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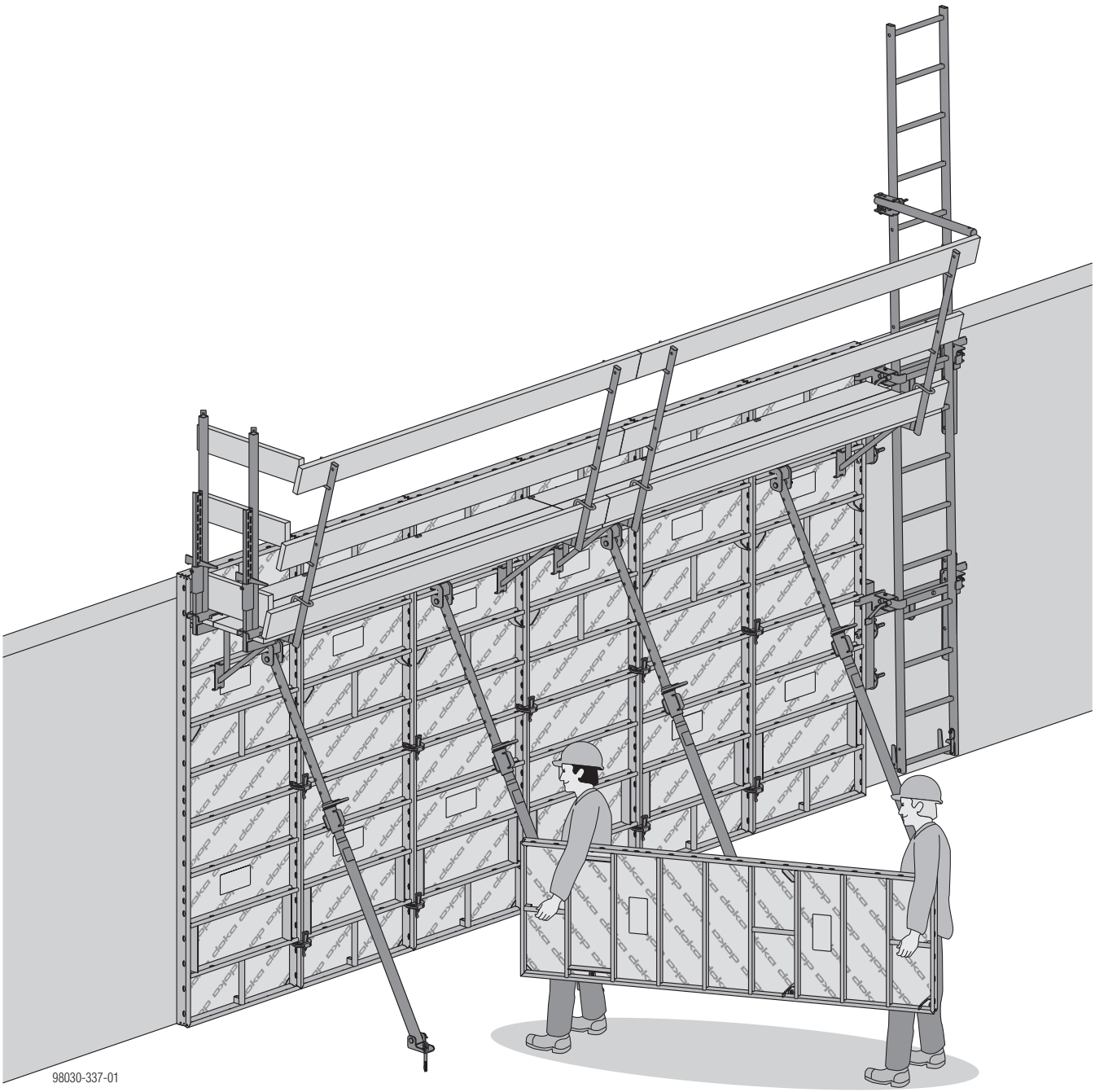
Method statement

Framed formwork Frami Xlife



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.**
  Any safety accessories not shown in these illustrations must still be used by the customer, in accordance with the applicable rules and regulations.
- **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 edge protection system and/or any of its accessories, the edge protection 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. Repairs may only be carried out by the manufacturer or authorised facilities.

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})

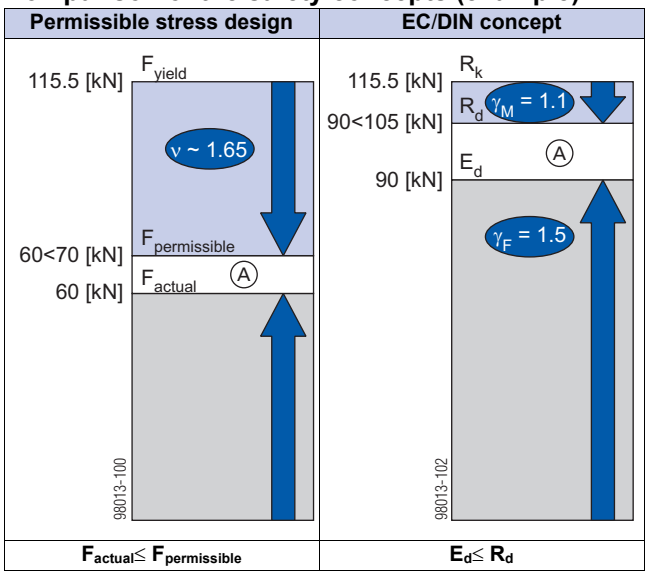
Steel: $R_d = \frac{R_k}{\gamma_M}$ Timber: $R_d = k_{mod} \cdot \frac{R_k}{\gamma_M}$

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)



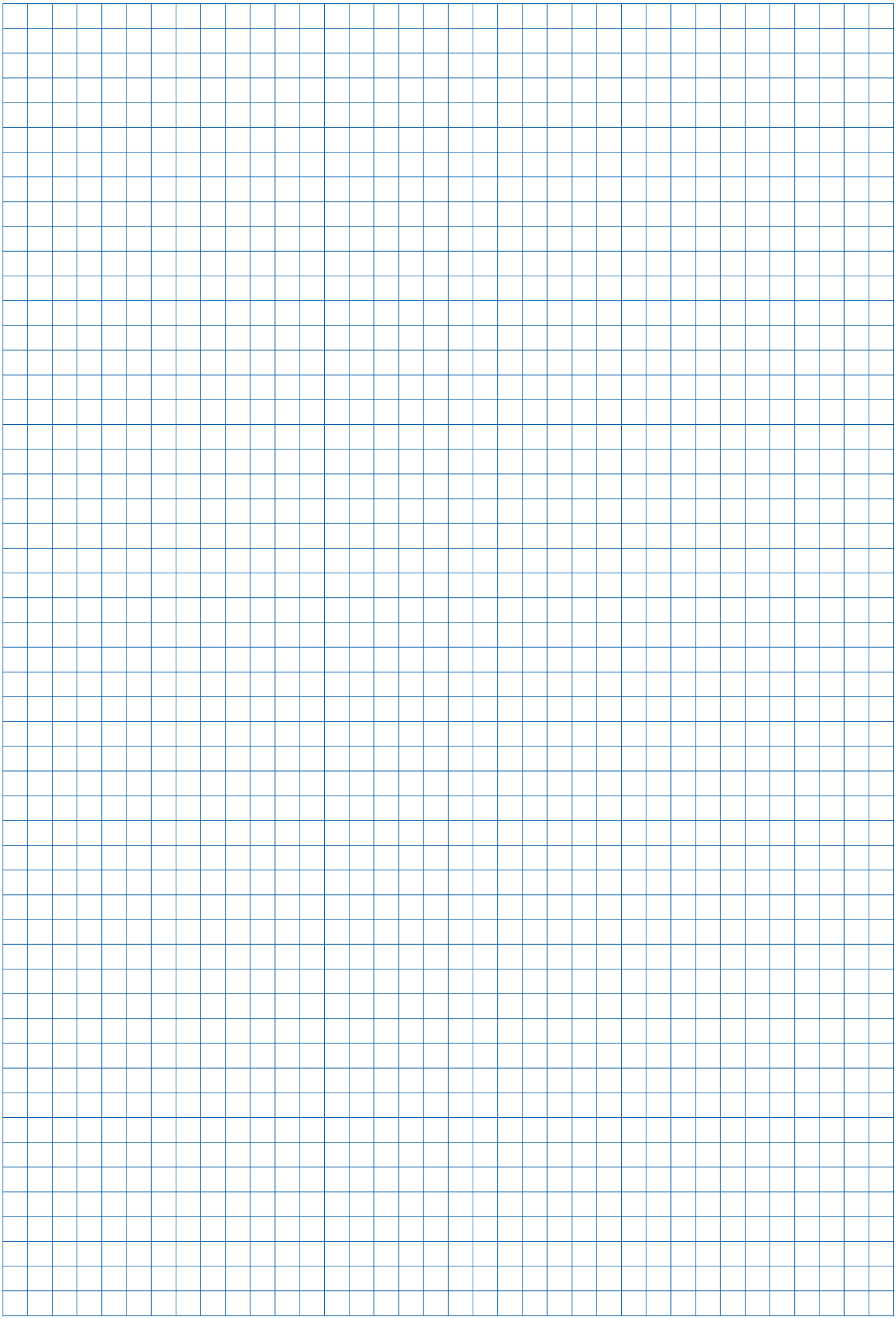
A Utilisation factor

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 services

Support in every phase of the project

Doka offers a broad spectrum of services, all with a single aim: to help you succeed on the site.

Every project is unique. Nevertheless, there is one thing that all construction projects have in common – and that is a basic structure with five phases. We at Doka know our clients' varying requirements. With our consulting, planning and other services, we help you achieve effective implementation of your formwork assignment using our formwork products – in every one of these phases.

Project development phase

Taking well-founded decisions thanks to professional advice and consulting

Find precisely the right formwork solutions, with the aid of

- help with the bid invitation
- in-depth analysis of the initial situation
- objective evaluation of the planning, execution, and time-risks

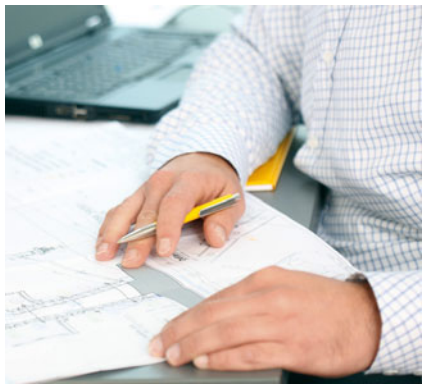
Tendering phase

Optimising the preliminary work with Doka as an experienced partner

Draw up potentially winning bids, by

- basing them on realistically calculated guideline prices
- making the right formwork choices
- having an optimum time-calculation basis

Operations scheduling phase

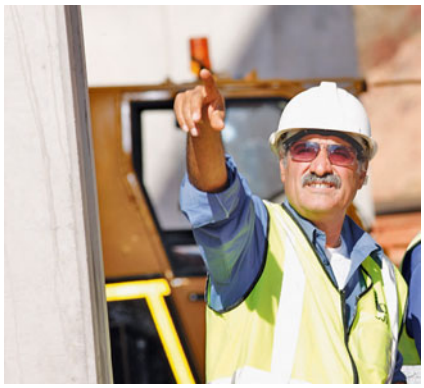


Controlled, regular forming operations, for greater efficiency resulting from realistically calculated formwork concepts

Plan cost-effectively right from the outset, thanks to

- detailed offers
- determination of the commissioning quantities
- co-ordination of lead-times and handover deadlines

(Shell) construction phase



Optimum resource utilisation
with assistance from the Doka Formwork Experts

Workflow optimisation, thanks to

- thorough utilisation planning
- internationally experienced project technicians
- appropriate transport logistics
- on-site support

(Shell) completion phase

Seeing things through to a positive conclusion
with professional support

Doka Services are a byword for transparency and efficiency here, offering

- jointly handled return of rented formwork
- professional dismantling
- efficient cleaning and reconditioning using special equipment

The advantages for you
thanks to professional advice and consulting

- **Cost savings and time gains**
  When we advise and support you right from the word "go", we can make sure that the right formwork systems are chosen and then used as planned. This lets you achieve optimum utilisation of the formwork equipment, and effective forming operations because your workflows will be correct.
- **Maximised workplace safety**
  The advice and support we can give you in how to use the equipment correctly, and as planned, leads to greater safety on the job.
- **Transparency**
  Because our services and costs are completely transparent, there is no need for improvisation during the project – and no unpleasant surprises at the end of it.
- **Reduced close-out costs**
  Our professional advice on the selection, quality and correct use of the equipment helps you avoid damage, and minimise wear-and-tear.

Doka framed formwork Frami Xlife

Frami Xlife is ideal for fast, cost-saving forming both with and without a crane.

Saves time, cuts labour costs

with its system logic, ease of cleaning and low form-tie ratio

Frami Xlife has several features that make it extremely cost-efficient:

- its Xlife sheet is easier and quicker to clean
- cost-savings from its low form-tie ratio
- faster repositioning thanks to the clearly defined grid for the shifting units
- shorter forming-times, as the system minimises any filler zones

High economy, maximum lifespan

due to the Xlife sheet and galvanised hollow-section steel frames

The high product quality

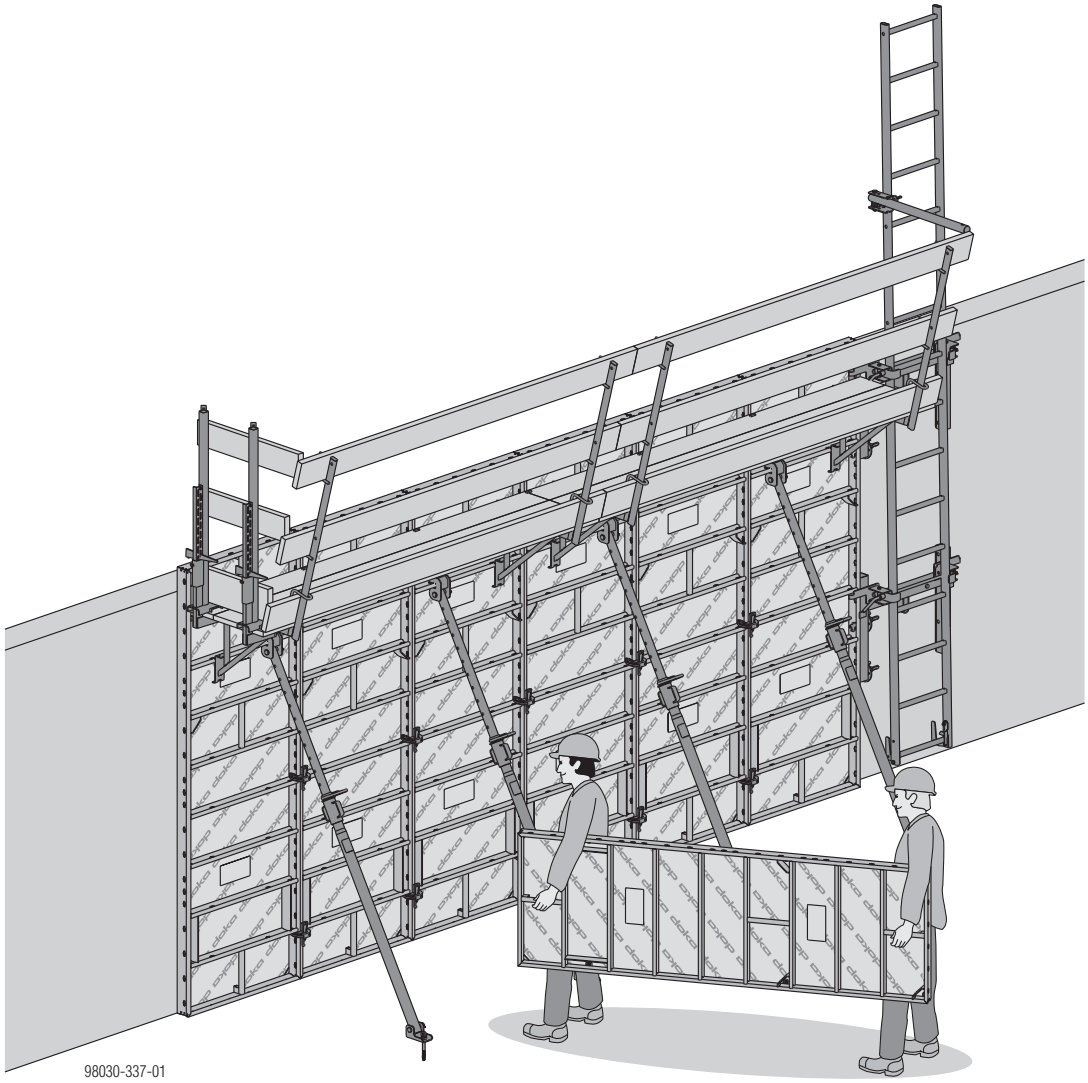
- lowers close-out and rehabilitation costs
- ensures that the formwork system will have a long service life

Simplifies planning and handling

as the system can be used in so many different ways

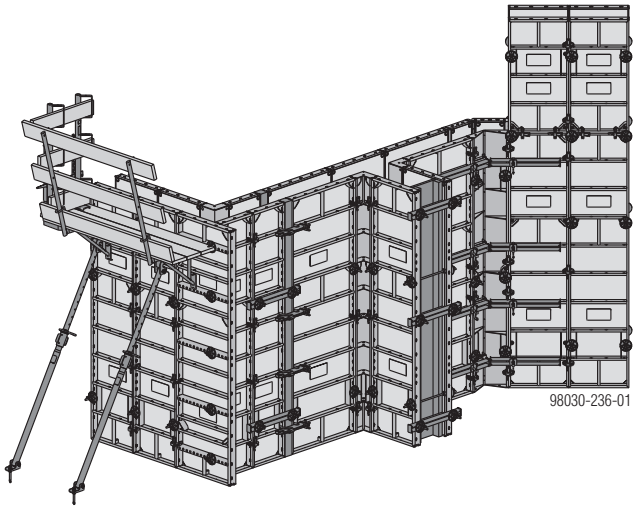
The ingenious Frami Xlife formwork system gives you

- huge flexibility, because you can combine panel heights from 1.20 m to 3.00 m
- an efficient way of forming shafts, in conjunction with the Framax stripping corner I
- rapid formwork planning using the professional Tipos-Doka software
- cost savings from reduced commissioning quantities

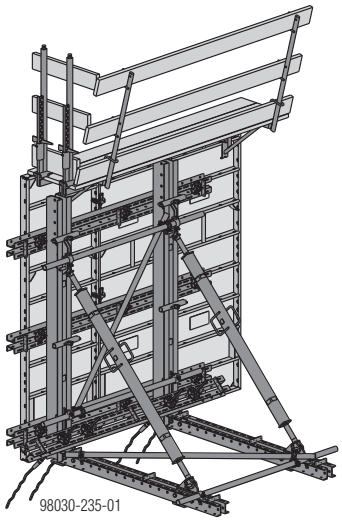


Areas of use

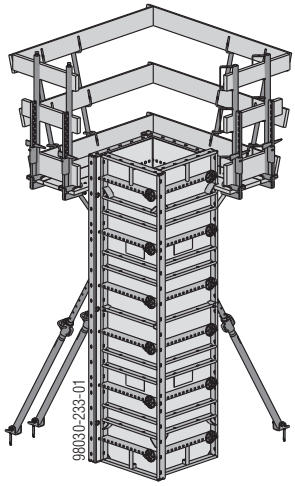
Wall formwork



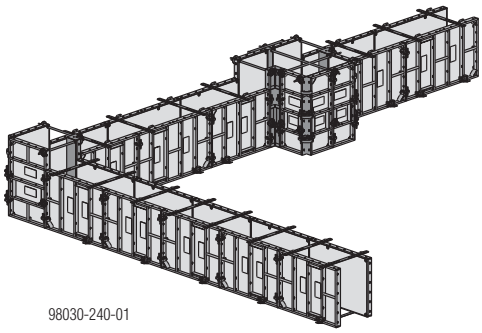
Single-sided formwork



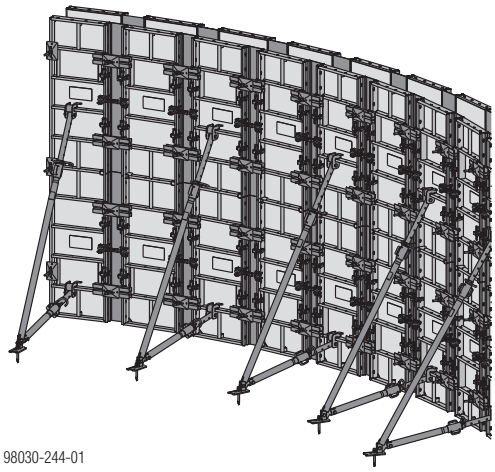
Column formwork

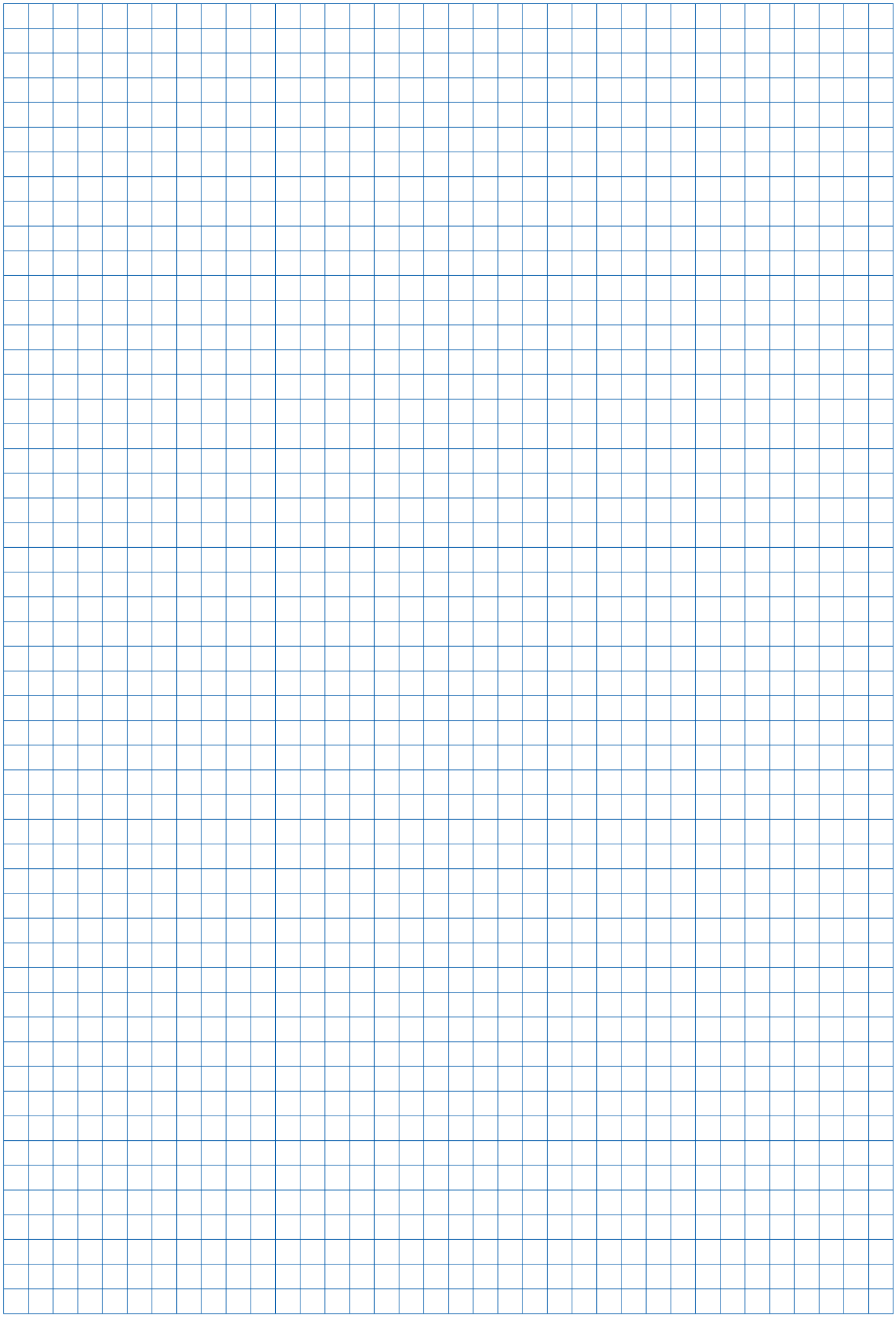


Foundation formwork

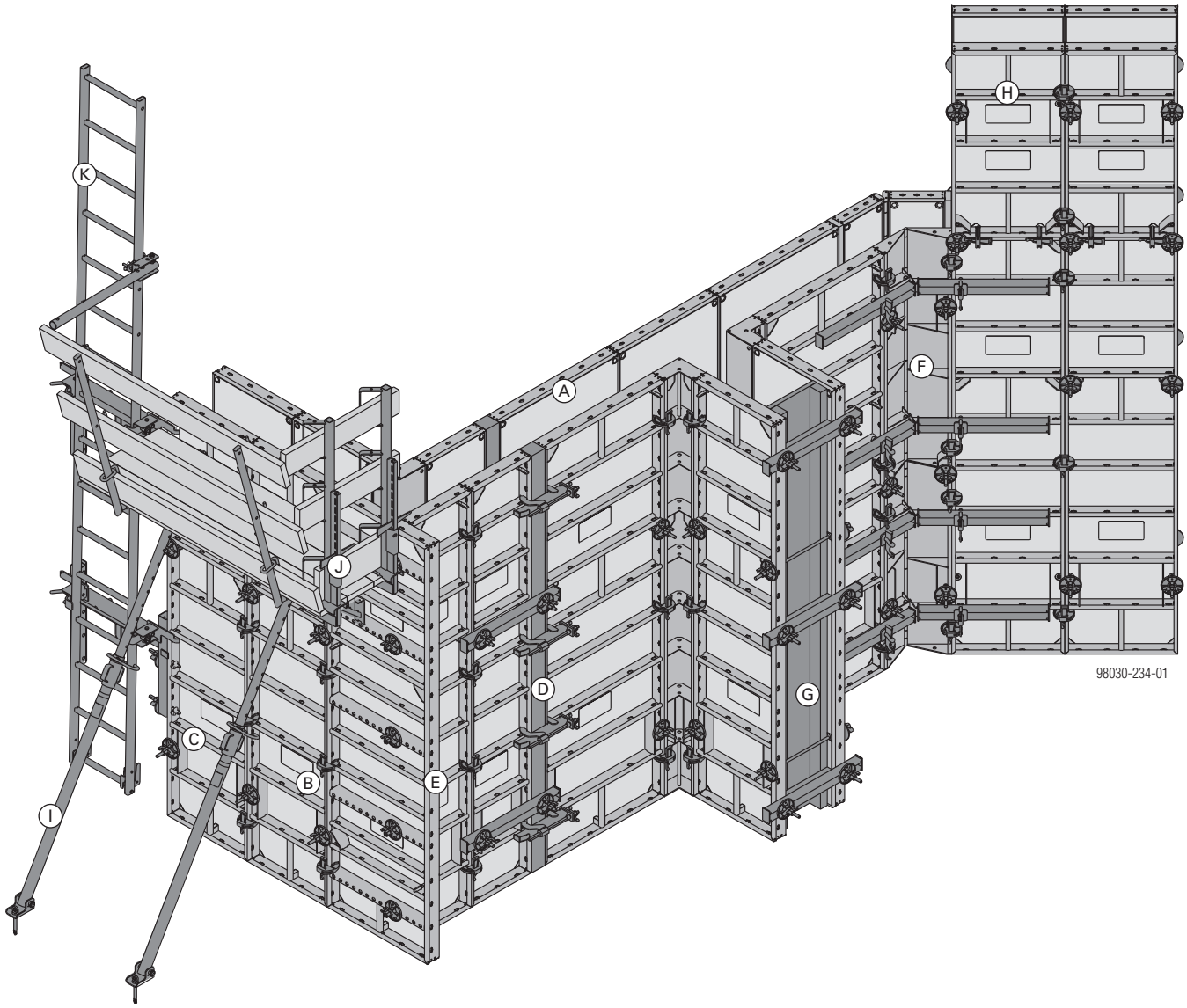


Circular formwork





Forming walls with Frami Xlife



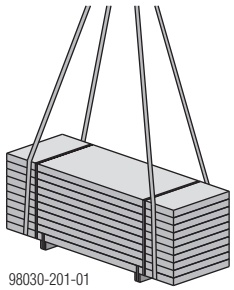
Instructions for assembly and use

Frami Xlife as a hand-set formwork

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

Transporting / handling the panels

➤ For offloading panels from a truck, or lifting them on-site a stack at a time, use the Dokamatic lifting strap 13.00m (see "Transporting, stacking and storing").



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Erecting the formwork

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

WARNING

➤ Frami Xlife panels must be securely braced in every phase of the construction work!

➤ Fix the first panel to the ground with a panel strut (see the section headed "Plumbing accessories"). This stabilises the panel so that it cannot fall over.

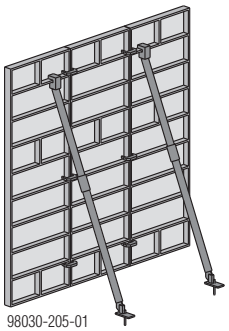
CAUTION

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!

➤ Continue lining up panels in this way, clamp them together (see "Inter-panel connections") and attach panel struts.
The panel assembly can now be exactly plumbed and aligned.



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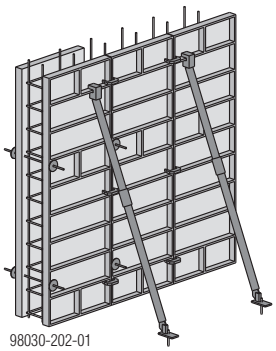
Erecting the opposing formwork:

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

➤ Spray the formwork sheet of the opposing formwork with release agent.

➤ Stand up the first panel of the opposing formwork.

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



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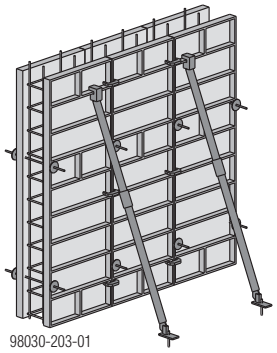
Now the opposing formwork is also secured against tipping over.

➤ In the same way, carry on lining up panels, clamping them together and fitting form-ties.



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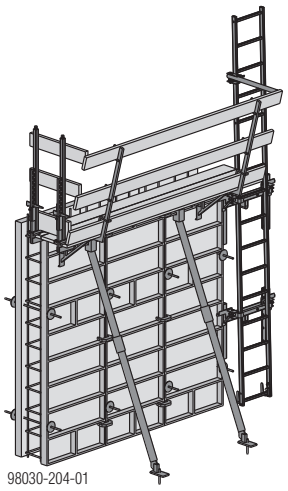
Mounting the pouring platform and ladderway

➤ Mount the pouring platform and attach end-of-platform sideguards where necessary (see "Pouring platforms with single brackets").

➤ Mount the Ladder system XS (see "Ladder system").



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Multi-panel gangs without an opposing formwork and with pouring platforms and Frami plumbing struts 260 must be fixed on the ground so as to prevent slippage.

Pouring

Permitted pressure of the fresh concrete:

See the section headed "Permissible fresh-concrete pressure".

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.

➤ Dismount the pouring platform.

➤ Beginning with the opposite formwork, dismount the panels one-by-one - take out the form-ties and remove the connectors to the neighbouring panel.

➤ Lift the panel away and clean concrete residue off the formwork sheet (see "Cleaning and care").

Frami Xlife as a crane-handled formwork

Large multi-panel elements can be pre-assembled face-down on a level screed floor. See "Vertical stacking of elements" for detailed instructions on how to attach the interpanel connectors.

These gangs can be lifted and reset with lifting chains and Frami lifting hooks. For detailed instructions on this, see the section headed "Resetting by crane".

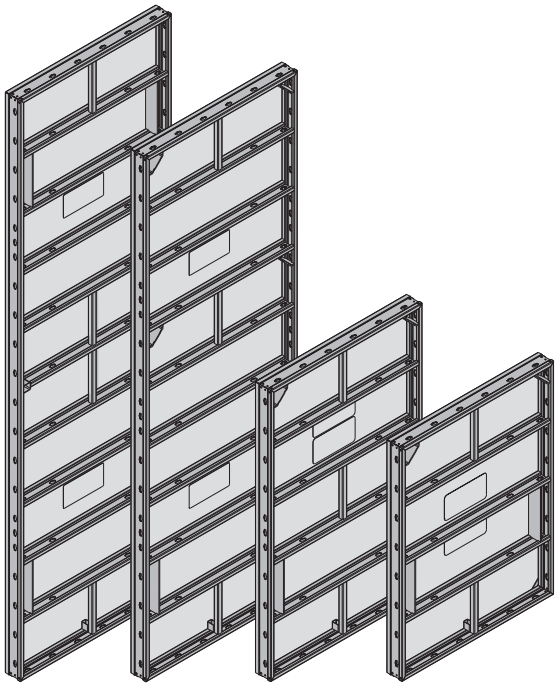
Max. load:

500 kg per Frami lifting hook

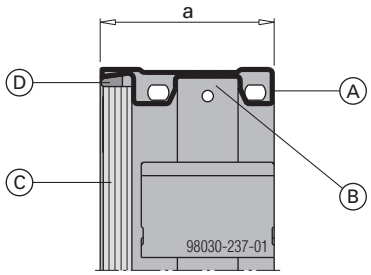
(area of formwork that can be lifted using 2 lifting hooks is approx. 15 m²)

Frami Xlife panel in detail

High load-bearing capacity



Dimensionally stable steel frame made of hollow profiles



a ... 92 mm

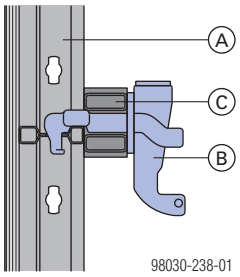
A Frame profile
B Continuous hardware slot for inter-panel connectors
C Xlife sheet
D Silicone sealing strip

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

WARNING

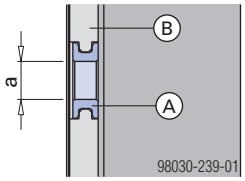
➤ It is forbidden to climb on the cross-profiles. The cross-profiles are NOT a substitute for a ladder.

Accessories are easy to fasten in the cross profile



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

Form-tie hole



a ... diam. 20 mm

A Form-tie protector
B Xlife sheet

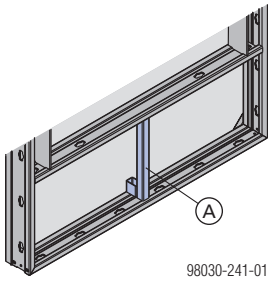
- Xlife sheet protected around the tie-holes by integrated form-tie protectors

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

Handles



A Integral handle

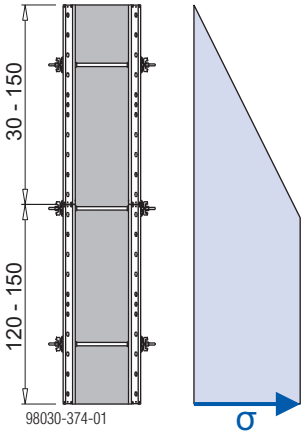
WARNING
Do not use these handles as slinging points for crane-handling!
Danger of formwork dropping from crane!
➤ Use only suitable load-carrying equipment and slinging points. See "Resetting by crane" and "Transporting, stacking and storing".

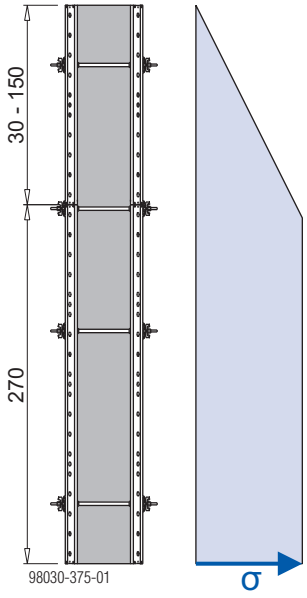
Permissible fresh-concrete pressure

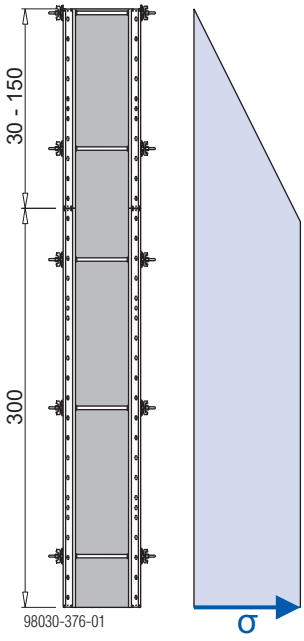
Permitted fresh-concrete pressure as defined by DIN 18218, and subject to compliance with the surface planeness tolerances specified in DIN 18202 Table 3 Line 6:

$\sigma_{hk, max}$ = 40 kN/m²

Permitted fresh-concrete pressure σ_{hk} on **vertically stacked formwork**: 40 kN/m²

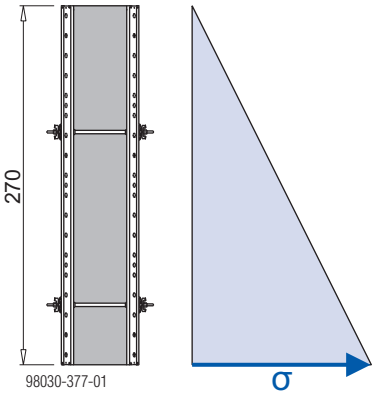






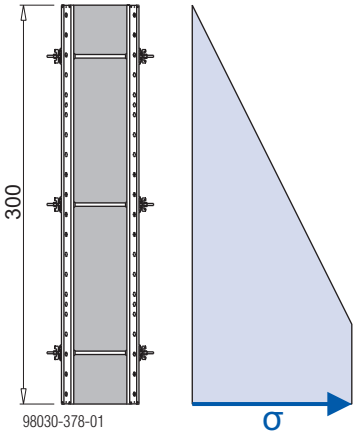
$\sigma_{hk, max, hydr}$ = 67.5 kN/m²

Frami Xlife panels 2.70m are **hydrostatically loadable up to a pour-height of 2.70 m** (σ_{hk} = 67.5 kN/m²).



$\sigma_{hk, max}$ = 60 kN/m²

Frami Xlife panels 3.00m are loadable up to a **pour-height of 3.00 m** with a permissible fresh-concrete pressure σ_{hk} of 60 kN/m².

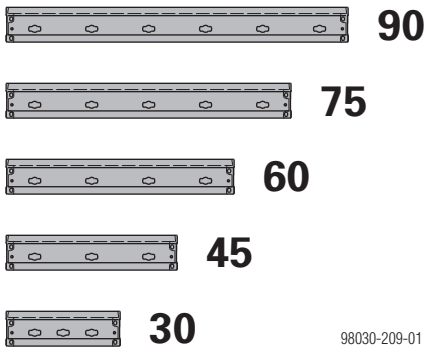


System grid

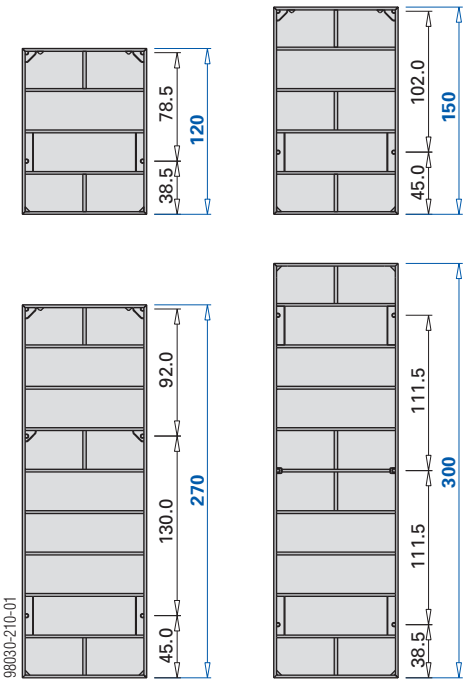
Frami Xlife panels

The widths and heights of the Frami Xlife panels result in a logical **15 cm increment-grid**.

Panel widths



Panel heights



Dimensions in cm

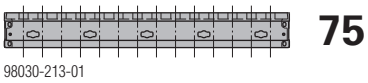
Frami Xlife universal panels

The **75 cm wide** panels are also available as **universal panels**.

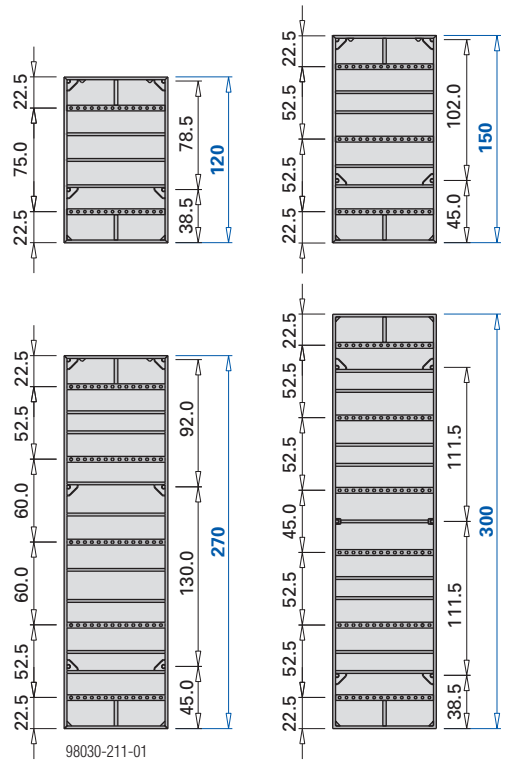
The special hole pattern makes these panels particularly suitable for efficient forming of:

- corners
- wall junctions
- stop-ends
- columns

Panel width

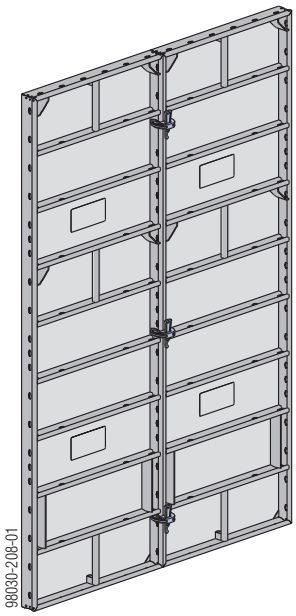


Panel heights



Dimensions in cm

Inter-panel connections



Shown here on Frami Xlife panels 2.70m.

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.

Required number of clamps (longitudinal joins):

Panel height (**upright panels**)	Number of clamps
1.20 m	2
1.50 m	2
2.70 m	3
3.00 m	3

Panel width (**horizontal panels**)	Number of clamps
0.30 m	1
0.45 m	1
0.60 m	2
0.75 m	2
0.90 m	2

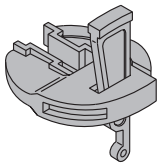
For details regarding extra inter-panel connections for outside corners and stop-end formwork (for increased tensile loads) see "Inter-panel connections for increased tensile loads".

For details on the position of the connector components needed in vertical stacking, see "Vertical stacking of panels".

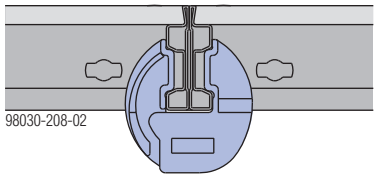
Simple inter-panel connections

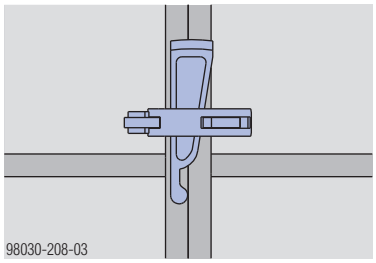
with the Frami clamp

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



Frami clamp:
Permitted tensile force: 10.0 kN
Permitted shear force: 5.0 kN
Permitted moment: 0.2 kNm

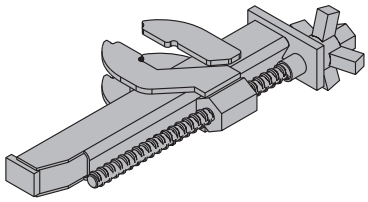




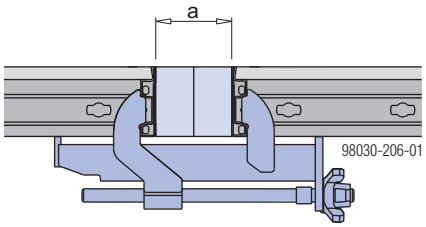
Self-aligning inter-panel connections and make up

with the Frami adjustable clamp

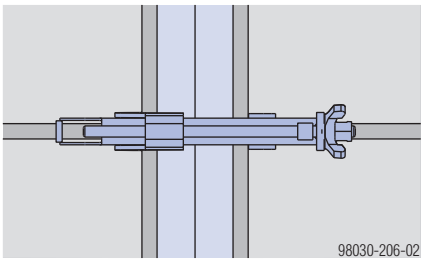
Closures can be bridged easily and economically with Frami fitting timbers. With the Frami adjustable clamp, the panels are joined so that they are resistant to tensile forces, and are aligned at the same time. The adjustable clamp is placed directly over the cross profile.



Frami adjustable clamp:
Permitted tensile force: 7.5 kN



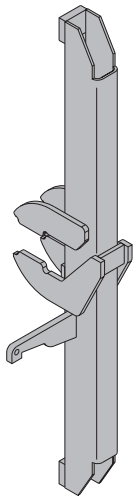
a ... max. 15 cm



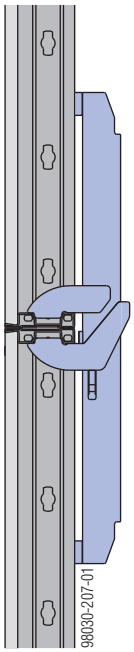
Stiffening inter-panel connections

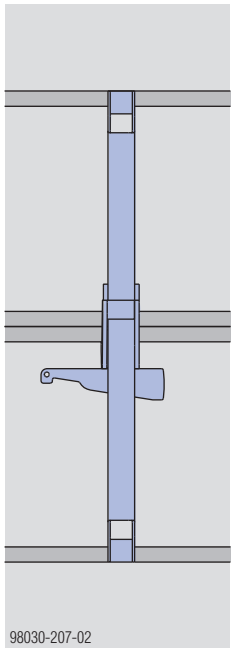
with the Frami aligning clamp

Joining the panels using the Frami aligning clamp provides additional bracing of the multi-panel gang. The aligning clamp is placed directly over the cross profile.



Frami aligning clamp:
Permitted tensile force: 10.0 kN
Permitted moment: 0.45 kNm





Tie-rod system

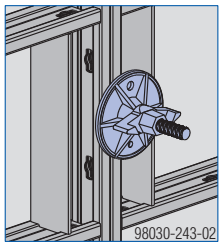
Tying the Frami Xlife panels

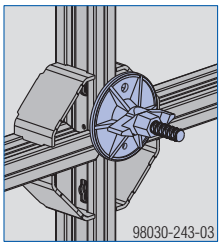
In general:

Place a form-tie at every form-tie point that is not covered by an anchor-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".





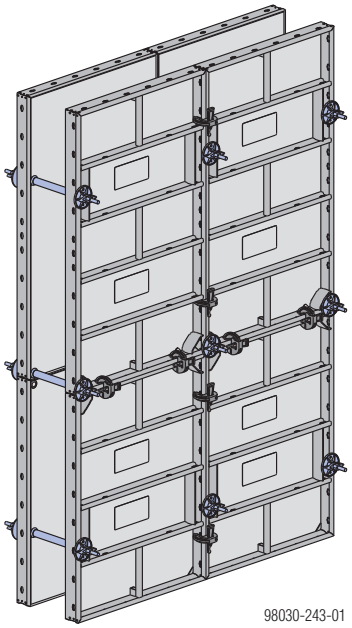
WARNING

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.

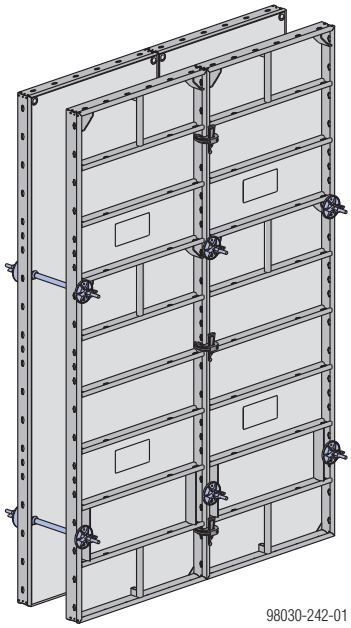
Close off any unneeded tie-holes with Frami frame-hole plugs.

Frami Xlife panel 1.20 + 1.50m

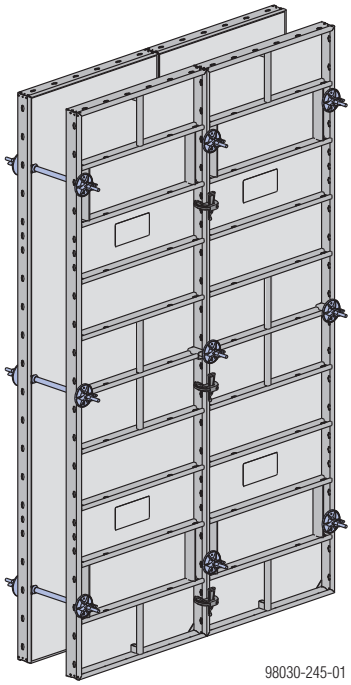


Frami Xlife panel 2.70m

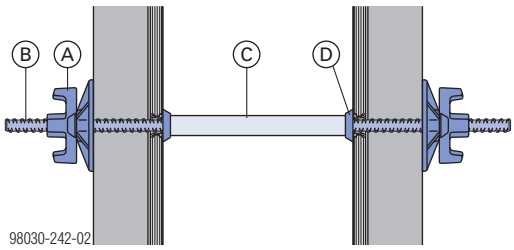
Up to a **pour-height** of **2.70 m** (on unstacked panels) **only 2 form-ties** are needed in the vertical in the Frami Xlife panel 2.70m.



Frami Xlife panel 3.00m



The Doka tie-rod system 15.0



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

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

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

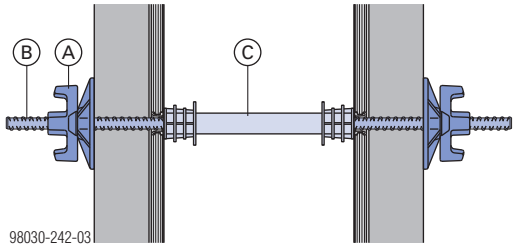
Note:
Doka also offer economical solutions for making water-tight form-tie points.

For more information, see the User Information booklet "Doka form-ties for special requirements".

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.

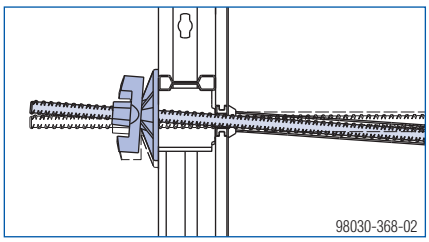


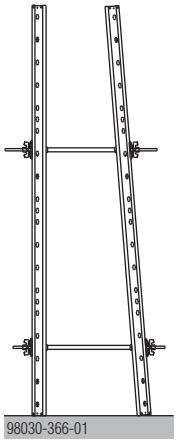
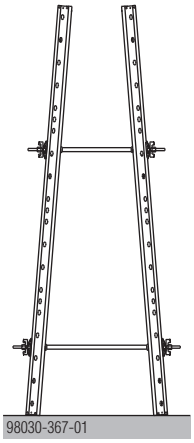
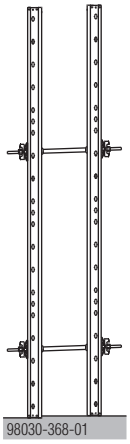
A Super-plate 15.0
B Tie-rod 15.0mm
C Distance piece (ready for use for certain wall thicknesses)

The stoppers for plugging the distance pieces are also included.

Inclined and height-mismatched positioning

Thanks to the special shape of the Super-plate, the panels can be inclined on one or both sides, and/or height-mismatched.

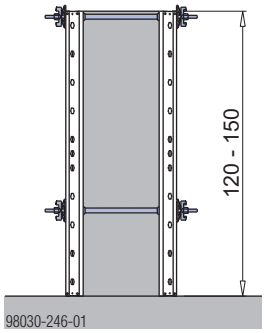
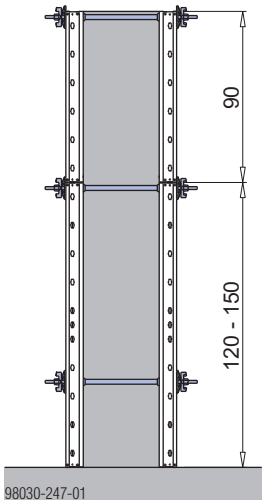
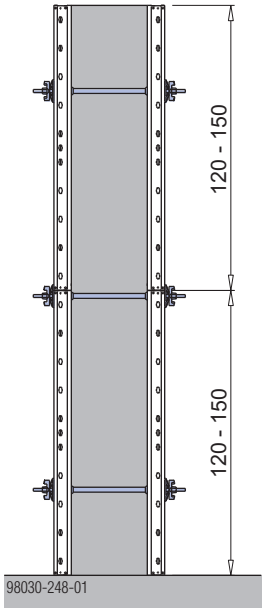


Inclined on one side max. 4.5°	Inclined on both sides max. 2 x 4.5°	Height mismatch max. 0.5 cm per 10 cm of wall thickness
		

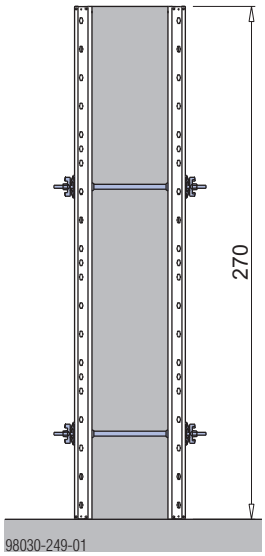
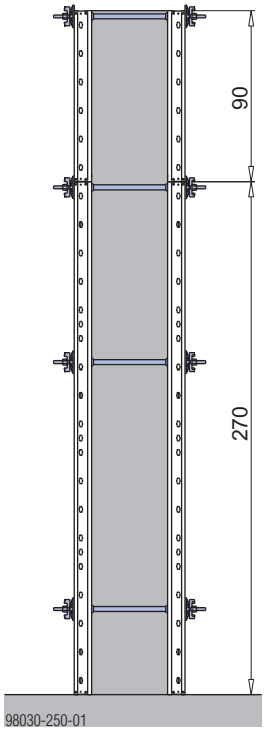
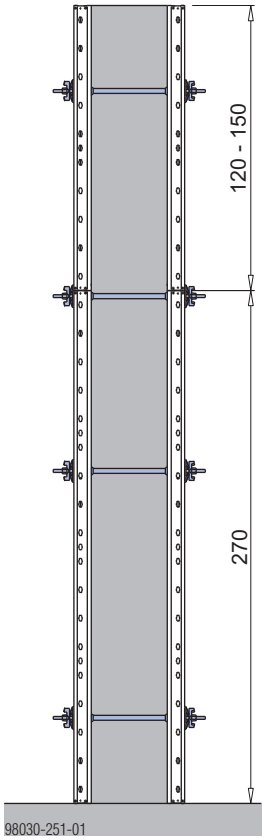
Note:
Secure inclined panels against uplift.
Do not place Frami Xlife panels upside-down (corner ties must be at top).

Tie-rod positions

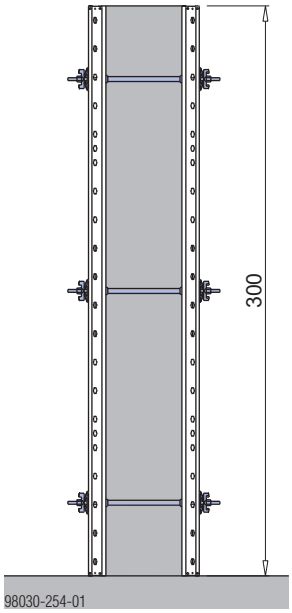
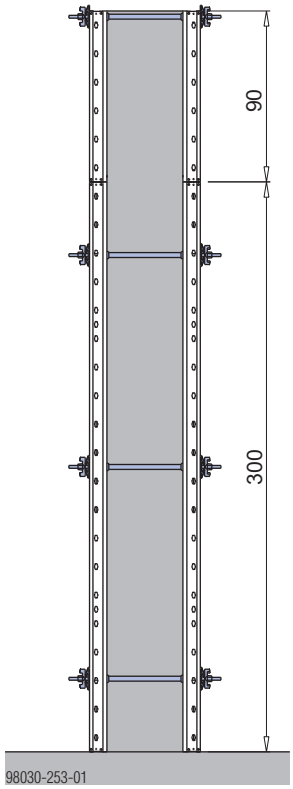
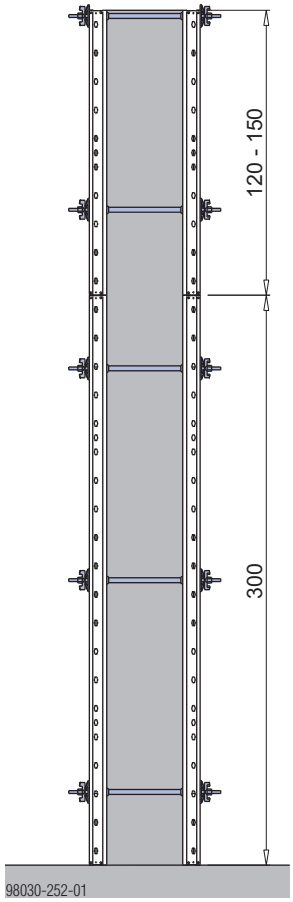
with Xlife panel 1.20 and 1.50m

Pour height **up to 1.50 m**	Pour height **up to 2.40 m** (stacked horizontally)	Pour height **up to 3.00 m** (stacked vertically)
		

with Xlife panel 2.70m

Pour height **up to 2.70 m**	Pour height **up to 3.60 m** (stacked horizontally)	Pour height **up to 4.20 m** (stacked vertically)
		

with Xlife panel 3.00m

Pour height **up to 3.00 m**	Pour height **up to 3.90 m** (stacked horizontally)	Pour height **up to 4.50 m** (stacked vertically)
		

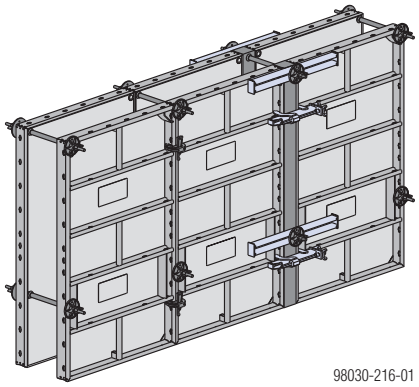
Length adjustment using closures

Closures: 0 - 15 cm

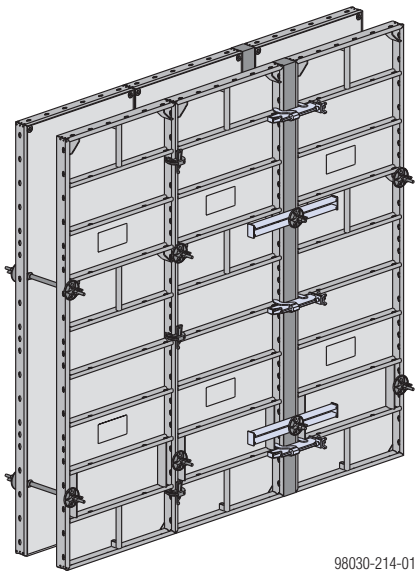
with fitting timber and adjustable clamp

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.

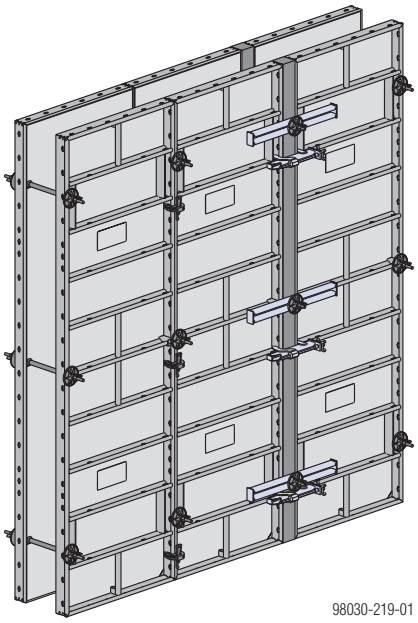
Frami universal waling:
Permitted moment: 1.3 kNm



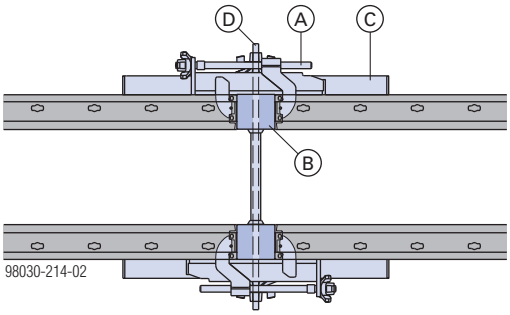
Shown here on Frami Xlife panels 1.50m.



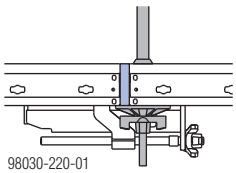
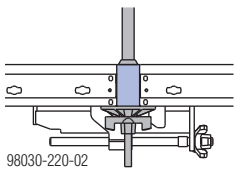
Shown here on Frami Xlife panels 2.70m.

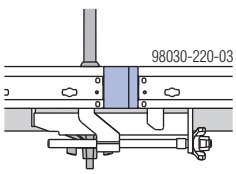
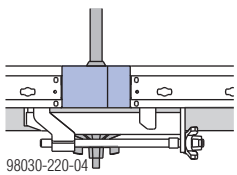


Shown here on Frami Xlife panels 3.00m.



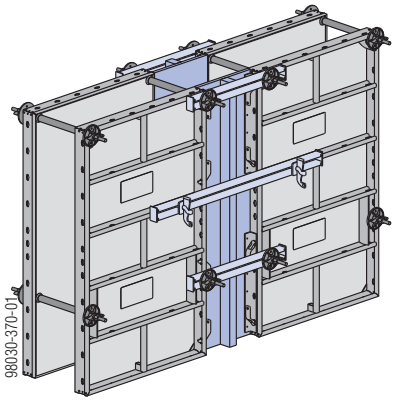
A Frami adjustable clamp
B Frami fitting timber
C Frami universal waling (for supporting form-ties)
D Form-tie

Closures up to **2 cm**	Closures up to **5 cm**
Ties through panel, without Universal waling	Ties through fitting timber, without Universal waling
	

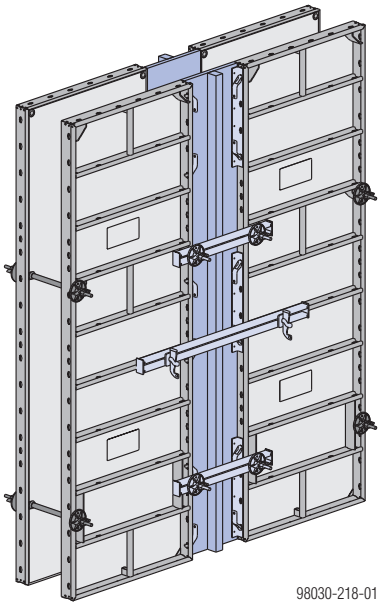
Closures up to **7.5 cm**	Closures up to **15 cm**
Ties through panel, with Universal waling	Ties through fitting timber, with Universal waling
	

Closures: 10 - 50 cm

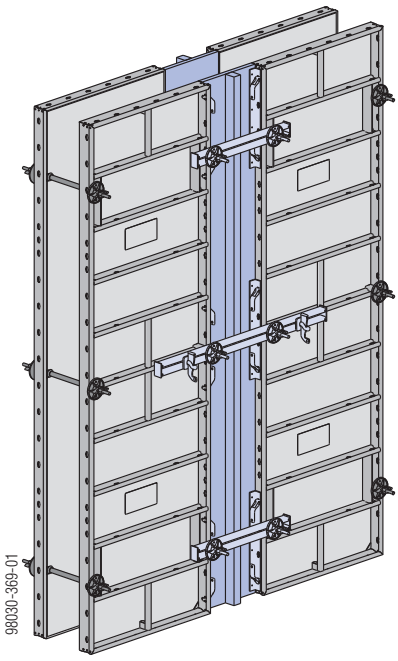
with plywood support and formwork sheet



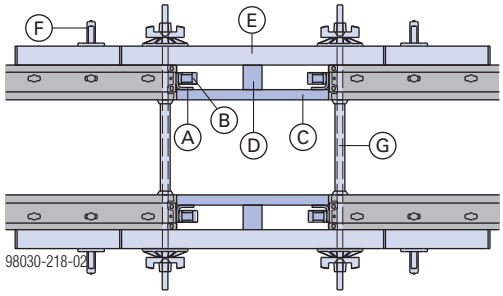
Shown here on Frami Xlife panels 1.50m.



Shown here on Frami Xlife panels 2.70m.



Shown here on Frami Xlife panels 3.00m.



A	Frami plywood support
B	Frami clip
C	Formwork sheet
D	Squared timber
E	Frami universal waling 1.25 m
F	Frami wedge clamp
G	Form-tie

Where tensile loads occur (on corners and stop-ends), suitable tension anchoring must be provided.

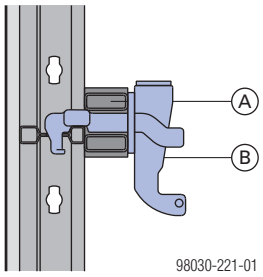
Possible ways of attaching Universal walings:

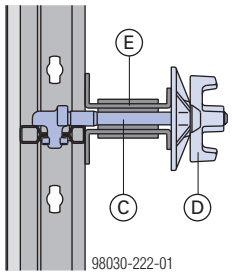
For clamp-on parts with an **overall height of 5 cm** (Frami universal waling **(A)**):

- Frami clamp **(B)**

For clamp-on parts with an **overall height of between 5 and 12 cm** (e.g. Framax universal waling **(E)**):

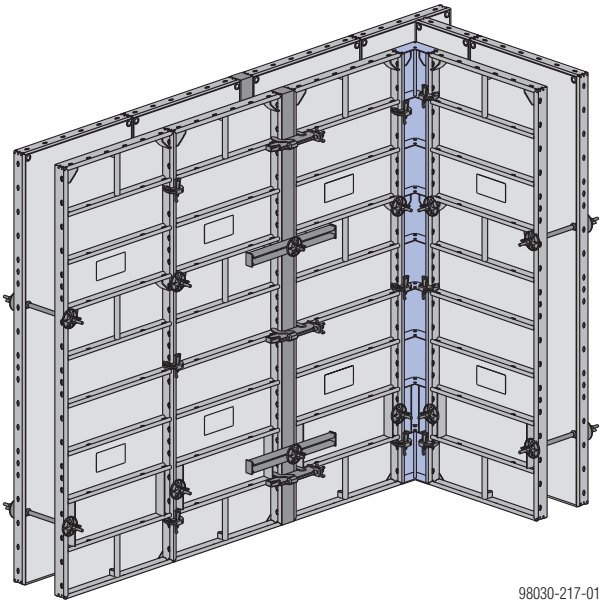
- Frami universal fixing bolt **(C)** + Super-plate **(D)**



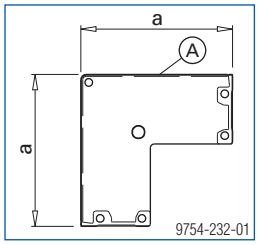


90 degree corners

The corner solutions are based upon the strong, torsion-proof **Frami inside corner**.



Shown here on Frami Xlife panels 2.70m.



a ... 20 cm

A Steel form-facing

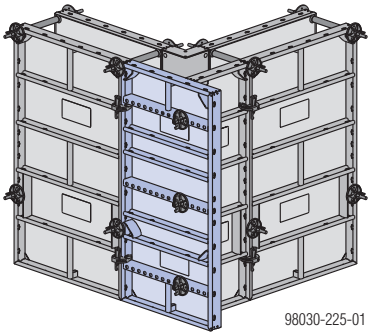
There are **2 ways** of forming right-angled **outside corners**:

- with an Xlife universal panel
- with a Frami outside corner

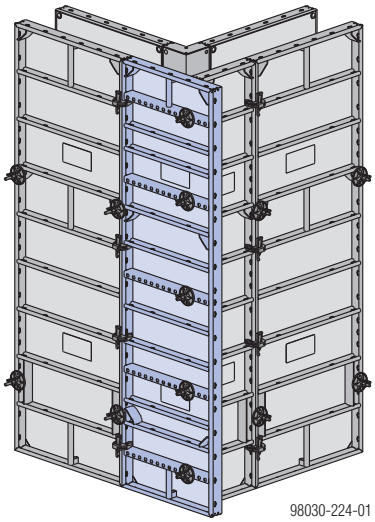
For details regarding extra inter-panel connections on outside corners (for increased tensile loads), see the section headed "Inter-panel connections for increased tensile loads".

with a Frami Xlife universal panel

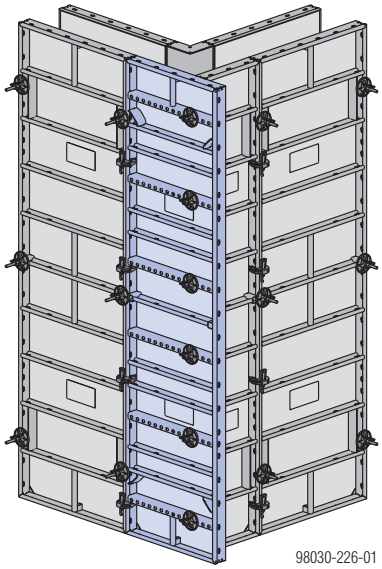
When this panel is used, a wall-thickness grid with 5 cm increments is available.



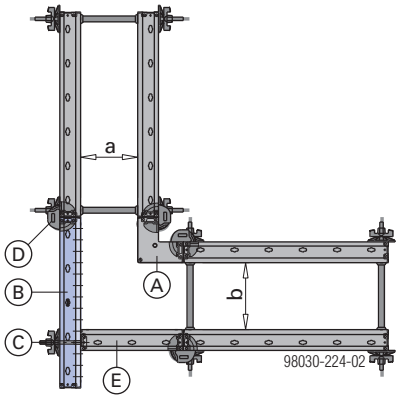
Shown here on Frami Xlife panels 1.50m.



Shown here on Frami Xlife panels 2.70m.



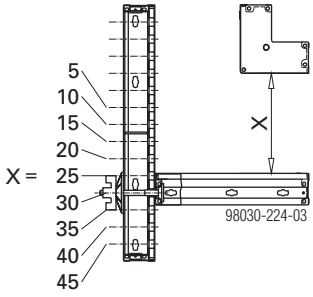
Shown here on Frami Xlife panels 3.00m.



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

A	Frami inside corner
B	Frami Xlife universal panel
C	Frami universal fixing bolt + Super-plate 15.0
D	Frami clamp
E	Frami Xlife panel 0.45m

Attainable wall thicknesses in 5 cm grid:

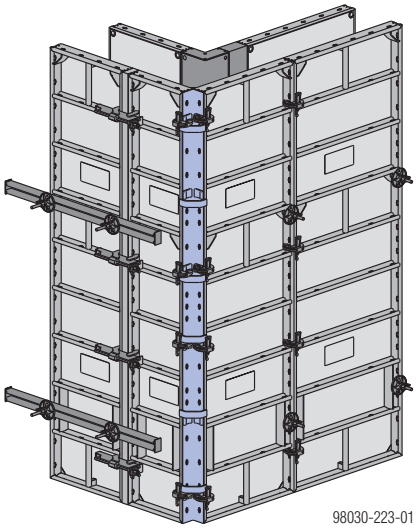


Required numbers of Frami universal fixing bolts + Super-plates 15.0:

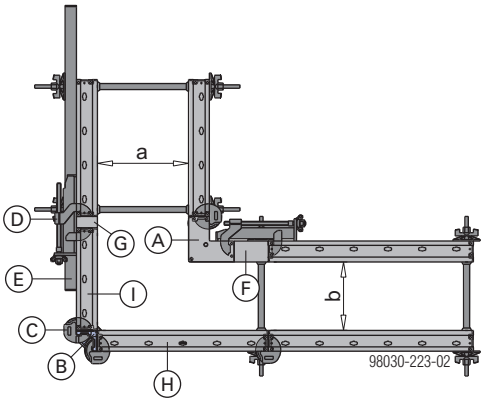
Frami Xlife universal panel 0.75x1.20m	2 of each
Frami Xlife universal panel 0.75x1.50m	3 of each
Frami Xlife universal panel 0.75x2.70m	5 of each
Frami Xlife universal panel 0.75x3.00m	6 of each

with a Frami outside corner

The Frami outside corner is an easy and problem-free way of forming corners in narrow trench situations or where large wall thicknesses are called for.



Shown here on Frami Xlife panels 2.70m.



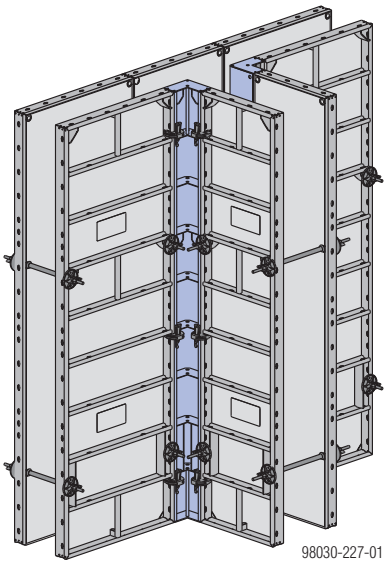
a ... 40 cm
b ... 30 cm

A	Frami inside corner
B	Frami outside corner
C	Frami clamp
D	Frami adjustable clamp
E	Frami universal waling
F	Fitting timber on the inside (max. 15.0 cm)
G	Fitting timber on the outside (max. 7.5 cm)
H	Frami Xlife panel 0.75m (max. 0.75m)
I	Frami Xlife panel 0.45m (max. 0.75m)

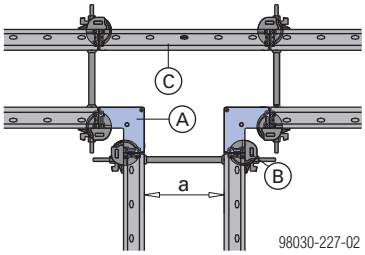
Required numbers of Frami clamps:

	Up to wall thickness 40 cm	Up to wall thickness 60 cm
Outside corner 1.20m	4	6
Outside corner 1.50m	4	6
Outside corner 2.70m	8	12
Outside corner 3.00m	10	12

Example: T-junction



Shown here on Frami Xlife panels 2.70m.



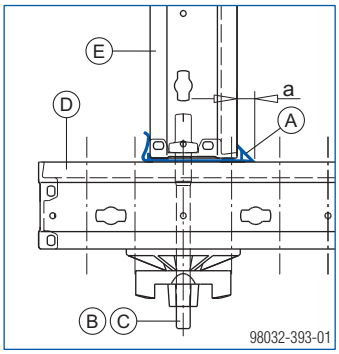
a ... 35 cm

A	Frami inside corner
B	Frami clamp
C	Frami Xlife panel 0.75m

Edges

with the Frami frontal triangular ledge

The Frami 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 standard triangular ledge, of course.

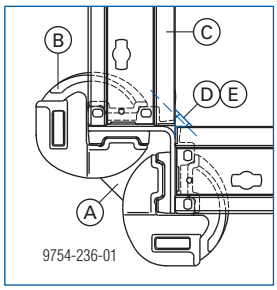


a ... 20 mm

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

with the Framax triangular ledge

Where outside corners are formed using the Frami outside corner, the Frami clamps used for the interconnection mean that the standard triangular ledge has to be used here.



A	Frami outside corner
B	Frami clamp
C	Frami Xlife panel
D	Framax triangular ledge
E	Wire nail 22x40

Triangular ledges can also be used on corners formed using the Universal panel.

Shaft formwork

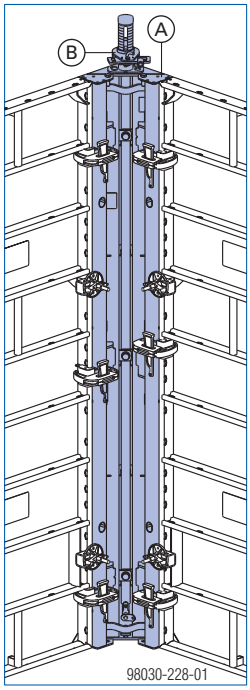
With the **Stripping corner I**, the entire shaft formwork unit is detached from the wall, in one piece, before being lifted and reset by crane.

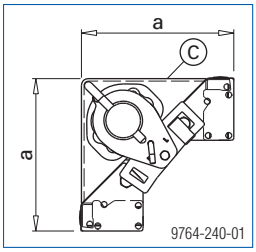
Product features:

- 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

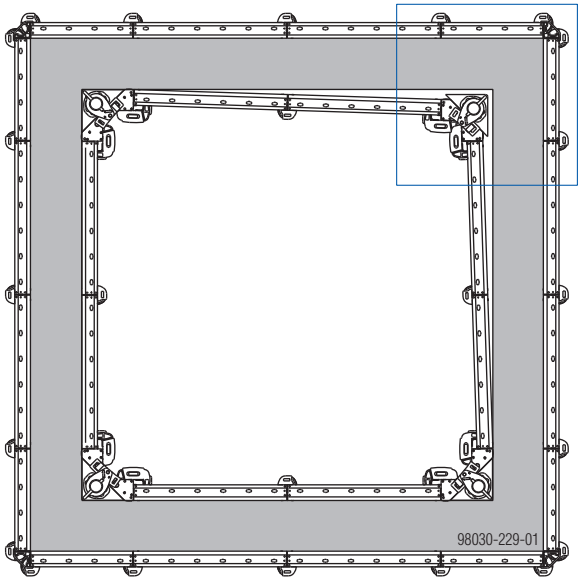
Shown here on Frami Xlife panels 2.70m.

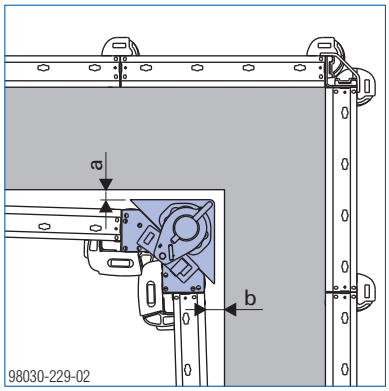
A	Framax stripping corner I
B	Framax stripping spindle I or Framax stripping spindle I with ratchet
C	Steel form-facing

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

- whenever possible, not directly next to the stripping corners

Stripping play:



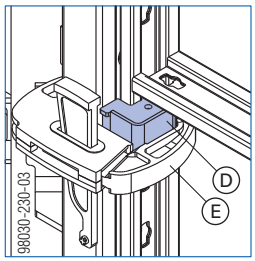


a ... 3.0 cm
b ... 6.0 cm

Inter-panel connections

The Framax stripping corner I is joined onto the Frami Xlife panels by means of **Framax quick-acting clamps RU**.

The **difference in thickness between the profiles** is bridged here by the **Frami profile adapter**.



D Frami profile adapter for Stripping corner I

E Framax quick-acting clamp RU

Number of Framax quick-acting clamps RU needed:

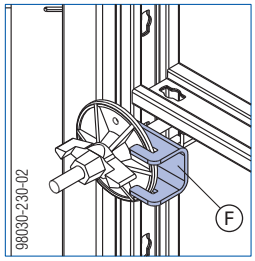
Formwork height	Panel heights	Heights of the Stripping corners I	Number of clamps
1.20 m	1.20m	1.35m	4
1.50 m	1.50m	2.70m	4
2.70 m	1.20 m + 1.50 m	2.70m	8
	2.70m	2.70m	6
3.00 m	1.50m + 1.50m	3.30m	8
	3.00m	3.30m	8
3.90 m	2.70m + 1.20m	2.70m + 1.35m	10
4.20 m	2.70m + 1.50m	3.30m + 1.35m	10
4.50 m	3.00m + 1.50m	3.30m + 1.35m	12

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).

Tying the panels

When tying the shaft formwork, the **tie-hole positions of the Frami Xlife panels** should be used.

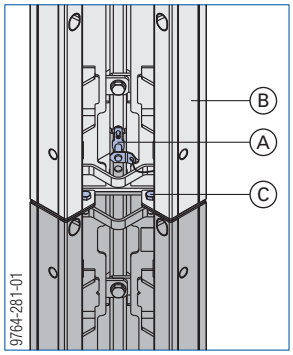
The **difference in thickness between the profiles** is bridged here by the **Frami tie-adapter**.



F Frami tie-adapter for Stripping corner I

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

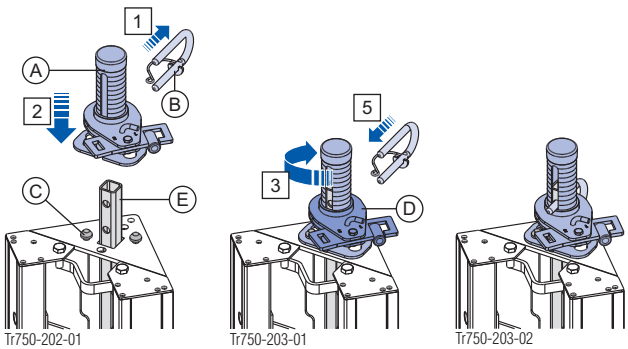
B Stripping corner I

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

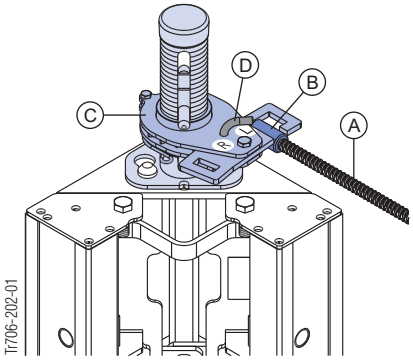
E Push-rod

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**.



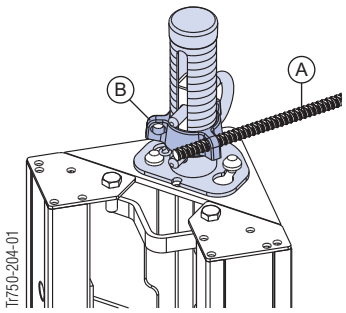
A Tie-rod 15.0mm
B Weldable coupler 15.0
C Ratchet
D Change-over lever

Operating the Framax stripping spindle I

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

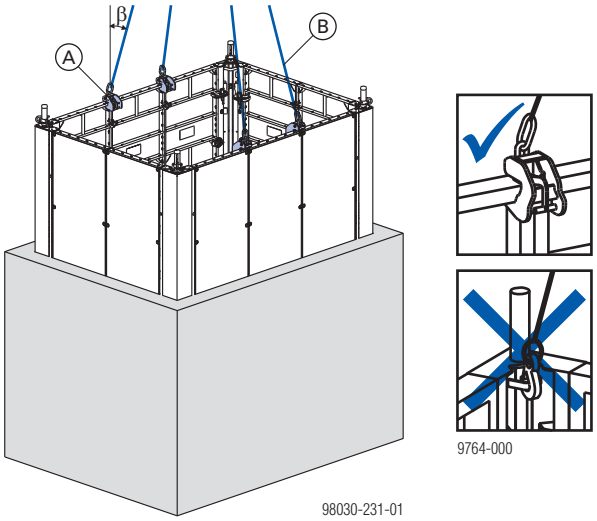
➤ **Setting up**: Twist the spindle nut **clockwise**.

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



A Tie-rod 15.0mm
B Spindle nut

Resetting by crane



β ... max. 15°

A Frami lifting hook
B Four-part lifting chain (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.

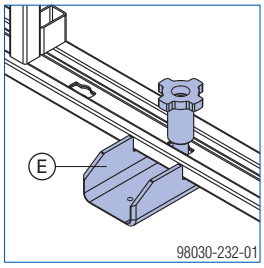
➤ The shaft formwork may **only be reset using lifting hooks**.

Permitted weight of the shaft formwork:
2000 kg with 4 Frami lifting hooks

Doka shaft platform

With its telescopic shaft beams, this platform can accommodate any dimension of structure. The inside formwork can be "parked" on the platform and repositioned together with the platform.

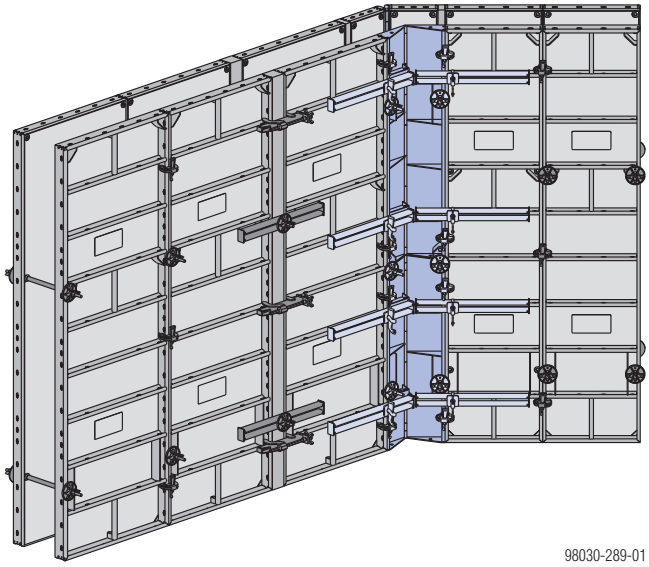
The Frami panel shoe provides increased stability on shaft platforms.



E Frami panel shoe

Follow the directions in the "Doka shaft platform" User Information booklet.

Acute & obtuse-angled corners

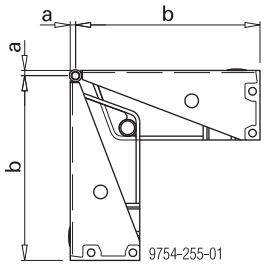
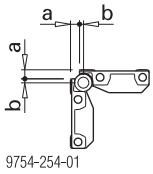


Shown here on Frami Xlife panels 2.70m.

Frami Xlife also has the perfect solution ready for acute and obtuse-angled corners – the Frami hinged corners.

Panel heights of the hinged corners:

- 1.20m
- 1.50m

Hinged inside corner I	Hinged outside corner A
 a ... 0.7 cm b ... 24.3 cm	 a ... 1.2 cm b ... 0.5 cm

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

Panel height	N° of universal walings
1.20 m	4
1.50 m	4
2.70 m	8
3.00 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".

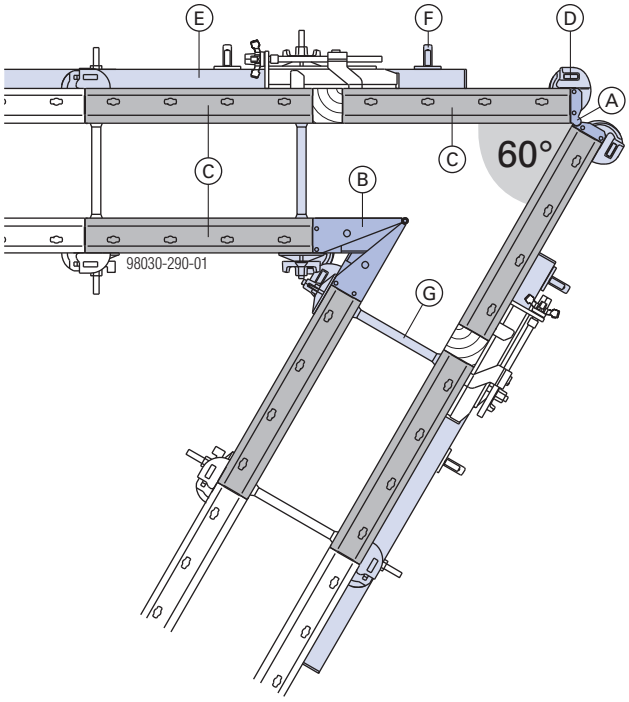
Number of Frami clamps in the hinged outside corner:

Panel height	Width of panel next to hinged outside corner	
	Up to 60 cm	Up to 90 cm
1.20 m	4	6
1.50 m	4	6
2.70 m	8	12
3.00 m	8	12

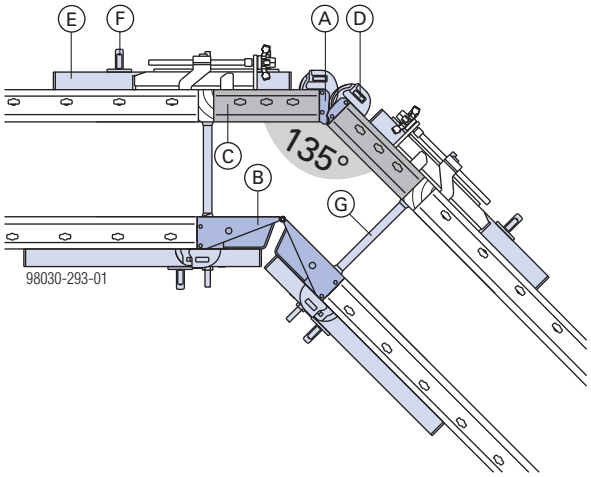
Important note:

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".

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

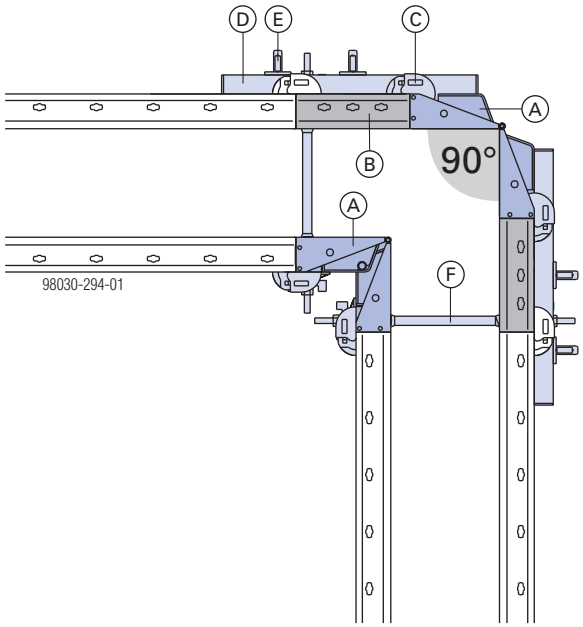


A Frami hinged outside corner A
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
B Frami hinged inside corner I
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
C Frami Xlife panel
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
D Frami clamp
E Frami universal waling 1.25m
F Frami wedge clamp
G Form-tie

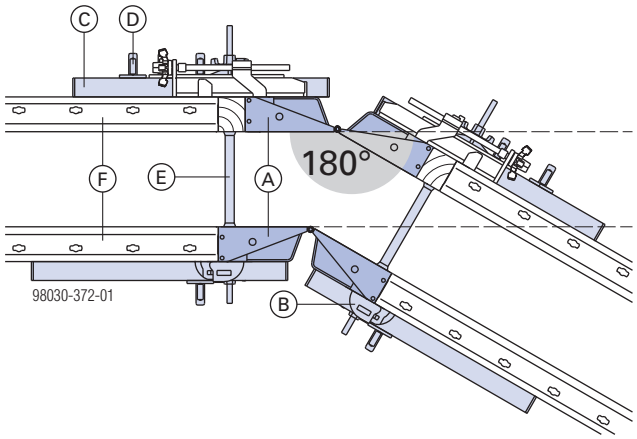


A Frami hinged outside corner A
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
B Frami hinged inside corner I
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
C Frami Xlife panel
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
D Frami clamp
E Frami universal waling
F Frami wedge clamp
G Form-tie

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

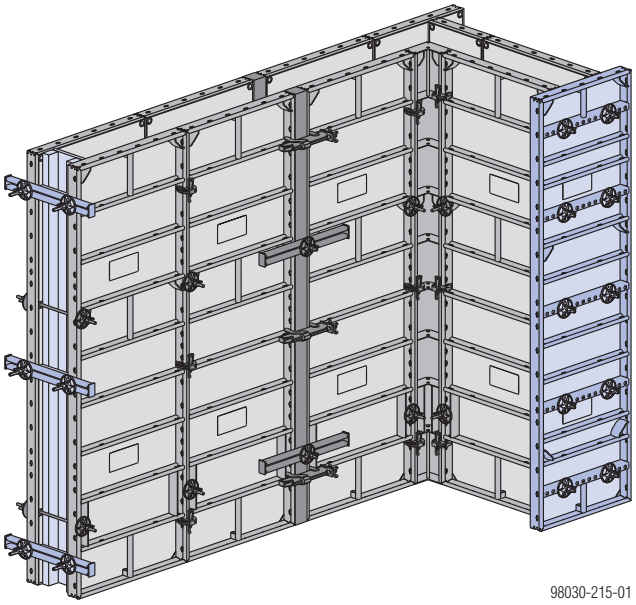


A Frami hinged inside corner I
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
B Frami Xlife panel
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
C Frami clamp
D Frami universal waling
E Frami wedge clamp
F Form-tie



A Frami hinged inside corner I
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
B Frami clamp
C Frami universal waling
D Frami wedge clamp
E Form-tie
F Frami Xlife panel

Stop-end formwork



Shown here on Frami Xlife panels 2.70m.

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

- with a Frami Xlife universal panel
- with Frami universal walings

Frami universal fixing bolts / Frami corner connectors:

Permitted tensile load:

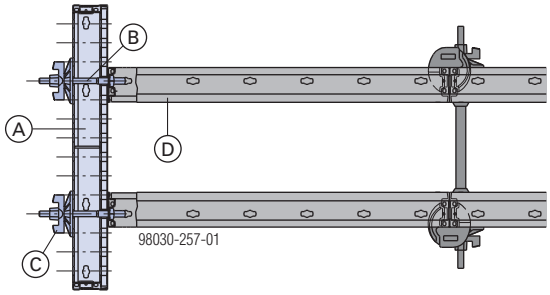
13.0 kN (when used in Frami Xlife panels)

15.6 kN (when used in Frami Xlife universal panels)

Important note:

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

with a Frami Xlife universal panel



A Frami Xlife universal panel
B Frami universal fixing bolt 5-12cm or Frami corner connector
C Super-plate 15.0
D Frami Xlife panel

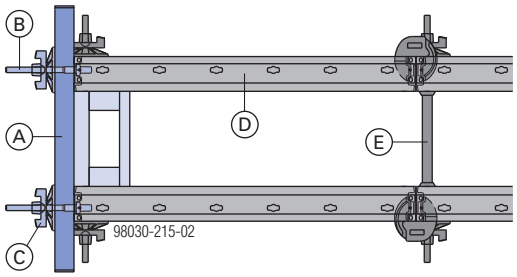
The continuous 5 cm hole-grid of the Frami Xlife universal panels*) can be used to form stop-ends for wall thicknesses of up to 55 cm. The Universal panel is mounted on the Frami Xlife panels using Universal fixing bolts 5-12cm or Corner connectors and Super-plates 15.0.

*) For constructional design reasons, a deviation of -1 cm is possible here.

Number of connectors:

Panel height	Universal fixing bolts / Corner connectors + Super-plates 15.0
1.20m	4
1.50m	6
2.70m	10
3.00m	12

with Universal walings



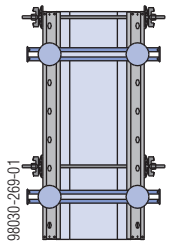
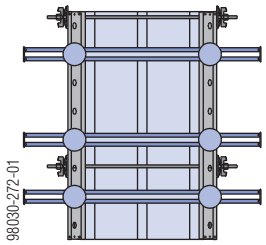
A Frami universal waling
B Frami universal fixing bolt 5-12cm or Frami corner connector
C Super-plate 15.0
D Frami Xlife panel
E Form-tie

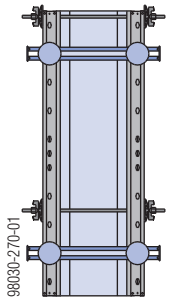
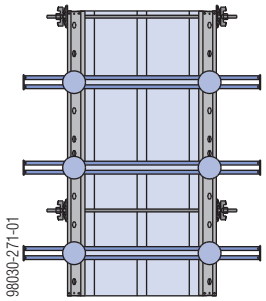
Frami universal waling:

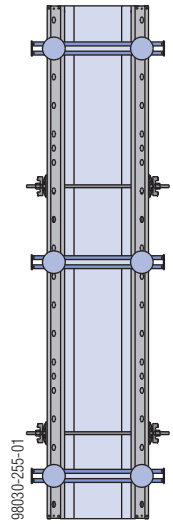
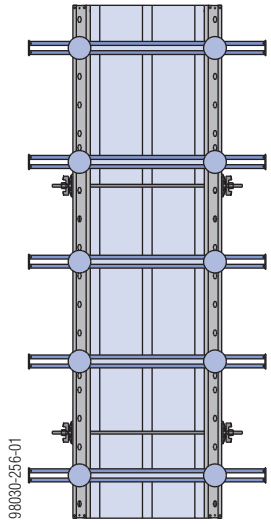
Permitted moment: 1.3 kNm

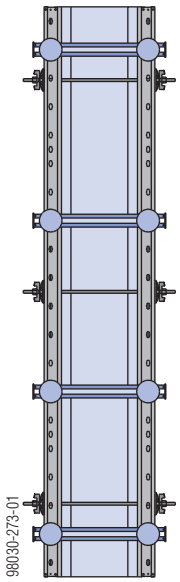
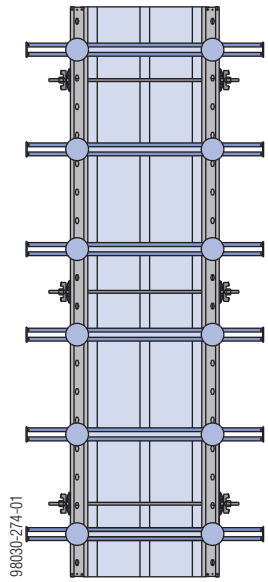
The universal waling makes it possible to precision-form continuously adjusted stop-ends across any wall thickness. The Universal walings are mounted using Universal fixing bolts 5-12cm or Corner connectors and Super-plates 15.0.

Number and position of universal walings:

Panel height **1.20m**	
Up to wall thickness **55 cm**	Up to wall thickness **60 cm**
	
2 universal walings	3 universal walings

Panel height **1.50m**	
Up to wall thickness **48 cm**	Up to wall thickness **60 cm**
	
2 universal walings	3 universal walings

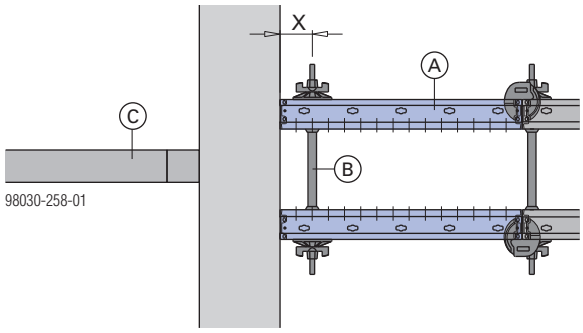
Panel height **2.70m**	
Up to wall thickness **38 cm**	Up to wall thickness **60 cm**
	
3 universal walings	5 universal walings

Panel height **3.00m**	
Up to wall thickness **40 cm**	Up to wall thickness **60 cm**
	
4 universal walings	6 universal walings

Wall junctions

Right-angled connections

with a Frami Xlife universal panel:

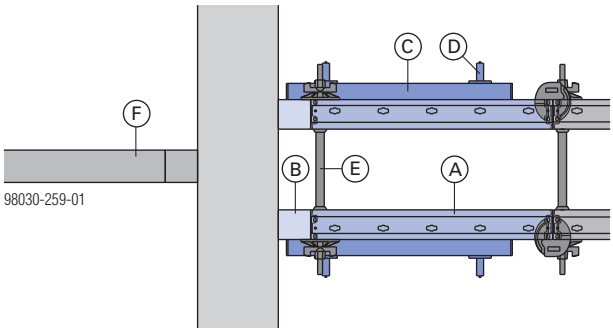


A Frami Xlife universal panel
B Form-tie
C In-place timber brace

Number of form-ties:

Form-tie position **X**	Frami Xlife universal panel			
	1.20m	1.50m	2.70m	3.00m
Up to 15 cm	2	2	3	4
Up to max. 25 cm	2	3	5	6

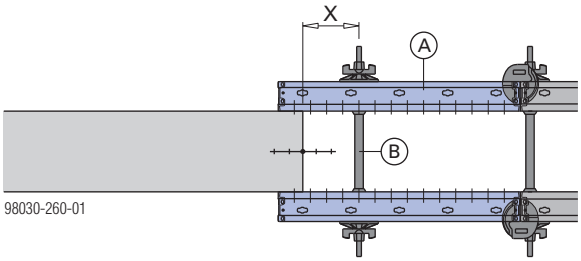
with Frami Xlife panel and squared timbers:



A Frami Xlife panel
B Squared timber (min. 3.0 cm up to max. 10 cm)
C Universal waling (not needed if the squared timber is less than 5 cm wide)
D Frami wedge clamp
E Form-tie
F In-place timber brace

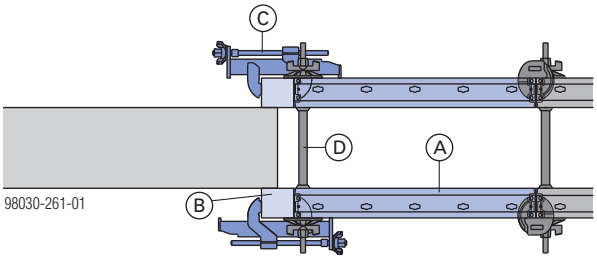
In-line connections

with a Frami Xlife universal panel:



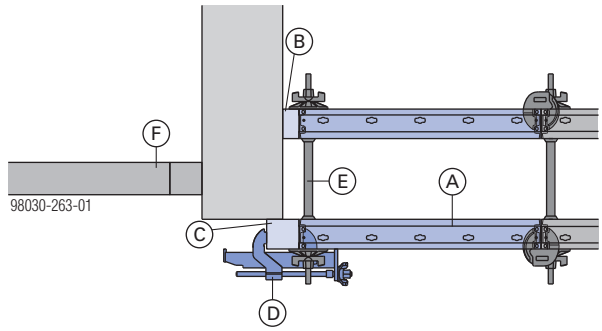
A Frami Xlife universal panel
B Form-tie

with Frami Xlife panel and squared timbers:

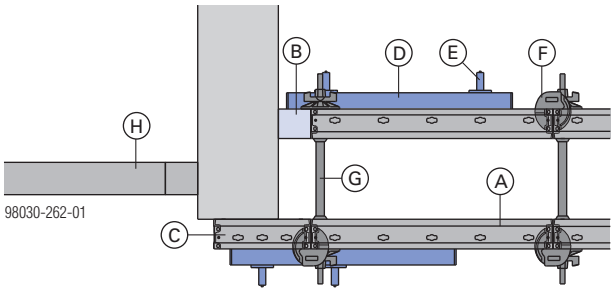


A Frami Xlife panel
B Squared timber
C Adjustable clamp
D Form-tie

Corner connections



A Frami Xlife panel
B Squared timber (min. 3 cm up to max. 5 cm)
C Squared timber
D Adjustable clamp
E Form-tie
F In-place timber brace



A Frami Xlife panel
B Squared timber (min. 3 cm up to max. 10 cm)
C Frami Xlife panel 0.30m
D Universal walings (not needed if the squared timber is less than 5 cm wide)
E Frami wedge clamp
F Frami clamp
G Form-tie
H In-place timber brace

Inter-panel connections for increased tensile loads

As a rule, the number of clamps needed to link the panels is pre-defined (see the following table from the section headed "Inter-panel connections").

Required number of clamps (longitudinal joins):

Panel height (**upright panels**)	Number of clamps
1.20 m	2
1.50 m	2
2.70 m	3
3.00 m	3

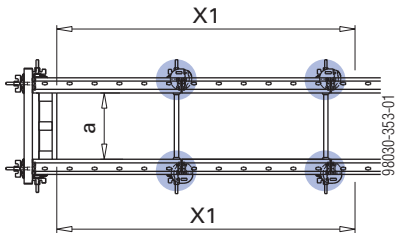
However, where **increased tensile loads** are encountered, especially in outside-corner and stop-end configurations, **extra clamps** are needed.

Near stop-ends

for wall thicknesses of up to 40 cm

For wall thicknesses of **up to 40 cm, no extra clamps are required**.

for wall thicknesses from 40 cm to 60 cm

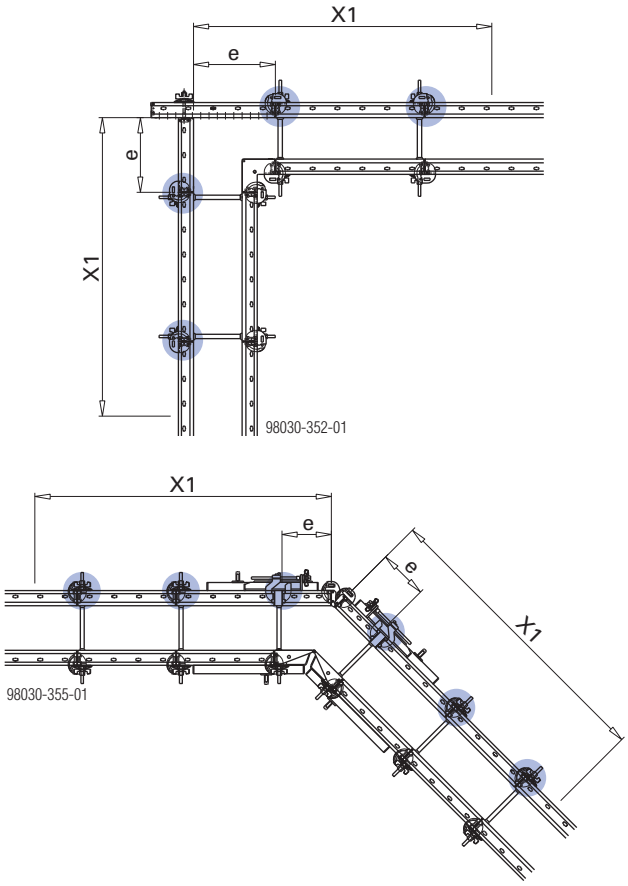


a ... 40 cm to 60 cm

	Number of clamps
Panel height	In zone **"X1"** (panel joints **within 1.8 m** of a stop-end)
1.20 m	2
1.50 m	2
2.70 m	3 **+ 1**
3.00 m	3 **+ 1**

Near outside corners

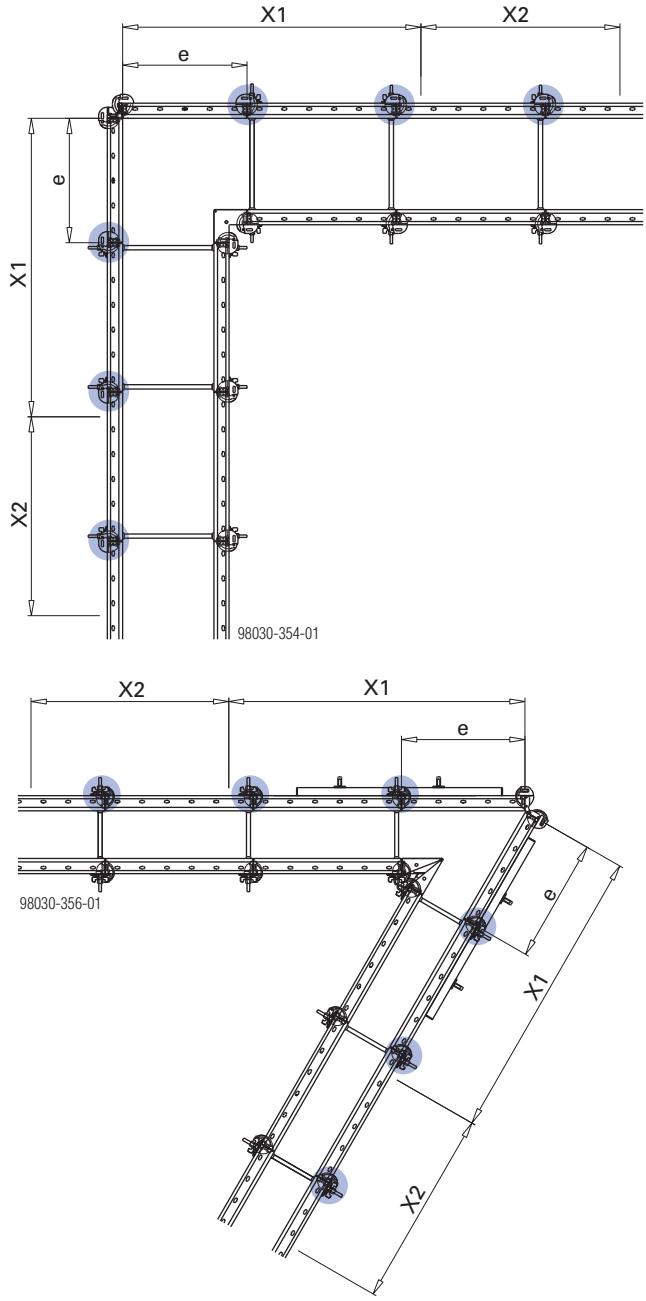
for panel widths up to 60 cm



e ... up to 60 cm (panel width)

	Number of clamps
Panel height	In zone **"X1"** (panel joints **within 1.8 m** of an outside corner)
1.20 m	2
1.50 m	2
2.70 m	3 **+ 1**
3.00 m	3 **+ 1**

for panel widths from 60 cm to 90 cm



e ... > 60 cm to 90 cm (panel width)

	Number of clamps	
Panel height	In zone **"X1"** (panel joints **within 1.8 m** of an outside corner)	In zone **"X2"** (panel joints **1.8 m to 3.0 m** from an outside corner)
1.20 m	2 **+ 1**	2
1.50 m	2 **+ 1**	2
2.70 m	3 **+ 2**	3 **+ 1**
3.00 m	3 **+ 2**	3 **+ 1**

Vertical stacking of panels

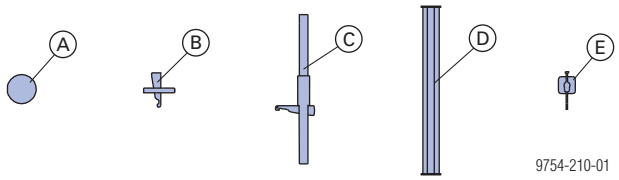
Positions of the connecting and tying components and other accessories needed for:

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

Frami clamp:
Permitted tensile force: 10.0 kN
Permitted shear force: 5.0 kN
Permitted moment: 0.2 kNm

Frami aligning clamp:
Permitted tensile force: 10.0 kN
Permitted moment: 0.45 kNm

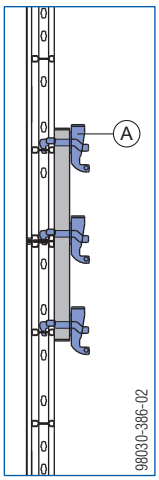
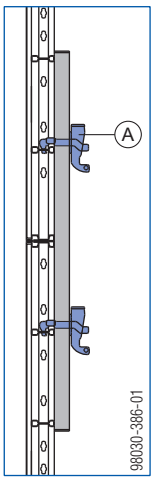
Frami universal waling:
Permitted moment: 1.3 kNm



A	Tie-rod 15.0mm + Super-plate 15.0
B	Frami clamp
C	Frami aligning clamp
D	Frami universal waling 0.70m or 1.25m
E	Frami wedge clamp

Important note:
Do not oil or grease wedge-clamped joins.

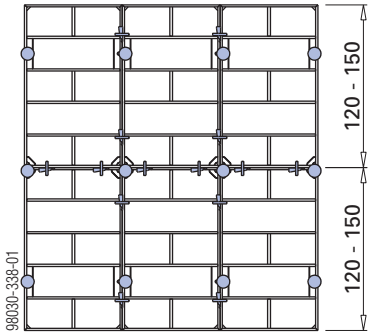
Fixing universal walings to the panel joint

Frami universal waling **0.70m**	Frami universal waling **1.25m**
	
Number of fixing points: **3**	Number of fixing points: **2**

A Frami wedge clamp
or
Frami universal fixing bolt 5-12 cm + Super-plate 15.0

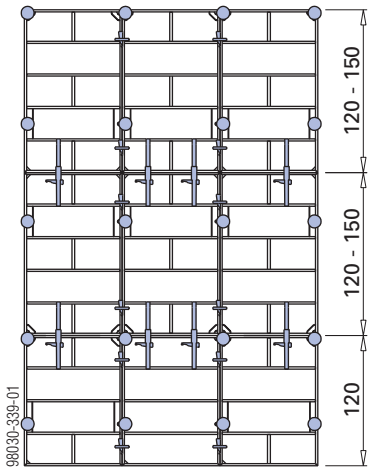
with Xlife panel 1.20 and 1.50m

Formwork height: 240, 270 and 300 cm

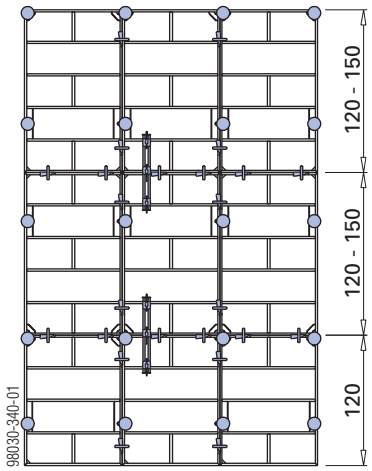


Formwork height: 360, 390 and 420 cm

Variant using aligning clamp

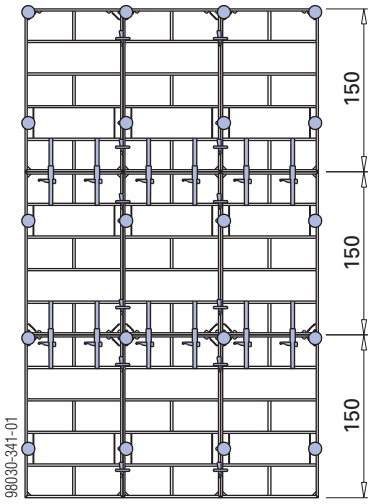


Variant using Frami clamp and universal waling

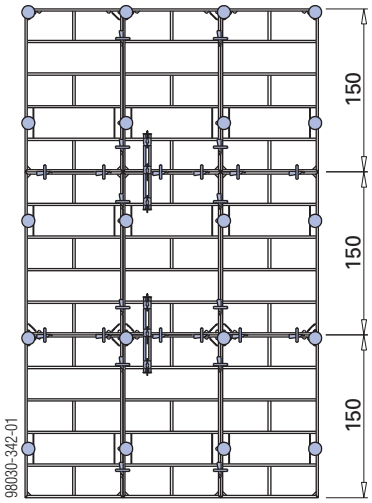


Formwork height: 450 cm

Variant using aligning clamp

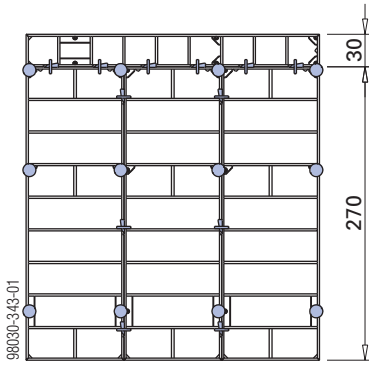


Variant using Frami clamp and universal waling

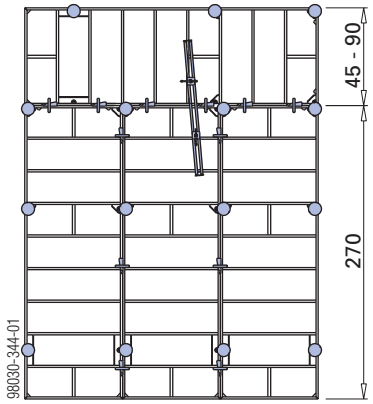


with Xlife panel 2.70m

Formwork height: 300 cm

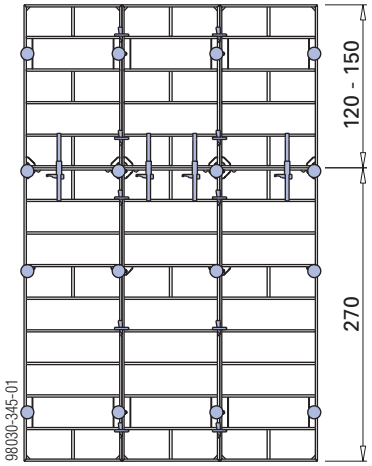


Formwork height: 315, 330, 345 and 360 cm

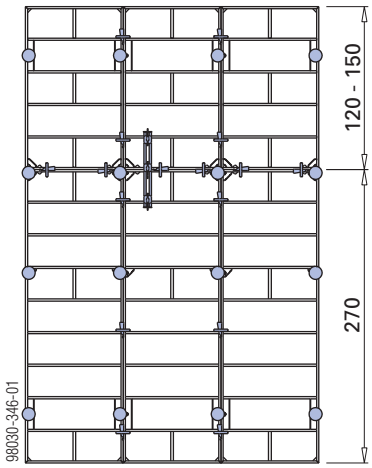


Formwork height: 390 and 420 cm

Variant using aligning clamp

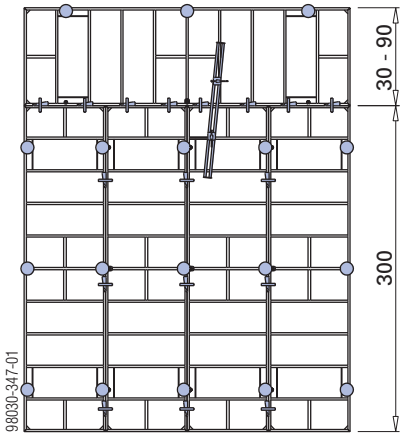


Variant using Frami clamp and universal waling



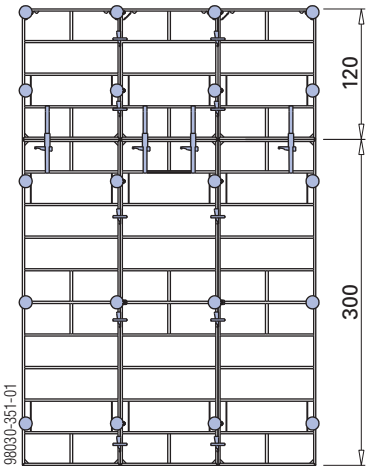
with Xlife panel 3.00m

Formwork height: 330, 345, 360, 375 and 390 cm

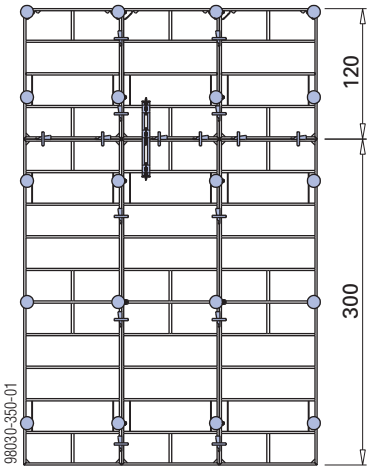


Formwork height: 420

Variant using aligning clamp

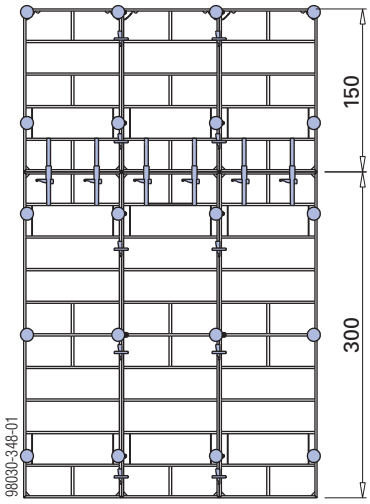


Variant using Frami clamp and universal waling

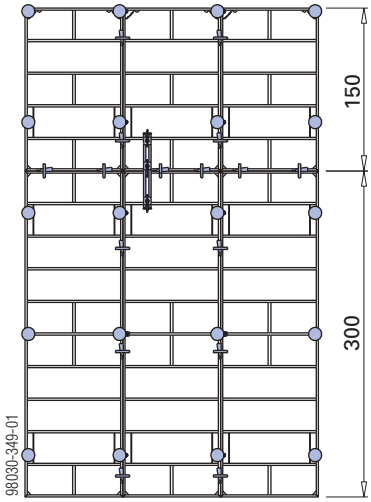


Formwork height: 450 cm

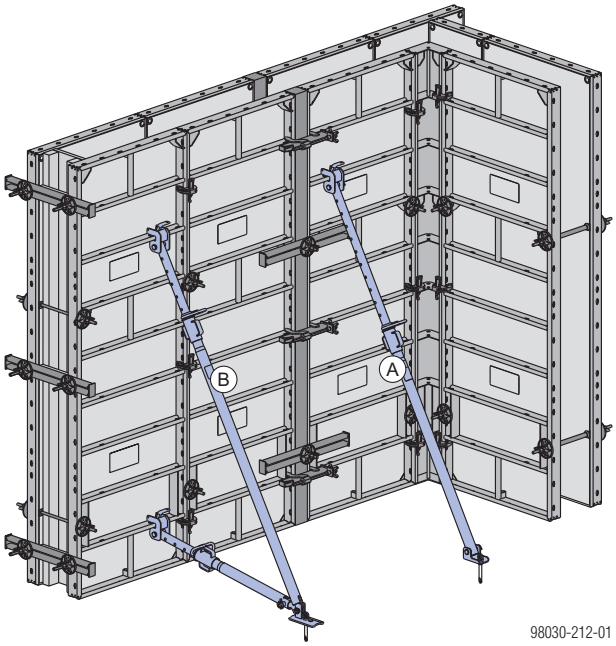
Variant using aligning clamp



Variant using Frami clamp and universal waling



Plumbing accessories



Shown here on Frami Xlife panels 2.70m.

The **Frami plumbing strut 260 (A)** and the **Panel strut 340 (B)** ensure that the formwork remains stable against wind loads, and make it easier to plumb and align the formwork.

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)

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

Frami plumbing strut 260:

Formwork height [m]	Permissible spacing [m]
1.80	2.10
2.25	1.90
2.70	1.35
3.00	1.20
3.60	0.80
Max. anchoring load: F_k = **4.0 kN** (R_d = **6.0 kN**)	

Panel strut 340:

Formwork height [m]	Permissible spacing [m]
2.70	1.45
3.00	1.35
3.60	1.00
4.20	0.95
4.50	0.70
Max. anchoring load: F_k = **4.0 kN** (R_d = **6.0 kN**)	

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**.

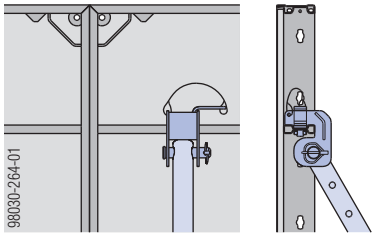
Example: Where the formwork height is 3.00 m, the following are needed for every 5.40 m wide gang-form:

- 5 Frami plumbing struts 260

  or
- 4 Panel struts 340

Fixing the struts to the formwork

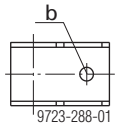
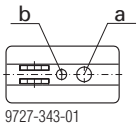
➤ Fix the Plumbing strut or Panel strut into the bore-holes in the **cross profiles (frame profiles)** with a pin.



Fixing to the ground

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

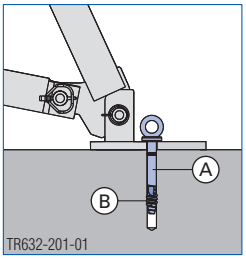
Drilled holes in the footplates

Plumbing strut 260	Panel strut 340
	

a ... diam. 26 mm
b ... 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.



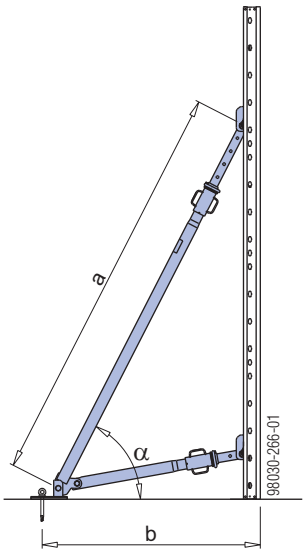
A Doka Express anchor 16x125mm
B Doka coil 16mm

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:
$R_d \geq$ 6.0 kN ($F_{permitted} \geq$ 4.0 kN)
Follow the manufacturer's applicable fitting instructions.

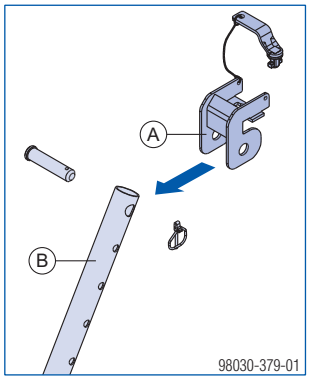
Panel strut 340



a ... min. 191 cm, max. 341 cm
b ... min. 108 cm, max. 157 cm
α ... approx. 60°

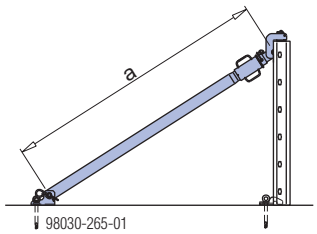
Modifying the Panel strut:

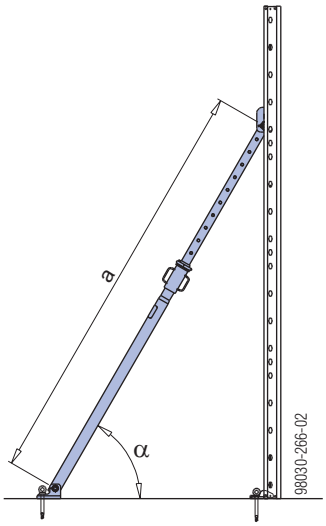
➤ Mount the Frami strut heads to the panel strut.



A Frami strut head
B Panel strut 340 without prop head

Plumbing strut 260





a ... min. 147 cm, max. 256 cm
α ... approx. 60°

Pouring platforms with single brackets

Preconditions for use:

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

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

Ensure that the formwork gang has sufficient stiffness.

Observe all applicable safety regulations.

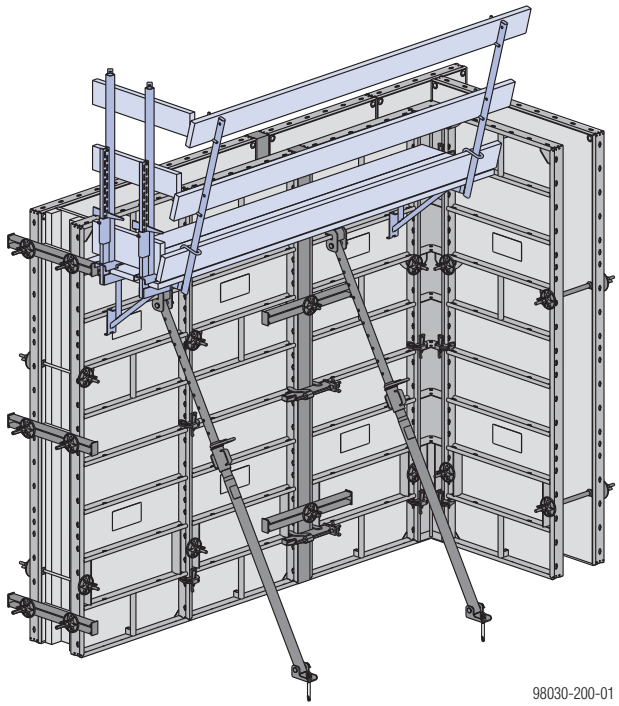
Multi-panel gangs without an opposing formwork and with pouring platforms and Frami plumbing struts 260 must be fixed on the ground so as to prevent slippage.

This can be done in either of 2 ways:

- with Frami floor fixing plates and Doka Express anchors 16x125mm
- using Doka Express anchors 16x125mm placed through the cross boreholes of the Frami Xlife panels

with Frami bracket 60

The Frami bracket 60 is a "use anywhere" bracket for making pouring platforms (platform width 60 cm).



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Shown here on Frami Xlife panels 2.70m.

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

The brackets must be secured against accidental lift-out

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

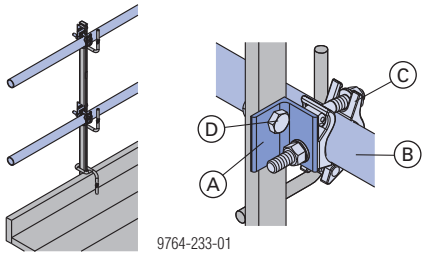
Board thicknesses for support centres of up to 2.50 m:

- Deck-boards min. 20x5 cm
- Guard-rail boards min. 20x3 cm, otherwise detailed dimensioning to EN 12811.

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: Use 3 square bolts M 10x120 per bracket (not included in scope of supply)
Fastening the guard-rail boards: Use nails

Using scaffolding tubes



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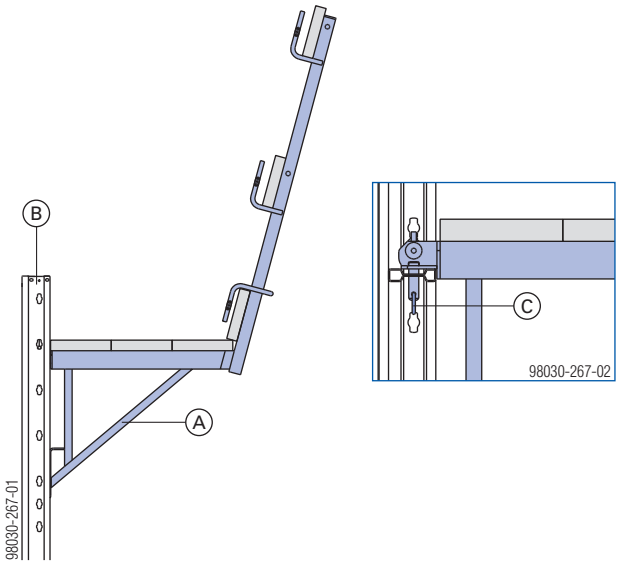
Tools: Fork spanner 22 for mounting the couplers and scaffolding tubes.

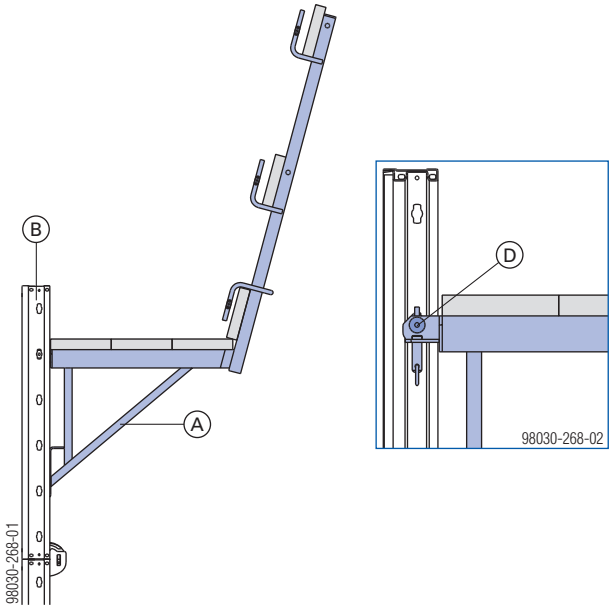
A	Scaffold tube connector
B	Scaffolding tube 48.3mm
C	Screw-on couplers 48mm 50
D	Hexagon screw M14x40 + hexagon nut M14 (not included with product)

On upright panel (fixed in the cross-profile)



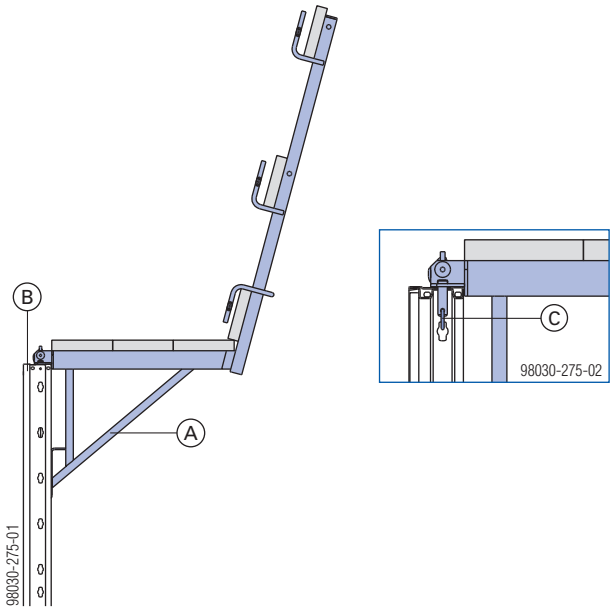
A Frami bracket 60
B Upright panel
C Spring cotter (anti-liftout guard)

On horizontal panel (fixed in the cross-profile)



A Frami bracket 60
B Horizontal panel
D Fastening pin with linch pin (anti-liftout guard)

On upright or horizontal panel (fixed in the frame profile)

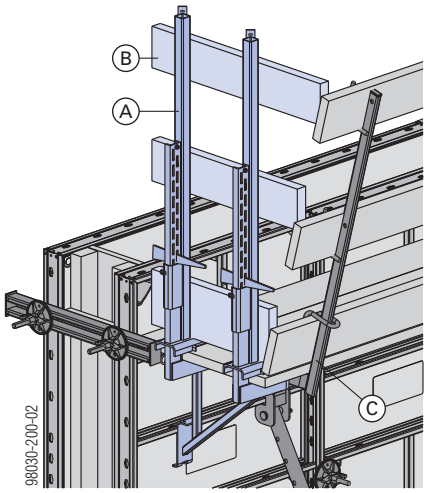


A Frami bracket 60
B Horizontal panel
C Spring cotter (anti-liftout guard)

Sideguards on exposed platform-ends

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

Handrail clamp S



A	Handrail clamp S
B	Guardrail board
C	Frami bracket 60

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!

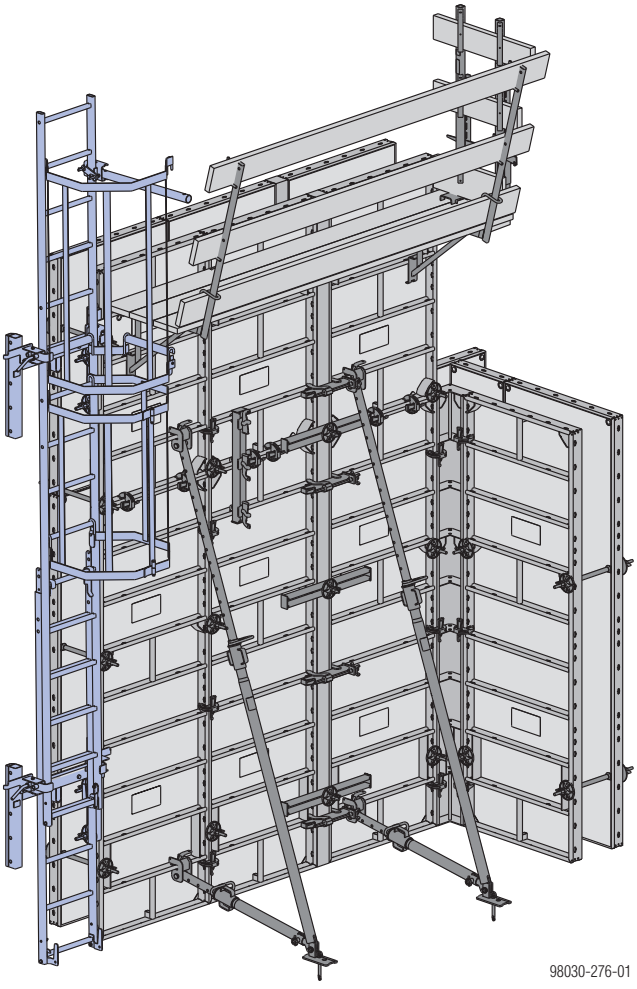
Ladder system

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).



Shown here on Frami Xlife panels 2.70m.

Assembly instructions

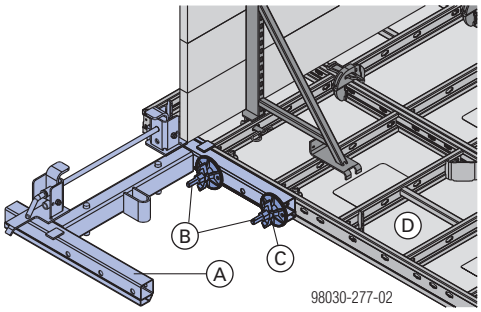
Preparing the formwork

➤ Pre-assemble the gang-forms (see the section headed "Inter-panel connections").
➤ Mount the pouring platform and the panel struts (see the sections headed "Plumbing accessories" and "Pouring platforms with single brackets").

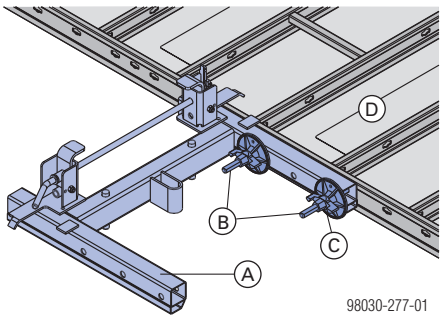
Attaching connectors to the formwork

➤ Place the "Connector XS wall formwork" against the frame profile near the top of the formwork.
➤ Attach this "Connector XS for wall formwork" using two Frami universal fixing bolts 5-12cm and two Super-plates 15.0.
➤ Mount a "Connector XS for wall formwork" near the bottom of the formwork, in the same way.

Top "Connector XS for wall formwork"



Bottom "Connector XS for wall formwork"



A	Connector XS for wall formwork
B	Frami universal fixing bolt 5-12cm
C	Super-plate 15.0
D	Frami Xlife panel

Fixing the ladder

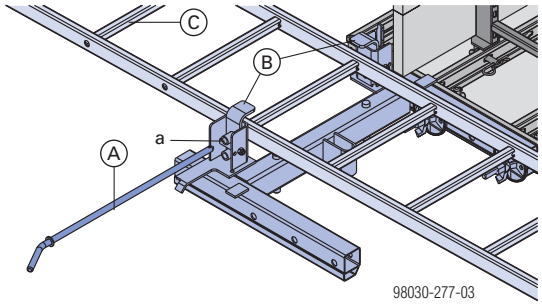
to the top "Connector XS wall formwork"

➤ 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.



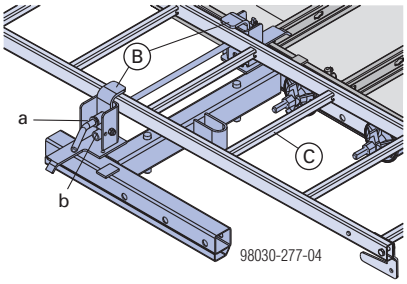
- in the front position (a)

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.

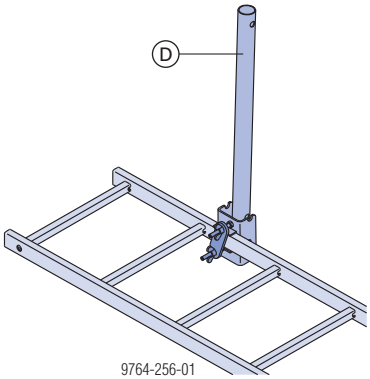
➤ Close the safety hooks, re-insert the push-in bolt and secure it with a linch pin.



– 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.



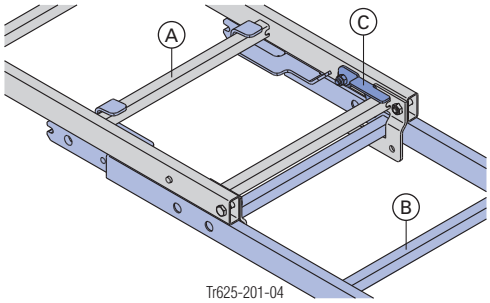
D	Securing barrier XS

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

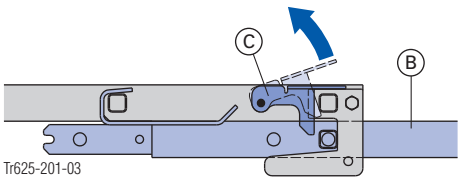
Ladder system XS for heights above 3.60 m

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

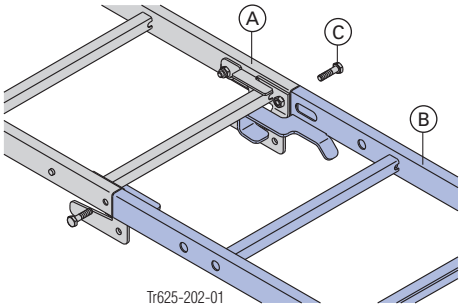


A	System ladder XS 4.40m
B	Ladder extension XS 2.30m
C	Safety latch

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.

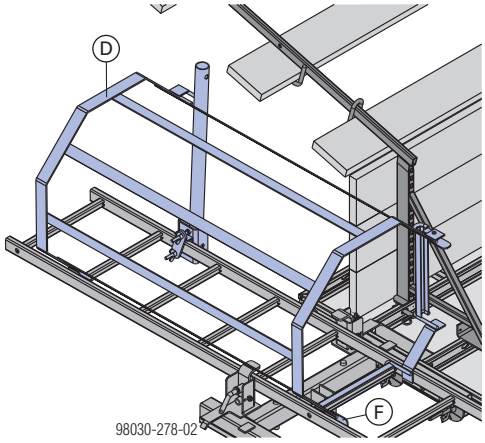
A System ladder XS 4.40m
B Ladder extension XS 2.30m
C Screws, width-across 17 mm

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

Important note:

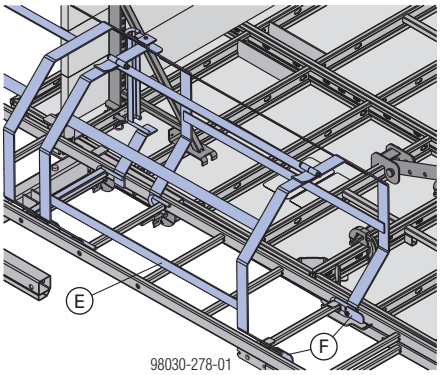
➤ Always observe all relevant safety regulations applying to the use of the Ladder cage XS in the country in which you are operating (e.g. in Germany: BGV D 36).

➤ 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.

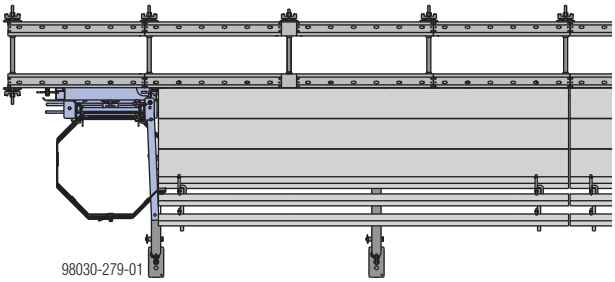


E Ladder cage XS
F Safety latches (lift-out guard)

Fixing in the cross profile

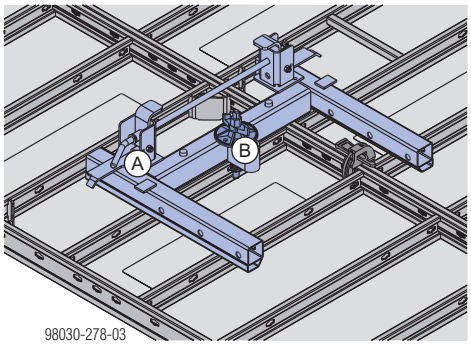
Mounting the Ladder system XS to the cross profile makes it an integral part of the gang-form.

Plan view



How to mount:

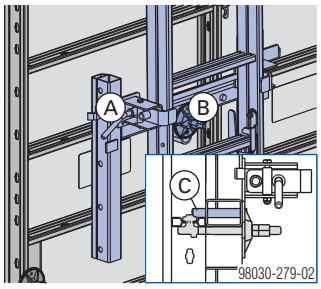
➤ Fix the "Connector XS for wall formwork" to the cross profile with a Frami universal fixing bolt 5-12cm and a Super-plate 15.0.



A Connector XS for wall formwork
B Frami universal fixing bolt 5-12 cm + Super-plate 15.0

Anti-slide-off protection

By resting firmly against the cross profile, two bolts prevent the "Connector XS for wall formwork" from accidentally sliding off.



A Connector XS for wall formwork
B Frami universal fixing bolt 5-12 cm + Super-plate 15.0
C Bolts

Items needed

Connectors + ladder	Formwork height	
	2.70-3.75 m	>3.75-4.50 m
Connector XS for wall formwork	2	2
Frami universal fixing bolt 5-12cm	4 or 2[1)]	4 or 2[1)]
Super-plate 15.0	4 or 2[1)]	4 or 2[1)]
System ladder XS 4.40m	1	1
Ladder extension XS 2.30m	0	1

[1)] When connected to the cross profile

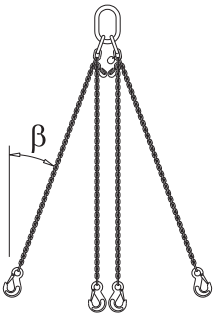
Ladder cage	Formwork height		
	2.70-3.15 m	>3.15-3.90 m	>3.90-4.50 m
Ladder cage exit XS [2)]	1	1	1
Securing barrier XS [2)]	1	1	1
Ladder cage XS 1.00m [2)]	0	1	2

[2)] This does not take account of any intermediate exits.

Resetting by crane

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

Doka 4-part chain 3.20m



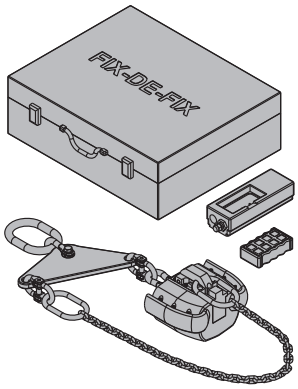
CE

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

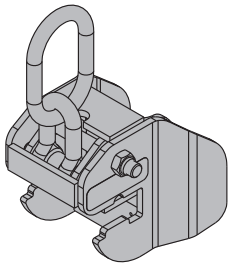
Max. load (as 2-part chain):
Up to spread-angle of 30° β 2400 kg.

Follow the directions in the Operating Instructions!

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!



Frami lifting hook



BG PRÜFZERT BAU 99162 GS geprüfte Sicherheit

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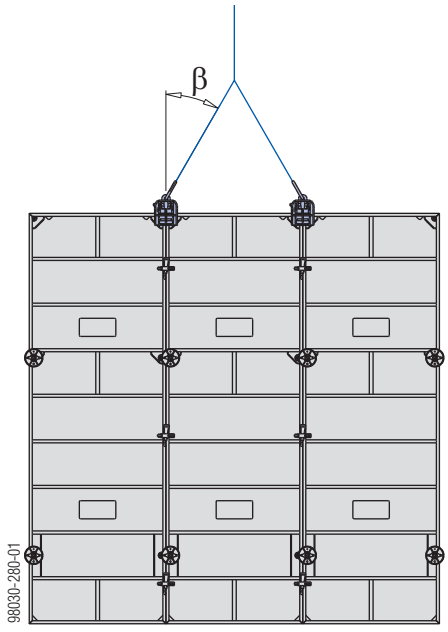
Max. load:
500 kg per Frami lifting hook
(area of formwork that can be lifted using 2 lifting hooks is approx. 15 m²)

Follow the directions in the Operating Instructions!

Positioning the lifting hooks

- Always position the Frami lifting hook over the panel joint, to prevent it from sliding from side to side.
  Exception: On horizontally-placed panels, the lifting hook must be placed over a cross-profile.
- Suspend the multi-panel gang symmetrically (centre-of-gravity position).
- Angle of inclination β: max. 30°



β ... max. 30°

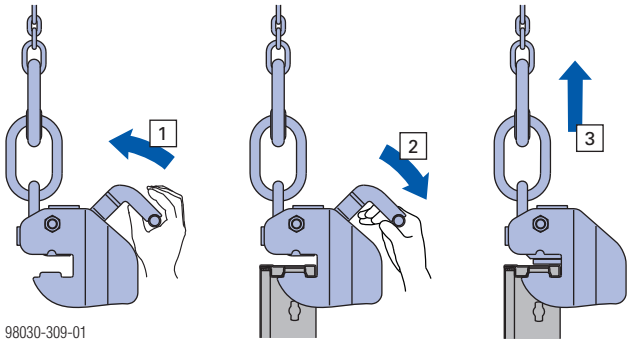
How to operate the lifting hook

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

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 tag-lines if necessary).

Transporting, stacking and storing

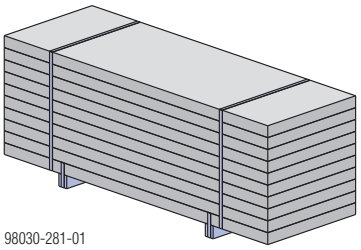
Bundling the panels

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.

CAUTION

➤ Stack a max. of 10 panels on top of one another (results in a stack height, incl. sleepers, of approx. 100 cm).

3) Strap the whole panel-stack together tightly with strapping tapes.



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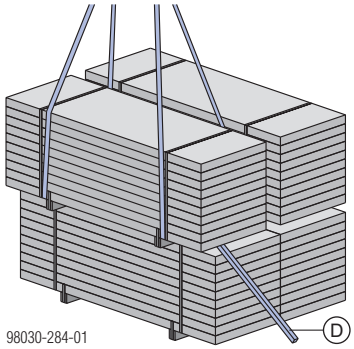
Transporting the panels

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**.



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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.

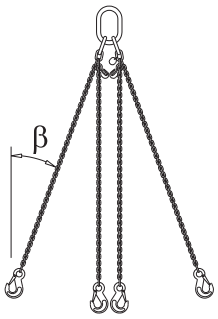
Max. load: 2000 kg

Follow the directions in the Operating Instructions!

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
- used in conjunction with the **Frami transport hook 2.5kN** 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.

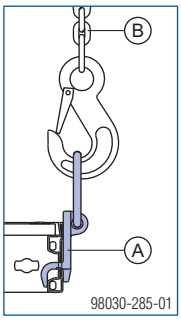
Max. load P_{max}:

	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!

Frami transport hook 2.5kN with Doka 4-part chain 3.20m

Close-up of Frami transport hook 2.5kN



A	Frami transport hook 2.5kN
B	Doka 4-part chain 3.20m
C	Stacking tape
D	Strapping tape

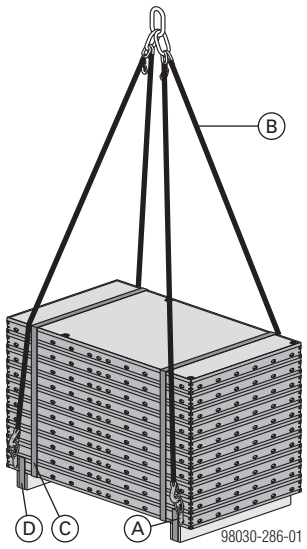
Max. load:
250 kg per Frami transport hook 2.5kN

Follow the directions in the Operating Instructions!

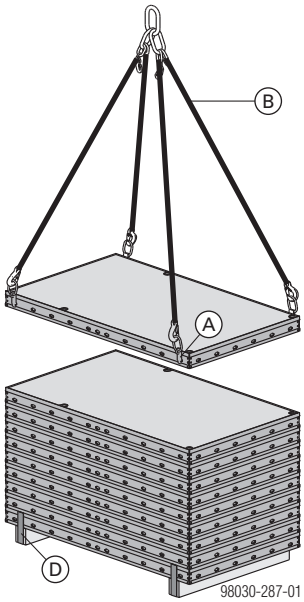
The Frami transport hook 2.5kN plus Doka 4-part chain 3.20m are used for:

- Hoisting bundled stacks of panels
- Lifting panels off the stack
- Handling horizontal (flat) multi-panel gangs

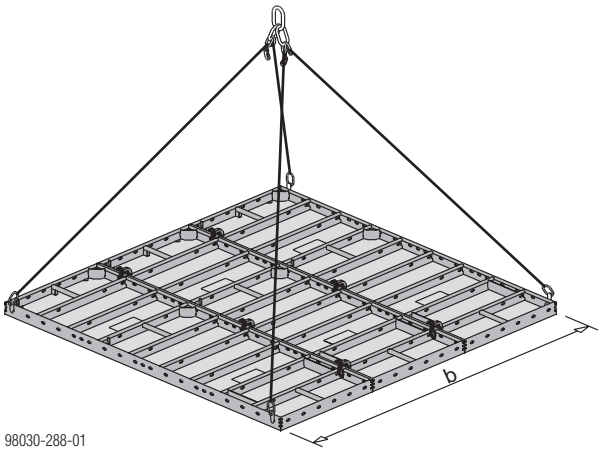
Hoisting bundled stacks of panels



Lifting panels off the stack



Handling horizontal (flat) multi-panel gangs



Shown here on Frami Xlife panels 2.70m.

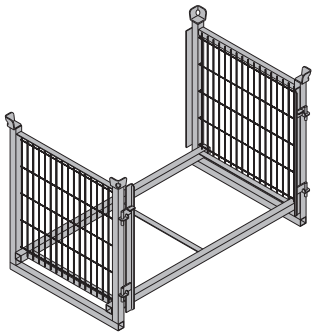
Dimension "b" (width of the gang-form)	Max. n° of panels across the width of the gang-form
Up to 1.80 m	No limitation
Over 1.80 m	**Max. 3 panels**

WARNING
Using the Frami transport hook 2.5kN to **lift either single panels or multi-panel gangs** into the upright is **forbidden**.

➤ Use the Frami lifting hook to lift panels or gangs into the upright.

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.

Frami pallets 1.20m and 1.50m



For holding Frami articles with system heights of 1.20m or 1.50m:
- durable
- stackable – both when filled and when folded closed
- collapsible – do not take up much space

Suitable transport appliances:
- crane
- pallet stacking truck
- forklift truck

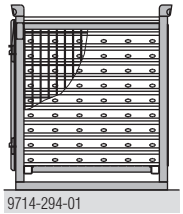
Other features:
- panels can be stored either upright or face-down
- also suitable for inside, outside and hinged corners, closure plates, fitting-timbers (firmly strapped together)

Max. load: 800 kg
Permitted imposed load: 3500 kg

- Multi-trip packaging items that each contain very different loads must be stacked with the heaviest ones at the bottom and the lightest ones at the top!
- Rating plate must be in place and clearly legible

Width of Frami panels	Max. n° of panels that can be loaded
0.90m	10
0.75m	11
0.60m	13
0.45m	20
0.30m	30

Flat panels

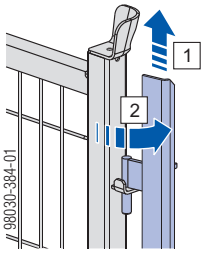


Upright panels

Mixed panels

Loading the pallets (from the side)

1) Lift the left and right side hinges.
2) Turn the side hinges to one side.



3) Load the pallets.
4) Lift the left and right side hinges and close them.

Both side hinges must be locked in place

Using Frami pallets as storage units

Max. n° of boxes on top of one another

Outdoors (on the site) Floor gradient up to 3%	Indoors Floor gradient up to 1%
2	6
It is not allowed to stack empty pallets on top of one another!	

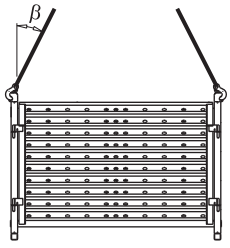
Using Frami pallets as transport devices

Lifting by crane

➤ Before attaching the lifting chain, check that:

Both side hinges must be locked in place

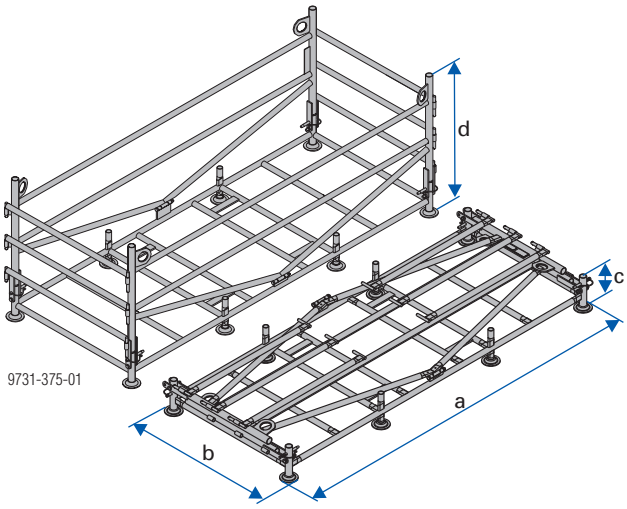
- Multi-trip packaging items may only be lifted one at a time.
- Use a suitable lifting chain. (Do not exceed the permitted load capacity). e.g: Doka 4-part chain 3.20m.
- Spread-angle β max. 30°!



Repositioning by forklift truck or pallet stacking truck

The forks can be inserted under the broadside of the containers.

Alu-Framax pallet



a ... 280 cm
b ... 117 cm
c ... 26 cm
d ... 107 cm

A storage unit and transport device for Frami panels 2.70m:

- durable
- stackable – both when filled and when folded closed
- collapsible – do not take up much space

Suitable transport appliances:

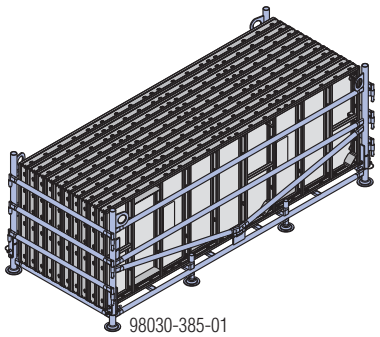
- crane
- pallet stacking truck
- forklift truck

Max. load: 1200 kg Permitted imposed load: 5200 kg

- Multi-trip packaging items that each contain very different loads must be stacked with the heaviest ones at the bottom and the lightest ones at the top!
- Rating plate must be in place and clearly legible

Loading examples

WARNING
If panels were stacked flat, they might slip out of the pallet (between the horizontal braces) when in transit!
➤ Only stack panels **in the upright**!

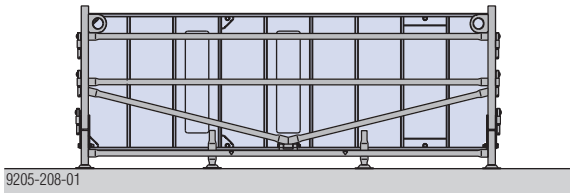


Using Alu-Framax pallets as storage units

Max. n° of units on top of one another

Outdoors (on the site)	Indoors Floor gradient up to 1%
Neither empty (unfolded) pallets nor full ones are allowed	6

Used for 2.70 m high Frami panels



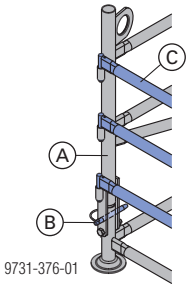
Panel size	N° of panels
0.90x2.70m	10
0.30x2.70m	30

Using Alu-Framax pallets as transport devices

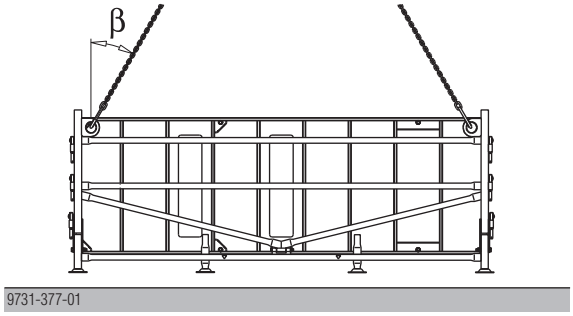
Lifting by crane

➤ Before attaching the lifting chain, check that:

- the vertical profile **(A)** must be secured with a Spring-locked connecting pin 16 mm **(B)**
- all bolt-in tubes **(C)** must be bolted onto the vertical profile **(A)** – pallet closed!

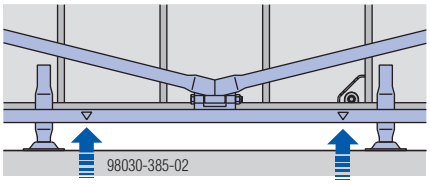


- Multi-trip packaging items may only be lifted one at a time.
- Panels are only allowed to be transported in the pallet if they are stacked in the upright.
- Secure the load in part-loaded pallets!
- Use a suitable lifting chain. (Do not exceed the permitted load capacity). e.g: Doka 4-part chain 3.20m.
- Spread-angle β max. 30°!

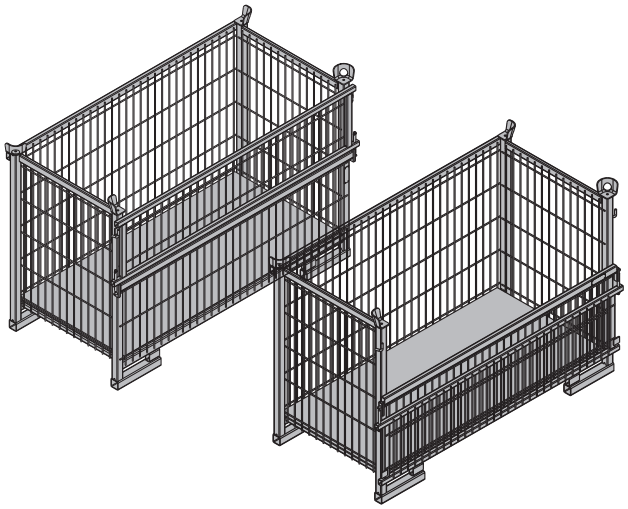


Repositioning by forklift truck or pallet stacking truck

The forks of the stacker truck may only be placed beneath the marked points **(yellow marking)**!



Doka skeleton transport box 1.70x0.80m



Storage and transport devices for small items:

- durable
- stackable

Suitable transport appliances:

- crane
- pallet stacking truck
- forklift truck

To make the "Doka skeleton transport box" easier to load and unload, one of its sidewalls can be opened.

Max. load: 700 kg
Permitted imposed load: 3150 kg

- Multi-trip packaging items that each contain very different loads must be stacked with the heaviest ones at the bottom and the lightest ones at the top!
- Rating plate must be in place and clearly legible

Using Doka skeleton transport boxes 1.70x0.80m as storage units

Max. n° of boxes on top of one another

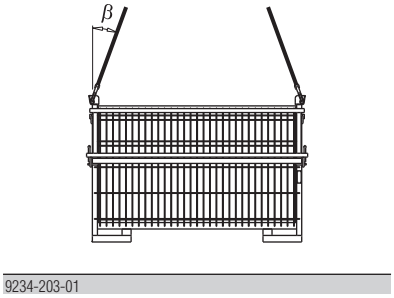
Outdoors (on the site) Floor gradient up to 3%	Indoors Floor gradient up to 1%
2	5
It is not allowed to stack empty pallets on top of one another!	

Using Doka skeleton transport boxes 1.70x0.80m as transport devices

Lifting by crane

➤ Only lift the boxes when their sidewalls are closed!

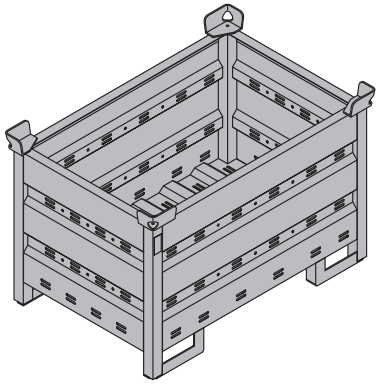
- Multi-trip packaging items may only be lifted one at a time.
- Use a suitable lifting chain. (Do not exceed the permitted load capacity). e.g: Doka 4-part chain 3.20m.
- Spread-angle β max. 30°!



Repositioning by forklift truck or pallet stacking truck

The forks can be inserted under either the broadside or the narrowside of the containers.

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



Storage and transport devices for small items:

- durable
- stackable

Suitable transport appliances:

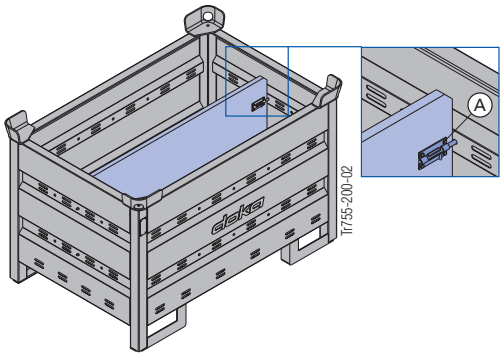
- crane
- pallet stacking truck
- forklift truck

Max. load: 1500 kg Permitted imposed load: 7900 kg

- Multi-trip packaging items that each contain very different loads must be stacked with the heaviest ones at the bottom and the lightest ones at the top!
- Rating plate must be in place and clearly legible

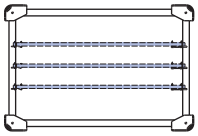
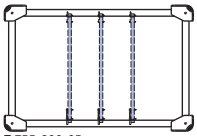
Multi-trip transport box partition

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

Using Doka multi-trip transport boxes as storage units

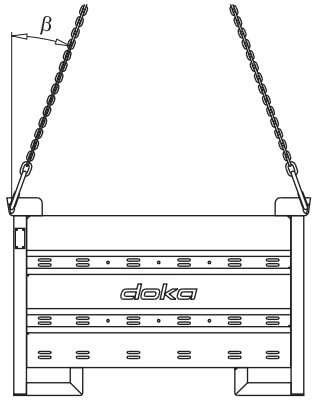
Max. n° of boxes on top of one another

Outdoors (on the site) Floor gradient up to 3%	Indoors Floor gradient up to 1%
3	6
It is not allowed to stack empty pallets on top of one another!	

Using Doka multi-trip transport boxes as transport devices

Lifting by crane

- Multi-trip packaging items may only be lifted one at a time.
- Use a suitable lifting chain. (Do not exceed the permitted load capacity). e.g: Doka 4-part chain 3.20m.
- Spread-angle β max. 30°!



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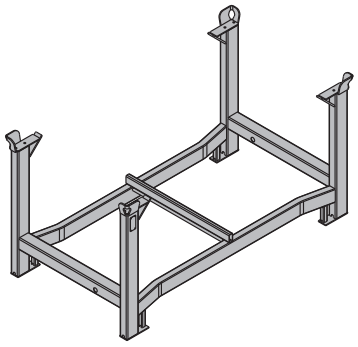
Repositioning by forklift truck or pallet stacking truck

The forks can be inserted under either the broadside or the narrowside of the containers.

Doka stacking pallet 1.55x0.85m and 1.20x0.80m



Storage and transport devices for long items:
- durable
- stackable

Suitable transport appliances:
- crane
- pallet stacking truck
- forklift truck

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

Follow the directions in the "Bolt-on castor set B" Operating Instructions!

Max. load: 1100 kg Permitted imposed load: 5900 kg

- Multi-trip packaging items that each contain very different loads must be stacked with the heaviest ones at the bottom and the lightest ones at the top!
- Rating plate must be in place and clearly legible

Using Doka stacking pallets as storage units

Max. n° of boxes on top of one another

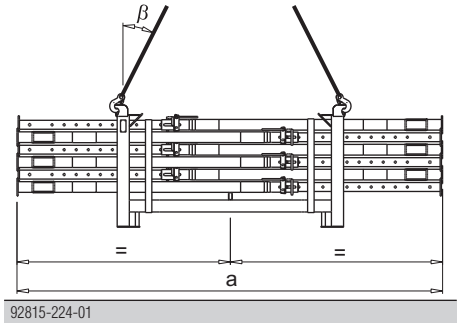
Outdoors (on the site) Floor gradient up to 3%	Indoors Floor gradient up to 1%
2	6
It is not allowed to stack empty pallets on top of one another!	

- **How to use with bolt-on caster set:**
  Always apply the fixing brake when the container is "parked".
  When Doka stacking pallets are stacked, the bottom pallet must NOT be one with a bolt-on caster set mounted to it.

Using Doka stacking pallets as transport devices

Lifting by crane

- Multi-trip packaging items may only be lifted one at a time.
- Use a suitable lifting chain. (Do not exceed the permitted load capacity). e.g: Doka 4-part chain 3.20m.
- Load the items centrically.
- Fasten the load to the stacking pallet so that it cannot slide or tip out.
- When lifting stacking pallets to which Bolt-on castor sets B have been attached, you must also follow the directions in these Operating Instructions!
- Spread-angle β max. 30°!

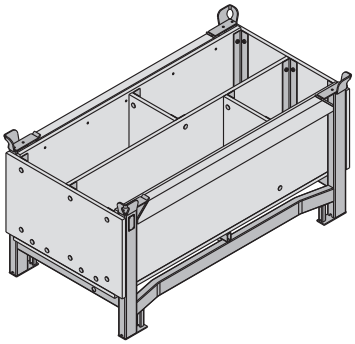


	a
Doka stacking pallet 1.55x0.85m	max. 4.0 m
Doka stacking pallet 1.20x0.80m	max. 3.0 m

Repositioning by forklift truck or pallet stacking truck

- Load the items centrically.
- Fasten the load to the stacking pallet so that it cannot slide or tip out.

Doka accessory box



Storage and transport devices for small items:
- durable
- stackable

Suitable transport appliances:
- crane
- pallet stacking truck
- forklift truck

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.

Follow the directions in the "Bolt-on castor set B" Operating Instructions!

Max. load: 1000 kg
Permitted imposed load: 5530 kg

- Multi-trip packaging items that each contain very different loads must be stacked with the heaviest ones at the bottom and the lightest ones at the top!
- Rating plate must be in place and clearly legible

Doka accessory box as storage units

Max. n° of boxes on top of one another

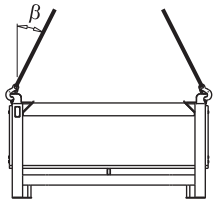
Outdoors (on the site) Floor gradient up to 3%	Indoors Floor gradient up to 1%
3	6
It is not allowed to stack empty pallets on top of one another!	

- **How to use with bolt-on caster set:**
  Always apply the fixing brake when the container is "parked".
  When Doka accessory boxes are stacked, the bottom box must NOT be one with a bolt-on castor set mounted to it.

Doka accessory box as transport devices

Lifting by crane

- Multi-trip packaging items may only be lifted one at a time.
- Use a suitable lifting chain. (Do not exceed the permitted load capacity). e.g: Doka 4-part chain 3.20m.
- When lifting stacking pallets to which Bolt-on castor sets B have been attached, you must also follow the directions in these Operating Instructions!
- Spread-angle β max. 30°!



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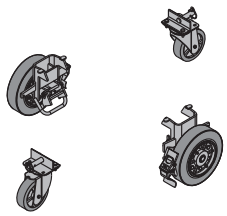
Repositioning by forklift truck or pallet stacking truck

The forks can be inserted under either the broadside or the narrowside of the containers.

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 accessory box
- Doka stacking pallets

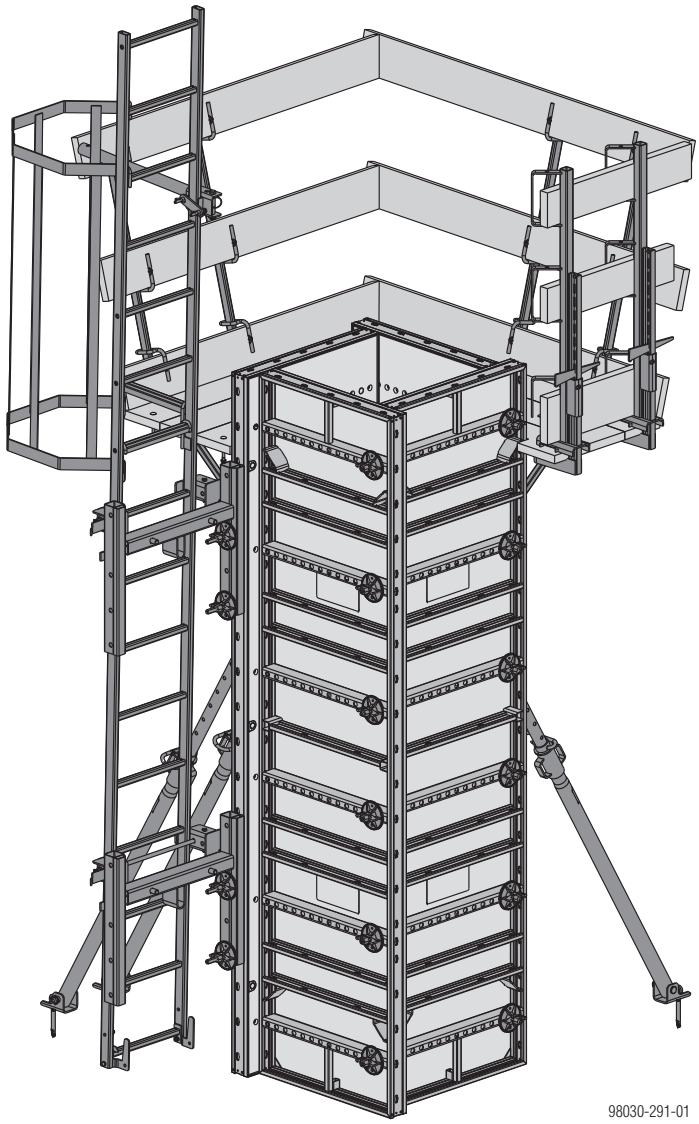
Follow the directions in the Operating Instructions!

Column formwork

There are several different ways of using Frami Xlife framed formwork to make column formworks:

- with **Xlife universal panels**
  - for flexible accommodation to column cross-sections of up to 65 cm x 65 cm in a 5 cm increment-grid.
- combining **Xlife universal panels and standard Xlife panels**
  - is a highly economical solution for certain cross-sections of column
- with **Xlife panels and outside corners**
  - for the two dimensions of 30 cm and 45 cm

Permitted pressure of fresh concrete: **80 kN/m²**



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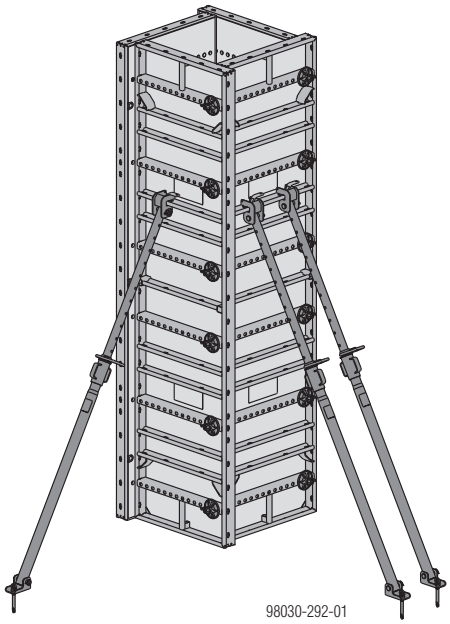
Shown here on Frami Xlife panels 3.00m.

- 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.

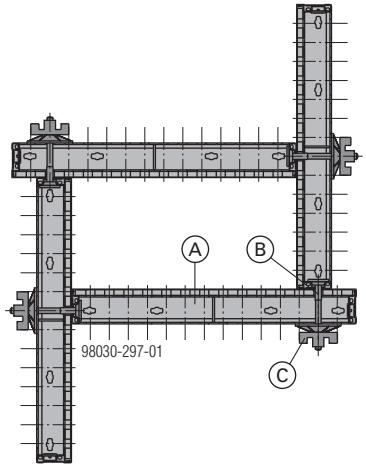
with Frami Xlife universal panels



Shown here on Frami Xlife panels 3.00m.

The practical 5 cm hole-grid is ideal for forming columns. **Cross-sections of up to 65 x 65 cm.**

Possible cross-sections in a 5 cm increment grid



Example: Column 30 cm x 60 cm

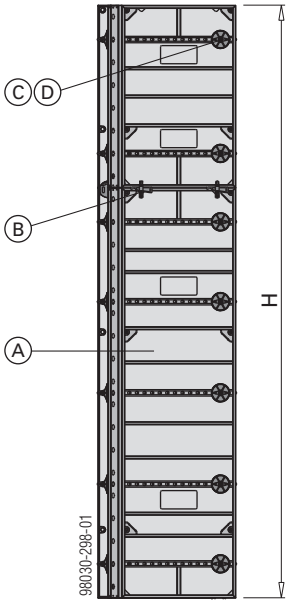
A	Frami Xlife universal panel
B	Frami universal fixing bolt 5-12cm or Frami corner connector
C	Super-plate 15.0

Frami universal fixing bolts / Frami corner connectors:

Permitted tensile load: 15.6 kN (when used in Frami Xlife universal panels)

Close off unneeded grid holes in the form-facing of the Frami Xlife universal panels with **Frami plugs**.

Schedule of materials



Combining panel heights 1.20m and 1.50m

Formwork height **(H)**	Xlife universal panels **(A)**		Frami clamps **(B)**	Universal fixing bolts **(C)**	Super-plates 15.0 **(D)**
	1.20m	1.50m			
1.20m	4			8	8
1.50m		4		12	12
2.40m	8		8	16	16
2.70m	4	4	8	20	20
3.00m		8	8	24	24
3.60m	12		16	24	24
3.90m	8	4	16	28	28
4.20m	4	8	16	32	32
4.50m		12	24	36	36

Combining panel heights 1.20m, 1.50m and 2.70m

Formwork height **(H)**	Xlife universal panels **(A)**			Frami clamps **(B)**	Universal fixing bolts **(C)**	Super-plates 15.0 **(D)**
	1.20m	1.50m	2.70m			
1.20m	4				8	8
1.50m		4			12	12
2.40m	8			8	16	16
2.70m			4		20	20
3.00m		8		8	24	24
3.60m	12			16	24	24
3.90m	4		4	8	28	28
4.20m		4	4	8	32	32

Combining panel heights 1.20m, 1.50m and 3.00m

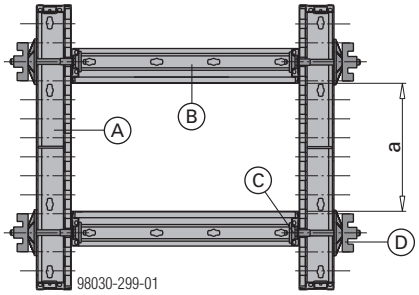
Formwork height **(H)**	Xlife universal panels **(A)**			Frami clamps **(B)**	Universal fixing bolts **(C)**	Super-plates 15.0 **(D)**
	1.20m	1.50m	3.00m			
1.20m	4				8	8
1.50m		4			12	12
2.40m	8			8	16	16
2.70m	4	4		8	20	20
3.00m			4		24	24
3.60m	12			16	24	24
3.90m	8	4		16	28	28
4.20m	4		4	8	32	32
4.50m		4	4	8	36	36

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

with Xlife universal panels and Xlife standard panels

Certain cross-sections of column can be formed highly economically by combining Xlife universal panels and standard Xlife panels.

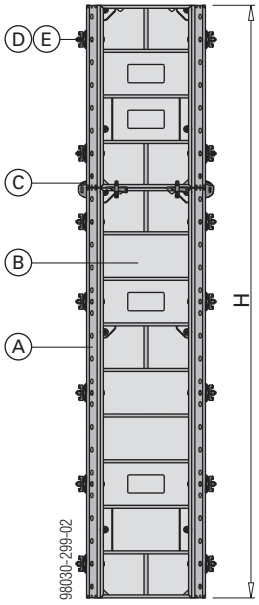
Possible cross-sections:



a ... up to 55 cm, in 5 cm increments
(for constructional design reasons, a deviation of -1 cm is possible here)
Example: Column 35 cm x 60 cm

A Frami Xlife universal panel
B Frami Xlife panel (max. 0.60m)
C Frami universal fixing bolt 5-12cm or Frami corner connector
D Super-plate 15.0

Schedule of materials



Combining panel heights 1.20m and 1.50m

Formwork height **(H)**	Xlife universal panels **(A)**		Panels **(B)**		Frami clamps **(C)**	Universal fixing bolts **(D)**	Super-plates 15.0 **(E)**
	1.20m	1.50m	1.20m	1.50m			
1.20m	2		2			8	8
1.50m		2		2		12	12
2.40m	4		4		8	16	16
2.70m	2	2	2	2	8	20	20
3.00m		4		4	8	24	24
3.60m	6		6		16	24	24
3.90m	4	2	4	2	16	28	28
4.20m	2	4	2	4	16	32	32
4.50m		6		6	24	36	36

Combining panel heights 1.20m, 1.50m and 2.70m

Formwork height **(H)**	Xlife universal panels **(A)**			Panels **(B)**			Frami clamps **(C)**	Universal fixing bolts **(D)**	Super-plates 15.0 **(E)**
	1.20m	1.50m	2.70m	1.20m	1.50m	2.70m			
1.20m	2			2				8	8
1.50m		2			2			12	12
2.40m	4			4			8	16	16
2.70m			2			2		20	20
3.00m		4			4		8	24	24
3.60m	6			6			16	24	24
3.90m	2		2	2		2	8	28	28
4.20m		2	2		2	2	8	32	32

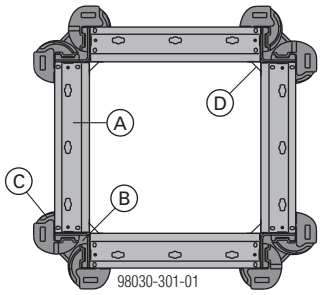
Combining panel heights 1.20m, 1.50m and 3.00m

Formwork height **(H)**	Xlife universal panels **(A)**			Panels **(B)**			Frami clamps **(C)**	Universal fixing bolts **(D)**	Super-plates 15.0 **(E)**
	1.20m	1.50m	3.00m	1.20m	1.50m	3.00m			
1.20m	2			2				8	8
1.50m		2			2			12	12
2.40m	4			4			8	16	16
2.70m	2	2		2	2		8	20	20
3.00m			2			2		24	24
3.60m	6			6			16	24	24
3.90m	4	2		4	2		16	28	28
4.20m	2		2	2		2	8	32	32
4.50m		2	2		2	2	8	36	36

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

with outside corners and Xlife panels

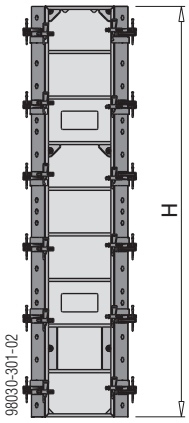
Column dimensions of **30 cm** and **45 cm** can also be formed using **outside corners** and **Xlife panels**.



Example: Column 45 cm x 45 cm

A Frami Xlife panel (max. 45cm)
B Outside corner
C Frami clamp
D Triangular ledge

Schedule of materials

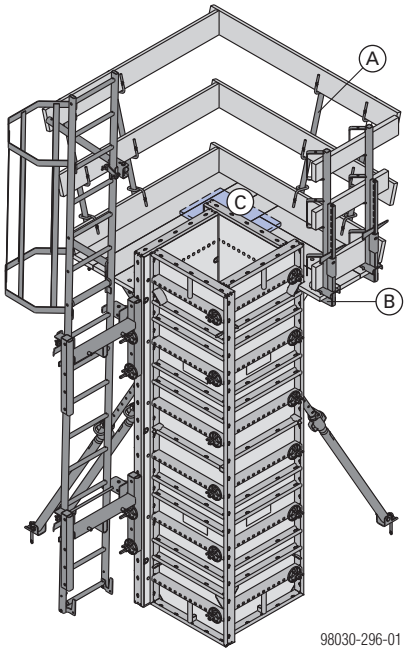


Example: Outside corners 2.70m with Xlife panels 0.45 x 2.70m

Panel height **(H)**	Panels **(A)**				Outside corners **(B)**				Frami clamps **(C)**
	1.20m	1.50m	2.70m	3.00m	1.20m	1.50m	2.70m	3.00m	
1.20m	4				4				24
1.50m		4				4			24
2.70m			4				4		48
3.00m				4				4	48

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

Pouring platforms with Frami bracket 60



A	Frami bracket 60 (deck and guard-rail boards provided at site)
B	Handrail clamp S (guard-rail boards provided at site)
C	Board for screwing the platform decking onto

Note:
Where the two platform planking units meet, a board must be screwed onto the underside.

The brackets must be secured against accidental lift-out

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

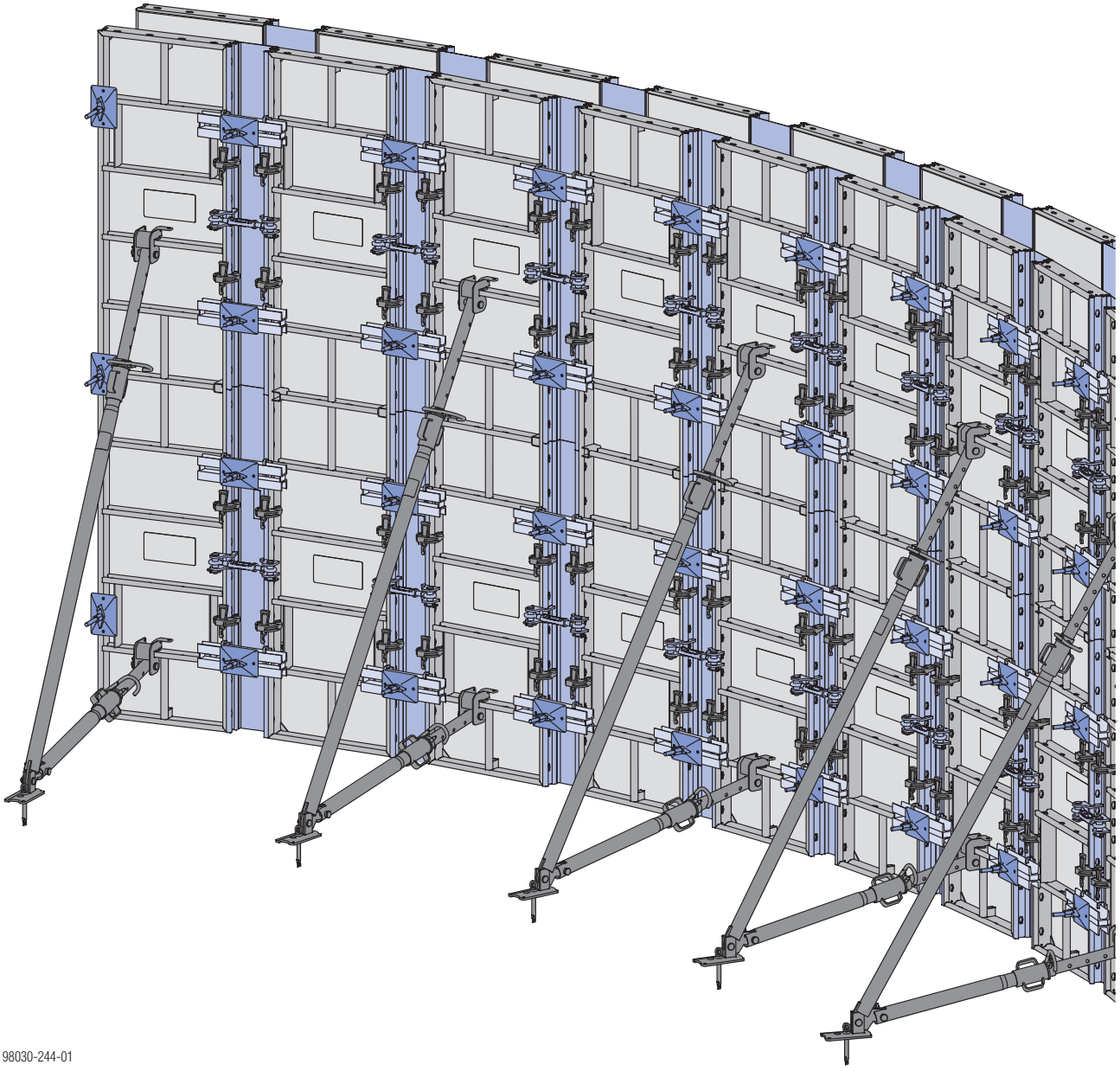
Circular formwork

The quick way to form "in the round" - the Frami circular forming plates will get your framed formwork "around" any curve!

With the Frami circular forming plates and the panels of the Frami Xlife framed formwork, "circular" (i.e. polygonal) structures can be formed.

A particularly cost-cutting factor in practice is the fact that you can use your existing Frami Xlife panels and all accessories such as panel struts and pouring platforms from the Frami Xlife range.

This makes circular forming of curved concrete structures with Frami circular forming plates from Doka **universal, economical and fast**.



98030-244-01

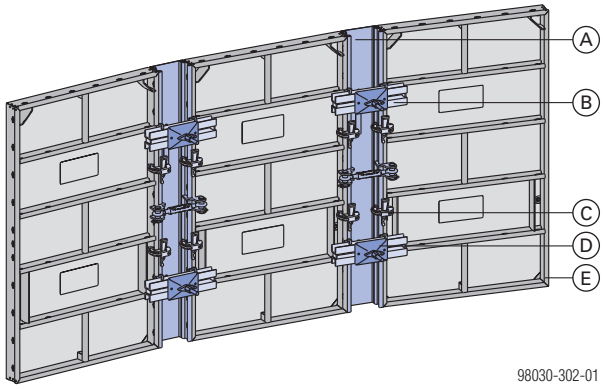
Shown here on Frami Xlife panels 3.00m.

Design of the circular formwork

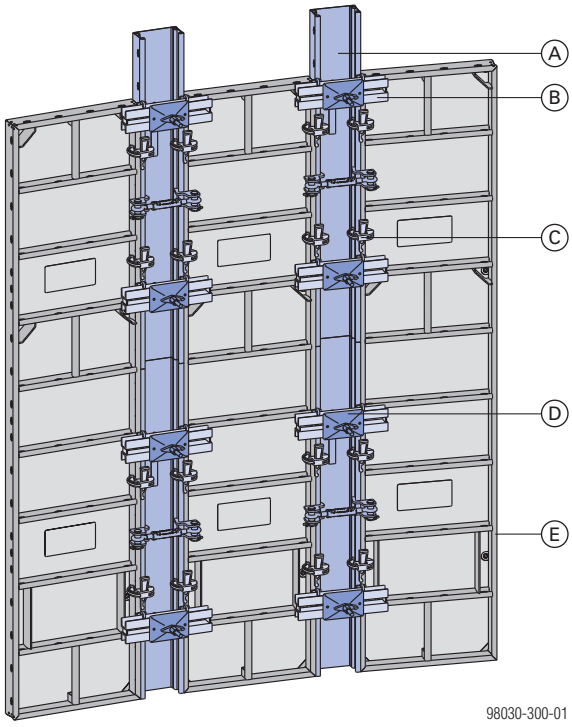
By combining the Frami circular forming plates with the Frami Xlife panels, round structures – of any radius – can be formed.

Minimum inside radius: 1.80 m

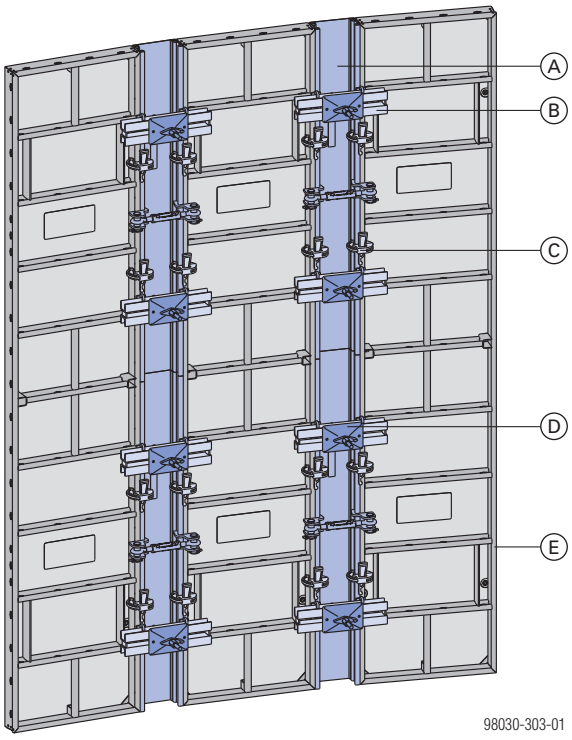
In the same way as with the wall formwork, all that is needed to connect the Frami circular forming plates to the Frami Xlife panels is the **Frami clamp** – and a blow of the hammer.



Shown here on Frami Xlife panels 1.50m.



Shown here on Frami Xlife panels 2.70m.

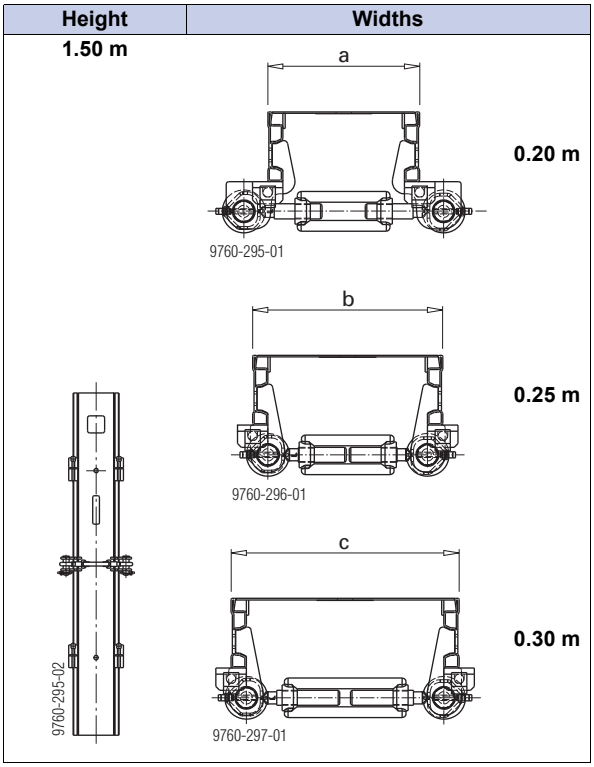


Shown here on Frami Xlife panels 3.00m.

A	Frami circular forming plate
B	Frami anchor waling 0.40m
C	Frami clamp
D	Angle anchor plate 12/18 with Wing nut 15.0
E	Frami Xlife panel

Frami circular forming plates

Height	Widths
1.50 m	

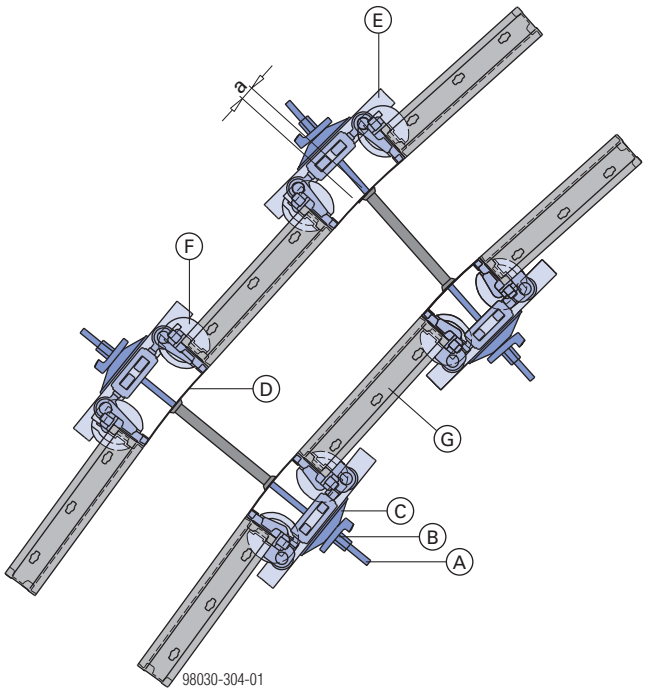


a ... 20 cm, b ... 25 cm, c ... 30 cm

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

Tying the circular forming plates



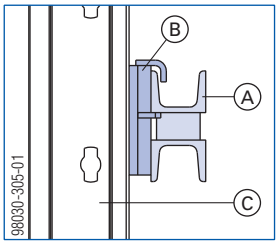
a ... maximum tie-rod displacement = ± 2.5 cm

A	Tie-rod 15.0mm
B	Wing nut 15.0
C	Angle anchor plate 12/18
D	Frami circular forming plate
E	Frami anchor waling 0.40m
F	Frami clamp
G	Frami 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 Frami circular forming plates, ensure that the top and bottom turnbuckle are turned uniformly!

Close-up view showing how the Frami anchor waling 0.40m is fastened:



A	Frami anchor waling 0.40m
B	Support and retainer for Frami anchor waling 0.40m
C	Frami circular forming plate

Closing the full-circle formwork

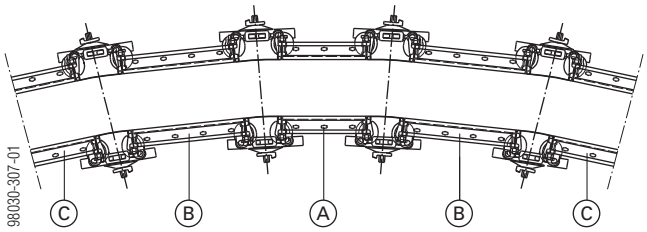
The remaining areas for closing a full circle can be formed in a number of different ways.

Around the perimeter, use panels of equal width wherever possible.

- To keep the load transferred via the Frami anchor waling 0.40m as uniform as possible, adjacent panels may not have bigger width differences than those of the standard incremental width grid.
- This also applies to transition zones to straight walls, and to stop-ends.

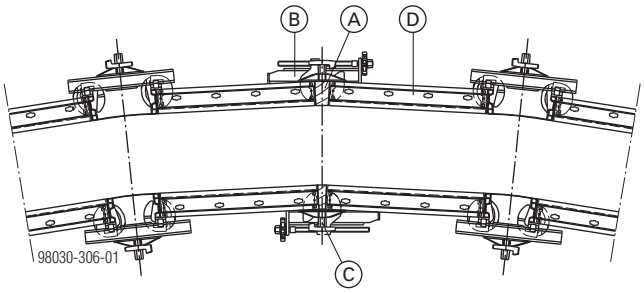
With circular formwork, it is particularly important to ensure uniform pouring.

Closure with Frami Xlife panel



A	Frami Xlife panel e.g. 0.45m
B	Frami Xlife panel e.g. 0.60m
C	Frami Xlife panel e.g. 0.75m

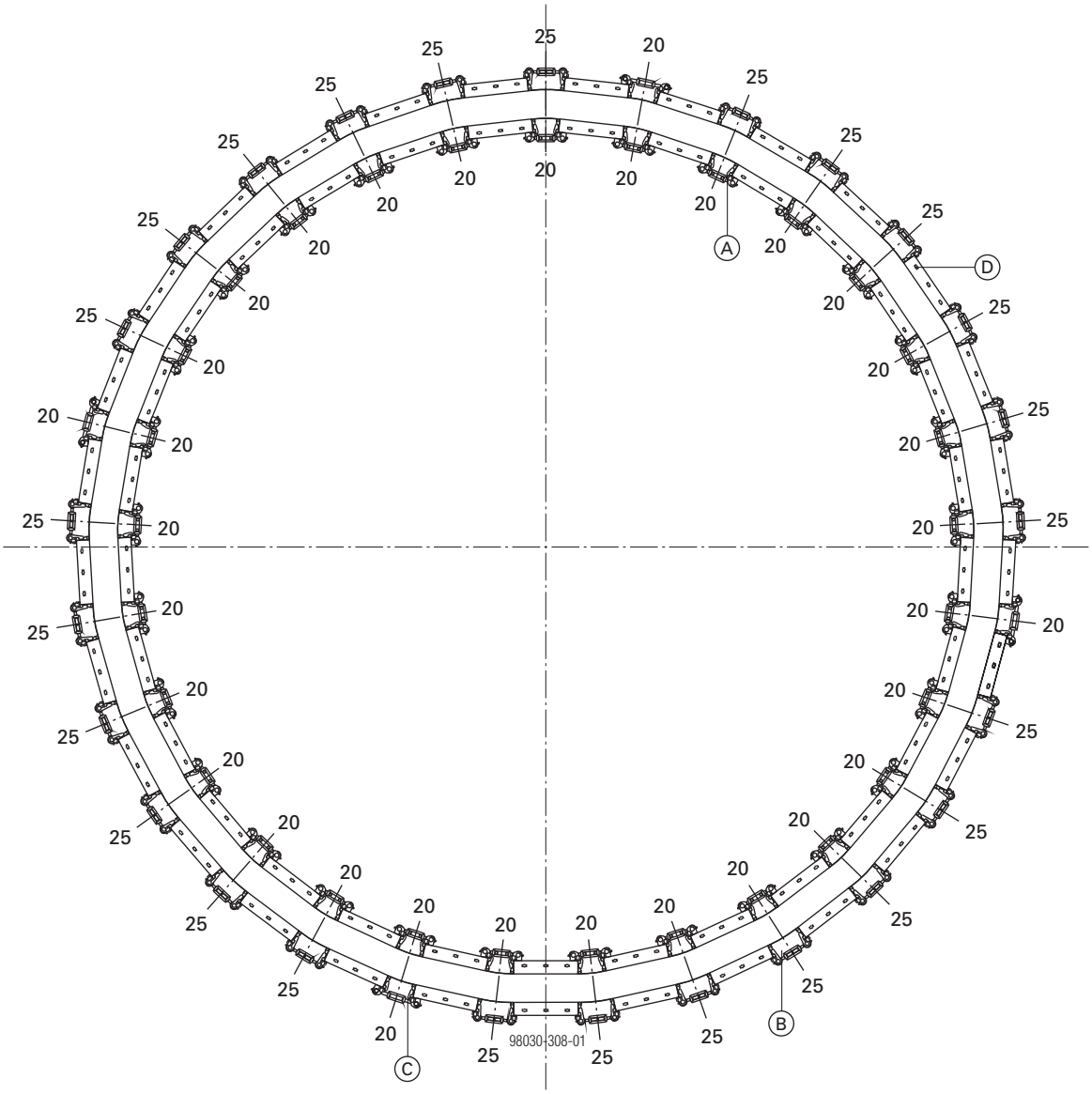
Closures with wedged timbers



A	Wedged timber
B	Frami adjustable clamp
C	Angle anchor plate 12/18 + Wing nut 15.0
D	Frami Xlife panel

Example of formwork

- Type of structure: Circular tank
- Inside radius of structure: 3.00 m
- Wall thickness: 0.20 m



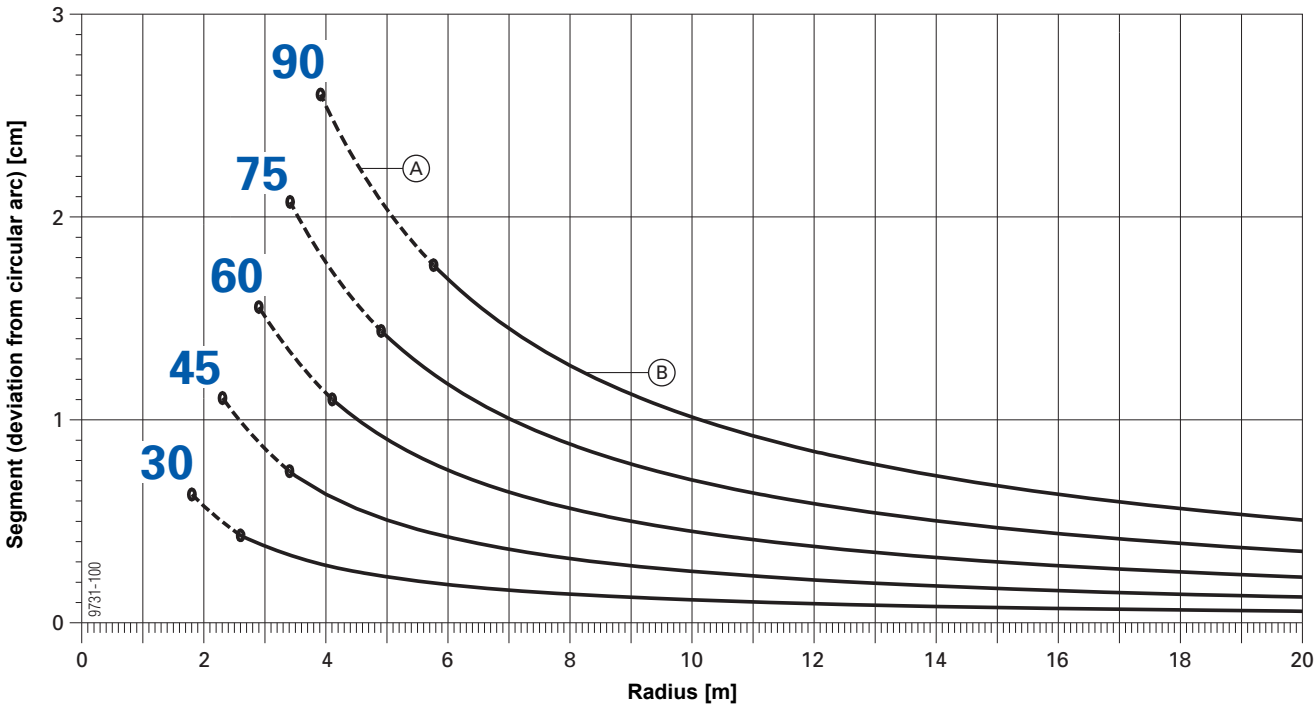
Simplified representation, without details of form-ties or panel struts.

A	Frami circular forming plate 0.20m (for the inside formwork)
B	Frami circular forming plate 0.25m (for the outside formwork)
C	Frami circular forming plate 0.20m (for length adjustment; distribute these evenly around circumference)
D	Frami Xlife panel 0.45m (**Note:** same-sized panels are always used both inside and out.)

Determining the max. panel width

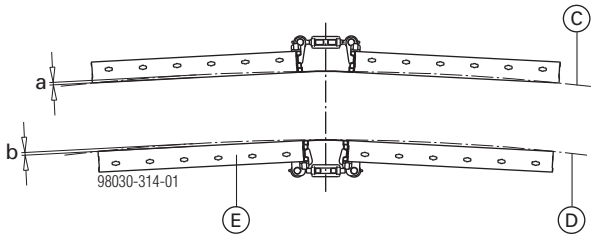
Radius segment diagram for the various widths of panel

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

C Ideal circular arc (outside radius)

D Ideal circular arc (inside radius)

E Frami 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:

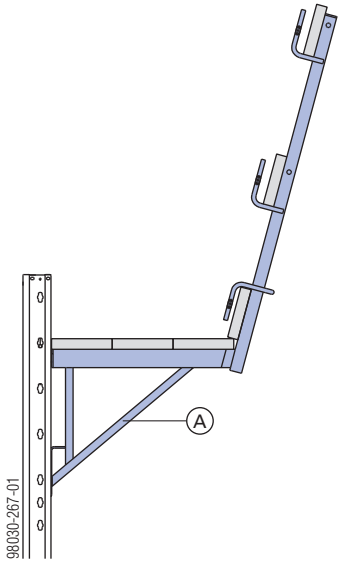
The formwork panels must be held stable in **every** phase of the construction work!

Please observe all applicable safety regulations!

For more information, see the section headed "Plumbing accessories".

Pouring platform

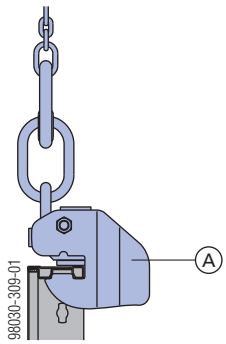
The **Frami brackets 60 (A)** can be used to make a universal pouring platform.



For more information, please see "Pouring platforms with single brackets".

Resetting

Thanks to the spindle-lock, the formwork can be reset using the **Frami 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 Frami lifting hook has engaged!

For more information, see "Resetting by crane".

Follow the directions in the Operating Instructions!

Single-sided formwork

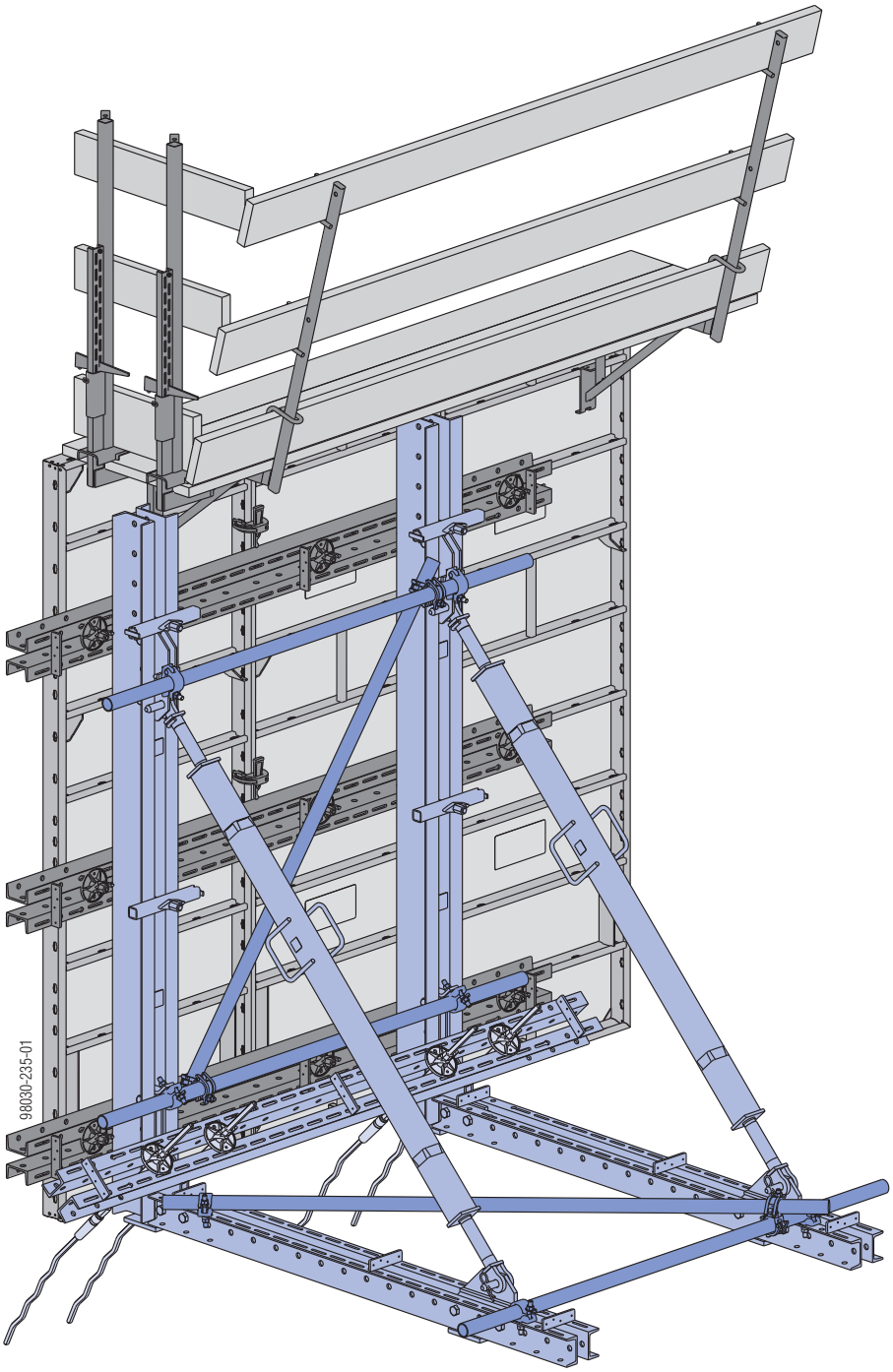
In conjunction with the "Supporting construction" or "Supporting construction frame Variabel", the rugged Frami Xlife panels can also be used as one-sided wall formwork.

Where it is not possible to place a form-tie through the formwork panels to anchor them to the opposing formwork, "Supporting constructions" and "Supporting construction frames" enable the concrete forces to be safely transferred.

Permitted pressure of the fresh concrete: **40 kN/m²**

Doka offers **2 different ways** of supporting Frami Xlife panels when these are used as one-sided wall formwork:

- **Supporting construction**
  - for pour heights of up to 1.20 m
- **"Variabel" supporting construction frame**
  - for pour heights of up to 3.60 m



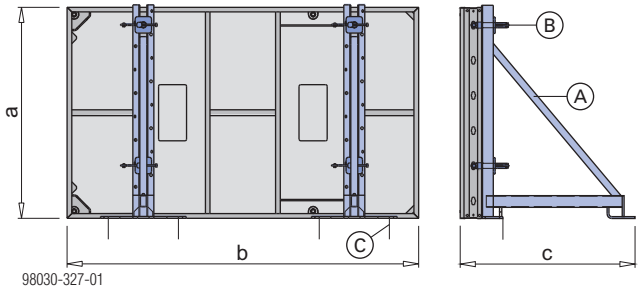
Shown here on Frami Xlife panels 2.70m.

Pour heights of up to 1.20 m - using "Supporting construction"

The "Supporting construction" makes it possible to form walls of up to 1.20 m in height (such as stop-ends for foundation slabs) without using through-ties, and with only a minimum of labour. This does away with the need for time-consuming in-situ improvisations.

The panels are attached to the supporting constructions by means of Frami wedge clamps. The horizontal and vertical forces resulting from the concrete pressure are transferred into the ground.

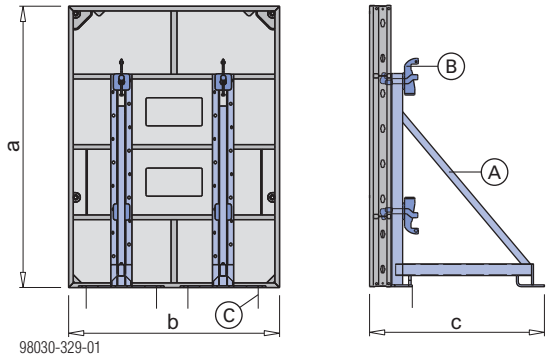
For pour heights of up to 0.90 m



a ... 0.90 m
b ... 1.50 m
c ... 0.75 m

A	Supporting construction
B	Frami wedge clamp
C	Anchorage

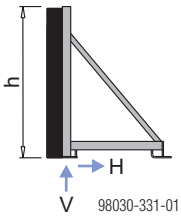
For pour heights of up to 1.20 m



a ... Max. pour height 1.20 m
b ... 0.90 m
c ... 0.75 m

A	Supporting construction
B	Frami wedge clamp
C	Anchorage

Structural design



Pour-height **h** [m]	Influence width **e** [m]	Vertical force $\mathbf{V_k}$ [kN]	Horizontal force $\mathbf{H_k}$ [kN]
0.30	3.00	0.00	3.40
0.45	3.00	0.20	7.60
0.60	1.80	1.00	8.10
0.75	1.15	1.80	8.10
0.90	0.80	2.60	8.10
1.05	0.60	3.40	8.10
1.20	0.45	4.10	8.10

The vertical and horizontal forces (V_k and H_k) must be transferred into the ground by suitable means – e.g. 2 ground nails per supporting construction, or dowel-and-screw type fixing points in the sub-base course (no need to prepare anchoring points).

Pour heights of up to 3.60 m - using "Variabel" supporting construction frame

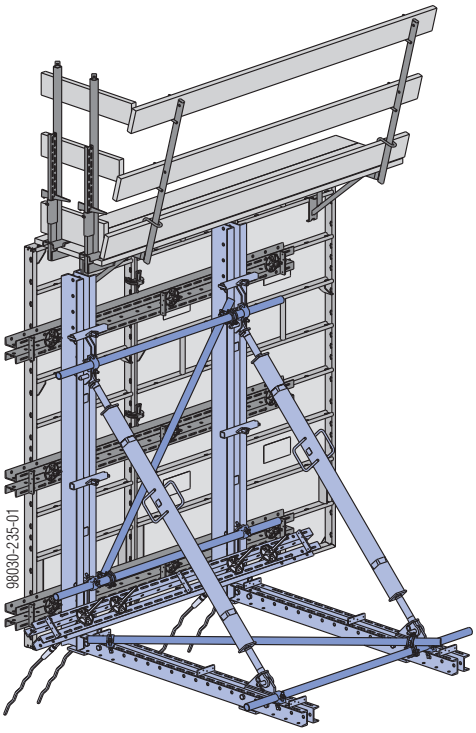
The "Variabel" supporting construction frame is an easy way of combining standard multipurpose walings and accessories to make supporting construction frames. The tensile forces are reliably transferred by means of diagonal anchors.

You will find detailed information (**on structural design, materials needed, mounting, repositioning, anchoring etc.**) in the User Information booklet "Doka supporting construction frames".

For more information, please contact your Doka technician.

Basic rules:

1. Position of the supporting construction frames:
   - for pour heights of up to 3.00 m: spaced max. 1.35 m apart
   - for pour heights of up to 3.60 m: over every panel joint (spaced max. 0.90 m apart)
2. Minimum length of the Multi-purpose walings WS10 Top50:
   - width of the supporting construction frame unit + 2 x 28 cm (excess width on either side)
3. Number of Multi-purpose walings WS10 Top50:
   - 3, for pour heights of up to 3.00 m
   - 4, for pour heights of up to 3.60 m
4. Position of the Multi-purpose walings WS10 Top50:
   - See the examples illustrated



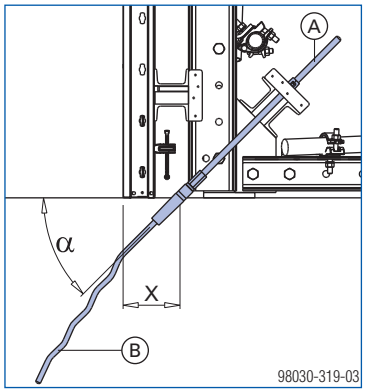
Shown here on Frami Xlife panels 2.70m.

Note:

Instead of Multi-purpose walings WS10 Top50, it is also possible to use Steel walings WS10 Top50.

Connection details

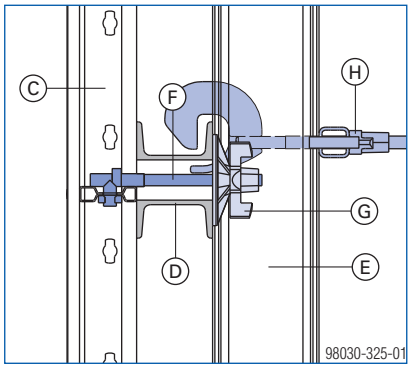
Anchoring in the base slab



α ... max. 45°
X ... 16.0 cm

A	She-bolt
B	Pigtail anchor

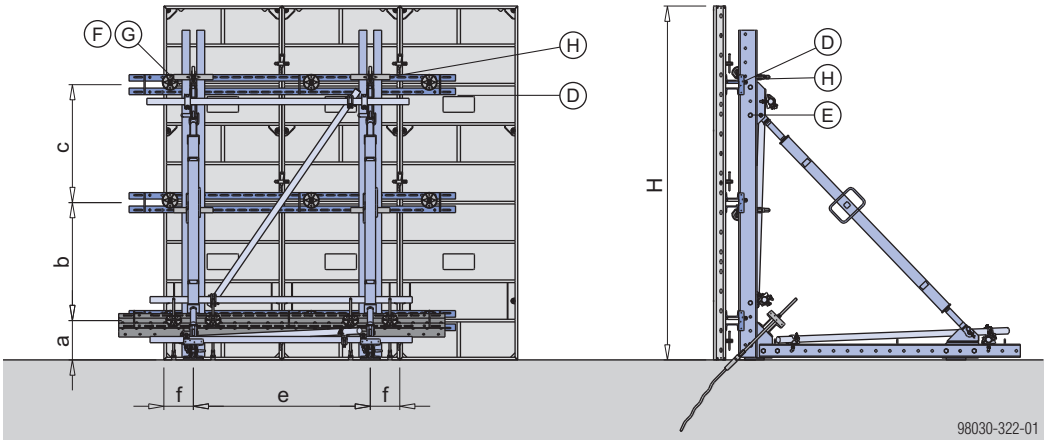
Fixing the panel



C	Frami Xlife panel
D	Multi-purpose waling WS10 Top50
E	"Variabel" supporting construction frame
F	Frami universal fixing bolt 5-12cm
G	Super-plate 15.0
H	Waling-to-bracket holder

with Xlife panel 2.70m

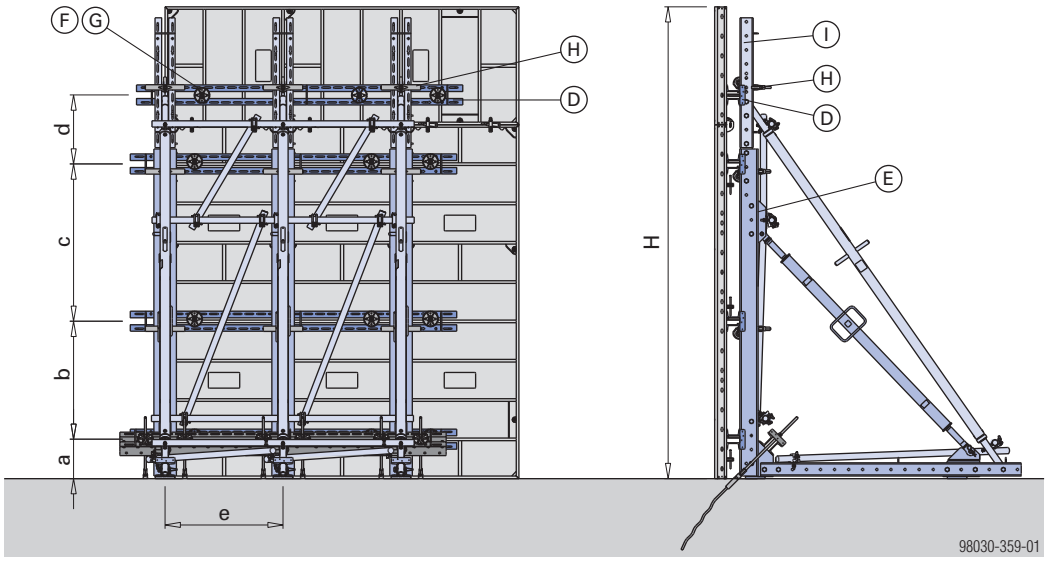
For pour heights of up to 3.00 m



Formwork height **H** [cm]	Position of multipurpose walings [cm]			Position of the supporting construction frames [cm]	
	a	**b**	**c**	e_{max}	**f**
270	30	90	90	135	22.5
300	30	120	90		

D Multi-purpose waling WS10 Top50
E "Variabel" supporting construction frame
F Frami universal fixing bolt 5-12cm
G Super-plate 15.0
H Waling-to-bracket holder

For pour heights of up to 3.60 m



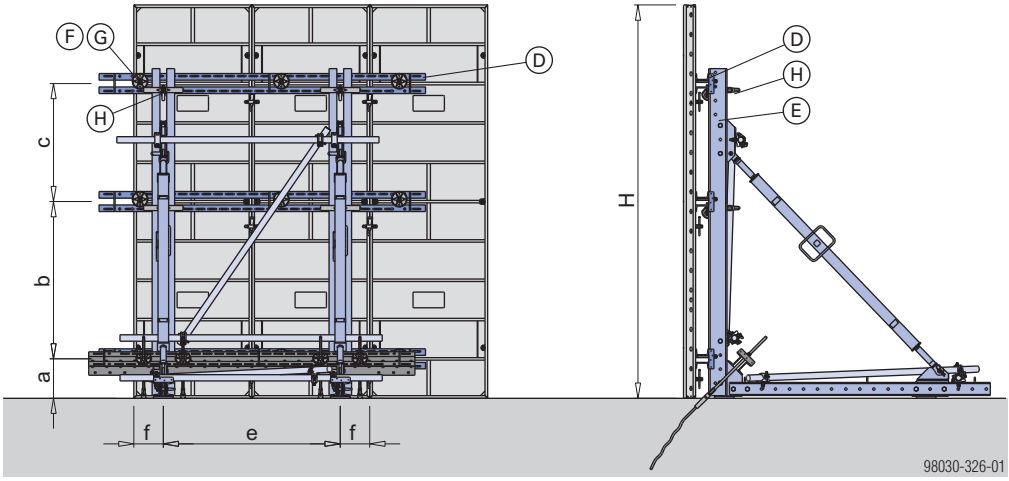
Formwork height **H** [cm]	Position of multipurpose walings [cm]				Position of the supporting construction frames [cm]
	a	**b**	**c**	**d**	e_{max}
315 and 330	30	90	90	82.5	90 [1]
345 and 360	30	90	120	52.5	

[1] Over every panel joint (spaced max. 90 cm apart)

D Multi-purpose waling WS10 Top50
E "Variabel" supporting construction frame
F Frami universal fixing bolt 5-12cm
G Super-plate 15.0
H Waling-to-bracket holder
I Vertical extension of supporting construction frame

with Xlife panel 3.00m

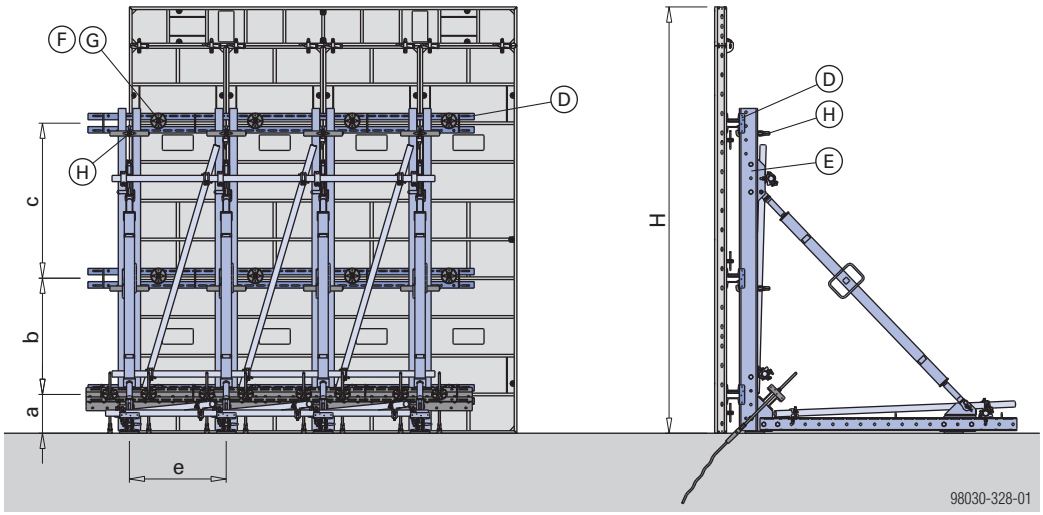
For pour heights of up to 3.00 m



Formwork height **H** [cm]	Position of multipurpose walings [cm]			Position of the supporting construction frames [cm]	
	a	**b**	**c**	e_{max}	**f**
300	30	120	90	135	22.5

D Multi-purpose waling WS10 Top50
E "Variabel" supporting construction frame
F Frami universal fixing bolt 5-12cm
G Super-plate 15.0
H Waling-to-bracket holder

For pour heights of up to 3.30 m

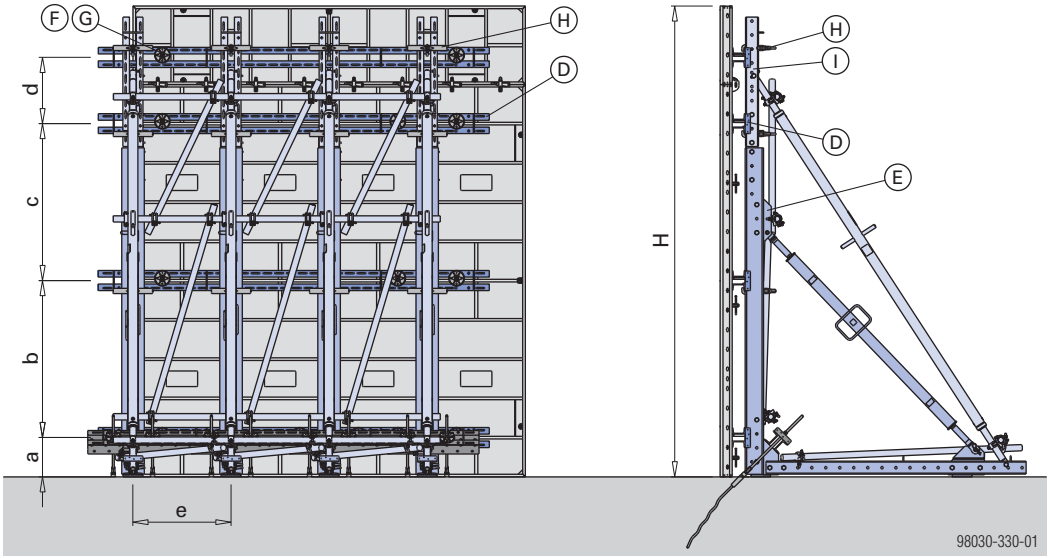


Formwork height **H** [cm]	Position of multipurpose walings [cm]			Position of the supporting construction frames [cm]
	a	**b**	**c**	e_{max}
330	30	90	120	90 [1]

[1] Over every panel joint (spaced max. 90 cm apart)

D Multi-purpose waling WS10 Top50
E "Variabel" supporting construction frame
F Frami universal fixing bolt 5-12cm
G Super-plate 15.0
H Waling-to-bracket holder

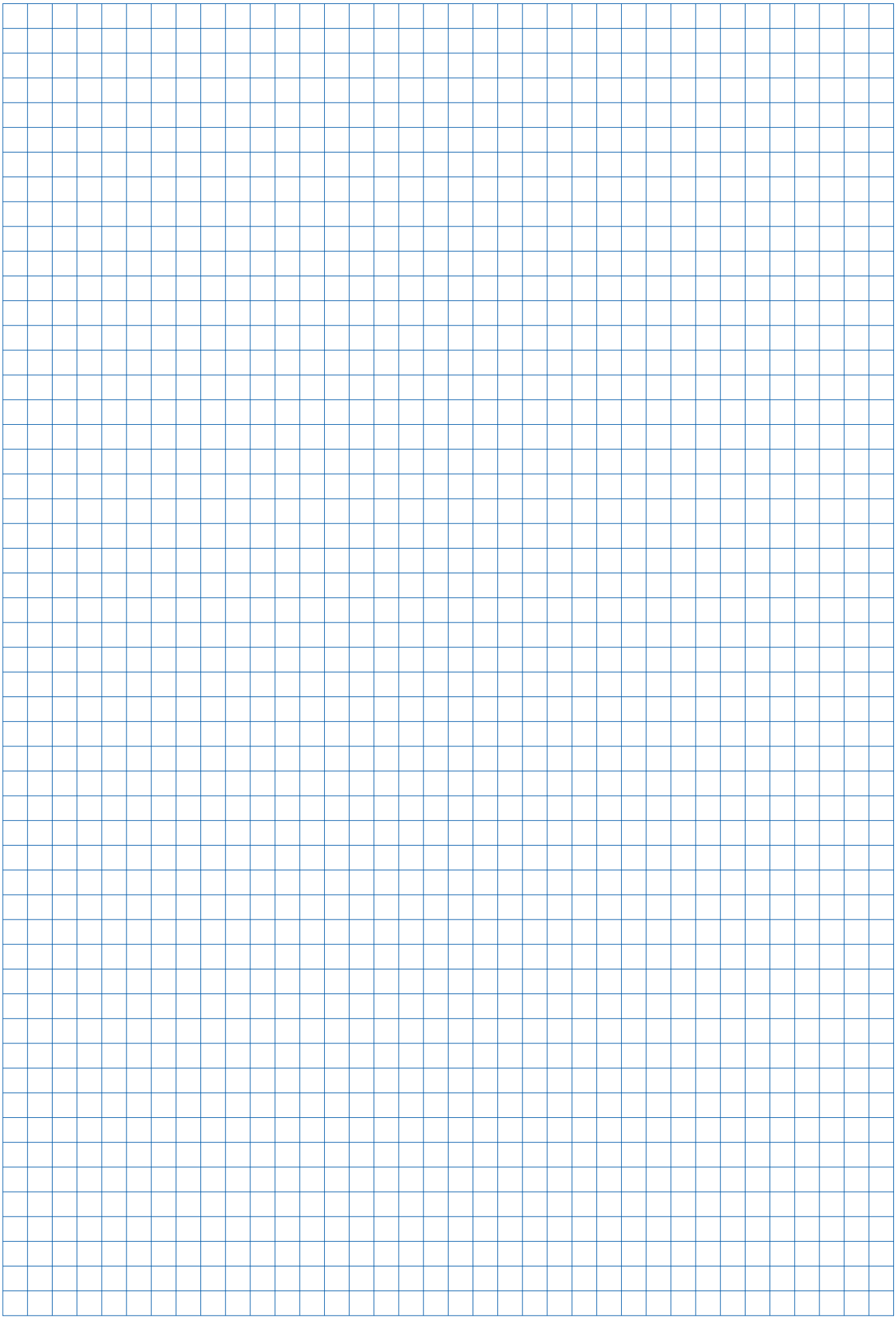
For pour heights of up to 3.60 m



Formwork height **H** [cm]	Position of multipurpose walings [cm]				Position of the supporting construction frames [cm]
	a	**b**	**c**	**d**	e_{max}
345 and 360	30	120	120	52.5	90 [1)]

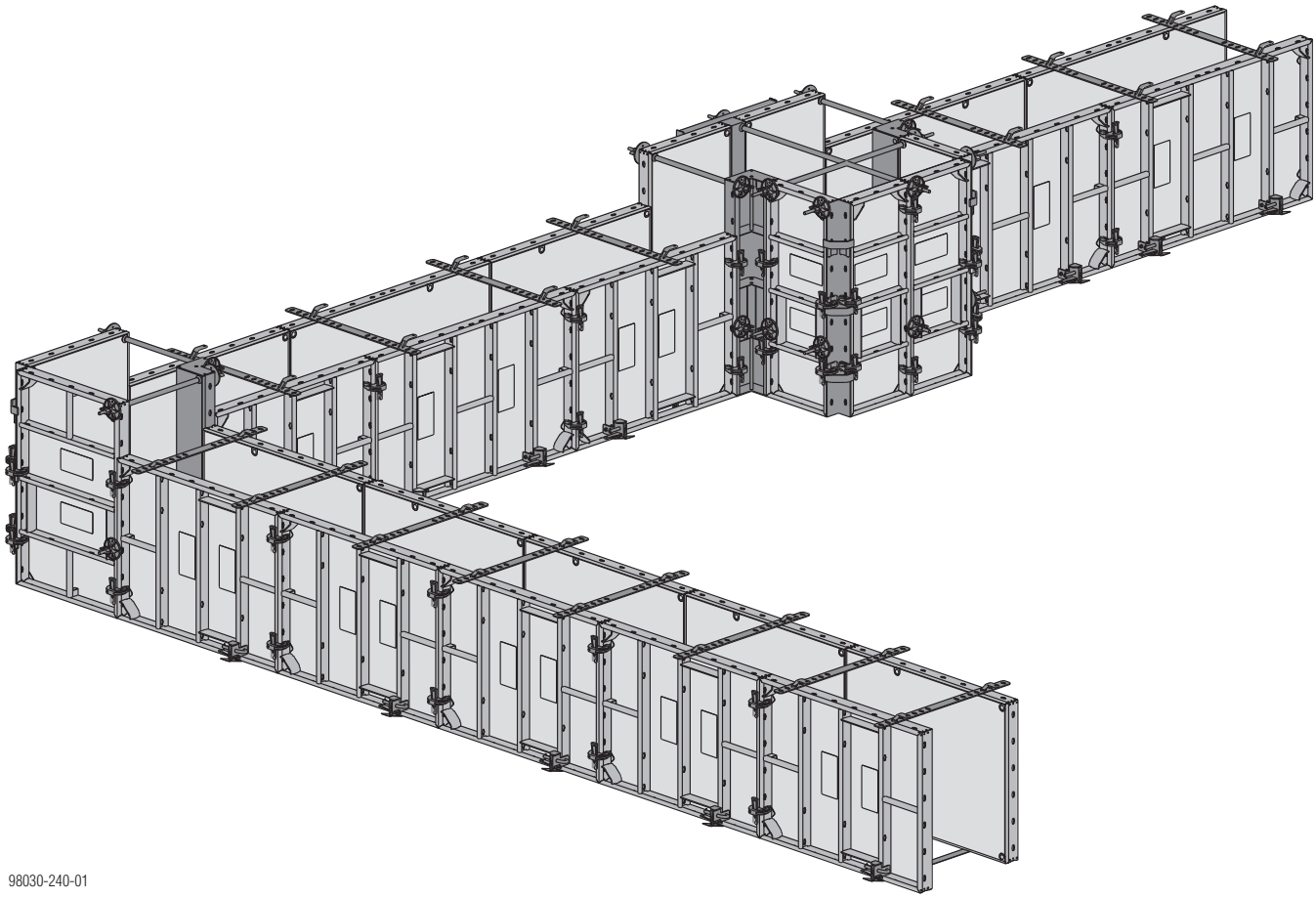
[1)] Over every panel joint (spaced max. 90 cm apart)

D Multi-purpose waling WS10 Top50
E "Variabel" supporting construction frame
F Frami universal fixing bolt 5-12cm
G Super-plate 15.0
H Waling-to-bracket holder
I Vertical extension of supporting construction frame



Foundation formwork

The Frami 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. Footings and grade beams can quickly be formed with any of the Frami Xlife panels, with the panels either upright or horizontal. Frami clamps, and a knock with a hammer, are all it takes to join the panels. Length closures and corners are just as easy to solve here as they are on "normal" walls. A range of practical accessories makes the work very much easier.

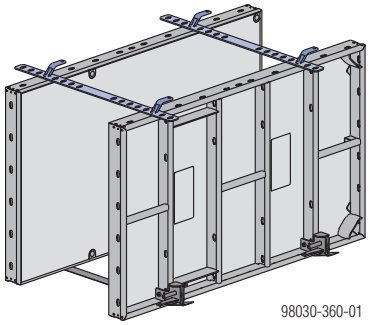


98030-240-01

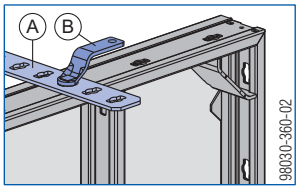
Tying horizontal Xlife panels

Top tie

with Frami flat tie-rods and Frami clips



- Tie-rod is held above panel (not in the concrete)



A Frami flat tie-rod 10-80cm
B Frami clip

Frami flat tie-rod:
Permitted capacity: 5.0 kN

Frami clip:
Permitted tensile force: 10.0 kN
Permitted shear force: 5.0 kN
Permitted moment: 0.2 kNm

Number of ties needed:

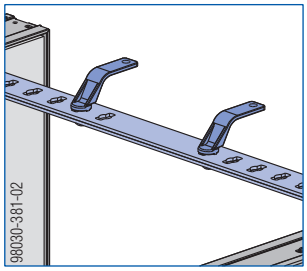
Frami Xlife panel (horizontal)	Number of ties
1.20m	2 / 1 *)
1.50m	2 / 1 *)
2.70m	2
3.00m	2

*) In every other panel, only one tie is needed.
Two ties are needed in the first panel, and two in the last panel.

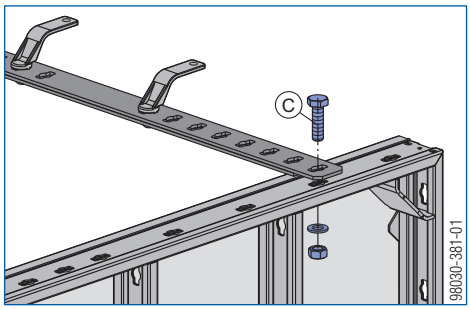
Possible wall thicknesses:

Wall thicknesses	Grid	Number of Frami flat tie-rods
10 - 80 cm	5 cm	1 per tie
85 - 115 cm		2 per tie *)
121.3 - 171.3 cm		2 per tie *)

*) join these flat tie-rods with 2 Frami clips.



Special case where wall thickness is 85 cm:

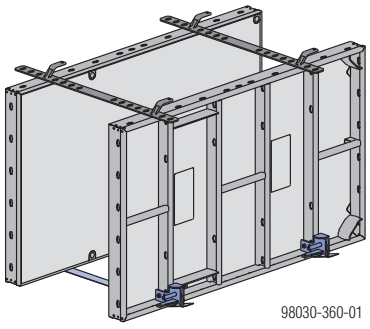


At one end of the flat tie-rod, use a bolt (instead of a Frami clip) to fix the flat tie-rod to the Frami panel.

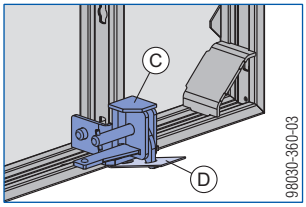
C M16x45 bolt (site-provided)

Bottom tie

with Doka perforated tape and Frami foundation clamps



- Tie is held beneath the panel
- Wall thicknesses: in 5 cm increments

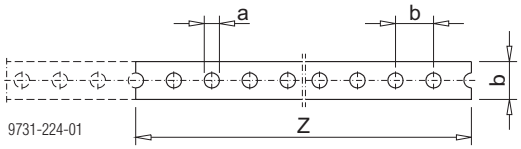


C Frami foundation clamp

D Doka perforated tape 50x2.0mm (expendable anchoring component)

Frami foundation clamp:
Permitted capacity: 8.0 kN

Doka perforated tape 50x2.0mm 25m



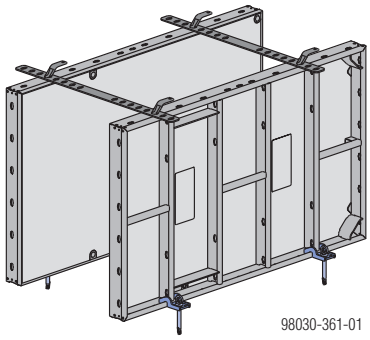
a ... 18 mm
b ... 50 mm
Z ... Length cut off roll: Wall thickness + 40 cm

Required numbers of Doka perforated tapes:

Formwork height	Frami Xlife panel (horizontal)	Number of Doka perforated tapes	Position
Up to 75 cm	1.20m	2 / 1 *)	Right next to the panel joint
	1.50m		
	2.70m	2	Each 60 cm from the panel joint
	3.00m		
Up to 90 cm	1.20m	2 / 1 *)	Right next to the panel joint
	1.50m	2	
	2.70m	2 + 1	2, one of them 60 cm and the other 120 cm from the panel joint
	3.00m		

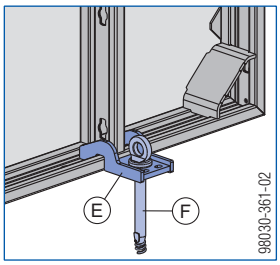
*) In every other panel, only one Doka perforated tape is needed. Two Doka perforated tapes are needed in the first panel, and two in the last panel.

with Frami floor fixing plates and Doka Express anchors 16x125mm



- The form-tie is not in the concrete

Important note:
Only use Frami floor fixing plates on foundation slabs and concrete floor-slabs.



E Frami floor fixing plate

F Doka Express anchor 16x125mm + Doka coil 16mm

Frami floor fixing plate:
Permitted capacity in B10 concrete: 8.0 kN
Permitted capacity in B20 concrete: 11.0 kN
Required concrete thickness: min. 16 cm

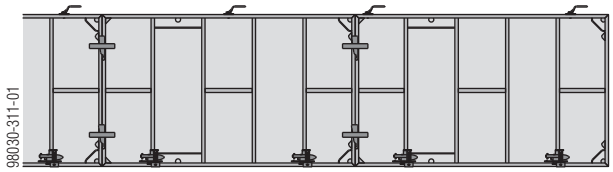
Required numbers of Frami floor fixing plates:

Concrete grade of the foundation slab	Formwork height	Frami Xlife panel (horizontal)	Number of Frami floor fixing plates	Position
B10	Up to 75 cm	1.20m	1	Right next to the panel joint
		1.50m		
		2.70m	2	Each 60 cm from the panel joint
		3.00m		
	Up to 90 cm	1.20m	1	Right next to the panel joint
		1.50m	2	
		2.70m	3	2 of them each 40 cm from the panel joint, 1 of them in the middle
		3.00m		
B20	Up to 90 cm	1.20m	1	Right next to the panel joint
		1.50m		
		2.70m	2	Each 60 cm from the panel joint
		3.00m		

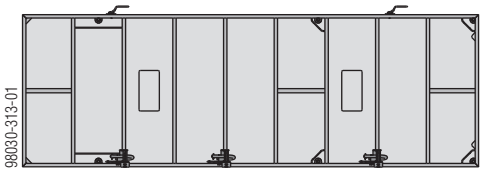
Practical example

with Doka perforated tape and Frami foundation clamps

Frami Xlife panel 0.90x1.50m

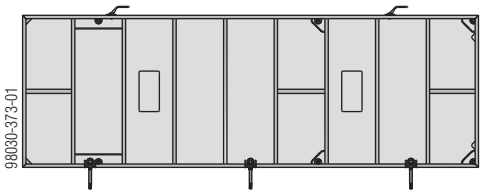


Frami Xlife panel 0.90x2.70m



with Frami floor fixing plates and Doka Express anchors 16x125mm

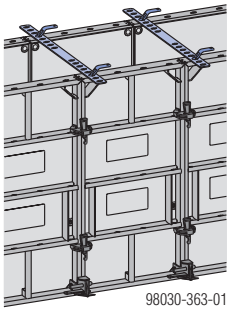
Frami Xlife panel 0.90x2.70m



Tying upright Xlife panels

Top tie

with Frami flat tie-rods and Frami clips



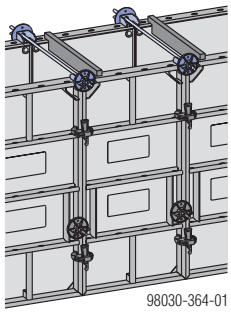
Required numbers of Frami flat tie-rods:

Frami Xlife panel (upright)	Number of Frami flat tie-rods	Position
1.20m	1 / 2 *)	Right next to the panel joint
1.50m		

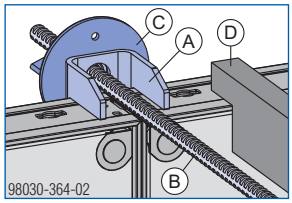
*) Two Frami flat tie-rods are needed in the first panel, and two in the last panel.

For more information, see "Tying horizontal Xlife panels".

with Frami anchoring brackets and Tie-rod system 15.0



- Tie-rod is held above panel (not in the concrete)



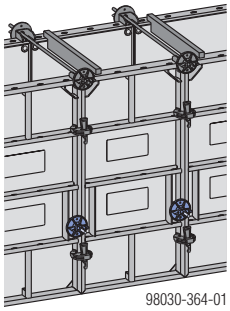
A Frami anchoring bracket
B Tie-rod 15.0mm
C Super-plate 15.0
D Wooden spacer

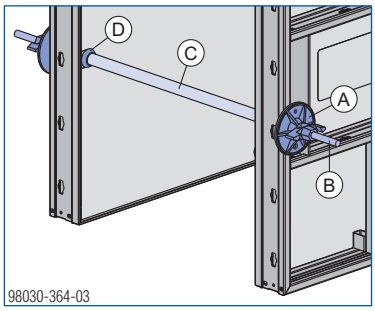
Required numbers of Frami anchoring brackets:

Frami Xlife panel (upright)	Number and position of Frami anchoring brackets
1.20m	Over every panel joint
1.50m	

Bottom tie

with Tie-rod system 15.0


98030-364-01



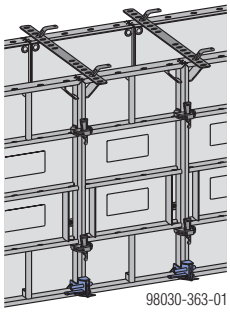
98030-364-03

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

Required number of form-ties:

Frami Xlife panel (upright)	Number and position of form-ties
1.20m	At every panel joint
1.50m	

with Doka perforated tape and Frami foundation clamps


98030-363-01

Max. pour-heights:

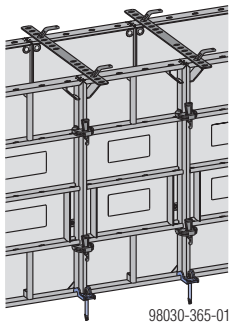
Panel width	Max. pour height	
	Panel height **1.20m**	Panel height **1.50m**
0.90 m	1.00 m	0.90 m
0.75 m	1.10 m	1.00 m
0.60 m	1.20 m	1.20 m

Required numbers of Doka perforated tapes:

Frami Xlife panel (upright)	Number and position of Doka perforated tapes
1.20m	Over every panel joint
1.50m	

For more information, see "Tying horizontal Xlife panels".

with Frami floor fixing plates and Doka Express anchors 16x125mm


98030-365-01

Important note:
Only use Frami floor fixing plates on foundation slabs and concrete floor-slabs.

Max. pour-heights:

Concrete grade of the foundation	Panel width	Max. pour height	
		Panel height **1.20m**	Panel height **1.50m**
B10	0.90 m	1.00 m	0.95 m
	0.75 m	1.10 m	1.05 m
	0.60 m	1.20 m	1.20 m
	0.45 m		1.45 m
B20	0.90 m	1.20 m	1.10 m
	0.75 m		1.20 m
	0.60 m		1.30 m
	0.45 m		1.50 m

Required numbers of Frami floor fixing plates:

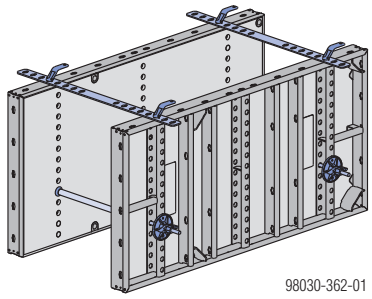
Frami Xlife panel (upright)	Number and position of Frami floor fixing plates
1.20m	Over every panel joint
1.50m	

For more information, see "Tying horizontal Xlife panels".

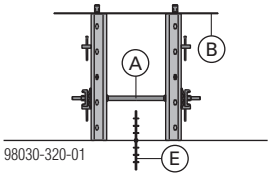
Tying horizontal Xlife universal panels

With Frami Xlife universal panels, it is possible to tie them above a joint-sealing tape.

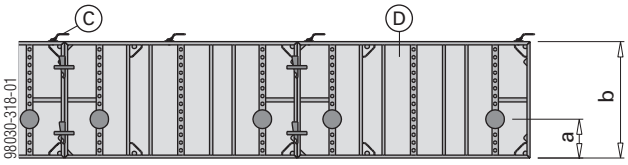
Note:
The max. tying height is 250 mm – do not place the tie higher than this!



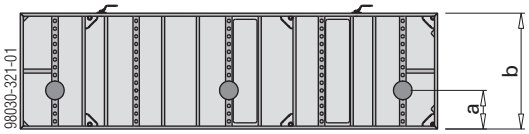
Practical example



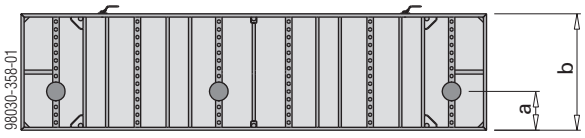
Frami Xlife universal panel 0.75x1.50m



Frami Xlife universal panel 0.75x2.70m



Frami Xlife universal panel 0.75x3.00m

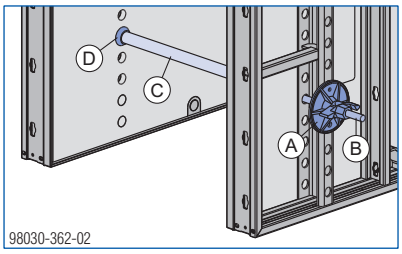


a ... Max. tying height = 250 mm
b ... 750 mm

A	Form-tie 15.0
B	Frami flat tie-rod
C	Frami clip
D	Frami Xlife universal panel
E	Joint-sealing tape

Tying inside the panel:

with Tie-rod system 15.0



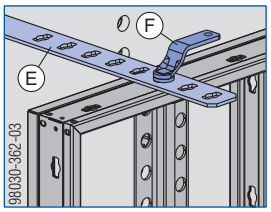
A	Super-plate 15.0
B	Tie-rod 15.0mm
C	Plastic tube 22mm
D	Universal cone 22mm

Required number of form-ties:

Frami Xlife universal panel (horizontal)	Number of ties
1.20m	2
1.50m	2
2.70m	3
3.00m	3

Pressure bracing at top

with Frami flat tie-rods and Frami clips



E	Frami flat tie-rod 10-80cm
F	Frami clip

Required numbers of Frami flat tie-rods:

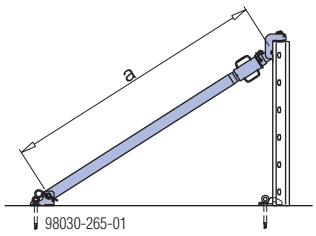
Frami Xlife universal panel (horizontal)	Number of Frami flat tie-rods
1.20m	2 / 1 *)
1.50m	2 / 1 *)
2.70m	2
3.00m	2

*) In every other panel, only one Frami flat tie-rod is needed.
Two Frami flat tie-rods are needed in the first panel, and two in the last panel.

Plumbing and aligning, shoring, working platforms

Plumbing the panels with the Frami plumbing strut 260

The panels of the foundation formwork can be safely parked and plumbed with the aid of the Frami plumbing strut 260.



a ... min. 147 cm, max. 256 cm

For more information, see the section headed "Plumbing accessories".

Working platform / shoring with Frami adjustment frame

For lower formwork heights, the Frami adjustment frame is an optimum solution, enabling you to put up a working platform and shore the formwork in one single operation.

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

Board thickness for support centres of up to 2.50 m:

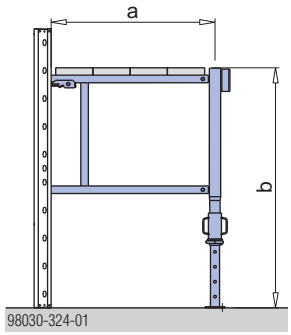
- Deck-boards min. 20x5 cm

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.

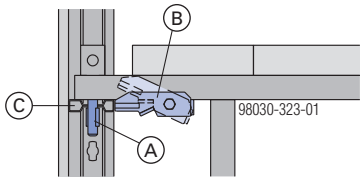
Permitted service load: 1.5 kN/m² (150 kg/m²)
Load Class 2 to EN 12811-1:2003
Max. influence width: 1.50 m



a ... 880 mm
b ... 1000 to 1300 mm

It can also be combined with the Handrail post 1.00m.

Self-locking connector:



A	Fastening bolt
B	Self-locking connector
C	Cross profile of the Xlife panel

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

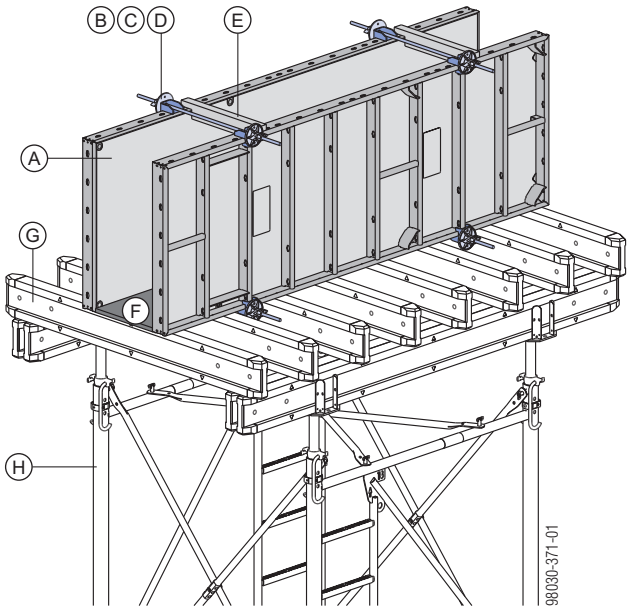
Required numbers of Frami anchoring brackets:

Frami Xlife panel (horizontal)	Number of Frami anchoring brackets	
	At top	**At bottom**
1.20m	2 / 1 *)	2 / 1 *)
1.50m	2 / 1 *)	2 / 1 *)
2.70m	2	2
3.00m	2	2
Downturned beam height: max. 90 cm		

*) In every other panel, only one Frami anchoring bracket is needed. Two Frami anchoring brackets are needed in the first panel, and two in the last panel.

Frami anchoring bracket:
Permitted capacity: 10 kN

Example with 0.90x2.70m panel



A	Frami Xlife panel 0.90x2.70m
B	Frami 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)

Formwork planning with Tipos-Doka

Tipos-Doka helps you to form even more efficiently

Tipos-Doka 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

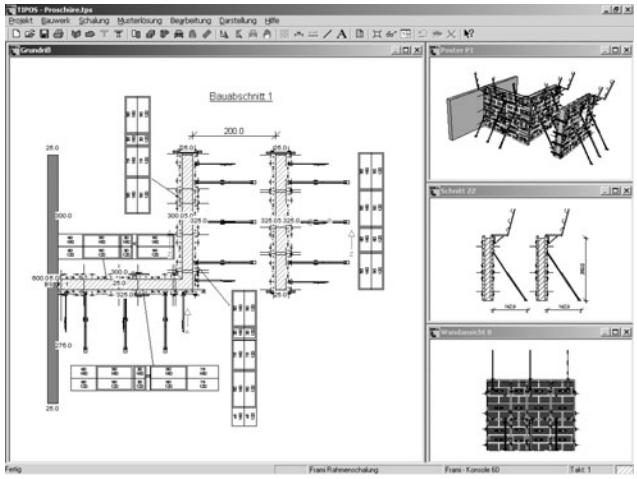
The easy-to-use interface makes for very fast working. From when you input your layout (with the "Schal-Igel"® on-screen assistant), all the way through to when you manually put the finishing touches to the formwork solution the program gives you. All this saves time - yours.

The program contains a large number of templates and wizards, 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.

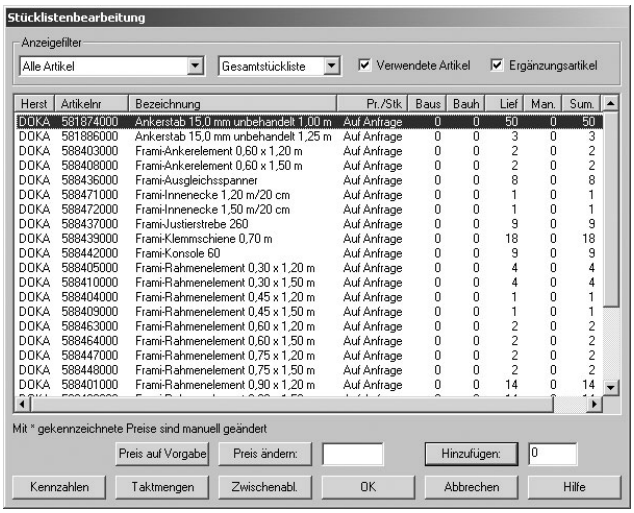
Among other things, Tipos-Doka plans the following with Frami Xlife:

- Distribution of 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.

Cleaning and care of your equipment

The **special coating on the Xlife sheet** greatly reduces the amount of cleaning that is needed.

Cleaning

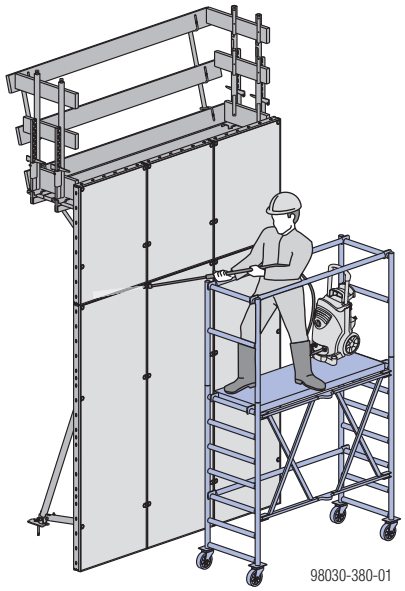
Immediately after pouring

➤ 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.

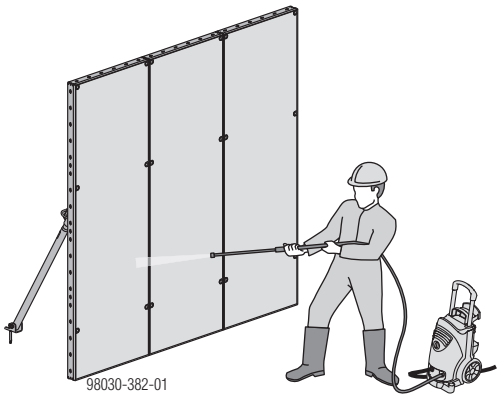


e.g. Wheel-around scaffold DF

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**.

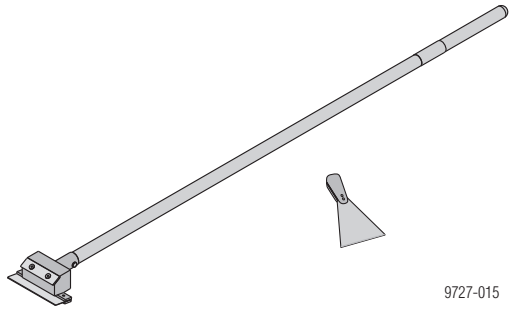


Observe the following points:

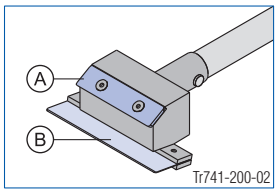
- Appliance pressure rating: 200 to max. 300 bar
- Keep the water-jet the correct distance from the formwork, and move it at the right speed:
  - The higher the pressure, the further away from the formwork you must keep the jet and the faster you must move it across the surface.
- Make only moderate 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.

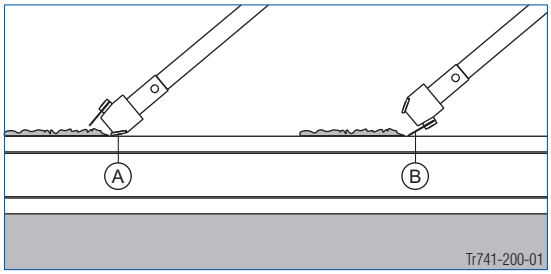
Concrete scraper

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



Functional description:

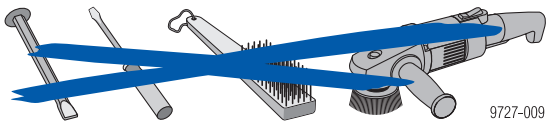




A Blade for dealing with heavy soiling
B Blade for dealing with slight soiling

Note:

Do not use any pointed or sharp objects, wire brushes, rotating grinding disks or pan scourers.



Release agents

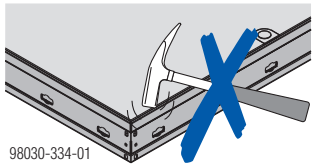
Before every pour

➤ 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.

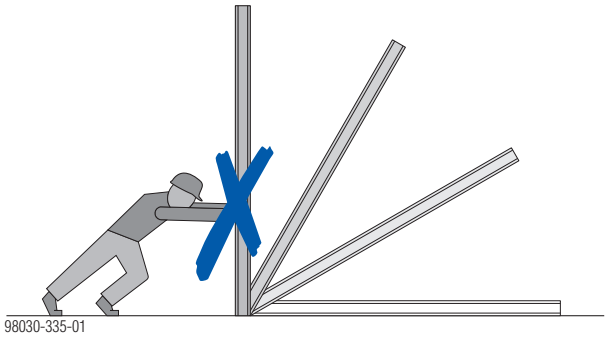
To determine the right dosage and to make sure that you are using the agent correctly, test it on less important parts of the structure first.

Care

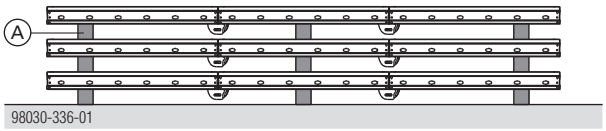
- No hammer-blows to the frame profiles



- 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.

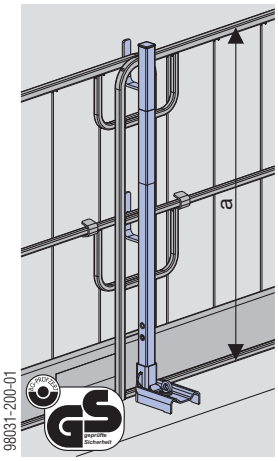


This prevents the formwork sheets from being damaged by the connector components.

Fall-arrest systems on the structure

Handrail post XP 1.20m

- Attached with Screw-on shoe XP, railing clamp, Handrail-post shoe or Step bracket XP
- Protective grating XP, guard-rail boards or scaffold tubes can be used as the safety barrier

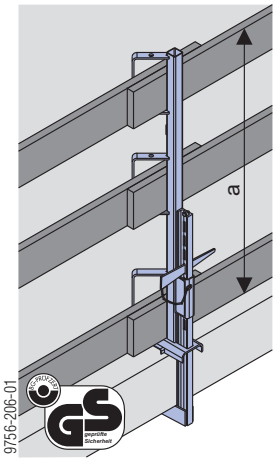


a ... > 1.00 m

Follow the directions in the "Edge protection system XP" User Information booklet!

Handrail clamp S

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

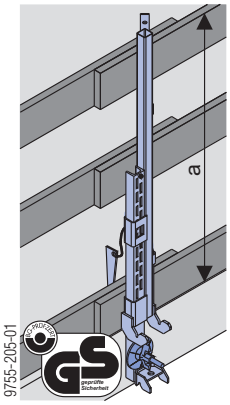


a ... > 1.00 m

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

Handrail clamp T

- Fixed in embedded anchoring components or reinforcement hoops
- Guard-rail boards or scaffold tubes can be used as the safety barrier

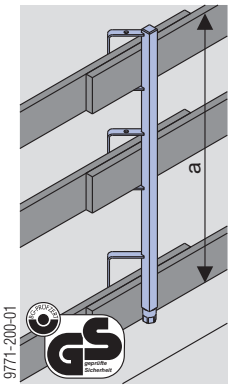


a ... > 1.00 m

Follow the directions in the "Handrail clamp T" User Information!

Handrail post 1.10m

- Fixed in a Screw sleeve 20.0 or Attachable sleeve 24mm
- Guard-rail boards or scaffold tubes can be used as the safety barrier



a ... > 1.00 m

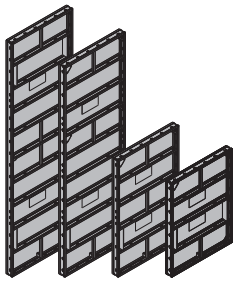
Follow the directions in the "Handrail post 1.10m" User Information!

	[kg]	Article n°
Frami Xlife panel 0.30x1.20m	**19.5**	**588405500**
Frami Xlife panel 0.45x1.20m	**24.0**	**588404500**
Frami Xlife panel 0.60x1.20m	**29.5**	**588463500**
Frami Xlife panel 0.75x1.20m	**33.5**	**588447500**
Frami Xlife panel 0.90x1.20m	**39.0**	**588401500**
Frami Xlife panel 0.30x1.50m	**24.8**	**588410500**
Frami Xlife panel 0.45x1.50m	**28.9**	**588409500**
Frami Xlife panel 0.60x1.50m	**35.5**	**588464500**
Frami Xlife panel 0.75x1.50m	**38.0**	**588448500**
Frami Xlife panel 0.90x1.50m	**46.5**	**588406500**
Frami Xlife panel 0.30x2.70m	**40.3**	**588483500**
Frami Xlife panel 0.45x2.70m	**49.5**	**588482500**
Frami Xlife panel 0.60x2.70m	**60.5**	**588465500**
Frami Xlife panel 0.75x2.70m	**69.5**	**588449500**
Frami Xlife panel 0.90x2.70m	**79.2**	**588481500**
Frami Xlife panel 0.30x3.00m	**45.0**	**588415500**
Frami Xlife panel 0.45x3.00m	**54.3**	**588414500**
Frami Xlife panel 0.60x3.00m	**65.0**	**588413500**
Frami Xlife panel 0.75x3.00m	**76.5**	**588412500**
Frami Xlife panel 0.90x3.00m	**86.5**	**588411500**

Frami Xlife-Element

Galvanised

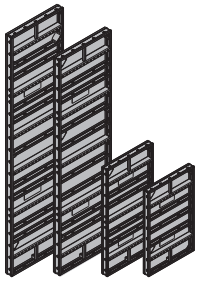
Custom sizes on enquiry!



Frami Xlife universal panel 0.75x1.20m	**39.0**	**588402500**
Frami Xlife universal panel 0.75x1.50m	**49.5**	**588407500**
Frami Xlife universal panel 0.75x2.70m	**83.5**	**588484500**
Frami Xlife universal panel 0.75x3.00m	**93.0**	**588416500**

Frami Xlife-Uni-Element

Galvanised



Frami anchoring panel 0.60x1.50m	**37.8**	**588408000**
Frami anchoring panel 0.60x1.20m	**32.1**	**588403000**

Frami-Ankerelement

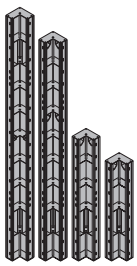
Galvanised

Corners marked in green

Frami inside corner 1.20m 20cm	**25.3**	**588471000**
Frami inside corner 1.50m 20cm	**30.7**	**588472000**
Frami inside corner 2.70m 20cm	**51.6**	**588485000**
Frami inside corner 3.00m 20cm	**57.4**	**588417000**

Frami-Innenecke

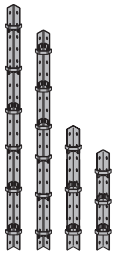
Galvanised



	[kg]	Article n°
Frami outside corner 1.20m	**11.0**	**588459000**
Frami outside corner 1.50m	**12.9**	**588460000**
Frami outside corner 2.70m	**23.8**	**588461000**
Frami outside corner 3.00m	**25.0**	**588418000**

Frami-Außenecke

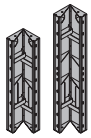
Galvanised



Frami hinged inside corner l 1.20m	**33.5**	**588425000**
Frami hinged inside corner l 1.50m	**40.0**	**588426000**

Frami-Scharnierecke l

Powder-coated, blue



Frami hinged outside corner A 1.20m	**12.8**	**588429000**
Frami hinged outside corner A 1.50m	**15.9**	**588430000**

Frami-Scharnierecke A

Powder-coated, blue

Frami circular forming plate 0.20x1.50m	**21.5**	**588486000**
Frami circular forming plate 0.25x1.50m	**22.5**	**588487000**
Frami circular forming plate 0.30x1.50m	**23.5**	**588488000**

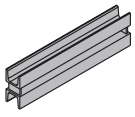
Frami-Bogenblech

Powder-coated, blue

Frami anchor waling 0.40m	**4.4**	**588489000**

Frami-Ankerriegel 0,40m

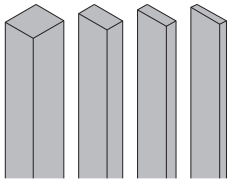
Painted blue



Frami fitting timber 10x9cm 1.50m	**6.0**	**176035000**
Frami fitting timber 5x9cm 1.50m	**3.0**	**176034000**
Frami fitting timber 3x9cm 1.50m	**1.9**	**176033000**
Frami fitting timber 2x9cm 1.50m	**1.2**	**176032000**
Frami fitting timber 10x9cm 2.70m	**12.3**	**176083000**
Frami fitting timber 5x9cm 2.70m	**6.1**	**176082000**
Frami fitting timber 3x9cm 2.70m	**3.7**	**176081000**
Frami fitting timber 2x9cm 2.70m	**2.5**	**176080000**

Frami-Passholz

Varnished yellow

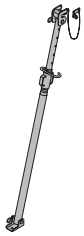


	[kg]	Article n°
Frami plywood support 21mm **Frami plywood support 27mm** Frami-Schalhautwinkel Galvanised Height: 56 cm	**2.1** **2.0**	**588474000** **588473000**
Framax stripping corner I 2.70m **Framax stripping corner I 1.35m** **Framax stripping corner I 3.30m** Framax-Ausschalecke I Galvanised, 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**
Framax stripping spindle I with ratchet Framax-Ausschalspindel I mit Ratsche Galvanised Height: 24.8 cm	**5.5**	**588653000**
Frami tie-adapter for stripping corner I Frami-Ankeradapter für Ausschalecke I Galvanised Height: 11 cm	**0.47**	**588492000**
Frami profile adapter for stripping corner I Frami-Profiladapter für Ausschalecke I Galvanised Height: 8 cm	**0.60**	**588491000**
Framax quick acting clamp RU Framax-Schnellspanner RU Galvanised Length: 20 cm	**3.3**	**588153400**
Frami panel shoe Frami-Elementschuh Galvanised Length: 16 cm	**1.3**	**588490000**

	[kg]	Article n°
Frami clamp Frami-Spanner Galvanised Length: 11 cm	**1.2**	**588433000**
Frami aligning clamp Frami-Richtspanner Galvanised Length: 62 cm	**3.2**	**588435000**
Frami adjustable clamp Frami-Ausgleichsspanner Galvanised Length: 40 cm	**3.6**	**588436000**
Frami universal waling 0.70m **Frami universal waling 1.25m** Frami-Klemmschiene Painted blue	**3.7** **6.4**	**588439000** **588440000**
Frami wedge clamp Frami-Klemme Galvanised Length: 16 cm	**1.1**	**588441000**
Frami universal fixing bolt 5-12cm Frami-Universalverbinder 5-12cm Galvanised Length: 23 cm	**0.43**	**588479000**
Frami profile connector 5-18cm Frami-Profilverbinder 5-18cm Galvanised Length: 33 cm	**0.80**	**588493000**
Frami corner connector Frami-Eckverbinder Galvanised Length: 19 cm	**0.40**	**588446000**
Frami lifting hook Frami-Umsetzbügel Galvanised Width: 15 cm Height: 21 cm Follow the directions in the "Operating Instructions"!	**7.5**	**588438000**

	[kg]	Article n°

Frami plumbing strut 260 13.9 588437000
Frami-Justierstütze 260



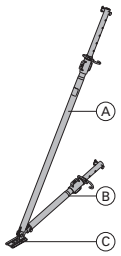
Galvanised
Length: 145 - 258 cm

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

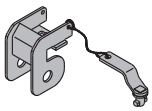
(B) **Adjusting strut 120** 7.2 588248000
Galvanised
Length: 80 - 130 cm

(C) **Prop shoe** 2.1 588245000
Galvanised
Length: 20 cm
Width: 11 cm
Height: 10 cm



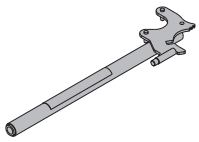
Galvanised
Delivery condition: folded closed

Frami strut head 1.4 508437002
Frami-Strebenkopf



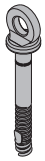
Galvanised
Width: 9 cm
Height: 14 cm

Universal dismantling tool 3.7 582768000
Universal-Lösewerkzeug



Galvanised
Length: 75.5 cm

Doka express anchor 16x125mm 0.31 588631000
Doka-Expressanker 16x125mm



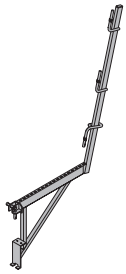
Galvanised
Length: 18 cm
Follow fitting instructions!

Doka coil 16mm 0.009 588633000
Doka-Coil 16mm

Galvanised
Diameter: 1.6 cm

	[kg]	Article n°

Frami bracket 60 7.7 588442000
Frami-Konsole 60

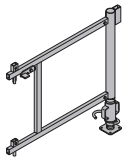


Galvanised
Length: 98 cm
Height: 157 cm

Handrail clamp S 11.5 580470000
Schutzgeländerzwinge S

Galvanised
Height: 123 - 171 cm

Frami adjustment frame 14.3 588451000
Frami-Standkonsole



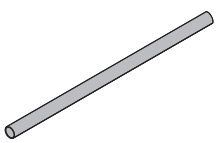
Galvanised
Length: 103 cm
Height: 94 - 143 cm

Handrail post 1.00m 3.8 584335000
Geländer 1,00m

Galvanised
Length: 124 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	3.6	682001000

Gerüstrohr 48,3mm



Galvanised

Scaffold tube connection 0.27 584375000
Gerüstrohranschluss

Galvanised
Height: 7 cm

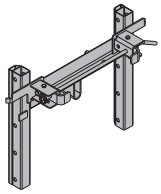
	[kg]	Article n°
Screw-on coupler 48mm 50 Anschraubkupplung 48mm 50 Galvanised Width-across: 22 mm	**0.84**	**682002000**
Frami frame hole plug Frami-Ankerstopfen Blue Diameter: 2.5 cm	**0.002**	**588444000**
Frami plug Frami-Abdeckstopfen Yellow Diameter: 2 cm	**0.003**	**588445000**
Framax triangular ledge 2.70m Framax-Dreikantleiste 2,70m	**0.38**	**588170000**
Frami frontal triangular ledge 2.70m **Frami frontal triangular ledge 3.00m** Frami-Stirndreikantleiste Grey	**1.5** **1.7**	**588496000** **588497000**
Frami anchoring bracket Frami-Ankerhaltewinkel Galvanised	**0.58**	**588453000**
Frami flat tie-rod 10-80cm Frami-Flachanker 10-80cm Galvanised Length: 97 cm	**2.1**	**588475000**
Frami clip Frami-Stecker Galvanised Width: 3 cm Height: 12 cm	**0.26**	**588434000**
Frami floor fixing plate Frami-Bodenhalter Galvanised Length: 12.7 cm Width: 6.7 cm	**0.53**	**588495000**
Frami foundation clamp Frami-Fundamentspanner Galvanised Height: 9 cm	**1.6**	**588452000**

	[kg]	Article n°
Doka perforated tape 50x2.0mm 25m Doka-Lochband 50x2,0mm 25m	**17.0**	**588206000**
Supporting construction Abstützwinkel Galvanised Length: 66 cm Width: 37 cm Height: 91 cm	**10.7**	**588477000**
Doka 4-part chain 3.20m Doka-Vierstrangkette 3,20m Follow the directions in the "Operating Instructions"!	**15.0**	**588620000**
Frami transport hook 2.5kN Frami-Transporthaken 2,5kN Galvanised Length: 17.5 cm Follow the directions in the "Operating Instructions"!	**0.56**	**588494000**
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**
Double scraper Xlife 100/150mm 1.40m Doppelschaber Xlife 100/150mm 1,40m	**2.8**	**588674000**

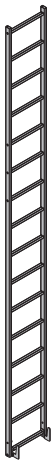
	[kg]	Article n°
Wheel-around scaffold DF Mobilgerüst DF Aluminium Length: 195 cm Width: 80 cm Height: 290 cm Follow the directions in the "Operating Instructions"!	**44.0**	**586157000**

Access system XS

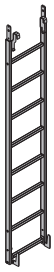
Connector XS Wall formwork Anschluss XS Wandschalung Galvanised Width: 89 cm Height: 63 cm	**20.8**	**588662000**



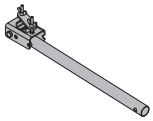
System ladder XS 4.40m System-Leiter XS 4,40m Galvanised	**33.2**	**588640000**



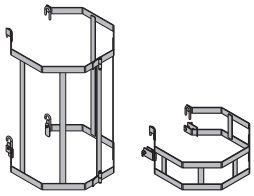
Ladder extension XS 2.30m Leiternverlängerung XS 2,30m Galvanised	**19.1**	**588641000**



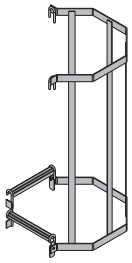
Securing barrier XS Sicherungsschranke XS Galvanised Length: 80 cm	**4.9**	**588669000**



	[kg]	Article n°
Ladder cage XS 1.00m	**16.5**	**588643000**
Ladder cage XS 0.25m	**10.5**	**588670000**
Rückenschutz XS Galvanised		

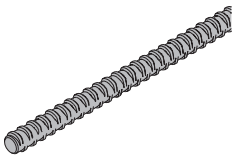


Ladder cage exit XS Rückenschutz-Ausstieg XS Galvanised Height: 132 cm	**17.0**	**588666000**



Tie rod system 15.0

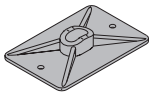
Tie rod 15.0mm galvanised 0.50m	**0.72**	**581821000**
Tie rod 15.0mm galvanised 0.75m	**1.1**	**581822000**
Tie rod 15.0mm galvanised 1.00m	**1.4**	**581823000**
Tie rod 15.0mm galvanised 1.25m	**1.8**	**581826000**
Tie rod 15.0mm galvanised 1.50m	**2.2**	**581827000**
Tie rod 15.0mm galvanised 1.75m	**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	**1.4**	**581873000**
Ankerstab 15,0mm		DIN 18216

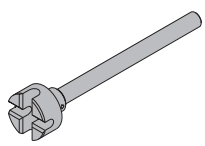
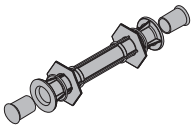
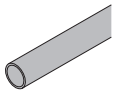


Super plate 15.0 Superplatte 15,0 Galvanised Height: 6 cm Diameter: 12 cm Width-across: 27 mm	**1.1**	**581966000** DIN 18216

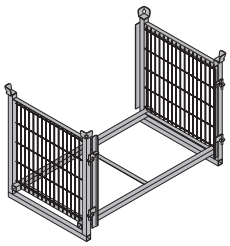
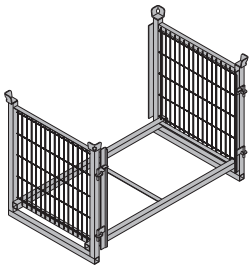
Wing nut 15.0 Flügelmutter 15,0 Galvanised Length: 10 cm Height: 5 cm Width-across: 27 mm	**0.31**	**581961000** DIN 18216

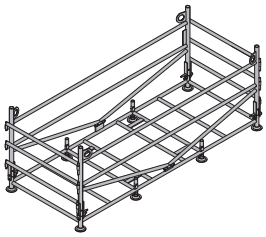
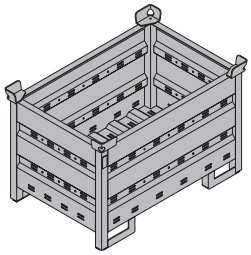
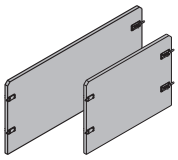
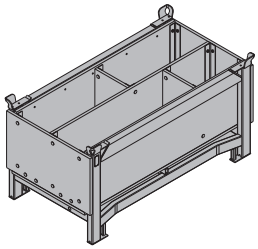
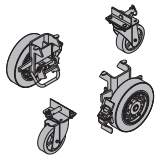
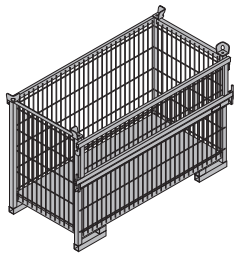
Angle anchor plate 12/18 Winkelplatte 12/18 Galvanised	**1.3**	**581934000** DIN 18216

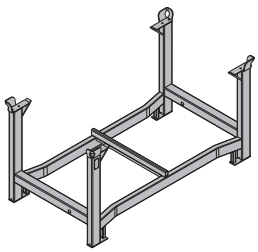
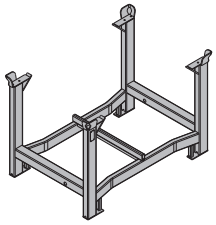


	[kg]	Article n°
Tie rod wrench 15.0/20.0 Ankerstabschlüssel 15,0/20,0  Galvanised Length: 37 cm Diameter: 8 cm	**1.9**	**580594000**
Distance piece 20cm **Distance piece 25cm** **Distance piece 30cm** Distanzhalter  Grey	**0.05** **0.09** **0.10**	**581907000** **581908000** **581909000**
Plastic tube 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**

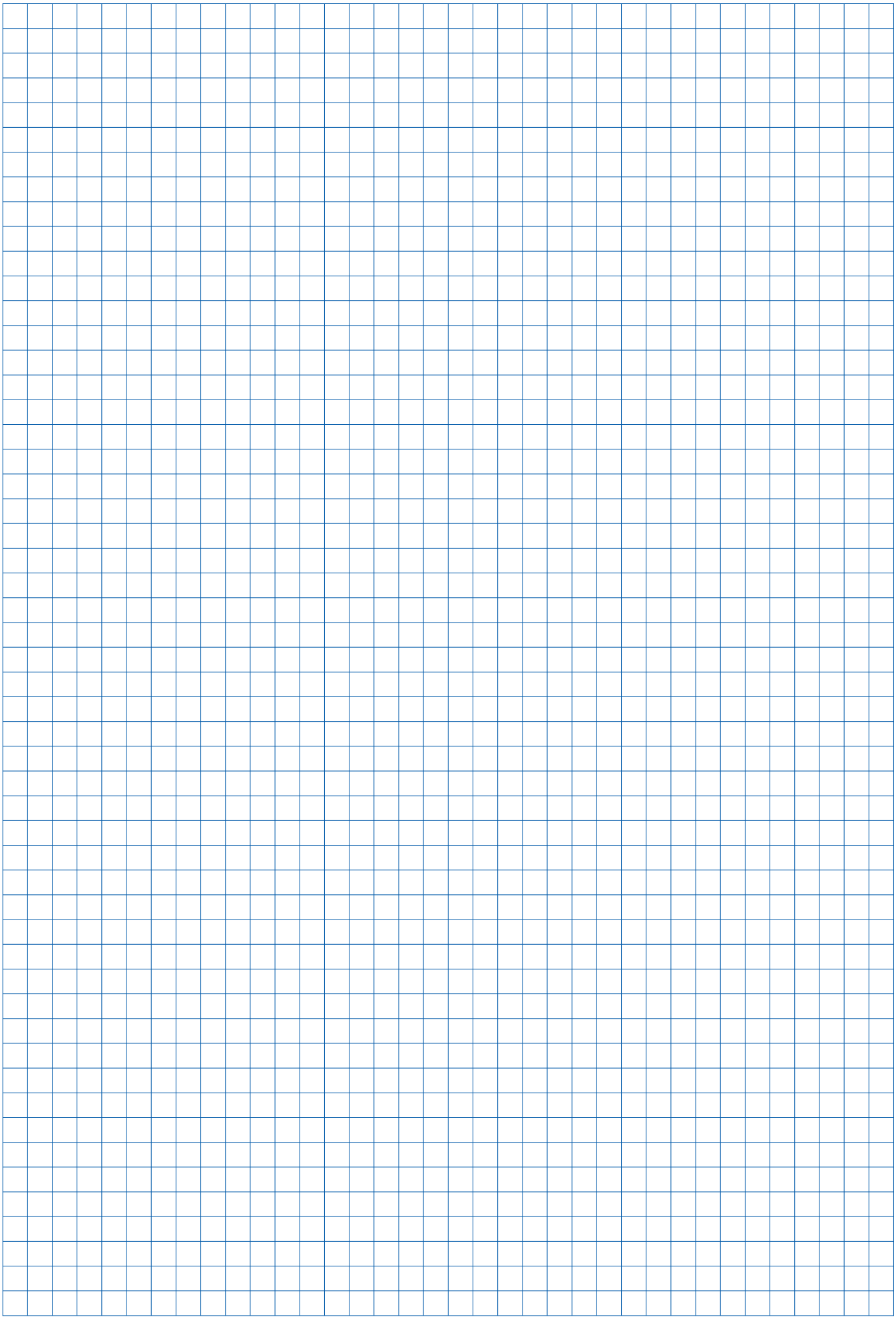
Multi-trip packaging

Frami pallet 1.20m Frami-Palette 1,20m  Galvanised Length: 138 cm Width: 100 cm Height: 114 cm Follow the directions in the "Operating Instructions"!	**68.0**	**588478000**
Frami pallet 1.50m Frami-Palette 1,50m  Galvanised Length: 168 cm Width: 100 cm Height: 114 cm Follow the directions in the "Operating Instructions"!	**74.0**	**588476000**

	[kg]	Article n°
Alu-Framax pallet Alu-Framax-Palette  Galvanised Length: 280 cm Width: 110 cm Height: 107 cm Delivery condition: folded closed Follow the directions in the "Operating Instructions"!	**126.7**	**588396000**
Doka multi-trip transport box 1.20x0.80m Doka-Mehrwegcontainer 1,20x0,80m  Galvanised Height: 78 cm Follow the directions in the "Operating Instructions"!	**75.0**	**583011000**
Multi-trip transport box partition 0.80m **Multi-trip transport box partition 1.20m** Mehrwegcontainer Unterteilung  Timber parts varnished yellow Steel parts galvanised	**3.7** **5.5**	**583018000** **583017000**
Doka accessory box 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"!	**106.4**	**583010000**
Bolt-on castor set B Anklemm-Radsatz B  Painted blue	**33.6**	**586168000**
Doka skeleton transport box 1.70x0.80m Doka-Gitterbox 1,70x0,80m  Galvanised Height: 113 cm Follow the directions in the "Operating Instructions"!	**87.0**	**583012000**

	[kg]	Article n°
Doka stacking pallet 1.55x0.85m Doka-Stapelpalette 1,55x0,85m Galvanised Height: 77 cm Follow the directions in the "Operating Instructions"! 	**42.0**	**586151000**
Doka stacking pallet 1.20x0.80m Doka-Stapelpalette 1,20x0,80m Galvanised Height: 77 cm Follow the directions in the "Operating Instructions"! 	**39.5**	**583016000**

[kg]	Article n°



Frami Xlife – the lightweight framed formwork for walls, columns and foundations

Frami Xlife is a complete system for forming walls, columns and foundations.
Light enough to be man-handled, it is also strong enough for crane-assisted forming.
Frami Xlife is available for rental, leasing or purchase.
At any of the Doka branches in your region.
Why not give us a call?

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