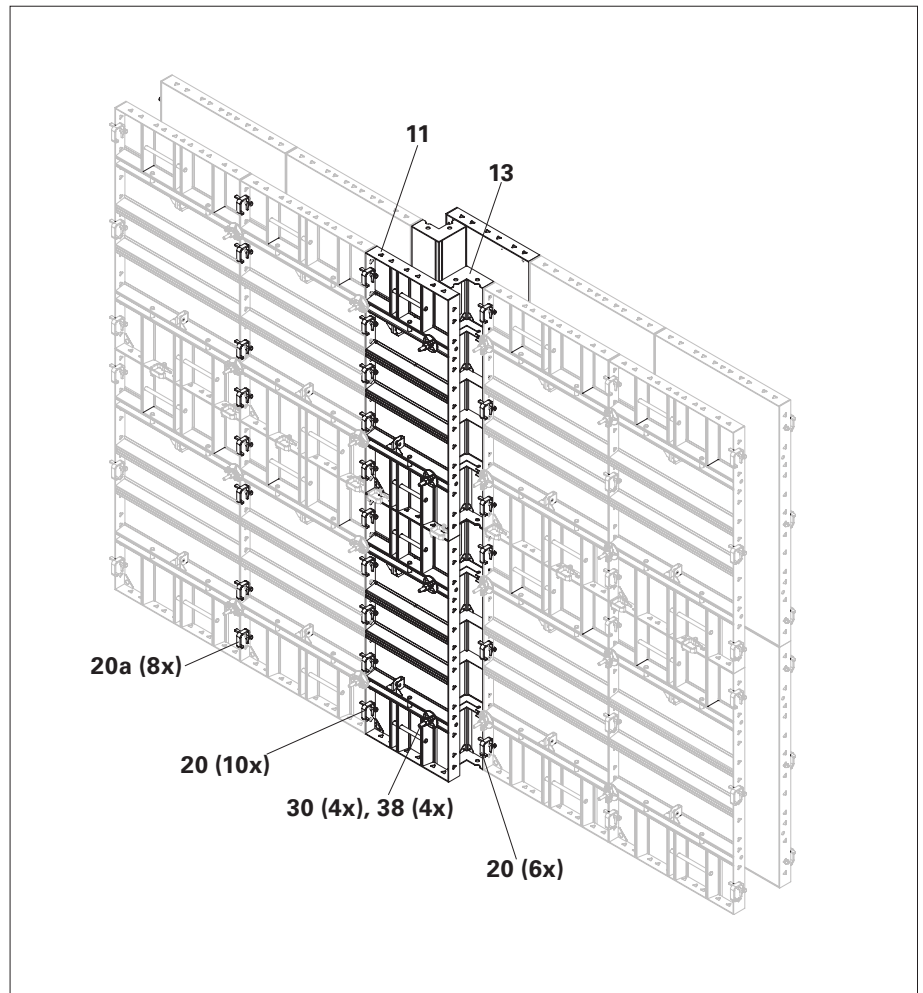


Fig. B3.02

B3 Wall offsets

H = 150 + 150

Wall offset 60 cm

Shown height = 150 + 150 cm
(Fig. B3.04)

Required components:

11	Panel HSA 150 x 60	4x
20	Wedge Clip HSA*	16x
20a	Wedge Clip HSA for next panel*	8x
13	Internal Corner HSA 150**	2x
23	Compensation Waler HSA 95	4x
24	Compensation Clamp HSA	8x
30	Wingnut Counterplate DW 15	4x
38	HSA Corner Connector DW 15	4x
43	Timber 5 x 8 cm	1x
44	Timber 10 x 8 cm	1x

Number per formwork side

* Not taking into account horizontal connections.

** Make sure to use two nos. of art. no. 123844 and art. no. 130341 - M20 x 35 size bolt and nut when lifting by Crane Hook HSA.



For wall offsets > 20 cm, push-pull props are to be used.

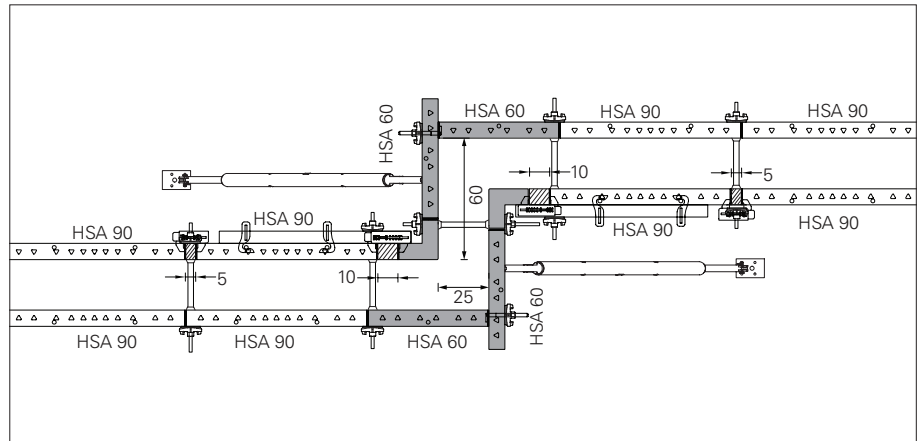


Fig. B3.03

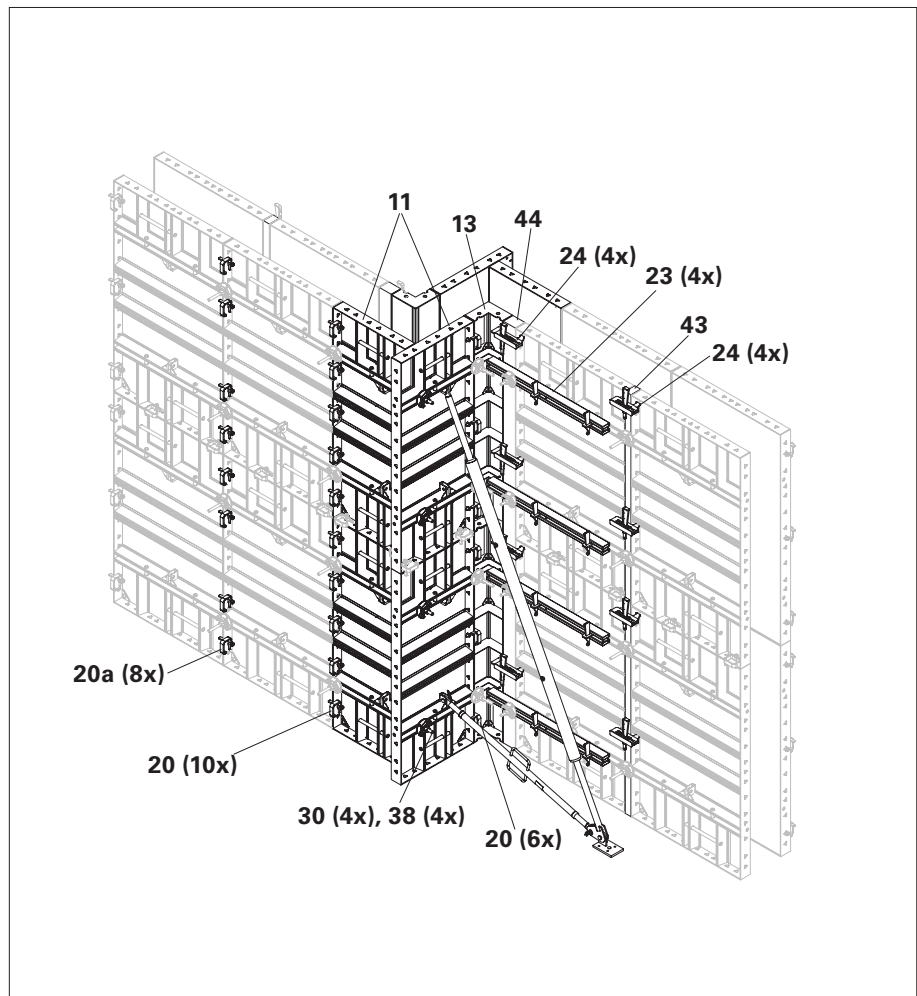


Fig. B3.04

B3 Wall offsets

H = 150 + 150

Wall offset 40 cm

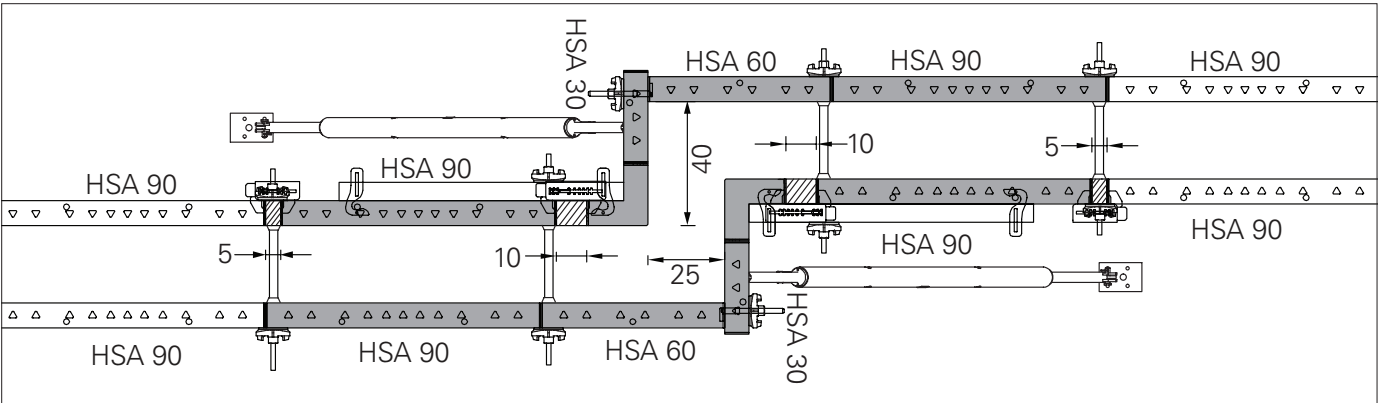


Fig. B3.05

Wall offset 50 cm

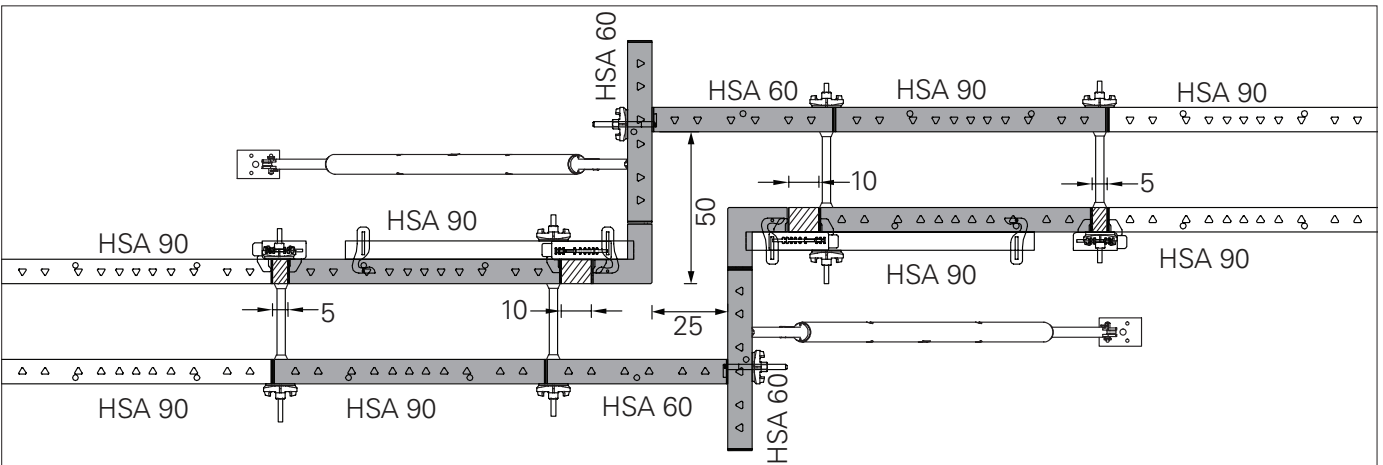


Fig. B3.06

Wall offset 85 cm

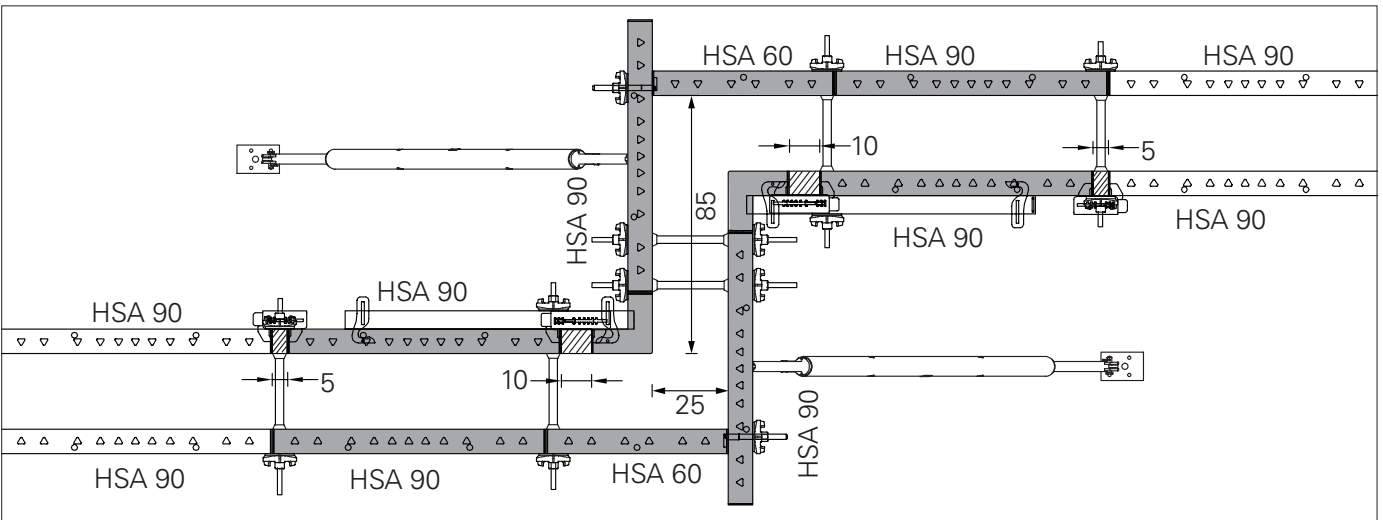


Fig. B3.07

B4 Length compensation

H = 150 + 150

Length compensations up to 10 cm

With Compensation Clamp HSA (24) and cut-to-size timber (48).

- Connection using Compensation Clamp HSA (24)
- Tie system DW 15 in the compensation.

For H = 150 + 150 cm (Fig. B4.01), only four compensation clamps are required.

Required components:

48	Timber (cut-to-size)	1x
24	Compensation Clamp HSA	4x
22	Tie system DW 15	4x

Number per formwork side.

For Compensations between 7.5 cm and <10 cm, use Wingnut Pivot Plate DW 15 (49) art. no.: 030370 (Fig. B4.01b) or alternatively Compensation Waler HSA 95 can be used.

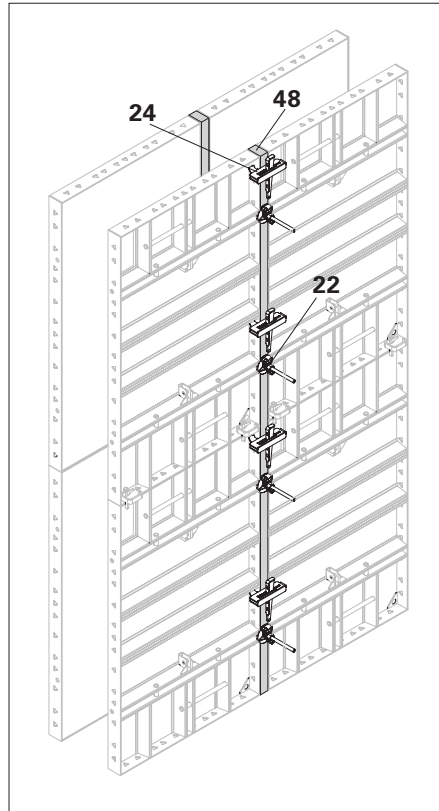


Fig. B4.01

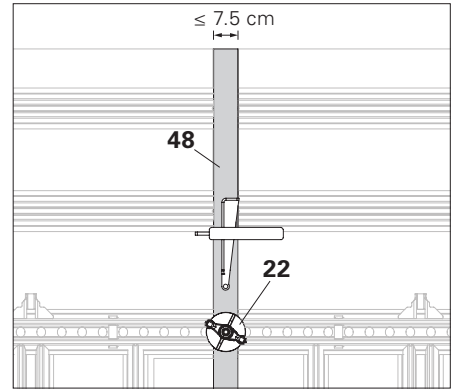


Fig. B4.01a

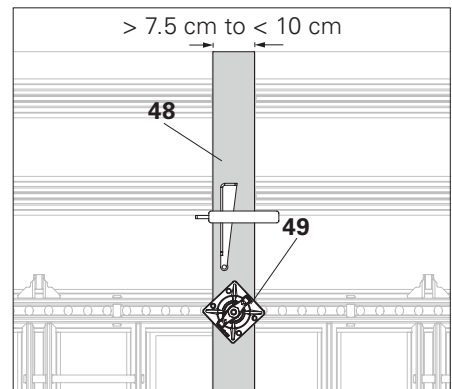


Fig. B4.01b

Length compensation between 10 cm and 30 cm

Using compensation waler, compensation clamp and cut-to-size timber

Shown height = 150 + 150 cm (Fig. B4.02)

Required components:

41	Plywood (18 mm thickness)*	1x
42	Timber 5 x 6 cm	2x
22	Tie system DW 15	8x
23	Compensation Waler HSA	4x
24	Compensation Clamp HSA	8x

Number per formwork side.

* cut-to-infill size.

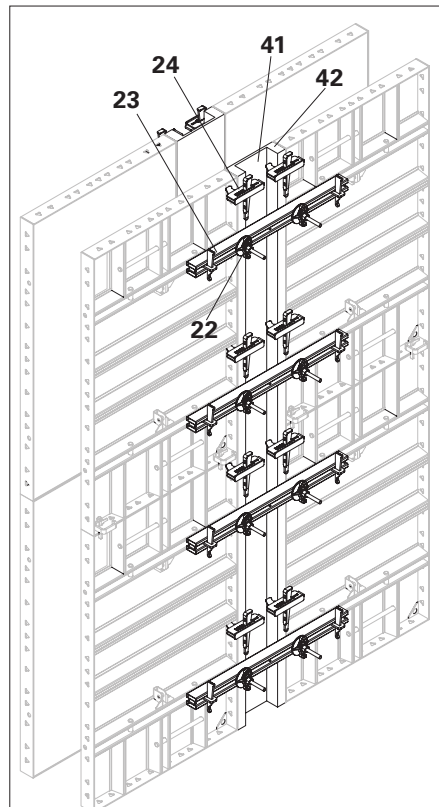


Fig. B4.02

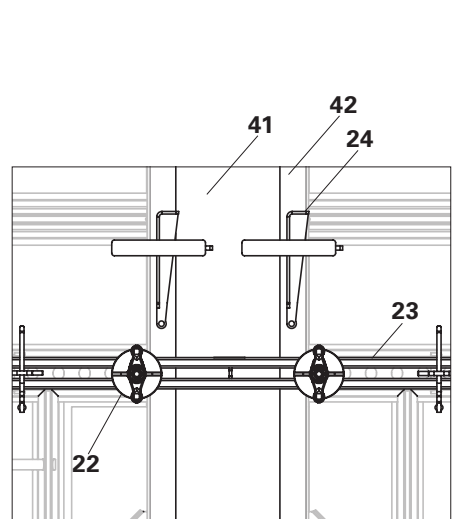


Fig. B4.02a

B4 Length compensation

H = 150 + 150

Length compensation between 10 cm to 30 cm

Using Filler Support 18 HFS 150 and Compensation Waler HSA

Shown height = 150 + 150 cm
(Fig. B4.03)

Required components:

19	Filler support 18 HFS 150	4x
41	Plywood (18 mm thickness)*	1x
40	Timber 5 x 5 cm	8x
20	Wedge Clip HSA	12x
23	Compensation Waler HSA	4x
22	Tie system DW 15	8x

Number per formwork side.

* cut-to-infill size (L = infill size - 10 mm)

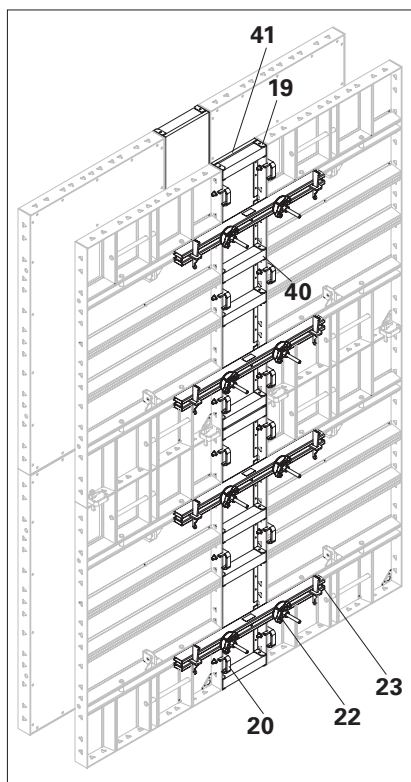


Fig. B4.03

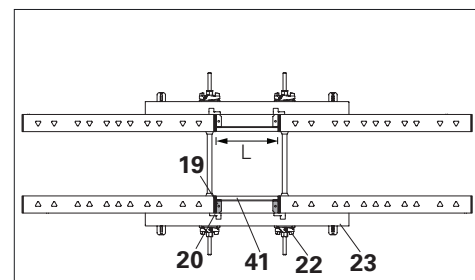


Fig. B4.03a

Preassembly of Filler Support 18 HFS

1. Cut the Plywood (18 mm thickness) as per required size.
2. Fix the Plywood to Filler Support 18 HFS 150 (19) by using torx screw (5 X 15 mm) (19.1). (Fig. B4.04a)
3. Cut the timber to the required size and fix it at the slots provided in Filler Support 18 HFS 150 by using torx screw 6 x 60 mm (19.2) art. no.: 024470 or double headed nail. (Fig. B4.04b)

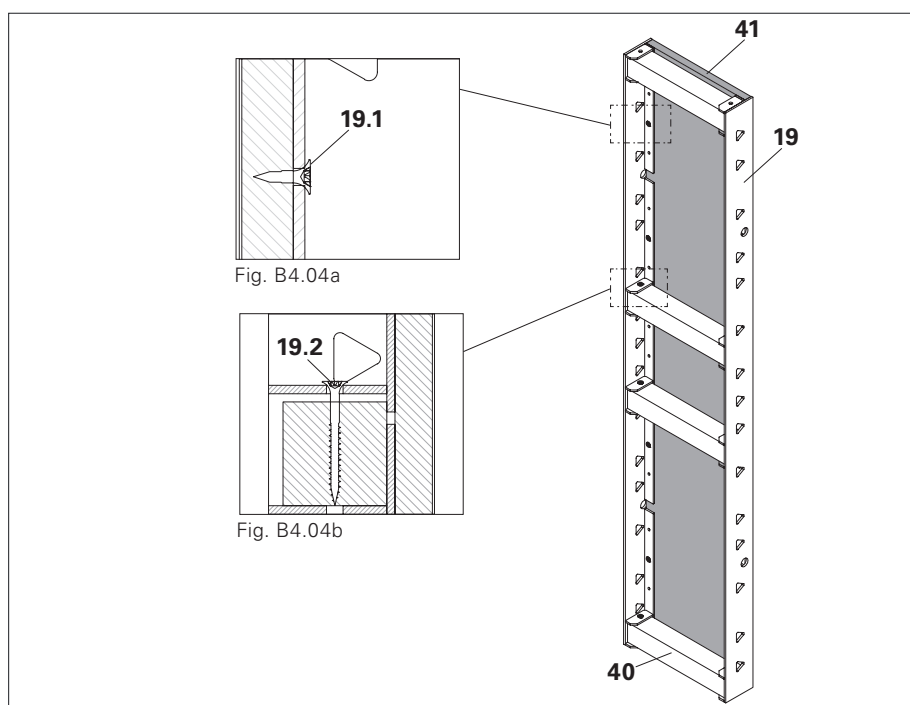


Fig. B4.04

B5 Stopend formwork

H = 150 + 150

With timber and plywood filler

The HSA Stopend Waler is available in two sizes:

- HSA Stopend Waler 65
- HSA Stopend Waler 95

Permissible bending moment of HSA Stopend Waler 65/95: 1.38 kNm.

Shown height = 150 + 150 cm (Fig. B5.01)

Required components:

10	Panel HSA 150 x 90	4x
45	HSA Stopend Waler 65/95	4x
38	HSA Corner Connector DW 15	8x
30	Wingnut Counterplate DW 15	*8x

* Number shown only for HSA Corner Connector DW 15



- 4 x HSA Stopend Waler 65/95 up to wall thickness 30 cm.
- The design of timber and plywood type (E-modulus and direction of grain) depends on concrete pressure at stopend. This needs to be checked by contractor.

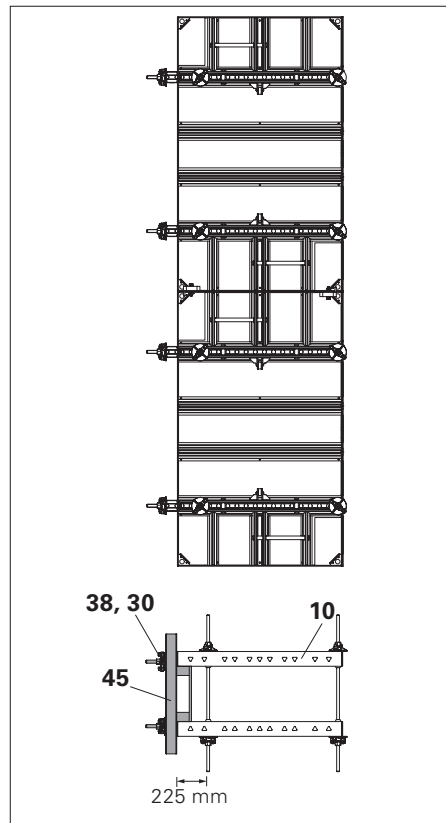


Fig. B5.01a

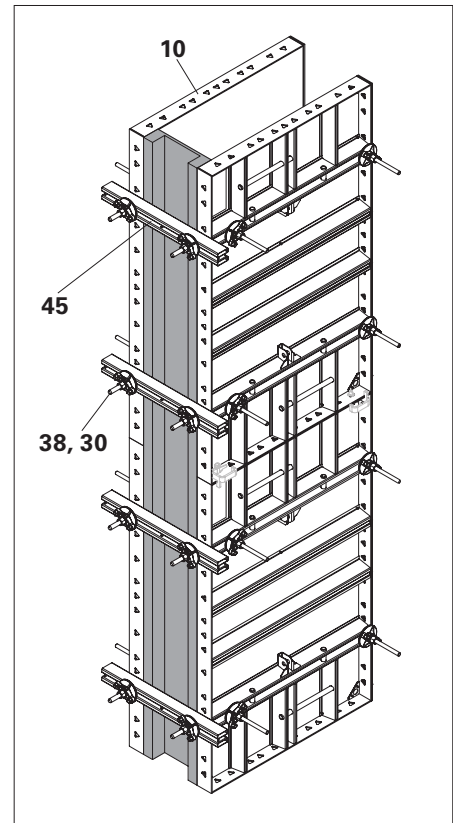


Fig. B5.01

B5 Stopend formwork

H = 150 + 150

With Panel HSA 150 x 90

Shown height = 150 + 150 cm
(Fig. B5.02)

Required components:

10	Panel HSA 150 x 90	6x
38	HSA Corner Connector DW 15	8x
30	Wingnut Counterplate DW 15	*8x

* Number shown only for HSA Corner Connector DW 15

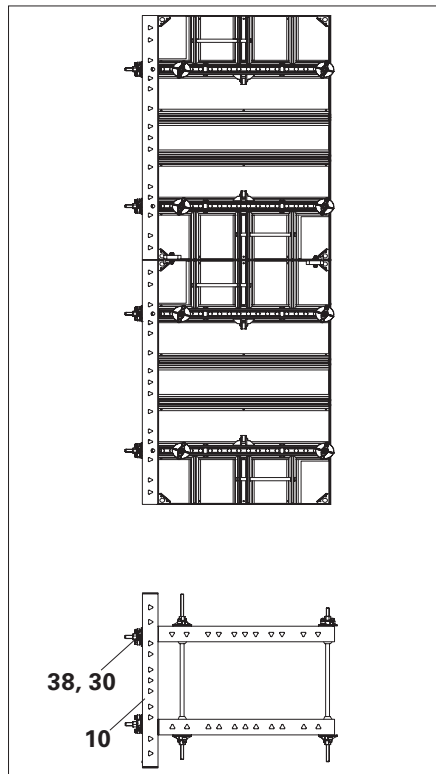


Fig. B5.02a

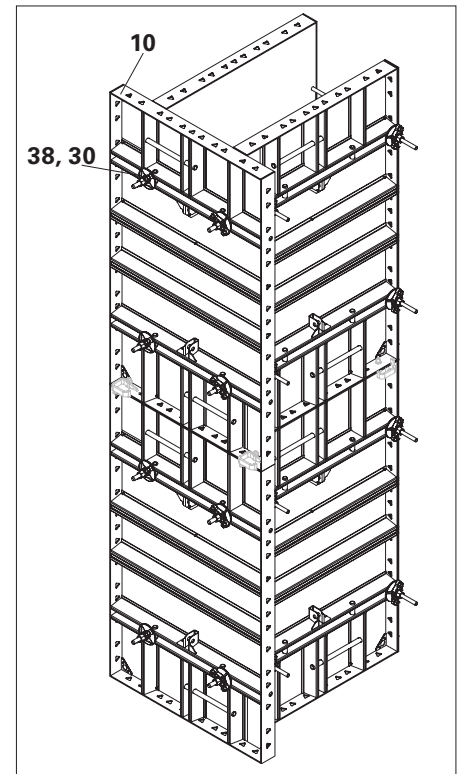


Fig. B5.02

Extension guidelines for horizontal pre-assembly

Shown Height = 390 cm (Fig. B6.01)

! Information

Take into consideration the permissible load-carrying capacity of 500 kg for the Crane Hook HSA (50) as well as the crane capacity! Refer to Crane Hook HSA - Original Instructions for Use.

Panel connections

Connect panels by means of Wedge Clip HSA (20) and Compensation Waler HSA 95 (23). (Fig. B6.01)

Assembly

- The assembly surface must be level.
- Place timbers or planks in position as support.
- Pre-assemble extension units in a horizontal position, with the formlining facing downwards.
- The maximum angle possible while fixing the Compensation Waler HSA 95 (23) between the vertical and horizontal panel is 12°.

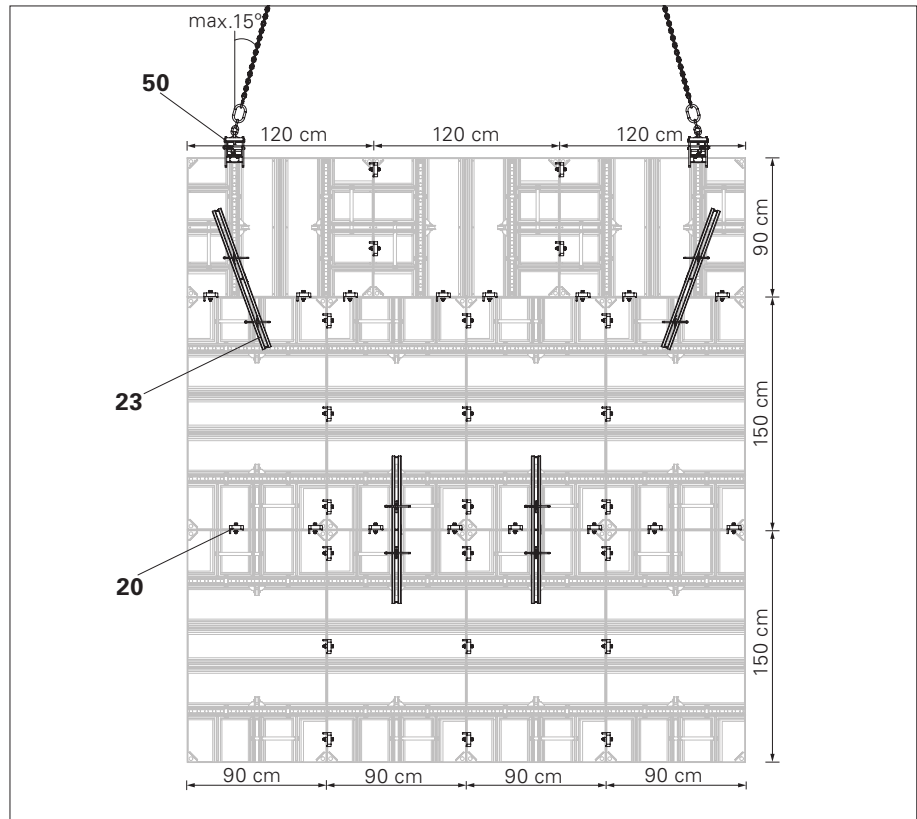


Fig. B6.01

Extension guidelines where pre-assembly is not required

Shown Height = 390 cm (Fig. B6.02)

When pre-assembly is not required for height extension, then a zigzag pattern can be followed as shown in Fig. B6.02 for vertical alignment using Compensation Waler HSA 95 (23).

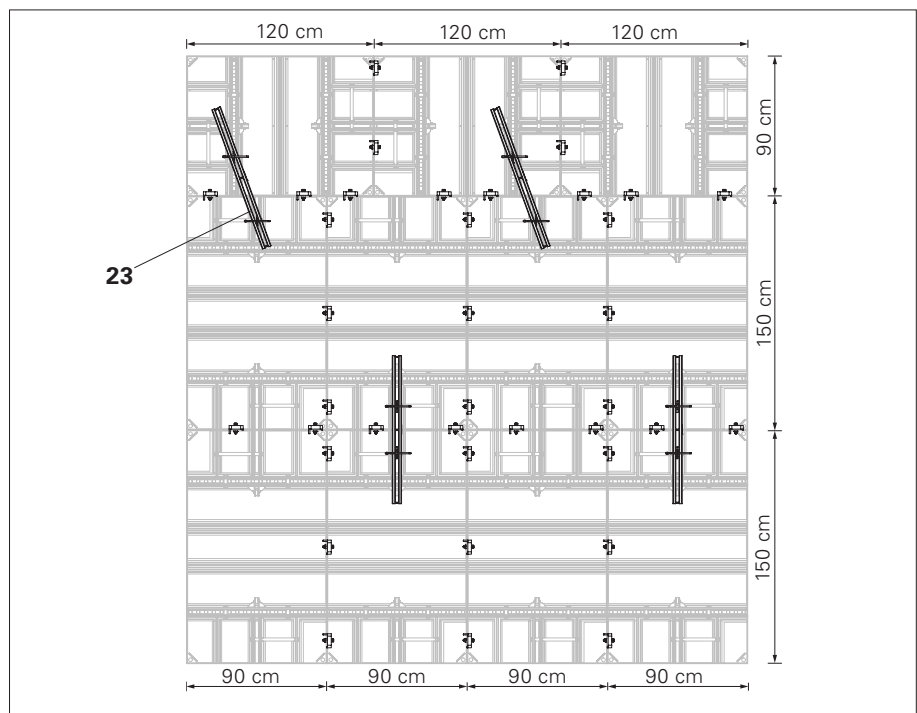


Fig. B6.02

Extension guidelines for horizontal pre-assembly

Shown Height = 450 cm (Fig. B6.03)

! Information

Take into consideration the permissible load-carrying capacity of 500 kg for the Crane Hook HSA (50) as well as the crane capacity! Refer to Crane Hook HSA - Original Instructions for Use.

Panel connections

Connect panels by means of Wedge Clip HSA (20) and Compensation Waler HSA 95 (23). (Fig. B6.03)

Assembly

- The assembly surface must be level.
- Place timbers or planks in position as support.
- Pre-assemble extension units in a horizontal position, with the formlining facing downwards.

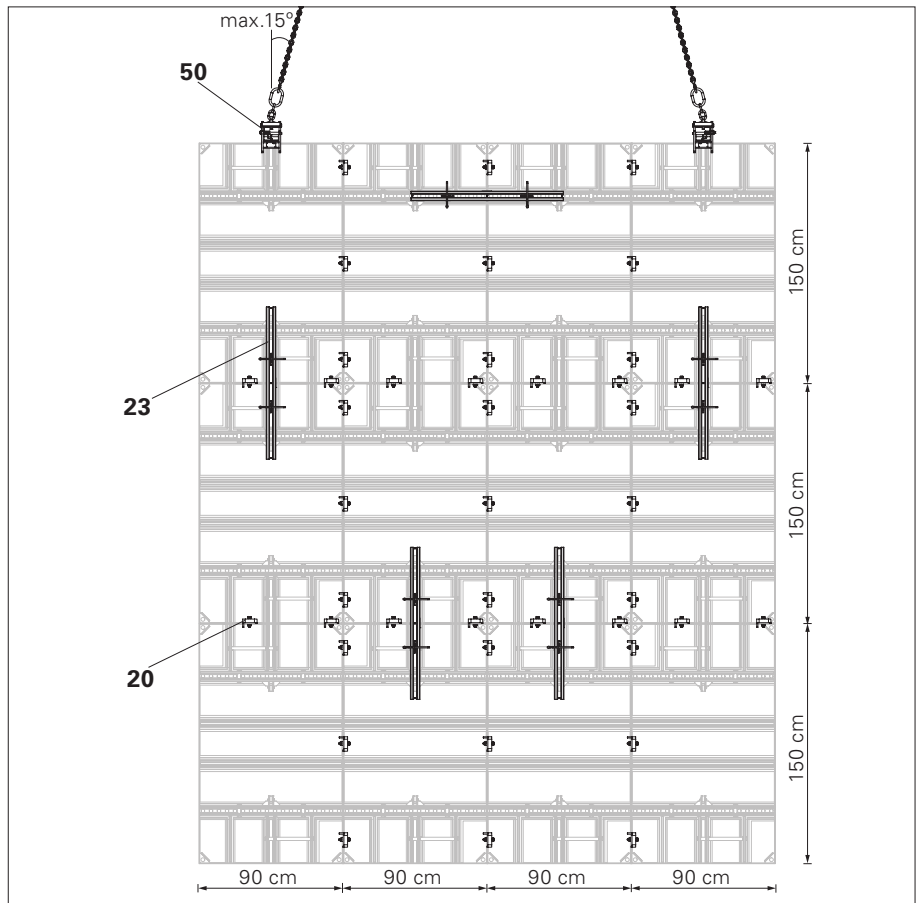


Fig. B6.03

Extension guidelines where pre-assembly is not required

Shown Height = 450 cm (Fig. B6.04)

When pre-assembly is not required for height extension, then a zigzag pattern can be followed as shown in Fig. B6.04 for vertical alignment using Compensation Waler HSA 95 (23).

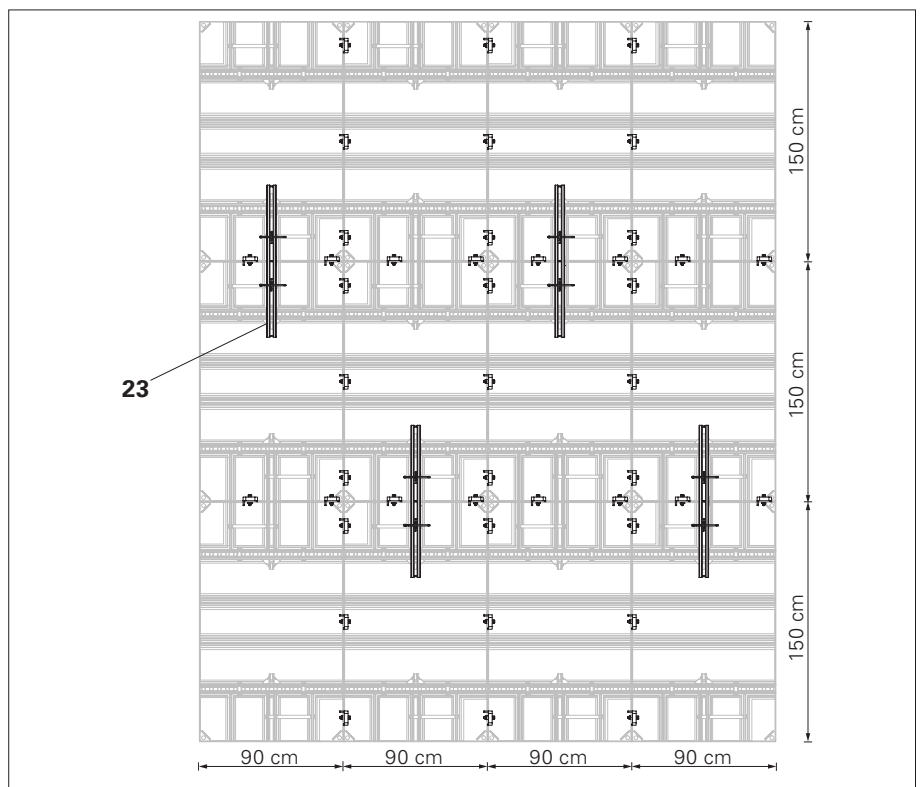


Fig. B6.04

C1 Corners

H = 300

90° corners

Wall thicknesses from 15 cm to 40 cm can be continuously formed.

For Compensation details, see C4.

Internal formwork

Shown height = 300 cm
(Fig. C1.02)

Required components:

15	Internal Corner HSA 300	1x
20	Wedge Clip HSA	12x

External formwork

Shown height = 300 cm
(Fig. C1.03)

Required components:

17	Panel HSA 300 x 60	1x
18	Panel HSA 300 x 30	1x
38	HSA Corner Connector DW 15	4x
30	Wingnut Counterplate DW 15	4x
20	Wedge Clip HSA	10x
20a	Wedge Clip HSA for next panel	16x
24	Compensation Clamp HSA	8x
23	Compensation Waler HSA 95	4x (required where infill > 7.5 cm)
44	Timber 10 x 8 cm	1x (5 x 8 cm to be used for 15 cm thk wall)



For easy deshuttering:

- First remove (30, 38) then (17), and then remove (23).
- Next, take out the complete unit of (18), (44), (24) and (16) separately and place it on ground.
- Finally, dismantle the individual components.

Wall thickness 15 - 20 cm

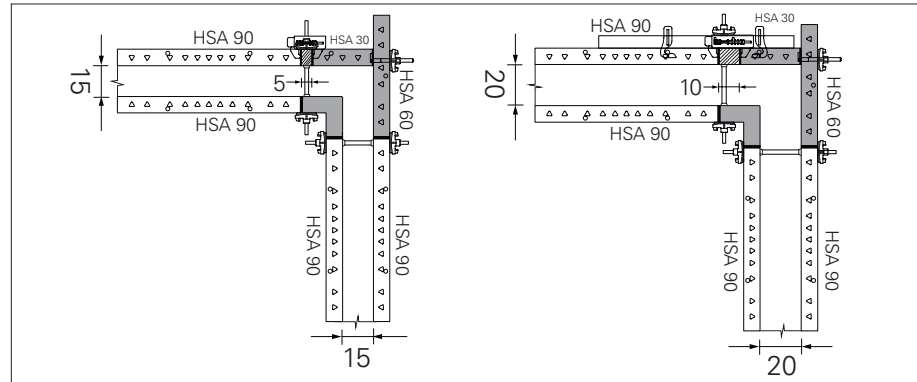


Fig. C1.01

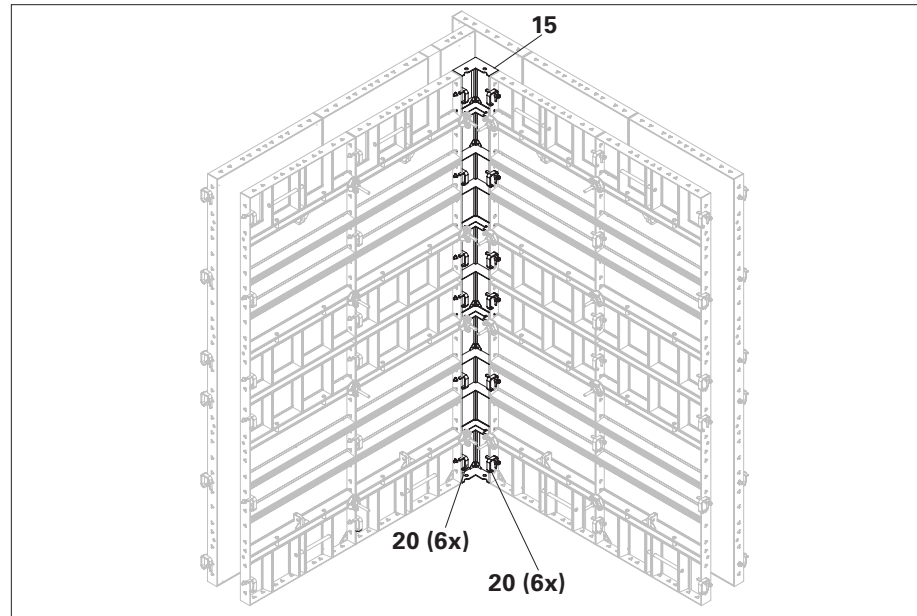


Fig. C1.02

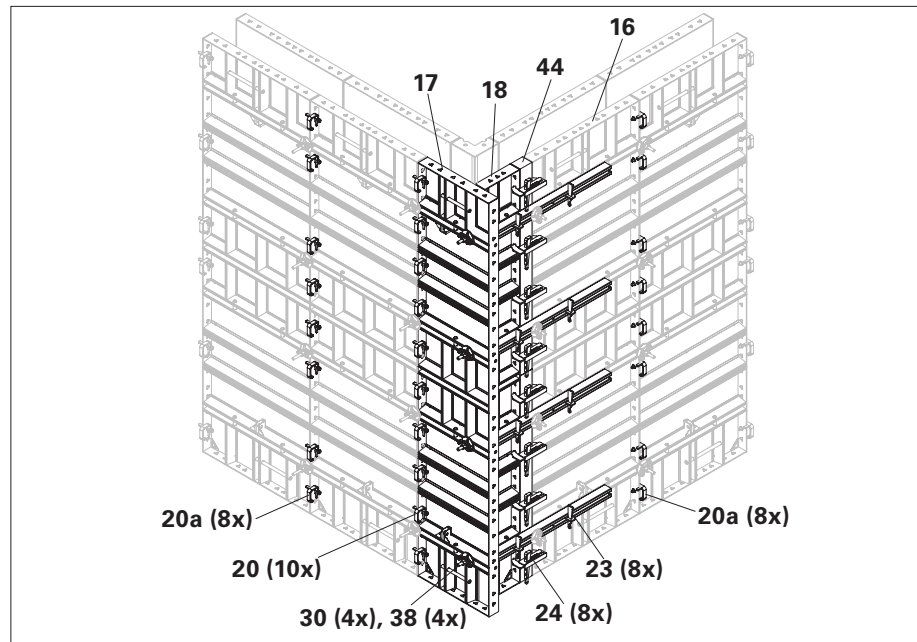


Fig. C1.03

C1 Corners

H = 300

Internal formwork

Shown height = 300 cm
(Fig. C1.05)

Required components:

15	Internal Corner HSA 300	1x
20	Wedge Clip HSA	6x
24	Compensation Clamp HSA	8x
23	Compensation Waler HSA 95 (required where infill > 7.5 cm)	4x
43	Timber 5 x 8 cm	1x
44	Timber 10 x 8 cm	1x

Wall thickness 25 cm

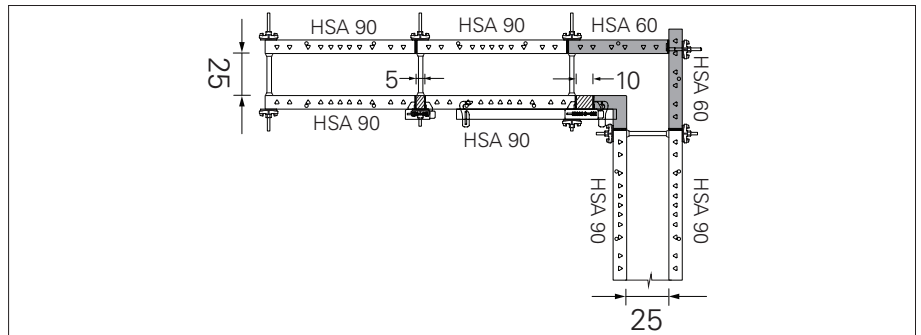


Fig. C1.04

External formwork

Shown height = 300 cm
(Fig. C1.06)

Required components:

17	Panel HSA 300 x 60	2x
38	HSA Corner Connector DW 15	4x
30	Wingnut Counterplate DW 15	4x
20	Wedge Clip HSA	20x
20a	Wedge Clip HSA for next panel	16x

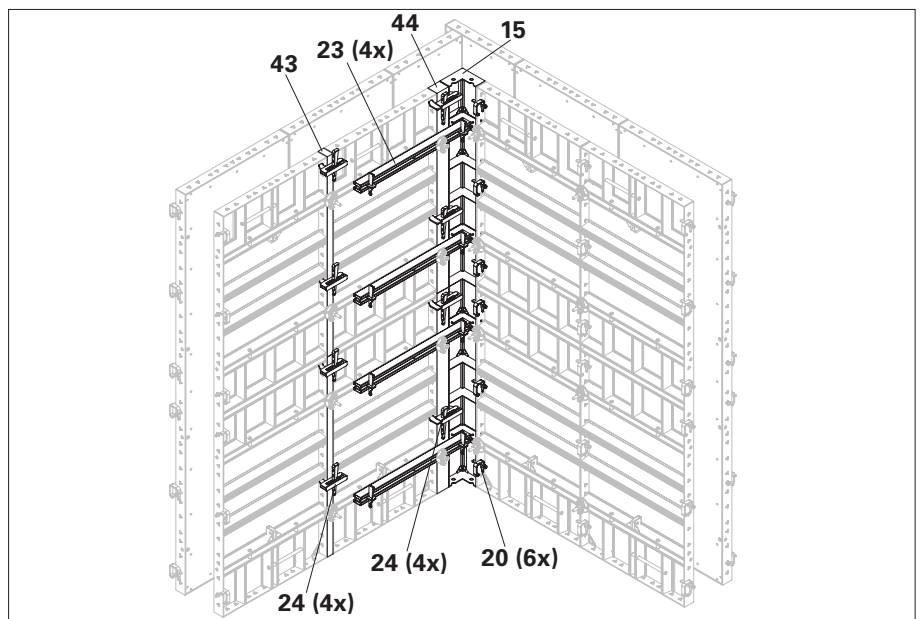


Fig. C1.05

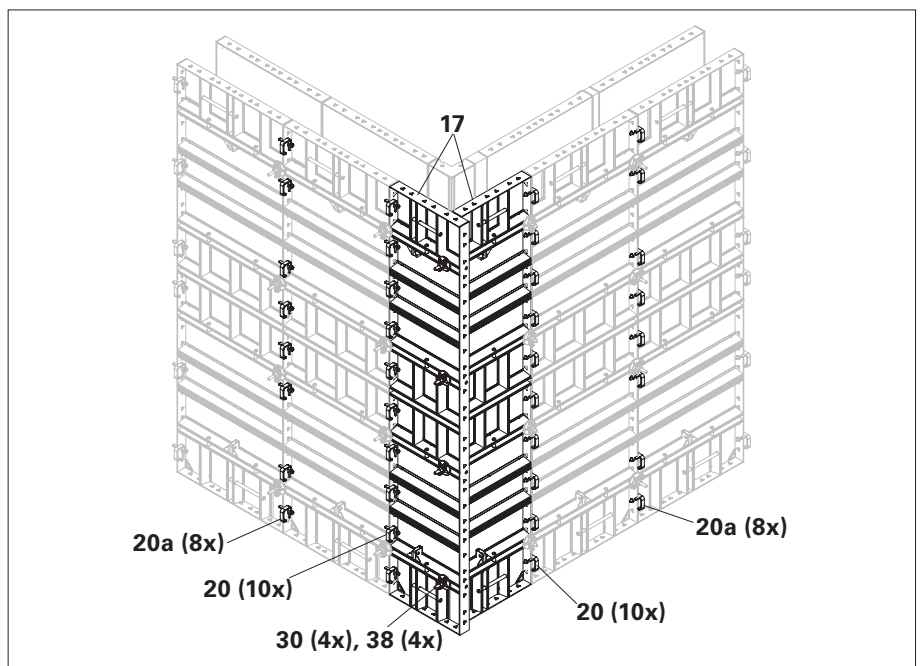


Fig. C1.06

C1 Corners

H = 300

Internal formwork

Shown height = 300 cm
(Fig. C1.08)

Required components:

15	Internal Corner HSA 300	1x
20	Wedge Clip HSA	6x
24	Compensation Clamp HSA	4x
23	Compensation Waler HSA 95 (required where infill > 7.5 cm)	4x
44	Timber 10 x 8 cm (cut-to-size) (5 x 8 cm to be used for 35 cm thk wall)	1x

Wall thickness 30 - 35 cm

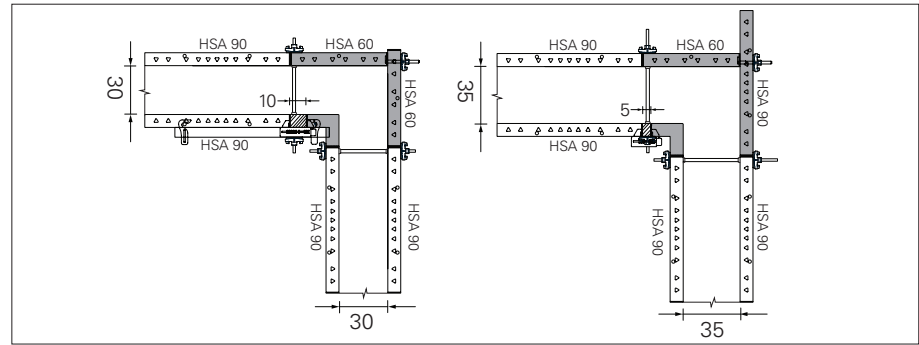


Fig. C1.07

External formwork

Shown height = 300 cm
(Fig. C1.09)

Required components:

17	Panel HSA 300 x 60 (Panel HSA 300 x 90 to be used for 35 cm thk wall on one side)	2x
38	HSA Corner Connector DW 15	4x
30	Wingnut Counterplate DW 15	4x
20	Wedge Clip HSA	20x
20a	Wedge Clip HSA for next panel	16x

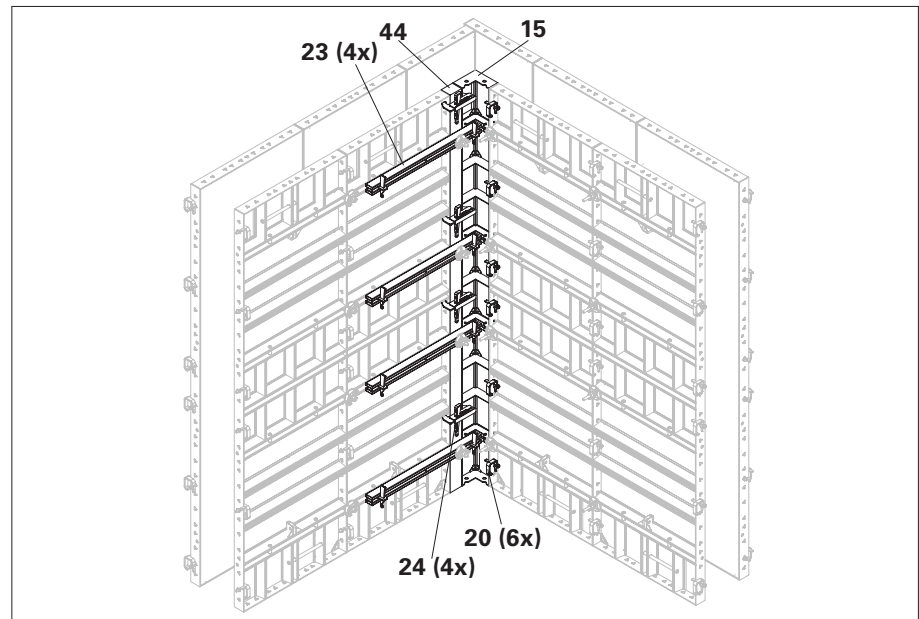


Fig. C1.08

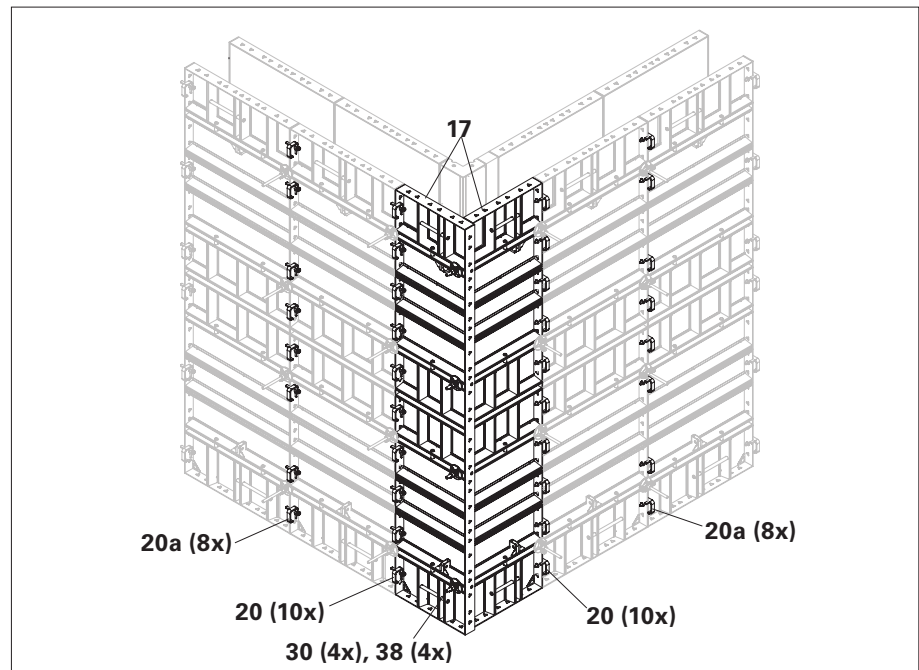


Fig. C1.09

C1 Corners

H = 300

Internal formwork

For Internal Formwork, refer Fig. C1.02

External formwork

(Option 1)

Using HSA Corner Connector DW 15

Shown height = 300 cm
(Fig. C1.11)

Required components:

16	Panel HSA 300 x 90	1x
17	Panel HSA 300 x 60	1x
38	HSA Corner Connector DW 15	4x
30	Wingnut Counterplate DW 15	4x
20	Wedge Clip HSA	20x
20a	Wedge Clip HSA for next panel	16x

External formwork

(Option 2)

Using External Corner HSA 150

Shown height = 300 cm
(Fig. C1.12)

Required components:

17	Panel HSA 300 x 60	2x
14	External Corner HSA 150	2x
20	Wedge Clip HSA	40x
20a	Wedge Clip HSA for next panel	16x

Wall thickness 40 cm

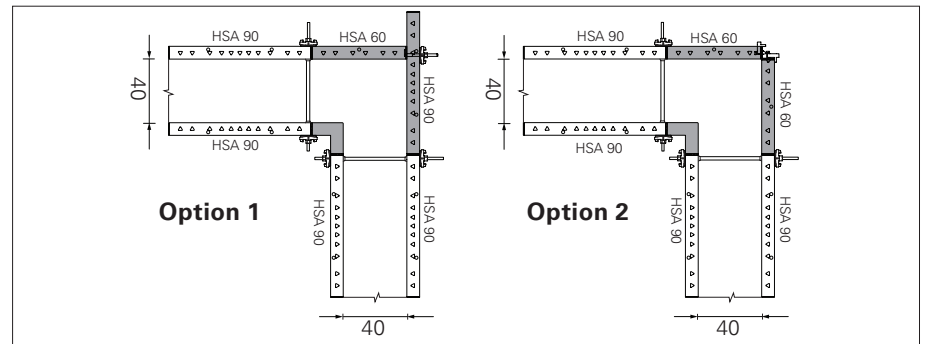


Fig. C1.10

Option 1

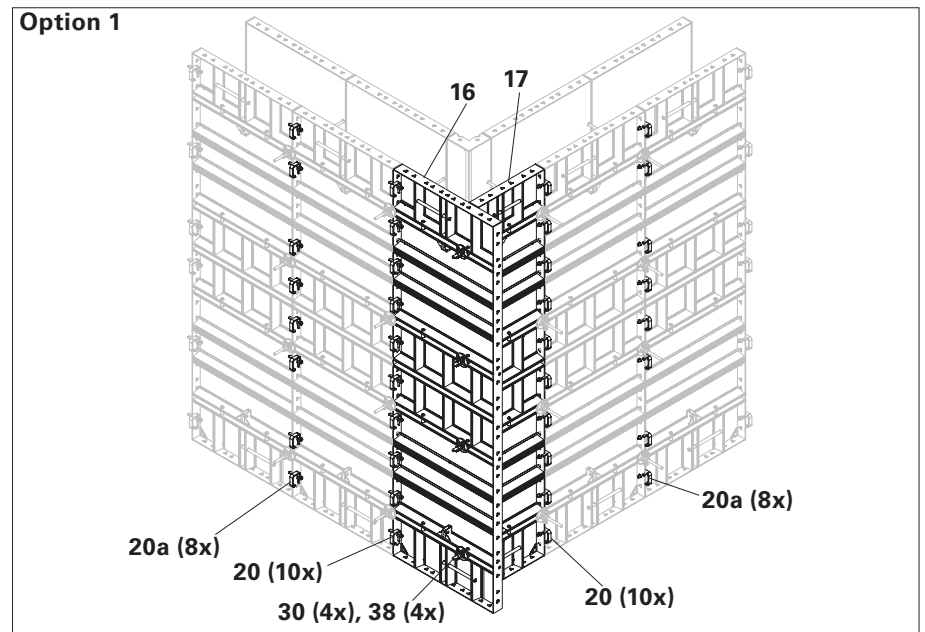


Fig. C1.11

Option 2

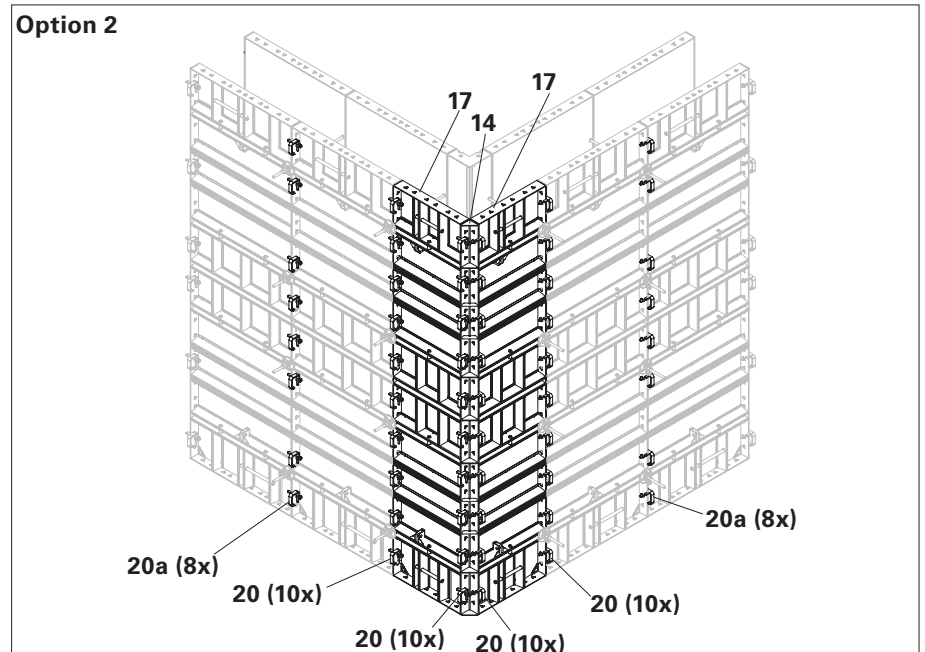


Fig. C1.12

C2 T-junctions, wall connections

H = 300

T-junctions

Wall thicknesses from 15 cm to 40 cm can be continuously formed. For Compensation, see C4.
(Fig. C2.01)

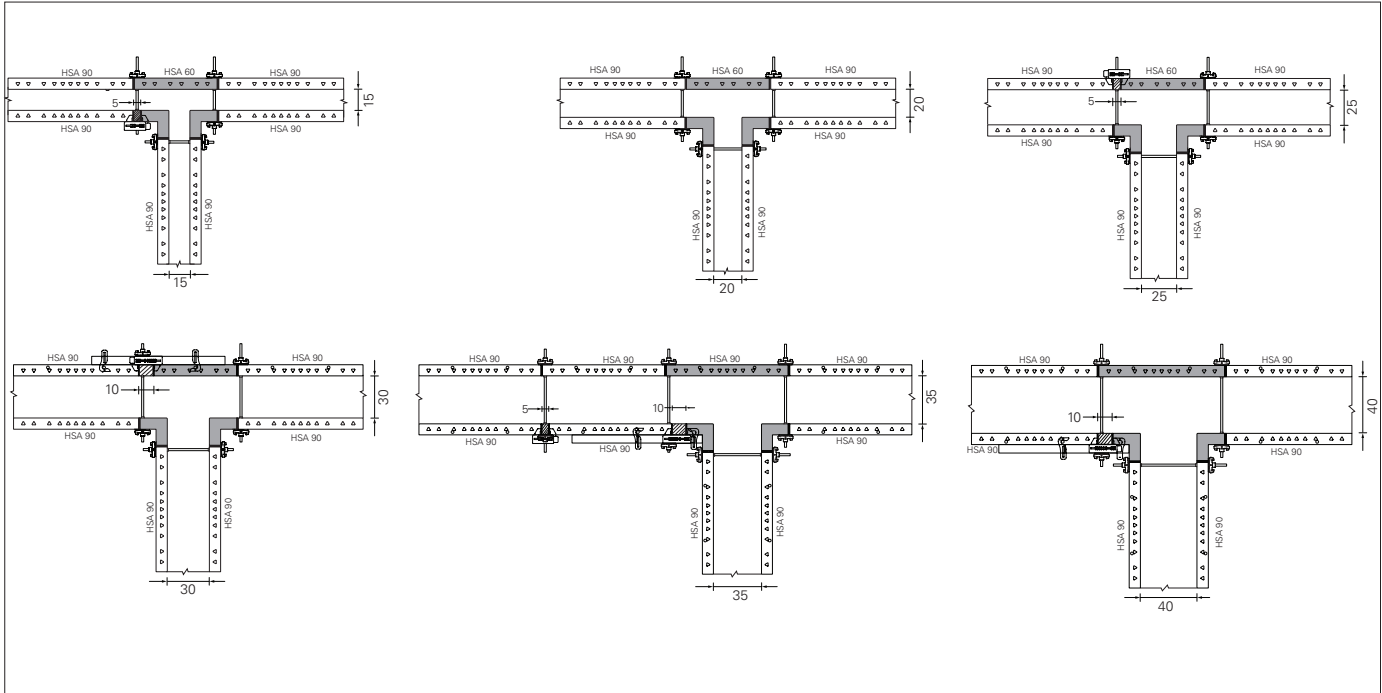


Fig. C2.01

Internal formwork

Shown height = 300 cm (Fig. C2.02)

Required components:

15 Internal Corner HSA 300	1x
20 Wedge Clip HSA	12x

Number per formwork side.

External formwork

Shown height = 300 cm (Fig. C2.03)

Required components:

17 Panel HSA 300 x 60	1x
20 Wedge Clip HSA	12x

Wall thickness 20 cm

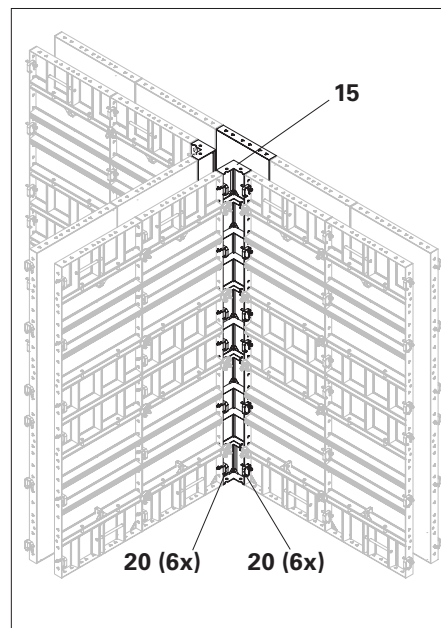


Fig. C2.02

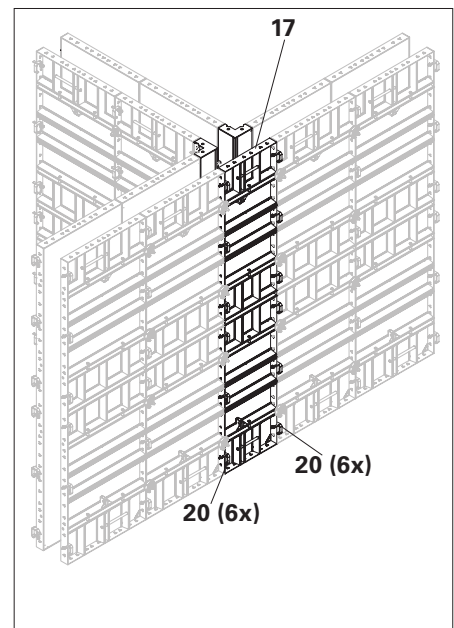


Fig. C2.03

C2 T-junctions, wall connections

H = 300

Internal formwork

Shown height = 300 cm (Fig. C2.04)

Required components:

15	Internal Corner HSA 300	1x
20	Wedge Clip HSA	12x

Number per formwork side.

External formwork

Shown height = 300 cm (Fig. C2.05)

Required components:

17	Panel HSA 300 x 60	1x
20	Wedge Clip HSA	6x
23	Compensation Waler HSA	4x
24	Compensation Clamp HSA	4x
44	Timber 10 x 8 cm	1x

Wall thickness 30 cm

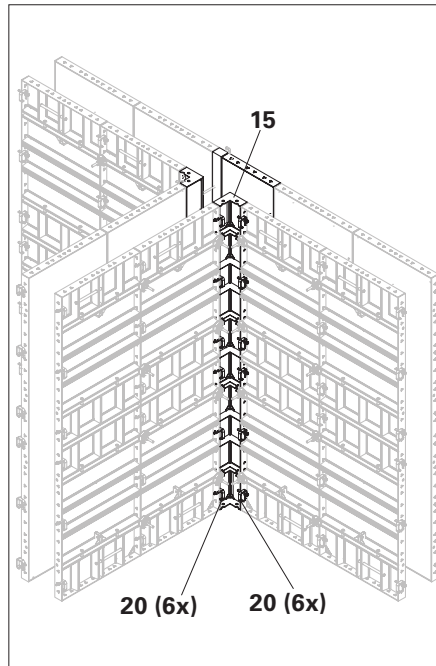


Fig. C2.04

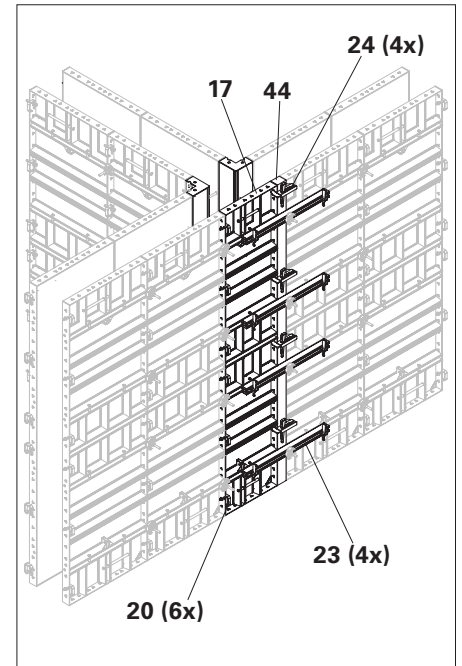


Fig. C2.05

Interface with existing wall connection

Connection with Panel HSA 300 x 90

Shown height = 300 cm
(Fig. C2.06)



Offset hole need to be drilled at site on the panel with a distance of 125 mm from the end. (Fig. C2.06a)

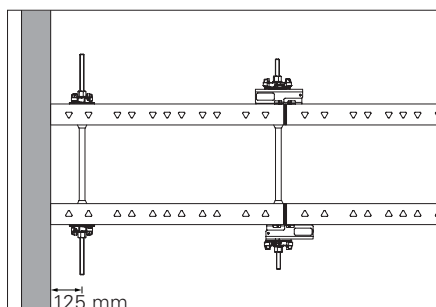


Fig. C2.06a

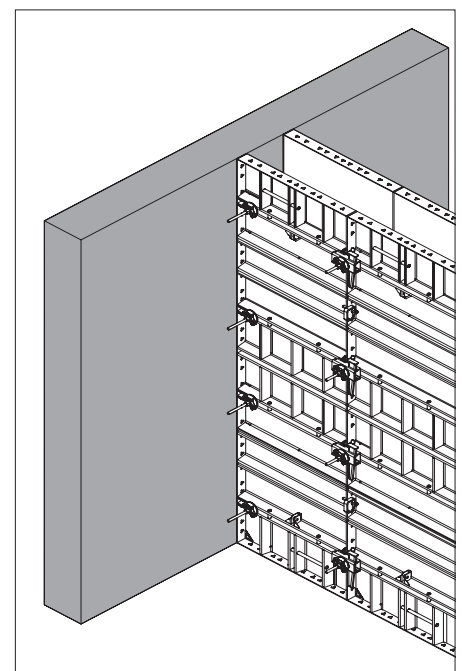


Fig. C2.06

C3 Wall offsets

H = 300

Wall offset 20 cm

Shown height = 300 cm (Fig. C3.02)

Required components:

17	Panel HSA 300 x 60	1x
20	Wedge Clip HSA	16x
20a	Wedge Clip HSA for next panel	8x
15	Internal Corner HSA 300	1x
30	Wingnut Counterplate DW 15	4x
38	HSA Corner Connector DW 15	4x

Number per formwork side



For wall offsets > 20 cm, push-pull props are to be used.

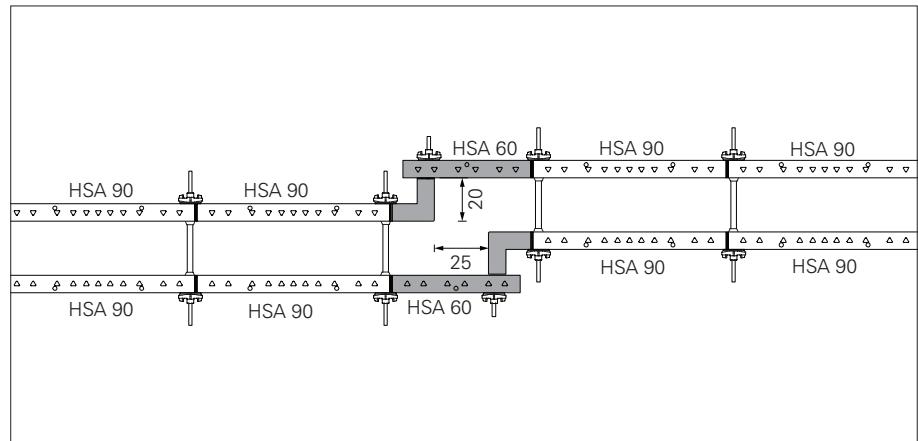


Fig. C3.01

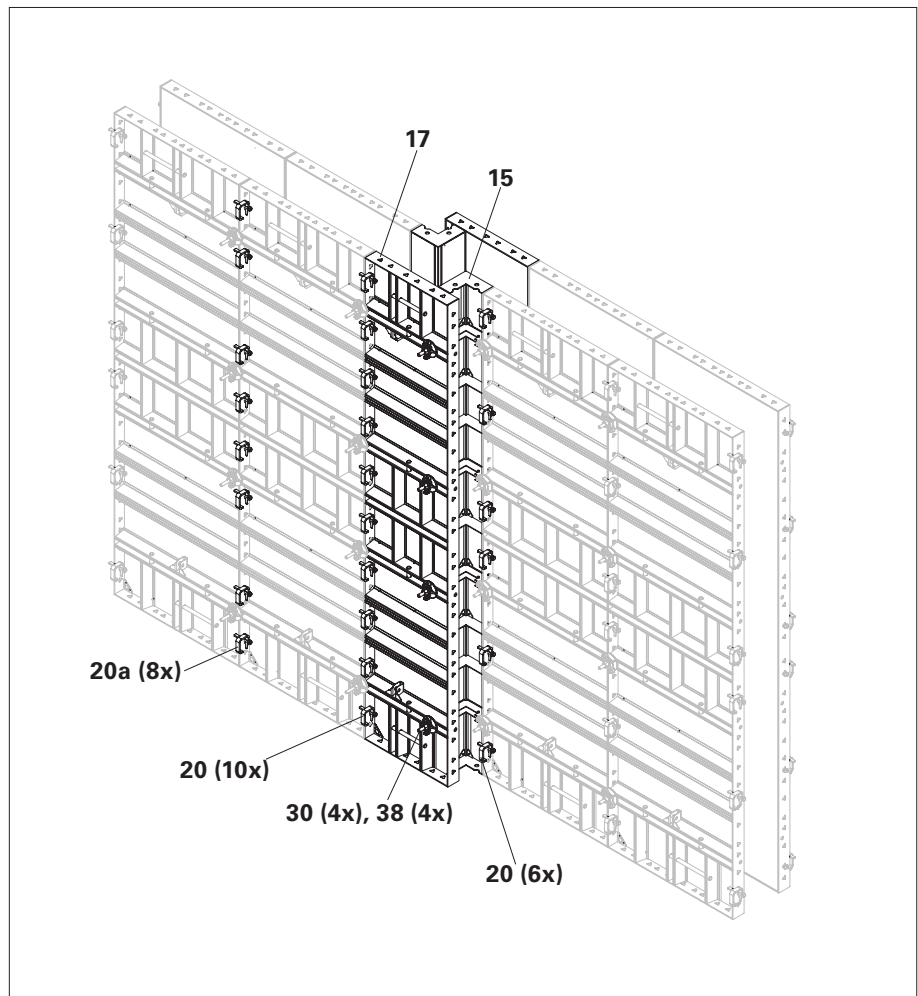


Fig. C3.02

C3 Wall offsets

H = 300

Wall offset 60 cm

Shown height = 300 cm (Fig. C3.04)

Required components:

17	Panel HSA 300 x 60	2x
20	Wedge Clip HSA	16x
20a	Wedge Clip HSA for next panel	8x
15	Internal Corner HSA 300	1x
23	Compensation Waler HSA 95	4x
24	Compensation Clamp HSA	8x
30	Wingnut Counterplate DW 15	4x
38	HSA Corner Connector DW 15	4x
43	Timber 5 x 8 cm	1x
44	Timber 10 x 8 cm	1x

Number per formwork side



For wall offsets > 20 cm, push-pull props are to be used.

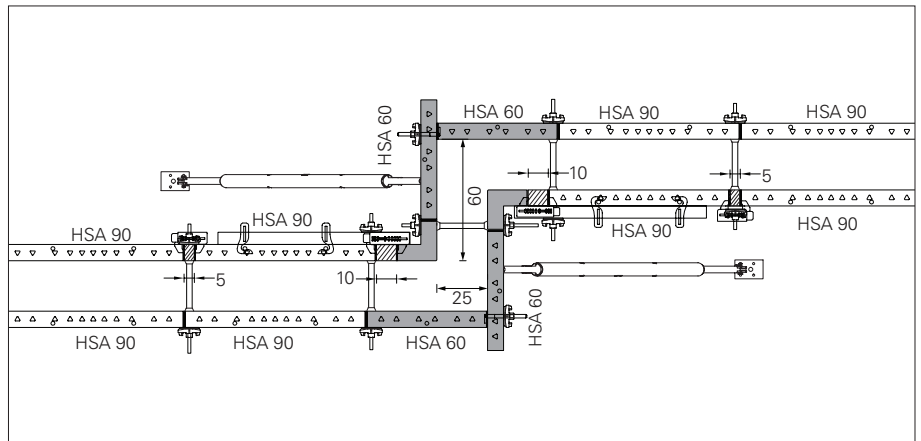


Fig. C3.03

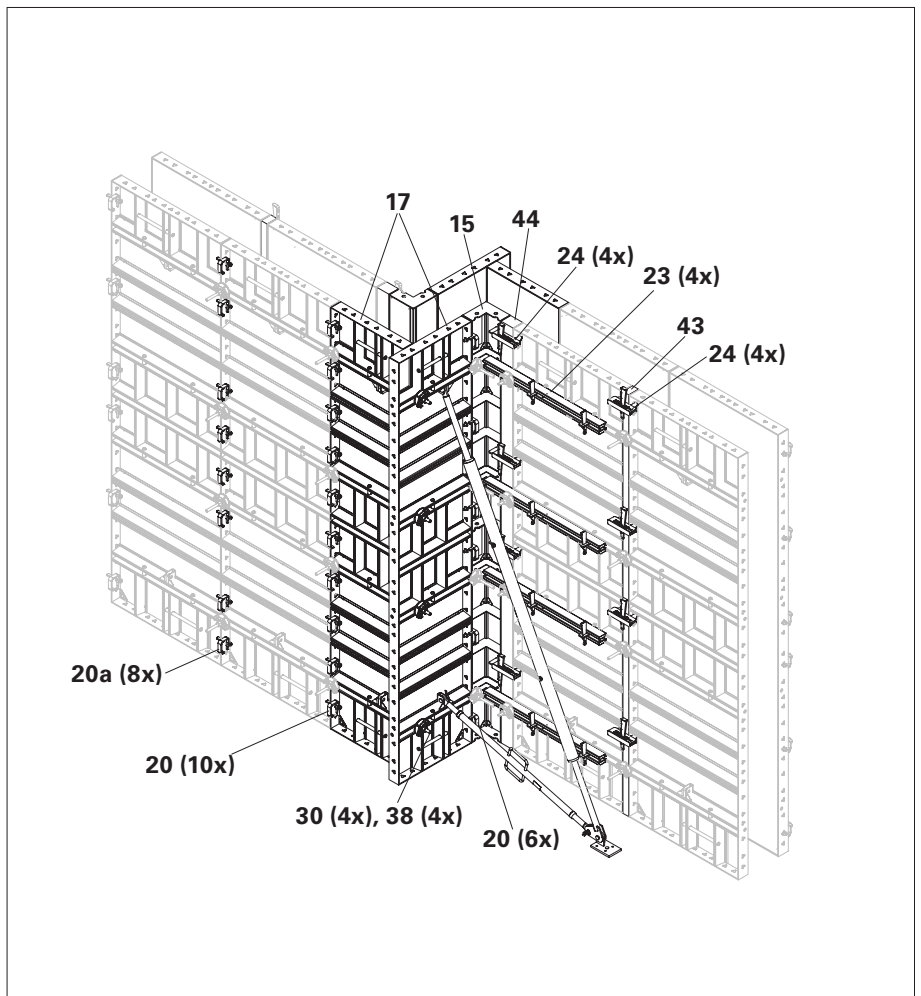


Fig. C3.04

C3 Wall offsets

H = 300

Wall offset 40 cm

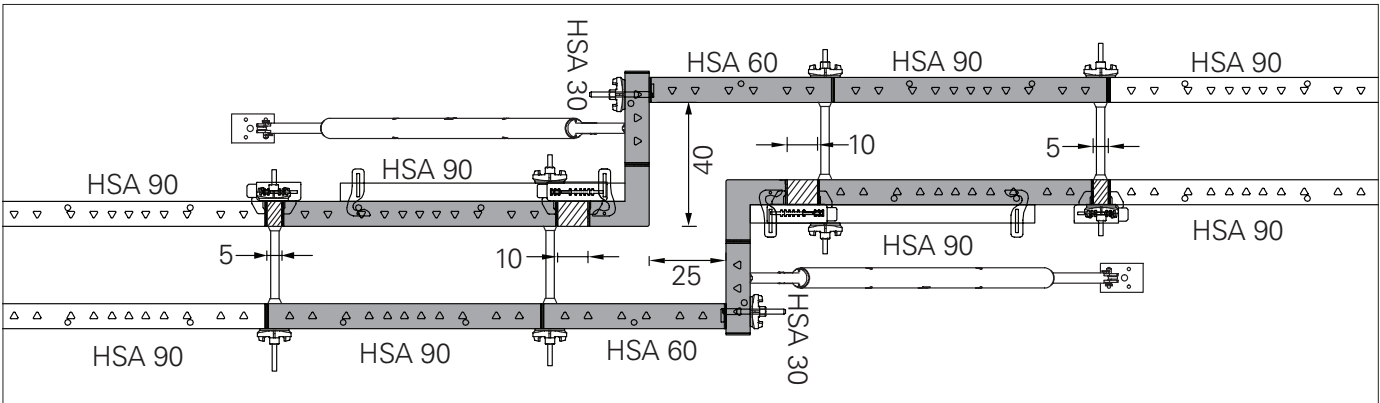


Fig. C3.05

Wall offset 50 cm

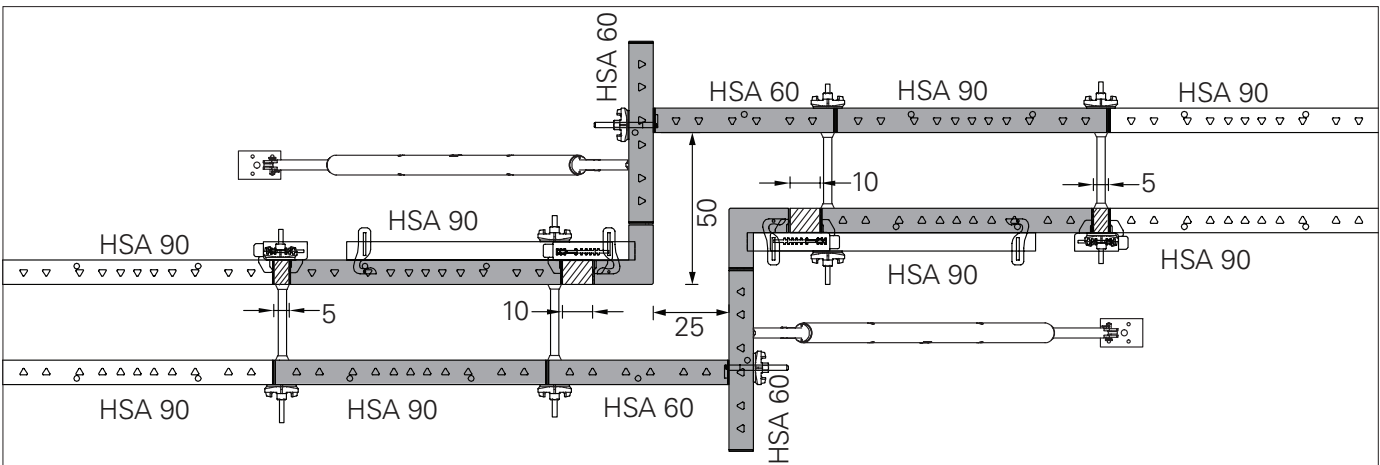


Fig. C3.06

Wall offset 85 cm

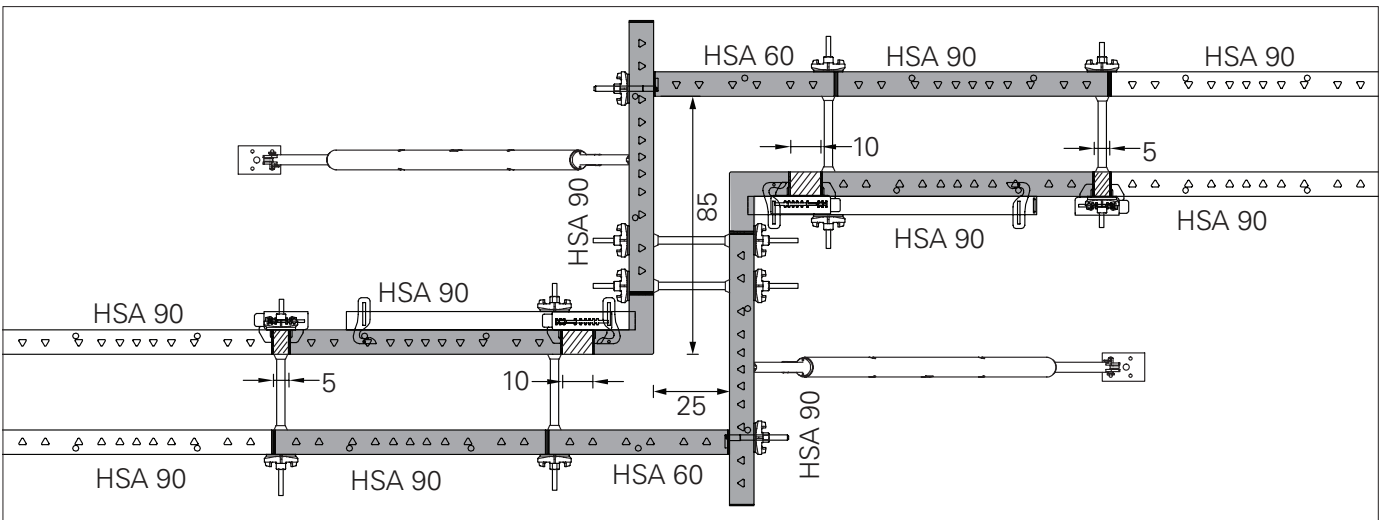


Fig. C3.07

C4 Length compensation

H = 300

Length compensations up to 10 cm

With Compensation Clamp HSA (24) and cut-to-size timber (48).

- Connection using Compensation Clamp HSA (24)
- Tie system DW15 in the compensation.

For H = 300 cm (Fig. C4.01), only three compensation clamps are required.

Required components:

48	Timber (cut-to-size)	1x
24	Compensation Clamp HSA	3x
22	Tie system DW 15	4x

Number per formwork side.

For Compensations between 7.5 cm and <10 cm, use Wingnut Pivot Plate DW 15 (49) art. no.: 030370 (Fig. C4.01b) or alternatively Compensation Waler HSA 95 can be used.

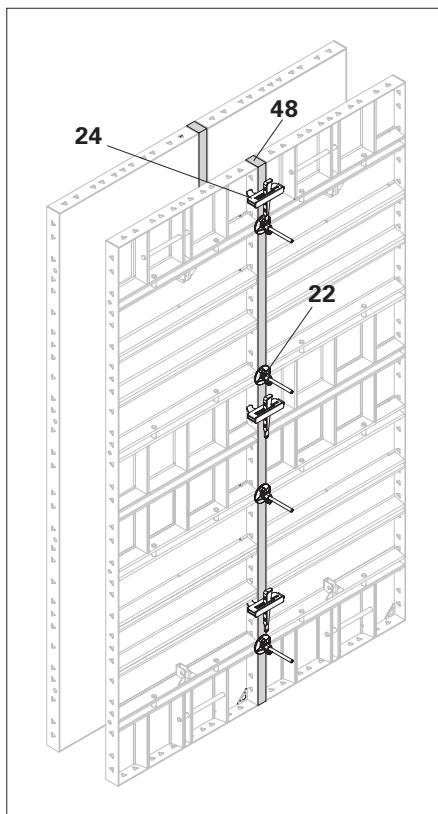


Fig. C4.01

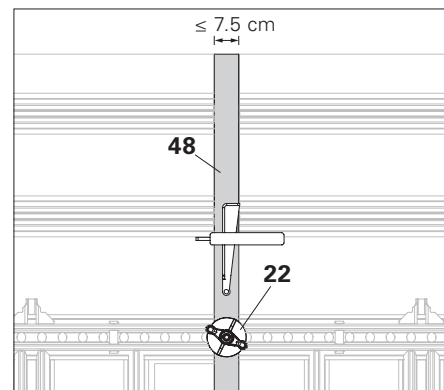


Fig. C4.01a

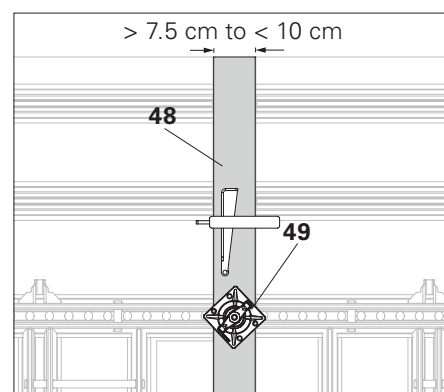


Fig. C4.01b

Length compensation between 10 cm and 30 cm

Using compensation waler, compensation clamp and cut-to-size timber

Shown height = 300 cm (Fig. C4.02)

Required components:

41	Plywood (18 mm thickness)*	1x
42	Timber 5 x 6 cm	2x
22	Tie system DW15	8x
24	Compensation Clamp HSA	6x
23	Compensation Waler HSA 95	4x

Number per formwork side.

* Cut-to-infill size

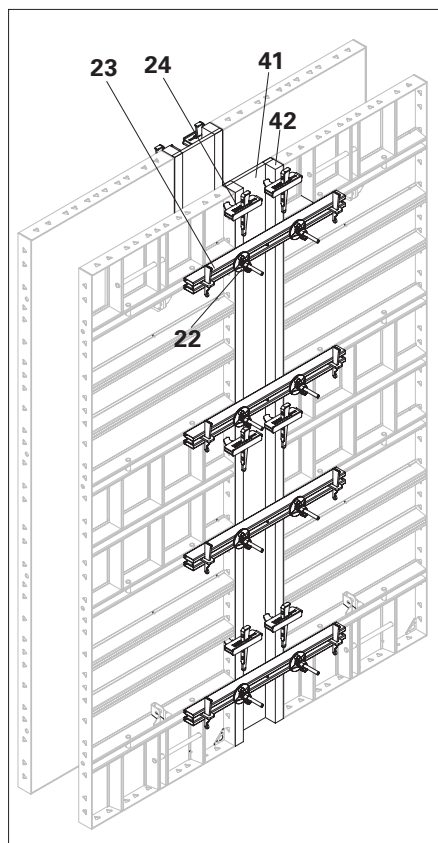


Fig. C4.02

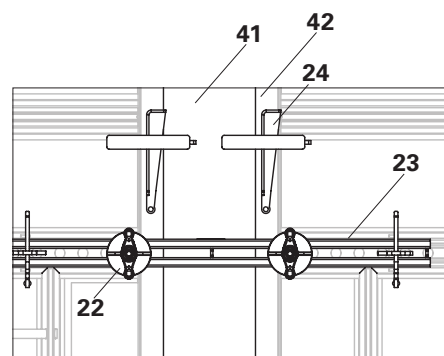


Fig. C4.02a

C4 Length compensation

H = 300

Length compensation between 10 cm to 30 cm

Using Filler Support 18 HFS 300 and Compensation Waler HSA

Shown height = 300 cm
(Fig. C4.03)

Required components:

39	Filler support 18 HFS 300	2x
41	Plywood (18 mm thickness)*	1x
40	Timber 5 x 5 cm	7x
20	Wedge Clip HSA	12x
23	Compensation Waler HSA 95	4x
22	Tie system DW15	8x

Number per formwork side.

* Cut-to-infill size (L = infill size - 10 mm)

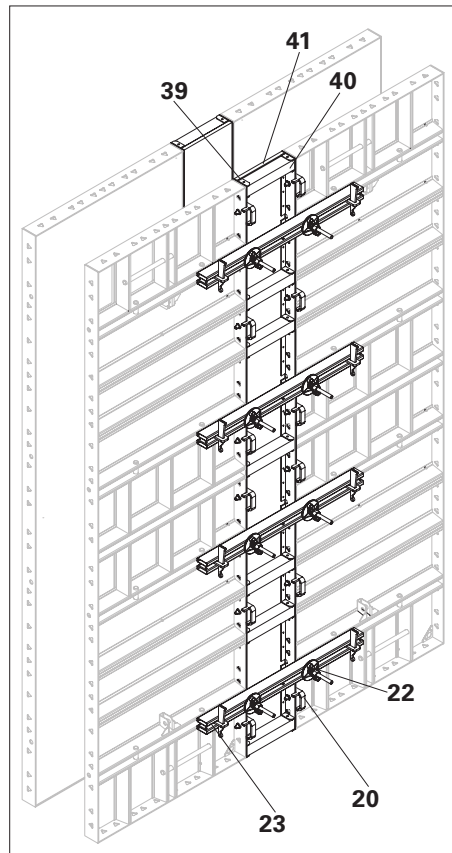


Fig. C4.03

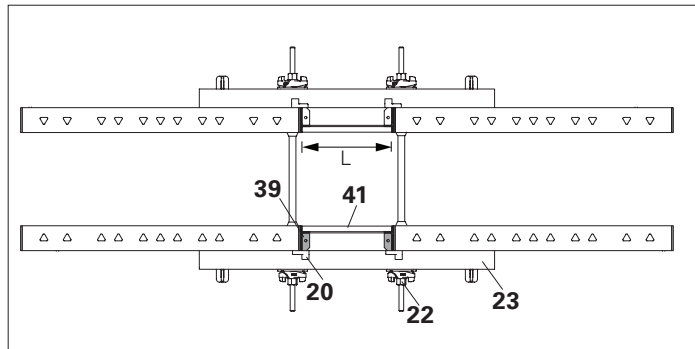


Fig. C4.03a

C5 Stopend formwork

H = 300

With timber and plywood filler

Permissible bending moment of Stopend Waler HSA: 1.38 kNm.

Shown height = 300 cm (Fig. C5.01)

Required components:

16	HSA 300 x 90	2x
45	Stopend Waler HSA 65/95	4x
38	HSA Corner Connector DW 15	8x
30	Wingnut Counterplate DW 15	*8x

* Number shown only for HSA Corner Connector DW 15



- 4x Stopend Waler HSA up to wall thickness 30 cm.
- The timber and plywood for the Stopend should be designed by the contractor.

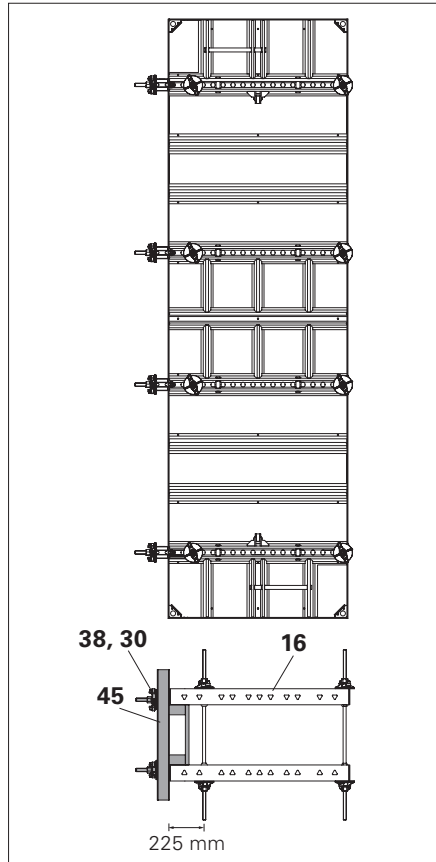


Fig. C5.01a

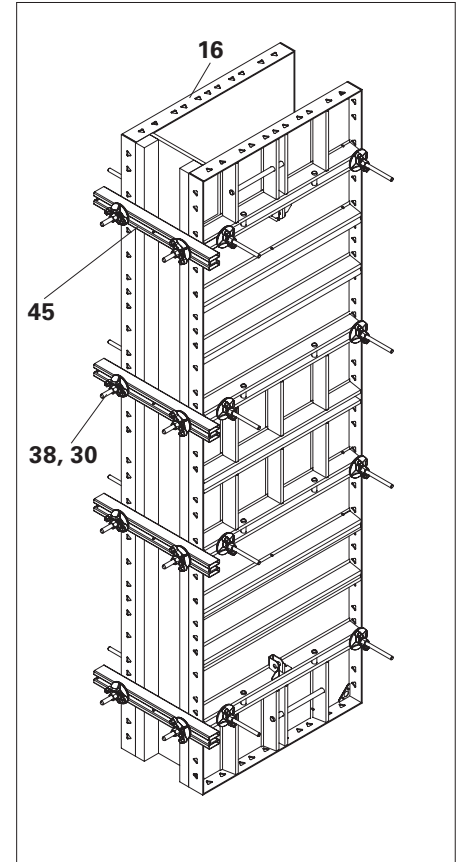


Fig. C5.01

With Panel HSA 300 x 90

Shown height = 300 cm (Fig. C5.02)

Required components:

16	Panel HSA 300 x 90	3x
38	HSA Corner Connector DW 15	8x
30	Wingnut Counterplate DW 15	*8x

* Number shown only for HSA Corner Connector DW 15

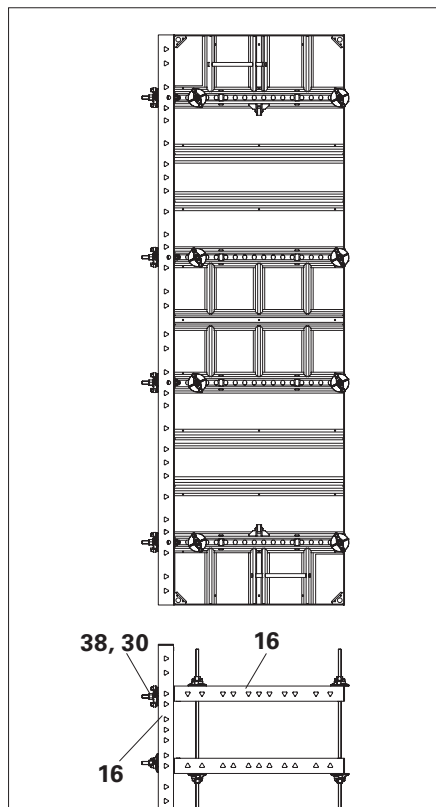


Fig. C5.02a

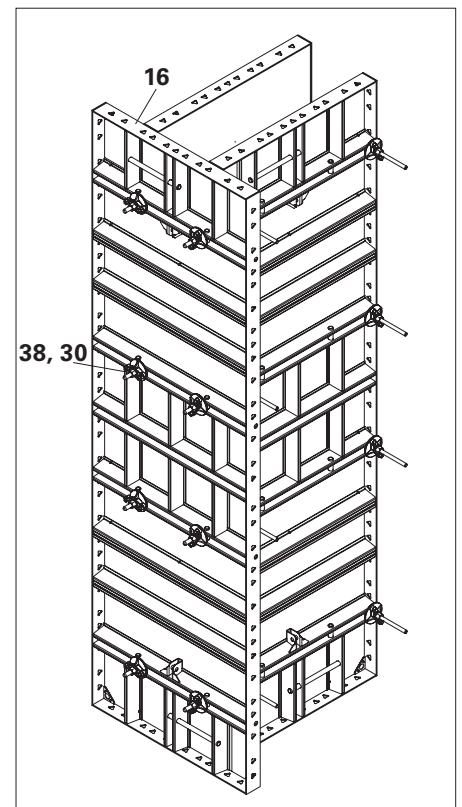


Fig. C5.02

Extension guidelines for horizontal pre-assembly

Shown Height = 390 cm

Information

Take into consideration the permissible load-carrying capacity of 500 kg for the Crane Hook HSA (50) as well as the crane capacity! Refer to Crane Hook HSA - Original Instructions for Use.

Panel connections

Connect panels by means of Wedge Clip HSA (20) and Compensation Waler HSA (23). (Fig. C6.01)

Assembly

- The assembly surface must be level.
- Place timbers or planks in position as support.
- Pre-assemble extension units in a horizontal position, with the formlining facing downwards.
- The maximum angle possible while fixing the Compensation Waler HSA (23) between the vertical and horizontal panel is 12°.

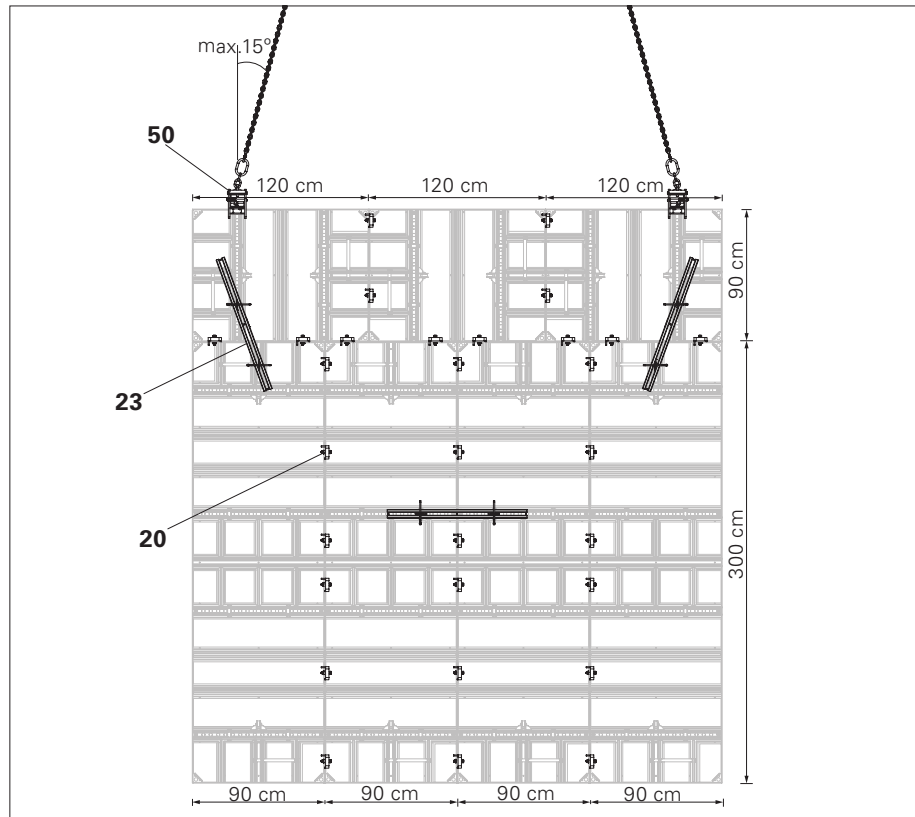


Fig. C6.01

Extension guidelines where pre-assembly is not required

Shown Height = 390 cm (Fig. C6.02)

When pre-assembly is not required for height extension, then the pattern can be followed as shown in Fig. C6.02 for vertical alignment using Compensation Waler HSA 95 (23).

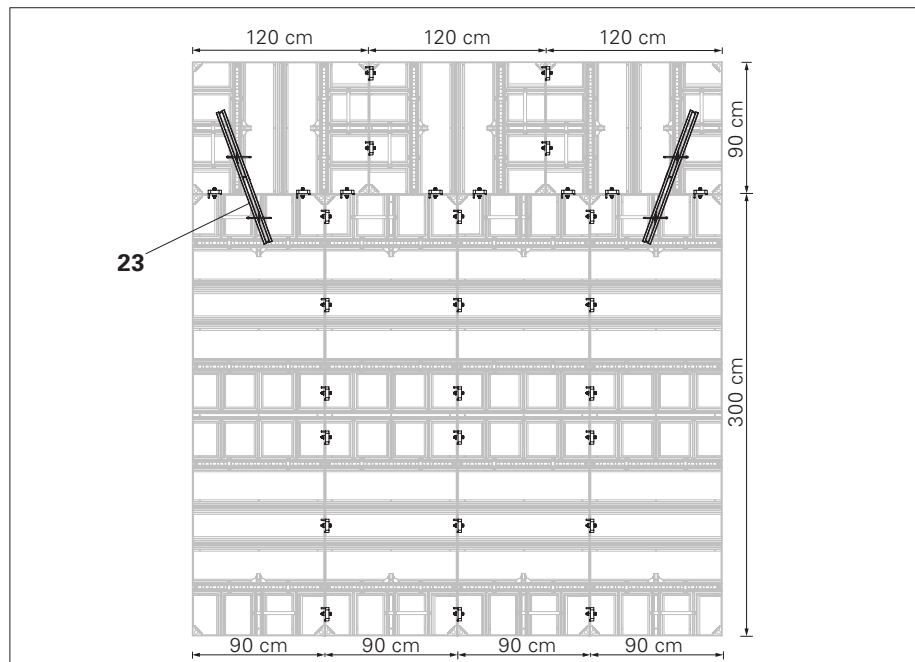


Fig. C6.02

Extension guidelines for horizontal pre-assembly

Shown Height = 450 cm (Fig. C6.03)

! Information

Take into consideration the permissible load-carrying capacity of 500 kg for the Crane Hook HSA (50) as well as the crane capacity! Refer to Crane Hook HSA - Original Instructions for Use.

Panel connections

Connect panels by means of Wedge Clip HSA (20) and Compensation Waler HSA 95 (23). (Fig. C6.03)

Assembly

- The assembly surface must be level.
- Place timbers or planks in position as support.
- Pre-assemble extension units in a horizontal position, with the formlining facing downwards.

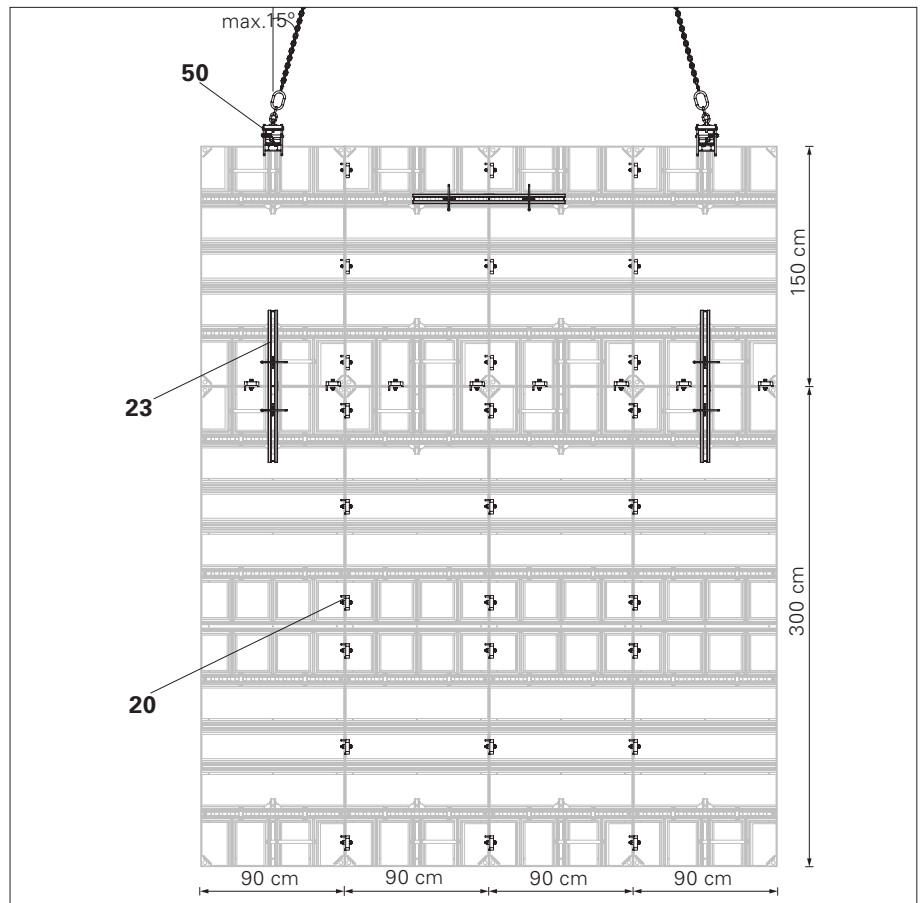


Fig. C6.03

Extension guidelines where pre-assembly is not required

Shown Height = 450 cm (Fig. C6.04)

When pre-assembly is not required for height extension, then the pattern can be followed as shown in Fig. C6.04 for vertical alignment using Compensation Waler HSA 95 (23).

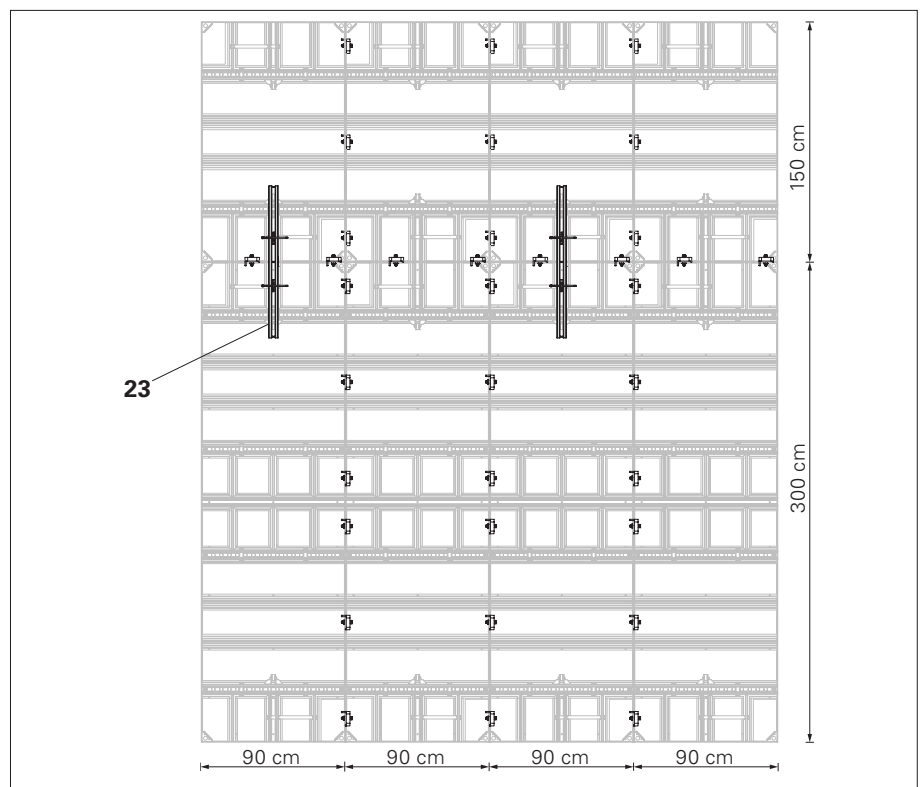


Fig. C6.04

D1 Column formwork

H = 150 + 150

Column formwork up to 60 cm with HANDSET Alpha

With the Panel HSA 150 x 90, column cross-sections from **15 cm up to 60 cm** can be formed in 5 cm increments with **permissible fresh concrete pressure 75 kN/m²**.

(Fig. D1.01 + D1.02)

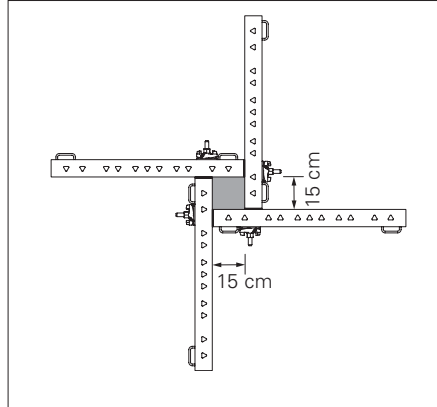


Fig. D1.01

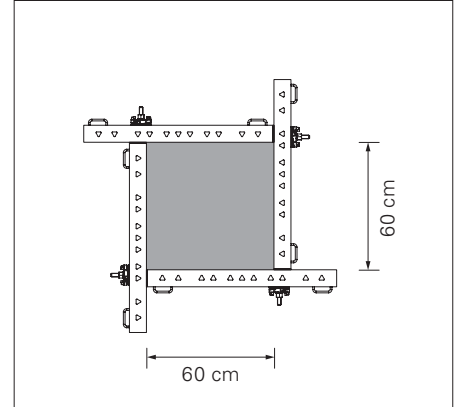


Fig. D1.02

Column formwork

Shown height = 150 + 150 cm
(Fig. D1.03)

Required components (15 x 15 cm) up to (60 x 60 cm)

10	Panel HSA 150 x 90	8x
30	Wingnut Counterplate DW 15	16x
38	HSA Corner Connector DW 15	16x
20a	Wedge Clip HSA (For horizontal connection)	8x

(Fig. D1.03a + Fig. D1.03b)

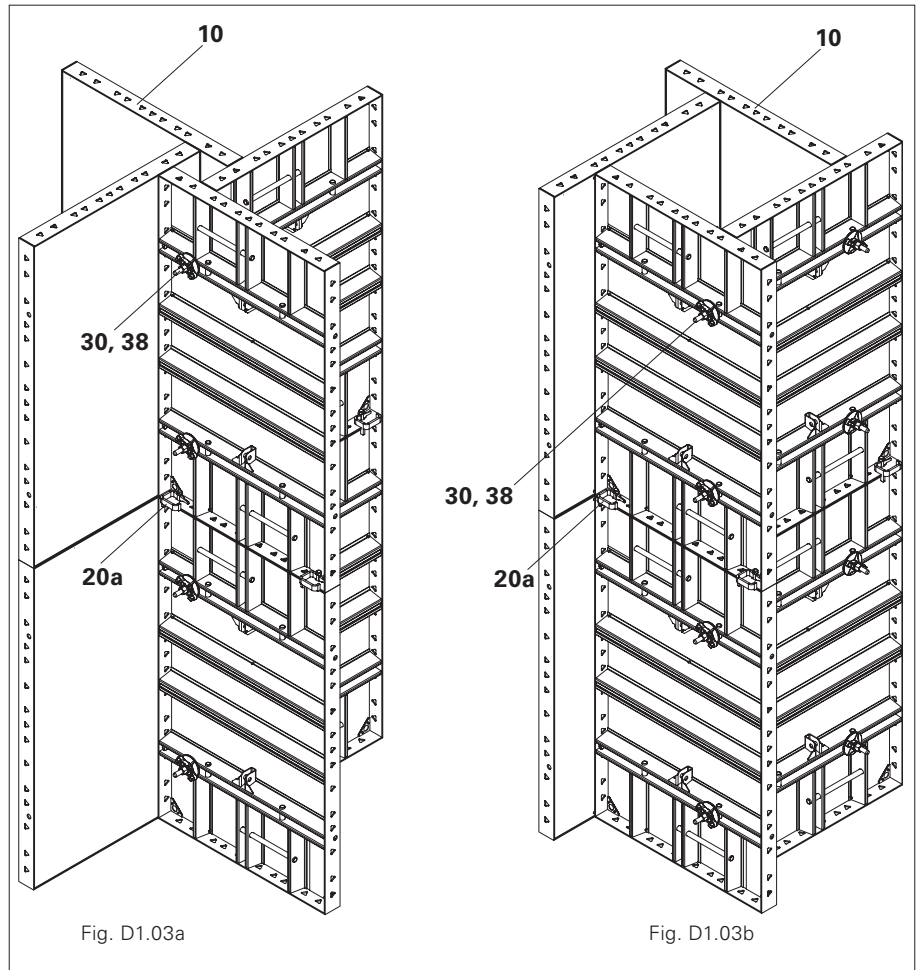


Fig. D1.03

D1 Column formwork

H = 150 + 150

Column formwork from 65 cm to 90 cm with HANDSET Alpha

With the Panel HSA 150 x 90, column cross-sections from **65 cm up to 90 cm** can be formed in 5 cm increments with **Permissible fresh concrete pressure 60 kN/m² for columns (from 65 x 65 cm to 90 x 90 cm)**
(Fig. D1.04 + D1.05+ D1.06)

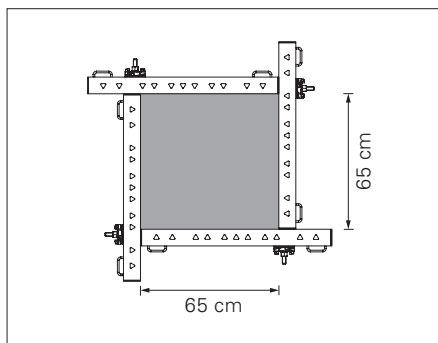


Fig. D1.04

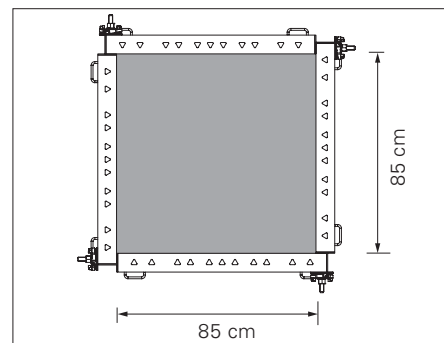


Fig. D1.05

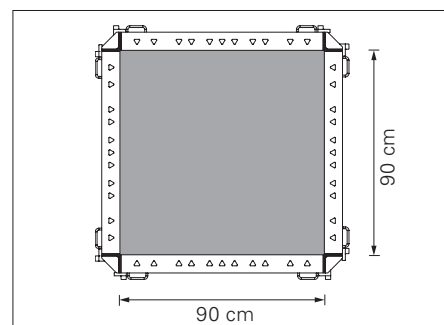


Fig. D1.06

Column formwork

Shown height = 150 + 150 cm
(Fig. D1.07)

Required components (65 x 65 cm to 85 x 85 cm)

10	Panel HSA 150 x 90	8x
30	Wingnut Counterplate DW 15	16x
38	HSA Corner Connector DW 15	16x
20a	Wedge Clip HSA (For horizontal connection)	8x

(Fig. D1.07a)

Required components (90 x 90 cm)

10	Panel HSA 150 x 90	8x
14	External Corner HSA 150	8x
20	Wedge Clip HSA (For vertical connection)	80x
20a	Wedge Clip HSA (For horizontal connection)	8x

(Fig. D1.07b)

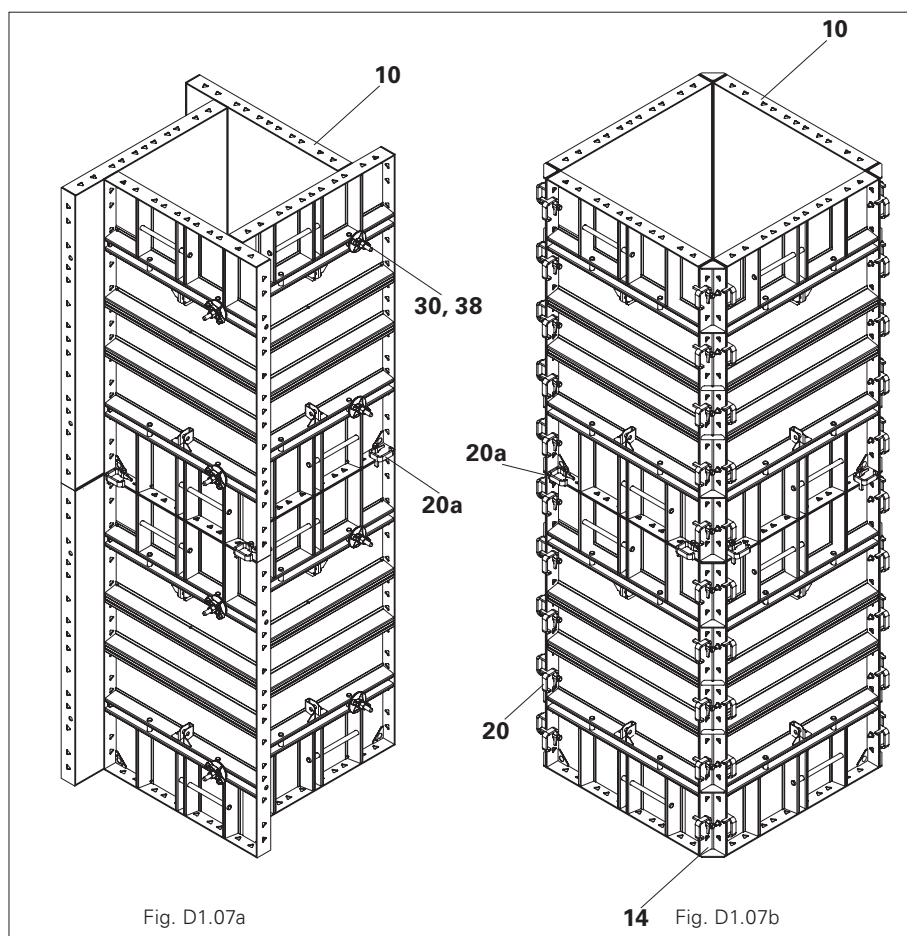


Fig. D1.07

D2 Column formwork

H = 300

Column formwork up to 60 cm with HANDSET Alpha

With the Panel HSA 300 x 90, column cross-sections from **15 cm up to 60 cm** can be formed in 5 cm increments with **permissible fresh concrete pressure 75 kN/m²**.

(Fig. D2.01 + D2.02)

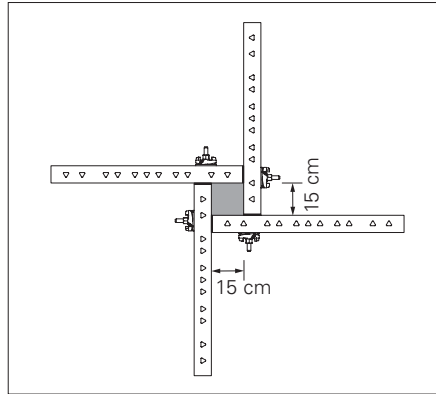


Fig. D2.01

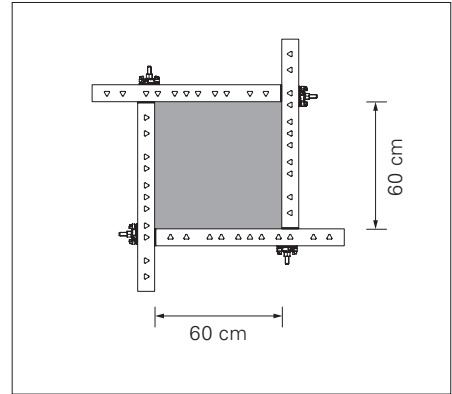


Fig. D2.02

Column formwork

Shown height = 300 cm
(Fig. D2.03)

Required components (15 x 15 cm) up to (60 x 60 cm)

16	Panel HSA 300 x 90	4x
30	Wingnut Counterplate DW 15 16x	16x
38	HSA Corner Connector DW 15 16x	

(Fig. D2.03a + Fig. D2.03b)

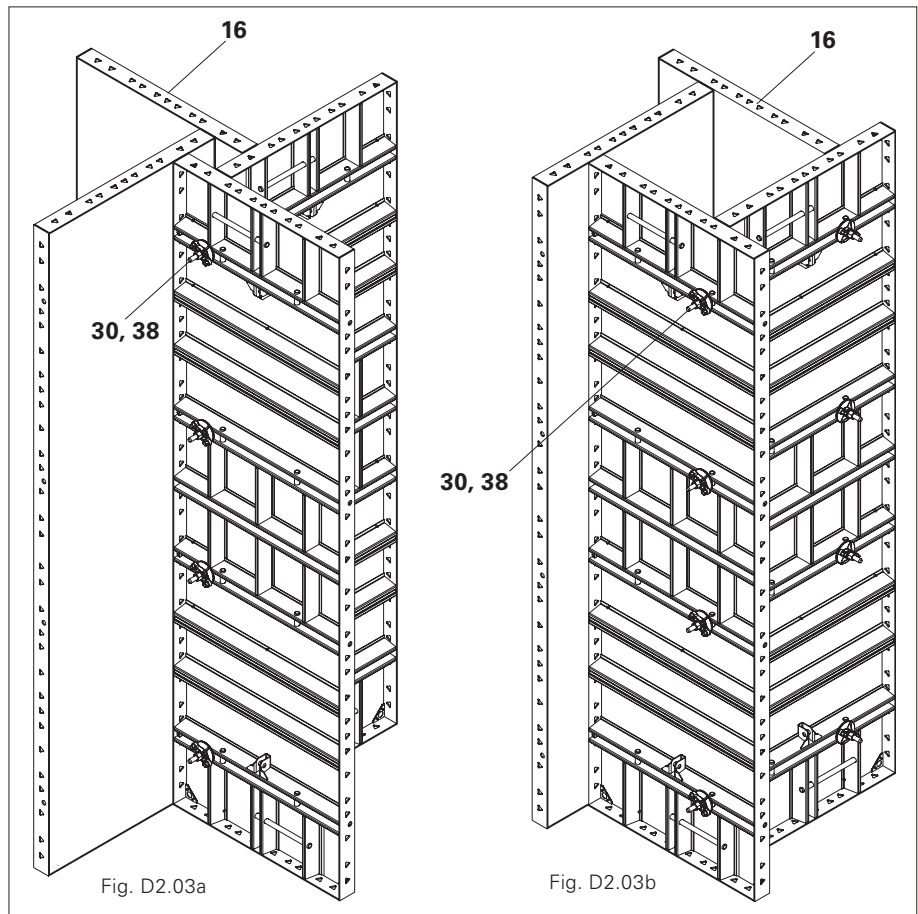


Fig. D2.03

D2 Column formwork

H = 300

Column formwork from 65 cm to 90 cm with HANDSET Alpha

With the Panel HSA 300 x 90, column cross-sections from **65 cm up to 90 cm** can be formed in 5 cm increments with **Permissible fresh concrete pressure 60 kN/m² for columns (from 65 x 65 cm to 90 x 90 cm)**
(Fig. D2.04 + D2.05 + D2.06)

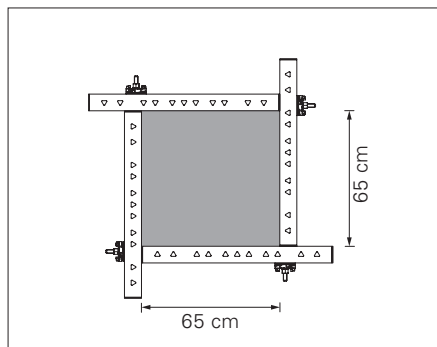


Fig. D2.04

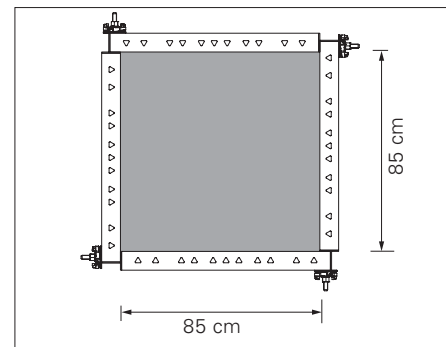


Fig. D2.05

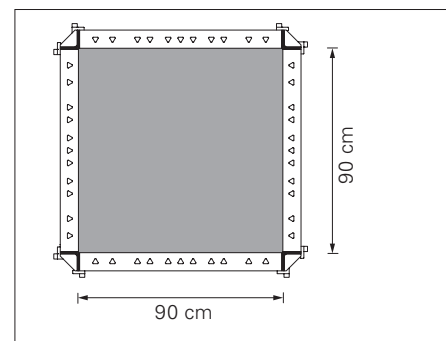


Fig. D2.06

Column formwork

Shown height = 300 cm
(Fig. D2.07)

Required components (65 x 65 cm to 85 x 85 cm)

16	Panel HSA 300 x 90	4x
30	Wingnut Counterplate DW 15	16x
38	HSA Corner Connector DW 15	16x

(Fig. D2.07a)

Required components (90 x 90 cm)

16	Panel HSA 300 x 90	4x
14	External Corner HSA 150	8x
20	Wedge Clip HSA	80x

(Fig. D2.07b)

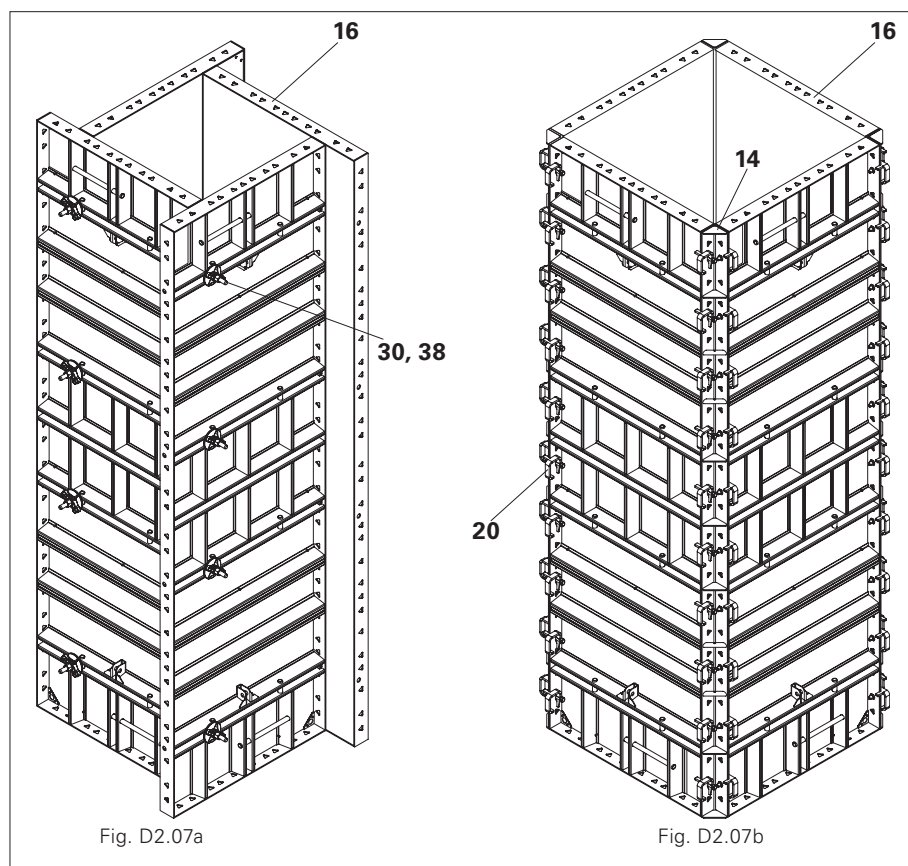


Fig. D2.07

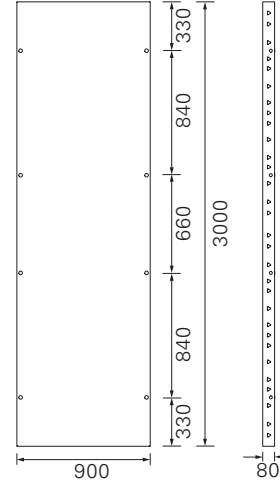
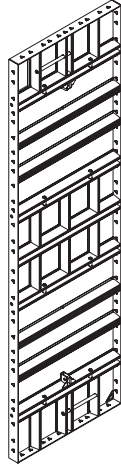
Item no. Weight kg

135550

89.4

Panel HSA 300 x 90

Panel with 12 mm plywood.

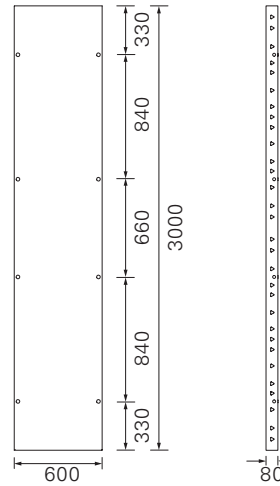
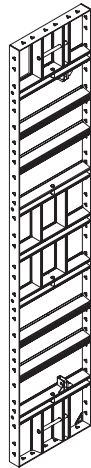


135574

66.2

Panel HSA 300 x 60

Panel with 12 mm plywood.

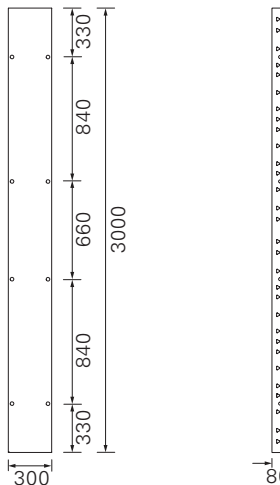


135583

41.1

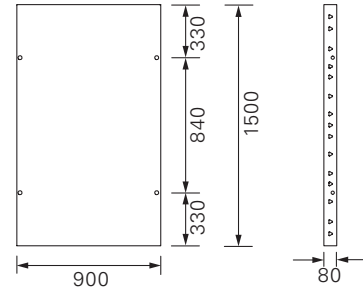
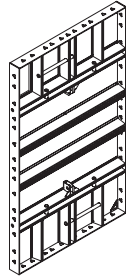
Panel HSA 300 x 30

Panel with 12 mm plywood.

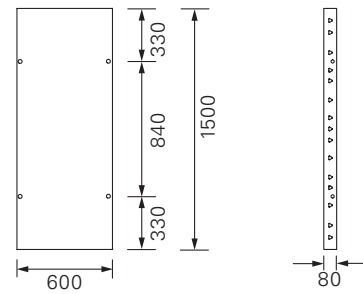
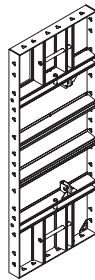


Item no. Weight kg

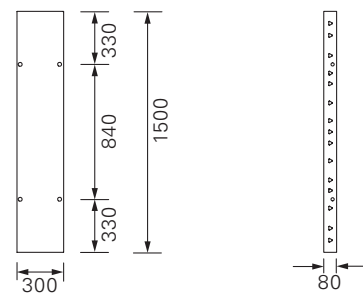
135522 46.7 **Panel HSA 150 x 90**
Panel with 12 mm plywood.



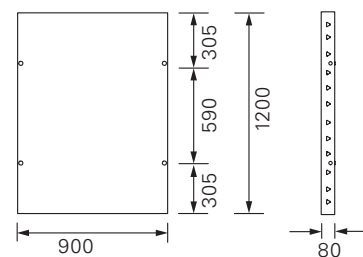
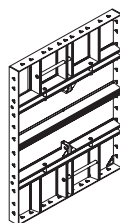
135558 35.0 **Panel HSA 150 x 60**
Panel with 12 mm plywood.



135565 21.0 **Panel HSA 150 x 30**
Panel with 12 mm plywood.

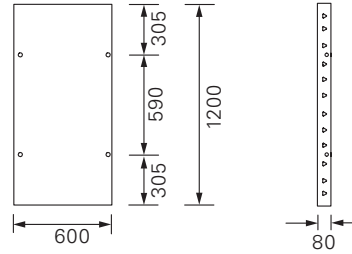
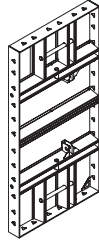


135543 39.4 **Panel HSA 120 x 90**
Panel with 12 mm plywood.

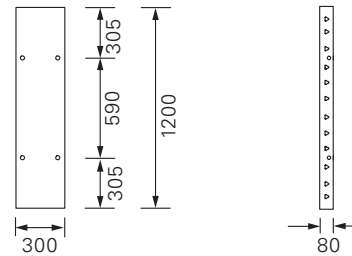


Item no. Weight kg

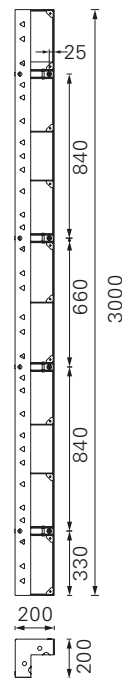
135569 29.6 **Panel HSA 120 x 60**
Panel with 12 mm plywood.



135578 17.5 **Panel HSA 120 x 30**
Panel with 12 mm plywood.

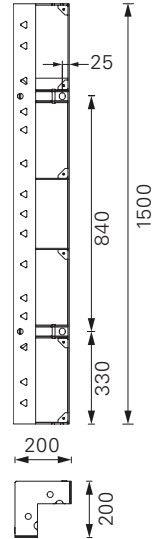
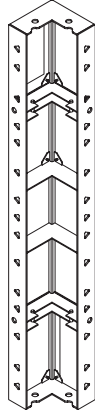


135840 41.8 **Internal Corner HSA 300**
With 12 mm plywood.

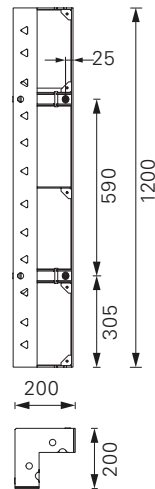
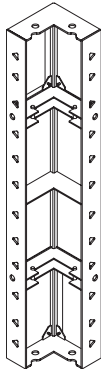


Item no. Weight kg

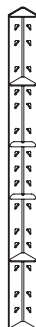
135830 21.5 **Internal Corner HSA 150**
With 12 mm plywood.



135835 17.7 **Internal Corner HSA 120**
With 12 mm plywood.



135620 9.22 **HSA External Corner 150**

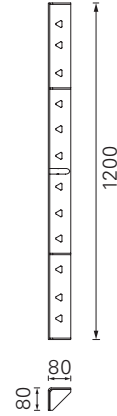


Item no. Weight kg

135623

7.43

External Corner HSA 120

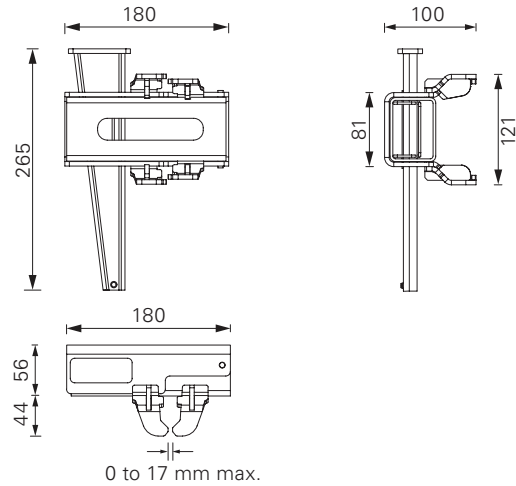
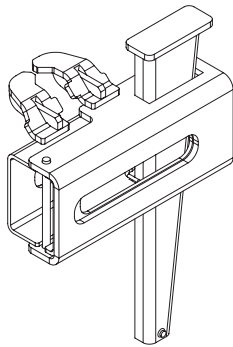


135745

2.58

Alignment Clamp HSA

For standard panel joints (0 to 17 mm max.)

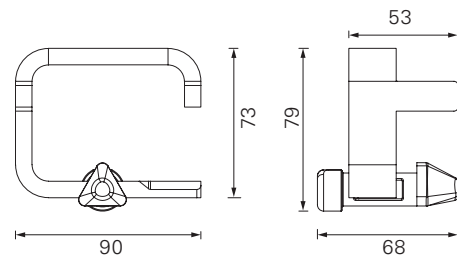
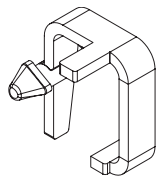


135818

0.45

Wedge Clip HSA

For standard panel joints.

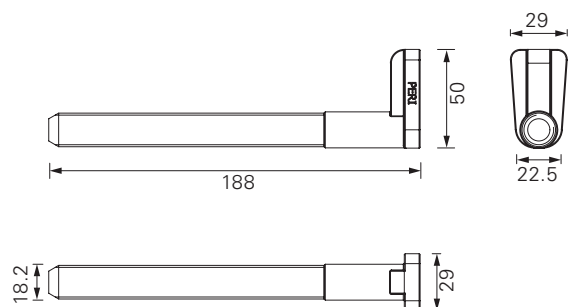
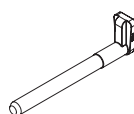


135587

0.42

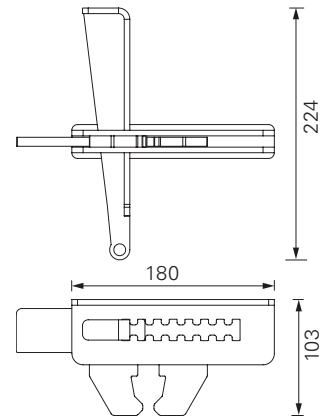
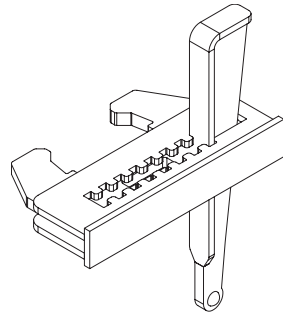
HSA Corner Connector DW 15

For external corners and columns.



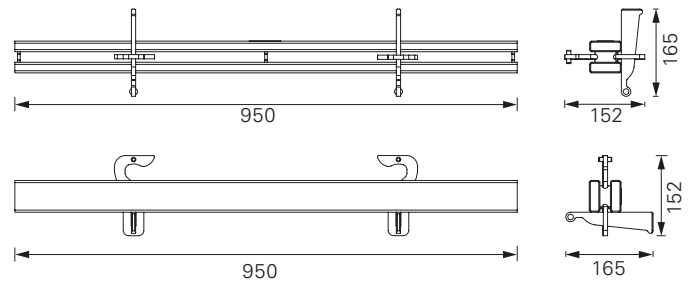
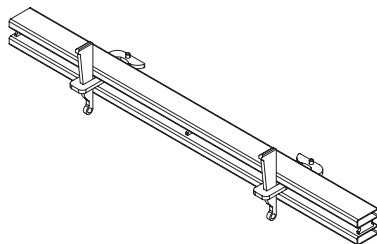
Item no. Weight kg

135763 1.94 **Compensation Clamp HSA**
For compensation up to 10 cm



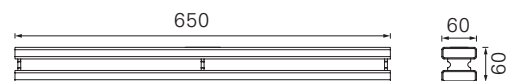
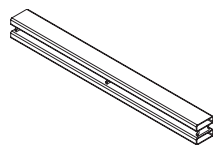
135643 5.74 **HSA Compensation Waler 95**
For length compensations between 10 cm and 30 cm,
Height extensions

Technical Data
Permissible bending moment 1.38 kNm.



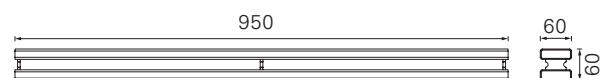
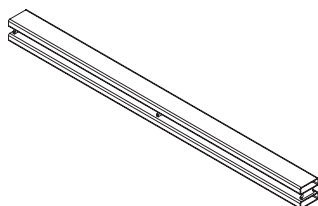
135635 3.08 **HSA Stopend Waler 65**
For stopend formwork.

Technical Data
Permissible bending moment 1.38 kNm.



135631 4.46 **HSA Stopend Waler 95**
For stopend formwork.

Technical Data
Permissible bending moment 1.38 kNm.

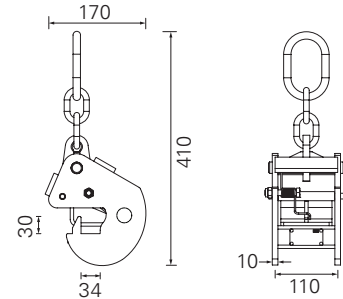
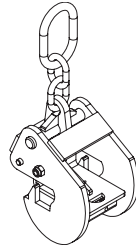


Item no.	Weight kg		
135813	11.8	Filler Support 18 HFS 300	For compensations from 10 cm to 30 cm with 18 mm plywood.
135806	5.92	Filler Support 18 HFS 150	For compensations from 10 cm to 30 cm with 18 mm plywood.
135810	4.72	Filler Support 18 HFS 120	For compensations from 10 cm to 30 cm with 18 mm plywood.

Item no. Weight kg

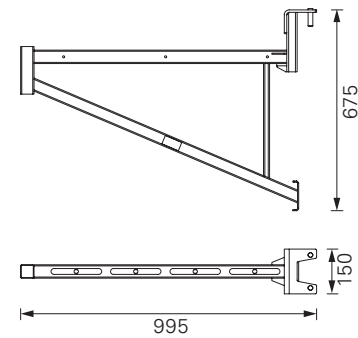
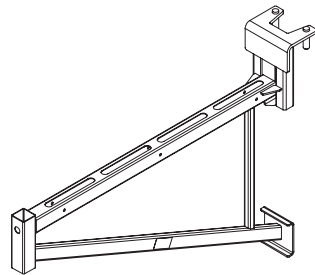
135868 **6.84** **Crane Hook HSA**
 For transporting HSA Panels.
 Refer to Crane Hook HSA - Original Instructions for Use.

Technical Data
 Permissible load-bearing capacity 500 kg

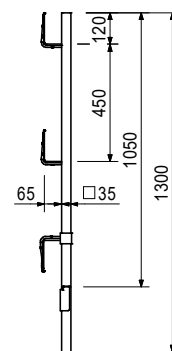


115907 **7.90** **Scaffold Bracket HSA 80**
 Use with timber size 38 x 38 mm
 For assembly of a working and concreting scaffold with HANDSET Alpha.

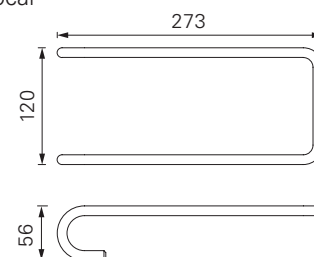
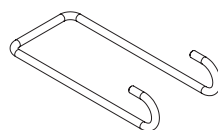
Technical Data
 Permissible load 150 kg/m².
 Maximum width of influence 1.80 m.



116292 **4.73** **Guardrail Post HSGP-2**
 As guardrail for different systems.



135911 **0.47** **Holder Hook HSA**
 For aligning HSA panels with girders VT 20 or any local girder (h = 20 cm) and also acts as a lifting hook

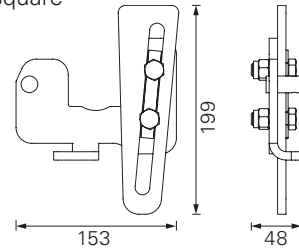
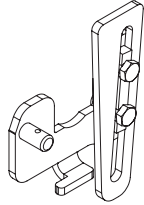


Item no. Weight kg

135853 1.35

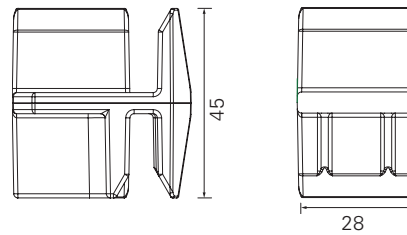
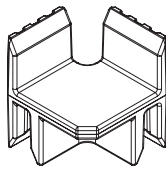
Tube Holder HSA

For aligning HSA panels with scaffold tube (NB40) or square tubes 50 x 50 mm



136053 0.03

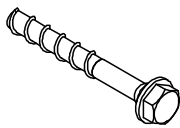
Stacking Aid HSA



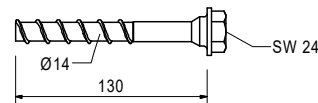
124777 0.21

Anchor Bolt PERI 14/20 x 130

For temporary fixation to reinforced concrete structures.



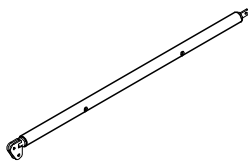
Note
See PERI data sheet!
Drilling \varnothing 14 mm.



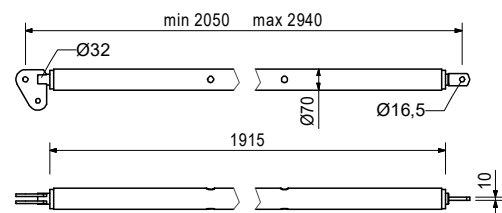
028010 17.90

Push-Pull Prop RSS I

Extension length $l = 2.05 - 2.94$ m.
For aligning PERI formwork systems.



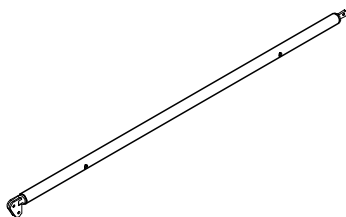
Note
Permissible load see PERI Design Tables.



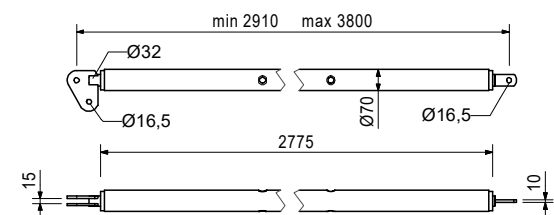
028020 22.00

Push-Pull Prop RSS II

Extension length $l = 2.91 - 3.80$ m.
For aligning PERI formwork systems.



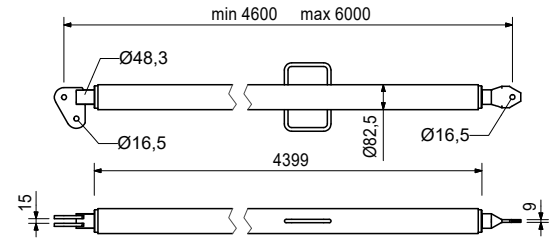
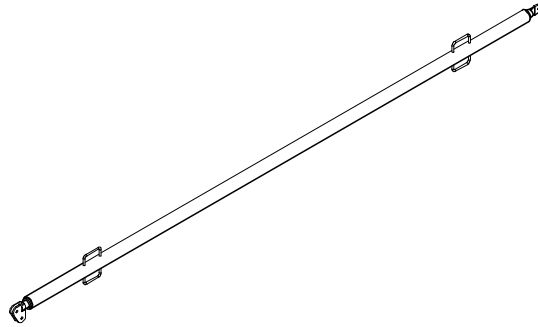
Note
Permissible load see PERI Design Tables.



Item no. Weight kg

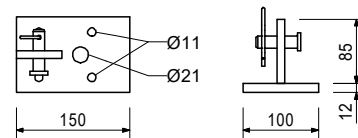
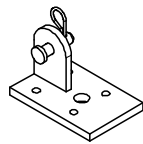
028030 38.40 **Push-Pull Prop RSS III**
 Extension length $l = 4.60 - 6.00$ m.
 For aligning PERI formwork systems.

Note
 Permissible load see PERI Design Tables.



106000 1.82 **Base Plate-2 for RSS, galv.**
 For assembly of RSS Push-Pull Props.

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

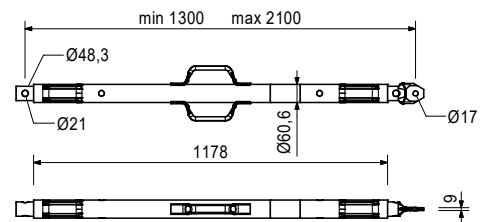
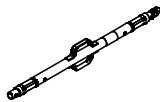


124777 0.21 **Anchor Bolt PERI 14/20 x 130**

Accessories

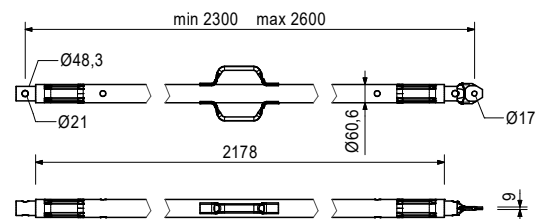
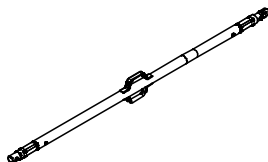
117466 10.60 **Push-Pull Prop RS 210, galv.**
 Extension length $l = 1.30 - 2.10$ m.
 For aligning PERI formwork systems and precast
 concrete elements.

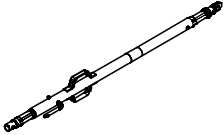
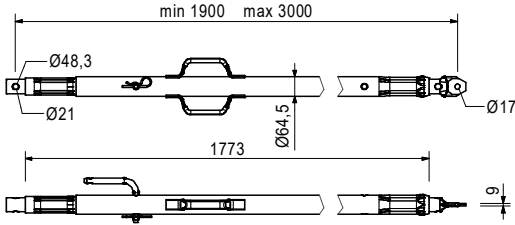
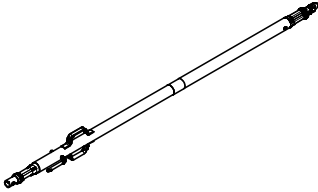
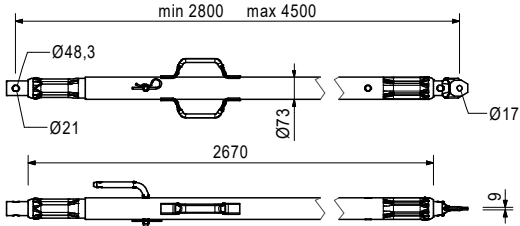
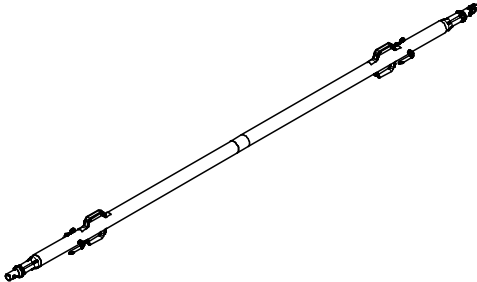
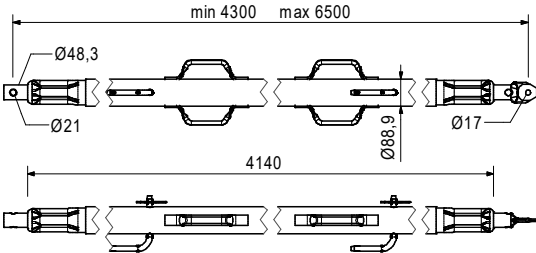
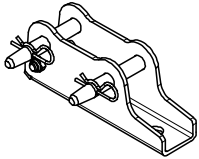
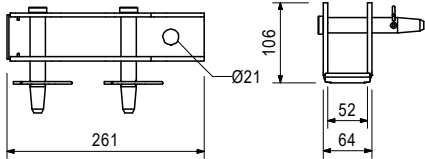
Note
 Permissible load see PERI Design Tables.



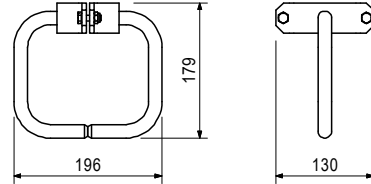
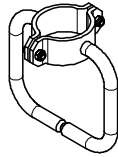
118238 12.20 **Push-Pull Prop RS 260, galv.**
 Extension length $l = 2.30 - 2.60$ m.
 For aligning PERI formwork systems and precast
 concrete elements.

Note
 Permissible load see PERI Design Tables.



Item no.	Weight kg		
117467	15.50	<p>Push-Pull Prop RS 300, galv. Extension length $l = 1.90 - 3.00$ m. For aligning PERI formwork systems and precast concrete elements.</p> 	<p>Note Permissible load see PERI Design Tables.</p> 
117468	23.00	<p>Push-Pull Prop RS 450, galv. Extension length $l = 2.80 - 4.50$ m. For aligning PERI formwork systems and precast concrete elements.</p> 	<p>Note Permissible load see PERI Design Tables.</p> 
117469	40.00	<p>Push-Pull Prop RS 650, galv. Extension length $l = 4.30 - 6.50$ m. For aligning PERI formwork systems and precast concrete elements.</p> 	<p>Note Permissible load see PERI Design Tables.</p> 
117343	3.25	<p>Base Plate-2 for RS 210 – 1400, galv. For assembly of Push-Pull Props RS 210, 260, 300, 450, 650</p> 	<p>Complete with 2 pc. 105400 Pin $\varnothing 20 \times 140$, galv. 2 pc. 018060 Cotter Pin 4/1, galv.</p> 
124777	0.21	<p>Accessories Anchor Bolt PERI 14/20 x 130</p>	

Item no.	Weight kg	
113397	1.60	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.

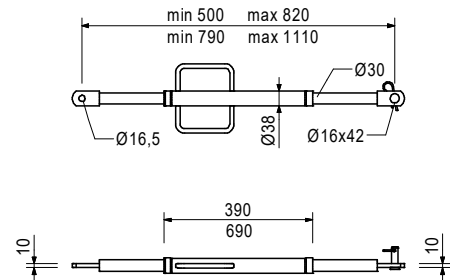
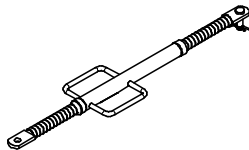


Item no.	Weight kg		min. L	max. L
057087	3.72	Kickers AV	500	820
057088	4.41	Kicker AV 82	790	1110
		Kicker AV 111		

For aligning PERI formwork systems.

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

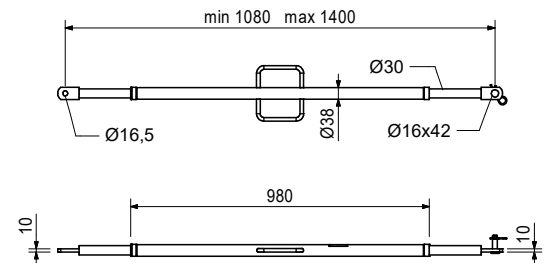
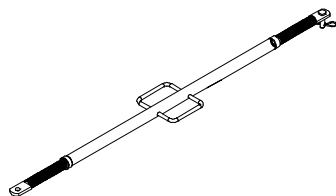
Note
 Permissible load see PERI Design Tables.



028110	5.18	Kicker AV 140 Extension length l = 1.08 – 1.40 m. For aligning PERI formwork systems.		
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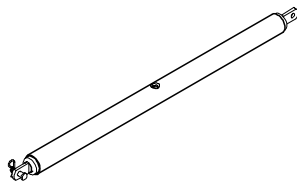
Complete with
 1 pc. 027170 Pin Ø 16 x 42, galv.
 1 pc. 018060 Cotter Pin 4/1, galv.

Note
 Permissible load see PERI Design Tables.

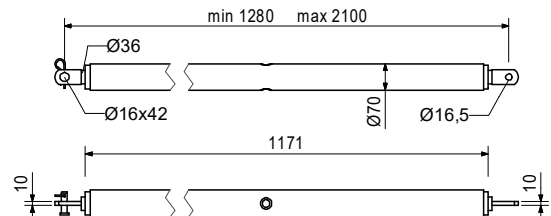


Item no. Weight kg

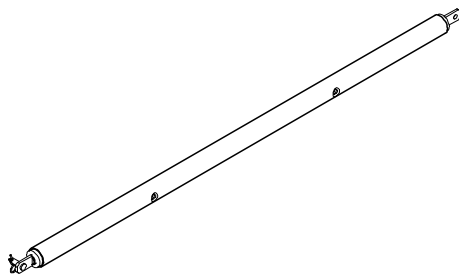
108135 12.9 **Kicker AV 210**
 Extension length $l = 1.28 - 2.10$ m.
 For aligning PERI formwork systems.



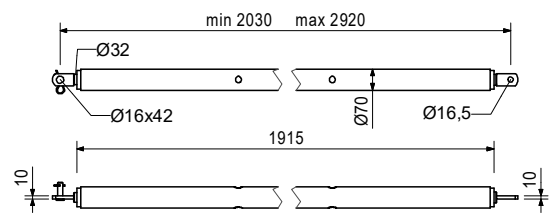
Complete with
 1 pc. 027170 Pin $\varnothing 16 \times 42$, galv.
 1 pc. 018060 Cotter Pin 4/1, galv.
Note
 Permissible load see PERI Design Tables.



028120 17.00 **Kicker AV RSS III**
 Extension length $l = 2.03 - 2.92$ m.
 For aligning PERI formwork systems.

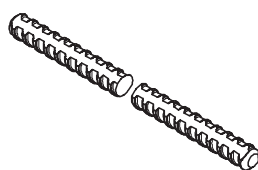


Complete with
 1 pc. 027170 Pin $\varnothing 16 \times 42$, galv.
 1 pc. 018060 Cotter Pin 4/1, galv.
Note
 Permissible load see PERI Design Tables.



030030	1.44	Tie Rods DW 15
030005	0.72	Tie Rod DW 15, spec. length
030010	1.23	Tie Rod DW 15, $l = 0.50$ m
030480	1.44	Tie Rod DW 15, $l = 0.85$ m
030490	1.44	Tie Rod DW 15, $l = 1.00$ m
030170	1.73	Tie Rod DW 15, $l = 1.20$ m
030170	2.16	Tie Rod DW 15, $l = 1.50$ m
030020	2.45	Tie Rod DW 15, $l = 1.70$ m
030180	2.88	Tie Rod DW 15, $l = 2.00$ m
030710	3.60	Tie Rod DW 15, $l = 2.50$ m
030720	4.32	Tie Rod DW 15, $l = 3.00$ m
030730	5.04	Tie Rod DW 15, $l = 3.50$ m
030160	8.64	Tie Rod DW 15, $l = 6.00$ m

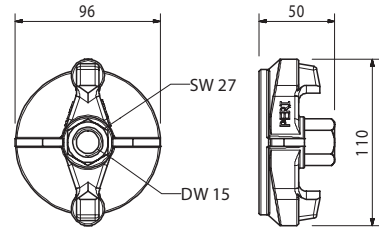
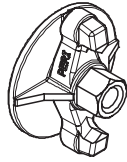
Note
 Non-weldable! Take official approval into consideration!
Technical data
 Permissible tension force 90 kN.



Item no. Weight kg

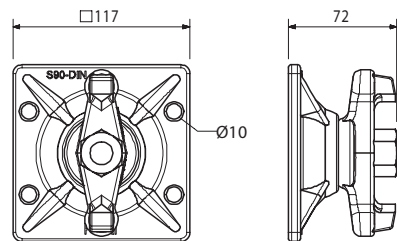
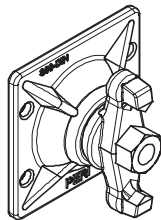
030110 0.79 **Wingnut Counterplate DW 15, galv.**
For anchoring with Tie Rod DW 15

Technical Data
Permissible load 90 kN.



030370 1.66 **Wingnut Pivot Plate DW 15, galv.**
For anchoring with Tie Rod DW 15. With pivoting captive nut. Maximum angle of tilting 8°.

Note
Wrench size SW 27.
Technical Data
Permissible load 90 kN.



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Column Formwork



Slab Formwork



Climbing System



Bridge Formwork



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