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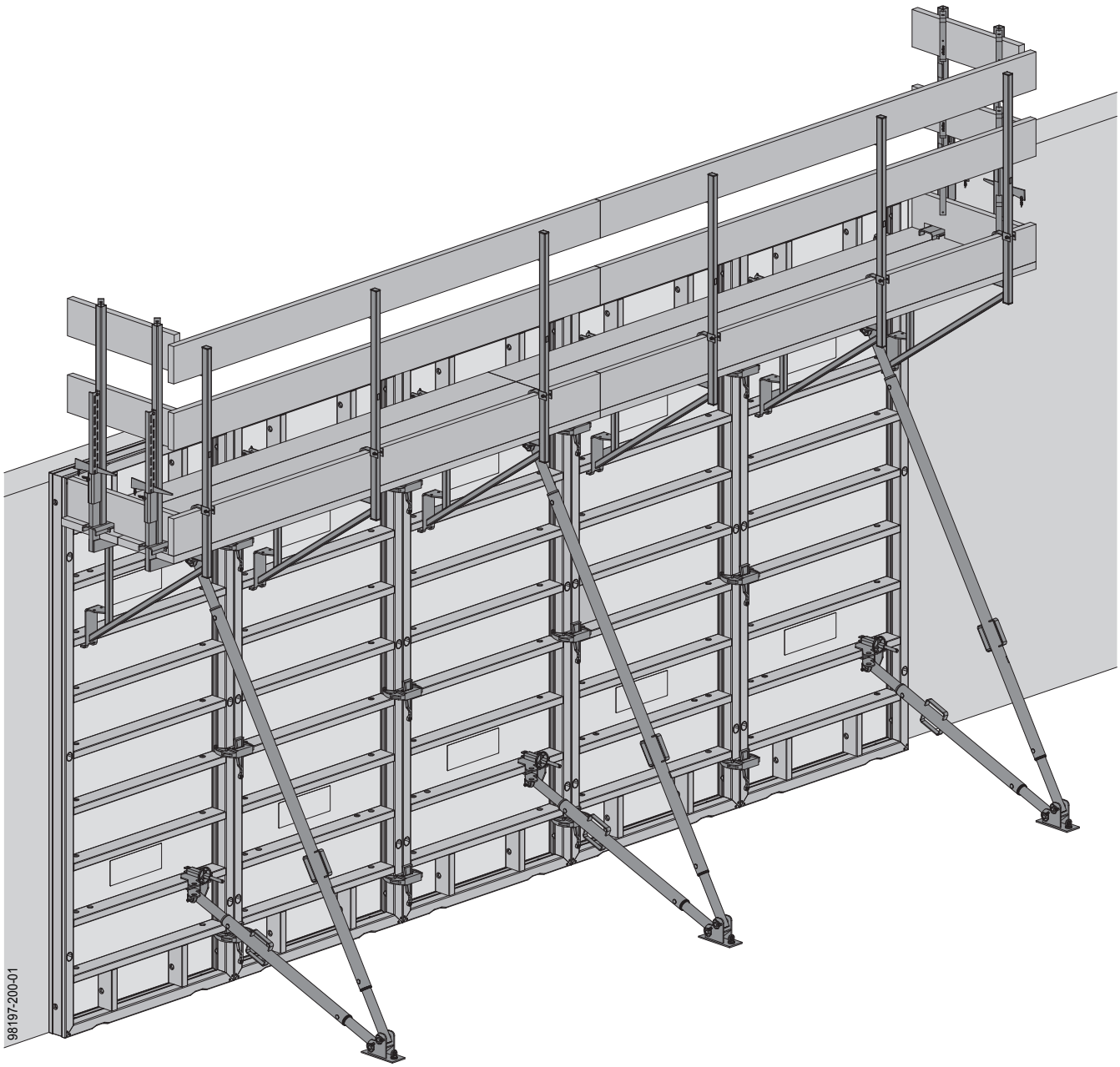
en-GB

The Formwork Experts.

Framed formwork ReFormaX

User Information

Instructions for assembly and use (Method statement)



Contents

Introduction

Elementary safety warnings

User target groups

- This booklet is aimed at all persons who will be working with the Doka product or system that it describes. It contains information on the standard design for setting up this system, and on correct, compliant utilisation of the system.
- All persons working with the product described herein must be familiar with the contents of this booklet and with all the safety instructions it contains.
- Persons who are incapable of reading and understanding this booklet, or who can do so only with difficulty, must be instructed and trained by the customer.
- The customer is to ensure that the information materials provided by Doka (e.g. User Information booklets, Instructions for Assembly and Use, Operating Instruction manuals, plans etc.) are up to date and available to all users, and that they have been made aware of them and have easy access to them at the usage location.
- In the relevant technical documentation and formwork utilisation plans, Doka shows the workplace safety precautions that are necessary in order to use the Doka products safely in the usage situations shown.
  In all cases, users are obliged to ensure compliance with national laws, standards and regulations throughout the entire project and to take appropriate additional or alternative workplace safety precautions where necessary.

Hazard assessment

- The customer is responsible for drawing up, documenting, implementing and continually updating a hazard assessment at every job-site.
  This booklet serves as the basis for the site-specific hazard assessment, and for the instructions given to users on how to prepare and utilise the system. It does not substitute for these, however.

Remarks on this booklet

- This document can be used as general Instructions for Assembly and Use (Method Statement) or be incorporated into site-specific Instructions for Assembly and Use (Method Statement).
- **The graphics, animations and videos in this document or app sometimes depict partially assembled assemblies and may require additional safety equipment and/or measures to comply with safety regulations.**
  The customer must ensure all applicable regulations are complied with, even if they are not shown or implied in the graphics, animations and videos provided.
- **Individual sections contain further safety instructions and/or special warnings as applicable.**

Planning

- Provide safe workplaces for those using the formwork (e.g. for when it is being erected/dismantled, modified or repositioned etc). It must be possible to get to and from these workplaces via safe access routes!
- **If you are considering any deviation from the details and instructions given in this booklet, or any application which goes beyond those described in the booklet, then revised static calculations must be produced for checking, as well as supplementary assembly instructions.**

Regulations; industrial safety

- All laws, Standards, industrial safety regulations and other safety rules applying to the utilisation of our products in the country and/or region in which you are operating must be observed at all times.
- If a person or object falls against, or into, the sideguard component and/or any of its accessories, the component affected may only continue in use after it has been inspected and passed by an expert.

Rules applying during all phases of the assignment

- The customer must ensure that this product is erected and dismantled, reset and generally used for its intended purpose in accordance with the applicable laws, standards and rules, under the direction and supervision of suitably skilled persons.
  These persons' mental and physical capacity must not in any way be impaired by alcohol, medicines or drugs.
- Doka products are technical working appliances which are intended for industrial / commercial use only, always in accordance with the respective Doka User Information booklets or other technical documentation authored by Doka.
- The stability and load-bearing capacity of all components and units must be ensured during all phases of the construction work!
- Do not step on or apply strain to cantilevers, closures, etc. until suitable measures to ensure their stability have been correctly implemented (e.g. by tie-backs).
- Strict attention to and compliance with the functional instructions, safety instructions and load specifications are required. Non-compliance can cause accidents and severe injury (risk of fatality) and considerable damage to property.
- Sources of fire in the vicinity of the formwork are prohibited. Heaters are permissible only when used correctly and situated a correspondingly safe distance from the formwork.
- Customer must give due consideration to any and all effects of the weather on the equipment and regards both its use and storage (e.g. slippery surfaces, risk of slipping, effects of the wind, etc.) and implement appropriate precautionary measures to secure the equipment and surrounding areas and to protect workers.
- All connections must be checked at regular intervals to ensure that they are secure and in full working order.
  In particular threaded connections and wedged connections have to be checked and retightened as necessary in accordance with activity on the jobsite and especially after out-of-the-ordinary occurrences (e.g. after a storm).
- It is strictly forbidden to weld Doka products – in particular anchoring/tying components, suspension components, connector components and castings etc. – or otherwise subject them to heating.
  Welding causes serious change in the microstructure of the materials from which these components are made. This leads to a dramatic drop in the failure load, representing a very great risk to safety.
  It is permissible to cut individual tie rods to length with metal cutting discs (introduction of heat at the end of the rod only), but it is important to ensure that flying sparks do not heat and thus damage other tie rods.
  The only articles which are allowed to be welded are those for which the Doka literature expressly points out that welding is permitted.

Assembly

- The equipment/system must be inspected by the customer before use, to ensure that it is in an acceptable condition. Steps must be taken to exclude components that are damaged, deformed, or weakened due to wear, corrosion or rot (e.g. fungal decay).
- Using our safety and formwork systems together with those of other manufacturers can create risks that may lead to injury and damage to property. This requires separate verification by the user.
- The equipment/system must be assembled and erected in accordance with the applicable laws, standards and rules by trained customer personnel whilst maintaining any applicable safety inspections that may be required.
- It is not permitted to modify Doka products; such modifications constitute a safety risk.

Closing the formwork

- Doka products and systems must be set up so that all loads acting upon them are safely transferred!

Pouring

- Do not exceed the permitted fresh-concrete pressures. Over-high pouring rates overload the formwork, cause greater deflection and risk breakage.

Stripping the formwork

- Do not strip out the formwork until the concrete has reached sufficient strength and the person in charge has given the order for the formwork to be stripped out!
- When stripping out the formwork, never use the crane to break concrete cohesion. Use suitable tools such as timber wedges, special pry-bars or system features such as Framax stripping corners.
- When stripping out the formwork, do not endanger the stability of any part of the structure, or of any scaffolding, platforms or formwork that is still in place!

Transporting, stacking and storing

- Observe all country-specific regulations applying to the handling of formwork and scaffolding. For system formwork the Doka slinging means stated in this booklet must be used – this is a mandatory requirement.
  If the type of sling is not specified in this document, the customer must use slinging means that are suitable for the application envisaged and that comply with the regulations.
- When lifting, always make sure that the unit to be lifted and its individual parts can absorb the forces that occur.
- Remove loose parts or secure them so that they cannot slip out of position and drop.
- When lifting formwork or formwork accessories with a crane, no persons must be carried along, e.g. on working platforms or in multi-trip packaging.
- All components must be stored safely, following all the special Doka instructions given in the relevant sections of this document!

Maintenance

- Only original Doka components may be used as spare parts. Repairs may only be carried out by the manufacturer or authorised facilities.

Miscellaneous

The weights as stated are averages for new material; actual weights can differ, depending on material tolerances. Dirt accretions, moisture saturation, etc. can also affect weight.
We reserve the right to make alterations in the interests of technical progress.

Eurocodes at Doka

The permissible values stated in Doka documents (e.g. F_{perm} = 70 kN) **are not design values** (e.g. F_{Rd} = 105 kN)**!**

- It is essential to avoid confusing permissible values with design values!
- Doka documents will continue to state the permissible values.

Allowance has been made for the following partial factors:

- γ_F = 1.5
- $\gamma_{M,\ timber}$ = 1.3
- $\gamma_{M,\ steel}$ = 1.1
- k_{mod} = 0.9

Consequently, all the design values for an EC design calculation can be determined from the permissible values.

Symbols used

The following symbols are used in this document:

DANGER
This is a notifier drawing attention to an extremely dangerous situation in which non-compliance with this notifier will lead to death or severe, irreversible injury.

WARNING
This is a notifier drawing attention to a dangerous situation in which non-compliance with this notifier can lead to death or severe, irreversible injury.

CAUTION
This is a notifier drawing attention to a dangerous situation in which non-compliance with this notifier can lead to slight, reversible injury.

NOTICE
This is a notifier drawing attention to a situation in which non-compliance with this notifier can lead to malfunctions or damage to property.

Instruction
Indicates that actions have to be performed by the user.

Sight-check
Indicates that you need to do a sight-check to make sure that necessary actions have been carried out.

Tip
Points out useful practical tips.

Reference
Cross-references other documents.

Services

Support in every stage of the project

- Project success assured by products and services from a single source.
- Competent support from planning through to assembly directly on site.

Project assistance from start to finish

Every single project is unique and calls for individualised solutions. When it comes to the forming operations, the Doka team can help you with its consulting, planning and ancillary services in the field, enabling you to carry out your project effectively, safely and reliably. Doka assists you with individual consulting services and customised training courses.

Efficient planning for a safe project sequence

Efficient formwork solutions can only be developed economically if there is an understanding of project requirements and construction processes. This understanding is the basis of Doka engineering services.

Optimise construction workflows with Doka

Doka offers special tools that help you in designing transparent processes. This is the way to speed up pouring processes, optimise inventories and create more efficient formwork planning processes.

Custom formwork and on-site assembly

To complement its system formwork range, Doka offers customised formwork units. And specially trained personnel assemble load-bearing towers and formwork on site.

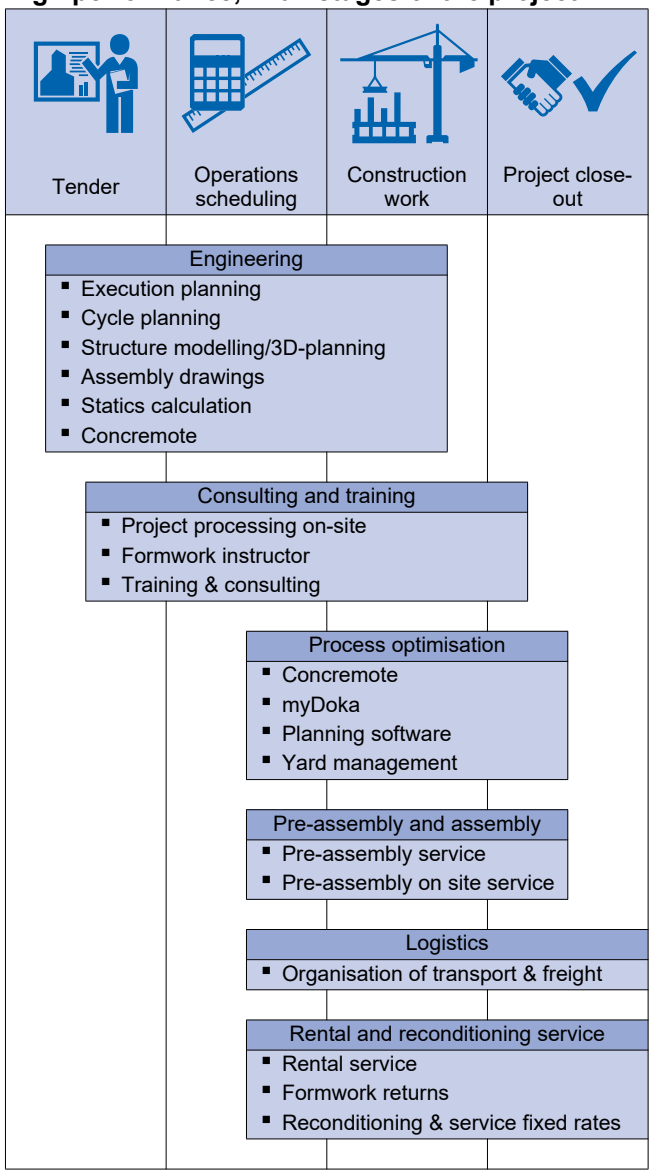
Just-in-time availability

Formwork availability is a crucial factor in realising your project on time and on budget. The worldwide logistics network puts the necessary formwork quantities on site at the agreed time.

Rental and reconditioning service

The formwork material needed for any particular project can be rented from Doka's high-performing rental park. Doka Reconditioning cleans and overhauls both client-owned equipment and Doka rental equipment.

High performance, in all stages of the project



upbeat construction
digital services for higher productivity

From planning through to completion - with upbeat construction we'll be moving construction forward and upping the beat for more productive building with all our digital services. Our digital portfolio covers the entire construction process and is being extended all the time. To find out more about our specially developed solutions go to doka.com/upbeatconstruction.

Framed formwork ReFormaX

Steel-framed formwork for the construction of concrete and reinforced-concrete structures such as walls, columns and shafts. ReFormaX is an economical solution for the formwork of residential and commercial buildings.

Economical

- High load-bearing capacity:
  - up to 70 kN/m² fresh-concrete pressure for walls in accordance with DIN 18218, where the surface planeness tolerances to DIN 18202 Table 3 Line 6 are observed
  - up to 80 kN/m² fresh-concrete pressure for columns in accordance with DIN 18218, where the surface planeness tolerances to DIN 18202 Table 3 Line 6 are observed
- Lifting edges for fast, easy stripping
- Doka ReFormaX stripping corner for fast, easy and safe repositioning of shaft formwork
- Tipos for easy and understandable project planning
- Crane-handled formwork for all areas of application (foundations, walls, columns, etc.)

Quick, easy assembly

- Optimised panel heights of 3.30m, 3.00m and 1.50m for all use cases
- Optimum adaptability to every structure layout
- Easy planning with the Tipos planning software
- Many different fixing options:
  - Universal head for secure attachment of the panel strut to the panel frame
  - Holes in the cross profile of the frame for constructing formwork for corners, stop-ends and columns
- Conical form-tie sleeves ensure rapidity and flexibility
- Quick-acting clamps for quick and easy progress on the jobsite

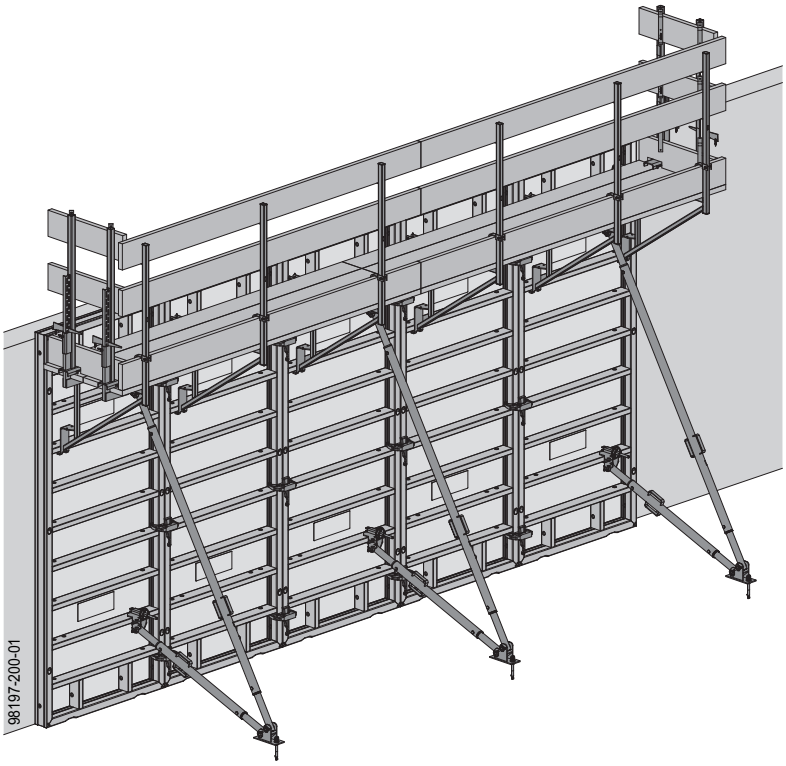
Reliable and durable

- Robust, powder-coated steel frames prevent deformation of the panels
- Compliance with Austrian quality standards ensured by Doka Engineering and know-how

Safety

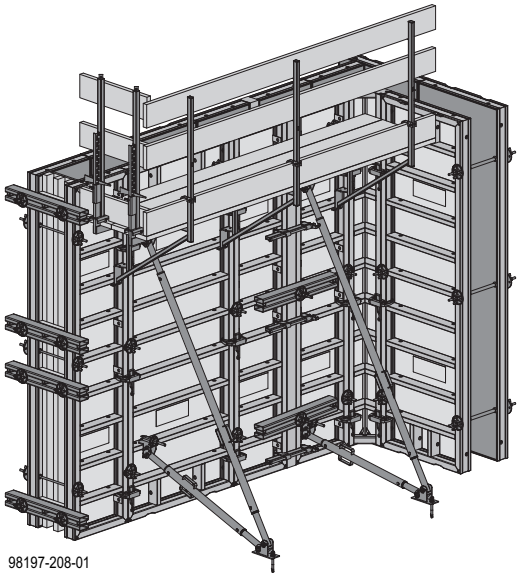
Reduced injury risk by providing safe working conditions

- smart combination of pouring platforms
- safe formwork assembling and -setting due to correct usage of panel strut



Areas of use

Wall formwork



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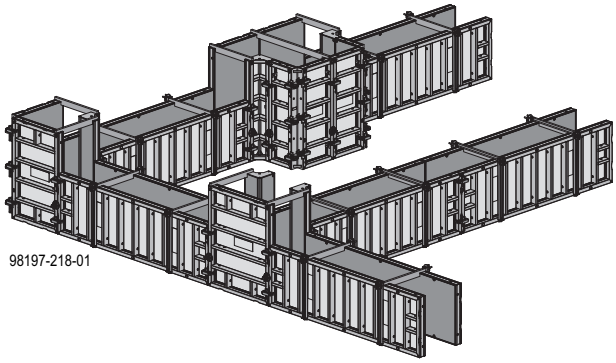
Foundation formwork



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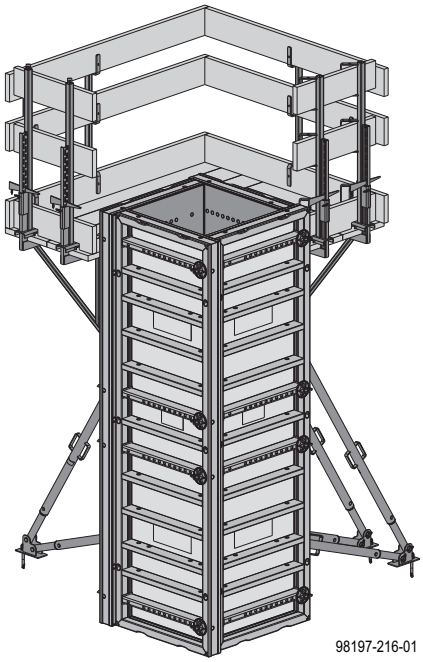
Column formwork



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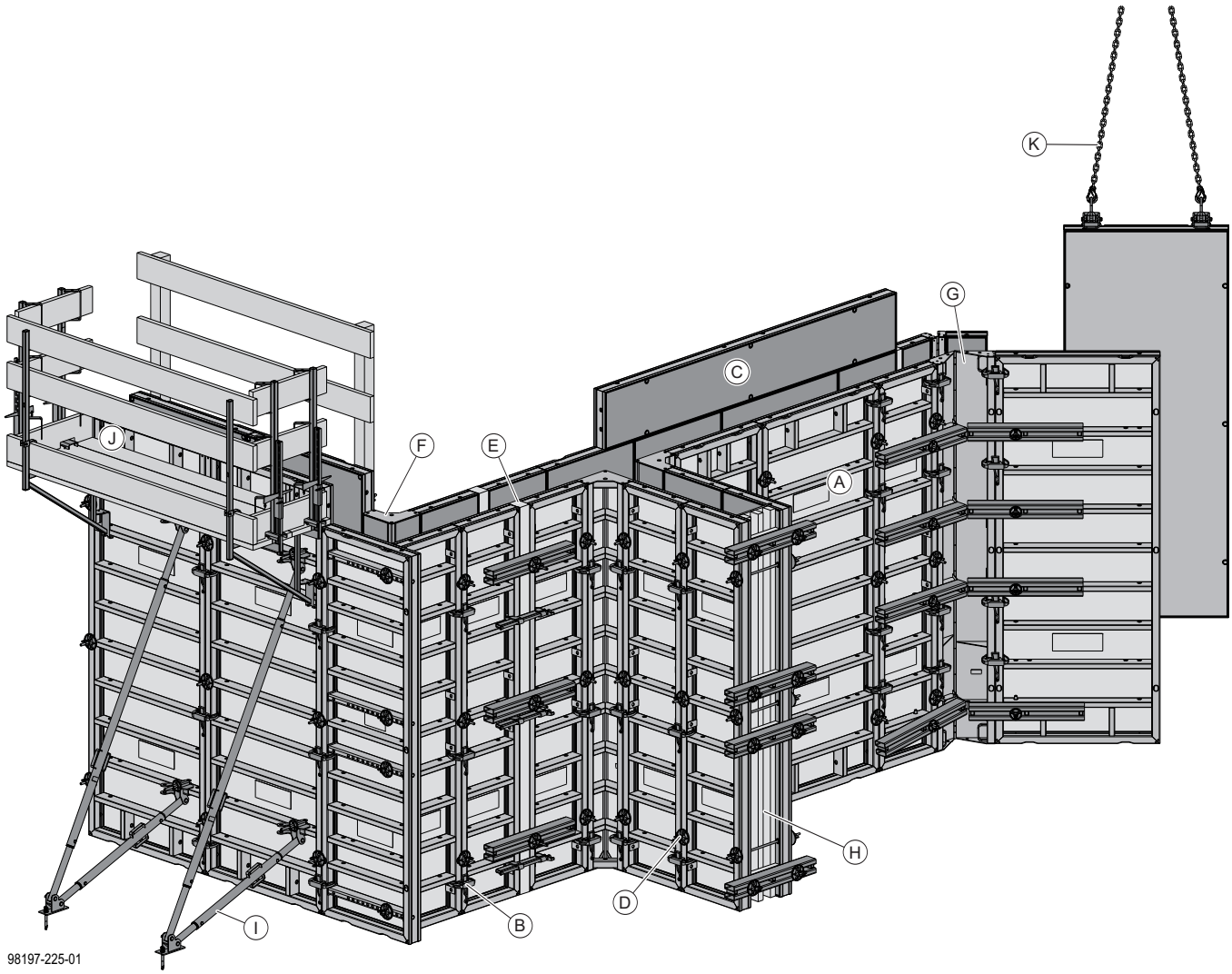
Wall formwork



	Section:
A	ReFormaX panel in detail
B	Inter-panel connections
C	Vertical stacking of panels
D	Tie rod system
E	Length adjustment using closures
F	90 degree corners
G	Acute and obtuse-angled corners
H	Stop-end formwork
I	Plumbing accessories
J	Pouring platforms with single brackets
K	Lifting by crane

70 kN/m² pressure of fresh concrete acting on whole area, to DIN 18218, where the surface planeness tolerances to DIN 18202 Table 3 Line 6 are observed.

Instructions for assembly and use (Method statement)

The sequence shown here is based on a straight wall. However, you should always start to form from the corner outwards.

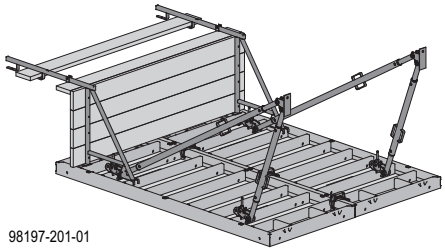
Ladders must be located so as to create viable 'traffic routes' in the horizontal. (On a straight wall, for example, one ladder on the first element and another on the last).

Transporting / handling the panels

- ➤ For offloading panels from a truck, or lifting them on-site a stack at a time, use the Framax transport gear (see 'Transporting, stacking and storing').
- ➤ To separate the panels, use Framax transport bolts and the Doka 4-part chain 3.20m (see 'Transporting, stacking and storing').

Pre-assembly

- ➤ Pre-assemble gang-forms 'flat on their backs' on an assembly bench (see the section headed 'Inter-panel connections').
- ➤ With the gang-form still flat, mount panel struts to it (see the section headed 'Plumbing accessories').



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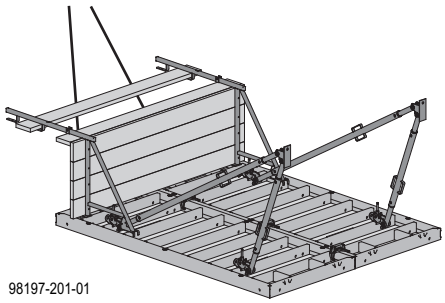
Closing the formwork

- ➤ Attach the crane lifting tackle to the ReForma lifting hook (see the section headed 'Lifting by crane').

Max. load:

Spread angle β up to 30°:
1500 kg / ReForma lifting hook



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- ➤ Raise the gang-form by crane.
- ➤ Spray the formwork sheet with release agent (see the section headed 'Cleaning and care of your equipment').
- ➤ Fly the gang-form to its new location.

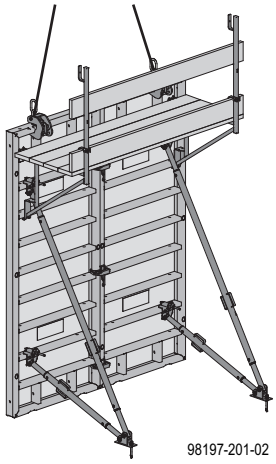
CAUTION

Never use a sledge-hammer to plumb and align the panels!

This would damage the profiles of the gangs.

➤ Use only proper plumbing tools (e.g. a special pry-bar) that cannot cause any damage.

- ➤ Fix the panel struts firmly to the ground (see the section headed 'Plumbing accessories').



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The gang-form is now stable and can be plumbed and aligned exactly, with no need for the crane.

WARNING

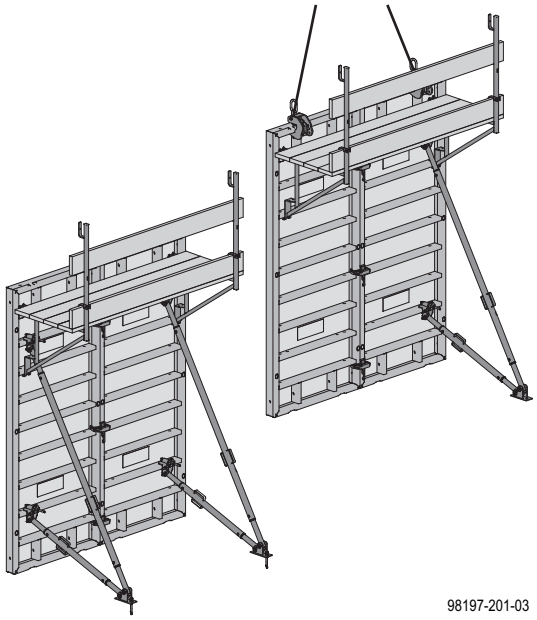
There is not yet an opposing guard-rail on the formwork!

Danger to life from fatal falls!

➤ Either use personal protective equipment to protect against falls (e.g. safety harness)
or
mount an opposing guardrail to the gang-form while this is still being pre-assembled in a flat position.

- ➤ Detach the gang-form from the crane. The crew can reach the slinging points by standing on a step stool.

➤ Continue lining up further gang-forms in this way, and link them together (see the section headed 'Inter-panel connections').



➤ Attach the the end-of-platform sideguards (see the section headed 'Pouring platforms with single brackets').

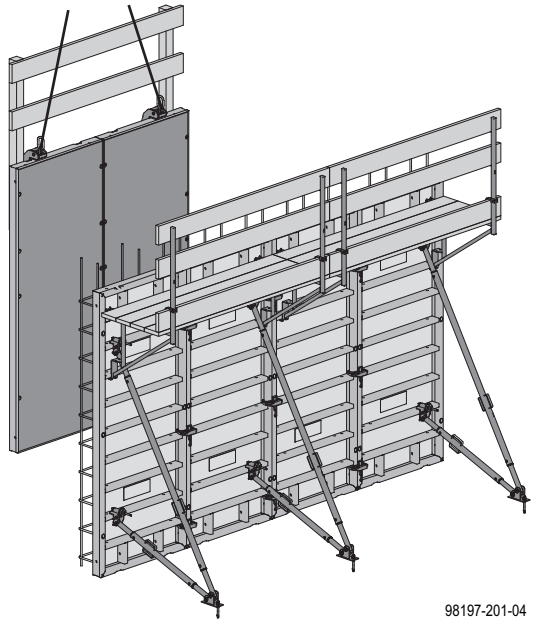
Erecting the opposing formwork:

Once the reinforcement has been placed, the formwork can be closed.

➤ Mount the opposing guard-rail to the (laid-flat) gang-form of the opposing formwork (see the section headed 'Opposing guard-rail').

➤ Spray the formwork sheet with release agent (see the section headed 'Cleaning and care of your equipment').

➤ Lift the opposing formwork by crane to its next location.



➤ Fit the form ties (see the section headed 'Tie rod system').

Before disconnecting from the crane:

➤ If there are no panel struts on the opposing formwork, do not disconnect the panel from the crane until a large enough number of form ties have been installed to keep it safely in the upright.

➤ Detach the gang-form from the crane (wherever possible, operate the lifting hook from the opposite pouring platform).

➤ Continue lining up further gang-forms in this way, and link them together (see the section headed 'Inter-panel connections').

Pouring

70 kN/m² pressure of fresh concrete acting on whole area, to DIN 18218, where the surface planeness tolerances to DIN 18202 Table 3 Line 6 are observed.

Observe the following **guidelines**:

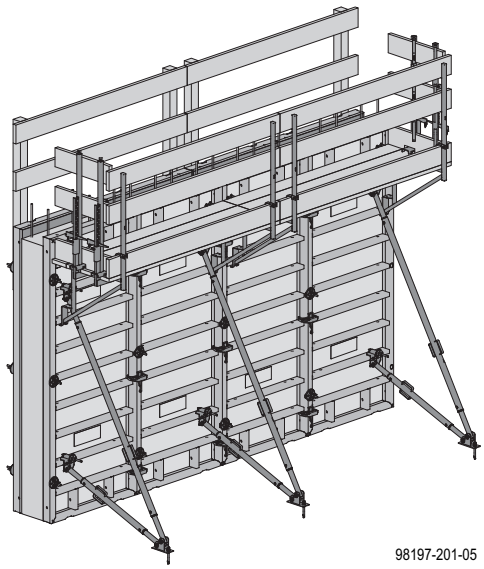
- The section headed 'Pressure of fresh concrete on vertical formwork – DIN 18218' in the Calculation Guide 'Doka formwork engineering'
- DIN 4235 Part 2 - 'Compacting of concrete by vibrating'

NOTICE

➤ Do not exceed the maximum permissible rate of placing.

➤ Pour the concrete.

➤ Make only moderate use of vibrators, carefully coordinating the times and locations of vibrator use.



Stripping the formwork

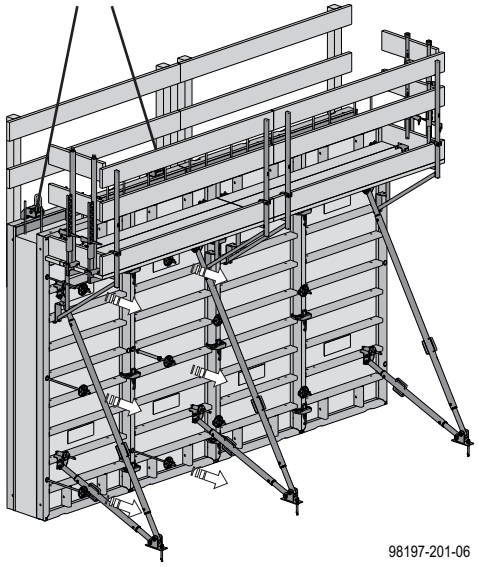
NOTICE

➤ Comply with the stipulated stripping times.

➤ Remove any loose items from the formwork and platforms, or secure them firmly.

➤ Attach the gang-form of the opposing formwork to the crane (wherever possible, operate the lifting hook from the opposite pouring platform).

➤ Take out the form ties and undo the connectors to the adjacent panels.



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In order to speed up operations when lifting and repositioning by crane, most of the form ties can be taken out in advance.

Important!
There must be at least as many form ties left in place as are needed to keep the elements safely in the upright.

WARNING

The formwork tends to adhere to the concrete. When stripping the formwork, do not try to break concrete cohesion using the crane!

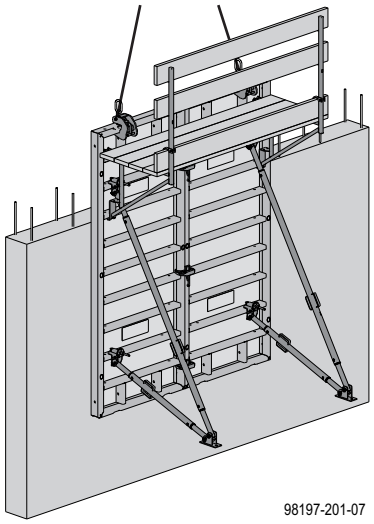
Risk of crane overload.

➤ Use suitable tools such as timber wedges or a special pry-bar to detach the formwork from the concrete.

➤ Lift the gang-form away and to its next location.
If the gang-form is 'parked' prior to its next use, it must have sufficient stability (see the section headed 'Plumbing accessories').
Gang-forms with only one panel strut must not be 'parked' upright, but placed face-down.

➤ Clean residual concrete off the formwork sheet (see the section headed 'Cleaning and care of your equipment').

➤ Where the gang-form has panel struts and a pouring platform attached to it, first attach this gang-form to the crane, and only then detach the floor anchorages of the panel struts.



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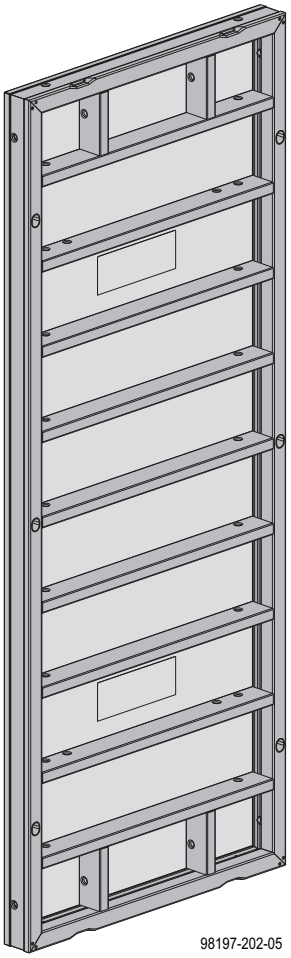
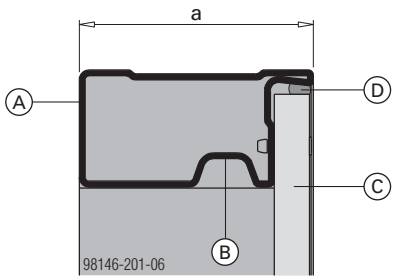
ReFormaX panel in detail

High load-bearing capacity



70 kN/m² pressure of fresh concrete acting on whole area, to DIN 18218, where the surface planeness tolerances to DIN 18202 Table 3 Line 6 are observed.

Strong, hollow-profile steel frame, powder-coated



a ... 120 mm

A Frame profile
B Continuous hardware slot for inter-panel connectors
C Dokaplex sheet ReFormaX
D Silicone sealing strip

- Dimensionally stable frame profiles
- Strong cross profiles
- Powder-coated, so easy to clean
- Edges are easy to clean - panels always butt tightly
- All-round hardware slot for fastening the inter-panel connectors at any point
- Formwork sheet is edge-protected by the frame profile
- Cross-holes in panels of certain widths - for corners and stop-ends

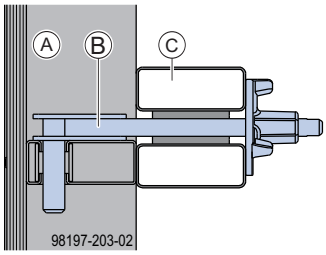
WARNING

➤ It is forbidden to climb on the cross-profiles. The cross-profiles are NOT a substitute for a ladder.

Clean concrete surfaces

- Plywood sheet 18 mm thick, with 220g/m² film coating
- Damaged formwork sheeting can be repaired or replaced

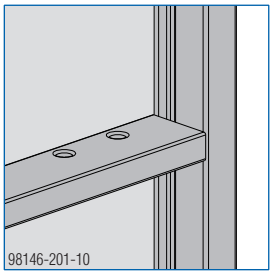
Holes in the cross profile for easy installation of the accessories



A	ReFormaX panel
B	ReForma fixing clamp
C	ReForma universal waling

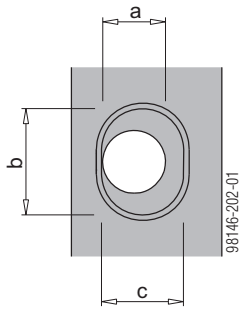
Note:

The panels of widths 1.00m and 1.20m and the universal panels have an extra hole for fixing of panel strut and bracket.



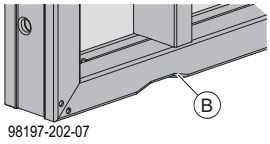
Form-tie sleeves

Tie rods are very easy to insert through the large, conical form-tie sleeves



a ... diameter 25 mm
b ... 42 mm
c ... 32 mm

Lifting edge



B	Lifting edge

- Practical lifting edge, as an insertion point for the plumbing tool

Panel sizes

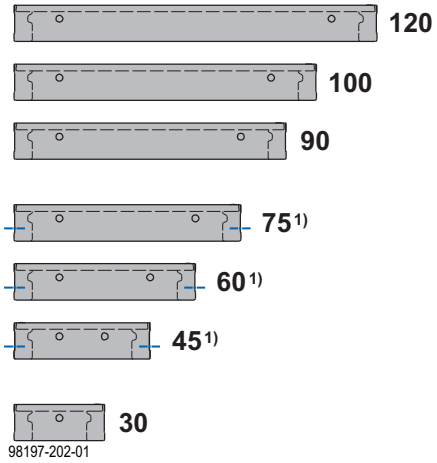
ReFormaX panels

Panel size-grid in 15 cm increments. The heights and widths of the ReFormaX panels together result in an advantageous increment-grid that makes this formwork highly flexible and economical.

- Easy planning and forming
- Height and width can be adjusted in 10 cm increments
- Very few closures needed
- Clear joint pattern
- 3 form ties in the vertical

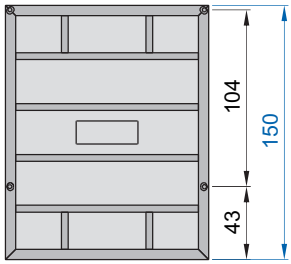
This is all you need to form any layout.

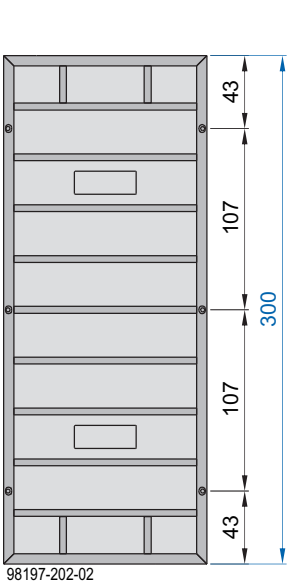
Panel widths

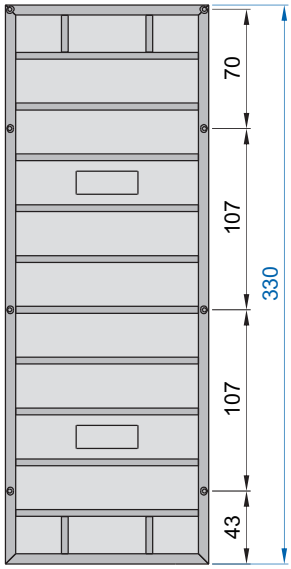


1) Panel with cross boreholes for corner configurations and stop-ends

Panel heights







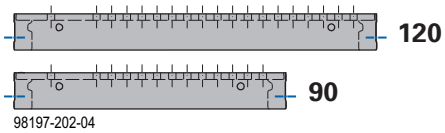
Dimensions in cm

ReFormaX universal panels

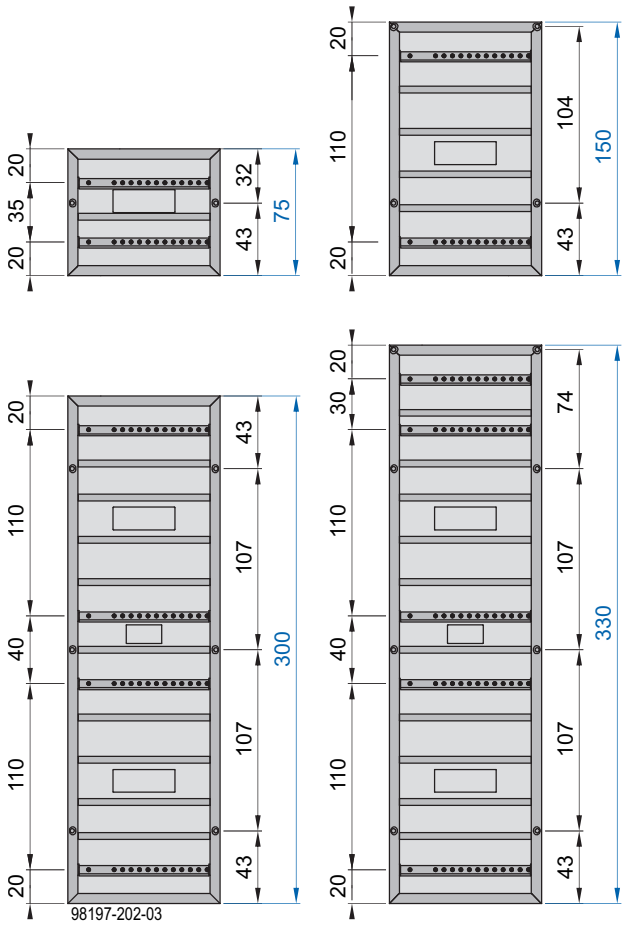
The special hole pattern makes these panels particularly suitable for efficient forming of:

- corners
- wall junctions
- stop-ends
- columns

Panel width

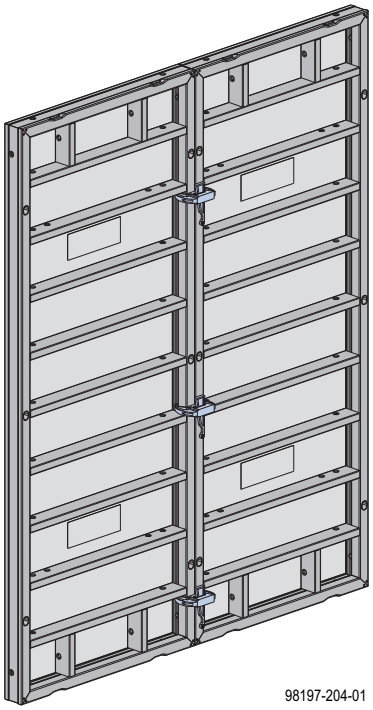


Panel heights



Dimensions in cm

Inter-panel connections



Attributes of the panel connectors:

- tension-proof inter-panel connections
- have no loose parts which might get lost
- dirt-resistant and hard-wearing for site use
- easy to fix, with a formwork hammer

NOTICE

- Use a formwork hammer weighing max. 800 g.
- Do not oil or grease wedged connections.

Panels upright:

Panel height	Number of clamps
1.50 m	2
3.00 m	3
3.30 m	3

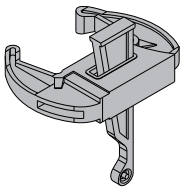
Panels on their sides:

Panel width	Number of clamps
0.30 - 0.60 m	1
0.75 - 1.20 m	2

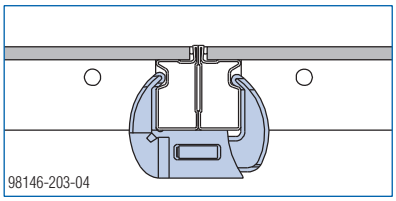
Note:

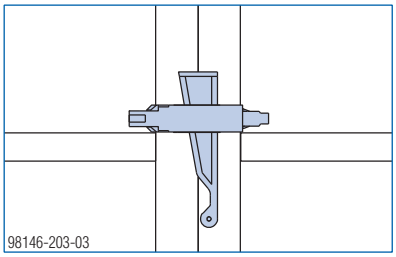
- For details regarding extra inter-panel connections on outside corners and stop-ends (for increased tensile loads) see the section headed 'Inter-panel connections for increased tensile loads'.
- For details on the position of the ReForma quick acting clamps needed in vertical stacking, see the section headed 'Vertical stacking of panels'.

with ReForma quick acting clamp



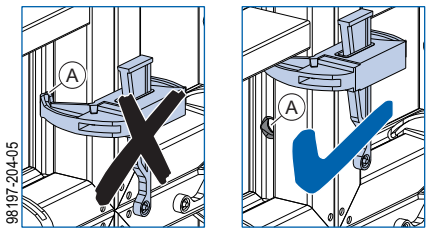
ReForma quick acting clamp:
Permitted tensile force: 15.0 kN
Permitted shear force: 6.0 kN
Permitted moment: 0.5 kNm





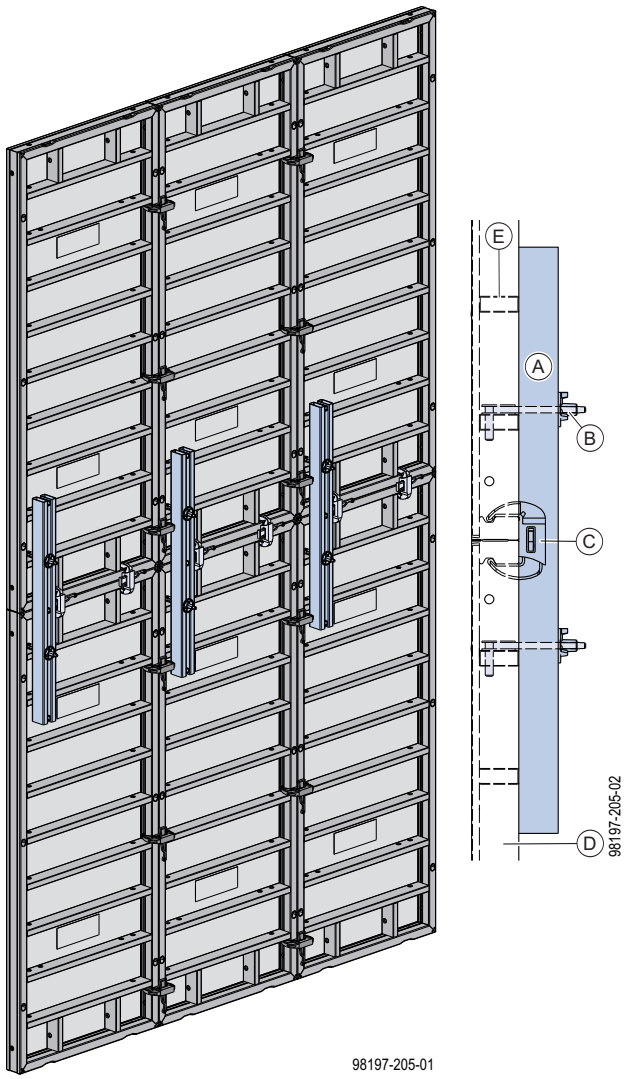
NOTICE

Do not position a quick acting clamp over a cross borehole **(A)** !



Bracing the panels

ReForma universal waling



A	ReForma universal waling 1.50m
B	ReForma fixing clamp
C	ReForma quick acting clamp
D	ReFormaX panel
E	Cross profile as bearing surface for universal waling

With **closures**, the universal walings bring the gang-forms firmly into alignment and transfer the form-tie forces to the framed panels.

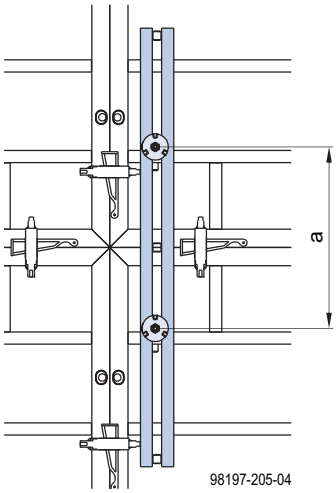
Using additional universal walings gives gang-forms better rigidity, especially in higher **vertically stacked configurations**. This makes it possible to pick up and set down large gang-forms by crane without any problems. The additional universal walings are also useful for transferring the loads from platforms.

Note:

Instead of the universal waling, it is also possible to use a Multi-purpose waling WS10 Top50.

Vertical stacking with **upright** panels:

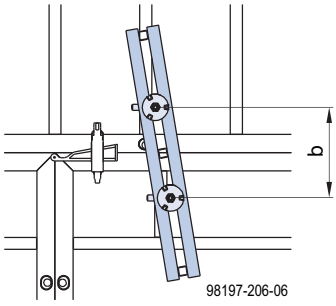
- ReForma universal waling **1.50m**
- Permitted moment: **4.2 kNm**



a ... 60 cm

Vertical stacking with **horizontal** panels:

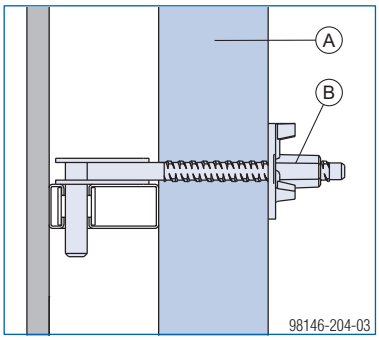
- ReForma universal waling **0.85m** or **1.50m**
- Permitted moment: **2.1 kNm**



b ... 30 cm

How to attach

with ReForma fixing clamp



A	ReForma universal waling
B	ReForma fixing clamp

Note:

When panels are braced with Multi-purpose walings WS10 Top50: Instead of the ReForma fixing clamp, use the ReForma fixing bolt + Super plate 15.0!

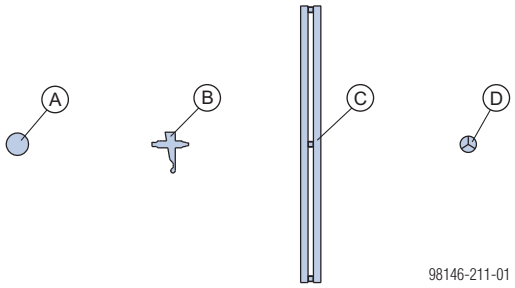
Vertical stacking of panels

Positions of the interconnecting and form-tie components and accessories needed for:

- Lifting and setting down
- Crane-handling
- Pouring platform
- Pouring

ReForma quick acting clamp:
Permitted tensile force: 15.0 kN
Permitted shear force: 6.0 kN
Permitted moment: 0.5 kNm

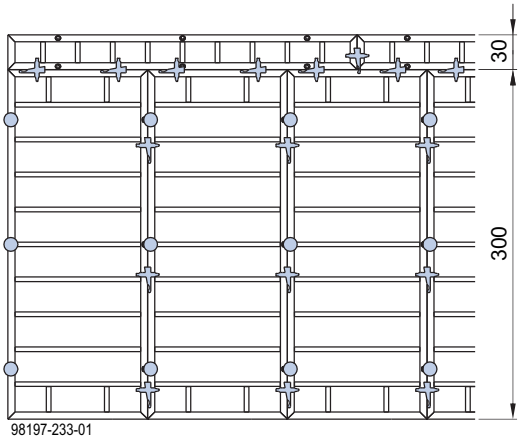
ReForma universal waling:
Permitted moment
- vertical stacking with upright panels: 4.2 kNm
- vertical stacking with horizontal panels: 2.1 kNm



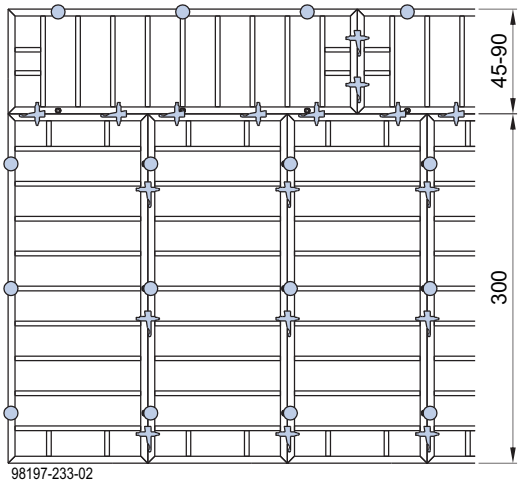
A	Tie rod + Super plate
B	ReForma quick acting clamp
C	ReForma universal waling
D	ReForma fixing clamp

ReFormaX panel 3.00m

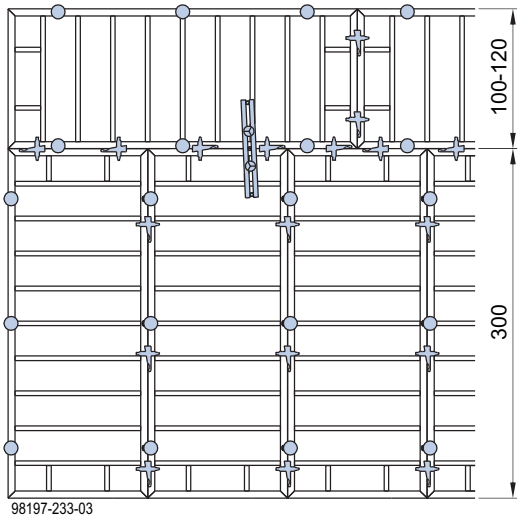
Formwork height: 330 cm



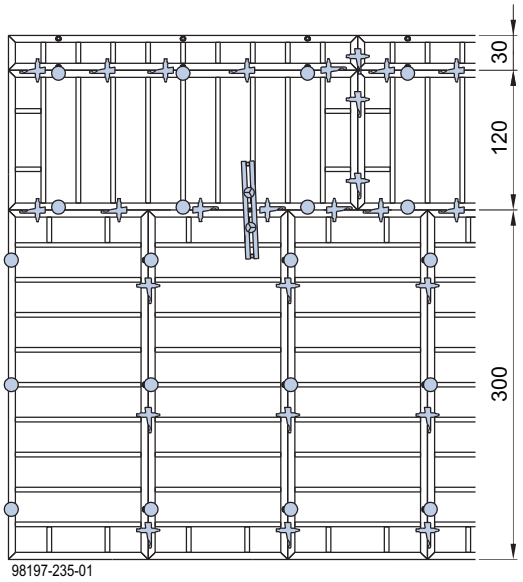
Formwork height: 345, 360, 375 and 390 cm



Formwork height: 400 and 420 cm

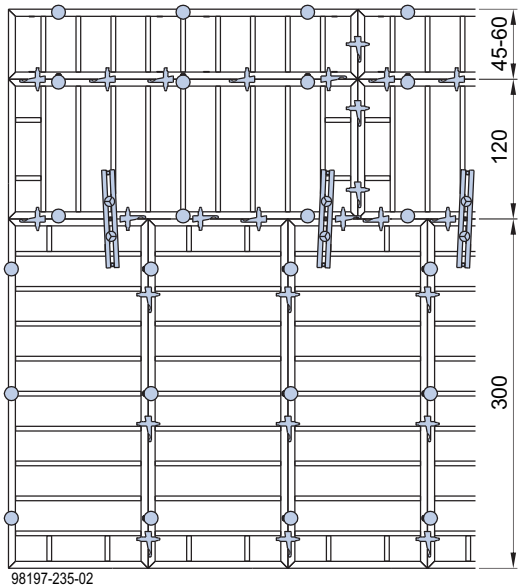


Formwork height: 450 cm



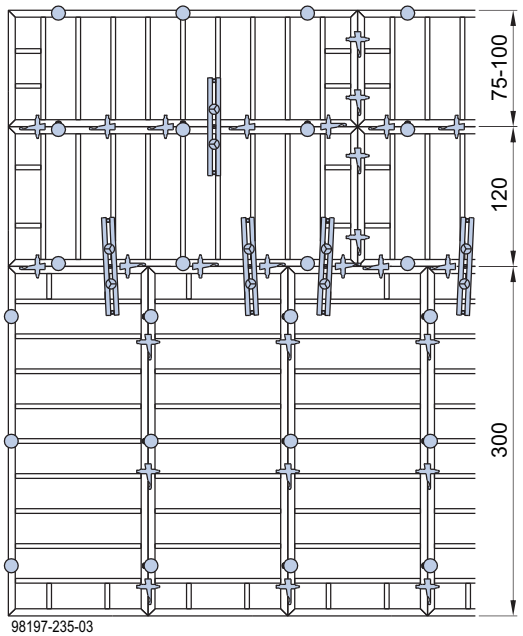
98197-235-01

Formwork height: 465 and 480 cm



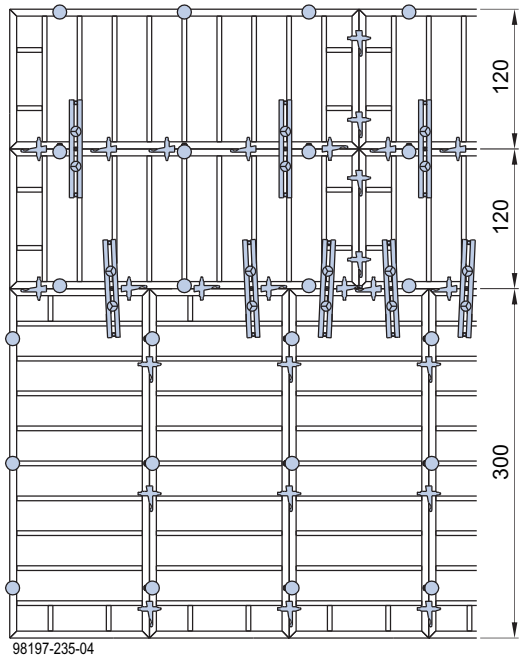
98197-235-02

Formwork height: 520 cm



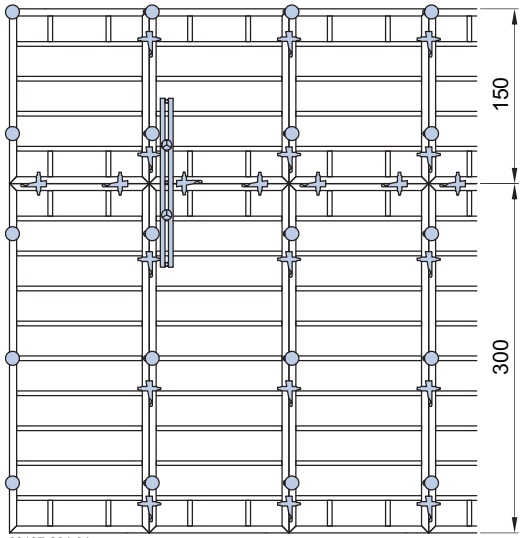
98197-235-03

Formwork height: 540 cm



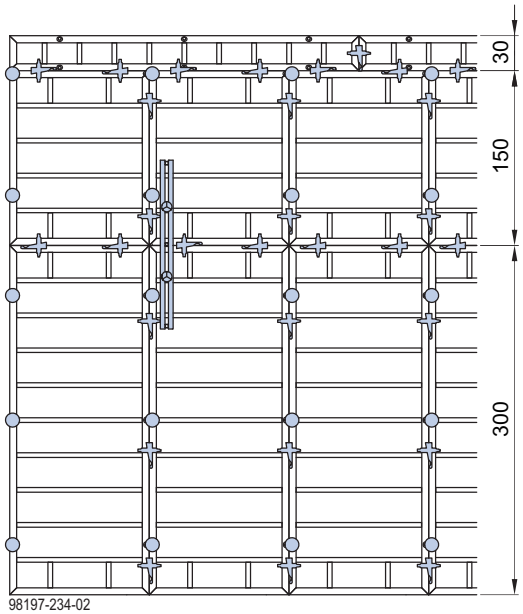
98197-235-04

Formwork height: 450 cm



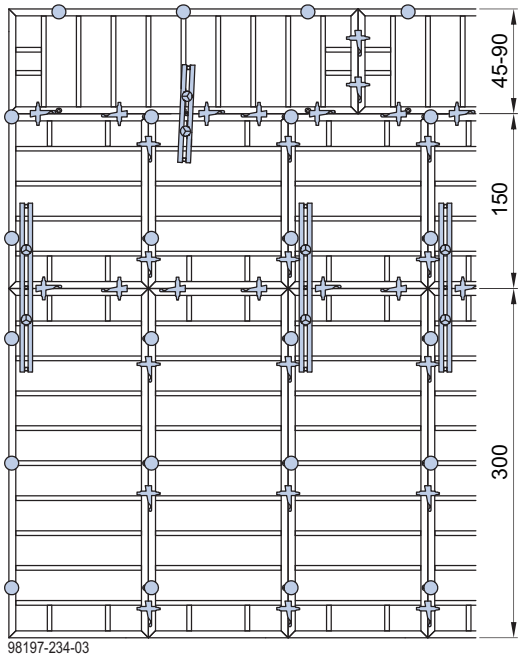
98197-234-01

Formwork height: 480 cm



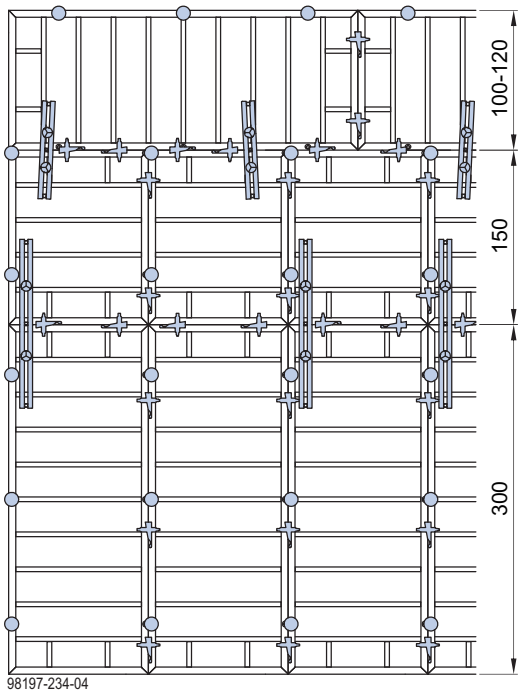
98197-234-02

Formwork height: 495, 510, 525 and 540 cm



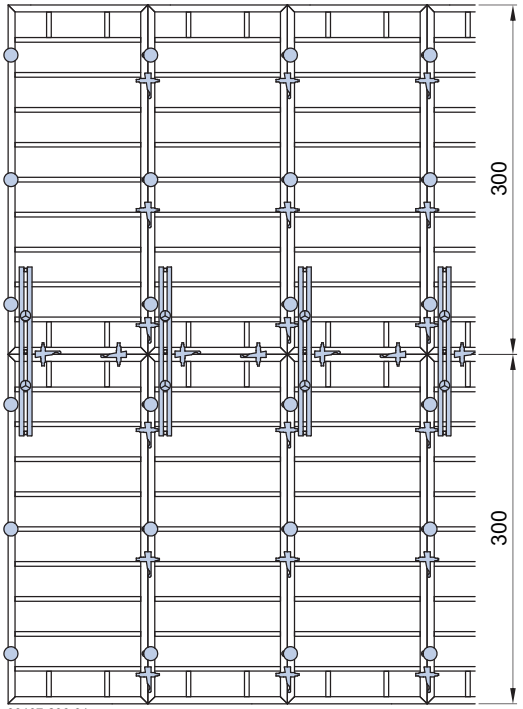
98197-234-03

Formwork height: 550 and 570 cm



98197-234-04

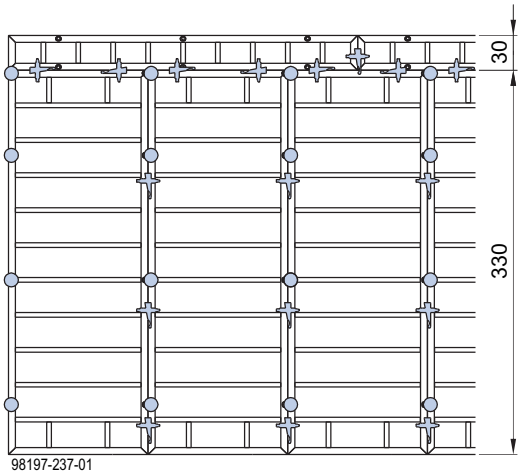
Formwork height: 600 cm



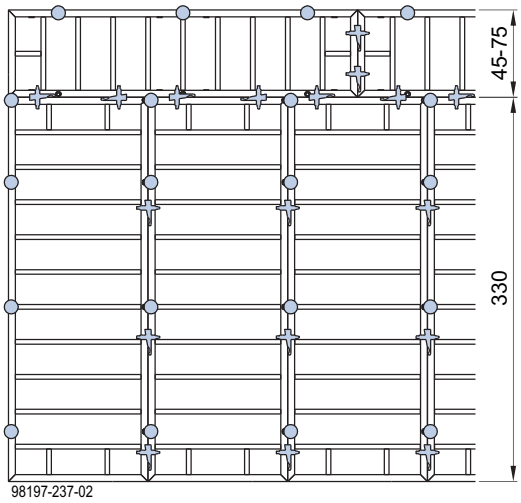
98197-236-01

ReFormaX panel 3.30m

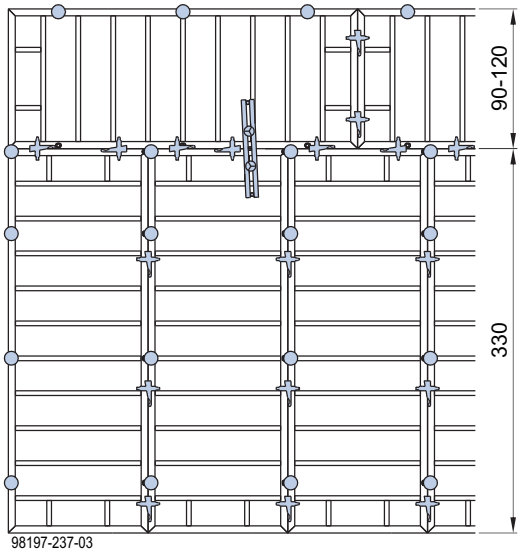
Formwork height: 360 cm



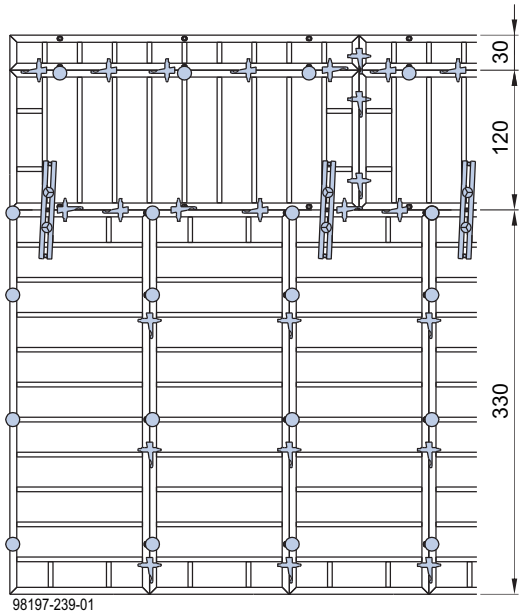
Formwork height: 375, 390 and 405 cm



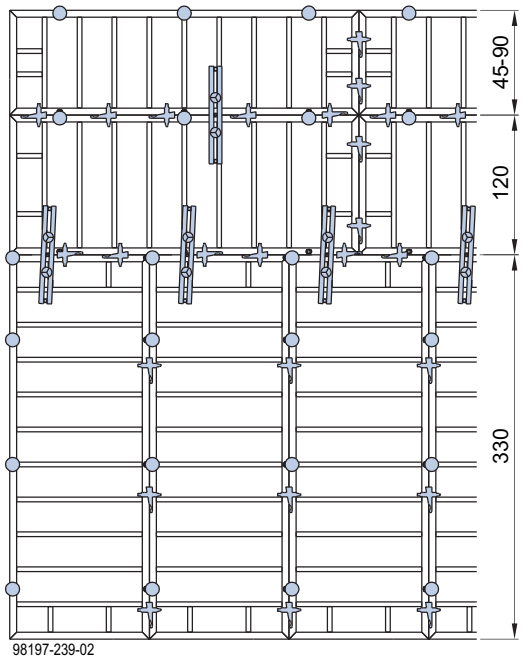
Formwork height: 420, 430 and 450 cm



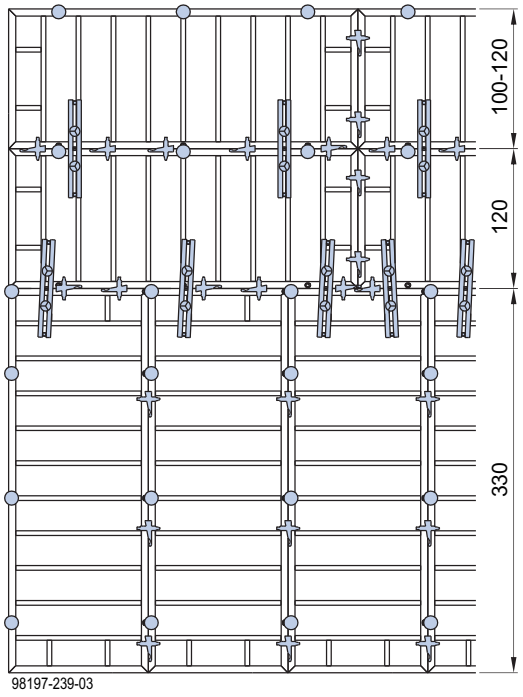
Formwork height: 480 cm



Formwork height: 495, 510, 525 and 540 cm

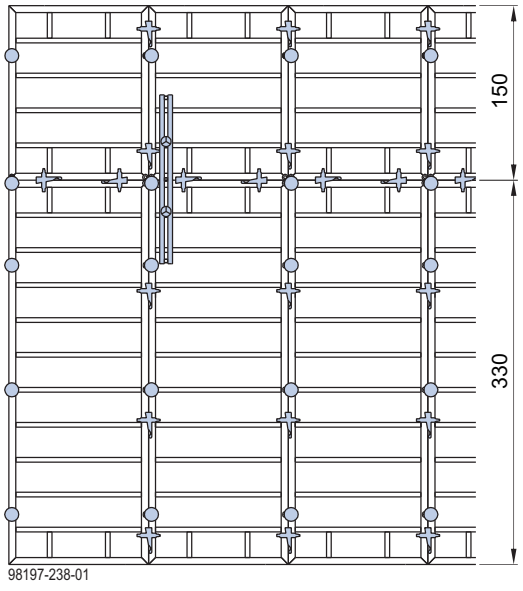


Formwork height: 550 and 570 cm



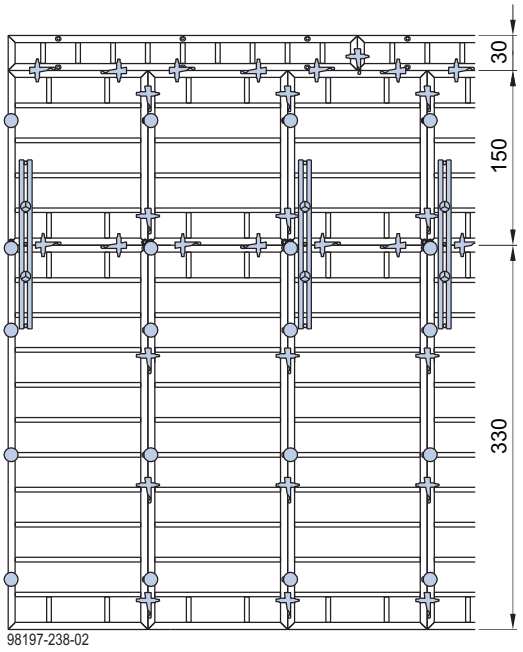
98197-239-03

Formwork height: 480 cm



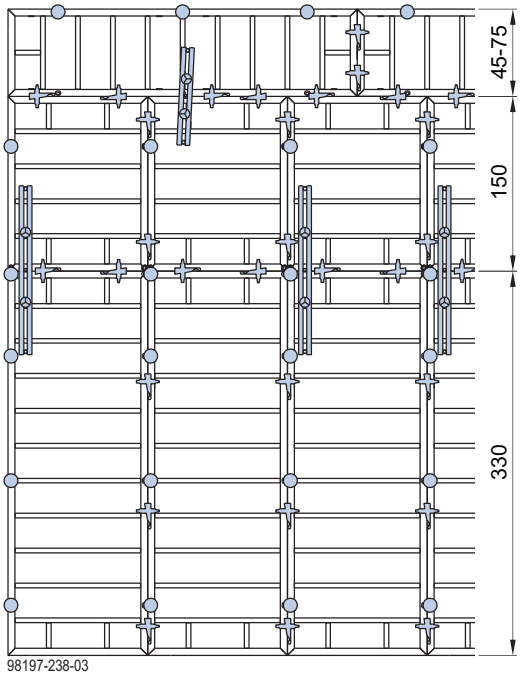
98197-238-01

Formwork height: 510 cm



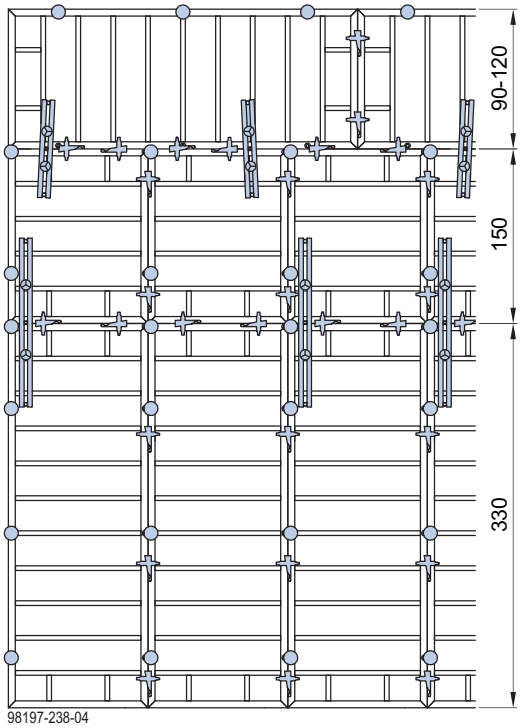
98197-238-02

Formwork height: 525, 540 and 555 cm

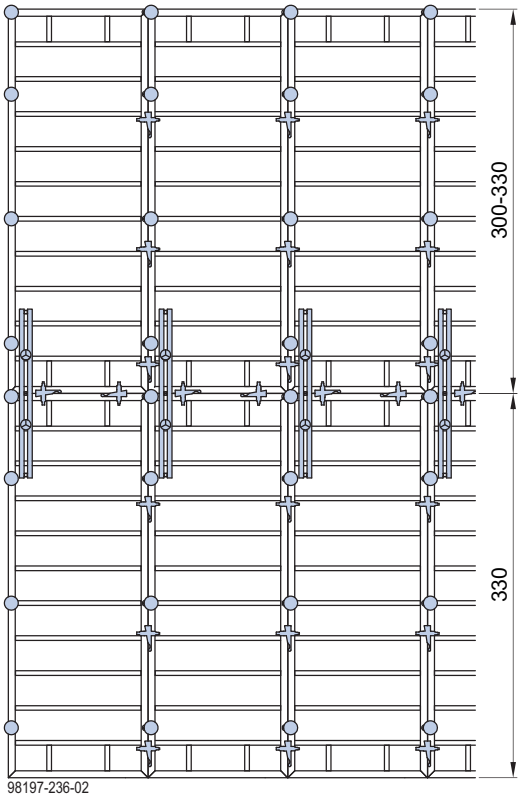


98197-238-03

Formwork height: 570, 580 and 600 cm

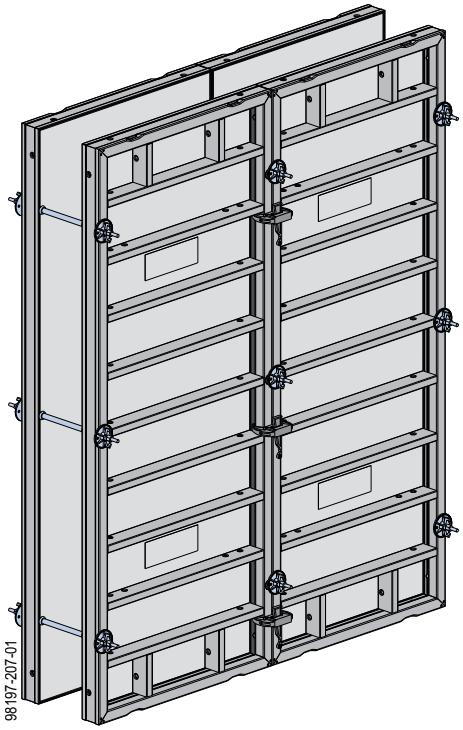


Formwork height: 630 and 660 cm



Tie rod system

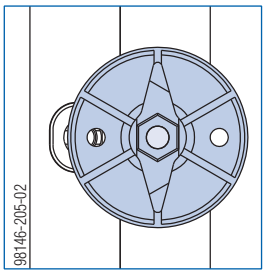
Placing form ties in the frame profile



Basic rule:

- Fix a form tie in every form-tie sleeve that is not covered by a super plate.
- Always tie in the bigger (wider) of the two panels.

For exceptions, see the sections headed 'Length adjustment using closures' and 'Vertical stacking of panels'.



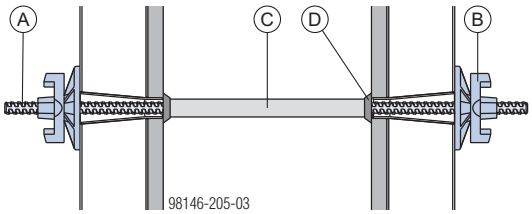
WARNING
Sensitive rod steel!
➤ Never weld or heat tie rods.
➤ Tie rods that are damaged or have been weakened by corrosion or wear must be withdrawn from use.

Note:
Seal off un-used anchoring sleeves with **Universal plugs R20/25**.

Tie-rod wrench 15.0/20.0
For turning and holding the tie rods.

Note:
Doka also offers economical solutions for creating watertight wall-ties.

The Doka tie rod system 15.0



A	Tie rod 15.0mm
B	Super plate 15.0
C	Plastic tube 22mm
D	Universal cone 22mm

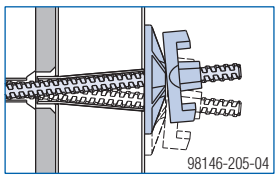
Note:
The Plastic tubes 22mm left behind in the concrete are sealed off with **Plugs 22mm**.

Tie rod 15.0mm:
Permitted capacity, allowing a 1.6 : 1 factor of safety against failure: 120 kN

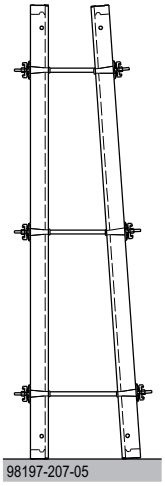
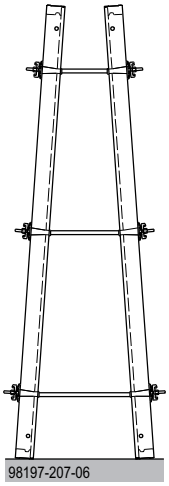
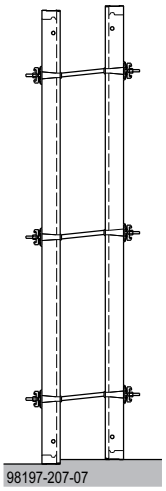
The friction-type ratchet SW27 or Box spanner 27 0.65m can be used for **low-noise releasing and tightening** of the following anchoring components:
- Super plate 15.0
- Wing nut 15,0
- Star grip nut 15.0

Inclined and height-mismatched positioning

The large, conical form-tie sleeves allow the panels to be inclined on one or both sides, and be offset vertically.



Limit-values when super plates are used

Conical on one side	Conical on both sides	Height mismatch
max. 4°	max. 2 x 4.5°	max. 1.9 cm per 10 cm of wall thickness
 98197-207-05	 98197-207-06	 98197-207-07

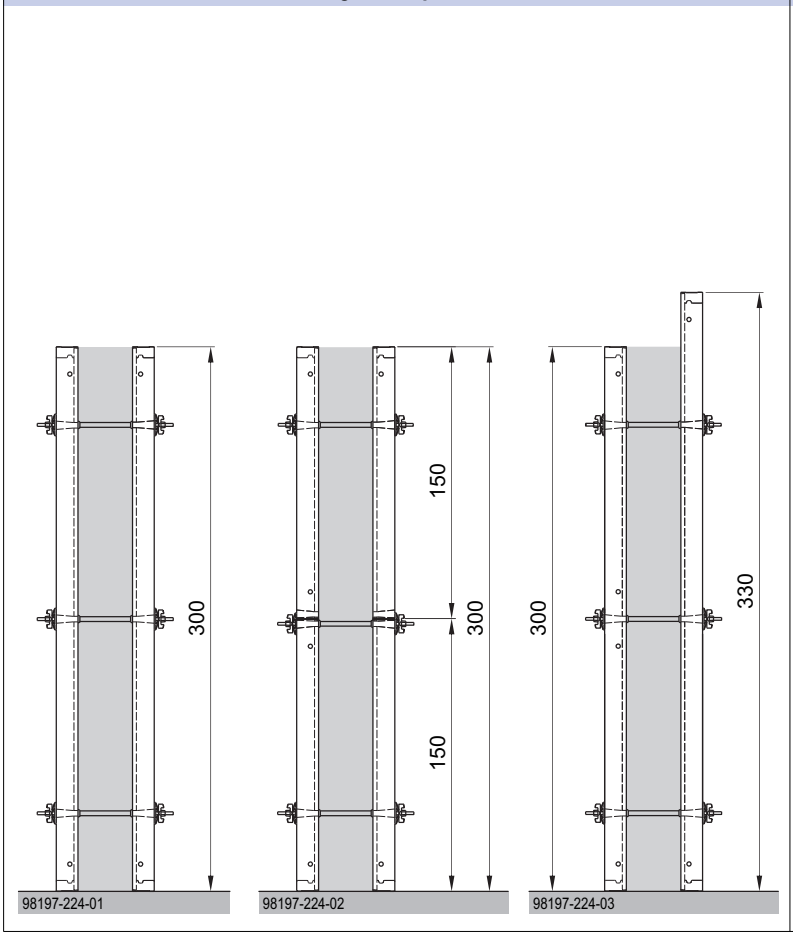
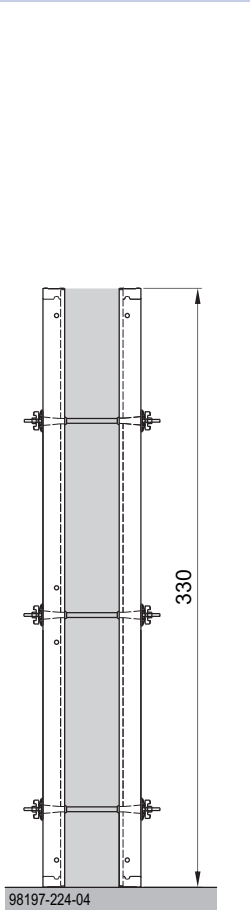
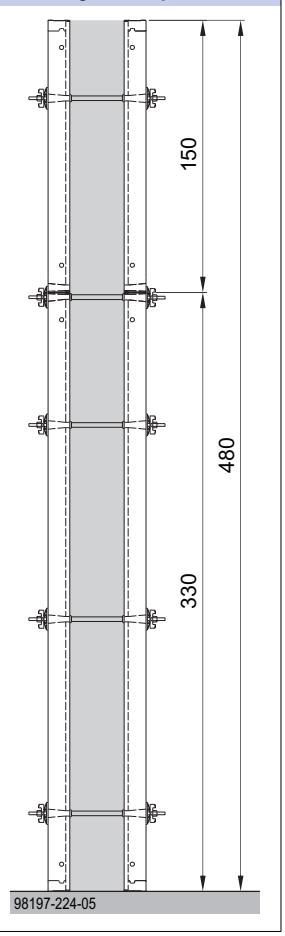
Note:

Secure inclined panels against uplift.

Inclined and mismatched positioning are not possible with panels placed longside horizontal.

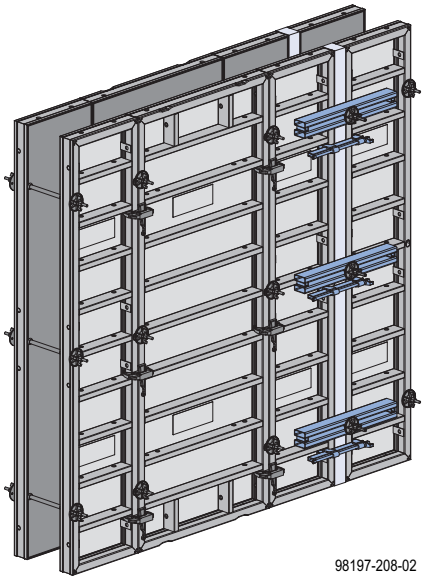
Form-tie positions

The form-tie positions of the panels are matched to each other. This means that combinations of different panel heights in the inside and outside formwork are possible.

Pour heights of **up to 3.00 m**	Pour heights of **up to 3.30 m**	Pour heights of **up to 4.80 m**
		

Note:
For detailed information on form-tie positions for intermediate heights, see the section headed 'Vertical stacking of panels'.

Length adjustment using closures



ReForma universal waling 0.85m:
Permitted moment: 4.2 kNm

NOTICE

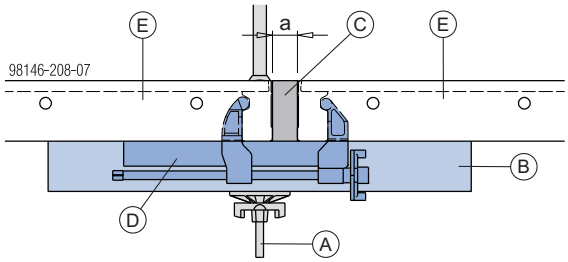
Form tie seated against universal waling: for statics reasons, use ReForma universal waling 0.85m.

ReForma adjustable clamp:
Permitted tensile force: 10.0 kN

Note:
Install ReForma adjustable clamp at the same position as ReForma quick acting clamp.

Closures: 0 - 10 cm

Tie through frame profile:

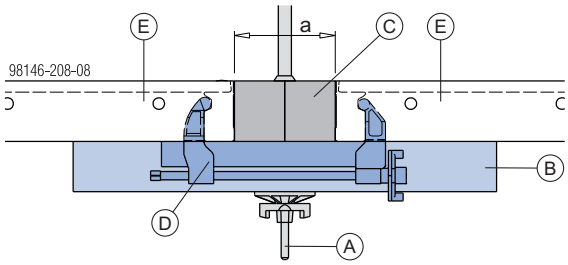


a ... max. 10 cm

A	Doka tie rod system
B	ReForma universal waling 0.85m
C	Squared timber (height 12 cm)
D	ReForma adjustable clamp
E	ReFormaX panel (panel width max. 0.75m)

Closures: 0 - 20 cm

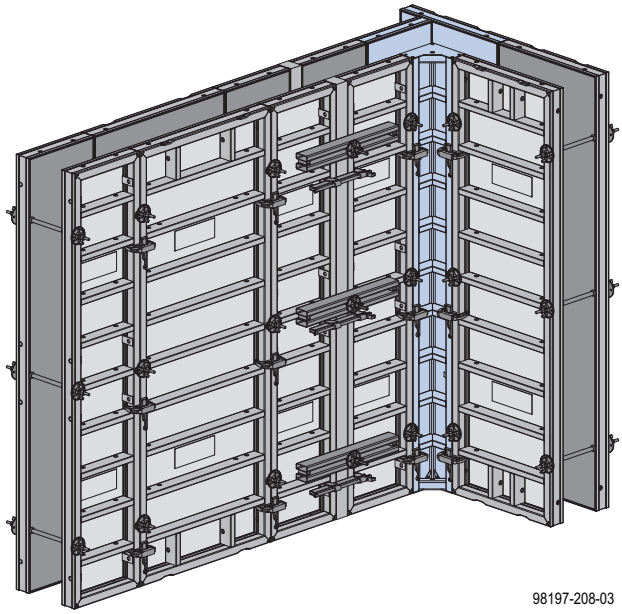
Tie through closure:



a ... max. 20 cm

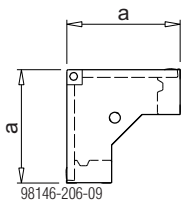
A	Doka tie rod system
B	ReForma universal waling 0.85m (for closures of up to 5 cm in width, no universal walings are needed)
C	Squared timber (height 12 cm)
D	ReForma adjustable clamp
E	ReFormaX panel (panel width max. 0.75m)

90 degree corners



98197-208-03

The corner solutions are based on the strong, torsion-proof **ReFormaX inside corner**.



98146-206-09

a ... 30 cm
The hole drilled in the inside corner enables a vertical stacking connection to be made using universal fixing bolts + super plates.

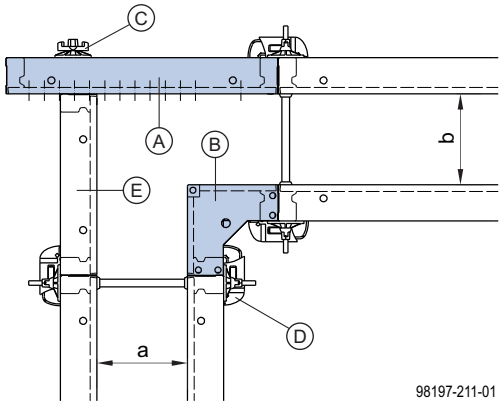
There are **2 ways** of forming right-angled **outside corners**:

- with a ReFormaX universal panel
- with a ReFormaX outside corner

Note:

For details regarding extra inter-panel connections on outside corners (for increased tensile loads) see 'Inter-panel connections for increased tensile loads'.

with ReFormaX universal panels



98197-211-01

a ... 0 to 45 cm, in 5 cm increments
b ... 30 cm

A	ReFormaX universal panel 0,90m
B	ReFormaX inside corner
C	Framax universal fixing bolt + Super plate 15.0
D	ReForma quick acting clamp
E	ReFormaX panel with cross boreholes (panel widths 0.45 - 0.75m) or ReFormaX universal panel 0.90m

Required numbers of universal fixing bolts + Super plates 15.0:

Universal panel 1.50m	2
Universal panel 3.00m	4
Universal panel 3.30m	5

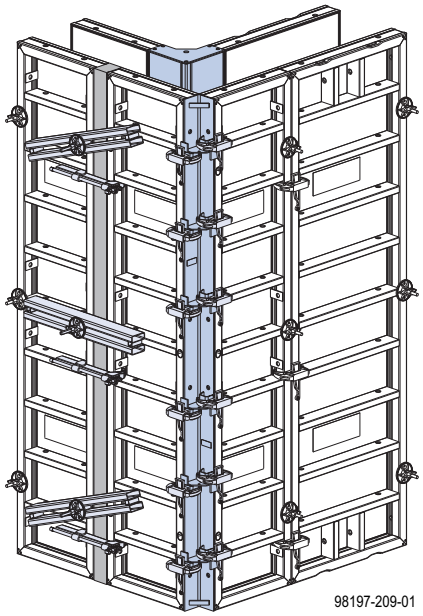
If the **entire outside corner** is raised or repositioned by crane, then **no universal walings** are needed for height-bracing the panels.

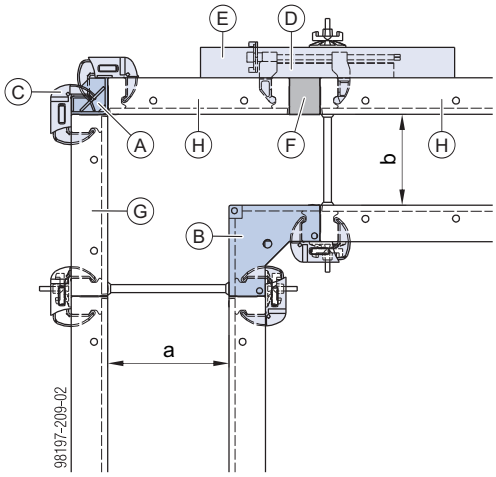
Note:

Seal off the unused holes in the formwork sheet of the universal panels with **ReForma plugs R24.5**.

with a ReFormaX outside corner

The ReFormaX outside corner is an easy way of forming corners in narrow trench situations.





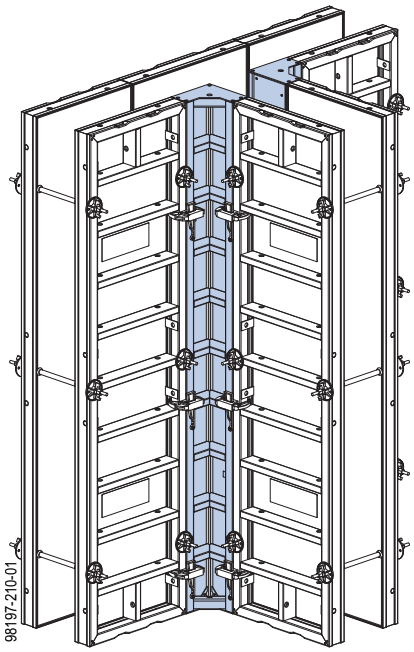
a ... 40 cm
b ... 30 cm

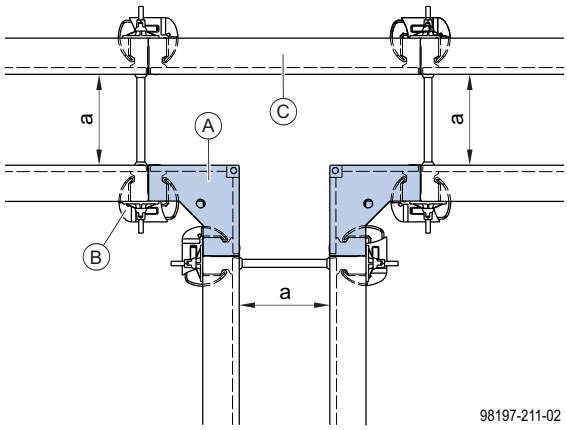
A	ReFormaX outside corner
B	ReFormaX inside corner
C	ReForma quick acting clamp
D	ReForma adjustable clamp
E	ReForma universal waling
F	Squared timber (max. 10 cm)
G	ReFormaX panel (panel width max. 0.90m)
H	ReFormaX panel (panel width max. 0.60m)

Required number of connectors for fresh-concrete pressure of 70 kN/m²:

Wall thickness	Height of outside corner	Quick acting clamp
up to 60cm	1.50m	6
	3.00m	12
	3.30m	14

Example: T-junction





a ... 30cm

A	ReFormaX inside corner
B	ReForma quick acting clamp
C	ReFormaX panel 0.90m

Inter-panel connections for increased tensile loads

Near stop-ends

For **wall thickness up to 40 cm**, only **3 clamps are needed per 3.00** and **3.30 m** formwork height as a tension link between the panels.

However, where **increased tensile loads** need to be sustained near stop-ends, **extra inter-panel connectors are needed.**

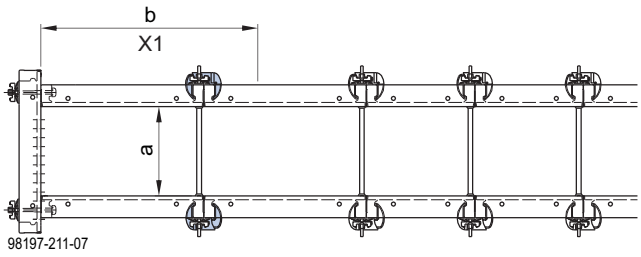
Wall thickness up to 50 cm:

For each panel joint up to 1.20 m:
- 1 additional clamp

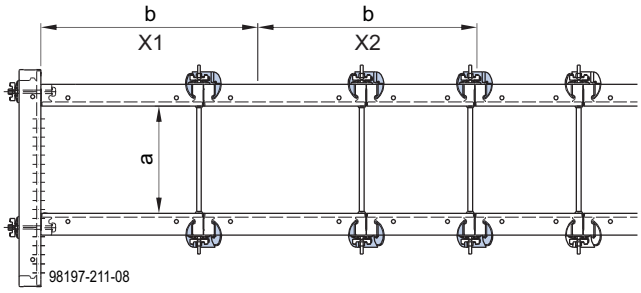
Wall thickness up to 60 cm:

For each panel joint up to 1.20 m:
- 2 additional clamps

For each panel joint between 1.20 m and 2.40 m:
- 1 additional clamp



a ... up to 50 cm
b ... 1.20 m
X1 ... **1 additional clamp**



a ... up to 60 cm
b ... 1.20 m
X1 ... **2 additional clamps**
X2 ... **1 additional clamp**

Near outside corners

For **wall thickness up to 30 cm**, only **3 clamps are needed per 3.00** and **3.30 m** formwork height as a tension link between the panels.

However, where **increased tensile loads** need to be sustained near outside corners, **extra inter-panel connectors are needed.**

Wall thickness up to 40 cm:

For each panel joint up to 1.20 m:
- 1 additional clamp

Wall thickness up to 50 cm:

For each panel joint up to 1.20 m:
- 2 additional clamps

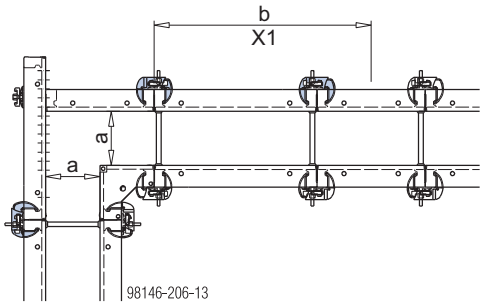
For each panel joint between 1.20 m and 2.40 m:
- 1 additional clamp

Wall thickness up to 60 cm:

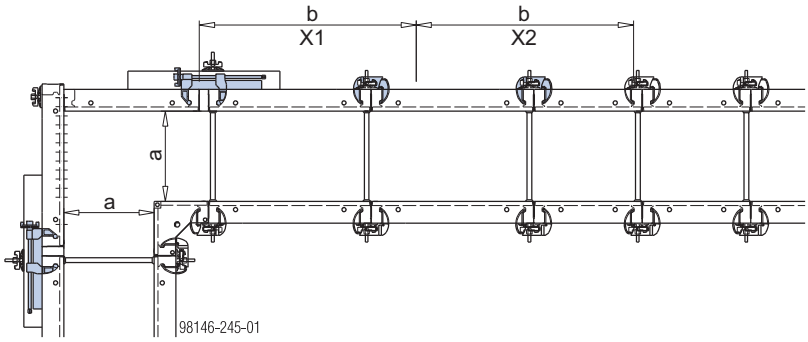
For each panel joint up to 1.20 m:
- 3 additional clamps

For each panel joint between 1.20 m and 2.40 m:
- 2 additional clamps

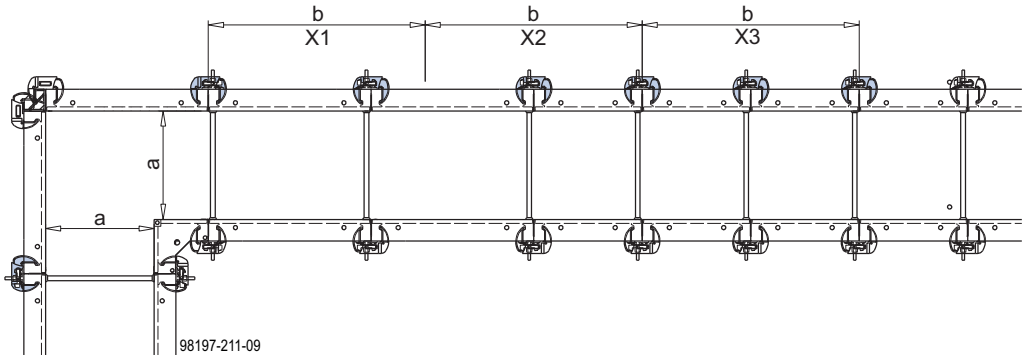
For each panel joint between 2.40 m and 3.60 m:
- 1 additional clamp



a ... up to 40 cm
b ... 1.20 m
X1 ... **1 additional clamp**

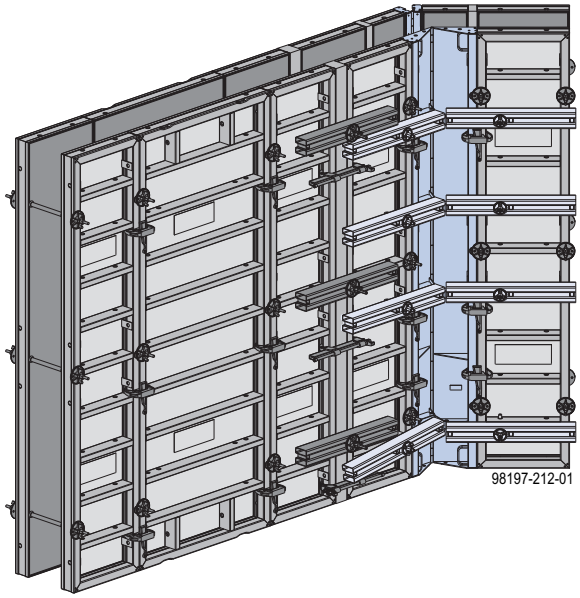


a ... up to 50 cm
b ... 1.20 m
X1 ... **2 additional clamps**
X2 ... **1 additional clamp**



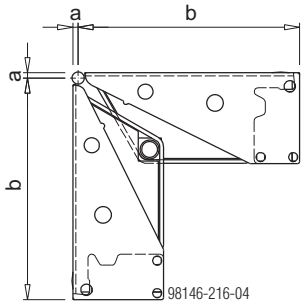
a ... up to 60 cm
b ... 1.20 m
X1 ... **3 additional clamps**
X2 ... **2 additional clamps**
X3 ... **1 additional clamp**

Acute & obtuse-angled corners



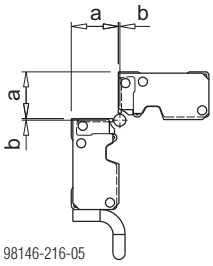
Acute and obtuse angles are solved using the hinged inside and outside corners.

ReFormaX hinged inside corner I



a ... 0.7 cm
b ... 29.3 cm

ReForma hinged outside corner A:



a ... 6.4 cm
b ... 0.2 cm

Number of universal walings in outside and inside corners:

Panel height	Number of universal walings
1.50 m	4
3.00 m	8
3.30 m	10

Position of the universal walings:
In every support level of the hinged inside corner I.

Note:

For angles of less than 120°, no universal walings are needed in inside corners.

NOTICE

With closures, provide additional universal walings in accordance with the section headed 'Length adjustment using closures'.

Number of clamps needed in the hinged outside corner:

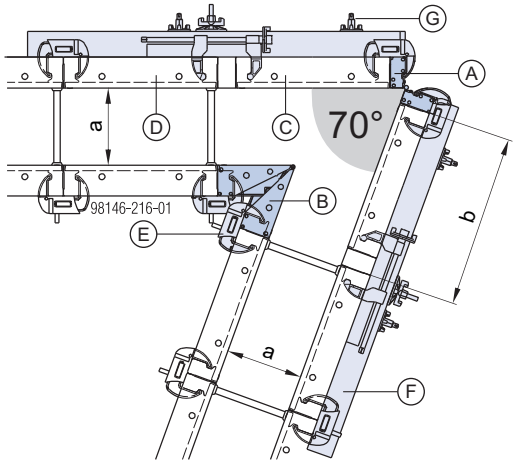
Panel height	Number of clamps
1.50 m	6
3.00 m	12
3.30 m	14

NOTICE

For details regarding extra inter-panel connections on outside corners (for increased tensile loads) see 'Inter-panel connections for increased tensile loads'.

70° (60°) - 135° angles, with hinged corners I + A

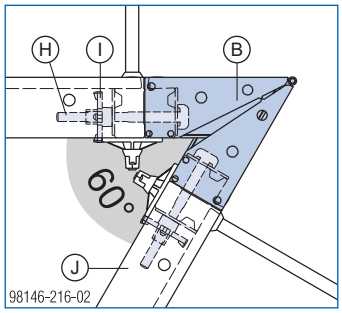
Fresh-concrete pressure P_k	**max. width of panel + closure (b)** beside hinged outside corner A
60 kN/m²	70 cm
70 kN/m²	60 cm



a ... 30 cm

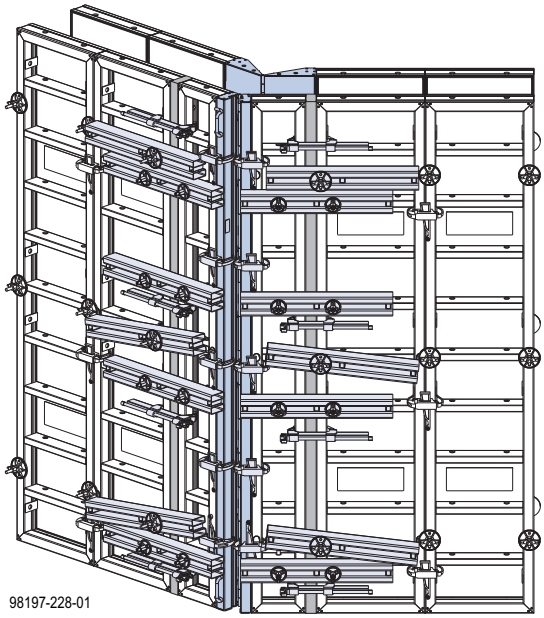
A	ReForma hinged outside corner A
B	ReFormaX hinged inside corner I
C	ReFormaX panel 0.60m
D	ReFormaX panel (panel width max. 0.75m)
E	ReForma quick acting clamp
F	ReForma universal waling
G	ReForma fixing clamp

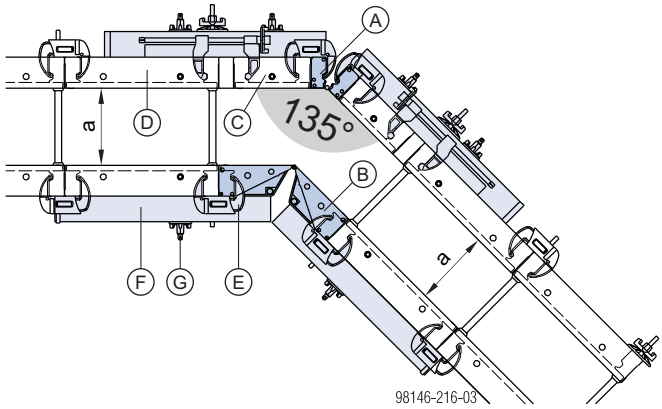
Where **universal fixing bolts** are used instead of the quick acting clamp in the inside corner, an angle of **60°** is also possible.



B	ReFormaX hinged inside corner I
H	Framax universal fixing bolt
I	Star grip nut 15.0 G
J	ReFormaX panel with cross boreholes (panel width 0.45 - 0.75m)

3D view, outside corner:



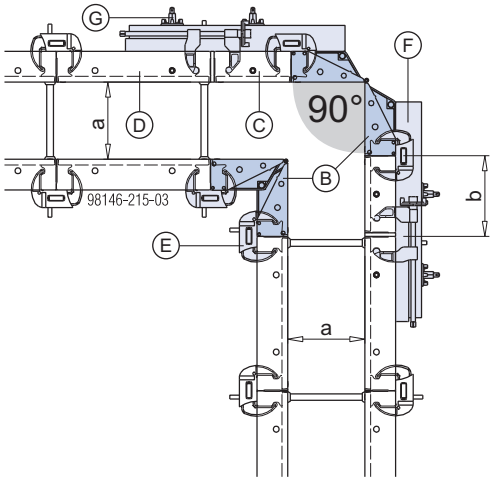


a ... 30 cm

A	ReForma hinged outside corner A
B	ReFormaX hinged inside corner I
C	ReFormaX panel 0.30m
D	ReFormaX panel (panel width max. 0.75m)
E	ReForma quick acting clamp
F	ReForma universal waling
G	ReForma fixing clamp

90° - 180° angles, with hinged inside corner I only

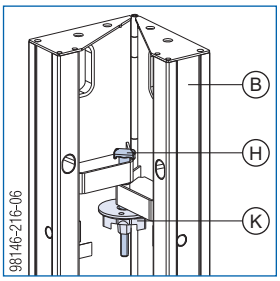
Fresh-concrete pressure P_k	**max. width of panel + closure (b)** beside hinged inside corner I (outside)
60 kN/m²	51 cm
70 kN/m²	43 cm



a ... 30 cm

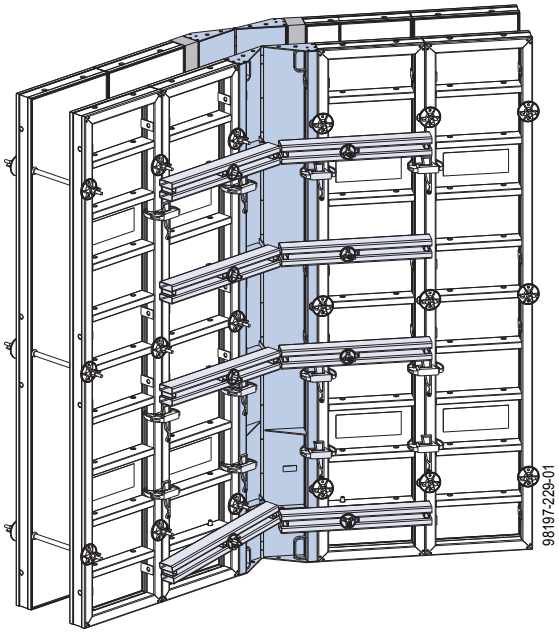
B ReFormaX hinged inside corner I
C ReFormaX panel 0.30m
D ReFormaX panel (panel width max. 0.75m)
E ReForma quick acting clamp
F ReForma universal waling
G ReForma fixing clamp

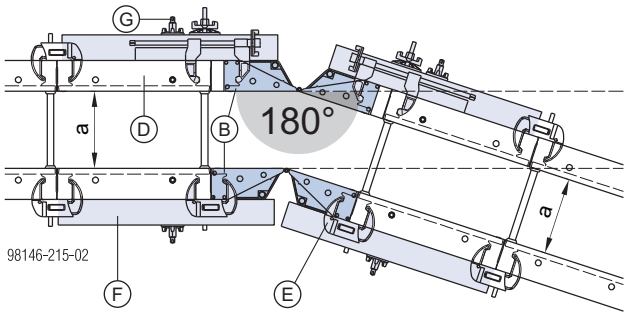
The hinged inside corner I can be fixed at an angle of 90° using universal fixing bolts and Super plates 15.0.



B ReFormaX hinged inside corner I
H Framax universal fixing bolt
K Super plate 15.0

3D view, inside corner:





a ... 30 cm

B ReFormaX hinged inside corner I
D ReFormaX panel (panel width max. 0.75m)
E ReForma quick acting clamp
F ReForma universal waling
G ReForma fixing clamp

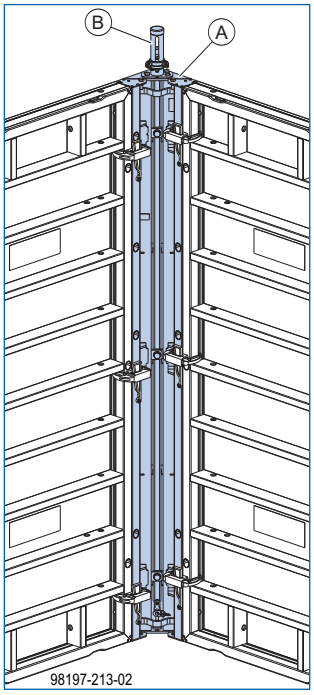
Shaft formwork / stripping aid

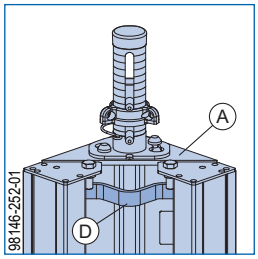
Shaft formwork with Stripping corner I

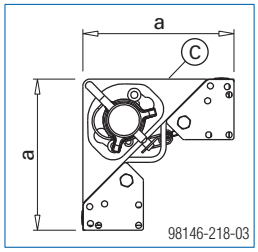
With the **Stripping corner I**, the entire shaft formwork unit is detached from the wall, in one piece, before being lifted and reset by crane.

Product features:

- No negative impression in the concrete.
- Formwork set-up and stripping function integrated in the inside corner (no need for crane – uses stripping spindles).
- Entire shaft formwork unit is lifted and reset in one piece (with lifting hooks and four-part lifting chain).







a ... 30.0 cm

A	ReFormaX stripping corner I
B	Framax stripping spindle I
C	Steel form-facing
D	Slinging point (to be used exclusively for lifting **only one** stripping corner on its own!)

Required number of ReForma quick acting clamps:

Height of the stripping corner I	Number of clamps
1.50 m	4
3.00 m	6
3.30 m	8

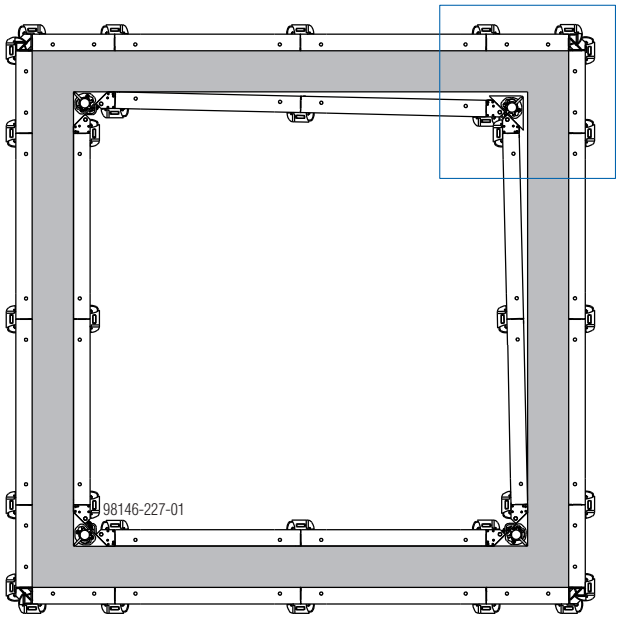
NOTICE

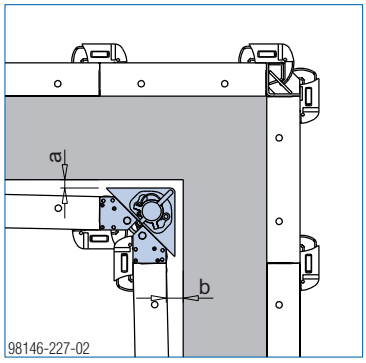
In order to obtain the full available stripping-play, make sure that the quick acting clamps are mounted at staggered heights (i.e. not opposite one another).

Position of closures (squared timbers) in the inside shaft formwork:

- whenever possible, not directly next to the stripping corners

Formwork-stripping clearance:

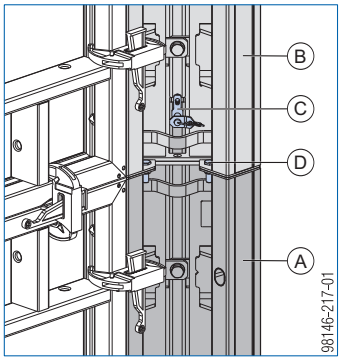




a ... 3.0 cm
b ... 6.0 cm

Vertical stacking of ReFormaX stripping corners I

- ➤ Connect the bottom stripping corner to the framed formwork panel.
- ➤ Pull the coupling bolt out of the top stripping corner.
- ➤ Remove the two hexagon bolts from the bottom stripping corner.
- ➤ Engage the top stripping corner flush on the bottom stripping corner.
- ➤ Push the coupling bolt back in.
- ➤ Bolt the stripping corners together with the 2 hexagon bolts and hexagon nuts removed beforehand.
- ➤ Vertically stack the next framed formwork panel and connect it to the stripping corner.

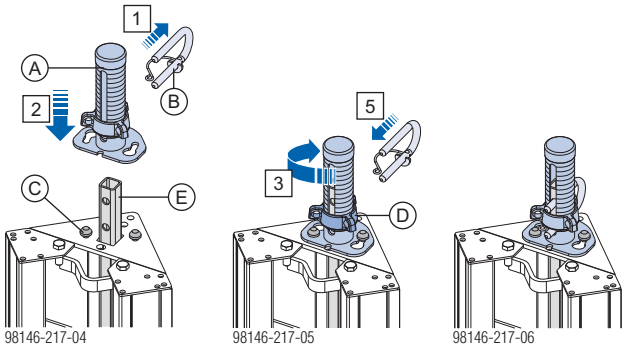


A	Bottom stripping corner I
B	Top stripping corner I
C	Coupling bolt
D	Hexagon bolt ISO 4019 M16x45 8.8 galv. + Hexagon nut ISO 4032 M16 8 galv.

Animation: https://player.vimeo.com/video/256373947

Mounting the Framax stripping spindles I

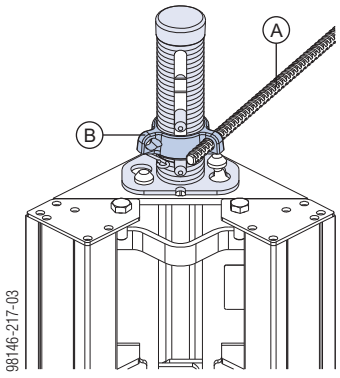
1) Pull out the U-bolt from the stripping spindle.
2) Place the stripping spindle on the centring stud of the stripping corner.
3) Twist the stripping spindle clockwise until fully engaged.
4) Position the spindle nut between the holes in the push-rod.
5) Fix the stripping spindle with the U-bolt.



A	Framax stripping spindle I
B	U-bolt
C	Centring stud of stripping corner
D	Spindle nut
E	Push-rod

Operating the Framax stripping spindle I

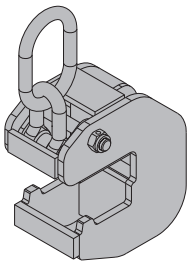
- ➤ Push a Tie rod 15.0mm through one of the holes in the spindle nut.
- ➤ **Closing the formwork**: Twist the spindle nut **clockwise**.
- ➤ **Opening the formwork**: Twist the spindle nut **anticlockwise**.



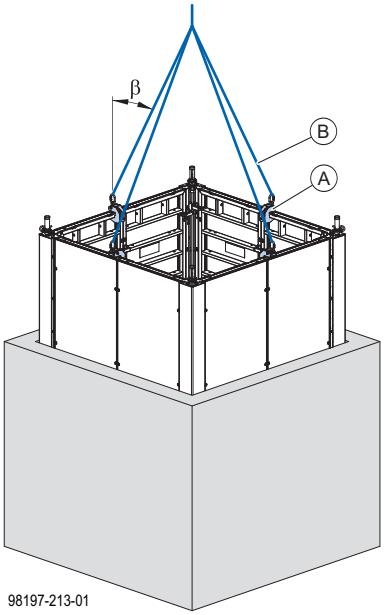
A	Tie rod 15.0mm
B	Spindle nut

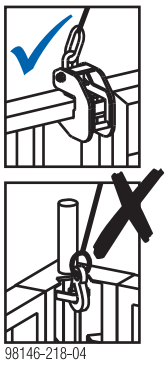
Lifting by crane

ReForma lifting hook



Follow the Operating Instructions!





β ... max. 15°

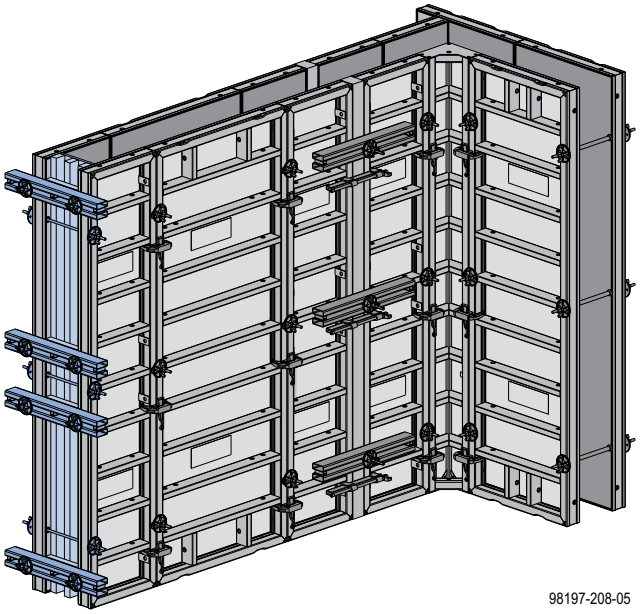
A ReForma lifting hook
B Four-part lifting chain

Do not use the slinging point on the Stripping corner I for lifting the shaft formwork.
➤ The shaft formwork **may only be reset using lifting hooks**.

Permitted weight of the shaft formwork:
4000 kg with 4 lifting hooks

Use a lifting beam for repositioning large gang-forms.

Stop-end formwork



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NOTICE

For details regarding extra inter-panel connections on stop-ends (for increased tensile loads) see 'Inter-panel connections for increased tensile loads'.

with universal walings

Universal walings make it possible to form **stop-ends continuously across any thickness of wall**.

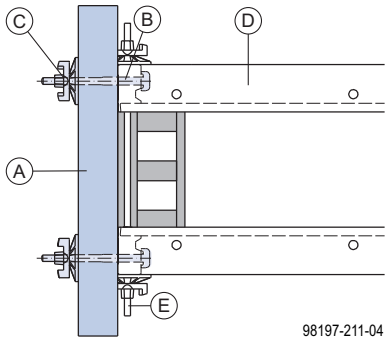
ReForma universal waling:
Permitted moment: 4.2 kNm

There are **2 possible ways** of **fastening** the universal walings:

- with universal fixing bolts
- with stop-end ties

Universal fixing bolts

The universal walings are mounted using universal fixing bolts and Super plates 15.0 fixed through the cross boreholes in the panels.



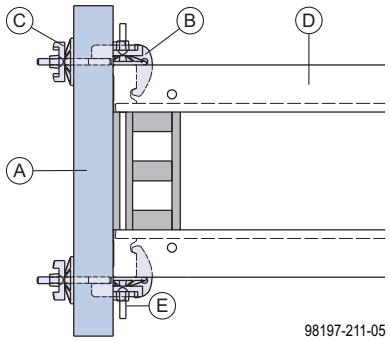
98197-211-04

A	ReForma universal waling
B	Framax universal fixing bolt
C	Super plate 15.0
D	ReFormaX panel with cross boreholes (panel widths 0.45 - 0.75m) or ReFormaX universal panel 0.90m
E	Doka tie rod system

Framax universal fixing bolt:
Permitted tensile force in the cross borehole of the ReFormaX panel: 25.0 kN

Stop-end ties

The universal walings are fastened using ReForma stop-end ties and super plates. This enables you to form **stop-ends continuously, even across large thicknesses of wall**.



A	ReForma universal waling
B	ReForma stop-end tie
C	Super plate 15.0
D	ReFormaX panel
E	Doka tie rod system

Position of the stop-end ties:

To ensure uniform load transfer, the stop-end ties should be as close as possible to the centre point between two cross profiles.

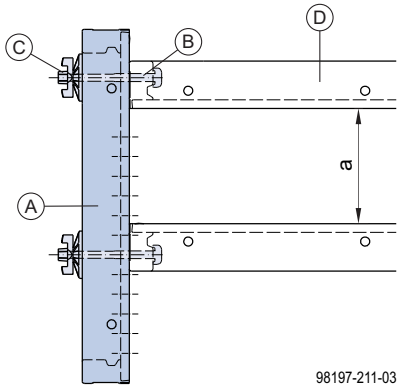
ReForma stop-end tie:
Permitted tensile force: 15.0 kN

Required number of universal walings for fresh-concrete pressure 70 kN/m²:

wall thickness	Panel height: **1.50 m**	**3.00 m** or **3.30 m**
up to 50 cm	2	4
up to 60 cm	2	5

with ReFormaX universal panels

The integral **5 cm hole-grid** of the universal panel panels permits stop-ends across walls up to **55 cm thick**. Fix to the ReFormaX panel with universal fixing bolts and Super plates 15.0.



a ... max. 55 cm

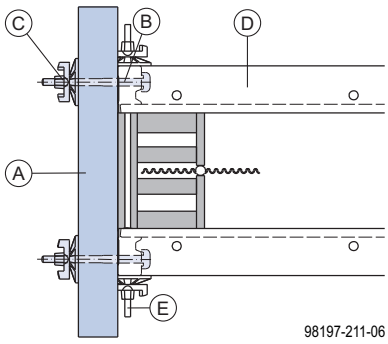
A	ReFormaX universal panel 0.90m
B	Framax universal fixing bolt
C	Super plate 15.0
D	ReFormaX panel with cross boreholes (panel widths 0.45 - 0.75m) or ReFormaX universal panel 0.90m

Required numbers of universal fixing bolts + Super plates 15.0:

Universal panel 1.50m	4
Universal panel 3.00m	8
Universal panel 3.30m	10

Note:
Seal off the unused holes in the formwork sheet of the universal panels with **ReForma plugs R 24.5**.

Stop-ends with joint-sealing tapes

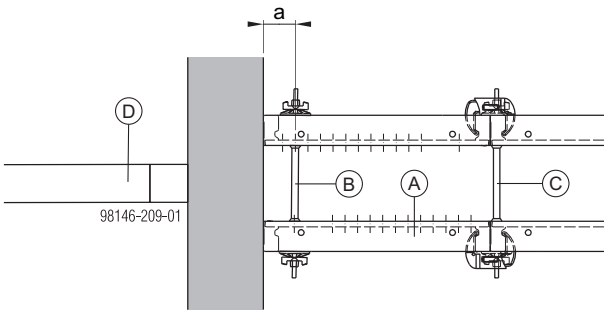


A	ReForma universal waling
B	Framax universal fixing bolt or ReForma stop-end tie
C	Super plate 15.0
D	ReFormaX panel
E	Doka tie rod system

Connecting to existing walls

Right-angled connections

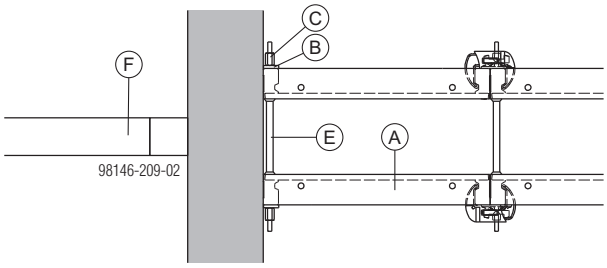
with a ReFormaX universal panel



a ... max. 12.5 cm

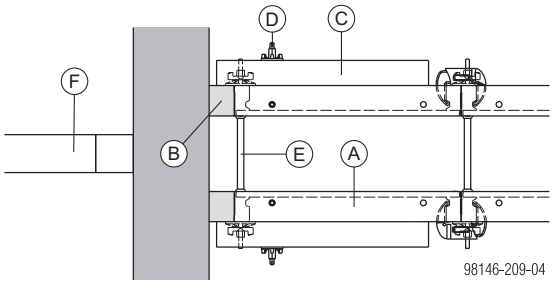
A	ReFormaX universal panel
B	Doka tie rod system 15.0 (one form tie needed in each perforated profile of the universal panels)
C	Doka tie rod system
D	In-place timber brace

with ReformaX panel and pressure plate 6/15



A	ReFormaX panel
B	Framax pressure plate 6/15
C	Hexagon nut 15.0
E	Doka tie rod system
F	In-place timber brace

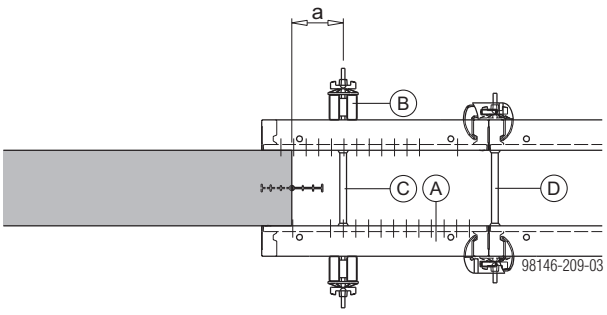
with ReFormaX panel and squared timber



A	ReFormaX panel
B	Squared timber (min. 3.5 cm up to max. 20 cm)
C	ReForma universal waling (not necessary with squared timbers up to 5 cm wide)
D	ReForma fixing clamp
E	Doka tie rod system
F	In-place timber brace

In-line connections

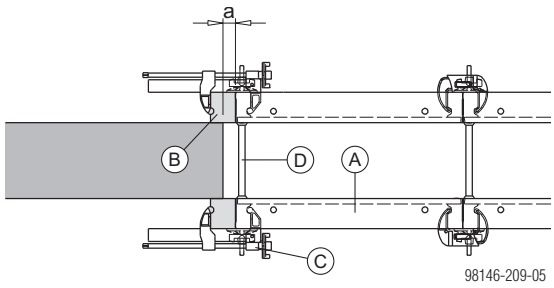
with a ReFormaX universal panel



a ... max. 20.0 cm

A	ReFormaX universal panel
B	ReForma universal waling 0.85m
C	Doka tie rod system 15.0 (one form tie needed in each perforated profile of the universal panels)
D	Doka tie rod system

with ReFormaX panel and squared timber

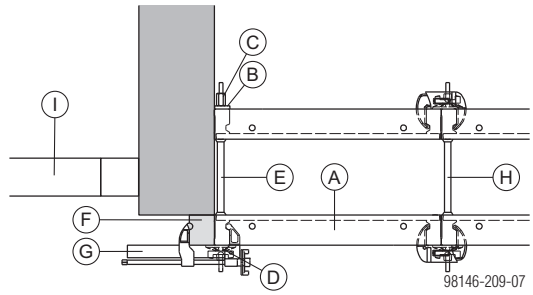


a ... max. 5 cm

A	ReFormaX panel
B	Squared timber
C	ReForma adjustable clamp
D	Doka tie rod system

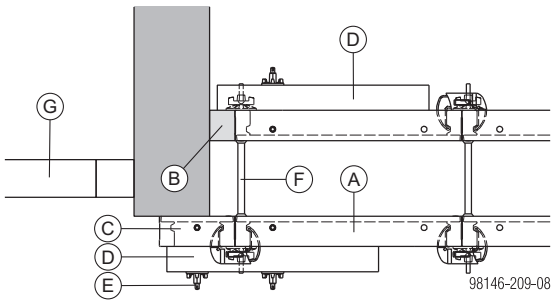
Corner connections

without closure



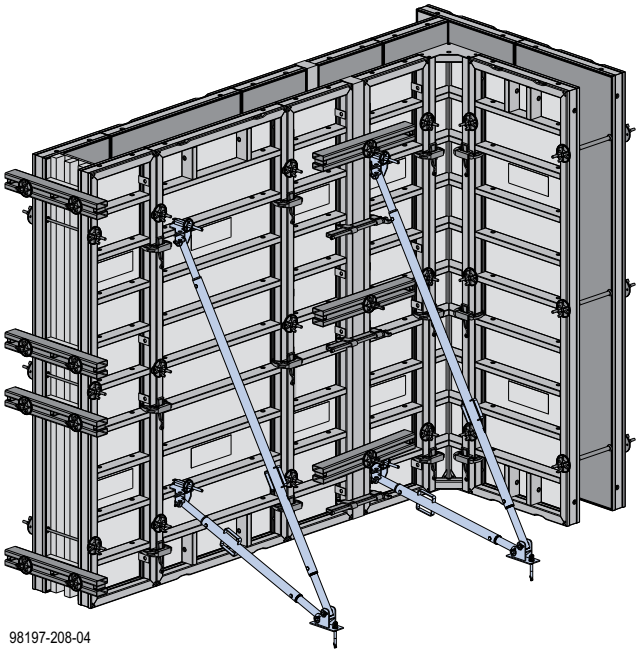
A	ReFormaX panel
B	Framax pressure plate 6/15
C	Hexagon nut 15.0
D	Super plate 15.0
E	Doka tie rod system 15.0mm
F	Squared timber
G	ReForma adjustable clamp
H	Doka tie rod system
I	In-place timber brace

with closure



A	ReFormaX panel
B	Squared timber (min. 3.5 cm up to max. 20 cm)
C	ReFormaX panel 0.30m
D	ReForma universal waling (not necessary with squared timbers up to 5 cm wide)
E	ReForma fixing clamp
F	Doka tie rod system
G	In-place timber brace

Plumbing accessories


98197-208-04

Plumbing accessories brace the formwork against wind loads and make it easier to plumb and align.

Product features:

- Fine adjustment by screw-thread
- All parts are captive, including the telescopic tube which has a safety stop to prevent dropout

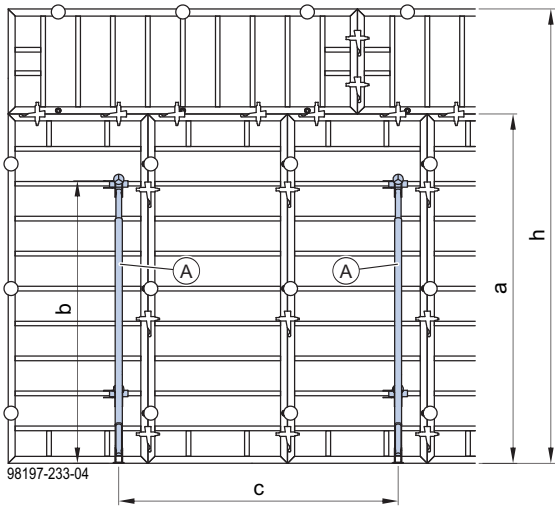
WARNING
Risk of the formwork tipping over!

- ➤ Formwork elements must be held stable **in every phase** of construction work!
- ➤ Observe all applicable safety regulations!
- ➤ If **high wind speeds** are likely, and when work finishes for the day or before prolonged work-breaks, always take extra precautions to fix the formwork in place.
  Suitable precautions:
  - set up the opposing formwork
  - place the formwork against a wall
  - anchor the formwork to the ground (e.g. with ReForma floor fixing plates)

The values apply where the wind pressure w_e = 0.65 kN/m². This results in an impact pressure q_p = 0.5 kN/m² (102 km/h) where $c_{p,\,net}$ = 1.3. The greater wind loads encountered at exposed formwork-ends must be restrained by additional plumbing accessories (e.g. struts or pipe-braces). In cases where higher wind pressure is encountered, the number of struts must be determined by statical calculation!

For more information, see the Calculation Guide 'Wind loads to the Eurocodes', or consult your Doka technician!

Note:
Every gang-form must be supported by **at least 2 plumbing accessories**.



98197-233-04

	Basic panel Height **(a)**	Formwork height **(h)**	Connection height, prop head **(b)**	Perm. spacing **(c)**
Panel strut 290 (A)	1.50m	1.50 m	1.20 m	3.50 m
	3.00m	3.00 m	2.40 m	3.30 m
	3.00m	3.30 m	2.40 m	3.30 m
	3.00m	3.40 - 3.60 m	2.40 m	2.80 m
	3.30m	3.30 m	2.40 m	3.30 m
	3.30m	3.60 m	2.40 m	2.80 m
	3.30m	3.70 - 3.90 m	2.70 m	2.80 m
Panel strut 400 (A)	3.00m	3.75 - 4.50 m	3.15 m	2.70 m
	3.00m	4.50 m	3.30 m	2.70 m
	3.00 m	4.65 m	3.15 m	2.40 m
	3.00m	4.80 m	3.30 m	2.40 m
	3.00m	4.90 - 5.40 m	3.60 m	2.10 m
	3.30m	4.05 - 4.65 m	3.45 m	2.70 m
	3.30 m	4.80 m	3.60 m	2.60 m
	3.30m	4.80 - 5.10 m	3.45 m	2.20 m
Panel strut 500 (A)	3.00m	4.60 - 5.70 m	4.05 m	2.40 m
	3.00m	4.75 - 5.70 m	4.20 m	2.30 m
	3.00m	5.50 - 5.70 m	3.90 m	2.10 m
	3.00m	6.00 m	4.50 m	2.20 m
	3.30m	5.25 - 5.70 m	4.35 m	2.30 m
	3.30m	5.05 - 6.00 m	4.50 m	2.20 m
	3.30m	5.10 - 5.80 m	3.90 m	2.00 m
	3.30m	6.00 - 6.15 m	4.20 m	1.90 m
	3.30m	6.30 - 6.60 m	4.50 m	1.90 m

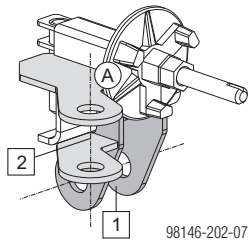
Max. anchoring load:
F_{exist} = **13.5 kN** (actual load)

Example: Where the formwork height is 4.65 m with basic panel 3.00m, the following are needed for every 4.80 m wide gang-form:

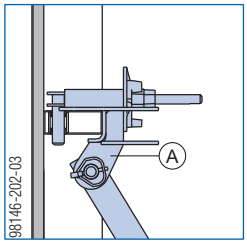
- 2 Panel struts 400 at connection height 3.15 m
  or
- 2 Panel struts 500 at connection height 4.05 m

Fixing in the cross profile

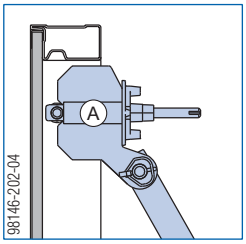
Head of the ReForma panel strut:



Connection with panels longside vertical **(1)**



Connection with panels longside horizontal **(2)**

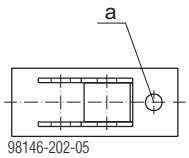


A Head of the ReForma panel strut

Fixing to the ground

➤ Anchor the plumbing accessories in such a way as to resist tensile and compressive forces!

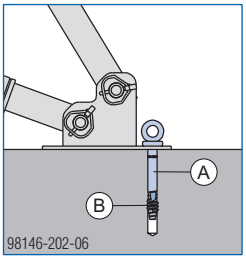
Footplate:



a ... diam. 22 mm (suitable for Doka express anchors)

Anchoring the footplate

The **Doka express anchor** can be re-used many times over.



A Doka express anchor 16x125mm
B Doka coil 16mm

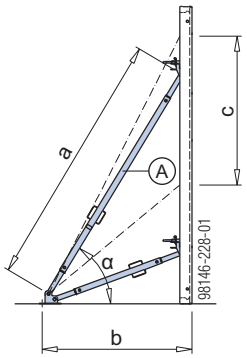
Characteristic cube compressive strength of the concrete ($f_{ck,cube}$):
min. 15 N/mm² (C12/15 grade concrete)

Follow Fitting Instructions!

Required safe working load of alternative anchors for footplates:
$R_d \geq 20.3$ kN ($F_{permissible} \geq 13.5$ kN)
Follow the manufacturers' applicable fitting instructions.

Panel struts

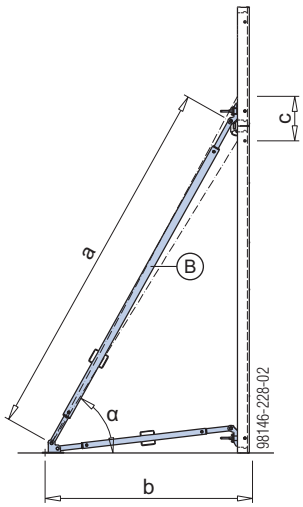
ReForma panel strut 290



a ... 214.0 - 296.0 cm
b ... 123.3 - 184.3 cm
Connection area c ... 210.0 - 270.0 cm
α ... approx. 60°

A ReForma panel strut 290

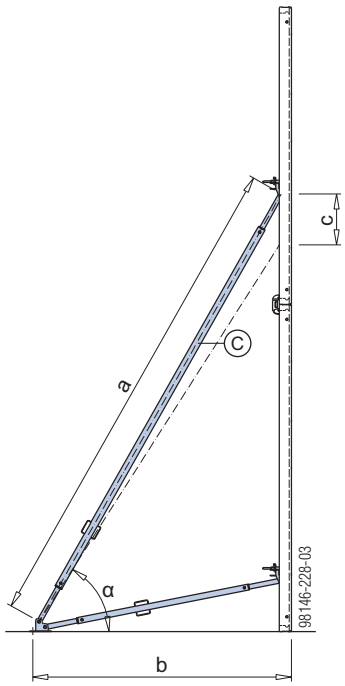
ReForma panel strut 400



a ... 318.0 - 400.0 cm
b ... 175.3 - 216.3 cm
Connection area c ... 315.0 - 360.0 cm
α ... approx. 60°

B ReForma panel strut 400

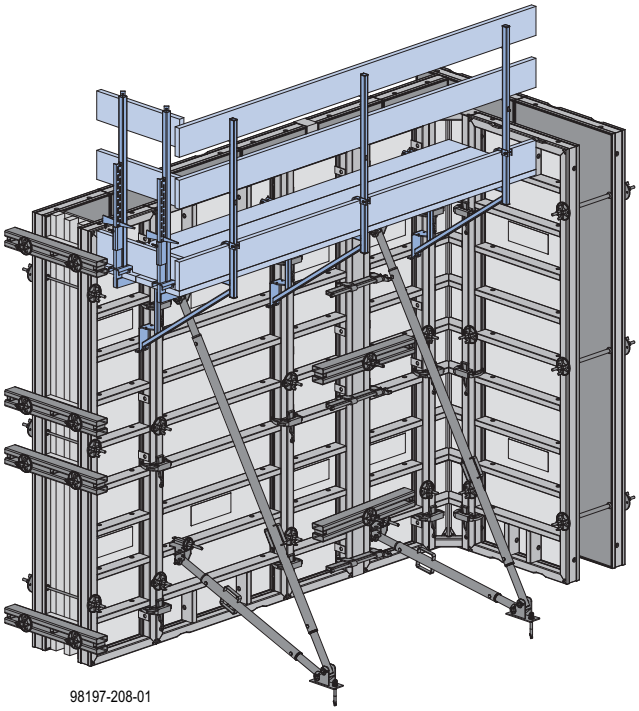
ReForma panel strut 500



a ... 424.0 - 506.0 cm
b ... 228.3 - 269.3 cm
Connection area c ... 390.0 - 450.0 cm
α ... approx. 60°

C ReForma panel strut 500

Pouring platforms with single brackets



Precondition for use

Observe all applicable safety regulations.

Only fit pouring platforms to formwork structures of adequate stability ensuring that the expected loads can be taken.

Ensure that the formwork gang is sufficiently rigid.

Brace the formwork in a windproof manner when erecting it or when it is temporarily placed in the standing position.

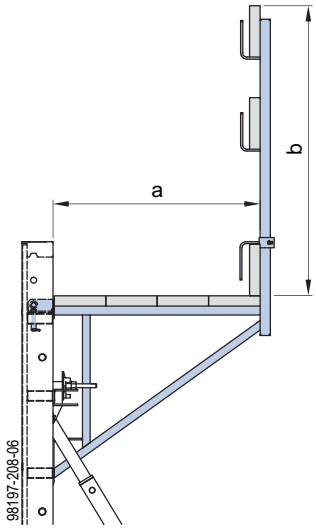
Note:

The plank and board thicknesses given here comply with EN 1995.

Observe all national regulations applying to deck and guardrail boards.

ReForma bracket

ReForma brackets can be used to assemble 80 cm wide pouring platforms that are easy to mount by hand.



a ... 80 cm
b ... 110 cm

Permitted service load: 1.5 kN/m² (150 kg/m²)
Load Class 2 to EN 12811-1:2003
Max. influence width: 1.50 m

NOTICE

The brackets must be secured against accidental lift-out.

Deck-boards and guardrail boards: Per 1 metre length of platform, 0.8 m² of deck-boards and 0.45 m² of guardrail boards are needed (site-provided).

Board thicknesses for centre-to-centre spans up to 2.00 m:

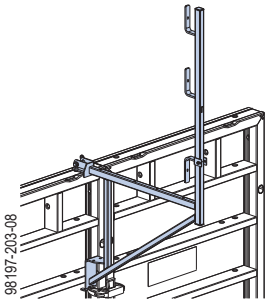
- Deck-boards min. 20/5 cm
- Guardrail boards min. 15/3 cm

Threaded-fastener material required for securing the deck-boards (fasteners per bracket):

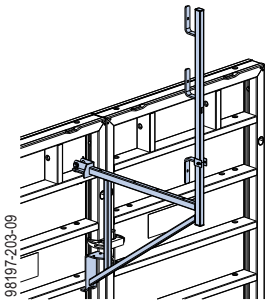
- 4 square bolts M10x110
- 4 spring washers A10
- 4 hexagon nuts M10

Fixing the guardrail boards: use nails

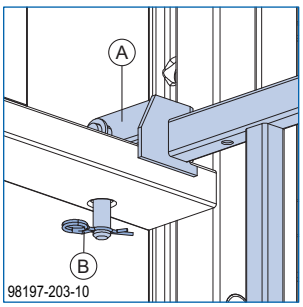
Possible ways of fixing to upright panels



In the frame profile



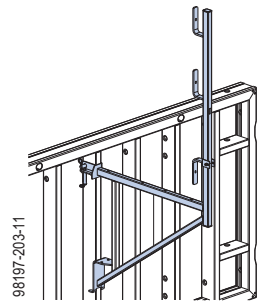
In the cross profile



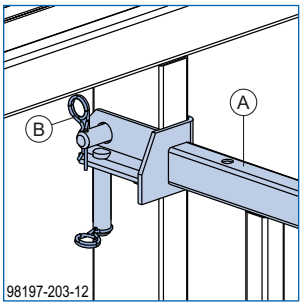
Anti-liftout guard

A ReForma bracket
B Spring cotter

Possible ways of fixing to horizontally placed panels



In the cross profile



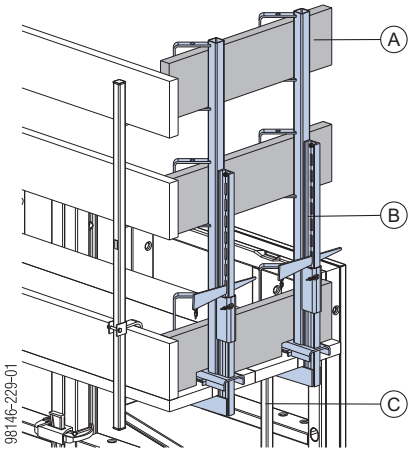
Anti-liftout guard

A ReForma bracket
B Spring cotter

Sideguards on exposed platform-ends

On pouring platforms that do not completely encircle the structure, suitable sideguards must be placed across exposed end-of-platform zones.

Handrail clamp S



A Guardrail board min. 15/3 cm (site-provided)
B Handrail clamp S
C ReForma bracket

The sideguard consists of:

- 2 Handrail clamps S
- 3 guardrail boards, min. 3x15 cm, (site-provided)

Assembly:

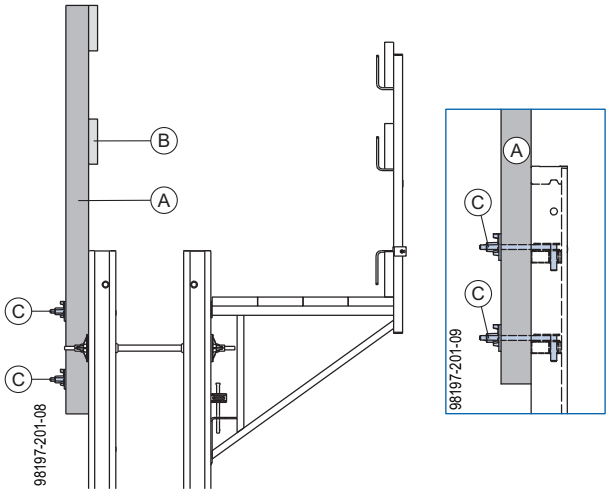
➤ Fasten the handrail clamps onto the decking of the pouring platform, by tightening the wedges (clamping range 2 to 43 cm).

➤ Fix guardrail boards to the handrail post plates with one nail 28x65 per plate.

Follow the directions in the 'Handrail clamp S' User Information booklet.

Opposing guardrail

If there are working scaffolds mounted on one side of the formwork only, the holes in the cross profiles of the panels make it possible **to attach squared timbers**.



a ... 110 cm

A	Squared timbers 8x10x190cm (WxHxL), with drilled hole D=22mm (by site)
B	Guardrail board (site-provided)
C	ReForma fixing bolt + Super plate 15.0

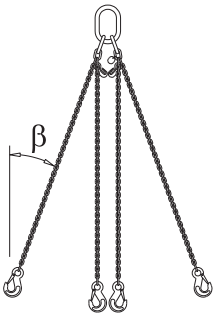
Installation:

➤ Secure squared timber to the cross profiles of the panels with ReForma fixing bolts and super plates.

Lifting by crane

Safe crane-handling of ReFormaX is possible using the **Doka 4-part chain 3.20m** and the **ReForma lifting hook**. The lifting hook locks automatically after being hung into place.

Doka 4-part chain 3.20m



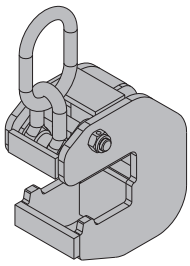
CE

➤ Attach the Doka 4-part chain 3.20m to the ReForma lifting hooks.
➤ Hang the remaining chain-lengths back in place.

Max. load-bearing capacity (as 2-part chain):
Up to 30° spread angle β 2400 kg.

Follow the Operating Instructions!

ReForma lifting hook



CE

Max. load-bearing capacity:
Spread angle β up to 30°:
1500 kg / ReForma lifting hook

Follow the Operating Instructions!

Securing the lifting hooks against sliding from side to side

NOTICE

Position the lifting hooks so that they are secured against sideways slippage.

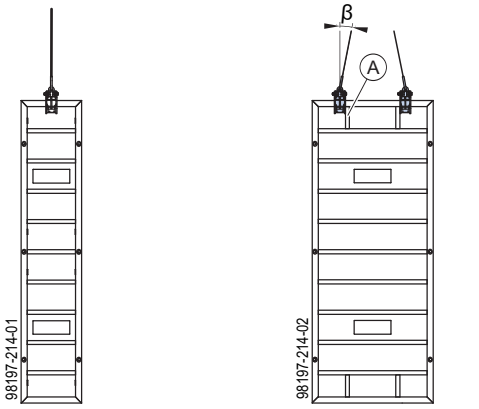
For suitable positions see the section headed ‘Position of the lifting hooks”.

Position of the lifting hooks

Note:
The positions of the lifting hooks shown here also apply for vertically stacked gang-forms.

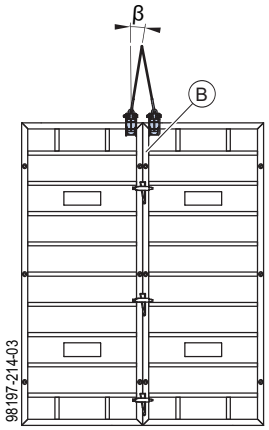
Single panel:

Panels up to 60cm wide | Panels over 60cm wide



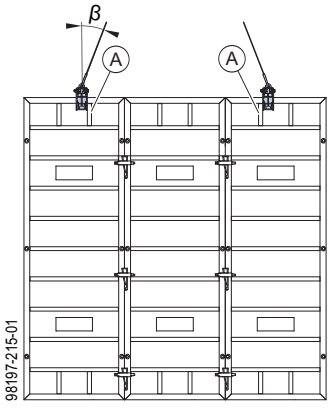
A Stiffening profile

Gang-form - two panels upright:



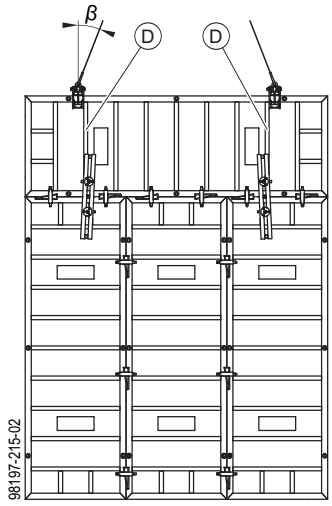
B Frame profile

Gang-form - three (or more) panels upright:



A Stiffening profile

Gang-form - panel on its side (vertically stacked):



D Cross profile

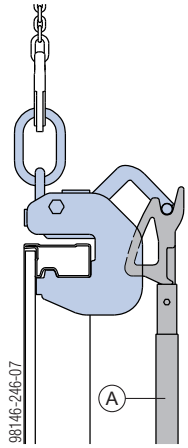
Assembling tool

For operation of the lifting hook on upright formwork by operator on ground level.

CAUTION

Risk of the lifting hook falling when operated with assembling tool!

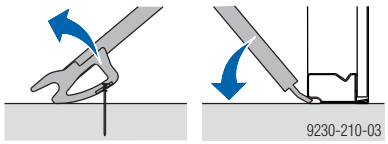
➤ With the crane, position the lifting hook level with the lifting point.



		Formwork height
A	**Framax telescopic assembling tool** (telescopes from 230 to 400 cm)	3.00 - 5.40m
	Framax assembling tool	2.50 - 3.30m

In addition to operation of the lifting hook, the **Framax assembling tool** also offers the following functions:

- Pulling out double-headed nails
- Plumbing and aligning the formwork



Transporting, stacking and storing

Bundling the panels

1) Position hardwood blocking approx. 8.0 x 10.0 (W x H) underneath the cross profile.
2) Strap the sleepers (hardwood blocking) and the bottom panel together with metal banding.

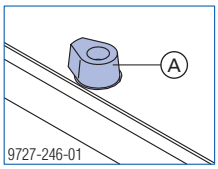
WARNING

The smooth surface of the powder-coated panels reduces the sticking friction.

➤ It is strictly forbidden to lift stacks of panels without inserting Framax stacking cones (2 cones per layer) first!

Exception: Stacking cones are not required if the stack is lifted using the Framax transport gear.

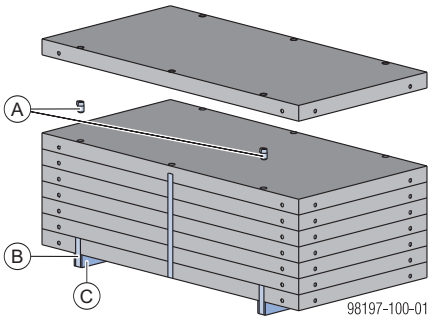
3) Insert Framax stacking cones.



A Framax stacking cone

The stacking cones stop the panels slipping.

4) Strap the whole stack together tightly with strapping tape.



A Framax stacking cone
B Strapping tape
C Sleeper

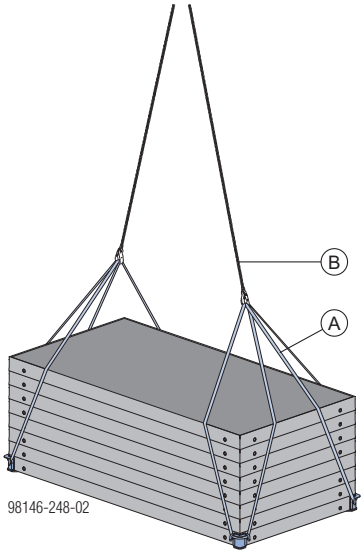
Max. number of panels in a stack:

Panel (width)	Max. number of panels stacked on top of one another	Stacking height incl. sleepers
up to 1.20m	8	approx. 108 cm

Transporting the panels

Framax transport gear

For safe crane transport of stacked panels at construction sites, depots etc.



A Framax transport gear (consisting of 4 round slings)
B Chain suspension gear or Doka 4-part chain 3.20m

The four round slings of the transport gear hold the stack together on all four sides, in such a way that it is impossible for individual panels to slip out.

Advantages:

- Spring-loaded slinging hooks reach from underneath into the beads of the panel frame and prevent the transport gear accidentally detaching itself when the cable tension slackens.
- The automatic length compensation feature of the Framax transport gear ensures that the load is distributed evenly.
- The Framax transport gear can easily be suspended and detached by just one person working on their own.
- There is no need for anti-slippage protection using Framax stacking cones here.

Max. load-bearing capacity: 2000 kg / 4 round slings

NOTICE

Max. stacking height: 8 panels (incl. sleepers)

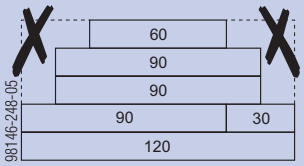
Precondition for use

The bottom layer of the stack may only consist of one panel.

The stacks must always be of panels of equal width.

The top layers may also consist of 'half-width' panels. The important thing here is that every panel must be held by at least two round slings and that no 'gaps' may be left open between panels.

It is forbidden to transport stacks where the edges of the panels are not all in alignment!



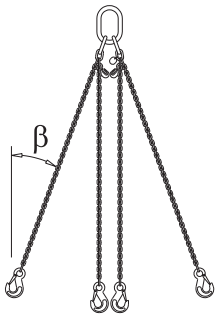
Follow the Operating Instructions!

Doka 4-part chain 3.20m

The Doka 4-part chain 3.20m is a multi-functional slinging means:

- used with the integrated **eye-hooks** for hoisting formwork, platforms and multi-trip packaging containers.

  For further information, see the section headed 'Lifting by crane'.
- used in conjunction with **Framax transport bolts** for hoisting stacks of panels and individual panels.



The Doka 4-part chain 3.20m can be adjusted to the centre-of-gravity position by shortening the length of individual chains.

Max. load-bearing capacity P_{max}:

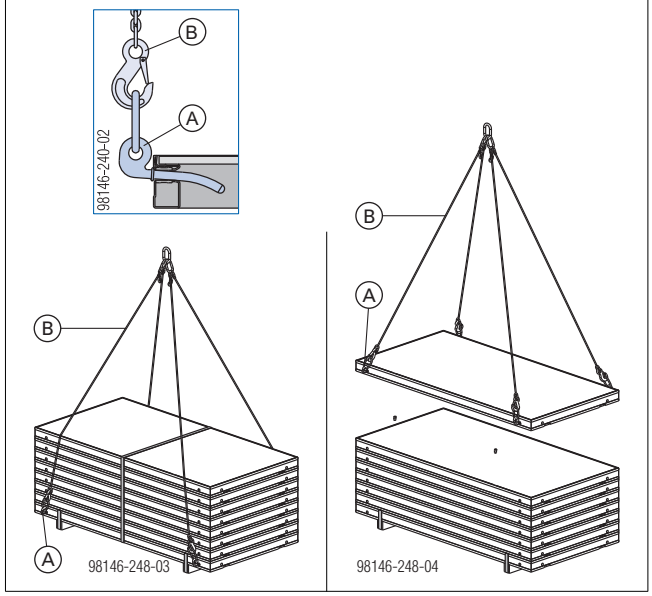
	spread angle β			
	0°	0°-30°	30°-45°	45°-60°
Using one chain	1400 kg	-	-	-
Using two chains	-	2400 kg	2000 kg	1400 kg
Using all four chains	-	3600 kg	3000 kg	2120 kg

Follow the Operating Instructions!

Framax transport bolts with Doka 4-part chain 3.20m

The Framax transport bolts **(A)** , in combination with the Doka 4-part chain 3.20m **(B)** , are for moving panels either individually or in stacks.

Lifting a bundled stack of panels	Lifting panels off the stack



WARNING

➤ It is strictly forbidden to lift stacks of panels without inserting Framax stacking cones (2 cones per layer) first!

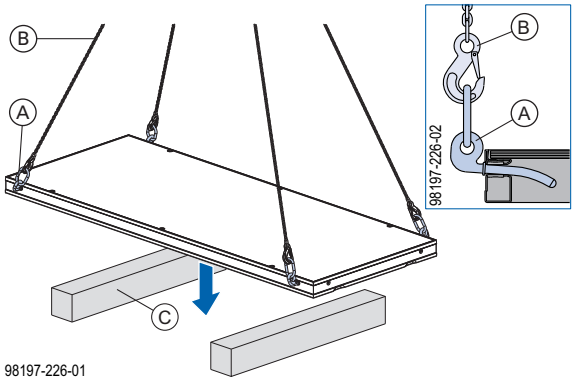
Max. load-bearing capacity:
800 kg / Framax transport bolt

Framax transport bolts manufactured until 2015, with a given load capacity of 500 kg, are also capable of a carrying capacity of 800 kg.

Follow the Operating Instructions!

Lifting panels upright / turning panels over

➤ Use **Framax transport bolts** to lay the framed panel flat on squared timbers 20x20 cm



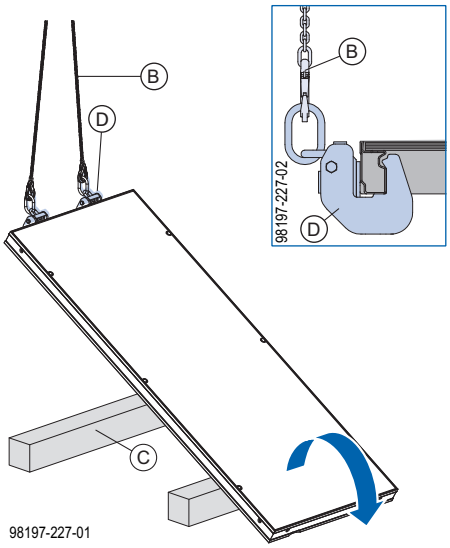
A	Framax transport bolt
B	Doka 4-part chain 3.20m
C	Squared timber 20x20 cm

WARNING

Using Framax transport bolts to lift the framed panels upright or turn them over is prohibited!

➤ Use ReForma lifting hooks!

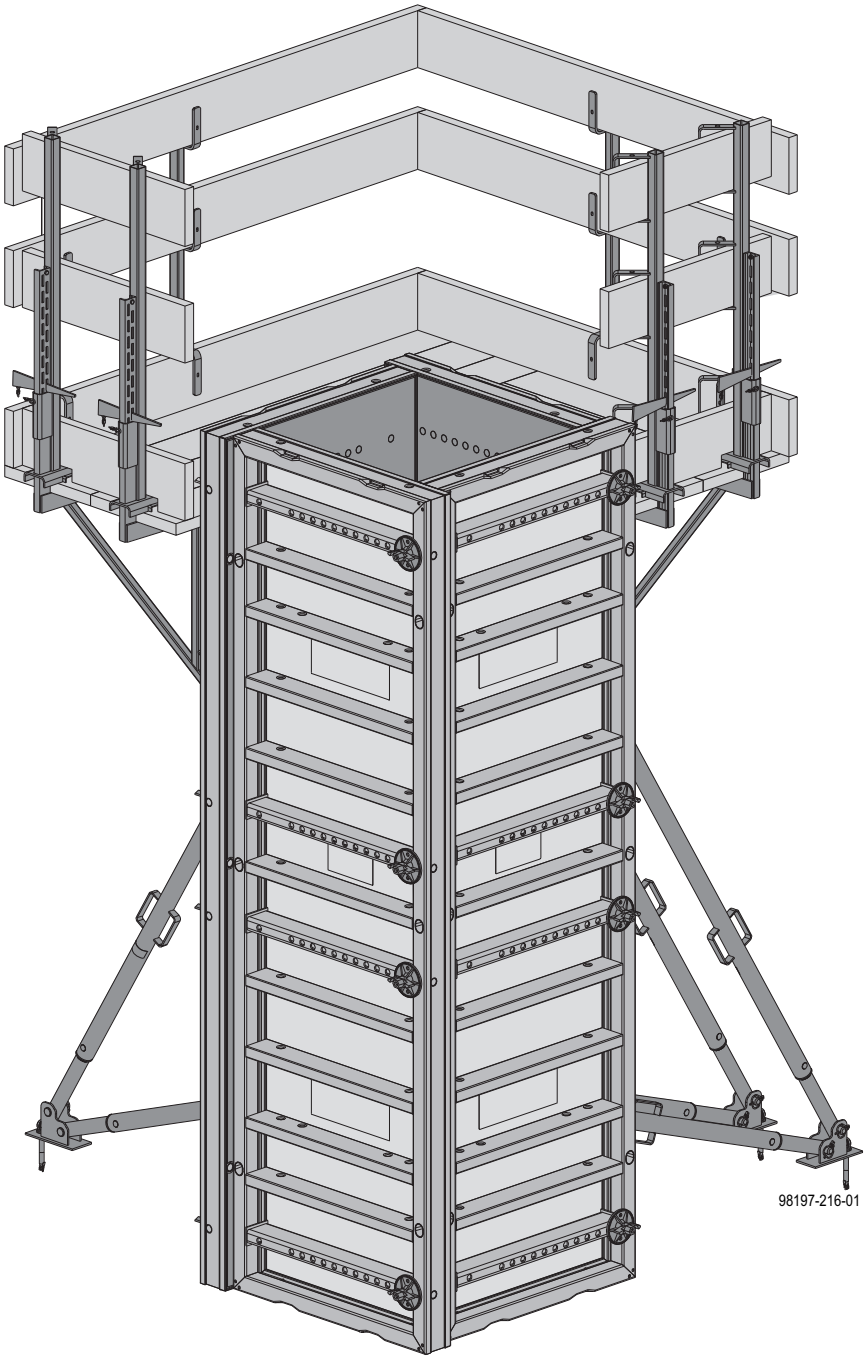
➤ Position the ReForma lifting hooks. Lift the framed panel upright with **ReForma lifting hooks** and, if applicable, lay flat with the sheeting side down.



B	Doka 4-part chain 3.20m
C	Squared timber 20x20 cm
D	ReForma lifting hook

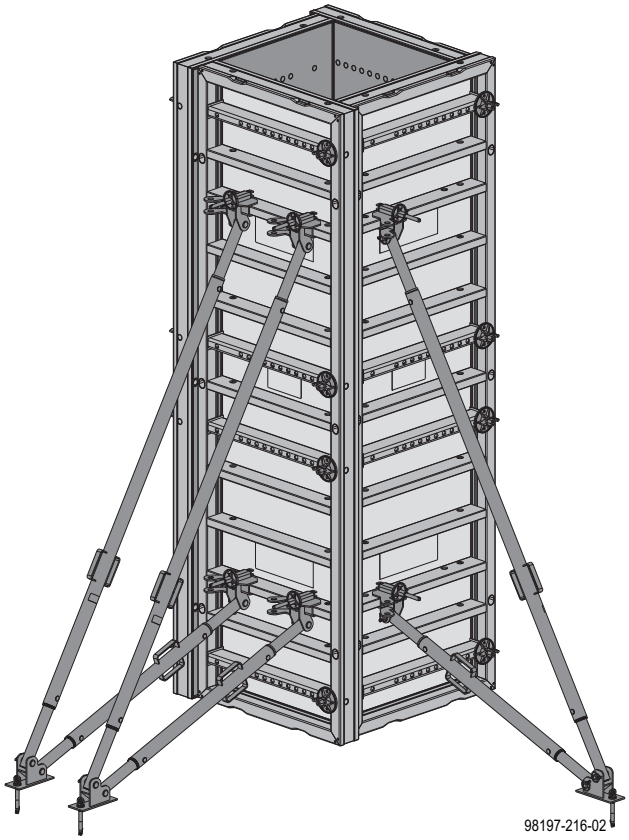
Follow the Operating Instructions!

Column formwork



80 kN/m² pressure of fresh concrete acting on whole area, to DIN 18218, where the surface planeness tolerances to DIN 18202 Table 3 Line 6 are observed.

Design of column formwork



NOTICE

- To achieve exact plumbing & aligning of the column formwork, the best arrangement of the panel struts is as illustrated here.
- Always attach panel struts to free-standing formwork halves to prevent them from falling over.

Erecting and striking the formwork

Erecting:

- ➤ Position the first panel and brace it with panel struts.
- ➤ Join the second panel to the first, and attach a panel strut.
- ➤ Plumb and align this formwork-half with the panel struts.
- ➤ Add two more panels to close the formwork.

Striking:

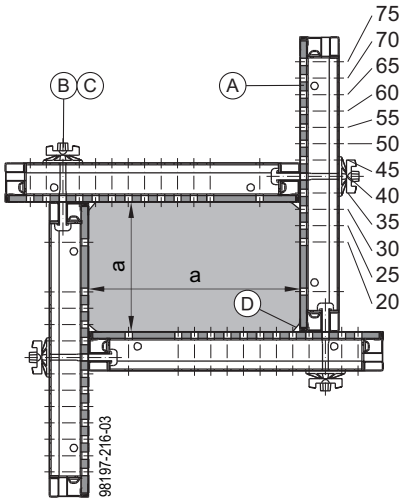
- ➤ First remove the panels that are not attached to a panel strut, and place them face-down for intermediate storage.
- ➤ Undo the inter-panel connections of the formwork-half.
- ➤ Undo the ground anchors of the panel struts.
- ➤ Place the panels face-down for intermediate storage.

with ReFormaX universal panels

with a ReFormaX universal panel 0.90m

The practical 5 cm hole-grid is ideal for forming columns. **Cross-sections of up to 75 x 75 cm.**

cross-sections in 5 cm increments



Example: column 40 x 65 cm
a ... 20 to 75 cm, in 5 cm increments

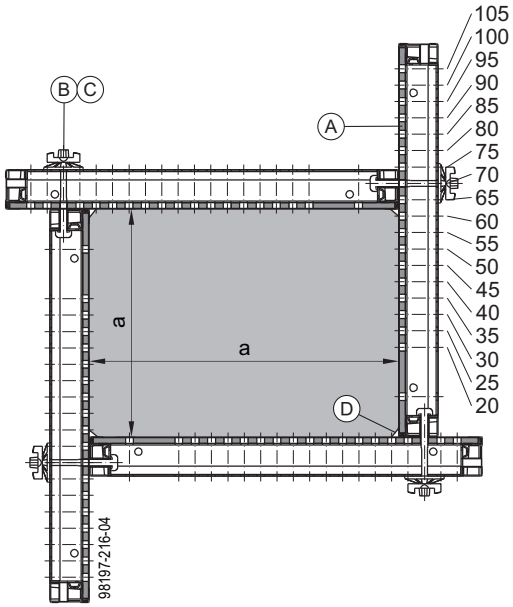
A	ReFormaX universal panel 0.90m
B	Framax universal fixing bolt
C	Super plate 15.0
D	Triangular ledge

Note:
Seal off the unused holes in the formwork sheet of the universal panels with **ReForma plugs R 24.5**.

with a ReFormaX universal panel 1.20m

The practical 5 cm hole-grid is ideal for forming columns. **Cross-sections of up to 105 x 105 cm.**

cross-sections in 5 cm increments

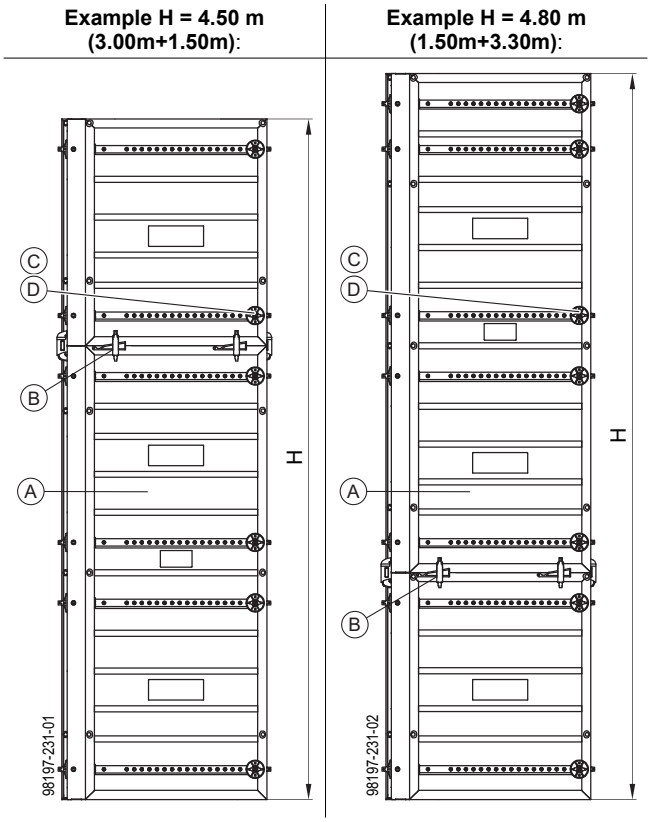


Example: column 70 x 95 cm
a ... 20 to 105 cm, in 5 cm increments

A	ReFormaX universal panel 1.20m
B	Framax universal fixing bolt
C	Super plate 15.0
D	Triangular ledge

Note:
Seal off the unused holes in the formwork sheet of the universal panels with **ReForma plugs R 24.5**.

Schedule of materials

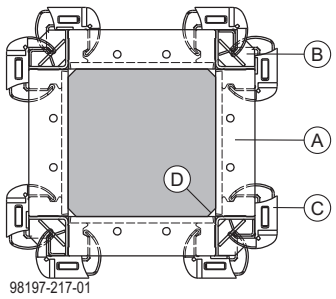


Formwork height (H)	universal panel (A) 3.30m	3.00m	1.50m	0.75m	quick acting clamp (B)	universal fixing bolt (C)	Super plate 15.0 (D)
1.50 m			4			8	8
2.25 m			4	4	8	16	16
3.00 m		4				16	16
3.30 m	4					20	20
3.75 m		4		4	8	24	24
4.05 m	4			4	8	28	28
4.50 m		4	4		8	24	24
4.80 m	4		4		8	28	28
6.00 m		8			8	32	32
6.60 m	8				8	40	40

Table gives number of items needed

with ReFormaX outside corners and ReFormaX panels

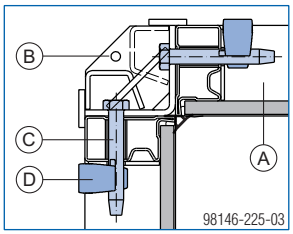
The column formwork can also be constructed with **ReFormaX outside corners** and **ReFormaX panels**. **Cross-sections of up to 75 x 75 cm.**



A ReFormaX panel (max. 75 cm)
B ReFormaX outside corner
C ReForma quick acting clamp
D Triangular ledge

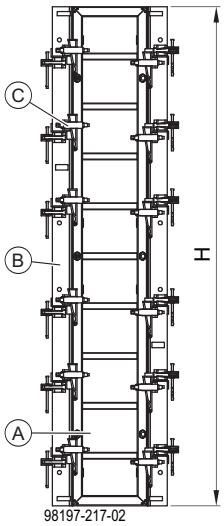
NOTICE

- For columns measuring 75 cm along one or both sides, use wedge bolts and tensioning wedges instead of quick acting clamps.
- Do not oil or grease the components of wedge-clamped joints.



A ReFormaX panel 0.75m
B ReFormaX outside corner
C Framax wedge bolt RA 7.5
D Framax tensioning wedge R

Schedule of materials

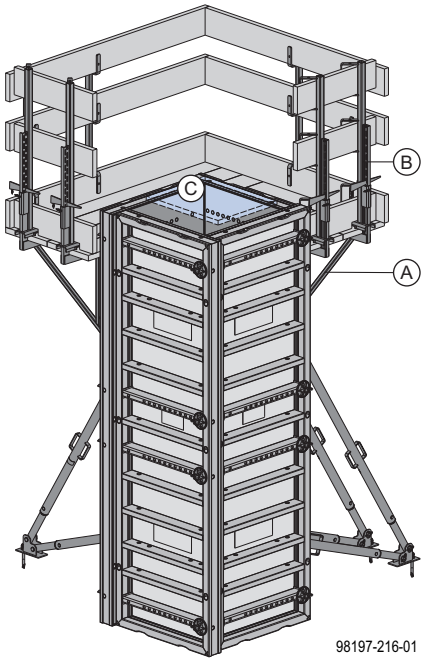


Example: ReFormaX outside corners 3.00m with ReFormaX panels 0.45 x 3.00m

Panel height **(H)**	ReFormaX panel **(A)**			ReFormaX outside corner **(B)**			Quick acting clamp*) **(C)**
	3.30	3.00m	1.50m	3.30m	3.00m	1.50m	
1.50 m			4			4	24
3.00 m		4			4		48
3.30 m	4			4			56

Table gives number of items needed.

Pouring platform with ReForma bracket



A	ReForma bracket (deck-boards and guardrail boards site-provided)
B	Handrail clamp S (guardrail boards site-provided)
C	Board for screwing the platform decking onto

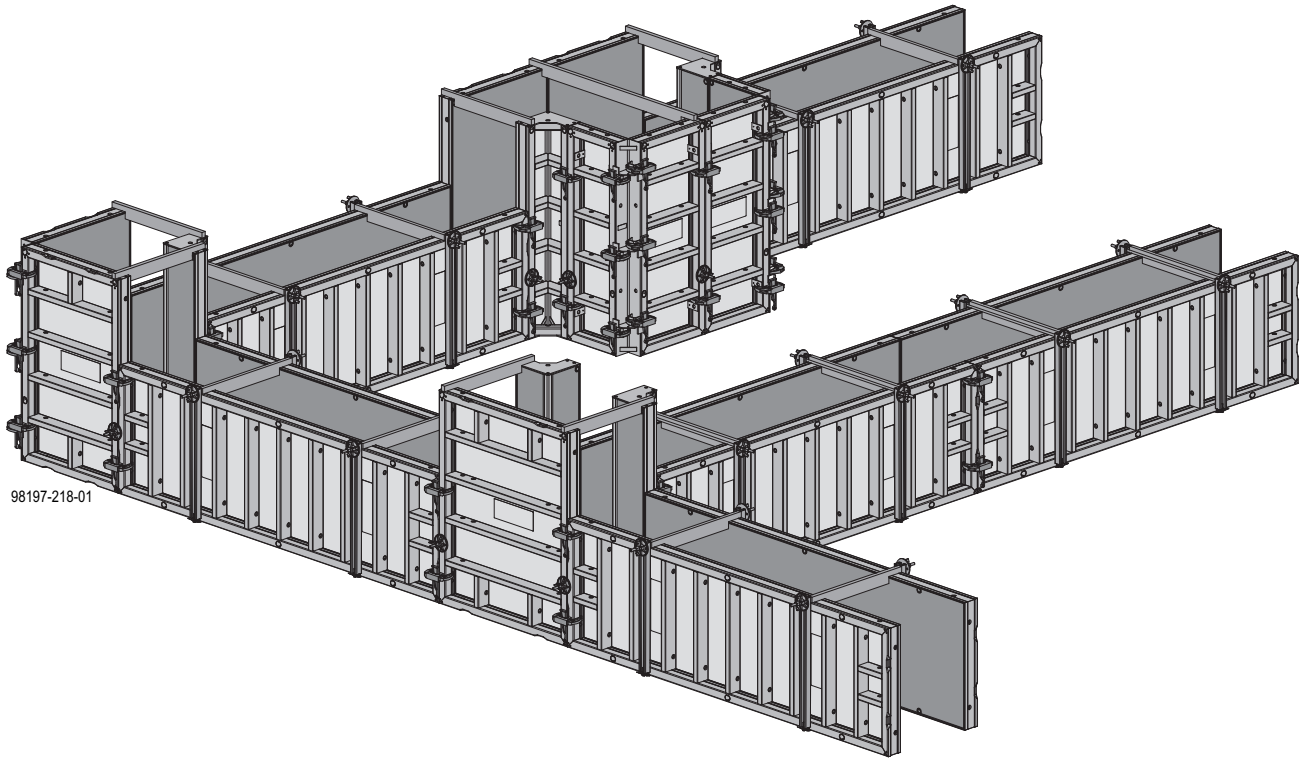
Note:
Where the two planks meet, a joining board must be screwed onto the underside.

For more information on constructing pouring platforms, see the section headed 'Pouring platforms with single brackets'.

Foundation formwork

The ReFormaX panels can also be used for foundations.

This is particularly advantageous where it is intended to continue using the same panels for the walls. Foundations can quickly be formed with any of the ReFormaX panels, either upright or horizontal. Quick acting clamps and a blow with the hammer are all it takes to join the panels. Length closures and corners are just as easy to solve here as they are on "normal" walls. A range of practical accessories makes this work easier.



Tying the panels

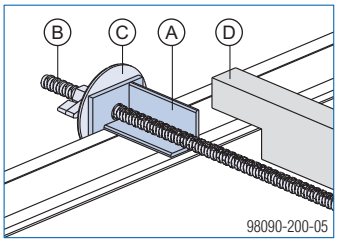
Note:
Seal off unneeded form-tie sleeves with **Universal plugs R20/25**.

Tying at top

Note:
2 ties above the panel are needed for each panel 3.00m or 3,30m turned longside horizontal!

Tie-holder bracket

- Tie rod is held above panel (not in the concrete)
- Form-tie spacing freely selectable



A Framax tie-holder bracket
B Tie rod 15.0mm
C Super plate 15.0
D Wooden spacer

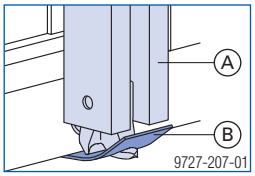
Framax tie-holder bracket:
Permitted capacity: 15 kN

To prevent soiling of the tie rods placed across the top of the concrete, we recommend using Plastic tubes 22mm.

Tying at bottom

Foundation clamp and perforated tape

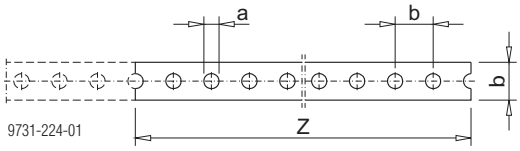
- Wall thicknesses can be formed in 5 cm grid



A Framax foundation clamp
B Doka perforated tape 50x2.0mm 25m (expendable)

Permissible load for a form-tie point with the Framax foundation clamp and Doka perforated tape is **12 kN**.

Doka perforated tape 50x2.0mm 25m



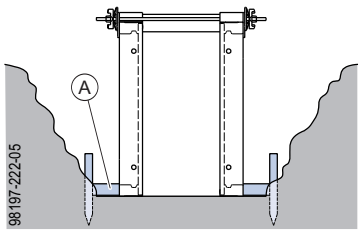
a ... 18 mm
b ... 50 mm
Z ... Length of tape cut: Wall thickness + 40 cm

Number of foundation clamps and perforated tapes:

Panel length	Pour height	Foundation clamp and perforated tape
3.00m	up to 1.20 m	3
	up to 0.90 m	2
3.30m	up to 1.20 m	4
	up to 0.90 m	2

Horizontal bracing (site-provided)

In very narrow trenches, the bottom tie can be replaced by a horizontal bracing.



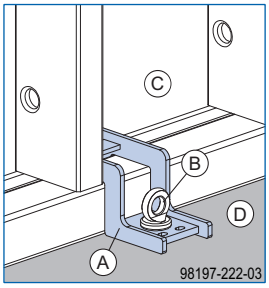
A Horizontal bracing

Floor fixing plate and express anchor

- No site-provided distance protector
- No ties in the concrete
- No form ties in the area of the perforated tape
- Block foundations possible

NOTICE

Use ReForma floor fixing plates only on foundation slabs and concrete floor-slabs.



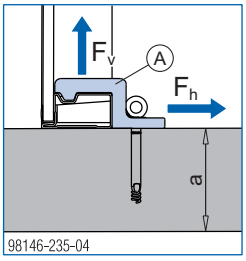
A ReForma floor fixing plate
B Doka express anchor 16x125mm
C ReFormaX panel
D Foundation slab / concrete floor-slab

➤ Engage the ReForma floor fixing plate in the frame profile and fix with Doka express anchor 16x125mm.

Follow the directions in the 'Doka express anchor 16x125mm' Fitting Instructions!

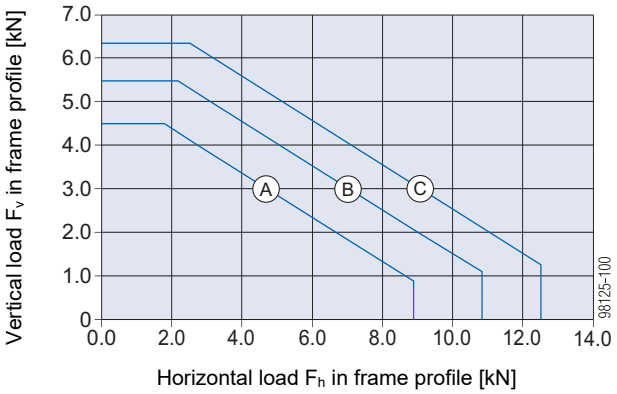
Before drilling the holes for the express anchors, temporarily secure the ReForma floor fixing plates (8x12 mm slots integrated), for example with steel nails or bolts set with a compressed-air nailing gun or a bolt-setting tool.

Structural design



a ... min. 20 cm
Distance from outside edge of panel: min. 15 cm

A ReForma floor fixing plate



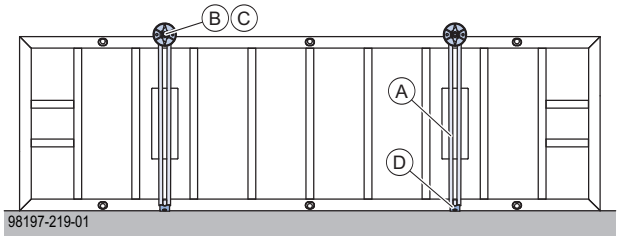
	Characteristic cube compressive strength of the concrete ($f_{ck,cube}$):	Max. anchoring load F_{exist}	Max. anchoring load F_d
(A)	10 N/mm² (C8/10 grade concrete)	9.2 kN	13.8 kN
(B)	15 N/mm² (C12/15 grade concrete)	11.2 kN	16.8 kN
(C)	20 N/mm² (C16/20 grade concrete)	12.9 kN	19.4 kN

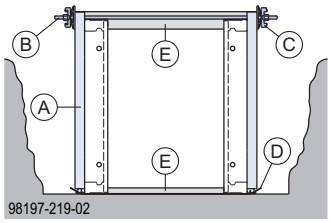
Design of the foundation formwork

Pour heights of up to 0.90 m

With panels of up to 0.90 m in width, the foundation clamp allows you to tie the panels above the concrete.

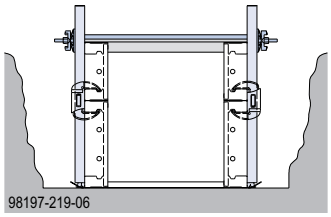
Panel, width 0.90 m, longside horizontal:





A	Framax foundation clamp
B	Tie rod 15.0mm
C	Super plate 15.0
D	Doka perforated tape
E	Wooden spacer

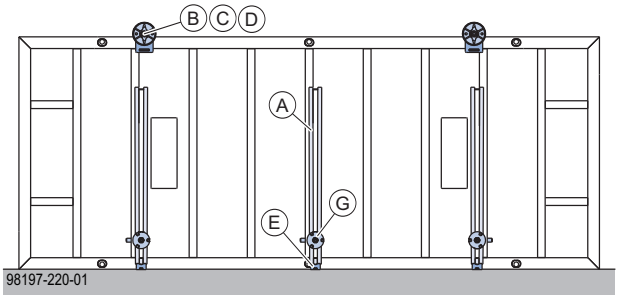
Example: Panel width 0.45 + 0.30m

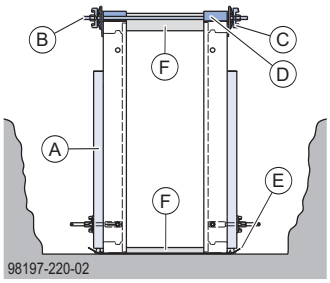


Pour heights of up to 1.20 m

The foundation clamps are secured to the cross profiles of the panels with **ReForma clamps**.

Panel, width 1.20 m, longside horizontal:

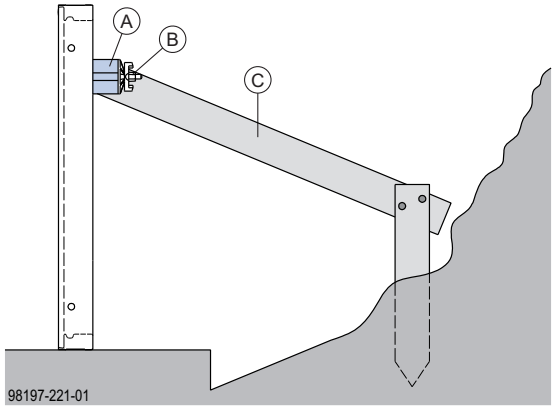




A	Framax foundation clamp
B	Tie rod 15.0mm
C	Super plate 15.0
D	Framax tie-holder bracket
E	Doka perforated tape
F	Wooden spacer
G	ReForma fixing clamp

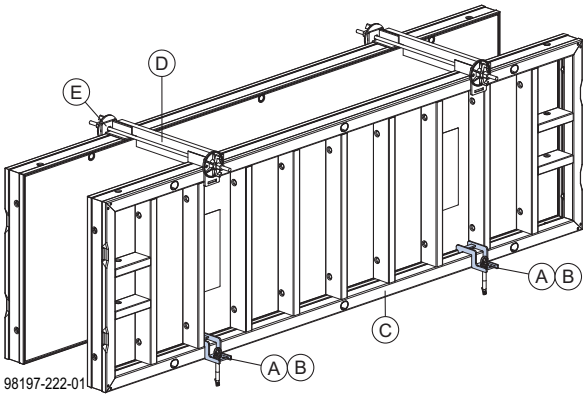
Shoring the panel

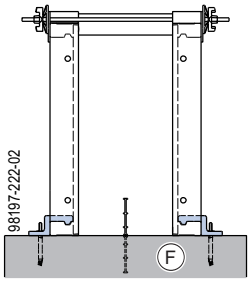
With the aid of a connecting timber and an in-place timber brace, you can brace the panels so that they stand firmly.



A	Connecting timber
B	ReForma fixing bolt + Super plate 15,0 or Framini form-tie nut 15.0
C	Timber brace

Variant with floor fixing plates and express anchors





A	ReForma floor fixing plate
B	Doka express anchor 16x125mm
C	ReFormaX panel
D	Wooden spacer
E	Tie-holder bracket
F	Foundation slab / concrete floor-slab

General

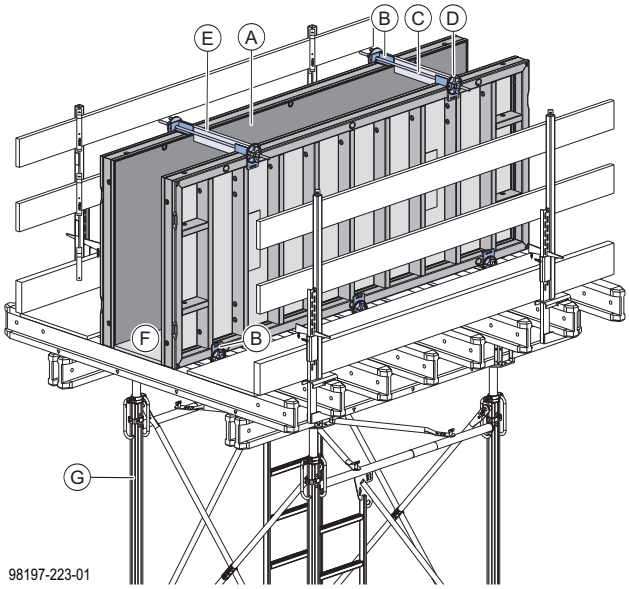
Using as downturned-beam formwork

Number of ties, ReFormaX panel longside horizontal:

Panel length	Downturned beam height	**Top form ties**	**Bottom form ties**
3.00m to 3.30m	up to 0.90 m	2	2
	up to 1.20 m	2	3

Framax tie-holder bracket:
Permitted capacity: 15 kN

Example with 1.20x3.00m panel



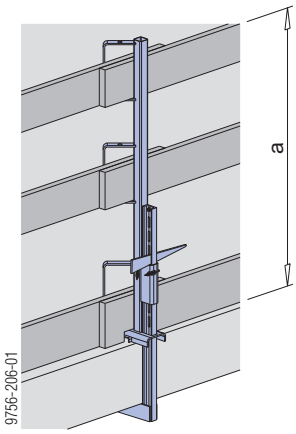
Shown here without ladderways.

A	ReFormaX panel 1.20x3.00m
B	Framax tie-holder bracket
C	Tie rod 15.0mm
D	Super plate 15.0
E	Wooden spacer
F	Formwork sheet
G	Load-bearing tower (e.g. Staxo 100)

Fall-arrest systems on the structure

Handrail clamp S

- Attached with integral clamp
- Guard-rail boards or scaffold tubes can be used as the safety barrier



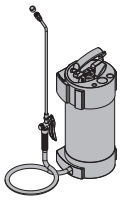
a ... > 1.00 m

Follow the directions in the “Handrail clamp S” User information!

Cleaning and care of your equipment

Release agents

Doka-Trenn or Doka-OptiX is applied using the Doka release-agent sprayer.



Follow the directions in the 'Doka release-agent sprayer' Operating Instructions and on the containers of release agent.

NOTICE

- Before every pour:
  - Apply release agent to the formwork sheet and the end faces **extremely thinly**, **evenly** and **in a continuous layer**.
- Make sure there are no drips of release-agent running down the formwork sheet.
- Applying too much release agent will spoil the concrete finish.

To determine the right dosage and to make sure that you are using the agent correctly, test it on less important parts of the structure first.

Cleaning

NOTICE

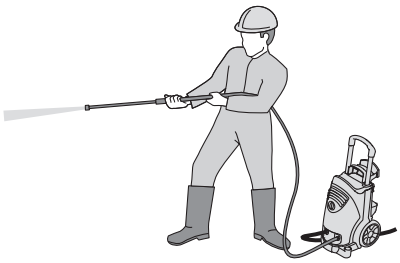
- Immediately after pouring:
  - Remove any blobs of concrete from the back-face of the formwork, using water (without any added sand).
- Immediately after stripping out the formwork
  - Clean the formwork with a high-pressure washer and a concrete scraper.
- Do not use any chemical cleaning agents!

Cleaning high formwork:
Provide a service tower at a suitable cleaning location.

- Wheel-around scaffold DF
  (up to a formwork height of 3.90 m)
- Working scaffold Modul
  (up to a formwork height of 6,70 m)
- Load-bearing tower Staxo 40
  (for formwork of over 6.70 m in height)

Cleaning equipment

High-pressure spray cleaner

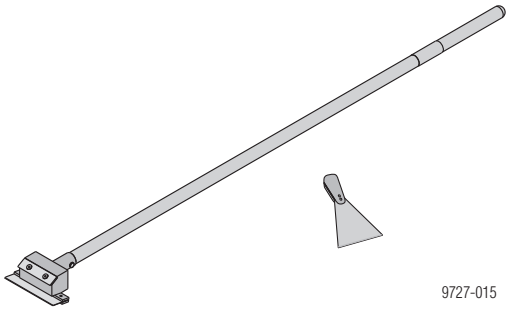


NOTICE

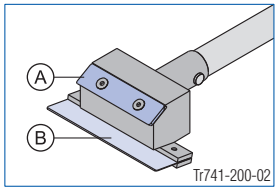
- Appliance pressure rating: 200 to max. 300 bar
- Keep the water-jet the correct distance from the formwork, and move it at the right speed:
  - The higher the pressure, the further away from the formwork you must keep the jet and the faster you must move it across the surface.
- Do not aim the jet at one place for too long.
- Make only moderate use of the jet around the silicone sealing strip:
  - If the pressure is too high, this will damage the silicone sealing strip.
  - Do not aim the jet at one place for too long.

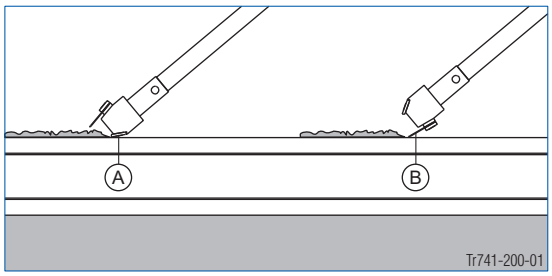
Concrete scraper

For removing any concrete remnants, we recommend using a **Double scraper Xlife** and a spatula.



Functional description:

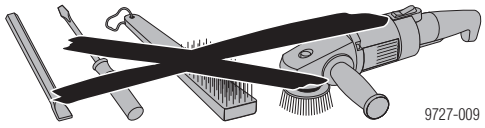




A Blade for dealing with heavy soiling
B Blade for dealing with slight soiling

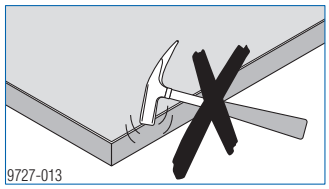
NOTICE

Do not use pointed or sharp objects, wire brushes, abrasive disks or cup brushes.

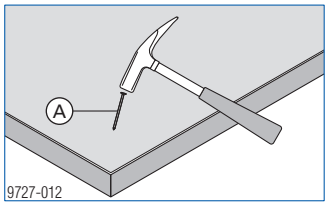


Care

- No hammer-blows to the frame profiles

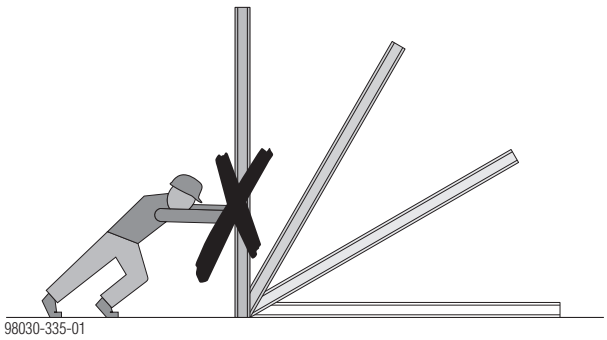


- Do not use nails on the formwork that are longer than 60 mm

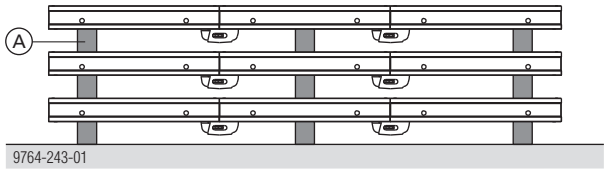


A max. l=60 mm

- Never push over panels or allow them to fall



- Only stack panel gangs on top of one another with timber battens **(A)** between each layer.

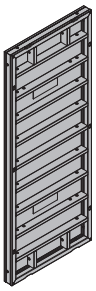


This prevents the formwork sheets from being damaged by the connector components.

	[kg]	Article N°
ReFormaX panel 1.20x3.30m	**172.0**	**587420000**
ReFormaX panel 1.00x3.30m	**152.7**	**587421000**
ReFormaX panel 0.90x3.30m	**142.8**	**587422000**
ReFormaX panel 0.75x3.30m	**130.4**	**587423000**
ReFormaX panel 0.60x3.30m	**114.0**	**587424000**
ReFormaX panel 0.45x3.30m	**97.6**	**587425000**
ReFormaX panel 0.30x3.30m	**79.9**	**587426000**
ReFormaX panel 1.20x3.00m	**158.2**	**587427000**
ReFormaX panel 1.00x3.00m	**140.5**	**587428000**
ReFormaX panel 0.90x3.00m	**131.2**	**587429000**
ReFormaX panel 0.75x3.00m	**119.6**	**587430000**
ReFormaX panel 0.60x3.00m	**106.3**	**587431000**
ReFormaX panel 0.45x3.00m	**89.1**	**587432000**
ReFormaX panel 0.30x3.00m	**74.7**	**587433000**
ReFormaX panel 1.20x1.50m	**88.4**	**587434000**
ReFormaX panel 1.00x1.50m	**78.2**	**587435000**
ReFormaX panel 0.90x1.50m	**72.8**	**587436000**
ReFormaX panel 0.75x1.50m	**66.1**	**587437000**
ReFormaX panel 0.60x1.50m	**56.5**	**587438000**
ReFormaX panel 0.45x1.50m	**46.9**	**587439000**
ReFormaX panel 0.30x1.50m	**37.9**	**587440000**

ReFormaX-Element

Powder-coated grey



ReFormaX universal panel 1.20x3.30m	**207.4**	**587447000**
ReFormaX universal panel 1.20x3.00m	**190.8**	**587448000**
ReFormaX universal panel 1.20x1.50m	**106.6**	**587449000**
ReFormaX universal panel 1.20x0.75m	**61.4**	**587450000**
ReFormaX universal panel 0.90x3.30m	**172.2**	**587451000**
ReFormaX universal panel 0.90x3.00m	**157.6**	**587452000**
ReFormaX universal panel 0.90x1.50m	**86.2**	**587453000**
ReFormaX universal panel 0.90x0.75m	**51.0**	**587454000**

ReFormaX-Uni-Element

Powder-coated grey

ReFormaX inside corner 3.30m	**110.2**	**587455000**
ReFormaX inside corner 3.00m	**100.8**	**587456000**
ReFormaX inside corner 1.50m	**53.0**	**587457000**

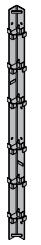
ReFormaX-Innenecke

Powder-coated grey

	[kg]	Article N°
ReFormaX outside corner 3.30m	**58.2**	**587465000**
ReFormaX outside corner 3.00m	**52.2**	**587466000**
ReFormaX outside corner 1.50m	**26.3**	**587467000**

ReFormaX-Außenecke

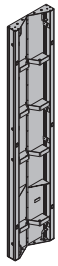
Powder-coated grey



ReFormaX hinged inside corner l 3.30m	**138.5**	**587458000**
ReFormaX hinged inside corner l 3.00m	**127.3**	**587459000**
ReFormaX hinged inside corner l 1.50m	**66.0**	**587460000**

ReFormaX-Scharnierecke l

Powder-coated grey



ReForma hinged outside corner A 3.30m	**73.3**	**587046000**
ReForma hinged outside corner A 3.00m	**66.9**	**587047000**
ReForma hinged outside corner A 1.50m	**34.3**	**587048000**

ReForma-Scharnierecke A

Powder-coated grey

ReFormaX stripping corner l 3.30m	**206.0**	**587461000**
ReFormaX stripping corner l 3.00m	**184.5**	**587462000**
ReFormaX stripping corner l 1.50m	**98.8**	**587463000**

ReFormaX-Ausschalecke l

Powder-coated grey

Framax stripping spindle l	**3.2**	**588618000**

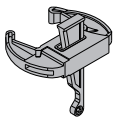
Framax-Ausschalspindel l

Galvanised
Height: 25 cm

ReForma quick acting clamp	**2.5**	**587052000**

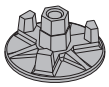
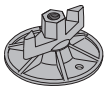
ReForma-Schnellspanner

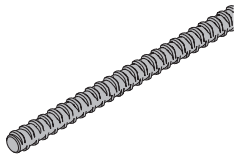
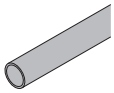
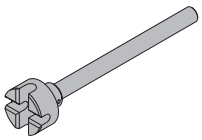
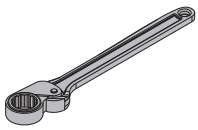
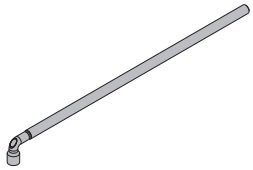
Length: 20 cm

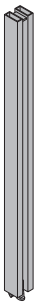
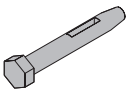


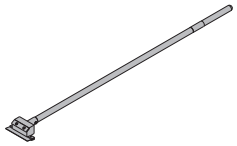
	[kg]	Article N°
ReForma adjustable clamp ReForma-Ausgleichsspanner Length: 51 cm	**4.1**	**587053000**
ReForma fixing bolt ReForma-Klemmbolzen Galvanised Length: 26 cm	**0.70**	**587054000**
ReForma fixing clamp ReForma-Klemme Galvanised Length: 26 cm	**1.2**	**587055000**
ReForma universal waling 1.50m **ReForma universal waling 0.85m** ReForma-Klemmschiene Powder-coated blue	**12.7** **7.3**	**587057000** **587056000**
Framax universal fixing bolt 10-16cm Framax-Universalverbinder 10-16cm Galvanised Length: 26 cm	**0.60**	**588158000**
ReForma stop-end tie ReForma-Stirnanker Galvanised Length: 29 cm	**1.6**	**587060000**
ReForma floor fixing plate ReForma-Bodenhalter Powder-coated blue Length: 19 cm Width: 8 cm	**0.90**	**587061000**
ReForma bracket ReForma-Konsole Powder-coated blue Length: 82 cm Height: 180 cm	**8.3**	**587062000**

	[kg]	Article N°
Handrail clamp S Schutzgeländerzwinge S Galvanised Height: 123 - 171 cm	**11.5**	**580470000**
ReForma panel strut 500 **ReForma panel strut 400** **ReForma panel strut 290** ReForma-Elementstütze Powder-coated blue Delivery condition: folded closed	**67.9** **44.1** **26.7**	**587070000** **587069000** **587068000**
Doka express anchor 16x125mm Doka-Expressanker 16x125mm Galvanised Length: 18 cm Follow the directions in the "Fitting instructions"!	**0.31**	**588631000**
Doka coil 16mm Doka-Coil 16mm Galvanised Diameter: 1.6 cm	**0.009**	**588633000**
ReForma lifting hook ReForma-Umsetzbügel Powder-coated blue Height: 23 cm Follow the directions in the "Operating Instructions"!	**9.9**	**587063000**
Framax stacking cone Framax-Stapelkonus Blue Diameter: 2.3 cm	**0.01**	**588234000**
Framax transport gear Framax-Transportgehänge Galvanised Follow the directions in the "Operating Instructions"!	**13.3**	**588232000**

	[kg]	Article N°
Framax transport bolt Framax-Transportbolzen  Follow the directions in the "Operating Instructions"!	**1.9**	**588621000**
Universal plug R20/25 Kombi-Ankerstopfen R20/25  Blue Diameter: 3 cm	**0.003**	**588180000**
ReForma plug R24.5 ReForma-Abdeckstopfen R24,5  Dark brown Diameter: 2.5 cm	**0.003**	**587058000**
Framini form-tie nut 15.0 Framini-Ankermutter 15,0  Galvanised Height: 5.5 cm Diameter: 11 cm Width-across: 27 mm	**0.92**	**589476000**
Super plate 15.0 Superplatte 15,0  Galvanised Height: 6 cm Diameter: 12 cm Width-across: 27 mm	**1.1**	**581966000**
Hexagon nut 15.0 Sechskantmutter 15,0  Galvanised Length: 5 cm Width-across: 30 mm	**0.23**	**581964000**
Framax pressure plate 6/15 Framax-Druckplatte 6/15  Galvanised	**0.80**	**588183000**
Star grip nut 15.0 G Sternmutter 15,0 G  Galvanised Width: 10 cm Height: 5 cm Width-across: 26 mm	**0.43**	**587544000**

	[kg]	Article N°
Tie rod 15.0mm galvanised 0.50m	**0.72**	**581821000**
Tie rod 15.0mm galvanised 0.75m	**1.1**	**581822000**
Tie rod 15.0mm galvanised 1.00m	**1.4**	**581823000**
Tie rod 15.0mm galvanised 1.25m	**1.8**	**581826000**
Tie rod 15.0mm galvanised 1.50m	**2.2**	**581827000**
Tie rod 15.0mm galvanised 1.75m	**2.5**	**581828000**
Tie rod 15.0mm galvanised 2.00m	**2.9**	**581829000**
Tie rod 15.0mm galvanised 2.50m	**3.6**	**581852000**
Tie rod 15.0mm galvanised .....m	**1.4**	**581824000**
Tie rod 15.0mm non-treated 0.50m	**0.73**	**581870000**
Tie rod 15.0mm non-treated 0.75m	**1.1**	**581871000**
Tie rod 15.0mm non-treated 1.00m	**1.4**	**581874000**
Tie rod 15.0mm non-treated 1.25m	**1.8**	**581886000**
Tie rod 15.0mm non-treated 1.50m	**2.1**	**581876000**
Tie rod 15.0mm non-treated 1.75m	**2.5**	**581887000**
Tie rod 15.0mm non-treated 2.00m	**2.9**	**581875000**
Tie rod 15.0mm non-treated 2.50m	**3.6**	**581877000**
Tie rod 15.0mm non-treated 3.00m	**4.3**	**581878000**
Tie rod 15.0mm non-treated 3.50m	**5.0**	**581888000**
Tie rod 15.0mm non-treated 4.00m	**5.7**	**581879000**
Tie rod 15.0mm non-treated 5.00m	**7.2**	**581880000**
Tie rod 15.0mm non-treated 6.00m	**8.6**	**581881000**
Tie rod 15.0mm non-treated 7.50m	**10.7**	**581882000**
Tie rod 15.0mm non-treated .....m Ankerstab 15,0mm 	**1.4**	**581873000**
Plastic tube 22mm 2.50m Kunststoffrohr 22mm 2,50m  PVC Grey Diameter: 2.6 cm	**0.45**	**581951000**
Plug 22mm Verschlussstopfen 22mm  PE Grey	**0.003**	**581953000**
Universal cone 22mm Universal-Konus 22mm  Grey Diameter: 4 cm	**0.005**	**581995000**
Tie-rod wrench 15.0/20.0 Ankerstabschlüssel 15,0/20,0  Galvanised	**1.8**	**580594000**
Friction type ratchet SW27 Freilaufknarre SW27  Manganese-phosphated Length: 30 cm	**0.49**	**581855000**
Box spanner 27 0.65m Steckschlüssel 27 0,65m  Galvanised	**1.9**	**581854000**

	[kg]	Article N°
Framax tie-holder bracket Framax-Ankerhaltewinkel  Painted blue Width: 9 cm Height: 13 cm	**1.4**	**588188000**
Framax foundation clamp 0.90m Framax-Fundamentspanner 0,90m  Galvanised	**4.9**	**588141000**
Doka perforated tape 50x2.0mm 25m Doka-Lochband 50x2,0mm 25m 	**17.0**	**588206000**
Connecting timber Anklemmholz  Varnished yellow Width: 10 cm	**0.70**	**176030000**
Framax wedge bolt RA 7.5 Framax-Keilbolzen RA 7,5  Galvanised Length: 15 cm	**0.34**	**588159000**
Framax tensioning wedge R Framax-Spannkeil R  Galvanised Height: 11 cm	**0.20**	**588155000**
Doka 4-part chain 3.20m Doka-Vierstrangkette 3,20m  Follow the directions in the "Operating Instructions"! CE	**15.0**	**588620000**
Framax telescopic assembling tool Framax-Teleskop-Montagestange  Aluminium Length: 230 - 400 cm	**4.5**	**588651000**

	[kg]	Article N°
Framax assembling tool Framax-Montagestange  Galvanised Length: 193 cm	**4.2**	**588678000**
Double scraper Xlife 100/150mm 1.40m Doppelschaber Xlife 100/150mm 1,40m 	**2.8**	**588674000**

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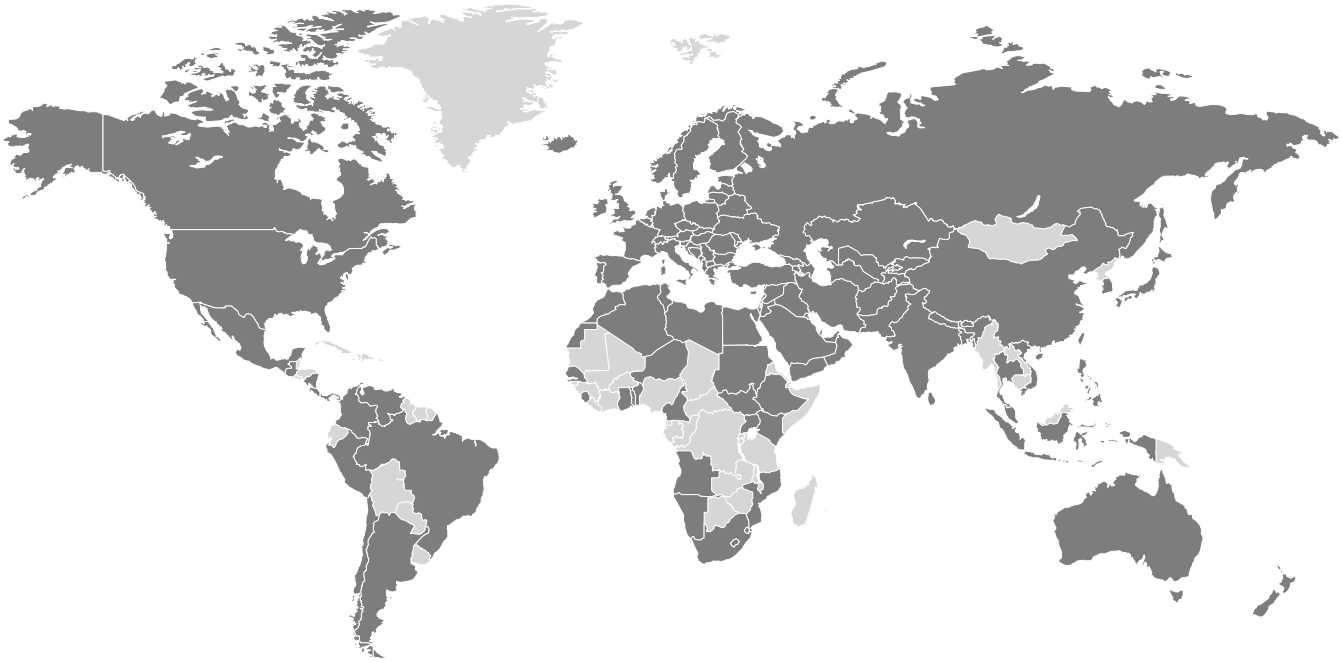

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