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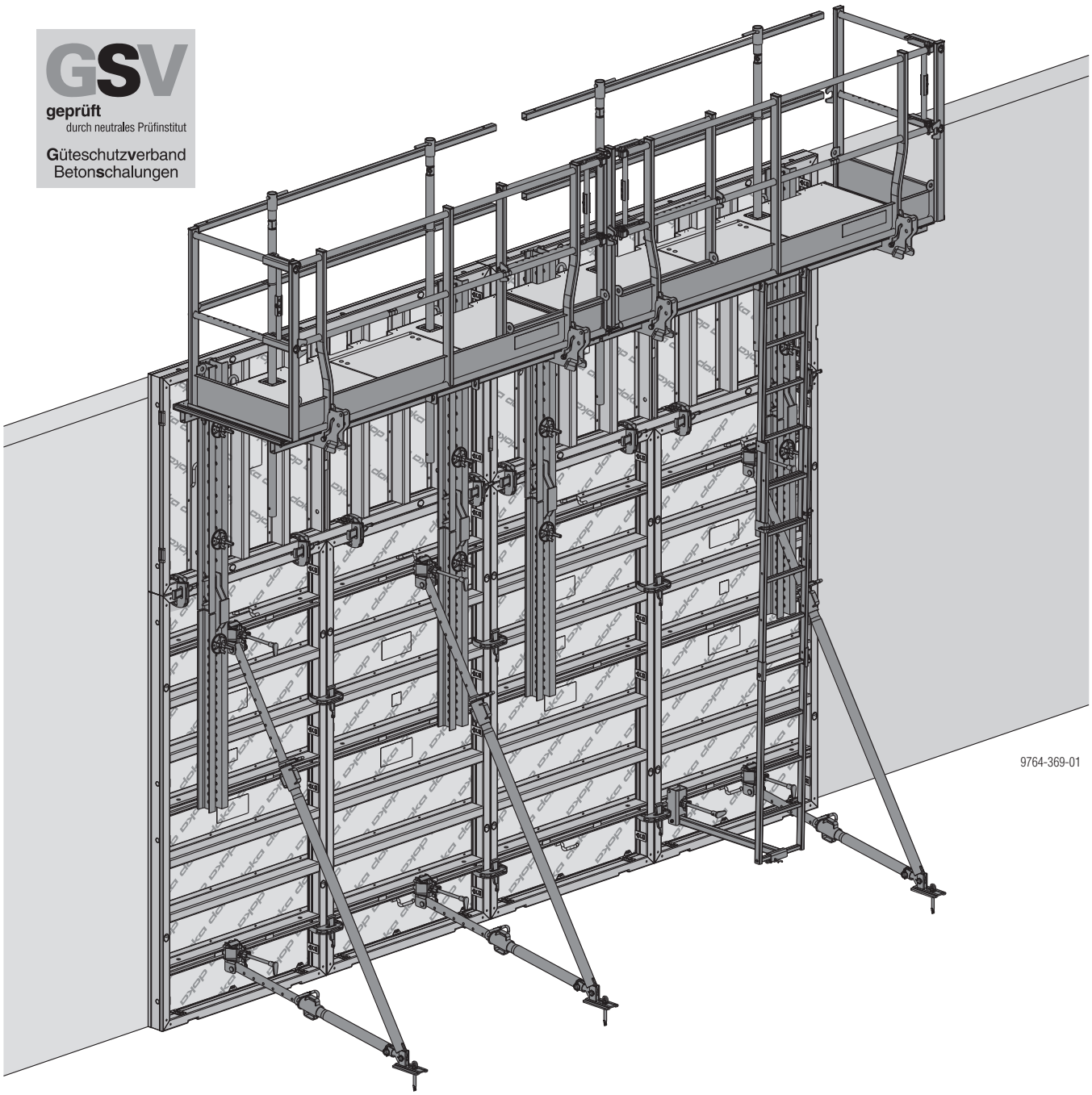
Method statement

Framed formwork Framax Xlife

GSV
geprüft
durch neutrales Prüfinstitut
Güteschutzverband Betonschalungen



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doka
The Formwork Experts

Contents

Elementary safety warnings

User target groups

- This User Information booklet (Method Statement) is aimed at everyone who will be working with the Doka product or system 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 manual 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 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 OH&S (occupational health and safety) rules 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 document 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 document

- This User Information booklet can also be used as a generic method statement or incorporated with a site-specific method statement.
- **Many of the illustrations in this booklet show the situation during formwork assembly and are therefore not always complete from the safety point of view.**
- **Further safety instructions, especially warnings, will be found in the individual sections of this document!**

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.**

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 under the direction and supervision of suitably skilled persons with the authority to issue instructions.
  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 of all components and units must be ensured during all phases of the construction work!
- The functional/technical instructions, safety warnings and loading data must all be strictly observed and complied with. Failure to do so can cause accidents and severe (even life-threatening) damage to health, as well as very great material damage.
- Fire-sources are not permitted anywhere near the formwork. Heating appliances are only allowed if properly and expertly used, and set up a safe distance away from the formwork.
- The work must take account of the weather conditions (e.g. risk of slippage). In extreme weather, steps must be taken in good time to safeguard the equipment, and the immediate vicinity of the equipment, and to protect employees.
- All connections must be checked regularly to ensure that they still fit properly and are functioning correctly.
  It is very important to check all screw-type connections and wedge-clamped joins whenever the construction operations require (particularly after exceptional events such as storms), and to tighten them if necessary.

Assembly

- The equipment/system must be inspected by the customer before use, to ensure that it is in suitable condition. Steps must be taken to rule out the use of any components that are damaged, deformed, or weakened due to wear, corrosion or rot.
- Combining our formwork systems with those of other manufacturers could be dangerous, risking damage to both health and property. If you intend to combine different systems, please contact Doka for advice first.
- The assembly work must be carried out by suitably qualified employees of the client's.
- It is not permitted to modify Doka products; any such modifications constitute a safety risk.

Erecting the formwork

- Doka products and systems must be set up in such a way that all loads acting upon them are safely transferred!

Pouring

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

Striking the formwork

- Do not strike the formwork until the concrete has reached sufficient strength and the person in charge has given the order for the formwork to be struck!
- When striking 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 striking 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 regulations applying to the handling of formwork and scaffolding. In addition, the Doka slinging means must be used - this is a mandatory requirement.
- Remove any loose parts or fix them in place so that they cannot be dislodged or fall free!
- All components must be stored safely, following all the special Doka instructions given in the relevant sections of this User Information booklet!

Regulations; industrial safety

- Always observe all industrial safety regulations and other safety rules applying to the application and utilisation of our products in the country and/or region in which you are operating.

Instruction as required by EN 13374:

- If a person or object falls against, or into, the side-guard system and/or any of its accessories, the side-guard component affected may only continue in use after it has been inspected and passed by an expert.

Maintenance

- Only original Doka components may be used as spare parts.

Symbols used

The following symbols are used in this booklet:

Important note
Failure to observe this may lead to malfunction or damage.

CAUTION / WARNING / DANGER
Failure to observe this may lead to material damage, and to injury to health which may range up to the severe or even life-threatening.

Instruction
This symbol indicates that actions need to be taken 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
Refers to other documents and materials.

Miscellaneous

We reserve the right to make alterations in the interests of technical progress.

Eurocodes at Doka

In Europe, a uniform series of Standards known as **Eurocodes** (EC) was developed for the construction field by the end of 2007. These are intended to provide a uniform basis, valid throughout Europe, for product specifications, tenders and mathematical verification.

The EC are the world's most highly developed Standards in the construction field.

In the Doka Group, the EC are to be used as standard from the end of 2008. They will thus supersede the DIN norms as the "Doka standard" for product design.

The widely used "Permissible stress design" (comparing the actual stresses with the permissible stresses) has been superseded by a new safety concept in the EC.

The EC contrast the actions (loads) with the resistance (capacity). The previous safety factor in the permissible stresses is now divided into several partial factors. The safety level remains the same!

$$E_d \leq R_d$$

E_d **Design value of effect of actions**
(E ... effect; d ... design)
Internal forces from action F_d
(V_{Ed}, N_{Ed}, M_{Ed})

F_d **Design value of an action**
$F_d = \gamma_F \cdot F_k$
(F ... force)

F_k **Characteristic value of an action**
"actual load", service load
(k ... characteristic)
e.g. dead weight, live load, concrete pressure, wind

γ_F **Partial factor for actions**
(in terms of load; F ... force)
e.g. for dead weight, live load, concrete pressure, wind
Values from EN 12812

R_d **Design value of the resistance**
(R ... resistance; d ... design)
Design capacity of cross-section
(V_{Rd}, N_{Rd}, M_{Rd})

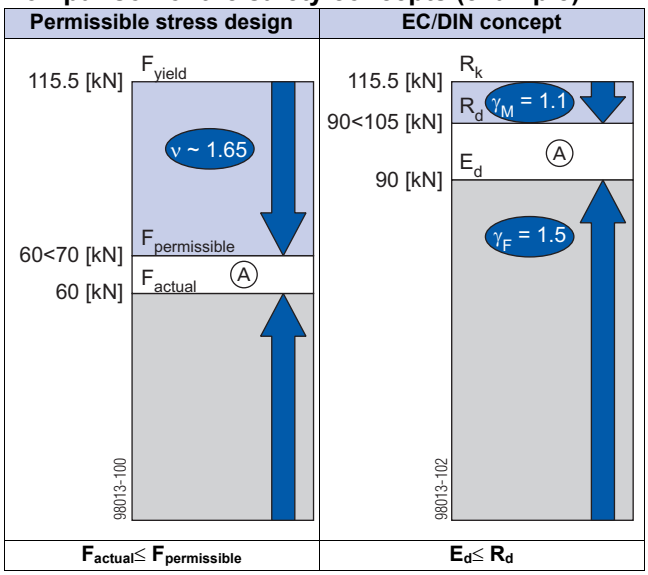
Steel: $R_d = \frac{R_k}{\gamma_M}$ Timber: $R_d = k_{mod} \cdot \frac{R_k}{\gamma_M}$

R_k **Characteristic value of the resistance**
e.g. moment resistance to yield stress

γ_M **Partial factor for a material property**
(in terms of material; M...material)
e.g. for steel or timber
Values from EN 12812

k_{mod} **Modification factor** (only for timber – to take account of the moisture and the duration of load action)
e.g. for Doka beam H20
Values as given in EN 1995-1-1 and EN 13377

Comparison of the safety concepts (example)



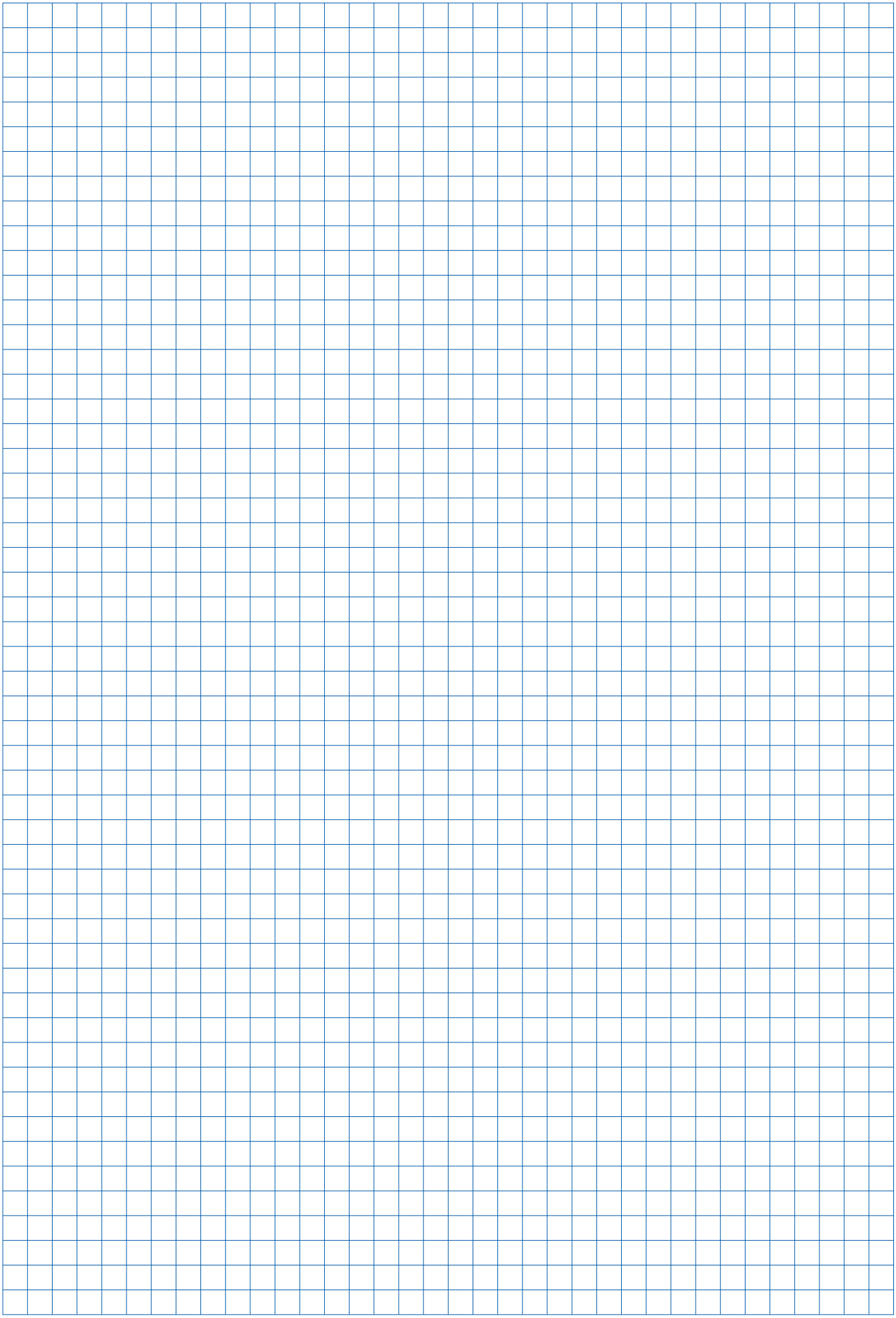
A Load factor

The "permissible values" communicated in Doka documents (e.g.: $Q_{permissible}$ = 70 kN) do not correspond to the design values (e.g.: V_{Rd} = 105 kN)!

- Avoid any confusion between the two!
- Our 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

In this way, all the design values needed in an EC design calculation can be ascertained from the permissible values.



Doka framed formwork Framax Xlife

For crane-assisted gang-forming of large areas

Framax Xlife is the framed formwork system that uses only a very few different panel formats to achieve a consistent 15 cm increment-grid, no matter whether the panels are stood upright or on their sides.

All the connectors and accessories fit seamlessly into this grid – making for fast forming-times and high efficiency.

Reduced close-out costs

thanks to superior product quality

Highly economical, thanks to

- its plastic-coated Xlife sheet
- its rugged hot-dip galvanised and powder-coated steel frames
- the fact that the Xlife sheet is so easy to clean and recondition

Faster working

due to the low form-tie count

Wide spacing (up to 1.35 m) between form-ties means

- shorter forming-times
- lower labour costs

Easy handling and planning

thanks to logical system-grid

The 15 cm grid, with only 5 different widths of panel, results in

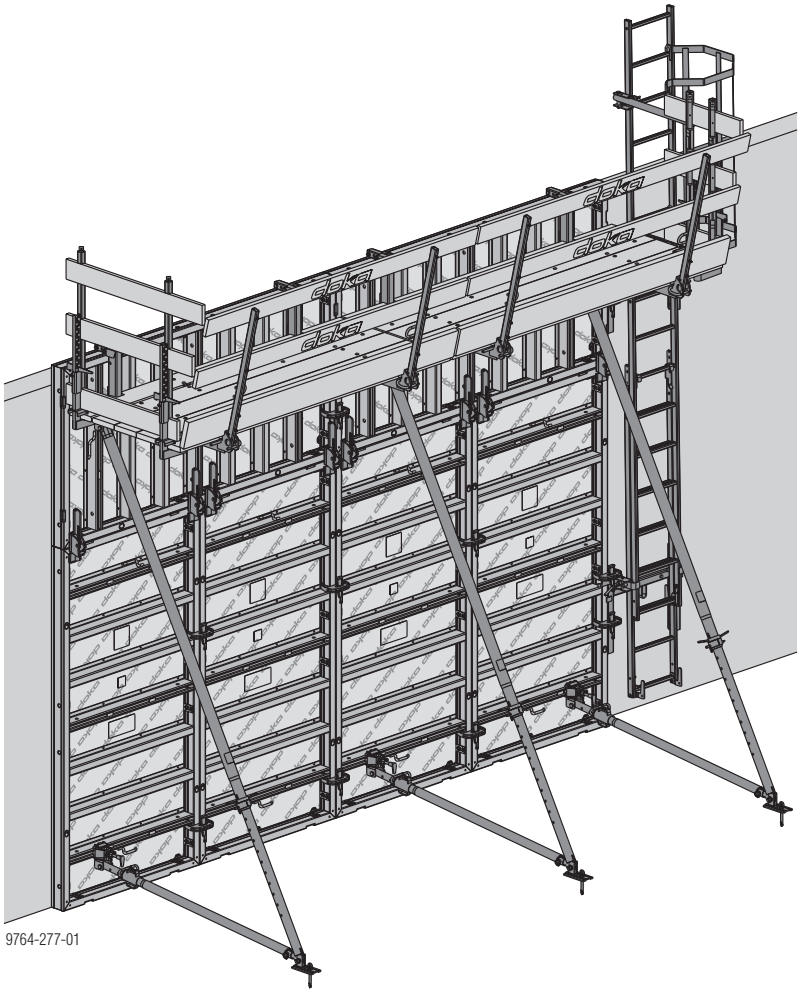
- optimum adaptability to every layout
- compact gang-forms for short crane times
- easy planning and logistics
- a neat joint pattern

High safety

at your site

The accident risk is reduced, and legally compliant working conditions are ensured, by

- the safe ladderways of the Ladder system XS
- combining the formwork with the Platform system Xsafe



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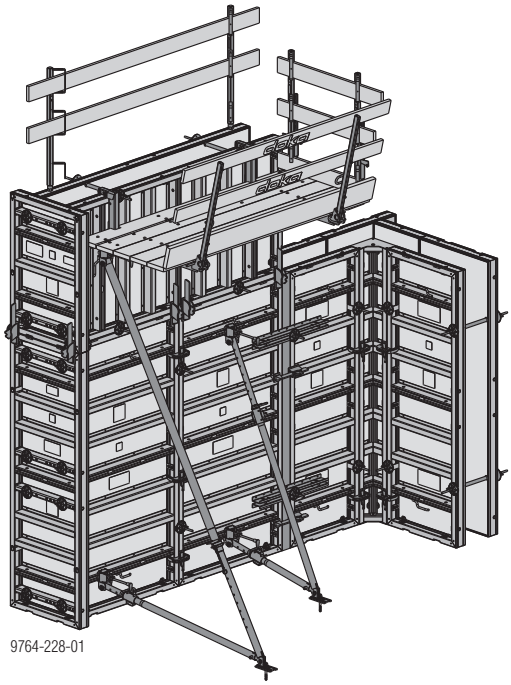
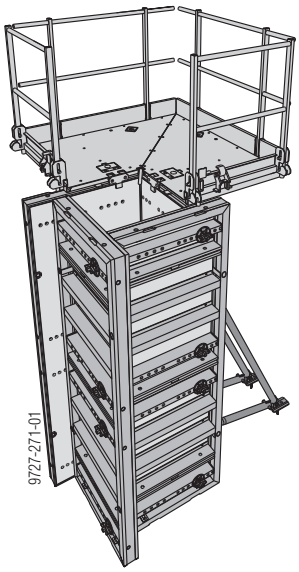
Areas of use

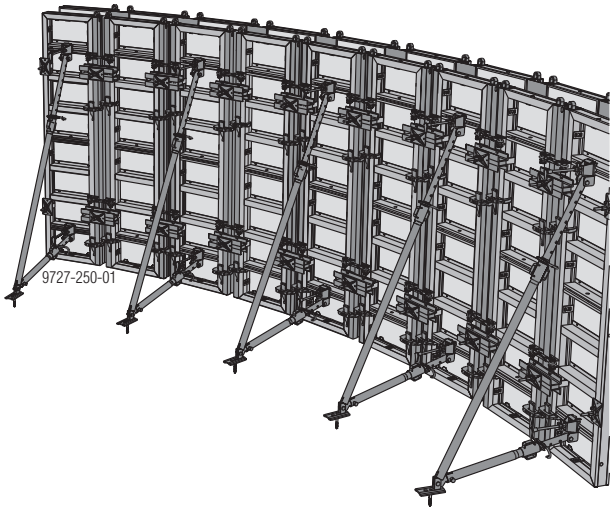
Wall formwork



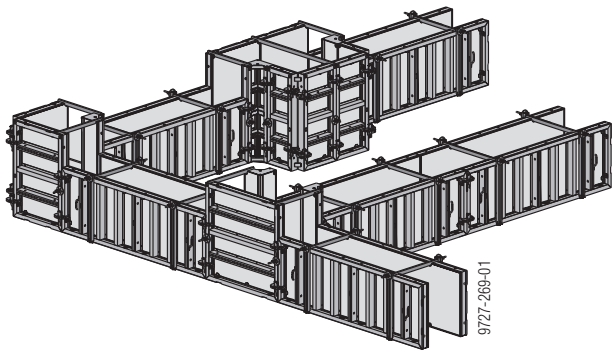
Column formwork



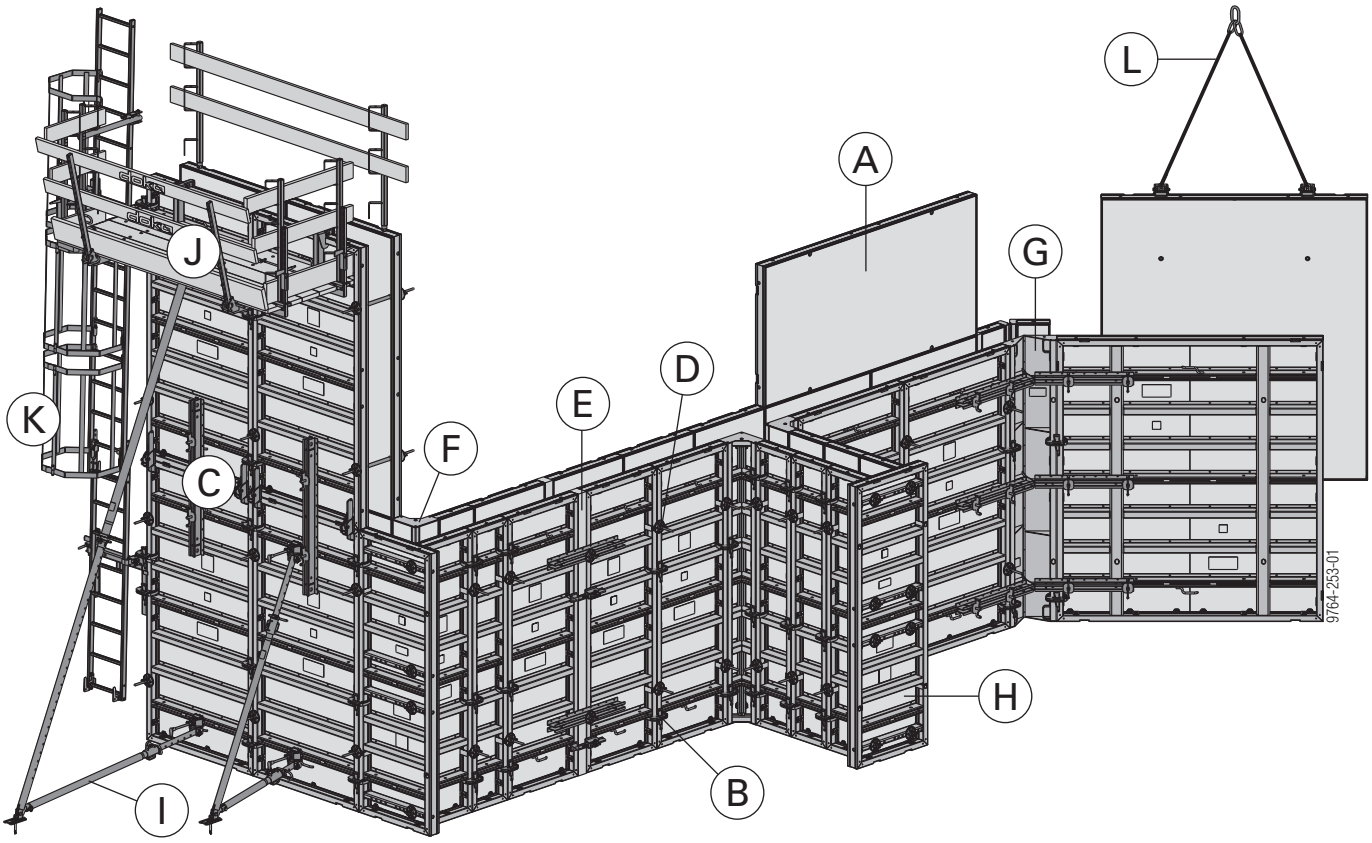
Circular formwork



Foundation formwork



Wall formwork with Framax Xlife



Permitted pressure of the fresh concrete: 80 kN/m²
(see the sections headed "Framax Xlife panel in detail" and "Form-tie system")

Instructions for assembly and use for room-high formwork

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

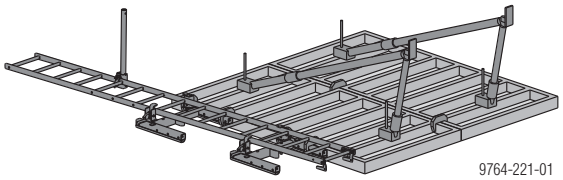
Ladders must be located so as to create viable "traffic routes" in the horizontal. (On a straight wall, for example, one ladder on the first element and another on the last).

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 5kN and the Doka 4-part chain 3.20m (see "Transporting, stacking and storing").

Pre-assembly

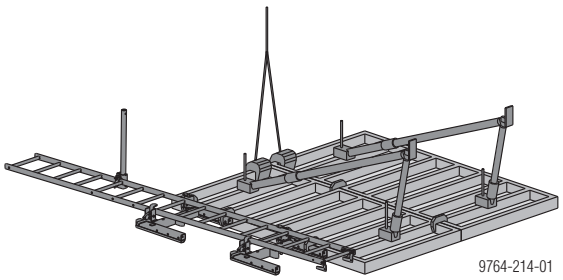
- ➤ Pre-assemble elements face-down on an assembly bench (see "Inter-element connections").
- ➤ With the gang-form still flat, mount panel struts to it (see "Plumbing accessories").
- ➤ Mount the Ladder system XS (see "Ladder system").



Erecting the formwork

- ➤ Attach the crane suspension tackle to the Framax lifting hook (see the section headed "Lifting by crane" and the Operating Instructions for the "Framax lifting hook").

Max. load:
1000 kg per Framax lifting hook



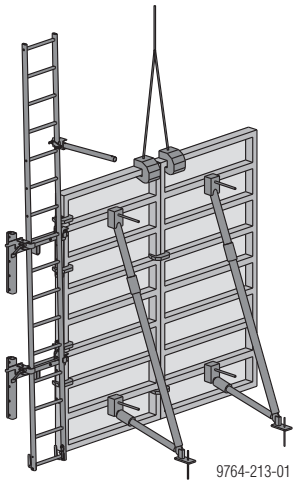
- ➤ Pick up the gang-form by crane.
- ➤ Spray the ply with release agent (see "Cleaning and care").
- ➤ Fly the gang-form to its new location.

CAUTION
Never use a sledge hammer to plumb the panels!

This would damage the profiles of the panels.

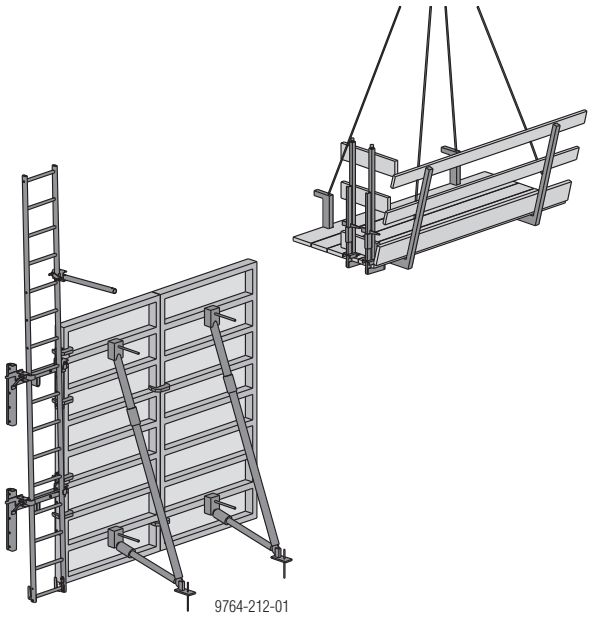
- ➤ Use only proper plumbing tools (e.g. a special pry-bar) that cannot cause any damage!

- ➤ Fix the panel struts firmly to the ground (see "Plumbing accessories").



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

- ➤ Detach the gang-form from the crane. The crew can reach the slinging points by standing on a step stool.
- ➤ Slot the pouring platform into place (see "Pouring platforms").



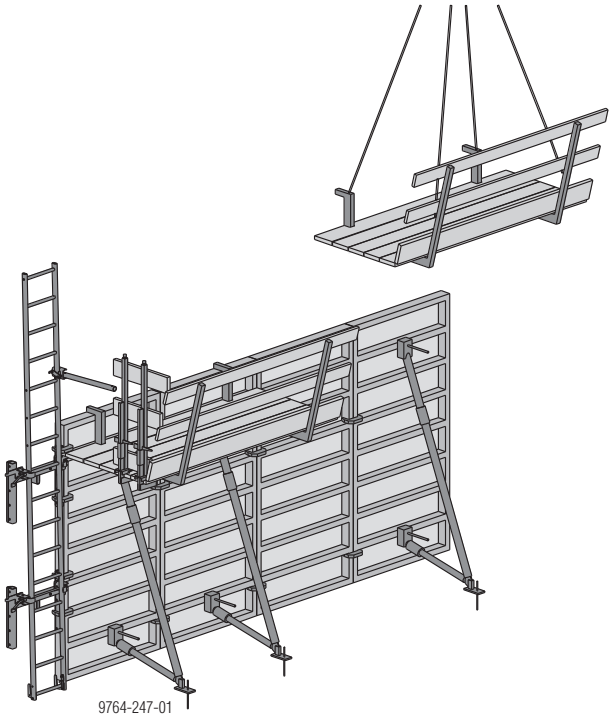
WARNING
There is not yet an opposing guard-rail on the formwork!

Danger to life from fatal falls!

➤ Either use personal protective equipment to protect against falls
or
mount an opposing guard-rail to the element while this is still being pre-assembled in a flat position.

➤ Detach the pouring platform from the crane.

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



➤ Fit end-of-platform sideguards (see "Pouring platforms").

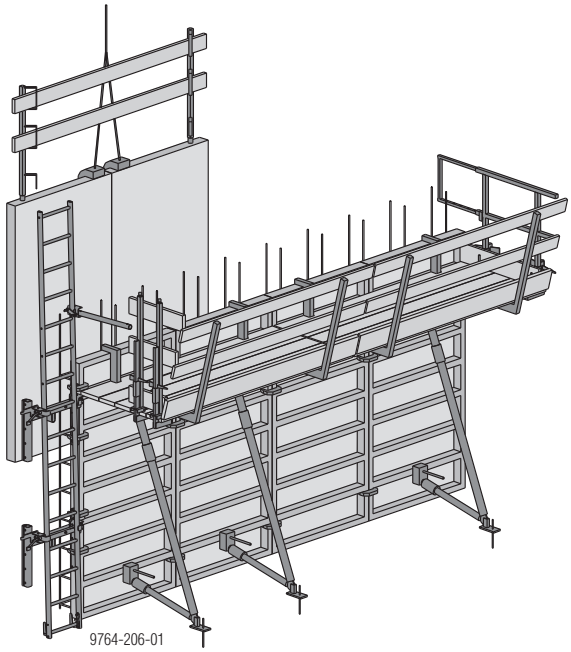
Erecting the opposing formwork:

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 "Pouring platforms").

➤ Spray the ply with release agent (see "Cleaning and care").

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



➤ Fit the form-ties (see "Tie-rod system").

Before disconnecting from the crane:

➤ If there are no panel struts on the opposing formwork, do not disconnect the element 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 "Inter-panel connections").

Pouring

Permitted pressure of the fresh concrete: 80 kN/m²
(see the sections headed "Framax Xlife panel in detail" and "Form-tie system")

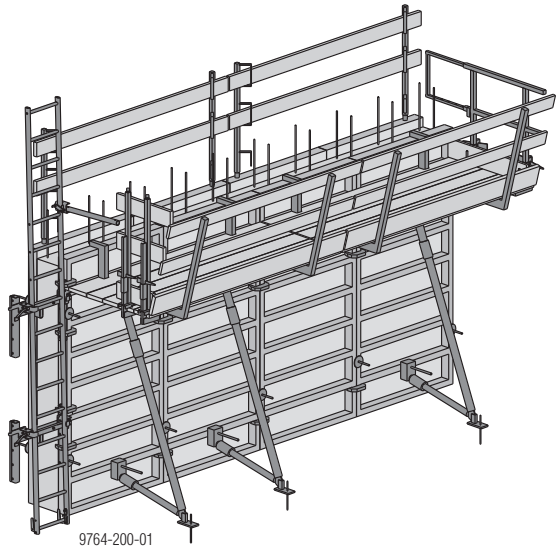
Observe the following **guidelines**:

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

➤ Do not exceed the maximum permissible rate of placing.

➤ Pour the concrete.

➤ Make only moderate use of vibrators, carefully co-ordinating the times and locations of vibrator use.



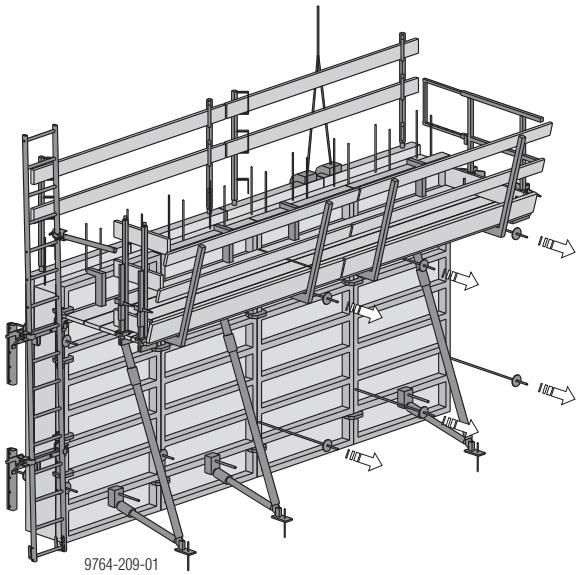
Striking

➤ Observe the stipulated striking 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.



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

Warning!
However, there must be at least as many form-ties left in place as are needed to keep the element 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!

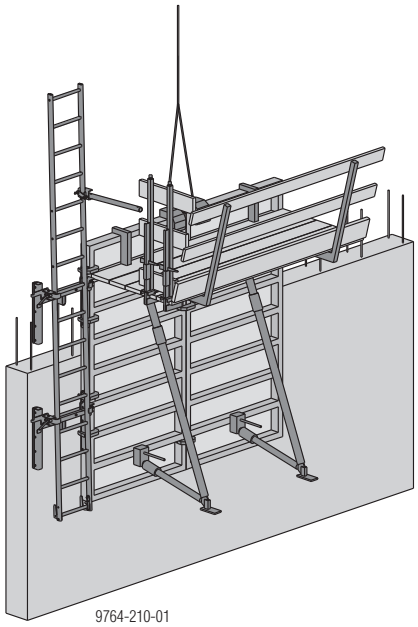
Risk of crane overload.

➤ 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" in the upright prior to its next use, it must have sufficient stability (see "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 "Cleaning and care").

➤ 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.



Instructions for assembly and use for high formwork

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

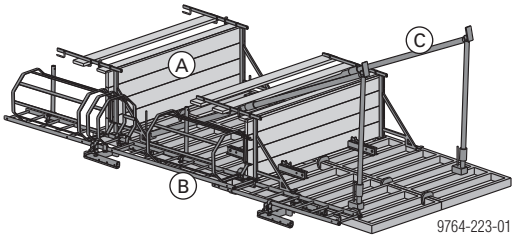
Ladders must be located so as to create viable "traffic routes" in the horizontal. (On a straight wall, for example, one ladder on the first element and another on the last).

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 5kN and the Doka 4-part chain 3.20m (see "Transporting, stacking and storing").

Pre-assembly

- ➤ Pre-assemble elements face-down on an assembly bench (see "Inter-element connections").
- ➤ Only mount the platforms, ladder system and panel struts to the gang-form when this is in the flat position (see "Pouring platforms", "Ladder system" and "Plumbing accessories").



A Platform
B Ladder system
C Panel strut

Erecting the formwork

- ➤ Attach the crane suspension tackle to the Framax lifting hook (see the section headed "Lifting by crane" and the Operating Instructions for the "Framax lifting hook").

Max. load:
1000 kg per Framax lifting hook

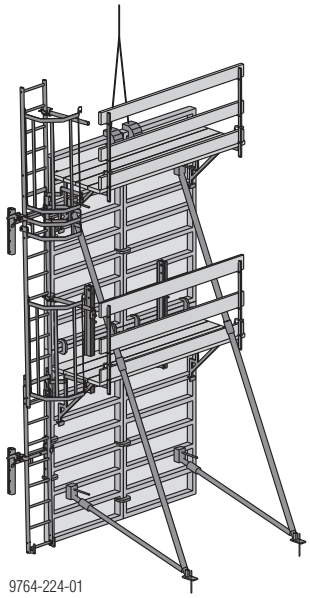
- ➤ Pick up the gang-form by crane.
- ➤ Spray the ply with release agent (see "Cleaning and care").
- ➤ Fly the gang-form to its new location.

CAUTION
Never use a sledge hammer to plumb the panels!

This would damage the profiles of the panels.

- ➤ 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 "Plumbing accessories").



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
  or
  mount an opposing guard-rail to the element while this is still being pre-assembled in a flat position.

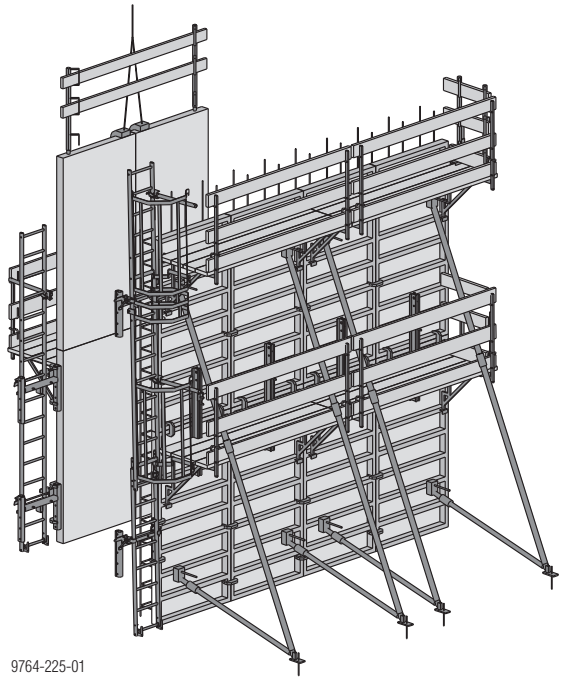
- ➤ Detach the gang-form from the crane.
- ➤ Continue lining up further gang-forms in this way, and link them together (see "Inter-panel connections").

Erecting the opposing formwork:

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

➤ Spray the ply with release agent (see "Cleaning and care").

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



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➤ Working from the ground, insert the bottom two rows of form-ties (see "Form-tie system").

WARNING
There is not yet an opposing guard-rail on the formwork!
Danger to life from fatal falls!
➤ Use personal fall arrest systems (PFAS) to protect against falls.

Before disconnecting from the crane:
➤ If there are no panel struts on the opposing formwork, do not disconnect the element 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.

➤ Insert the remaining form-ties. These form-tie locations can be reached from the platforms.

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

Pouring

Permitted pressure of the fresh concrete: 80 kN/m²
(see the sections headed "Framax Xlife panel in detail" and "Form-tie system")

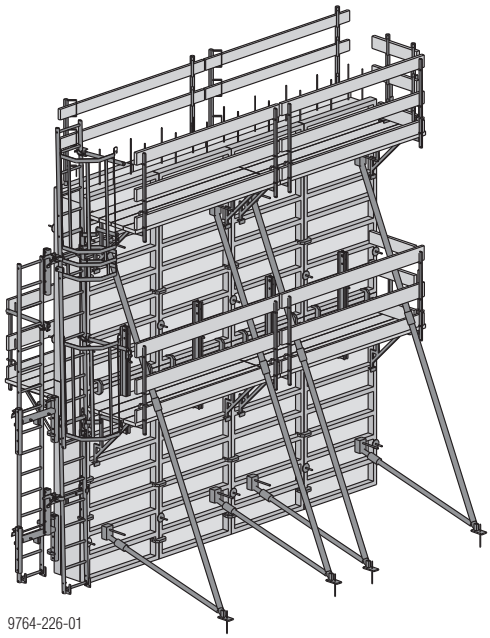
Observe the following **guidelines**:

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

➤ 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.



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Striking

➤ Observe the stipulated striking times.

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

Begin work on striking the formwork on the opposing formwork:

➤ Undo the connectors to the adjacent elements.

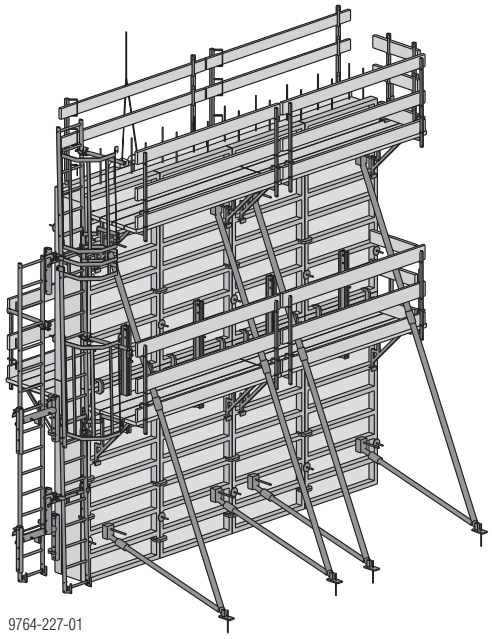
WARNING

➤ There must be at least as many form-ties left in place as are needed to keep the element safely in the upright.

➤ Take out the form-ties from the two top rows of ties. These form-tie locations can be reached from the platforms.

➤ Attach the gang-form (incl. platforms) to the crane.

➤ Working from the ground, take out the bottom two rows of form-ties.



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, or place it flat on its back for intermediate storage.

➤ Clean residual concrete off the formwork sheet (see "Cleaning and care").

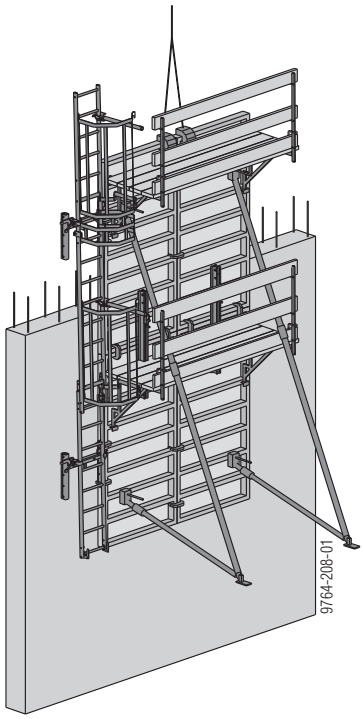
WARNING

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

Danger to life from fatal falls!

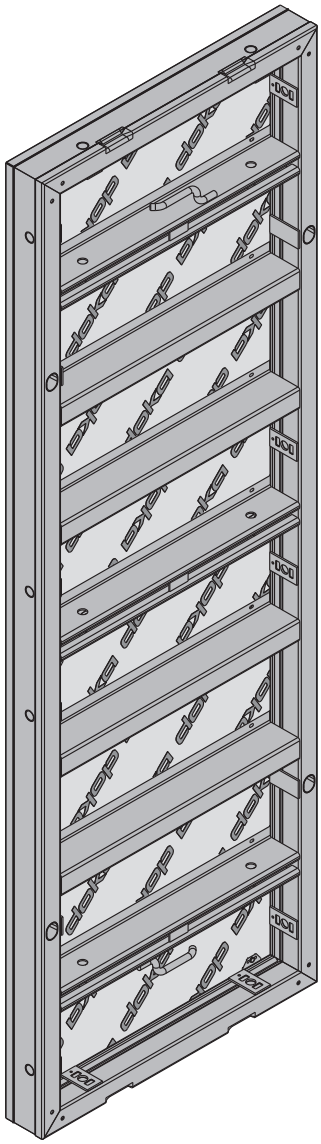
➤ Use personal fall arrest systems (PFAS) to protect against falls.

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



Framax Xlife panel in detail

High load-bearing capacity



GSV
geprüft
durch neutrales Prüfinstitut
Güteschutzverband
Betonschalungen

For more information, see GSV test report.

60 kN/m² pressure of fresh concrete acting on whole area, to DIN 18218, where the surface planeness tolerances to DIN 18202 Table 3 Line 7 are observed.

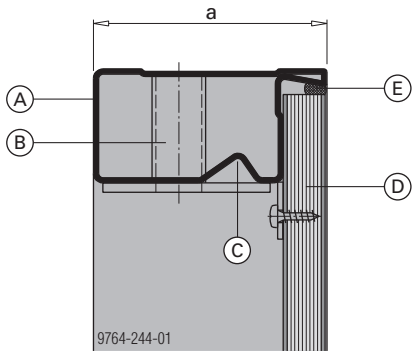
80 kN/m² pressure of fresh concrete acting on whole area, to DIN 18218, where the surface planeness tolerances to DIN 18202 Table 3 Line 6 are observed.
(Form-tie system 20.0 must be used)

Clean concrete surfaces with the innovative Xlife sheet

The Xlife sheet consists of a **combination of a traditional plywood core and a novel and innovative plastic coating**.
This combination of materials ensures high numbers of repeat uses, with superb concrete results every time, and reduces the proneness to damage.

- High quality concrete finish
- Less touching-up needed
- Less cleaning work - the Xlife sheet can also be cleaned using a high-pressure spray cleaner
- No breaking away of plywood chips, and less water is absorbed through nail-holes
- Because the Xlife sheet is screwed on from the rear, this leaves no screw imprints on the concrete

Dimensionally stable, galvanised and powder-coated steel frame



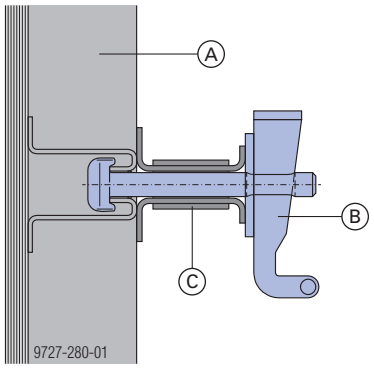
a ... 123 mm

A	Frame profile
B	Cross borehole
C	Continuous hardware slot for inter-panel connectors
D	Xlife sheet
E	Silicone sealing strip

- Dimensionally stable frame profiles
- Strong cross-profiles
- Powder coated, so easy to clean
- Edges are easy to clean - so panels always abut tightly
- All-round hardware slot for fastening the inter-panel connectors at any point required
- Hot-dip galvanised for long life
- Edges of formwork sheet are protected by frame profile
- Cross boreholes for corner configurations and stop-ends

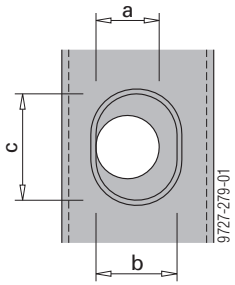
WARNING
➤ It is forbidden to climb on the cross-profiles. The cross-profiles are NOT a substitute for a ladder.

Accessories are easy to fasten, in the integrated waling system



A Framax Xlife panel
B Framax wedge clamp
C Framax universal waling

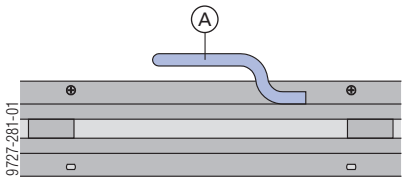
Form-tie sleeves



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

- Tie-rods are very easy to insert through the large, conical form-tie sleeves
- Tie rods 20.0mm can also be used here
- Only 2 form-ties are needed for every 2.70 m of panel height

Handles



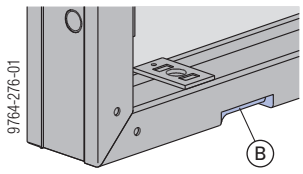
A Integral handle

WARNING
Do not use these handles as slinging points for crane-handling!

Danger of formwork dropping from crane!

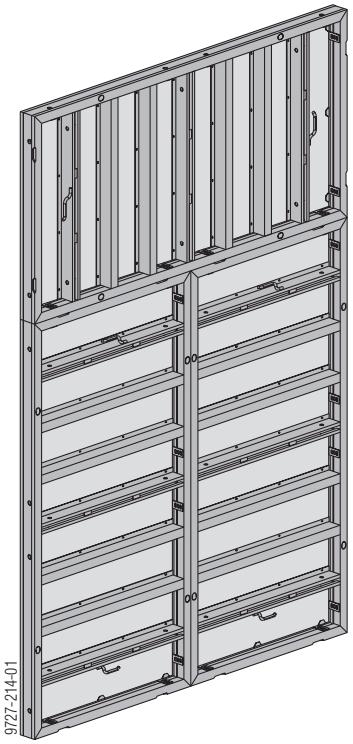
➤ Use only suitable load-carrying equipment and slinging points. See "Resetting by crane" and "Transporting, stacking and storing".

Setting recess



- Handy setting recess **(B)** (insertion point for a pry bar)

System grid



Framax Xlife panels

Logical panel size-grid in 15 cm increments. The heights and widths of the Framax Xlife panels together result in a logical, advantageous increment-grid that makes this formwork highly flexible and economical.

- Easy planning and forming
- Height and width can be adjusted in 15 cm increments
- Very few closures needed
- Clear joint pattern

Only 2 form-ties needed in the vertical. On the 3.30 m high panels, only 2 form-ties are needed for pour heights of up to 3.15 m.

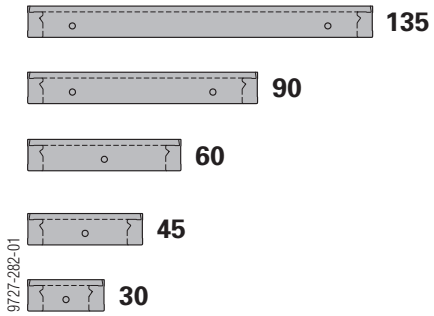
Wide spacing between form-ties in the horizontal: up to 1.35 m

Only

- 5 widths of panel,
- 3 heights of panel and
- 2 extra-large panels

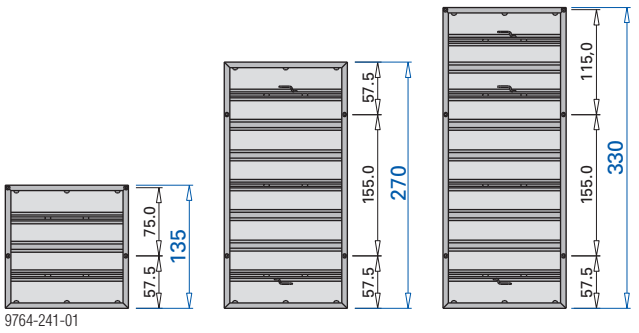
are all you need to form any layout.

Panel widths



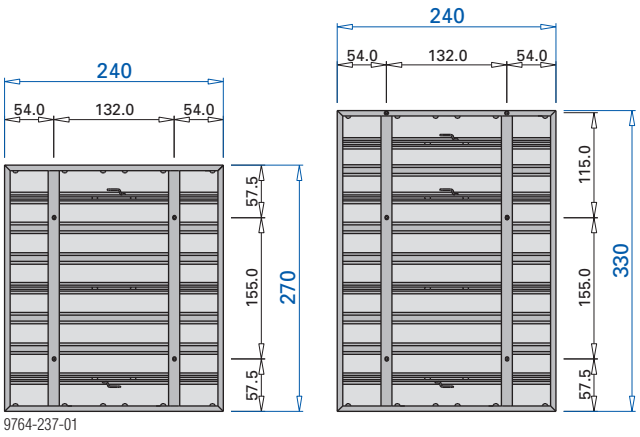
In Austria, a 55 cm wide panel is also available (for corners without make-up, on 25 cm thick walls).

Panel heights



Dimensions in cm

Extra-large panels

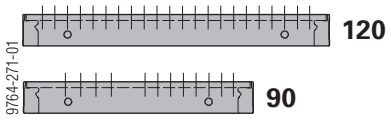


Dimensions in cm

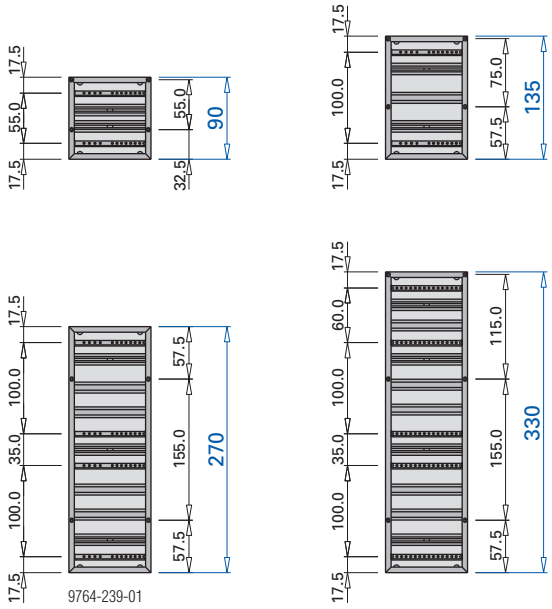
For some typical practical examples, see "Vertical extensions".

Framax Xlife universal panels

Panel widths



Panel heights

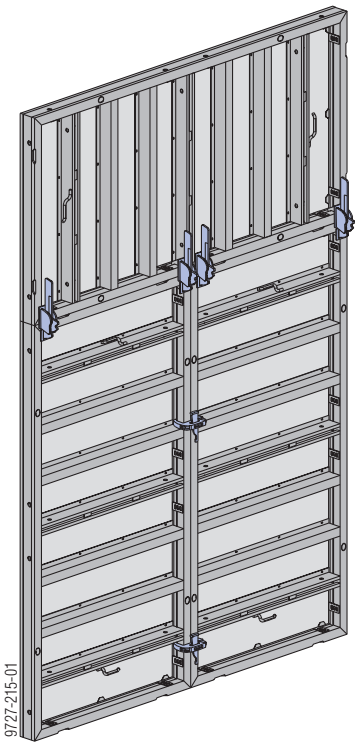


Dimensions in cm

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

- corners
- wall junctions
- stop-ends
- columns

Inter-panel connections



Attributes of the panel connectors:

- provide self-aligning, crane-handling-safe connections between the panels
- no losable small parts
- dirt-resistant and hard-wearing for site use
- easy to fix, with a formwork hammer

Important note:

- Use a formwork hammer weighing max. 800 g.
- Do not oil or grease wedge-clamped joins.

Upright panels:

Height of panel	Number of clamps
1.35 m	2
2.70 m	2
3.30 m	3

Horizontal panels:

Width of panel	Number of clamps
0.30 m	1
0.45 m	1
0.60 m	2
0.90 m	2
1.35 m	2

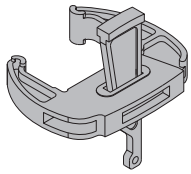
For details regarding extra inter-panel connections for outside corners and stop-end formwork (for increased tensile loads) see "Inter-panel connections for increased tensile loads".

See "Vertical stacking of panels" for details of the positions of the Framax quick-acting clamps RU and Framax multi-function clamps that are needed when vertically extending.

Do not oil or grease wedge-clamped joins.

Simple inter-panel connections

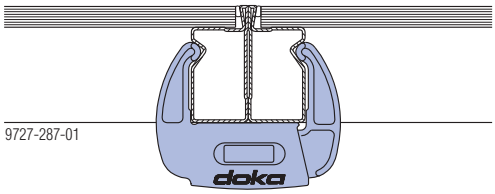
with Framax quick acting clamp RU

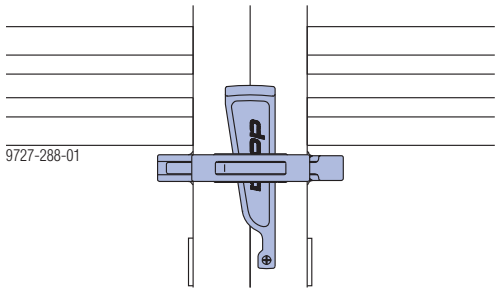


Framax quick-acting clamp RU:

- When used with (steel) **Framax Xlife**
  permitted tensile force: 15.0 kN
  permitted shear force: 6.0 kN
  permitted moment: 0.5 kNm
- When used with (aluminium) **Alu-Framax Xlife**
  permitted tensile force: 15.0 kN
  permitted shear force: 4.0 kN
  permitted moment: 0.25 kNm

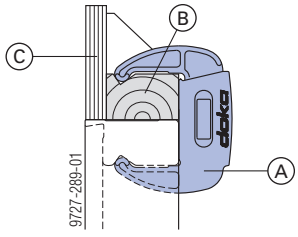
The continuous hardware slot running around the inside of the frame profile means that panels can be fastened together at any point desired. This allows adjacent panels to be staggered in height, steplessly.





More functions

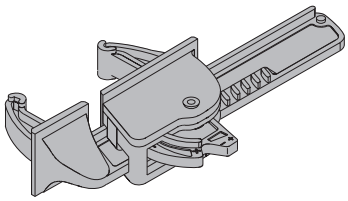
Vertical stacking with moulded timber



A	Framax quick-acting clamp RU
B	Framax moulded timber 27mm (for 27mm formwork sheet) or Framax moulded timber 21mm (for 21mm formwork sheet) or Framax moulded timber 18mm (for 18mm formwork sheet) or
C	Formwork sheet

Self-aligning inter-panel connections and make up

with Framax multi function clamp

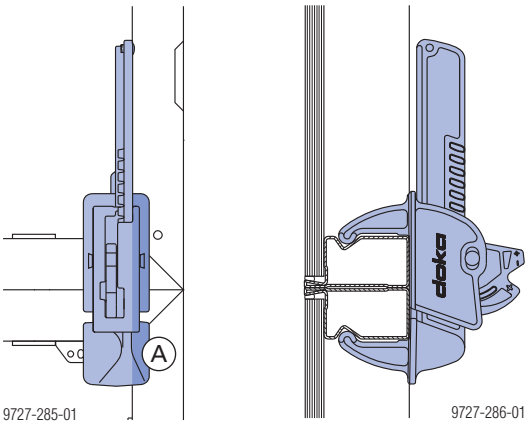


Framax multi-function clamp:

- When used with (steel) **Framax Xlife**
  permitted tensile force: 15.0 kN
  permitted shear force: 9.0 kN
  permitted moment: 0.9 kNm
- When used with (aluminium) **Alu-Framax Xlife**
  permitted tensile force: 15.0 kN
  permitted shear force: 6.0 kN
  permitted moment: 0.45 kNm

Values apply only when mounted on profile.

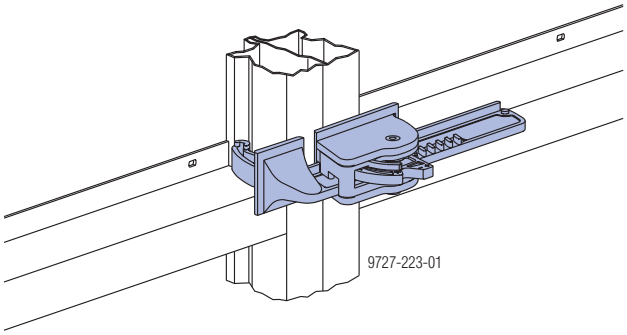
Particularly when panels are stacked in the vertical, the fact that the clamp bears directly on the profiles means that there is no need for any extra bracing of the panels with universal walings.



A Contact surface on the profile

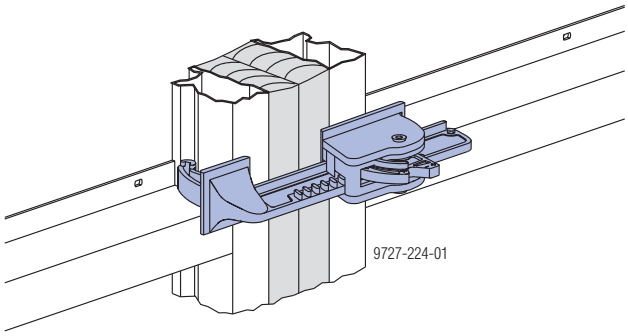
More functions

Inter-panel joints



Joining the panels using the Framax multi function clamp provides additional bracing of the gang-form (as the clamp bears directly onto the profile).

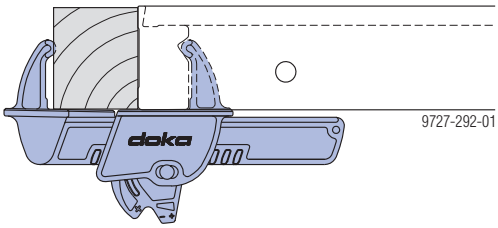
Make up to 15 cm



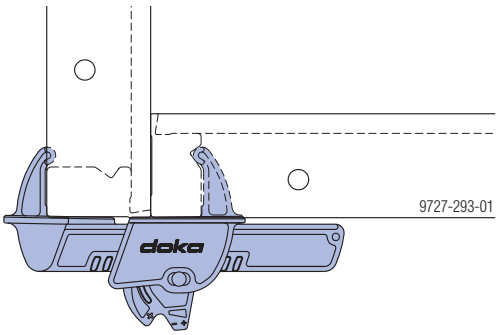
With its 15 cm clamping range, the Framax multi-function clamp exactly matches the panel size-grid.

For more information, see "Length adjustment using closures".

Squared-timber joints up to 20 cm

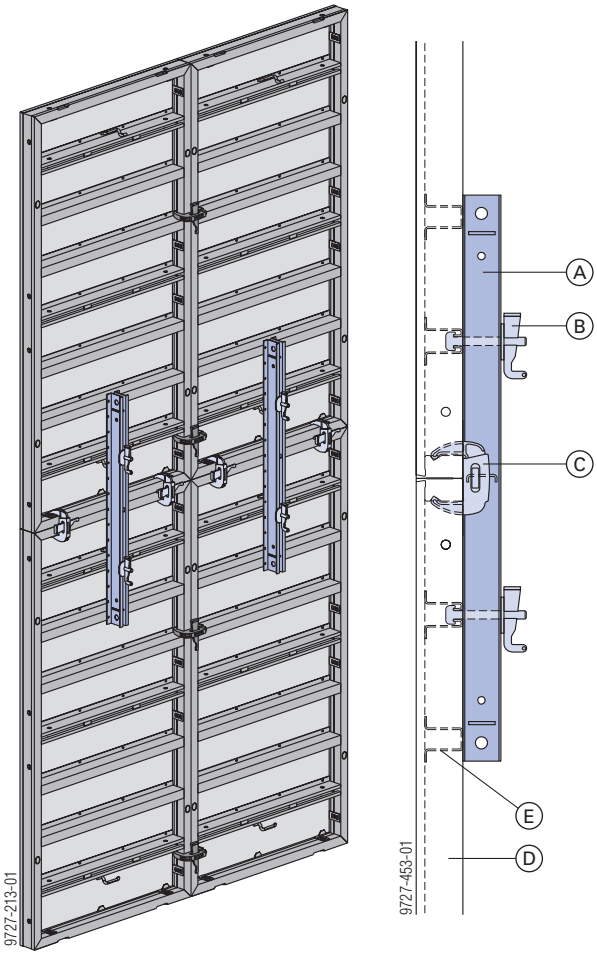


Corner joints on foundations



Bracing the panels

Framax universal waling



A	Framax universal waling 1.50m
B	Framax wedge clamp
C	Framax quick-acting clamp RU
D	Framax Xlife 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:

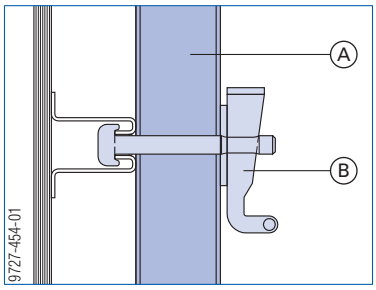
Instead of the universal waling, it is also possible to use a Multi-purpose waling WS10 Top50.

Framax universal waling:

- When used with (steel) **Framax Xlife**
  Permitted moment (for vertical stacking): 5.0 kNm
  Due to the permitted tensile load of 14 kN in the waling profile, even stiffer components such as Multi-purpose walings WS10 Top50 are also subject to: Permitted moment 5.0 kNm
- When used with (aluminium) **Alu-Framax Xlife**
  Permitted moment (for vertical stacking): 4.3 kNm
  Due to the permitted tensile load of 12 kN in the waling profile, even stiffer components such as Multi-purpose walings WS10 Top50 are also subject to: Permitted moment 4.3 kNm

How to attach

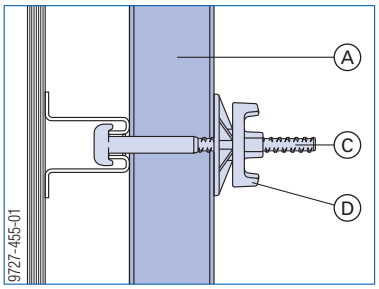
using the Framax wedge clamp



A	Framax universal waling
B	Framax wedge clamp

Do not oil or grease wedge-clamped joins.

using the Framax universal fixing bolt and Super-plate



A	Framax universal waling
C	Framax universal fixing bolt
D	Super-plate 15.0

Vertical stacking of panels

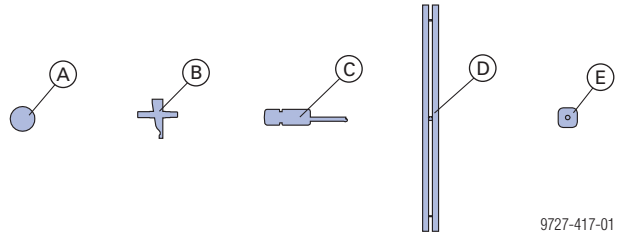
Positions of the interconnecting and form-tie components and accessories needed for:

- Lifting and setting down
- Crane-handling
- Platform loads
- Pouring

Framax quick-acting clamp RU:
permitted tensile force: 15.0 kN
permitted shear force: 6.0 kN
permitted moment: 0.5 kNm

Framax multi-function clamp:
permitted tensile force: 15.0 kN
permitted shear force: 9.0 kN
permitted moment: 0.9 kNm
Values apply only when mounted on profile.

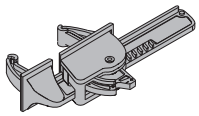
Framax universal waling:
Permitted moment (for vertical stacking): 5.0 kNm
Due to the permitted tensile load of 14 kN in the waling profile, even stiffer components such as Multi-purpose walings WS10 Top50 are also subject to: Permitted moment 5.0 kNm



A	Tie-rod + Super-plate
B	Framax quick-acting clamp RU
C	Framax multi-function clamp
D	Framax universal waling
E	Framax wedge clamp

Rules for vertical stacking of panels

with Framax multi function clamp



Formwork heights up to 4.05 m

- On each inter-panel joint, 2 multi-function clamps are attached for each panel (max. 1.35 m).

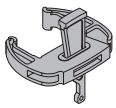
Formwork heights up to 5.40 m

- On each inter-panel joint, 1 universal waling and 2 multi-function clamps are attached for each panel (max. 1.35 m).
  Exception:
  An uppermost horizontal panel does not need any universal waling.
  All other horizontal panels need only 1 universal waling per 2.70 m of formwork height.

Formwork heights up to 8.10 m

- On each inter-panel joint, 1 universal waling and 2 multi-function clamps are attached for each panel (max. 1.35 m).
  Exception:
  An uppermost horizontal panel needs only 1 universal waling per 2.70 m of formwork height.

with Framax quick acting clamp RU



Formwork heights up to 3.75 m

- On each inter-panel joint, 2 quick-acting clamps RU are attached for each panel (max. 1.35 m).

Formwork heights up to 5.40 m

- On each inter-panel joint, 1 universal waling and 2 quick-acting clamps RU are attached for each panel (max. 1.35 m).
  Exception:
  An uppermost horizontal panel with a width of up to 0.60 m does not need any universal waling.
  An uppermost horizontal panel with a width of over 0.60 m needs only 1 universal waling per 2.70 m of formwork height.

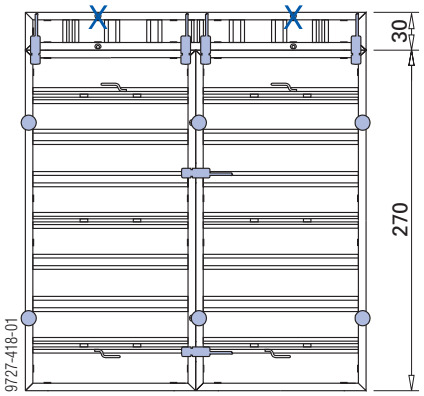
Formwork heights up to 8.10 m

- On each inter-panel joint, 1 universal waling and 2 quick-acting clamps RU are attached for each panel (max. 1.35 m).
  Exception:
  An uppermost horizontal panel with a width of up to 0.90 m needs only 1 universal waling per 2.70 m of formwork height.

Framax Xlife panel 2.70m

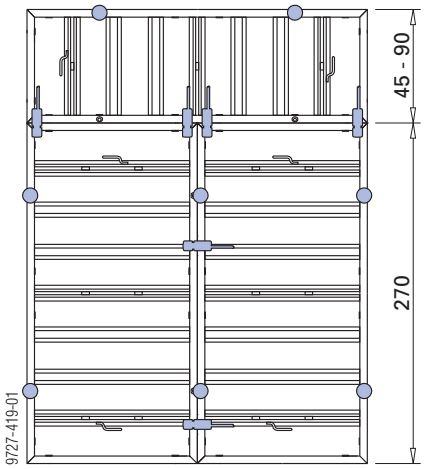
with Framax multi function clamp

Formwork height: 300 cm

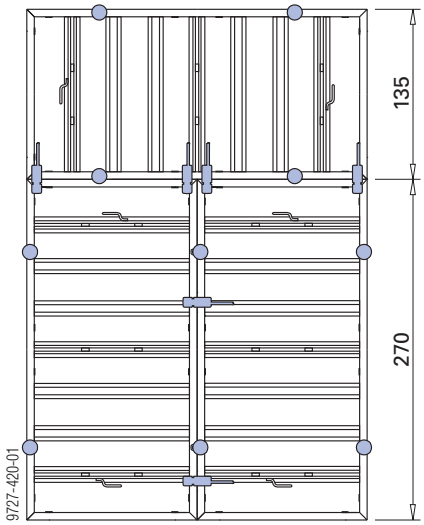


X ... Where pouring platforms are to be used, also fit form-ties at the top edge of the formwork.

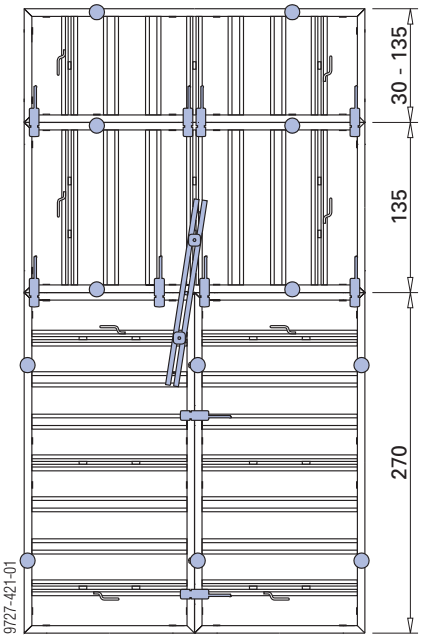
Formwork height: 315, 330, and 360 cm



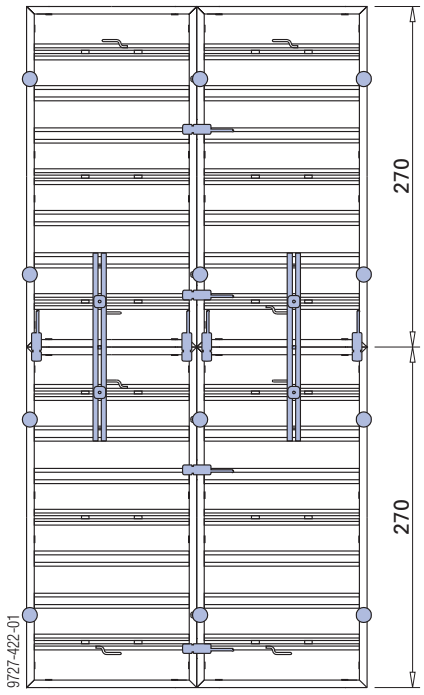
Formwork height: 405 cm



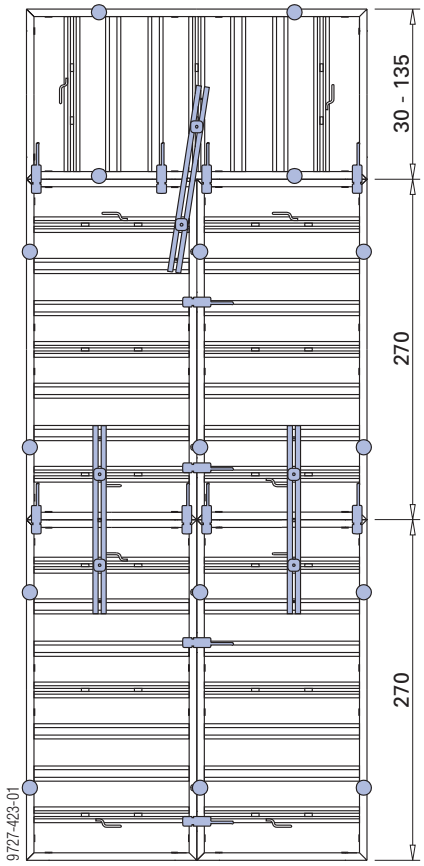
Formwork height: 435, 450, 465, 495 and 540 cm



Formwork height: 540 cm

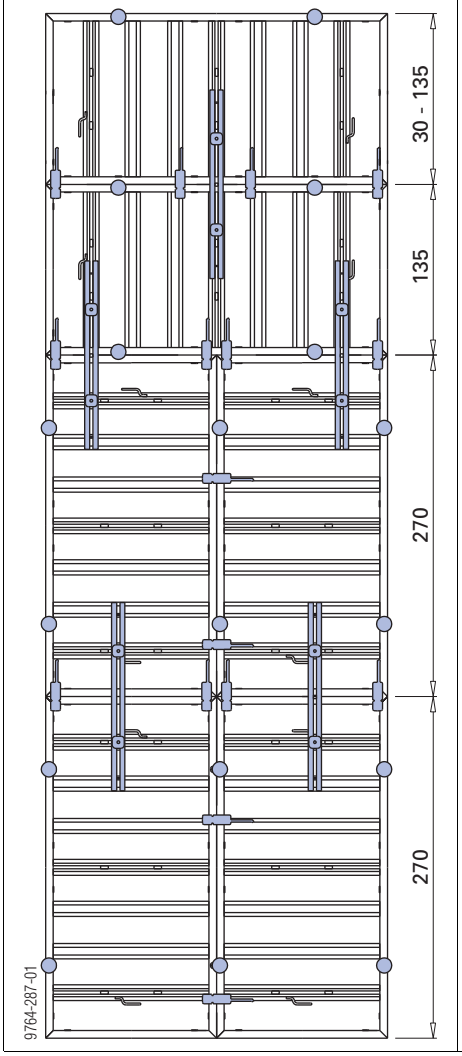


Formwork height: 570①, 585①, 600①, 630① and 675 cm

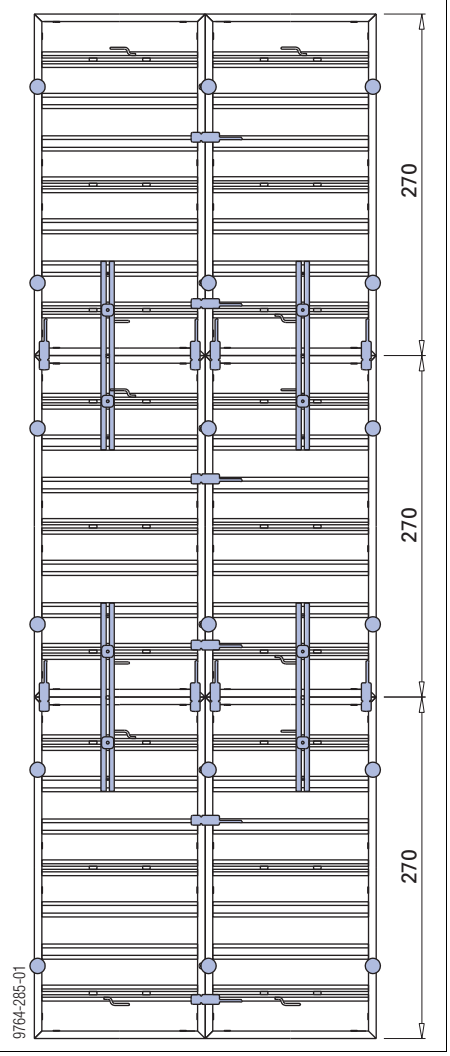


① An uppermost horizontal panel with a width of up to 90 cm does not need any form-ties at the inter-panel join.

Formwork height: 705, 720, 735, 765 and 810 cm

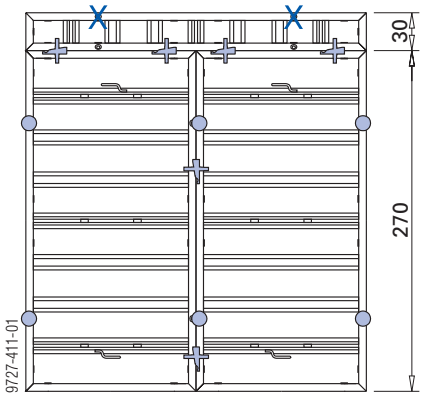


Formwork height: 810 cm



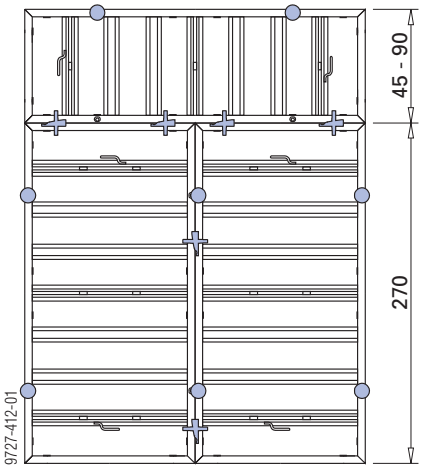
with Framax quick acting clamp RU

Formwork height: 300 cm

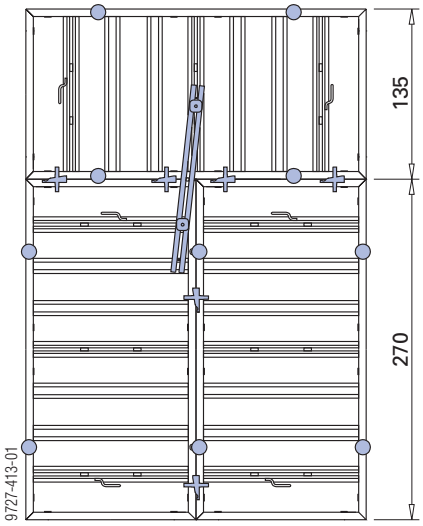


X ... Where pouring platforms are to be used, also fit form-ties at the top edge of the formwork.

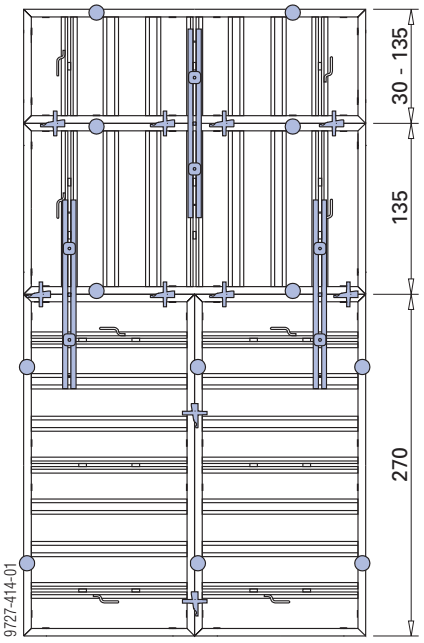
Formwork height: 315, 330, and 360 cm



Formwork height: 405 cm

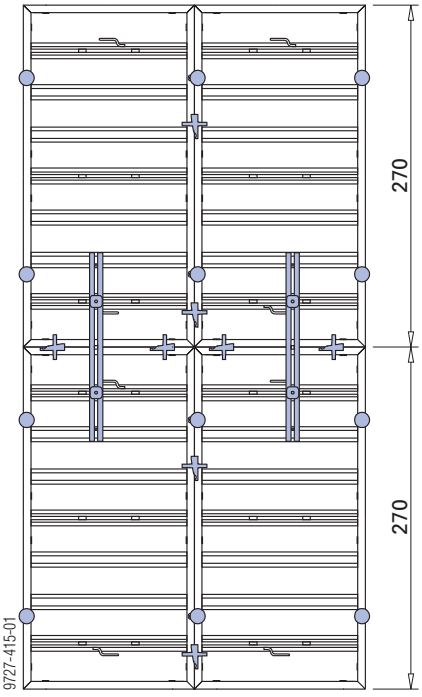


Formwork height: 435②, 450②, 465②, 495 and 540 cm

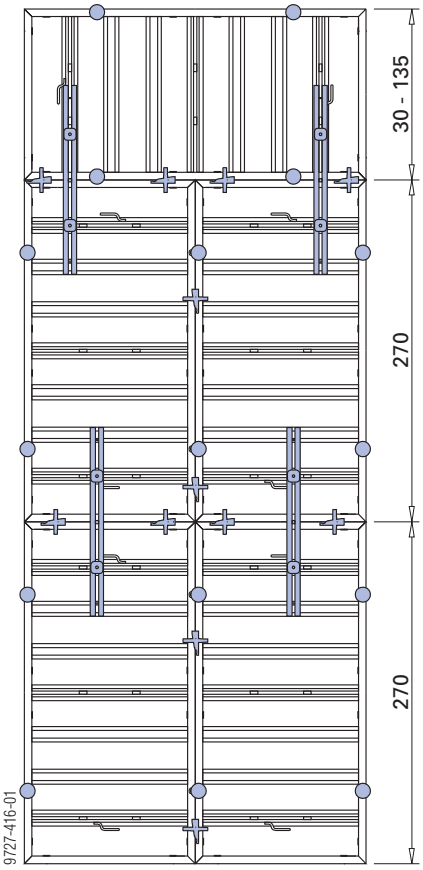


② An uppermost horizontal panel with a width of up to 60 cm does not need any universal waling.

Formwork height: 540 cm

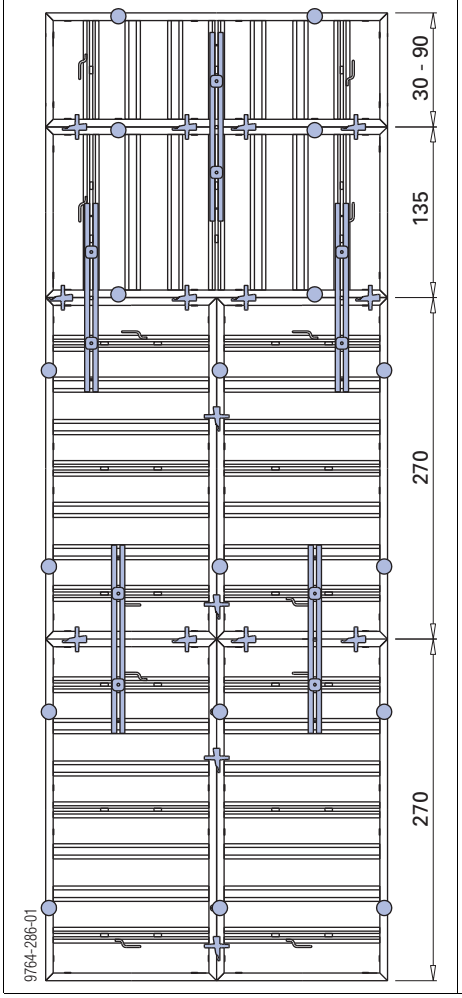


Formwork height: 570③, 585③, 600③, 630③, 675 cm

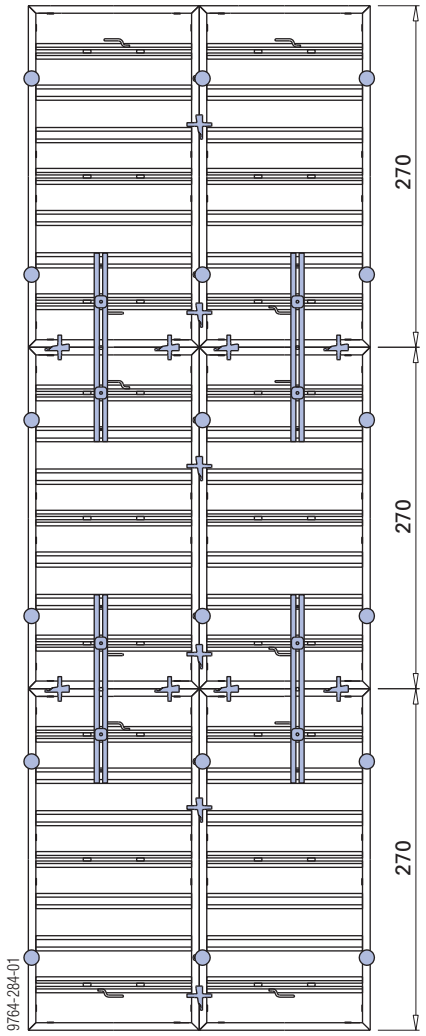


③ An uppermost horizontal panel with a width of up to 90 cm needs only one universal waling and does not need any form-ties at the inter-panel join.

Formwork height: 705, 720, 735, 765 cm



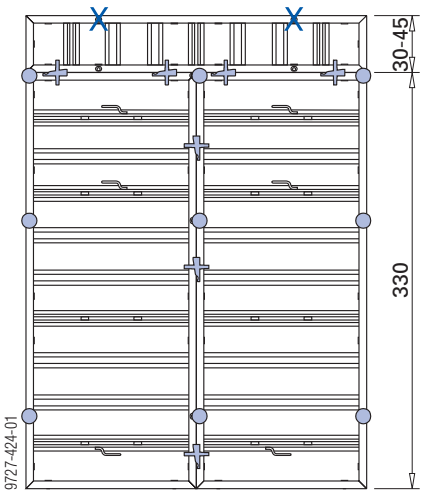
Formwork height: 810 cm



Framax Xlife panel 3.30m

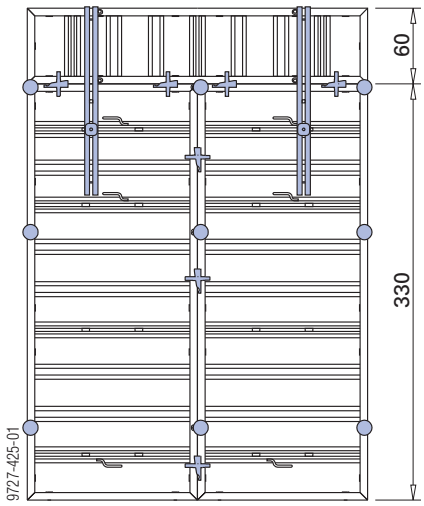
with Framax quick acting clamp RU

Formwork height: 360 and 375 cm



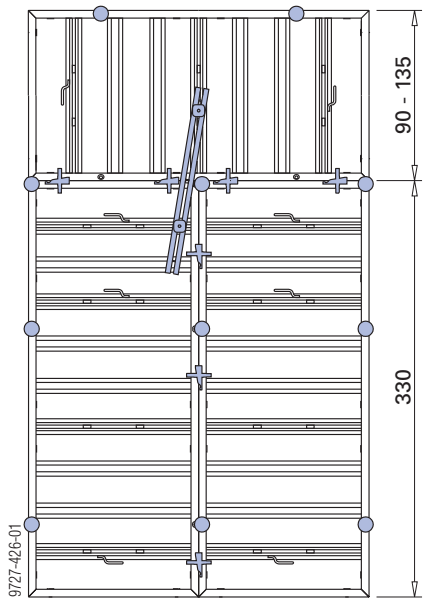
X ... Where pouring platforms are to be used, also fit form-ties at the top edge of the formwork.

Formwork height: 390④ cm

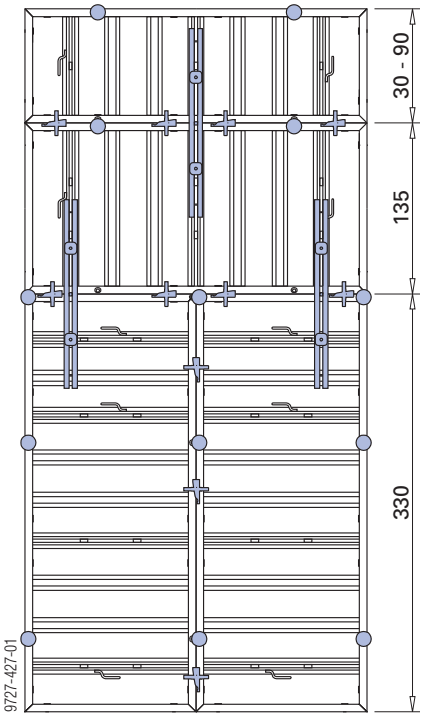


④ Where form-ties are fitted at the top edge of the formwork, no universal walings are necessary.

Formwork height: 420 and 465 cm

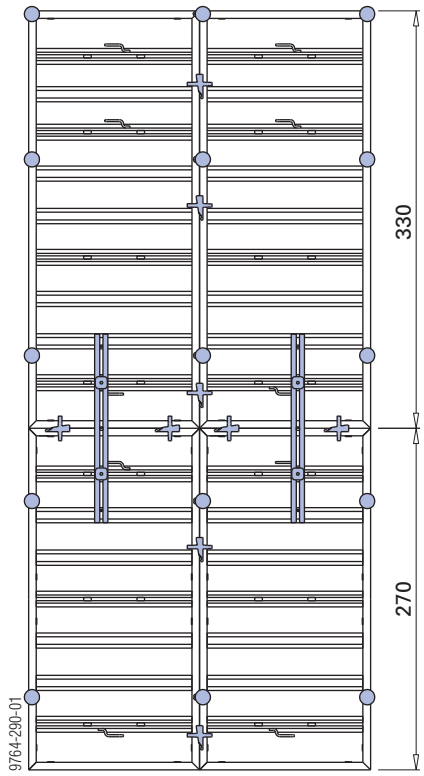


Formwork height: 495⑤, 510⑤, 525⑤ and 555 cm



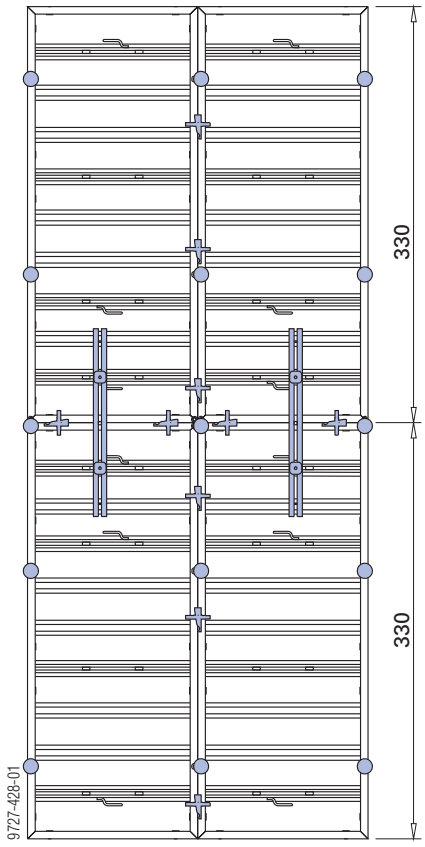
⑤ An uppermost horizontal panel with a width of up to 60 cm does not need any universal waling.

Formwork height: 600⑥ cm



⑥ Up to a pour-height of 5.85m, no form-ties are needed at the top edge of the formwork.

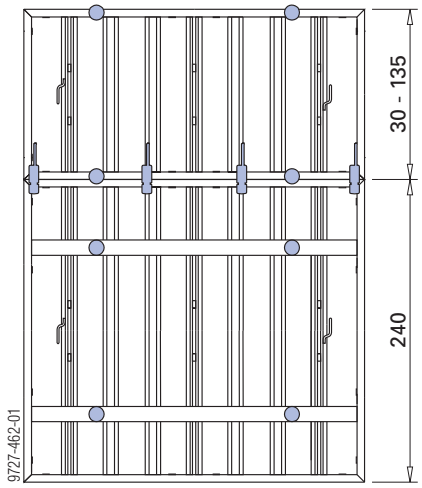
Formwork height: 660 cm



Framax Xlife panel 2.40x2.70m

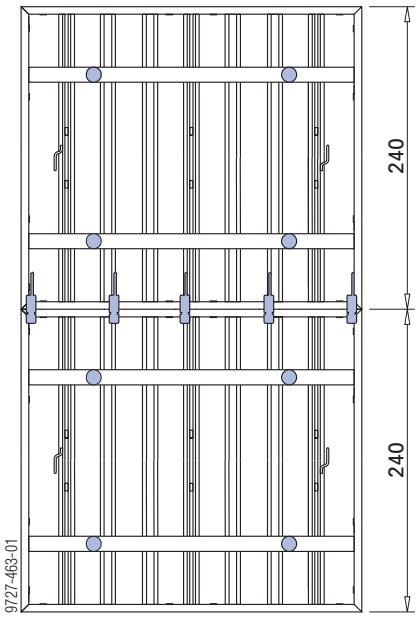
with Framax multi function clamp

Formwork height: 270⑥, 285⑥, 300⑥, 330⑥ and 375 cm

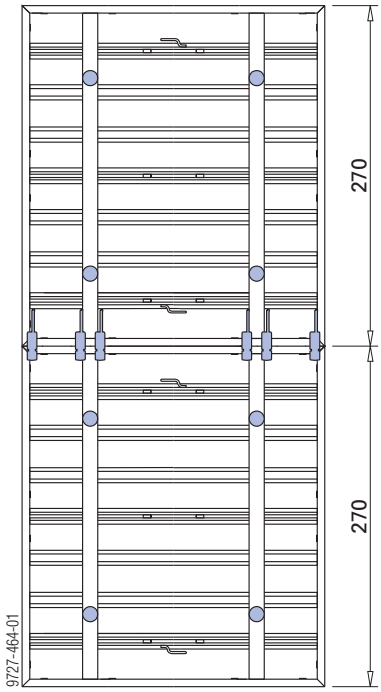


⑥ An uppermost horizontal panel with a width of up to 90 cm does not need any form-ties at the inter-panel join.

Formwork height: 480 cm

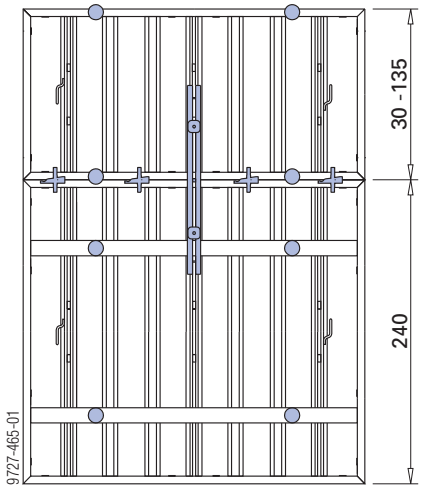


Formwork height: 540 cm



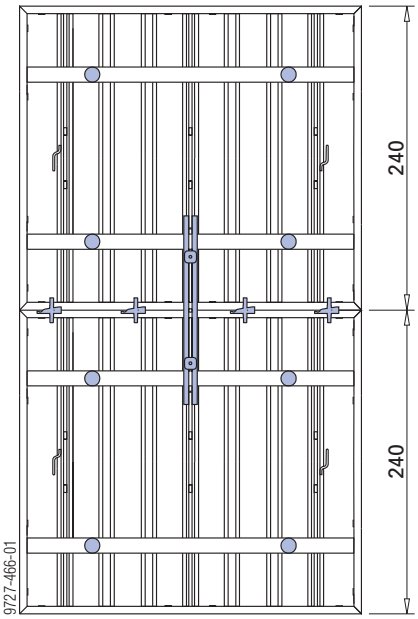
with Framax quick acting clamp RU

Formwork height: 270⑦, 285⑦, 300⑦, 330⑦ and 375 cm

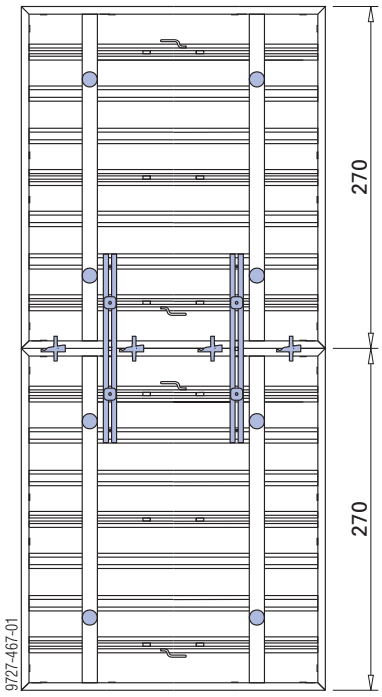


⑦ An uppermost horizontal panel with a width of up to 90 cm does not need any universal waling, or any form-ties at the inter-panel join.

Formwork height: 480 cm



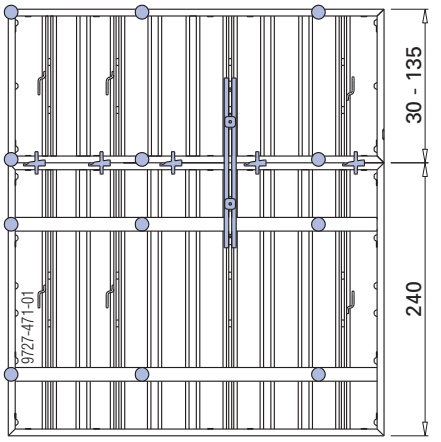
Formwork height: 540 cm



Framax Xlife panel 2.40x3.30m

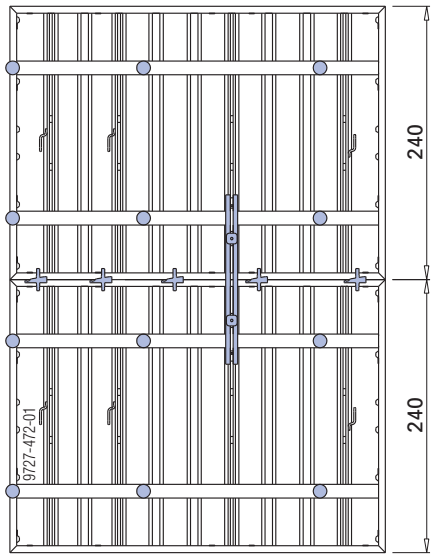
with Framax quick acting clamp RU

Formwork height: 270⑧, 285⑧, 300⑧, 330⑧ and 375 cm

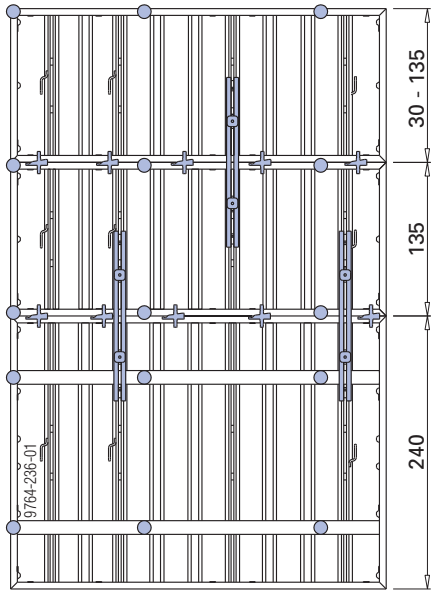


⑧ An uppermost horizontal panel with a width of up to 90 cm does not need any universal waling, or any form-ties at the inter-panel join.

Formwork height: 480 cm

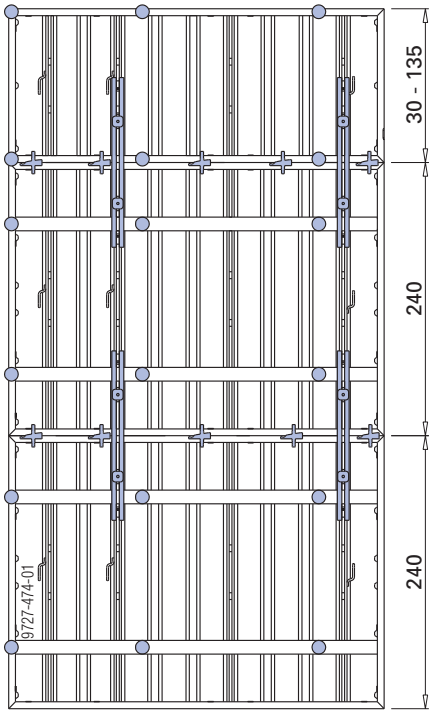


Formwork height: 405⑨, 420⑨, 435⑨, 465 and 510 cm



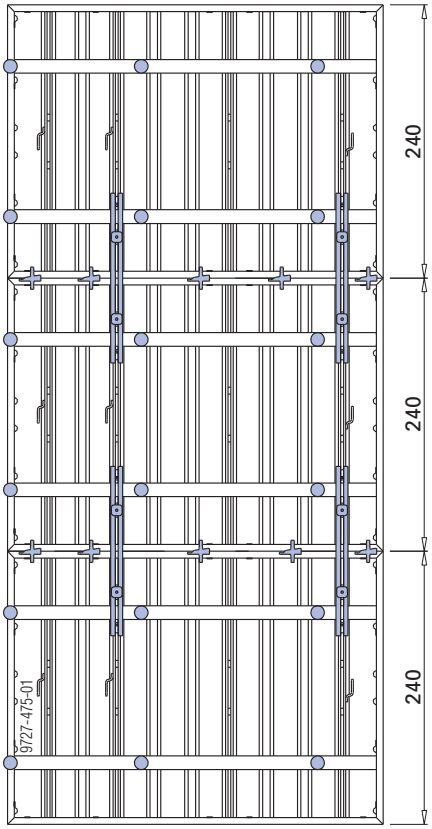
⑨ An uppermost horizontal panel with a width of up to 60 cm does not need any universal waling.

Formwork height: 510⑩, 525⑩, 540①, 570① and 615 cm

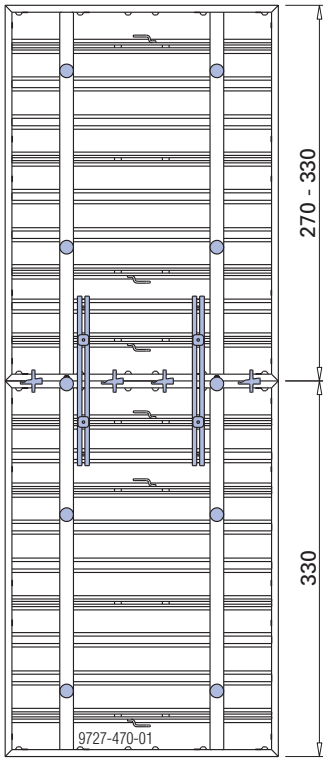


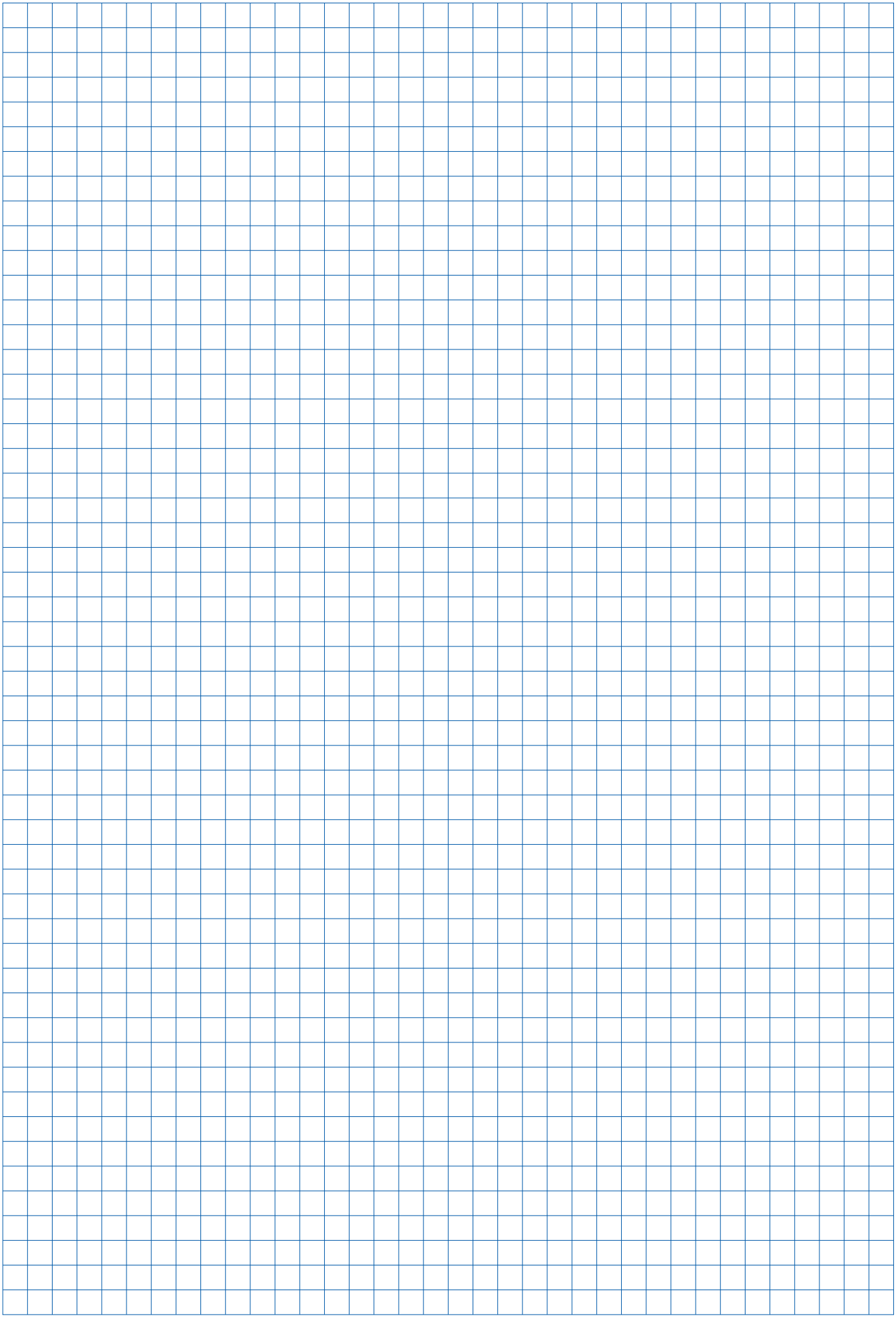
⑩ An uppermost horizontal panel with a width of up to 45 cm does not need any universal waling, or any form-ties at the inter-panel join.
① An uppermost horizontal panel with a width of up to 90 cm does not need any form-ties at the inter-panel join.

Formwork height: 720 cm



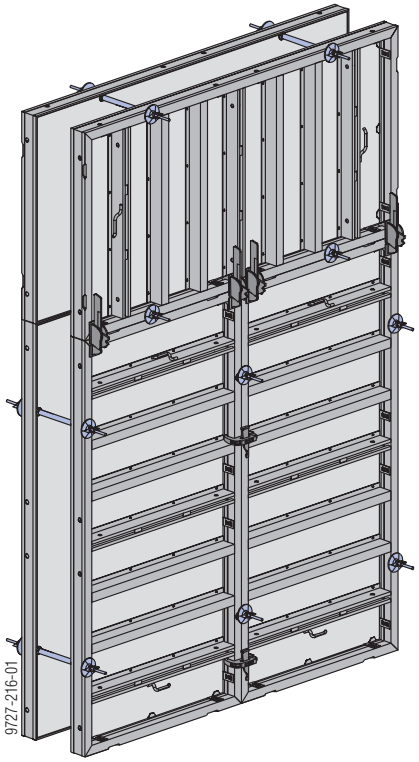
Formwork height: 600 and 660 cm





Tie-rod system

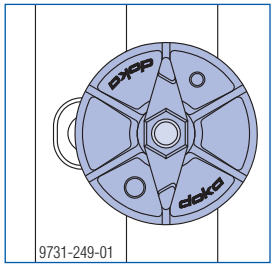
Placing form-ties in the frame profile



In general:

- Fix a form-tie in every form-tie sleeve that is not covered over 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".



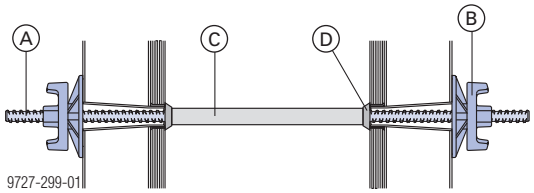
WARNING
Sensitive rod steel!
- ➤ Never weld or heat tie-rods.
- ➤ Tie rods that are damaged or have been weakened by corrosion or wear must be withdrawn from use.
- ➤ Only use approved tie-rods.

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

Spanner for tie-rod 15.0/20.0
For turning and holding the tie-rods.

Note:
Doka also offer economical solutions for making watertight form-tie points.

The Doka tie-rod system 15.0



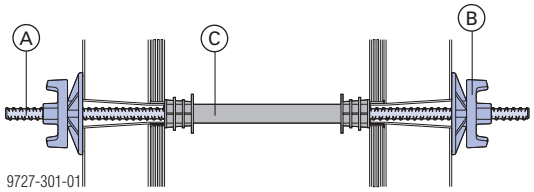
A	Tie-rod 15.0mm
B	Super-plate 15.0
C	Plastic tube 22mm
D	Universal cone 22mm

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
Permitted capacity to DIN 18216: 90 kN

Distance piece

As an alternative to the plastic tube with universal cone, there is also a **distance piece** designed as an all-in-one form-tie distance tube.

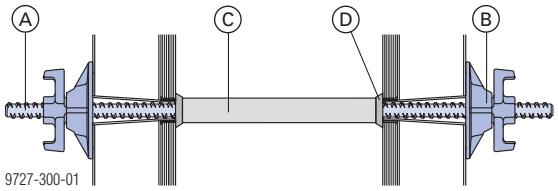


A	Tie-rod 15.0mm
B	Super-plate 15.0
C	Distance piece (ready for use for certain thicknesses of wall)

The stoppers for plugging the distance pieces are also included.

The Doka form-tie system 20.0

For high formwork pressures of up to 80 kN/m², use the Form-tie system 20.0.



A Tie-rod 20.0mm
B Super-plate 20.0 B
C Plastic tube 26mm
D Universal cone 26mm

The "Plastic tubes 26mm" left behind in the concrete are sealed off with **"Plugs 26mm"**.

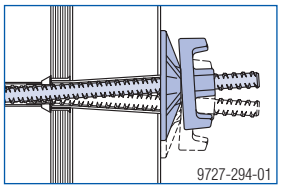
Tie-rod 20.0mm:

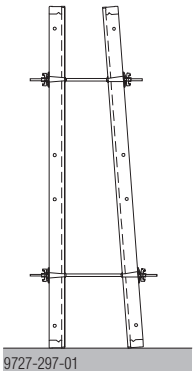
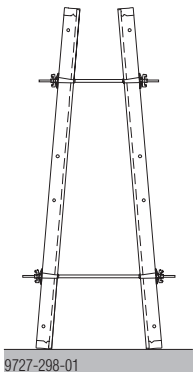
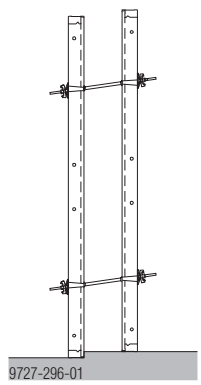
Permitted capacity, allowing a 1.6 : 1 factor of safety against failure: 220 kN

Permitted capacity to DIN 18216: 150 kN

Inclined and height-mismatched positioning

Thanks to their large, conical form-tie sleeves, the panels can be inclined on one or both sides, and/or height-mismatched. The super-plate readily copes with all these situations.



Conical on 1 side	Conical on both sides	Height mismatch
max. 4°	max. 2 x 4.5°	**Form-tie system 15.0**: max. **1.9 cm** per 10 cm of wall thickness **Form-tie system 20.0**: max. **1.0 cm** per 10 cm of wall thickness
		

Note:

Secure all inclined panels against uplift.

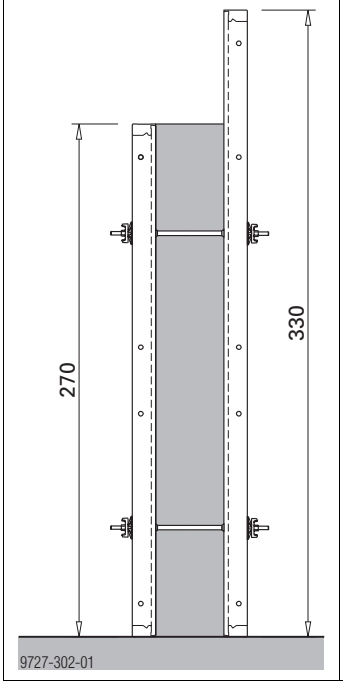
Inclined and mismatched positioning are not possible with panels that have been placed on their sides.

Form-tie situations on the 3.30m panel

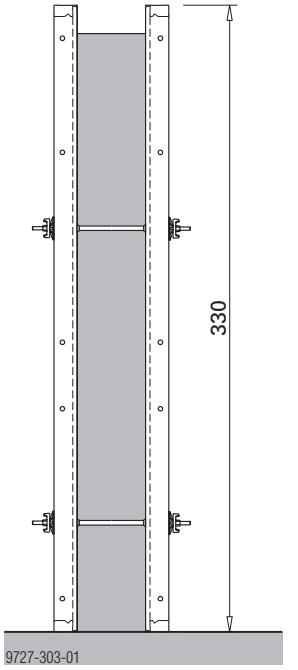
The positions of the tie-holes on the 3.30m panels match those on the 2.70m and 1.35m high panels. This means that combinations of these 3 panel heights are possible in both the inside and outside formwork.

- Wall heights of up to 3.30 m with no vertical stacking of panels
- Up to a pour height of 3.15 m, only 2 form-ties are needed (0.47 ties per m²)
- Vertical stacking with horizontal panels possible using 2.70m panels
- Vertical stacking with upright panels possible using all 3 heights of panel

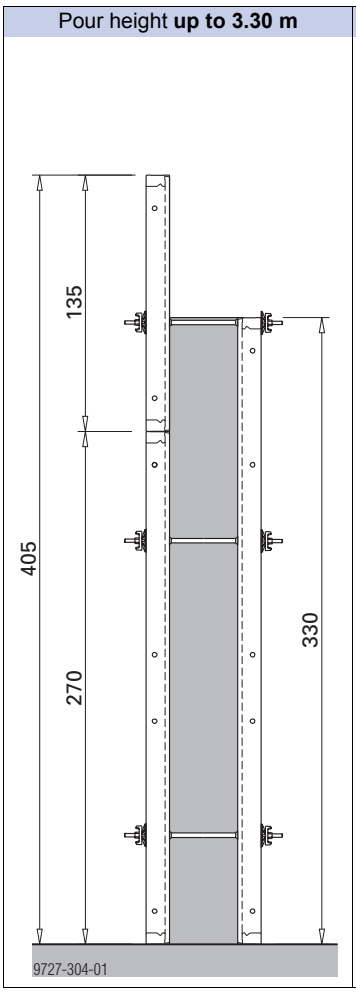
Pour height **up to 2.70 m**



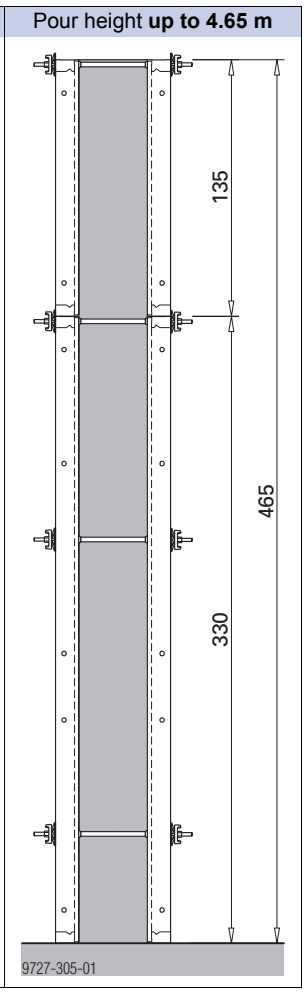
Pour height **up to 3.15 m**



Pour height **up to 3.30 m**



Pour height **up to 4.65 m**



Dimensions in cm

Length adjustment using closures

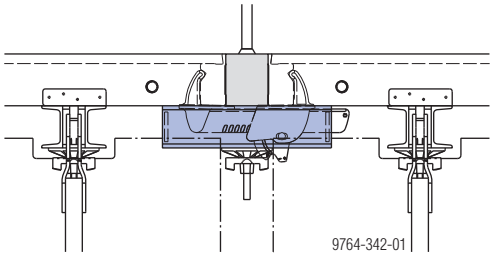
Closures: 0 - 15 cm

with fitting timber and Framax multi function clamp

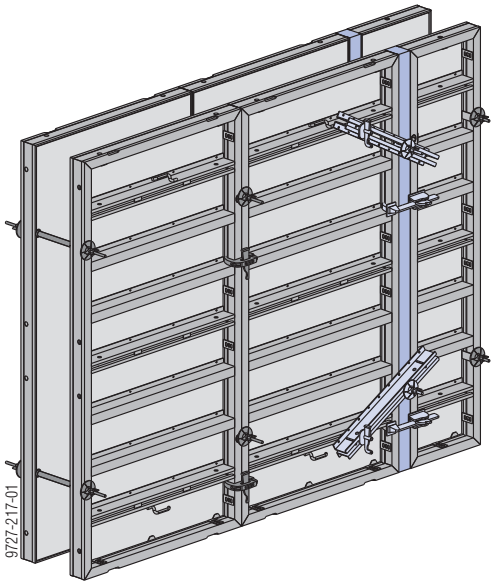
By combining the fitting-timber widths of 2, 3, 5, and 10 cm in various ways, the closures can be made in 1 cm increments.

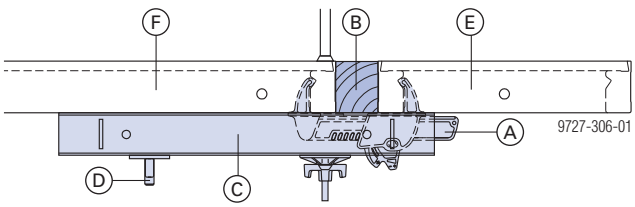
Universal waling:
Perm. moment: 5.2 kNm

Where space is tight (between two "Xsafe plus" platforms) a **Framax steel waling RD 0.40m** can be used instead of the Framax universal waling.



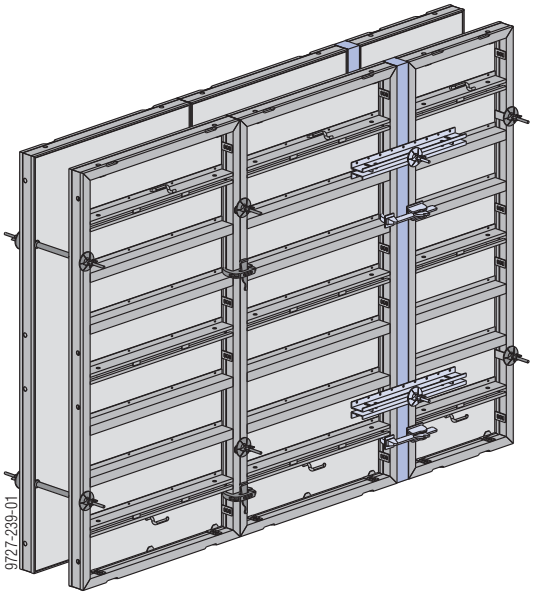
Tie through frame profile

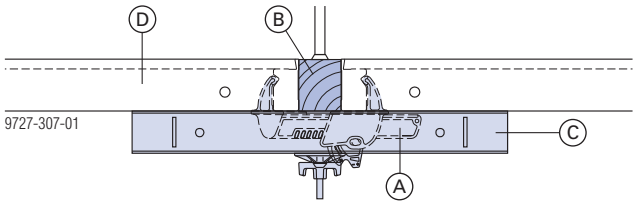




A Framax multi-function clamp
B Fitting timber
C Framax universal waling
D Framax wedge clamp
E Framax Xlife panel (max. width 60cm)
F Framax Xlife panel

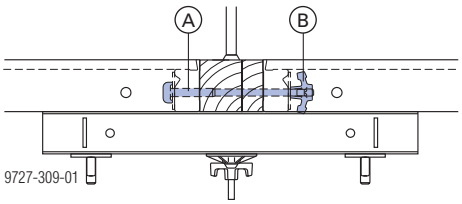
Ties through fitting timber





A Framax multi-function clamp
B Fitting timber
C Framax universal waling (for closures of up to 5 cm in width, no universal walings are needed)
D Framax Xlife panel

Using fitting timber and Framax universal fixing bolt



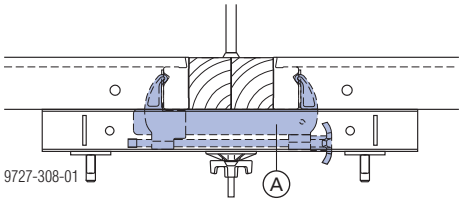
A Framax universal fixing bolt
B Star grip nut 15.0 G

3 universal fixing bolts are needed for every 2.70 m of panel height.

	Closure range
Framax universal fixing bolt 10-16cm	0 to 6 cm
Framax universal fixing bolt 10-25cm	0 to 15 cm

Closures: 0-20 cm

with Framax fitting timber and Framax adjustable clamp



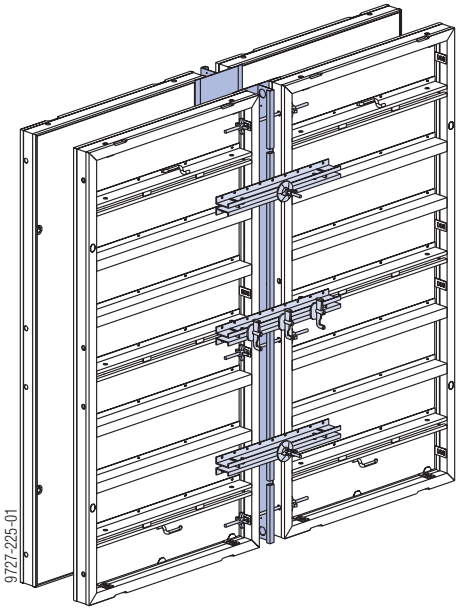
A Framax adjustable clamp

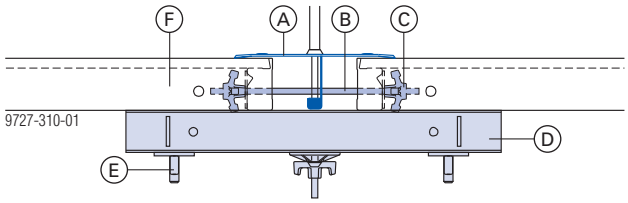
Fit the Framax adjustable clamp in the same position as the Framax multi-functional clamp.

Framax adjustable clamp:
Perm. tensile force: 10.0 kN

Closures: 4 - 30 cm

with Framax closure plate R30



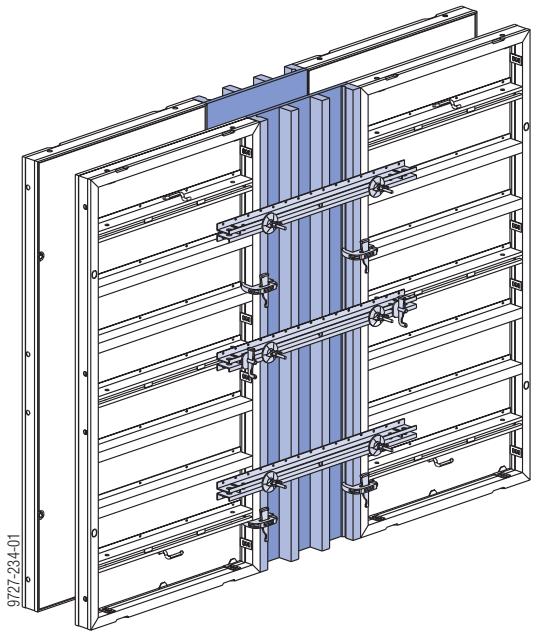


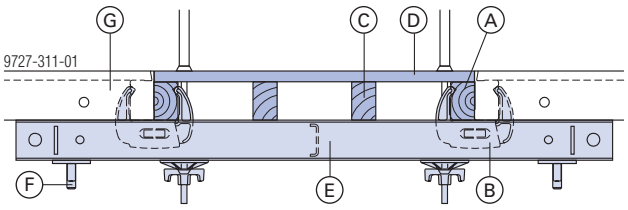
A Framax closure plate R30
B Tie-rod 15.0mm
C Star grip nut 15.0 G
D Framax universal waling
E Framax wedge clamp
F Framax Xlife panel

Unneeded tie-holes in the closure plate can be sealed with **Plugs for closure plate R25**.

Closures: 17 - 80 cm

with Framax moulded timber, formwork sheet





A	Framax moulded timber
B	Framax quick-acting clamp RU
C	Squared timber
D	Formwork sheet
E	Framax universal waling
F	Framax wedge clamp
G	Framax Xlife panel

	Closure range
Framax universal waling 0.90m	0 to 30 cm
Framax universal waling 1.50m	0 to 80 cm

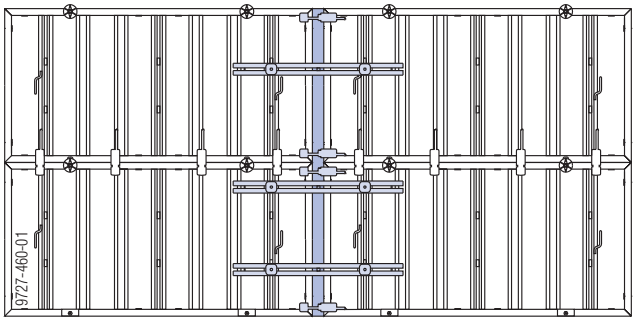
Tying the panels:

Closure widths <30 cm: fix 1 form-tie through the closure in the top and bottom universal waling.

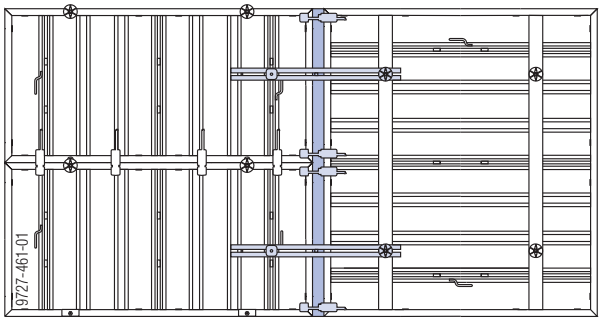
Closure widths >30 cm: fix 2 form-ties in each of the 3 universal walings (per 2.7 m formwork height).

A tension anchor can be made using a tie-rod and Star grip nut 15.0 G.

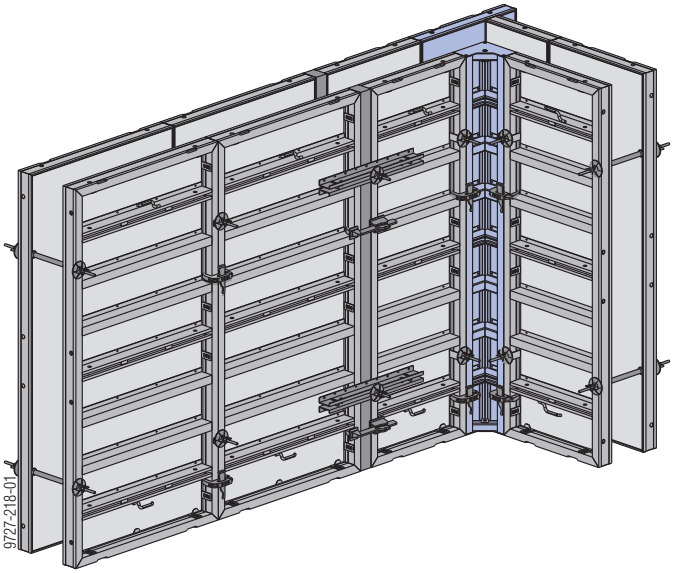
Closures on horizontal panels



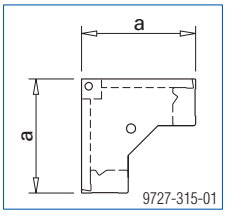
Closures on 2.40x2.70m panel



90 degree corners



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



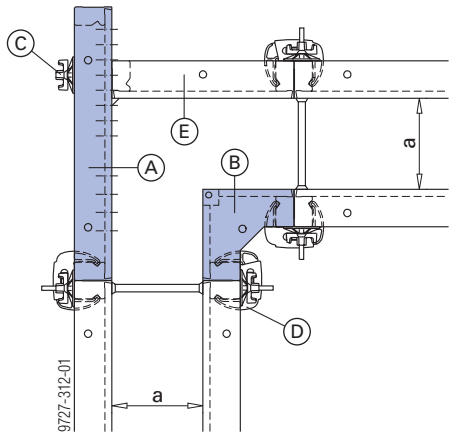
a ... 30 cm
The hole drilled in the inside corner enables a vertical stacking connection to be made using universal fixing bolts + super-plates.

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

- with a Framax Xlife universal panel
- with a Framax outside corner

For details regarding extra inter-panel connections on outside corners (for increased tensile loads), see the section headed "Inter-panel connections for increased tensile loads".

with Framax Xlife universal panels



a ... 30 cm

A Framax Xlife universal panel
B Framax Xlife inside corner
C Framax universal fixing bolt + Super-plate 15.0
D Framax quick-acting clamp RU
E Framax Xlife panel 0.60

Required numbers of Universal fixing bolts + Super-plates 15.0:

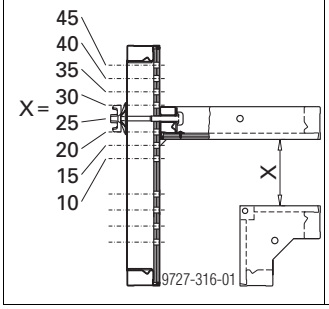
Universal panel 0.90m	2
Universal panel 1.35m	2
Universal panel 2.70m	4
Universal panel 3.30m	5

Framax Xlife universal panel 0.90m

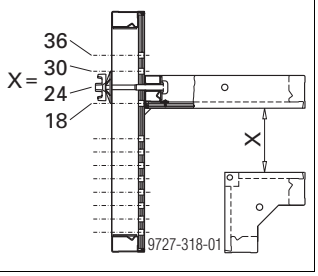
Various different wall-thickness grids (5 and 6 cm) are provided by inverting the 0.90 m wide universal panel.

Attainable wall thicknesses

in **5 cm** increment-grid



in **6 cm** increment-grid



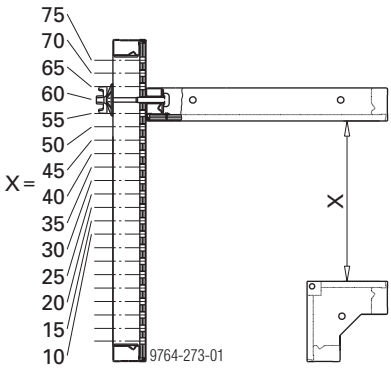
Note:
Due to its unsymmetrical design, the universal panel 3.30m cannot be inverted. This means that wall thicknesses are only available in 5 cm increments when this panel is used.

Framax Xlife universal panel 1.20m

The continuous 5 cm hole-grid makes it possible to form corner configurations on walls of up to 75 cm thick.

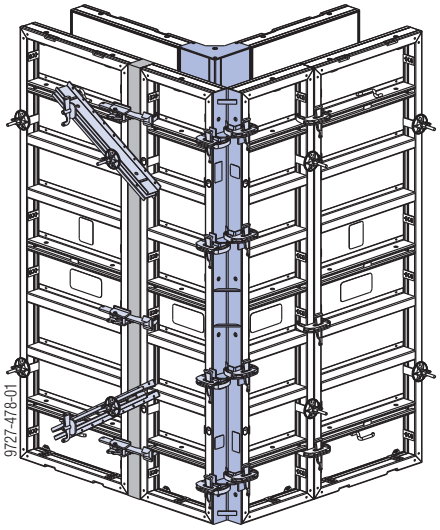
Attainable wall thicknesses

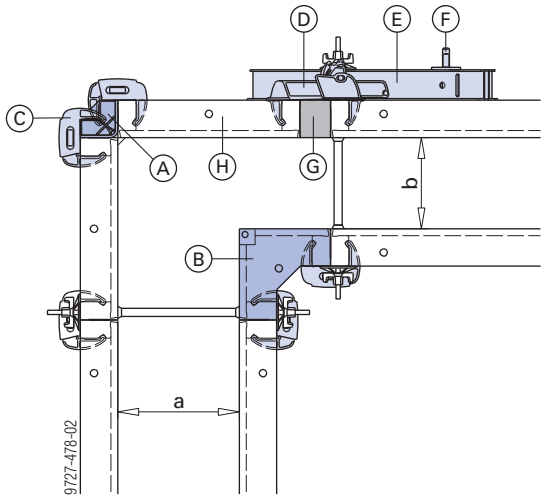
in **5 cm** increment-grid



with Framax outside corner

The Framax outside corner is an easy way of forming corners in narrow trench situations or where large wall thicknesses are called for.





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

A	Framax outside corner
B	Framax Xlife inside corner
C	Framax quick-acting clamp RU
D	Framax multi-function clamp
E	Framax universal waling
F	Framax wedge clamp
G	Fitting timber
H	Framax Xlife panel 0.60m

When there is a **closure on both sides** of the inside corner, bracing can be achieved economically with the **universal corner waling**.

Important note:

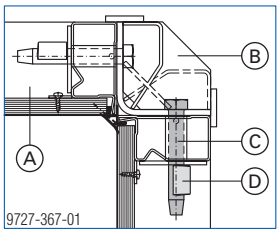
When striking the formwork, separate the gang-form at the Framax outside corner (remove the Quick-acting clamps RU on one side of the Framax outside corner).

Number of quick-acting clamps RU needed:

Height of outside corner	Number of clamps
1.35m	4
2.70m	8
3.30m	10

For a fresh-concrete pressure P_k **of over 60 kN/m²** or wall thicknesses of **over 40 cm**, **wedge bolts** and **tensioning wedges** must be used instead of quick-acting clamps.

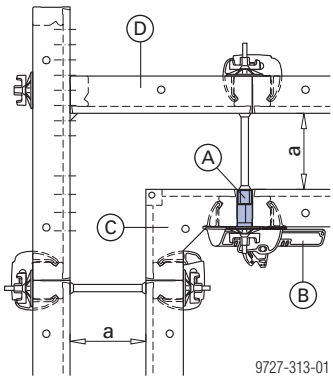
Do not oil or grease wedge-clamped joins.



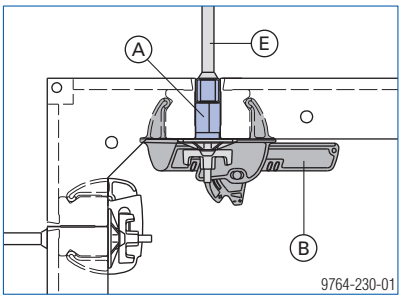
A	Framax Xlife panel
B	Framax outside corner
C	Framax wedge bolt RA 7.5
D	Framax tensioning wedge R

Framax steel closure plate 5cm

Used mainly in corner zones, the Framax steel closure plate 5cm stands out for its high strength and long lifespan.



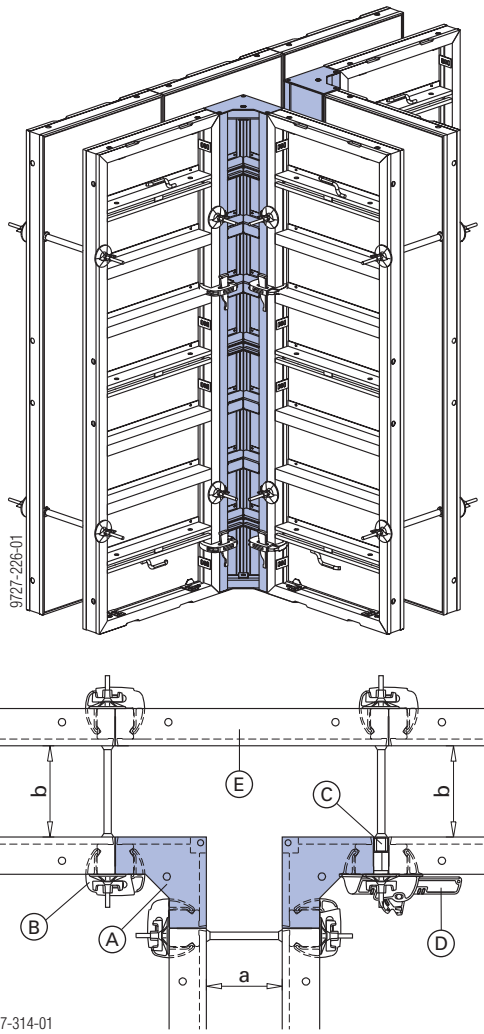
a ... 25 cm



A	Framax steel closure plate 5cm
B	Framax multi-function clamp
C	Framax Xlife inside corner
D	Framax Xlife panel 0.60m
E	Doka form-tie system

When the steel closure plates are used, no universal walings are needed.

Example: T-junction



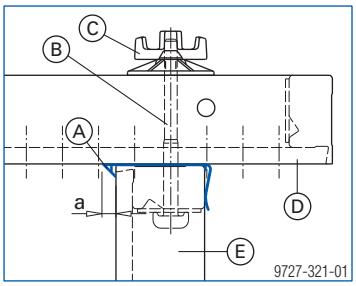
a ... 25 cm
b ... 30 cm

A	Framax Xlife inside corner
B	Framax quick-acting clamp RU
C	Framax steel closure plate
D	Framax multi-function clamp
E	Framax Xlife panel 0.90m

Edges

with Framax frontal triangular ledge

The Framax frontal triangular ledge can be pushed over the end face of the panel (no nails needed). For forming outside corners, it is used with the universal panel (integrated slot grid for universal fixing bolts). It is also possible to form edges using the Framax triangular ledge, of course.

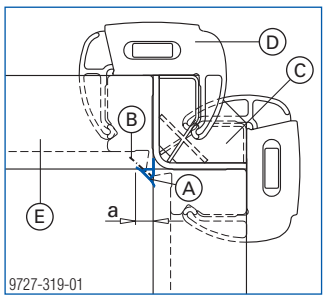


a ... 20 mm

A	Framax frontal triangular ledge 2.70m or Framax triangular ledge 2.70m
B	Framax universal fixing bolt
C	Super-plate 15.0
D	Framax Xlife universal panel
E	Framax Xlife panel

with the Framax triangular ledge

Where outside corners are formed using the Framax outside corner, the quick acting clamps used for the interconnection mean that the Framax triangular ledge has to be used.



a ... 20 mm

A	Framax triangular ledge 2.70m
B	Wire nail 22x40
C	Framax outside corner
D	Framax quick-acting clamp RU
E	Framax Xlife panel

Inter-panel connections for increased tensile loads

As a rule, only **2 clamps are needed per 2.70 m** and **3 clamps per 3.30 m** formwork height as a tension link between the panels.

However, where **increased tensile loads** are encountered, especially in outside-corner and stop-end configurations, **extra clamps** are needed.

Wall thicknesses up to 40 cm:

For each inter-panel join up to 1.95 m away from outside corner / end of wall:

- 1 extra clamp

Wall thicknesses up to 60 cm:

For each inter-panel join up to 1.35 m away from outside corner / end of wall:

- 2 extra clamps

For each inter-panel join between 1.35 m and 2.70 m away from outside corner / end of wall:

- 1 extra clamp

Wall thicknesses up to 75 cm:

For each inter-panel join up to 1.35 m away from outside corner / end of wall:

- 3 extra clamps

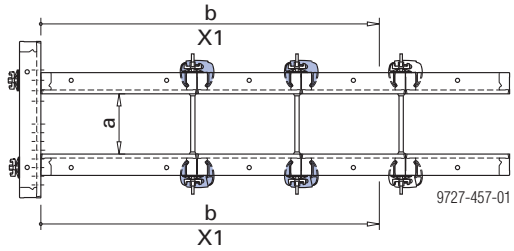
For each inter-panel join between 1.35 m and 2.70 m away from outside corner / end of wall:

- 2 extra clamps

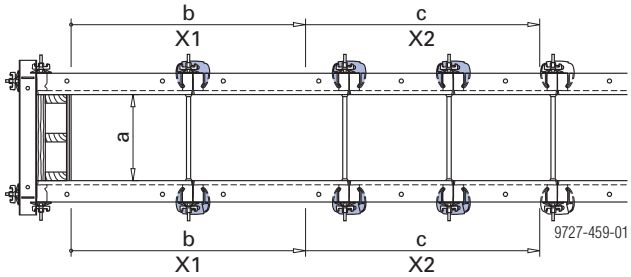
For each inter-panel join between 2.70 m and 4.05 m away from outside corner / end of wall:

- 1 extra clamp

Near stop-ends

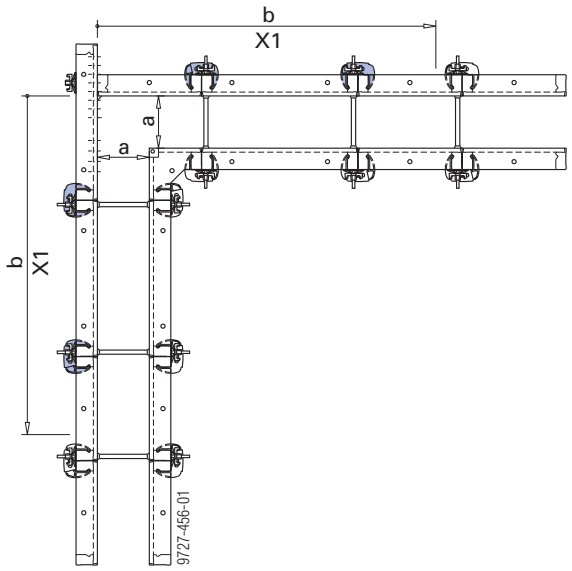


a ... up to 40 cm
b ... up to 1.95m
X1 ... **1 extra clamp**

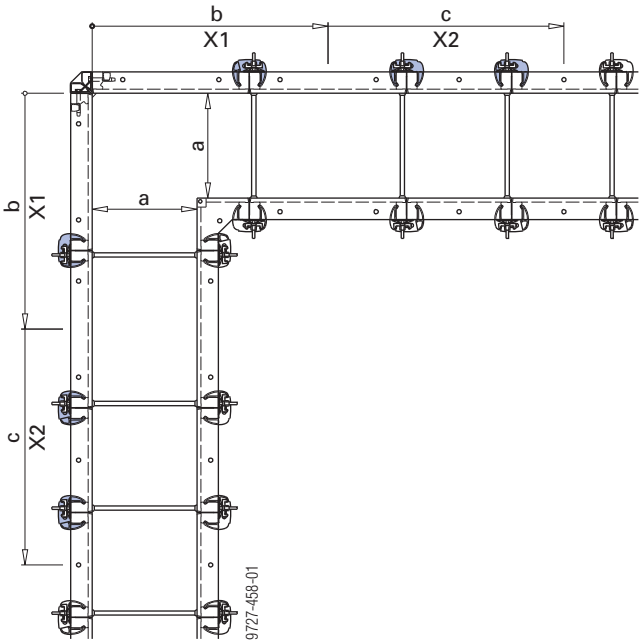


a ... up to 60 cm
b ... up to 1.35m
c ... from 1.35 m to 2.70 m
X1 ... **2 extra clamps**
X2 ... **1 extra clamp**

Near outside corners



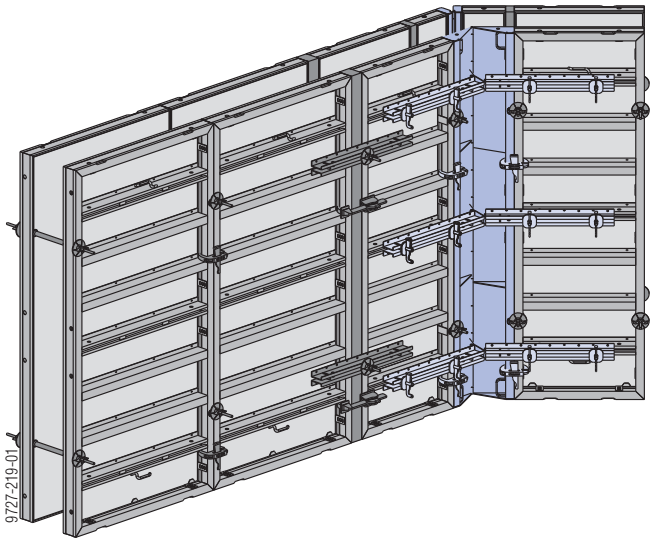
a ... up to 40 cm
b ... up to 1.95m
X1 ... **1 extra clamp**



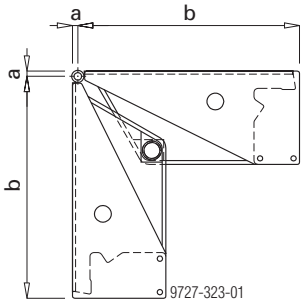
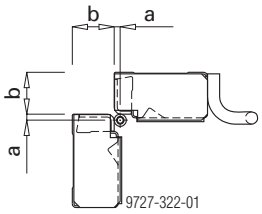
a ... up to 60 cm
b ... up to 1.35m
c ... from 1.35 m to 2.70 m
X1 ... **2 extra clamps**
X2 ... **1 extra clamp**

For a fresh-concrete pressure P_k **of over 60 kN/m²** or wall thicknesses of **over 40 cm**, **wedge bolts** and **tensioning wedges** must be used in the outside corners instead of quick-acting clamps (see "90 degree corners").

Acute & obtuse-angled corners



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

Hinged inside corner I	Hinged outside corner A
 a ... 0.8 cm b ... 29.2 cm	 a ... 0.8 cm b ... 5.5 cm

N° of universal walings in the outside and inside corners:

Panel height	N° of universal walings
1.35 m	4
2.70 m	6
3.30 m	8

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.

Important note:

Where there are closures, provide extra Universal walings as shown in the section headed "Length adjustment using closures".

Number of clamps needed in the hinged outside corner:

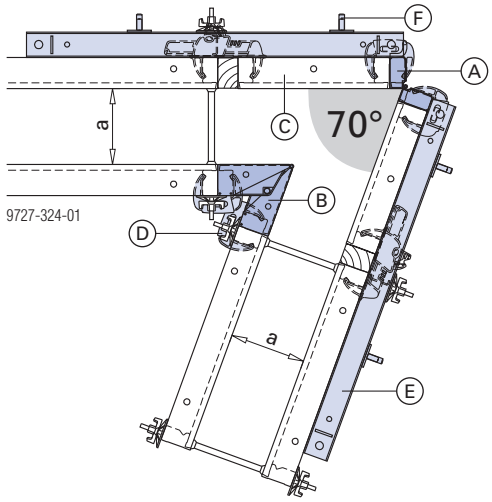
Height of panel	Number of clamps
1.35 m	4
2.70 m	8
3.30 m	10

Important note:

For details regarding extra inter-panel connections on outside corners (for increased tensile loads), see the section headed "Inter-panel connections for increased tensile loads".

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

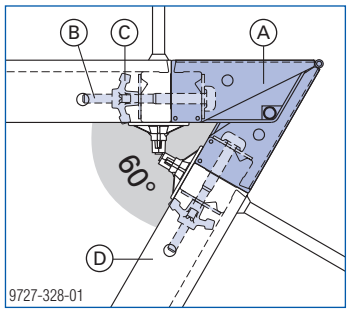
Pressure of fresh concrete P_k	**Max. width of panel** next to Hinged outside corner A
60 kN/m²	90 cm
80 kN/m²	60 cm
In addition, closures of up to max. 15 cm are allowed.	



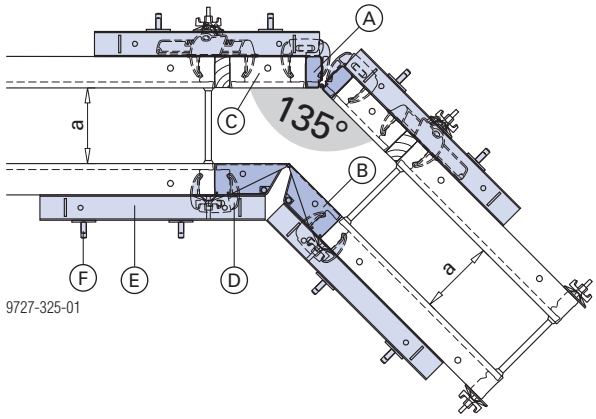
a ... 30 cm

A Framax hinged outside corner A
B Framax hinged inside corner I
C Framax Xlife panel 0.60m
D Framax quick-acting clamp RU
E Framax universal waling 1.50m
F Framax wedge clamp

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



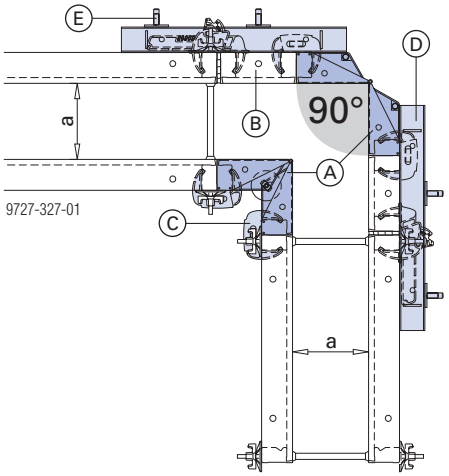
A Framax hinged inside corner I
B Framax universal fixing bolt
C Star grip nut 15.0 G
D Framax Xlife panel



a ... 30 cm

A Framax hinged outside corner A
B Framax hinged inside corner I
C Framax Xlife panel 0.30m
D Framax quick-acting clamp RU
E Framax universal waling
F Framax wedge clamp

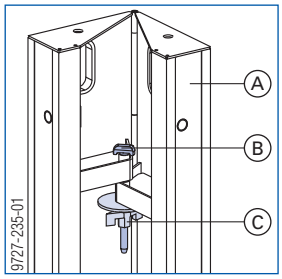
90° - 180° angles, with hinged inside corner I only



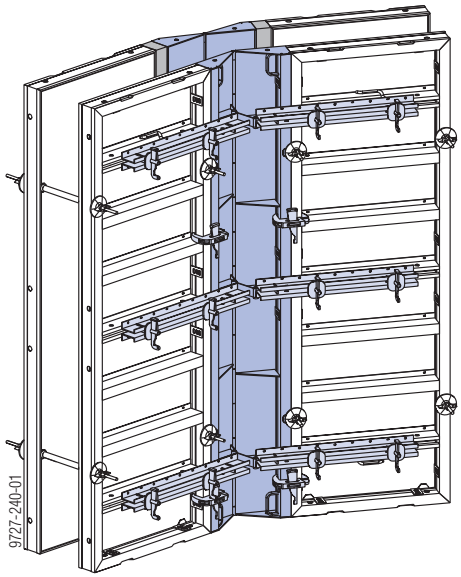
a ... 30 cm

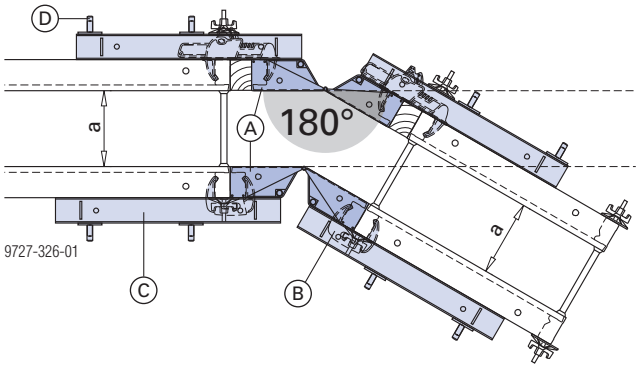
A	Framax hinged inside corner I
B	Framax Xlife panel 0.30m
C	Framax quick-acting clamp RU
D	Framax universal waling
E	Framax wedge clamp

The hinged corner I can be fixed at a 90° angle using a universal fixing bolt and super-plate 15.0.



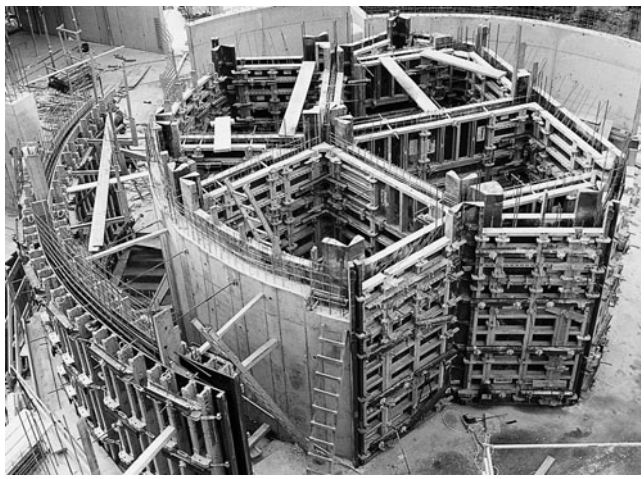
A	Framax hinged inside corner I
B	Framax universal fixing bolt
C	Super plate 15.0

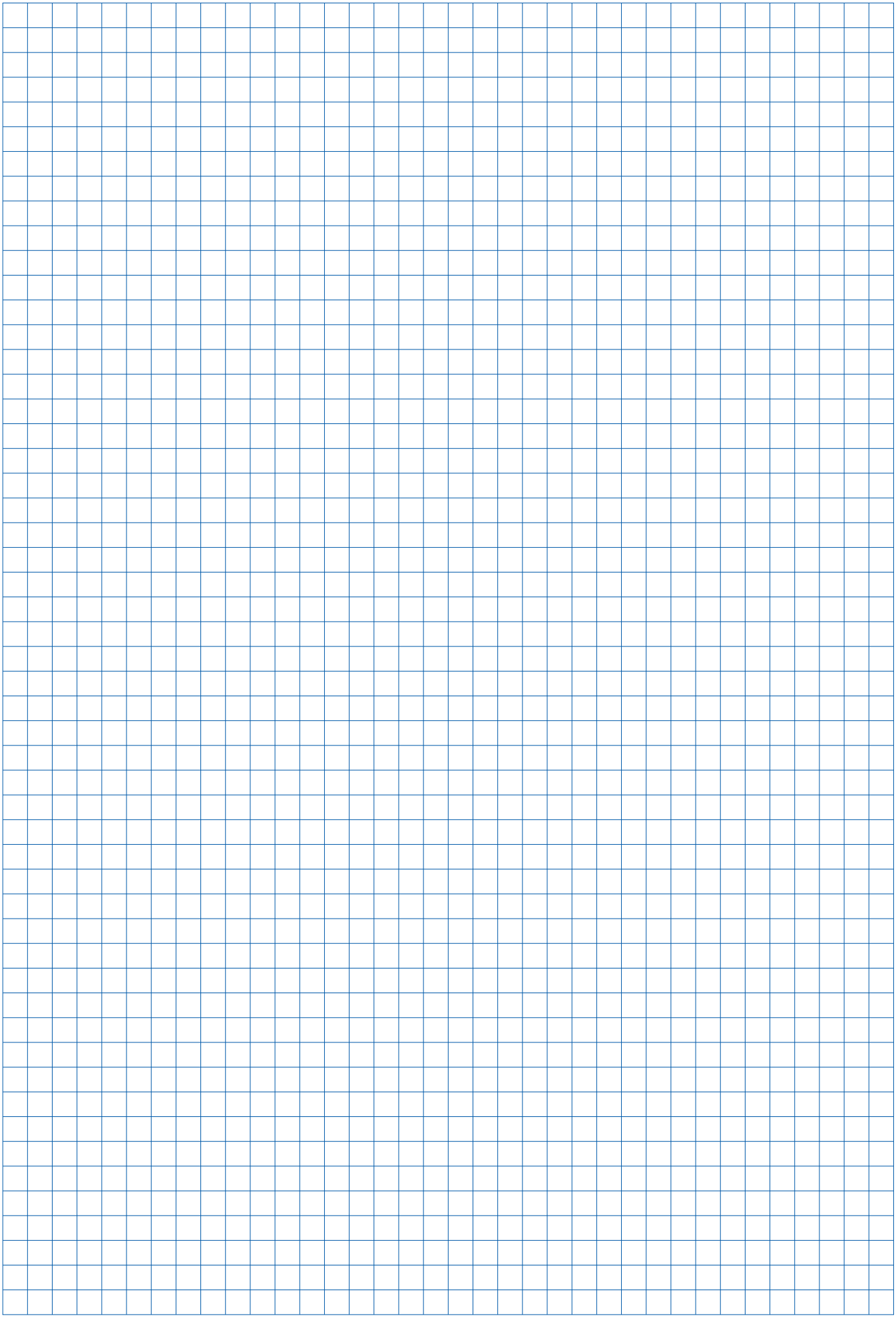




a ... 30 cm

A	Framax hinged inside corner I
B	Framax quick acting clamp RU
C	Framax universal waling
D	Framax wedge clamp





Shaft formwork / stripping aid

Shaft formwork with Stripping corner I

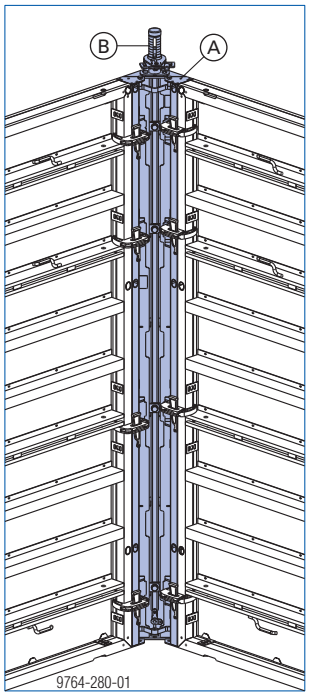
With the **Stripping corner I**, the entire shaft formwork unit is detached from the wall, in one piece, before being lifted and reset by crane.

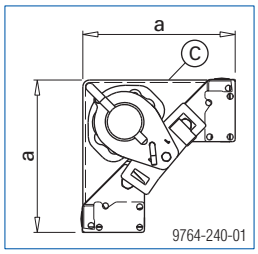
Product features:

- 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).

Two different types of **stripping spindle** can be used for setting up and stripping the formwork:

- Framax stripping spindle I with ratchet
- Framax stripping spindle I





a ... 30.0 cm

A	Framax stripping corner I
B	Framax stripping spindle I or Framax stripping spindle I with ratchet
C	Steel form-facing

Number of Framax quick-acting clamps RU needed:

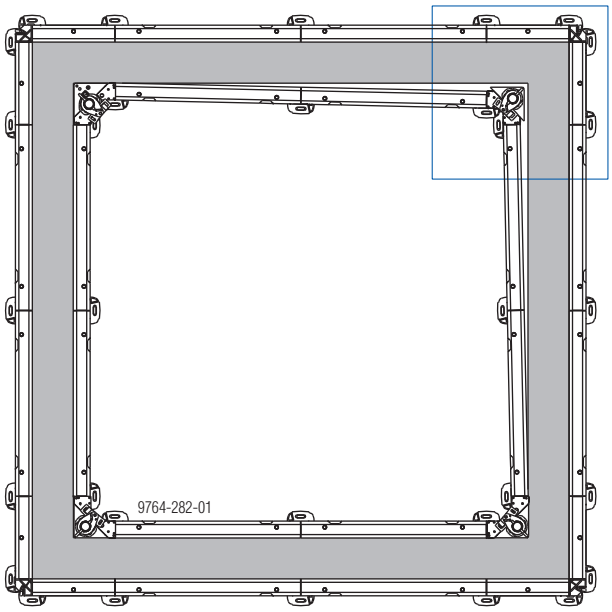
Height of the Stripping corner I	Number of clamps
1.35 m	4
2.70 m	6
3.30 m	8

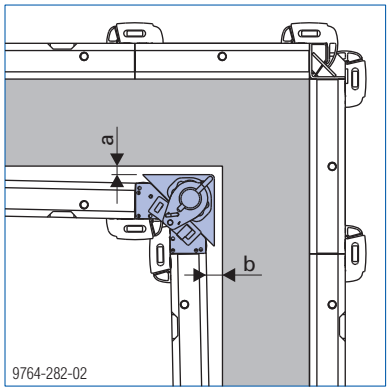
In order to obtain the full available stripping-play, make sure that the Framax quick-acting clamps RU are mounted at staggered heights (i.e. not opposite one another).

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

- whenever possible, not directly next to the stripping corners

Stripping play:

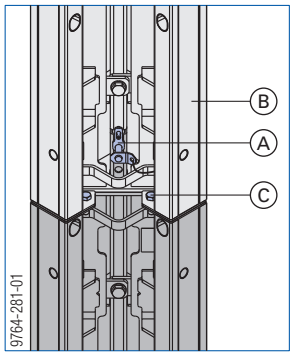




a ... 3.0 cm
b ... 6.0 cm

Vertical stacking of Framax stripping corners I

1) Pull out the coupling bolt.
2) Manoeuvre the Stripping corner I into place so that it is flush with the one below it.
3) Push the coupling bolt back in.
4) Bolt the Stripping corners I together with 2 hexagonal bolts M16x45.

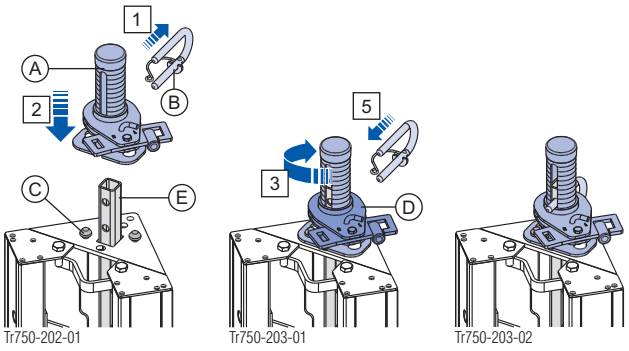


A	Coupling bolt
B	Stripping corner I
C	Hexagonal bolt M16x45

Mounting the Framax stripping spindles I

These mounting instructions apply to both **Stripping spindles I** and **Stripping spindles I with ratchet**.

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



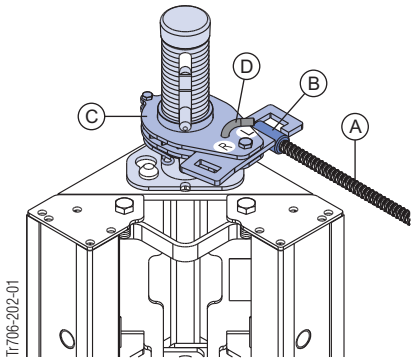
A	Framax stripping spindle I or Framax stripping spindle I with ratchet
B	U-bolt
C	Centering stud of stripping corner
D	Ratchet or spindle nut
E	Push-rod

Operating the Framax stripping spindle I with ratchet

➤ Screw a Tie-rod 15.0mm into the Weldable coupler 15.0 of the ratchet.

➤ **Setting up**:
- shift the change-over lever into the "**L**" position
- turn the ratchet **clockwise**

➤ **Stripping**:
- shift the change-over lever into the "**R**" position
- turn the ratchet **anti-clockwise**.



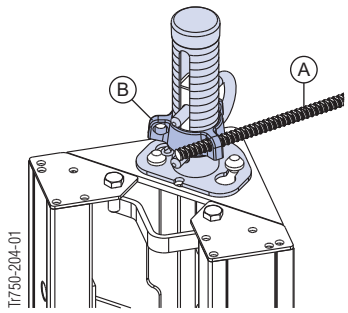
A	Tie-rod 15.0mm
B	Weldable coupler 15.0
C	Ratchet
D	Change-over lever

Operating the Framax stripping spindle I

➤ Push a Tie-rod 15.0mm through one of the holes in the spindle nut.

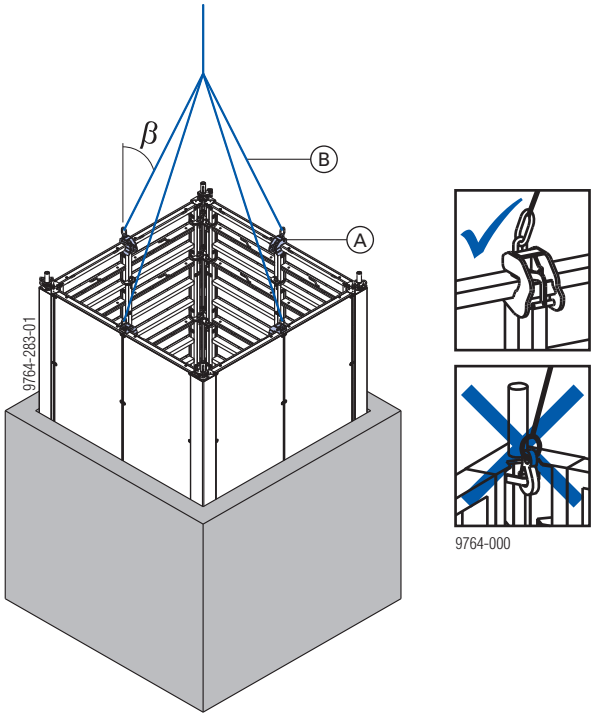
➤ **Setting up**: Twist the spindle nut **clockwise**.

➤ **Stripping**: Twist the spindle nut **anti-clockwise**.



A	Tie-rod 15.0mm
B	Spindle nut

Resetting by crane



β ... max. 15°

A Framax lifting hook

B Four-part lifting tackle (e.g. Doka 4-part chain 3.20m)

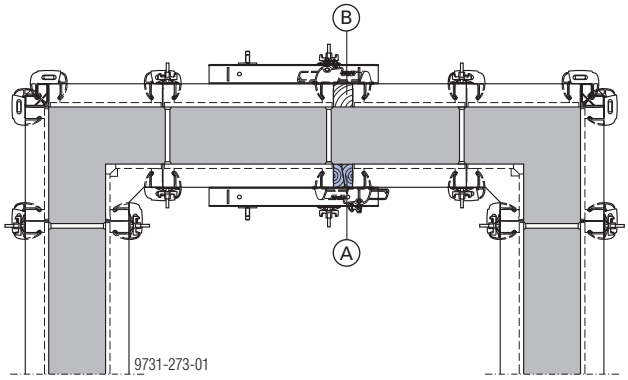
⚠ The crane hook on the Stripping corner I is not allowed to be used for lifting the shaft formwork.

➤ The shaft formwork may **only be reset using lifting hooks**.

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

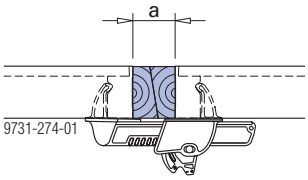
Facilitating stripping with the stripping timber

The diagonally cut stripping timber makes quick work of striking inside-formwork in narrow cross-sections such as lift-shafts or stair-wells.

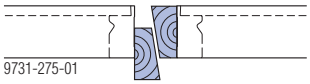


A **Inside** - stripping timber

B **Outside** - fitting timber



a ... 10 cm



The Framax stripping timber is available in lengths of 2.85 m. The stripping timbers thus project 15 cm beyond the ends of the panels, and so are easier to remove.

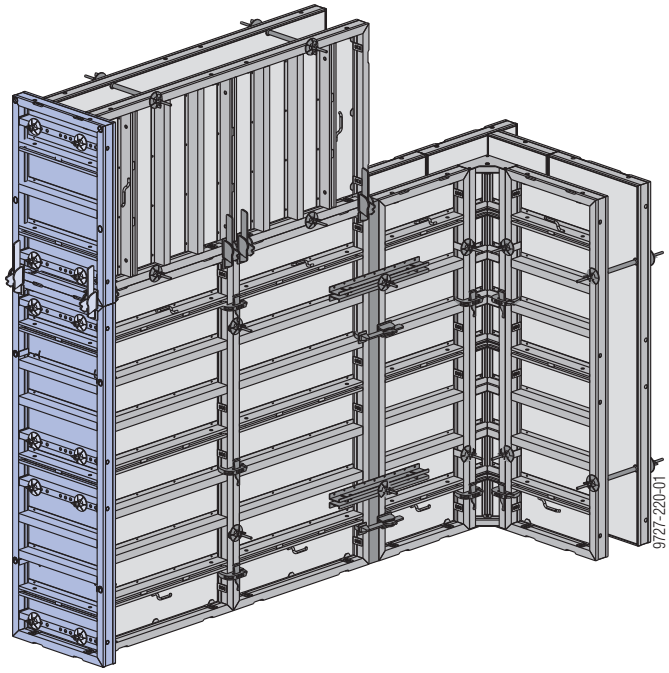
Stop-end formwork

There are **2 possible ways** of forming **stop-ends**:

- with universal panels
- with universal walings

For details regarding inter-panel connections near stop-ends (for increased tensile loads), see "Inter-panel connections for increased tensile loads".

with universal panels



The universal panels are mounted using universal fixing bolts and super-plates 15.0.

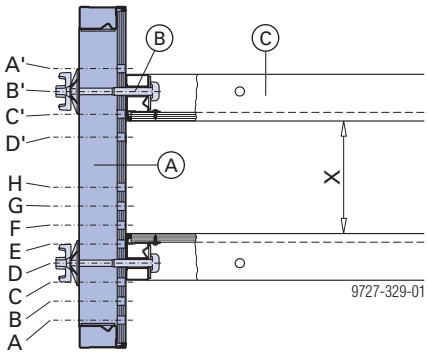
Required numbers of Universal fixing bolts + Super-plates 15.0:

Universal panel 0.90m	4
Universal panel 1.35m	4
Universal panel 2.70m	8
Universal panel 3.30m	10

Framax Xlife universal panel 0.90m

Universal panel 0.90m, 1.35m and 2.70m

The stop-end formwork can be **flexibly adapted to different wall thicknesses** by the two integrated hole-grids.

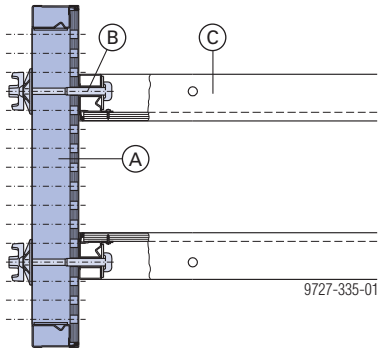


A	Framax Xlife universal panel 0.90m
B	Framax universal fixing bolt + Super-plate 15.0
C	Framax Xlife panel (panel width > 0.30m)

Combination	Wall thickness X	
A' with H to A	16 to 51 cm	in 5 cm increments
B' with H to A	10 to 45 cm	
C' with H to A	4 to 39 cm	
D' with G to A	3 to 33 cm	

Universal panel 3.30m

The continuous **5 cm hole-grid** makes it possible to form stop-ends on walls of **up to 60 cm thick**.

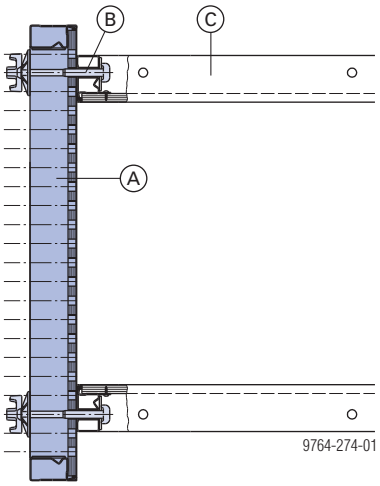


A	Framax Xlife universal panel 0.90x3.30m
B	Framax universal fixing bolt + Super-plate 15.0
C	Framax Xlife panel (panel width > 0.30m)

Framax Xlife universal panel 1.20m

The continuous **5 cm hole-grid** makes it possible to form stop-ends on walls of **up to 75 cm thick**.

Note:
If the concrete pressure is reduced, wall thicknesses of up to 90 cm are also possible.



A	Framax Xlife universal panel 1.20m
B	Framax universal fixing bolt + Super-plate 15.0
C	Framax Xlife panel (panel width > 0.30m)

with Universal walings

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

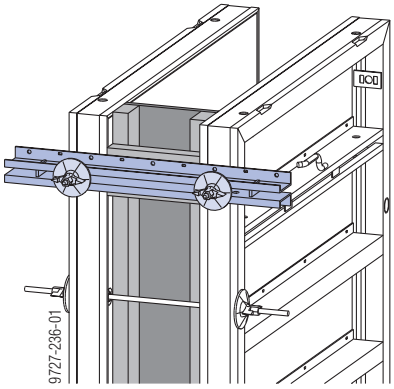
Universal waling:
permitted moment: 5.2 kNm

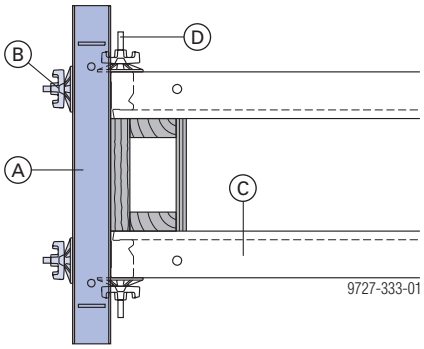
There are **2 possible ways** of **fastening the universal walings**:

- 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.



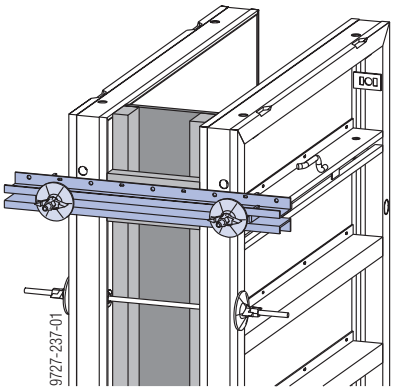


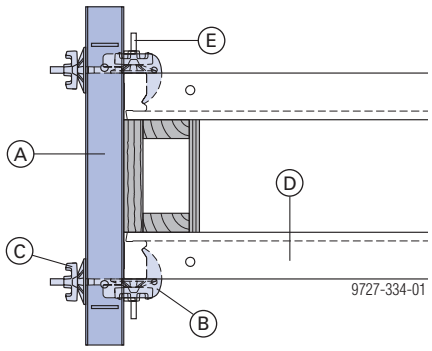
A	Framax universal waling
B	Framax universal fixing bolt + Super-plate 15.0
C	Framax Xlife panel (panel width > 0.30m)
D	Doka form-tie system

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

Stop-end ties

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





A	Framax universal waling or Multi-purpose waling WS10 Top50
B	Framax stop-end tie (clamping range: 9 - 13 cm)
C	Super-plate 15.0
D	Framax Xlife panel
E	Doka form-tie system

Position of the stop-end ties:

In order to ensure uniform load transfer, the stop-end ties should be fitted in the middle (between 2 cross-profiles) wherever possible.

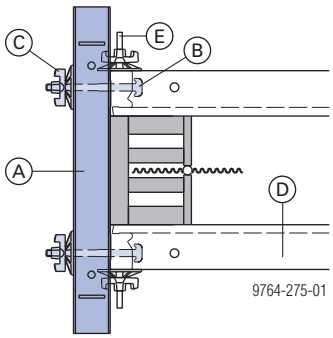
Framax stop-end tie:
Permitted capacity: 15.0 kN

Multi-purpose waling WS10 Top 50:
Permitted moment: 11.5 kNm

Height of panel: **2.70m**			
Pressure of fresh concrete P_k: **60 kN/m²**		Pressure of fresh concrete P_k: **80 kN/m²**	
Wall thickness	Universal walings / multipurpose walings	Wall thickness	Universal walings / multipurpose walings
Up to 40 cm	2 units	Up to 30 cm	2 units
Up to 50 cm	3 units	Up to 35 cm	3 units
Up to 60 cm	4 units	Up to 45 cm	4 units
		Up to 60 cm	5 units

Horizontal panels		
Width of panel	Wall thickness	Universal walings / multi-purpose walings
up to 0.45m	up to 60 cm	1 unit
over 0.45m		2 units

Stop-ends with joint-sealing tapes



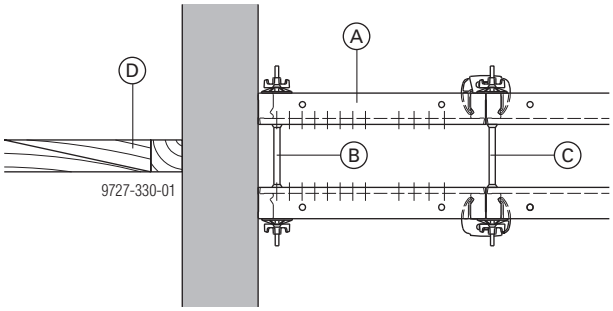
A	Framax universal waling or Multi-purpose waling WS10 Top50
B	Framax universal fixing bolt or Framax stop-end tie
C	Super-plate 15.0
D	Framax Xlife panel
E	Doka form-tie system

Wall junctions, offsets and steps

Connecting to existing walls

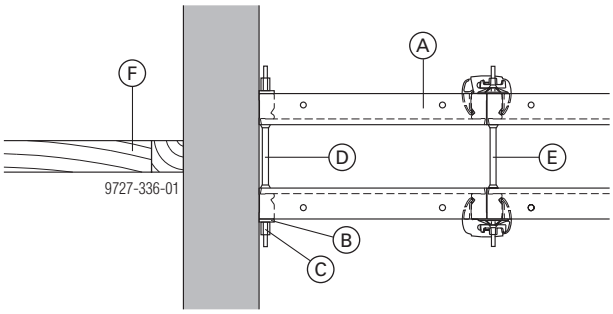
Right-angled connections

with a Framax Xlife universal panel



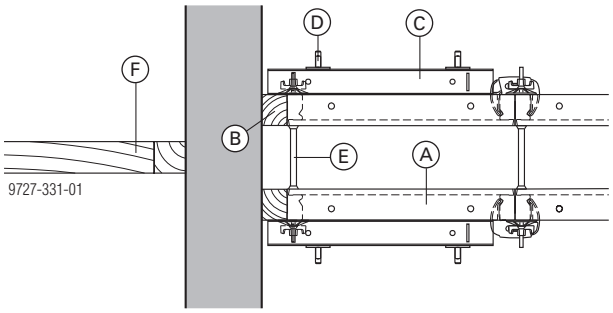
A Framax Xlife universal panel
B Doka form-tie system 15.0
(on the Universal panel 2.70m, 3 form-ties are required, one in the first hole of each perforated profile)
C Doka form-tie system
D In-place timber brace

with Framax Xlife panel and pressure plate 6/15



A Framax Xlife panel
B Framax pressure plate 6/15
C Hexagon nut 15.0
D Doka form-tie system 15.0mm
E Doka form-tie system
F In-place timber brace

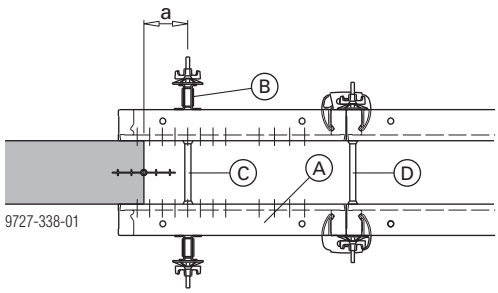
with Framax Xlife panel and squared timbers



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

In-line connections

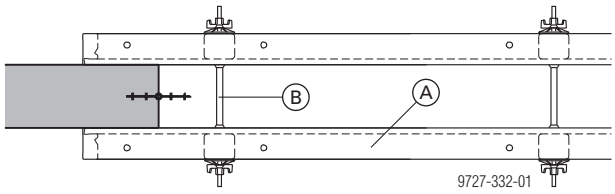
with a Framax Xlife universal panel



a ... max. 20.0 cm

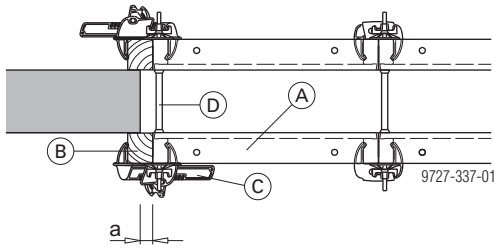
A Framax Xlife universal panel
B Framax universal waling 1.50m
C Doka form-tie system 15.0 (in the Universal panel 2.70m, 3 form-ties are needed)
D Doka form-tie system

with Framax Xlife panel 2.40x2.70m



A Framax Xlife panel 2.40x2.70m
B Doka form-tie system

with Framax Xlife panel and squared timbers

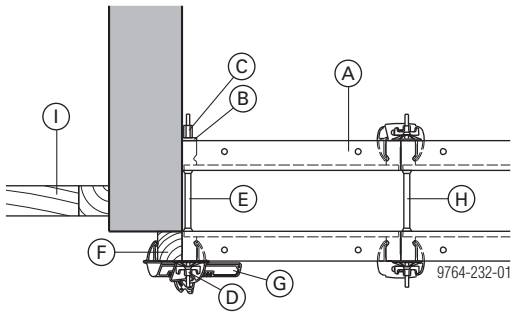


a ... max. 5 cm

A Framax Xlife panel
B Squared timber
C Framax multi-function clamp
D Doka form-tie system

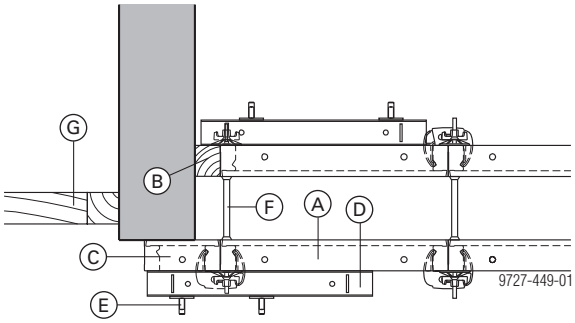
Corner connections

without closure



A	Framax Xlife panel
B	Framax pressure plate 6/15
C	Hexagon nut 15.0
D	Super-plate 15.0
E	Doka form-tie system 15.0
F	Squared timber
G	Framax multi-function clamp
H	Doka form-tie system
I	In-place timber brace

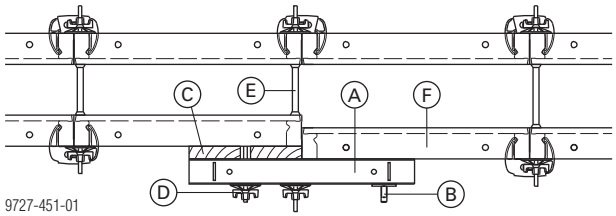
with closure



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

Wall offsets

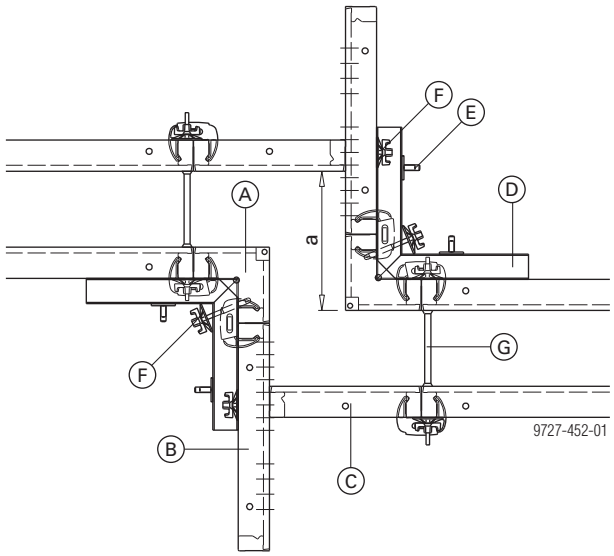
one-sided wall offset up to max. 12 cm



A	Framax universal waling
B	Framax wedge clamp
C	Squared timber
D	Super-plate 15.0 + Framax universal fixing bolt 10-25cm
E	Doka form-tie system
F	Framax Xlife panel

Note:
Where the sections of wall are short (high longitudinal tension), shoring is necessary.

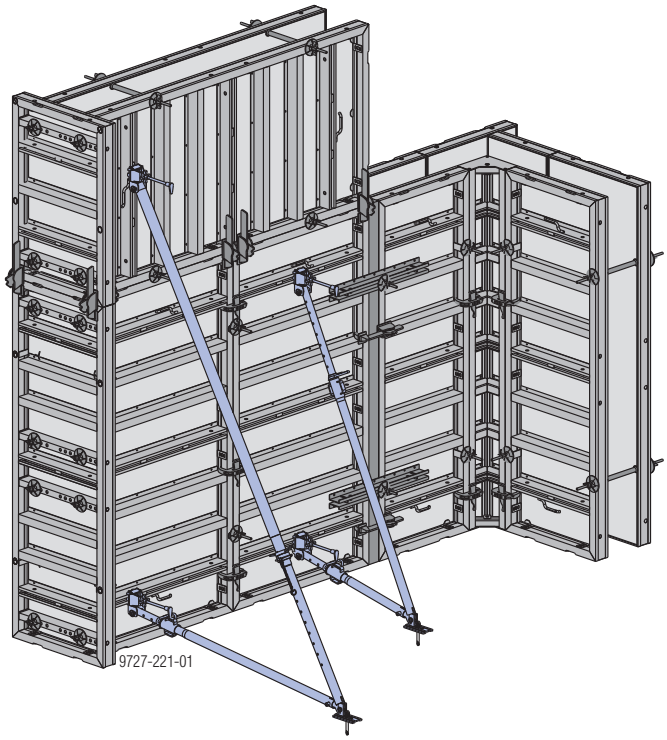
Wall steps



a ... 35 to 90 cm

A	Framax Xlife inside corner
B	Framax Xlife universal panel
C	Framax Xlife panel 0.60m
D	Framax universal corner waling
E	Framax wedge clamp
F	Super-plate 15.0 + Framax universal fixing bolt
G	Doka form-tie system

Plumbing accessories



Panel struts, Eurex 60 550 and Adjustable plumbing struts secure the elements against wind loads, and make it easier to plumb and align the formwork.

Important note:

The formwork panels must be held stable in **every** phase of the construction work!

Please observe all applicable safety regulations!

CAUTION

There is a risk of the formwork tipping over **in high winds**.

➤ 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

Number of struts per 2.70 m width of gang-form:

Formwork height [m]	Panel strut		Eurex 60 550 / Adjustable plumbing strut
	340	540	
4.05	1 *)		
5.40		1	
6.00	1	1	
7.20	1	2	
8.10		1	1
Max. anchoring load: F_k = **13.5 kN** (R_d = **20.3 kN**)			

*) Up to a height of 3.30 m, the spacing of the props can be extended to 4.05 m apart.

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. In cases where higher wind pressure is encountered, the number of props must be determined by statical calculation.

For more information, see the Calculation Guide "Wind loads to the Eurocodes".

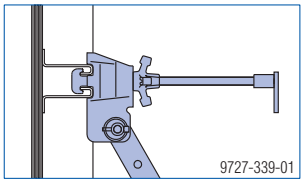
Note:

Every gang-form must be supported by **at least 2 panel struts**.

Example: Where the formwork height is 7.20 m, the following are needed for every 5.40 m wide gang-form:

- 2 Panel struts 340
- 4 Panel struts 540

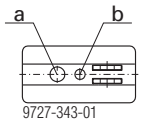
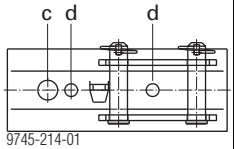
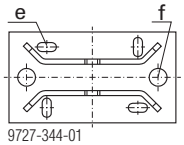
Connection in the waling profile



Fixing to the ground

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

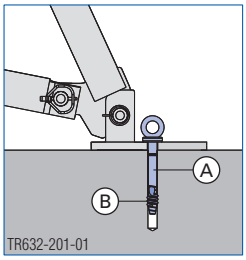
Drilled holes in the footplates

Panel strut 340, 540	Eurex 60 550	Adjustable plumbing strut
		 Anchor x2!

a ... diam. 26 mm
b ... diam. 18 mm
c ... diam. 28 mm
d ... diam. 18 mm
e ... Slotted hole diam. 18x38 mm
f ... diam. 35 mm

Anchoring the footplate

The **Doka Express anchor** can be re-used many times over - the only tool needed for screwing it in is a hammer.



A Doka Express anchor 16x125mm
B Doka coil 16mm

Characteristic cube compressive strength of the concrete ($f_{ck,cube}$): min. 25 N/mm² or 250 kg/cm² (C20/25 grade concrete)

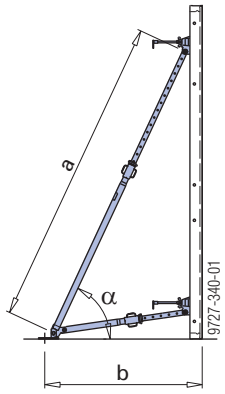
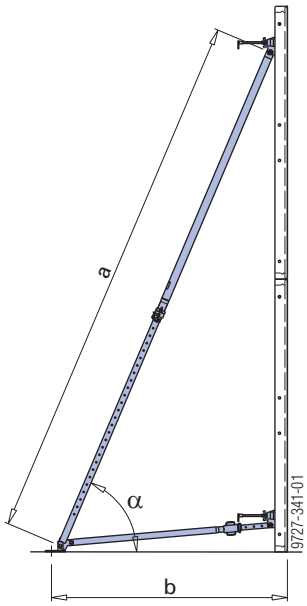
Follow the Fitting Instructions!

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

Panel struts

Product features:

- Can be telescoped in 8 cm increments
- Fine adjustment by screw-thread
- All parts are captively integrated - including the telescopic tube (has safety stop to prevent dropout)

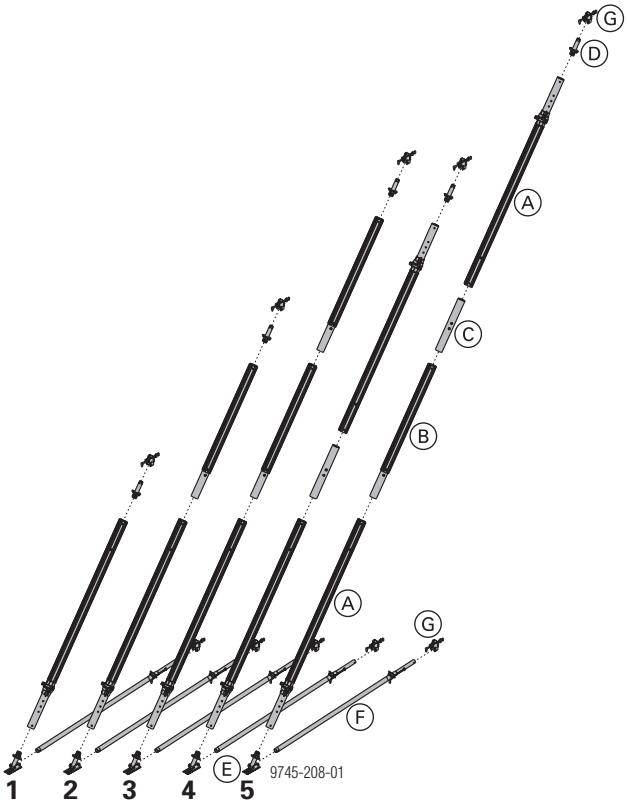
Panel strut 340	Panel strut 540
	
a ... 190.8 - 341.8 cm b ... 115.8 - 165.5 cm	a ... 310.5 - 549.2 cm b ... 207.7 - 256.5 cm

α ... approx. 60°

Eurex 60 550 used as a shoring & plumbing accessory

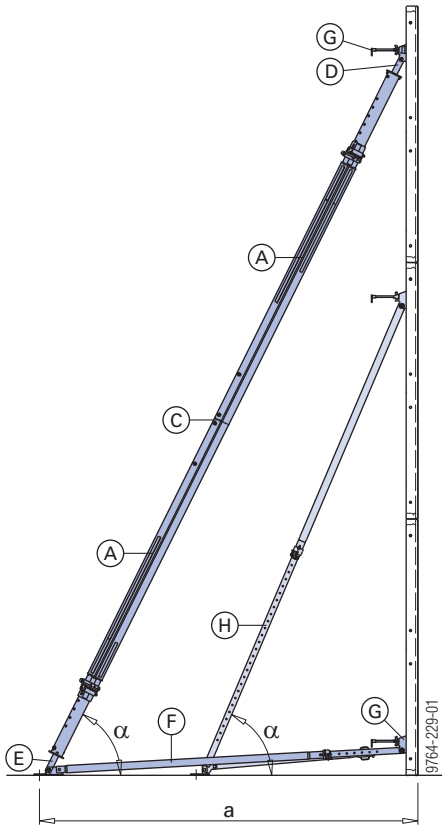
As the "Doka plumbing strut Eurex 60 550" - fitted with the appropriate accessories - this prop can also be used **for shoring high wall formwork**.

- Can be connected directly – without modification – to Doka framed formwork and Doka timber-beam formwork
- The "Adjusting strut 540 Eurex 60" makes handling much easier, especially when the formwork is being transferred.
- Can be telescoped in 10 cm increments, with continuous fine adjustment.



Type	Length extended L [m]	Plumbing strut Eurex 60 550 **(A)**	Extension Eurex 60 2.00m **(B)**	Coupler Eurex 60 **(C)**	Connector Eurex 60 **(D)**	Plumbing strut shoe Eurex 60 **(E)**	Adjusting strut 540 Eurex 60 **(F)**	Prop head **(G)**	Weight [kg]
1	3.79 - 5.89	1	---	---	1	1	1	2	91.1
2	5.79 - 7.89	1	1	---	1	1	1	2	112.4
3	7.79 - 9.89	1	2	---	1	1	1	2	133.7
4	7.22 - 11.42	2	---	1	1	1	1	2	142.5
5	9.22 - 13.42	2	1	1	1	1	1	2	163.8

Example of a possible combination of Type 4



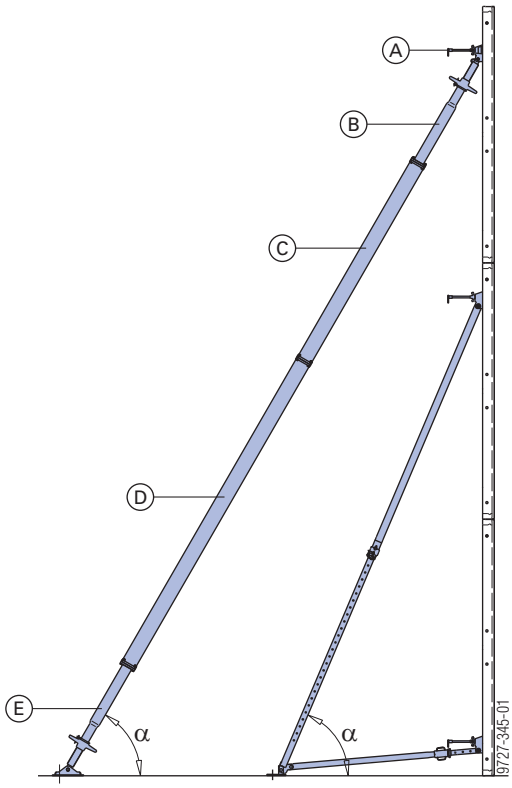
a ... 345.2 - 586.5 cm
α ... approx. 60°

A	Plumbing strut Eurex 60 550
B	Extension Eurex 60 2.00m
C	Coupler Eurex 60
D	Connector Eurex 60
E	Plumbing strut shoe Eurex 60
F	Adjusting strut 540 Eurex 60
G	Prop head
H	Panel strut 540

A good rule of thumb here is:

The length of the shoring & plumbing accessory (i.e. the complete Eurex 60 550 plumbing-strut assembly) = the height of the element to be shored.

Adjustable plumbing strut



α ... approx. 60°
See table below for required numbers and types of intermediate pieces

A Spindle head
B Spindle element without hinged end-plate
C Intermediate piece 2.40m
D Intermediate piece 3.70m
E Spindle element with hinged end-plate

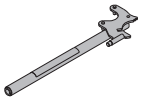
Type	Length L [m]	Permitted axial load [kN] under compression [1]			Spindle element with hinged end-plate	Intermediate pieces		Spindle element without hinged end-plate	Spindle head [2]	Hexagonal bolts M16 x 60 8.8 Nut M16 8 Spring washer A16 [3]	Weight [kg]
		min. L	half L	max. L		short 2.40 m	long 3.70 m				
1	6.0 - 7.4	40.0	40.0	27.8	1	—	1	1	1	8	153.9
2	7.1 - 8.5	40.0	38.2	24.3	1	2	—	1	1	12	183.7
3	8.4 - 9.8	40.0	35.6	21.7	1	1	1	1	1	12	209.1
4	9.7 - 11.1	40.0	31.7	19.0	1	—	2	1	1	12	234.5
5	10.8 - 12.2	40.0	27.8	16.1	1	2	1	1	1	16	264.3
6	12.1 - 13.5	34.2	24.1	13.4	1	1	2	1	1	16	289.7
7	13.4 - 14.8	27.1	21.5	12.2	1	—	3	1	1	20	315.7
8	14.5 - 15.9	20.8	17.5	9.5	1	2	2	1	1	20	344.9

[1] ... Permitted axial load under tension = 40 kN
[2] ... On timber-beam formwork: Also allow for the Connecting pin 10cm and the Spring cotter 5mm
[3] ... Included in scope of supply

A good rule of thumb here is:

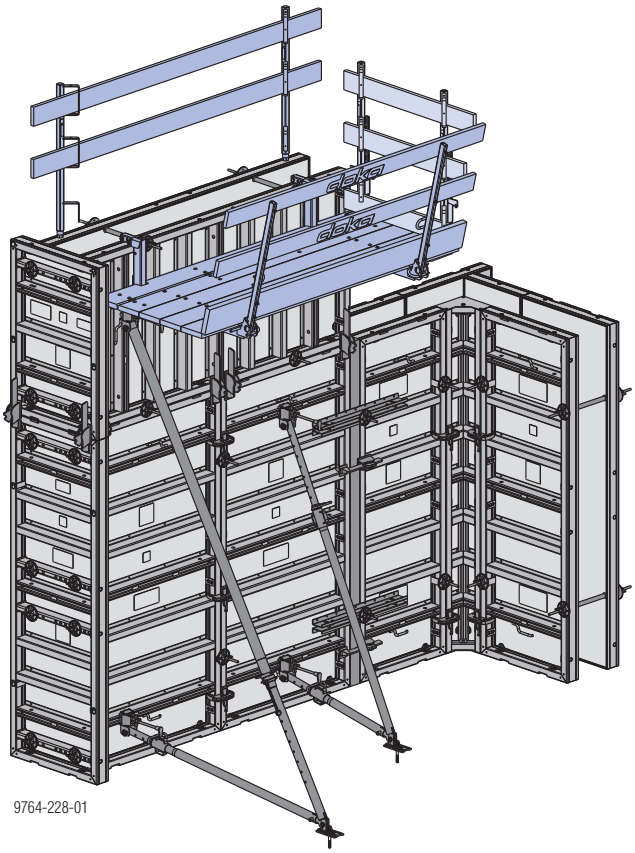
The length of the Adjustable plumbing strut should be the same as the height of the formwork to be supported.

Universal dismantling tool
The easy way to turn the spindle nuts.



Pouring platforms

can be quickly readied for use, and make concreting both easy and safe.



Preconditions for use:

Observe all applicable safety regulations.

Only fix the pouring platform onto formwork constructions that are sufficiently stable to transfer the expected loads.

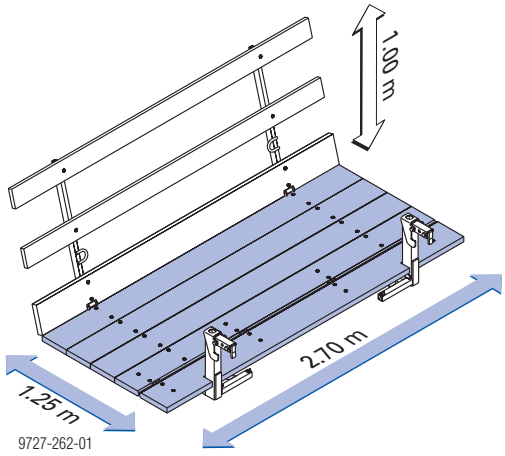
Ensure that the formwork gang has sufficient stiffness.

Shore the formwork in a windproof manner when erecting it and when it is temporarily placed in the standing position.

- If the formwork is lifted with the pouring platform still mounted to it, the platform must be secured so that it cannot slip to either side.
- It is NOT allowed to place the formwork on its side while the pouring platform is still mounted!
- Horizontal panels in vertically stacked configurations must also be tied at the top edge when used with pouring platforms!
- For length adjustments, it may be necessary to place floor planking as a bridge (max. 50 cm) between two platforms. Minimum plank overlap: 25 cm.

Framax pouring platform U 1.25/2.70m

Pre-assembled, collapsible, ready-to-use platform with width of 1.25 m for convenient, safe working.

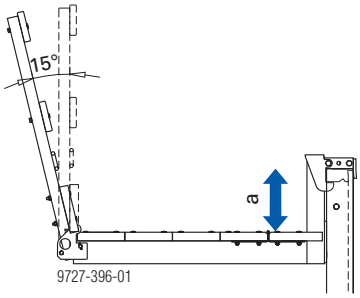


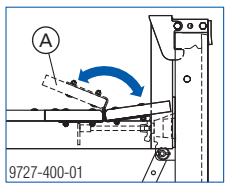
Permitted service load: 1.5 kN/m² (150 kg/m²)
Load Class 2 to EN 12811-1:2003

Other possible areas of use for the Framax pouring platform U:

- Framed formwork Alu-Framax Xlife
- Large-area formwork Top50 (with Top50 adapter for Framax pouring platform U)
- Doka wall formwork FF 20 (with FF20 adapter for Framax pouring platform U)

- The level of the floor planking is 30 cm below the top edge of the formwork. This means that there is a "boundary" on the side facing the formwork.
- The guard rail can be locked in either of two positions:
  - vertical
  - tilted by 15°
- Tilt-back board:
  - The front deck-board can be tilted back so that panel struts can be attached to the panel.
  - This lets you get at form-ties at the top of the formwork, and makes room for any projecting universal walings.



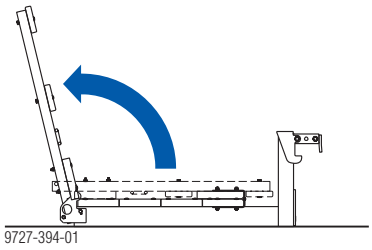


a ... 30 cm

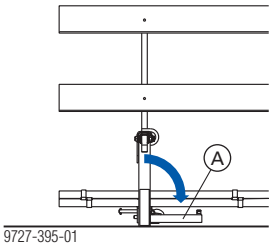
A Tilt-back board

Preparing the pouring platform:

➤ Tilt up the guard rails and lock them in position.



➤ Put both side stops into position.

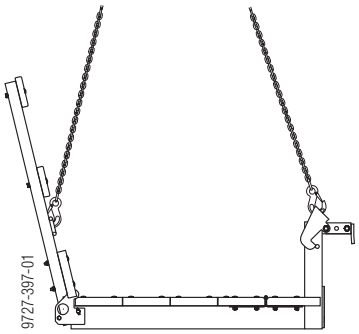


A Side stop

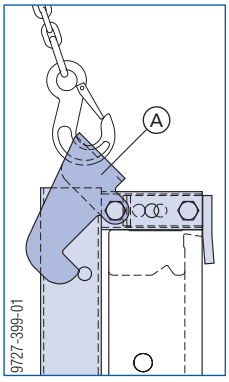
➤ Close the decking with the tilt-back board.

Lifting the platform onto the formwork:

➤ Attach a four-part lifting tackle (e.g. Doka 4-part chain 3.20m) to the pouring platform and hoist it towards the formwork.



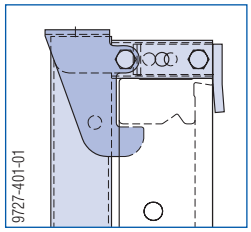
➤ Fix the pouring platform to the top of the formwork.



A Safety hook

➤ Detach the four-part lifting tackle.
The safety hooks latch into place automatically.

Do a sight check to make sure that the safety hooks have latched into place!



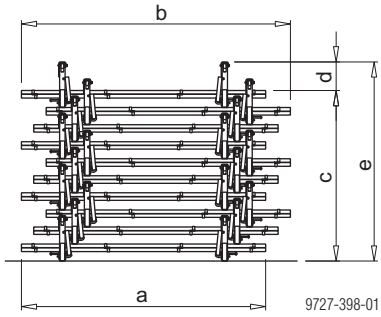
The pouring platform is now secured against accidental lift-out.

Lifting the platform off the formwork:

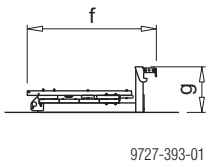
➤ Attach a four-part lifting tackle to the pouring platform and raise it.
When the pouring platform is raised by the four-part lifting tackle on the safety hook, the platform is automatically unlocked.

Transporting, stacking and storing

Stack of 10 Framax pouring platforms U



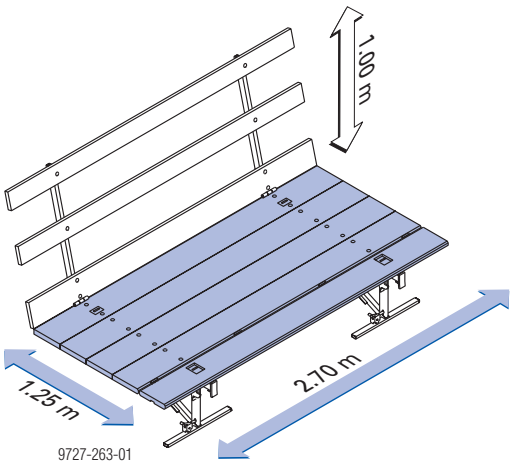
Single collapsed platform



a ... 268 cm
b ... 295 cm
c... 10 x 18.7 cm
d... 31 cm
e... approx. 218 cm
f... 142 cm
g... 50 cm

Framax pouring platform O 1.25/2.70m

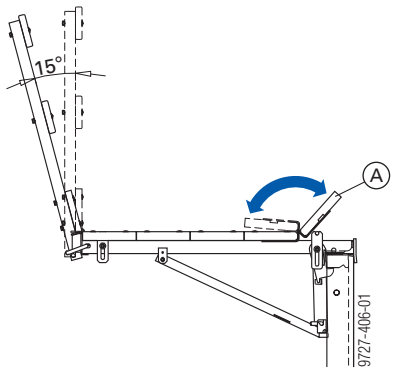
Pre-assembled, collapsible, ready-to-use platform with width of 1.25 m for convenient, safe working.



Permitted service load: 1.5 kN/m² (150 kg/m²)
Load Class 2 to EN 12811-1:2003

Other possible areas of use for the Framax pouring platform O:
- Framed formwork Alu-Framax Xlife
- Wall formwork Top50 and FF20 - with Top50 adapter for Framax pouring platform O

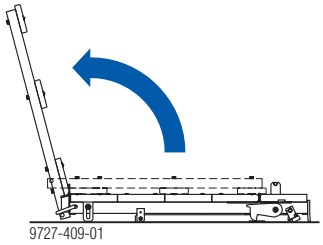
- The level of the planking is above the top edge of the formwork.
- The guard rail can be locked in either of two positions:
  - vertical
  - tilted by 15°
- Tilt-back board:
  - The platform decking protects the formwork from concrete spatter.
  - This lets you get at form-ties at the top of the formwork, and makes room for any projecting universal walings.



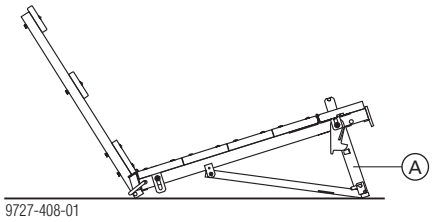
A Tilt-back board

Preparing the pouring platform:

➤ Tilt up the guard rails and lock them in position.

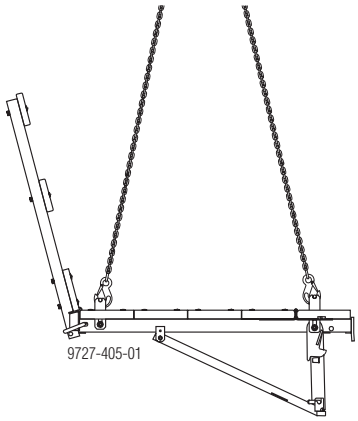


➤ Unfold the bracket **(A)** and latch it into place.

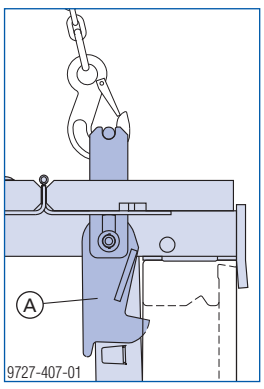


Lifting the platform onto the formwork:

➤ Attach a four-part lifting tackle (e.g. Doka 4-part chain 3.20m) to the pouring platform and hoist it towards the formwork.



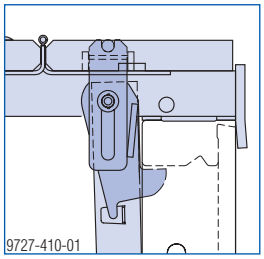
➤ Fix the pouring platform to the top of the formwork.



A Safety hook

➤ Detach the four-part lifting tackle.
The safety hooks latch into place automatically.

Do a sight check to make sure that the crane suspension hooks have been sunk in!



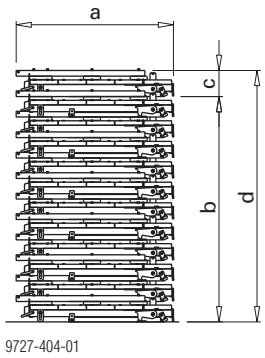
The pouring platform is now secured against accidental lift-out.

Lifting the platform off the formwork:

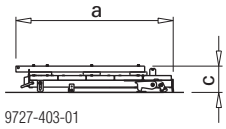
➤ Attach a four-part lifting tackle to the pouring platform and raise it.
When the pouring platform is raised by the four-part lifting tackle on the crane suspension hook, the platform is automatically unlocked.

Transporting, stacking and storing

Stack of 12 Framax pouring platforms O



Single collapsed platform



a ... 138 cm
b ... 11 x 18 cm
c ... 23 cm
d ... approx. 220 cm

Pouring platforms with single brackets

Preconditions for use:

Observe all applicable safety regulations.

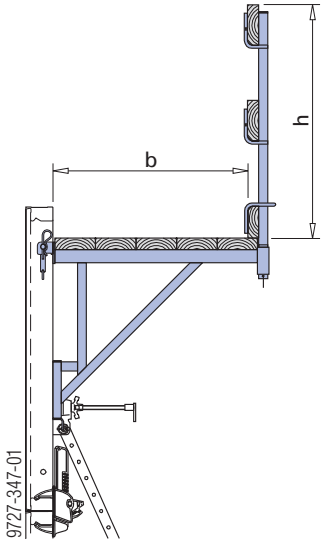
Only fix the pouring platform onto formwork constructions that are sufficiently stable to transfer the expected loads.

Ensure that the formwork gang has sufficient stiffness.

Shore the formwork in a windproof manner when erecting it and when it is temporarily placed in the standing position.

Framax bracket 90

With the Framax bracket 90, pouring platforms with a platform width of 90 cm can be assembled. These pouring platforms can easily be mounted by hand.



b ... 87 cm
h ... 103 cm

Permitted service load: 1.5 kN/m² (150 kg/m²)
Load Class 2 to EN 12811-1:2003
Max. influence width: 2.00 m

The brackets must be secured against accidental lift-out

Deck-boards and guard-rail boards: Per 1 metre length of platform, 0.9 m² of deck-boards and 0.6 m² of guard-rail boards are needed (in-situ).

Plank thicknesses for support centres of up to 2.50 m:

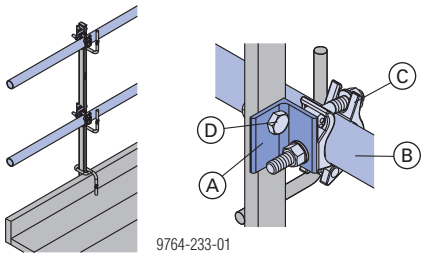
- Deck-boards min. 20/5 cm
- Guard-rail boards min. 20/3 cm

Note:
The plank and board thicknesses given here comply with the C24 category of EN 338 (S10 of DIN 4074).
In Germany, wooden deck-boards must bear the "Ü-symbol" mark of conformity.

Fastening the deck-boards: with 5 square bolts M 10x120 per bracket (not included in scope of supply).

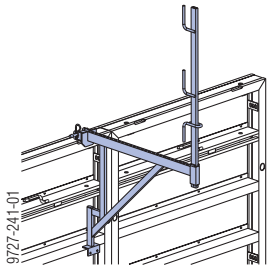
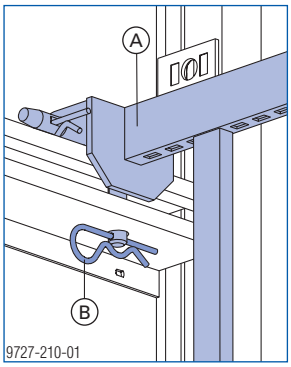
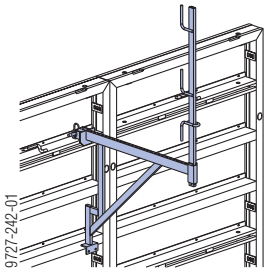
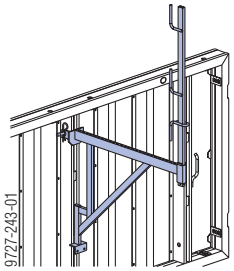
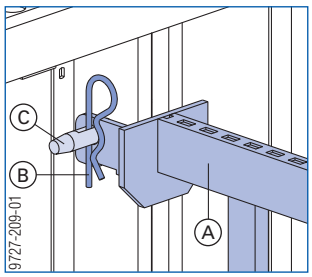
Fastening the guard-rail boards: Use nails

Using scaffolding tubes



Tools: Fork spanner 22 for mounting the couplers and scaffolding tubes.

A	Scaffold tube connector
B	Scaffolding tube 48.3mm
C	Screw-on couplers 48mm 50
D	Hexagon screw M14x40 + hexagon nut M14 (not included with product)

Possible ways of fixing	Lift-out guard
In the frame profile 	
In the cross profile 	
In the cross profile on horizontal panels 	

A Framax bracket 90

B Spring cotter

C Wedge bolt RA 7.5

Note:

Where brackets need to be fixed to the middle cross profile of upright Framax Xlife universal panels 2.70m and 3.30m (2008 models onward), this can also be done in the left-hand borehole.

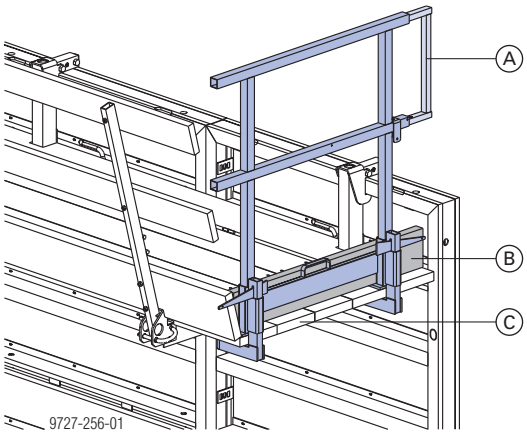
Sideguards on exposed platform-ends / opposing guard-rail

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.

Note:
The plank and board thicknesses given here comply with the C24 category of EN 338 (S10 of DIN 4074).

with Side handrail clamping unit T

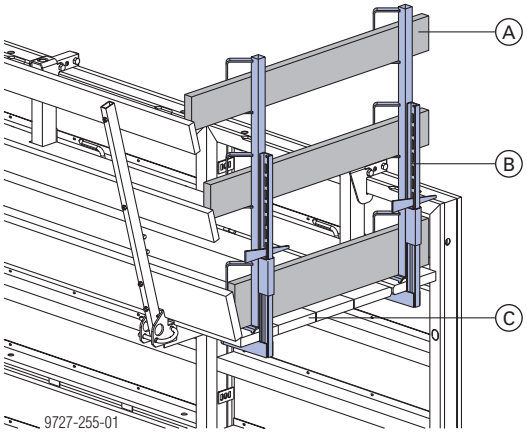


A Integrated telescopic handrail
B Guard-rail board min. 15/3 cm (in-situ)
C Pouring platform

The sideguard consists of:
- 1 side handrail clamping unit T
- 1 railing plank min. 15/3 cm (in situ)

How to mount:
- ➤ Fasten the clamping component to the floor planking of the pouring scaffold, using the wedge (clamping range 4 to 6 cm).
- ➤ Slot in the railing.
- ➤ Extend the telescopic railing to the desired length and secure it.
- ➤ Insert footguard (railing plank).

with Handrail clamp S



A Guard-rail board min. 15/3 cm (in-situ)
B Handrail clamp S
C Pouring platform

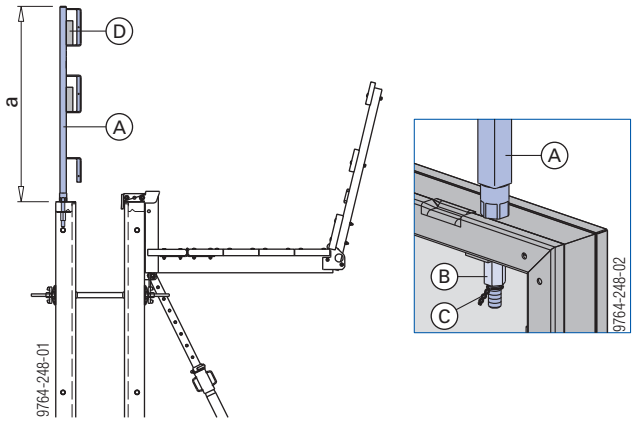
The sideguard consists of:
- 2 Handrail clamps S
- 3 guardrail boards, min. 15 x 3 cm (in-situ)

How to mount:
- ➤ Fasten the Handrail clamps tightly to the floor decking of the pouring platform (clamping range 2 cm - 43 cm).
- ➤ Secure the guardrail boards to the loops on the Handrail clamp S with one 28 x 65 nail per loop.

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

Opposing guard-rail with Guard rail 1.10m

If there are working platforms mounted on one side of the formwork only, then the **Guard rail 1.10m** can be used to erect **guard rails an the opposing formwork**.



a ... 120 cm

A	Handrail post 1.10m
B	Hexagon nut 20.0
C	Hexagon nut secured by e.g. binding wire
D	Guard-rail board

How to mount:

- ➤ Fix the Guard rail 1.10m into the cross borehole of the framed panel with a hexagon nut 20.0.
- ➤ Secure the Hexagon nut 20.0.

Follow the directions in the "Handrail post 1.10m" User Information!

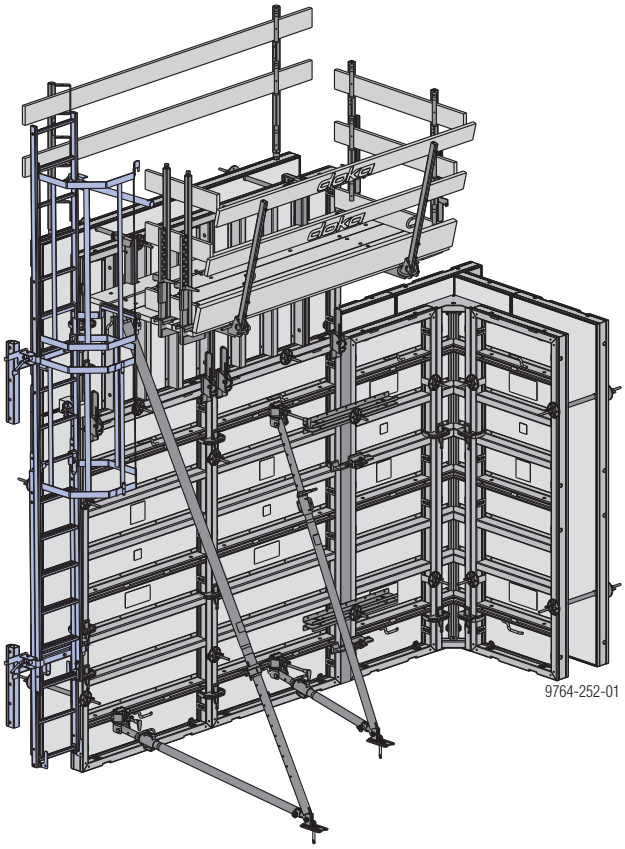
Ladder system

The Ladder system XS permits safe vertical access to and from the intermediate platforms and pouring platforms:

- when attaching/detaching the formwork to/from the crane tackle
- when opening/closing the formwork
- when placing the reinforcement
- during pouring

Note:
The Ladder system XS must be implemented in such a way that all national regulations are complied with.

WARNING
➤ The Ladders XS may only be used as part of the XS system, and must NOT be used separately (as "lean-to" ladders).



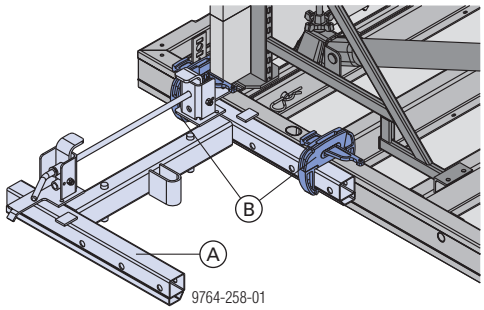
Assembly instructions

Preparing the formwork

➤ Pre-assemble elements face-down on an assembly bench (see "Inter-element connections").
➤ Only mount the platforms and panel struts to the element when this is in the flat position (see "Pouring platforms" and "Plumbing accessories").

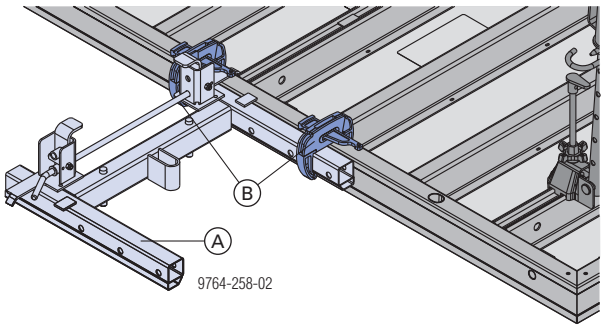
Attaching connectors to the formwork

➤ Place the "Connector XS wall formwork" against the frame profile near the top of the formwork.
➤ Fasten the "Connector XS wall formwork" to the frame profile using two Quick-acting clamps RU.



A Connector XS wall formwork
B Quick-acting clamps RU

➤ Place a "Connector XS wall formwork" against the frame profile, near the bottom of the formwork.
➤ Fasten the "Connector XS wall formwork" to the frame profile using two Quick-acting clamps RU.



A Connector XS wall formwork
B Quick-acting clamps RU

➤ For formwork heights above 5.85 m, an extra "Connector XS wall formwork" must be attached in the same way near the middle of the formwork (i.e. approx. half-way up).
This extra connector prevents the ladder swaying when site crew climb up or down it.

Fixing the ladder

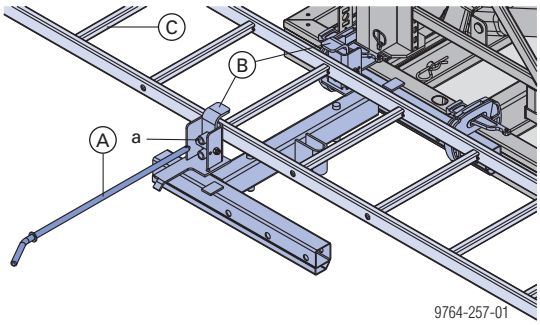
to the top "Connector XS wall formwork"

➤ Pull out the push-in bolt, and pivot the two safety hooks out of the way.

➤ Place the System ladder XS 4.40m onto the Connector XS, with the hooking brackets facing downwards.

➤ Close the safety hooks.

➤ Insert the push-in bolt into whichever rung of the ladder is suitable for the height of the formwork, and secure it with a linch pin.



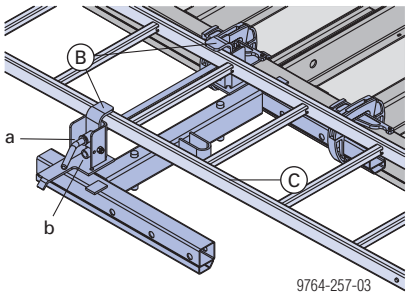
- in the front position (a)

A	Push-in bolt
B	Safety hooks
C	System ladder XS 4.40m

to the bottom "Connector XS wall formwork"

➤ Pull out the push-in bolt, pivot both safety hooks out of the way, and place the ladder onto the Connector XS.

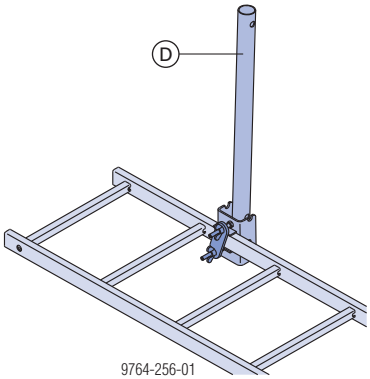
➤ Close the safety hooks, re-insert the push-in bolt and secure it with a linch pin.



– in the front position (a) for one single ladder
– in the rear position (b) in the telescoping zone (for 2 ladders)

B	Safety hooks
C	Ladder XS

➤ Mount the Securing barrier XS to the ladder, with fixing hooks and wing-nuts.



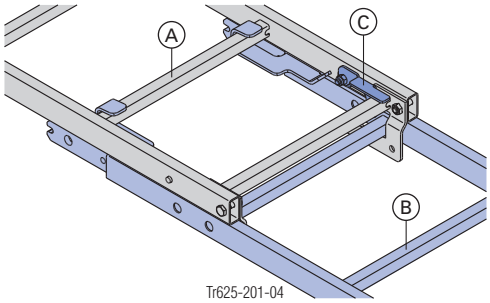
D	Securing barrier XS

The components needed for mounting the Securing barrier XS are captively attached to it.

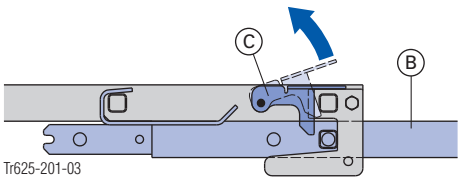
Ladder system XS for heights above 3.75 m

Telescoping ladder extension (for adjusting to ground level)

➤ To telescope the ladders past one another, lift the safety latch on the ladder and fix the Ladder extension XS 2.30m onto the desired rung of the other ladder.



Close-up

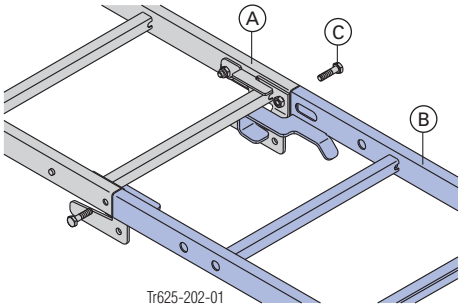


A	System ladder XS 4.40m
B	Ladder extension XS 2.30m
C	Safety latch

A telescoping join between two Ladder extensions XS 2.30m can be made in the same way.

Permanently fixed ladder extension

➤ Insert the Ladder extension XS 2.30m into the uprights of the System ladder XS 4.40m, with its hooking brackets facing downwards, and fasten it. Tighten the screws only **very slightly**!



Screws **(C)** are included in the scope of supply of the System ladder XS 4.40m and the Ladder extension XS 2.30m.

A System ladder XS 4.40m

B Ladder extension XS 2.30m

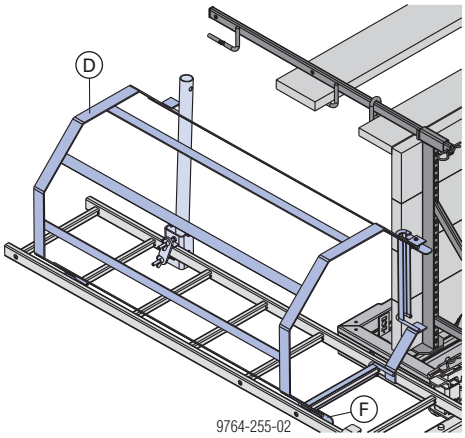
C Screws, width-across 17 mm

Two Ladder extensions XS 2.30m can be fixed together in the same way.

Important note:

➤ Always observe all relevant safety regulations applying to the use of the Ladder cage XS in the country in which you are operating (e.g. in Germany: BGV D 36).

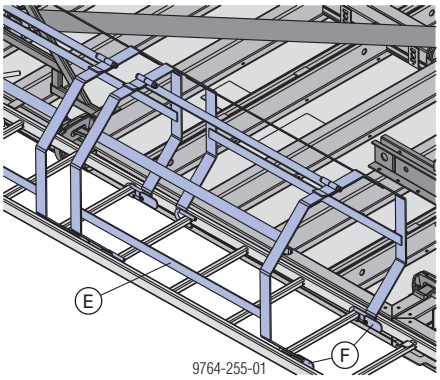
➤ Attach the Ladder cage exit XS (the bottom of the cage must always be at the same height as the platform). The safety latches prevent the cage from being accidentally lifted out.



D Ladder cage exit XS

F Safety latch

➤ Attach the Ladder cage XS to the next available rung. Attach further ladder cages, in each case to the next available rung.



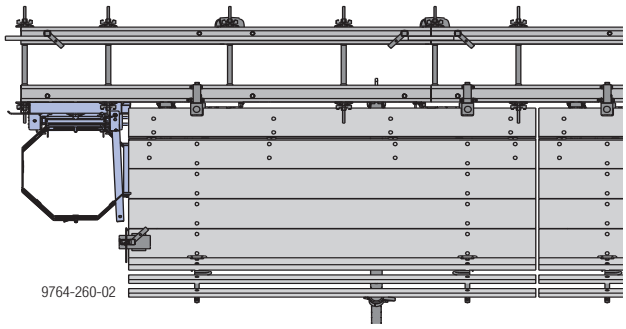
E Ladder cage XS

F Safety latches (lift-out guard)

Connection in the waling profile

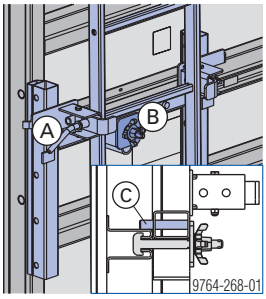
Mounting the Ladder system XS to the waling profile makes it an integral part of the gang-form.

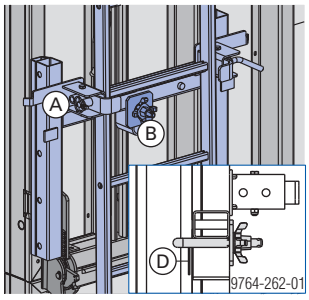
Plan view



How to mount:

➤ Fix the "Connector XS wall formwork" to the waling profile with a "Fixing clamp XS Framax".





Anti-slide-off protection	
Two bolts resting on the waling profile **(C)**	"Fixing clamp XS Framax" resting on the frame profile or on one of the drawn metal sheets **(D)**

A Connector XS wall formwork

B Fixing clamp XS Framax

Items needed

Connectors + ladder	Formwork height		
	2.70-3.75 m	>3.75-5.85 m	>5.85-8.10 m
Connector XS wall formwork	2	2	3
Quick-acting clamp RU or	4	4	6
Fixing clamp XS Framax[1)]	2	2	3
System ladder XS 4.40m	1	1	1
Ladder extension XS 2.30m	0	1	2

[1)] When connected in the waling profile

Ladder cage	Formwork height					
	2.70-3.15 m	>3.15-4.05 m	>4.05-5.40 m	>5.40-6.60 m	>6.60-7.65 m	>7.65-8.10 m
Ladder cage exit XS [2)]	1	1	1	1	1	1
Securing barrier XS [2)]	1	1	1	1	1	1
Ladder cage XS 1.00m [2)]	0	1	2	3	4	5

[2)] No allowance made here for intermediate exits.

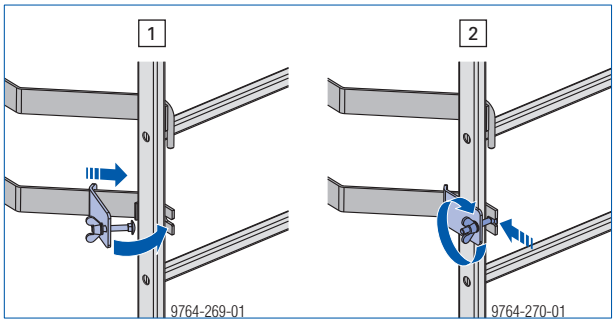
Exit onto an intermediate platform

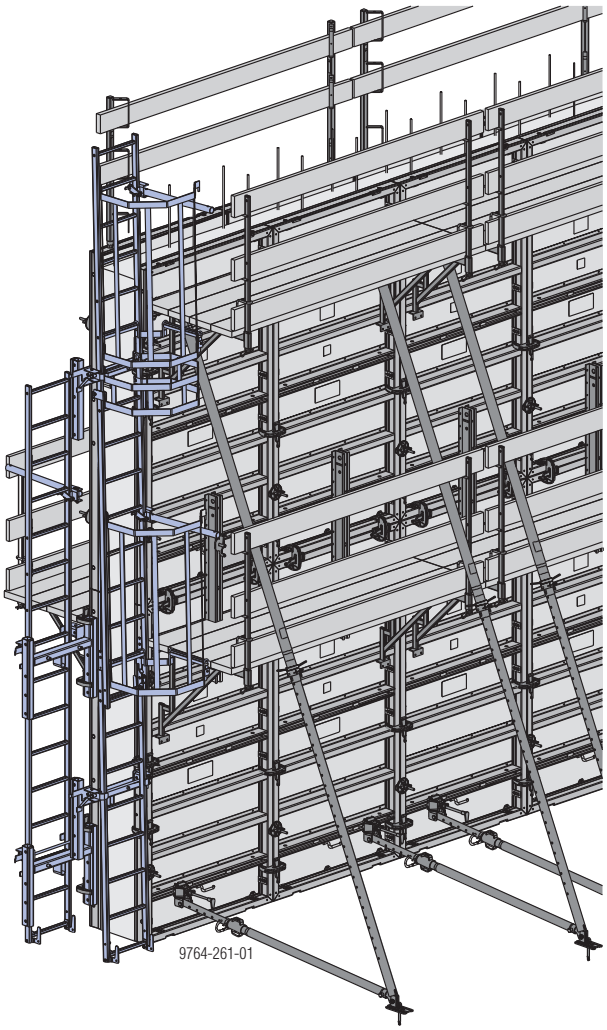
In general:

- The number of "Connectors XS wall formwork" and ladder components is shown in the "Items needed" table.
- For each additional exit, one "Ladder cage exit XS" and one "Securing barrier XS" are required.
- Any over-large openings above the intermediate exit must be reduced with a Ladder cage XS 0.25m.

Mounting the Ladder cage XS 0.25m

➤ Hook the ladder cage into an empty rung and secure it against accidental lift-out.

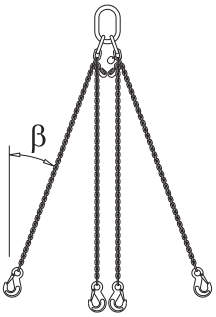




Resetting by crane

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

Doka 4-part chain 3.20m



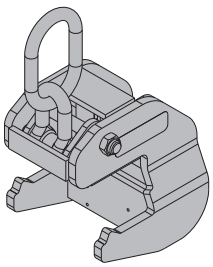
CE

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

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

Follow the directions in the Operating Instructions!

Framax lifting hook

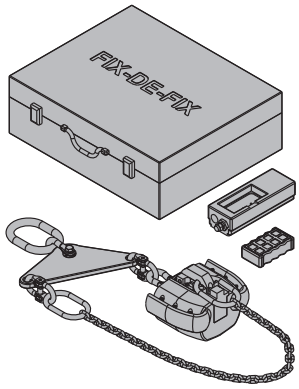


CE

Max. load:
1000 kg per Framax lifting hook

Follow the directions in the Operating Instructions!

The **Fix-De-Fix 3150kg remote uncoupling system** makes it possible to detach slinging chains by remote-control from ground level. Follow the directions in the Operating Instructions!



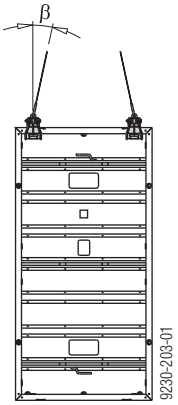
Positioning the lifting hooks

Single panels

Always place the Framax lifting hook over one of the welded-on metal plates, to prevent it from sliding from side to side.

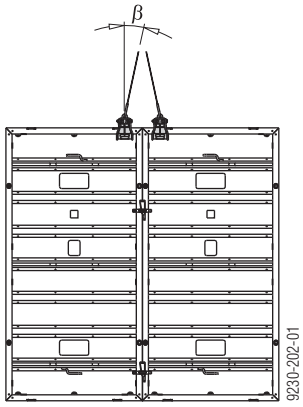
Panels up to 60 cm wide

Panels over 60cm wide



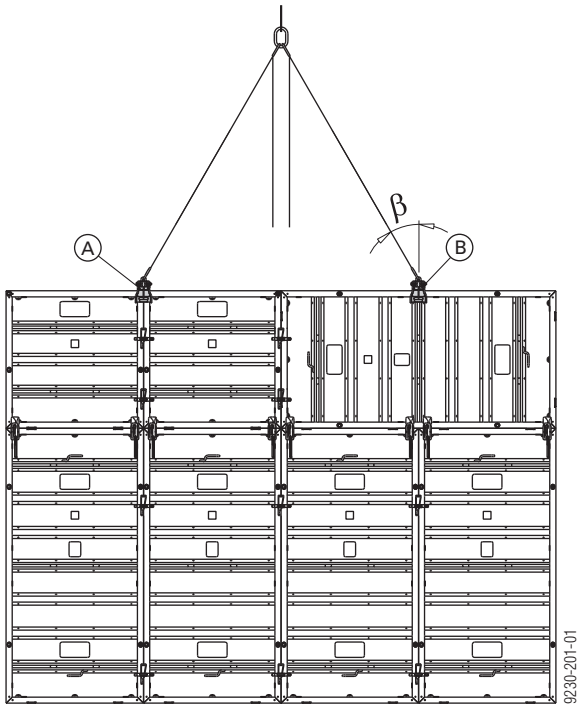
Two upright panels

Always place the Framax lifting hook over one of the welded-on metal plates, to prevent it from sliding from side to side.



Gang-form

- Always position the Framax lifting hook over the inter-panel joint **(A)** , to prevent the hook sliding from side to side.
  - **Exception:** On single panels incorporated in the horizontal, the lifting hook must be placed over a cross profile **(B)** .



A As used on upright panels
B As used on horizontal panels

- Suspend the gang-form symmetrically (centre-of-gravity position).
- Spread-angle β max. 30°!
- **Before lifting:** Remove any loose items from the formwork and platforms, or secure them firmly.

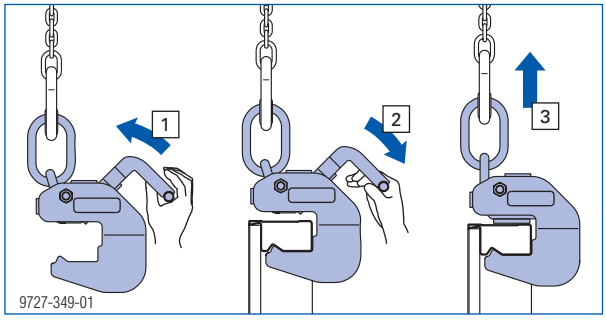
How to operate the lifting hook

1) Raise the handle (locking lever) as far as it will go.
2) Push the lifting hook onto the frame profile as far as the rear stop, and close the handle (spring-loaded).

Do a sight-check to make sure that there is a secure form-fit between the lifting hook and the frame profile!

The handle must be closed!

3) When the panels are lifted by the crane, a load-dependent locking mechanism is activated.



Striking and repositioning the panels

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

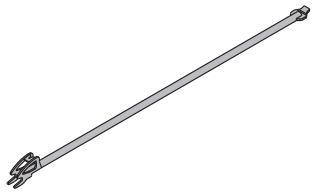
Risk of crane overload.

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

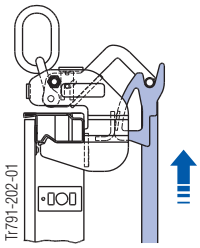
➤ Lift the gang-form to its new location (guide with tag-lines if necessary).

Framax 3-in-1 pole tool

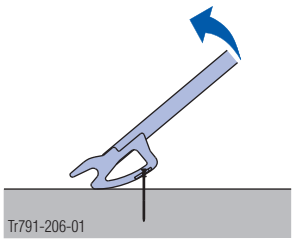
The Framax 3-in-1 pole tool has **three handy functions**:



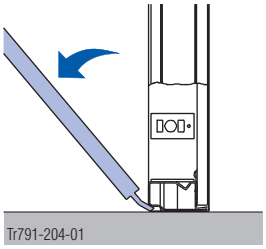
For operating the lifting hook from ground level (up to a formwork height of 3.30 m)



Pulling out double-headed nails



Plumbing and aligning the formwork



Transporting, stacking and storing

Bundling the panels

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

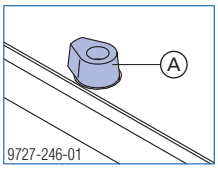
WARNING

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.



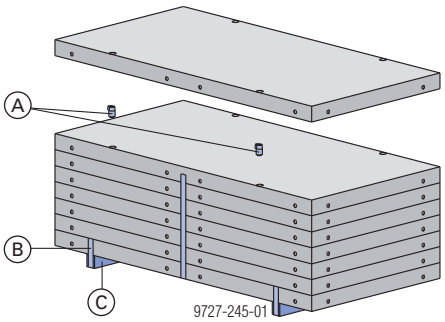
A Framax stacking cone

The stacking cones secure the panels against slippage.

CAUTION

➤ Stack max. 8 panels on top of one another (results in a stack height, incl. sleepers, of approx. 110 cm).

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

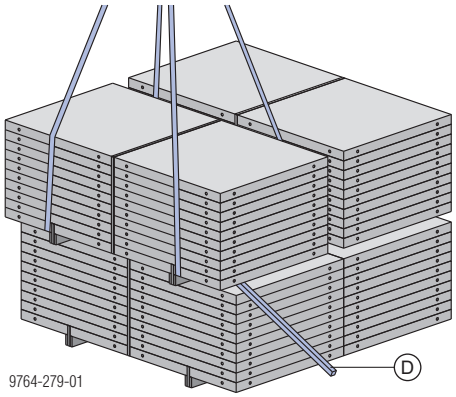


A Framax stacking cone
B Strapping tape
C Sleeper

Transporting the panels

Dokamatic lifting strap 13.00m

The Lifting strap 13.00m is a practical tool for **loading and offloading lorries (trucks)**, and for **lifting and setting down stacks of panels**.



With closely stacked bundles of panels:

➤ lever up the bundle of panels (e.g. with a squared timber **(D)**), to make a space for threading in the lifting straps.

Caution!

When doing this, always make sure that the bundle of panels remains stable!

WARNING

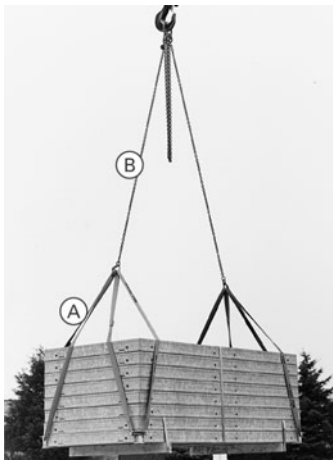
➤ The Lifting straps 13.00 m may only be used as shown here if there is no risk of the straps sliding towards one another, or of the load being displaced.

Max. load: 2000 kg

Follow the directions in the Operating Instructions!

Framax transport gear

For safe crane transport of panel stacks on building sites, builder's yards 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: 2000 kg / 4 round slings

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

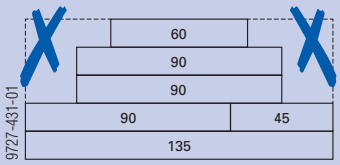
Preconditions for use:

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!



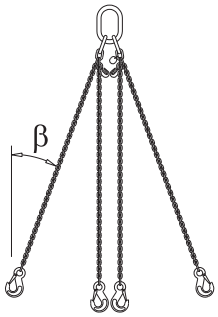
Follow the directions in the Operating Instructions!

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 "Resetting by crane".
- used in conjunction with **Framax transport bolts 5kN** 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 lengths of the individual chains.

Max. load P_{max}:

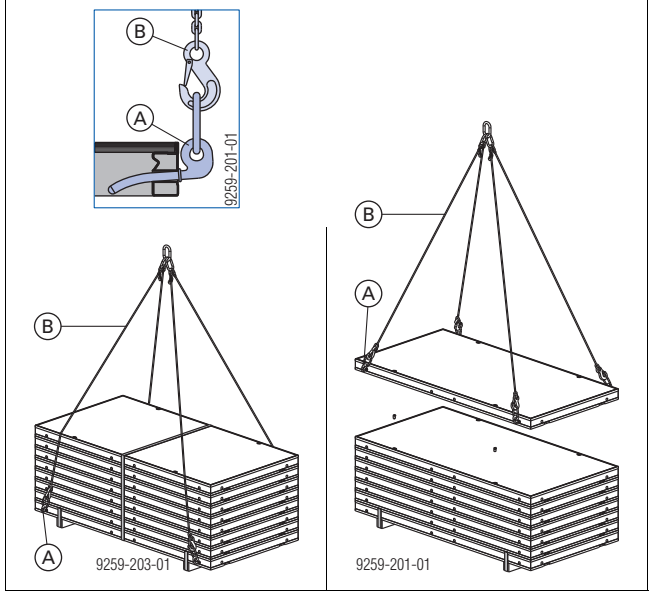
	Spread-angle β			
	0°	0°-30°	30°-45°	45°-60°
Using 1 chain	1400 kg	-	-	-
Using 2 chains	-	2400 kg	2000 kg	1400 kg
Using all 4 chains	-	3600 kg	3000 kg	2120 kg

Follow the directions in the Operating Instructions!

Framax transport bolts 5kN with Doka 4-part chain 3.20m

The Framax transport bolts 5kN **(A)** , in conjunction with the Doka 4-part chain 3.20m **(B)** , are for moving panels either individually or in stacks.

Hoisting bundled stacks 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: 500 kg per Framax transport bolt 5kN

Follow the directions in the Operating Instructions!

Doka multi-trip packaging

Utilise the benefits of Doka multi-trip packaging on your site.

Multi-trip packaging such as containers, stacking pallets and skeleton transport boxes keep everything in place on the site, minimise time wasted searching for parts, and streamline the storage and transport of system components, small items and accessories.

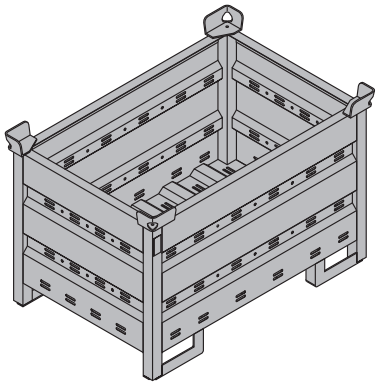
Doka multi-trip transport box 1.20x0.80m galv.

The ideal container for all small components:

- durable
- stackable
- safe to lift by crane

The multi-trip transport box is used for delivering e.g.:

- Framax quick acting clamps RU
- Framax multi function clamps
- Framax universal walings 0.90m
- Framax wedge clamps
- Framax stop-end ties
- Framax universal fixing bolts

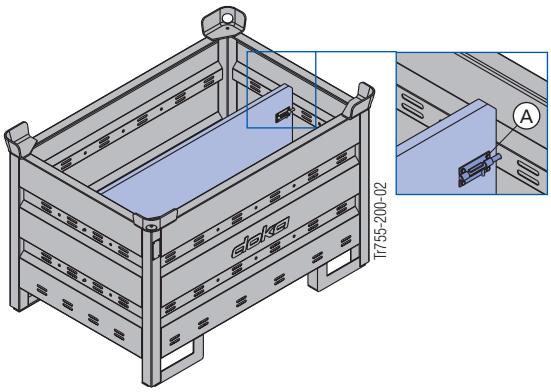


Max. load: 1500 kg

Follow the directions in the Operating Instructions!

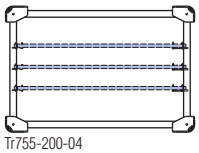
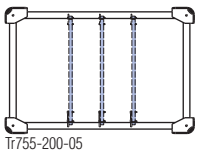
Multi-trip transport box partition

Different items in the Multi-trip transport box can be kept separate with the Multi-trip transport box partitions 1.20m or 0.80m.



A Slide-bolt for fixing the partition

Possible ways of dividing the box

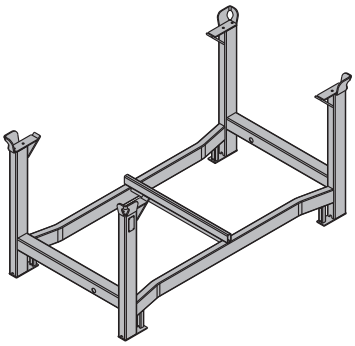
Multi-trip transport box partition	Lengthways	Crossways
1.20m	max. 3 partitions	—
0.80m	—	max. 3 partitions
	 Tr755-200-04	 Tr755-200-05

Doka stacking pallets

The ideal containers for long items:
- durable
- stackable
- safe to lift by crane

The **Doka stacking pallet 1.55x0.85m** is used for delivering e.g.:
- Framax outside corners 2.70m and 3.30m
- Panel struts
- Framax brackets 90

The **Doka stacking pallet 1.20x0.80m** is used for delivering e.g.:
- Framax outside corners 1.35m
- Framax hinged corners 1.35m
- Framax universal walings 1.50m



Max. load: 1100 kg

Follow the directions in the Operating Instructions!

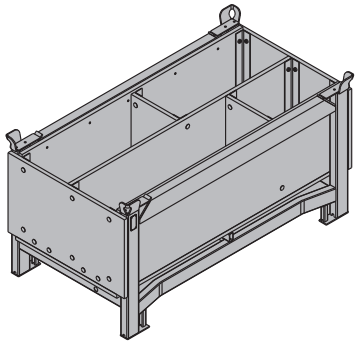
The Bolt-on caster set B turns the stacking pallet into a fast and manoeuvrable transport trolley.

Doka accessory box

A practical packaging unit for storage and transport:
- stackable
- safe to lift by crane

The Doka accessory box is the tidy, easy-to-find way of storing and stacking all interconnection and form-tie components.

The Bolt-on caster set B turns the stacking pallet into a fast and manoeuvrable transport trolley.



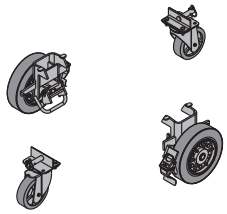
Max. load: 1000 kg

Follow the directions in the Operating Instructions!

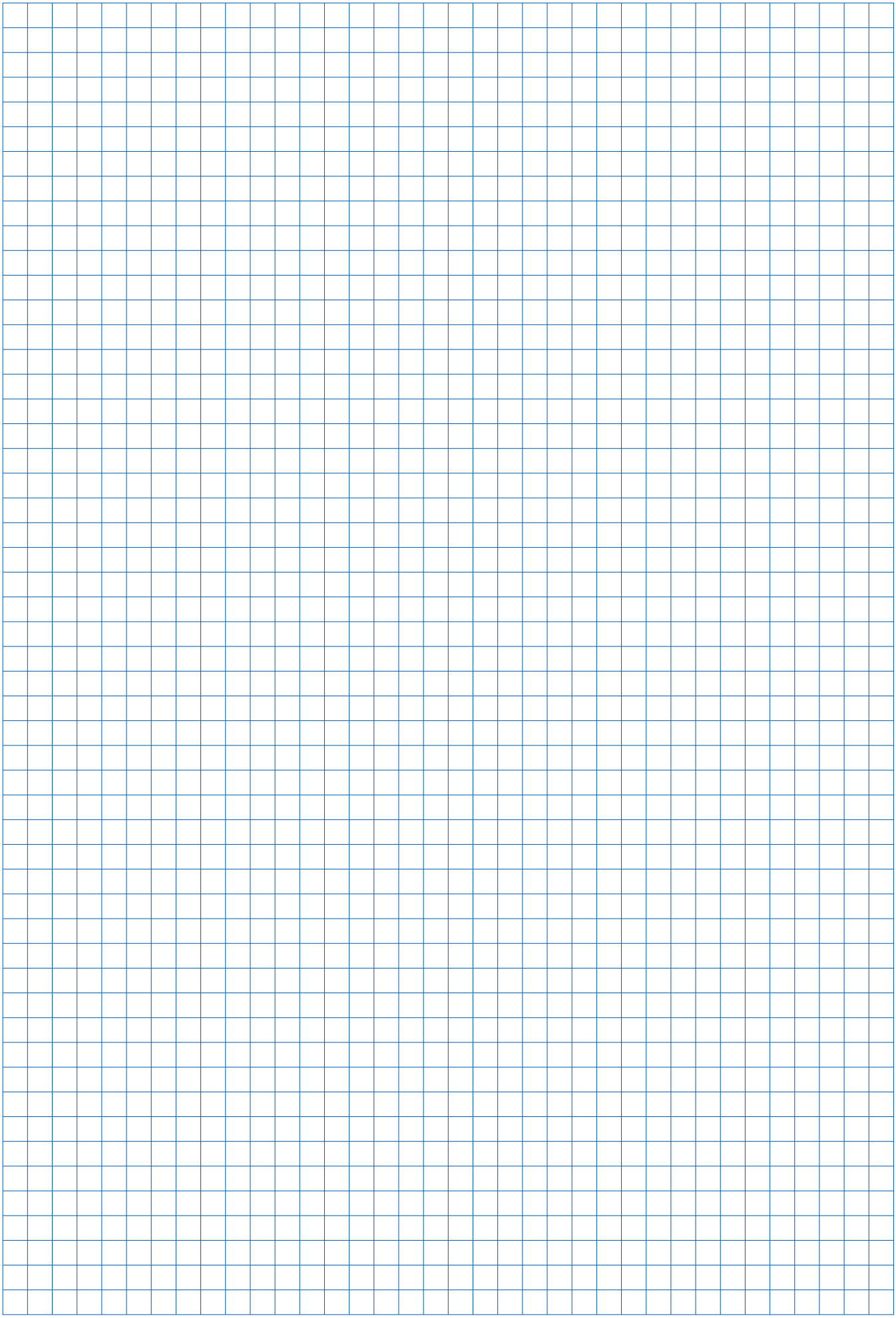
Bolt-on castor set B

The Bolt-on caster set B turns the stacking pallet into a fast and manoeuvrable transport trolley.

Suitable for drive-through access openings > 90 cm.



The Bolt-on caster set B can be mounted to the following multi-trip packaging items:
- Doka stacking pallets
- Doka accessory box



Platform system Xsafe plus

These pre-assembled, fold-out working platforms with their integral side railings, self-closing manhole lids and integrable ladders are ready for immediate use and greatly improve workplace safety.

Easy to use

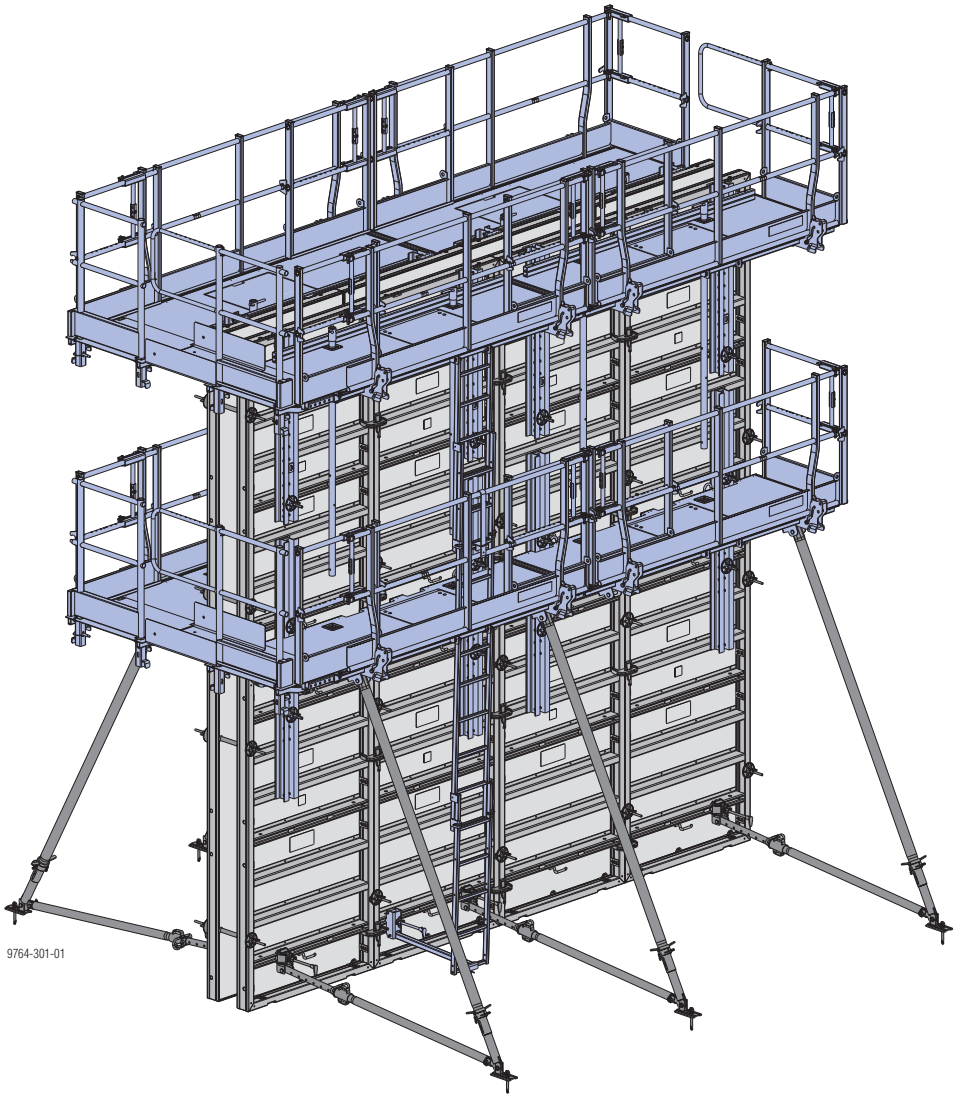
- pre-assembled, fold-out working platforms
- time and cost-savings as so little assembly work is needed
- system accessories for closure gaps and corner transitions

Safe working

- high safety, as side and end guards are integrated in the platform
- integrable ladder system

An economical solution

- its perfect stackability cuts storage and freight costs
- no universal walings needed for bracing the panels in vertically stacked configurations
- simplified planning, from using a single platform concept for all Doka wall systems
- much quicker and more efficient than single brackets



Instructions for assembly and use

Planning guidelines

Co-ordinate the widths of the gang-forms with the lengths of the "Xsafe plus" platforms.

We recommend forming corners and similar snags in the following way:

- **Method 1**
  Divide up the work into separate casting sections (leaves joint in concrete):
  - Set up formwork and pour first straight wall.
  - Set up formwork and pour second straight wall, with corner connection.
- **Method 2**
  Cast in single pour (no joint in concrete):
  - First set up the formwork for the corners.
  - Then set up the formwork for the straight wall between the corners.
  - Cast in one single pour.

The sequence outlined below is based on a straight wall.

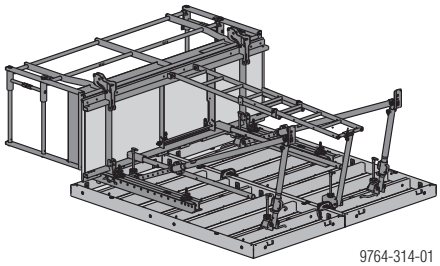
Ladders must be located so as to create viable "traffic routes" in the horizontal. (On a straight wall, for example, one ladder on the first element and another on the last).

Pre-assembly

➤ Pre-assemble elements face-down on an assembly bench (see "Inter-element connections").

➤ Mount the platforms, walings, ladder system and panel struts on the face-down gang-form (see the relevant section of this booklet).

Example of room-high formwork:



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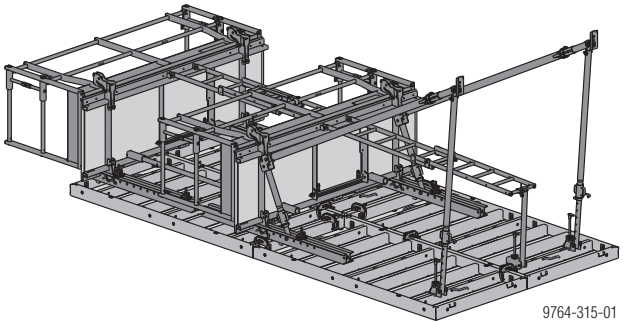
Example of high formwork:



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Erecting the formwork

➤ Attach the lifting chain to the gang-form with the Xsafe plus lifting walers (see the "Xsafe plus" section headed "Resetting by crane" and the "Xsafe plus lifting waler" Operating Instructions).

Max. load:
Spread-angle β up to 15°: 1750 kg per lifting waler
Spread-angle β up to 30°: 800 kg per lifting waler

➤ Pick up the gang-form by crane.

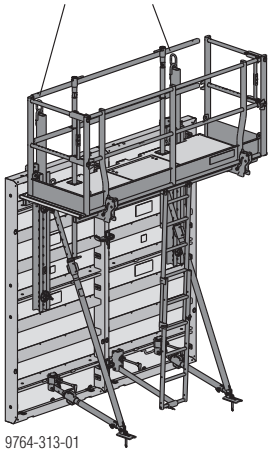
➤ Spray the ply with release agent (see "Cleaning and care").

➤ Fly the gang-form to its new location.

CAUTION
Never use a sledge hammer to plumb the panels!
This would damage the profiles of the panels.
➤ 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 "Plumbing accessories").
The gang-form is now stable and can be plumbed and aligned exactly, with no need for the crane.

➤ Extend the Xsafe plus counter railing (see the section headed "Xsafe plus platform accessories").



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The platform railings are now **in place on all sides**, making it safe to get up onto the platform.

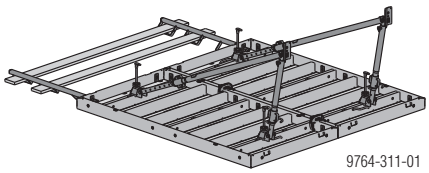
➤ Detach the gang-form from the crane.

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

Erecting the opposing formwork:

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

➤ Attach the panel struts and counter railings to the gang-form of the opposing formwork when this is in the flat position (see "Plumbing accessories" and "Counter railings").



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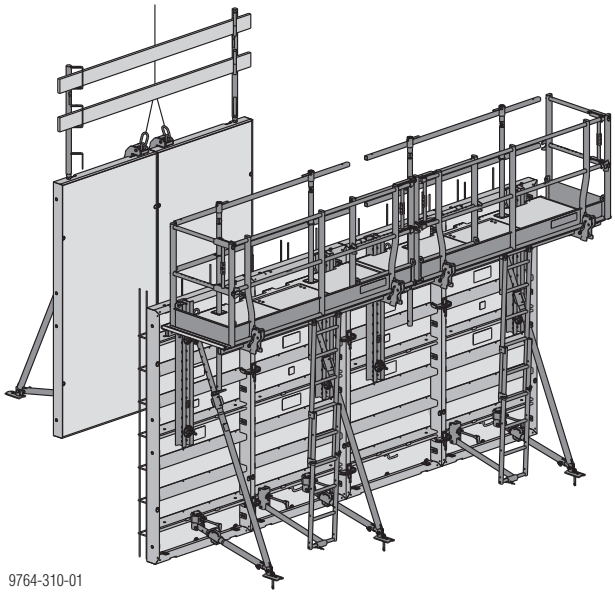
➤ Attach the crane suspension tackle to the Framax lifting hook (see the section headed "Lifting by crane" and the Operating Instructions for the "Framax lifting hook").

Max. load:
1000 kg per Framax lifting hook

➤ Pick up the gang-form by crane.

➤ Spray the ply with release agent (see "Cleaning and care").

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



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Before disconnecting from the crane:

➤ If there are no panel struts on the opposing formwork, do not disconnect the element 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).

➤ Lower the Xsafe plus counter railing.

➤ Fit the form-ties (see "Tie-rod system").

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

Pouring

Permitted pressure of the fresh concrete: 80 kN/m²
(see the sections headed "Framax Xlife panel in detail" and "Form-tie system")

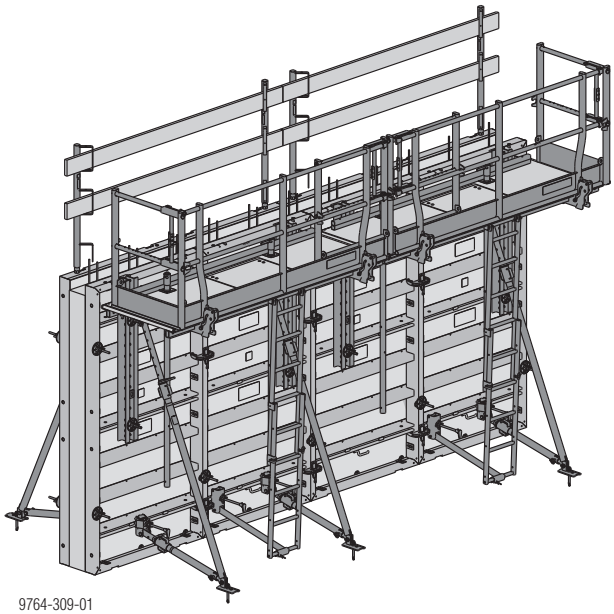
Observe the following **guidelines**:

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

➤ 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.



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Striking

➤ Observe the stipulated striking times.

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

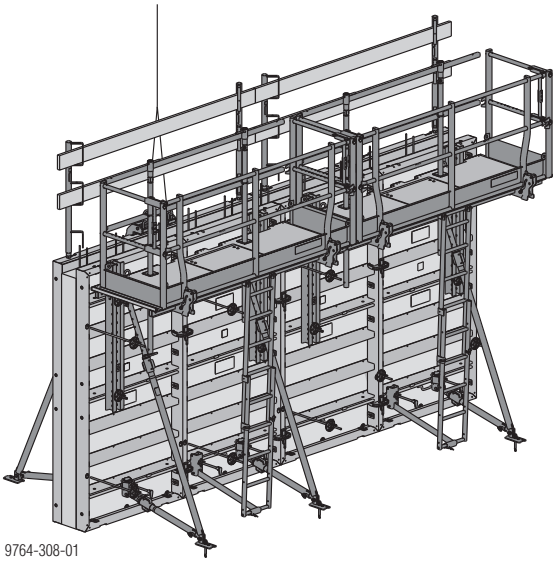
Begin work on striking the formwork on the opposing formwork:

Where the opposing formwork has no panel struts:
- ➤ When removing form-ties, leave enough form-ties in place to safely keep the panel in the upright.
- ➤ Attach the gang-form of the opposing formwork to the crane.
- ➤ Remove the remaining form-ties.

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

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

➤ Undo the ground anchors of the panel struts.



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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" in the upright prior to its next use, it must have sufficient stability (see "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 "Cleaning and care").

Striking the holding formwork:

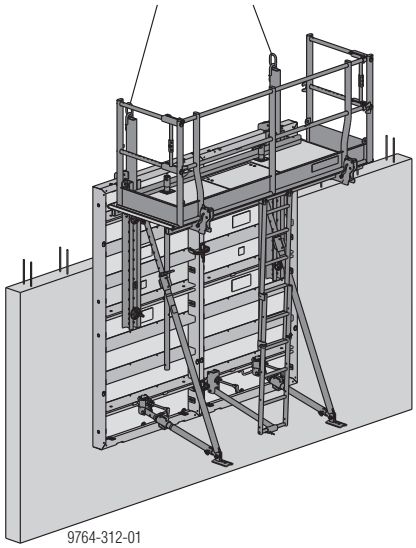
➤ Extend the Xsafe plus counter railing (see the section headed "Xsafe plus platform accessories").

➤ Attach the lifting chain to the gang-form with the Xsafe plus lifting walers (see the "Xsafe plus" section headed "Resetting by crane" and the "Xsafe plus lifting waler" Operating Instructions).

➤ Lower the Xsafe plus counter railing.

➤ Undo the ground anchors of the panel struts.

➤ Lift the gang-form away and to its next location.



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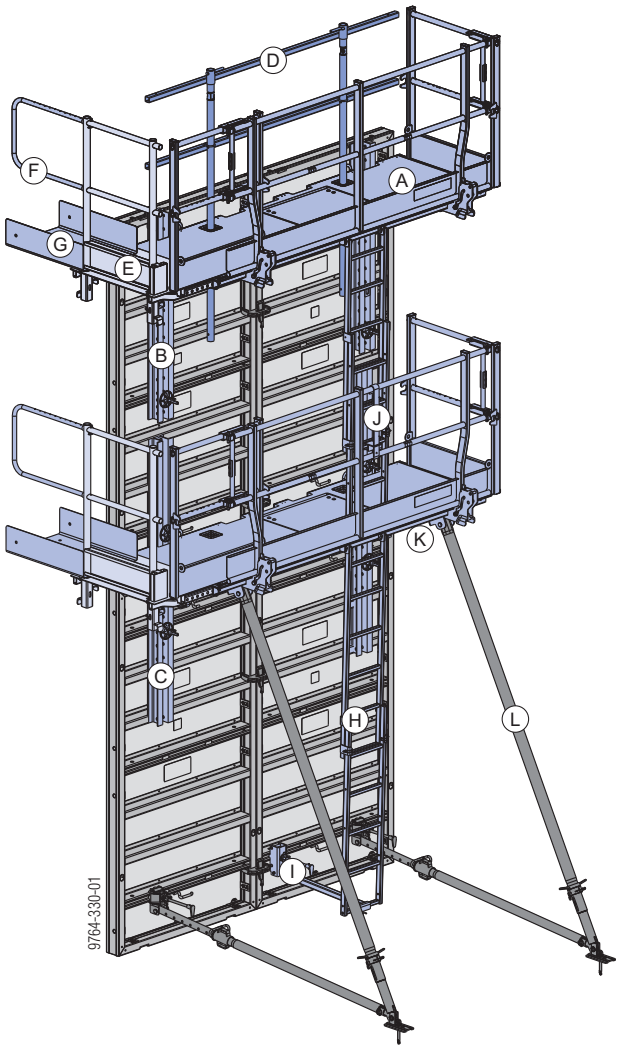
If the gang-form is "parked" in the upright prior to its next use, it must have sufficient stability (see the "Xsafe plus" section headed "Plumbing accessories").
Gang-forms with only one panel strut must not be "parked" upright, but placed face-down.

Platform system

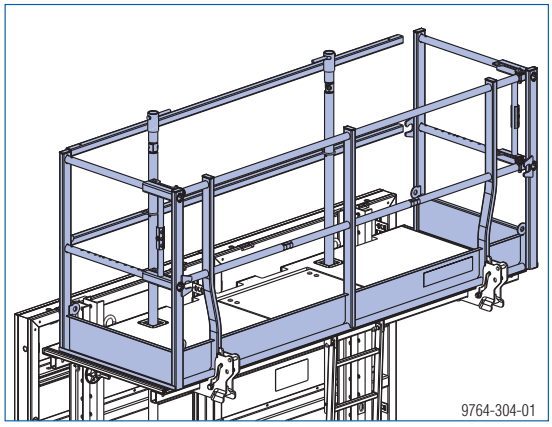


A	Xsafe plus platform
B	Xsafe plus platform waling 1.50m
C	Xsafe plus stacking waler 2.10m
D	Xsafe plus counter railing
E	Xsafe plus platform extension 0.60m
F	Xsafe plus handrail lengthening piece
G	Xsafe plus platform transition
H	Xsafe plus telescopic ladder
I	Xsafe plus ladder starter piece
J	Xsafe plus ladder support
K	Xsafe plus supporting strut
L	Panel strut

Immediately work-ready platform

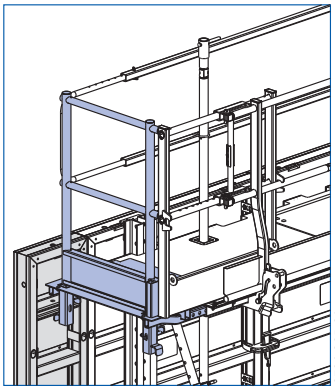
- quick and easy to assemble

Integral guard rails on all four sides



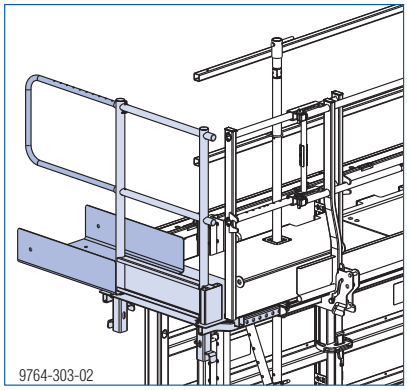
- enables work to take place in complete safety

Platform extension

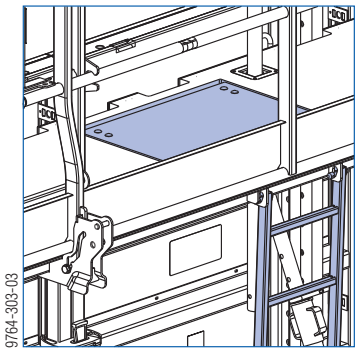


- permits flexible adaptation to formwork, with no need for improvisations

Safe solutions for corner transitions as well

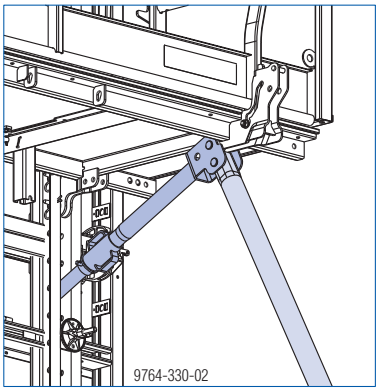


Integral ladder and manhole



- for safe vertical access up to the platform
- self-closing manhole lid (self-closing function can be deactivated)
- spring-assisted opening of manhole lid

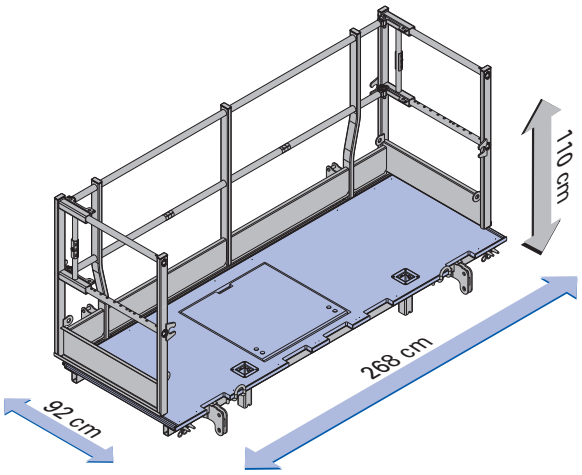
Panel struts connected to rear of platform



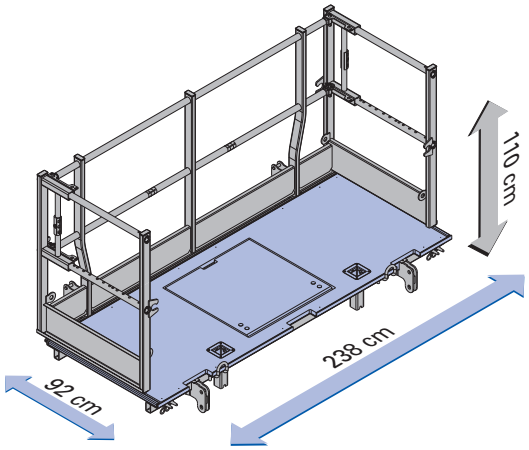
- leaves unobstructed workplace access routes and simplifies the planning
- the Xsafe plus supporting strut makes it possible to adjust the inclination of the platform

Xsafe plus platform

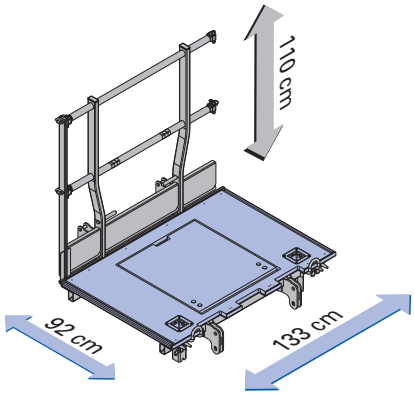
Xsafe plus platform 2.70m with side railings
(or without side railings)



Xsafe plus platform 2.40m with side railings
(or without side railings)



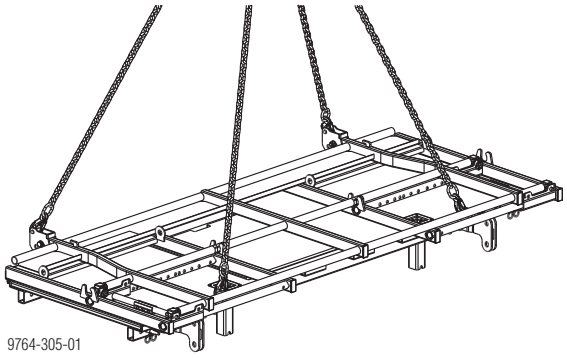
Xsafe plus platform 1.35m
(Xsafe plus side railings can be added)



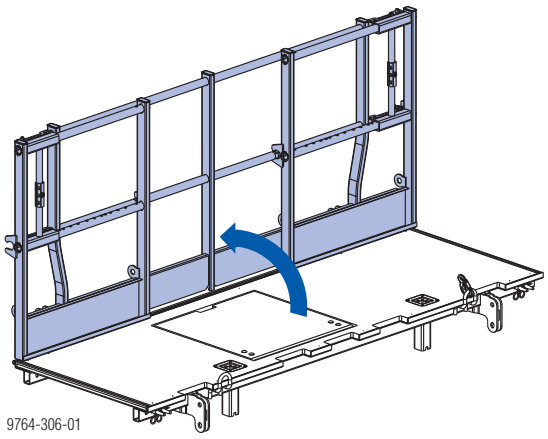
Permitted service load: 1.5 kN/m² (150 kg/m²)
Load Class 2 to EN 12811-1:2003

Preparing the platform

➤ Lift the Xsafe plus platform off the stack by crane, using a four-part lifting chain (e.g. Doka 4-part chain 3.20m), and set it down on the ground.



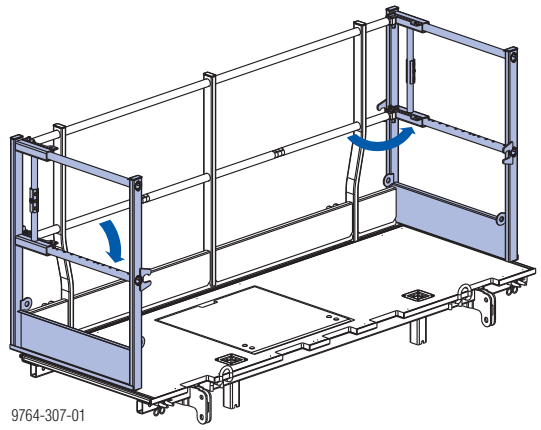
➤ Tilt up the rear railings.



They lock into place automatically.

Sideguards on exposed platform-ends

The Xsafe plus platform comes with **captively integrated** end-of-platform sideguards.

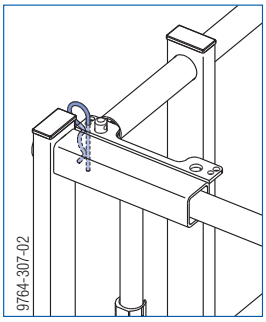


Starting position:
The side railings are completely pushed in against the rear railing.

➤ Swivel the side railings 90° outwards.
They lock into place automatically.

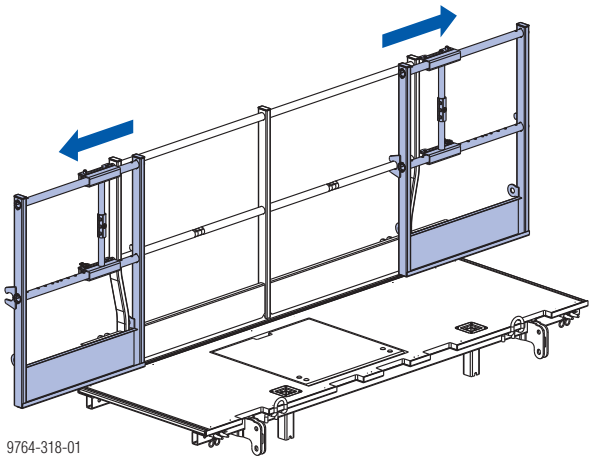
The side railings are secured so that they cannot open outwards (i.e. by more than 90°).

The side railing can be fixed in this position with a Spring cotter 5mm.



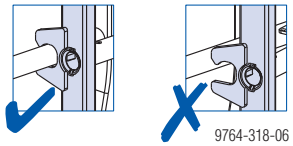
Extending the rear railings

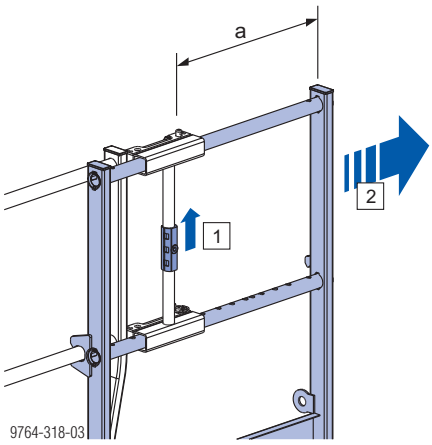
The integrated end-of-platform sideguards can also be used to extend the rear railings (e.g. if the platform has been lengthened to either side).



1) Slide the telescope-lock upwards.
2) Extend the side railings to the desired length.

The railing tube must be firmly enclosed by the tube-guide.





a ... can be telescoped by up to 50 cm, in a 5 cm grid

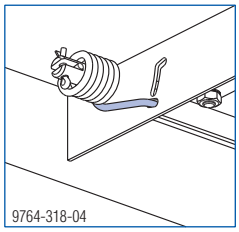
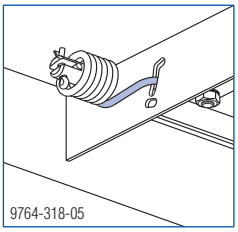
Manhole lid

The spring integrated in the manhole has 2 functions:

- to make the lid easier to open
- to make the lid close automatically

Where local regulations permit, the self-closing function of the manhole lid can be deactivated.

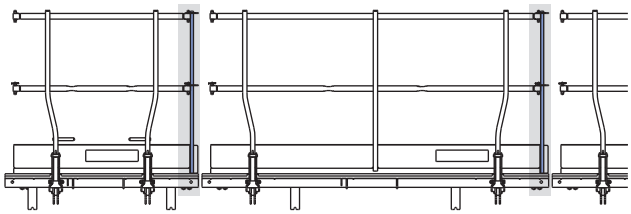
➤ Use a flat-bladed screwdriver to change the position of the spring.

Self-closing function	
activated	**deactivated**
 9764-318-04	 9764-318-05

Railing-closure post on platforms without side railings

Xsafe plus platforms without side railings are equipped with an **Xsafe plus railing-closure post** at one end.

This railing-closure post **reduces the gap between two rear railings**.



9764-378-01

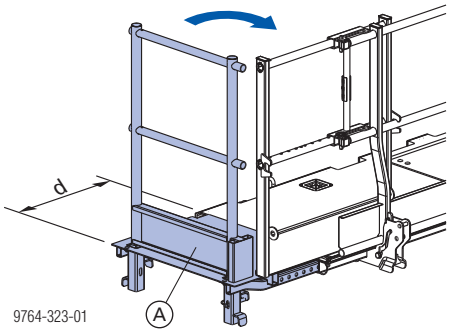
Where necessary, the railing-closure post can also be mounted to the other end of the rear railings.

Xsafe plus platform accessories

Extending the platform to either side

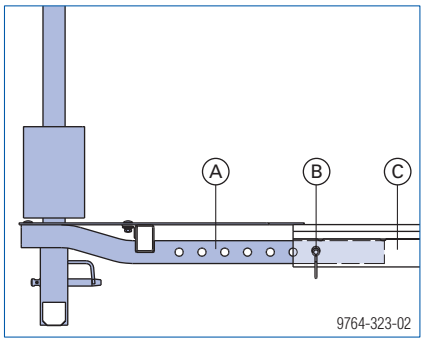
The platform can be lengthened at either end by using the **Xsafe plus platform extension 0.60m**.

The railings of the platform extension can be turned inwards by 90°.



d ... can be telescoped between 30 cm and 60 cm, in a 5 cm grid

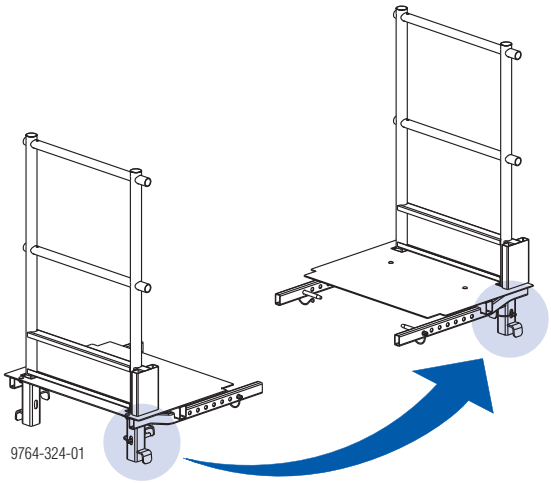
How to attach the platform extension:



A	Xsafe plus platform extension 0.60m
B	Spring-locked connecting pin of Xsafe plus platform extension 0.60m
C	Xsafe plus platform

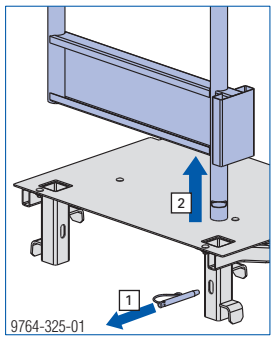
Adapting the platform extension for use on left or right

The railings of the platform extension will need to be modified, depending on whether the platform extension is to be mounted to the right-hand or left-hand side of the platform.



1) Take out the spring-locked connecting pin.

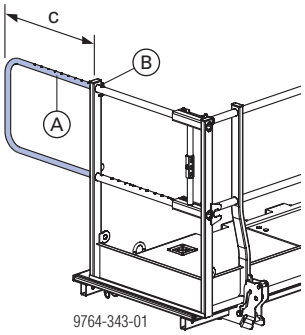
2) Pull out the railing.



The railing can now be mounted on the other side, in reverse order.

Extending the end-of-platform sideguards

The end-of-platform sideguards on the platform can be lengthened using the **Xsafe plus handrail lengthening piece**.



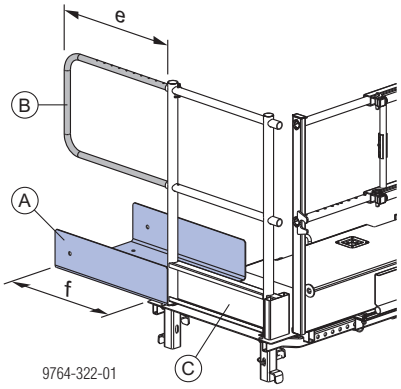
c ... can be telescoped between 15 cm and 70 cm, in a 5 cm grid

A Xsafe plus handrail lengthening piece

B Linch pin of Xsafe plus handrail lengthening piece

Platform transition

Together with an **Xsafe plus handrail lengthening piece**, the **Xsafe plus platform transition** provides a safe crossing point to the opposite platform.

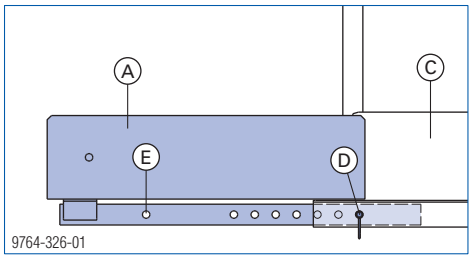


e ... can be telescoped between 15 cm and 70 cm, in a 5 cm grid
f ... can be telescoped between 33.5 cm and 63.5 cm, in a 5 cm grid

Wall thickness	Xsafe plus platform transition	Xsafe plus handrail lengthening piece
Up to 20 cm	1 unit	1 unit
Over 20 cm	2 units *)	2 units *)

*) Mount one platform transition on the holding formwork, and one on the opposing formwork (see also the section headed "Stop-end formwork").

Attaching the platform transition:



A Xsafe plus platform transition

B Xsafe plus handrail lengthening piece

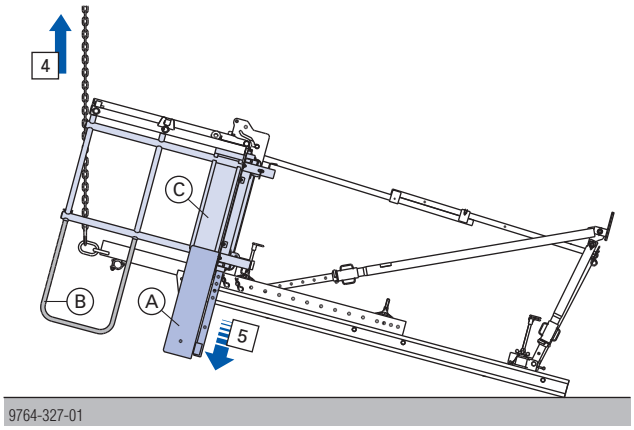
C Xsafe plus platform extension 0.60m

D Spring-locked connecting pin of the Xsafe plus platform transition

E Bolting hole for mounting to a panel placed on its side

How to mount:

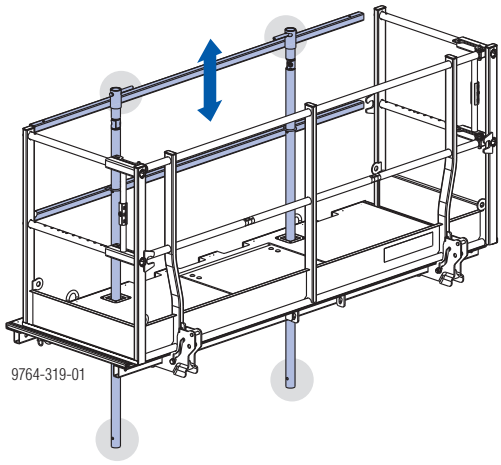
1) Slightly raise the railing of the Xsafe plus platform extension **(C)** .
2) Slide the Xsafe plus platform transition **(A)** all the way into the Xsafe plus platform extension **(C)** and fix it in the bolting hole **(E)** with the spring-locked connecting pin.
3) Slide the Xsafe plus platform extension **(C)** into the Xsafe plus platform and fix it with a spring-locked connecting pin.
4) Raise the gang-form by crane.
5) Extend the Xsafe plus platform transition **(A)** to the desired length and fix it with a spring-locked connecting pin.
6) Mount the Xsafe plus handrail lengthening piece **(B)** .



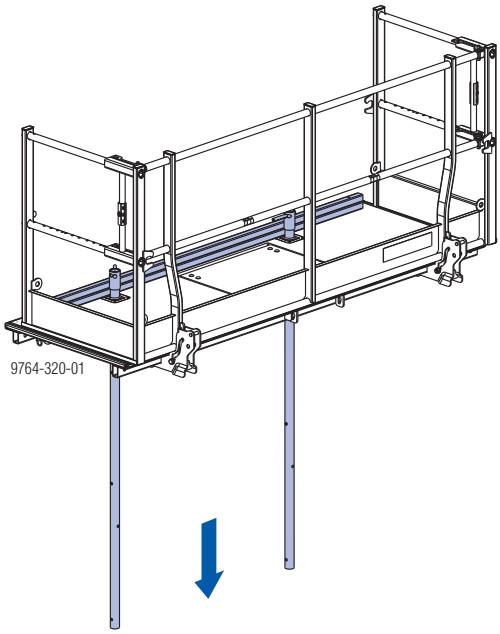
Railings facing formwork

Using the **Xsafe plus counter railing**, it is also possible to set up a front (formwork-side) railing.

It can be operated (lowered / raised) both from below and from on the platform itself.



If the counter railing is not needed, it can simply be lowered into the platform.



Lowering / raising the counter railing:

The counter railing is operated either by the lever (top) or the handrail-post upright (bottom).

➤ Slightly raise the counter railing.

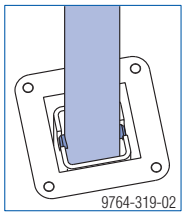
➤ Twist the lever / handrail-post upright 45°
This unlocks the counter railing.

➤ Lower the counter railing or raise it to the same level as the platform railings.

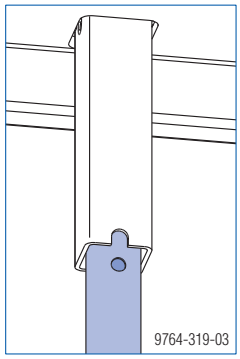
➤ Twist the lever / handrail-post upright back 45°
This locks the counter railing again.

Check whether properly locked:

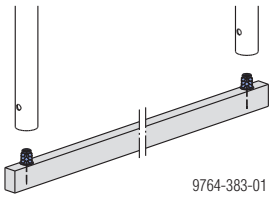
● When operating the lever (top):
The railing bolt must engage in the notch of the guide tube.



● When operating the handrail-post upright (bottom):
The hole must align with the notch of the guide tube.



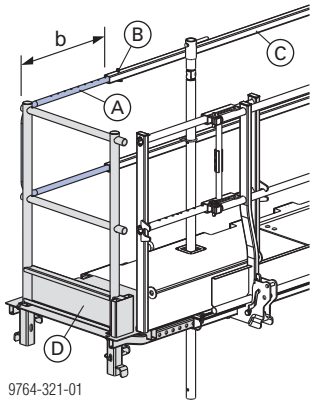
Implement for raising the Xsafe plus counter railing 2.70m from below:



Squared timber (e.g. 3x5x140 cm) with e.g. nailed-on "Universal plugs".

Lengthening the counter railing to either side

The **Xsafe plus handrail lengthening piece** makes it possible to lengthen the counter railing to either side (e.g. if the platform has also been lengthened).



b ... can be telescoped between 13 cm and 68 cm, in a 5 cm grid

A	Xsafe plus handrail lengthening piece
B	Linch pin of Xsafe plus handrail lengthening piece
C	Xsafe plus counter railing
D	Xsafe plus platform extension 0.60m

Note:

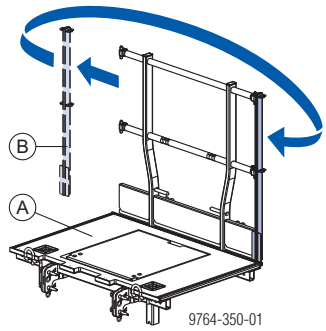
Counter railings with a handrail lengthening piece cannot be completely lowered.

Mounting end-of-platform side-guards

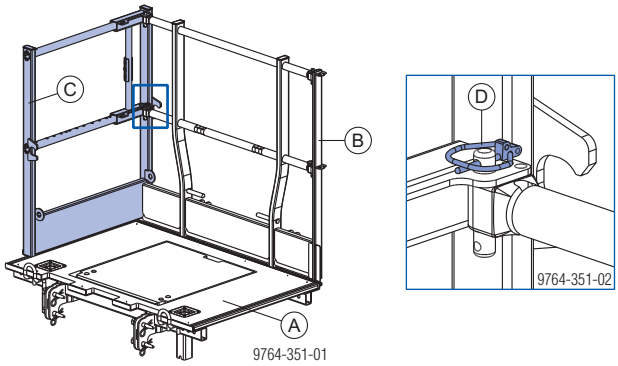
Xsafe plus platforms without integral side railings can be retrofitted with a side railing (e.g. for fall-arrest barriers at the end of a wall).

The symmetrical design of the Xsafe plus side railing means that it can be mounted to either side of the platform.

1) If necessary, dismount the Xsafe plus railing-closure post from the Xsafe plus platform and remount it at the other end of the rear railings (stand-by position).



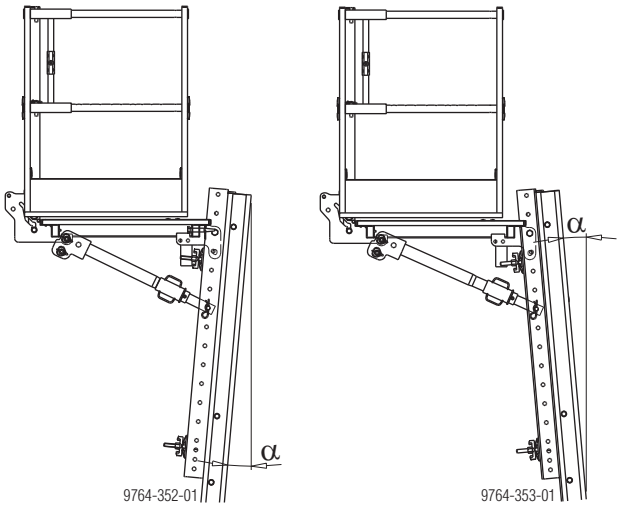
2) Hook the Xsafe plus side railing into the rear railing and secure it with a linch pin.



A	Xsafe plus platform
B	Xsafe plus railing-closure post
C	Xsafe plus side railing
D	Linch pin of Xsafe plus platform

Adjusting the platform inclination

The Xsafe plus supporting strut makes it possible to adjust the inclination of the platform.

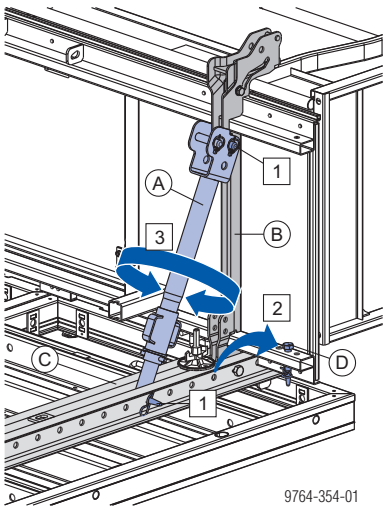


α ... up to approx. 5°

Note:

For inclination adjustment, **two Xsafe plus supporting struts** are required on each platform.

1) Mount the Xsafe plus supporting strut between the platform and the Xsafe plus waling.
2) Remove a connecting pin 10cm (between the platform and the waling).
3) Set the desired platform inclination by turning the screwjack mechanism on the Xsafe plus supporting strut.



A	Xsafe plus supporting strut
B	Xsafe plus platform
C	Xsafe plus waling
D	Connecting pin 10cm

Pre-assembly of collapsible, stackable gang-forms

The **Xsafe plus swivel plate** makes it possible to completely pre-assemble the gang-forms, complete with platform.

When the gang-forms are **stacked or transported by truck**, the platform on each gang-form is folded closed.

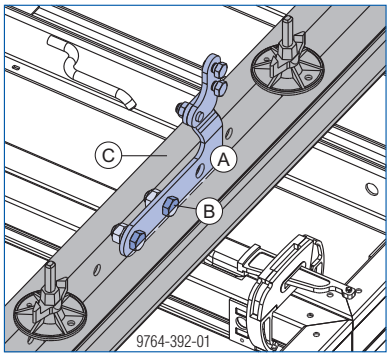
Note:

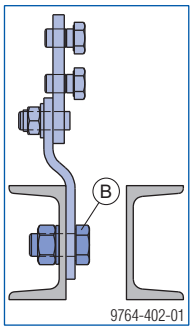
Required hole-grid on waling: 10 cm (e.g. Xsafe plus waling)

When the swivel plate is used, it is no longer possible to adjust the inclination of the platform.

Mounting the Xsafe plus swivel plate

➤ Bolt the swivel plates to the left-hand inside face of the Xsafe plus walings.



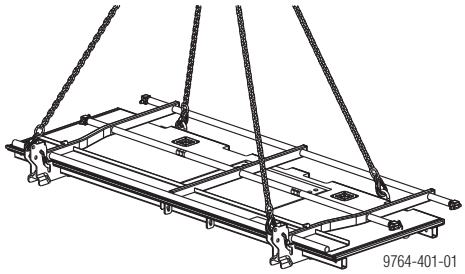


A	Xsafe plus swivel plate
B	M20 bolts of the Xsafe plus swivel plate
C	Xsafe plus waling

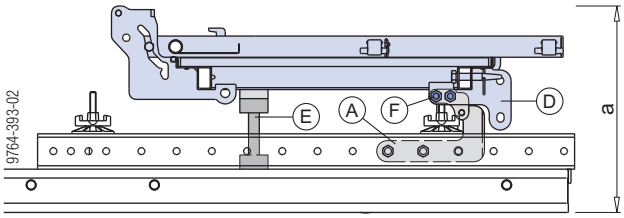
Mounting the Xsafe plus platform

➤ Position the intermediate distancer on the gang-form.

➤ Raise the Xsafe plus platform by crane and lift it to the formwork.

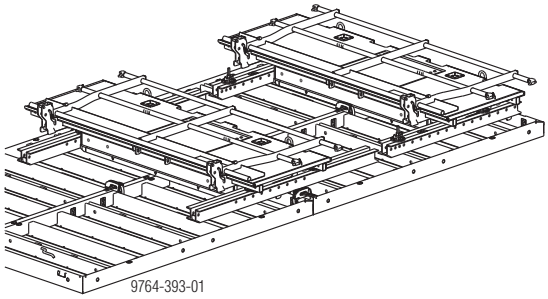


➤ Attach the Xsafe plus platform to the swivel plate with the M16 hexagon bolts.



a ... 59 cm

A	Xsafe plus swivel plate
D	Xsafe plus platform
E	Intermediate distancer with a height of approx. 22.5 cm (e.g. Doka beam H20 + formwork-sheet strip)
F	M16 hexagon bolts of the Xsafe plus swivel plate



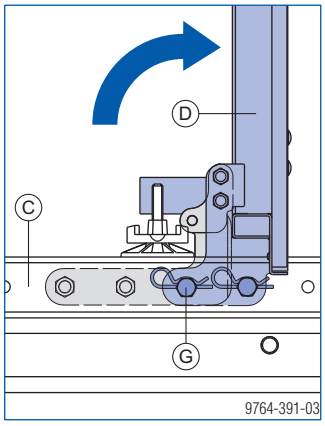
Stacking the gang-forms

If the pre-assembled gang-forms are stacked on top of one another, observe the following points:

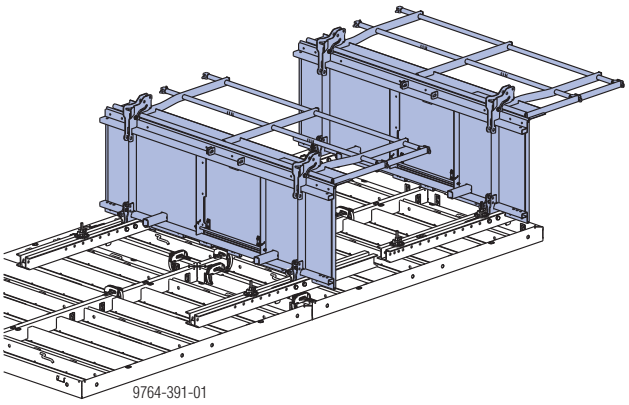
- Do not place any loads upon the platforms when stacking the gang-forms (use 48 cm high intermediate distancers).
- Protect the formwork sheets from damage (place intermediate distancers on the cross profiles or frame profiles only).

Tilting up the Xsafe plus platform

1) Remove the Connecting pins 10cm and Spring cotters 5mm of the Xsafe plus platform from their stand-by positions.
2) Tilt the platform up 90°, bolt it in place in the Xsafe plus waling with 2 Connecting pins 10cm and secure these with Spring cotters 5mm.



C Xsafe plus waling
D Xsafe plus platform
G Connecting pin 10cm + Spring cotter 5mm of the Xsafe plus platform



3) Mount the ladder system and panel struts on the face-down gang-form (see the relevant section of this booklet).

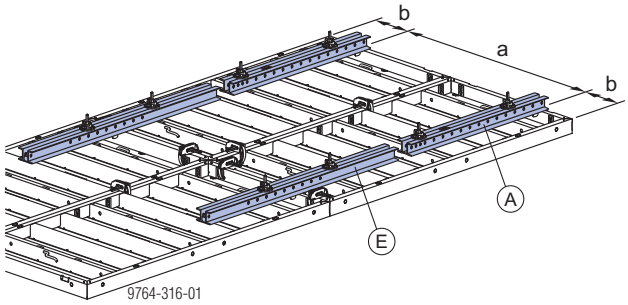
Mounting the Xsafe plus platform onto the formwork

Preparing the formwork

➤ Pre-assemble the gang-form face-down on an assembly bench.

For details of the numbers and positions of Quick-acting clamps RU, see the section headed "Rules for gang-forms".

Mounting the Xsafe plus walings



A Xsafe plus platform waling 1.50m
E Xsafe plus stacking waler 2.10m

Xsafe plus platform	Centre-to-centre distance 'a'	Distance from edge 'b'
2.70m	1980 mm	360 mm
2.40m	1680 mm	
1.35m	630 mm	

Positions of the Xsafe plus walings:

- Xsafe plus platform walings 1.50m:
  - always at the top of the formwork
- Xsafe plus stacking waler extensions:
  - for panels that are vertically stacked placed on their sides, as an extension of the platform waling
- Xsafe plus stacking walers 2.10m:
  - on the panel joints between 2.70m or 3.30m high panels that are vertically stacked in the upright

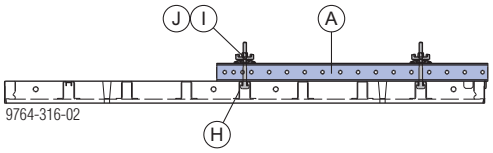
For details of the numbers and positions of walings and universal fixing bolts, see also the section headed "Rules for gang-forms".

Move the Xsafe plus walings into their approximate position and only slightly fasten them with universal fixing bolts and super-plates.

When the platforms are mounted (but not before this), align the Xsafe plus walings to the platform and tighten the super-plates.

Mounting the Xsafe plus platform walings 1.50m

➤ Use Framax universal fixing bolts 10-16cm and Super-plates 15.0 to fasten the Xsafe plus platform walings 1.50m in the waling profile.



A Xsafe plus platform waling 1.50m
H Waling profile in Framax Xlife panel
I Framax universal fixing bolt 10-16cm
J Super-plate 15.0

As a rule:
Always fasten with two Universal fixing bolts.

Position of **top Universal fixing bolt**:

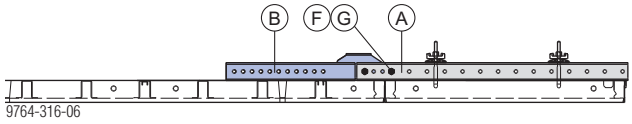
- in the slotted hole of the platform waling
- exception for horizontal 0.30m panels which are vertically stacked onto upright panels:
  in the waling profile of the 0.30m panel, directly above the panel joint

Position of **bottom Universal fixing bolt**:

- on horizontally placed panels:
  in the slotted hole of the platform waling
- on upright panels:
  in the lowest possible waling profile of the panel

Mounting the Xsafe plus stacking waler extension 0.70m

➤ Fasten the stacking waler extension to the Xsafe plus platform waling 1.50m with the 2 Connecting pins 10cm and Spring cotters 5mm.



A Xsafe plus platform waling 1.50m
B Xsafe plus stacking waler extension 0.70m
F Connecting pin 10cm of the stacking waler extension
G Spring cotter 5mm of the stacking waler extension

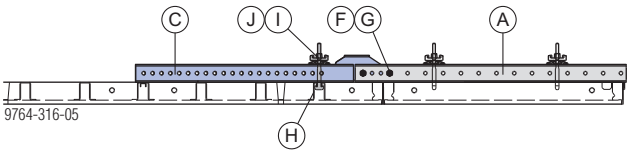
As a rule:
Does not need to be fastened with Universal fixing bolts.

Exception:
When stacking 2.40+2.40+1.35m, fasten with one Universal fixing bolt (directly below the panel joint).

Mounting the Xsafe plus stacking waler extension 1.20m

➤ Fasten the stacking waler extension to the Xsafe plus platform waling 1.50m with the 2 Connecting pins 10cm and Spring cotters 5mm.

➤ Use a Framax universal fixing bolt 10-16cm and a Super-plate 15.0 to fasten the stacking waler extension in the waling profile.



A	Xsafe plus platform waling 1.50m
C	Xsafe plus stacking waler extension 1.20m
F	Connecting pin 10cm of the stacking waler extension
G	Spring cotter 5mm of the stacking waler extension
H	Waling profile in Framax Xlife panel
I	Framax universal fixing bolt 10-16cm
J	Super-plate 15.0

As a rule:
Always fasten with one Universal fixing bolt.

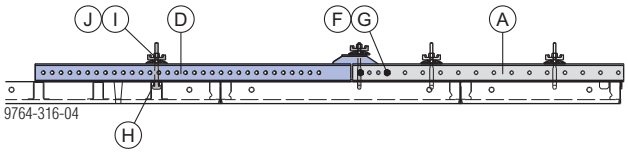
Position of **Universal fixing bolt**:

- in the waling profile of the bottom panel (directly below the panel joint)

Mounting the Xsafe plus stacking waler extension 1.80m

➤ Fasten the stacking waler extension to the Xsafe plus platform waling 1.50m with the 2 Connecting pins 10cm and Spring cotters 5mm.

➤ Use a Framax universal fixing bolt 10-16cm and a Super-plate 15.0 to fasten the stacking waler extension in the waling profile.



A	Xsafe plus platform waling 1.50m
D	Xsafe plus stacking waler extension 1.80m
F	Connecting pin 10cm of the stacking waler extension
G	Spring cotter 5mm of the stacking waler extension
H	Waling profile in Framax Xlife panel
I	Framax universal fixing bolt 10-16cm
J	Super-plate 15.0

As a rule:
Always fasten with two Universal fixing bolts.

Position of **top Universal fixing bolt**:

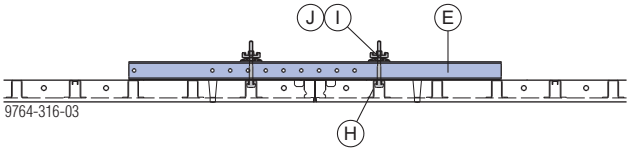
- in the slotted hole of the stacking waler extension

Position of **bottom Universal fixing bolt**:

- in the waling profile of the bottom panel (directly below the panel joint)

Mounting the Xsafe plus stacking waler 2.10m

➤ Use Framax universal fixing bolts 10-16cm and Super-plates 15.0 to fasten the Xsafe plus stacking waler 2.10m in the waling profile.



E	Xsafe plus stacking waler 2.10m
H	Waling profile in Framax Xlife panel
I	Framax universal fixing bolt 10-16cm
J	Super-plate 15.0

As a rule:
Always fasten with two Universal fixing bolts.

Position of **top** and **bottom Universal fixing bolt**:

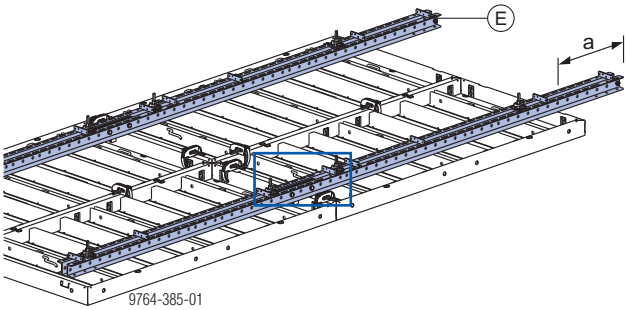
- in the slotted hole of the stacking waler, in each case

Multi-purpose walings instead of Xsafe plus walings

It is also possible to use **continuous Multi-purpose walings** instead of the Xsafe plus walings. The platform and lifting loads are transferred into the framed formwork panels by the **Xsafe plus fixing plate**.

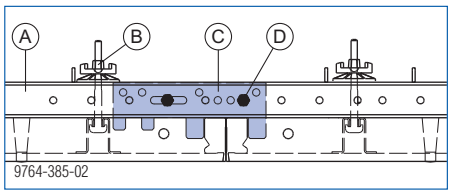
Max. load:
2500 kg per Xsafe plus fixing plate

Example:
Gang-form measuring 2.70x5.40 m



a ... approx. 70 cm

➤ Mount the Xsafe plus fixing plate above the panel joint in the multipurpose waling.



A	e.g. Multi-purpose waling WS10 Top50 6.00m
B	Framax universal fixing bolt + Super-plate 15.0
C	Xsafe plus fixing plate
D	Connecting pin 10cm + Spring cotter 5mm
E	Crane hoisting point (Connecting pin 10cm + Spring cotter 5mm)

Number of connectors:

- **As a rule:**
  Fasten every panel to the Multi-purpose waling with two Universal fixing bolts and super-plates.
  - **Exception:**
    Fasten every horizontally placed panel (up to 1.35m wide) onto the Multi-purpose waling with 1 Universal fixing bolt and 1 super-plate.

Important note:

Position of **top Universal fixing bolt**:

- directly below the top of the formwork

Number of Xsafe plus fixing plates:

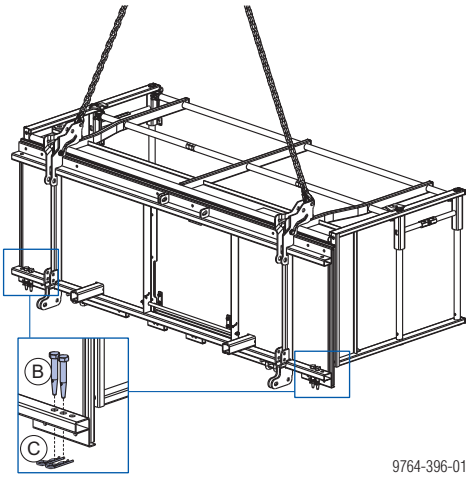
- 1 fixing plate for each Multi-purpose waling.

For more information, please contact your Doka technician.

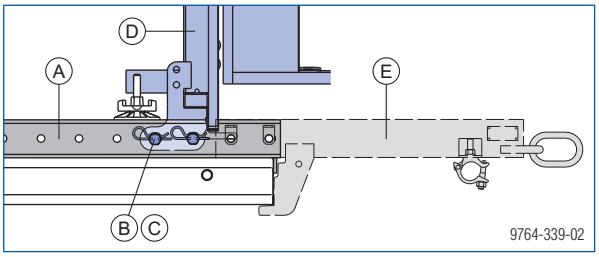
Mounting the Xsafe plus platform

➤ Raise the Xsafe plus platform by crane and lift it to the formwork.

➤ Remove the Connecting pins 10cm and Spring cotters 5mm of the Xsafe plus platform from their stand-by positions.

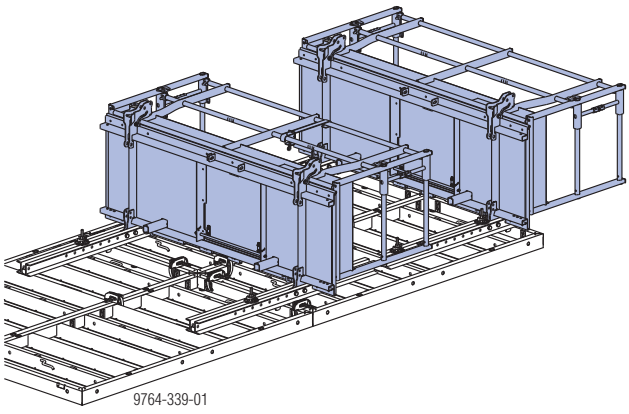


➤ Bolt the Xsafe plus platform into the Xsafe plus walings with the Connecting pins 10cm and Spring cotters 5mm.



Keep the first two holes in the Xsafe plus platform waling 1.50m free for the Xsafe plus lifting waler.

➤ Check that the Xsafe plus walings are attached correctly (Universal fixing bolt + Super-plate), and tighten these if necessary.



A	Xsafe plus waling
B	Connecting pin 10cm of the Xsafe plus platform
C	Spring cotter 5mm of the Xsafe plus platform
D	Xsafe plus platform
E	Xsafe plus lifting waler

Bolting-hole position for the platforms on the Xsafe plus walings

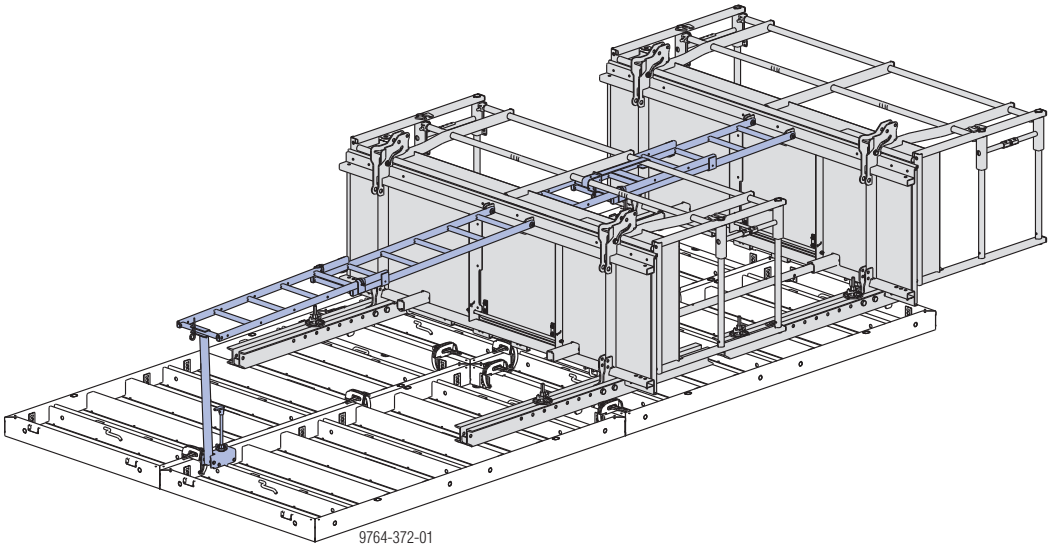
The hole-grid in the Xsafe plus walings makes it possible to adjust the platform level very flexibly.

However, when positioning the platforms on the Xsafe plus walings, **observe** the **following points**:

- Bolting-hole position on the **Xsafe plus platform waling 1.50m**:
  - As a rule:
    on the 3rd and 4th holes (from the top)
  - exception for horizontal 0.30m panels which are vertically stacked onto upright panels:
    on the 6th and 7th holes (from the top)
- Bolting-hole position on the **Xsafe plus stacking waler 2.10m**:
  - Panel joint between upright-stacked 2.70m + 2.70m panels:
    on the 1st and 2nd holes (from the top)
  - Panel joint between upright-stacked 3.30m panels (bottom) + 2.70m panels (top):
    on the 5th and 6th holes (from the top)

For details of the recommended fixing positions of the platforms (platform levels), see also the section headed "Rules for gang-forms".

Ladder system

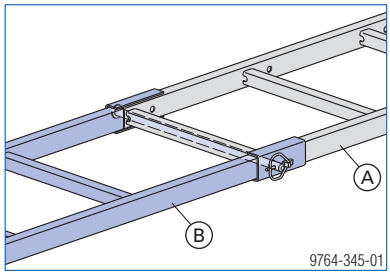


To make it possible to **attach the Xsafe plus telescopic ladders**, the **Xsafe plus platforms** are equipped with a **ladder connection**.

The Xsafe plus ladder starter piece is used for fixing a ladder **to the formwork**, and the Xsafe plus ladder support for fixing a ladder **to the rear railings** of the intermediate platform.

Extension range of the Xsafe plus telescopic ladder: **155 to 271 cm**

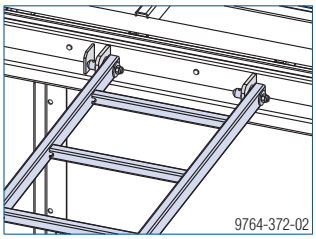
Extra lengthening of the telescoping ladder

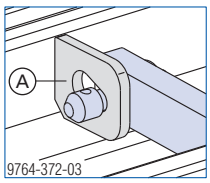


A Xsafe plus telescopic ladder

B Xsafe plus ladder extension 1.15m

Connecting the ladder to the Xsafe plus platform



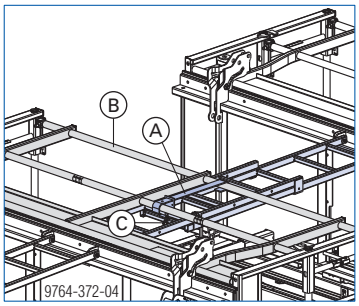


A Integrated ladder connection on the Xsafe plus platform

The integrated ladder connection secures the ladder against accidental lift-out.

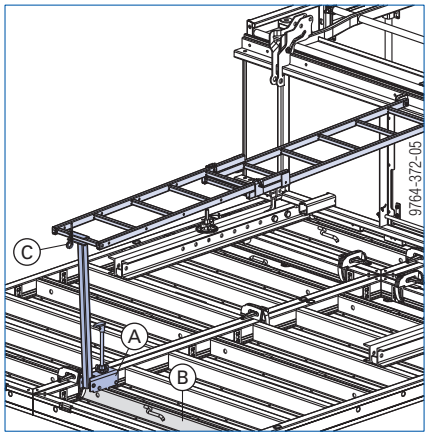
Note:
If desired, the ladder can also be secured with a linch pin as well.

Connecting the ladder to the rear railings



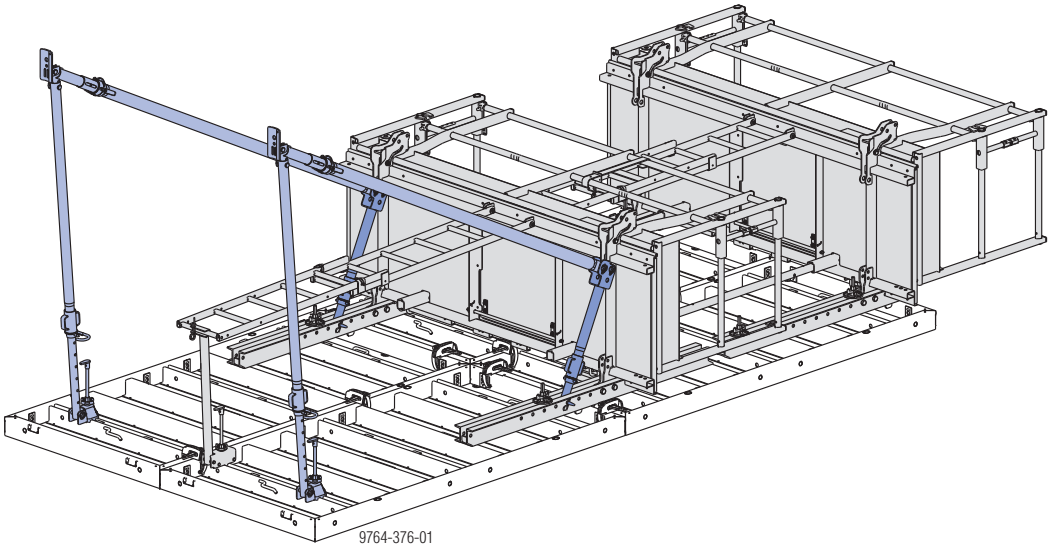
A Xsafe plus ladder support
B Rear railings of the Xsafe plus platform
C Spring cotter of the Xsafe plus ladder support

Connecting the ladder to the formwork



A Xsafe plus ladder starter piece
B Waling profile of the framed formwork panel
C Spring cotter of the Xsafe plus ladder starter piece

Plumbing accessories



Panel struts and Eurex 60 550 windproof the panels and make it easier to plumb and align the formwork.

Important note:

The formwork panels must be held stable in **every** phase of the construction work!

Please observe all applicable safety regulations!

CAUTION

There is a risk of the formwork tipping over **in high winds**.

➤ 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

Determining the number of struts

When using the table below, remember the following:

- Every gang-form must be supported by **at least 2 panel struts**.
- The table is based on the **structural-design** requirements.
- The **geometrical** arrangement of platforms and panel struts must be planned separately for each project.

  For more information, please contact your Doka technician.

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. In cases where higher wind pressure is encountered, the number of props must be determined by statical calculation.

For more information, see the Calculation Guide "Wind loads to the Eurocodes".

Height of basic panel: 2.70 m

Formwork height	Width of gang-form																											
	2.40 m				2.70 m				3.00 m				3.15 m				3.30 m				3.60 m				3.90 m			
	340	540	Eurex 60	Supporting strut	340	540	Eurex 60	Supporting strut	340	540	Eurex 60	Supporting strut	340	540	Eurex 60	Supporting strut	340	540	Eurex 60	Supporting strut	340	540	Eurex 60	Supporting strut	340	540	Eurex 60	Supporting strut
Up to 3.60 m	1				1				1				1				1				1				1			
Up to 4.05 m	1				1				1				2				2				2				2			
Up to 4.65 m	1			1	1			1	1			1	2			2	2			2	2			2	2			2
Up to 4.95 m	2			2	2			2	2			2	2			2	2			2	2			2	2			2
Up to 5.40 m		1		1		1		1		1		1		2		2		2		2		2		2		2		2
Up to 6.75 m		2		2		2		2		2		2		2		2		2		2		2		2		2		2
Up to 7.35 m		2		2		2		2		2		2		2		2		3		3		3		3		3		3
Up to 7.65 m		2		2		2		2		2		2		3		3		3		3		3		3		3		3
Up to 8.10 m		2	1	3		2	1	3		2	1	3		2	1	3		2	1	3		2	1	3		2	1	3

Height of basic panel: 3.30 m

Formwork height	Width of gang-form																											
	2.40 m				2.70 m				3.00 m				3.15 m				3.30 m				3.60 m				3.90 m			
	340	540	Supporting strut		340	540	Supporting strut		340	540	Supporting strut		340	540	Supporting strut		340	540	Supporting strut		340	540	Supporting strut		340	540	Supporting strut	
Up to 3.60 m	1				1				1				1				1				1				1			
Up to 4.65 m	2				2				2				2				2				2				2			
Up to 4.95 m		1	1			1	1			1	1			1	1			1	1			1	1			1	1	
Up to 5.25 m		1	1			1	1			1	1			1	1			1	1			2	2			2	2	
Up to 5.55 m		1	1			1	1			1	1			2	2			2	2			2	2			2	2	
Up to 6.60 m		2	2			2	2			2	2			2	2			2	2			2	2			2	2	

Height of basic panel: 2.40 m

Formwork height	Width of gang-form																							
	2.70 m				3.00 m				3.15 m				3.30 m				3.60 m				3.90 m			
	340	540	Eurex 60	Supporting strut	340	540	Eurex 60	Supporting strut	340	540	Eurex 60	Supporting strut	340	540	Eurex 60	Supporting strut	340	540	Eurex 60	Supporting strut	340	540	Eurex 60	Supporting strut
Up to 3.30 m	1				1				1				1				1				1			
Up to 3.75 m	1				1				1				1				2				2			
Up to 4.35 m	1			1	1			1	1			1	1			1	2			2	2			2
Up to 4.80 m	1			1	2			2	2			2	2			2	2			2	2			2
Up to 5.70 m	2			2	2			2	2			2	2			2	2			2	2			2
Up to 6.15 m	2			2	2			2	2			2	2			2	2		1	3	2		1	3
Up to 7.20 m		2		2		2		2		2		2		2		2		2		2		2		2

340 ..... Panel strut 340
540 ..... Panel strut 540
Eurex 60 ..... Eurex 60 550
Supporting strut ..... Xsafe plus supporting strut

Example:

- Height of basic panel: 2.70 m
- Formwork height: 6.00 m
- Width of gang-form: 3.15 m

Required panel struts:
2x Panel strut 540
2x Xsafe plus supporting strut

Mounting the plumbing accessories

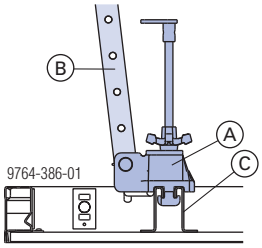
The location of the connection points for the panel struts depends on how many platform levels there are on the gang-form:

- Gang-form with only **one platform level** (only a pouring platform, no intermediate platform):
  - panel struts are connected **to formwork**
- Gang-form with **more than one platform level** (pouring platform and intermediate platforms):
  - panel struts are connected **to top intermediate platform** (second Xsafe plus platform from top)

Connecting panel struts to the formwork

➤ Mount the prop head to the panel strut.

➤ Fasten the panel strut to the formwork.

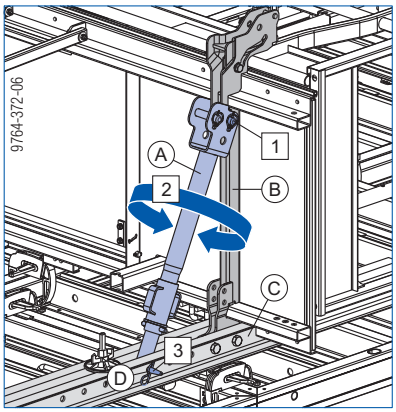


A	Prop head
B	Panel strut
C	Waling profile

Connecting panel struts to the Xsafe plus platform

Mount the Xsafe plus supporting strut between the platform and the Xsafe plus waling:

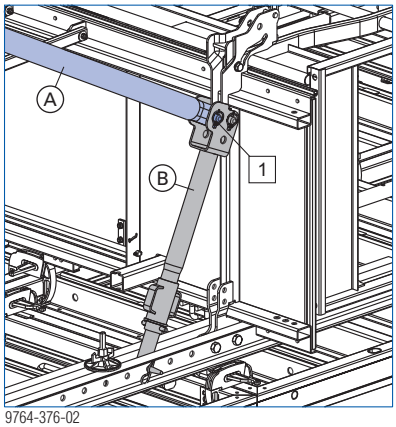
1) Bolt the supporting strut to the platform and secure it with a linch pin.
2) Turn the screwjack mechanism on the supporting strut to adjust it to the required length.
3) Bolt the supporting strut into the waling with a Connecting pin 10cm and secure this with a spring cotter.



A	Xsafe plus supporting strut
B	Xsafe plus platform
C	Xsafe plus waling
D	Connecting pin 10cm of the Xsafe plus supporting strut

Mount the panel strut to the Xsafe plus supporting strut:

1) Bolt the panel strut to the Xsafe plus supporting strut and secure it with a linch pin.



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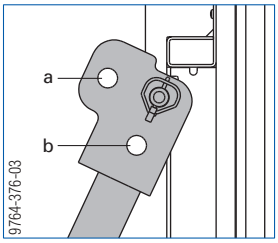
A Panel strut or Eurex 60 550
B Xsafe plus supporting strut

The panel strut can be bolted to the supporting strut in **2 positions**:

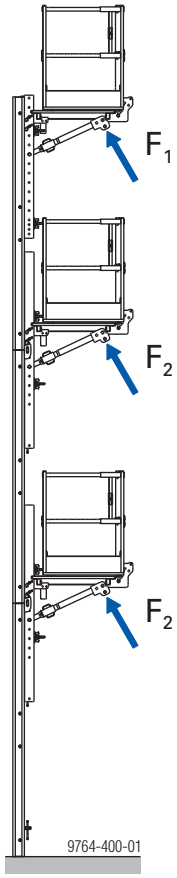
- As a **basic rule,** use Position **(a)**.
  - Advantage: more headroom on the platform.
- For formwork of **5.40m to 6.30m in height,** where the **basic panel height is 2.70m**:
  Use Position **(b)**.
  - Advantage: larger adjusting range of the Panel strut 540.



Xsafe plus supporting strut:

permitted connection forces (panel strut -> supporting strut):

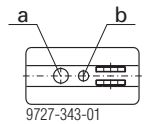
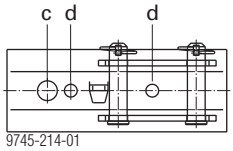
- Top platform (pouring platform): $F_{1,\ perm.}$ = 10.0 kN
- Intermediate platform / bottom platform: $F_{2,\ perm.}$ = 13.5 kN



Fixing to the ground

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

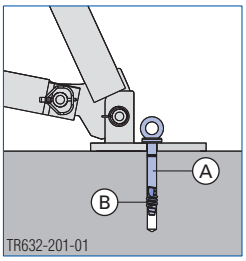
Drilled holes in the footplates

Panel strut 340, 540	Eurex 60 550
	

a ... diam. 26 mm
b ... diam. 18 mm
c ... diam. 28 mm
d ... diam. 18 mm

Anchoring the footplate

The **Doka Express anchor** can be re-used many times over - the only tool needed for screwing it in is a hammer.



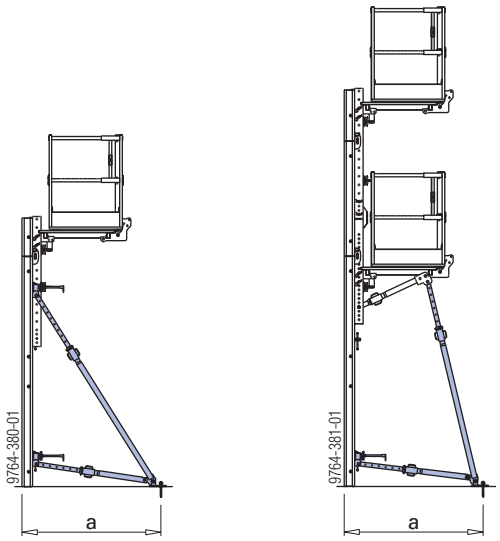
A Doka Express anchor 16x125mm
B Doka coil 16mm

Characteristic cube compressive strength of the concrete ($f_{ck,cube}$): min. 25 N/mm² or 250 kg/cm² (C20/25 grade concrete)

Follow the Fitting Instructions!

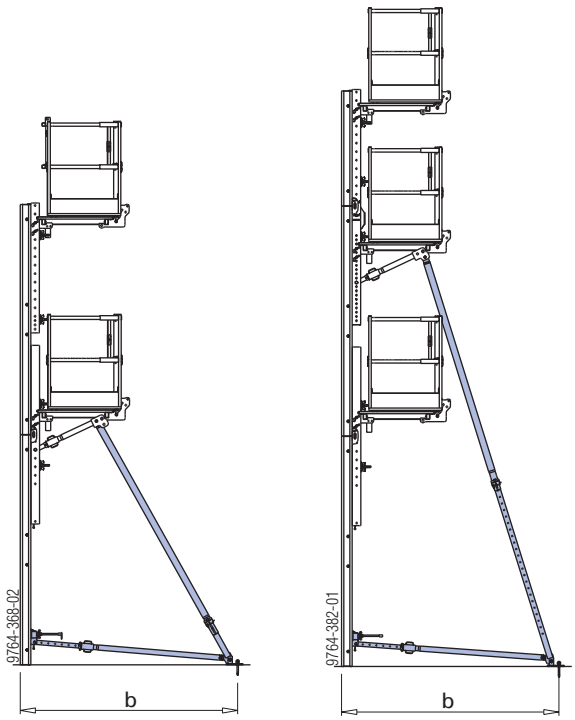
Required safe working load of alternative anchors for foot-plates:
$R_d \geq$ 20.3 kN ($F_{permissible} \geq$ 13.5 kN)
Follow the manufacturer's applicable fitting instructions.

Panel strut 340



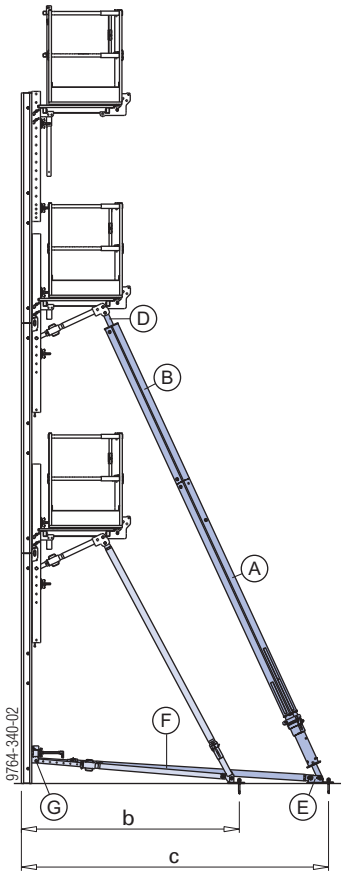
a ... 163.0 cm

Panel strut 540



b ... 255.0 cm

Eurex 60 550 used as a shoring & plumbing accessory



b ... 255.0 cm
c ... 360.0 cm

A	Plumbing strut Eurex 60 550
B	Extension Eurex 60 2.00m
D	Connector Eurex 60
E	Plumbing strut shoe Eurex 60
F	Adjusting strut 540 Eurex 60
G	Prop head

Rules for gang-forms

Positions of the connectors and accessories needed for:

- lifting and setting down
- crane-handling
- platform loads
- pouring

The following information is given for each of the gang-forms mentioned below:

- position of the panel connectors
- position and fixing method of the platform walings and stacking walers
- position of the platforms

Note:

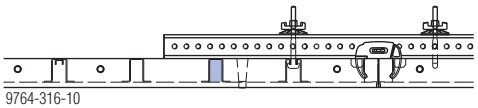
For information on the positions of the form-ties, see the section headed "Tie-rod system":

Xsafe plus platform waling 1.50m:

Because of the permitted tensile load of 14 kN in the waling profile, the stated permissible moments also apply for more rigid components such as the Multi-purpose waling WU12 Top50.

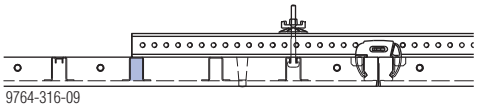
Permitted moment:

- Resting on 1st cross profile: 5.0 kNm



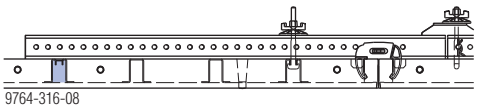
9764-316-10

- Resting on 2nd cross profile: 9.5 kNm



9764-316-09

- Resting on 3rd cross profile: 11.0 kNm

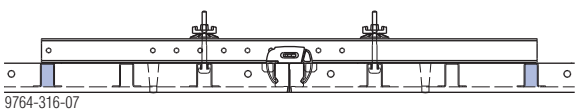


9764-316-08

(Values also apply where the Xsafe plus platform waling 1.50m is combined with Xsafe plus stacking waler extensions)

Xsafe plus stacking waler 2.10m:

- Permitted moment: 9.5 kN



9764-316-07

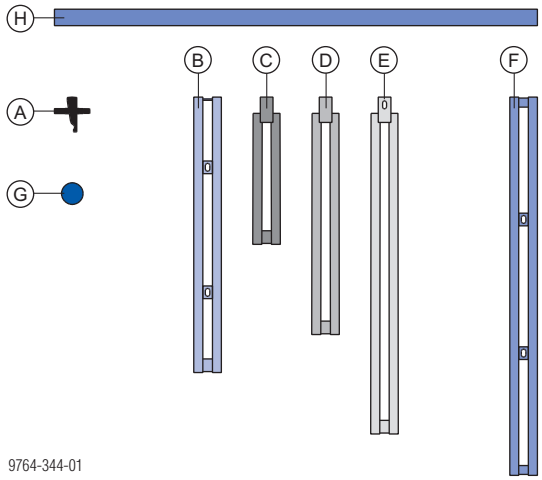
Because of the permitted tensile load of 14 kN in the waling profile, the stated permissible moment also applies for more rigid components such as the Multi-purpose waling WU12 Top50.

Framax quick-acting clamp RU:

permitted tensile force: 15.0 kN

permitted shear force: 6.0 kN

permitted moment: 0.5 kNm



9764-344-01

A	Framax quick-acting clamp RU
B	Xsafe plus platform waling 1.50m
C	Xsafe plus stacking waler extension 0.70m
D	Xsafe plus stacking waler extension 1.20m
E	Xsafe plus stacking waler extension 1.80m
F	Xsafe plus stacking waler 2.10m
G	Framax universal fixing bolt 10-16cm + Super-plate 15.0
H	Xsafe plus platform

Bill of materials for gang-forms with widths of 2.70 m / 2.40 m / 1.35 m

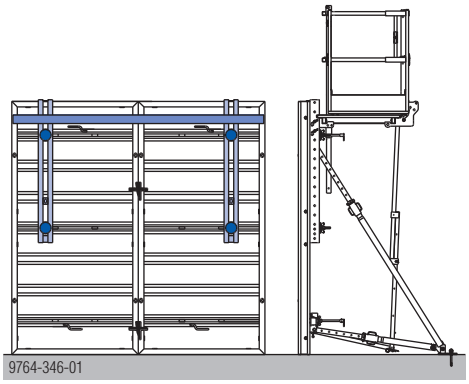
Height of basic panel	Combination n°	Formwork height [m]	Panel heights [m]				Number of connectors							Platform levels [cm]
			Panel 1	Panel 2	Panel 3	Panel 4	Framax quick-acting clamp RU [1] (for vertical stacking joints)	Platform waling 1.50m	Stacking waler extension 0.70m	Stacking waler extension 1.20m	Stacking waler extension 1.80m	Stacking waler 2.10m	Framax universal fixing bolt 10-16cm + Super-plate 15.0	
2.70m	101	2.70	2.70					2					4	255
	102	3.00	2.70	0.30			4	2					4	255
	103	3.15	2.70	0.45			4	2					4	300
	104	3.30	2.70	0.60			4	2					4	315
	105	3.60	2.70	0.90			4	2	2				4	345
	106	4.05	2.70	1.35			4	2		2			6	390
	107	4.35	2.70	1.35	0.30		8	2		2			6	257 / 420
	108	4.50	2.70	1.35	0.45		8	2		2			6	257 / 435
	109	4.65	2.70	1.35	0.60		8	2		2			6	257 / 450
	110	4.95	2.70	1.35	0.90		8	2			2		8	257 / 480
	111	5.40	2.70	2.70			4	2				2	8	299 / 525
	112	5.70	2.70	2.70	0.30		8	2				2	8	299 / 525
	113	5.85	2.70	2.70	0.45		8	2				2	8	299 / 570
	114	6.00	2.70	2.70	0.60		8	2				2	8	299 / 585
	115	6.00	2.70	3.30			4	2				2	8	299 / 585
	116	6.30	2.70	2.70	0.90		8	2	2			2	8	299 / 615
	117	6.75	2.70	2.70	1.35		8	2		2		2	10	299 / 497 / 660
	118	7.05	2.70	2.70	1.35	0.30	12	2		2		2	10	299 / 527 / 690
	119	7.20	2.70	2.70	1.35	0.45	12	2			2	2	12	299 / 527 / 705
	120	7.35	2.70	2.70	1.35	0.60	12	2			2	2	12	299 / 527 / 720
	121	7.65	2.70	2.70	1.35	0.90	12	2			2	2 + 2 [2]	12 + 4 [2]	299 / 527 / 750
	122	8.10	2.70	2.70	2.70		8	2				4 + 2 [2]	12 + 4 [2]	299 / 569 / 795
3.30m	201	3.30	3.30					2					4	315
	202	3.60	3.30	0.30			4	2					4	315
	203	3.75	3.30	0.45			4	2					4	360
	204	3.90	3.30	0.60			4	2					4	375
	205	4.20	3.30	0.90			4	2	2				4	405
	206	4.65	3.30	1.35			4	2		2			6	450
	207	4.95	3.30	1.35	0.30		8	2		2			6	317 / 480
	208	5.10	3.30	1.35	0.45		8	2		2			6	317 / 495
	209	5.25	3.30	1.35	0.60		8	2			2		8	317 / 510
	210	5.55	3.30	1.35	0.90		8	2			2		8	317 / 540
	211	6.60	3.30	3.30			4	2				2	8	319 / 645
2.40m	301	2.40	2.40					2					4	225
	302	2.70	2.40	0.30			4	2					4	255
	303	2.85	2.40	0.45			4	2					4	270
	304	3.00	2.40	0.60			4	2					4	285
	305	3.30	2.40	0.90			4	2					4	315
	306	3.75	2.40	1.35			4	2		2			6	360
	307	4.05	2.40	1.35	0.30		8	2		2			6	222 / 390
	308	4.20	2.40	1.35	0.45		8	2		2			6	222 / 405
	309	4.35	2.40	1.35	0.60		8	2			2		8	222 / 420
	310	4.65	2.40	1.35	0.90		8	2			2		8	222 / 450
	311	4.80	2.40	2.40			4	2			2		8	272 / 465
	312	5.10	2.40	2.40	0.30		8	2				2	8	269 / 495
	313	5.25	2.40	2.40	0.45		8	2				2	8	269 / 510
	314	5.40	2.40	2.40	0.60		8	2				2	8	269 / 525
	315	5.70	2.40	2.40	0.90		8	2				2	8	269 / 555
	316	6.15	2.40	2.40	1.35		8	2	2			2	10	269 / 600
	317	6.45	2.40	2.40	1.35	0.30	12	2		2		2	10	269 / 462 / 630
	318	6.60	2.40	2.40	1.35	0.45	12	2		2		2	10	269 / 462 / 645
	319	6.75	2.40	2.40	1.35	0.60	12	2			2	2	12	269 / 462 / 660
	320	7.05	2.40	2.40	1.35	0.90	12	2			2	2	12	269 / 462 / 690
	321	7.20	2.40	2.40	2.40		8	2			2	2	12	269 / 462 / 705

[1] N° of quick-acting clamps RU for 2.70 m and 2.40 m wide gang-forms.
For 1.35 m wide gang-forms, only half the number of Quick-acting clamps RU is needed (e.g. 2 instead of 4).

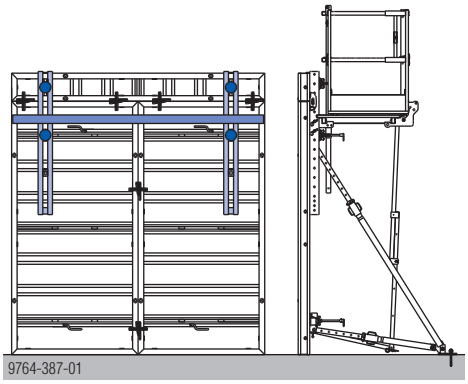
[2] Extra stacking waler needed on the 1st and 2nd panel joints on 2.70 m wide gang-forms.
Not needed on 1.35 m wide gang-forms.

Examples for a basic panel height of 2.70m

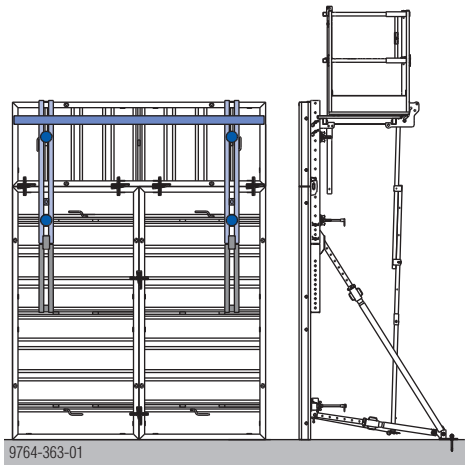
Combination **n° 101**
Formwork height: **2.70 m**
Formwork width: **2.70 m**



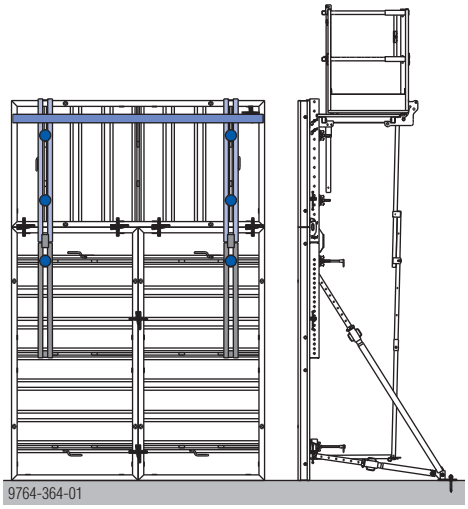
Combination **n° 102**
Formwork height: **3.00 m**
Formwork width: **2.70 m**



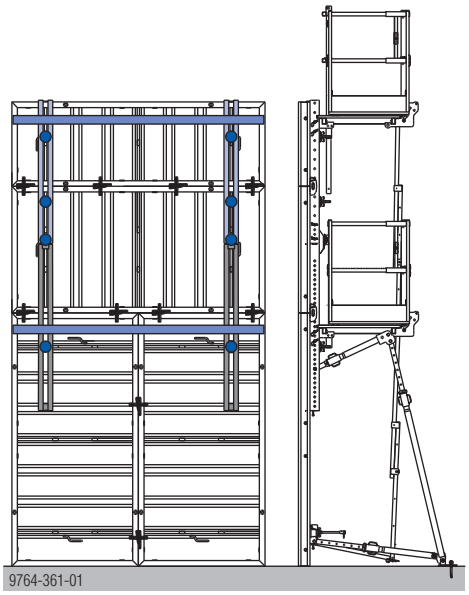
Combination **n° 105**
Formwork height: **3.60 m**
Formwork width: **2.70 m**



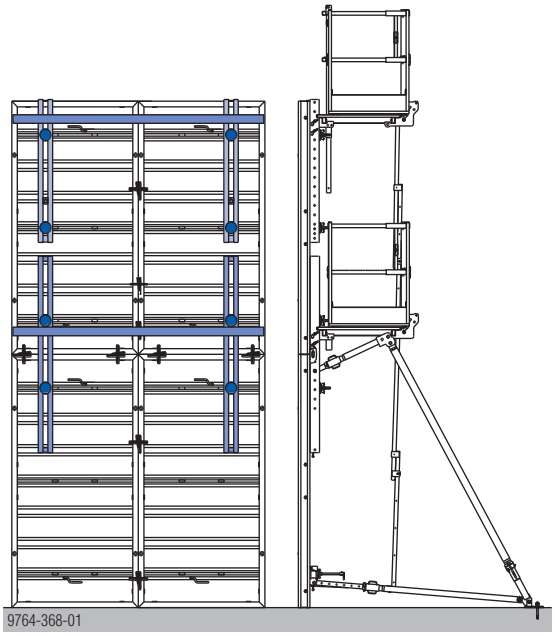
Combination **n° 106**
Formwork height: **4.05 m**
Formwork width: **2.70 m**



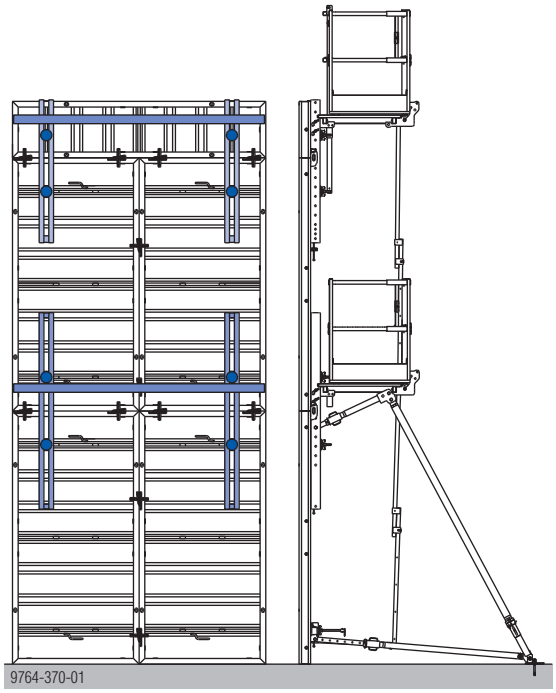
Combination **n° 110**
Formwork height: **4.95 m**
Formwork width: **2.70 m**



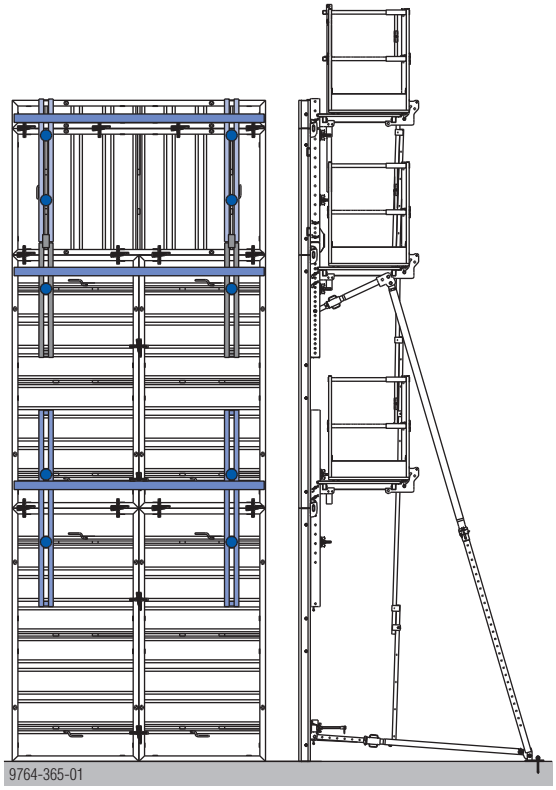
Combination **n° 111**
Formwork height: **5.40 m**
Formwork width: **2.70 m**



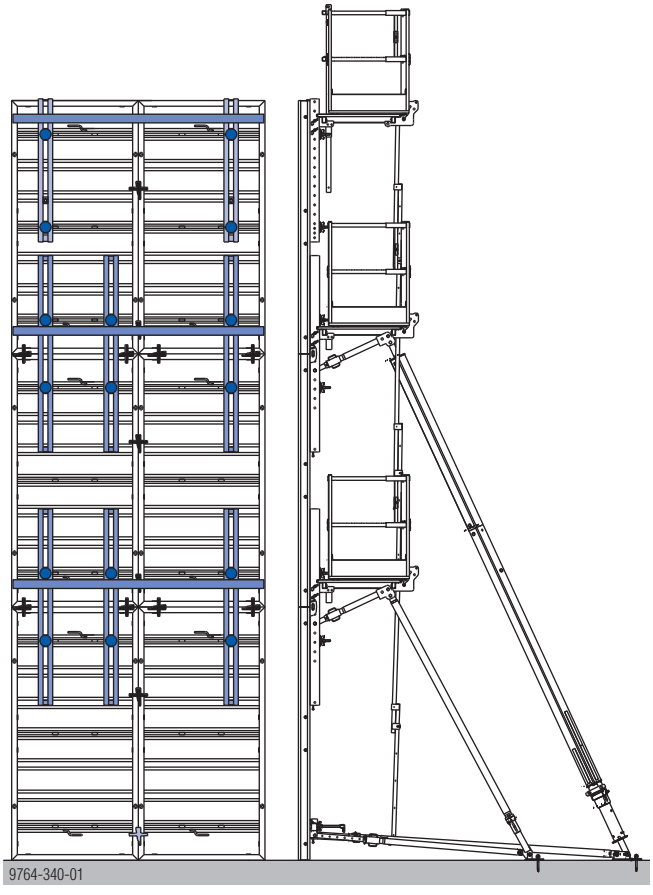
Combination **n° 114**
Formwork height: **6.00 m**
Formwork width: **2.70 m**



Combination **n° 118**
Formwork height: **7.05 m**
Formwork width: **2.70 m**

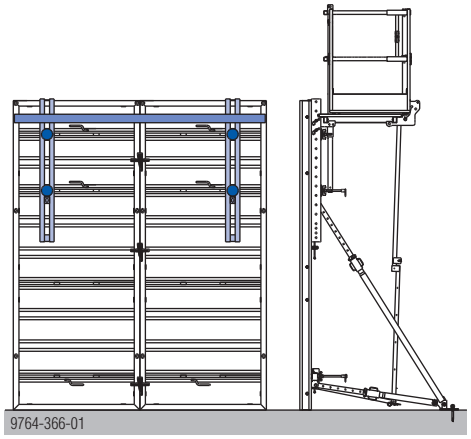


Combination **n° 122**
Formwork height: **8.10 m**
Formwork width: **2.70 m**

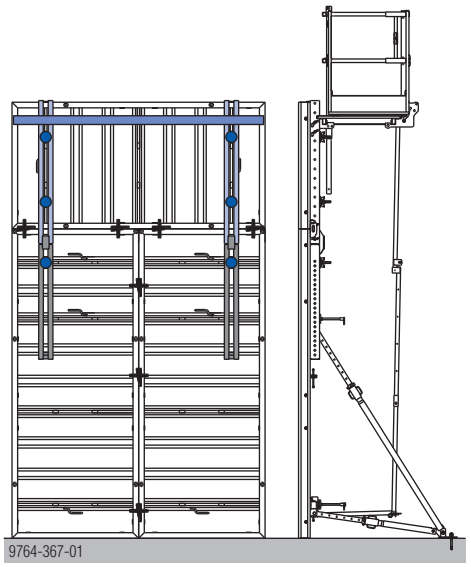


Examples for a basic panel height of 3.30m

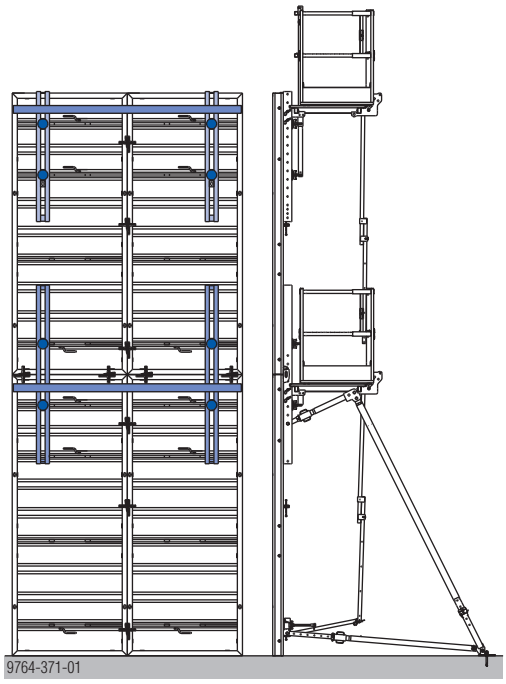
Combination **n° 201**
Formwork height: **3.30 m**
Formwork width: **2.70 m**



Combination **n° 206**
Formwork height: **4.65 m**
Formwork width: **2.70 m**

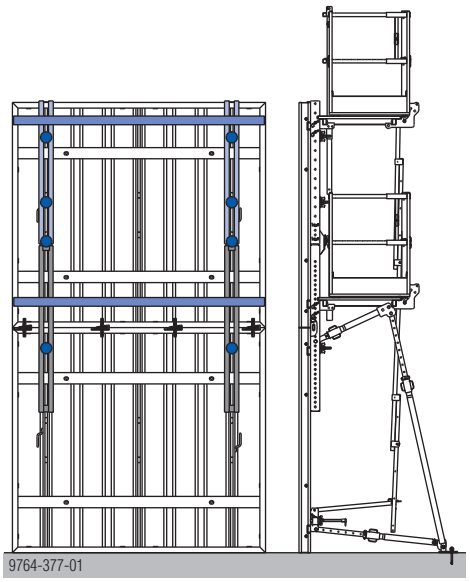


Combination **n° 202**
Formwork height: **6.60 m**
Formwork width: **2.70 m**



Example for a basic panel height of 2.40m

Combination **n° 301**
Formwork height: **4.80 m**
Formwork width: **2.70 m**



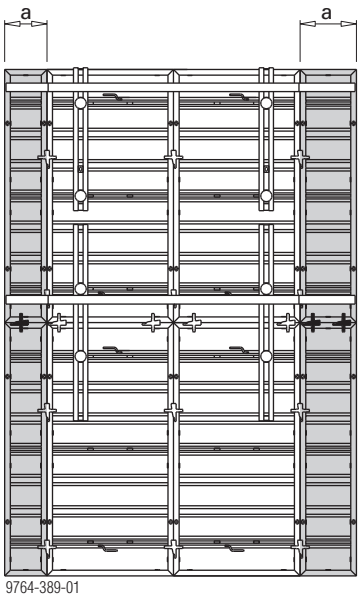
Extra connectors for gang-form width additions

Framax quick-acting clamp RU

Panel width of width-addition (a)	Extra **Quick-acting clamps RU** for each panel joint of the width-addition
0.30m	1
0.45m	1
0.60m	2

Example:

- Panel width: 0.45m and 0.60m
- Formwork height: 5.40 m

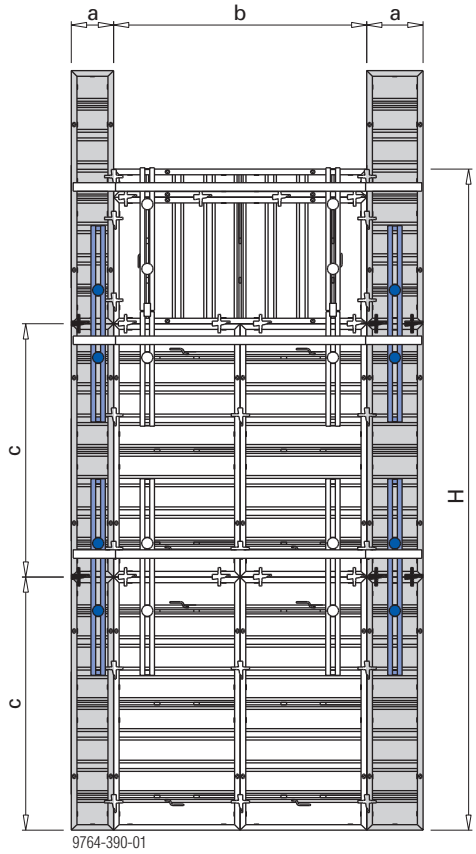


9764-389-01

Framax universal waling 1.50m or Xsafe plus stacking waler 2.10m

Panel width of width-addition (a)	**Width** of the **gang-form** to be widened (b)	**Panel heights** used (c)	**Formwork height** (H)	Extra **Universal waling 1.50m** or **Stacking waler 2.10m**
0.45m or 0.60m	1.35 m	2.70m	7.65m - 8.10m	1 each (on 1st and 2nd panel-joint)
	2.40 m or 2.70 m	2.40m or 2.70m	7.05m - 8.10m	
		3.30m	No universal waling or stacking waler	

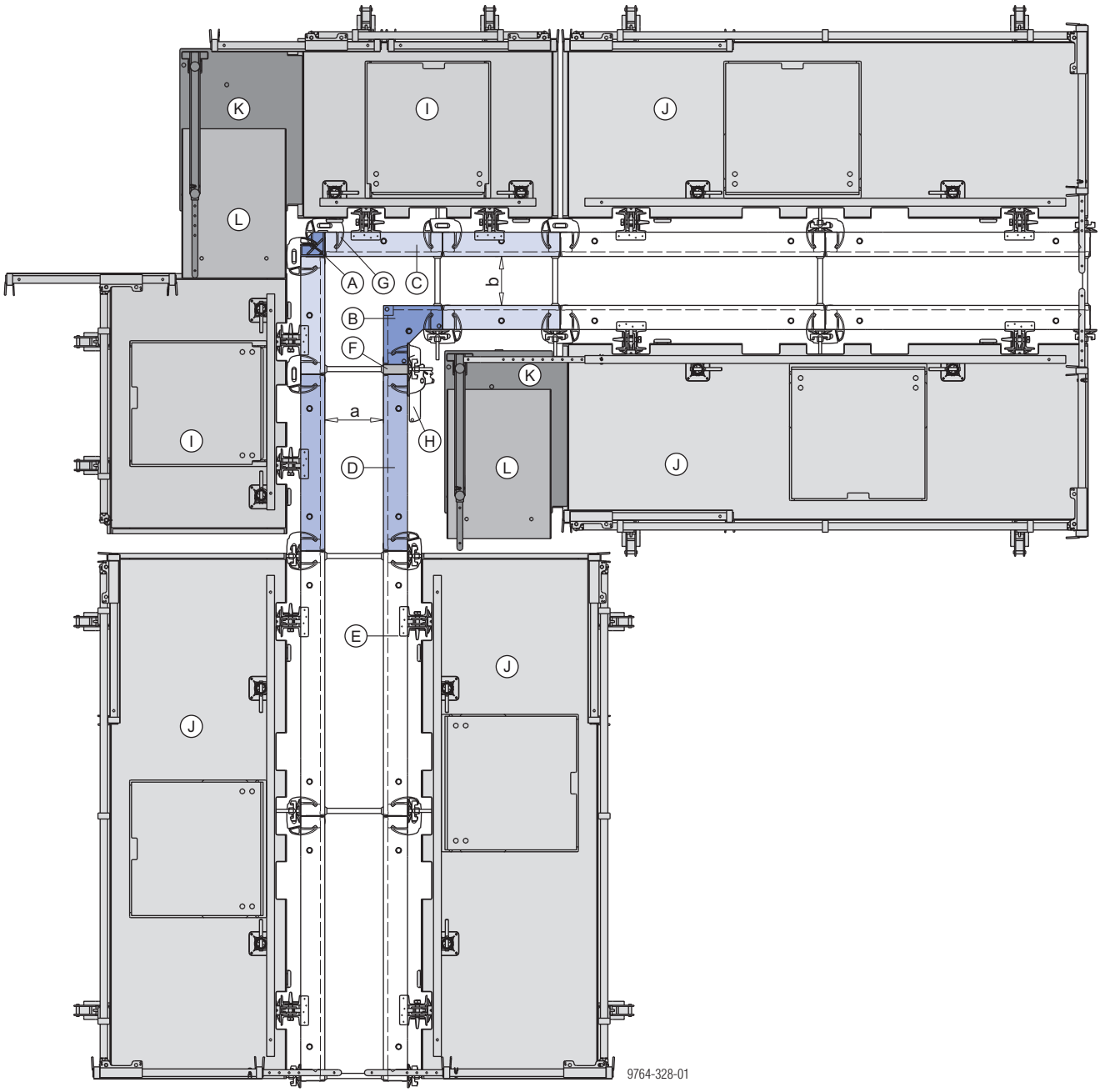
Example:



9764-390-01

Corner configuration

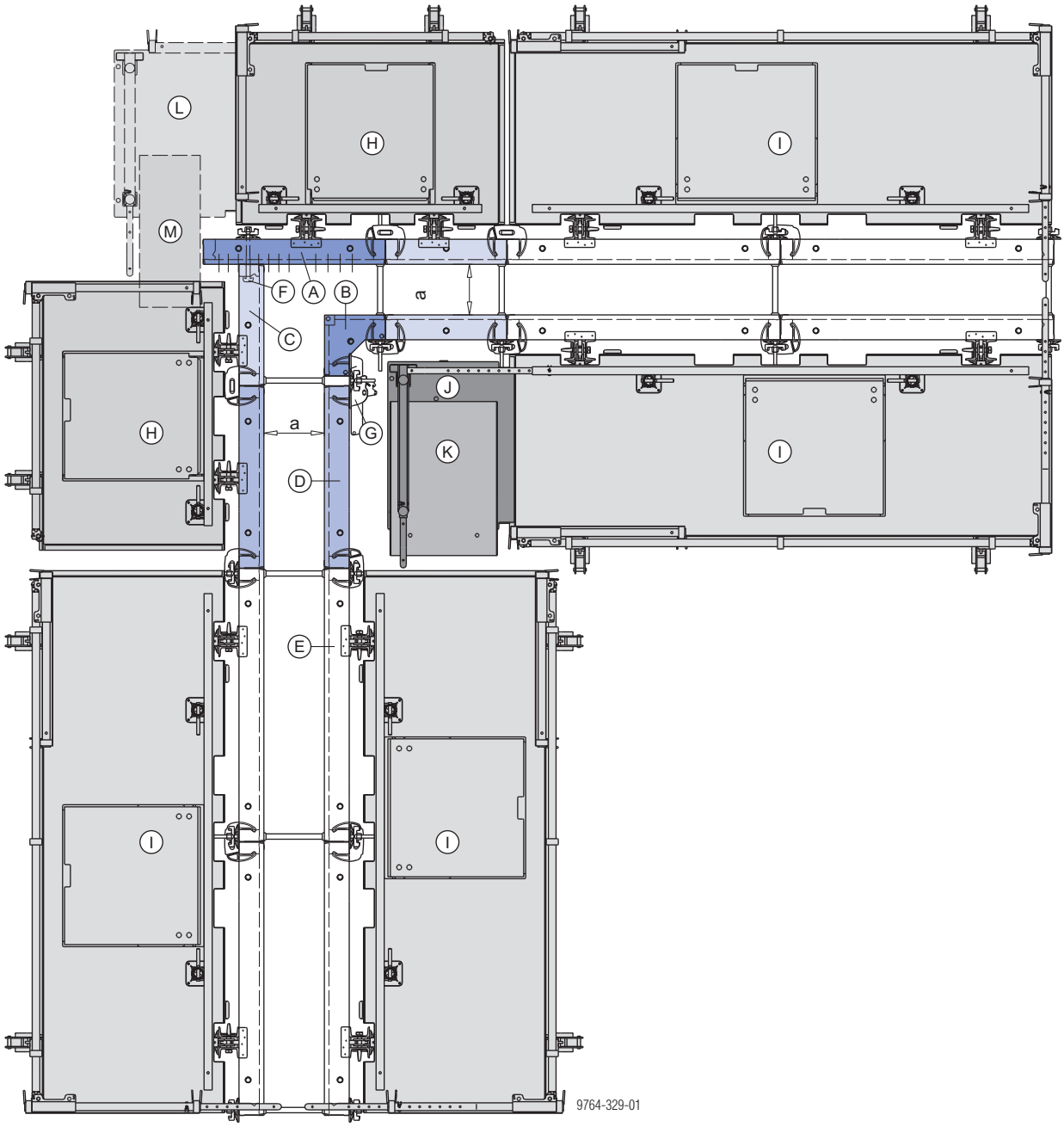
Practical example



a ... 30 cm
b ... 25 cm

A	Framax outside corner
B	Framax Xlife inside corner
C	Framax Xlife panel 0.60m
D	Framax Xlife panel 0.90m
E	Framax Xlife panel 1.35m
F	Fitting-timber
G	Framax quick-acting clamp RU
H	Framax multi-function clamp
I	Xsafe plus platform 1.35m
J	Xsafe plus platform 2.70m
K	Xsafe plus platform extension 0.60m
L	Xsafe plus platform transition

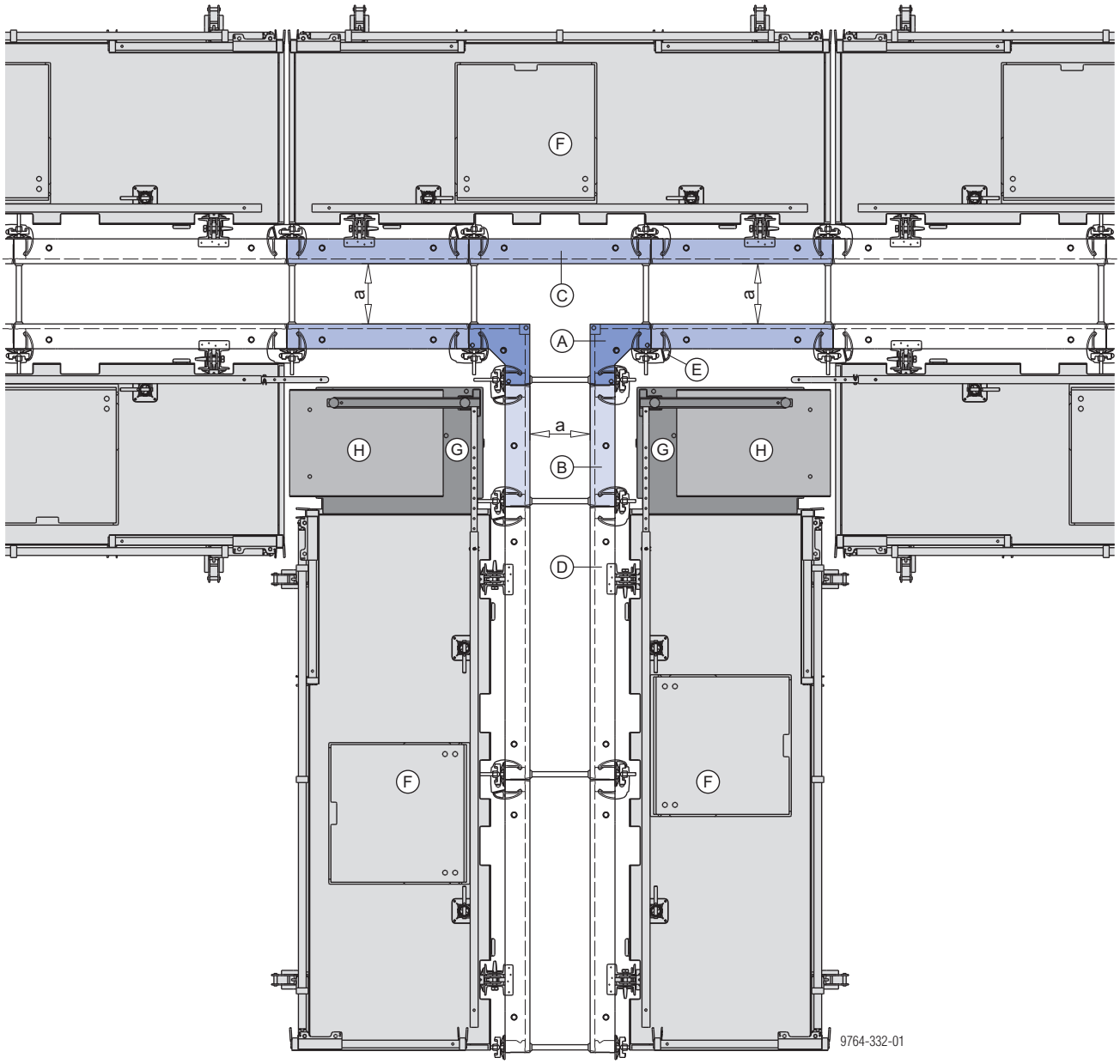
Practical example



a ... 30 cm

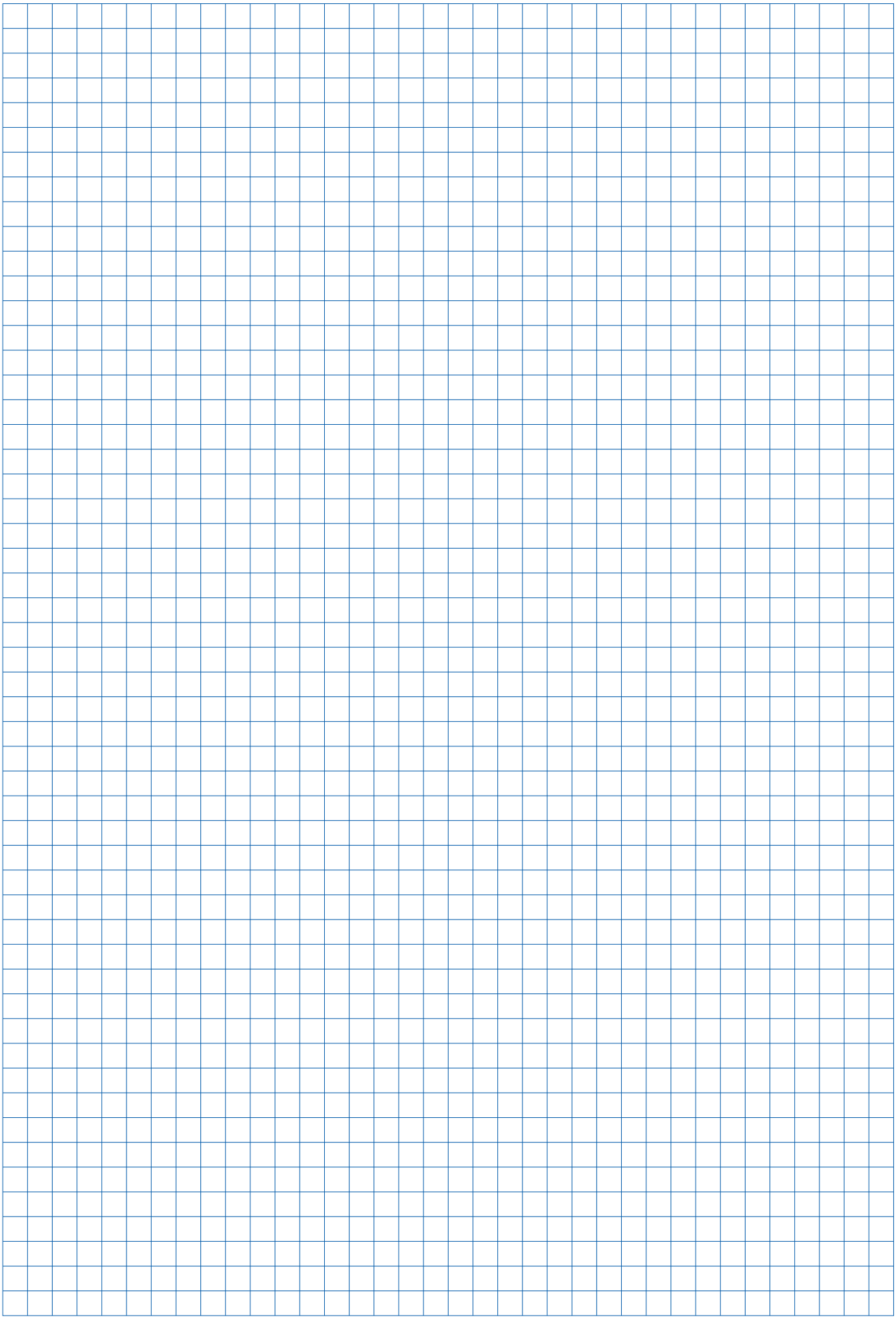
A	Framax Xlife universal panel
B	Framax Xlife inside corner
C	Framax Xlife panel 0.60m
D	Framax Xlife panel 0.90m
E	Framax Xlife panel 1.35m
F	Framax universal fixing bolt + Super-plate 15.0
G	Framax quick-acting clamp RU
H	Xsafe plus platform 1.35m
I	Xsafe plus platform 2.70m
J	Xsafe plus platform extension 0.60m
K	Xsafe plus platform transition
L	Xsafe plus platform extension 0.60m (optional)
M	Platform transition, site-provided (optional)

Example: T-junction



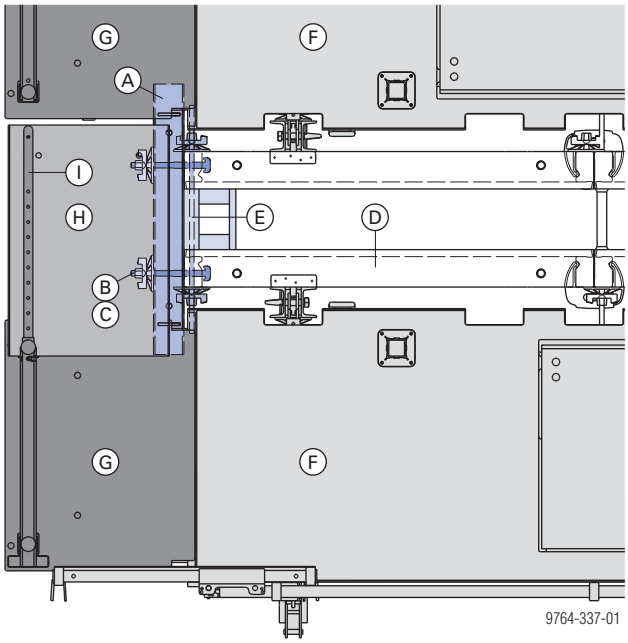
a ... 30 cm

A	Framax Xlife inside corner
B	Framax Xlife panel 0.60m
C	Framax Xlife panel 0.90m
D	Framax Xlife panel 1.35m
E	Framax quick-acting clamp RU
F	Xsafe plus platform 2.70m
G	Xsafe plus platform extension 0.60m
H	Xsafe plus platform transition

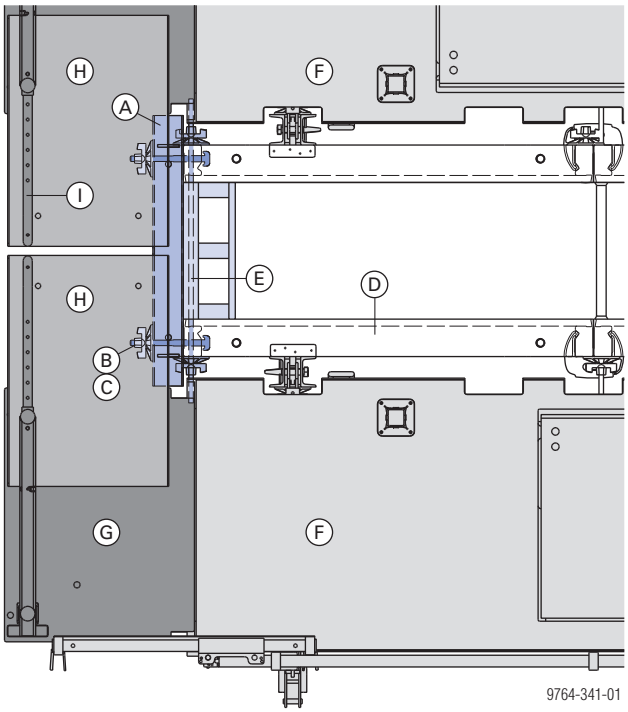


Stop-end formwork

Wall thicknesses up to 20 cm



Wall thicknesses above 20 cm

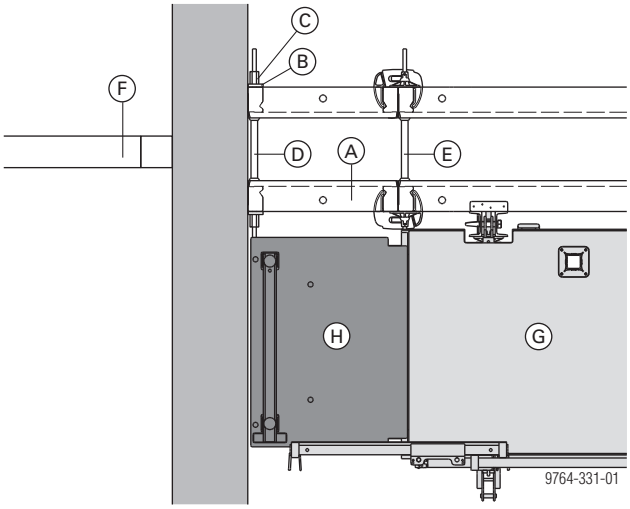


A	Framax universal waling
B	Framax universal fixing bolt
C	Super-plate 15.0
D	Framax Xlife panel
E	Doka tie-rod system
F	Xsafe plus platform
G	Xsafe plus platform extension 0.60m
H	Xsafe platform transition
I	Xsafe plus handrail lengthening piece

If it is not possible to use a Framax universal fixing bolt (this will depend on the level of the platform and the platform transition), use a **Framax stop-end tie** instead.

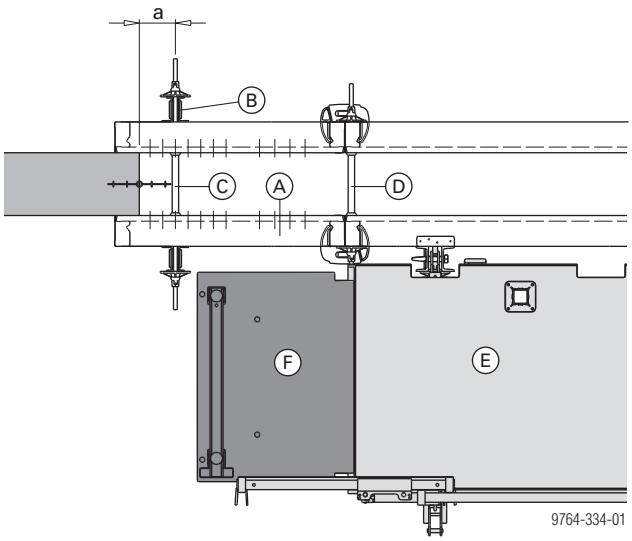
Wall junctions

Right-angled connections



A	Framax Xlife panel 0.60m
B	Framax pressure plate 6/15
C	Hexagon nut 15.0
D	Doka tie-rod system 15.0
E	Doka tie-rod system
F	In-place timber brace
G	Xsafe plus platform
H	Xsafe plus platform extension 0.60m

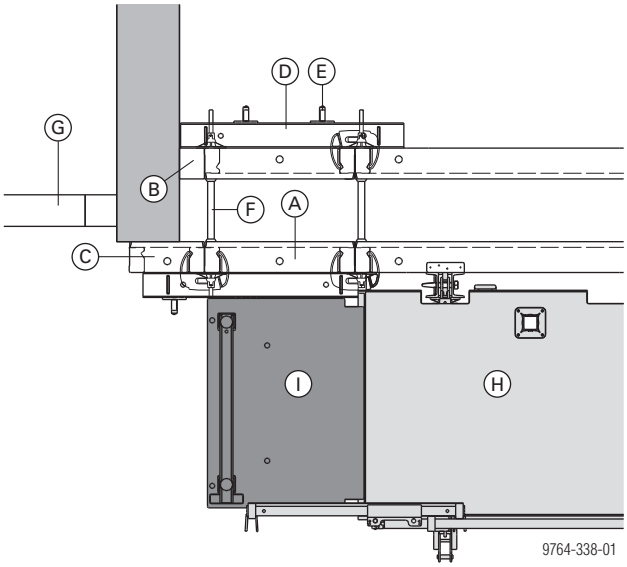
In-line connections



a ... max. 20.0 cm

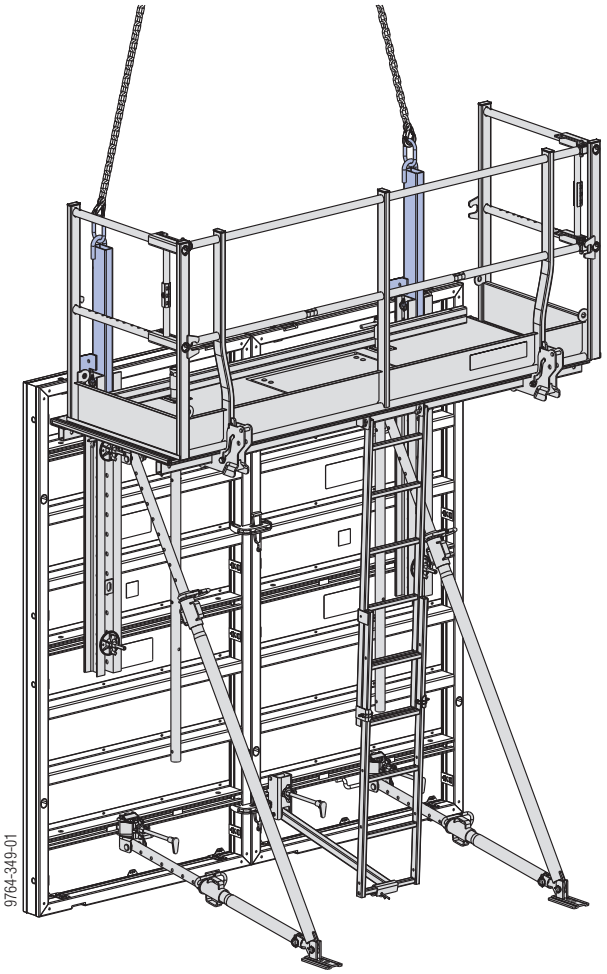
A	Framax Xlife universal panel
B	Framax universal waling 1.50m
C	Doka tie-rod system 15.0 (in the Universal panel 2.70m, 3 form-ties are needed)
D	Doka tie-rod system
E	Xsafe plus platform
F	Xsafe plus platform extension 0.60m

Corner connections



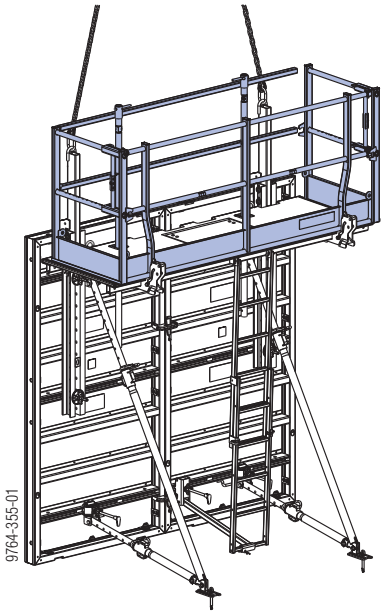
A	Framax Xlife panel 0.45m
B	Squared timber (min. 3.5 cm up to max. 20 cm)
C	Framax Xlife panel 0.30m
D	Framax universal waling (not necessary with squared timbers up to 5 cm wide)
E	Framax wedge clamp
F	Doka tie-rod system
G	In-place timber brace
H	Xsafe plus platform
I	Xsafe plus platform extension 0.60m

Resetting by crane

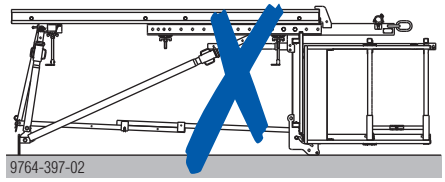


For gang-forms with Xsafe plus platforms, observe the following points:

- It is **only allowed to operate the lifting waler and lifting hook** when the platform railings are **in place on all sides**.

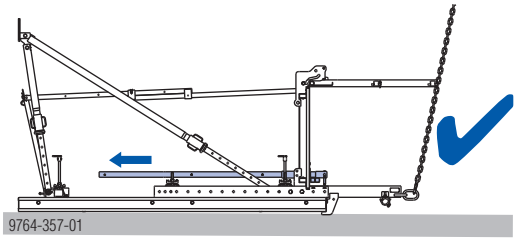


- Do **not set down the gang-form on the platform**.

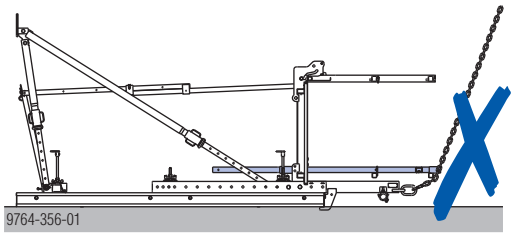


- It is only allowed to raise or set down the gang-form **after the Xsafe plus counter-railing has been pushed in** (lowered).

Right:

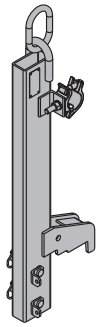


Wrong:



Xsafe plus lifting waler

The **Xsafe plus lifting waler** is used for safe lifting and resetting of the pre-assembled gang-forms by crane.



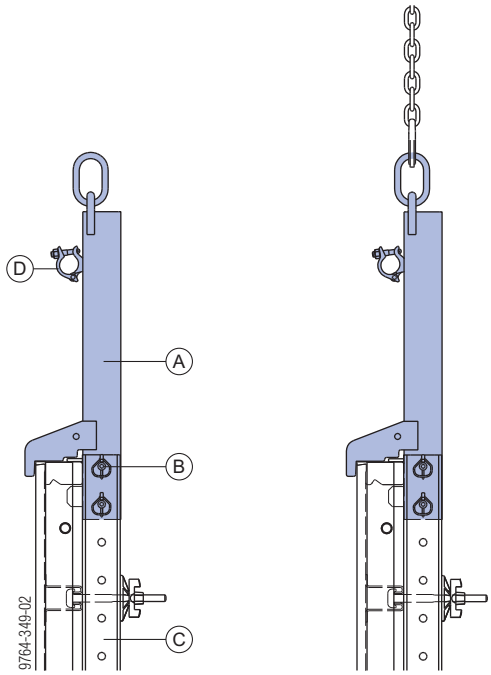
CE

Max. load:
Spread-angle β up to 15°: 1750 kg per lifting waler
Spread-angle β up to 30°: 800 kg per lifting waler

Follow the directions in the Operating Instructions!

Operating the lifting waler

1) Bolt the Xsafe plus lifting waler into the Xsafe plus platform waling with **both bolts**, and secure these with linch pins.
   The connection plate must reach down over the Xlife sheet.
2) Attach the lifting chain to the Xsafe plus lifting walers.



A	Xsafe plus lifting waler
B	Bolt + linch pin
C	Xsafe plus platform waling 1.50m
D	Coupler for pressure bracing

Before crane-lifting the gang-form, check that the lifting waler has been correctly mounted to the platform waling (**2 bolts**, each secured by a **linch pin**).

Gang-forms larger than**15 m²** (approx. 1600 kg) require a **pressure bracing** (Scaffold tube 48.3mm) to be fitted between the lifting walers.

The couplers needed for this are integrated onto the lifting waler.

Striking and repositioning the panels

Before lifting: Remove any loose items from the formwork and platforms, or secure them firmly.

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.

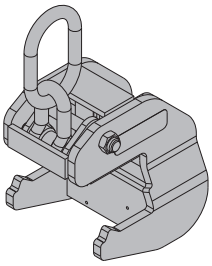
➤ Lift the gang-form to its new location (guide with taglines if necessary).

Framax lifting hook

Smaller gang-forms can also be repositioned using the Framax lifting hook.

Rules for when the Framax lifting hook can be used:

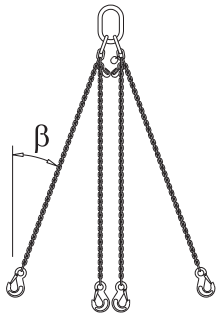
- On gang-forms with **only one Xsafe plus platform** (no intermediate platform).
- On gang-forms weighing **max. 1250 kg** (max. area approx. 12.5 m²)
  - e.g. 2.70x4.65m or 3.00x4.05m
- Always use **2 Framax lifting hooks**.



Follow the directions in the Operating Instructions!

Lifting chain

Doka 4-part chain 3.20m for gang-forms up to max. 1600 kg (approx. 15 m²)



➤ Attach the Doka 4-part chain 3.20m to the Xsafe plus lifting waler.

➤ Hang the remaining chain-lengths back in place.

Follow the directions in the Operating Instructions!

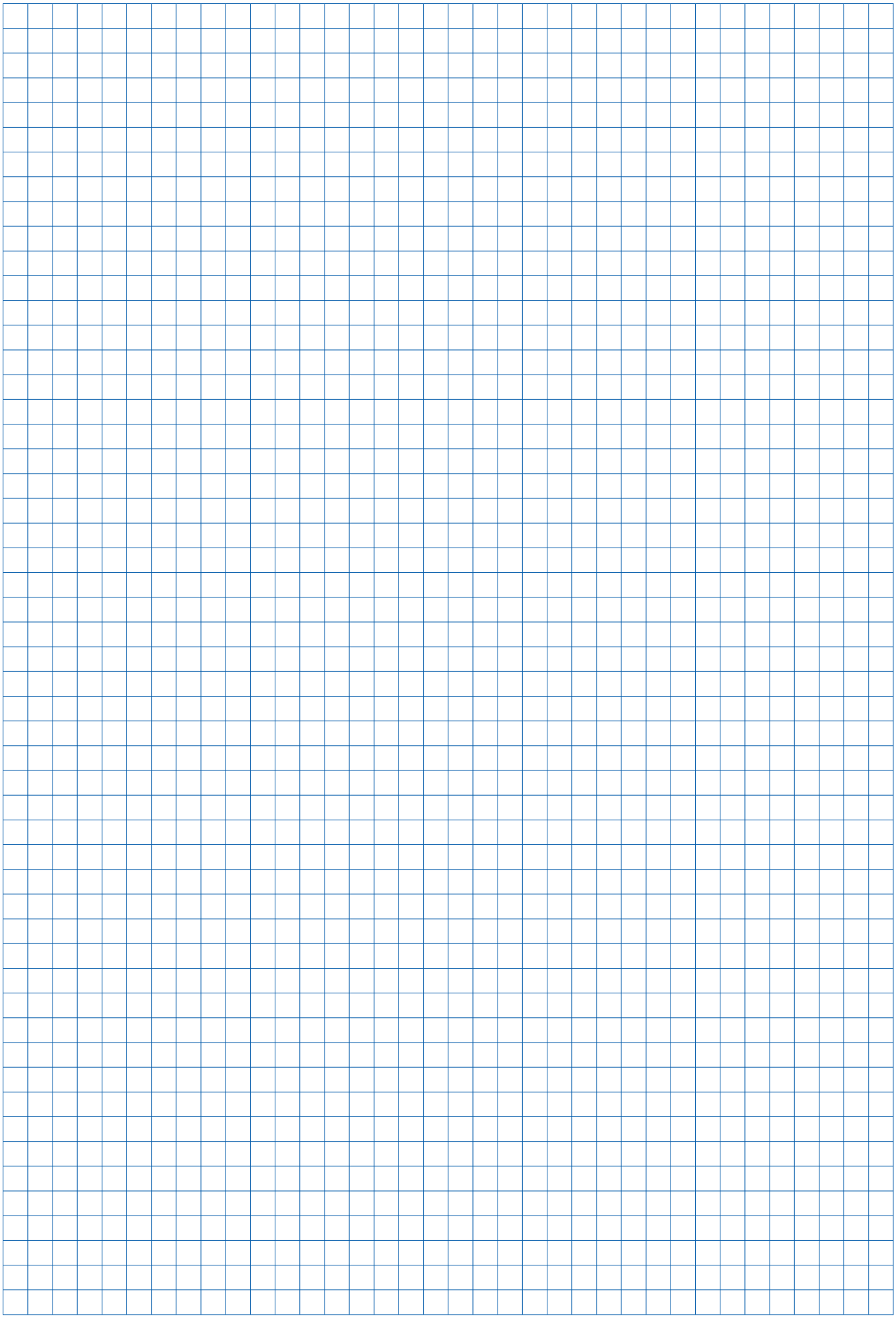
Lifting chain for gang-forms over 1600 kg (over 15 m²)

For large gang-forms, a suitably long and strongly-rated lifting chain must be used.

Required load-carrying capacity (2-part chain): 3500 kg

Required length of chain: 3.80 m (spread-angle β max. 15°)

Follow the manufacturer's Operating Instructions!

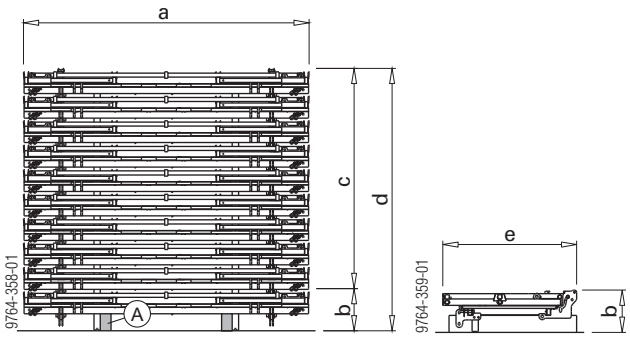


Transporting, stacking and storing

Stacking the Xsafe plus platforms

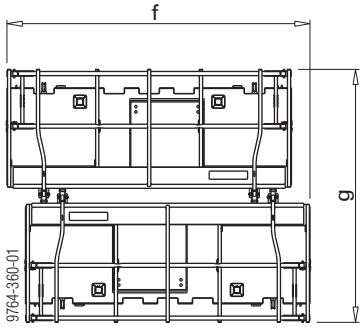
Stack of
10 Xsafe plus platforms

Single folded-down platform



A Hardwood blocking 16cm

Arrangement of stacks for truck shipments (plan view):



	Xsafe plus platform		
	2.70m	2.40m	1.35m
a	269 cm	239 cm	134 cm
b	36.5 cm	36.5 cm	36.5 cm
c	9 x 23 cm	9 x 23 cm	9 x 23 cm
d	247 cm	247 cm	247 cm
e	126 cm	126 cm	126 cm
f	290 cm	260 cm	155 cm
g	Platforms with side railings: 238 cm Platforms without side railings: 242 cm		

Transporting the stacked platforms

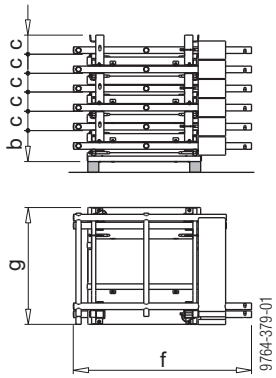
The entire stack of platforms can be transported by crane with a four-part lifting chain.

➤ Guide the four-part lifting chain through the platform-stack from above.

➤ Attach the four-part lifting chain to the crane hoisting lugs of the bottom platform.

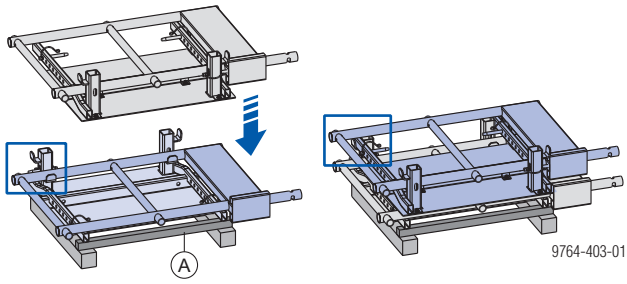
➤ Raise the platform-stack by crane.

Stacking the Xsafe plus platform extensions 0.60m

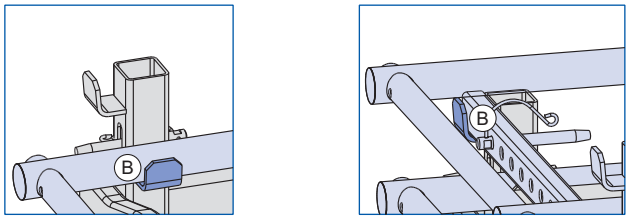


b ... 22.5 cm
c ... 14.0 cm
f ... 131.0 cm
g ... 85.5 cm

How to arrange them in the stack:



Close-ups showing the stacking stirrup:

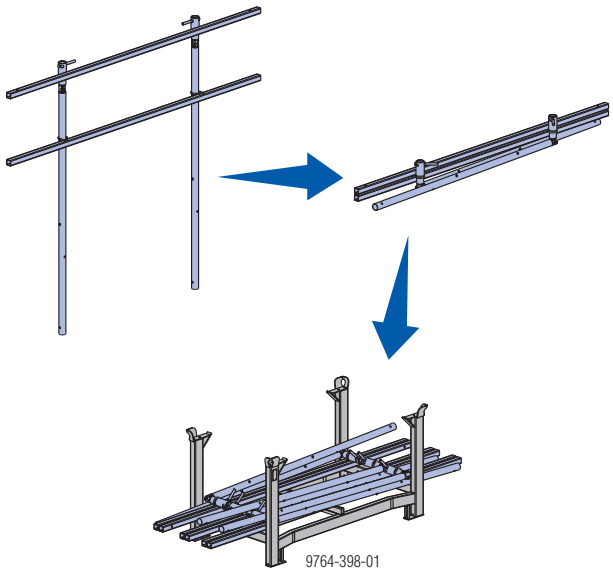


A Squared timber 4x4 cm

B Stacking stirrup

Storing the Xsafe plus counter railings

➤ Fold each Xsafe plus counter railing together and store it in a stacking pallet.



Column formwork

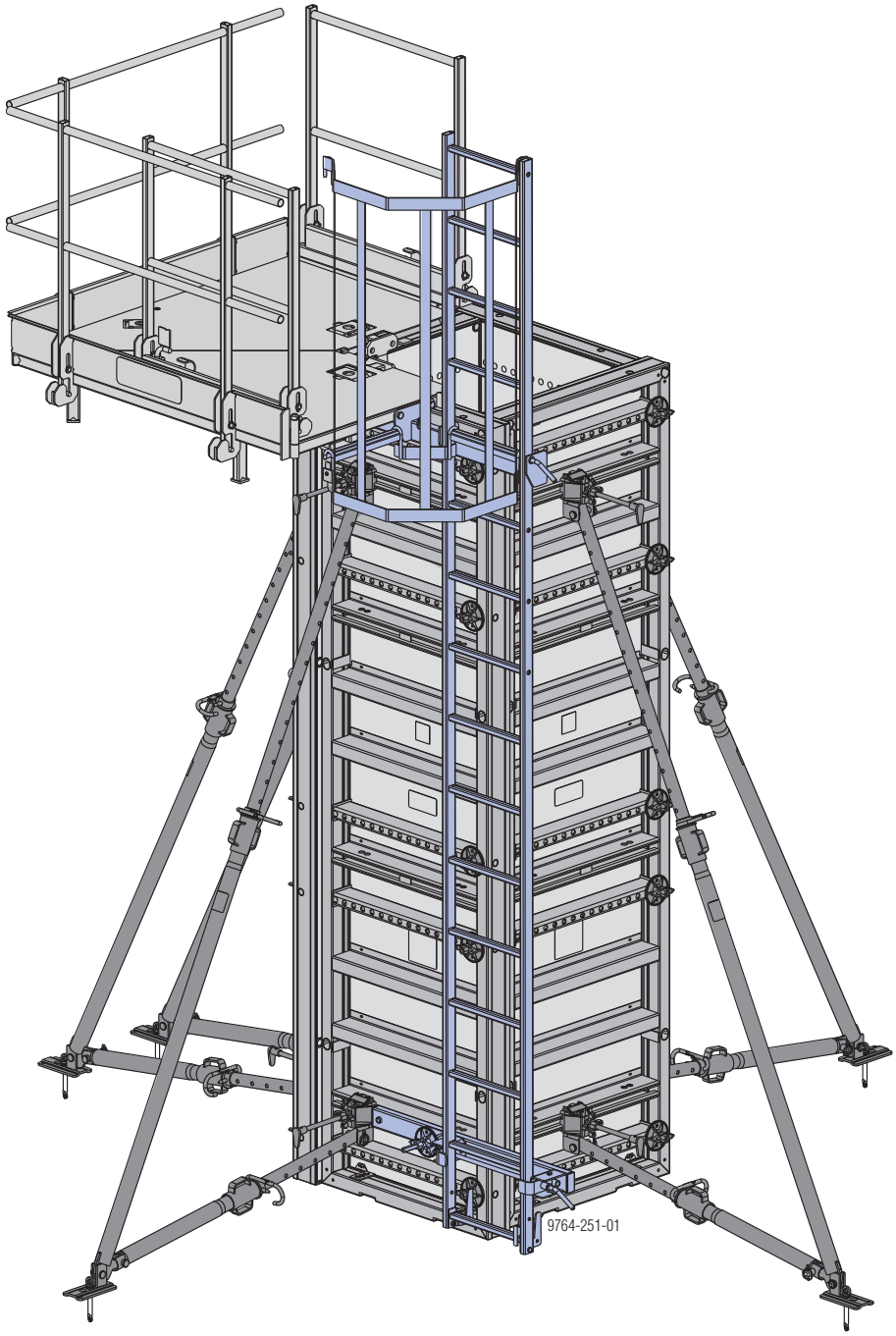
The **Framax Xlife universal panels** permit flexible accommodation to column cross-sections of up to 105 cm x 105 cm in **5 cm increments**.

By combining panels with heights of 3.30 m, 2.70 m, 1.35 m and 0.90 m, a **height grid of 45 cm** is possible.

Perm. concrete pressure: 90 kN/m²

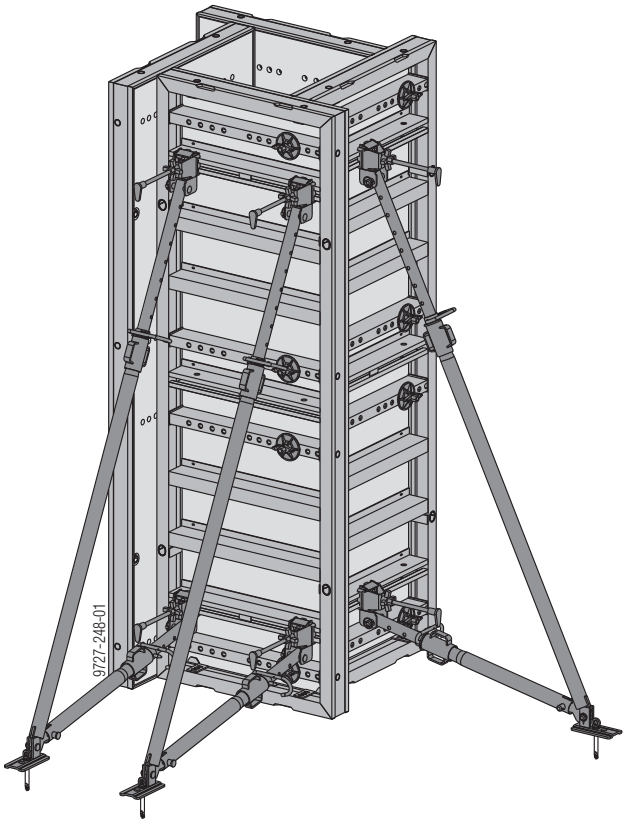
Seal off the unused holes in the formwork sheet of the Universal panels with **Framax plugs R 24.5**.

Combining the two widths of panel (0.90m and 1.20m):
Large rectangular cross-sections can be economically formed by combining the two widths of panel.



However, dimensions of 30 cm, 45 cm, 60 cm and 90 cm can also be formed using **ordinary Framax Xlife panels and Framax outside corners** (permitted fresh-concrete pressure: 80 kN/m²).

Design of column formwork



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

Erecting and striking the formwork

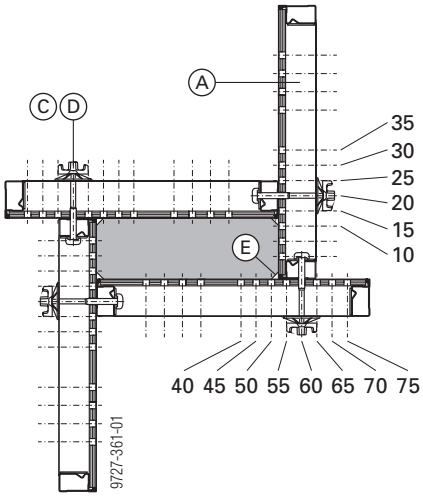
Erecting:

- Pre-assemble the formwork-halves flat on the ground.
- Secure the first formwork-half with panel struts before detaching it from the crane.
- Join the second formwork-half to the first half of the formwork, then detach it from the crane.

Striking:

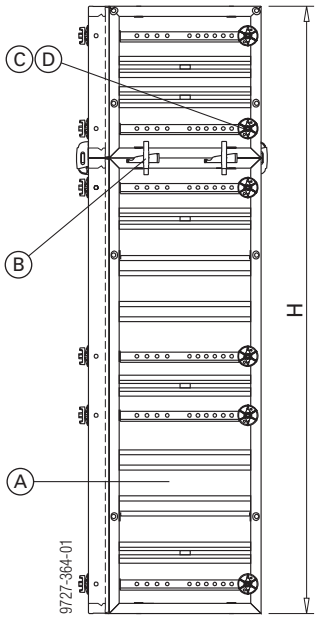
- First attach the formwork-half that is without panel struts to the crane. Then undo the connection between the formwork-halves, hoist the second formwork-half out of the way and set it down flat for intermediate storage.
- Attach the formwork-half that is with panel struts to the crane. Take out the ground anchors of the panel struts and reposition this half of the formwork.

Framax Xlife universal panel 0.90m



Example: Column, 20 x 60 cm

E Framax frontal triangular ledge



Schedule of materials needed with Universal panels 0.90m

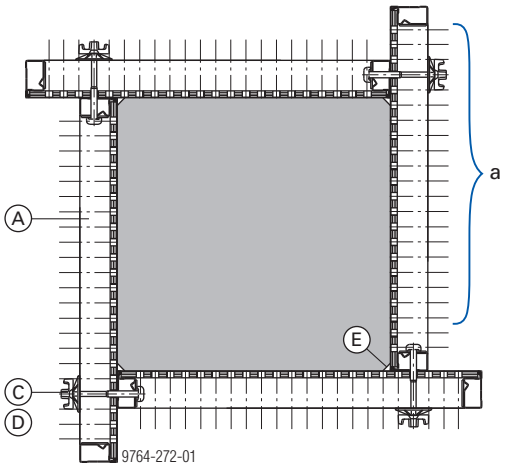
Formwork height **(H)**	Universal panels **(A)**				Quick-acting clamps RU **(B)**	Universal fixing bolts **(C)**	Super-plates 15.0 **(D)**	Formwork-half **with platform**			Formwork-half **without platform**		
								Panel struts			Panel struts		
	3.30m	2.70m	1.35m	0.90m				340	540	Eurex 60 550	340	540	Eurex 60 550
0.90m				4		8	8	①			①		
1.35m			4			8	8	①			①		
1.80m				8	8	16	16	①			①		
2.25m			4	4	8	16	16	3			2		
2.70m		4				16	16	3			2		
3.15m			4	8	16	24	24	3			2		
3.30m	4					20	20	3			2		
3.60m		4		4	8	24	24	3			2		
4.05m		4	4		8	24	24	3			2		
4.20m	4			4	8	28	28	3			2		
4.50m		4		8	16	32	32	3			2		
4.65m	4		4		8	28	28	3			2		
4.95m		4	4	4	16	32	32	3			2		
5.10m	4			8	16	36	36	3			2		
5.40m		8			8	32	32		3			2	
5.55m	4		4	4	16	36	36		3			2	
5.85m		4	4	8	24	40	40		3			2	
6.00m	4	4			8	36	36		3			2	
6.30m		8		4	16	40	40		3			2	
6.45m	4		4	8	24	44	44		3			2	
6.60m	8				8	40	40		3			2	
6.75m		8	4		16	40	40		3			2	
6.90m	4	4		4	16	44	44		3			2	
7.20m		8		8	24	48	48		3	2		2	2 ②
7.35m	4	4	4		16	44	44		3	2		2	2 ②
7.50m	8			4	16	48	48		3	2		2	2 ②
7.65m		8	4	4	24	48	48		3	2		2	2 ②
7.80m	4	4		8	24	52	52		3	2		2	2 ②
7.95m	8		4		16	48	48		3	2		2	2 ②
8.10m		12			16	48	48		3	2		2	2 ②

The figures in the Table give the number of items needed.

① Site-provided panel bracing.

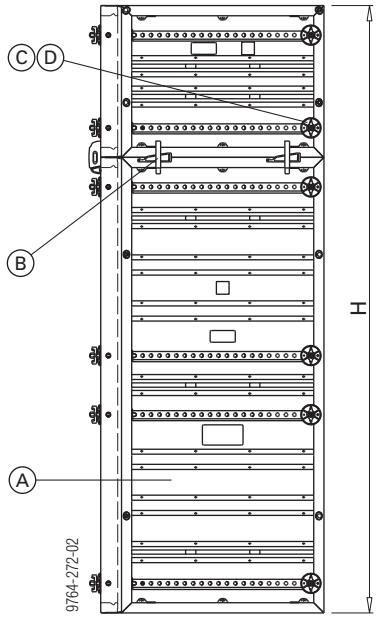
② Eurex 60 550 only needed on free-standing formwork-halves.

Framax Xlife universal panel 1.20m



Example: Column, 90 x 90 cm
a ... 10 cm to 105 cm (in 5 cm increments)

E Framax frontal triangular ledge



Schedule of materials needed with Universal panels 1.20m

Formwork height **(H)**	Universal panels **(A)**				Quick-acting clamps RU **(B)**	Universal fixing bolts **(C)**	Super-plates 15.0 **(D)**	Formwork-half **with platform**			Formwork-half **without platform**		
								Panel struts			Panel struts		
	3.30m	2.70m	1.35m	0.90m				340	540	Eurex 60 550	340	540	Eurex 60 550
0.90m				4		8	8	①			①		
1.35m			4			8	8	①			①		
1.80m				8	8	16	16	①			①		
2.25m			4	4	8	16	16	3			2		
2.70m		4				16	16	3			2		
3.15m			4	8	16	24	24	3			2		
3.30m	4					20	20	3			2		
3.60m		4		4	8	24	24	3			2		
4.05m		4	4		8	24	24	3			2		
4.20m	4			4	8	28	28	3			2		
4.50m		4		8	16	32	32		3			2	
4.65m	4		4		8	28	28		3			2	
4.95m		4	4	4	16	32	32		3			2	
5.10m	4			8	16	36	36		3			2	
5.40m		8			8	32	32		3			2	
5.55m ③	4		4	4	16	36	36		3			2	
5.85m ③		4	4	8	24	40	40		3			2	
6.00m ③	4	4			8	36	36		3			2	
6.30m ③		8		4	16	40	40		3			2	
6.45m ③	4		4	8	24	44	44		3			2	
6.60m ③	8				8	40	40		3	2		2	2 ②
6.75m ③		8	4		16	40	40		3	2		2	2 ②
6.90m ③	4	4		4	16	44	44		3	2		2	2 ②
7.20m ③		8		8	24	48	48		3	2		2	2 ②
7.35m ③	4	4	4		16	44	44		3	2		2	2 ②
7.50m ③	8			4	16	48	48		3	2		2	2 ②
7.65m ③		8	4	4	24	48	48		3	2		2	2 ②
7.80m ③	4	4		8	24	52	52		3	2		2	2 ②
7.95m ③	8		4		16	48	48		3	2		2	2 ②
8.10m ③		12			16	48	48		3	2		2	2 ②

The figures in the Table give the number of items needed.

① Site-provided panel bracing.

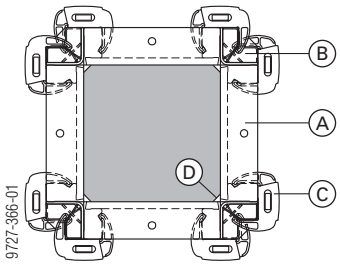
② Eurex 60 550 only needed on free-standing formwork-halves.

③ Formwork-halves with a column formwork platform must be separated before being lifted (max. formwork height when lifting a formwork-half assembled from Universal panels 1.20m and including an attached Column formwork platform 150/90cm: 5.40 m).

with Framax outside corners and Framax Xlife panels

Dimensions of **30 cm, 45 cm, 60 cm** and **90 cm** can also be formed using **Framax outside corners** and ordinary **Framax Xlife panels**.

Permitted fresh-concrete pressure: 80 kN/m²



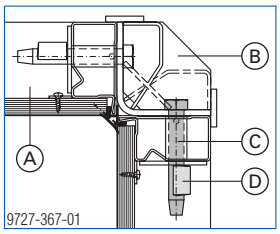
A Framax Xlife panel (max. 60cm)
B Framax outside corner
C Framax quick-acting clamp RU
D Triangular ledge

For columns with **90 cm** cross-sections, **wedge bolts** and **tensioning wedges** must be used instead of the quick-acting clamps.

Do not oil or grease wedge-clamped joins.

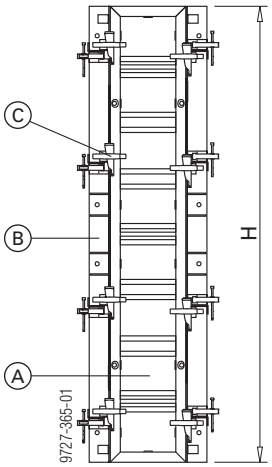
Framax wedge bolt RA 7.5

Permitted tensile force in the cross borehole of the Framax Xlife panel: 25.0 kN



A Framax Xlife panel 0.90m
B Framax outside corner
C Framax wedge bolt RA 7.5
D Framax tensioning wedge R

Schedule of materials



Example: Framax outside corners 2.70m with Framax Xlife panels 0.45x2.70m

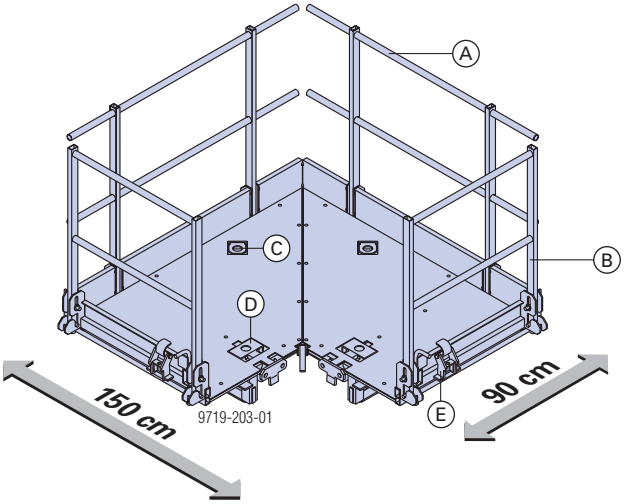
Height of panel **(H)**	Framax Xlife panel **(A)**			Framax outside corner **(B)**		
	3.30m	2.70m	1.35m	3.30m	2.70m	1.35m
1.35m			4			4
2.70m		4			4	
3.30m	4			4		

Height of panel **(H)**	Quick-acting clamp RU or Wedge bolt with tensioning wedge **(C)**
1.35m	16
2.70m	32
3.30m	40

Table gives number of items needed

Doka column formwork platform 150/90cm

Product description



A	Rear railing
B	Side railing
C	Rear hoisting point
D	Safety hook (blue) = front hoisting point
E	Extra hoisting point (red) in parked position

Permitted service load: 1.5 kN/m² (150 kg/m²)
Load Class 2 to EN 12811-1:2003

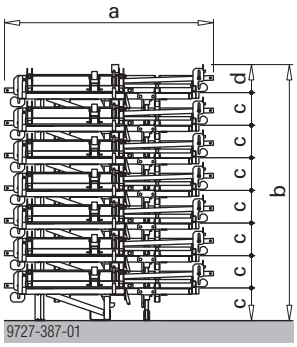
The main features:

- This pre-assembled, ready-to-use platform ensures convenient and safe working on column formworks. It can be used on columns of any cross-section.
  - with Framax Xlife: 25x25cm to 105x105cm
  - with Alu-Framax Xlife: from 25x25 to 60x60cm
- The slinging points recessed into the decking make it a quick and easy job to lift the platform by crane. Only one column formwork platform can be used on each column!
- Because the platform can be re-suspended so quickly, it can "migrate" from one formwork to the next during concreting. This means that one platform is sufficient to serve several column formworks.
- The practical swing-out side railings make it easy to get on or off the platform. Both the side railings can be fixed in either the open or closed position.

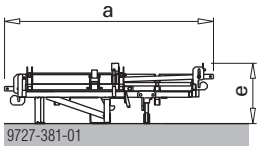
Transporting, stacking and storing

The Doka column-formwork platforms are pre-assembled and are easy to transport and store in the folded-down position - it is not possible for them to slide sideways.

Stack of
7 column formwork platforms



Single folded-down platform



a ... 183 cm
b ... 225 cm
c... 28.6 cm
d... 24.8 cm
e... 53 cm

Basic design concept

➤ Tip up the side railings.

The railings are locked in place automatically.

➤ Tip up the rear railings.

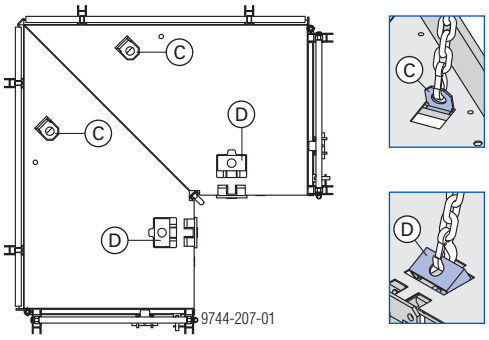
The railings are locked in place automatically.

The column-formwork platform is now ready for use.

Note:
When folding the platform back down, first fold down the rear railings, and then the side ones.

Moving the platform

➤ Attach the crane to the locations shown.

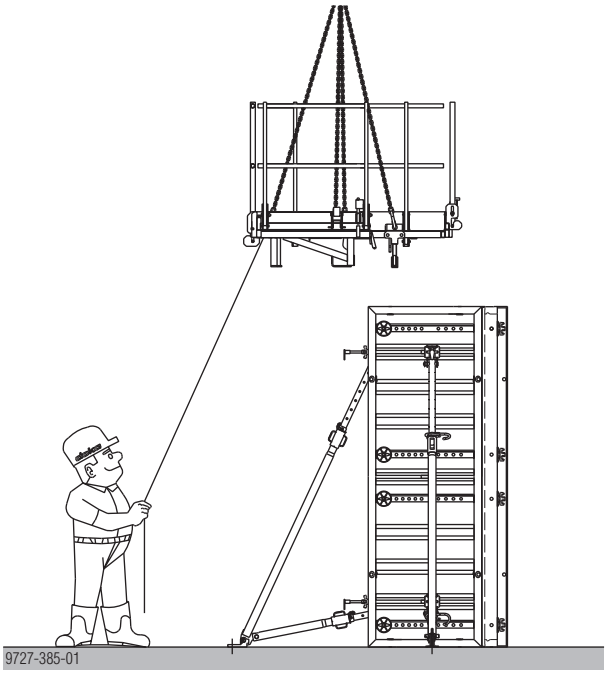


C Rear crane suspension point

D Front crane suspension point

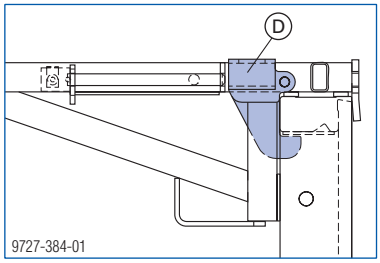
Red extra crane suspension point in "parked" position.

➤ Hang the column formwork platform into place on the formwork.



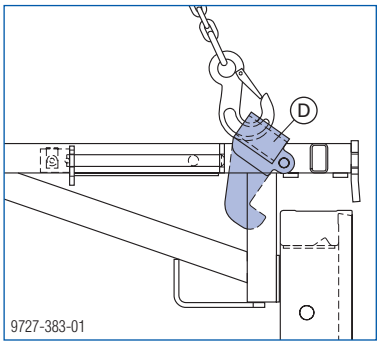
Suspending the platform exactly in position is made much easier when guide-cables are used.

➤ After the column formwork platform has been hung into place on the formwork, detach the four-part lifting tackle.



The safety hook **(D)** drops down into its starting position and automatically secures the platform against being accidentally lifted out.

➤ When the platform is lifted, the lifting chain acts on the safety hook **(D)** and the platform is automatically unlocked.



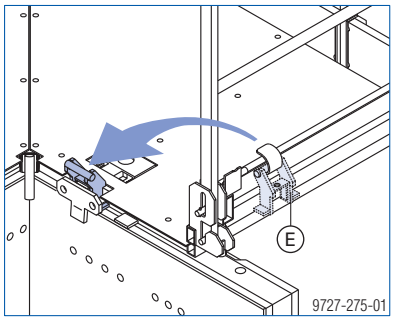
Moving the formwork and the platform in one piece

To save crane time, the Doka column formwork platform can also be repositioned together with the formwork:

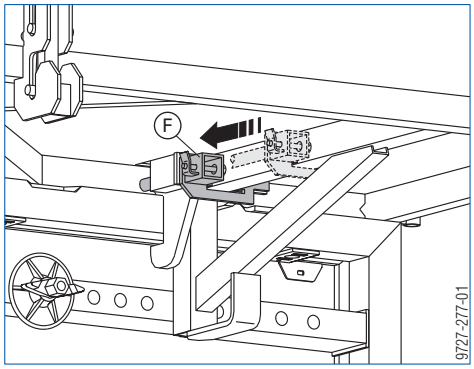
- ➤ Only ever lift and reposition one formwork-half at a time.
- ➤ Max. heights of formwork that can be repositioned together with the platform:
  - 8.10 m (Universal panels 0.90m)
  - 5.40 m (Universal panels 1.20m)

➤ Hang the platform into place on the formwork (proceed as in "Moving the platform").

➤ Move the extra crane hoisting point **(E)** from the parked position to the "in-use" position. Right position = inclined forward towards formwork.



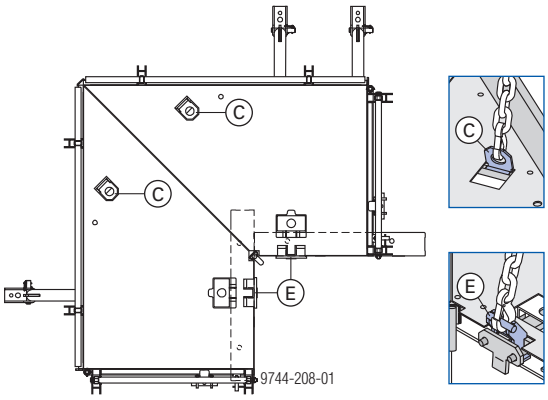
➤ Fix the extra crane hoisting point with the slide bolt **(F)** on the underside of the platform.



Make sure that the slide bolt latches in in the frontmost position.

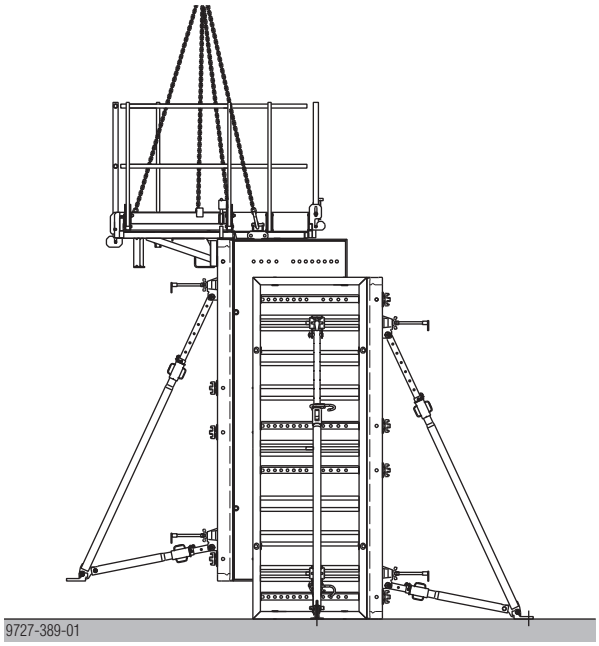
➤ Use additional panel struts to secure the formwork-half that has no platform mounted on it.

➤ Attach the crane to the locations shown.



C Rear crane suspension point

E Extra crane suspension point



The platform can stay attached to the formwork throughout this entire operation.

Separating the platform from the formwork

➤ Fix the slide bolt **(F)** back in the rear position and move the extra crane hoisting point into the "parked" position.

➤ Attach the crane to the locations shown in "Moving the platform".

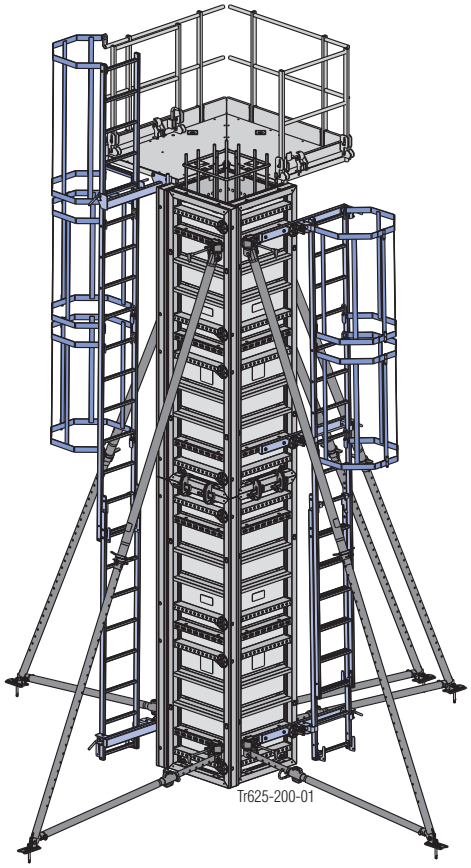
Instructions for Assembly and Use with ladder system

Combined with the Column formwork platform 150/90cm, the Ladder system XS provides a safe and reliable way of climbing up and down column formworks:

- when attaching/detaching the formwork-halves
- when opening/closing the formwork-halves
- when placing reinforcing cages
- during pouring

Note:
The Ladder system XS must be implemented in such a way that all national regulations are complied with.

WARNING
➤ The Ladders XS may only be used as part of the XS system, and must NOT be used separately (as "lean-to" ladders).



Items needed

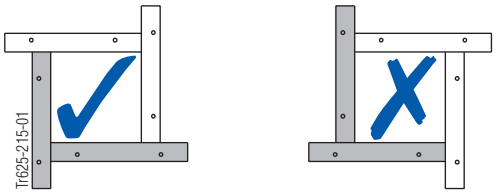
Platform + ladder	Formwork-half **with** platform			Formwork-half **without** platform			
	2.70-3.60 m	>3.60-5.70 m	>5.70-8.10 m	2.70-3.00 m	>3.00-5.10 m	>5.10-7.40 m	>7.40-8.10 m
Connector XS column formwork platform	1	1	1				
Connector XS Framax/Alu-Framax	1	1	2	2	2	3	3
Framax universal fixing bolt 10-16cm	1	1	2	2	2	3	3
Super plate 15.0	1	1	2	2	2	3	3
System ladder XS 4.40m	1	1	1			1	1
Ladder extension XS 2.30m		1	2	1	2	1	2

Ladder cage	Formwork-half **with** platform				Formwork-half **without** platform			
	5.00-5.40 m	>5.40-6.60 m	>6.60-7.80 m	>7.80-8.10 m	5.00-5.55 m	5.55-6.75 m	>6.75-7.95 m	>7.95-8.10 m
Ladder cage exit XS	1	1	1	1				
Ladder cage XS 1.00m	2	3	4	5	2	3	4	5

Preparing the formwork-halves

Important note:

➤ Make sure that the panels are correctly positioned towards one another.



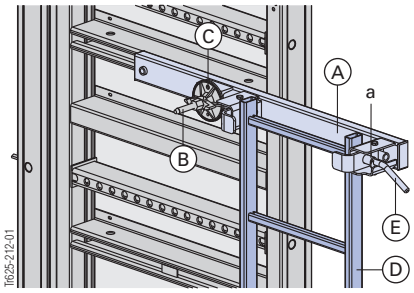
➤ Pre-assemble the formwork-halves flat on the ground.

Formwork-half without column formwork platform

Mount the ladder system to the horizontal half of the formwork.

➤ Fasten the "Connector XS Framax/Alu-Framax" in the top anchoring profile with a Framax universal fixing bolt 10-16cm and a Super-plate 15.0.

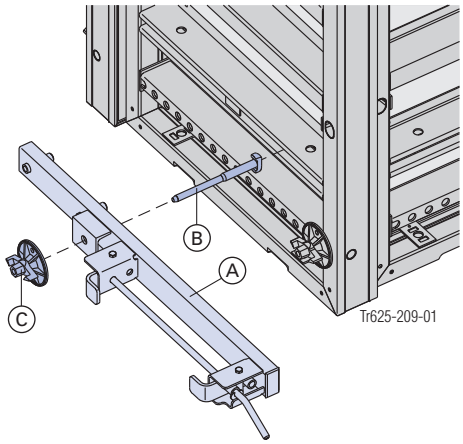
➤ Bolt the ladder to the XS connector in the front position, using the push-in bolt. Secure the push-in bolt with a linch pin.



- in the front position (a)

A	Connector XS Framax/Alu-Framax
B	Framax universal fixing bolt 10-16cm
C	Super-plate 15.0
D	Ladder
E	Push-in bolt

➤ Align the Connector XS Framax/Alu-Framax to the ladder and fasten it in the bottom anchoring profile with a Framax universal fixing bolt 10-16cm and a Super-plate 15.0.

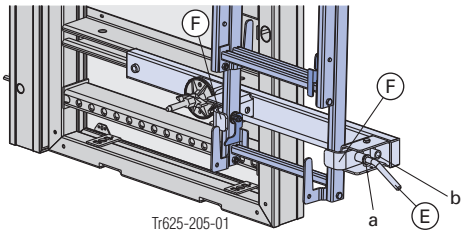


A	Connector XS Framax/Alu-Framax
B	Framax universal fixing bolt 10-16cm
C	Super-plate 15.0

➤ For formwork heights above 5.10 m, an extra Connector XS Framax/Alu-Framax must be fitted approx. half-way up the column, in the same way. This extra connector prevents the ladder swaying when site crew climb up or down it.

➤ Pull out the push-in bolt, pivot the two safety hooks out of the way, and insert the ladder.

➤ Close the safety hooks, re-insert the push-in bolt and secure it with a linch pin.



– in the front position (a) for one single ladder
– in the rear position (b) in the telescoping zone (for 2 ladders)

E	Push-in bolt
F	Safety hooks

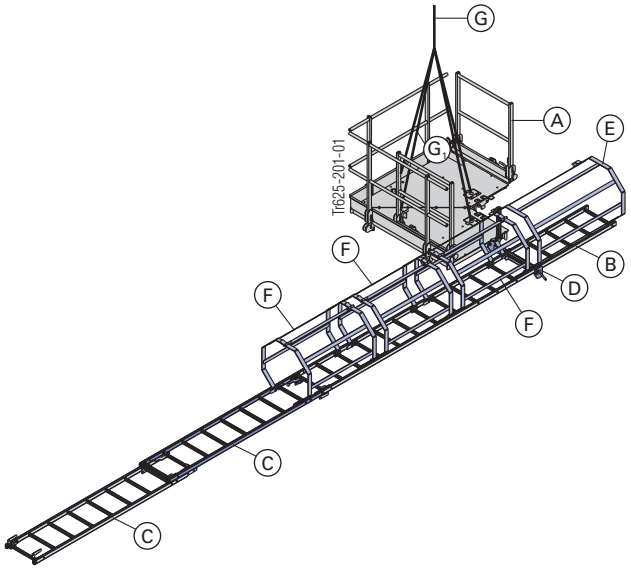
For more information on attaching the ladder and on the ladder cage, see the section headed "Ladder system".

Formwork-half with Column formwork platform

The Column formwork platform and ladder system are mounted to the column formwork when this is in the upright.

Pre-assembly

➤ Pre-assemble the Ladder system XS and the Column formwork platform 150/90cm flat on the ground, and hoist them onto the upright half of the formwork using the Doka 4-part chain 3.20m. (Shorten the 2 lengths of chain nearest the entry-point by removing approx. five chain-links!)

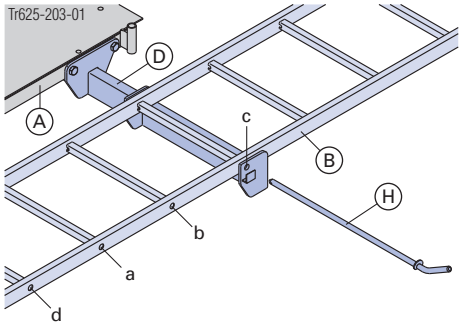


A	Doka column formwork platform 150/90cm
B	System ladder XS 4.40m
C	Ladder extension XS 2.30m
D	Connector XS column formwork platform
E	Ladder cage exit XS
F	Ladder cage XS 1.00m
G	Doka 4-part chain 3.20m **G_1** shortened lengths of chain

➤ Fasten the "Connector XS column formwork platform" to the Doka column formwork platform 150/90cm, using the screws, bolts etc. supplied.

➤ Place the System ladder XS 4.40m onto the Connector XS, with the hooking brackets facing downwards.

➤ Insert the push-in bolt into the rung that is suitable for the height of the column, and twist to secure.

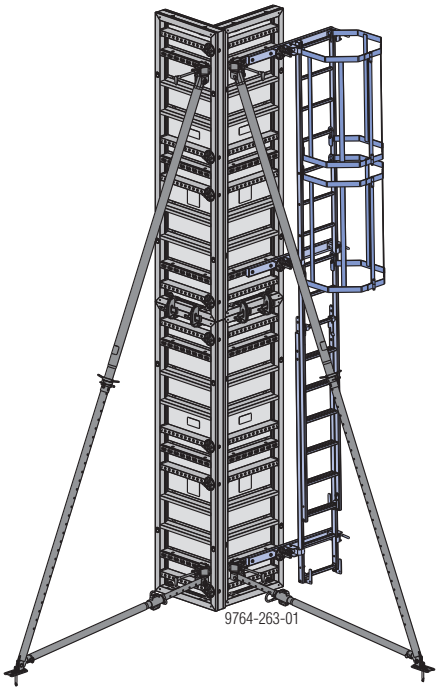


a ... Hole for a column height of 2.70 m
b ... Hole for a column height of 3.00 m
c ... Hole for a column height > 3.30 m
d ... Extra hole for special applications

A	Doka column formwork platform 150/90cm
B	System ladder XS 4.40m
D	Connector XS column formwork platform
H	Push-in bolt

Erecting the formwork

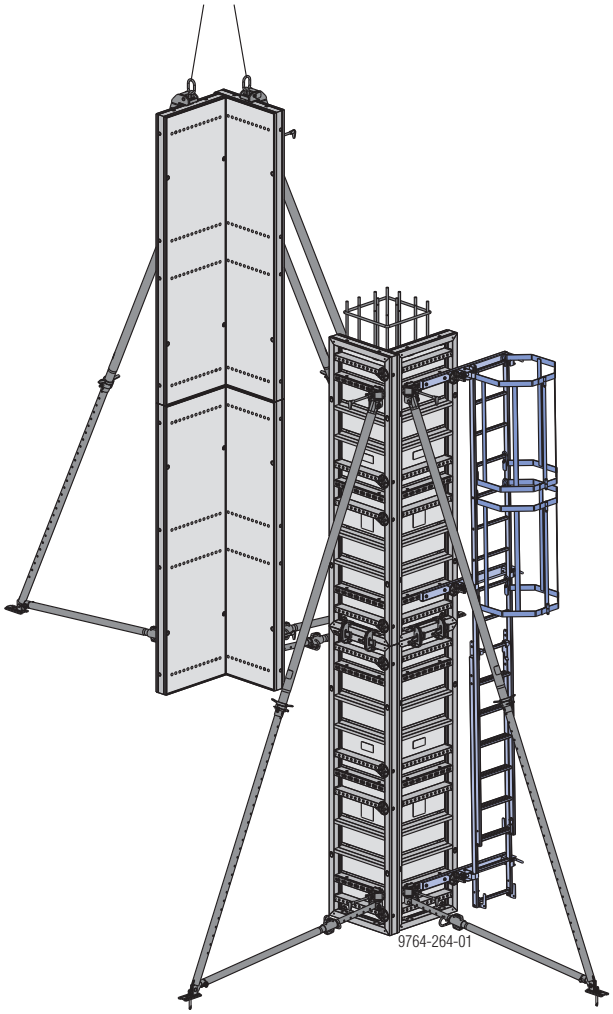
➤ Use the crane to lift the first formwork-half (without the column formwork platform) into the upright.



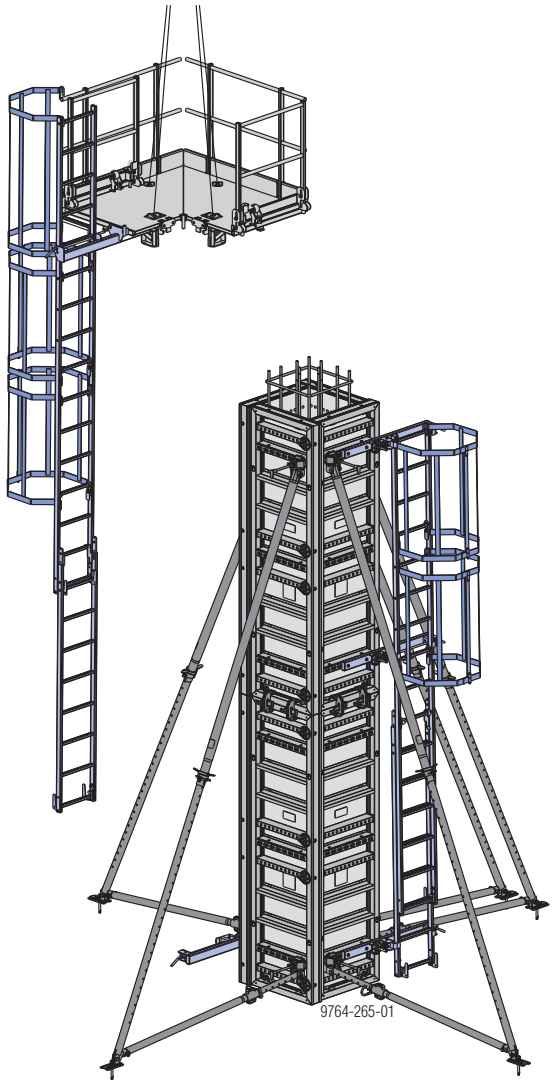
➤ Attach two panel struts to this formwork-half to prevent it from falling over (see "Plumbing accessories" for details of how to attach the panel struts). Do not detach it from the crane until the panel struts are attached.

Join the formwork-halves together

- Use the crane to lift the second half of the formwork into the upright.



- Close the formwork-halves.
- Attach three panel struts to this formwork-half to prevent it from falling over (see "Plumbing accessories" for details of how to attach the panel struts"). Do not detach it from the crane until the panel struts are attached.
- Mount the bottom "Connector XS Framax/Alu-Framax" as shown in "Formwork-half without column formwork platform".
- For formwork heights above 5.70 m, an extra Connector XS Framax/Alu-Framax must be fitted approx. half-way up the column, in the same way. This extra connector prevents the ladder swaying when site crew climb up or down it.
- Hang the prepared column formwork platform, complete with the ladder, into place on the column formwork.



- Fix the ladder in the Connectors XS Framax/Alu-Framax.
- After the column formwork platform has been hung into place on the formwork, detach the four-part lifting tackle.

Stripping and repositioning the formwork

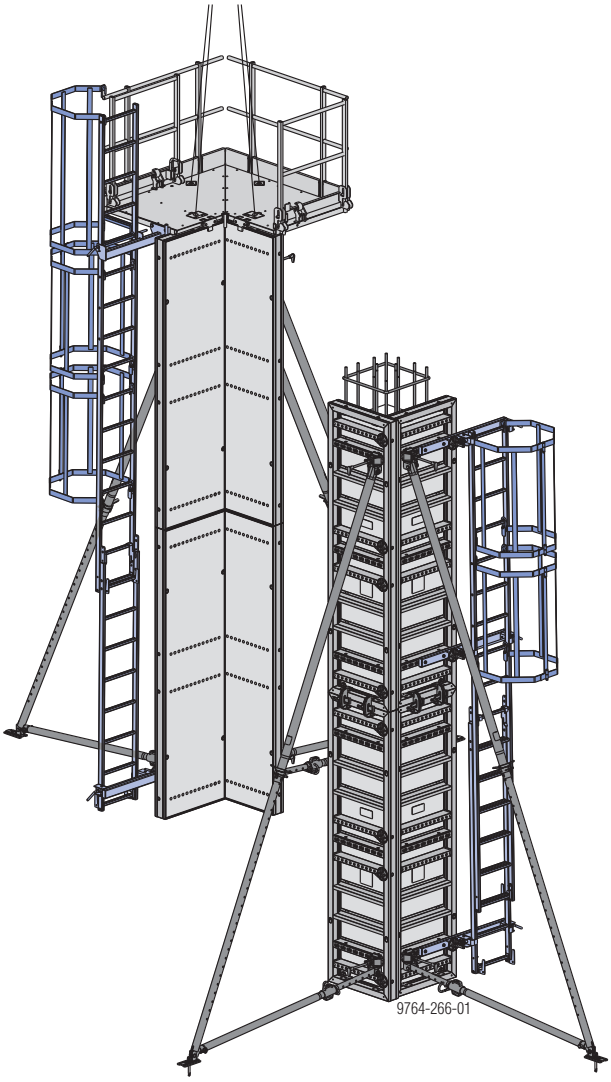
First formwork-half

- ➤ Attach the crane suspension tackle to the formwork-half on which the Column formwork platform is mounted.
- ➤ Undo the panel-strut anchorages from the ground.
- ➤ Undo the connectors from the second half of the formwork and separate the two formwork-halves.

CAUTION

- ➤ When stripping the formwork, never use the crane to break concrete cohesion. Use suitable tools such as timber wedges or a special pry-bar.

- ➤ Set down the crane-held half of the formwork ready for cleaning, and secure it so that it cannot fall over.



See "Lifting the formwork and platform in one piece" for details of how to lift and reposition the formwork-half complete with the platform.

Second formwork-half

- ➤ Attach the crane suspension tackle to the shored (i.e. still standing) formwork-half.
- ➤ Undo the panel-strut anchorages from the ground.
- ➤ Set down the crane-held half of the formwork ready for cleaning, and secure it so that it cannot fall over.

Circular formwork

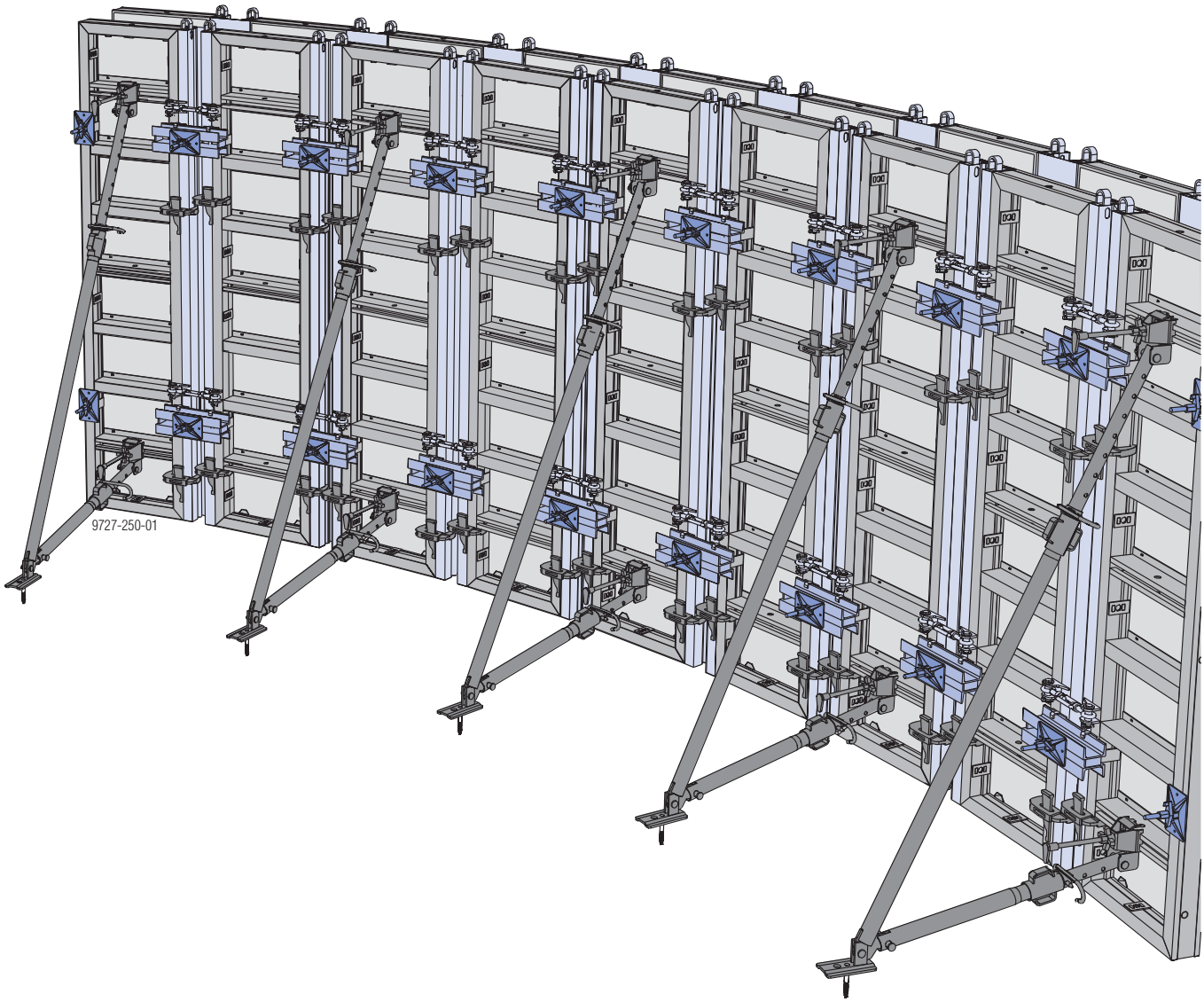
The quick way to form "in the round" - the Framax circular forming plates will get your framed formwork "around" any curve!

With the Framax circular forming plates and the panels of the Framax Xlife framed formwork system, "circular" (i.e. polygonal) structures can be formed.

A particularly cost-cutting factor in practice is the fact that you can use your existing Framax Xlife panels and all accessories such as panel struts and pouring platforms from the Framax Xlife range.

This makes circular forming of curved concrete structures with Framax circular forming plates **universal, economical and fast**.

Perm. concrete pressure: 50 kN/m²

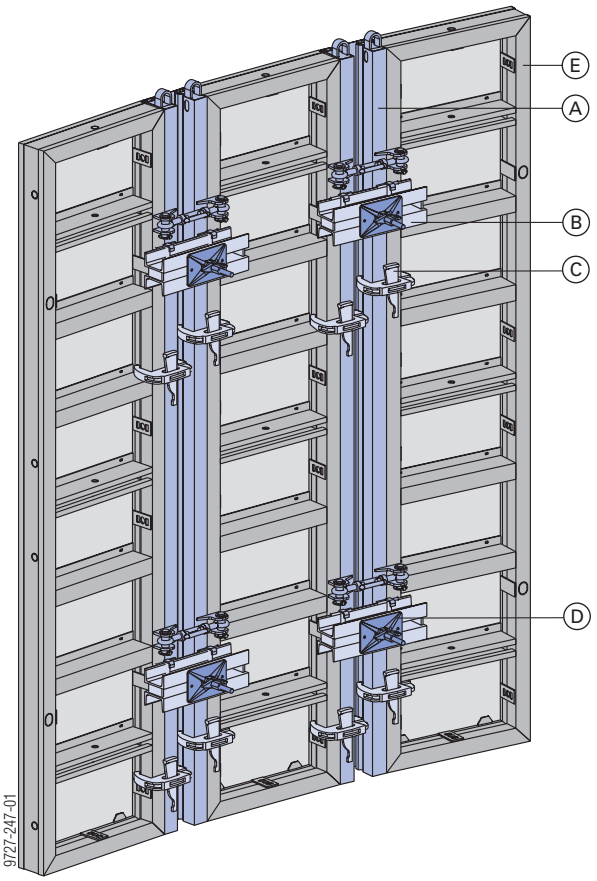


Design of the circular formwork

By combining the Framax circular forming plates with the Framax Xlife panels, round structures - of any radius - can be formed.

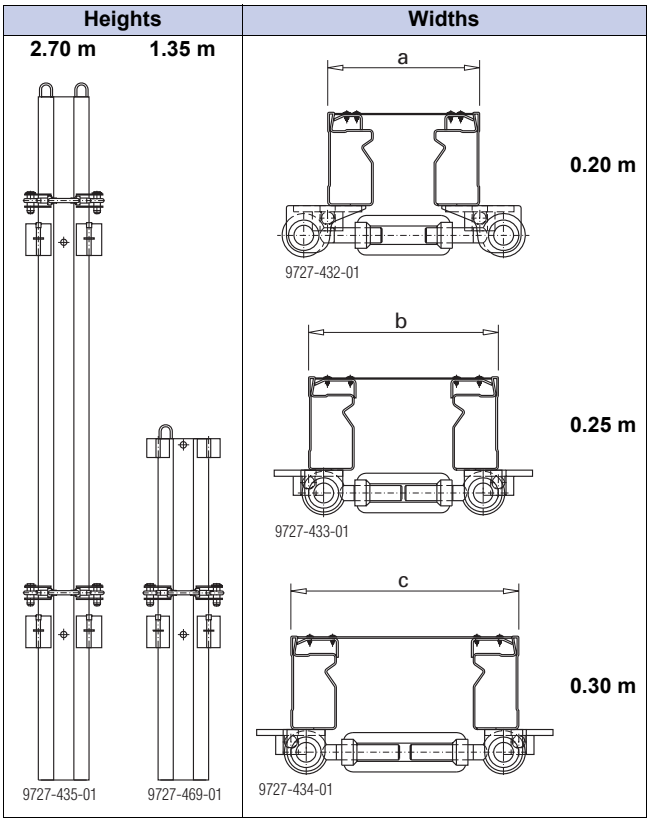
Minimum inside radius: 1.80 m

In the same way as with the wall formwork, all that is needed to connect the Framax circular forming plates to the Framax Xlife panels is the **Quick-acting clamp RU** - and a blow of the hammer.



A	Framax circular forming plate
B	Framax steel waling RD 0.40m
C	Framax quick-acting clamp RU
D	Angle anchor plate 12/18 with Wing nut 15.0
E	Framax Xlife panel

Framax circular forming plates



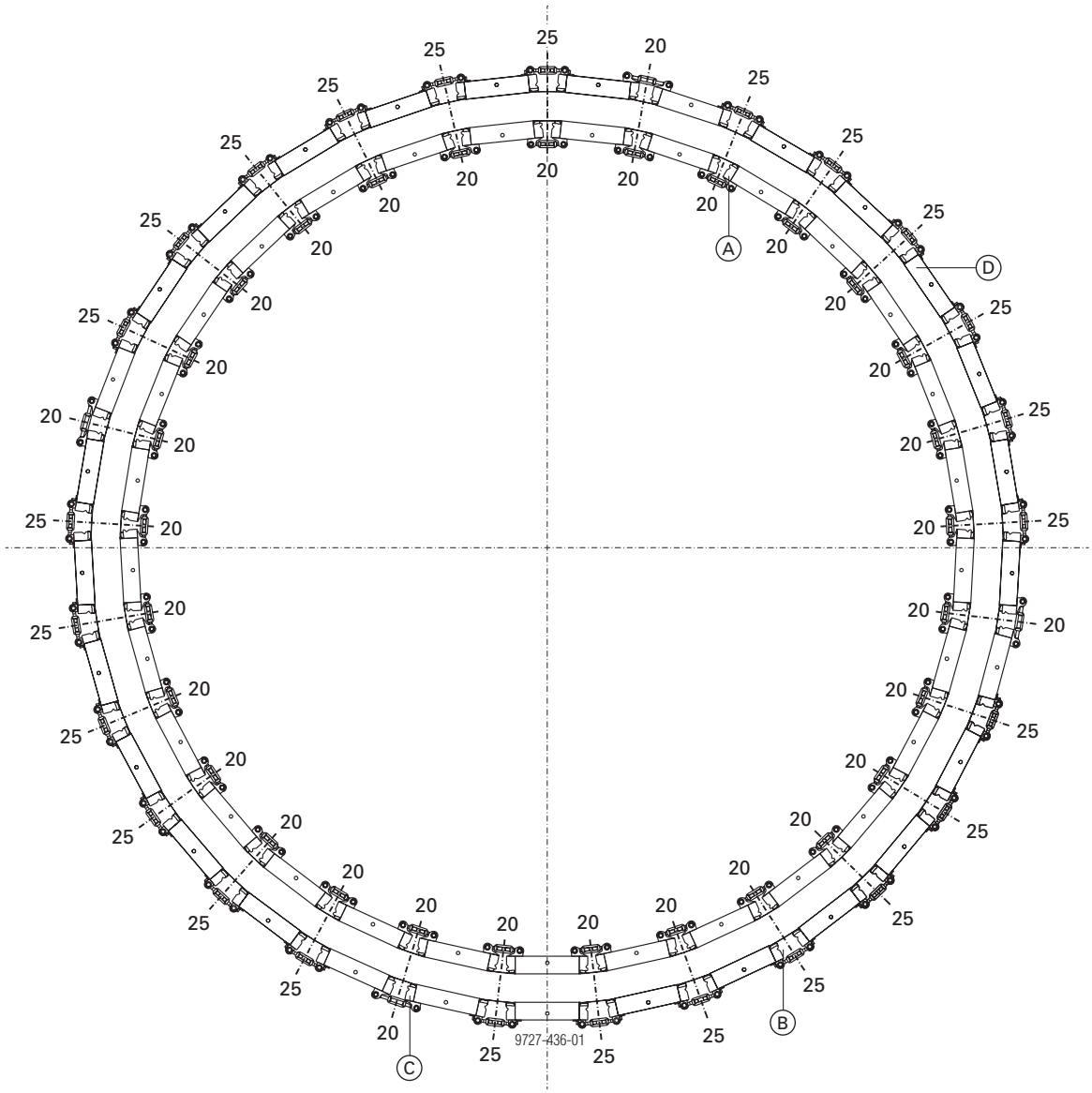
a ... 20 cm, b ... 25 cm, c ... 30 cm

Using the different widths of circular forming plate:

- **0.20 m**
  - Inside circular forming plate
  - Outside circular forming plate (for length adjustment)
- **0.25 m**
  - Outside circular forming plate
- **0.30 m**
  - Outside circular forming plate

Example of formwork

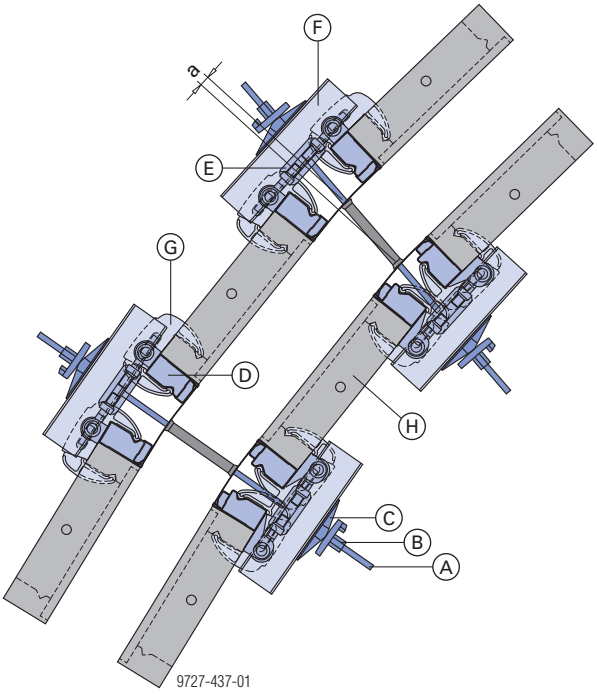
- Type of structure: Circular tank
- Inside radius of structure: 3.00 m
- Wall thickness: 0.20 m



Simplified representation, without details of form-ties or panel struts.

A	Framax circular forming plate 0.20m (for the inside formwork)
B	Framax circular forming plate 0.25m (for the outside formwork)
C	Framax circular forming plate 0.20m (for length adjustment, distribute evenly around circumference)
D	Framax Xlife panel 0.45m (**Note:** same-sized panels are always used both inside and out.)

Tying the circular forming plates



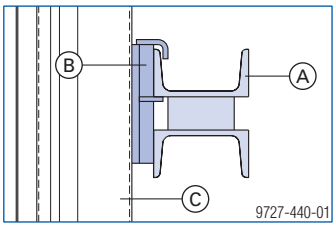
a ... maximum tie-rod displacement = ± 2.5 cm

A	Tie-rod 15.0mm
B	Wing nut 15.0
C	Angle anchor plate 12/18
D	Framax circular forming plate
E	Turnbuckle
F	Steel waling RD 0.40m
G	Quick-acting clamp RU
H	Framax Xlife panel

If the tie-rod displacement is any bigger than this, move up to the next size of circular forming plate.

When adjusting the Framax circular forming plates, ensure that the top and bottom turnbuckle are turned uniformly!

Close-up view showing fixing of steel waling RD 0.40m:



A	Steel waling RD 0.40m
B	Support and retainer for steel waling RD 0.40m
C	Framax circular forming plate

Closing the full-circle formwork

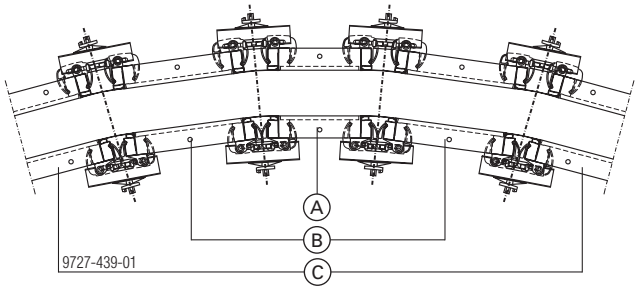
The remaining areas for closing a full circle can be formed in a number of different ways.

Around the perimeter, use panels of equal width wherever possible.

- In order for the load transferred via the steel waling RD 0.40 m to be as uniform as possible, adjacent panels may not have bigger width differences than those of the standard width grid.
- This also applies to transition zones to straight walls, and to stop-ends.

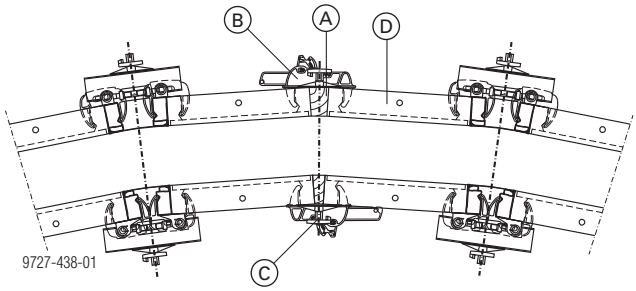
With circular formwork, it is particularly important to ensure uniform pouring.

Closure with Framax Xlife panel



A	Framax Xlife panel e.g. 0.45m
B	Framax Xlife panel e.g. 0.60m
C	Framax Xlife panel e.g. 0.90m

Closures with wedged timbers

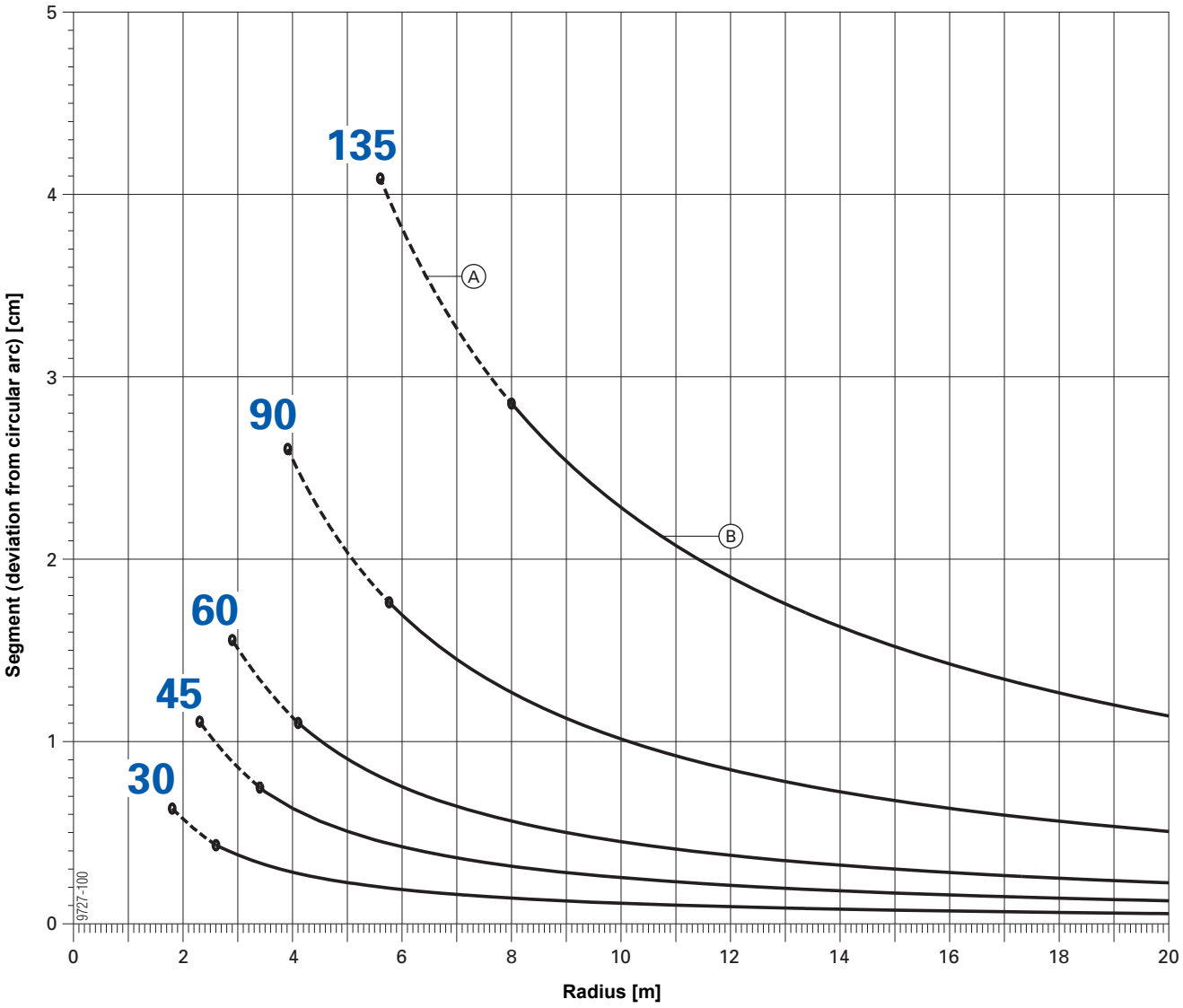


A	Wedged timber
B	Framax multi-function clamp
C	Angle anchor plate 12/18 + Wing nut 15.0
D	Framax Xlife panel

Determining the max. panel width

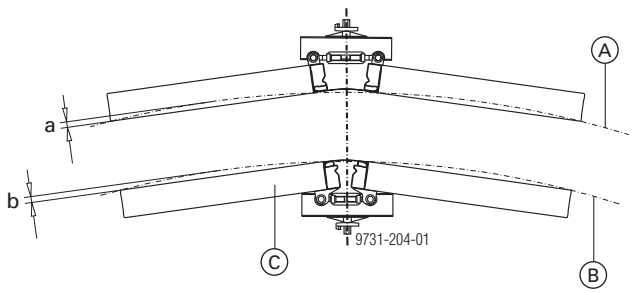
Radius segment diagram for the various widths of panel

The radius segment diagram is for determining the max. panel width as a function of the radius and the permitted deviations from the circular arc.



A Minimum wall thickness = 20 cm

B Minimum wall thickness = 15 cm



a ... Outside segment dimension
b ... Inside segment dimension

A Ideal circular arc (outside radius)

B Ideal circular arc (inside radius)

C Framax Xlife panel

Example:

- Radius: 6.0 m
- Permitted deviation from circular arc: 1.0 cm

=> Max. panel width: **60 cm**

Determining the best distribution of the panels

	Example

Key data of structure:

Inside radius [cm]:	580
Outside radius [cm]:	600
Permitted deviation from circular arc [cm]:	1.0
Length of concreting section [cm]:	911 (1/4 of the inside circumference)

Width of panel:

● Determine the max. panel width in the radius segment diagram, with reference to the radius of the structure and the permitted deviation from the circular arc.	**Panel width = 60 cm**

Width of circular forming plates for inside formwork:

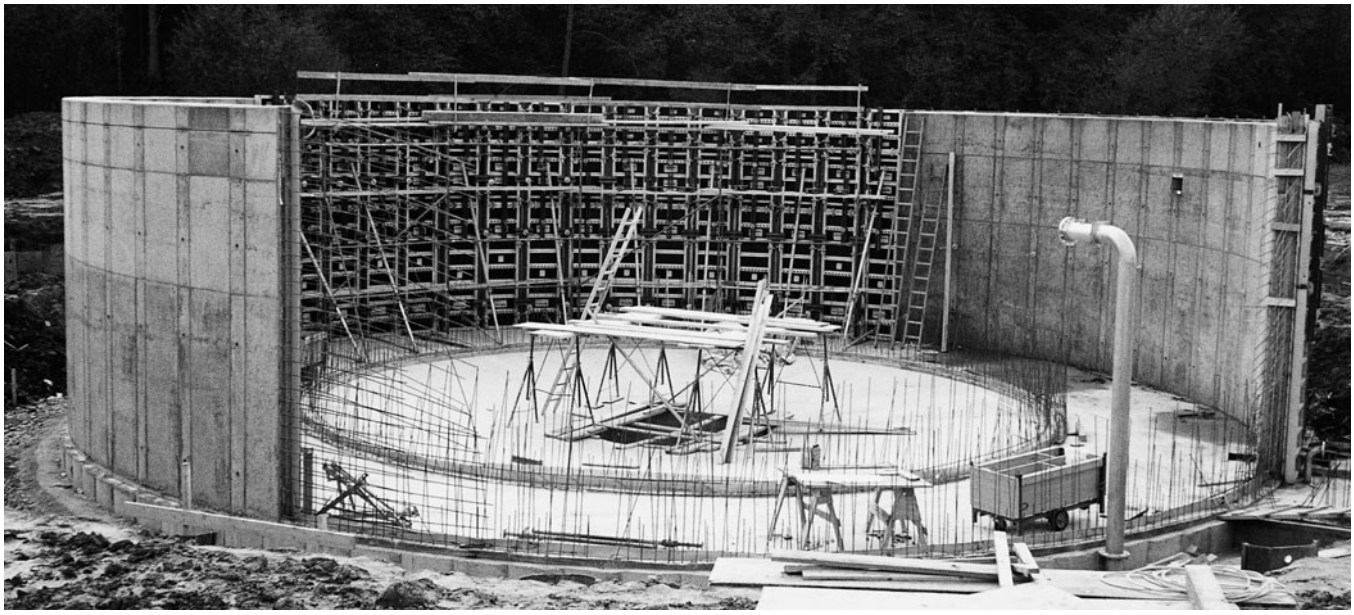
● As a general rule, use the Circular forming plate 0.20m with the inside formwork.	**Width of circular forming plate = 20 cm**

Number of circular forming plates and panels for inside formwork:

● (Length of concreting section - panel width) ÷ (Panel width + 20) = ...	(911 - 60) / (60 + 20) = 10.64
● Number of circular forming plates = Rounded-up result	**Number of circular forming plates = 11**
● Number of panels = Number of circular forming plates + 1	**Number of panels = 12**

Widths of circular forming plates, and numbers needed for outside formwork:

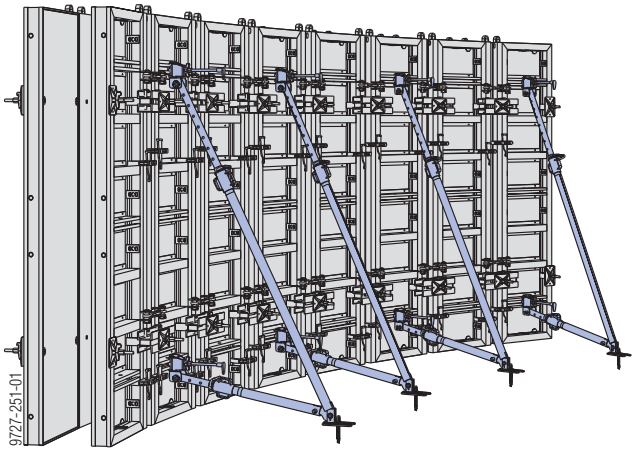
● (Outside radius ÷ inside radius) · (Panel width + 20) - Panel width = ...	(600 ÷ 580) · (60 + 20) - 60 = 22.76 cm
● Select the next smaller Circular forming plate to be the "Type A" Circular forming plate.	**Width of "Type A" Circular forming plate = 20 cm**
● Calculate the difference.	**Difference =** (22.76 cm - 20 cm) = **2.76 cm**
● Number of Circular forming plates · (1 - (Difference ÷ 5)) = ...	11 · (1 - (2.76 ÷ 5)) = 4.93
● Number of "Type A" Circular forming plates = Rounded-up result	**Number of "Type A" Circular forming plates = 5**
● Number of "Type B" Circular forming plates = Number of Circular forming plates - number of "Type A" Circular forming plates = ...	**Number of "Type B" Circular forming plates = 11 - 5 = 6**
● Select the next larger Circular forming plate to be the "Type B" Circular forming plate.	**Width of "Type B" Circular forming plate = 25 cm**



Erecting and plumbing / Pouring platform / Resetting

Erecting and plumbing

Panel struts ensure that the formwork remains stable against wind loads, and make it easier to plumb and align the formwork.



Important note:

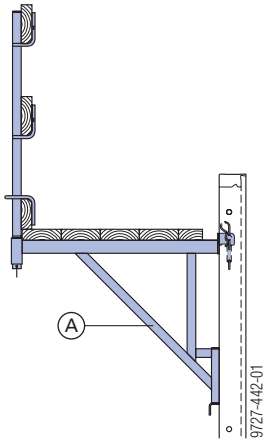
The formwork panels must be held stable in **every** phase of the construction work!

Please observe all applicable safety regulations!

For more information, please see "Plumbing accessories".

Pouring platform

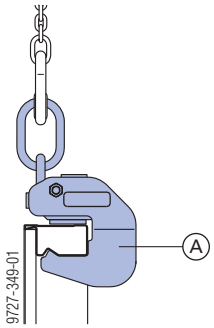
The **Framax brackets 90 (A)** can be used to make a universal pouring scaffold.



For more information, please see "Pouring platforms with single brackets".

Resetting

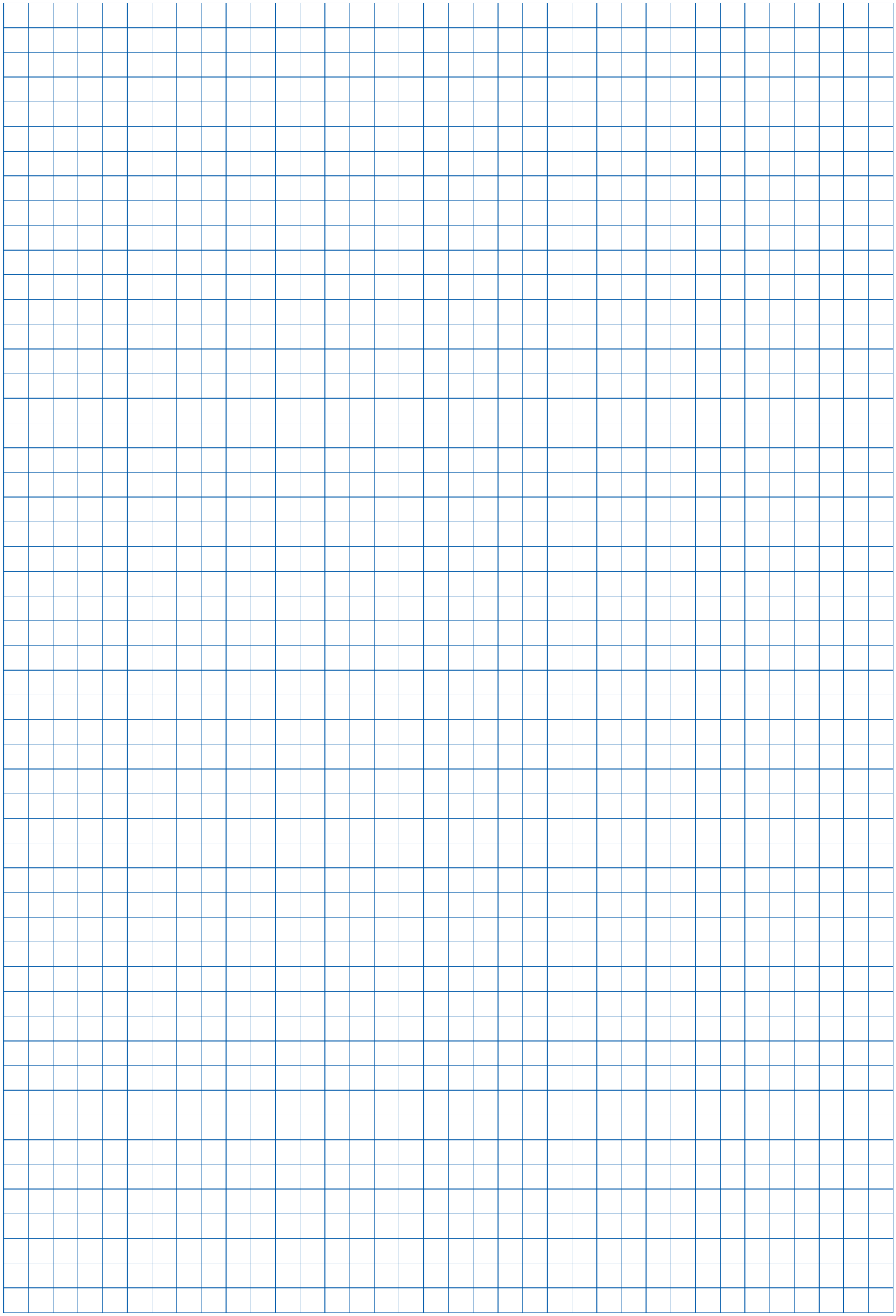
Thanks to the spindle-lock, the formwork can be moved with the **Framax lifting hook (A)** even when assembled in a curved configuration.



- The maximum size of the unit for resetting will depend - among other things - on the radius that has been set.
- When resetting large gang-forms, ensure that these are sufficiently stiffened.
- Prevent oblique pull, by using long transfer cables (spread-angle β: max. 30°).
- Check that the slip-out guard of the Framax lifting hook has engaged!

For more information, see "Resetting by crane".

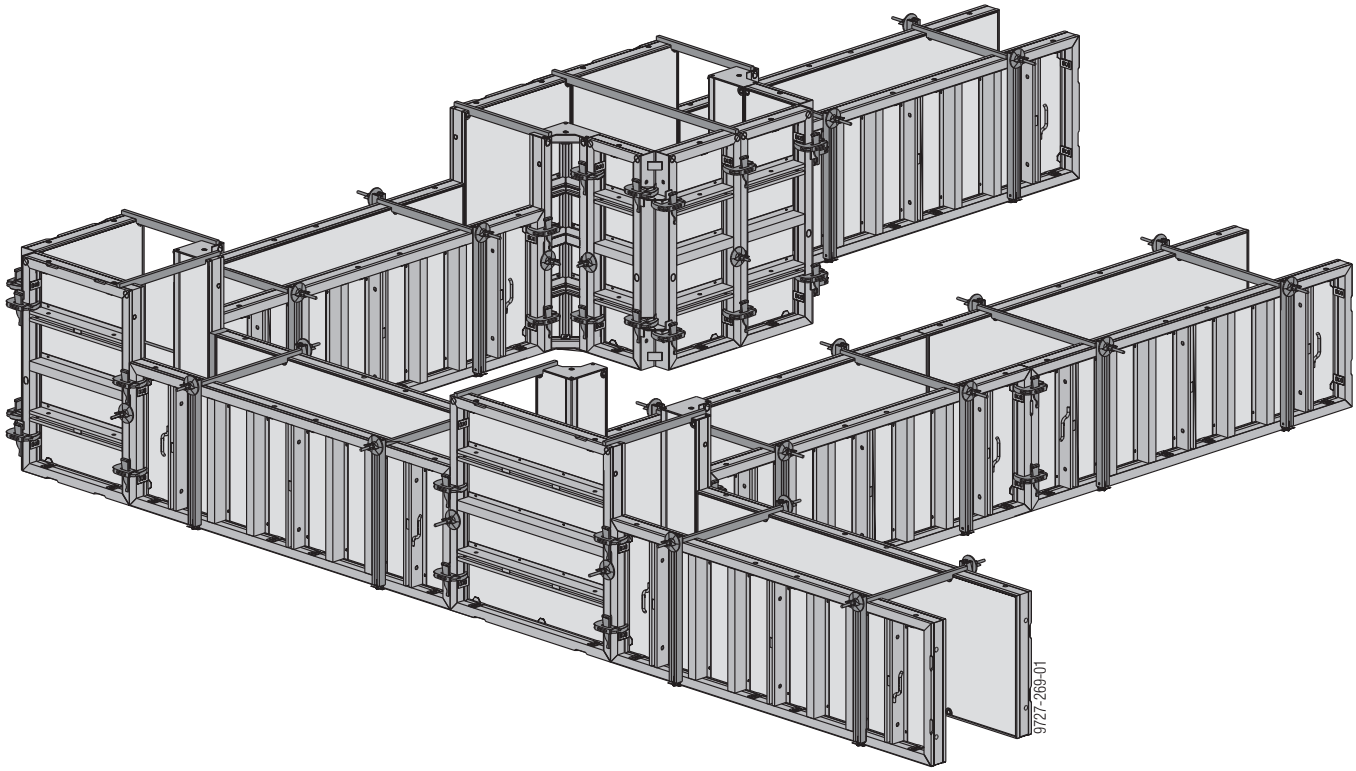
Follow the directions in the Operating Instructions!



Foundation formwork

The Framax Xlife panels can also be used for foundations.

This is particularly advantageous where it is intended to continue forming (i.e. the walls) using the same panels. Foundations can quickly be formed with any of the panels, with the 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 solved just as simply as in "normal" walls. A range of practical accessories makes the work very much easier.



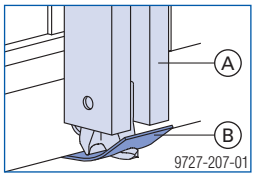
Design of the foundation formwork

Horizontal panels

Tying the panels

- **at top:** with tie-rod 15.0mm and super plate 15.0
- **at bottom:** with Framax foundation clamp and Doka perforated tape

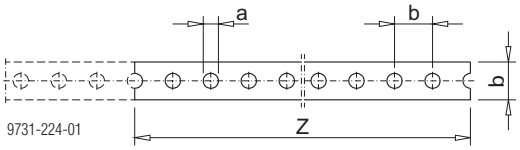
In this way, all widths of wall can be formed, within a 5 cm grid.



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

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

Doka perforated tape 50x2.0mm 25m



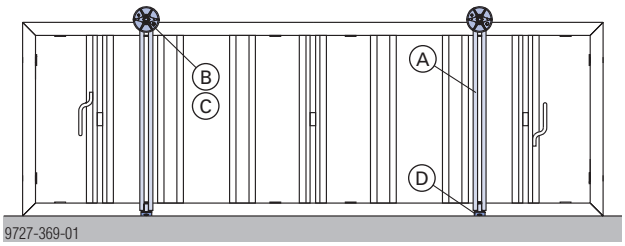
a ... 18 mm
b ... 50 mm
Z ... Length cut off roll: Wall thickness + 40 cm

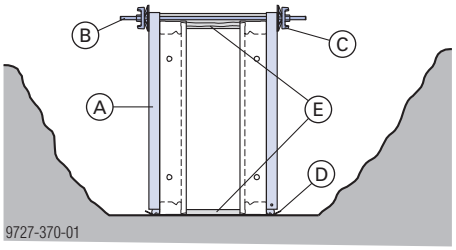
For pour heights of up to 0.90 m

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

Foundation clamps
2 per panel

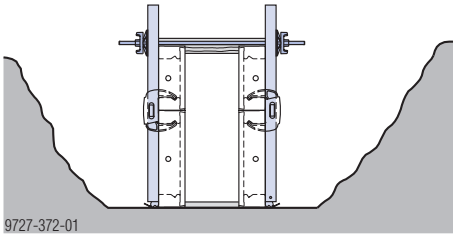
Panel 0.90x2.70m





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

Panel 0.45x2.70m + 0.30x2.70m



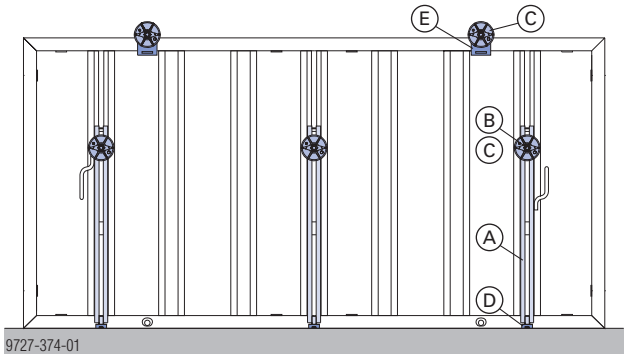
Max. pour height 1.20 m

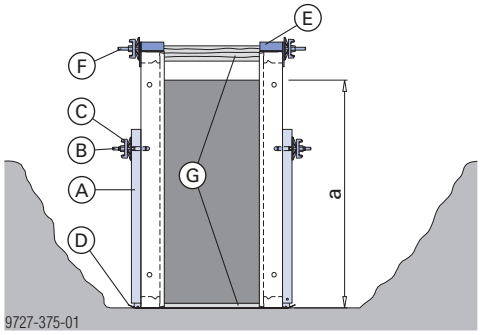
The foundation clamps are fixed in the continuous hardware slot integrated in the waling profiles of the panels 1.35x2.70 m, using the **Framax clamping bolt 4-8cm**.

The panels are anchored across the top by the **Framax anchoring bracket**.

	Foundation clamp	Anchoring bracket
Panel 2.70m	3	2
Panel 3.30m	4	2

Panel 1.35x2.70m





a ... max. 120 cm

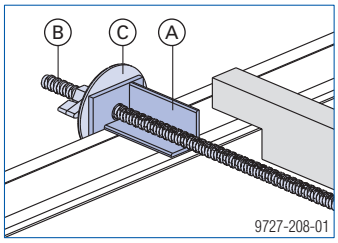
A	Framax foundation clamp
B	Framax clamping bolt 4-8cm
C	Super-plate 15.0
D	Doka perforated tape
E	Framax anchoring bracket
F	Tie-rod 15.0mm
G	Wooden spacer

Horizontal panels in confined excavation trenches

The use of the **Framax anchoring bracket** for the **top tie** has the following effects:

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

Framax anchoring bracket



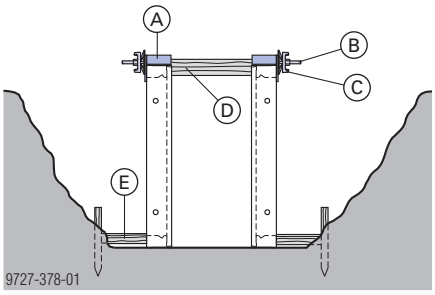
A Framax anchoring bracket
B Tie-rod 15.0mm
C Super plate 15.0

Anchoring brackets
2 per panel

Framax anchoring 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.

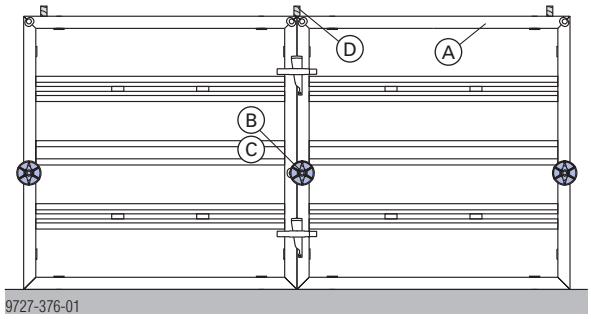
In very narrow trenches, the bottom tie can be replaced by horizontal bracing.

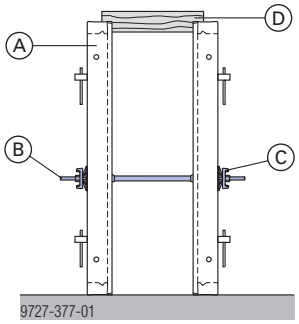


A Framax anchoring bracket
B Tie-rod 15.0mm
C Super plate 15.0
D Wooden spacer
E Horizontal bracing

Upright 1.35 m high panels

In the example below, one form-tie is sufficient for the height shown.





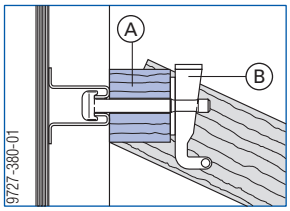
A Framax Xlife panel 1.35x1.35m
B Tie-rod 15.0mm
C Super-plate 15.0
D Wooden spacer

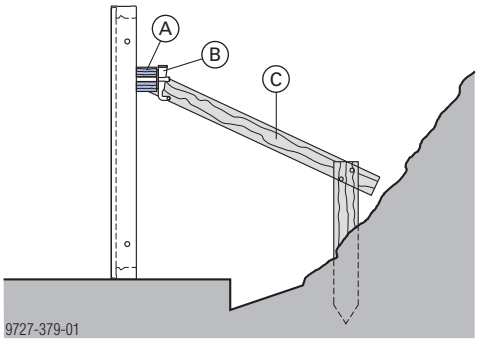
Be sure to fit the wooden spacers exactly as shown!

Shoring the panel

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

Connecting timber





A Connecting timber
B Framax wedge clamp
C Timber brace

Using as downturned-beam formwork

Using **anchoring brackets** for the **top and bottom ties** has the following effects:

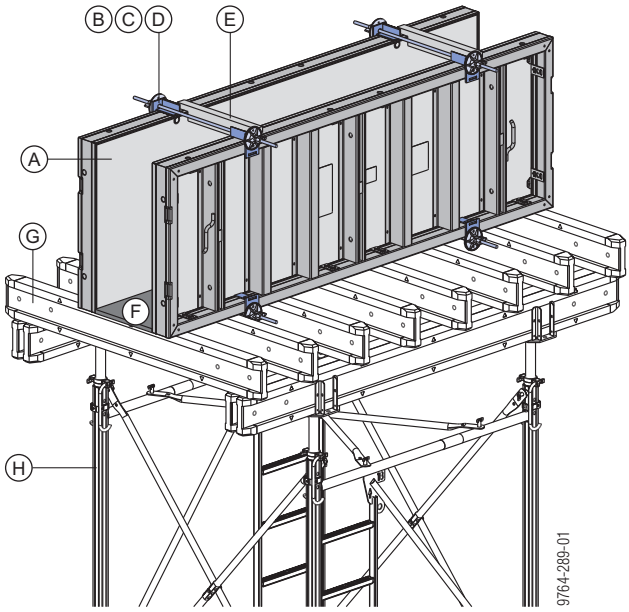
- The tie-points are above/below the panel – no ties in the concrete
- Form-tie spacings are freely selectable

Number of anchoring brackets per 2.70m length of panel:

	Downturned beam height	
	Up to 90 cm	Up to 135 cm
Top anchoring brackets	2	2
Bottom anchoring brackets	2	3

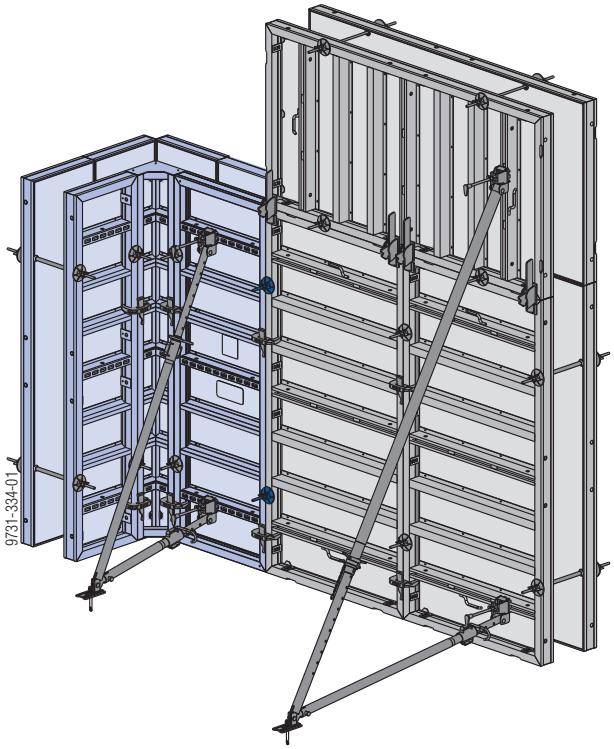
Framax anchoring bracket:
Permitted capacity: 15 kN

Example with 0.90x2.70m panel



A	Framax Xlife panel 0.90x2.70m
B	Framax anchoring bracket
C	Tie-rod 15.0mm
D	Super-plate 15.0
E	Wooden spacer
F	Formwork sheet
G	Doka beam H20
H	Load-bearing tower (e.g. Staxo 100)

Alu-Framax Xlife in conjunction with Framax Xlife



Combining Framax Xlife with Alu-Framax Xlife makes it possible to divide up the work into areas for crane-handled and man-handled forms, facilitating scheduling and the work sequence on the site.

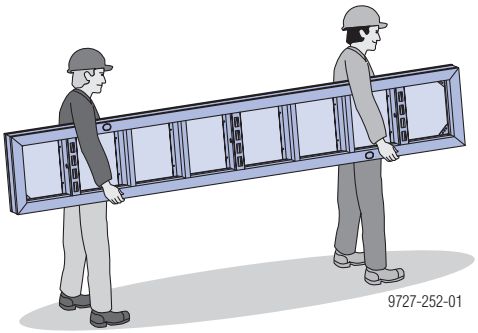
Where to place the form-ties:

When you place an Alu-Framax Xlife panel next to a Framax Xlife panel, always place the form-tie in the Framax Xlife panel!

When Framax Xlife and Alu-Framax Xlife panels are used in conjunction with one another, the structural-design data specified in the User Information booklet "Doka framed formwork Alu-Framax Xlife" must be followed.

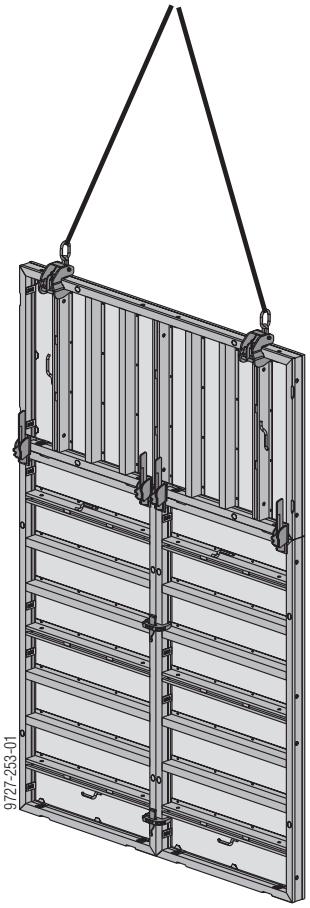
Alu-Framax Xlife (man-handled)

On **complicated layouts** or where **no crane** is available, **Alu-Framax Xlife** is the ideal way to carry on forming by hand.



Framax Xlife (crane-handled, for large areas)

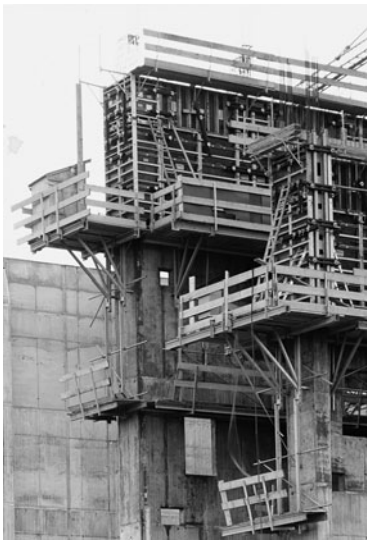
The Doka framed formwork **Framax Xlife** is the ideal framed formwork for **large-area forming using the crane**.

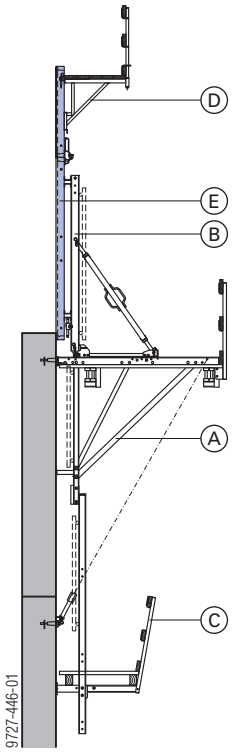


Framax Xlife in conjunction with . . .

Doka climbing formwork MF

The Doka climbing formwork MF proves its versatility on all tall structures. The formwork and climbing scaffold are linked together as a single unit which can be repositioned in one single crane cycle.





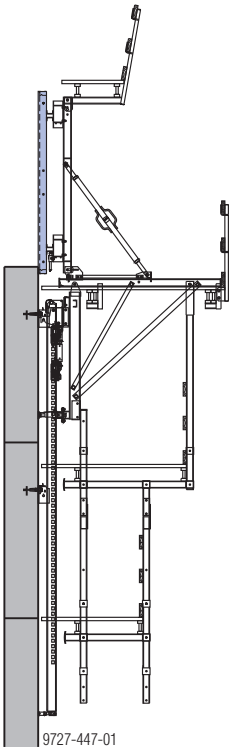
A	Climbing bracket MF240
B	Travelling unit MF
C	Suspended platform MF75 5.00m
D	Framax bracket 90
E	Framax Xlife panel

Follow the directions in the "Climbing formwork MF" User Information!

Doka automatic climbing formwork

With their modular design concept, these crane-independent automatic climbing formwork systems provide an efficient solution for every type of structure.

The formwork and climbing scaffold are linked together as a single unit which can be lifted and reset hydraulically.



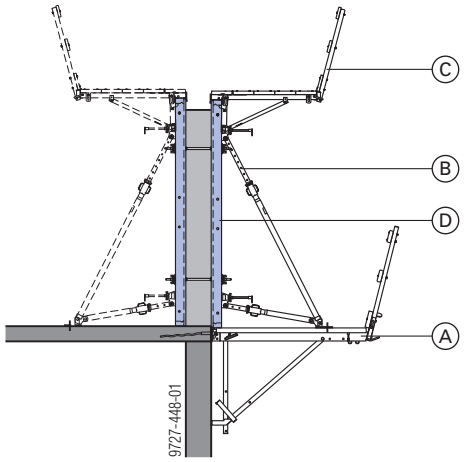
Follow the directions in the relevant User Information booklet!

Doka folding platforms

The high capacity of these working and safety scaffolds means that the formwork can safely be stood on the folding platforms.

Adding a few standard parts converts a working platform into a climbing formwork unit which can be shifted as a complete form and access-platform in one single operation.

This makes work at great heights faster and more efficient.



A	Doka folding platform
B	Panel strut
C	Framax pouring platform
D	Framax Xlife panel

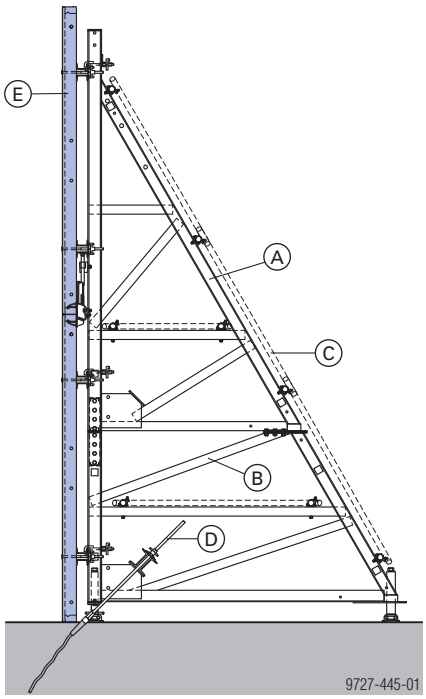
Follow the directions in the "Folding platform K" and "Climbing formwork K" User Information booklets!

Doka supporting construction frames

The **Doka supporting construction frame Universal F** or **Doka supporting construction frame Variabel** also enable the sturdy Framax Xlife panels to be used as single-sided wall formwork.

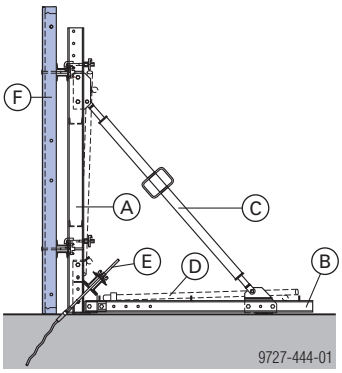
Follow the directions in the “Doka supporting construction frames” User Information!

Supporting construction frame Universal F



A	Supporting construction frame Universal F 4.50m
B	Attachable frame F 1.50m
C	Bracing
D	Tension anchoring
E	Framax Xlife panel

"Variabel" supporting construction frame

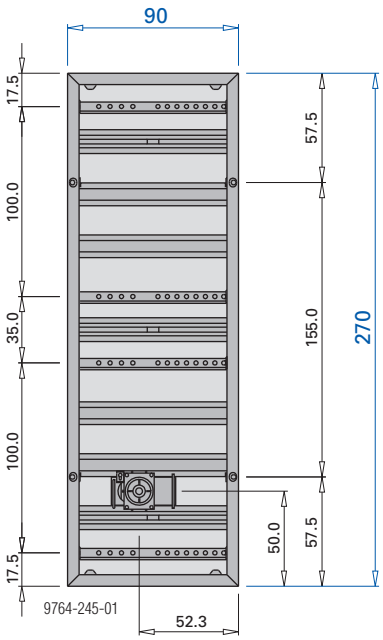


A	Waling WU14 for supporting construction frame
B	Multi-purpose waling WS10 Top50 2.00m
C	Spindle strut 12 3.00m
D	Bracing
E	Tension anchoring
F	Framax Xlife panel

Utilising self-compacting concrete

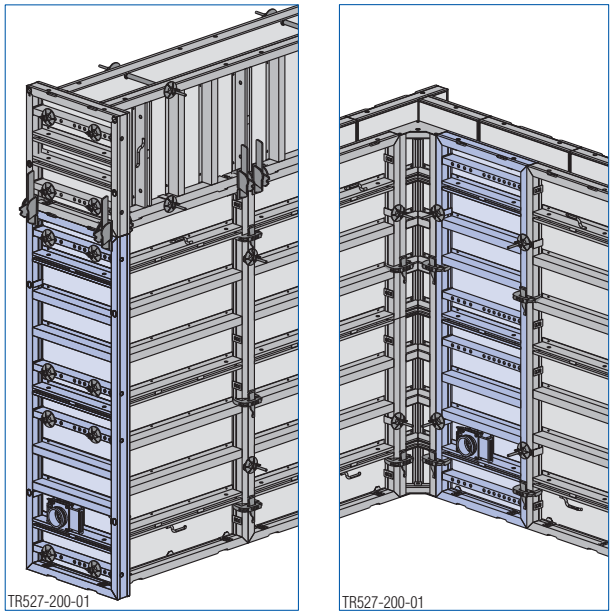
Framax Xlife universal panel SCC 0.90x2.70m

The Framax Xlife universal panel SCC makes it possible to place self-compacting concrete. The concrete is pumped in through the built-in connection point and forced upward under pressure.

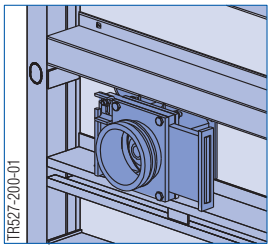


Dimensions in cm
Otherwise, the panel has the same dimensions and functions as the Framax Xlife universal panel 0.90x2.70m.

Used as a stop-end panel **Used as a wall panel**



Integral connection point for the pump hose



Advantages:

- Concrete is placed from below
- No vibrating needed
- Walls can be poured up against existing floor-slabs
- Little or no soiling of the formwork
- Only a small number of pouring platforms are needed
- Can be used both as a wall-formwork and stop-end panel

Follow the directions in the "Framax universal panel SCC 0.90x2.70m" Method Statement!

For more information, please contact your Doka technician.

Cleaning and care of your equipment

The **high-grade powder-coating of the frame** and the **special coating of the Xlife sheet** greatly reduce the amount of cleaning needed.

Cleaning

Immediately after pouring

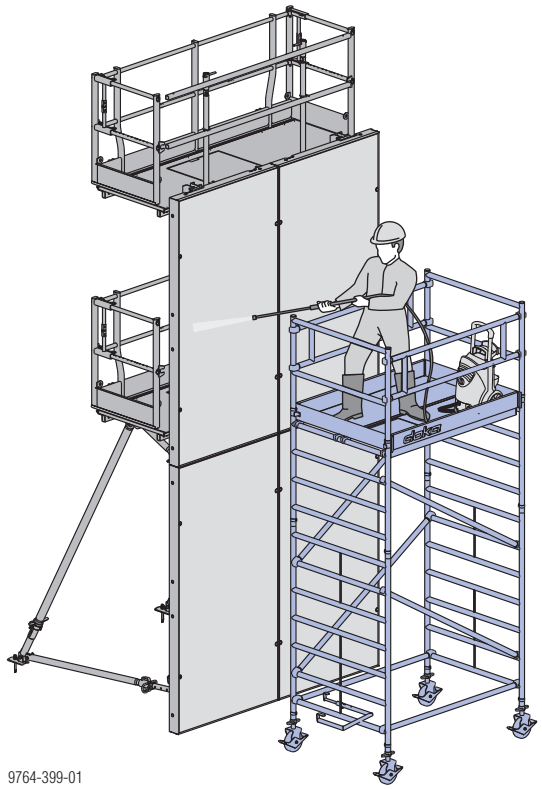
➤ Remove any blobs of concrete from the back-face of the formwork, using water (without any added sand).

Immediately after striking the formwork

➤ Clean the formwork with a high-pressure spray cleaner and a scraper.

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

- Wheel-around scaffold DF (up to a formwork height of 4.20 m)
- Doka mobile scaffold tower Z (up to a formwork height of 6.70 m)
- Load-bearing tower Staxo 40 (for formwork of over 6.70 m in height)



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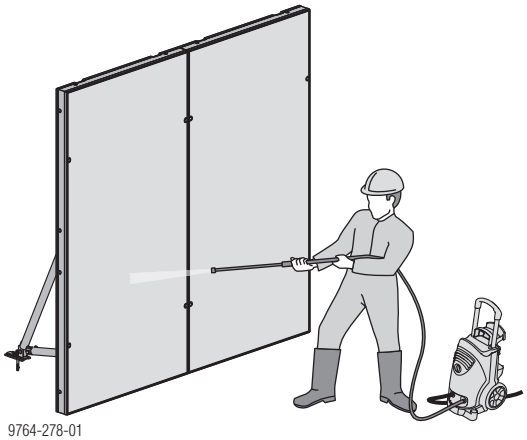
Cleaning equipment

High-pressure spray cleaner

The special coating of the Xlife sheet also makes it possible for the sheet to be cleaned with a **high-pressure spray cleaner**.



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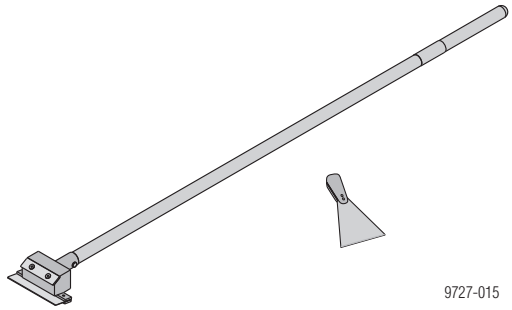
Observe the following points:

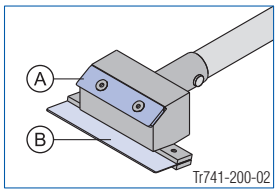
- Appliance pressure rating: 200 to max. 300 bar
- Keep the water-jet the correct distance from the formwork, and move it at the right speed:
  - The higher the pressure, the further away from the formwork you must keep the jet and the faster you must move it across the surface.
- Make only moderate 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.

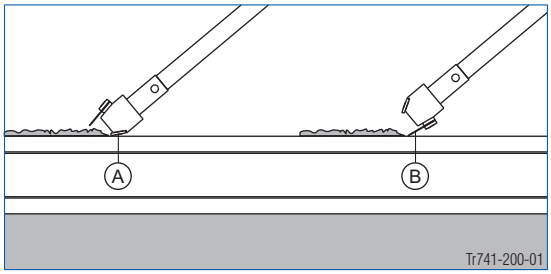
Concrete scraper

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



Functional description:

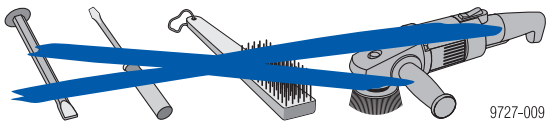




A Blade for dealing with heavy soiling
B Blade for dealing with slight soiling

Note:

Do not use any pointed or sharp objects, wire brushes, rotating grinding disks or pan scourers.



Release agents

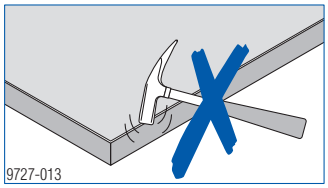
Before every pour

➤ Apply release agent to the formwork sheet and the end faces **extremely thinly**, **evenly** and **in a continuous layer** (make sure there are no traces of release-agent running down the formwork sheet)! Applying too much release agent will spoil the concrete finish.

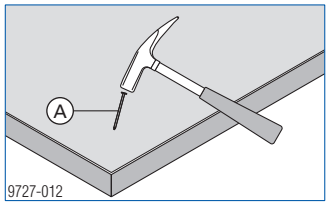
To determine the right dosage and to make sure that you are using the agent correctly, test it on less important parts of the structure first.

Care

- No hammer-blows to the frame profiles

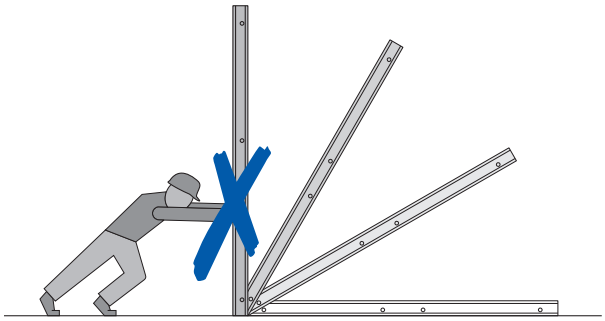


- Do not use nails on the formwork that are longer than 60 mm

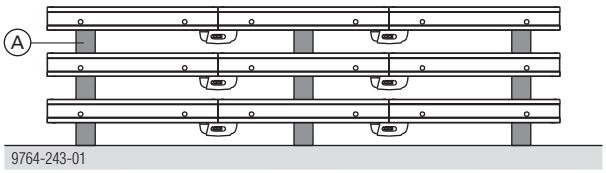


A max. l=60 mm

- 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.

Formwork planning with Tipos

Tipos-Doka helps you to form even more efficiently

Tipos has been developed to assist you in planning the use of your Doka formwork. For wall formwork, floor formwork and platforms, it puts the same tools into your hands that we at Doka use ourselves for formwork planning.

Easy to use, fast and accurate results

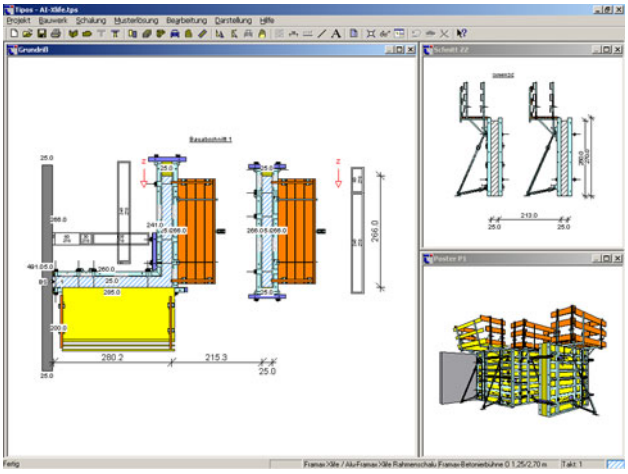
The easy-to-use interface makes for very fast working. From when you input your layout (with the "Schal-Igel"® on-screen assistant), all the way through to when you manually put the finishing touches to the formwork solution the program gives you. All this saves time - yours.

The program contains a large number of templates from formwork practice, so you can be sure of always getting the optimum technical and economical solution to your formwork task. This makes for greater operational reliability, and cuts costs.

You can get to work right away with the piece-lists, plans, views, sections and perspective drawings that the program gives you. Operational reliability is also enhanced by the high level of detail of the plans.

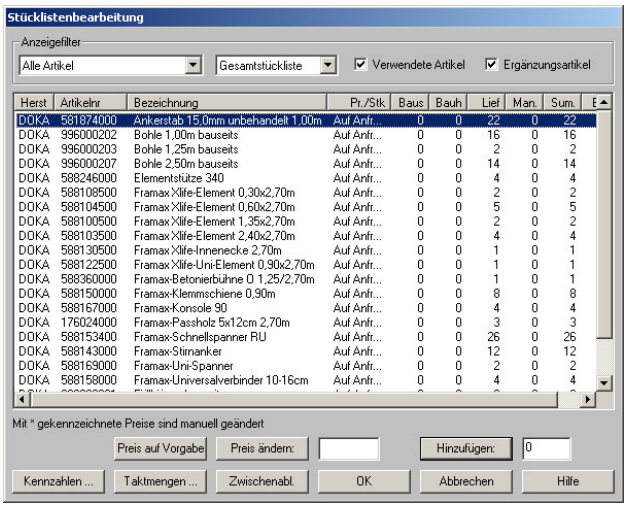
Among other things, Tipos-Doka plans the following with Framax Xlife:

- Distribution of the framed formwork panels
- Any vertically stacked configurations that are needed
- Closures and accessories
- Pouring platforms, safety railings etc.



Drawings of formwork and platforms really can be this detailed! Both for the layout and for spatial representations, Tipos-Doka sets an impressive new standard of visual presentation.

Always the right quantities of formwork and accessories



You can import the automatically generated piece-lists into many other programs for further processing.

Formwork components and accessories that have to be organised at short notice, or replaced by improvisation, are the ones that cost the most. This is why Tipos-Doka offers complete piece-lists that leave no room for improvisation. Planning with Tipos-Doka eliminates costs before they have a chance to even arise. And your depot can make the best possible use of its stocks.

Doka service offerings

Doka Reconditioning Service

So that your formwork is in "top form" for its next assignment

Inspecting, cleaning and maintaining your Doka framed formwork - all tasks that the Doka Reconditioning Service will be pleased to take off your hands. Its highly qualified staff and special equipment will quickly get your formwork back in top form - quickly and economically.

The advantage for you: You always have formwork that is **ready for use**, and also **extend the service life** of your equipment.

What's more: It is only with well-maintained formwork that you will achieve the desired quality of concrete surface.

In our modern plants, your formwork will be **carefully cleaned** using energy-saving and environmentally sound technology.

The panels are then inspected for damage and dimensional accuracy and overhauled where necessary. Any damaged form-facing is repaired, or - if necessary - replaced.

Doka customer training

Formwork training pays

Forming operations account for the lion’s share of labour costs on concrete construction sites. Modern formwork equipment helps to rationalise operations. By improving the overall construction sequence at the same time, however, further very worthwhile gains in efficiency can be achieved.

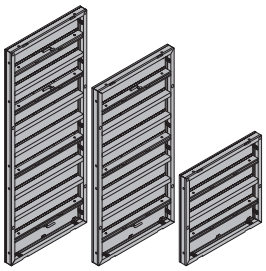
This requires not only better equipment, but also greater skill in making optimum use of this equipment. Doka can help here, with its specialist training programme - to help each and every member of the team do his bit towards boosting efficiency and lowering costs.

Doka customer training events also look at the formwork equipment and handling methods that are needed in order to achieve optimum safety - knowledge and awareness which can only enhance workplace safety on the site.

You’ll find the Doka training programme well worth looking into.

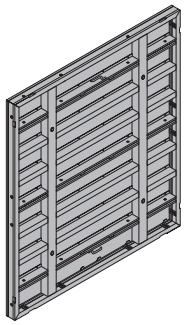
Your nearest Doka branch will be pleased to tell you more about Doka's various training offerings.

	[kg]	Article n°
Framax Xlife panel 1.35x2.70m	**210.0**	**588100500**
Framax Xlife panel 0.90x2.70m	**126.5**	**588102500**
Framax Xlife panel 0.60x2.70m	**91.5**	**588104500**
Framax Xlife panel 0.45x2.70m	**77.7**	**588106500**
Framax Xlife panel 0.30x2.70m	**61.5**	**588108500**
Framax Xlife panel 1.35x1.35m	**106.3**	**588110500**
Framax Xlife panel 0.90x1.35m	**68.5**	**588112500**
Framax Xlife panel 0.60x1.35m	**50.5**	**588114500**
Framax Xlife panel 0.45x1.35m	**41.0**	**588116500**
Framax Xlife panel 0.30x1.35m	**31.8**	**588118500**
Framax Xlife panel 1.35x3.30m	**259.3**	**588221500**
Framax Xlife panel 0.90x3.30m	**154.5**	**588222500**
Framax Xlife panel 0.60x3.30m	**114.7**	**588223500**
Framax Xlife panel 0.45x3.30m	**97.9**	**588224500**
Framax Xlife panel 0.30x3.30m	**78.5**	**588225500**
Framax Xlife-Element		
Galvanised, powder-coated		
Custom sizes on enquiry!		

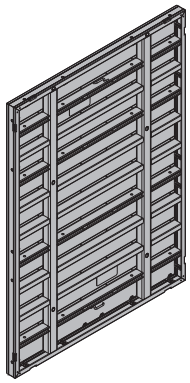


Framax Xlife panel 0.55x2.70m	**87.0**	**588105500**
Framax Xlife panel 0.55x1.35m	**46.5**	**588115500**
Framax Xlife panel 0.55x3.30m	**107.5**	**588131500**
Framax Xlife-Element		
Galvanised, powder-coated		
Corners marked in grey		

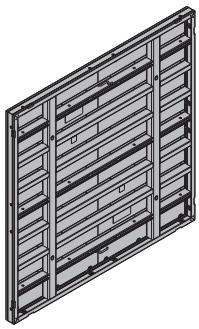
Framax Xlife panel 2.40x2.70m	**370.0**	**588103500**
Framax Xlife-Element 2,40x2,70m		
Galvanised		



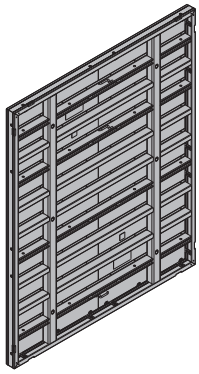
Framax Xlife panel 2.40x3.30m	**484.9**	**588606500**
Framax Xlife-Element 2,40x3,30m		
Galvanised		



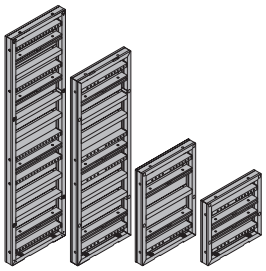
	[kg]	Article n°
Framax Xlife panel 2.70x2.70m	**416.0**	**588109500**
Framax Xlife-Element 2,70x2,70m		
Galvanised		



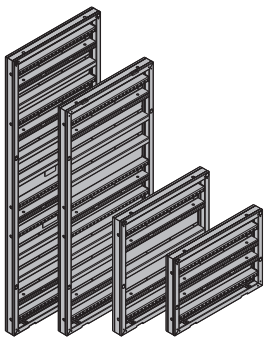
Framax Xlife panel 2.70x3.30m	**514.2**	**588608500**
Framax Xlife-Element 2,70x3,30m		
Galvanised		



Framax Xlife universal panel 0.90x2.70m	**148.0**	**588122500**
Framax Xlife universal panel 0.90x1.35m	**79.3**	**588124500**
Framax Xlife universal panel 0.90x0.90m	**63.0**	**588120500**
Framax Xlife universal panel 0.90x3.30m	**182.6**	**588228500**
Framax Xlife-Uni-Element		
Galvanised, powder-coated		
Corners marked in blue		



Framax Xlife universal panel 1.20x2.70m	**225.8**	**588601500**
Framax Xlife universal panel 1.20x1.35m	**116.7**	**588603500**
Framax Xlife universal panel 1.20x0.90m	**91.5**	**588604500**
Framax Xlife universal panel 1.20x3.30m	**276.7**	**588671500**
Framax Xlife-Uni-Element		
Galvanised, powder-coated		
Corners marked in blue		



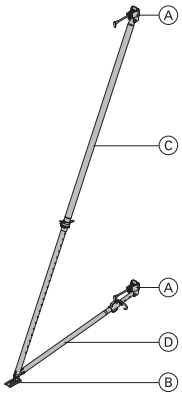
	[kg]	Article n°
Framax Xlife universal panel SCC 0.90x2.70m Framax Xlife-Uni-Element SCC 0,90x2,70m Galvanised, powder-coated	**170.3**	**588119500**
Framax hose to panel coupler SCC Framax-Spindelaufsatz SCC Galvanised Length: 48 cm Diameter: 27 cm	**10.0**	**588121000**
Panel closure tool D125 SCC Sperrschieber D125 SCC Galvanised Length: 18 cm Width: 33 cm Height: 27 cm	**18.0**	**588127000**
Framax Xlife inside corner 2.70m **Framax Xlife inside corner 1.35m** **Framax Xlife inside corner 3.30m** Framax Xlife-Innenecke Galvanised, powder-coated	**97.0** **51.2** **117.9**	**588130500** **588132500** **588229500**
Framax outside corner 2.70m **Framax outside corner 1.35m** **Framax outside corner 3.30m** Framax-Außenecke Galvanised	**47.0** **23.5** **58.0**	**588126000** **588128000** **588227000**
Framax hinged inside corner I 2.70m **Framax hinged inside corner I 1.35m** **Framax hinged inside corner I 3.30m** Framax-Scharnierecke I Powder-coated, blue	**102.3** **55.4** **125.5**	**588136000** **588137000** **588610000**

	[kg]	Article n°
Framax hinged outside corner A 2.70m **Framax hinged outside corner A 1.35m** Framax-Scharnierecke A Powder-coated, blue	**52.8** **27.4**	**588134000** **588135000**
Framax closure plate R30 2.70m **Framax closure plate R30 1.35m** **Framax closure plate R30 0.90m** Framax-Ausgleichsblech R30 Powder-coated, blue Width: 38 cm	**43.0** **21.4** **14.4**	**588140000** **588142000** **588144000**
Framax circular forming plate 0.20x2.70m **Framax circular forming plate 0.25x2.70m** **Framax circular forming plate 0.30x2.70m** **Framax circular forming plate 0.20x1.35m** **Framax circular forming plate 0.25x1.35m** **Framax circular forming plate 0.30x1.35m** Framax-Bogenblech Galvanised, powder-coated	**56.5** **63.5** **67.4** **30.3** **32.3** **34.8**	**588235000** **588236000** **588237000** **588238000** **588239000** **588240000**
Framax steel waling RD 0.40m Framax-Stahlwandriegel RD 0,40m Painted blue	**8.7**	**588189000**
Framax stripping corner I 2.70m **Framax stripping corner I 1.35m** **Framax stripping corner I 3.30m** Framax-Ausschalecke I Galvanised, powder-coated	**171.0** **90.0** **209.9**	**588675000** **588614000** **588676000**
Framax stripping spindle I Framax-Ausschalspindel I Galvanised Height: 25 cm	**3.2**	**588618000**

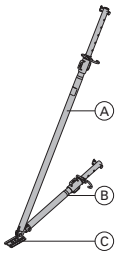
	[kg]	Article n°
Framax stripping spindle I with ratchet Framax-Ausschalspindel I mit Ratsche Galvanised Height: 24.8 cm	**5.5**	**588653000**
Framax quick acting clamp RU Framax-Schnellspanner RU Galvanised Length: 20 cm	**3.3**	**588153400**
Framax multi function clamp Framax-Uni-Spanner Galvanised Length: 40 cm	**5.8**	**588169000**
Framax adjustable clamp Framax-Ausgleichsspanner Galvanised Length: 48 cm	**5.3**	**588168000**
Framax universal fixing bolt 10-16cm Framax-Universalverbinder 10-16cm Galvanised Length: 26 cm	**0.60**	**588158000**
Framax universal fixing bolt 10-25cm Framax-Universalverbinder 10-25cm Galvanised Length: 36 cm	**0.69**	**583002000**
Framax stop-end tie Framax-Stirnanker Galvanised Length: 29 cm	**1.5**	**588143000**
Framax pressure plate 6/15 Framax-Druckplatte 6/15 Galvanised	**0.80**	**588183000**
Framax universal waling 0.90m **Framax universal waling 1.50m** Framax-Klemmschiene Painted blue	**10.6** **16.8**	**588150000** **588148000**
Framax universal corner waling Framax-Eckklemmschiene Painted blue Leg length: 60 cm	**12.8**	**588151000**

	[kg]	Article n°
Framax wedge clamp Framax-Spannklemme Galvanised Length: 21 cm	**1.5**	**588152000**
Framax tensioning wedge R Framax-Spannkeil R Galvanised Height: 11 cm	**0.20**	**588155000**
Framax wedge bolt RA 7.5 Framax-Keilbolzen RA 7,5 Galvanised Length: 15 cm	**0.34**	**588159000**
Panel strut 340 Elementstütze 340 consisting of:	**30.2**	**588246000**
(A) **Prop head** 2 pcs. Galvanised Length: 40.8 cm Width: 11.8 cm Height: 17.6 cm	**3.5**	**588244000**
(B) **Prop shoe** Galvanised Length: 20 cm Width: 11 cm Height: 10 cm	**2.1**	**588245000**
(C) **Plumbing strut 340** Galvanised Length: 190 - 341 cm	**14.2**	**588247000**
(D) **Adjusting strut 120** Galvanised Length: 80 - 130 cm	**7.2**	**588248000**
Galvanised Delivery condition: folded closed		

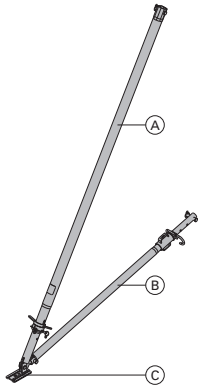
	[kg]	Article n°
Panel strut 540	**49.0**	**588249000**
Elementstütze 540		
consisting of:		
(A) **Prop head**	**3.5**	**588244000**
2 pcs.		
Galvanised		
Length: 40.8 cm		
Width: 11.8 cm		
Height: 17.6 cm		
(B) **Prop shoe**	**2.1**	**588245000**
Galvanised		
Length: 20 cm		
Width: 11 cm		
Height: 10 cm		
(C) **Plumbing strut 540**	**29.6**	**588250000**
Galvanised		
Length: 309 - 550 cm		
(D) **Adjusting strut 220**	**10.2**	**588251000**
Length: 171 - 224 cm		
Galvanised		
Delivery condition: folded closed		



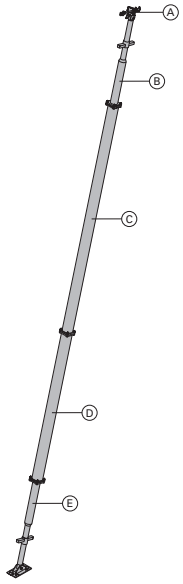
Panel strut 340 without prop head	**24.0**	**580365000**
Elementstütze 340 ohne Stützenkopf		
consisting of:		
(A) **Plumbing strut 340**	**14.2**	**588247000**
Galvanised		
Length: 190 - 341 cm		
(B) **Adjusting strut 120**	**7.2**	**588248000**
Galvanised		
Length: 80 - 130 cm		
(C) **Prop shoe**	**2.1**	**588245000**
Galvanised		
Length: 20 cm		
Width: 11 cm		
Height: 10 cm		
Galvanised		
Delivery condition: folded closed		



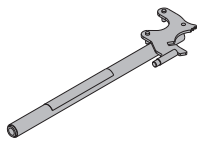
	[kg]	Article n°
Panel strut 540 without prop head	**42.2**	**580366000**
Elementstütze 540 ohne Stützenkopf		
consisting of:		
(A) **Plumbing strut 540**	**29.6**	**588250000**
Galvanised		
Length: 309 - 550 cm		
(B) **Adjusting strut 220**	**10.2**	**588251000**
Length: 171 - 224 cm		
(C) **Prop shoe**	**2.1**	**588245000**
Galvanised		
Length: 20 cm		
Width: 11 cm		
Height: 10 cm		
Galvanised		
Delivery condition: folded closed		



Adjustable plumbing strut		
Rohrstütze		
depending on length, comprising:		
(A) **Spindle head**	**3.6**	**584322000**
Galvanised		
(B) **Spindle element without end-hinge**	**30.6**	**584316000**
(C) **Extension strut 3.70m**	**80.0**	**584318000**
(D) **Extension strut 2.40m**	**54.6**	**584317000**
(E) **Spindle element with end-hinge**	**38.4**	**584315000**
Painted blue		
Delivery condition: separate parts		

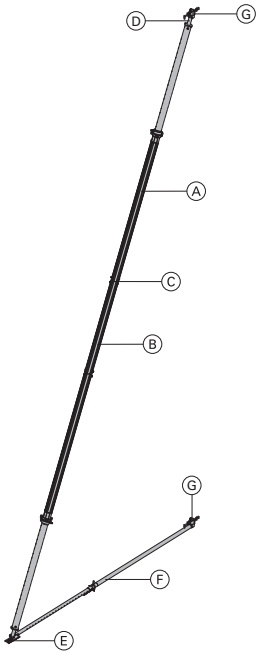


Universal dismantling tool	**3.7**	**582768000**
Universal-Lösewerkzeug		
Galvanised		
Length: 75.5 cm		



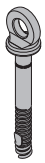
	[kg]	Article n°
Eurex 60 550 Eurex 60 550 depending on length, comprising:		
(A) **Plumbing strut Eurex 60 550** Powder-coated, blue Aluminium Length: 343 - 553 cm	**42.5**	**582658000**
(B) **Extension Eurex 60 2.00m** Powder-coated, blue Aluminium Length: 250 cm	**21.3**	**582651000**
(C) **Coupler Eurex 60** Aluminium Length: 100 cm Diameter: 12.8 cm	**8.6**	**582652000**
(D) **Connector Eurex 60** Galvanised Length: 15 cm Width: 15 cm Height: 30 cm	**3.9**	**582657000**
(E) **Plumbing strut shoe Eurex 60** Galvanised Length: 31 cm Width: 12 cm Height: 33 cm	**8.5**	**582660000**
(F) **Adjusting strut 540 Eurex 60** Galvanised Length: 302 - 543 cm	**29.0**	**582659000**
(G) **Prop head** 2 pcs. Galvanised Length: 40.8 cm Width: 11.8 cm Height: 17.6 cm	**3.5**	**588244000**

Delivery condition: separate parts



Doka express anchor 16x125mm Doka-Expressanker 16x125mm	**0.31**	**588631000**

Galvanised
Length: 18 cm
Follow fitting instructions!

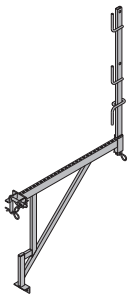


Doka coil 16mm Doka-Coil 16mm	**0.009**	**588633000**

Galvanised
Diameter: 1.6 cm

	[kg]	Article n°
Framax bracket 90 Framax-Konsole 90	**12.5**	**588167000**

Galvanised
Width: 103 cm
Height: 185 cm
Delivery condition: railing included

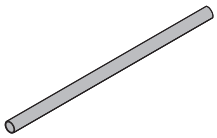


Scaffold tube connection Gerüstrohranschluss	**0.27**	**584375000**

Galvanised
Height: 7 cm

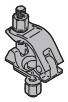
Scaffold tube 48.3mm 1.00m	**3.6**	**682014000**
Scaffold tube 48.3mm 1.50m	**5.4**	**682015000**
Scaffold tube 48.3mm 2.00m	**7.2**	**682016000**
Scaffold tube 48.3mm 2.50m	**9.0**	**682017000**
Scaffold tube 48.3mm 3.00m	**10.8**	**682018000**
Scaffold tube 48.3mm 3.50m	**12.6**	**682019000**
Scaffold tube 48.3mm 4.00m	**14.4**	**682021000**
Scaffold tube 48.3mm 4.50m	**16.2**	**682022000**
Scaffold tube 48.3mm 5.00m	**18.0**	**682023000**
Scaffold tube 48.3mm 5.50m	**19.8**	**682024000**
Scaffold tube 48.3mm 6.00m	**21.6**	**682025000**
Scaffold tube 48.3mm .....m Gerüstrohr 48,3mm	**3.6**	**682001000**

Galvanised



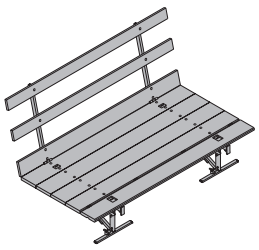
Screw-on coupler 48mm 50 Anschraubkupplung 48mm 50	**0.84**	**682002000**

Galvanised
Width-across: 22 mm



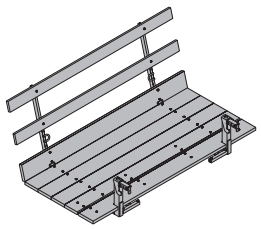
Framax pouring platform O 1.25/2.70m Framax-Betonierbühne O 1,25/2,70m	**117.0**	**588360000**

Timber parts varnished yellow
Steel parts galvanised
Delivery condition: folded closed



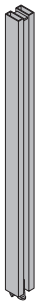
Framax pouring platform U 1.25/2.70m Framax-Betonierbühne U 1,25/2,70m	**127.5**	**588377000**

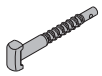
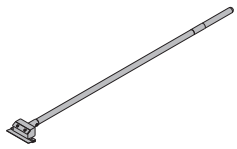
Steel parts galvanised
Timber parts varnished yellow
Delivery condition: folded closed



	[kg]	Article n°
Handrail clamp S Schutzgeländerzwinge S Galvanised Height: 123 - 171 cm	**11.5**	**580470000**
Handrail post 1.10m Schutzgeländer 1,10m Galvanised Height: 134 cm	**5.6**	**584384000**
Side handrail clamping unit T Seitenschutzgeländer T Galvanised Length: 115 - 175 cm Height: 112 cm	**29.1**	**580488000**
Doka column formwork platform 150/90cm Doka-Stützenbühne 150/90cm Galvanised Length: 173 cm Width: 173 cm Height: 130 cm Delivery condition: folded closed	**211.8**	**588382000**
Framax lifting hook Framax-Umsetzbügel Galvanised Height: 22 cm Follow the directions in the "Operating Instructions"!	**10.6**	**588149000**
Framax stacking cone Framax-Stapelkonus Blue Diameter: 2 cm	**0.02**	**588234000**
Doka 4-part chain 3.20m Doka-Vierstrangkette 3,20m Follow the directions in the "Operating Instructions"!	**15.0**	**588620000**

	[kg]	Article n°
Framax transport bolt 5kN Framax-Transportbolzen 5kN Follow the directions in the "Operating Instructions"!	**1.9**	**588621000**
Framax transport gear Framax-Transportgehänge Galvanised Follow the directions in the "Operating Instructions"!	**13.3**	**588232000**
Dokamatic lifting strap 13.00m Dokamatic-Umsetzgurt 13,00m Green Follow the directions in the "Operating Instructions"!	**10.5**	**586231000**
Fix-De-Fix remote uncoupling system 3150kg Abhängeautomat Fix-De-Fix 3150kg Follow the directions in the "Operating Instructions"!	**27.0**	**586014000**
Framax fitting timber 2x12cm 2.70m	**3.1**	**176020000**
Framax fitting timber 3x12cm 2.70m	**4.7**	**176022000**
Framax fitting timber 5x12cm 2.70m	**7.8**	**176024000**
Framax fitting timber 10x12cm 2.70m	**15.5**	**176026000**
Framax fitting timber 2x12cm 3.30m	**3.8**	**176021000**
Framax fitting timber 3x12cm 3.30m	**5.7**	**176023000**
Framax fitting timber 5x12cm 3.30m	**9.5**	**176025000**
Framax fitting timber 10x12cm 3.30m	**19.0**	**176027000**
Framax-Passholz Varnished yellow		
Framax moulded timber 27mm 2.70m	**7.6**	**176012000**
Framax moulded timber 21mm 2.70m	**8.0**	**176010000**
Framax moulded timber 18mm 2.70m	**8.4**	**176119000**
Framax moulded timber 27mm 3.30m	**9.3**	**176013000**
Framax moulded timber 21mm 3.30m	**9.8**	**176011000**
Framax moulded timber 18mm 3.30m	**10.2**	**176120000**
Framax-Profilholz Varnished yellow		

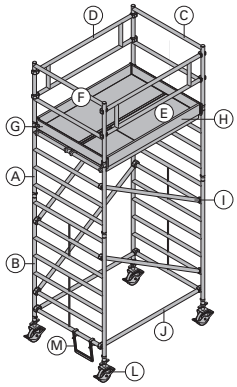
	[kg]	Article n°
Framax formwork stripping timb. 10x12cm 2.85m	**16.4**	**176008000**
Framax formwork stripping timb. 10x12cm 3.45m	**19.9**	**176014000**
Framax-Ausschalholz Varnished yellow		
		
Framax steel closure plate 5cm 2.70m	**14.0**	**588273000**
Framax steel closure plate 5cm 1.35m	**7.9**	**588272000**
Framax steel closure plate 5cm 3.30m	**17.2**	**588274000**
Framax-Stahlausgleich Powder-coated, blue		
		
Connecting timber	**0.70**	**176030000**
Anklemmholz Varnished yellow Width: 10 cm		
		
Framax triangular ledge 2.70m	**0.38**	**588170000**
Framax-Dreikantleiste 2,70m		
		
Framax frontal triangular ledge 2.70m	**1.9**	**588129000**
Framax-Stirndreikantleiste 2,70m Grey		
		
Framax anchoring bracket	**1.4**	**588188000**
Framax-Ankerhaltewinkel Painted blue Width: 9 cm Height: 13 cm		
		
Framax foundation clamp 0.90m	**4.9**	**588141000**
Framax-Fundamentspanner 0,90m Galvanised		
		

	[kg]	Article n°
Framax clamping bolt 4-8cm	**0.39**	**588107000**
Framax-Klemmschraube 4-8cm Galvanised Length: 19 cm		
		
Doka perforated tape 50x2.0mm 25m	**17.0**	**588206000**
Doka-Lochband 50x2,0mm 25m		
		
Universal plug R20/25	**0.003**	**588180000**
Kombi Ankerstopfen R20/25 Blue Diameter: 3 cm		
		
Framax plug R24.5	**0.003**	**588181000**
Framax-Abdeckstopfen R24,5 Yellow Diameter: 2 cm		
		
Plug for closure plate R25	**0.003**	**588187000**
Ausgleichsblechstopfen R25 Black Diameter: 3 cm		
		
Framax 3-in-1 pole tool	**4.2**	**588678000**
Framax-Montagestange Galvanised Length: 193 cm		
		
Double scraper Xlife 100/150mm 1.40m	**2.8**	**588674000**
Doppelschaber Xlife 100/150mm 1,40m		
		
Wheel-around scaffold DF	**44.0**	**586157000**
Mobilgerüst DF Aluminium Length: 195 cm Width: 80 cm Height: 290 cm Follow the directions in the "Operating Instructions"!		
		

	[kg]	Article n°
Doka mobile scaffold tower Z		
Doka-Fahrgerüst Z		
consisting of:		
(A) **Attachable frame Z 1.00m**	**6.7**	**586016000**
(B) **Attachable frame Z 2.00m**	**11.3**	**586017000**
(C) **Railing frame Z 1.00m**	**4.1**	**586021000**
(D) **Handrail post Z 1.80m**	**6.5**	**586022000**
(E) **Platform Z with manhole flap 1.80m**	**17.5**	**586023000**
(F) **Platform Z without manhole flap 1.80m**	**17.0**	**586024000**
(G) **Cross board Z 1.35m**	**4.0**	**586025000**
(H) **Longitudinal board Z 1.80m**	**5.1**	**586026000**
(I) **Diagonal brace Z 2.00m**	**3.0**	**586027000**
(J) **Horizontal brace Z 1.80m**	**2.8**	**586028000**
(K) **Triangular bracket Z**	**5.3**	**586029000**
(not illustrated)		
(L) **Guide roller Z D200mm**	**7.1**	**586030000**
(M) **Entrance step bow Z**	**2.5**	**586031000**
(N) **Platform diagonal strut Z**	**2.5**	**586032000**
(not illustrated)		
(O) **Ballast Z**	**10.0**	**586033000**
(not illustrated)		

Aluminium

Follow the directions in the "Instructions for assembly and use"!

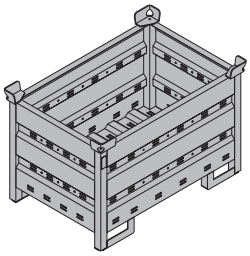


Doka multi-trip transport box 1.20x0.80m	**75.0**	**583011000**
Doka-Mehrwegcontainer 1,20x0,80m		

Galvanised

Height: 78 cm

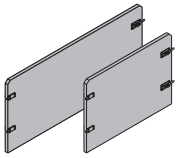
Follow the directions in the "Operating Instructions"!



Multi-trip transport box partition 0.80m	**3.7**	**583018000**
Multi-trip transport box partition 1.20m	**5.5**	**583017000**
Mehrwegcontainer Unterteilung		

Timber parts varnished yellow

Steel parts galvanised

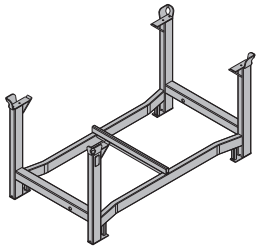


Doka stacking pallet 1.55x0.85m	**42.0**	**586151000**
Doka-Stapelpalette 1,55x0,85m		

Galvanised

Height: 77 cm

Follow the directions in the "Operating Instructions"!

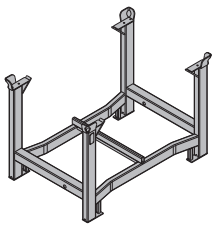


	[kg]	Article n°
Doka stacking pallet 1.20x0.80m	**39.5**	**583016000**
Doka-Stapelpalette 1,20x0,80m		

Galvanised

Height: 77 cm

Follow the directions in the "Operating Instructions"!



Doka accessory box	**106.4**	**583010000**
Doka-Kleinteilebox		

Timber parts varnished yellow

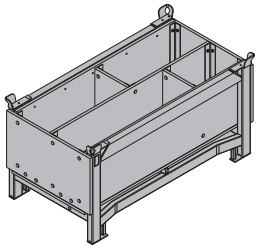
Steel parts galvanised

Length: 154 cm

Width: 83 cm

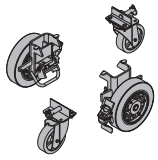
Height: 77 cm

Follow the directions in the "Operating Instructions"!



Bolt-on castor set B	**33.6**	**586168000**
Anklemm-Radsatz B		

Painted blue



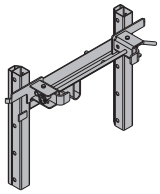
Access system XS

Connector XS Wall formwork	**20.8**	**588662000**
Anschluss XS Wandschalung		

Galvanised

Width: 89 cm

Height: 63 cm



Fixing clamp XS Framax	**1.5**	**588677000**
Befestigungsklemme XS Framax		

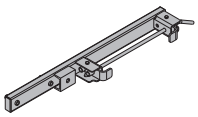
Galvanised

Length: 20 cm

Connector XS Framax/Alu-Framax	**11.2**	**588639000**
Anschluss XS Framax/Alu-Framax		

Galvanised

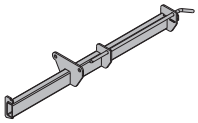
Length: 115 cm



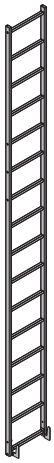
Connector XS column formwork platform	**10.0**	**588637000**
Anschluss XS Stützenbühne		

Galvanised

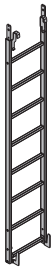
Length: 123 cm



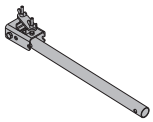
	[kg]	Article n°
System ladder XS 4.40m System-Leiter XS 4,40m Galvanised	**33.2**	**588640000**



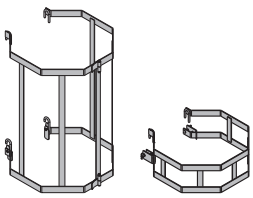
Ladder extension XS 2.30m Leiternverlängerung XS 2,30m Galvanised	**19.1**	**588641000**



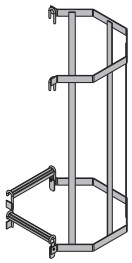
Securing barrier XS Sicherungsschranke XS Galvanised Length: 80 cm	**4.9**	**588669000**



Ladder cage XS 1.00m **Ladder cage XS 0.25m** Rückenschutz XS Galvanised	**16.5** **10.5**	**588643000** **588670000**

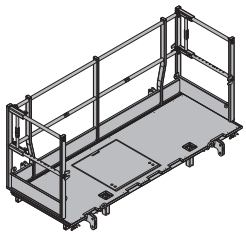


Ladder cage exit XS Rückenschutz-Ausstieg XS Galvanised Height: 132 cm	**17.0**	**588666000**

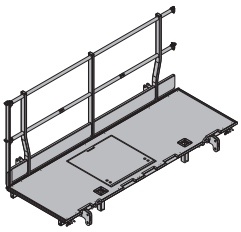


Platform system Xsafe plus

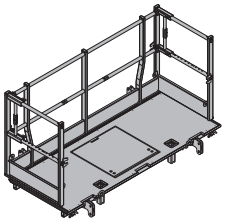
Xsafe plus platform 2.70m with side railing Xsafe plus-Bühne 2,70m mit Seitengeländer Steel parts galvanised Timber parts varnished yellow Height: 136 cm Delivery condition: folded closed	**189.0**	**586401000**



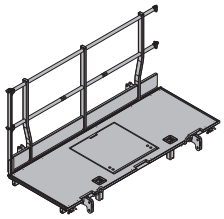
Xsafe plus platform 2.70m Xsafe plus-Bühne 2,70m Steel parts galvanised Timber parts varnished yellow Height: 136 cm Delivery condition: folded closed	**151.7**	**586404000**



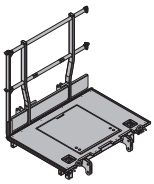
Xsafe plus platform 2.40m with side railing Xsafe plus-Bühne 2,40m mit Seitengeländer Steel parts galvanised Timber parts varnished yellow Height: 136 cm Delivery condition: folded closed	**178.3**	**586403000**



Xsafe plus platform 2.40m Xsafe plus-Bühne 2,40m Steel parts galvanised Timber parts varnished yellow Height: 136 cm Delivery condition: folded closed	**142.7**	**586406000**



Xsafe plus platform 1.35m Xsafe plus-Bühne 1,35m Steel parts galvanised Timber parts varnished yellow Height: 136 cm Delivery condition: folded closed	**95.3**	**586408000**

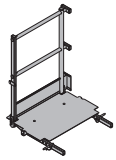


Xsafe plus side railing Xsafe plus-Seitengeländer Galvanised Width: 88 cm Height: 110 cm	**20.5**	**586410000**

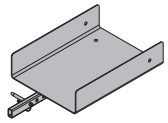
	[kg]	Article n°

Xsafe plus railing-closure post 3.4 586411000
Xsafe plus-Geländerausgleich
Galvanised
Height: 111 cm

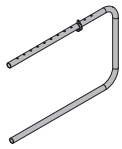
Xsafe plus platform extension 0.60m 43.4 586418000
Xsafe plus-Bühnenverlängerung 0,60m
Galvanised
Height: 120 cm



Xsafe plus platform transition 26.5 586419000
Xsafe plus-Bühnenübergang
Galvanised
Length: 85 cm
Width: 48 cm



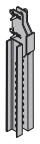
Xsafe plus handrail lengthening piece 4.3 586420000
Xsafe plus-Geländerverlängerung
Galvanised
Length: 81 cm
Width: 53 cm



Xsafe plus counter railing 1.35m 17.0 586429000
Xsafe plus counter railing 2.40m 22.0 586427000
Xsafe plus counter railing 2.70m 23.5 586425000
Xsafe plus-Gegengeländer
Galvanised
Height: 200 cm

Xsafe plus platform waling 1.50m 32.5 586416000
Xsafe plus-Bühnenriegel 1,50m
Painted blue
Length: 153 cm

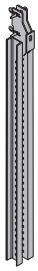
Xsafe plus stacking waler extension 0.70m 21.3 586435000
Xsafe plus-Bühnenriegelverlängerung 0,70m
Painted blue
Length: 96 cm



	[kg]	Article n°

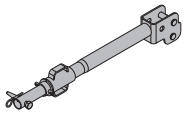
Xsafe plus stacking waler extension 1.20m 31.5 586413000
Xsafe plus-Bühnenriegelverlängerung 1,20m
Painted blue
Length: 146 cm

Xsafe plus stacking waler extension 1.80m 42.4 586414000
Xsafe plus-Bühnenriegelverlängerung 1,80m
Painted blue
Length: 201 cm



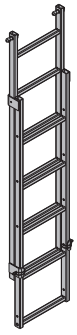
Xsafe plus stacking waler 2.10m 44.3 586415000
Xsafe plus-Aufstockriegel 2,10m
Painted blue
Length: 210 cm

Xsafe plus supporting strut 8.3 586412000
Xsafe plus-Stützenstrebe
Galvanised
Length: 91 - 99 cm



Xsafe plus lifting waler 14.0 586417000
Xsafe plus-Umsetzriegel
Galvanised
Height: 87 cm

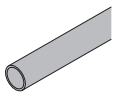
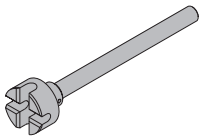
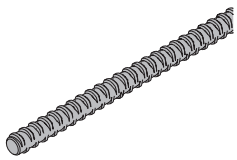
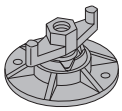
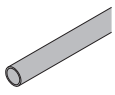
Xsafe plus telescopic ladder 17.5 586421000
Xsafe plus-Teleskopleiter
Galvanised
Height: 158 - 274 cm

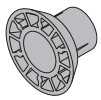


	[kg]	Article n°
Xsafe plus ladder extension 1.15m Xsafe plus-Leiternverlängerung 1,15m Galvanised Height: 126 cm	**7.0**	**586422000**
Xsafe plus ladder support Xsafe plus-Leiternstütze Galvanised Height: 55 cm	**2.1**	**586423000**
Xsafe plus ladder starter piece Xsafe plus-Leiternhalter Galvanised Length: 95 cm	**6.8**	**586424000**
Xsafe plus swivel plate Xsafe plus-Schwenklasche Galvanised Height: 33 cm	**2.3**	**586431000**
Xsafe plus fixing plate Xsafe plus-Fixierlasche Galvanised Width: 16 cm Height: 43 cm	**4.7**	**586432000**

Tie rod system 15.0

	[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**
Super plate 15.0 Superplatte 15,0 Galvanised Height: 6 cm Diameter: 12 cm Width-across: 27 mm	**0.91**	**581966000**
Wing nut 15.0 Flügelmutter 15,0 Galvanised Length: 10 cm Height: 5 cm Width-across: 27 mm	**0.31**	**581961000**
Hexagon nut 15.0 Sechskantmutter 15,0 Galvanised Length: 5 cm Width-across: 30 mm	**0.23**	**581964000**
Star grip nut 15.0 G Sternmutter 15,0 G Galvanised Width: 10 cm Height: 5 cm Width-across: 30 mm	**0.47**	**587544000**
Angle anchor plate 12/18 Winkelplatte 12/18 Galvanised	**1.3**	**581934000**
Distance piece 20cm	**0.05**	**581907000**
Distance piece 25cm	**0.09**	**581908000**
Distance piece 30cm Distanzhalter Grey	**0.10**	**581909000**

	[kg]	Article n°
Plastic tube 22mm 2.50m Kunststoffrohr 22mm 2,50m	**0.45**	**581951000**
		
Universal cone 22mm Universal-Konus 22mm Grey Diameter: 4 cm	**0.005**	**581995000**
		
Plug 22mm Verschlussstopfen 22mm Grey	**0.003**	**581953000**
		
Tie rod wrench 15.0/20.0 Ankerstabschlüssel 15,0/20,0 Galvanised Length: 37 cm Diameter: 8 cm	**1.9**	**580594000**
		
Tie rod system 20.0		
Tie rod 20.0mm galvanised 0.50m	**1.3**	**581411000**
Tie rod 20.0mm galvanised 0.75m	**1.9**	**581417000**
Tie rod 20.0mm galvanised 1.00m	**2.5**	**581412000**
Tie rod 20.0mm galvanised 1.25m	**3.2**	**581418000**
Tie rod 20.0mm galvanised 1.50m	**3.8**	**581413000**
Tie rod 20.0mm galvanised 2.00m	**5.0**	**581414000**
Tie rod 20.0mm galvanised .....m	**2.5**	**581410000**
Tie rod 20.0mm non-treated 0.50m	**1.3**	**581405000**
Tie rod 20.0mm non-treated 0.75m	**1.9**	**581416000**
Tie rod 20.0mm non-treated 1.00m	**2.5**	**581406000**
Tie rod 20.0mm non-treated 1.50m	**3.8**	**581407000**
Tie rod 20.0mm non-treated 2.00m	**5.0**	**581408000**
Tie rod 20.0mm non-treated .....m Ankerstab 20,0mm	**2.5**	**581403000**
		DIN 18216
Super plate 20.0 B Superplatte 20,0 B Galvanised Height: 7 cm Diameter: 14 cm Width-across: 34 mm	**2.0**	**581424000**
		DIN 18216
Hexagon nut 20.0 Sechskantmutter 20,0 Galvanised Length: 7 cm Width-across: 41 mm	**0.60**	**581420000**
		DIN 18216
Plastic tube 26mm 2.00m Kunststoffrohr 26mm 2,00m	**0.59**	**581463000**
		

	[kg]	Article n°
Universal cone 26mm Universal-Konus 26mm Grey Diameter: 5 cm	**0.008**	**581464000**
		
Plug 26mm Verschlussstopfen 26mm Grey	**0.006**	**581465000**
		

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Internet: www.doka.com

Algeria
SARL Doka Algérie
24 A Route de la Rassauta
Bordj-El-Kifane, BP 170, 16120 Alger
Telephone: +213 (0)21 21 27 26
Telefax: +213 (0)21 21 28 98
E-Mail: Algerie@doka.com

Canada
Doka Canada Ltd./Ltée
5404 - 36th Street S.E.
Calgary AB T2C 1P1
Telephone: +1 403 243-6629
Telefax: +1 403 243-6787
E-Mail: Canada@doka.com

China
Doka Formwork (Shanghai) Co. Ltd.
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Shanghai 201109
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Telefax: +86 21 6090 1099
E-Mail: China@doka.com

India
Doka India Pvt. Ltd.
Hiranandani Business Park
Sentinel Bldg 2nd Floor
Commercial Premises No 201&202
Powai, Mumbai - 400 076
Telephone: +91 22 402 64435
Telefax: +91 22 402 64436
E-Mail: India@doka.com

Ireland
Doka Ireland Formwork Techn. Ltd.
Monasterboice, Drogheda
County Louth
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Telefax: +353 (0)41 686 1525
E-Mail: Ireland@doka.com

Japan
Doka Japan K.K.
616-18 Toyotomicho
Funabashi-shi (High-Tech-Park)
274-0053 Chiba
Telephone: +81 (0)47 400 5278
Telefax: +81 (0)47 407 6700
E-Mail: Japan@doka.com

Korea
Doka Korea Ltd.
Rm.N.220, Doosan Venture Digm Bldg.,
126-1 Pyeongchon-Dong, Dongan-Gu,
431-755 Anyang City, Gyeonggi-Do
Telephone: +82 31 478 3700
Telefax: +82 31 478 3701
E-Mail: Korea@doka.com

Kuwait
Doka Kuwait
Div. of Riham Gen. Trad.& Cont. Co.
P.O. Box 2217 Salmiyah
22023 Kuwait
Telephone: + 965 2 4822 462
Telefax: +965 2 4822 472
E-Mail: Kuwait@doka.com

Lebanon
Doka Branch Lebanon
Sodeco Square, Block C / 9th floor
Beirut
Telephone: +961 (0)1 612569
Telefax: +961 (0)1 612570
E-Mail: Lebanon@doka.com

Norway
Doka Norge AS
Heggstadmoen 4
N 7080 Heimdal
Telephone: +47 72 89 38 10
Telefax:n +47 72 89 38 11
E-Mail: Norge@doka.com

Qatar
Doka Qatar WLL
P.O.Box 23439
Doha, Qatar
Telephone: +974 4500628
Telefax: +974 4500608
E-Mail: Qatar@doka.com

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Doka Formwork Technology
Div. of Mahmoud Othman Est.
P.O. Box 7620
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Telefax: +966 (0)2664 86 25
E-Mail: Jeddah@doka.com

Singapore
Doka Formwork Pte. Ltd.
9 Gul Circle
Singapore 629565
Telephone: +65 6897 7737
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E-Mail: Singapore@doka.com

South Africa
Doka South Africa (Pty) Ltd.
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CA Brand Bldg, 2 Sebasa Road
Chloorkop Ext.10
Kempton Park 1619
Telephone: +27 (0)11 310 9709
Telefax: +27 (0)11 310 9711
E-Mail: South-Africa@doka.com

Sweden
Doka Sverige AB
Kurödsvägen 20
S 451 55 Uddevalla
Telephone: +46 (0)10 45 16 300
Telefax: +46 (0)10 45 16 309
E-Mail: Sverige@doka.com

Tunisia
Doka Tunisia Ltd.
Bureau de Liaison
Zone Industrielle, Rue d l'usine
Le Kram 2015 Tunis
Telephone: +216 (0)71 977 350
Telefax: +216 (0)71 977 856
E-Mail: Tunisia@doka.com

Turkey
Doka Kalip-Iskele
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Güzeller Org. San. Bölgesi
Inönü Mah. Nazarbayev Sok. No:19
41400 Gebze, Kocaeli
Telephone: +90 262 751 50 66
Telefax: +90 262 751 50 05
E-Mail: Turkiye@doka.com

United Arab Emirates
Doka Gulf FZE
P.O. Box 61407
Jebel Ali Free Zone, Dubai
Telephone: +971 (0)4 881 8096
Telefax: +971 (0)4 881 8097
E-Mail: Emirates@doka.com

United Kingdom
Doka UK Formwork Technologies Ltd
Monchelsea Farm, Heath Road
Boughton Monchelsea
Maidstone, Kent, ME17 4JD
Telephone: +44 (0)1622 74 90 50
Telefax: +44 (0)1622 74 90 33
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