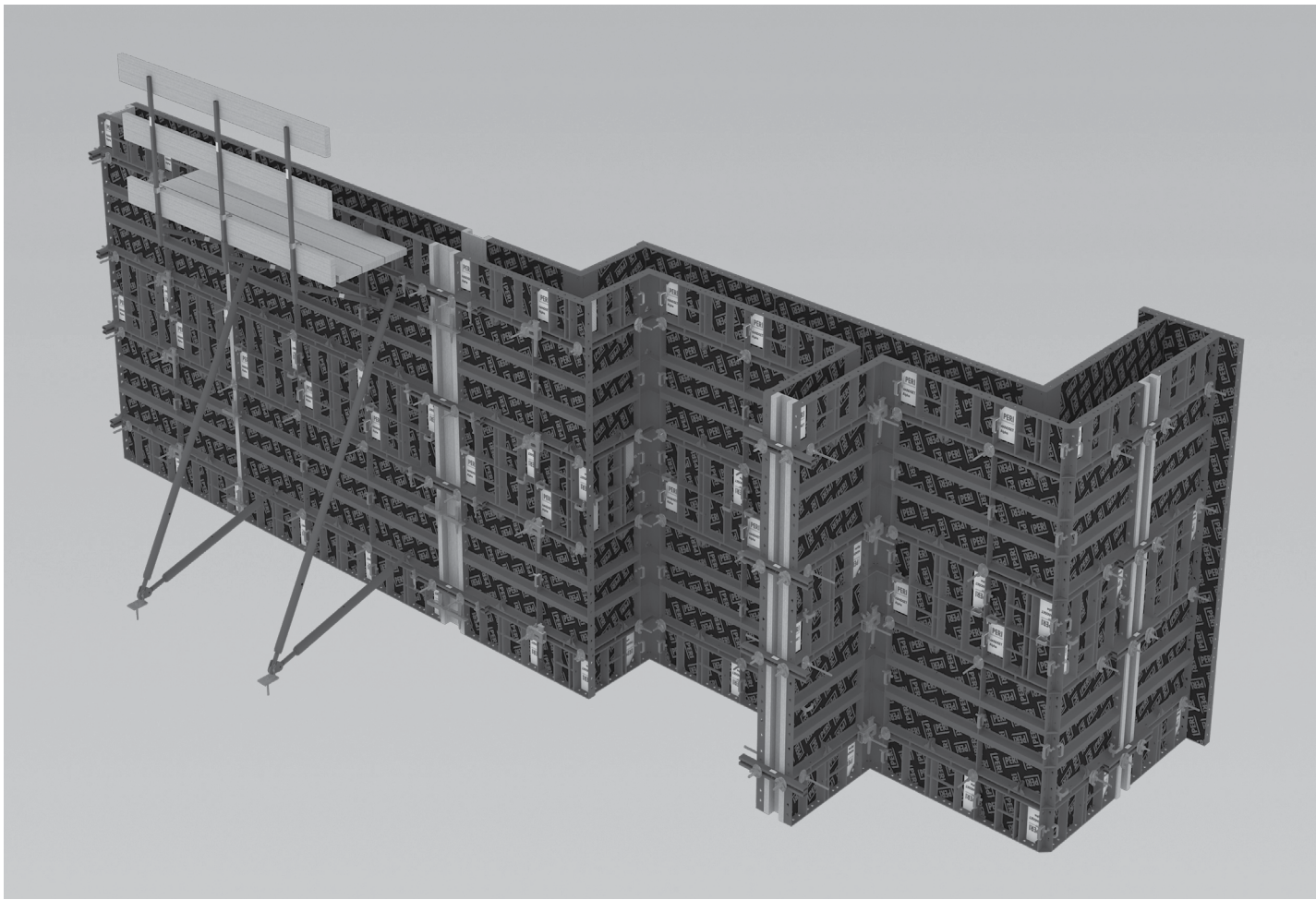
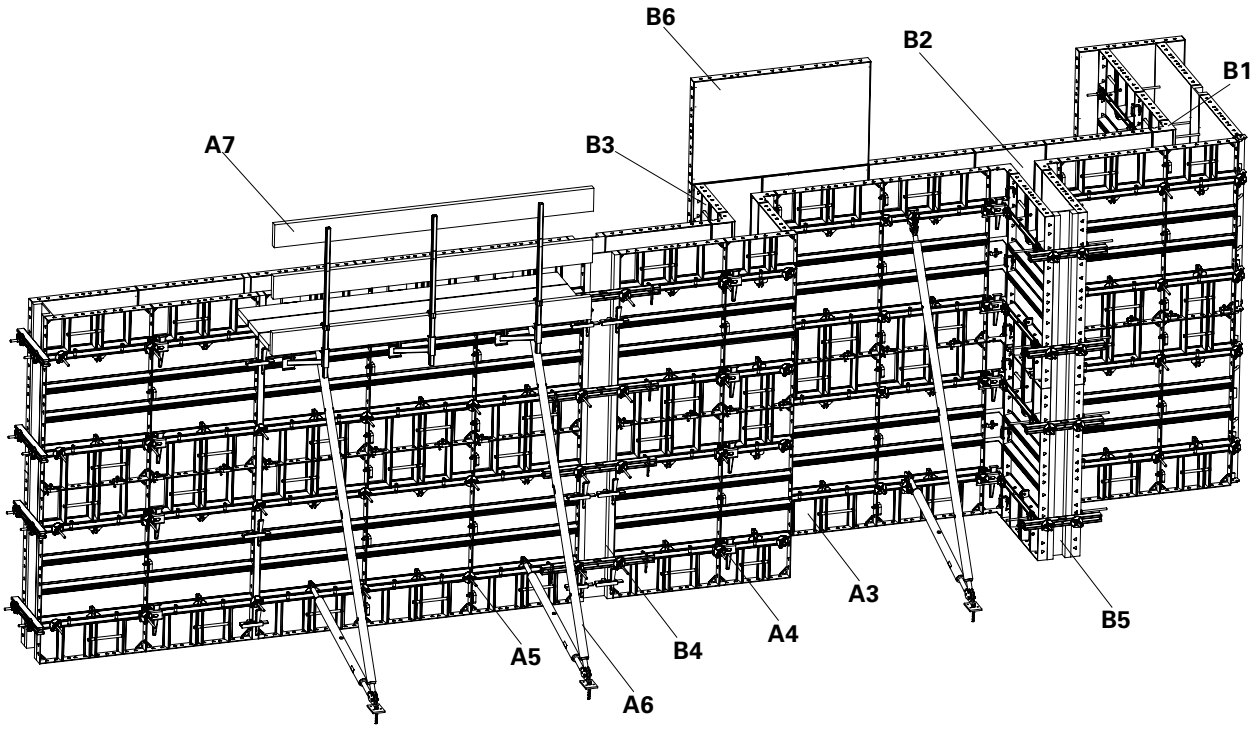
HANDSET Alpha

Panel Formwork System

Instructions for Assembly and Use – Standard Configuration – Version 3.1



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

Content

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)

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.

Arrows


Arrow representing an action


Arrow representing a reaction of an action*


Forces

* If not identical to the action arrow.

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.

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 indvidual 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-2: 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.

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 accidentlly 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 Ø 48.3 x 3.2 mm according to EN 12811-1:2003 4.2.1.2.
- scaffold tube couplings according to EN 74.

Deviations from the standard configuration are only permitted after a further risk assessment has been carried out by the contractor.On the basis of this risk assessment, determine appropriate measures for working and operational safety as well as stability.
Corresponding proof of stability can be provided by PERI on request if the risk assessment and resulting measures to be implemented are made available.

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.

A1 Component overview

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 insert 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 40)
47	Stacking Aid HSA
48	Timber (cut-to-size)
49	Wingnut Pivot Plate DW 15
50	Crane Hook HSA-2
51	HSA External Corner 120
52	Anchor Bolt PERI 14/20 x 130
53	HSA External Corner 300

Position number in illustrations	Component name
54	External brace connector HSA
55	Frame holder HSA
56	Waler hook HSA
57	SRZ/SRU waler
58	Chamfer strip HSA
59	Centering tool HSA

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)

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)

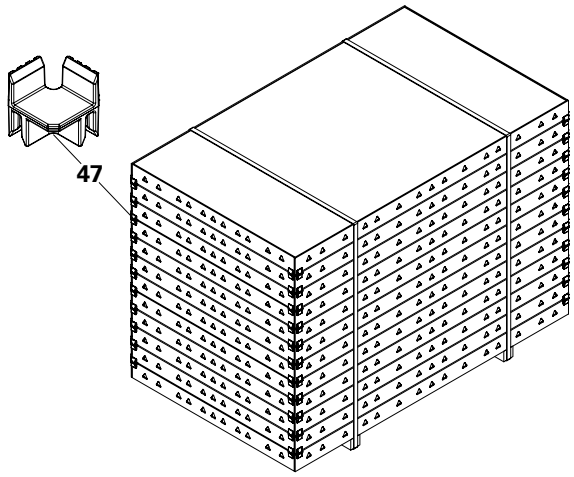


Fig. A2.01

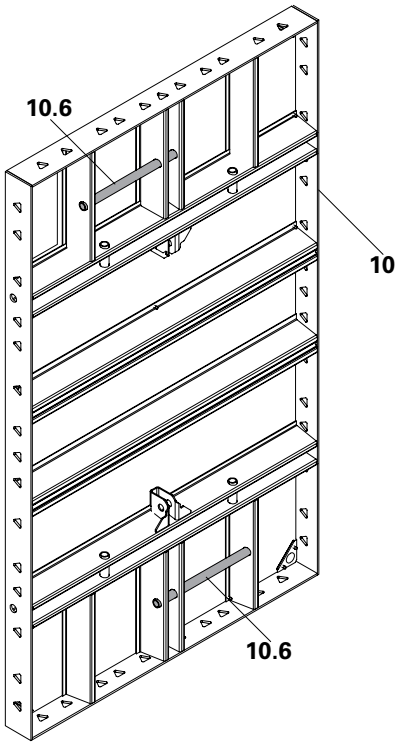


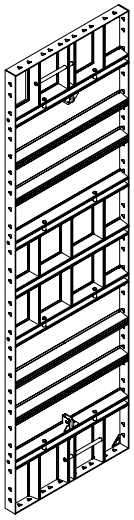
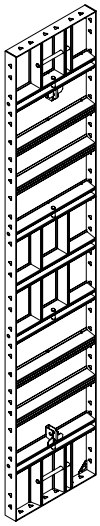
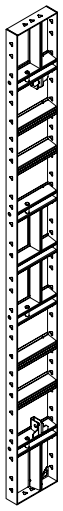
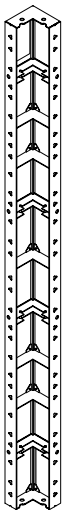
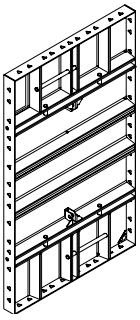
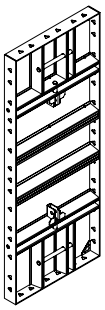
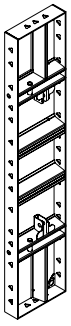
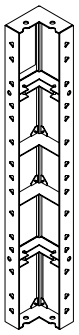
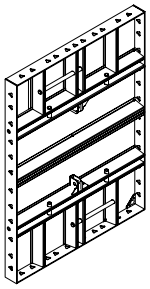
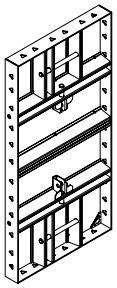
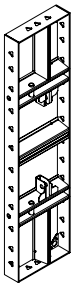
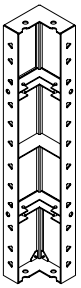
Fig. A2.02

A3 Panel

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.

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

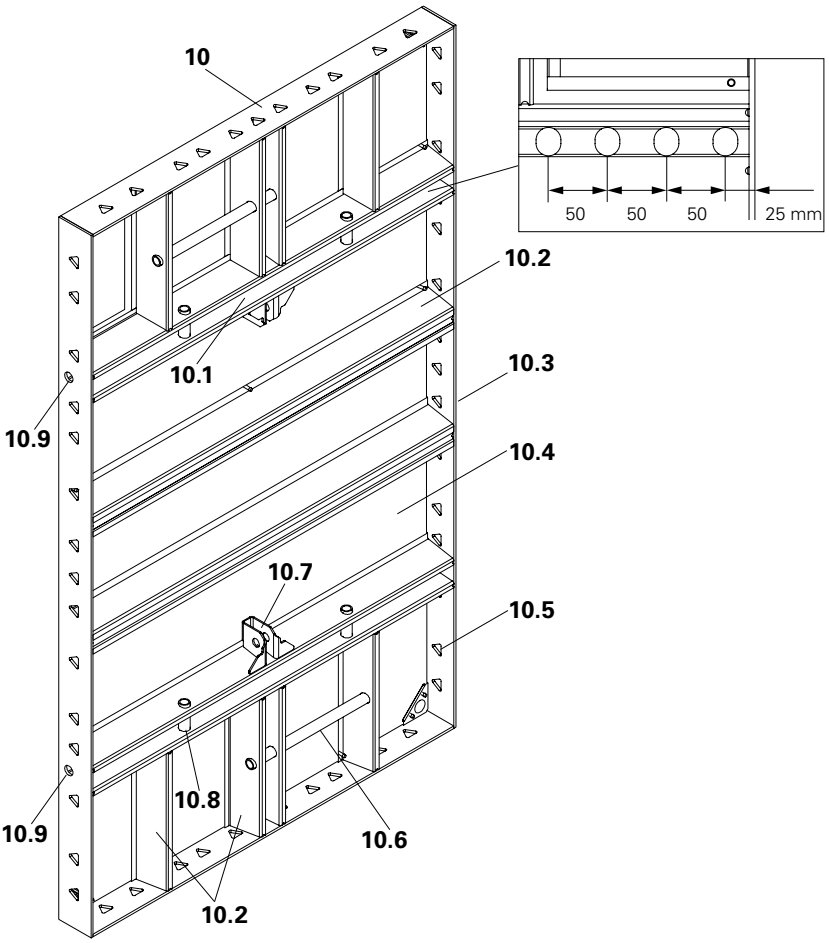


Fig. A3.01

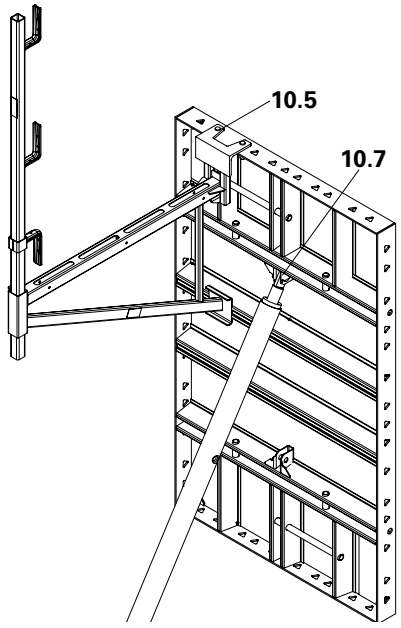


Fig. A3.02

Drilling of HSA formlining

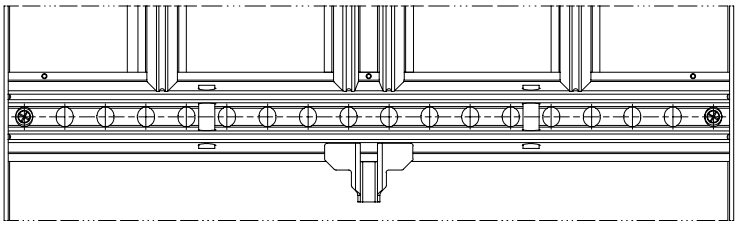
Marking of the formlining (plywood)

1. Drilling of additional holes must correspond to the pre-set postions as allowed for the punching found in the anchor strut (W-profile) of the panels.

– Incorrect drilling postions may compromise the integrity of the panel and result in replacement cost of the complete panel or formlining.

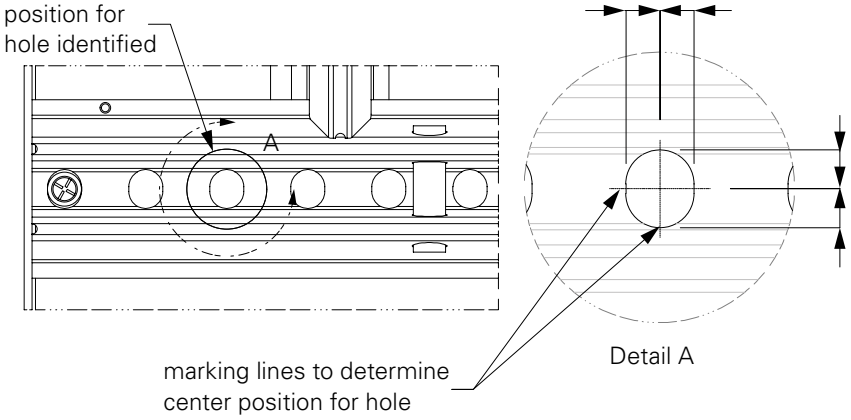
2. After the position is identified, draw a vertical and horiozontal line at the back of the panel to determine the center point for drilling.
3. Marking out on the front of the panel is possible by using the existing pre-drilled tie holes as a guide.
4. Draw a horiozontal center line from the center in increments of 50 mm to enusre the alignment of the pre-set drilled holes with new drilling holes.

– It is always recommended that the markings be done from the back to avoid drilling into the stiffeners/frame of the panel which may affect the overall integrity)

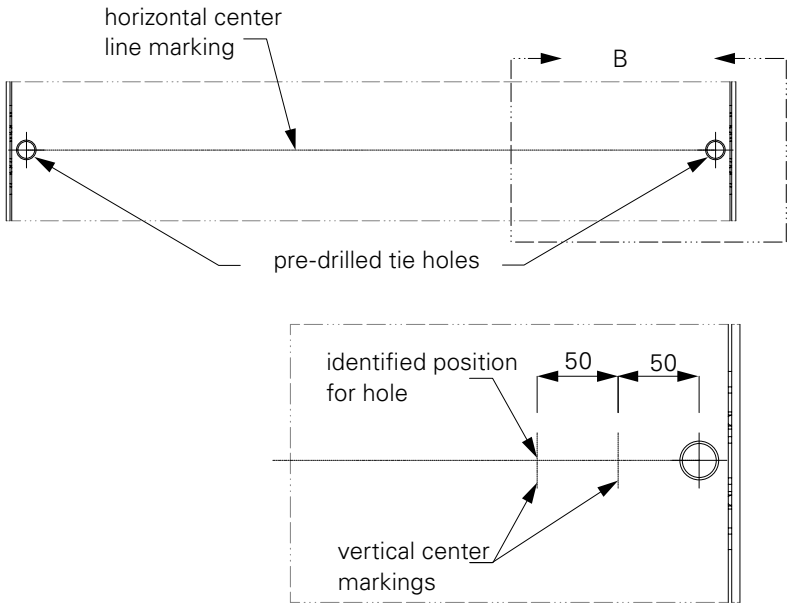


Pre-set hole positions (viewed from back of panel)

Marking hole positions from the back of the panel



Marking hole positions from the front of the panel



Detail B

Drilling of the formlining (plywood)

1. Position the drill bit of 3-5 mm on the intersection of vertical and horizontal line.

– Always drill a guide hole and ensure that the drill is at 90°/perpendicular to the formlining/plywood.

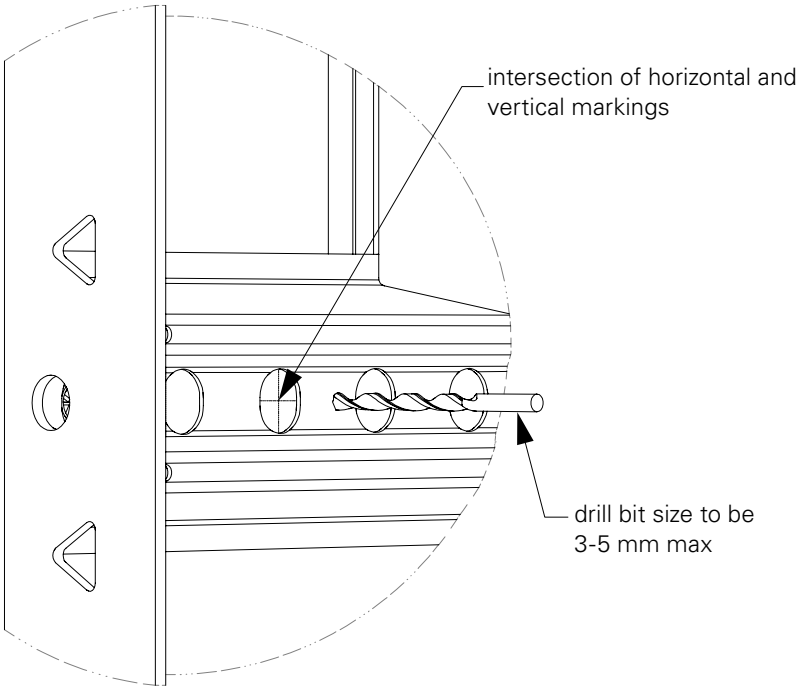
2. Drill a pilot hole (this will be used as a guide later)

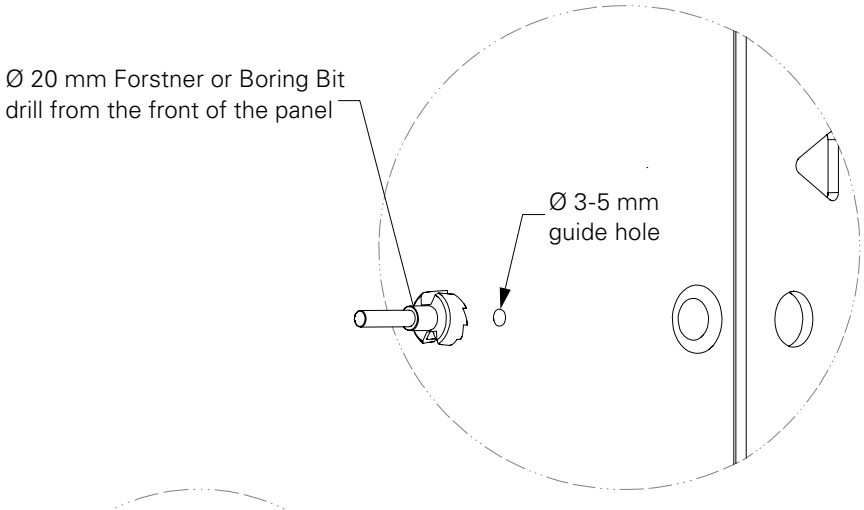
– Drilling from the front of the panel will be the same as drilling from the back of the panel.
– Avoid excessive force by pushing the drill into the plywood causing damage.

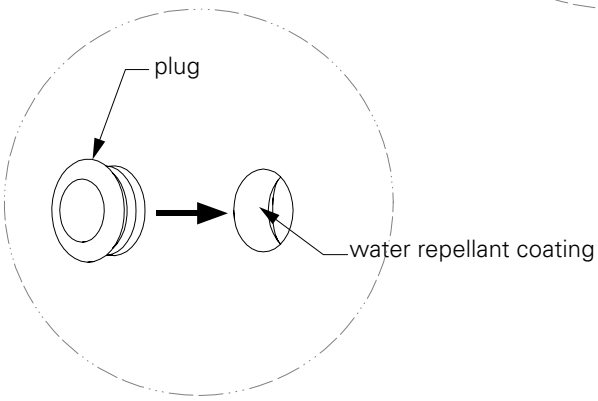
3. Change the drill bit with forstner bit (art. no. 031040 - drill bit Ø20 mm), or boring bit (art. no.031090 - formlining drill bit Ø20 mm x 1000 mm)
4. Using the previously drilled hole as a guide, drill the Ø20 mm hole.

– Let the drill bit do the cutting of the hole and do not exert unnecessary force on the drill, as this will result in the plywood cracking/splintering.
– Avoid using the spade bits as these are for rough cut holes in timber.
– Never use the concrete drill bit to drill into plywood.

5. After the drilling of hole, paint the area with water water repellant coating where the plywood is exposed to ensure that the hole is not exposed to the elements which may cause swelling of the plywood around the hole.
6. Plug the hole when not in use with Ø20 mm plastic plug (art. no. 030290 - plug Ø 20 mm)







A4 Panel connection

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
– Stopend 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

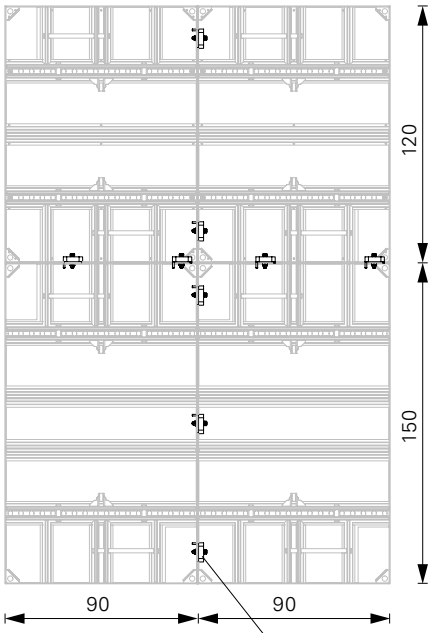


Fig. A4.01

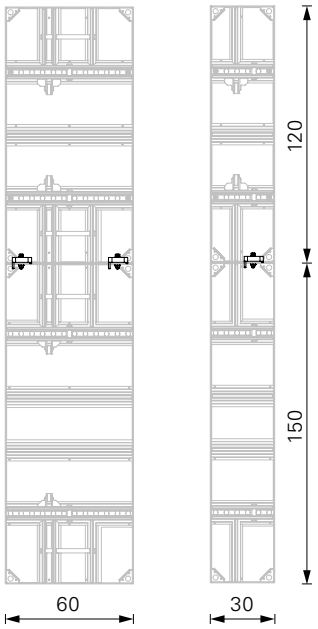
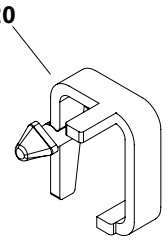


Fig. A4.02



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.

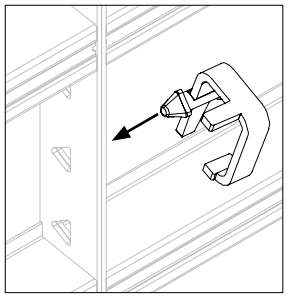


Fig. A4.01a

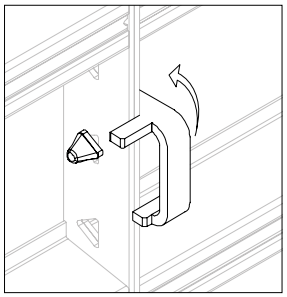


Fig. A4.01b

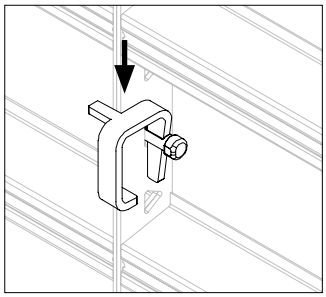


Fig. A4.01c

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 accomodate 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

Horizontal
W = 90 cm: 1 x alignment clamp
W = 60 cm: 1 x alignment clamp
W = 30 cm: 1 x alignment clamp

The alignment clamp HSA is meant for partial alignment. However the system is fully functional using wedge clip HSA alone.

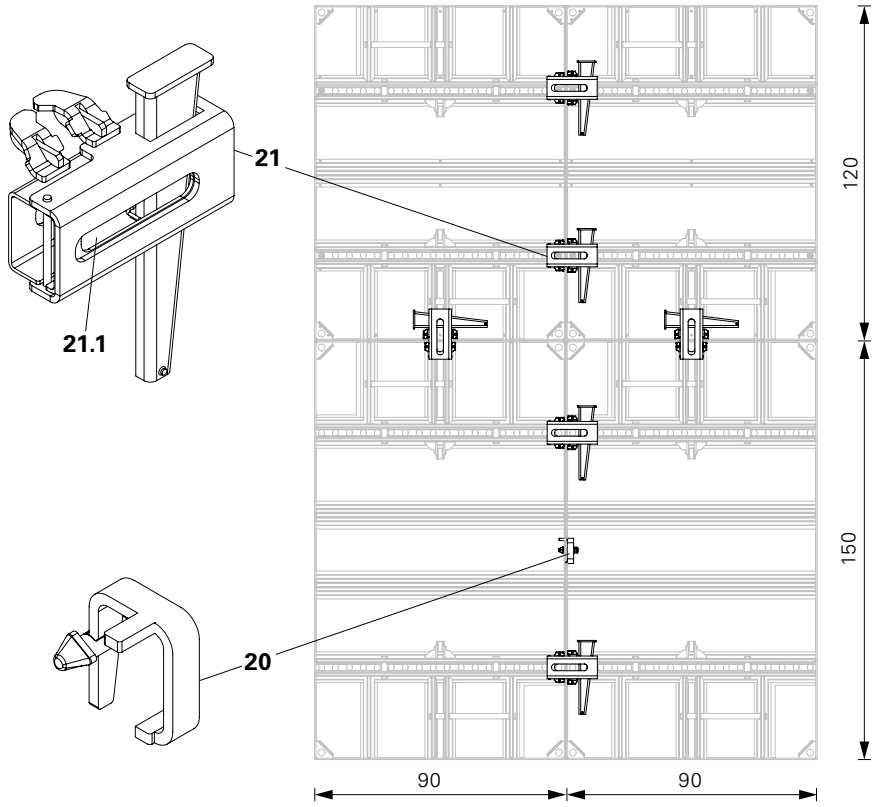


Fig. A4.03

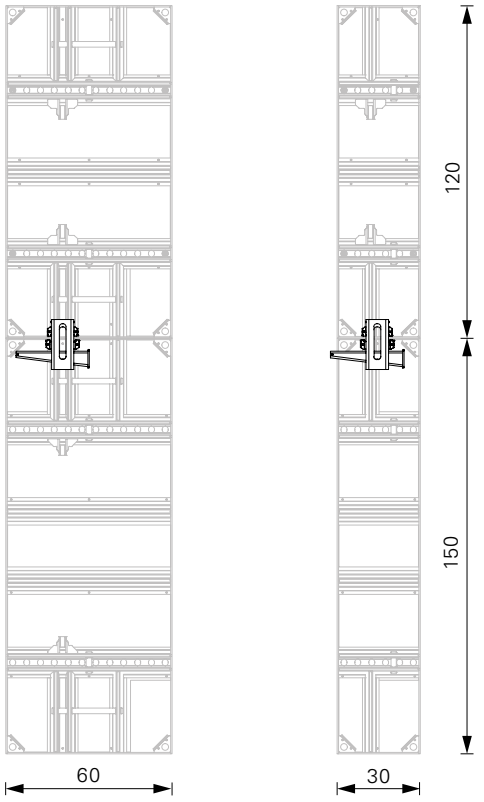


Fig. A4.04

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 counter-plate) is required, follow below steps:
4. Once the clamp is fixed at the panel joints, install the tie rod DW 15 (27) into the tie slot. (Fig. A4.07)
5. Put the wingnut counterplate DW 15 (30) and rotate clockwise. (Fig. A4.07) Perform the same operation on the opposite side.
6. 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)

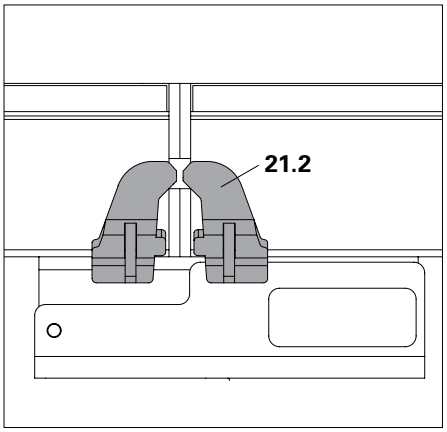


Fig. A4.05

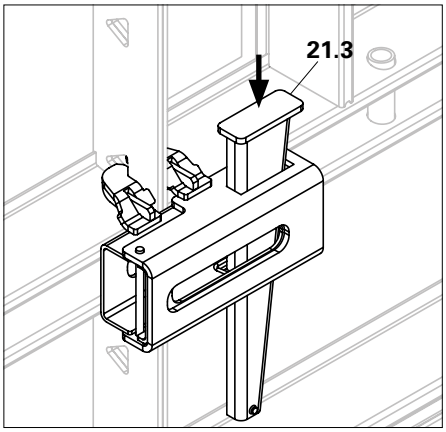


Fig. A4.06

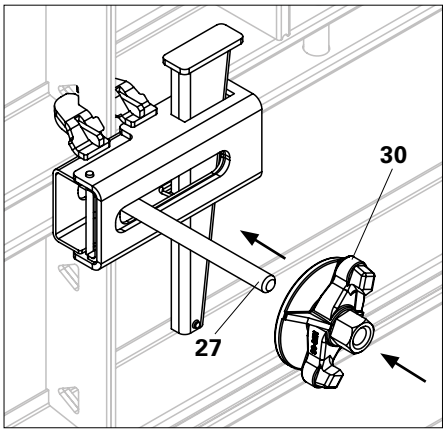


Fig. A4.07

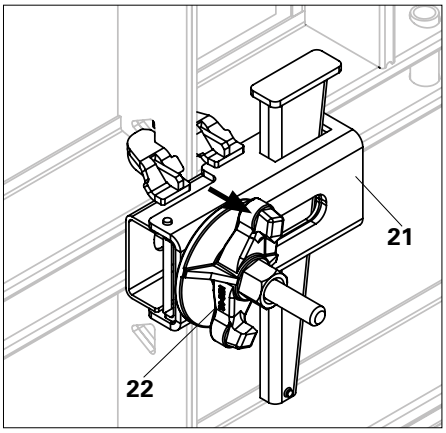


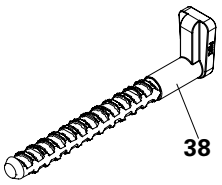
Fig. A4.08

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)

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



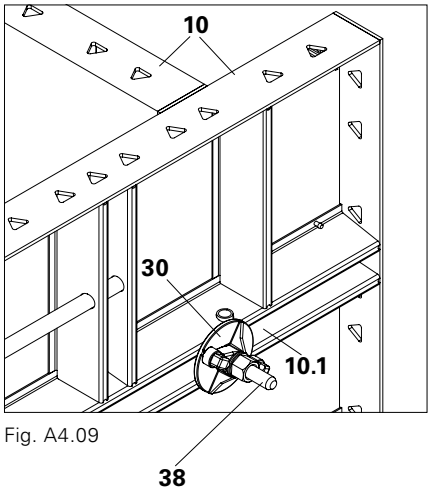


Fig. A4.09

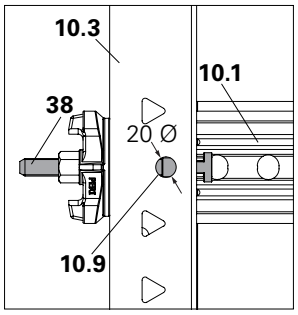


Fig. A4.09a

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)

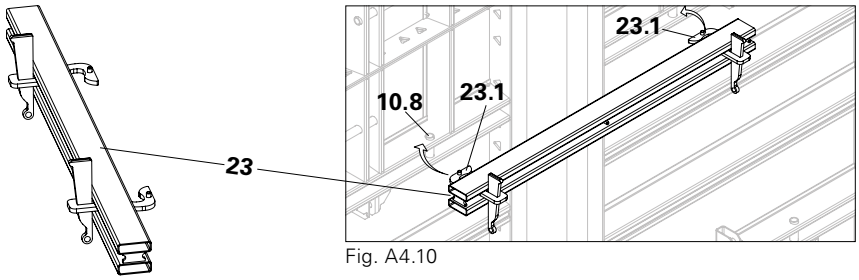


Fig. A4.10

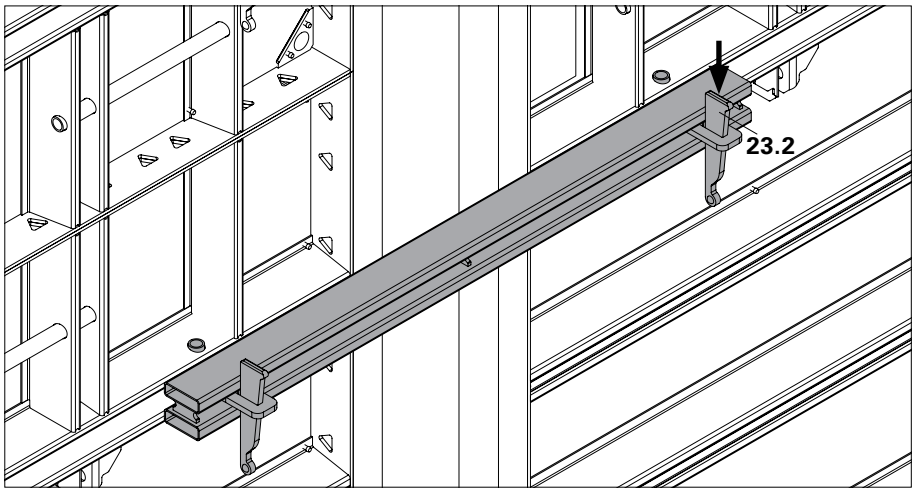


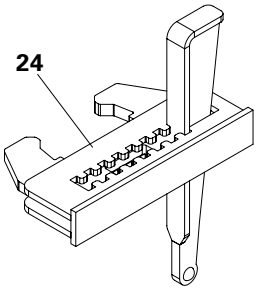
Fig. A4.11

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.



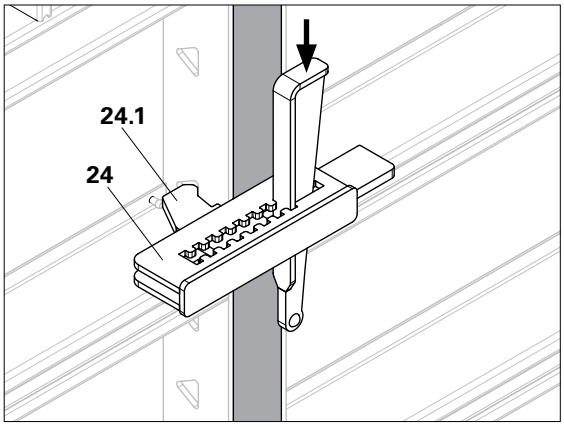


Fig. A4.12

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)

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)

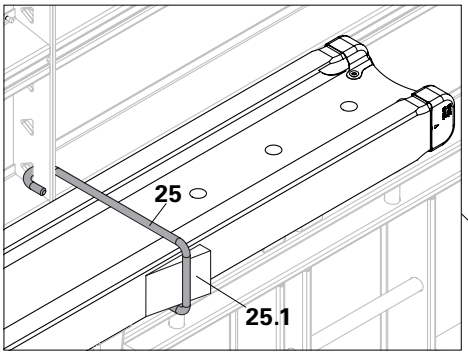


Fig. A4.13a

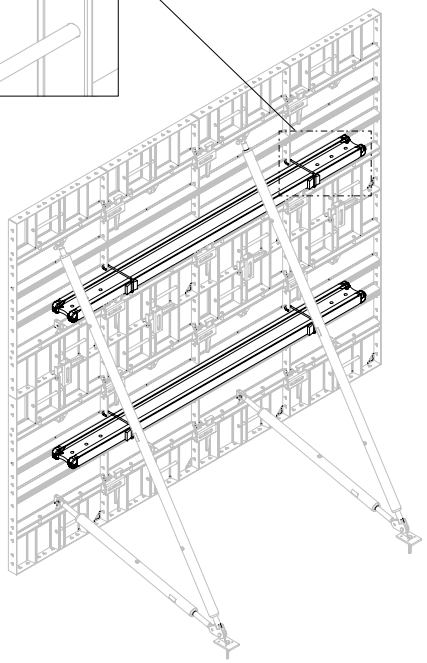


Fig. A4.13

Tube Holder HSA

Tube holder HSA (26) can be used for additional alignment along with the scaffold tube of 48 mm dia 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 of 48 mm dia 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)

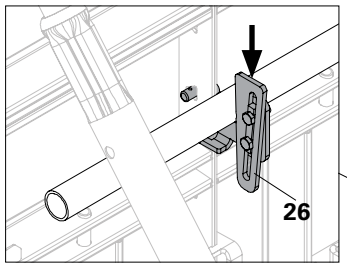


Fig. A4.14a

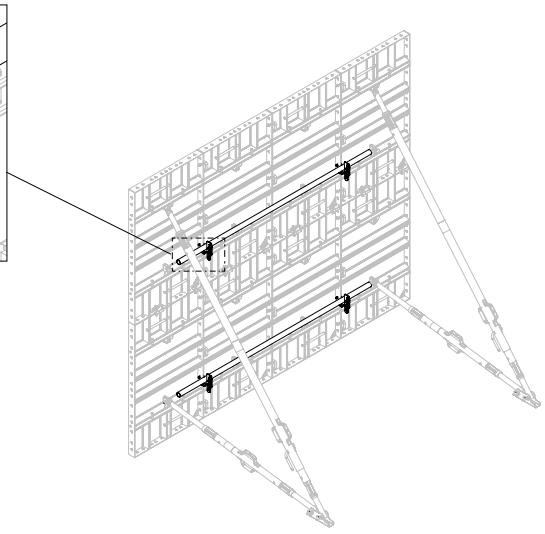


Fig. A4.14

HSA External Corner

The HSA external corner is available in three sizes:
– HSA external corner 150
– HSA external corner 120
– HSA external corner 300

Areas of use:
– Corners : see B1, C1
– Column formwork: see D1, D2

Assembly
1. Install the HSA external corner (14) to the panel (10a) using four M16x30 bolt (14a) and four M16 nut (14b). (Fig. A4.15)
2. Install the next panel (10b) to the assembly of panel (10a) + HSA external corner (14) using HSA corner connector DW 15 (38) and wingnut counterplate DW 15 (30) (Fig. A4.16)
3. Repeat the steps 1 and 2 to complete the setup. (Fig. A4.17)

Disassembly
1. To dismantle the setup, remove the wingnut counterplate DW15 (30) and HSA corner connector DW15 (38). (Fig. A4.18)

– The HSA external corner can remain bolted to the panel for repeated use and need not be dismantled.

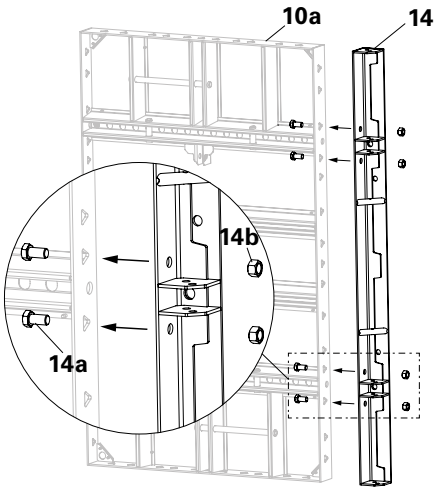


Fig. A4.15

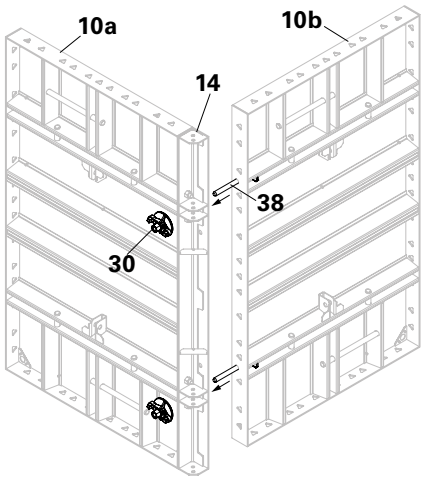


Fig. A4.16

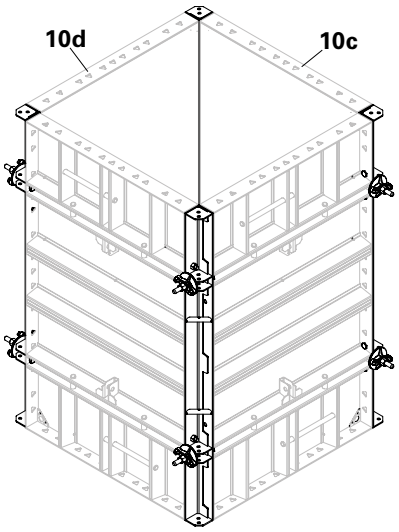


Fig. A4.17

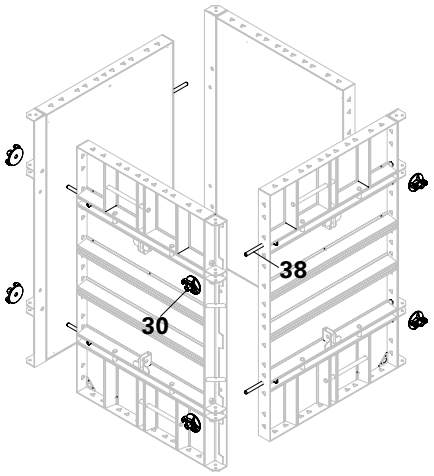
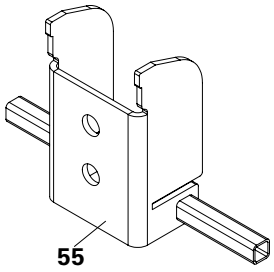


Fig. A4.18

Frame Holder HSA

The frame holder HSA (55) is an add-on component in HANDSET Alpha system.

It is a light-weight component designed for:
– Protection against uplift of formwork elements.
– Top tie bracket for foundation formwork when panels are in horizontal position.



Using as protection against uplift

Assembly
1. When panels are arranged vertically, install the frame holder HSA (55) at vertical strut location of the panel.
2. When panels are arranged horizontally, install the frame holder HSA (55) at anchor strut locations of the panel. (Fig. A4.20)
3. Fix the frame holder HSA (55) with anchor bolt 14/20 x 130 (52) (art. no.124777) on the concrete floor. (Fig. A4.21)

– The concrete load is taken care by tie-rods.

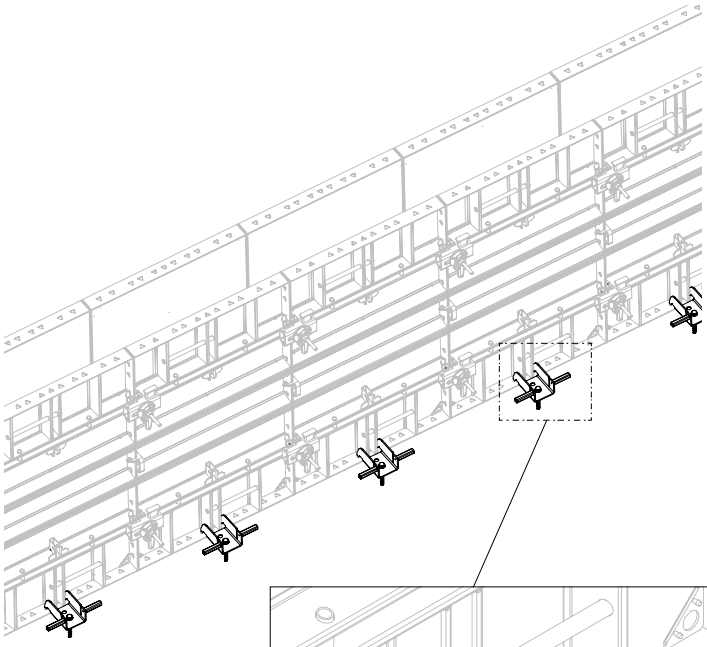


Fig. A4.19

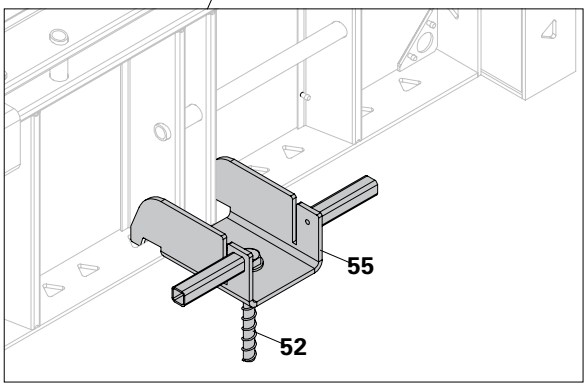


Fig. A4.20

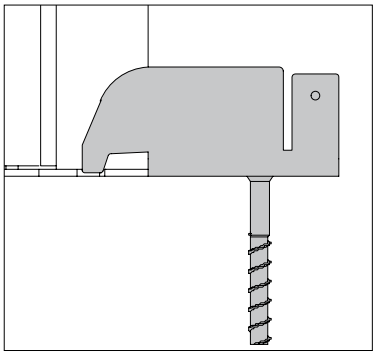


Fig. A4.21

Using as top tie bracket in horizontal panels for foundation

Assembly

1. Install the frame holder HSA (55) on the top side of the formwork at all anchor struts locations of the horizontal panel arrangement
2. Insert the tie rod DW 15 (27) through the bottom hole (A) of the frame holder HSA. (Fig. A4.22)
3. Tighten the tie rod DW 15 (27) with wingnut counter plate DW 15 (30).

– A timber distance piece can be added to avoid over tightening of tie rods.

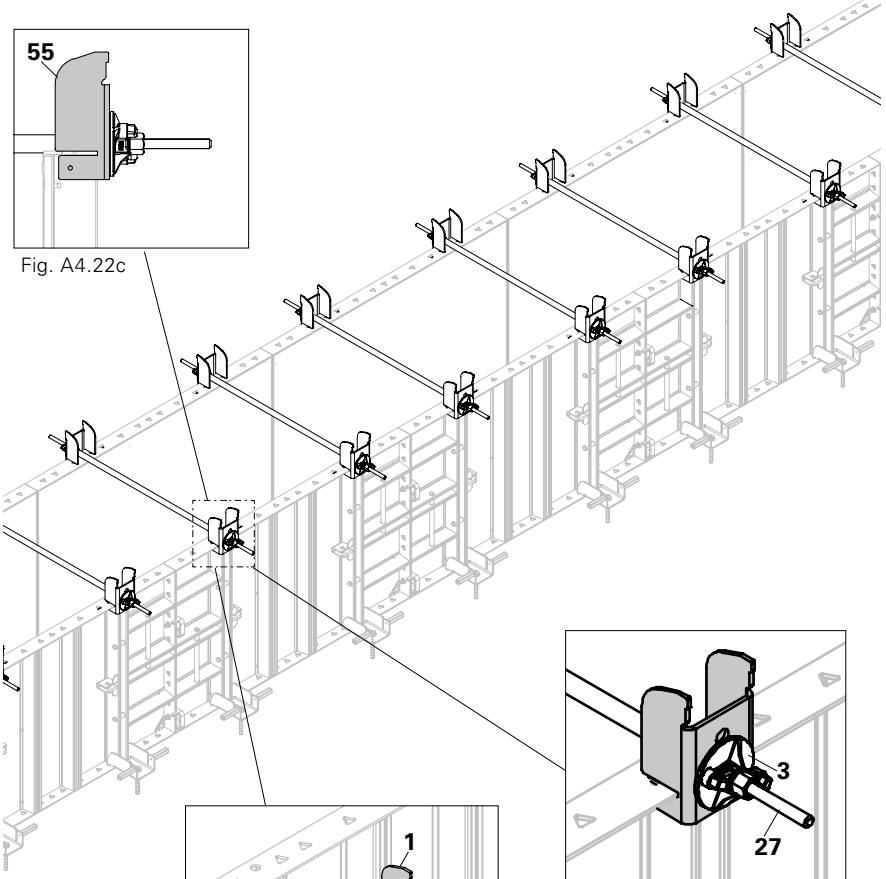


Fig. A4.22c

Fig. A4.22

Fig. A4.22b

Fig. A4.22a

Waler hook HSA

The waler hook HSA (56) is an add-on component in HANDSET Alpha system. It is designed to connect the SRZ/SRU waler to HSA panels.

For better stability of connection, use one level of SRZ/SRU waler for each horizontal level of panels.

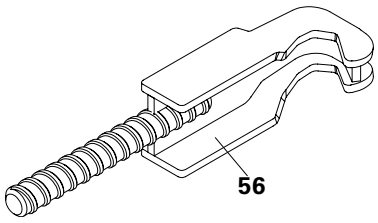


Fig. A4.23

Assembly

1. Install the waler hook HSA (56) to the stiffener pipe (A) of the panel. (Fig. A4.24a)

– Make sure to connect one waler hook HSA for each panel at each waler level.

2. Install the SRZ/SRU waler (57) through the waler hook HSA (56). (Fig. A4.25a)
3. Tighten the wa ler hook HSA (56) with wingnut counterplate DW 15 (30). (Fig. A4.25a)
4. Perform the similar procedure to install the other SRZ/SRU walers for each horizontal level of panels. (Fig. A4.25)

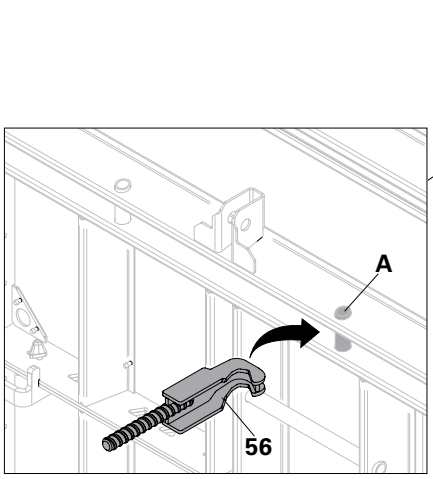


Fig. A4.24a

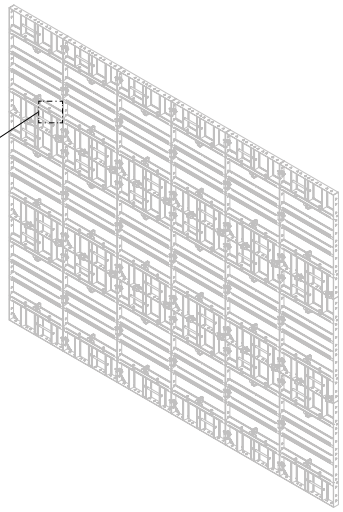


Fig. A4.24

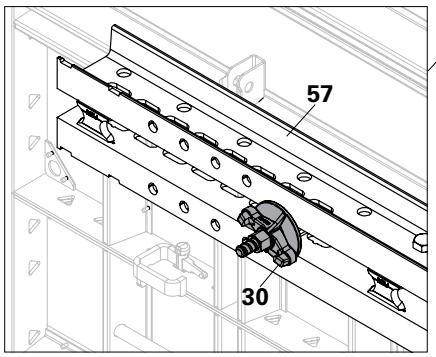


Fig. A4.25a

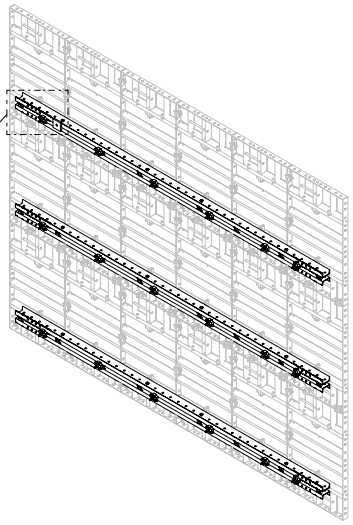


Fig. A4.25

Tie System

DW 15 - Perm. load: 90 kN

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)

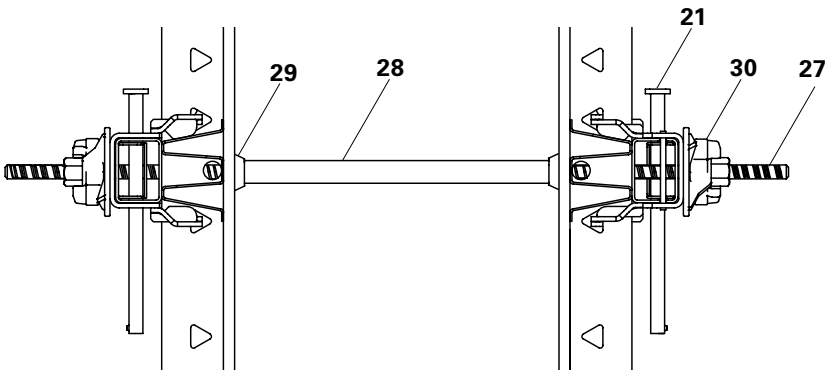


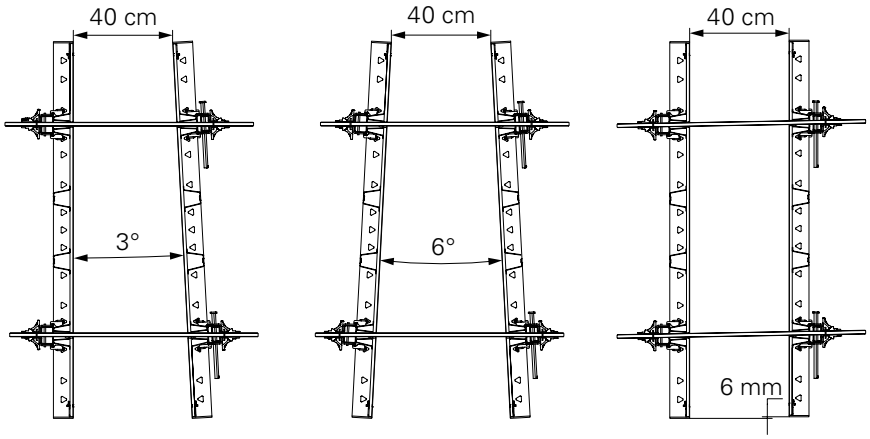
Fig. A5.01

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

Inclined anchorage with DW 15

- Secure panels against lifting.

Tie rod angles for slopping panels = max. 3°



Inclined on one side max. 3°

Inclined on both side max. 2 x 3°

Height offset max. 6 mm upto 40 cm wall thickness

Fig. A5.02

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. A5.03)

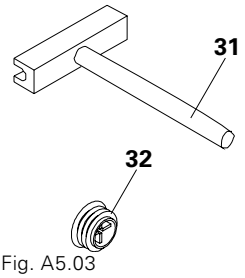


Fig. A5.03

Push-Pull Props and Kickers

Maximum width of influence for HSA system is based on in-built brace connector capacity as well as the capacity of push-pull props and kickers. Refer to Design tables on next page for capacities of push-pull props and kickers.

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).

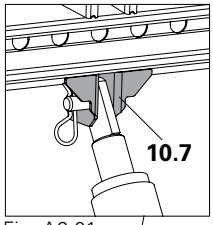


Fig. A6.01a

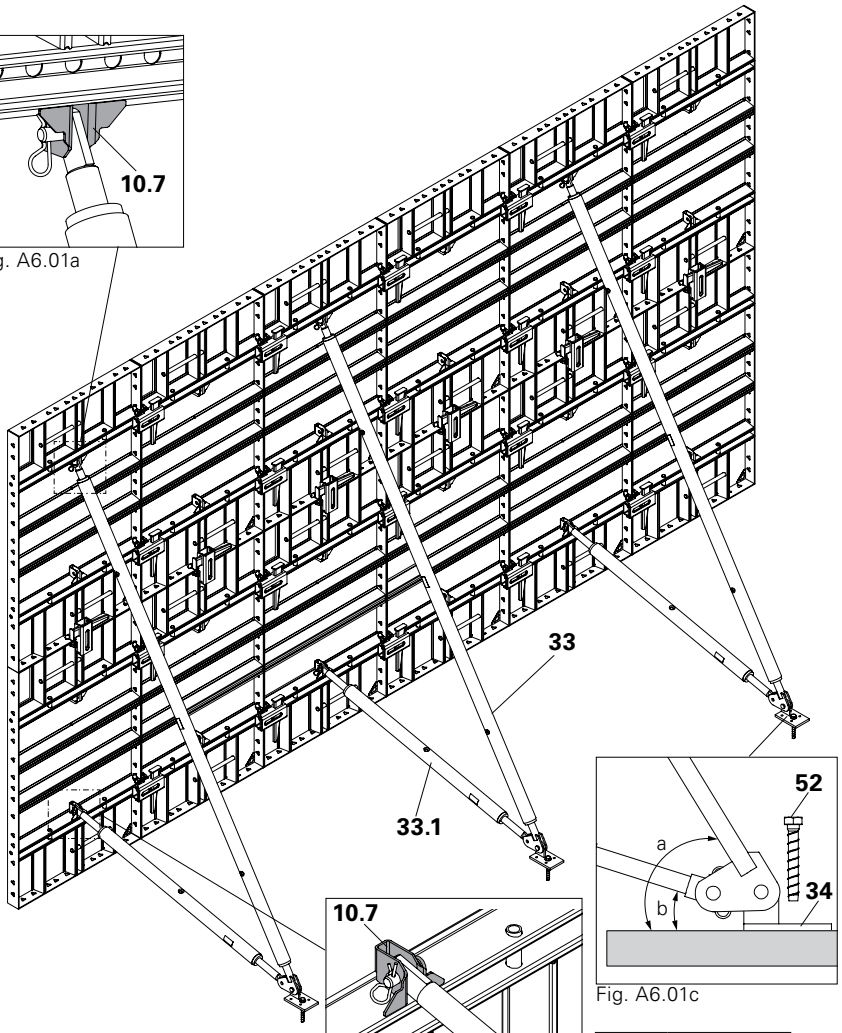


Fig. A6.01b

Fig. A6.01c

a	45 to 60 °
b	0 to 15 °

Fig. A6.01

The push-pull prop should always be connected to the top in-built brace connector of the panel during any height assembly. (Fig. A6.02)

Do not connect the push-pull prop to the bottom in-built brace connector of the top panel during any height assembly. (Fig. A6.02)

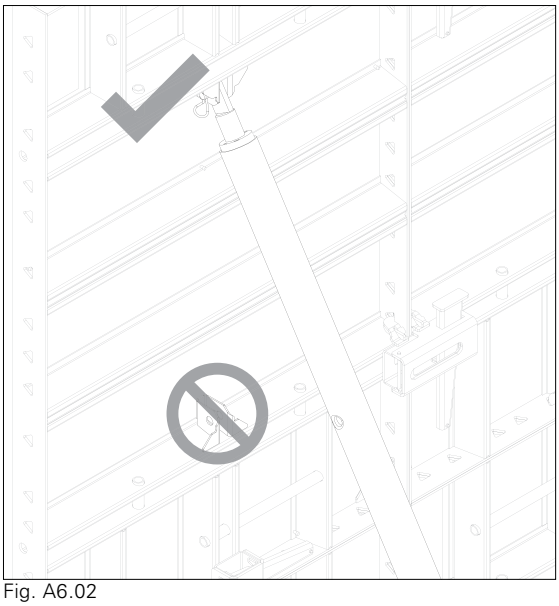


Fig. A6.02

Design table

Spacing of push-pull prop for HSA panels

Formwork height [m]	h	2.7	3	3.6	3.9	4.2	4.5
Permissible width of influence [m]	EB_{ref}	2.7	2.7	1.8	1.8	1.8	1.8
$q(z=h) = q_h$ [kN/m²]		0.5	0.5	0.5	0.5	0.5	0.5
y_1 = Top connection point from top of formwork (m)		0.4	0.4	0.4	0.4	0.4	0.4
Lifting force V_{wind} [kN/m]		1.5	1.65	1.9	2.05	2.2	2.35

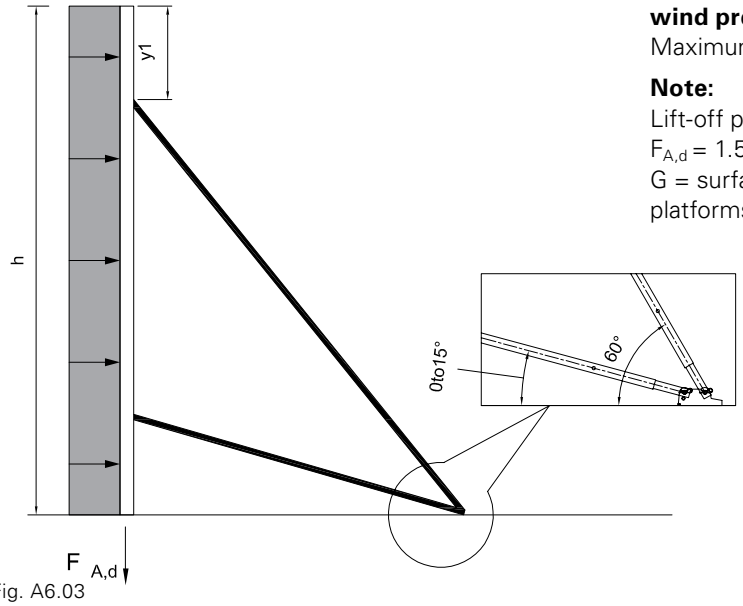


Fig. A6.03

Formula for usage deviating from the above wind pressure

Maximum width of influence EB = $EB_{ref} \times q_h / q$

Note:

Lift-off protection is provided if the lifting force $F_{A,d} = 1.5 \times V_{wind} - 0.9 \times G \times h > 0$

G = surface area weight of the formwork including platforms.

Typical arrangement of push-pull props

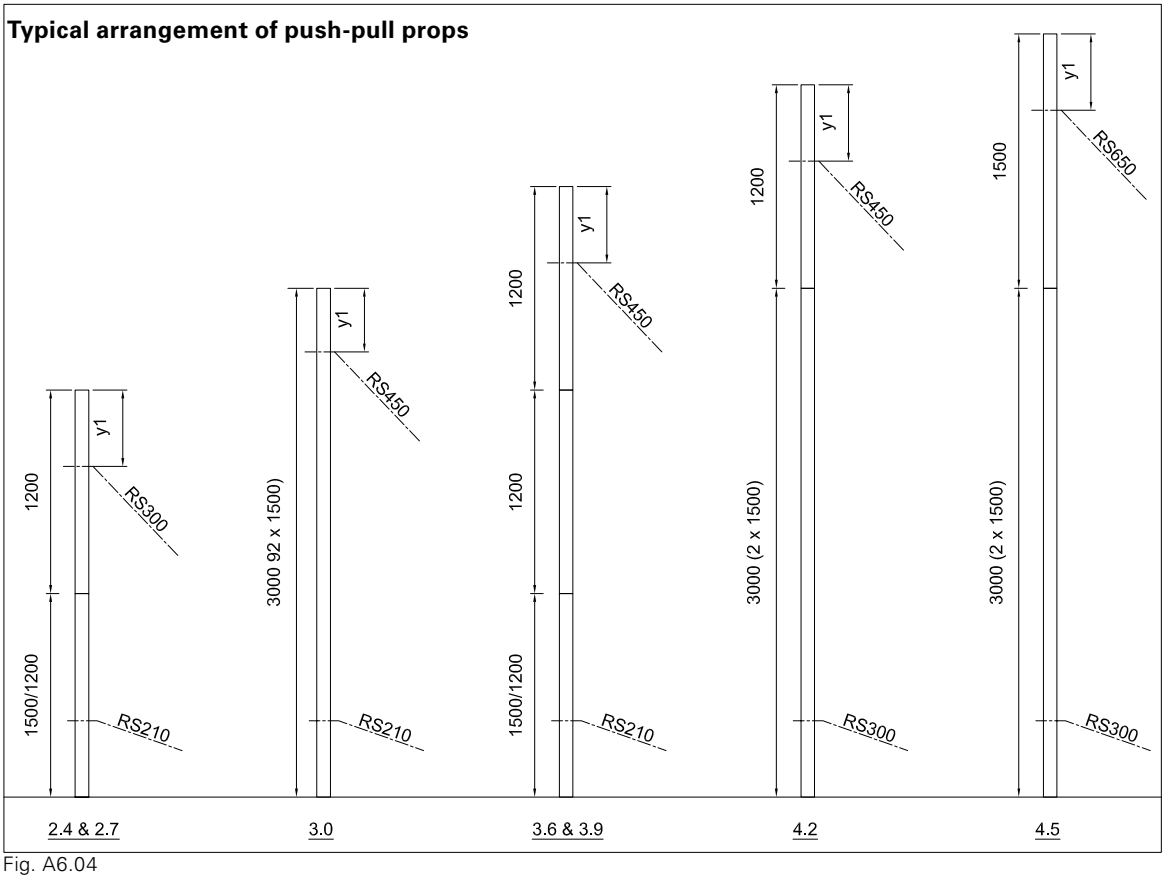


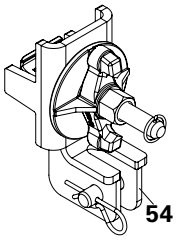
Fig. A6.04

External brace connector HSA

The external brace connector HSA (54) is an add-on component for fixing the push-pull props for panel alignment in HANDSET Alpha system, where the in-built brace connector cannot be used.

The external brace connector HSA (54) is used in the following situations:
1. When the panels are placed in horizontal direction (only in 600 and 900 mm wide panels).
2. When two push-pull props are required for column application (only in 900 mm wide panels).

The external brace connector HSA (54) is compatible with all PERI push-pull props.
Refer Design table on page 26.



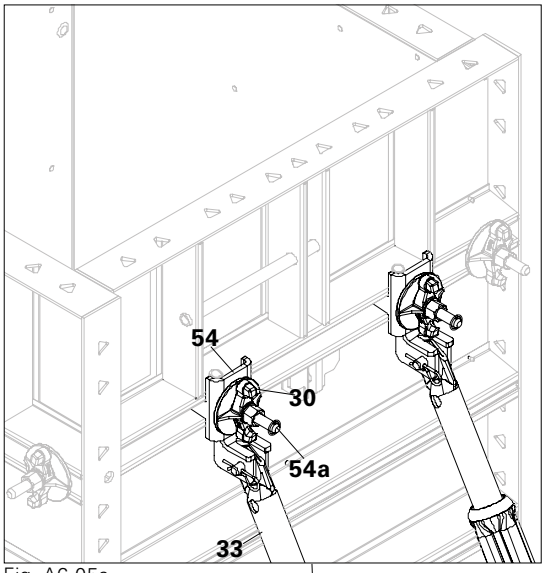


Fig. A6.05a

When two push-pull props are required in 900 mm wide panel for column application

When two push-pull props are required in a 900 mm wide panel, follow below steps:
1. Attach the J-hook (54a) of external brace connector (54) at stiffener pipe location of anchor strut (W-profile).
2. Tighten the wingnut counterplate DW15 (30) to ensure that the J-hook (54a) is properly fixed with stiffener pipe. (Fig. A6.05a)
3. Fix the push-pull prop (33) to the external brace connector (54) by means of pins and cotter pins.
4. Perform the similar procedure to fix the external brace connector (54) for kicker.

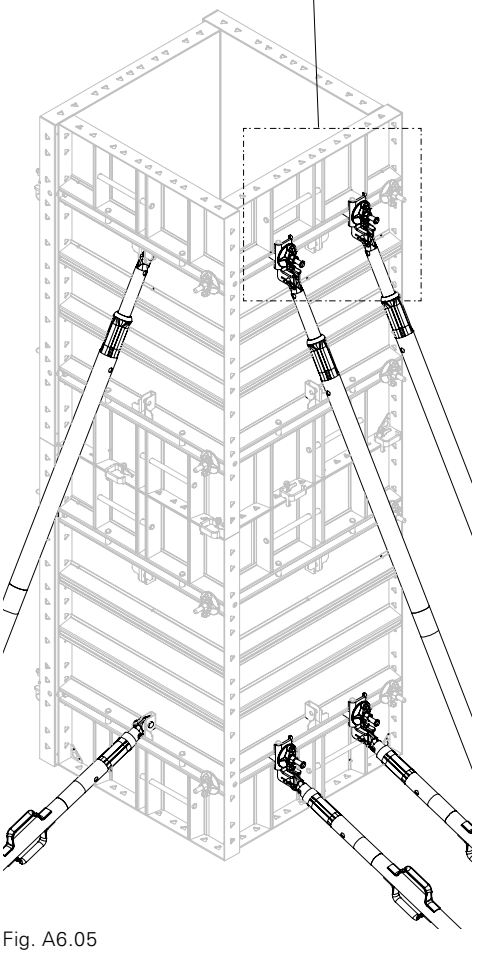


Fig. A6.05

A6 Push-pull props

In exceptional cases as in 650 or 700 mm wide columns, the external brace connector HSA may come close to corner connector, in such cases follow the steps given below:

1. Separate the J-hook along with circular pin from external brace connector assembly.
2. Install the HSA corner connector DW15 (38) through the hole of the panel into the anchor strut of the other panel. (Fig. A6.06b)
3. Attach the external brace connector (54) to HSA corner connector DW15 (38) and then insert the wingnut counterplate DW15 (30). (Fig. A6.06a)
4. Tighten the wingnut counterplate DW15 (30) to ensure that the HSA corner connector DW15 (38) is properly fixed with the external brace connector (54).
5. Fix the push-pull prop (33) to the external brace connector (54) by means of pins and cotter pins. (Fig. A6.06c)
6. Perform the similar procedure to fix the external brace connector (54) for kicker.

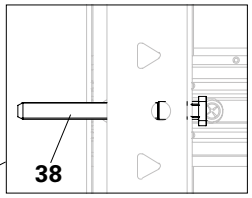


Fig. A6.06b

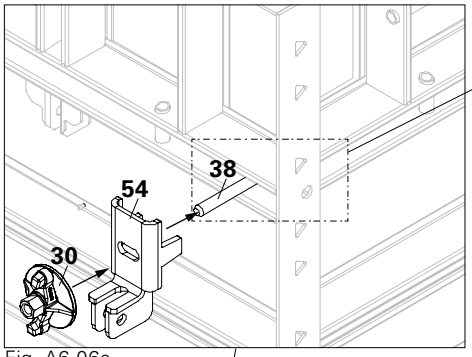


Fig. A6.06a

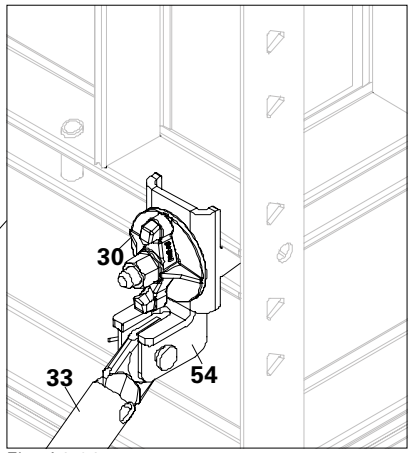


Fig. A6.06c

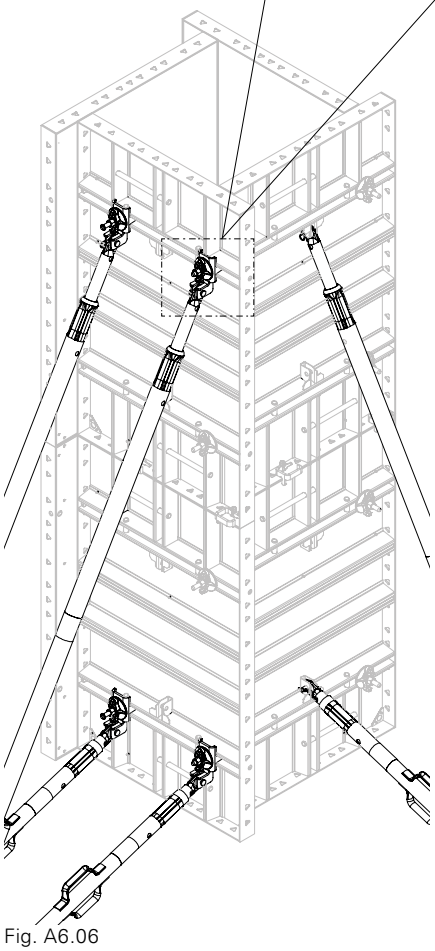


Fig. A6.06

When the panels are connected in horizontal direction

To fix the external brace connector to push-pull prop, follow below steps:

1. Attach the J-hook (54a) of external brace connector (54) at stiffener pipe location. (Fig. A6.07a)
2. Tighten the wingnut counterplate DW15 (30) to ensure that the J-hook (1a) is properly fixed with stiffener pipe. (Fig. A6.07b)
3. Fix the push-pull prop (33) to the external brace connector by means of pins and cotter pins. (Fig. A6.03c)
4. Perform the similar procedure to fix the external brace connector (54) for kicker (33.1). (Fig. A6.07)

When the panels are connected in horizontal direction, make sure to attach the J-hook (54a) at the stiffener pipe location. (Fig. A6.08)

Do not attach the J-hook (54a) at stiffener pipe location of anchor strut (W-profile). (Fig. A6.08)

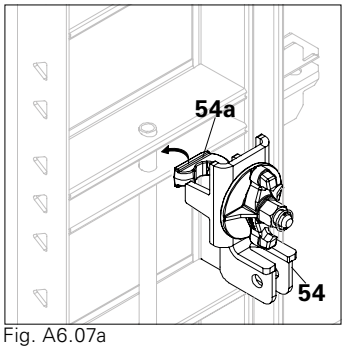


Fig. A6.07a

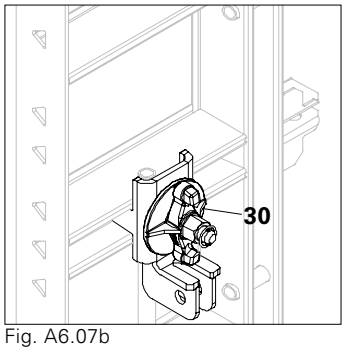


Fig. A6.07b

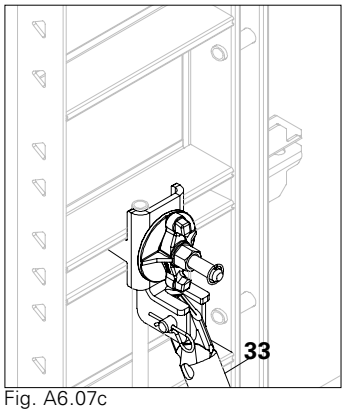


Fig. A6.07c

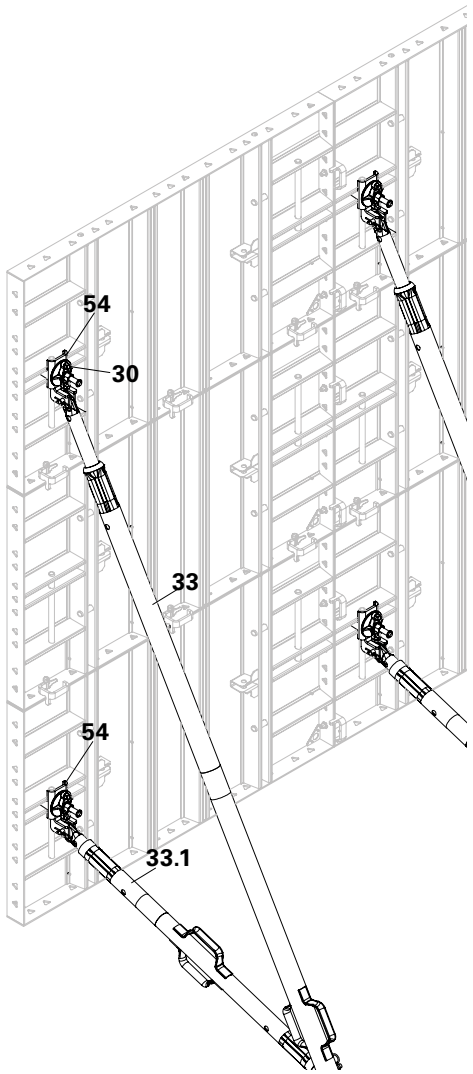


Fig. A6.07

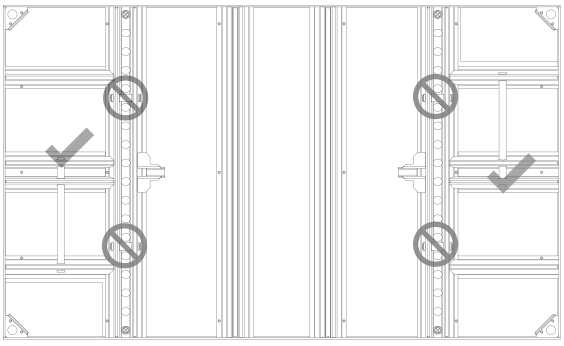


Fig. A6.08

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 insert 3.8 x 3.8 cm	1x

(Fig. A7.01)

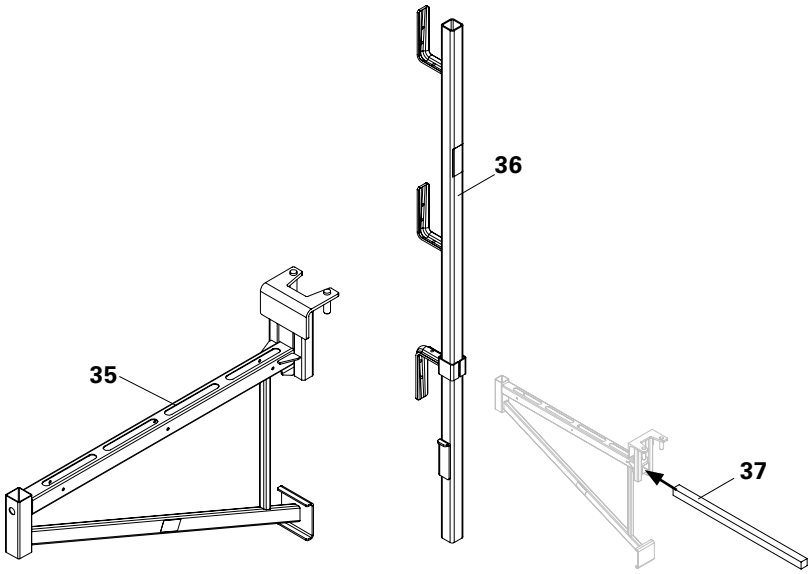


Fig. A7.01

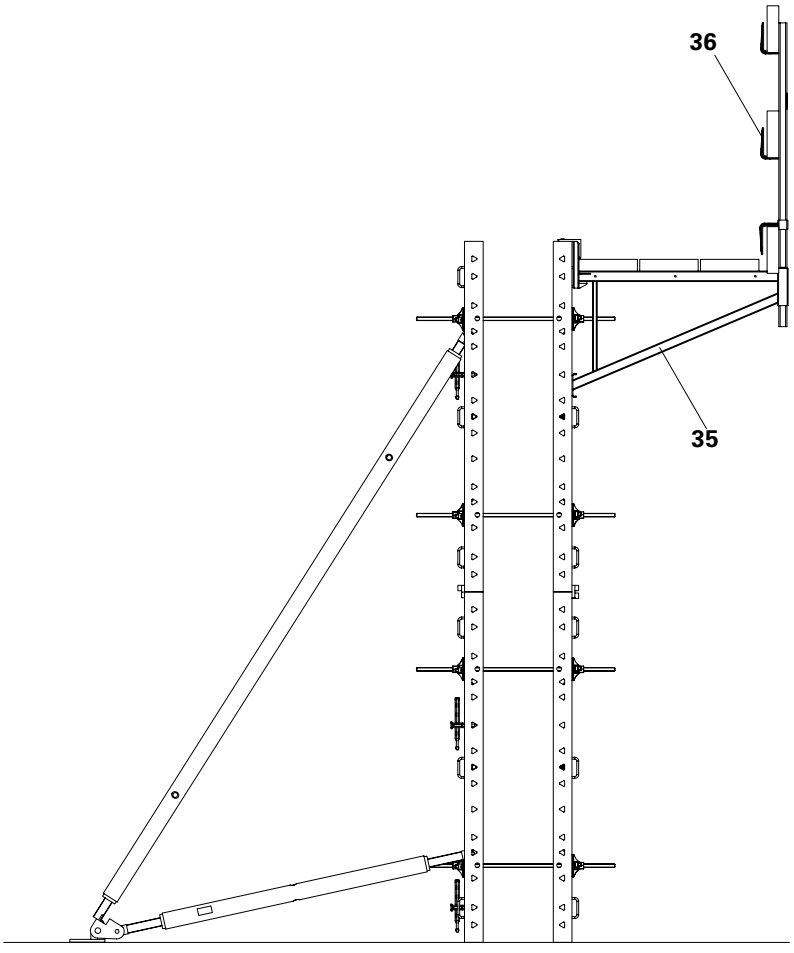


Fig. A7.02

Assembly

1. Install the timber insert (37) (size 3.8 x 3.8 cm) into the scaffold bracket tube (35.1). (Fig. A7.03)
2. Nail the timber insert from side to secure with Scaffold Bracket HSA 80.
   → Length of the timber insert (37) = 88 cm.
   → Timber insert (37) is not included in the Scaffold Bracket HSA 80 (35).
3. Insert the Guardrail Post HSGP-2 (36) into the holder pipe (35.3) of the Scaffold Bracket HSA 80 (35).
4. Insert the Scaffold Bracket HSA 80 (35) into the triangular slots at strut location. (Fig. A7.04)

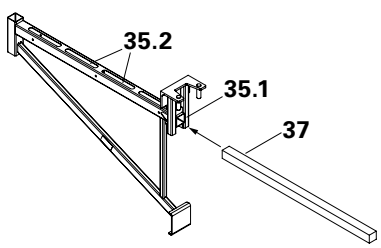


Fig. A7.03

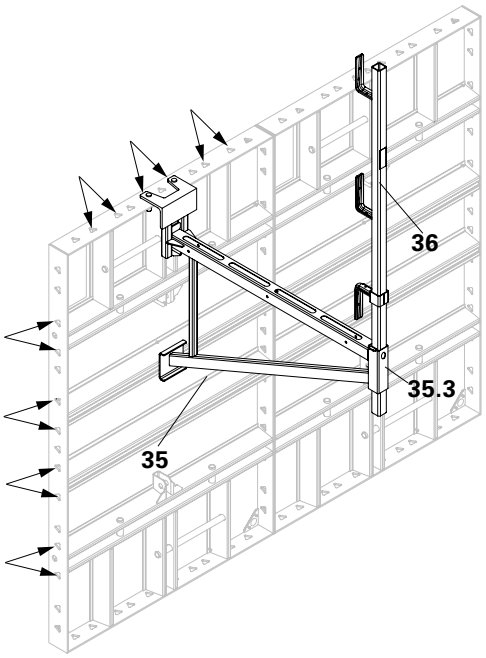


Fig. A7.04

The Scaffold Bracket HSA 80 (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 HSA 80 (35) to secure the planking with timber insert (37) using nails.
2. Install guardrails to the Guardrail post HSGP-2 (36) and secure with nails.

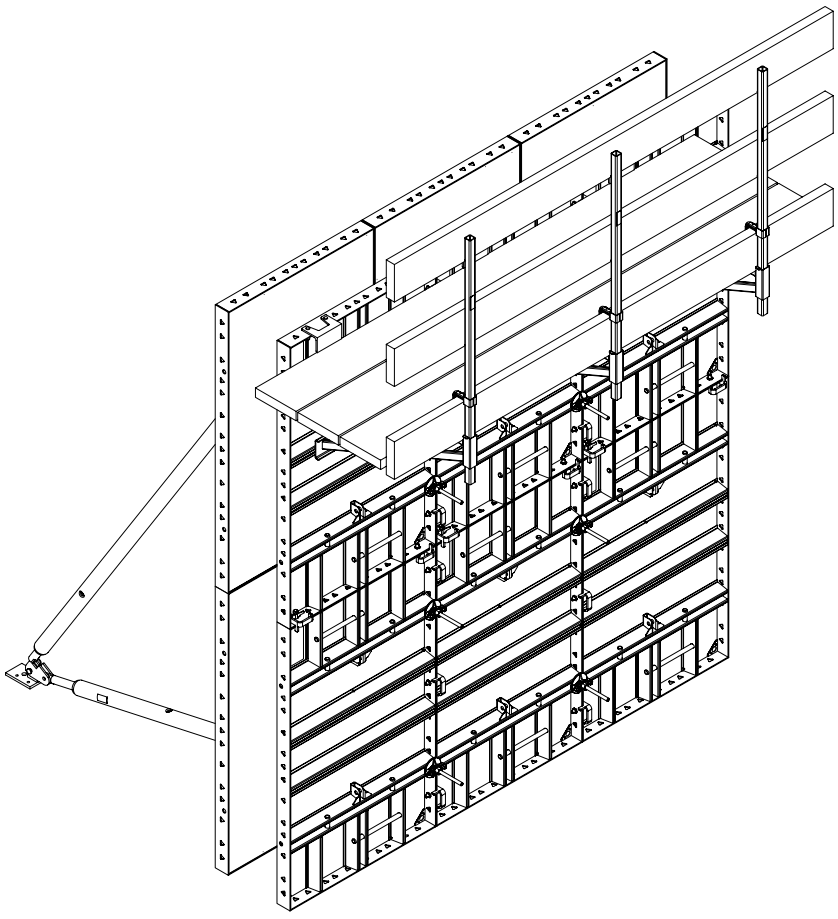


Fig. A7.05

Chamfer strip HSA

The chamfer strip HSA is used for creating a chamfered edge at the column corners.
The chamfer strip HSA reliably seals the corners.
It is of three sizes 120 / 150 / 300 cm.

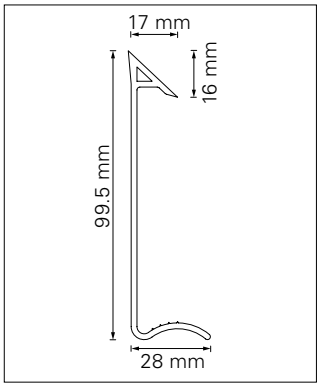


Fig. A8.01a

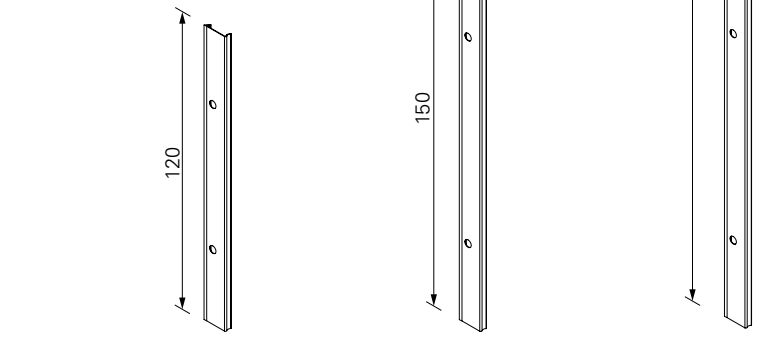


Fig. A8.01

Assembly

1. Attach the chamfer strip HSA (58) to the longer side of the panel HSA (10a). (Fig. A8.02)
2. Attach the panel HSA (10a) to the next panel HSA (10b).
3. Insert the HSA corner connector DW 15 (38) through the panel frame and tighten it from the outside by means of the wingnut counterplate DW 15 (30). (Fig. A8.03b)

– Do not use chamfer strip HSA with external corner HSA.

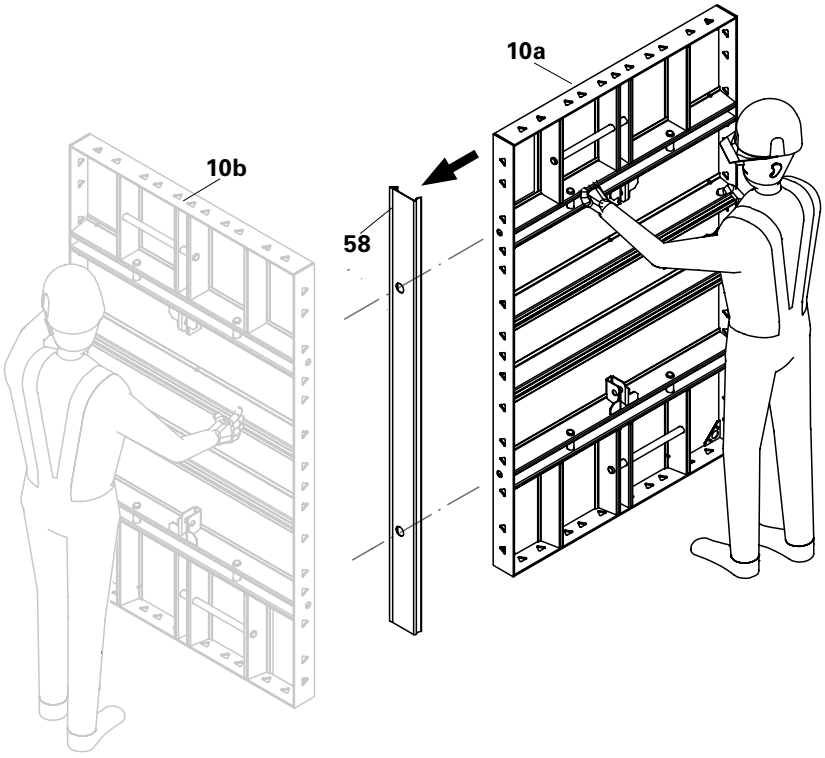


Fig. A8.02

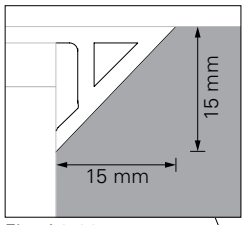


Fig. A8.03a

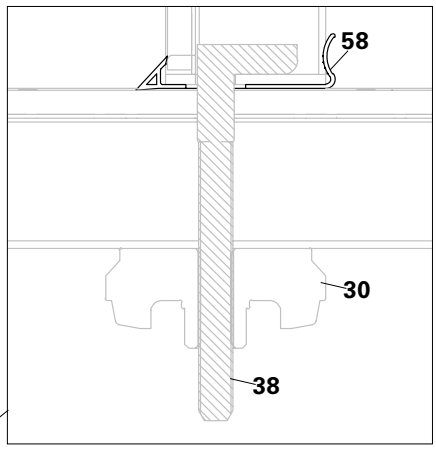


Fig. A8.03b

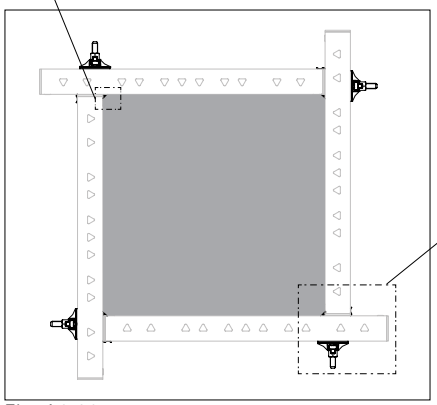


Fig. A8.03

Centering tool HSA

Centering tool HSA (59) is an add-on article in HANDSET Alpha system.

It helps in easy positioning of the panels next to each other if there is any mis-alignment of triangular slots.

If there is any mis-alignment of the panels next to each other during erection, the centering tool HSA can be used at triangular slot of the panel to quickly bring the panel into position and ensures easy connection between them.

The individual parts of the centering tool HSA are as follows: forged head (59.9), handle pipe (59.2), and hole provision for fixing tool arrestor (59.3). (Fig. A8.04)

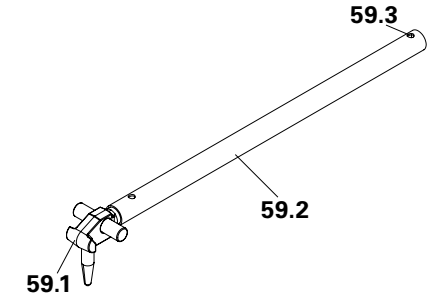


Fig. A8.04

Before positioning

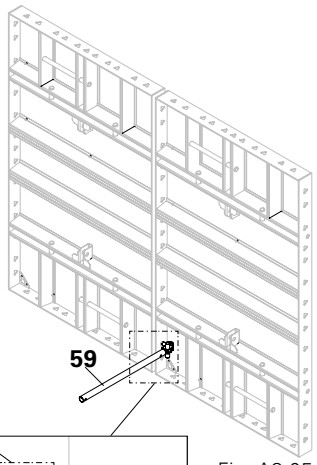


Fig. A8.05

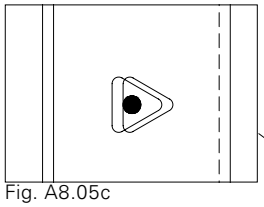


Fig. A8.05c

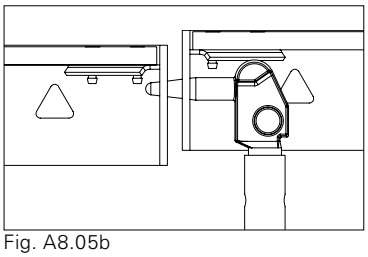


Fig. A8.05b

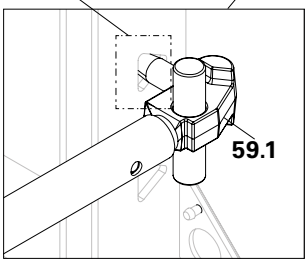


Fig. A8.05a

Before positioning

If there is any mis-alignment in triangular slots of the panels next to each other during erection, follow below steps to bring them back into proper position:

- Insert the forged head (59.1) into the triangular slot of the panel where there is misposition. (Fig. A8.05a)

After positioning

- Apply a force on the handle pipe (59.2) and lift the panel to bring them back into right position. (Fig. A8.06a)
- Once both the panels are positioned, fix the wedge clip or alignment clamp to ensure proper panel connection.

After positioning

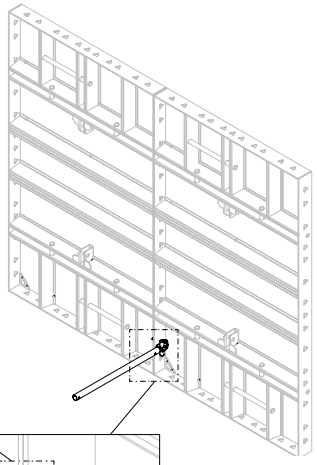


Fig. A8.06

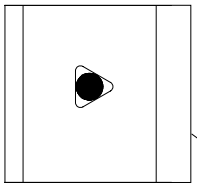


Fig. A8.06c

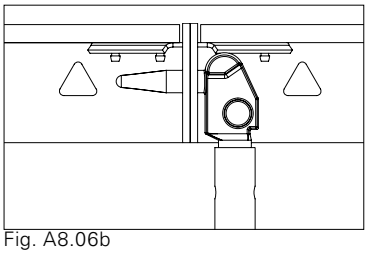


Fig. A8.06b

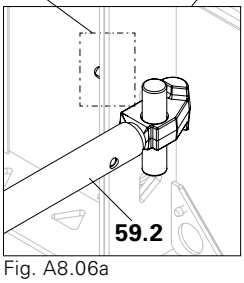


Fig. A8.06a

Using as a stripping tool

The centering tool HSA (59) can also be used as a stripping tool to strip the wall panels stuck to the concrete face during de-shuttering.

- Insert the Ø18 pin (59a) side of the forged head into the Ø20 hole (A) of panel frame. (Fig. A8.07b)
- Apply downward force using the handle pipe (59.2) such that pivot rod (59b) is pressed against the concrete surface. This helps in detaching the panel from the concrete surface. (Fig. A8.07a)

– Do not use the Ø18 pin (59a) side of the forged head at the triangular slot of the panel.

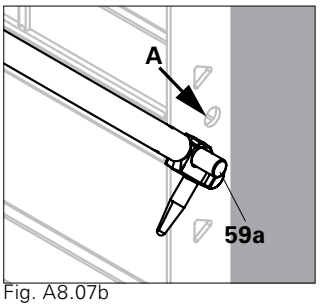


Fig. A8.07b

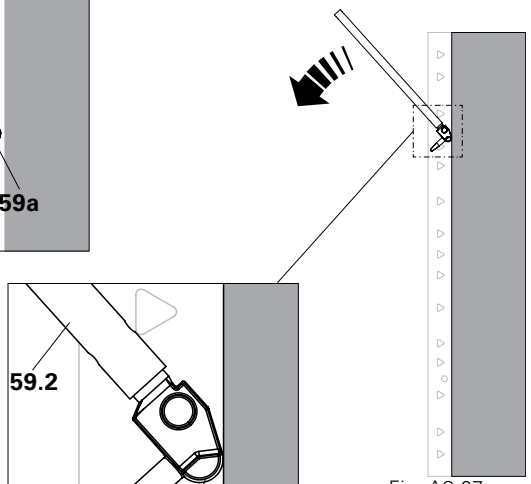


Fig. A8.07

Fig. A8.07a

Crane hook HSA-2

The crane hook HSA-2 (50) is classified as lifting accessory and serves exclusively for the lifting and moving of individual panels or panel units of the HANDSET Alpha system.

Installation and position of the crane hook HSA-2 is provided in the corresponding "Original Instructions for Use".

Permissible load-bearing capacity: 500 kg

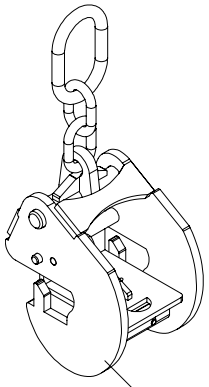


Fig. A8.08

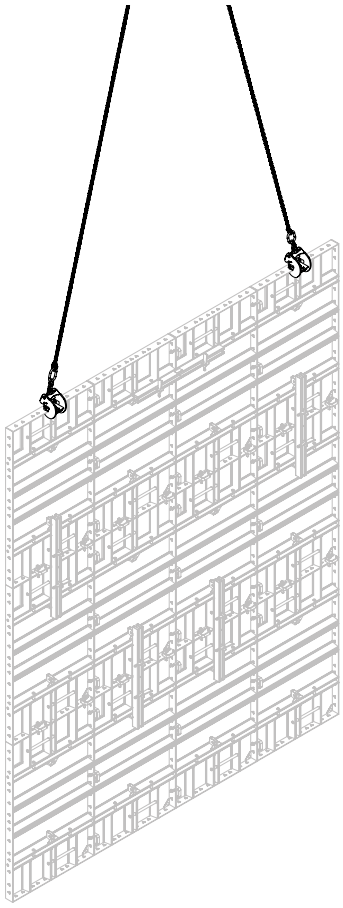


Fig. A8.09

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 art. no. 706458 and art. no. 781053 - M20 x 40 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

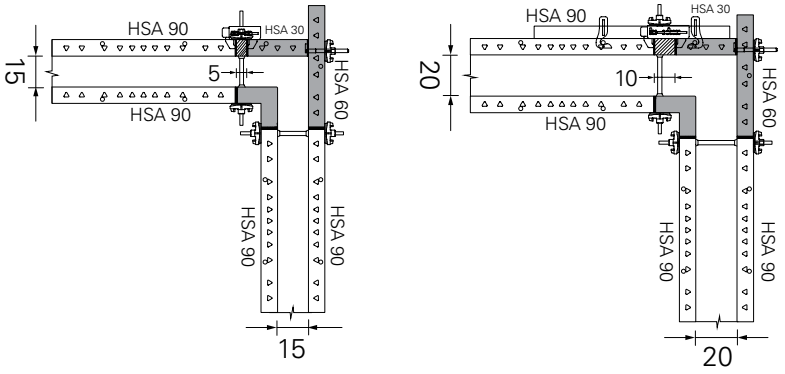


Fig. B1.01

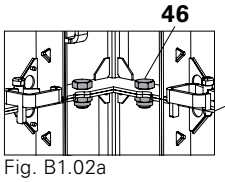


Fig. B1.02a

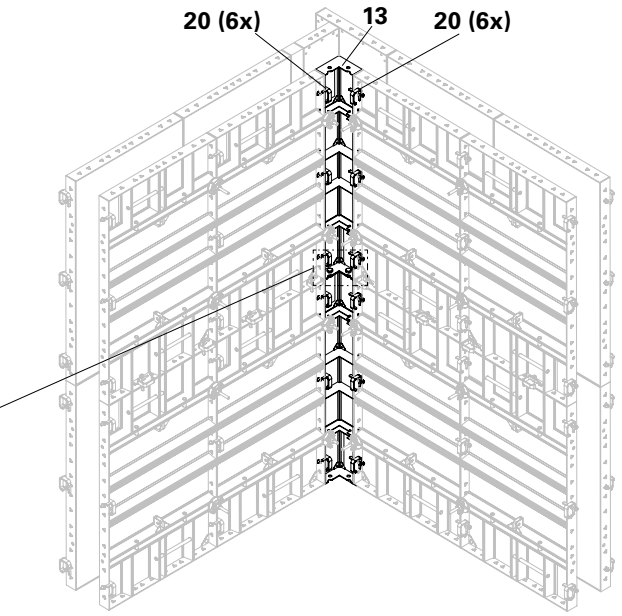


Fig. B1.02

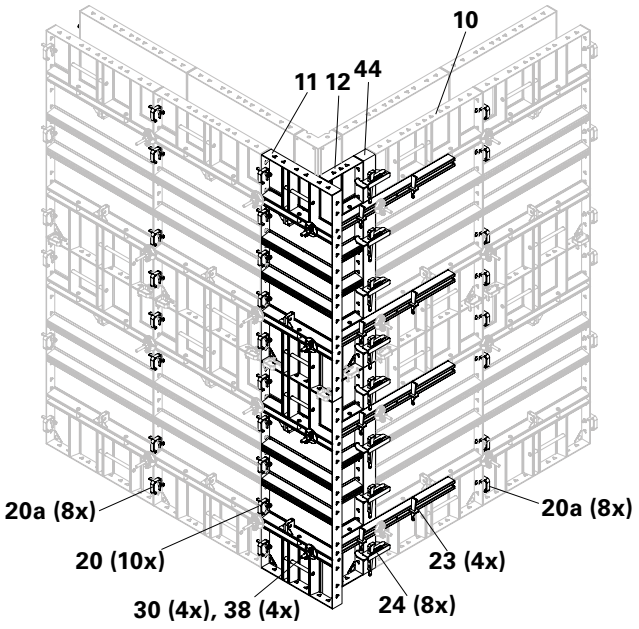


Fig. B1.03

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

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 art. no. 706458 and art. no. 781053 - M20 x 40 size bolt and nut when lifting by Crane Hook HSA.

Wall thickness 25 cm

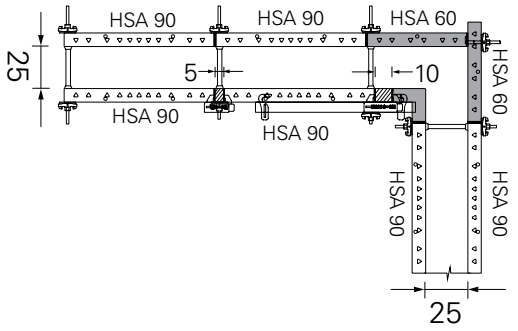


Fig. B1.04

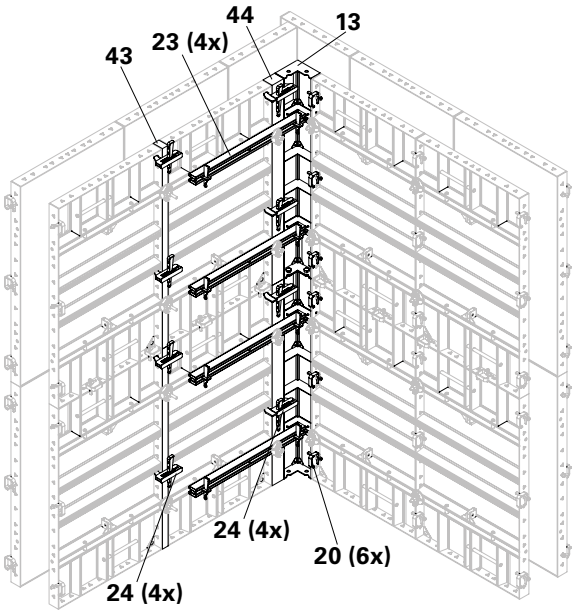


Fig. B1.05

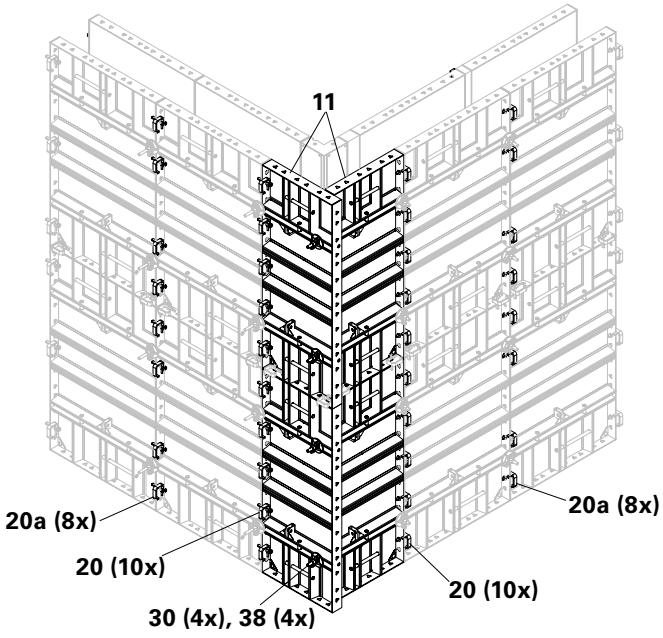


Fig. B1.06

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

Wall thickness 30 - 35 cm

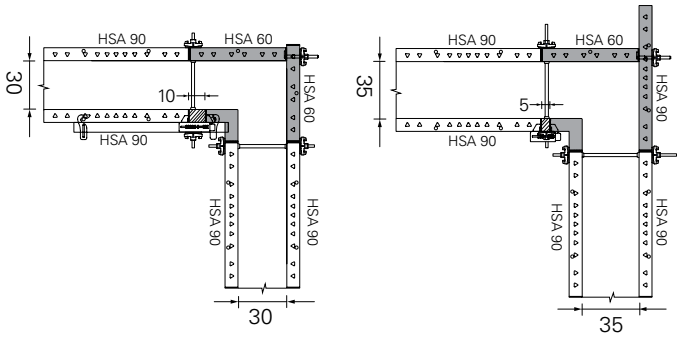


Fig. B1.07

External formwork

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

Required components:

11	Panel HSA 150 x 60 (Panel HSA 150 x 90 to be used for 35 cm thk wall on one side)	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

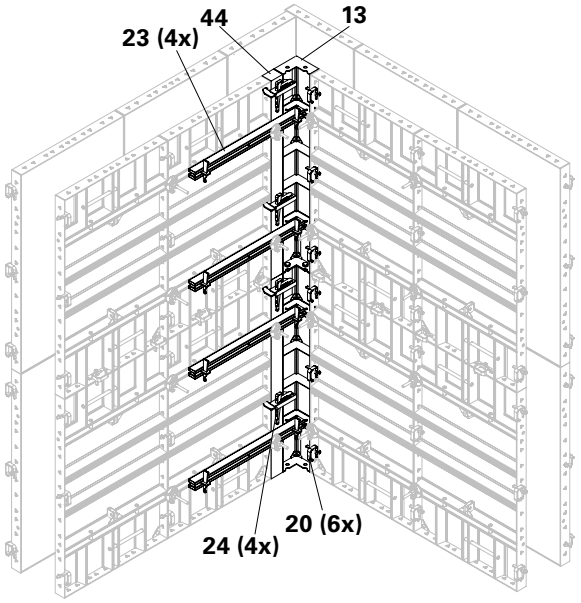


Fig. B1.08

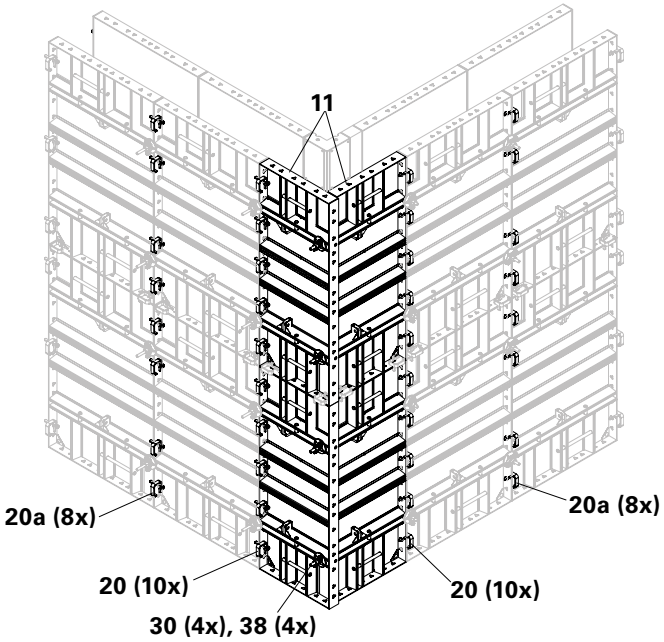


Fig. B1.09

* Not taking into account horizontal connections.
** Make sure to use two nos. of art. no. 706458 and art. no. 781053 - M20 x 40 size bolt and nut when lifting by Crane Hook HSA.

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

* Not taking into account horizontal connections.

Wall thickness 40 cm

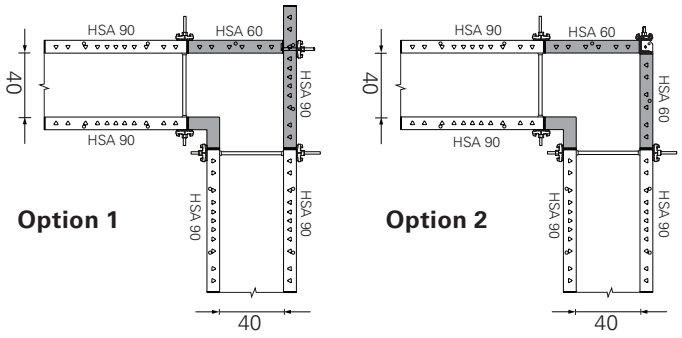


Fig. B1.10

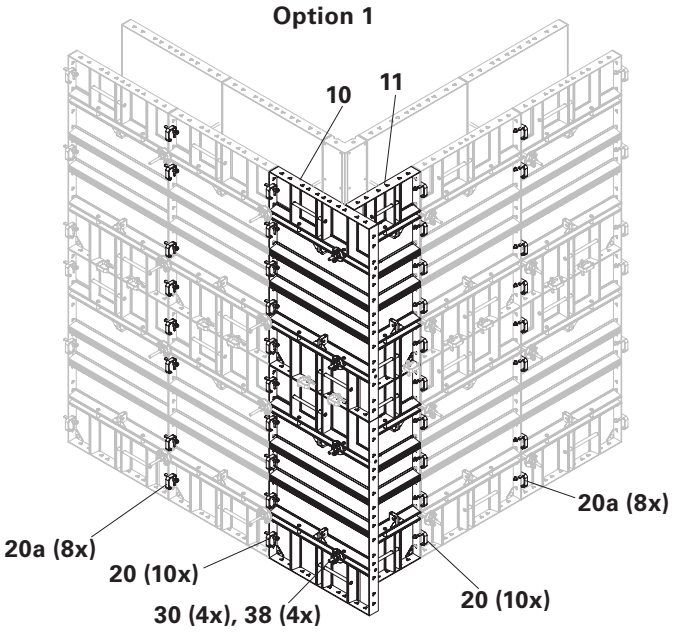


Fig. B1.11

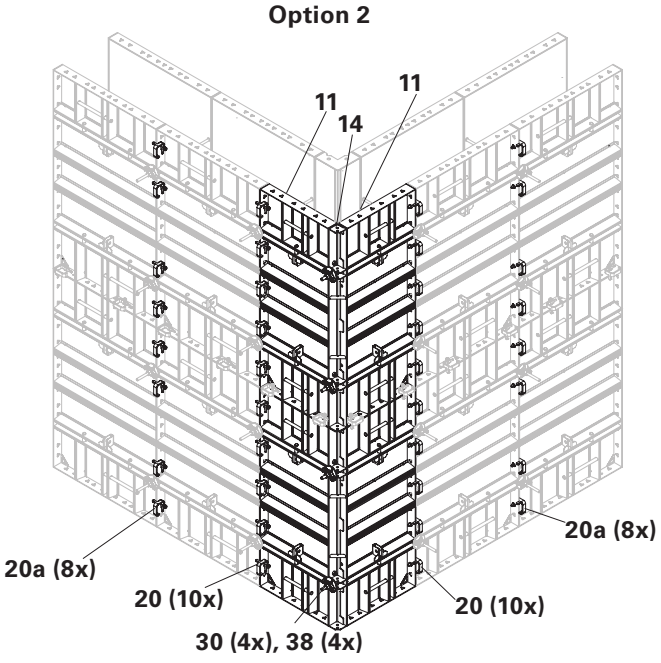


Fig. B1.12

B2 T-junctions, wall connections
H = 150 + 150

T-junctions

Wall thicknesses from 15 cm to 40 cm can be continuously formed.
(Fig. B2.01)

For Compensation, see B4.

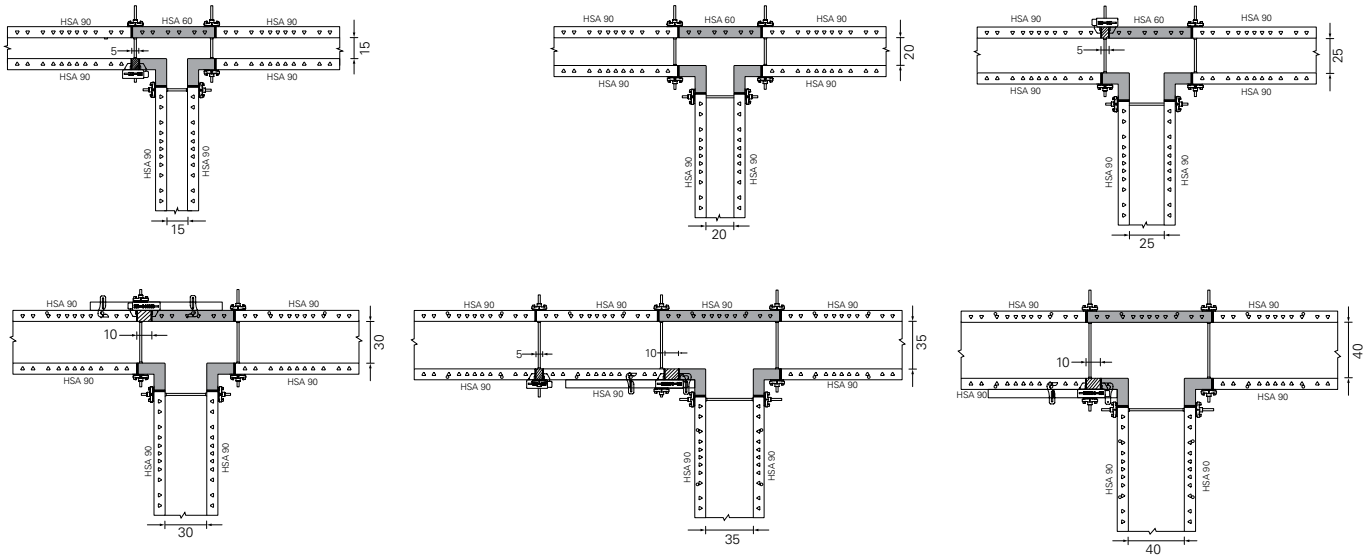


Fig. B2.01

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

* Not taking into account horizontal connections.
** Make sure to use two nos. of art. no. 706458 and art. no. 781053 - M20 x 40 size bolt and nut when lifting by Crane Hook HSA.

Wall thickness 20 cm

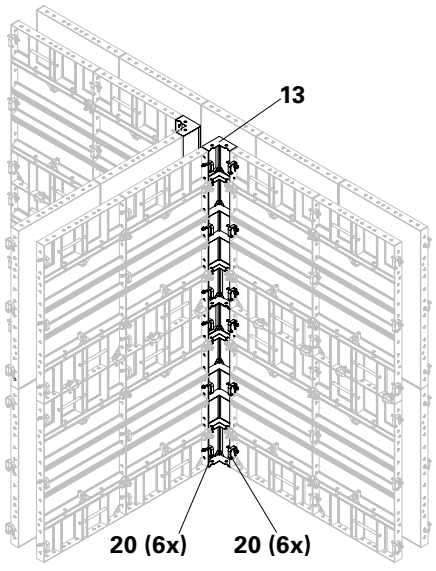


Fig. B2.02

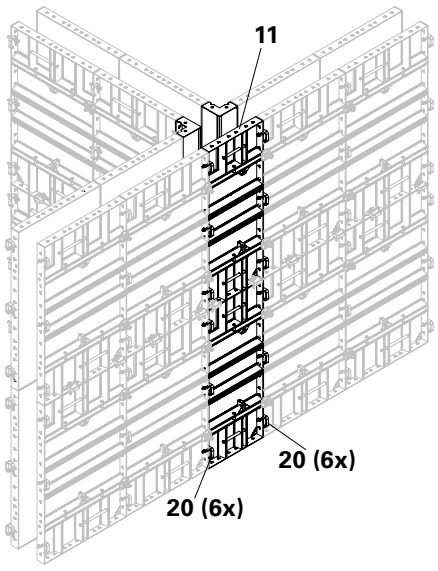


Fig. B2.03

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 two nos. of art. no. 706458 and art. no. 781053 - M20 x 40 size bolt and nut when lifting by Crane Hook HSA.

Wall thickness 30 cm

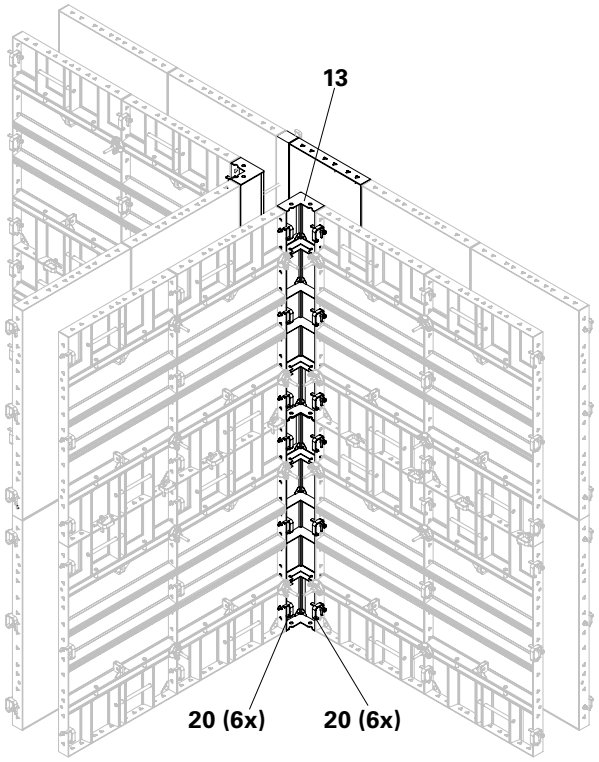


Fig. B2.04

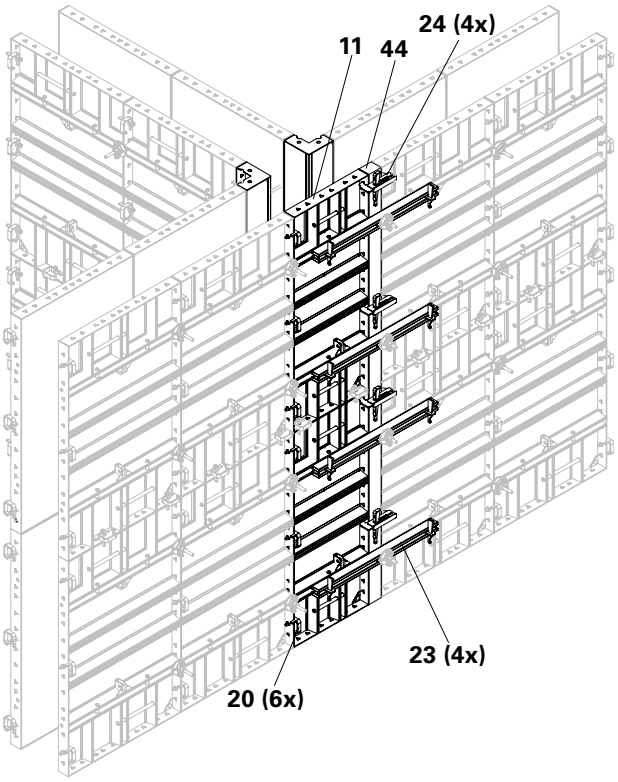


Fig. B2.05

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.

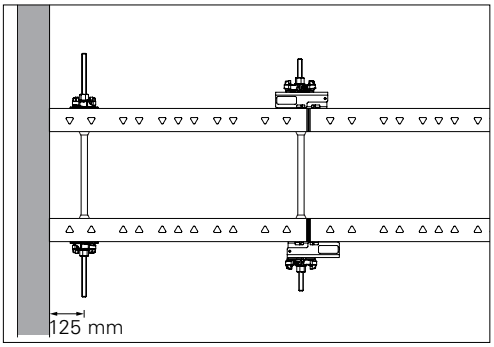


Fig. B2.06a

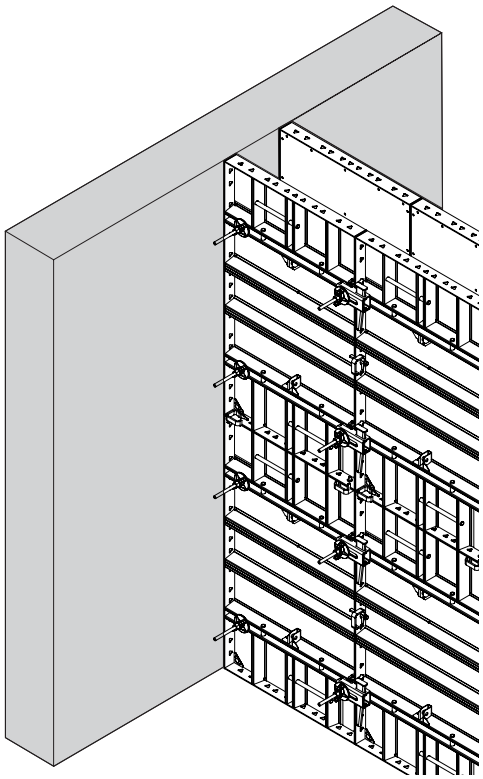


Fig. B2.06

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
12	Panel HSA 150 x 30	2x
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. 706458 and art. no. 781053 - M20 x 40 size bolt and nut when lifting by Crane Hook HSA.

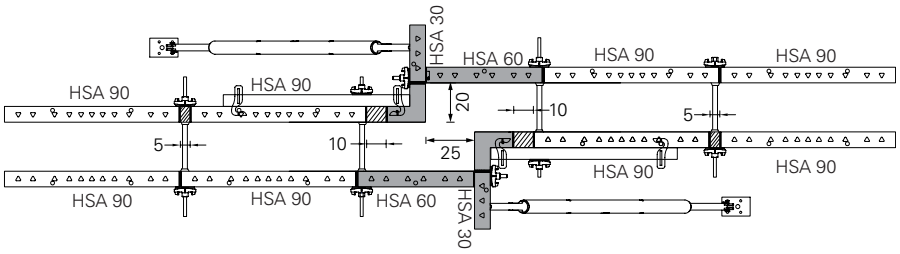


Fig. B3.01

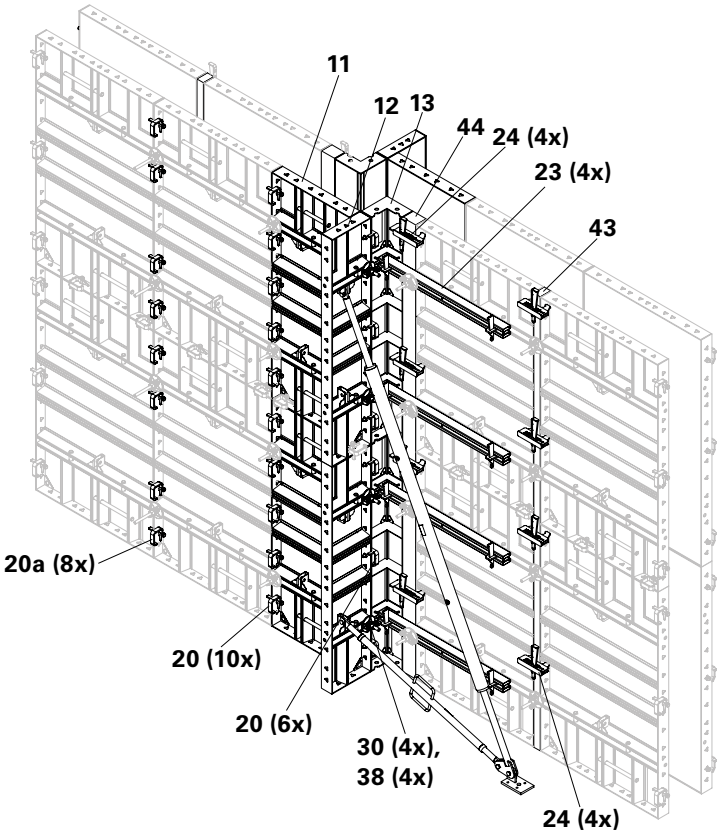


Fig. B3.02

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. 706458 and art. no. 781053 - M20 x 40 size bolt and nut when lifting by Crane Hook HSA.

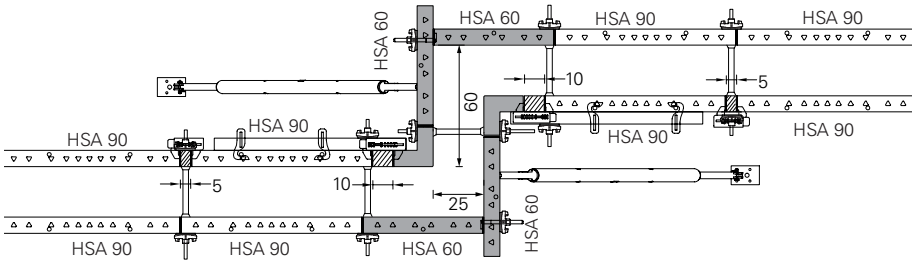


Fig. B3.03

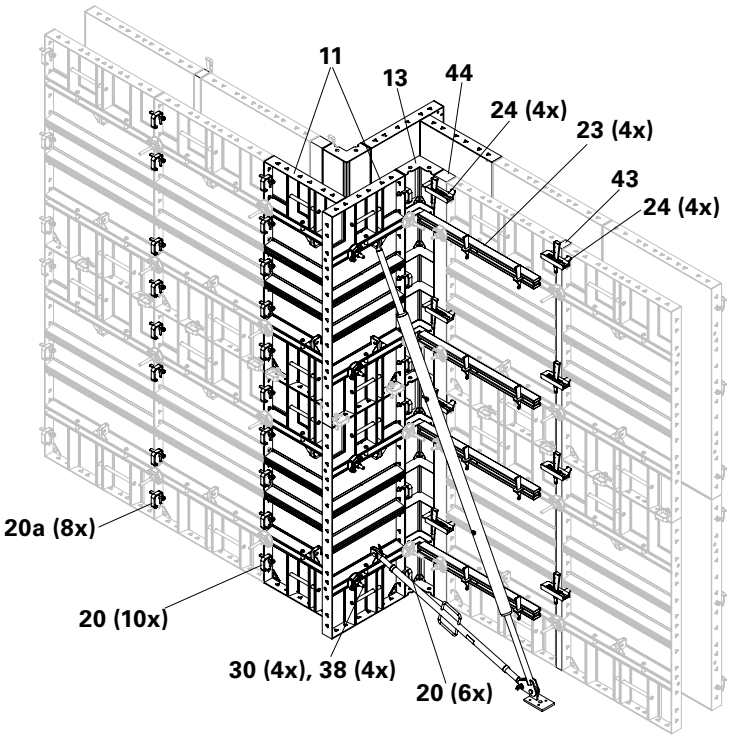


Fig. B3.04

Wall offset 40 cm

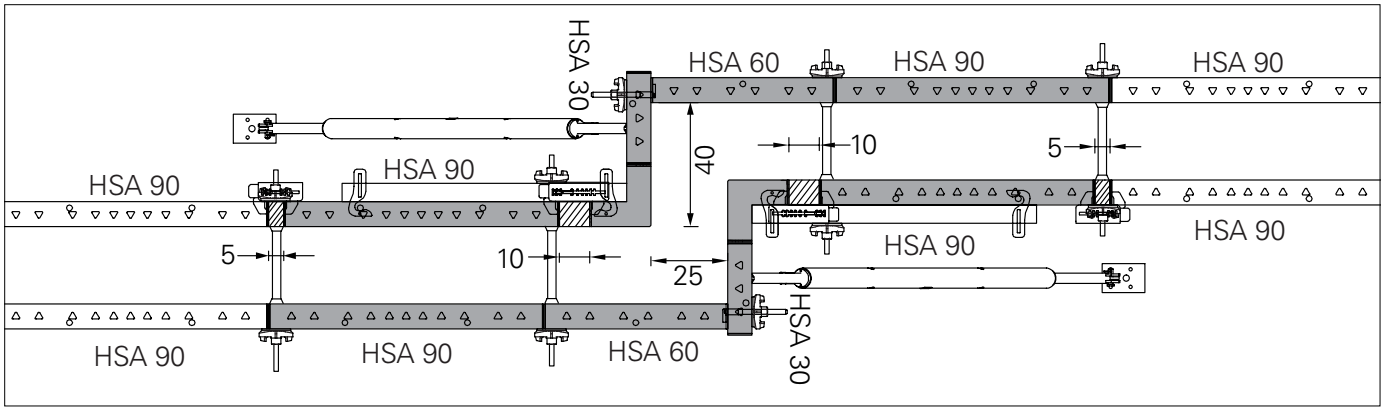


Fig. B3.05

Wall offset 50 cm

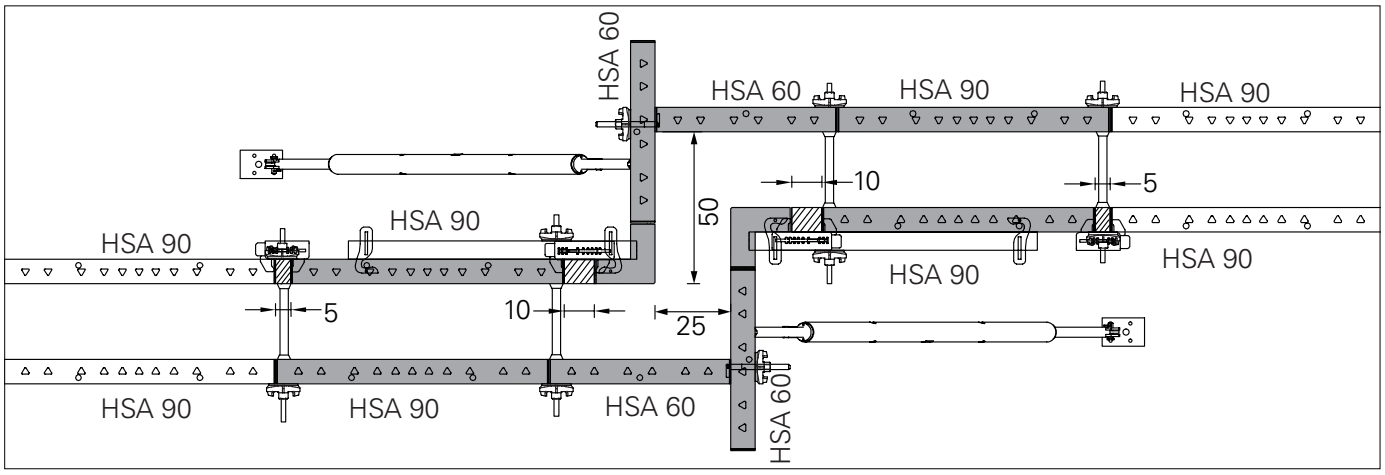


Fig. B3.06

Wall offset 85 cm

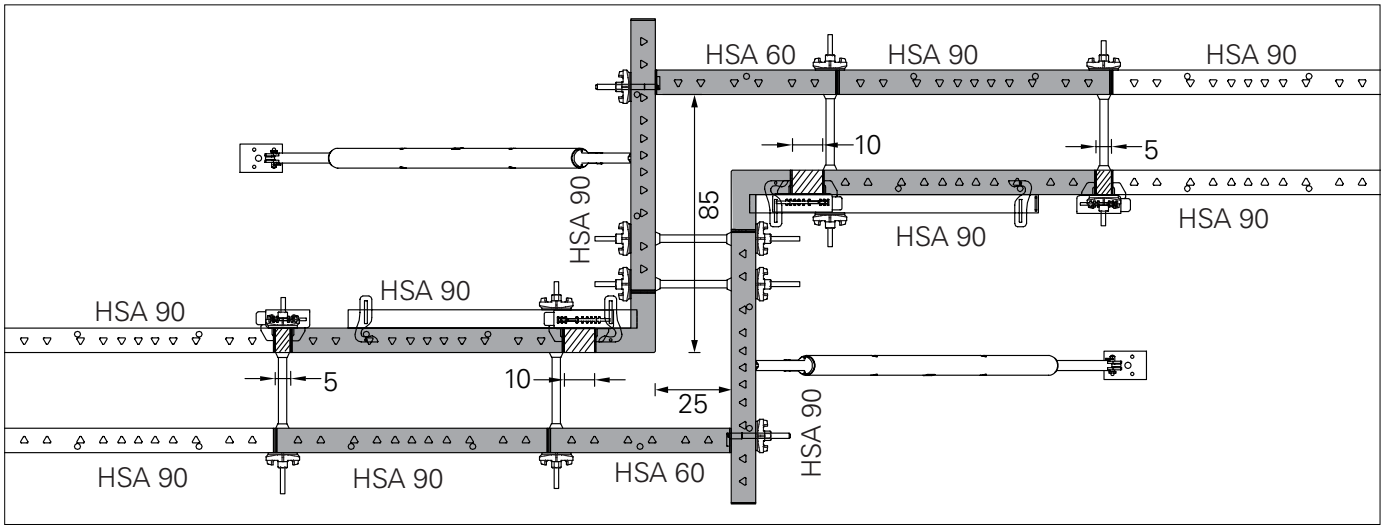


Fig. B3.07

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.

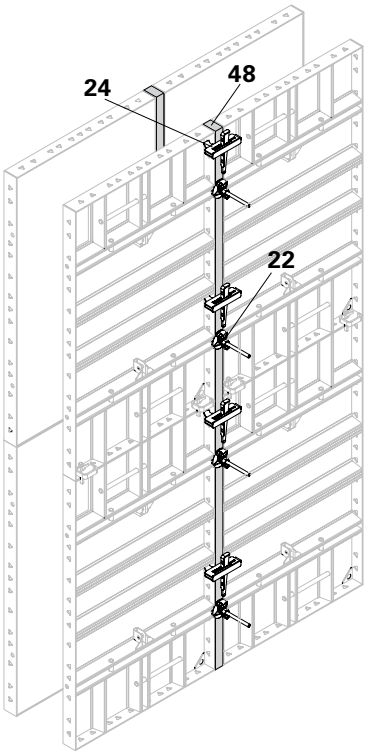


Fig. B4.01

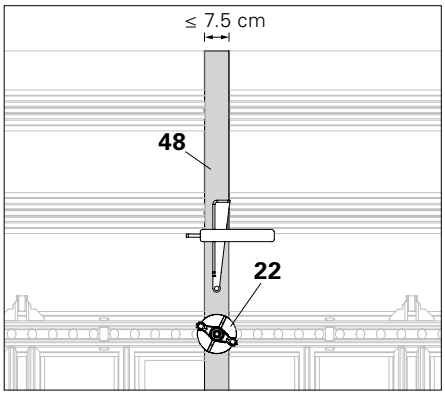


Fig. B4.01a

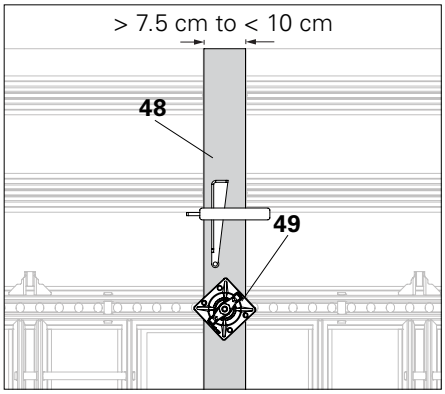


Fig. B4.01b

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.

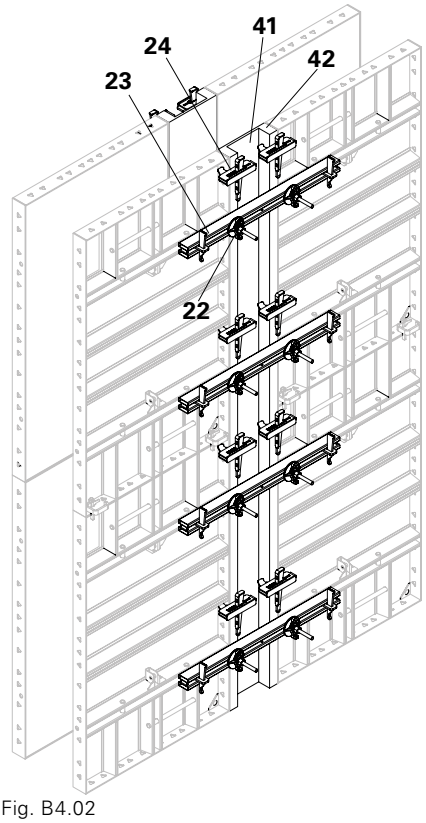


Fig. B4.02

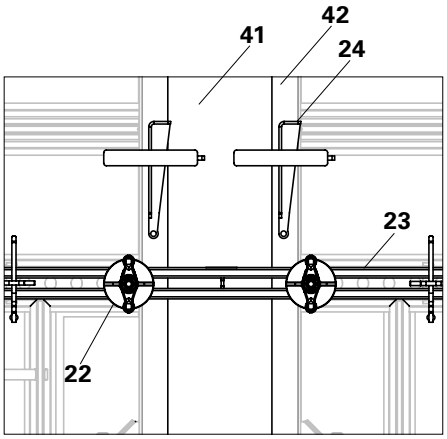


Fig. B4.02a

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)

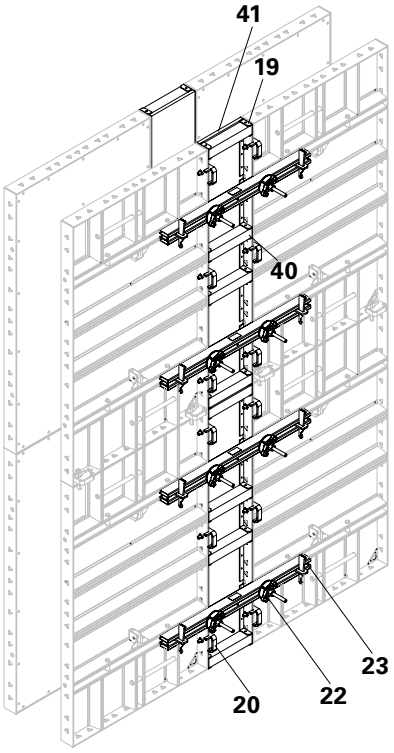


Fig. B4.03

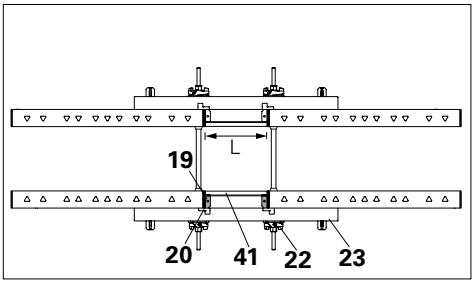


Fig. B4.03a

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)

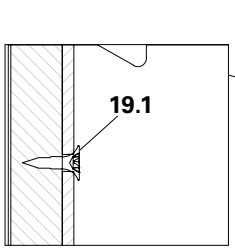


Fig. B4.04a

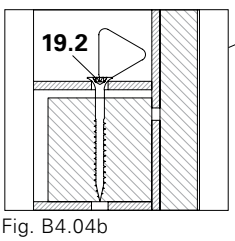


Fig. B4.04b

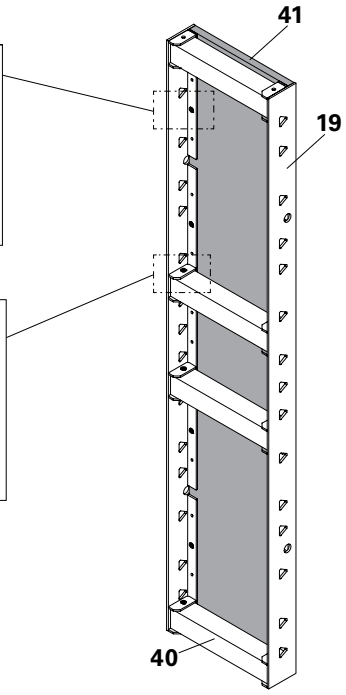


Fig. B4.04

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.

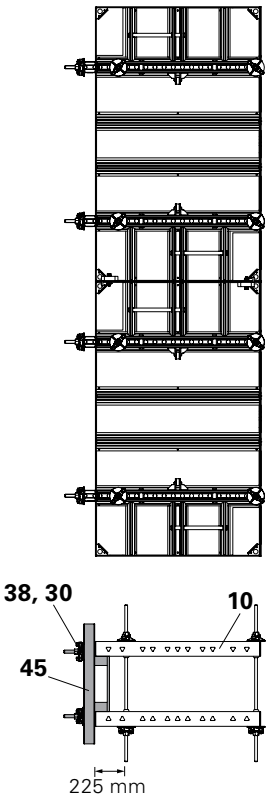


Fig. B5.01a

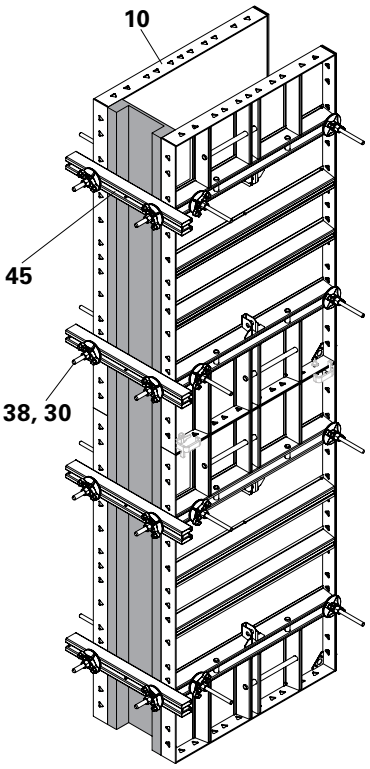


Fig. B5.01

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

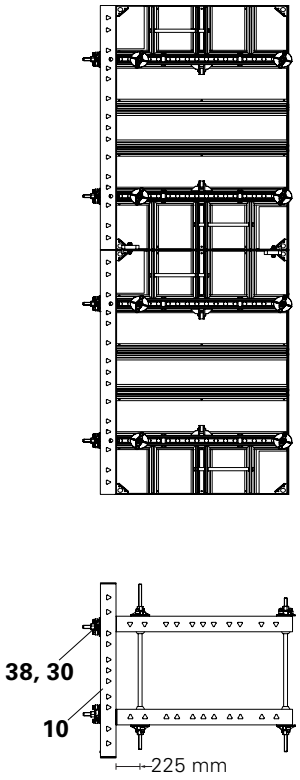


Fig. B5.02a

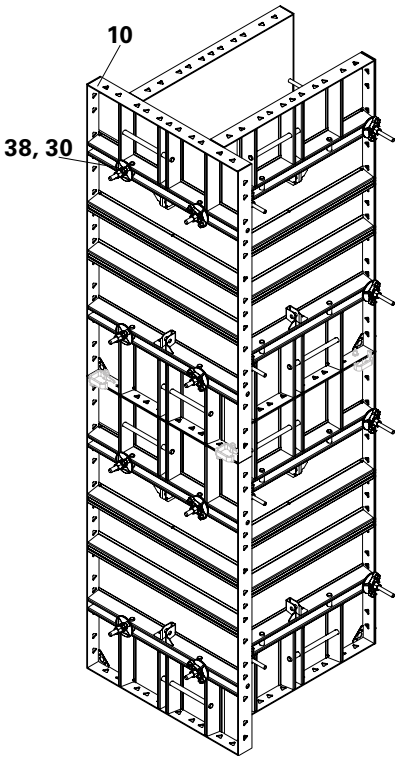


Fig. B5.02

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°.

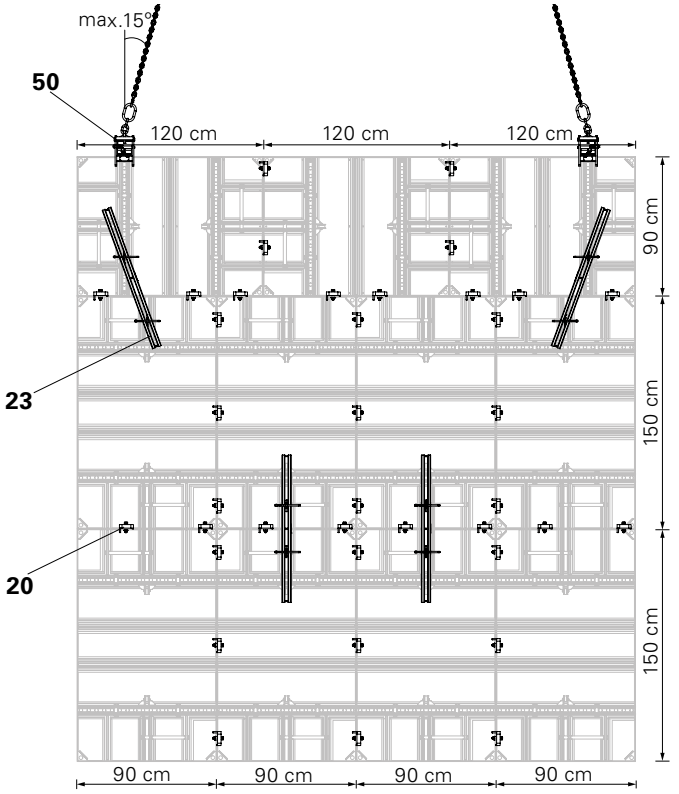


Fig. B6.01

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).

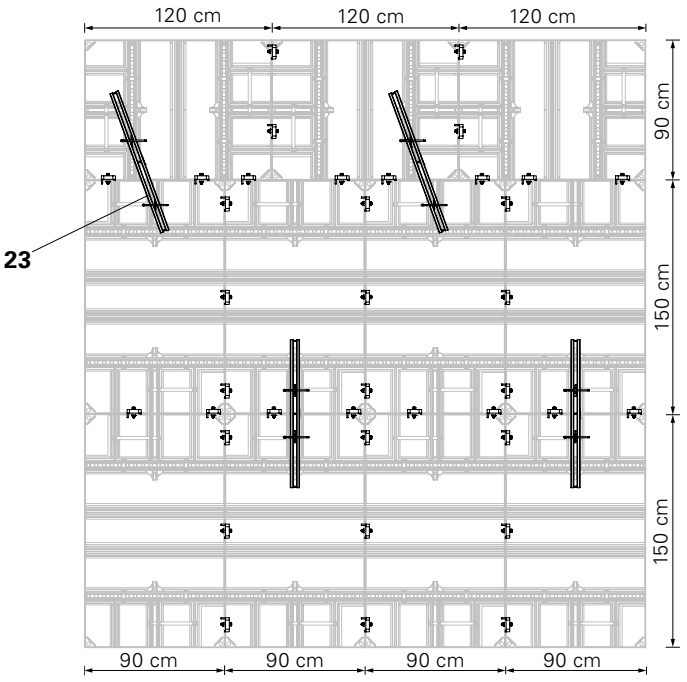


Fig. B6.02

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.

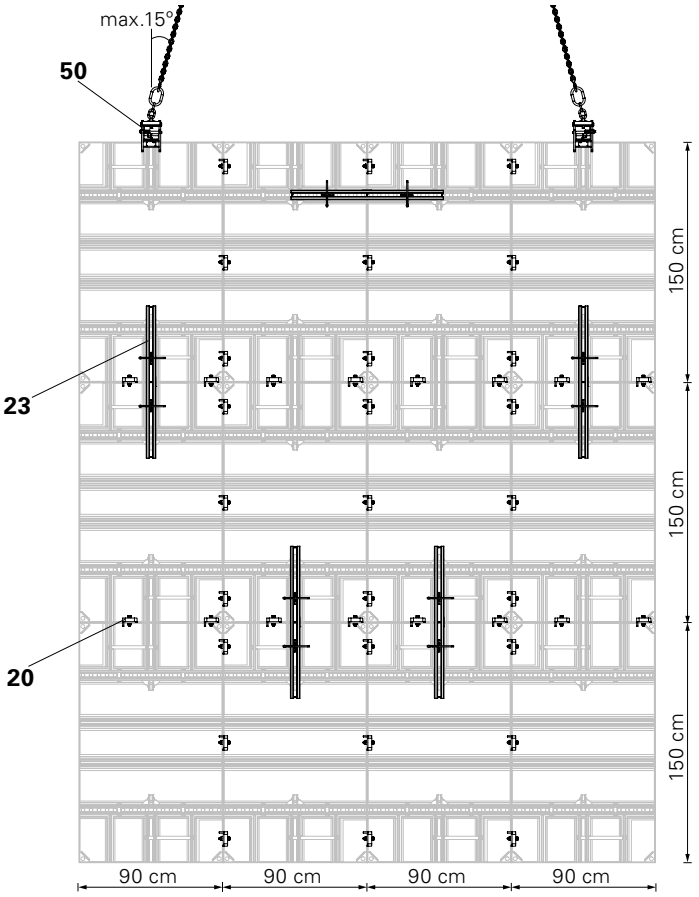


Fig. B6.03

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).

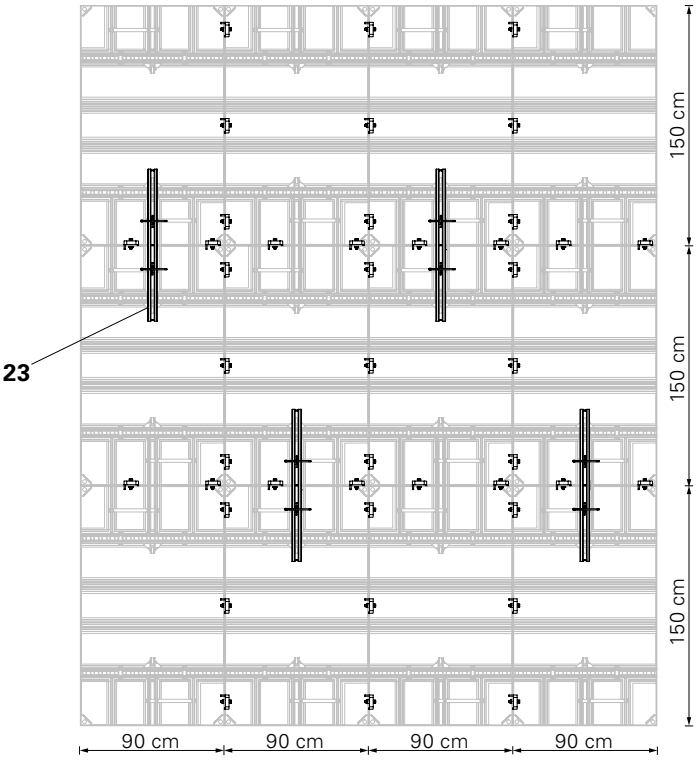


Fig. B6.04

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 (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

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

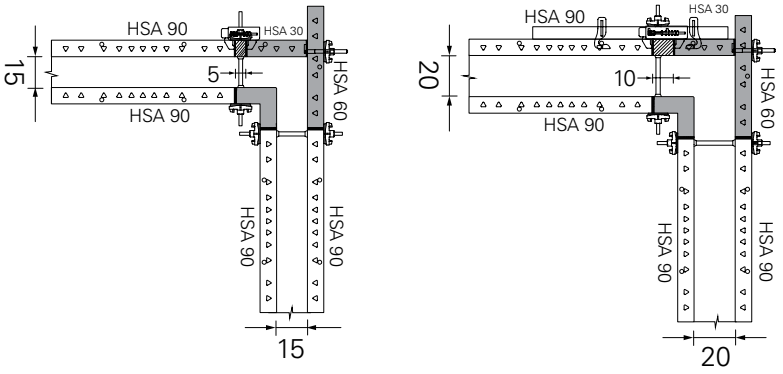


Fig. C1.01

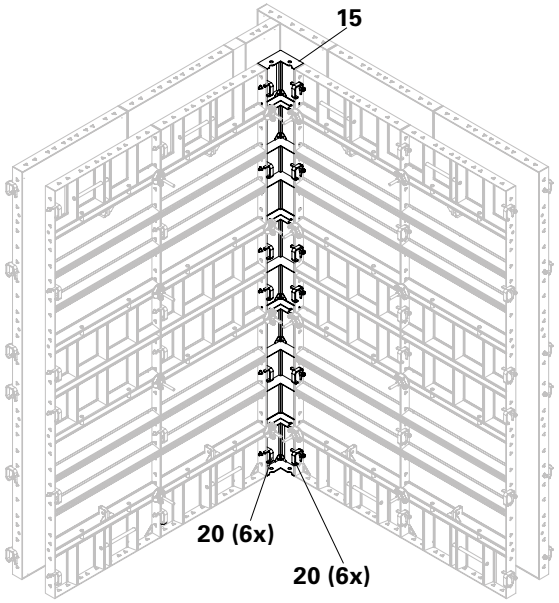


Fig. C1.02

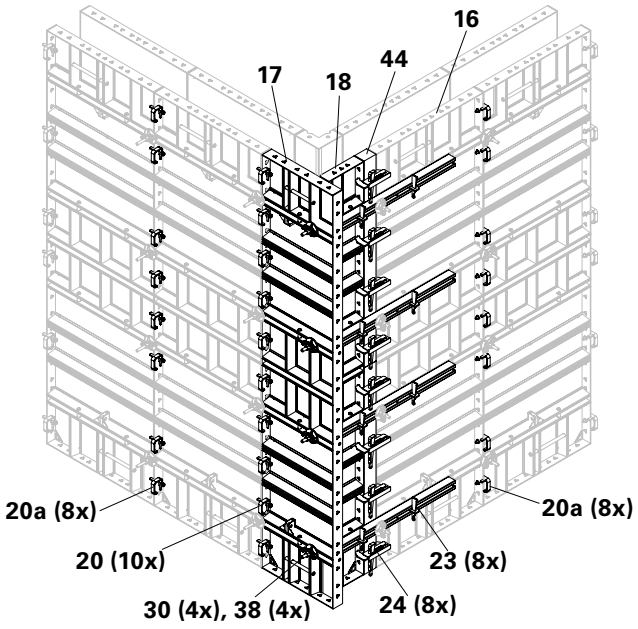


Fig. C1.03

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

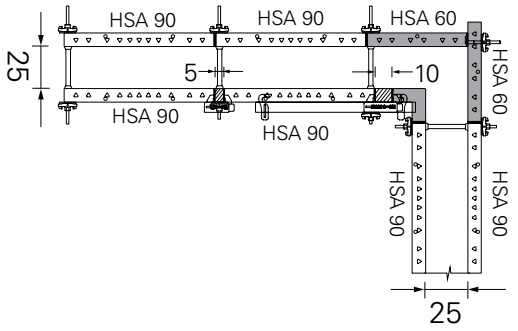


Fig. C1.04

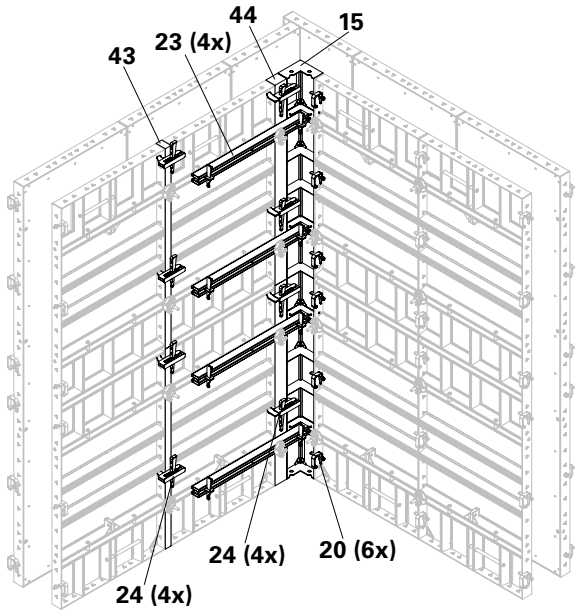


Fig. C1.05

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

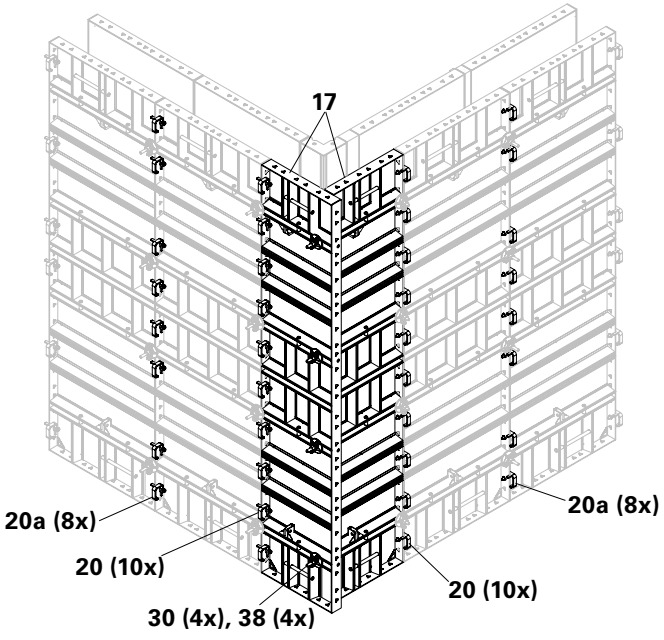


Fig. C1.06

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

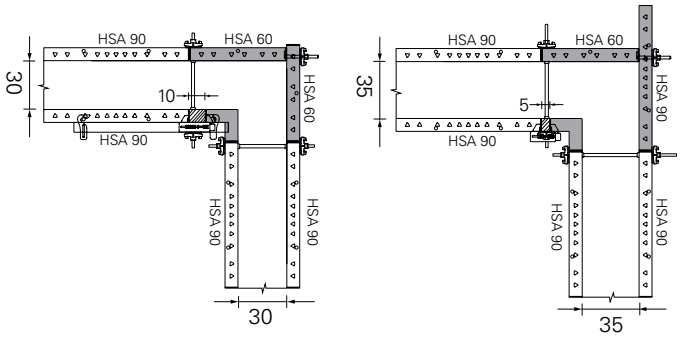


Fig. C1.07

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

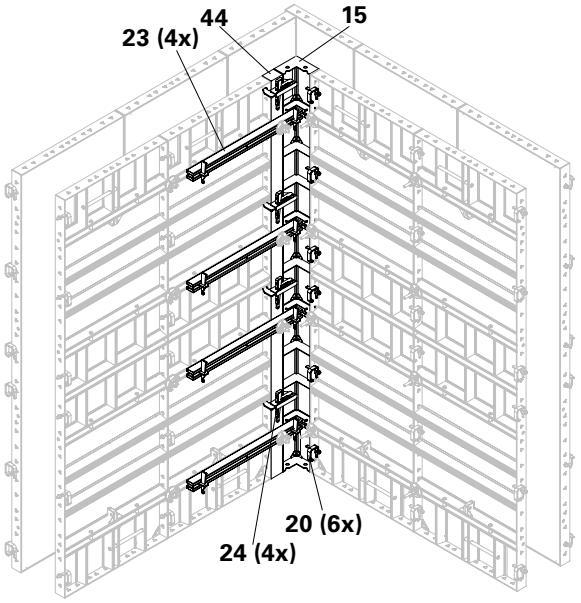


Fig. C1.08

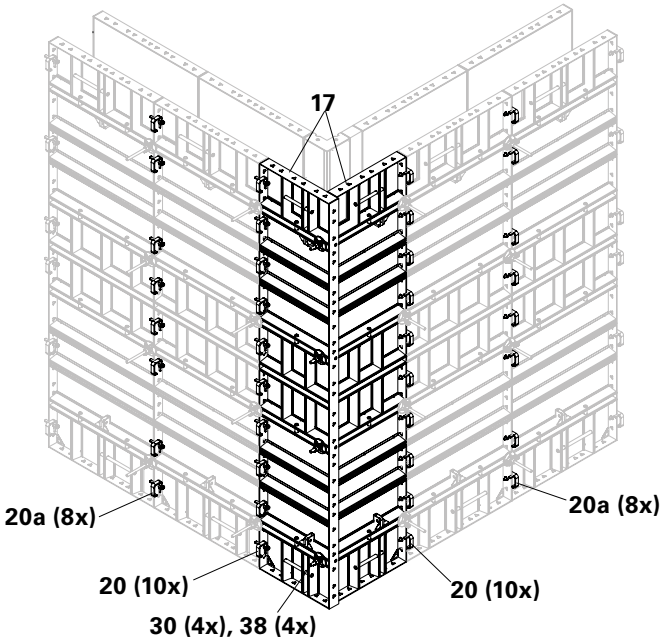


Fig. C1.09

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
53	External Corner HSA 300	1x
20	Wedge Clip HSA	20x
20a	Wedge Clip HSA for next panel	16x
38	HSA Corner Connector DW 15	4x
30	Wingnut Counterplate DW 15	4x

Wall thickness 40 cm

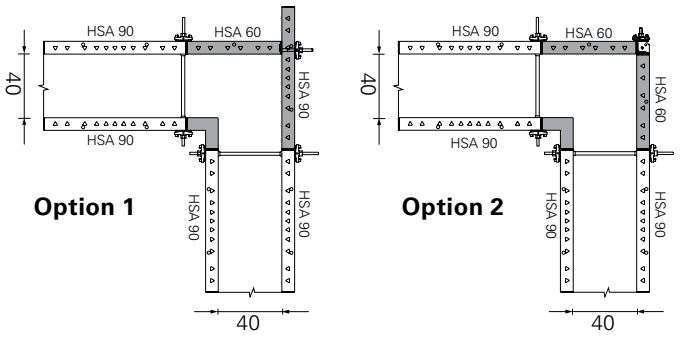


Fig. C1.10

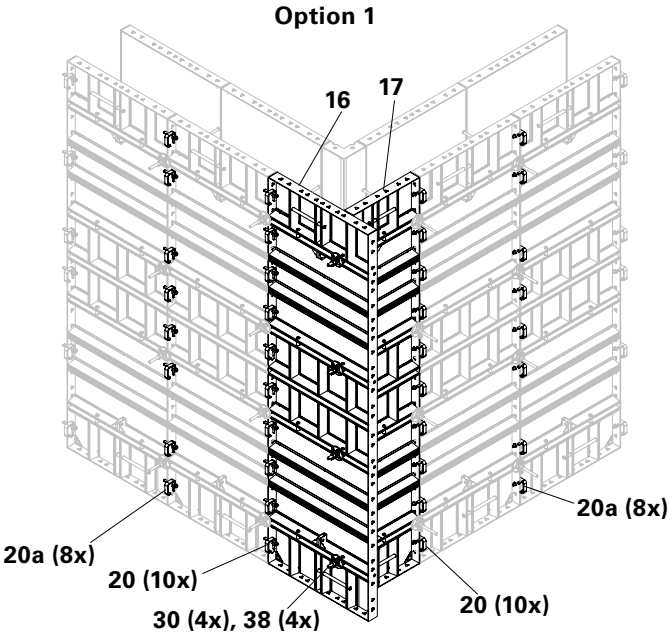


Fig. C1.11

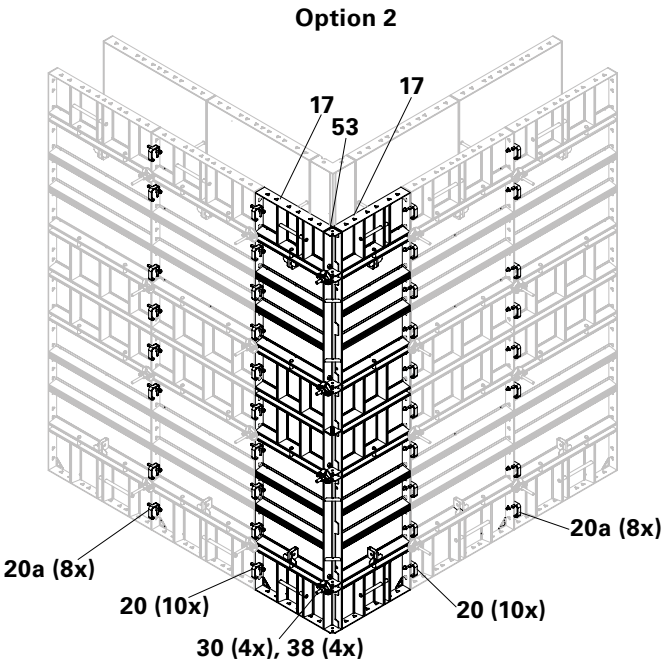


Fig. C1.12

C2 T-junctions, wall connections
H = 300

T-junctions

Wall thicknesses from 15 cm to 40 cm can be continuously formed.
(Fig. C2.01)

For Compensation, see C4.

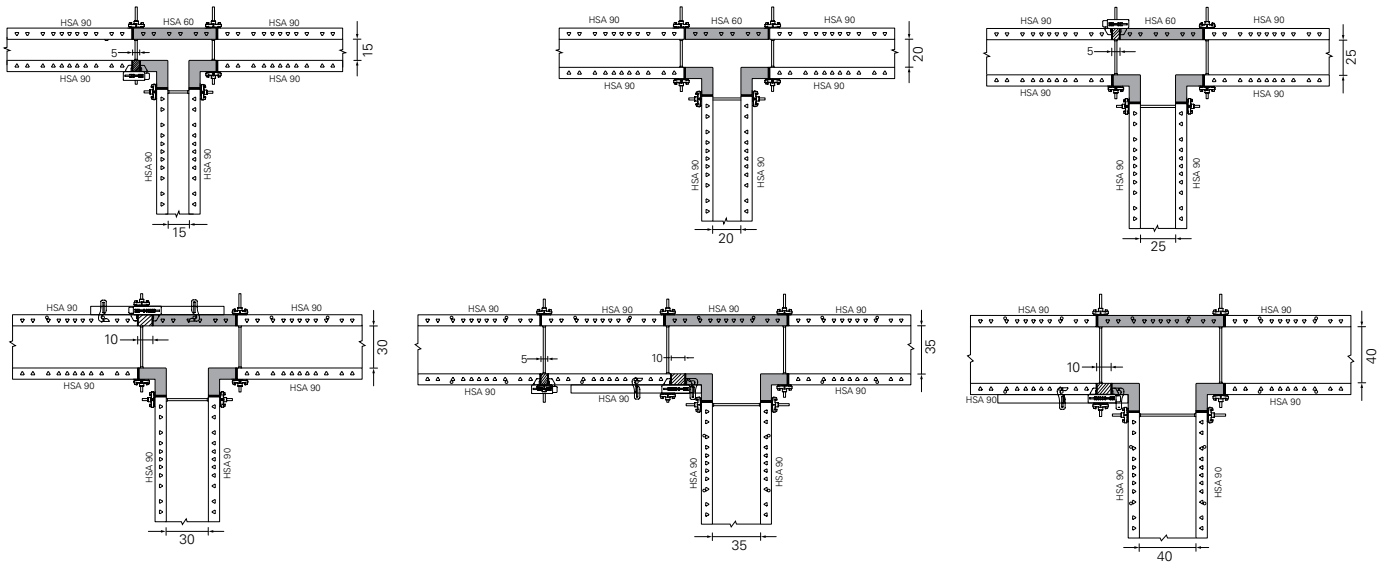


Fig. C2.01

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

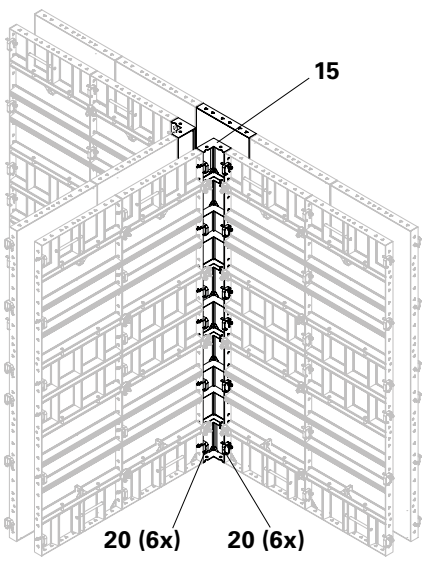


Fig. C2.02

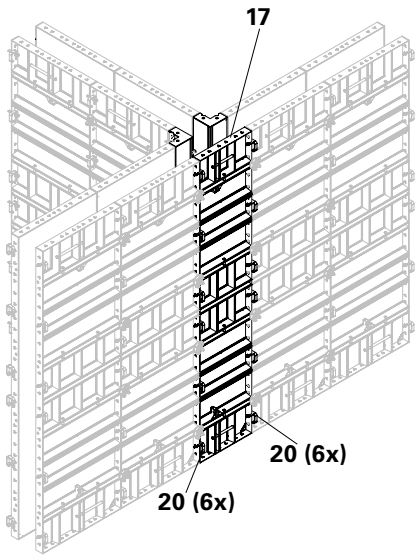


Fig. C2.03

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

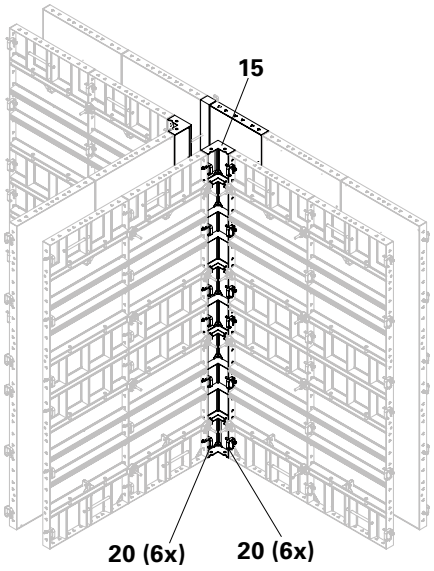


Fig. C2.04

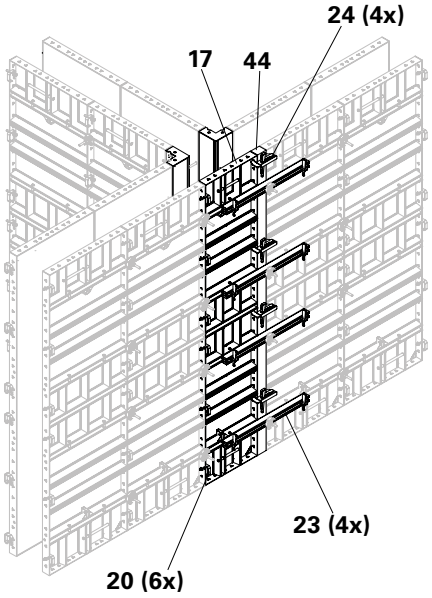


Fig. C2.05

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)

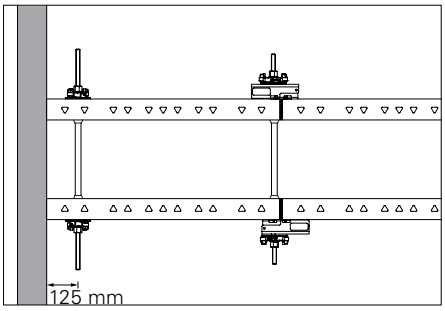


Fig. C2.06a

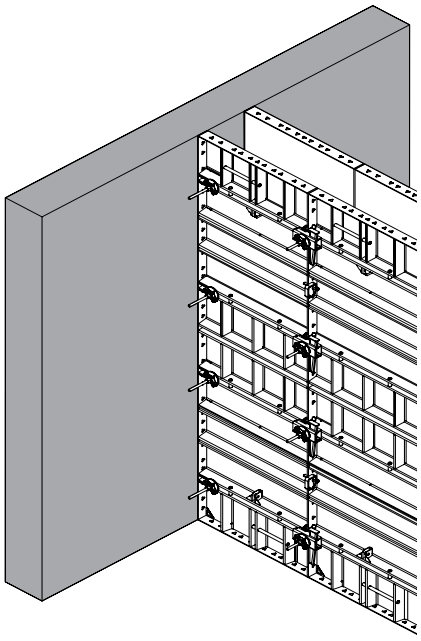


Fig. C2.06

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
18	Panel HSA 300 x 30	1x
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

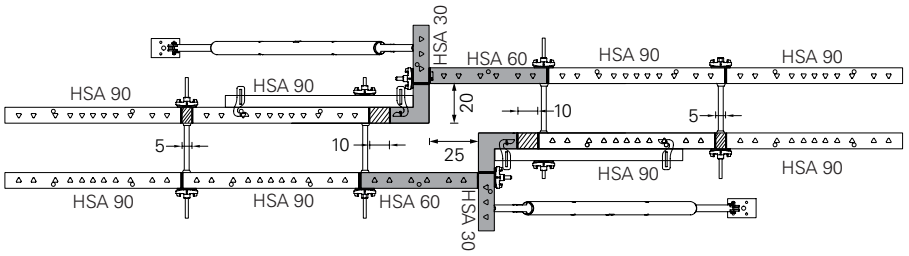


Fig. C3.01

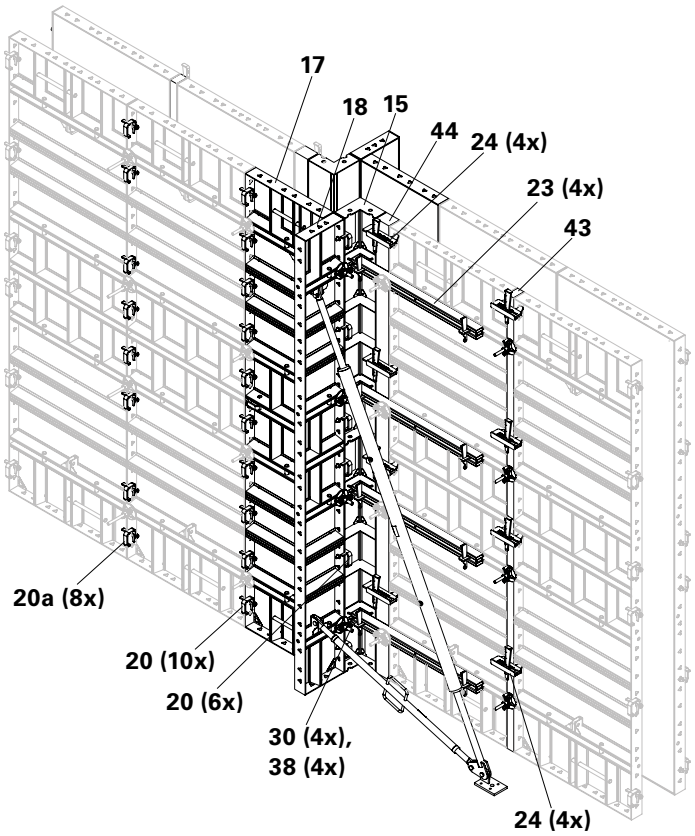


Fig. C3.02

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

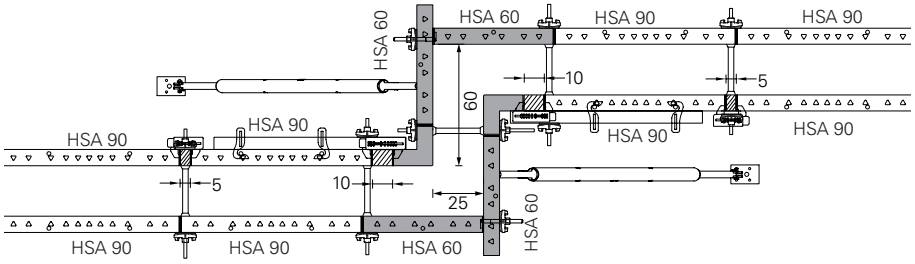


Fig. C3.03

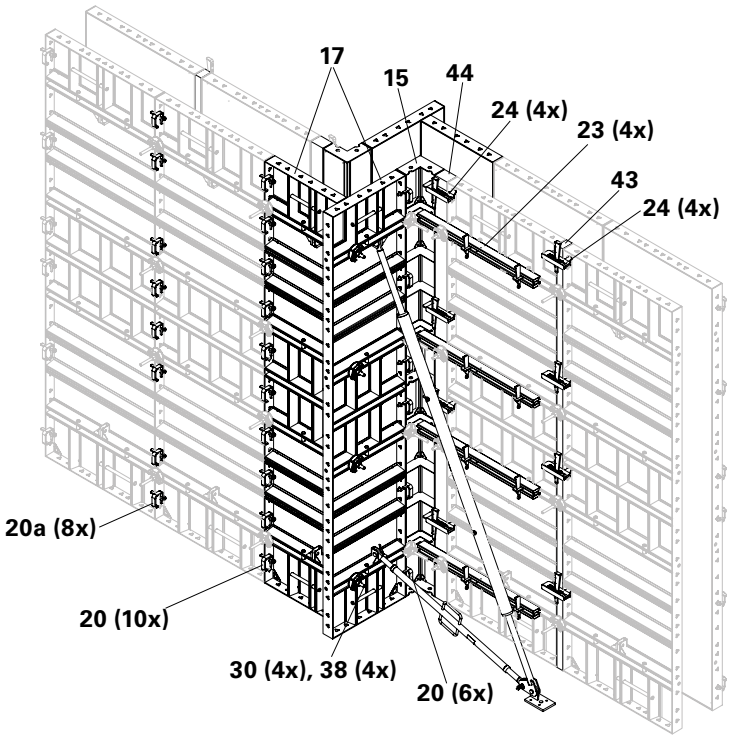


Fig. C3.04

C3 Wall offsets
H = 300

Wall offset 40 cm

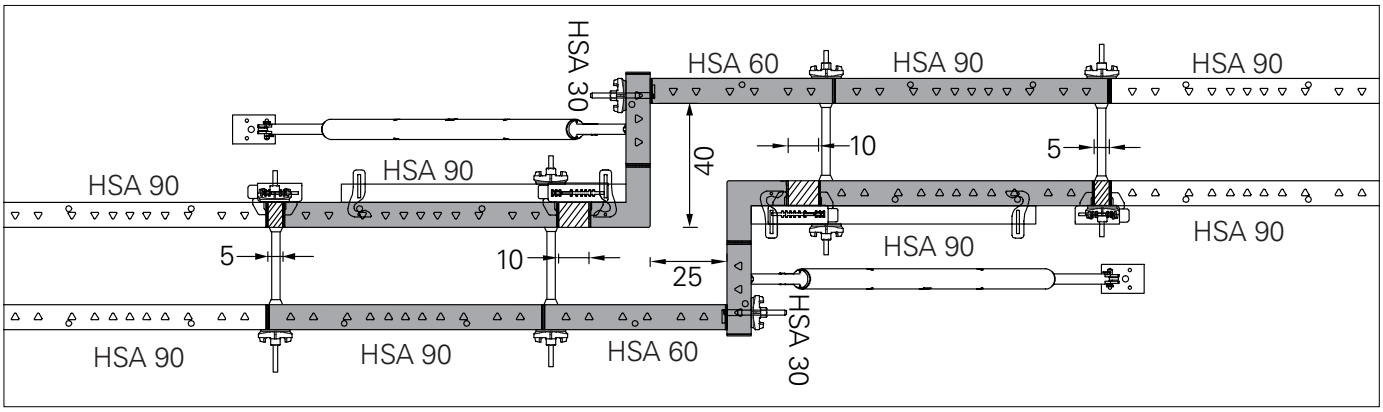


Fig. C3.05

Wall offset 50 cm

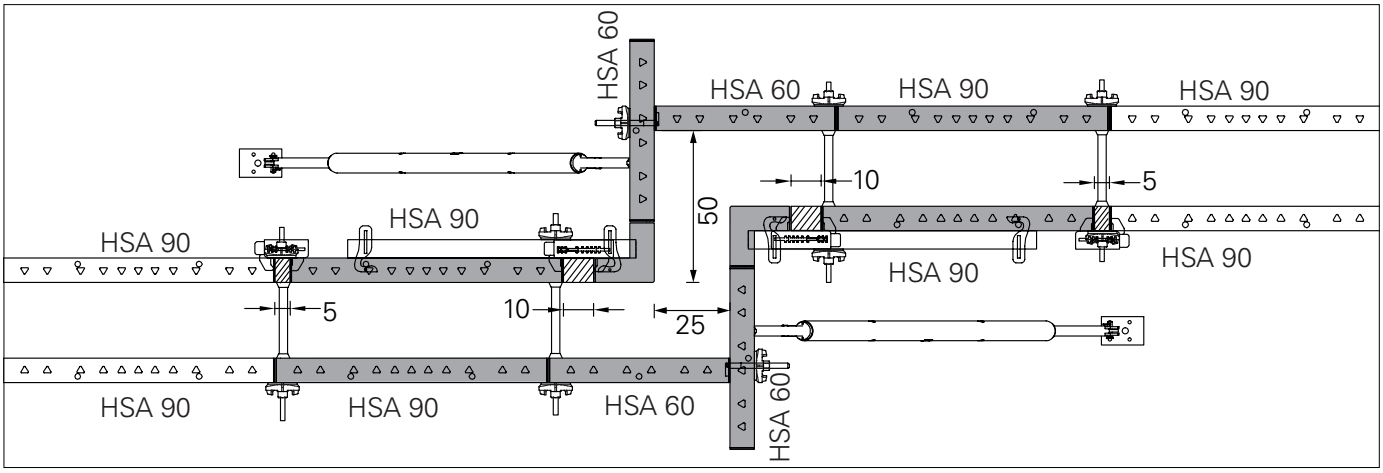


Fig. C3.06

Wall offset 85 cm

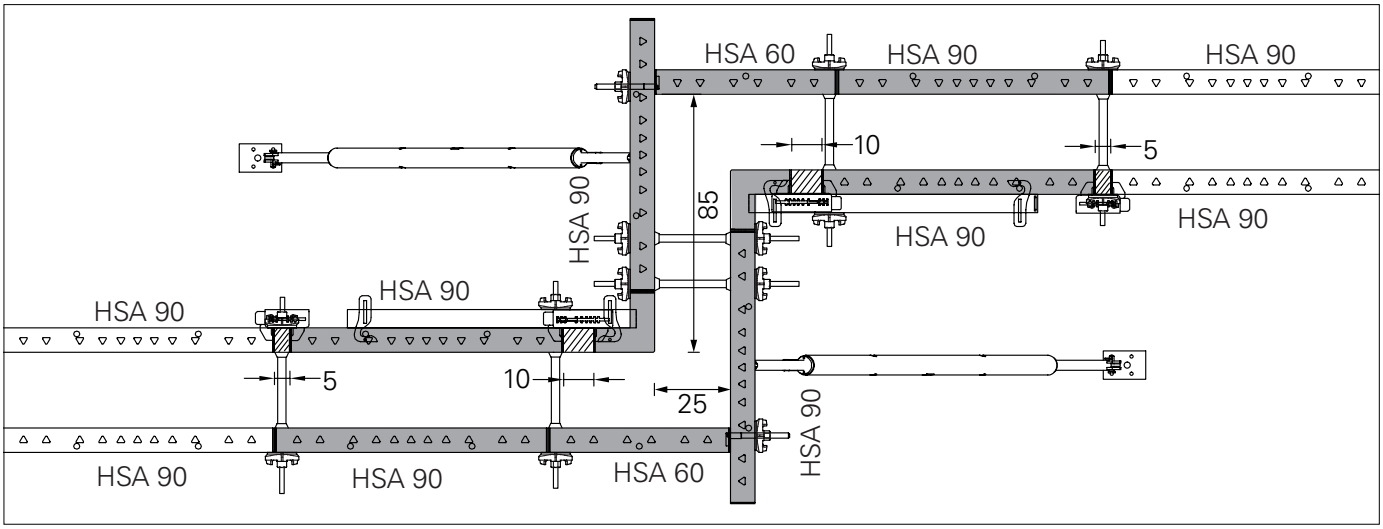


Fig. C3.07

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.

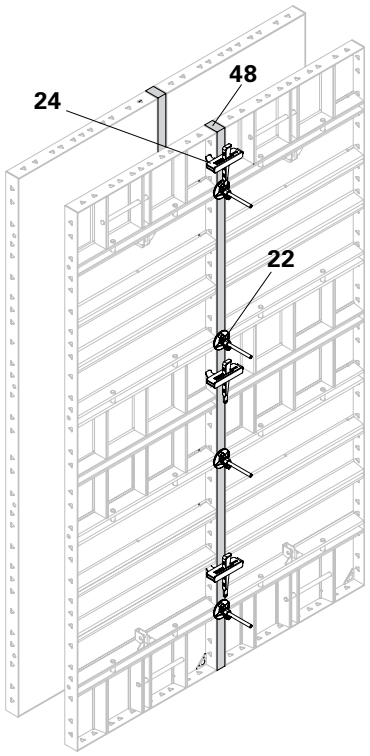


Fig. C4.01

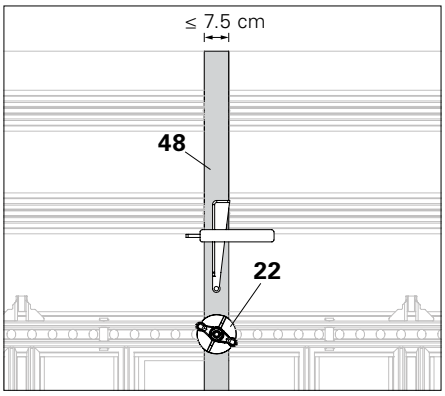


Fig. C4.01a

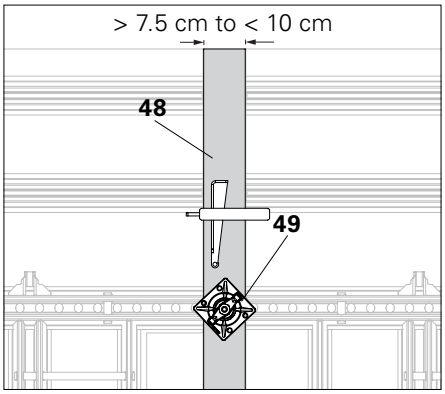


Fig. C4.01b

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

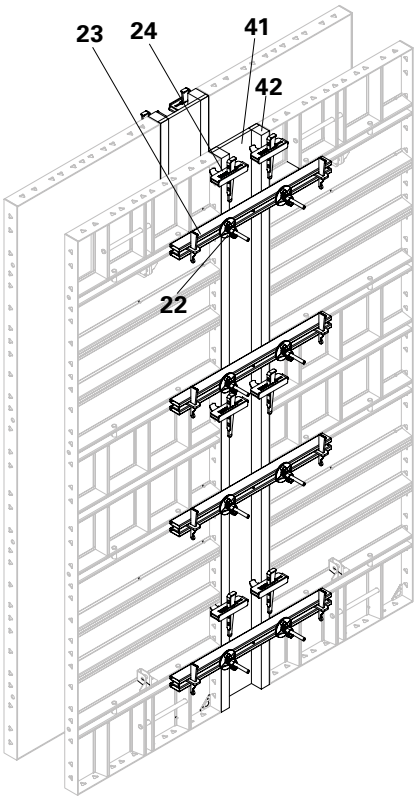


Fig. C4.02

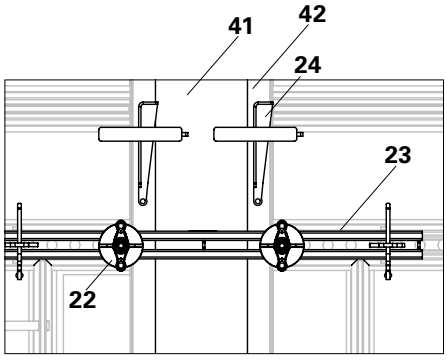


Fig. C4.02a

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)

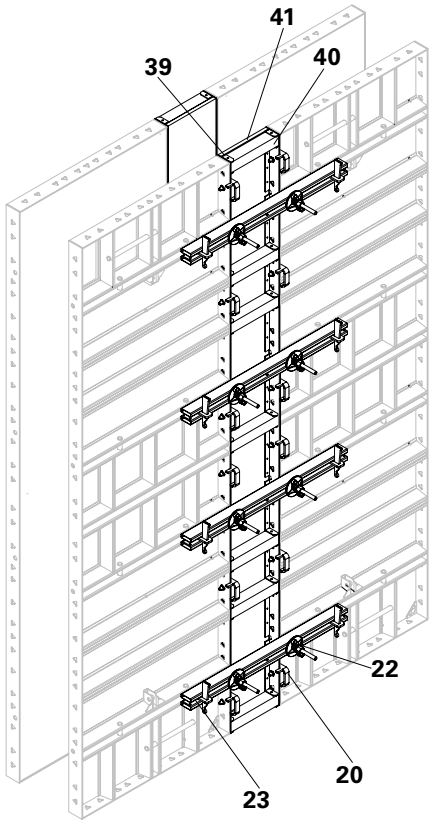


Fig. C4.03

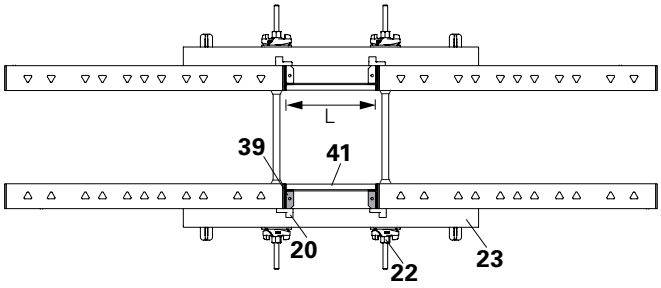


Fig. C4.03a

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.

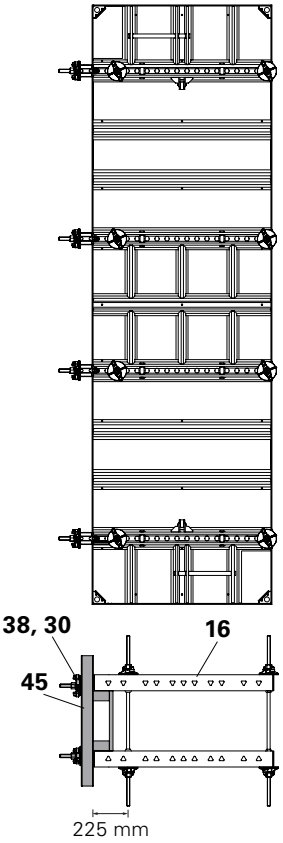


Fig. C5.01a

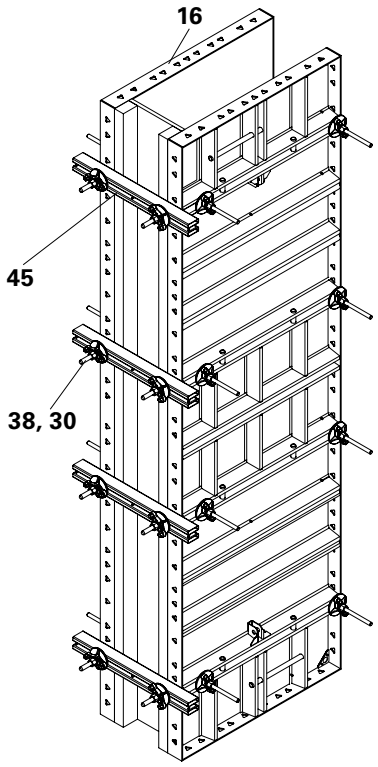


Fig. C5.01

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

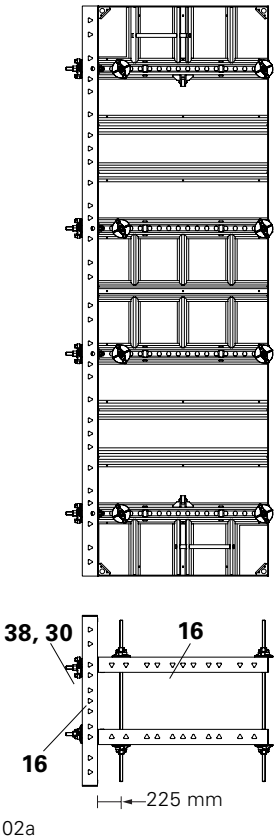


Fig. C5.02a

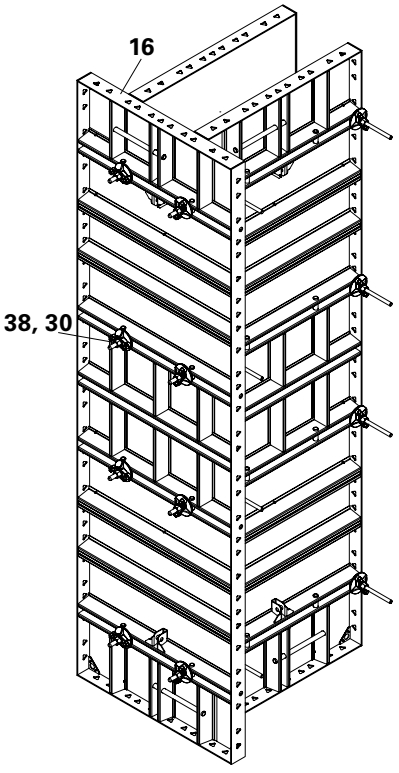


Fig. C5.02

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°.

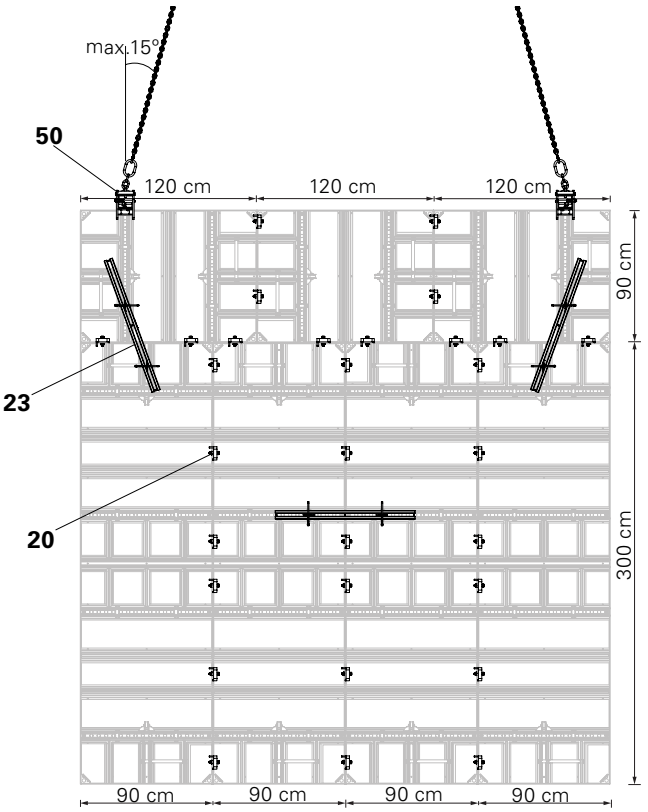


Fig. C6.01

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).

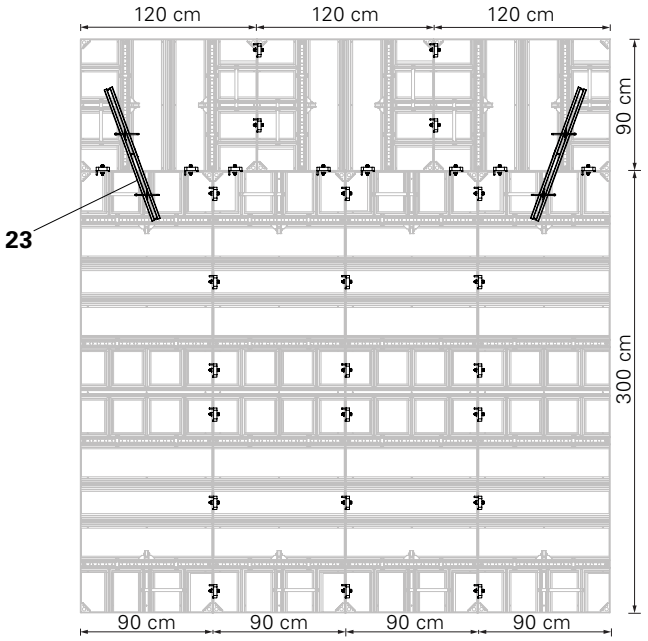


Fig. C6.02

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.

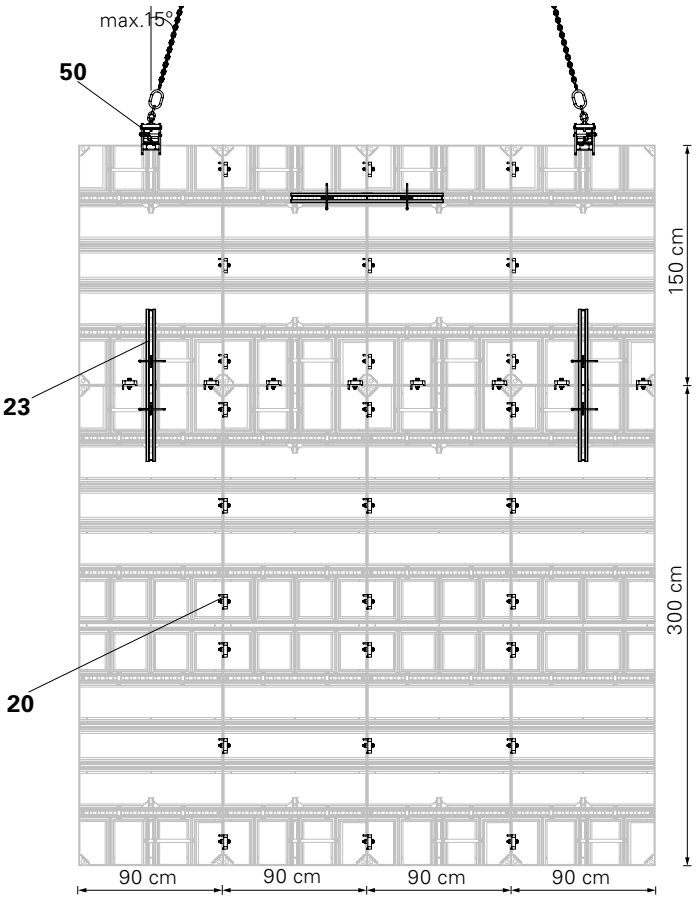


Fig. C6.03

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).

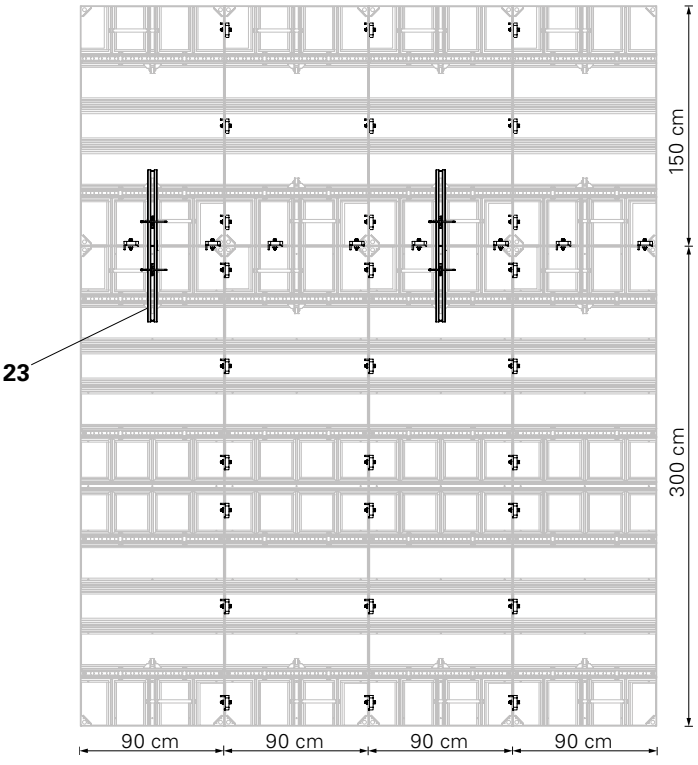


Fig. C6.04

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)

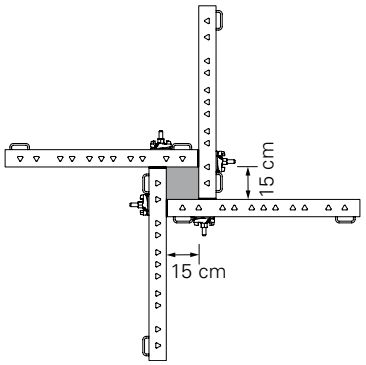


Fig. D1.01

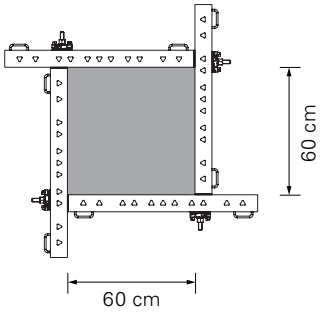


Fig. D1.02

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)

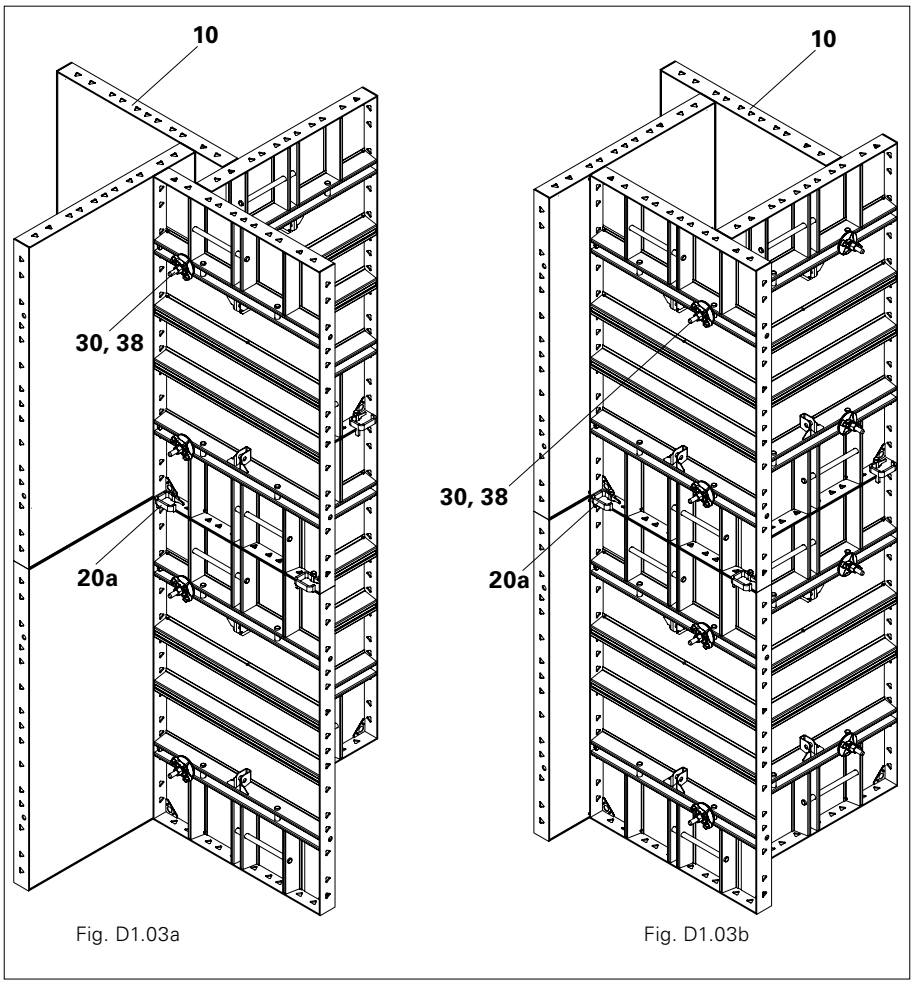


Fig. D1.03a

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)

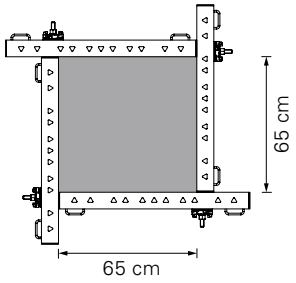


Fig. D1.04

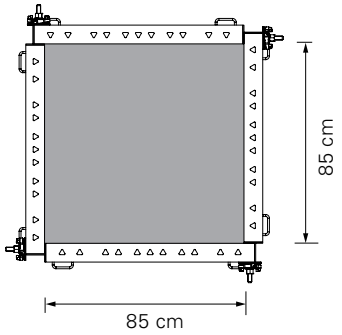


Fig. D1.05

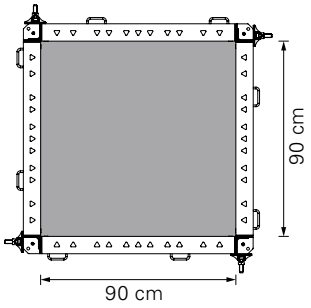


Fig. D1.06

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

(Fig. D1.07b)

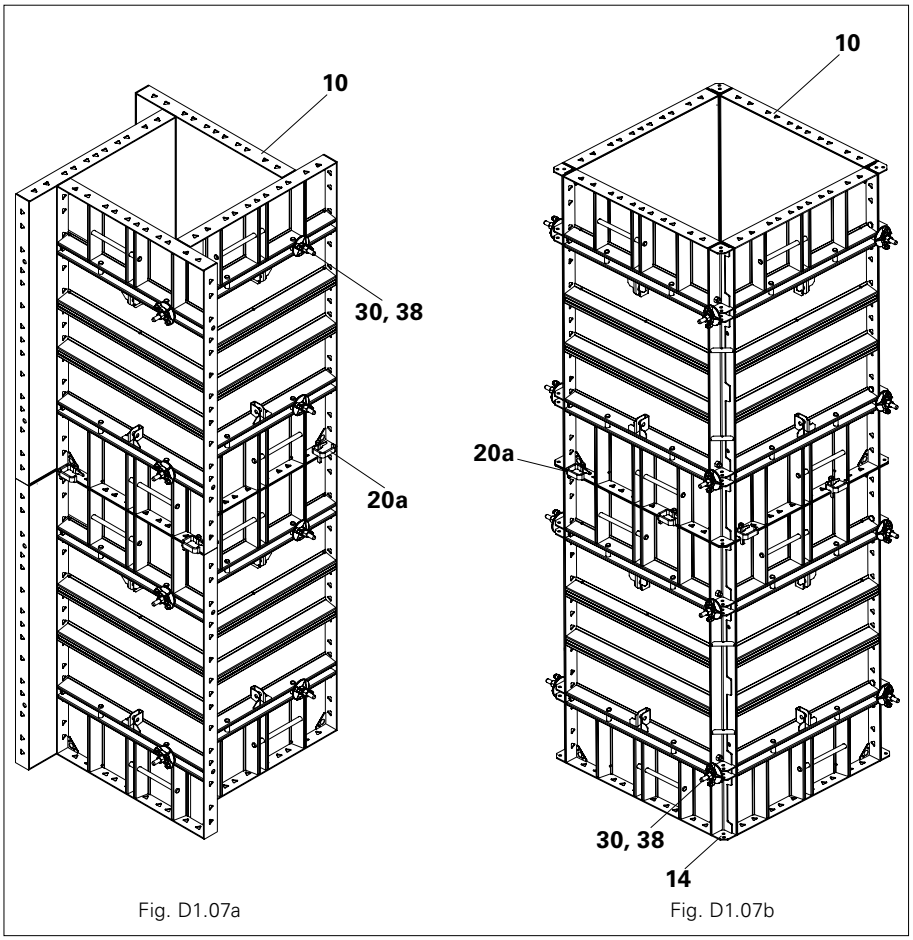


Fig. D1.07a

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)

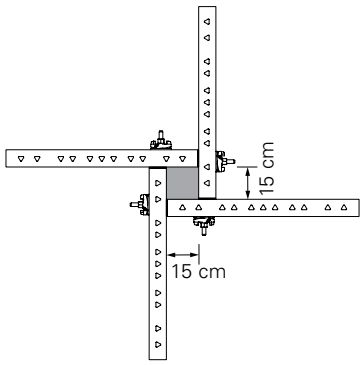


Fig. D2.01

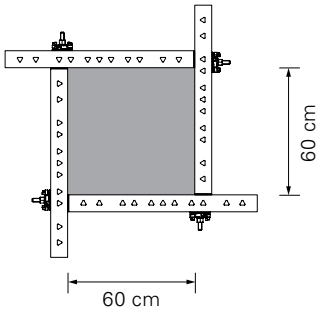


Fig. D2.02

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
38	HSA Corner Connector DW 15	16x

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

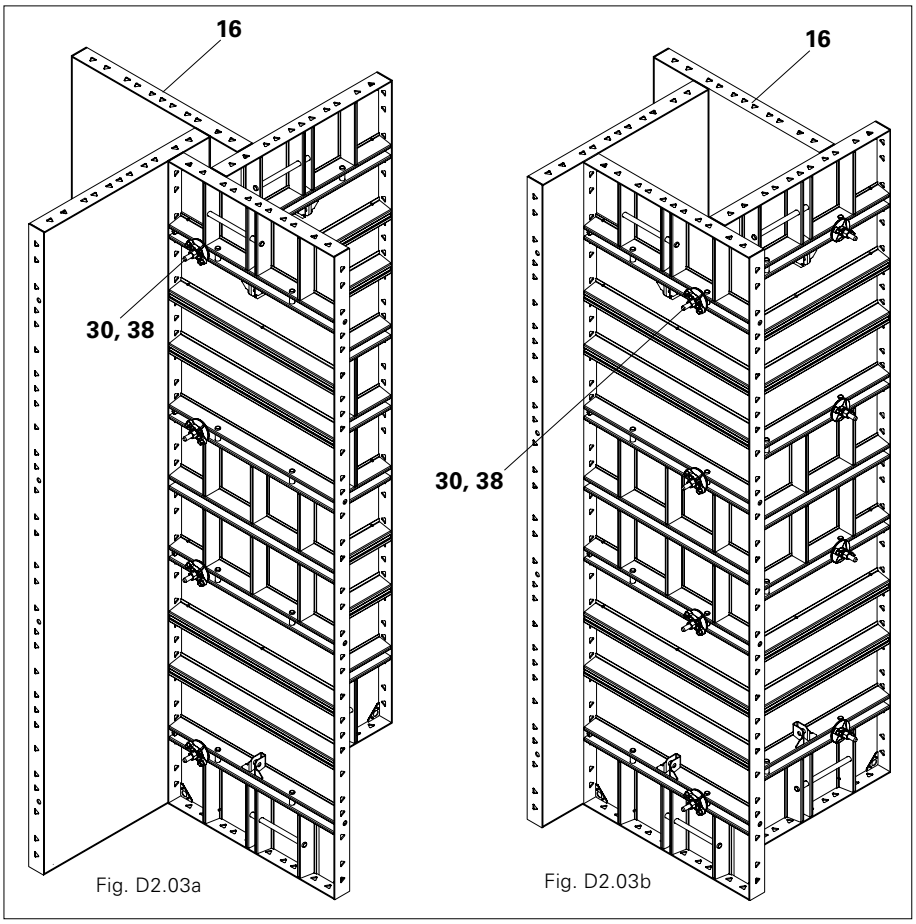


Fig. D2.03a

Fig. D2.03b

Fig. D2.03

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)

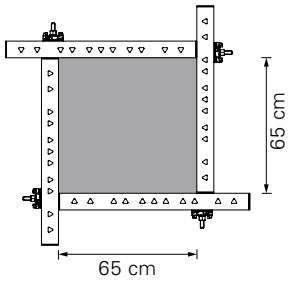


Fig. D2.04

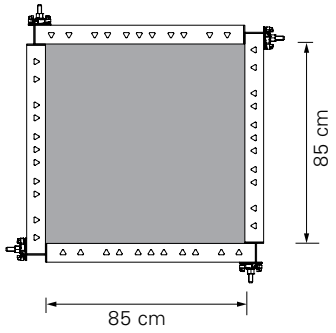


Fig. D2.05

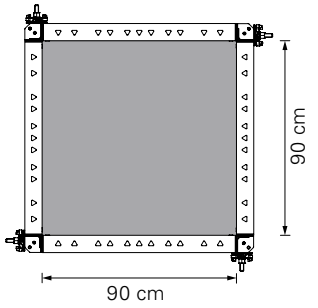


Fig. D2.06

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
53	External Corner HSA 300	4x
30	Wingnut Counterplate DW 15	16x
38	HSA Corner Connector DW 15	16x

(Fig. D2.07b)

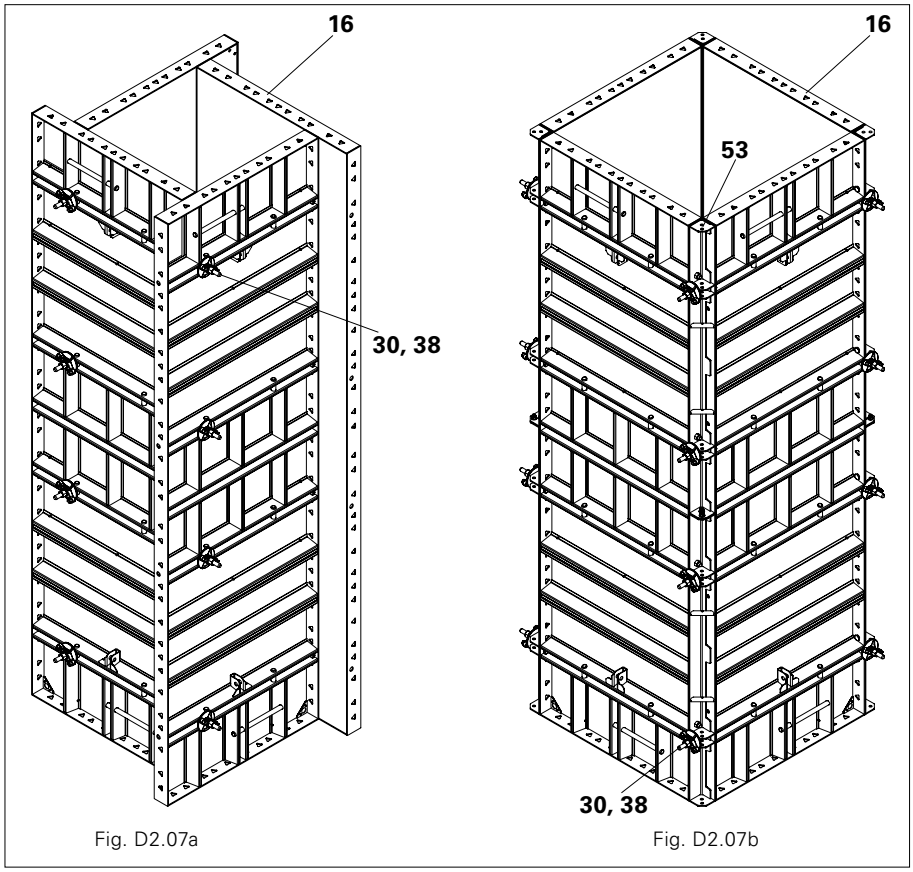


Fig. D2.07a

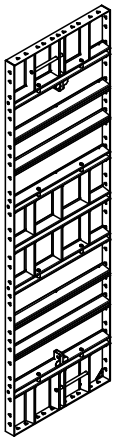
Fig. D2.07b

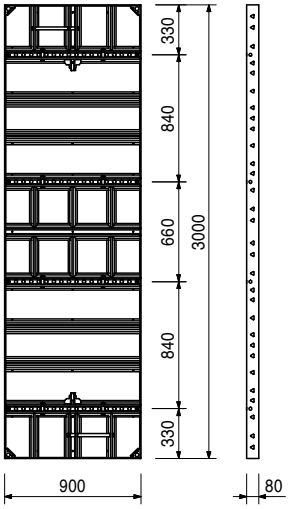
Fig. D2.07

HANDSET Alpha Panel Formwork

Art no.	Weight [kg]	
135550	91.200	**Panel HSA 300x90**

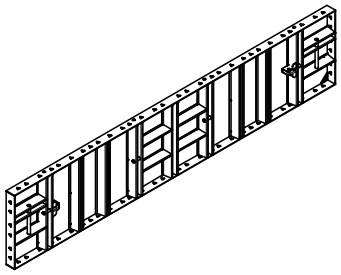
Panel with 12 mm plywood.

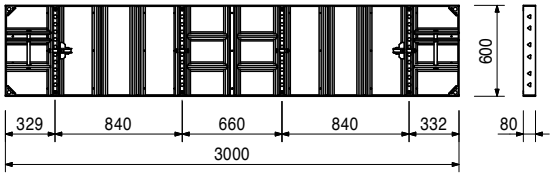




Art no.	Weight [kg]	
135574	67.500	**Panel HSA 300x60**

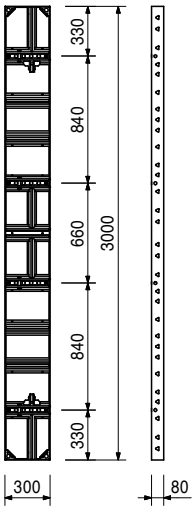
Panel with 12 mm plywood.





Art no.	Weight [kg]	
135583	41.800	**Panel HSA 300x30**

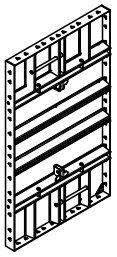
Panel with 12 mm plywood.

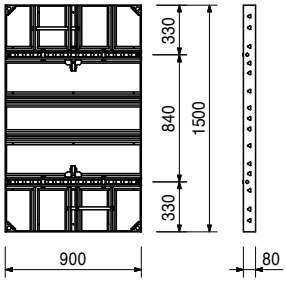


HANDSET Alpha Panel Formwork

Art no.	Weight [kg]	
135522	47.800	**Panel HSA 150x90**

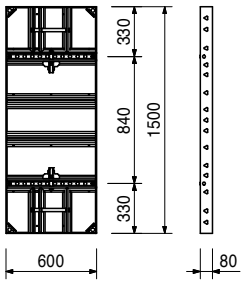
Panel with 12 mm plywood.





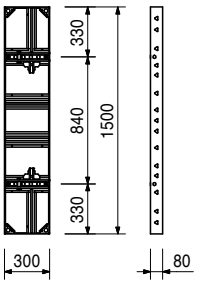
Art no.	Weight [kg]	
135558	35.700	**Panel HSA 150x60**

Panel with 12 mm plywood.



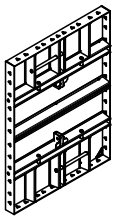
Art no.	Weight [kg]	
135565	21.500	**Panel HSA 150x30**

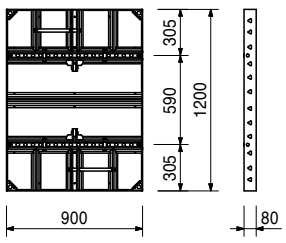
Panel with 12 mm plywood.



Art no.	Weight [kg]	
135543	40.300	**Panel HSA 120x90**

Panel with 12 mm plywood.

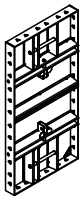


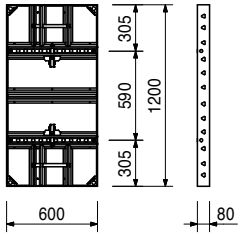


HANDSET Alpha Panel Formwork

Art no.	Weight [kg]	
135569	30.200	**Panel HSA 120x60**

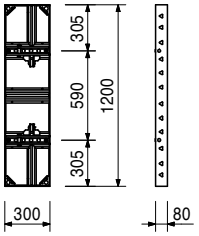
Panel with 12 mm plywood.





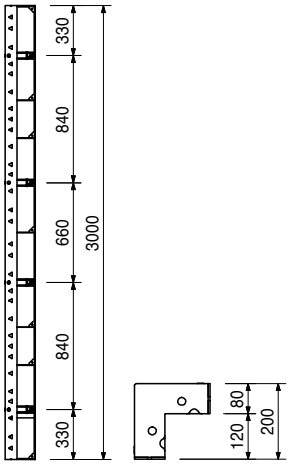
Art no.	Weight [kg]	
135578	17.900	**Panel HSA 120x30**

Panel with 12 mm plywood.



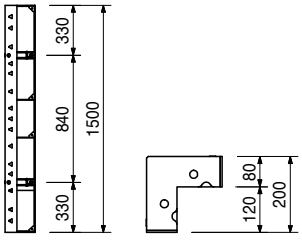
Art no.	Weight [kg]	
135840	42.000	**Internal Corner HSA 300**

With 12 mm plywood.



Art no.	Weight [kg]	
135830	21.700	**Internal Corner HSA 150**

With 12 mm plywood.



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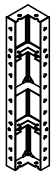
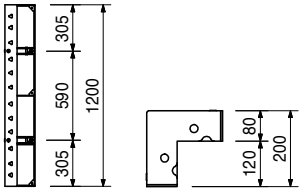
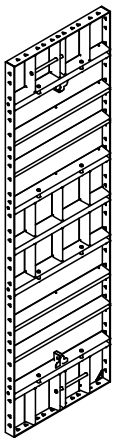
Art no.	Weight [kg]	
135835	17.900	**Internal Corner HSA 120**

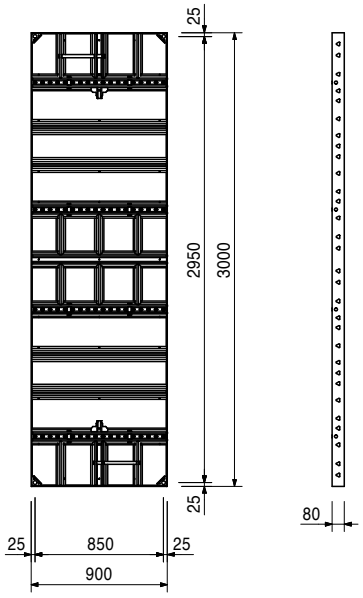
With 12 mm plywood.



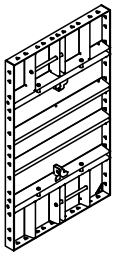


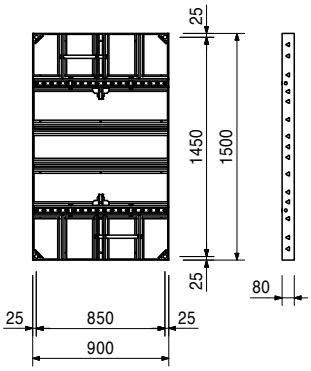
Art no.	Weight [kg]	
138735	91.000	**Multi Panel HSA 300x90**





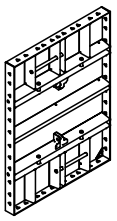
Art no.	Weight [kg]	
138731	48.900	**Multi Panel HSA 150x90**

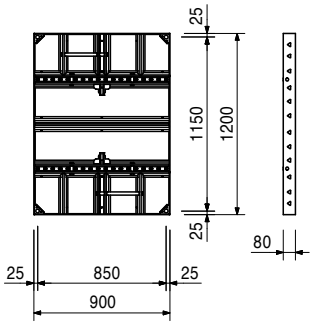




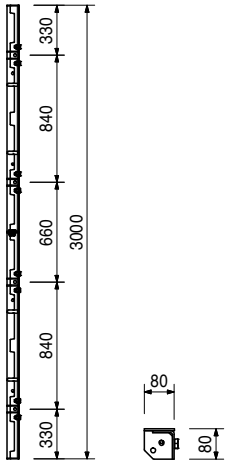
HANDSET Alpha Panel Formwork

Art no.	Weight [kg]	
138733	40.200	**Multi Panel HSA 120x90**





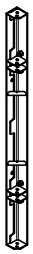
Art no.	Weight [kg]	
135626	25.100	**External Corner HSA 300**

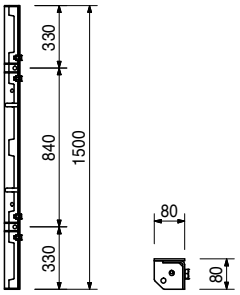


Consists of

8 pc 710231 Screw ISO4017-M16x030-8.8-galv
2 pc 710381 Hex-Nut ISO7040-M12-8-galv
2 pc 102120 Screw ISO4017-M12x030-8.8-galv
8 pc 710229 Hex-Nut ISO4032-M16-8-galv
2 pc 780702 Washer ISO7089-12-200HV-galv

Art no.	Weight [kg]	
135620	12.500	**External Corner HSA 150**



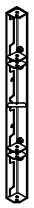


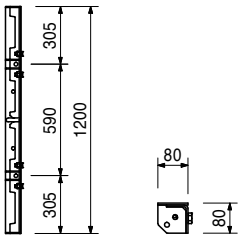
Consists of

4 pc 710231 Screw ISO4017-M16x030-8.8-galv
4 pc 710229 Hex-Nut ISO4032-M16-8-galv

HANDSET Alpha Panel Formwork

Art no.	Weight [kg]	
135623	10.400	**External Corner HSA 120**



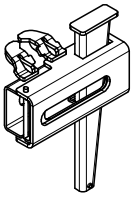


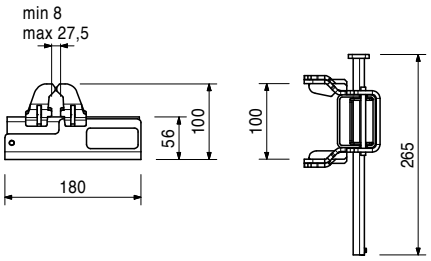
Consists of

4 pc 710231 Screw ISO4017-M16x030-8.8-galv
4 pc 710229 Hex-Nut ISO4032-M16-8-galv

Art no.	Weight [kg]	
135745	2.580	**Alignment Clamp HSA**

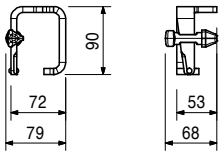
For standard panel joints (0 to 17 mm max.).





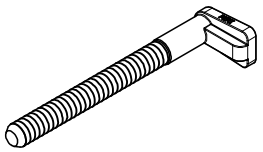
Art no.	Weight [kg]	
135818	0.448	**Wedge Clip HSA**

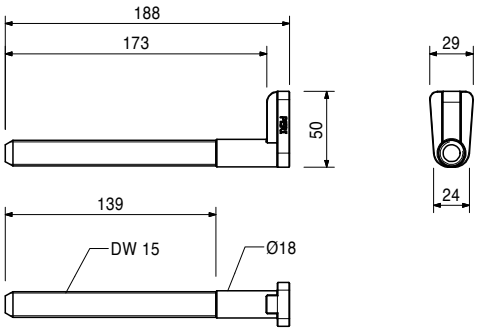
For standard panel joints.



Art no.	Weight [kg]	
135587	0.427	**Corner Connector HSA DW15**

For external corners and columns.





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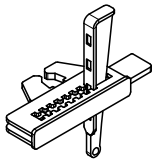
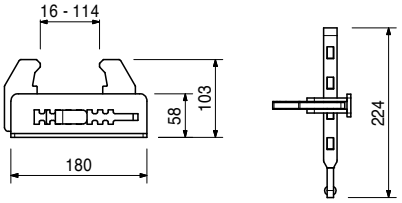
Art no.	Weight [kg]	
135763	1.940	**Compensation Clamp HSA**

For compensation up to 10 cm.



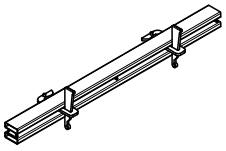


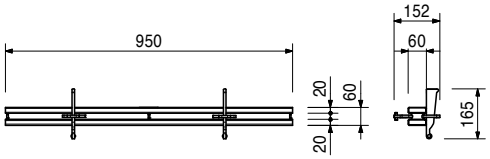
Art no.	Weight [kg]	
135643	5.740	**Compensation Waler HSA 95**

For lenght compensations between 10 cm and 30 cm.
Height extensions.

Notes

Permissible bending moment 1.38 kNm.



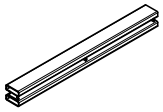


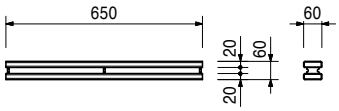
Art no.	Weight [kg]	
135635	3.080	**Stop-End Waler HSA 65**

For stopend formwork.

Notes

Permissible bending moment 1.38 kNm.



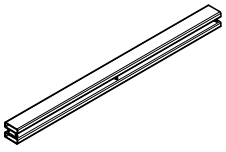


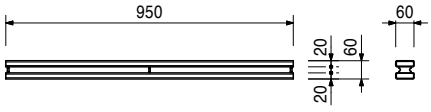
Art no.	Weight [kg]	
135631	4.460	**Stop-End Waler HSA 95**

For stopend formwork.

Notes

Permissible bending moment 1.38 kNm.

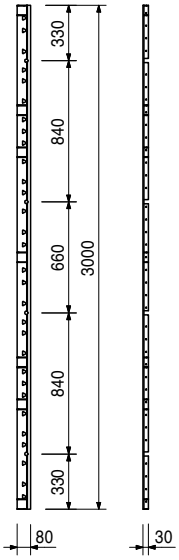


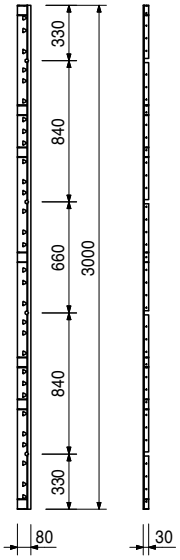


HANDSET Alpha Panel Formwork

Art no.	Weight [kg]	
135813	11.800	**Filler Support 18 HFS 300**

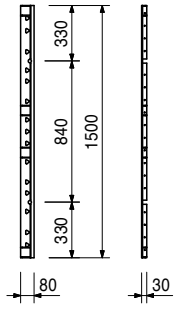
For compensations from 10 cm to 30 cm with 18 mm plywood.





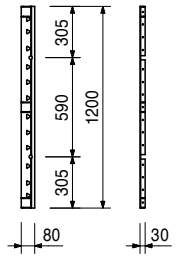
Art no.	Weight [kg]	
135806	5.920	**Filler Support 18 HFS 150**

For compensations from 10 cm to 30 cm with 18 mm plywood.



Art no.	Weight [kg]	
135810	4.720	**Filler Support 18 HFS 120**

For compensations from 10 cm to 30 cm with 18 mm plywood.



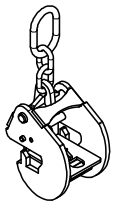
HANDSET Alpha Panel Formwork

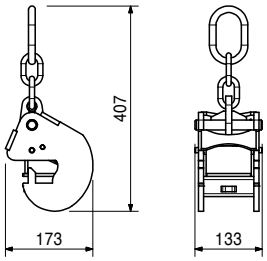
Art no.	Weight [kg]	
138237	6.260	**Crane Hook HSA-2**

For transporting HSA Panels.
Refer to Crane Hook HSA-2 - Original Instructions for Use.

Notes

Permissible load-bearing capacity 500 kg.



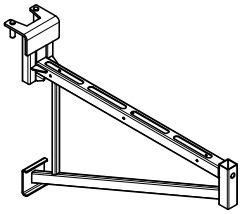


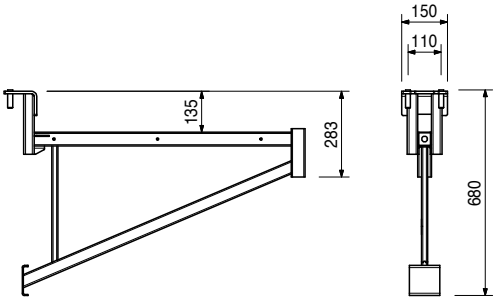
Art no.	Weight [kg]	
135907	7.900	**Scaffold Bracket HSA 80**

For assembly of a working and concreting scaffold with HANDSET Alpha.
Timber insert (38 x 38 x 880 mm) not included.

Notes

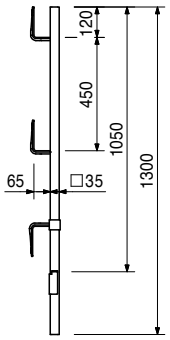
Permissible load 150 kg/m².
Maximum width 1.80 m.





Art no.	Weight [kg]	
116292	4.720	**Guardrail Post HSGP-2**

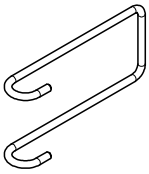
As guardrail for different systems.

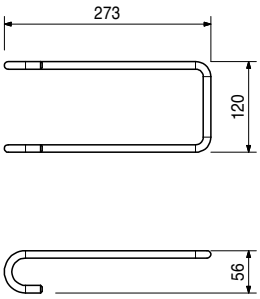


HANDSET Alpha Panel Formwork

Art no.	Weight [kg]	
135911	0.471	**Holder Hook HSA**

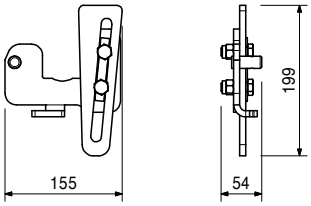
For aligning HSA Panels with girders VT 20 or any local girder (h = 20 cm) and also acts as a lifting hook.

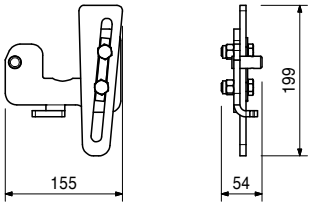




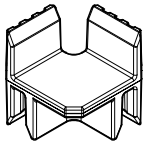
Art no.	Weight [kg]	
135853	1.350	**Tube Holder HSA**

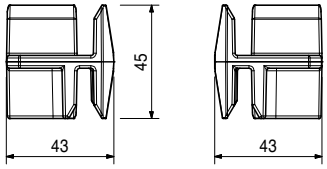
For aligning HSA Panels with scaffold tube (NB40) or square tubes 50 x 50 mm.





Art no.	Weight [kg]	
136053	0.021	**Stacking Aid HSA**



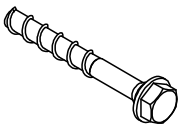


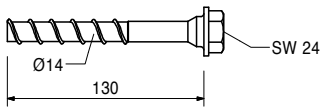
Art no.	Weight [kg]	
124777	0.210	**Anchor Bolt 14/20x130**

For temporary attachment to reinforced concrete components.

Notes

Take the PERI Data Sheet into consideration!
Hole Ø 14 mm.





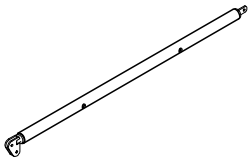
HANDSET Alpha Panel Formwork

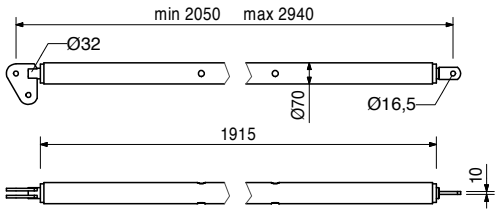
Art no.	Weight [kg]	
028010	17.900	**Push-Pull Prop RSS I**

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

Notes

Permissible load see PERI Design Tables.





Accessory (not included)

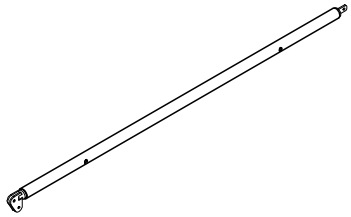
113397	1.600	**Spindle Handle RSS/AV**

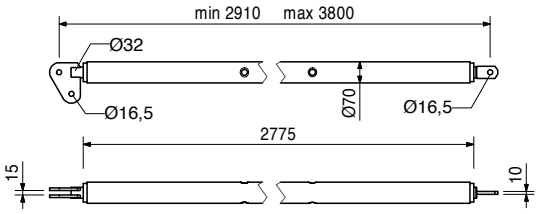
Art no.	Weight [kg]		D [mm]	L [mm]
028020	22.000	**Push-Pull Prop RSS II**	300	100

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

Notes

Permissible load see PERI Design Tables.





Accessory (not included)

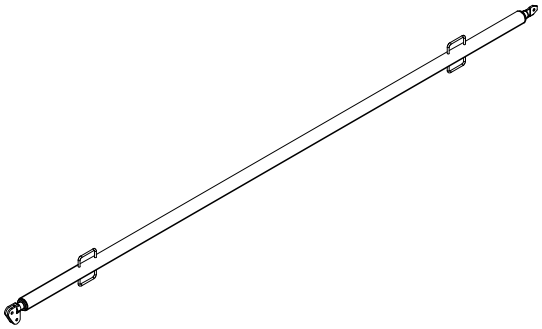
113397	1.600	**Spindle Handle RSS/AV**

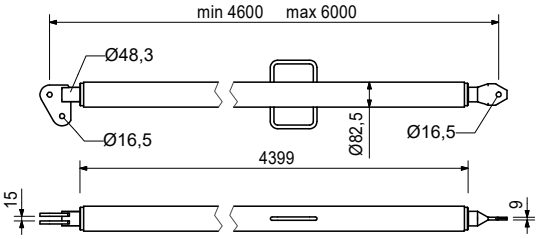
Art no.	Weight [kg]		D [mm]	L [mm]
028030	38.400	**Push-Pull Prop RSS III**	400	200

Extension length l = 4.60 – 6.00 m.
For aligning PERI Formwork Systems.

Notes

Permissible load see PERI Design Tables.

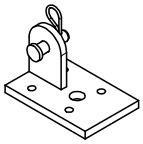


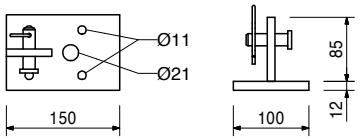


HANDSET Alpha Panel Formwork

Art no.	Weight [kg]	
106000	1.820	**Base Plate-2 f. RSS galv**

For assembling RSS Push-pull Props.





Accessory (not included)

124777	0.210	**Anchor Bolt 14/20x130**

Consists of

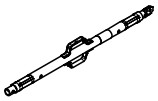
1 pc 027170 Pin 16x42 galv
1 pc 018060 Cotter Pin 4/1 galv

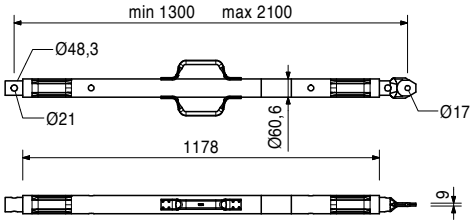
Art no.	Weight [kg]	
117466	10.600	**Push-Pull Prop RS 210 galv**

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

Notes

Permissible load see PERI Design Tables.



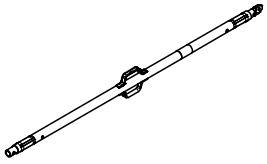


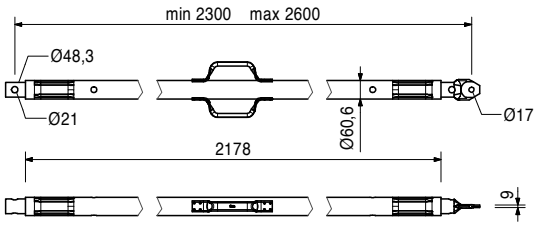
Art no.	Weight [kg]	
118238	12.100	**Push-Pull Prop RS 260 galv**

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

Notes

Permissible load see PERI Design Tables.





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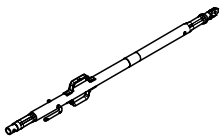
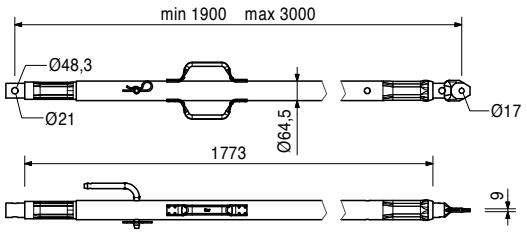
Art no.	Weight [kg]	
117467	15.500	**Push-Pull Prop RS 300 galv**

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

Notes

Permissible load see PERI Design Tables.



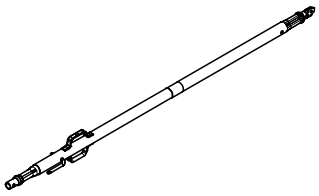


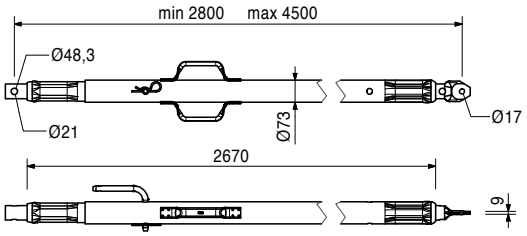
Art no.	Weight [kg]	
117468	23.000	**Push-Pull Prop RS 450 galv**

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

Notes

Permissible load see PERI Design Tables.



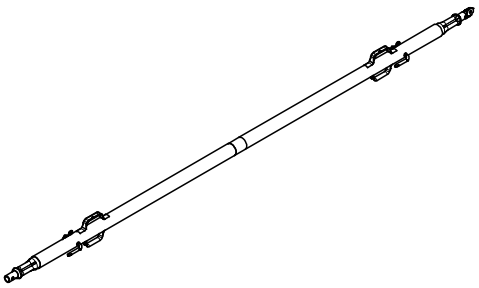


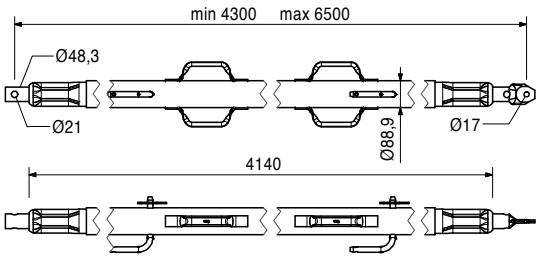
Art no.	Weight [kg]	
117469	39.900	**Push-Pull Prop RS 650 galv**

Extension length l = 4.30 – 6.50 m.
For aligning PERI Formwork Systems and precast concrete elements.

Notes

Permissible load see PERI Design Tables.





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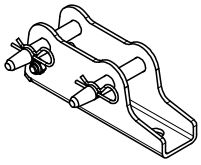
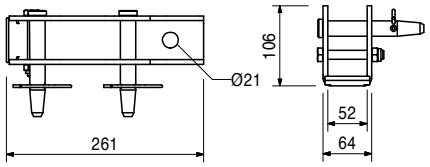
Art no.	Weight [kg]	
117343	3.250	**Base Plate-2 f. RS 210-1400 galv**

For assembling the RS 210, RS 260, RS 300, RS 450, RS 650, RS 1000 and RS 1400 Push-pull props.





Accessory (not included)

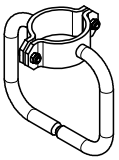
124777	0.210	**Anchor Bolt 14/20x130**

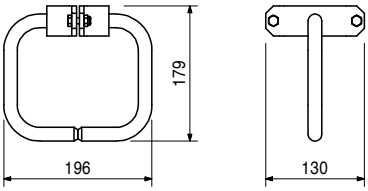
Consists of

2 pc 105400 Bolt 20x140 galv
2 pc 018060 Cotter Pin 4/1 galv

Art no.	Weight [kg]	
113397	1.600	**Spindle Handle RSS/AV**

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





Consists of

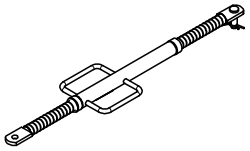
2 pc 722342 Screw ISO4017-M08x025-8.8-galv
2 pc 711071 Hex-Nut ISO7040-M08-8-galv

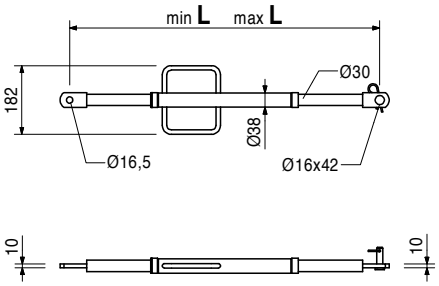
Art no.	Weight [kg]		min. L [mm]	max. L [mm]
		Kicker AV		
057087	3.510	**Kicker AV 82**	500	820
057088	4.200	**Kicker AV 111**	790	1110

For aligning PERI Formwork Systems.

Notes

Permissible load see PERI Design Tables.





Consists of

1 pc 027170 Pin 16x42 galv
1 pc 018060 Cotter Pin 4/1 galv

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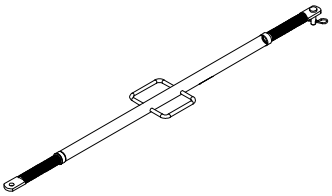
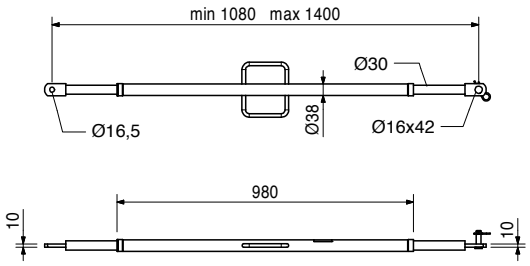
Art no.	Weight [kg]		D [mm]	L [mm]	min. L [mm]	max. L [mm]
028110	4.850	**Kicker AV 140**	2000	250	1080	1400

For aligning PERI Formwork Systems.

Notes

Permissible load see PERI Design Tables.





Consists of

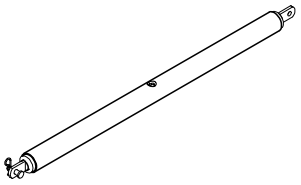
1 pc 027170 Pin 16x42 galv
1 pc 018060 Cotter Pin 4/1 galv

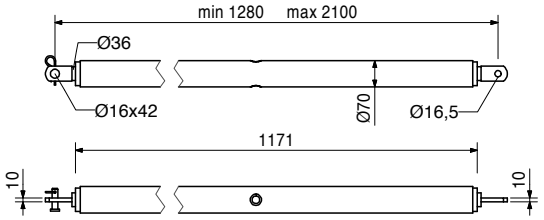
Art no.	Weight [kg]		D [mm]	L [mm]
108135	12.900	**Kicker AV 210**	7000	500

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

Notes

Permissible load see PERI Design Tables.





Accessory (not included)

113397	1.600	**Spindle Handle RSS/AV**

Consists of

1 pc 027170 Pin 16x42 galv
1 pc 018060 Cotter Pin 4/1 galv

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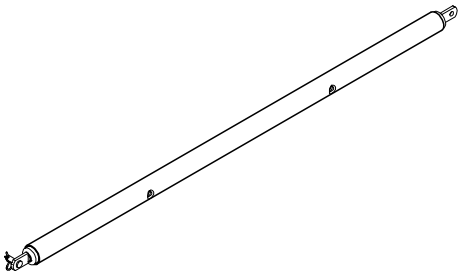
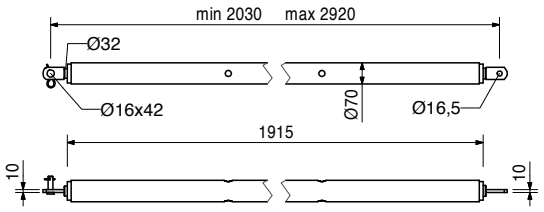
Art no.	Weight [kg]	
028120	17.000	**Kicker AV for RSS III cpl.**

Extension length l = 2.03 – 2.92 m.
For aligning PERI Formwork Systems.

Notes

Permissible load see PERI Design Tables.





Accessory (not included)

113397	1.600	**Spindle Handle RSS/AV**

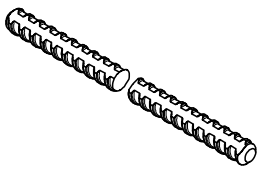
Consists of

1 pc 027170 Pin 16x42 galv
1 pc 018060 Cotter Pin 4/1 galv

Art no.	Weight [kg]	
		Tie Rods DW15
030005	0.720	**Tie Rod DW15 0.5m**
030010	1.230	**Tie Rod DW15 0.85m**
030480	1.440	**Tie Rod DW15 1m**
030490	1.730	**Tie Rod DW15 1.2m**
030170	2.160	**Tie Rod DW15 1.5m**
030020	2.450	**Tie Rod DW15 1.7m**
030180	2.880	**Tie Rod DW15 2m**
030710	3.600	**Tie Rod DW15 2.5m**
030720	4.320	**Tie Rod DW15 3m**
030730	5.040	**Tie Rod DW15 3.5m**
030160	8.640	**Tie Rod DW15 6m**
030030	1.440	**Tie Rod DW15 spec. Length**

Notes

Non-weldable! Observe the permissions! Permissible tension force 90 kN.



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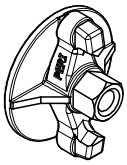
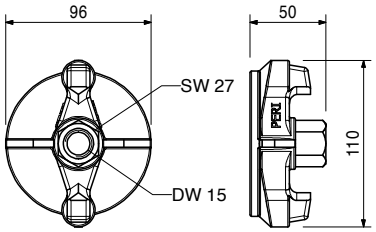
Art no.	Weight [kg]	
030110	0.799	**Wingnut Counterplate DW15 galv**

For anchoring with Tie Rod DW15 and B15.

Notes

Permissible load 90 kN.



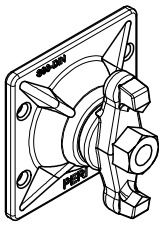


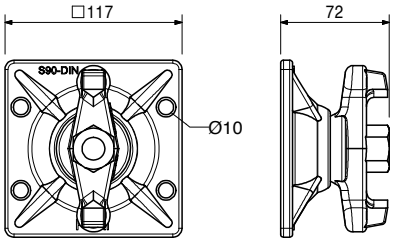
Art no.	Weight [kg]	
030370	1.660	**Wingnut Pivot Plate DW15 galv**

For anchoring with Tie Rod DW15 and B15.
With articulated, captive nut. Maximum inclination of anchor: 8°.

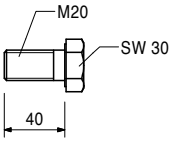
Notes

Wrench size SW27.
Permissible load 90 kN.





Art no.	Weight [kg]		L [mm]
706458	0.157	**Screw ISO4017-M20x040-8.8-galv**	40



Art no.	Weight [kg]	
781053	0.065	**Hex-Nut ISO7040-M20-8-galv**

Self-locking.

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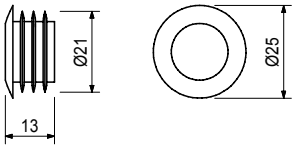
Art no.	Weight [kg]	
030290	0.002	**Plug Ø20mm**

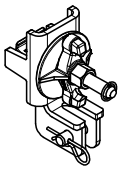
For closing Ø 20 mm tie holes which are not required.

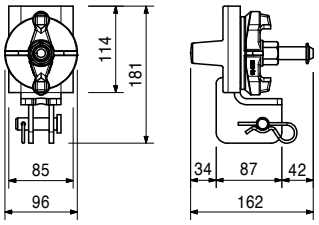
Notes

Delivery unit 500 pieces.

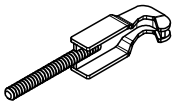


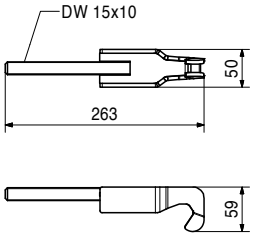
Art no.	Weight [kg]	
138049	2.850	**External Brace Connector HSA**



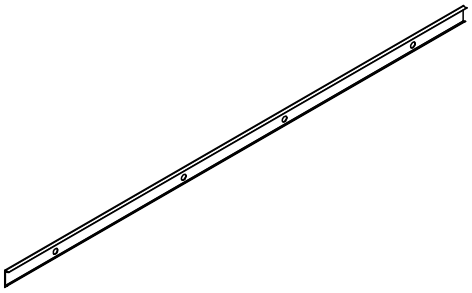


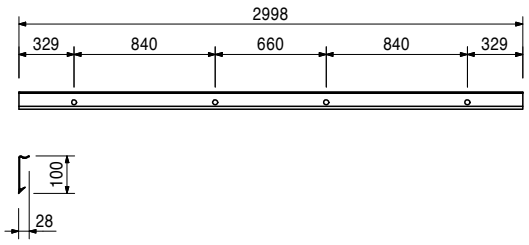
Art no.	Weight [kg]		B [mm]	L [mm]
138465	0.831	**Waler Hook HSA**	50	263





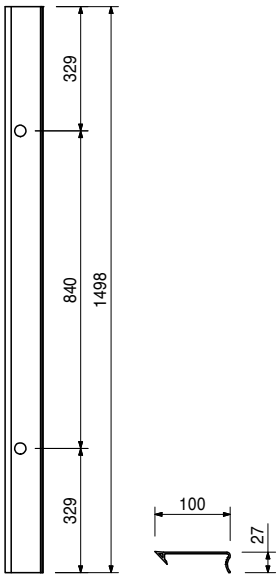
Art no.	Weight [kg]	
136225	1.110	**Champfer Stip HSA 300**



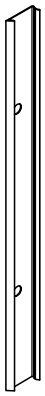


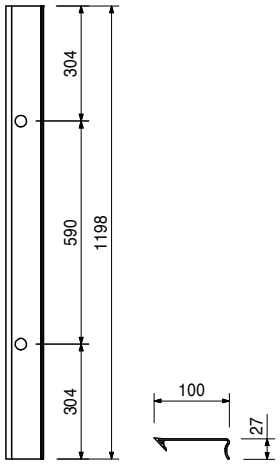
HANDSET Alpha Panel Formwork

Art no.	Weight [kg]	
136223	0.553	**Champfer Stip HSA 150**

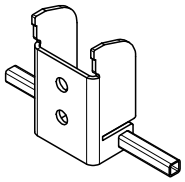


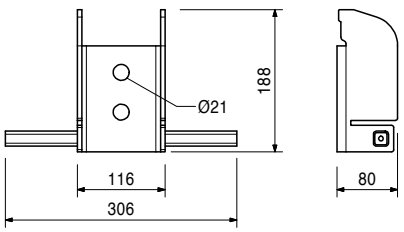
Art no.	Weight [kg]	
136224	0.442	**Champfer Stip HSA 120**



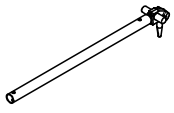


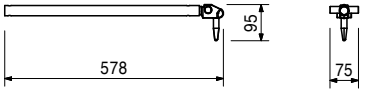
Art no.	Weight [kg]		B [mm]	L [mm]
138326	2.070	**Frame Holder HSA**	306	188





Art no.	Weight [kg]	
137970	1.190	**Centering Tool HSA**





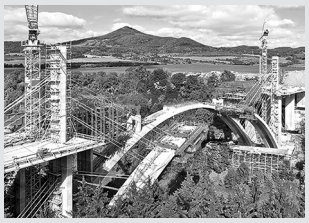
The optimal System for every Project and every Requirement

Wall Formwork

Column Formwork

Slab Formwork

Climbing Systems



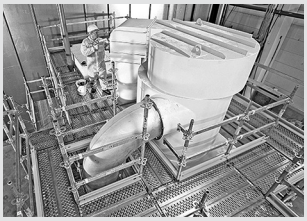
Bridge Formwork

Tunnel Formwork

Shoring Systems

Construction Scaffold

Facade Scaffold



Industrial Scaffold

Access

Protection Scaffold

Safety Systems

System-Independent Accessories

Services

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