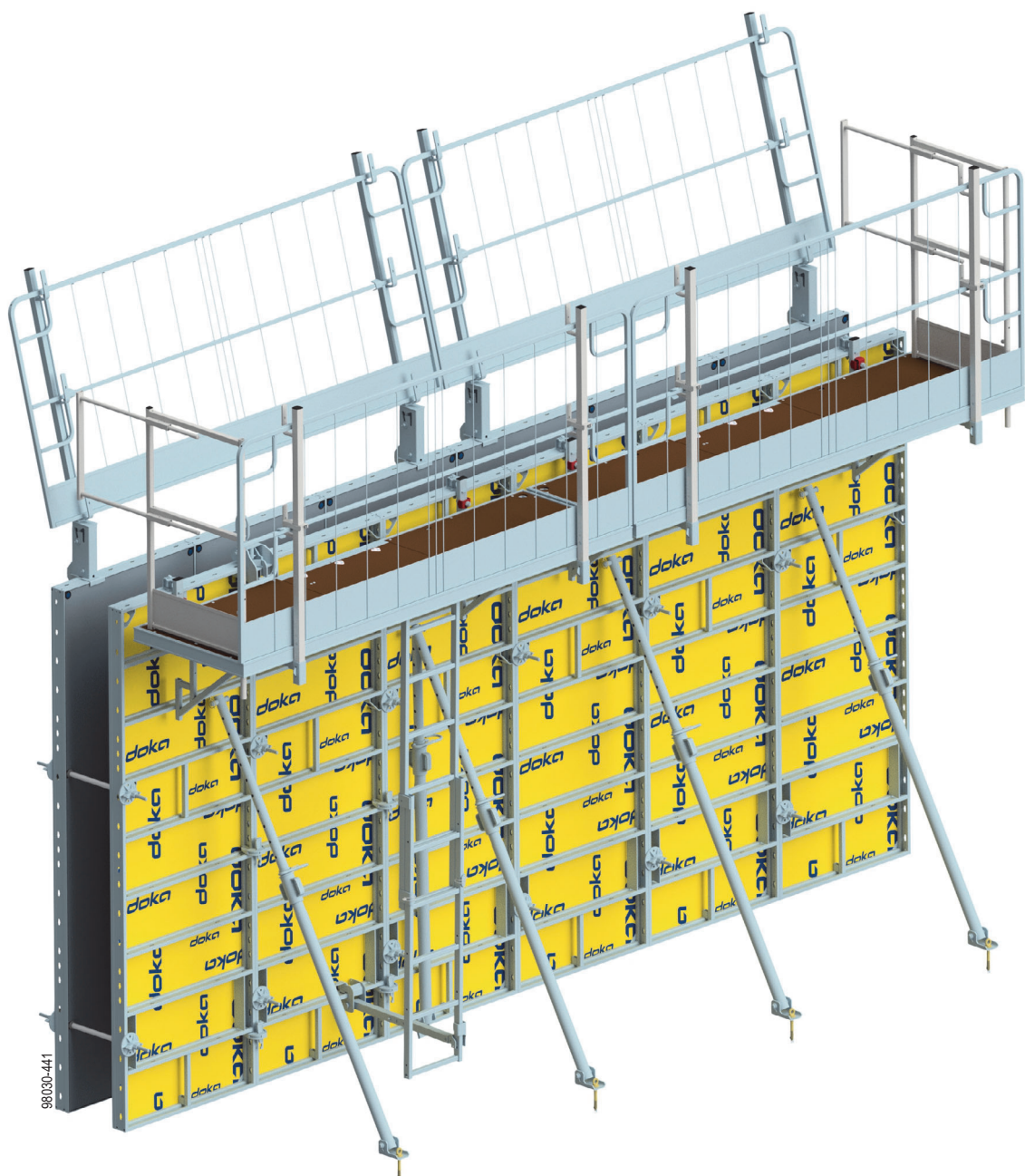


Framed formwork Frami Xlife

User Information

Instructions for assembly and use (Method statement)



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Introduction

Elementary safety warnings

User target groups

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

Hazard assessment

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

Remarks on this booklet

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

Planning

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

Regulations; industrial safety

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

Rules applying during all phases of the assignment

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

Assembly

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

Closing the formwork

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

Pouring

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

Stripping the formwork

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

Transporting, stacking and storing

- Observe all country-specific regulations applying to the handling of formwork and scaffolding. For system formwork the Doka slinging means stated in this booklet must be used – this is a mandatory requirement.

If the type of sling is not specified in this document, the customer must use slinging means that are suitable for the application envisaged and that comply with the regulations.

- When lifting, always make sure that the unit to be lifted and its individual parts can absorb the forces that occur.
- Remove loose parts or secure them so that they cannot slip out of position and drop.
- When lifting formwork or formwork accessories with a crane, no persons must be carried along, e.g. on working platforms or in multi-trip packaging.
- All components must be stored safely, following all the special Doka instructions given in the relevant sections of this document!

Maintenance

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

Miscellaneous

The weights as stated are averages for new material; actual weights can differ, depending on material tolerances. Dirt accretions, moisture saturation, etc. can also affect weight.

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

Eurocodes at Doka

The permissible values stated in Doka documents (e.g. $F_{perm} = 70 \text{ kN}$) are not design values (e.g. $F_{Rd} = 105 \text{ kN}$), unless specified!

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

Allowance has been made for the following partial factors:

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

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

Symbols used

The following symbols are used in this document:



DANGER

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



WARNING

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



CAUTION

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



NOTICE

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



Instruction

Indicates that actions have to be performed by the user.



Sight-check

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



Tip

Points out useful practical tips.



Reference

Cross-references other documents.

Intended use

The Framed formwork Frami Xlife is a formwork system for the cast-in-place concrete construction of walls, foundations, shafts and columns. The Framed formwork Frami Xlife is designed for forming by hand and for crane-assisted forming of large areas.

Boundary conditions for use:

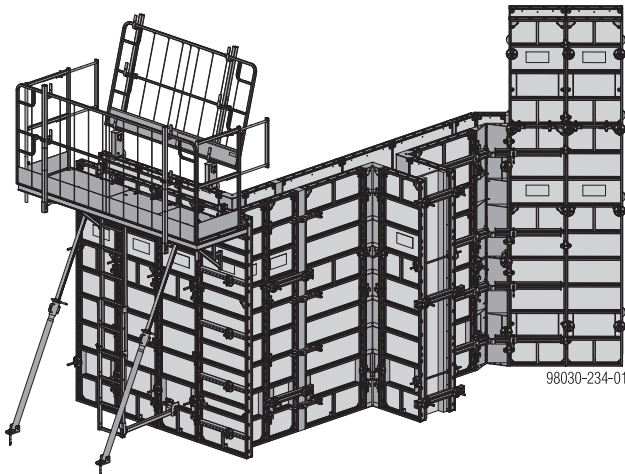
- Max. formwork height: 6.00 m
- Max. wall thickness: 70 cm

In special cases, boundary conditions can vary. The relevant information in the Doka technical documents must be observed.

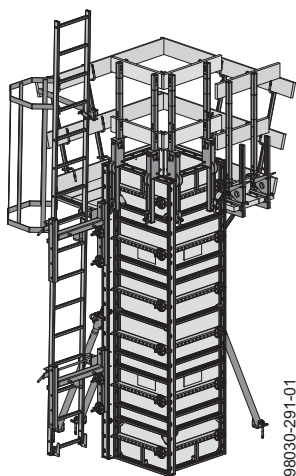
Other use or use not in conformity with that stated above is non-intended use and requires the prior written approval of the Doka company!

Areas of use

Wall formwork

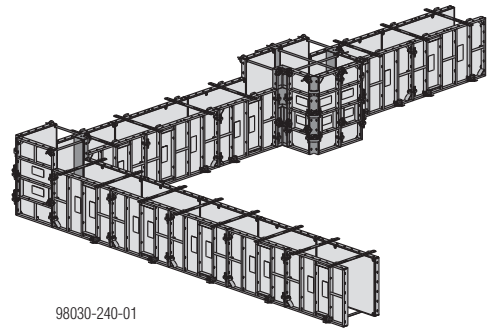


Column formwork



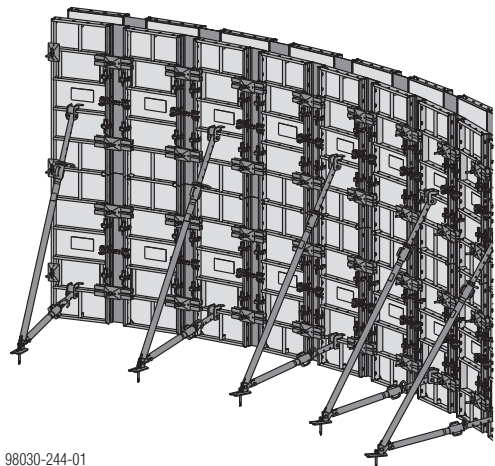
Follow the directions in the 'Column formwork Frami Xlife' User Information booklet!

Foundation formwork



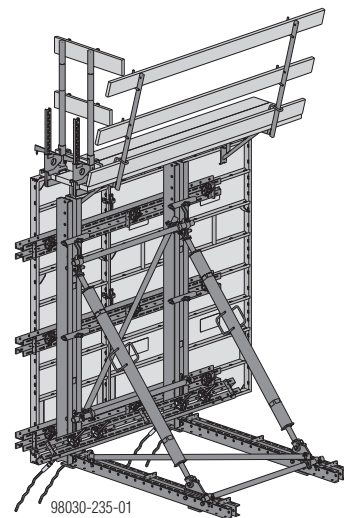
Follow the directions in the 'Foundation formwork Frami Xlife' User Information booklet!

Circular formwork

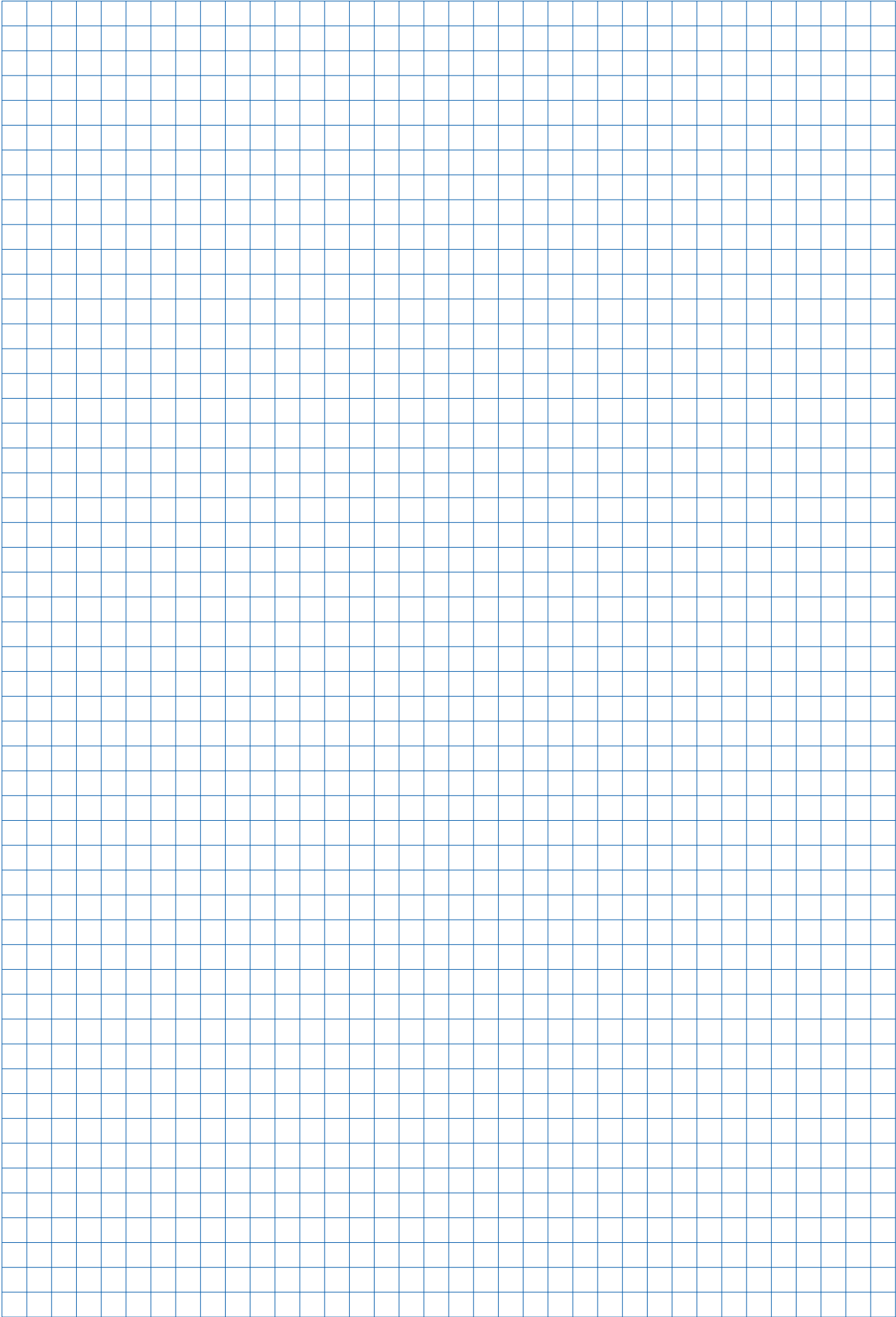


Follow the directions in the 'Circular formwork Frami Xlife' User Information booklet!

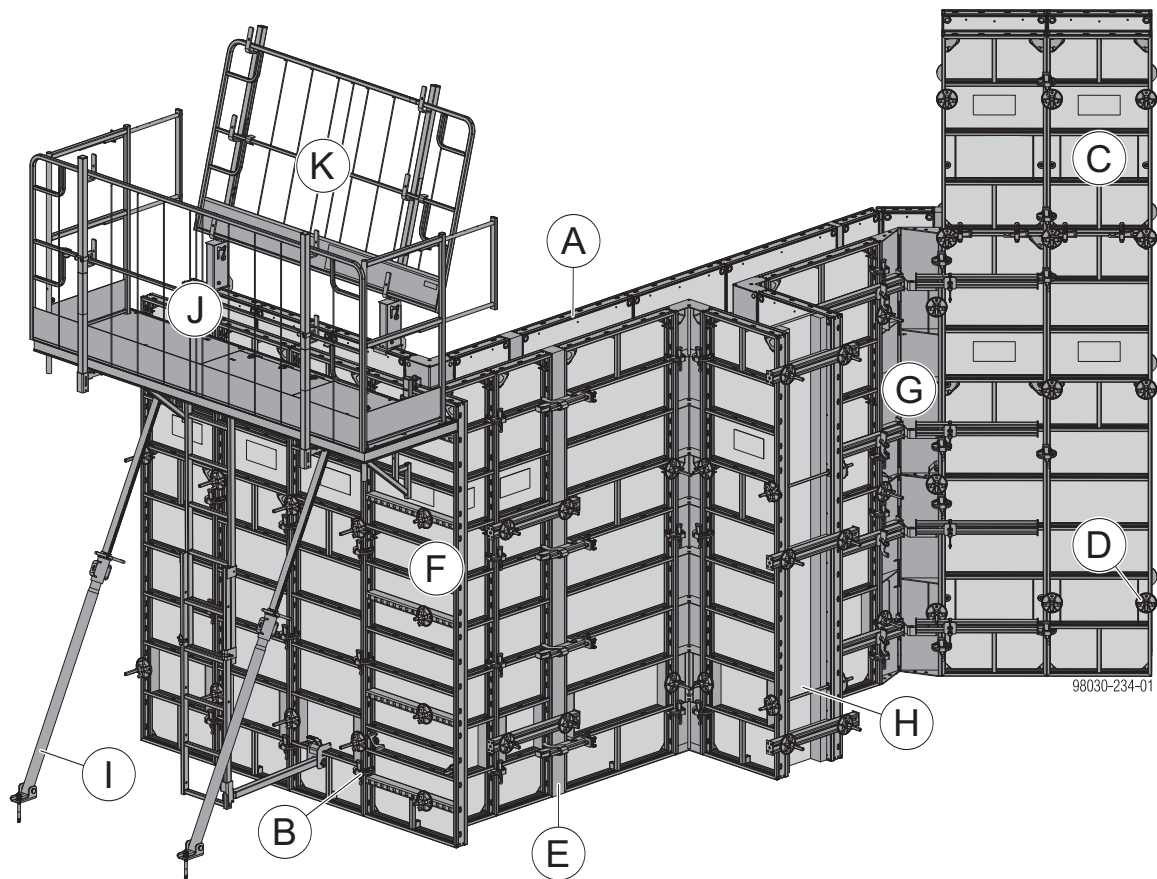
Single-sided formwork



Follow the directions in the 'Supporting construction frame "Variable" or 'Supporting construction frame AL' User Information booklets!



Wall formwork



Section:

- A [The Frami panel in detail](#)
- B [Inter-panel connections](#)
- C [Vertical stacking of panels](#)
- D [Tie rod system](#)
- E [Length adjustment using closures](#)
- F [90 degree corners](#)
- G [Acute & obtuse-angled corners](#)
- H [Stop-end formwork](#)
- I [Plumbing accessories](#)
- J [Pouring platforms with single brackets](#)
- K [Opposing guardrail](#)

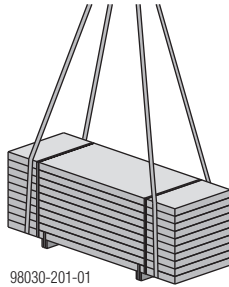
Instructions for assembly and use (Method statement)

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

- Unload panels from a truck and lift them on-site a stack at a time using the Dokamatic lifting strap 13.00m (see section [Transporting, stacking and storing](#)).



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Closing the formwork

- Spray the formwork sheet with release agent (see section [Cleaning and care of your equipment](#)).



WARNING

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

- Fix the first panel to the floor with the panel strut (see section [Plumbing accessories](#)). This stabilises the panel so it cannot fall over.



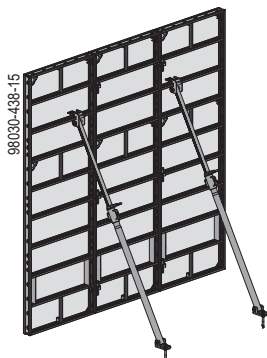
CAUTION

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

This would damage the profiles of the panels.

- Use only proper aligning tools that cannot cause any damage.

- Continue lining up panels in this way, clamp them together (see section [Inter-panel connections](#)) and install panel struts. The gang-form can now be exactly plumbed and aligned.

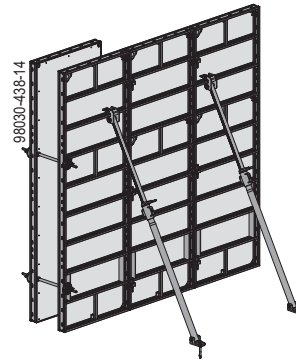


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Erecting the opposing formwork:

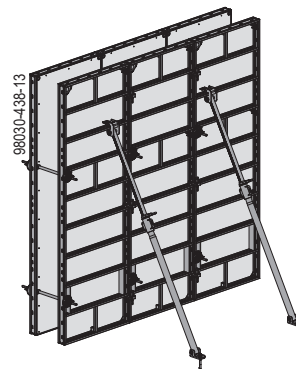
Once the reinforcement has been placed, the formwork can be closed.

- Spray the formwork sheet of the opposing formwork with release agent.
- Set up the first panel of the opposing formwork.
- Fit the form ties (see section [Tie rod system](#)).



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.

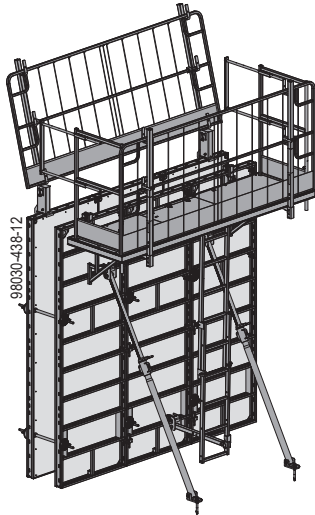


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Mounting the pouring platform

- Mount the pouring platform (see section [Pouring platforms with single brackets](#)).
- On pouring platforms that do not completely encircle the structure, place suitable sideguards across exposed end-of-platform zones and a counter railing on the opposing formwork (see sections [Pouring platforms with single brackets](#) and [Opposing guardrail](#)).

- Mounting the ladder system (see section [Pouring platforms with single brackets](#) or [Ladder system](#)).

**NOTICE**

Gang-forms without an opposing formwork and with pouring platforms and Plumbing struts 260 must be fixed on the ground so that they cannot slip.

Frami Xlife as a crane-handled formwork

Large gang-forms can be pre-assembled lying on a prepared flat area. For detailed instructions on installing the connectors, see section [Vertical stacking of panels](#).

These gang-forms can be repositioned with lifting chains and Frami lifting hooks. For detailed information, see section [Lifting by crane](#).

Permissible working load limit:

- Sling angle β up to 30° :
500 kg (1100 lbs) / Frami lifting hook
- Sling angle β up to 7.5° :
750 kg (1650 lbs) / Frami lifting hook

Frami lifting hooks with the specified working load limit of 500 kg (1100 lbs) also satisfy the working load limit of 750 kg (1650 lbs) at a sling angle $\beta \leq 7.5^\circ$.

Pouring

Permitted fresh-concrete pressure:

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 Calculation Guide 'Doka formwork engineering'
- DIN 4235 Part 2 - 'Compacting of concrete by vibrating'

**NOTICE**

- Do not exceed the maximum permissible rate of placing.

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

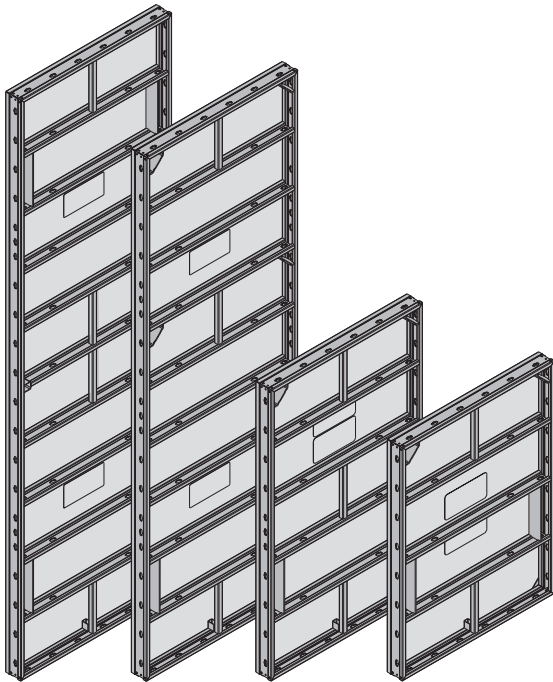
Stripping the formwork

**NOTICE**

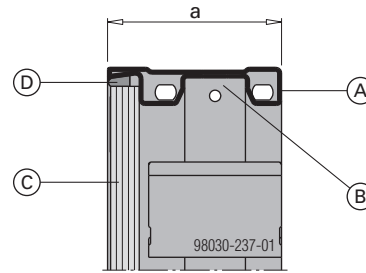
- Comply with the stipulated stripping times.
- Beginning with the opposing formwork, dismantle the panels one by one - take out the form ties and remove the connectors to the neighbouring panel.
- Lift the panel away and clean concrete residue off the formwork sheet (see the section headed [Cleaning and care of your equipment](#)).

The Frami 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

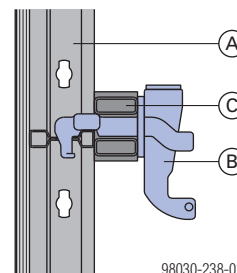
- Dimensionally stable frame profiles
- Hot-dip galvanised for long life
- Strong cross-profiles
- Edges are easy to clean - so panels always abut tightly
- All-round hardware slot for fastening the inter-panel connectors at any point required
- Xlife sheet edge-protected by frame profile
- Cross boreholes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

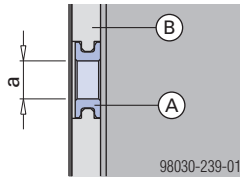


A Frami Xlife panel

B Frami wedge clamp

C Frami universal waling

Form-tie hole



a ... diam. 20 mm

A Form-tie protector

B Xlife sheet

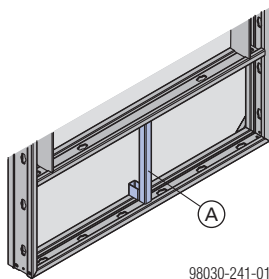
- Xlife sheet protected around the tie-holes by integrated form-tie protectors

Clean concrete surfaces with the innovative Xlife sheet

The Xlife sheet ensures high working rates with the best concreting results and reduces susceptibility to damage.

- High quality concrete finish
- Less touching-up needed
- Less cleaning - the Xlife sheet can be cleaned using a high-pressure spray cleaner

Handles



A Integral handle



WARNING

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

Danger of formwork dropping from the crane!

- Use only suitable lifting accessories and lifting points. See sections [Lifting by crane](#) and [Transporting, stacking and storing](#).

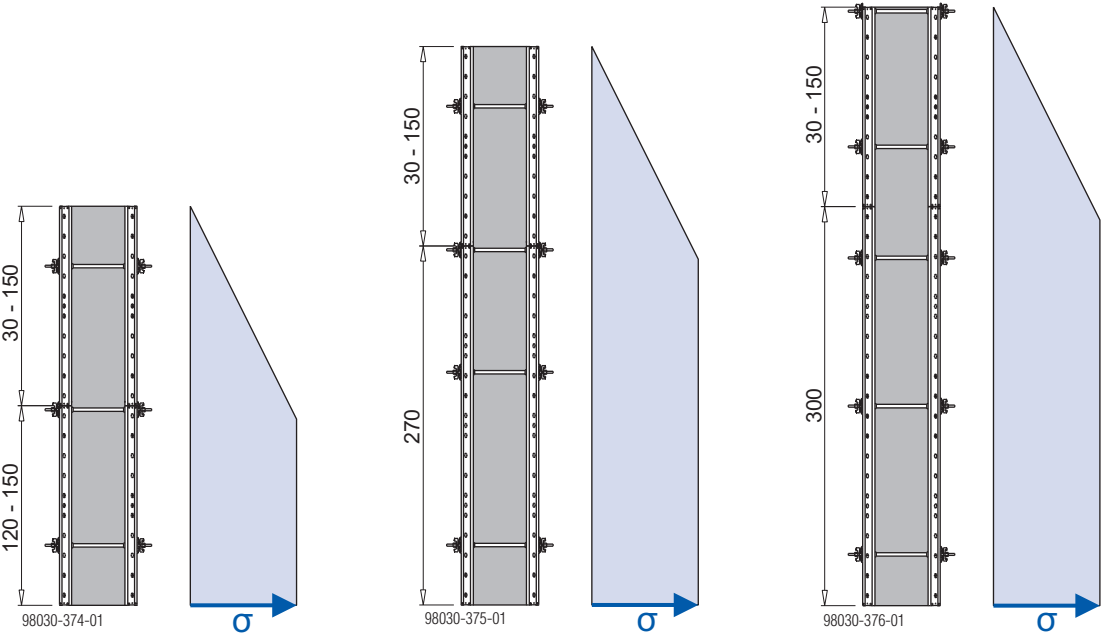
Permissible fresh-concrete pressure

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:

$\sigma_{hk, \max} = 40 \text{ kN/m}^2$

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



Permitted fresh-concrete pressure, as a function of the maximum panel width

	Max. panel width	Permitted fresh-concrete pressure $\sigma_{hk, \max}$			
		40 kN/m ²	50 kN/m ²	60 kN/m ²	70 kN/m ²
Frami Xlife panel (all panel heights)	0.90m	✓			
	0.75m	✓	✓		
	0.60m	✓	✓	✓	
	0.45m	✓	✓	✓	✓
	0.30m	✓	✓	✓	✓
Frami Xlife universal panel (all panel heights)	0.90m	✓			
	0.75m	✓	✓		

i.e.: For an increased fresh-concrete pressure of up to **60 kN/m²**, only panels with a width of 0.60m, 0.45m and 0.30m are allowed to be used.

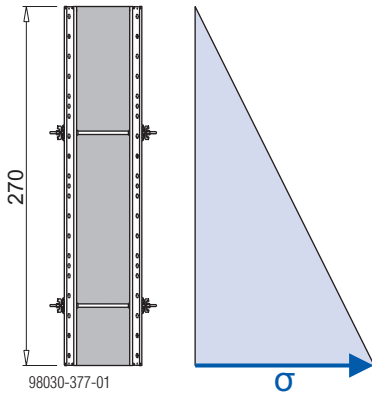
For an increased fresh-concrete pressure of up to **70 kN/m²**, only panels with a width of 0.45m and 0.30m are allowed to be used.

Note:

All other Frami accessories are loadable with an increased fresh-concrete pressure of up to 70 kN/m² (only applies when using the approved Frami panels as per the table).

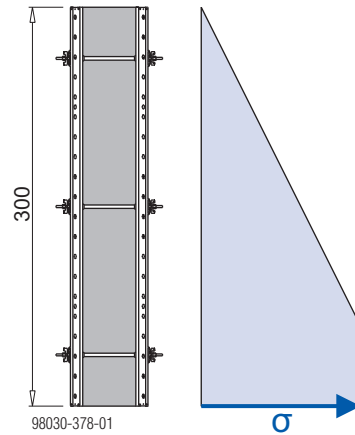
$$\sigma_{hk, \max, \text{hydr}} = 67.5 \text{ kN/m}^2$$

Frami Xlife panels 2.70m are hydrostatically loadable up to a **pour height of 2.70 m** ($\sigma_{hk} = 67.5 \text{ kN/m}^2$).



$$\sigma_{hk, \max} = 60 \text{ kN/m}^2$$

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

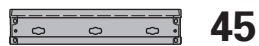
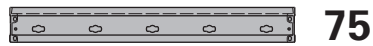


System grid

Frami Xlife panels

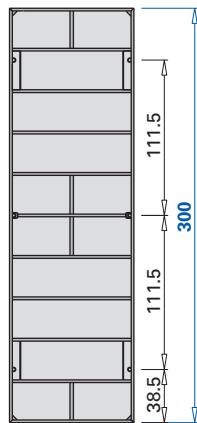
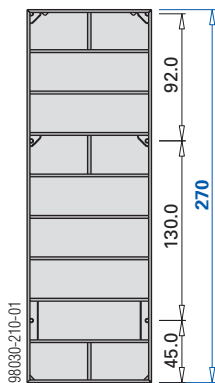
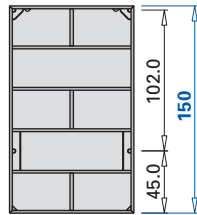
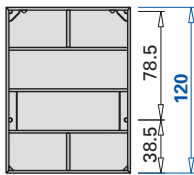
The widths and heights of the Frami Xlife panels result in a logical **15 cm increment-grid**.

Panel widths



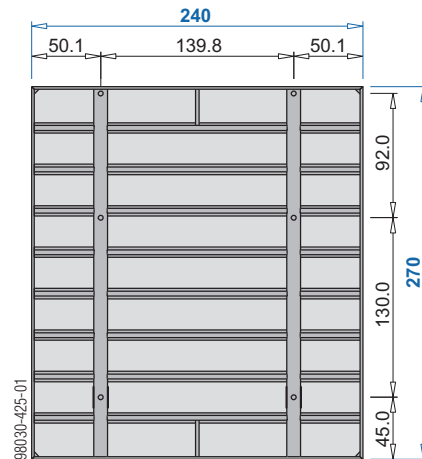
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Panel heights



Dimensions in cm

Extra-large panel



Dimensions in cm

For typical application examples, see section [Vertical stacking of panels](#).

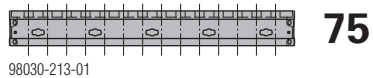
Frami Xlife universal panels

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

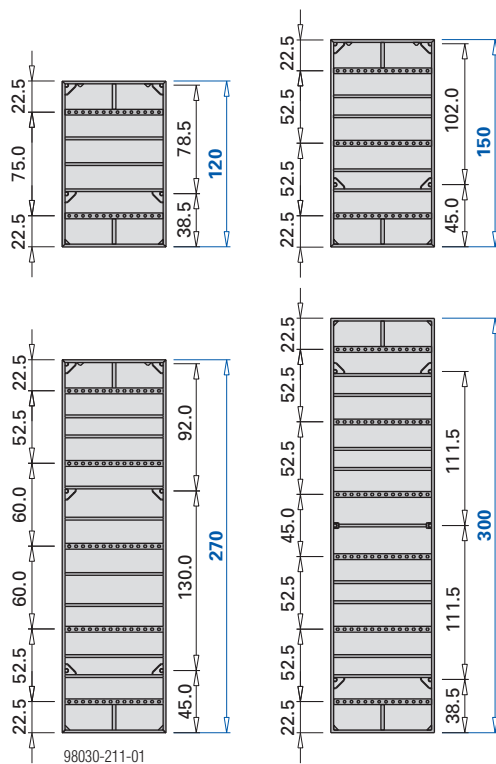
- corners
- wall junctions
- stop-ends
- columns

Frami Xlife universal panel 0.75m

Panel width

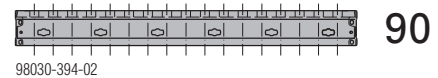


Panel heights

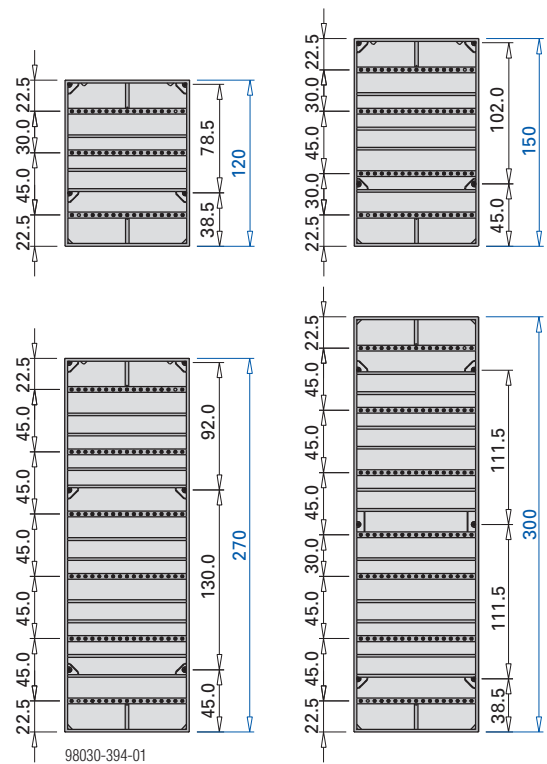


Frami Xlife universal panel 0.90m

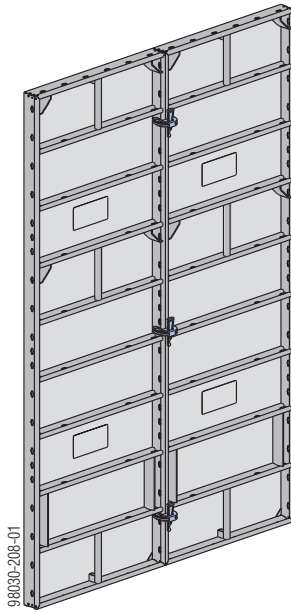
Panel width



Panel heights



Inter-panel connections



Shown here with Frami Xlife panel 2.70m.

Attributes of the panel connectors:

- provide self-aligning, crane-handleable connections between the panels
- have no loose parts which might get lost
- dirt-resistant
- easy to fix with a formwork hammer



NOTICE

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

Required number of clamps (longitudinal joints):

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 (panel on its side)	Number of clamps
0.30 m	1
0.45 m	1
0.60 m	2
0.75 m	2
0.90 m	2

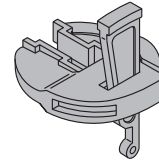
Note:

- For details regarding additional inter-panel connections at outside corners and stop-ends (for increased tensile loads) see section [Inter-panel connections for increased tensile loads](#).
- For details on the position of the connector components needed for vertical stacking, see section [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. Any height offset between adjacent panels is possible.

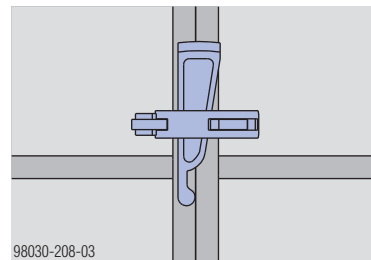
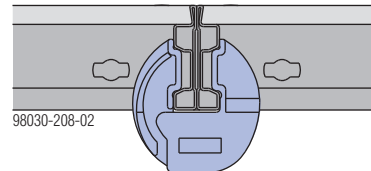


Frami clamp:

Permitted tensile force: 10.0 kN

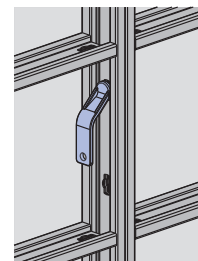
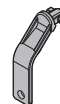
Permitted shear force: 5.0 kN

Permitted moment: 0.2 kNm



with the Frami clip

It is also possible to use Frami clips instead of Frami clamps. The Frami clips are placed through the cross boreholes in the Frami profiles to connect the panels.



Frami clip:

Permitted tensile force: 10.0 kN

Permitted shear force: 5.0 kN

Permitted moment: 0.2 kNm

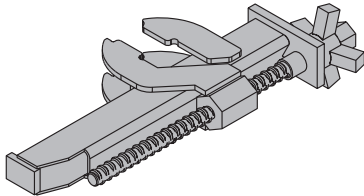
Number and position of Frami clips:

Same as for Frami clamps.

Self-aligning inter-panel connections and closures

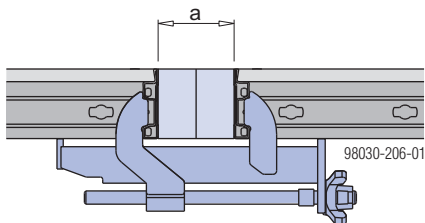
with the Frami adjustable clamp

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.

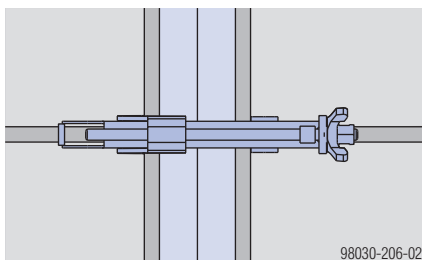


Frami adjustable clamp:

Permitted tensile force: 7.5 kN



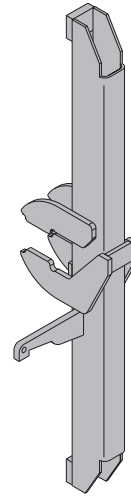
a ... max. 15 cm



Stiffening inter-panel connections

with the Frami aligning clamp

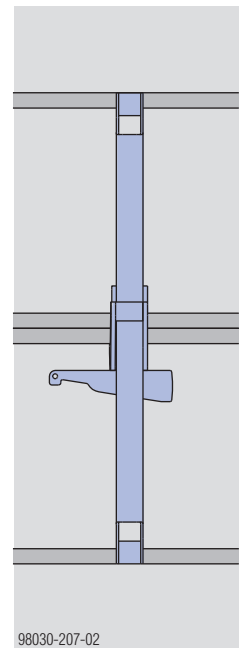
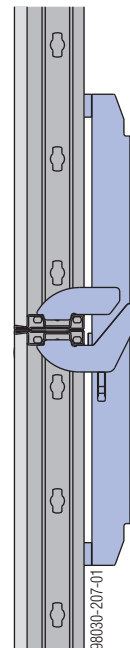
Joining the panels using the Frami aligning clamp provides additional bracing of the multi-panel gang. The aligning clamp is placed directly over the cross profile.



Frami aligning clamp:

Permitted tensile force: 10.0 kN

Permitted moment: 0.45 kNm



Vertical stacking of panels

Positions of the necessary connectors, form-tie components and accessories for:

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

Frami clamp:

Permitted tensile force: 10.0 kN

Permitted shear force: 5.0 kN

Permitted moment: 0.2 kNm

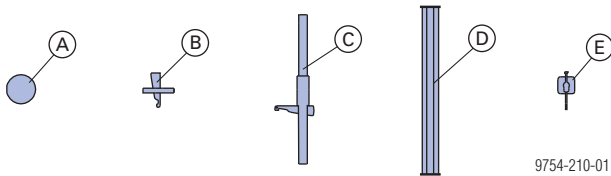
Frami aligning clamp:

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

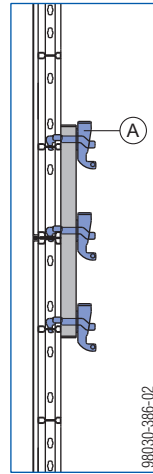


NOTICE

Do not oil or grease wedge-clamped joints.

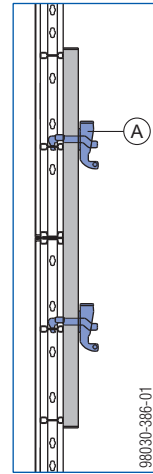
Fixing universal walings to the panel joint

Frami universal waling 0.70m



Number of fixing points: **3**

Frami universal waling 1.25m



Number of fixing points: **2**

A Frami wedge clamp

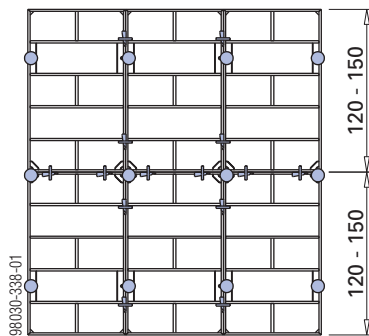
or

Frami universal fixing bolt 5-12 cm + Super-plate 15.0

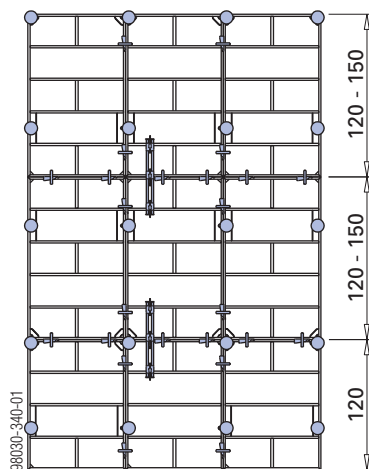
Frami Xlife panel 1.20m and 1.50m

with the Frami clamp

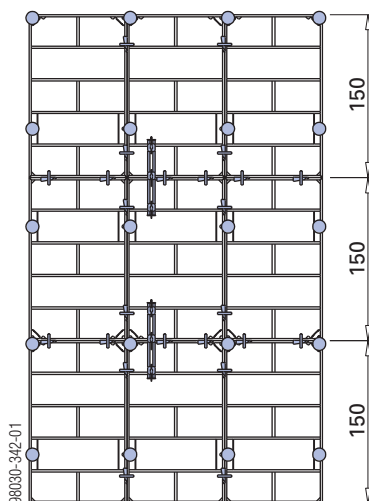
Formwork height: 240, 270 and 300 cm



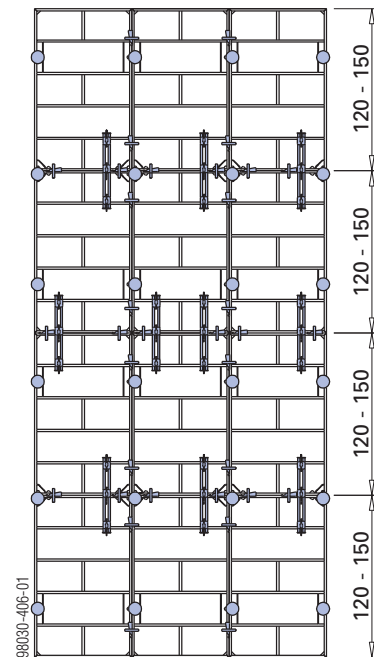
Formwork height: 360, 390 and 420 cm



Formwork height: 450 cm

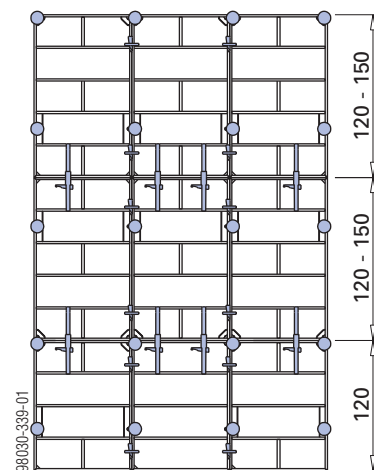


Formwork height: 480, 510, 540, 570 and 600 cm

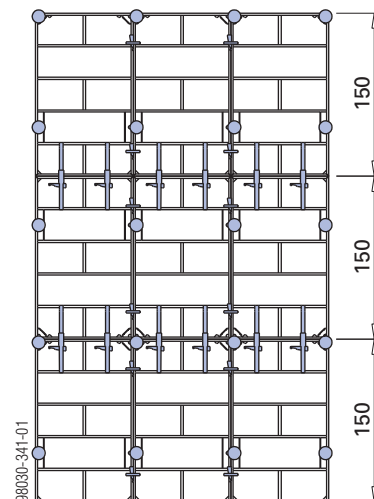


with the Frami aligning clamp

Formwork height: 360, 390 and 420 cm



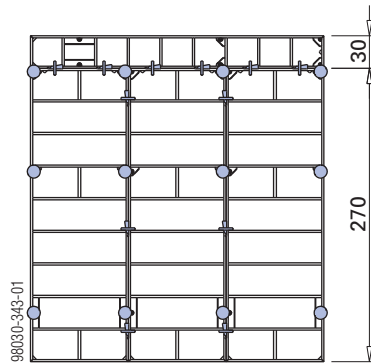
Formwork height: 450 cm



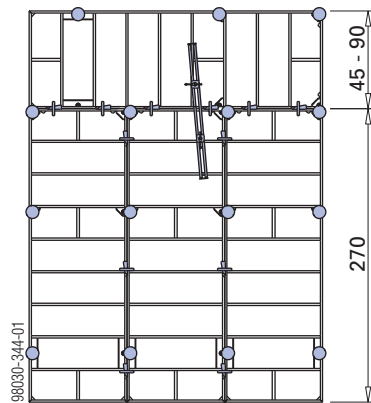
Frami Xlife panel 2.70m

with the Frami clamp

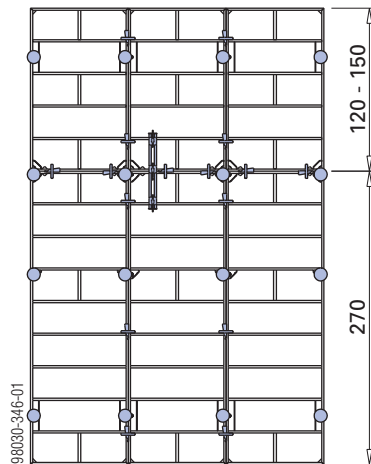
Formwork height: 300 cm



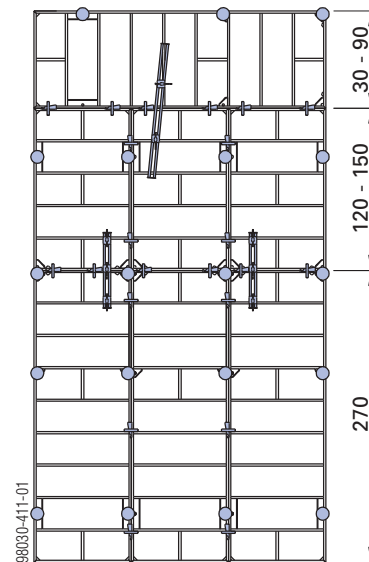
Formwork height: 315, 330, 345 and 360 cm



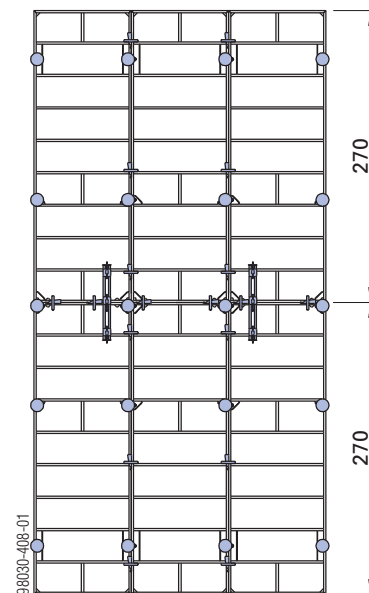
Formwork height: 390 and 420 cm

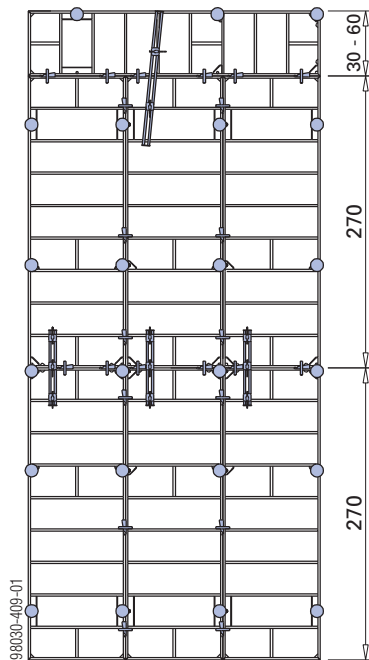
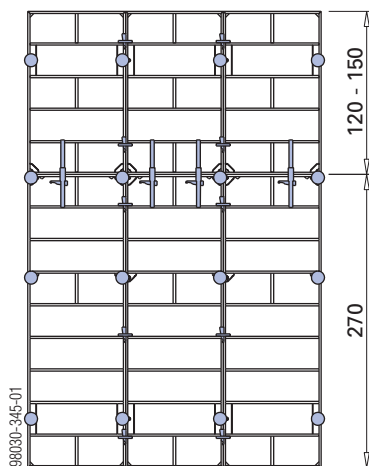
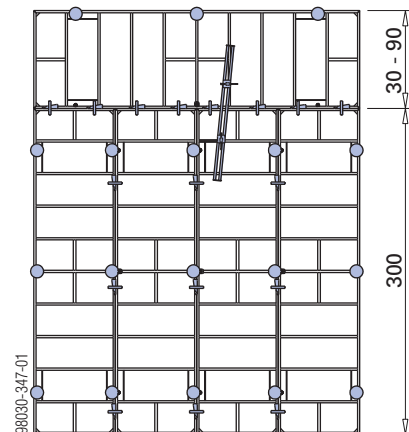
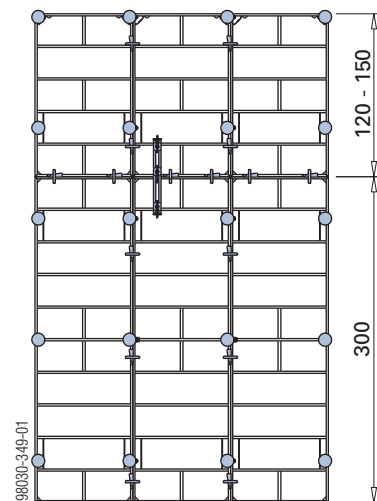
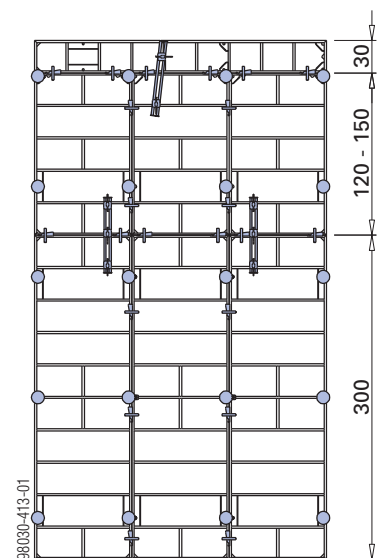


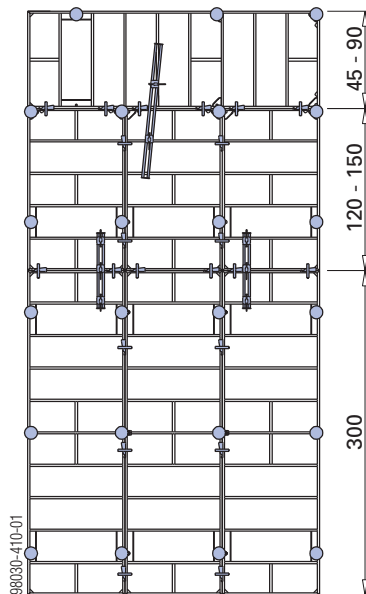
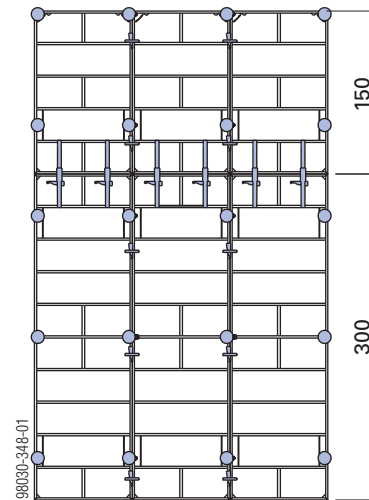
Formwork height: 420, 435, 450, 465, 480, 495 and 510 cm



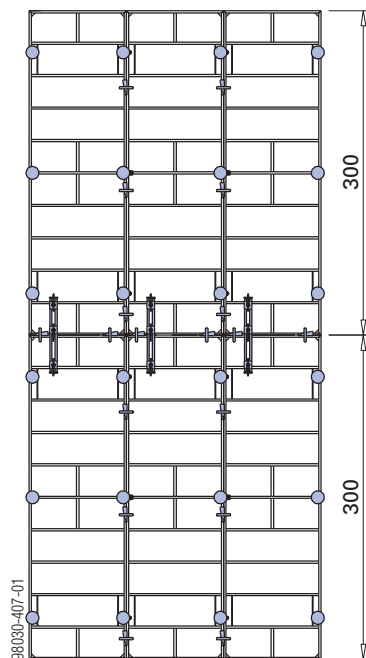
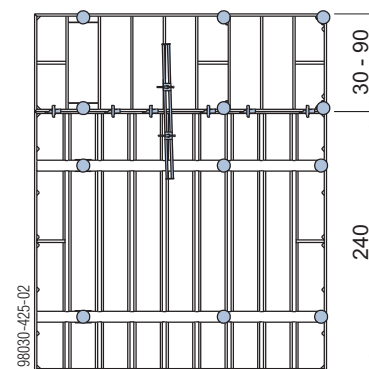
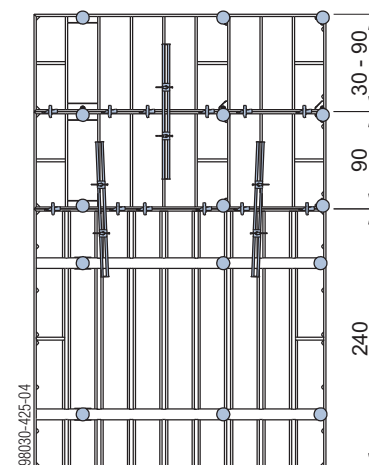
Formwork height: 540 cm



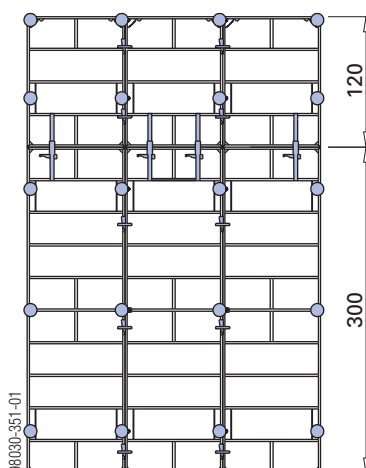
Formwork height: 570 and 600 cm**with the Frami aligning clamp****Formwork height: 390 and 420 cm****Frami Xlife panel 3.00m****with the Frami clamp****Formwork height: 330, 345, 360, 375 and 390 cm****Formwork height: 420 and 450 cm****Formwork height: 450 and 480 cm**

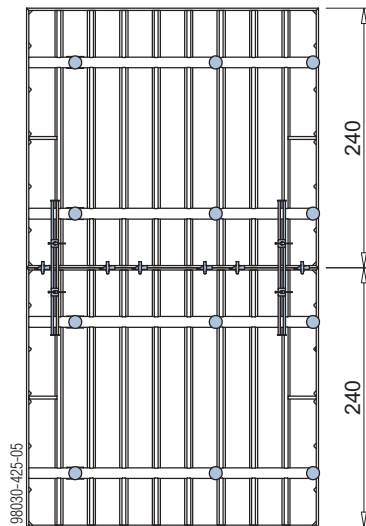
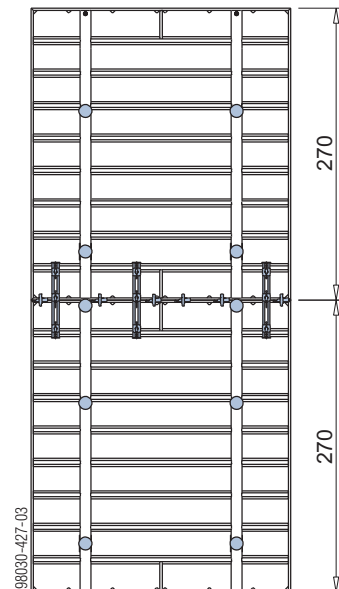
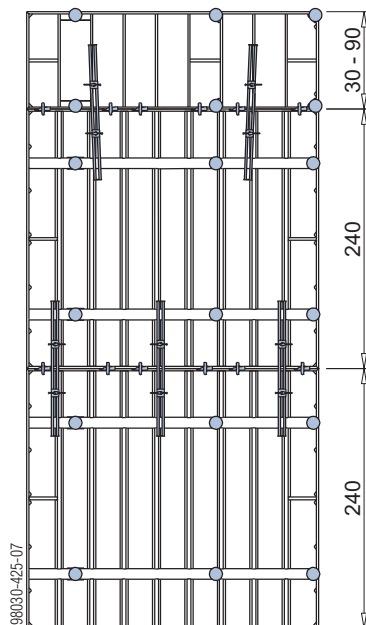
Formwork height: 465, 480, 495, 510 and 540 cm**Formwork height 450 cm****Frami Xlife panel 2.40x2.70m**

with the Frami clamp

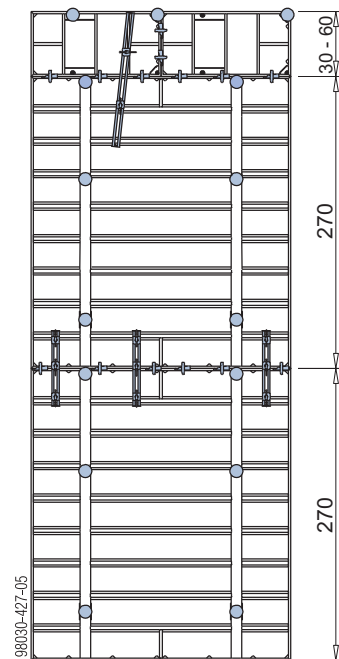
Formwork height: 600 cm**Formwork height: 270, 285, 300, 315 and 330 cm****Formwork height: 360, 375, 390, 405 and 420 cm**

with the Frami aligning clamp

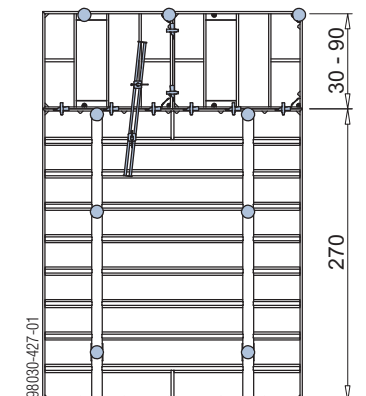
Formwork height: 420 cm

Formwork height: 480 cm**Formwork height: 540 cm****Formwork height: 510, 525, 540, 555 and 570 cm**

The Frami Xlife-panel 2.40x2.70m must not be used upside down when panels are vertically stacked!

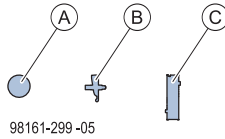
Formwork height: 570, 585 and 600 cm

The Frami Xlife-panel 2.40x2.70m must not be used upside down when panels are vertically stacked!

Formwork height: 300, 315, 330, 345 and 360 cm

Vertical stacking with Frami stacking angle and formwork sheet

The Frami stacking angle can be used for setting up vertically stacked formwork up to 30 cm.



- A** Tie rod 15.0mm
- B** Frami clamp
- C** Frami stacking angle 21mm or 18mm

Positioning of Frami stacking angles

up to 10 cm vertical stacking	up to 30 cm vertical stacking
98030-442-04 a .. max. 100 mm b ... 21 mm or 18 mm c ... 75 mm	98030-442-03 a .. max. 300 mm b ... 21 mm or 18 mm c ... 240 mm

- A** Formwork sheet 21mm or 18mm
- B** Frami stacking angle 21mm or 18mm
- C** Frami clamp
- D** Stacking angle screwed to formwork sheet



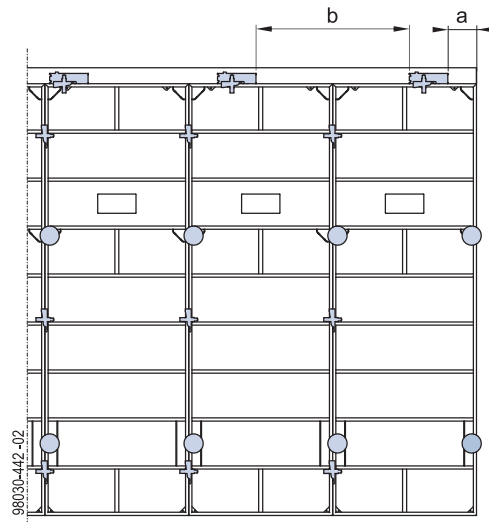
WARNING

Falling hazard if Frami lifting hooks not positioned correctly!

- Before repositioning by crane, remove panels that are vertically stacked with Frami stacking angles.

The use of Frami lifting hooks in combination with Frami stacking angles is prohibited.

Stacking angle turned on its side - up to 10 cm



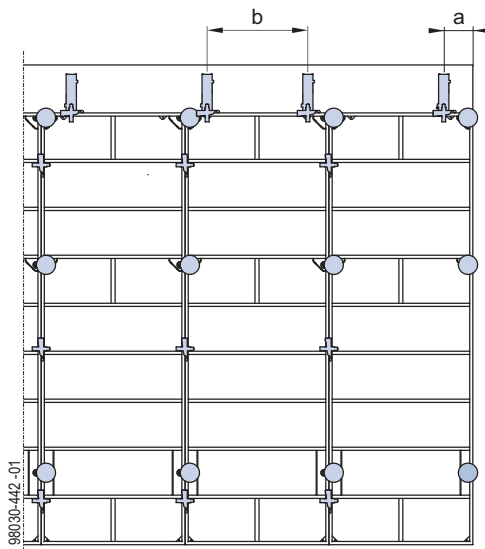
- a ... min. 10 cm / max. 30 cm
- b ... max. 100 cm



NOTICE

Make sure that the stacking angle is correctly positioned. The shapes of the cross holes must match at the contact faces.

Right!	Wrong!
98030-443-06	98030-443-05

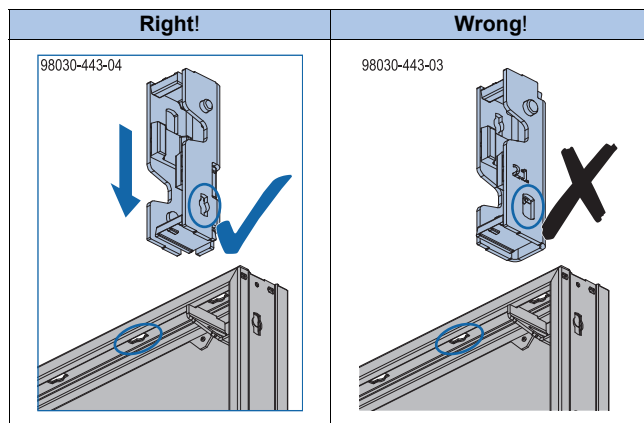
Stacking angle upright - up to 30 cm

a ... min. 10 cm / max. 25 cm

b ... max. 70 cm

**NOTICE**

Make sure that the stacking angle is correctly positioned. The shape of the cross hole at the bottom (as illustrated) must match the shape of the hole in the panel frame.



The formwork sheet must be flush with the Frami Xlife panel!

Tie rod system

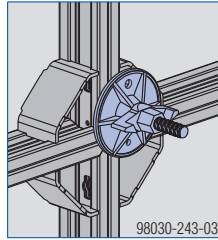
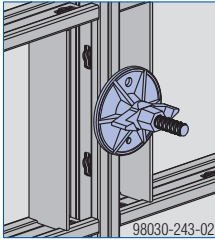
Tying the Frami Xlife panels

As a general rule:

Place a form tie at every form-tie point that is not covered by a super plate.

Always tie in the larger (wider) of the two panels.

For exceptions, see sections [Length adjustment using closures](#) and [Vertical stacking of panels](#).



WARNING

Delicate rod steel!

- Never weld or heat tie rods.
- Tie rods that are damaged or have been weakened by corrosion or wear must be withdrawn from use.

Note:

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



Tie-rod wrench 15.0/20.0

For turning and holding the tie rods.

Note:

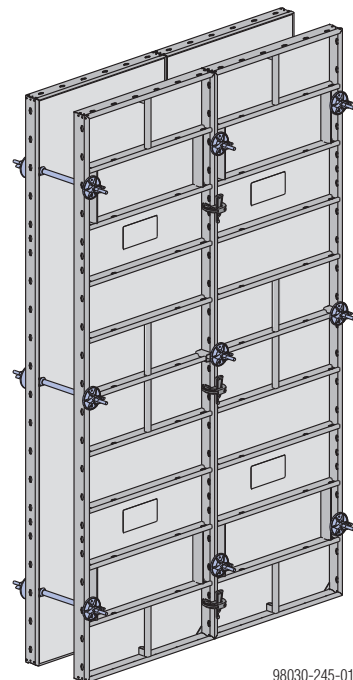
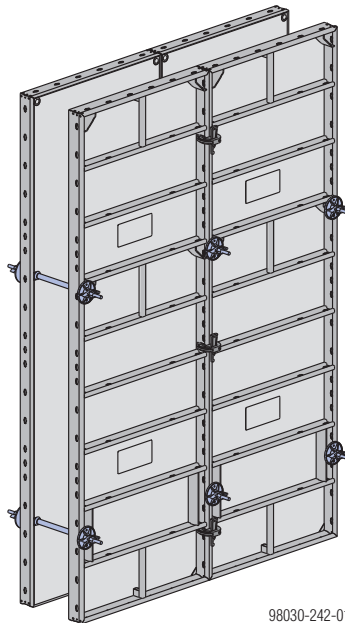
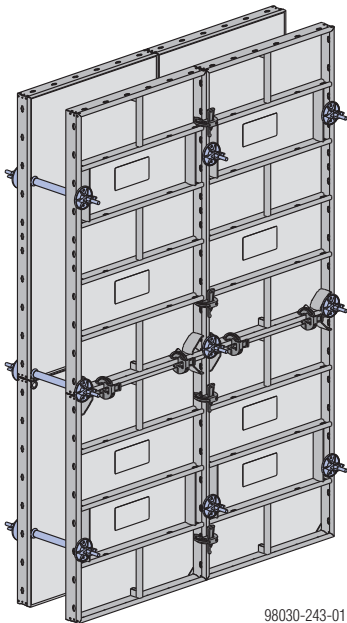
Doka also offers cost-effective solutions for creating watertight form-tie points.

Frami Xlife panel 1.20 + 1.50m

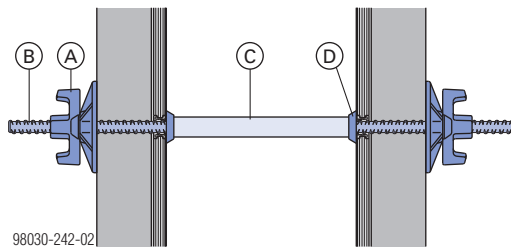
Frami Xlife panel 2.70m

Frami Xlife panel 3.00m

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.



The Doka tie rod system 15.0



- A Super plate 15.0
- B Tie rod 15.0mm
- C Plastic tube 22mm
- D Universal cone 22/10mm

Note:

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

Tie rod 15.0mm:

Permissible load-bearing capacity, allowing a 1.6 : 1 safety factor against failure: 120 kN

Permissible load-bearing capacity to DIN 18216: 90 kN

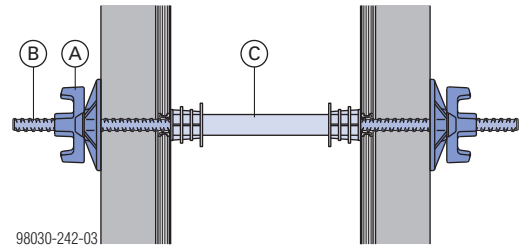


The Friction type ratchet SW27 or Box spanner 27 0.65m can be used for **low-noise releasing and tightening** of the following form-tie components:

- Super plate 15.0
- Wing nut 15.0
- Star grip nut 15.0

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.

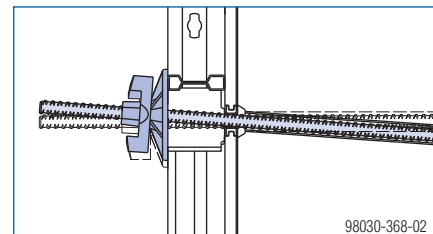


- A Super-plate 15.0
- B Tie-rod 15.0mm
- C Distance piece (ready for use for certain wall thicknesses)

The stoppers for plugging the distance pieces are also included.

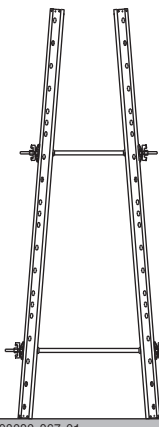
Inclined and height-mismatched positioning

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



98030-368-02

Limit-values when super plates are used

Conical on 1 side	Conical on both sides	Height mismatch
max. 4.5°	max. 2 x 4.5°	max. 0.5 cm per 10 cm of wall thickness
		
98030-366-01	98030-367-01	98030-368-01

Note:

Secure inclined panels against uplift.

Do not place Frami Xlife panels upside-down (corner ties must be at top).

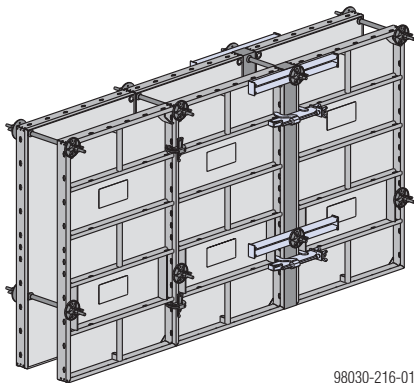
Length adjustment using closures

Closures: 0 - 15 cm

with fitting timber and adjustable clamp

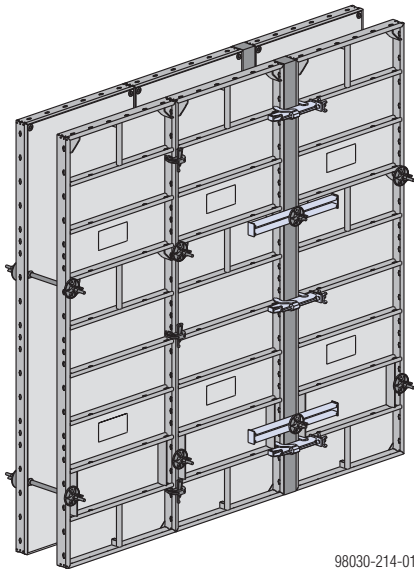
By combining the fitting-timber widths of 2, 3, 5, and 10 cm in various ways, the closures can be made in 1 cm increments.

Frami universal waling:
Permitted moment: 1.3 kNm



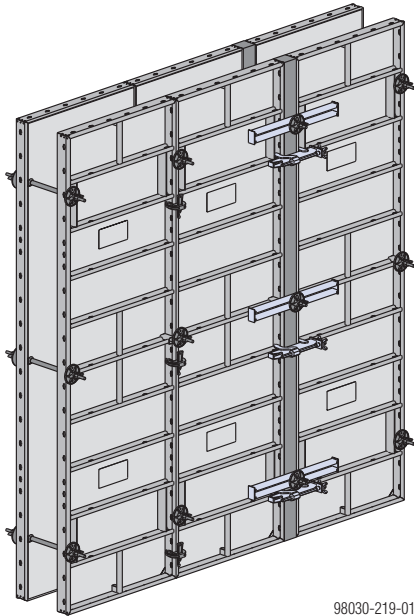
98030-216-01

Shown here on Frami Xlife panels 1.50m.



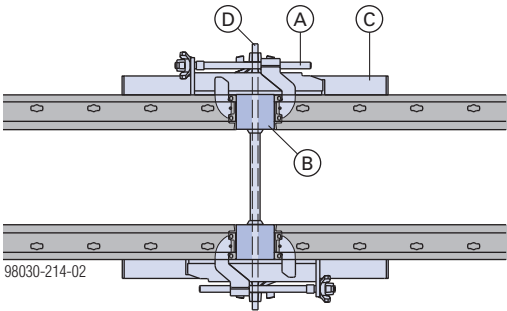
98030-214-01

Shown here on Frami Xlife panels 2.70m.



98030-219-01

Shown here on Frami Xlife panels 3.00m.



98030-214-02

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

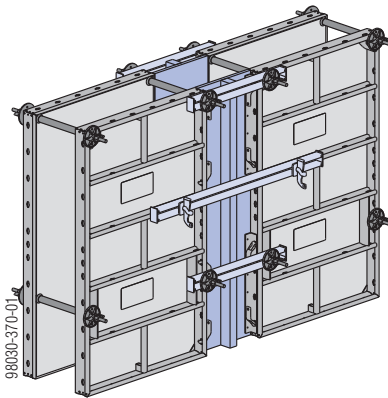
Closures up to 2 cm	Closures up to 5 cm
Ties through panel, without Uni-versal waling	Ties through fitting timber, with-out Universal waling
98030-220-01	98030-220-02

Closures up to 7.5 cm	Closures up to 15 cm
Ties through panel, with Uni-ver-sal waling	Ties through fitting timber, with Universal waling
98030-220-03	98030-220-04

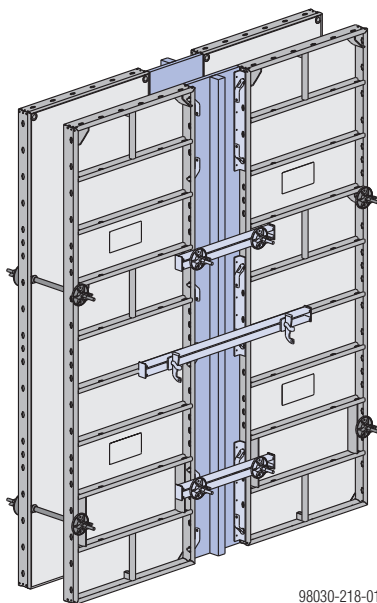
E Frami Xlife panel (max. 0.75m)

Closures: 10 - 50 cm

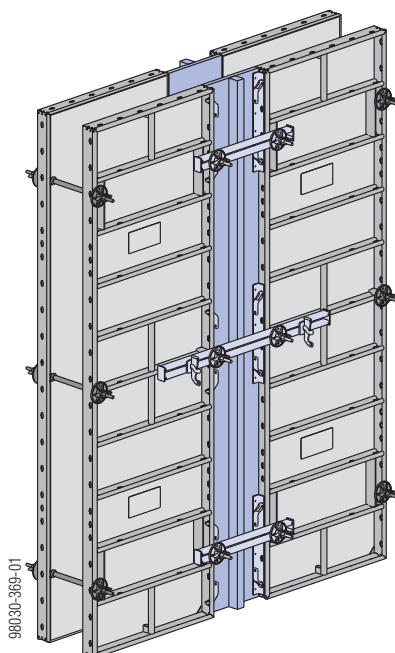
with plywood support and formwork sheet



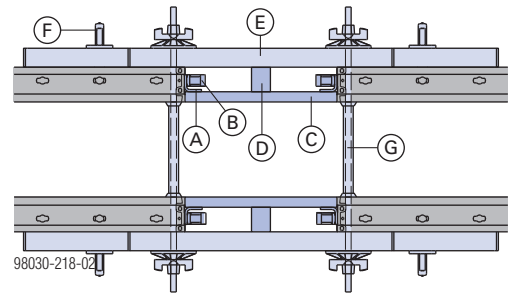
Shown here on Frami Xlife panels 1.50m.



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



NOTICE

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

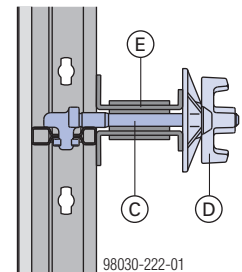
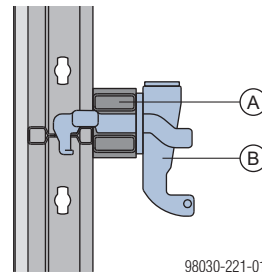
Possible ways of attaching Universal walings:

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

- Frami wedge clamp **(B)**

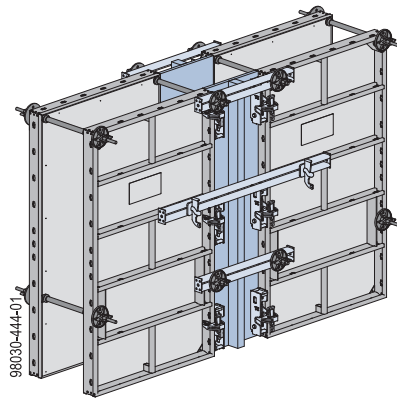
For clamp-on parts with an **overall height of between 5 and 12 cm** (e.g. Framax universal waling **(E)**):

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

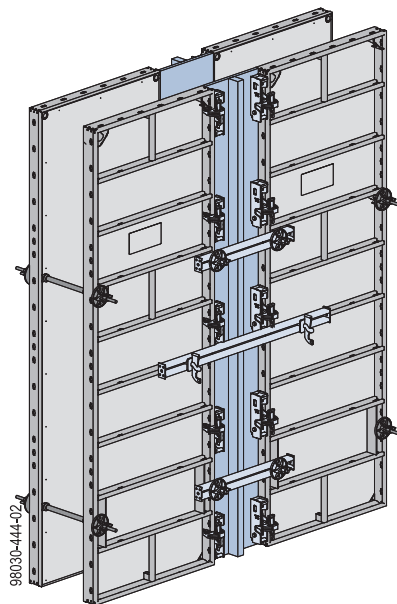


Closures: 15 - 50 cm

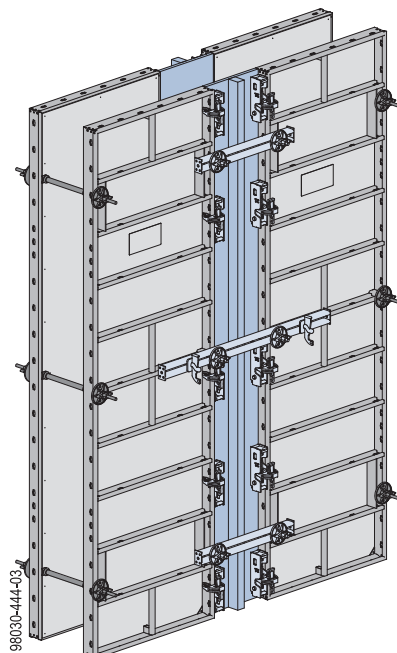
with Frami stacking angle and formwork sheet



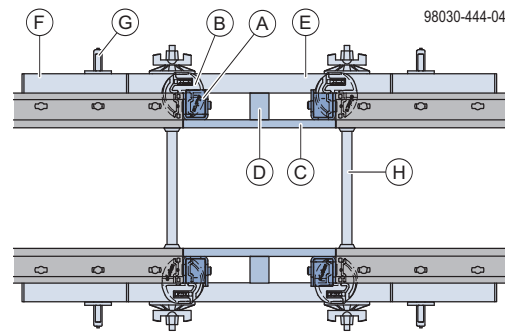
Shown here with Frami Xlife panel 1.50m.



Shown here with Frami Xlife panel 2.70m.



Shown here with Frami Xlife panel 3.00m.



A Frami stacking angle 21mm or 18mm

B Frami clamp

C Formwork sheet 21mm or 18mm

D Squared timber

E Frami universal waling 0.70m

F Frami universal waling 1.25m

G Frami wedge clamp

H Form tie



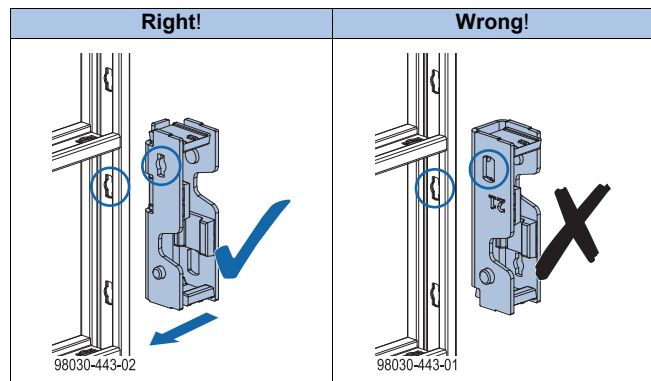
NOTICE

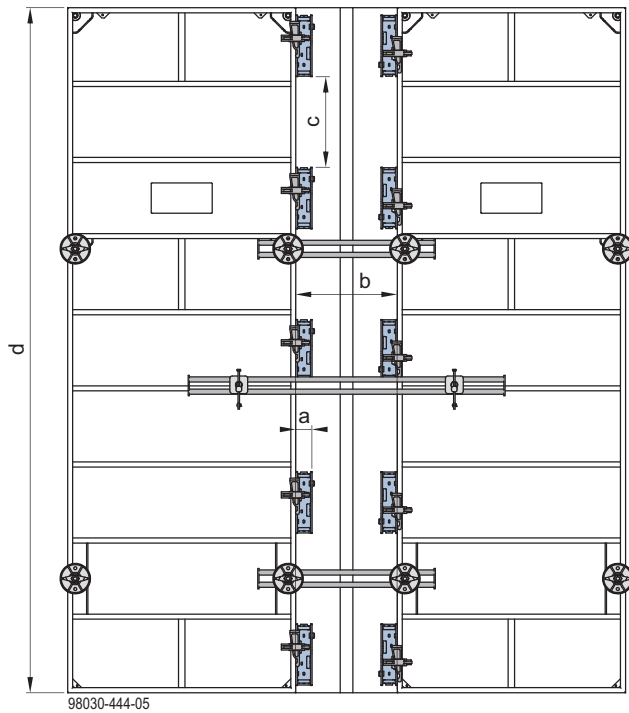
Where tensile loads occur (e.g. at corners and stop-ends), suitable tension anchoring must be provided on site.



NOTICE

Make sure that the stacking angle is correctly positioned. The shapes of the cross holes must match at the contact faces.



Spacing of the Frami stacking angles

a ... 6.3 cm

b ... max. 50 cm

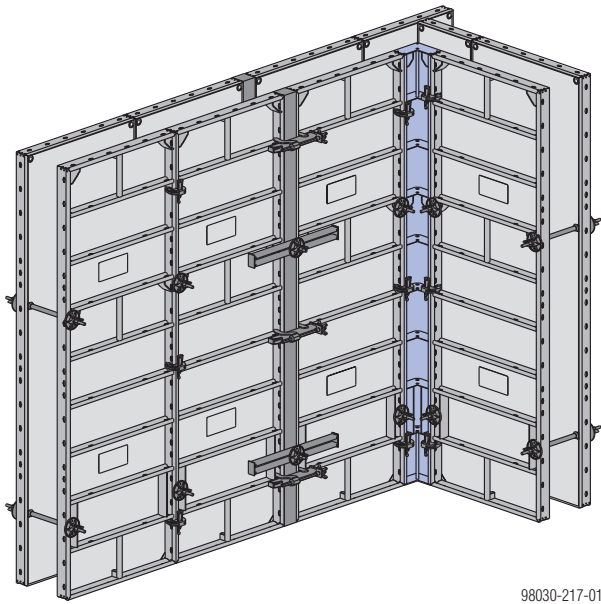
c ... max. 50 cm (distance between two stacking angles)

Required number of Frami stacking angles (per formwork side)

Panel height (d)	Number of stacking angles / Frami clamps
1.20 m	4
1.50 m	6
2.70 m	10
3.00 m	10

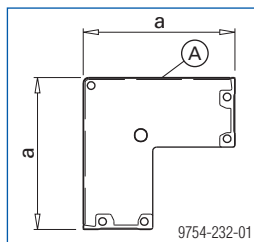
90 degree corners

The corner solutions are based on the strong, torsionally rigid **Frami inside corner**.



98030-217-01

Shown here with Frami Xlife panel 2.70m.



a ... 20 cm

A Steel form-facing

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

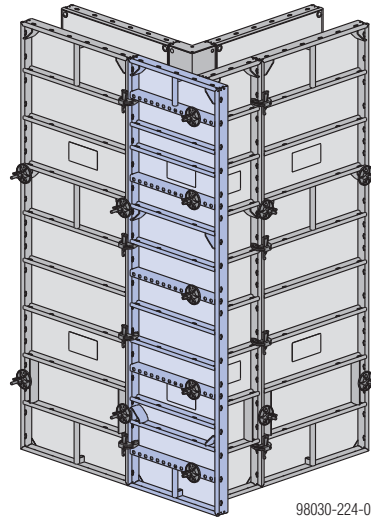
- with an Xlife universal panel
- with a Frami outside corner

Note:

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

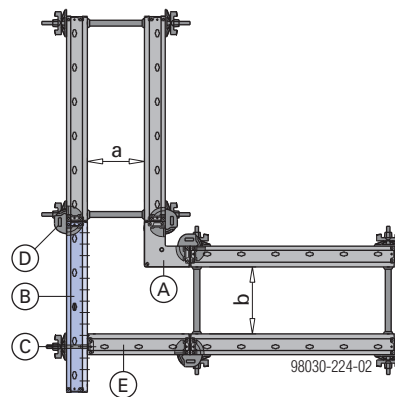
with a Frami Xlife universal panel

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



98030-224-01

Shown here on Frami Xlife panels 2.70m.



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

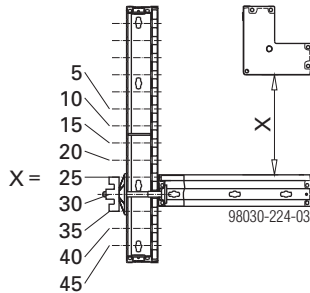
E Frami Xlife panel 0.45m

Note:

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

Frami Xlife universal panel 0.75m

Attainable wall thicknesses in 5 cm grid:

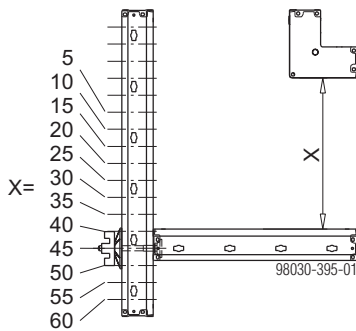


Required numbers of Frami universal fixing bolts + Super-plates 15.0:

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

Frami Xlife universal panel 0.90m

Attainable wall thicknesses in 5 cm grid:



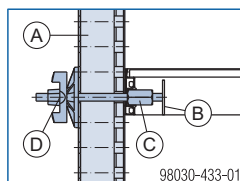
Required numbers of Frami universal fixing bolts + Super plates 15.0:

Frami Xlife universal panel 0.90x1.20m	3
Frami Xlife universal panel 0.90x1.50m	3 *)
Frami Xlife universal panel 0.90x2.70m	6
Frami Xlife universal panel 0.90x3.00m	7

*) + 1 hexagon nut, tie rod and super plate

Note:

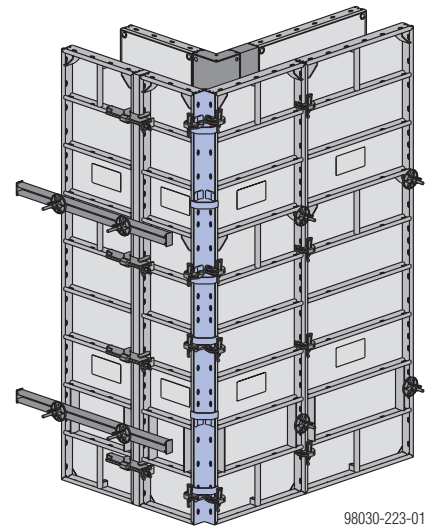
In the case of the universal panel 0.90x1.50m, installation of the Frami universal fixing bolt in one of the perforated profiles is not possible (collision with bracing at form-tie hole of the Frami Xlife panel). Use Hexagon nut 15.0 + Tie rod 15,0mm.



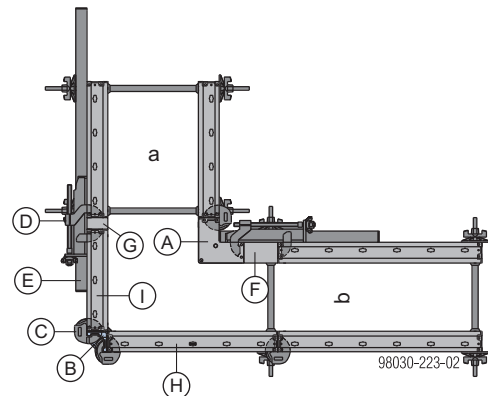
- A** Frami Xlife universal panel 0.90x1.50m
- B** Bracing at form-tie hole of the Frami Xlife panel
- C** Hexagon nut 15.0 + Tie rod 15,0mm (length: 250 mm)
- D** Super plate 15.0

with a Frami outside corner

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



Shown here on Frami Xlife panels 2.70m.



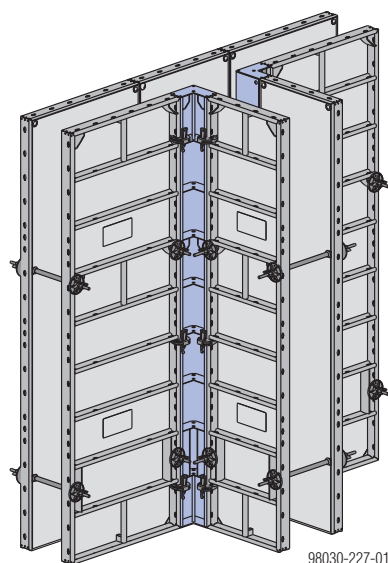
a ... 40 cm
b ... 30 cm

- 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 (min. 4.0 cm - max. 15.0 cm)
- G** Fitting timber on the outside (max. 7.5 cm)
- H** Frami Xlife panel 0.75m (max. 0.75m if there is a closure beside this panel)
- I** Frami Xlife panel 0.45m (max. 0.75m if there is a closure beside this panel)

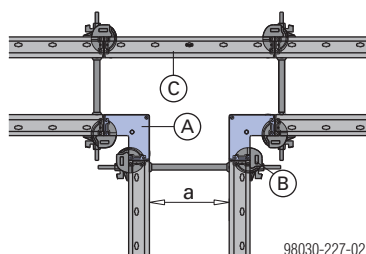
Required numbers of Frami clamps:

	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

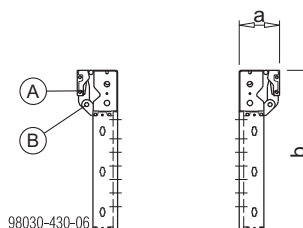
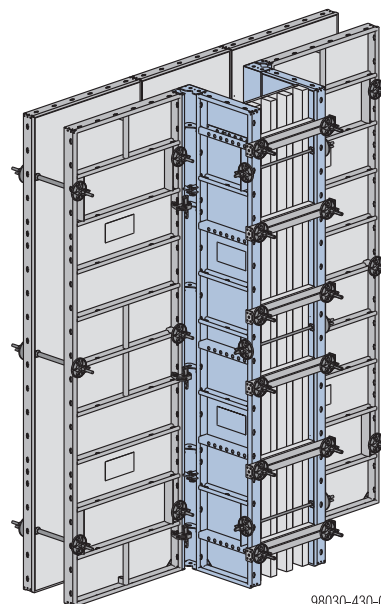
C Frami Xlife panel 0.75m

Pilasters

Frami Xlife pilaster panels are used for the non-tied forming of pilasters.

Product features:

- No need for ties through the pilaster.
- The integral folding function makes the stripping procedure faster.
- Depending on the stop-end used, pilasters up to 60 cm deep and 60 cm wide are possible.
- Panel heights:
 - 1.20m
 - 1.50m
 - 3.00m



a ... 15cm

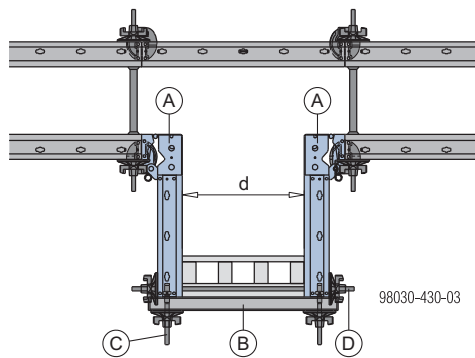
b ... 60 cm

A Frami Xlife pilaster panel

B Fastening bolt for fixing at right-angles

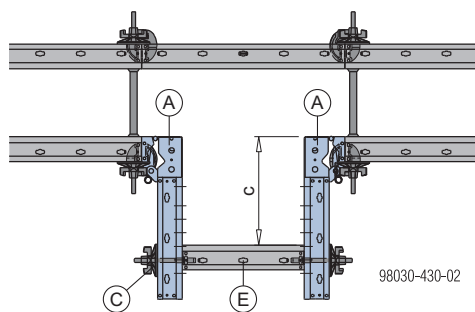
Required number of connectors per stop-end:

Panel height	Frami universal fixing bolt + Super plates 15.0
1.20m	4
1.50m	6
3.00m	12

Example of stop-end with universal waling

d ... max. 60 cm

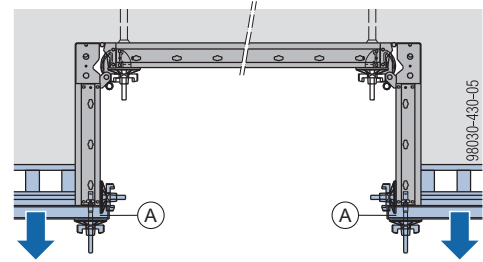
- A** Frami Xlife pilaster panel
- B** Frami universal waling
- C** Frami universal fixing bolt 5-12cm + Super plate 15.0
- D** Doka tie rod system

Example, stop-end with Frami Xlife panelc ... 20 to 45 cm in 5 cm grid
(or 60 cm with universal panel as stop-end)

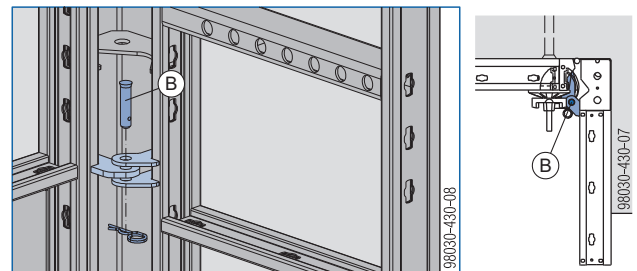
- A** Frami Xlife pilaster panel
- C** Frami universal fixing bolt 5-12cm + Super plate 15.0
- E** Frami Xlife panel 0.45m or 0.60m

Opening the formwork

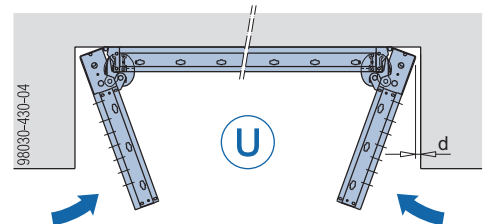
- Remove the stop-end formwork.

**A** Stop-end formwork

- Remove the fastening pin.

**B** Fastening pin

- Swivel pilaster panels inward.



d ... formwork-striking play 2.5 cm

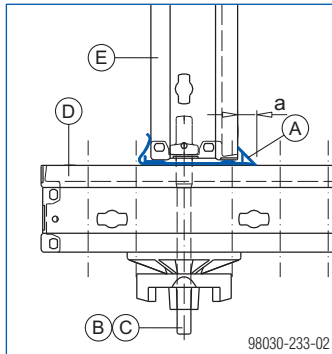
U Unit to be repositioned

- Detach the entire unit from the concrete and crane-lift it to the next position.

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.

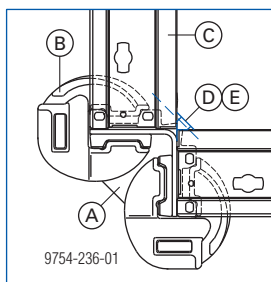


a ... 20 mm

- 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.

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 joints):

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



NOTICE

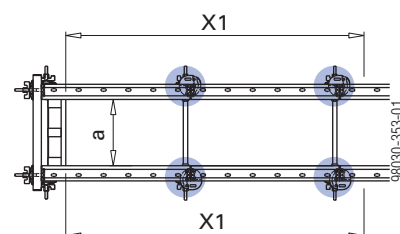
Where **increased tensile loads** need to be withstood near outside corners and stop-ends, **additional inter-panel connections are needed.**

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 70 cm

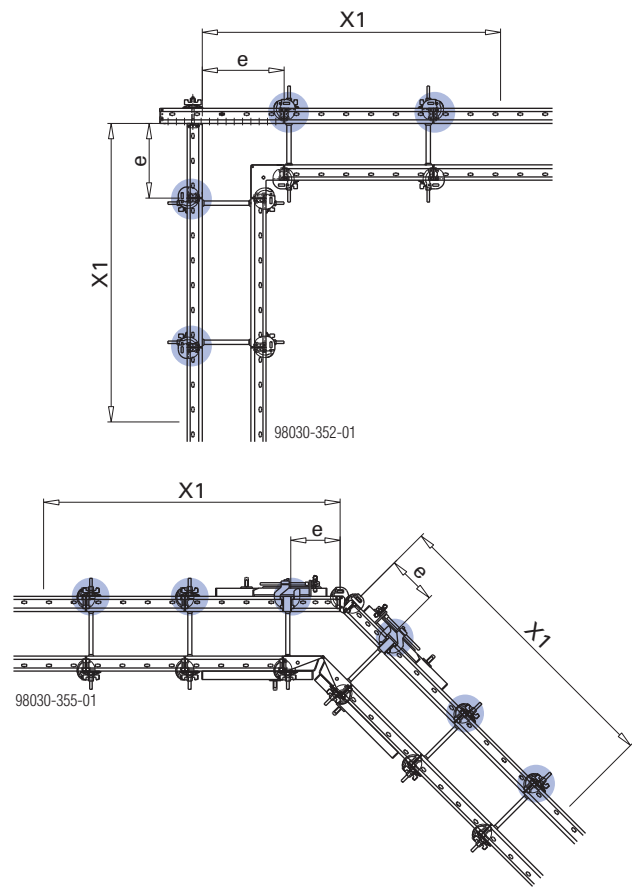


a ... 40 to 70 cm

Panel height	Number of clamps
	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

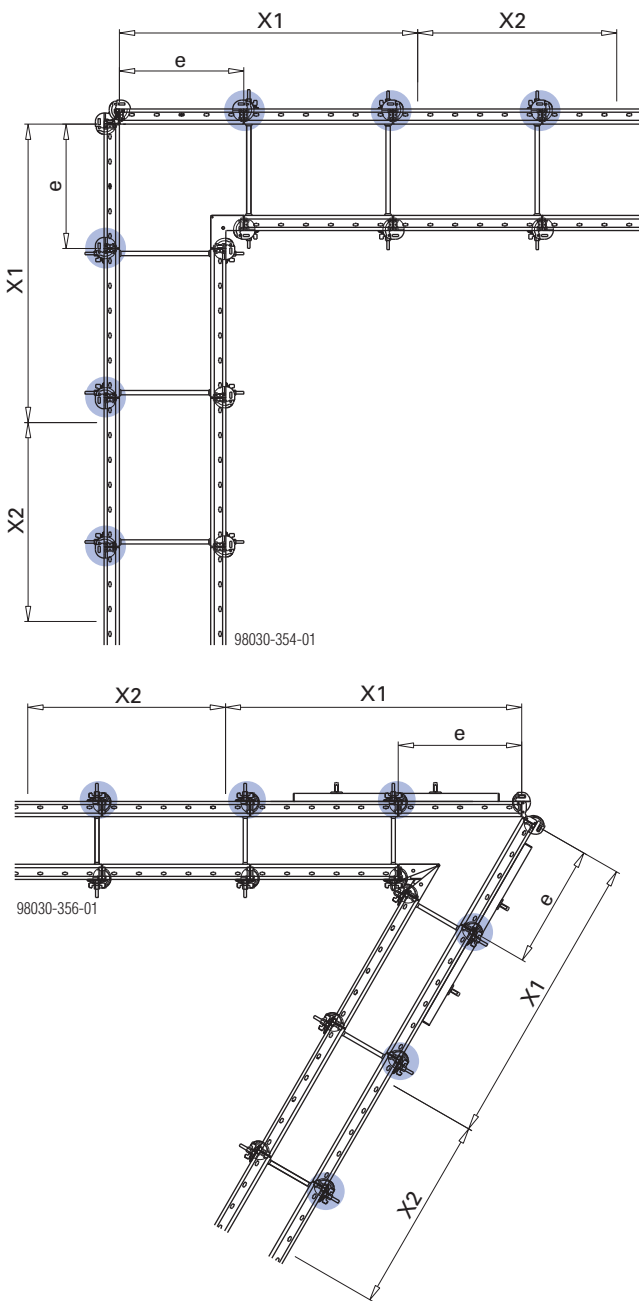
for panel widths up to 60 cm



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

Panel height	Number of clamps
	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

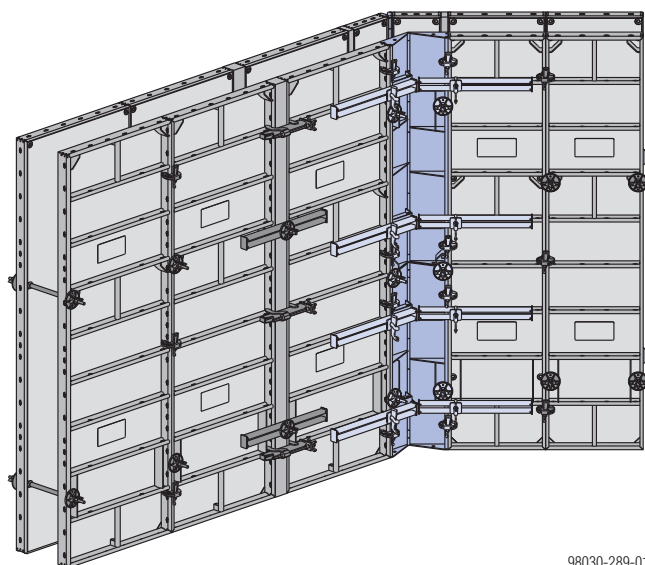
for panel widths from 60 cm to 90 cm



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

Panel height	Number of clamps	
	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

Acute & obtuse-angled corners



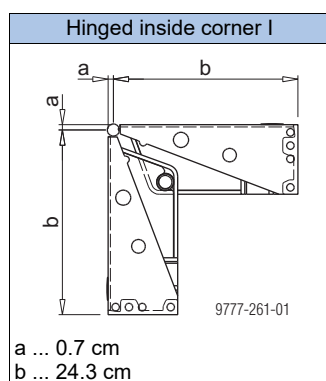
98030-289-01

Shown here with Frami Xlife panel 2.70m.

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

Panel heights of the hinged corners:

- 1.20m
- 1.50m



Hinged outside corner A galvanised	Hinged outside corner A (powder-coated)
98032-395-01 a ... 0.85 cm	9777-262-01 a ... 0.5 cm b ... 1.2 cm

Note:

The Hinged outside corner A (galvanised) cannot be combined with the Hinged outside corner A (powder-coated).

Number of universal walings per outside or inside corner:

Panel height	Number 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 the inside corner.



NOTICE

With closures, provide additional universal walings in accordance with section [Length adjustment using closures](#).

Number of Frami clamps in the hinged outside corner:

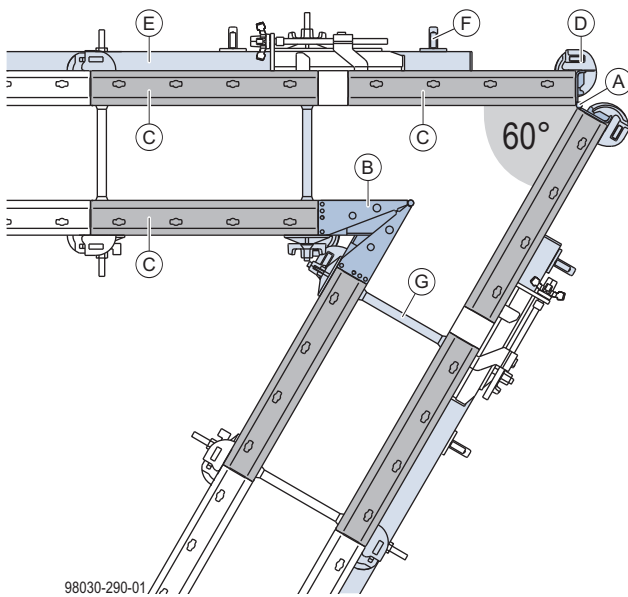
Panel height	Width of panel next to hinged outside corner	
	up to 60 cm	up to 90 cm
1.20 m	4	6
1.50 m	4	6
2.70 m	8	12
3.00 m	8	12



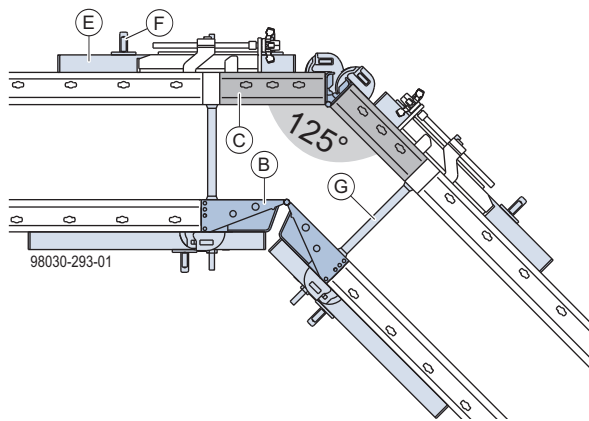
NOTICE

For details regarding additional inter-panel connections on outside corners (for increased tensile loads) see section [Inter-panel connections for increased tensile loads](#).

Angles 60° - 125° (140°), with hinged inside corner I and outside corner A

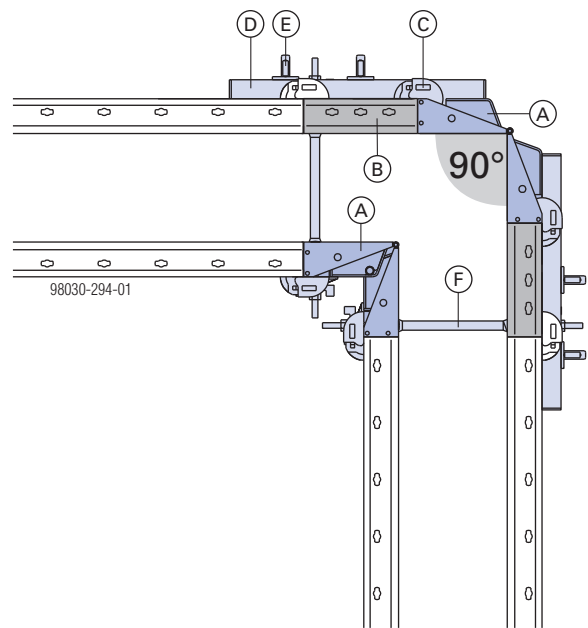


- A** Frami hinged outside corner A
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
- B** Frami hinged inside corner I
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
- C** Frami Xlife panel
(e.g.: 1.20 + 1.50m for a formwork height of 2.70m)
- D** Frami clamp
- E** Frami universal waling 1.25m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

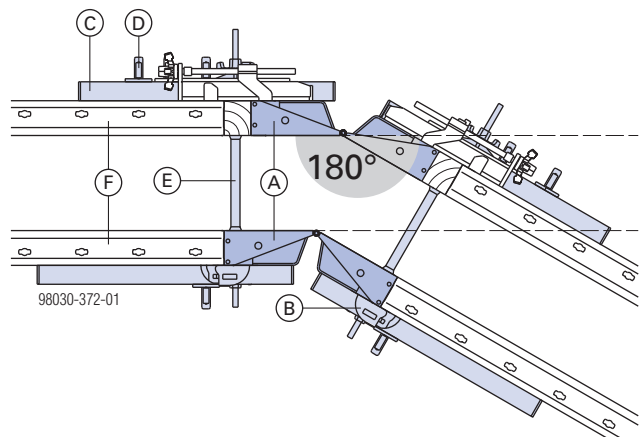


- A** Frami hinged outside corner A
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
- B** Frami hinged inside corner I
(e.g: 1.20 + 1.50m for a formwork height of 2.70m)
- C** Frami Xlife panel
(e.g.: 1.20 + 1.50m for a formwork height of 2.70m)
- D** Frami clamp
- E** Frami universal waling
- F**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



Where Frami clips are used instead of the Frami clamps in the outside corner, an angle of 140° is also possible.

Shaft formwork

The **Framax-stripping corner I** is used to form right-angled inside corners in the shaft.

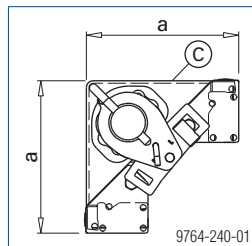
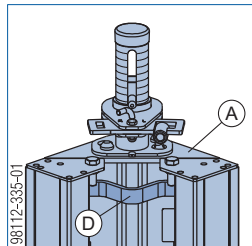
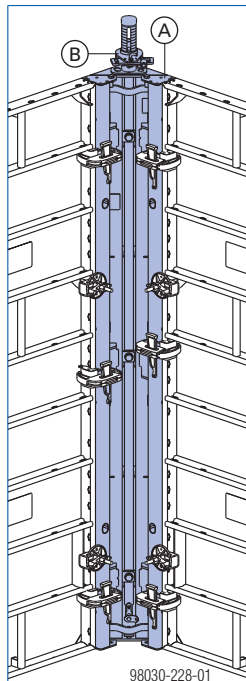
With it, the entire shaft formwork unit is detached from the wall in one piece and then repositioned by crane.

Product features:

- No negative impression in the concrete.
- Formwork set-up and stripping function integrated in the inside corner.
- The entire shaft formwork is repositioned in one piece.

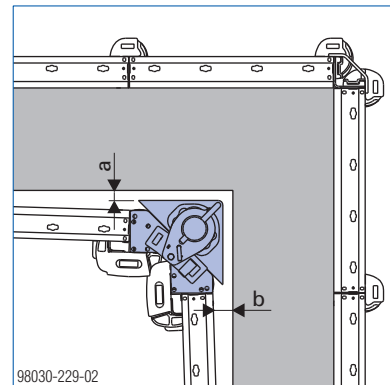
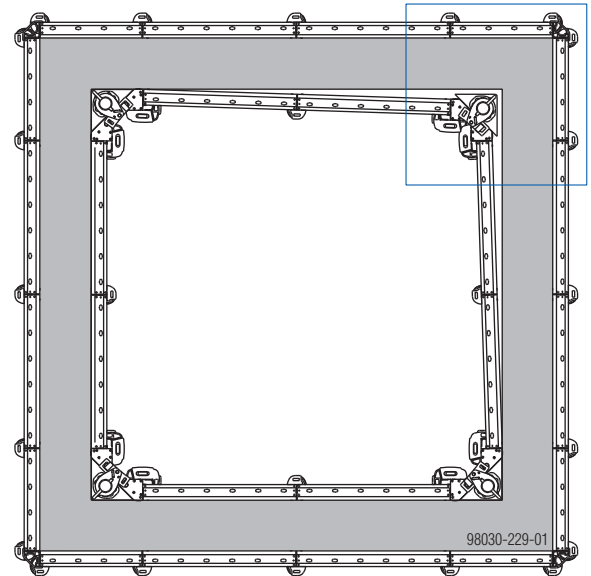
The possibilities for setting up and stripping the formwork are as follows:

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



a ... 30.0 cm

Formwork-stripping clearance:



a ... 3.0 cm

b ... 6.0 cm

Shown here with 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
- D** Sliding point (to be used exclusively for lifting **only one** stripping corner on its own!)

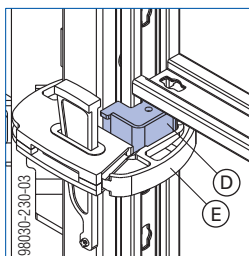
Position of closures (fitting-timbers) in the inside shaft formwork:

- whenever possible, not directly next to the stripping corners

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

Required number of Framax quick acting clamps RU:

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	1.20m + 1.50m	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
5.40 m	2.70m + 2.70m	2.70m + 2.70m	12
6.00 m	3.00m + 3.00m	3.30m + 2.70m	16



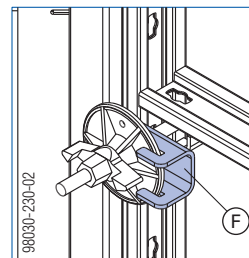
NOTICE

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.

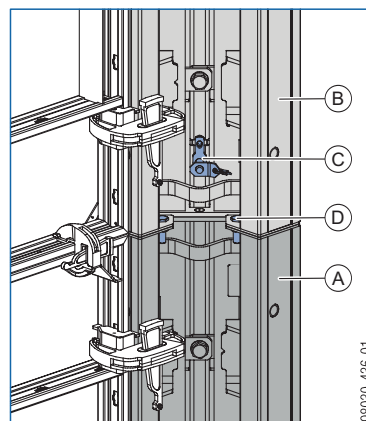
The **difference in thickness between the profiles** is bridged here by the **Frami tie-adapter**.



F Frami tie-adapter for Stripping corner I

Vertical stacking of Framax stripping corners I

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



A Bottom stripping corner I

B Top stripping corner I

C Coupling bolt

D Hexagon bolt ISO 4019 M16x45 8.8 galv. +
Hexagon nut ISO 4032 M16 8 galv.

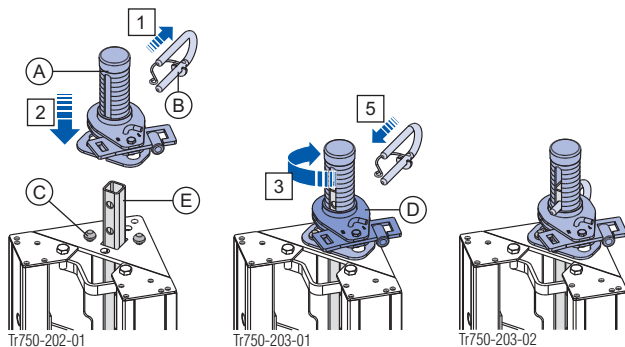
Animation: <https://player.vimeo.com/video/256373947>

Operating the Framax stripping corner I with stripping spindle

Assembly

These assembly 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 centring stud of the stripping corner.
- 3) Turn 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.



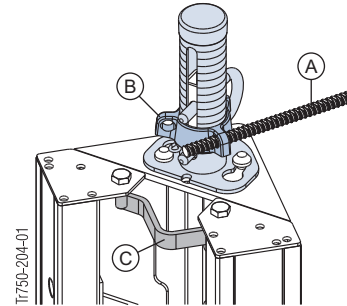
- A Framax stripping spindle I or Framax stripping spindle I with ratchet
- B U-bolt
- C Centring stud of stripping corner
- D Ratchet or spindle nut
- E Push rod

Animation:

<https://player.vimeo.com/video/256374622>

Operating the Framax stripping spindle I

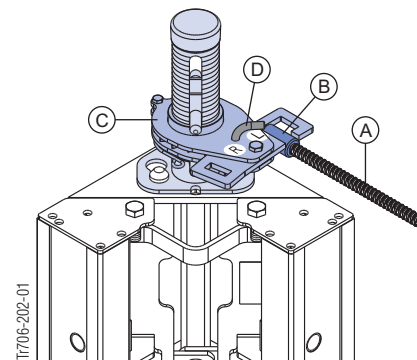
- Push a Tie rod 15.0mm through one of the holes in the spindle nut.
- **Setting up:** Twist the spindle nut **clockwise**.
- **Stripping:** Twist the spindle nut **anti-clockwise**.



- A Tie rod 15.0mm
- B Spindle nut
- C Slinging point (to be used exclusively for lifting **only one** stripping corner on its own!)

Operating the Framax stripping spindle I with ratchet

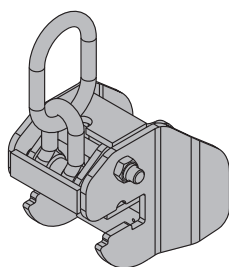
- Screw a Tie-rod 15.0mm into the Weldable coupler 15.0 of the ratchet.
- **Setting up:**
 - shift the change-over lever into the 'L' position
 - turn the ratchet **clockwise**
- **Stripping:**
 - shift the change-over lever into the 'R' position
 - turn the ratchet **anti-clockwise**.



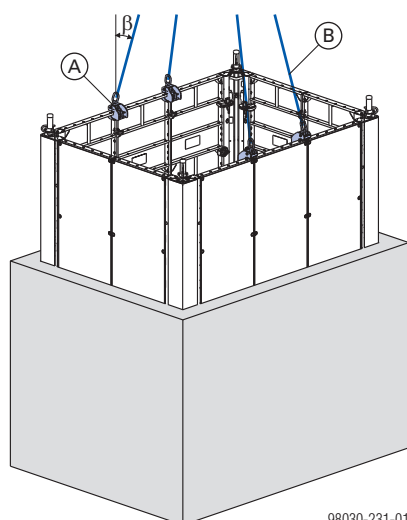
- A Tie-rod 15.0mm
- B Weldable coupler 15.0
- C Ratchet
- D Change-over lever

Lifting by crane

Frami lifting hook



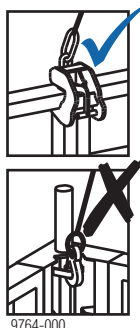
Follow the Operating Instructions!



β ... max. 15°

A Frami lifting hook

B 4-part lifting chain



Do not use the lifting point on the Stripping corner I for lifting the shaft formwork.

► The shaft formwork **may only be lifted using lifting hooks.**

Permitted weight of the shaft formwork:

2000 kg with 4 Frami lifting hooks

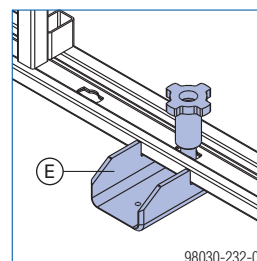


Use a lifting beam for repositioning large gang-forms.

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.

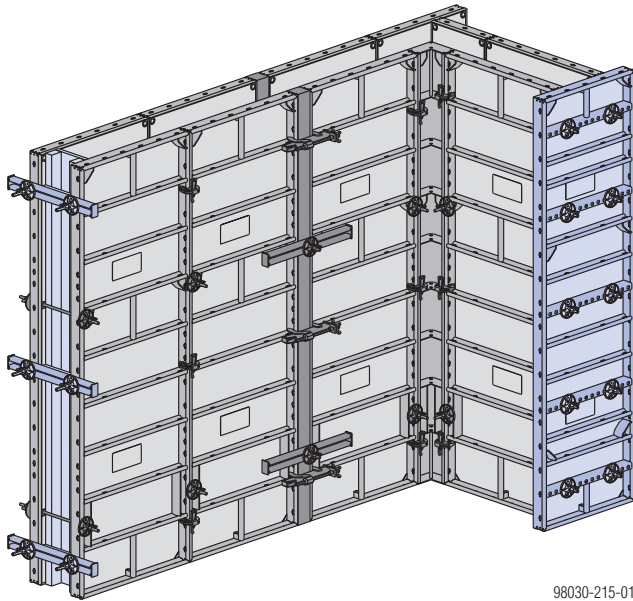


E Frami panel shoe



Follow the directions in the 'Shaft platform' User Information booklet.

Stop-end formwork



Shown here with Frami Xlife panel 2.70m.

There are **3 ways** of forming **stop-ends**:

- with a Frami Xlife universal panel
- with Frami universal waling
- with Frami stop-end waler tie



NOTICE

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

Frami universal fixing bolt:

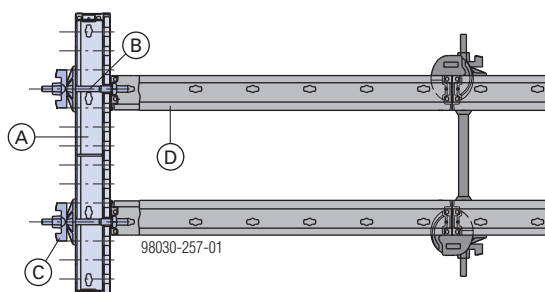
Permitted tensile load:

13.0 kN (when used in Frami Xlife panels)

15.6 kN (when used in Frami Xlife universal panels)

with a Frami Xlife universal panel

Installation on the Frami Xlife panel is carried out with Universal fixing bolt 5-12cm and Super plate 15.0.



A Frami Xlife universal panel

B Frami universal fixing bolt 5-12cm

C Super plate 15.0

D Frami Xlife panel

Note:

Close off unneeded grid holes in the formwork sheeting of the Frami Xlife universal panels with **Frami plugs**.

Frami Xlife universal panel 0.75m

The continuous 5 cm hole grid*) makes it possible to form stop-ends on walls **up to 55 cm thick**.

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

Number of connectors:

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

Frami Xlife universal panel 0.90m

The continuous 5 cm hole grid*) makes it possible to form stop-ends on walls **up to 70 cm thick**.

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

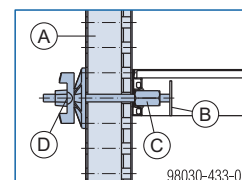
Number of connectors:

Panel height	Universal fixing bolts + Super plates 15.0
1.20m	6
1.50m	6 *)
2.70m	12
3.00m	14

*) + 1 hexagon nut, tie rod and super plate

Note:

In the case of the universal panel 0.90x1.50m, installation of the Frami universal fixing bolt in one of the perforated profiles is not possible (collision with bracing at form-tie hole of the Frami Xlife panel). Use Hexagon nut 15.0 + Tie rod 15,0mm.



A Frami Xlife universal panel 0.90x1.50m

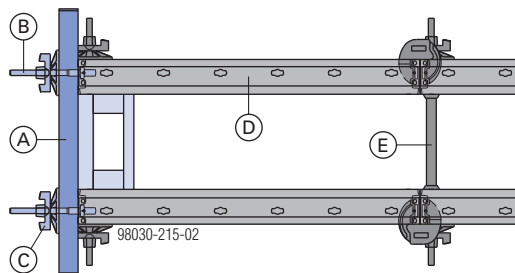
B Bracing at form-tie hole of the Frami Xlife panel

C Hexagon nut 15.0 + Tie rod 15.0mm (length: 250 mm)

D Super plate 15.0

with universal walings

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 and Super plates 15.0.



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

Frami universal waling:

Permitted moment: 1.3 kNm

Number and position of universal walings:

Panel height 1.20m	
Up to wall thickness 55 cm	Up to wall thickness 60 cm
 98030-269-01	 98030-272-01
2 universal walings	3 universal walings

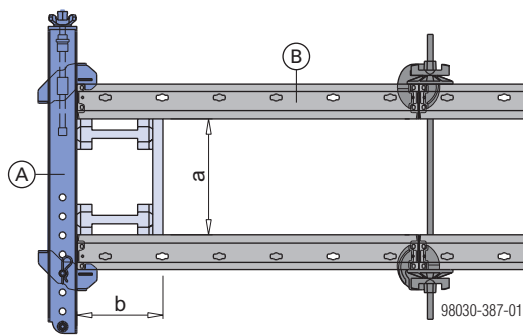
Panel height 1.50m	
Up to wall thickness 48 cm	Up to wall thickness 60 cm
 98030-270-01	 98030-271-01
2 universal walings	3 universal walings

Panel height 2.70m	
Up to wall thickness 38 cm	Up to wall thickness 60 cm
 98030-255-01	 98030-256-01
3 universal walings	5 universal walings

Panel height 3.00m	
Up to wall thickness 40 cm	Up to wall thickness 60 cm
 98030-273-01	 98030-274-01
4 universal walings	6 universal walings

with stop-end waler ties

The Frami stop-end waler tie lets you form stop-ends steplessly, from wall thicknesses of 15 cm to 45 cm.



a ... 15 cm to 45 cm

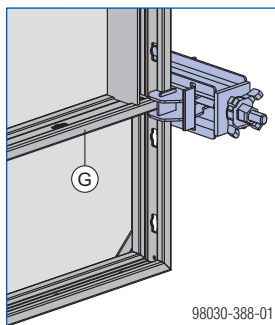
b ... ≥ 20 cm (only statically necessary on panel width 0.90m)

A Frami stop-end waler tie 15-45cm

B Frami Xlife panel

Position of stop-end waler tie:

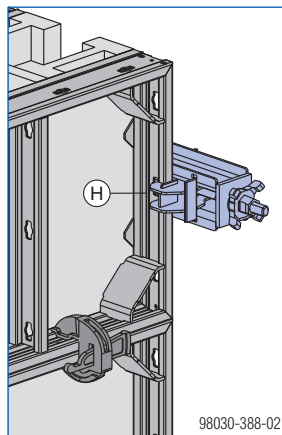
On a vertically placed panel



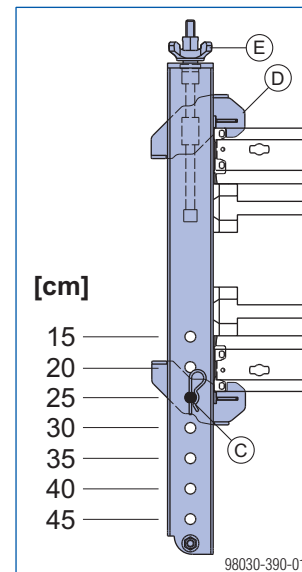
G Cross profile

H Middle of panel

On a horizontally placed panel



- Fine-adjust the screwjack clamp with the star grip nut, and tighten it.



C Spar-pin

D Screwjack clamp

E Star grip nut

How to mount:

- Fix the required wall thickness with a spar-pin.
- Position the stop-end waler tie on the formwork.

Fresh-concrete pressure $\sigma_{hk, \max} = 40 \text{ kN/m}^2$

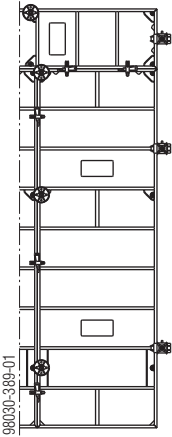
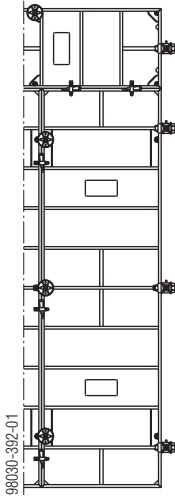
Required numbers of stop-end waler ties:

Panel height (upright panels)	Frami stop-end waler ties
1.20m	2
1.50m	2
2.70m	2
3.00m	3

Panel width (horizontal panels)	Frami stop-end waler ties
0.30m to 0.90m	1*)

*) On single panels not forming part of a gang (e.g. when being used as foundation formwork), at least 2 stop-end waler ties must be used.

Positions of the stop-end waler ties:

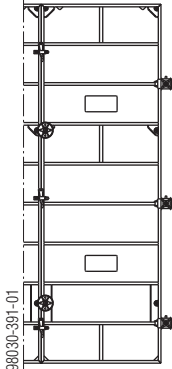
Example Formwork height 3.15 m (2.70m + 0.45m)	Example Formwork height 3.60 m (3.00m + 0.60m)
	

Fresh-concrete pressure $\sigma_{hk, \max, \text{hydr}} = 67.5 \text{ kN/m}^2$

Required numbers of stop-end waler ties:

Panel height	Frami stop-end waler ties
2.70m	3

Positions of the stop-end waler ties:

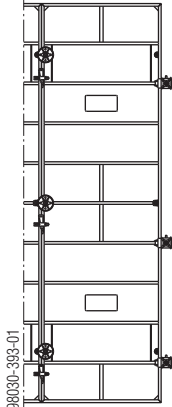
Formwork height = panel height 2.70m


Fresh-concrete pressure $\sigma_{hk, \max} = 60 \text{ kN/m}^2$

Required numbers of stop-end waler ties:

Panel height	Frami stop-end waler ties
3.00m	3

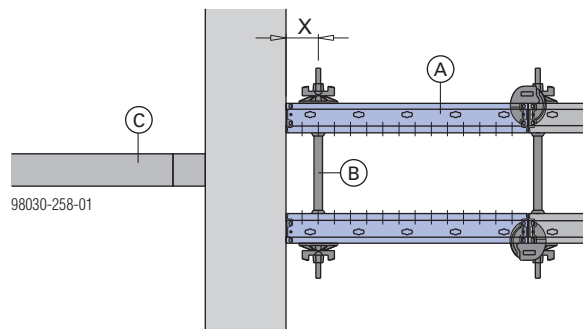
Positions of the stop-end waler ties:

Formwork height = panel height 3.00m


Wall junctions

Right-angled connections

with a Frami Xlife universal panel



X ... max. 25 cm

A Frami Xlife universal panel

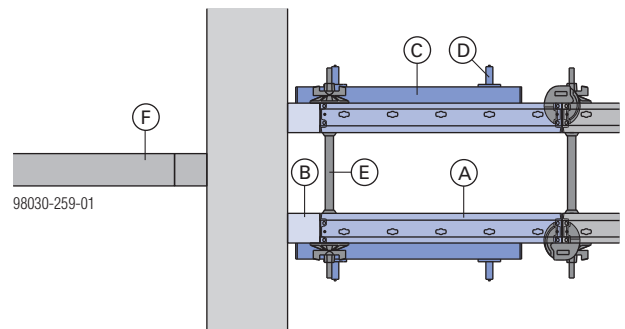
B Form-tie

C In-place timber brace

Number of form-ties in Universal panel:

		Panel width	
		0.75m	0.90m
Panel height	1.20m	2	3
	1.50m	3	4
	2.70m	5	6
	3.00m	6	7

with Frami Xlife panels and squared timbers



A Frami Xlife panel

B Squared timber (min. 3.0 cm up to max. 10 cm)

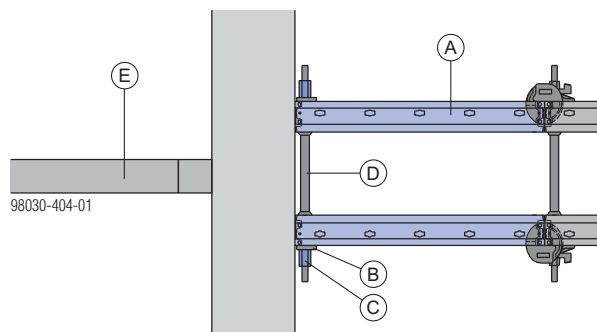
C Universal waling (not needed if the squared timber is less than 5 cm wide)

D Frami wedge clamp

E Form-tie

F In-place timber brace

with Frami Xlife panels and pressure plate 8/9



A Frami Xlife panel

B Frami pressure plate 8/9

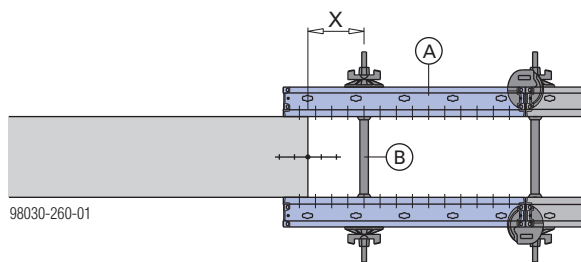
C Hexagon nut 15.0

D Doka tie rod system 15.0mm

E In-place timber brace

In-line connections

with a Frami Xlife universal panel



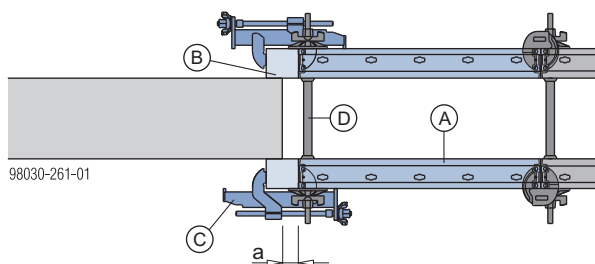
X ... max. 25 cm

- A** Frami Xlife universal panel
- B** Form-tie

Number of form-ties in Universal panel:

		Panel width	
		0.75m	0.90m
Panel height	1.20m	2	3
	1.50m	3	4
	2.70m	5	6
	3.00m	6	7

with Frami Xlife panels and squared timbers

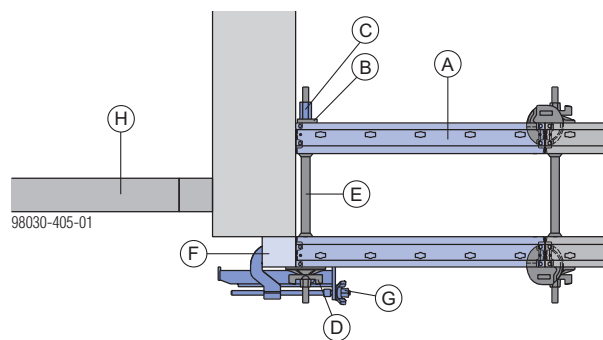


a ... max. 5 cm

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

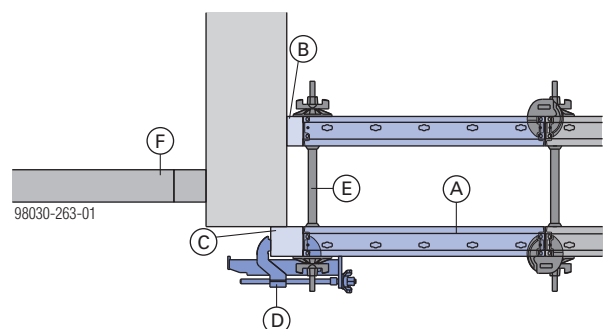
Corner connections

without closure

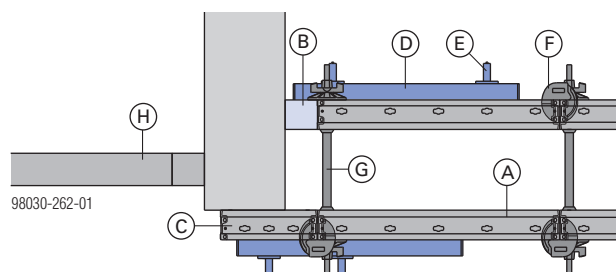


- A** Frami Xlife panel
- B** Frami pressure plate 8/9
- C** Hexagon nut 15.0
- D** Super plate 15.0
- E** Doka tie rod system 15.0mm
- F** Squared timber
- G** Adjustable clamp
- H** In-place timber brace

with closure



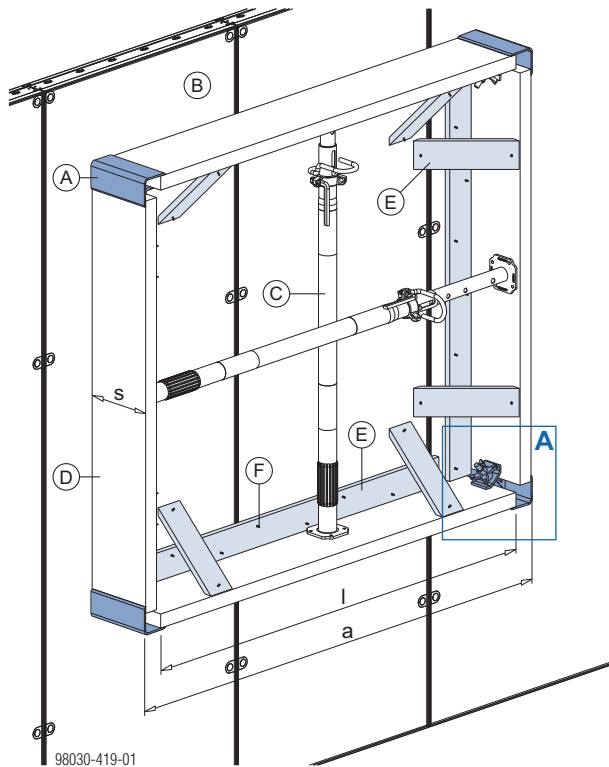
- A** Frami Xlife panel
- B** Squared timber (min. 3 cm up to max. 5 cm)
- C** Squared timber
- D** Adjustable clamp
- E** Form-tie
- F** In-place timber brace



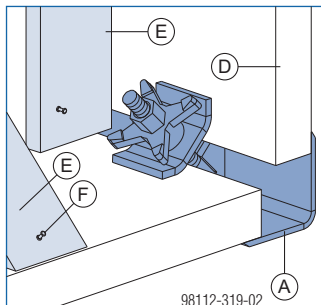
- A** Frami Xlife panel
- B** Squared timber (min. 3 cm up to max. 10 cm)
- C** Frami Xlife panel 0.30m
- D** Universal walings (not needed if the squared timber is less than 5 cm wide)
- E** Frami wedge clamp
- F** Frami clamp
- G** Form-tie
- H** In-place timber brace

Window and door openings

Window and door box-outs can be formed quickly and stripped out non-destructively with **box-out clamps**. Planks are fixed in the box-out clamps by means of the integrated star grip nuts.



Close-up A:



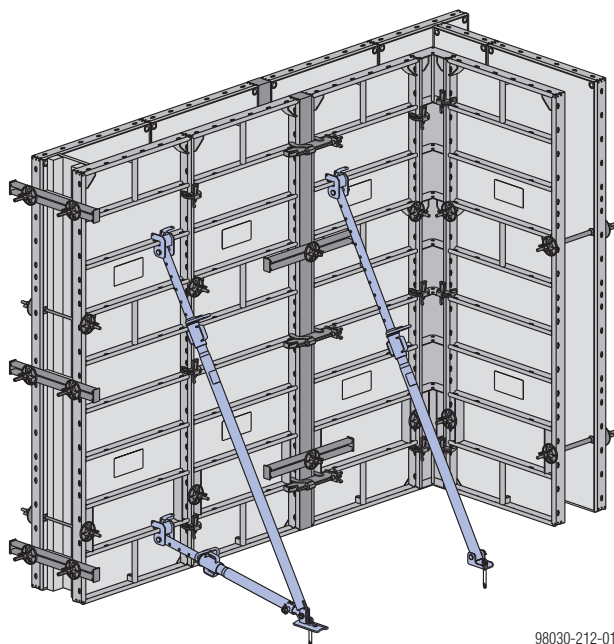
a ... clear width of opening
l ... length of plank = a minus 12 cm
s ... plank width = wall thickness

- A Box-out clamp
- B Frami Xlife panel
- C Doka floor prop
- D Plank (wall thickness/2-5 cm)
- E Board (10/3 cm)
- F Double-headed nail

Assembly:

- Place the box-out clamps on the ground, fit planks into them and tighten the star grip nuts.
- Fasten the box-outs to the wall formwork with boards 10/3 cm and nails.
- Brace vertically and horizontally with suitable floor props (as statically required).

Plumbing accessories



98030-212-01

Shown here with Frami Xlife panel 2.70m.

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



WARNING

Risk of the formwork tipping over!

- Ensure stability of the formwork panels in **every** phase of the construction work!
- Observe all applicable safety regulations!
- If **high wind speeds** are likely, and when work finishes for the day or before prolonged work-breaks, always take extra precautions to fix the formwork in place.

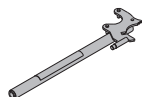
Suitable precautions:

- set up the opposing formwork
- place the formwork against a wall
- anchor the formwork to the ground (e.g. with Frami floor fixing plates)



Universal dismantling tool

For easy operation of the spindle nuts.



Structural design

Note:

Consult the structural-design tables in the section for the prop heads used!

The values stated in the tables apply for a wind $w_e = 0.65 \text{ kN/m}^2$. This results in a peak velocity pressure of $q_p = 0.5 \text{ kN/m}^2$ (102 km/h) where $C_{p, \text{net}} = 1.3$. The greater wind loads encountered at exposed formwork-ends must be restrained by additional plumbing accessories (e.g. struts or pipe-braces). In cases where higher wind pressure is encountered, the number of props must be determined by static calculation.



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

Note:

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

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

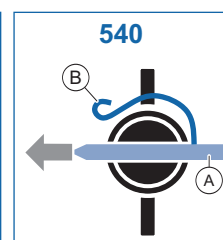
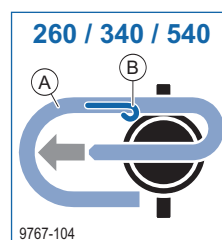
- **with the Strut head EB**
 - 5 Plumbing struts 260 or
 - 4 Panel struts 340
- **with the Frami prop head EB**
 - 3 Plumbing struts 260 or
 - 3 Panel struts 340
- **with the Frami connection profile**
 - 3 Plumbing struts 260
 - 2 Panel struts 340

Pre-assembly

- Install heads on the plumbing accessory.
- Fix the plumbing accessory to the formwork and to the ground (see connection options below for details).
- Precision adjustment of the plumbing strut with adjusting nut.

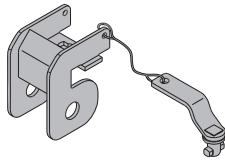


- The safety pin (A) must be fully inserted into the plumbing accessory and secured in this position by the locking spring (B).
- The function of the locking spring (B) must be ensured.

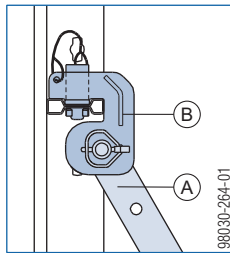


Fixing the struts to the formwork

with the Strut head EB



Connection options: Cross profile or frame profile horizontal



- A** Panel strut 340 IB or Plumbing strut 260 IB
B Strut head EB

Note:

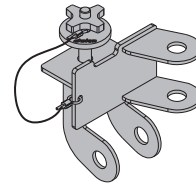
Connection to cross profile of the Frami Xlife panel 2.40x2.70m is not possible!

Structural design:

	Formwork height [m]	Permissible spacing [m]
Plumbing strut 260	1.80	2.10
	2.25	1.90
	2.70	1.35
	3.00	1.20
	3.60	0.80
Panel strut 340	2.70	1.45
	3.00	1.35
	3.60	1.00
	4.20	0.95
	4.50	0.70

Max. prevailing anchoring load:
 $F_{\text{exist}} = 4.5 \text{ kN}$ (actual load)
 $F_d = 6.8 \text{ kN}$ (design value incl. safety factors)

with the Frami prop head EB



Connection options:

Cross profile or frame profile vertical	Inter-panel joint	Cross profile horizontal , formwork panel 2.40x2.70m
A Panel strut 340 IB, - 540 IB or Plumbing strut 260 IB	C Frami prop head EB	H Frami Xlife panel 2.40x2.70m



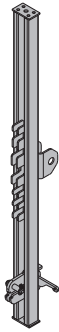
NOTICE

The structural design applies for the connection options as shown.
 In the case of horizontal connection to the cross profile (panel widths 0.30 to 0.90 m) or to the frame profile, the structural design with **Strut head EB** has to be used!

Structural design:

	Formwork height [m]	Permissible spacing [m]
Plumbing strut 260	1.80	3.50
	2.10	2.90
	2.40	2.50
	2.70	2.40
	3.00	2.10
	3.30	1.90
	3.60	1.60
Max. prevailing anchoring load: $F_{\text{exist}} = 7.7 \text{ kN}$ (actual load) $F_d = 11.6 \text{ kN}$ (design value incl. safety factors)		
Panel strut 340	2.70	2.70
	3.00	2.50
	3.30	2.30
	3.60	1.90
	3.90	1.70
	4.20	1.40
	4.50	1.30
Panel strut 540	3.60	2.60
	3.90	2.20
	4.20	2.10
	4.50	2.00
	4.80	1.80
	5.10	1.70
	5.40	1.50
Max. prevailing anchoring load: $F_{\text{exist}} = 8.0 \text{ kN}$ (actual load) $F_d = 12.0 \text{ kN}$ (design value incl. safety factors)		

with the Frami connection profile EB

**Note:**

On vertically stacked panels (panel joint), the Frami connection profile takes over the function of the universal waling.

Connection options:

Connection at bottom		Connection at top
Cross profile vertical	Cross profile horizontal	Cross profile or frame profile

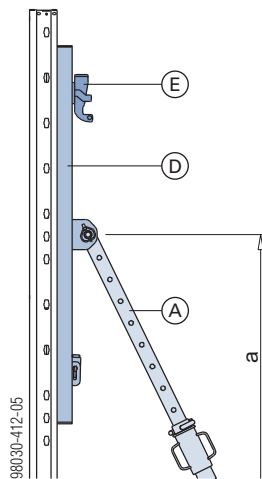
F Profile clamping of the connection profile

G Pin of the connection profile

D Frami connection profile EB

E Frami wedge clamp

H Frami Xlife panel (**not panel 2.40x2.70m!**)



a ... connection height

A Panel strut 340 IB, - 540 IB or Plumbing strut 260 IB

D Frami connection profile EB

E Frami wedge clamp

Structural design:

	Formwork height [m]	Connection height [m]	Permissible spacing [m]
Plumbing strut 260	1.80	1.50	3.50
	2.10	1.50	2.90
	2.40	1.65	2.50
	2.70	1.95	2.40
	3.00	1.95	2.10
	3.30	2.25	1.90
	3.60	2.25	1.60

Max. prevailing anchoring load:

$F_{\text{exist}} = 7.7 \text{ kN}$ (actual load)

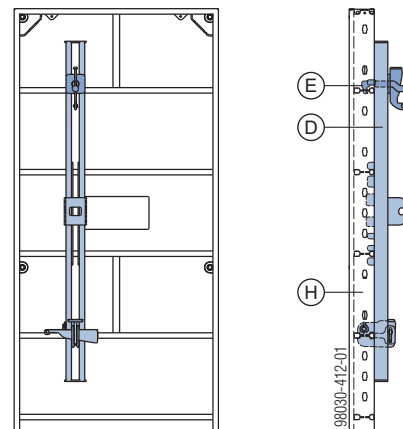
$F_d = 11.6 \text{ kN}$ (design value incl. safety factors)

Panel strut 340	2.70	1.95	4.50
	3.00	2.25	4.20
	3.30	2.70	3.10
	3.60	2.70	2.70
	3.90	2.70	2.30
	4.20	2.70	2.00
	4.50	3.00	1.50
Panel strut 540	3.60	2.70	4.30
	3.90	3.15	3.80
	4.20	3.45	3.60
	4.50	3.75	3.50
	4.80	3.90	3.10
	5.10	4.35	2.80
	5.40	3.75	2.50
	5.70	4.20	2.30
	6.00	4.35	2.00

Max. prevailing anchoring load:

$F_{\text{exist}} = 13.5 \text{ kN}$ (actual load)

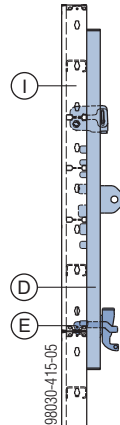
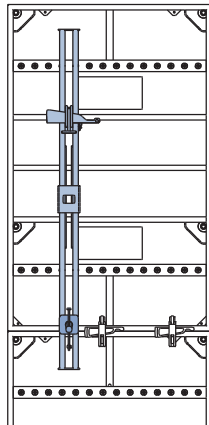
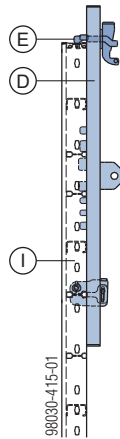
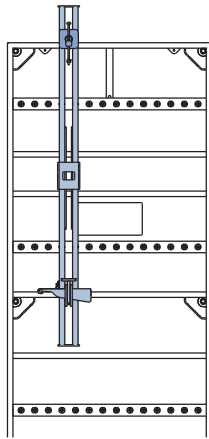
$F_d = 20.3 \text{ kN}$ (design value incl. safety factors)

Possible positions of the Frami connection profile**Cross profiles:**

D Frami connection profile EB

E Frami wedge clamp

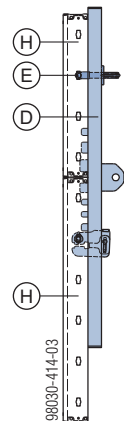
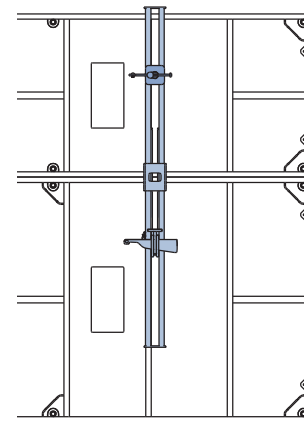
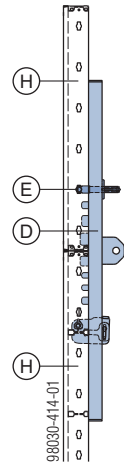
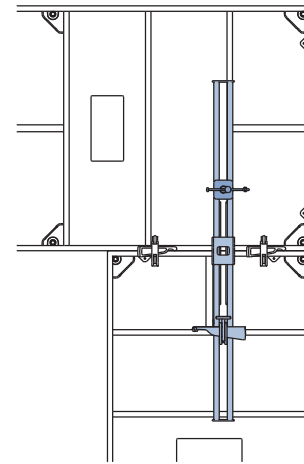
H Frami Xlife panel (**not panel 2.40x2.70m!**)



D Frami connection profile EB

E Frami wedge clamp

I Frami Xlife universal panel

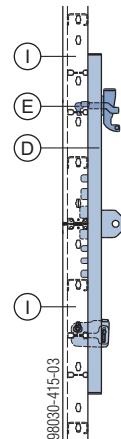
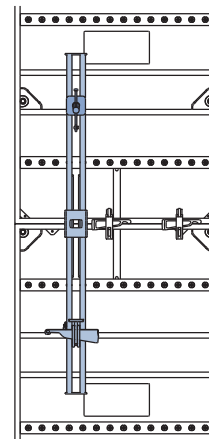
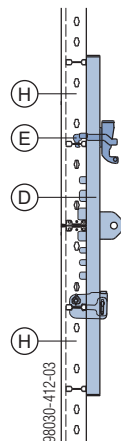
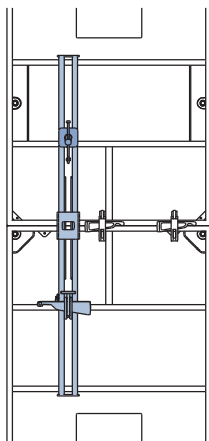


D Frami connection profile EB

E Frami wedge clamp

H Frami Xlife panel (not panel 2.40x2.70m!)

Inter-panel joint (universal waling function):



D Frami connection profile EB

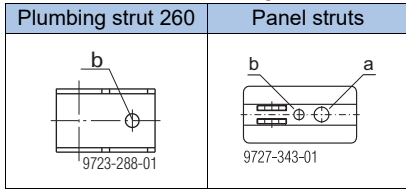
E Frami wedge clamp

I Frami Xlife universal panel

Fixing to the ground

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

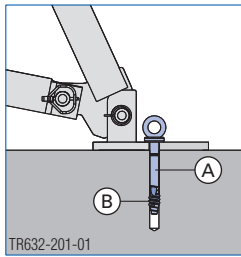
Drilled holes in baseplate



a ... Ø 26 mm
b ... Ø 18 mm (suitable for Doka express anchors)

Anchoring the footplate

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



- A** Doka express anchor 16x125mm
B Doka coil 16mm

Doka express anchor 16x125mm:

Concrete strength class: min. C20/25

Cube compressive strength of the concrete during loading: $f_{ck, cube, current} = \text{min. } 15 \text{ N/mm}^2$ (corresponds to B15)



Follow the directions in the 'Doka express anchor 16x125mm' User Information booklet!

Required load-bearing capacity of alternative anchoring elements:

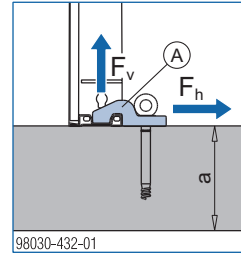
Max. anchoring load must be in accordance with the tables in the section headed 'Structural design'.

Follow the manufacturers' applicable fitting instructions.

Anchoring the floor fixing plate

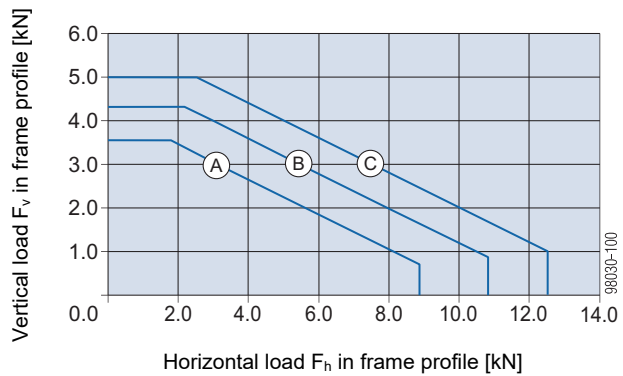
The Frami floor fixing plate is used to fix and secure framed formwork panels:

- As safeguard against lift-out by the wind.
- When panel struts are used without adjusting struts.



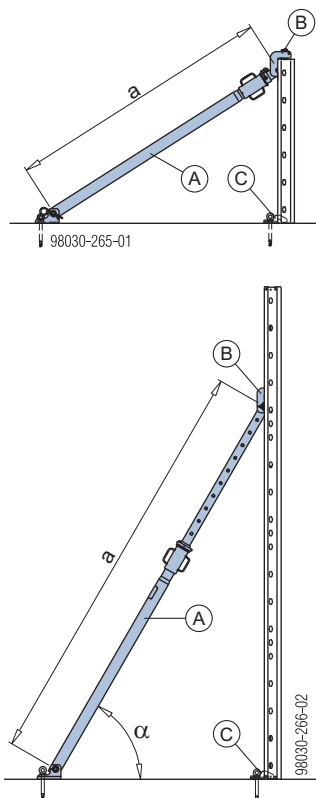
a ... min. 18 cm
Distance from edge to panel outside edge: min. 15 cm

A Frami floor fixing plate



	Cube compressive strength $f_{ck, cube, current}$ of the foundation slab during loading	Max. anchoring load	
		F_{exist}	F_d
(A)	10 N/mm ² (corresponds to B10)	9.2 kN	13.8 kN
(B)	15 N/mm ² (corresponds to B15)	11.2 kN	16.8 kN
(C)	20 N/mm ² (corresponds to B20)	12.9 kN	19.4 kN

Plumbing strut 260



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

A Plumbing strut 260 IB

B Strut head EB

C Frami floor fixing plate

Panel struts

Product features:

- Can be extended in 8 cm increments
- Fine adjustment by screw-thread
- All parts are captive, including the inner tube which has a safety stop to prevent dropout

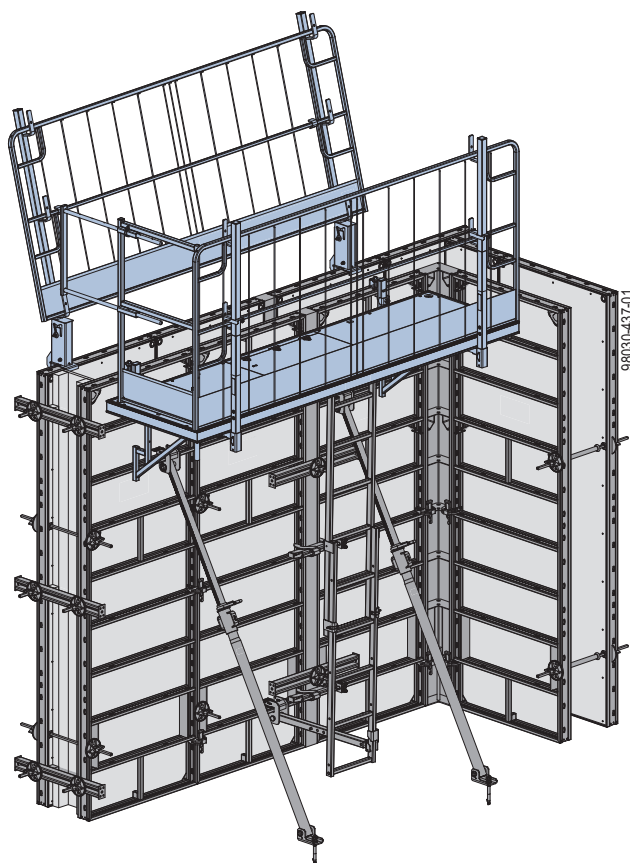
Panel strut 340	Panel strut 540
98030-266-01 a ... 190.8 - 341.8 cm b ... 107.7 - 156.8 cm	98030-429-01 a ... 310.5 - 549.2 cm b ... 204.4 - 253.0 cm

α ... approx. 60°

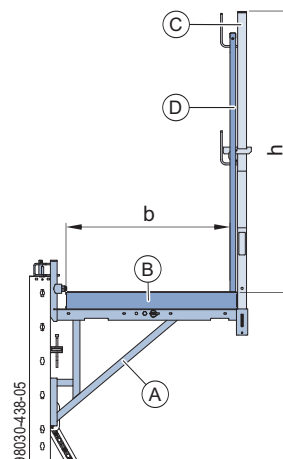
A Panel strut 340 IB or Panel strut 540 IB

B Strut head EB, Frami prop head EB or Frami connection profile

Pouring platforms with single brackets



Xsafe bracket system



b ... 75 cm
h ... 114 cm

- A** Frami bracket XBS 75 EP
- B** Deck XBS
- C** Handrail post XBS 1.40m
- D** Protective grating XP 1.20m

Permitted service load: 1.5 kN/m² (150 kg/m²)

Load Class 2 to EN 12811-1:2003

Max. influence width: 2.00 m

Erection sequence

Precondition for use

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

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

Ensure that the formwork gang is sufficiently rigid.

Observe all applicable safety regulations.



NOTICE

Multi-panel gangs without an opposing formwork and with pouring platforms and Plumbing struts 260 must be fixed on the ground so that they cannot be dislodged.

This can be done in either of 2 ways:

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



NOTICE

- For working at heights that cannot be reached from the floor, use a suitable elevated platform (e.g. Platform stairway 0.97m, Wheel-around scaffold DF or mobile scaffold tower)!
- Always comply with the country-specific safety regulations!
- Do not step on to the pouring platform until an all-round guardrail system (including counter railing) is in place!
Otherwise wear a personal fall-arrest system (e.g. safety harness)!

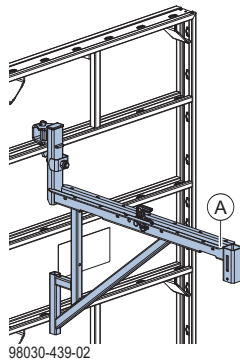
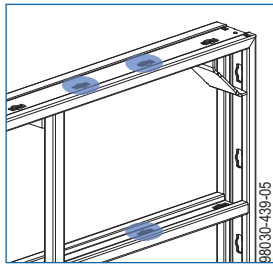
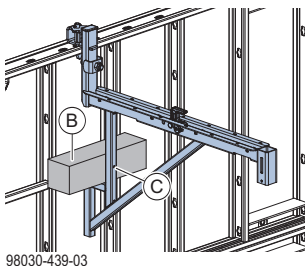
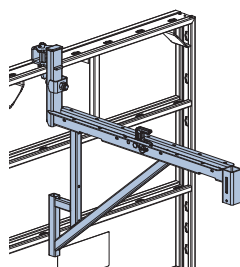
Note:

For details of the procedures for setting up and stripping the formwork, see section [Instructions for assembly and use \(Method statement\)](#).

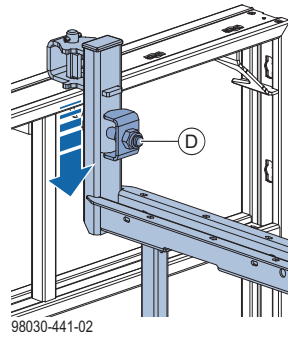
Fitting brackets**NOTICE**

- Note the suspension options due to the toothed strip of the XBS deck, e.g:
 - **Cross profile:** 2nd cross hole from the panel edge.
(Panel width 60 and 240 cm: also 3rd cross hole possible).
 - **Frame profile:** 2nd or 3rd cross hole from the panel edge.
- All points where the anti-liftout guard cannot be activated are unsuitable for installation of the bracket.
- The efficacy of the anti-liftout guard must be ensured in every suspension situation!

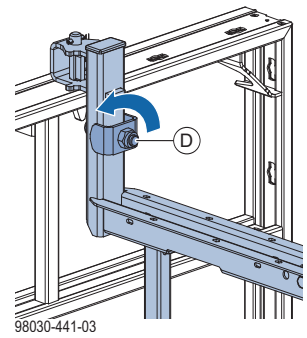
- Engage the Frami bracket XBS 75 EP in the upright gang-form with the anti-liftout guard (D) 'deactivated'.

Mounting options for the bracket:Upright panel
in cross profilePanel on its side
with squared timber as pressure
pointUpright panel
in the frame profile**A** Frami bracket XBS 75 EP**B** Squared timber 10x10 cm**C** Universal countersunk screw 5x60

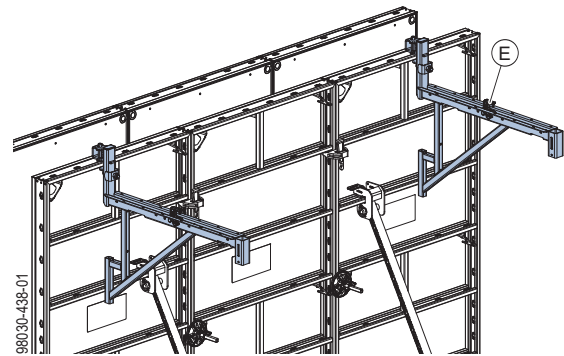
- Activate the anti-liftout guard (D) by turning through 90°.



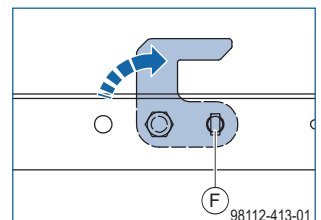
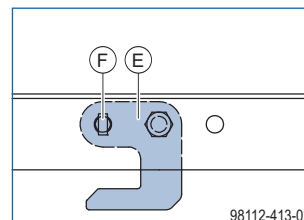
Anti-liftout guard deactivated



Anti-liftout guard activated



- Ensure that the securing hook (E) of the bracket is in its operational position. Otherwise remove the safety pin (F), fold up the securing hook, insert the safety pin again and secure the safety pin (F) with a linch pin.

Parking position for wooden
planksOperational position for deck
XBS

Wooden planks can also be used as platform decking instead of the deck XBS (see section [Frami bracket 60](#)).

The wooden planks are secured from below using wood screws.

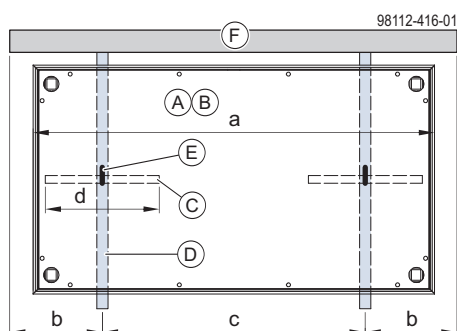
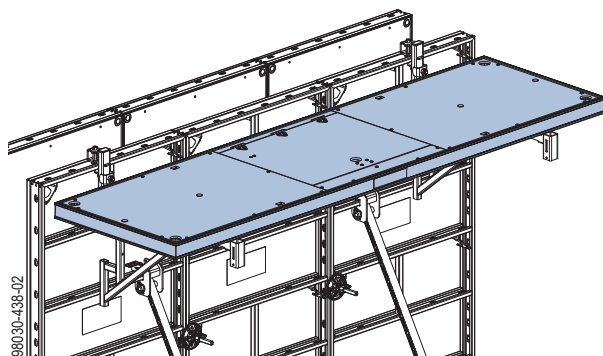
In this case the securing hook remains in parking position.

Fitting the Deck XBS 75



NOTICE

- Observe the installation direction for Hatch deck XBS 75/270cm! The hinges of the manhole lid must be on the formwork side.
- Push deck XBS onto the brackets. The securing hooks of the bracket must engage in the two toothed strips of the deck.



Deck XBS 75/270cm

- a... 267.5 cm
- b... 11 to 50 cm
- c... 170 to 248 cm
- d... 39 cm

Deck XBS 75/135cm

- 132.5 cm
- 11 to 38 cm
- 59 to 113 cm
- 27 cm

A Deck or Hatch deck XBS 75/270cm

B Deck XBS 75/135cm

C Toothed strip of the deck XBS

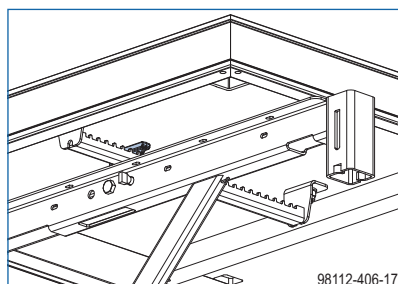
D Bracket XBS

E Securing hook of the bracket XBS

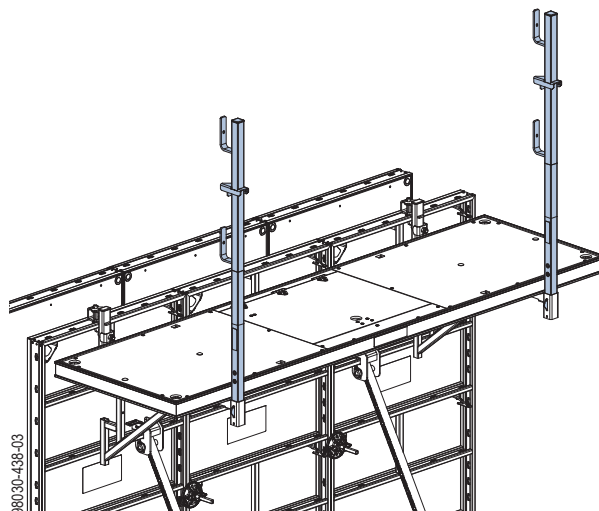
F Formwork panel or gang-form
(schematic diagram)



Do a sight-check to ensure that both brackets are hooked into the toothed strips to prevent slipping and tipping.



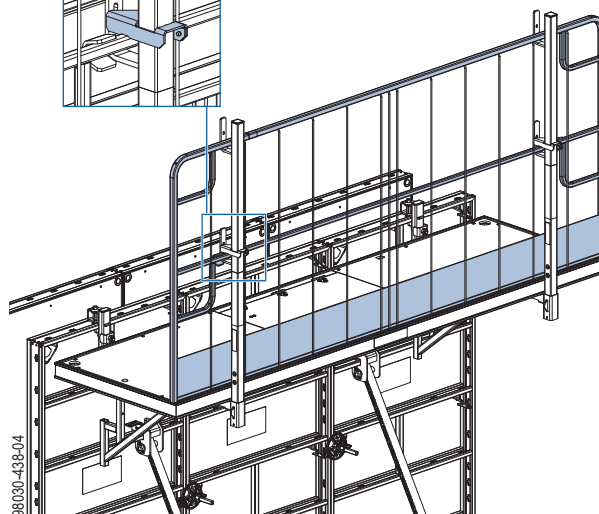
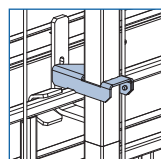
- Attach Handrail posts XBS 1.40m until the lock engages ('Easy-Click' function) and push the anti-lift-out guard of the handrail posts upwards.



With the handrail posts installed, the deck is secured to prevent lifting out and slipping.

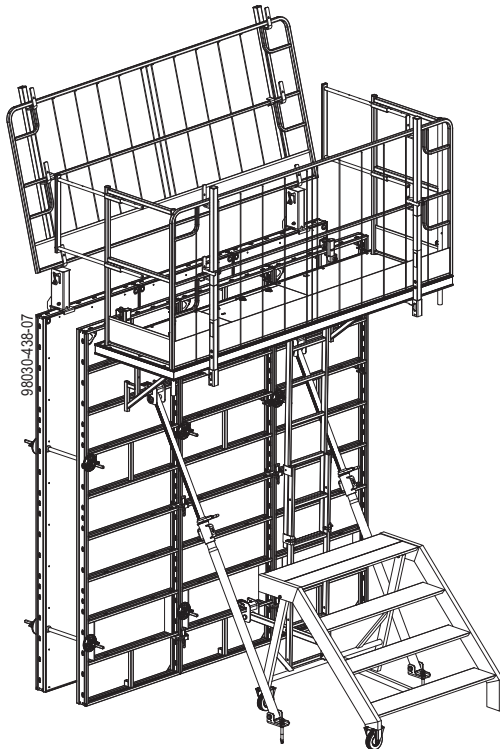
Fitting the edge protection and ladder system

- Hook in protective grating XP and push the anti-lift-out guard down again.



- On pouring platforms that do not completely encircle the structure, place suitable sideguards across exposed end-of-platform zones and a counter railing on the opposing formwork (see sections [Sideguards on exposed platform-ends](#) and [Opposing guardrail](#)).

- For Hatch deck XBS 75/270cm, fit Xsafe aluminium telescopic ladder 1.55-2.70m (see section [Telescopic ladder](#)).



Dismantling is the reverse of the assembly procedure.

Lifting the formwork and Xsafe bracket system in one piece

The **Frami lifting hook** allows the formwork to be repositioned together with the Xsafe bracket system.



NOTICE

Setting up or laying down the formwork together with the Xsafe bracket system is not permitted!

Telescopic ladder



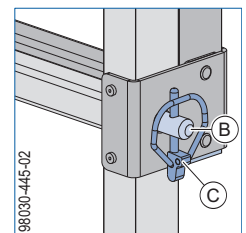
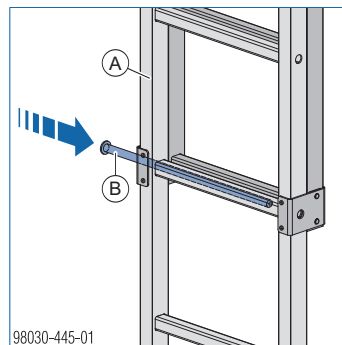
For the requirement and correct arrangement of a ladder cage, the regulations of the authorities responsible for occupational safety in the respective countries must be observed (e.g. DGUV 208-016 and 101-014).

Note:

See section [Ladder system XS for heights above 3.60 m](#) for installation of the Ladder cage XS.

Telescoping the ladder:

- Remove the ladder bolt and pull the telescopic ladder to the required length.
- Push the ladder bolt back in and secure with a linch pin.



A Xsafe aluminium telescopic ladder 1.55-2.70m (optional Xsafe plus telescopic ladder)

B Ladder bolt

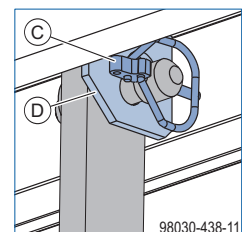
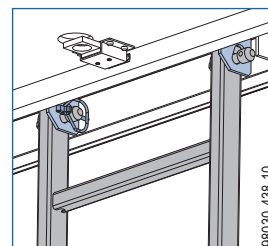
C Linch pin



The ladder bolt must be secured with a linch pin (**C**) !

Connection to the deck XBS:

- Hook the telescopic ladder into the integrated ladder connection and secure with a linch pin.

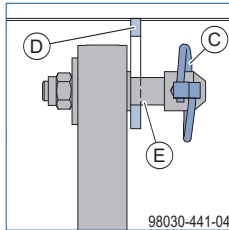


D Integrated ladder connection on the Hatch deck XBS 75/270cm

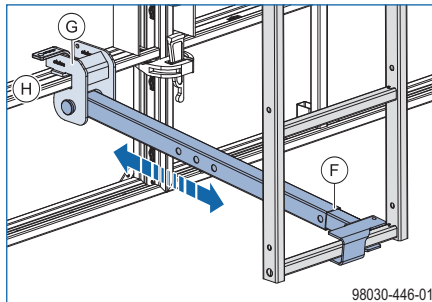
C Linch pin



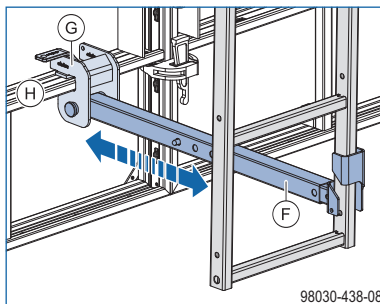
- The groove in the ladder pin (**E**) must be engaged in the hole of the ladder connection (**D**) !
- The telescopic ladder must be secured with a linch pin (**C**) !



Connection to the formwork: Option 1: Ladder rung



Option 2: Ladder rail



- F** Xsafe universal ladder holder
- G** Strut head EB
- H** Cross profile of the Frami panel

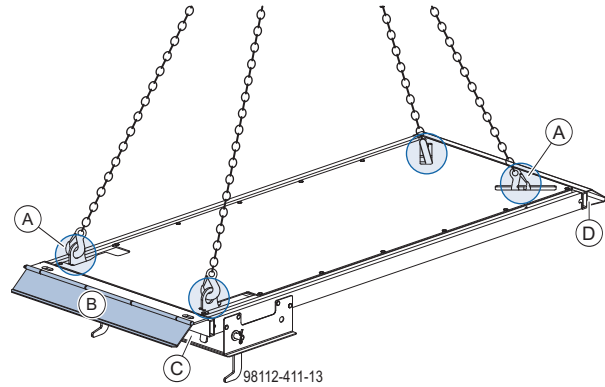
Gap Filler Plank

The infill deck XBS allows deck openings in the Xsafe bracket system from 0.30 to 1.35 m to be bridged.

The infill deck XBS can be used in the straight wall or in inside corners (see the section headed [Inside corners](#)).

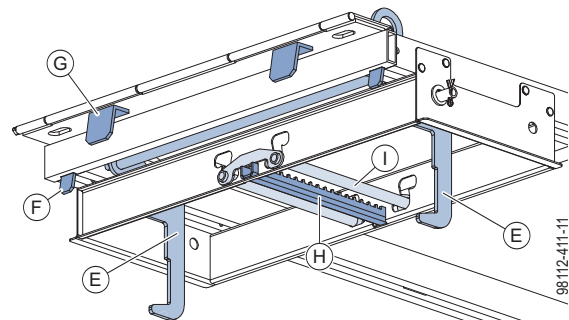
Note:

The infill deck is secured on one side and rests free on the other side.



- A** Crane lifting point
- B** Deck hatch
- C** Secured side
- D** Resting side

Secured side with securing housing in detail

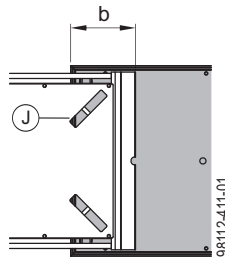


View from below

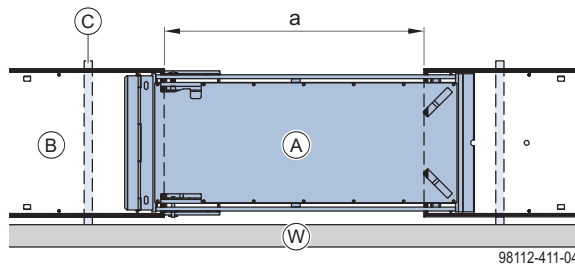
- E** Securing element
- F** Suspension plate for hooking into deck XBS
- G** Suspension plate for hooking into infill deck XBS
- H** Toothed strip for securing the position
- I** Anti-slip guard

**NOTICE**

- The infill deck must have at least 25 cm contact on the resting side.
- Sufficient contact is assured if the crane attachment openings (J) are completely covered by the deck below.



b ... min. 25 cm

Closure in the straight wall

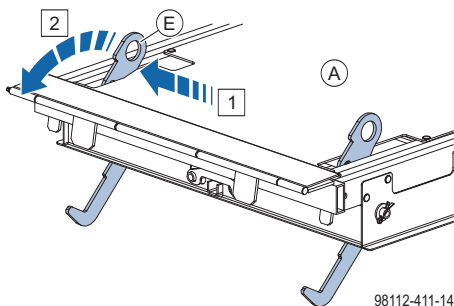
a ... 0.30m - 1.35m

- A** Infill deck XBS
- B** Deck XBS
- C** Bracket XBS
- W** Gang-form (schematic diagram)

Installation:

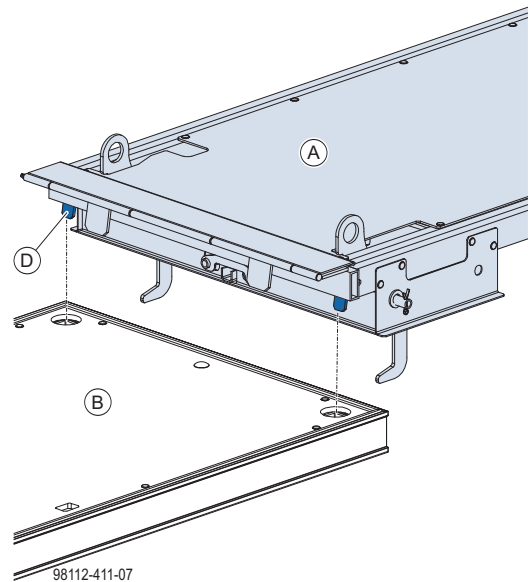
First install the standard XBS decks and secure with handrail post, only then install the infill deck.

- Push the securing element towards the frame (1) and swing up (2).



- A** Infill deck XBS
- E** Securing element

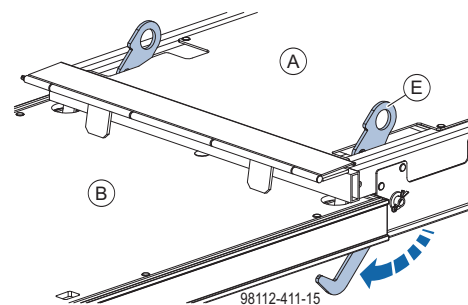
- Lift the infill deck to its intended location.



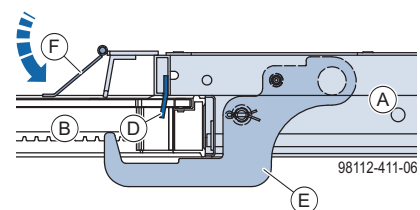
- A** Infill deck XBS
- B** Deck XBS
- D** Suspension plate for hooking into deck XBS

Suspension plates engage in the recesses in the deck XBS.

- Swing the securing element on the crane lifting point down.



- Close the deck hatch.



- A** Infill deck XBS
- B** Deck XBS
- D** Suspension plate for hooking into deck XBS
- E** Securing element
- F** Deck hatch



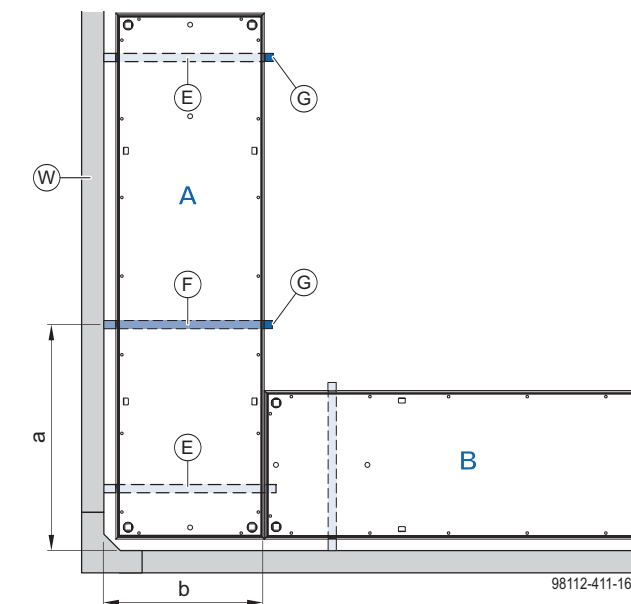
Do a sight-check to ensure that the securing element is closed.

- Install Protective grating XP 1.20m.

Inside corners

Inside corner with standard XBS decks

2 decks XBS



a ... from inside corner to additional bracket XBS: 0.93 m - 1.53 m
b ... 0.92 m

A Deck A - Deck XBS

B Deck B - Deck XBS

E Bracket XBS

F Bracket XBS (additionally required)

G Handrail post XBS 1.40m

W Gang-form (schematic diagram)



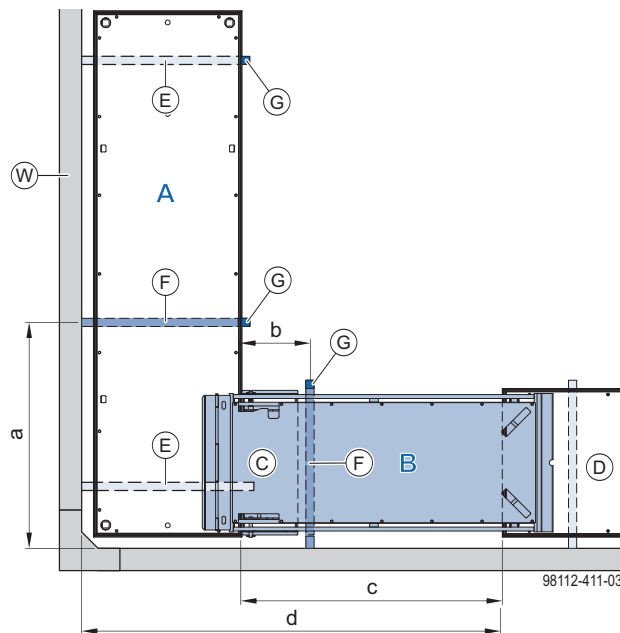
NOTICE

When installing **deck A**, note:

- Install the first bracket XBS as far in the corner as possible (immediately next to the inter-panel connections of the inside corner)!
- An additional bracket XBS with handrail post XBS is required for installation of the edge protection!

Inside corner with closure on one side

1 deck XBS / 1 infill deck XBS



a ... from inside corner to additional bracket XBS: 0.93 m - 1.53 m

b ... from deck A to additional bracket XBS: 0.35 m - 0.60 m

c ... 0.30 m - 1.35 m

d ... 1.20 m - 2.25 m

A Deck A - Deck XBS

B Deck B - Infill deck XBS

C Securing housing of infill deck XBS

D Deck XBS (standard deck)

E Bracket XBS

F Bracket XBS (additionally required)

G Handrail post XBS 1.40m

W Gang-form (schematic diagram)

Installation sequence:

- Standard XBS deck (D)**
- Deck A (A)**
(see section [Inside corner with standard XBS decks](#))
- Deck B (B)**

Installation of deck B:



NOTICE

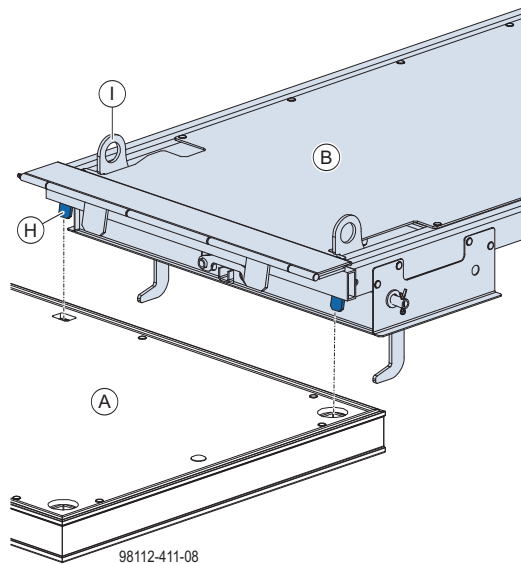
- An additional bracket XBS with handrail post XBS is required for installation of the edge protection!

Exception: The first bracket of the next standard deck is less than 0.60 m from the corner.

- Do not install the additional bracket directly under the securing housing of the infill deck!

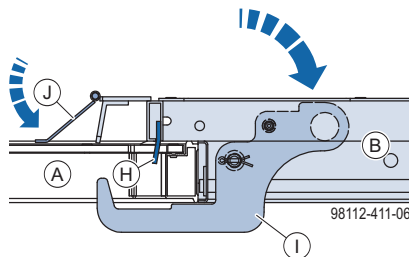
- Swing up the securing element of the infill deck XBS (see section [Gap Filler Plank](#)).

- Lift the infill deck XBS to its intended location.



Suspension plates engage in the recesses in deck A - deck XBS.

- Close securing element and deck hatch (see section [Gap Filler Plank](#)).



- A** Deck A - Deck XBS
- B** Deck B - Infill deck XBS
- H** Suspension plate for hooking into deck XBS
- I** Securing element
- J** Deck hatch

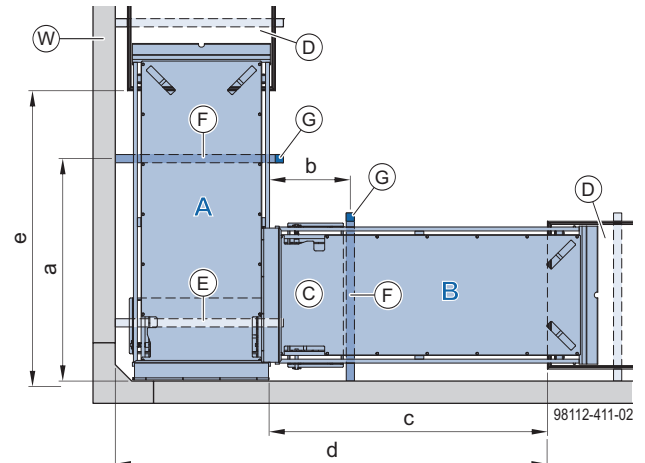


Do a sight-check to ensure that the securing element is closed.

- Install Handrail post XBS 1.40m and Protective grating XP 1.20m.

Inside corner with closure on both sides

2 infill decks XBS



- a ... from inside corner to additional bracket XBS: 0.93 m - 1.53 m
- b ... from deck A to additional bracket XBS: 0.45 m - 0.60 m
- c ... 0.39 m - 1.44 m
- d ... 1.25 m - 2.30 m
- e ... 0.48 m - 1.53 m

- A** Deck A - Infill deck XBS
- B** Deck B - Infill deck XBS
- C** Securing housing of infill deck XBS
- D** Deck XBS (standard deck)
- E** Bracket XBS
- F** Bracket XBS (additionally required)
- G** Handrail post XBS 1.40m
- W** Gang-form (schematic diagram)

Installation sequence:

1. **Standard XBS deck (D)**
2. **Deck A (A)**
3. **Deck B (B)**

Installation of deck A:

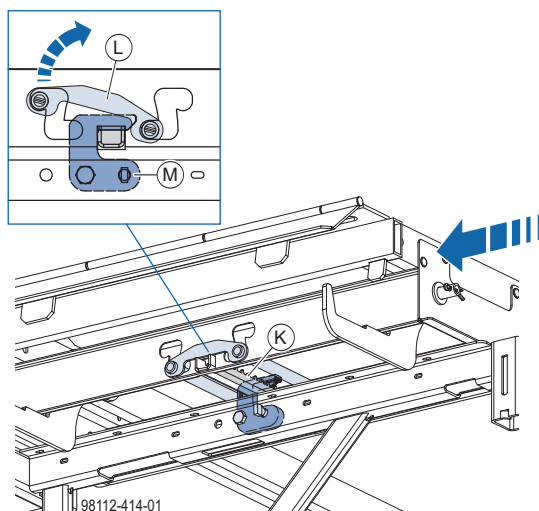


NOTICE

- Install the first bracket XBS as far in the corner as possible (immediately next to the inter-panel connections of the inside corner)!
- An additional bracket XBS with handrail post XBS is required for installation of the edge protection!
Exception: The first bracket of the next standard deck is less than 1.53 m from the corner.

- Lift the infill deck XBS to its intended location.
The distance from the narrow side of the infill deck to the formwork should be as small as possible.
- Lift the anti-slip guard on the formwork side so that the securing hook of the bracket can engage in the toothed strip of the infill deck.

- ▶ Actuate the anti-slip guard briefly so that the anti-slip guard closes.



K Toothed strip for securing the position

L Anti-slip guard

M Securing hook

With the anti-slip guard closed, the deck is secured against slipping on the bracket.



Do a sight-check to ensure that the anti-slip guard is closed.

Installation of deck B:

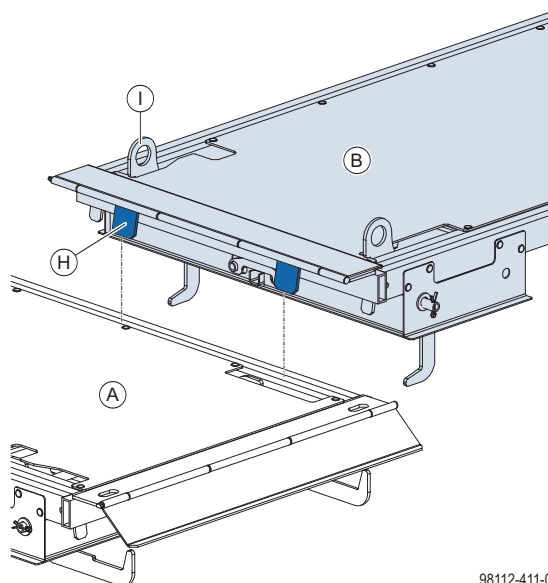


NOTICE

- ▶ An additional bracket XBS with handrail post XBS is required for installation of the edge protection!
Exception: The first bracket of the next standard deck is less than 0.60 m from the corner.
- ▶ Do not install the additional bracket directly under the securing housing of the infill deck!

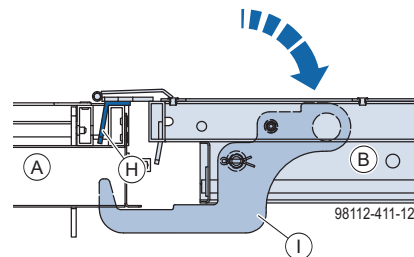
- ▶ Swing up the securing element of the infill deck (see section [Gap Filler Plank](#)).

- ▶ Lift the infill deck XBS to its intended location.



Suspension plates engage in the recess in deck A - infill deck XBS.

- ▶ Close the securing element (see [Gap Filler Plank](#)).



A Deck A - Infill deck XBS

B Deck B - Infill deck XBS

H Suspension plate for hooking into infill deck XBS

I Securing element



Do a sight-check to ensure that the securing element is closed.

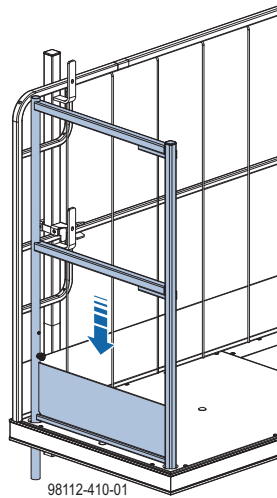
- ▶ Install Handrail post XBS 1.40m and Protective grating XP 1.20m.

Sideguards on exposed platform-ends

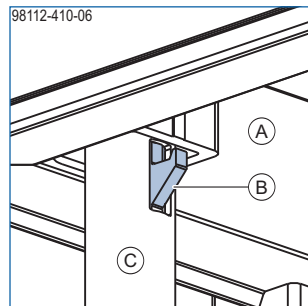
On pouring platforms that do not completely encircle the structure, suitable sideguards must be placed across exposed end-of-platform zones.

Installation:

- Insert Side railing XBS 75cm into deck XBS.

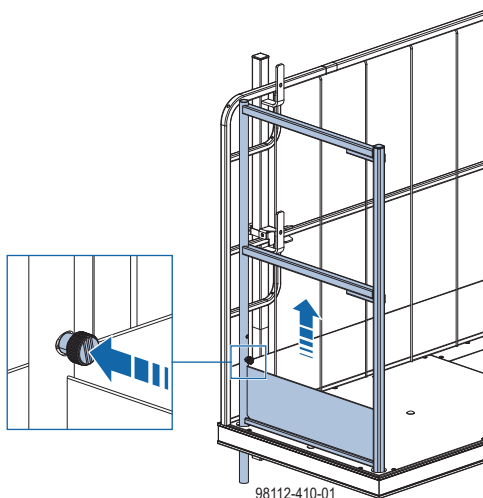


Safety latch **(B)** on post **(C)** must engage on the underside of deck XBS **(A)**.

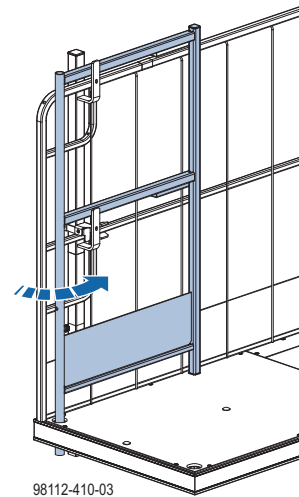


To open the side railing:

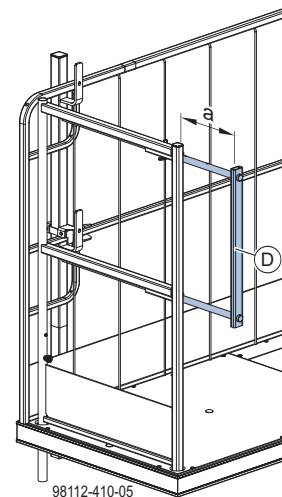
- Press the locking button and lift Side railing XBS 75cm by approx. 10 cm.



- Swing Side railing XBS 75cm 90° inwards and hook into Handrail post XBS 1.40m.



The end-of-platform sideguard can be extended with the **Handrail extension XBS (D)**.



e ... can be telescoped between 15 cm and 60 cm in increments of 5 cm

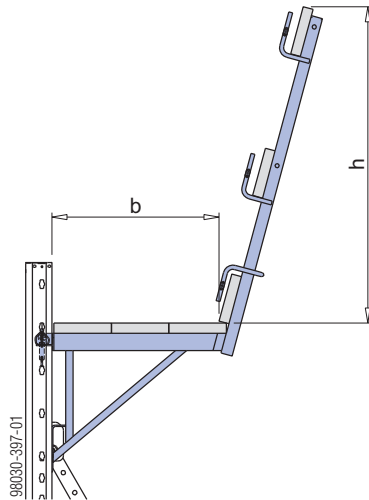
Frami bracket 60

Note:

The plank and board thicknesses stated comply with the EN 338 C24 timber.

Observe all national regulations applying to deck and guardrail boards.

Frami brackets 60 are easy to assemble by hand and provide a 60 cm wide pouring platform.



b ... 58 cm
h ... 110 cm

Permitted service load: 1.5 kN/m² (150 kg/m²)

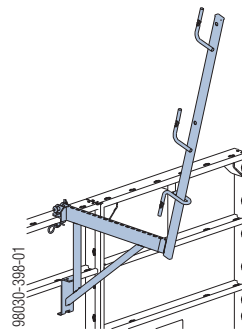
Load Class 2 to EN 12811-1:2003

Max. influence width: 1.50 m

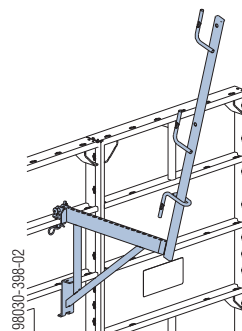
C Screw-on coupler 48mm 50

D Hexagon bolt M14x40 + hexagon nut M14
(bolting items required)

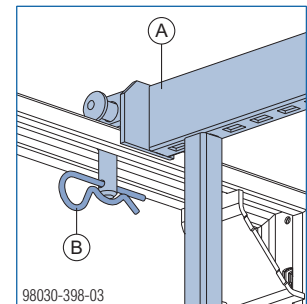
Possible ways of fixing to upright panels



In the frame profile



In the cross profile



Anti-liftout guard

A Frami bracket 60

B Spring cotter



NOTICE

The brackets must be secured against accidental lift-out.

Deck-boards and guardrail boards (provided on site):

Board thicknesses for centre-to-centre spans up to 2.50 m:

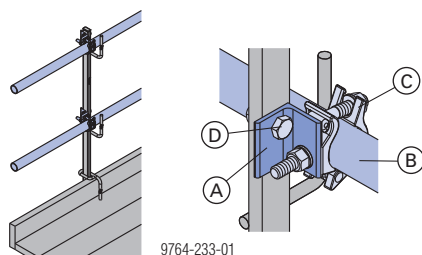
- Deck-boards min. 20/5 cm
- Guardrail boards min. 15/3 cm

Bolting items required for securing the deck-boards (fasteners per bracket):

- 3 x cup square bolt M10x120

Fixing the guardrail boards: use nails

Using scaffold tubes

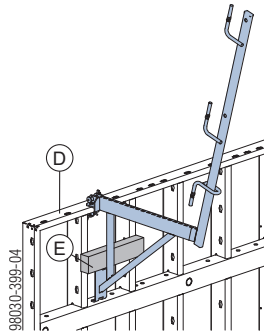
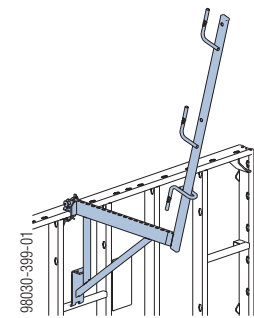


Tools required: Fork wrench 22 for installation of the couplers and scaffold tubes

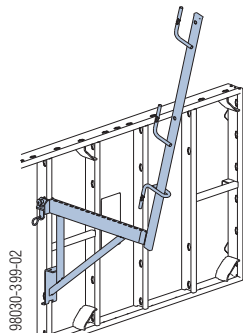
A Scaffold tube connection

B Scaffold tube 48.3mm

Possible ways of fixing to horizontally placed panels



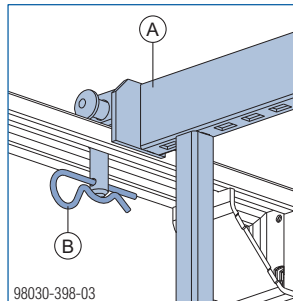
In the frame profile



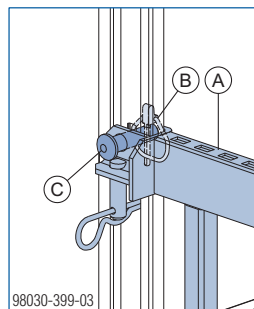
in the cross profile *)

*) When the **Frami Xlife panel 2.40x2.70m** is set on its side, installation in the cross profile is not possible.

- A Frami bracket 60
- B Spring cotter
- C Fastening pin with linch pin
- D Frami Xlife panel 2.40x2.70m
- E Squared timber 7.2 x 8 cm (site-provided)



Anti-liftout guard

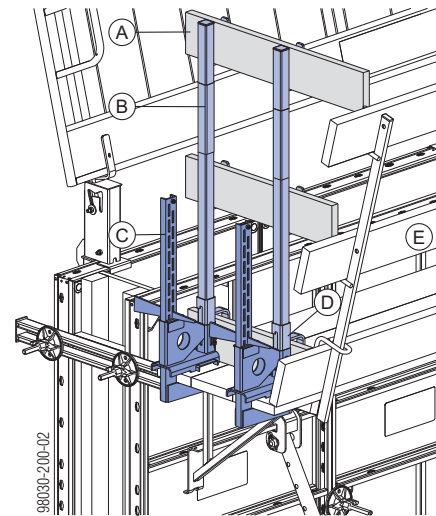


Anti-liftout guard

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.

Xsafe edge protection XP



- A Guard-rail board min. 15x3 cm (site-provided)
- B Handrail post XP 1.20m
- C Railing clamp XP 40cm
- D Toeboard holder XP 1.20m
- E Pouring platform

How to mount:

- Fasten Railing clamps XP onto the decking of the pouring platform, by tightening the wedge (clamping range 2 to 43 cm).
- Working from below, push a Toeboard holder XP 1.20m onto the Handrail post XP 1.20m.
- Push the Handrail post XP 1.20m into the post-holding fixture on the Railing clamps XP until the locking mechanism engages.
- Fix guard-rail boards to the handrail post plates with nails (diam. 5 mm).

Animation:

<https://player.vimeo.com/video/276197020>

Handrail clamp S



Follow the directions in the "Handrail clamp S" User information!

Opposing guardrail

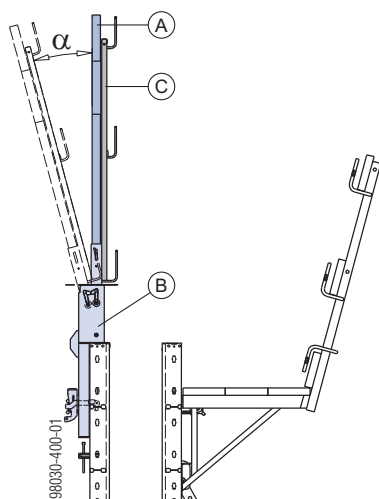
If there are work platforms mounted on one side of the formwork only, then a fall-protection barrier must be mounted to the opposing formwork.

Note:

The plank and board thicknesses stated comply with the EN 338 C24 timber..

Observe all national regulations applying to deck and guardrail boards.

Xsafe edge protection XP



$\alpha \dots 15^\circ$

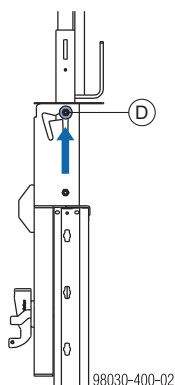
A Handrail post XP

B Frami adapter XP

C Protective grating XP or guardrail boards

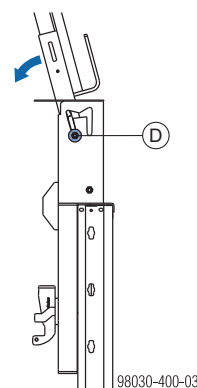
If necessary (e.g. to enlarge the available work-space during pouring), the safety barrier can be tilted outward by 15°.

► Push up the safety bolt on the Adapters XP until the spring snaps into place (allow for overlap between protective gratings or guardrail boards).



D Safety bolt

► Tilt the safety barrier outward.



D Safety bolt

The safety bolt now automatically drops and secures the tilted barrier unit.



Do a sight-check to make sure that the safety bolt is in the correct position!

Types of safety barrier:

Protective grating XP 1.20m	Protective grating XP 0.60m	Guardrail boards

a ... 143 cm

b ... 93 cm

c ... min. 100 cm

d ... 103 cm

E Handrail post XP 1.20m

F Handrail post XP 0.60m

G Protective grating XP 1.20m

H Protective grating XP 0.60m

I Platform decking

J Guardrail board



NOTICE

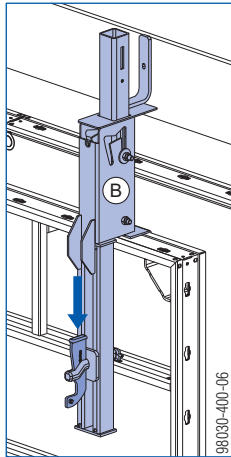
- When Protective gratings XP 0.60m are used to make the safety barrier, note the necessary minimum distance of 100 cm from platform decking to top of railing!
- When guardrail boards are used to make the safety barrier, it is not permissible to install guardrail boards in the top railing shackles.

Assembly

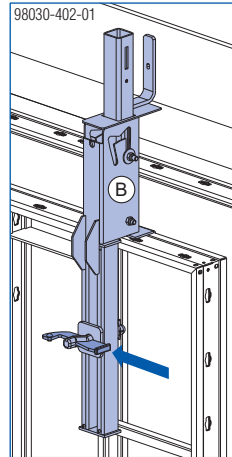
The counter railing can be mounted to both upright and face-down (ground-assembled) gang-forms.

- Mount the Frami adapter XP to the Frami Xlife panel, fixing it on firmly with the wedge.

Frami panel standing upright:



Frami panel on its side *):



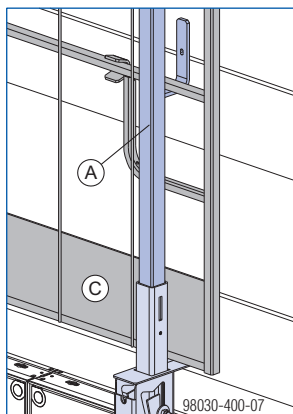
*) When the **Frami Xlife panel 2.40x2.70m** is set on its side, installation is not possible.

B Frami adapter XP



Make sure it is seated correctly and making full contact!

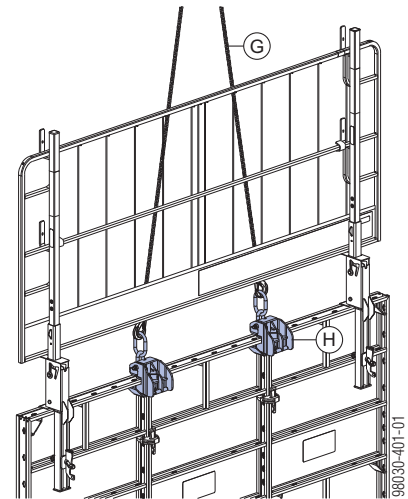
- Push the handrail post XP into the post-holding fixture on the Frami adapter XP until the locking mechanism engages.
- Fit on a Protective grating XP or guardrail boards.
- Use Velcro® fasteners 30x380mm to secure the Protective gratings XP to the Handrail posts XP, or use nails (Ø 5 mm) to secure guardrail boards.



A Handrail post XP

C Protective grating or guardrail boards

Lifting by crane

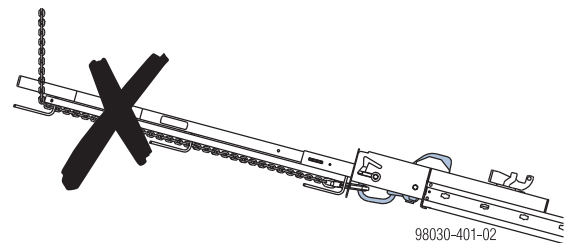


G Doka 4-part chain

H Frami lifting hook

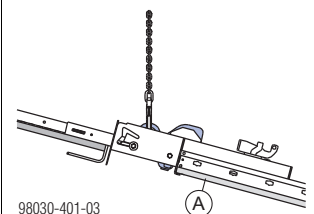
When lifting gang-forms together with counter railings assembled from the Xsafe edge protection XP, remember the following points:

- The guard rails must be in the vertical position when the gang-form is raised or laid down.
- Elastic deformation of the guard rails may occur because the 4-part chain is resting against the protective grating or guardrail boards while the gang-form is being lifted.
- When a gang-form is lifted, repositioned or laid down, the 4-part chain must not be led around the protective grating or the guardrail board.

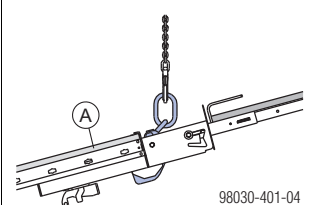


Make sure that the 4-part chain is in the right position:

- Placing down onto the form-ply side
- Picking up from this position

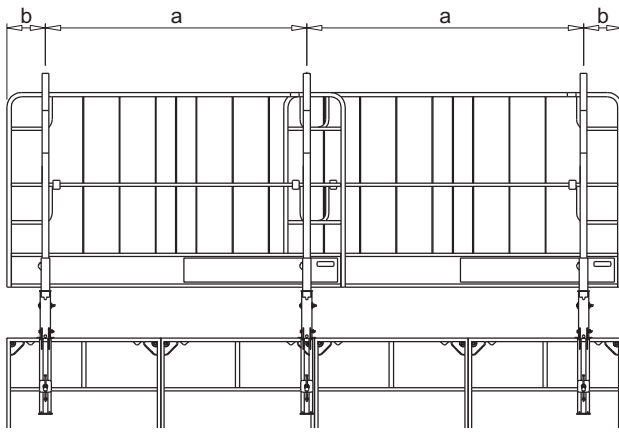


- Placing down onto the back-face of the formwork (e.g. for cleaning the form-facing)
- Picking up from the cleaning position
- Repositioning the upright gang-form



A Form-ply side

Structural design



a ... span
b ... cantilever

Note:

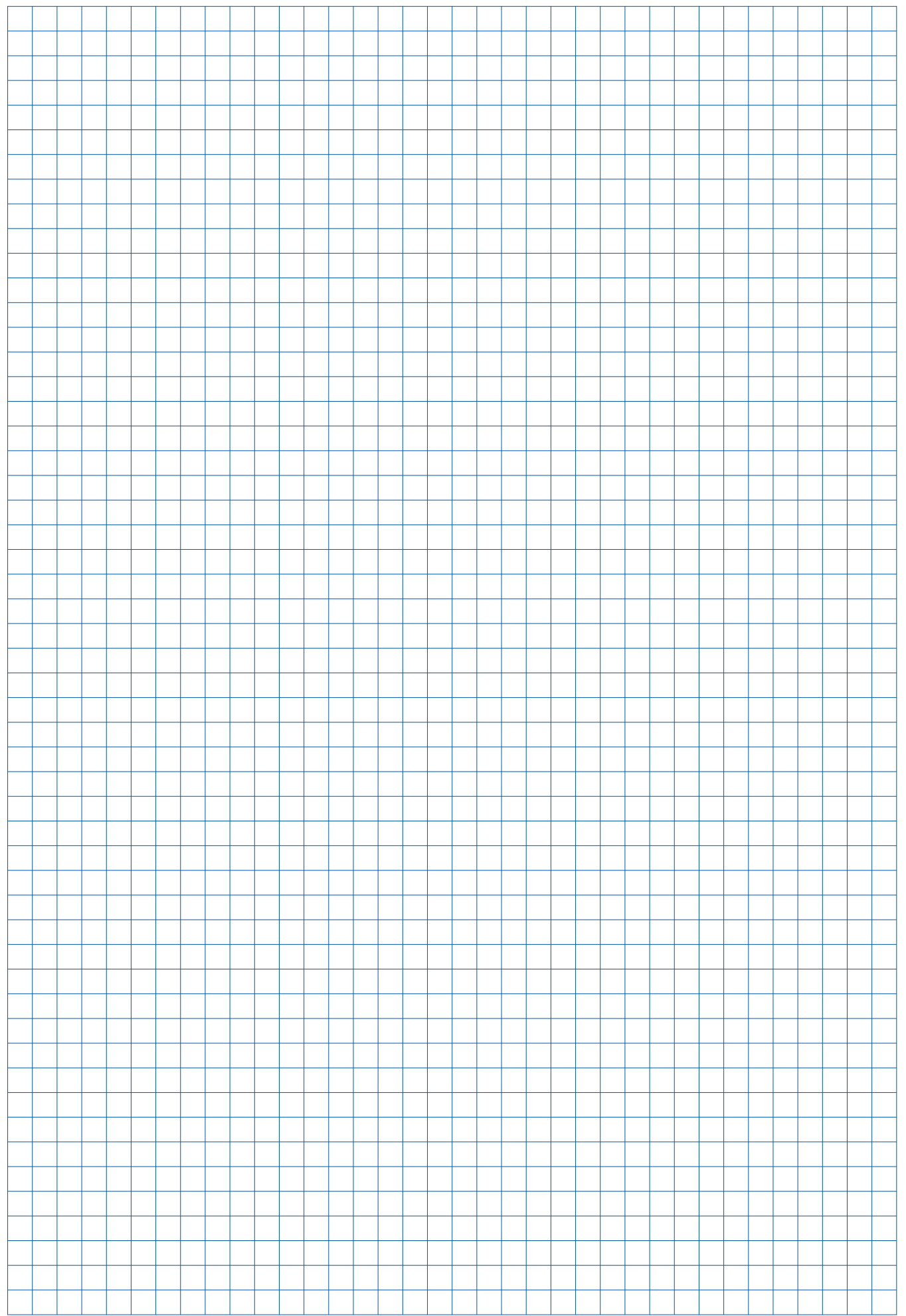
The wind conditions likely to be encountered in Europe, in accordance with EN 13374, are largely recognised by the peak velocity pressure $q=0.6 \text{ kN/m}^2$ (highlighted in the tables).

Permitted span (a)

		Peak velocity pressure q [kN/m ²]			
		0.2	0.6	1.1	1.3
Permitted span	Protective grating XP	2.5 m			-
	Guardrail board 2.4 x 15 cm	1.9 m			
	Guardrail board 3 x 15 cm	2.7 m			
	Guardrail board 4 x 15 cm	3.3 m			

Permitted cantilever (b)

		Peak velocity pressure q [kN/m ²]			
		0.2	0.6	1.1	1.3
Permitted cantilever	Protective grating XP	0.6 m		0.4 m	-
	Guardrail board 2.4 x 15 cm	0.5 m			
	Guardrail board 3 x 15 cm	0.8 m			
	Guardrail board 4 x 15 cm	1.4 m			



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

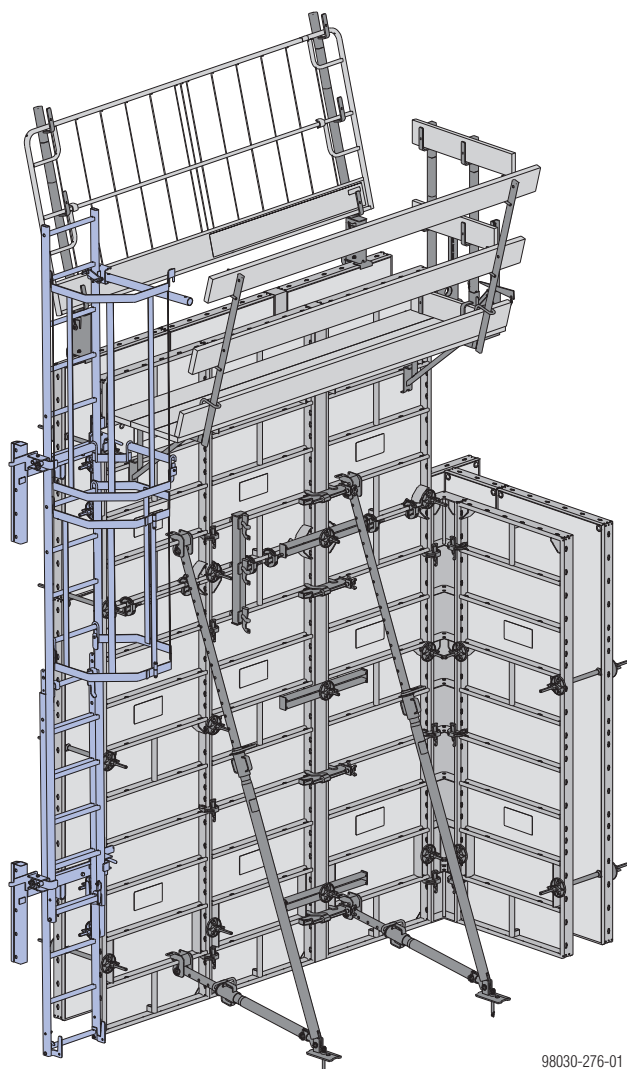
Note:

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).



98030-276-01

Shown here on Frami Xlife panels 2.70m.

Assembly

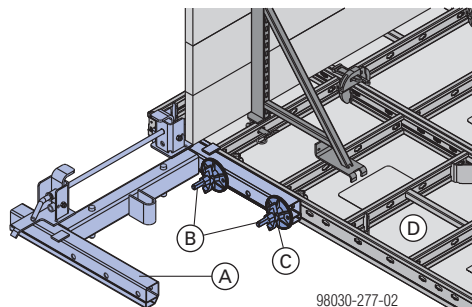
Preparing the formwork

- ▶ Pre-assemble the gang-forms (see section [Inter-panel connections](#)).
- ▶ Mount the pouring platforms and panel struts (see sections [Plumbing accessories](#) and [Pouring platforms with single brackets](#)).

Attaching connectors to the formwork

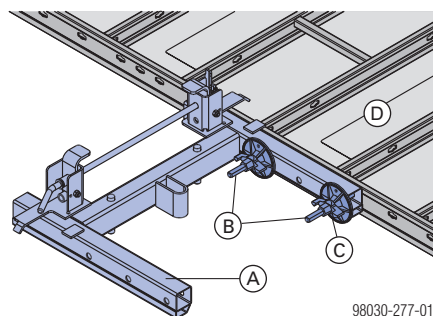
- ▶ Place the Connector XS Wall formwork against the frame profile near the top of the formwork.
- ▶ Attach this Connector XS Wall formwork using two Frami universal fixing bolts 5-12cm and two Super-plates 15.0.
- ▶ Mount a Connector XS Wall formwork near the bottom of the formwork, in the same way.

Top Connector XS Wall formwork



98030-277-02

Bottom Connector XS Wall formwork



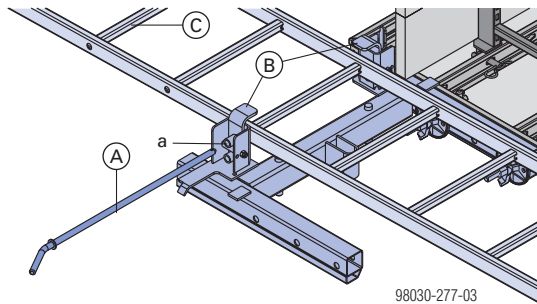
98030-277-01

- A Connector XS 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.



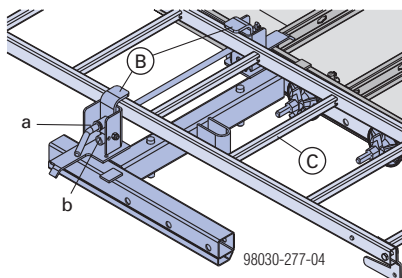
- in the front position (a)

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

Animation: <https://player.vimeo.com/video/274425011>

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.

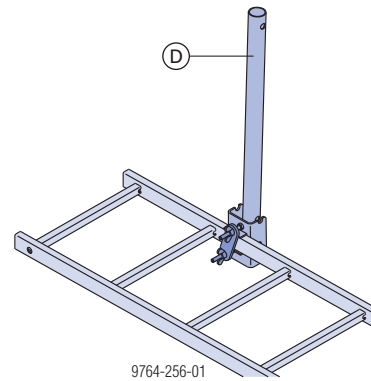


- in the front position (a) for one single ladder
- in the rear position (b) in the telescoping zone (for 2 ladders)

- B** Safety hooks
- C** Ladder XS

Animation: <https://player.vimeo.com/video/274427263>

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



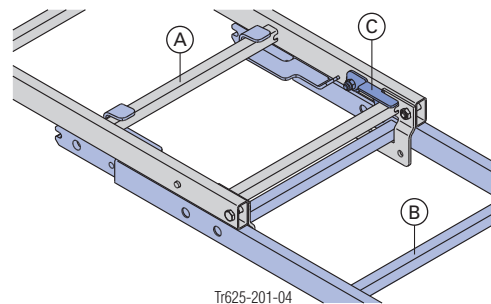
D Securing barrier XS

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

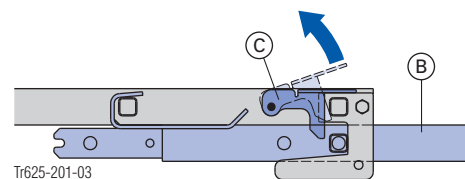
Ladder system XS for heights above 3.60 m

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

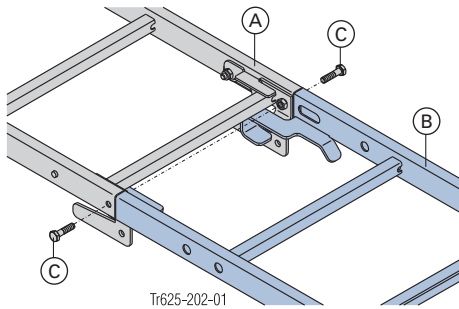


- A** System ladder XS 4.40m
- B** Ladder extension XS 2.30m
- C** Safety latch

A telescoping joint 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 **slightly**!



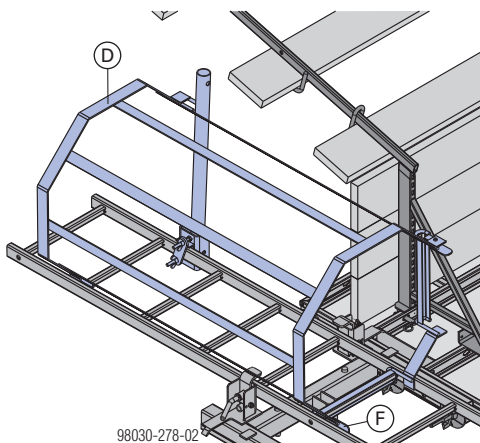
Bolts (C) are included in the scope of supply of the System ladder XS 4.40m and the Ladder extension XS 2.30m.

- A System ladder XS 4.40m
- B Ladder extension XS 2.30m
- C Hexagon bolt M10x40

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

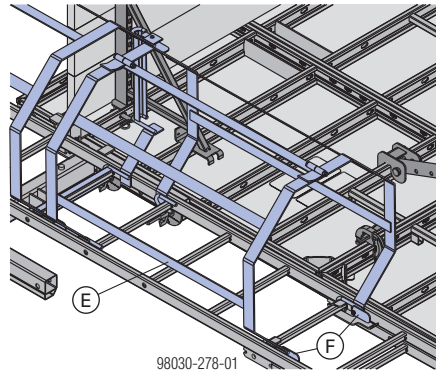
**NOTICE**

- Always observe all relevant safety regulations applying to the use of the ladder cage 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 (anti-liftout guard)

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

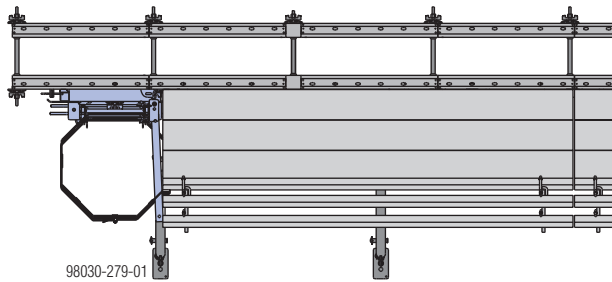


- E Ladder cage XS
- F Safety latches (anti-liftout guard)

Fixing in the cross profile

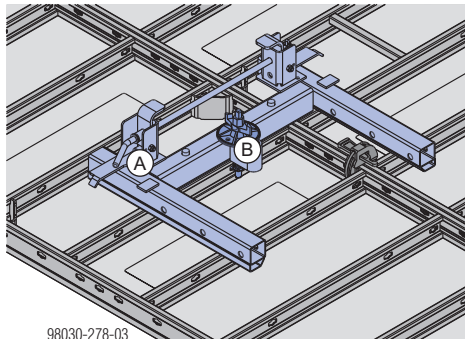
Mounting the Ladder system XS to the cross profile makes it an integral part of the gang-form.

Plan view



How to mount:

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

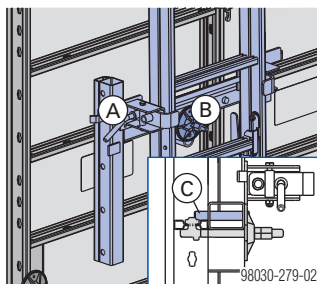


A Connector XS Wall formwork

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 Wall formwork from accidentally sliding off.



A Connector XS 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	>3.75-6.00 m
Connector XS 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

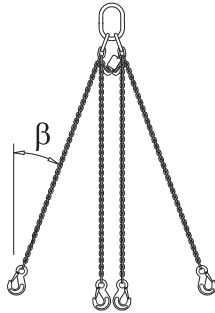
Ladder cage	Formwork height			
	2.70-3.15 m	>3.15-3.90 m	>3.90-5.40 m	>5.40-6.00 m
Ladder cage exit XS ²⁾	1	1	1	1
Securing barrier XS ²⁾	1	1	1	1
Ladder cage XS 1.00m ²⁾	0	1	2	3

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

Lifting 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

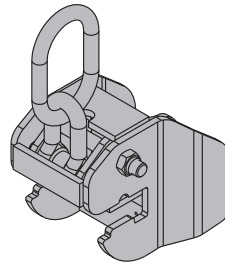
- ▶ Attach the Doka 4-part chain 3.20m to the Frami lifting hooks.
- ▶ Hang the remaining chain-lengths back in place.

Permissible working load limit (2-part chain):
Up to 30° sling angle β 2400 kg.



Follow the Operating Instructions!

Frami lifting hook



CE

Permissible working load limit:

- Sling angle β up to 30°:
500 kg (1100 lbs) / Frami lifting hook
- Sling angle β up to 7.5°:
750 kg (1650 lbs) / Frami lifting hook

Frami lifting hooks with the specified working load limit of 500 kg (1100 lbs) also satisfy the working load limit of 750 kg (1650 lbs) at a sling angle $\beta \leq 7.5^\circ$.



Follow the Operating Instructions!

Securing the lifting hooks against sliding from side to side



NOTICE

Position the lifting hooks so that they cannot slide from side to side.

- over **inter-panel joints**
- over or between **cross profiles** (single panels installed on their side)
- over **handles**

For other suitable positions see the section headed [Position of the lifting hooks](#).

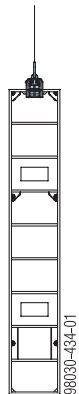
Position of the lifting hooks

Note:

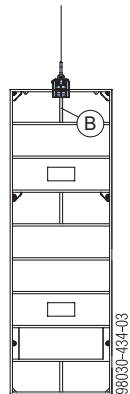
The positions of the lifting hooks shown here also apply for vertically stacked gang-forms.

Single panel:

Panels up to 0.45m wide

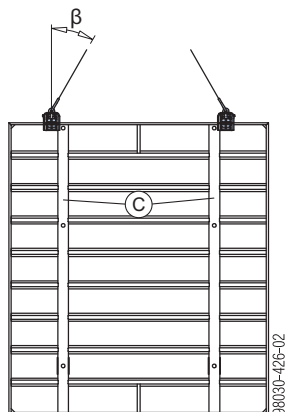


Panels more than 0.45m wide



B Handle

Panel 2.40x2.70m

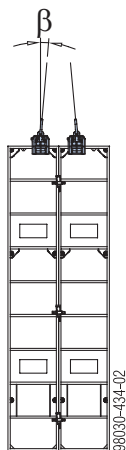


Position each lifting hook at the outside of a centre profile to prevent the hook sliding from side to side.

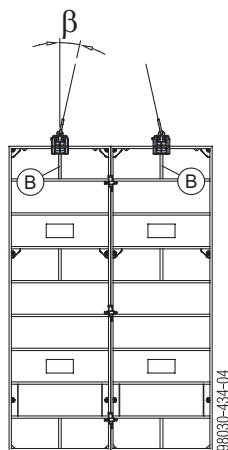
C Centre profile

Gang-form - two panels upright:

Panel widths up to 0.45m

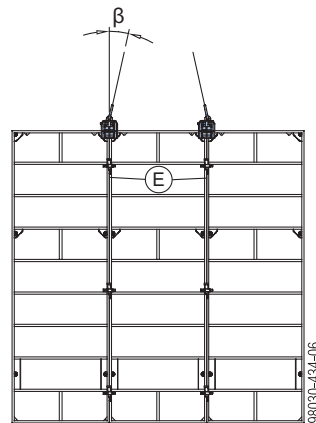


Panel widths more than 0.45m



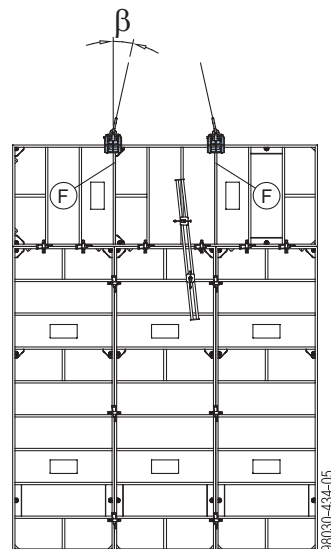
B Handle

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



E Panel joint

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



F Cross profile

Assembling tool

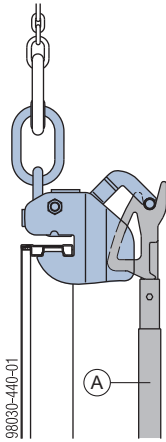
For operation of the lifting hook on upright formwork by operator on ground level.



CAUTION

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

- ▶ With the crane, position the lifting hook level with the lifting point.

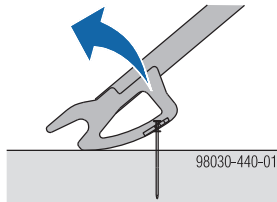


Formwork height

A Framax telescopic assembling tool (telescopes from 230 to 400 cm)	2.70 - 5.40m
Framax assembling tool	2.70 - 3.30m



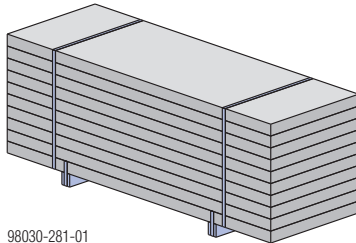
In addition to operating the lifting hook, the **Framax assembling tool** can also be used to pull out double-headed nails.



Transporting, stacking and storing

Bundling the panels

- Position sleepers measuring approx. 8.0 x 10.0 (W x H) underneath the cross profile.
- Strap the sleepers (hardwood blocking) and the bottom panel together with strapping tape.
- Strap the whole stack together tightly with strapping tape.



Stacking Frami Xlife panels 2.40x2.70m:

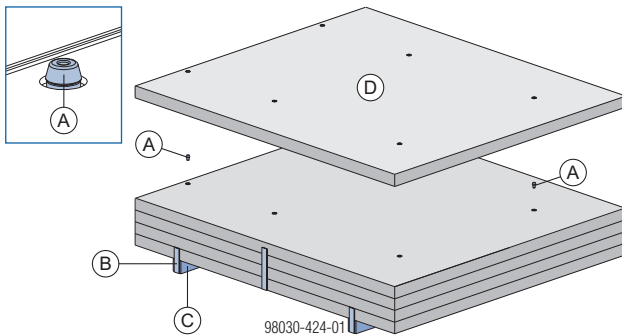


WARNING

The smooth surface of the **Frami Xlife panels 2.40x2.70m** reduces the sticking friction.

- It is strictly forbidden to lift stacks of Frami Xlife panels 2.40x2.70m without inserting Frami stacking cones (2 cones per layer) first!

- Insert Frami stacking cones.



- A** Frami stacking cone
- B** Strapping tape
- C** Sleeper
- D** Frami Xlife panel 2.40x2.70m

The stacking cones stop the panels slipping.

- Strap the whole stack together tightly with strapping tape.

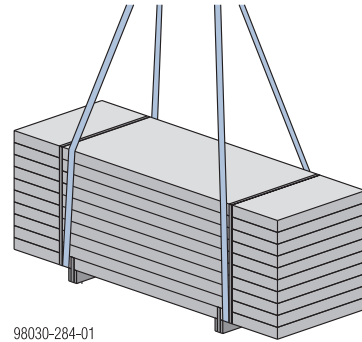
Max. number of panels in a stack:

Panel (width)	Max. number of panels stacked on top of one another	Stacking height incl. sleepers
up to 0.90m	10	approx. 100 cm
2.40x2.70m	5	approx. 60 cm

Transporting the panels

Dokamatic lifting strap 13.00m

The Lifting strap 13.00m is a practical tool for **unloading and loading trucks**, and for **lifting and setting down individual stacks of panels**.



Dokamatic lifting strap 13.00m:

Permissible working load limit 2000 kg / lifting strap

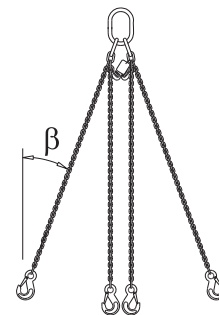


Follow the Operating Instructions!

Doka 4-part chain 3.20m

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

- used with the integrated **eye hooks** for hoisting formwork, platforms and multi-trip packaging containers. For more information, see section [Lifting by crane](#).
- in combination with the **Frami transport hook** for transporting individual panel stacks and for separating the panels.



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

Permissible working load limit:

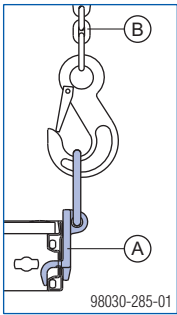
	Sling angle β			
	0°	0°-30°	30°-45°	45°-60°
Using one chain	1400 kg	-	-	-
Using two chains	-	2400 kg	2000 kg	1400 kg
Using all four chains	-	3600 kg	3000 kg	2120 kg



Follow the Operating Instructions!

Frami transport hook with Doka 4-part chain 3.20m

Close-up of Frami transport hook



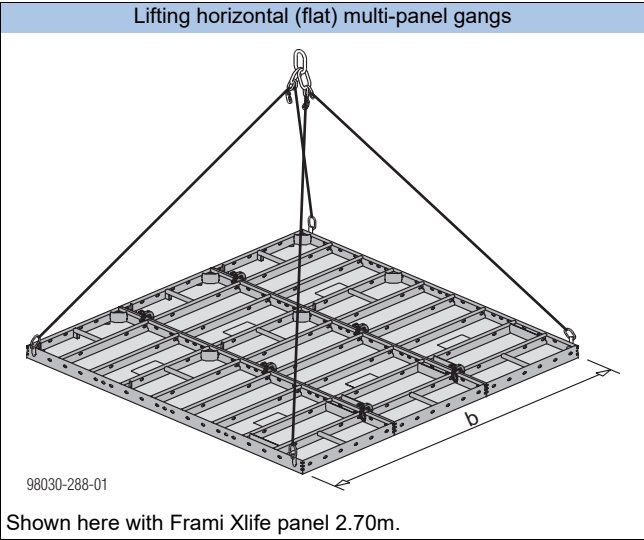
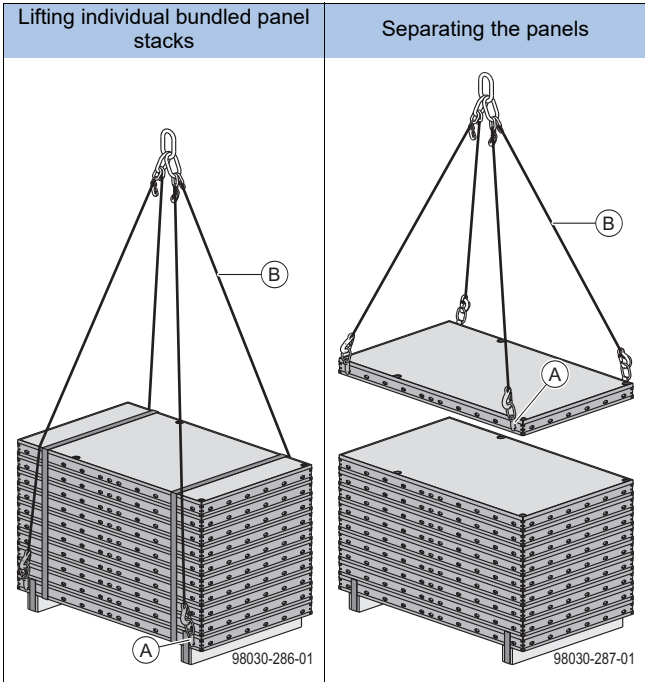
- A Frami transport hook
- B Doka 4-part chain 3.20m

Frami transport hook:
Permissible working load limit: 450 kg / transport hook
Frami transport hooks manufactured until 2015, with a given working load limit of 250 kg, are capable of carrying 450 kg.

 Follow the Operating Instructions!

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

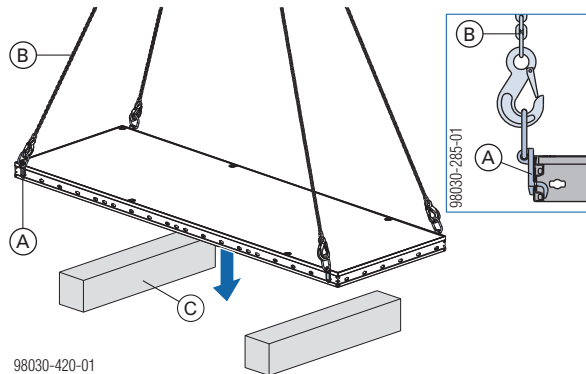
- Lifting individual bundled panel stacks
- Separating the panels
- Lifting horizontal (flat) multi-panel gangs



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
more than 1.80 m	max. 3 panels

Lifting panels upright / turning panels over

- Use **Frami transport hooks** to lay the framed panel flat on squared timbers 20x20 cm.



- A** Frami transport hook
- B** Doka 4-part chain 3.20m
- C** Squared timber 20x20 cm

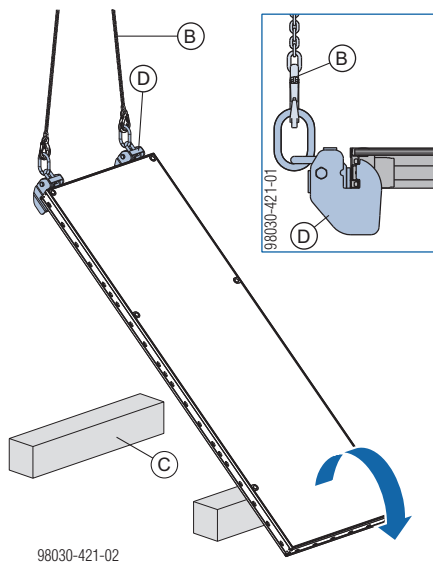


WARNING

Using Frami transport hooks to lift the framed elements upright or turn them over is prohibited!

- Use Frami lifting hooks!

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



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



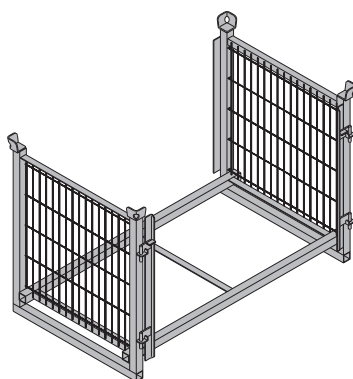
Follow the directions in the Operating Instructions!

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

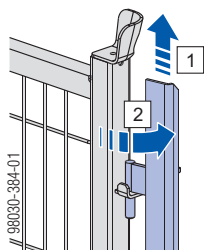
Storage and transport device for Frami articles with system heights of 1.20 and 1.50 metres.



Permissible load-bearing capacity: 800 kg (1760 lbs)
Permitted imposed stacking load: 3500 kg (7710 lbs)

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

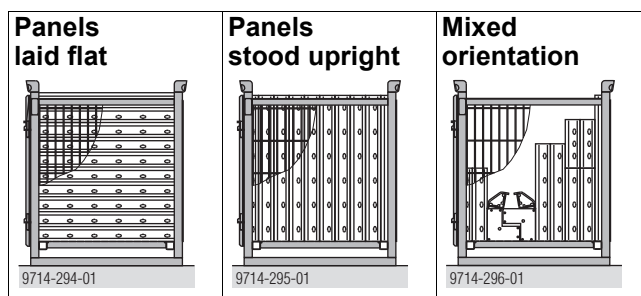
Max. n° of units on top of one another

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



NOTICE

Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top.



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

Using Frami pallets as transport devices

Lifting by crane

► Before attaching the lifting chains, check:

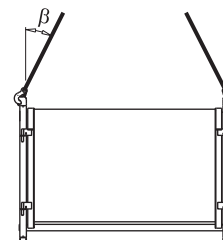


Both side hinges must be locked in place



NOTICE

- Multi-trip packaging items must be lifted individually.
- Use suitable lifting chains (e.g. Doka 4-part chain 3.20m). Do not exceed the permissible working load limit.
- Sling angle β max. 30°!



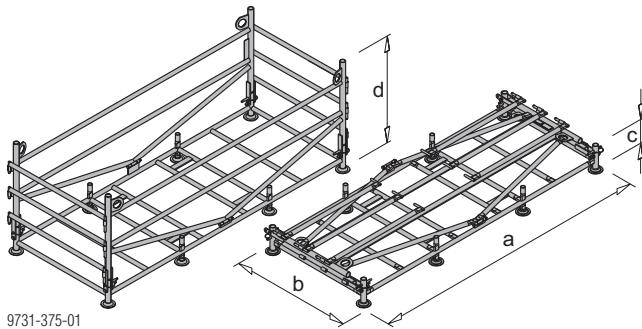
98030-383-01

Repositioning by forklift truck or pallet stacking truck

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

Alu-Framax pallet

Storage unit and transport container, foldable and stackable, for Frami panels 2.70m.



9731-375-01

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

Permissible load-bearing capacity: 1200 kg (2640 lbs)
Permitted imposed stacking load: 5200 kg (11460 lbs)

Using Alu-Framax pallets as storage units

Max. number of units on top of one another

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



NOTICE

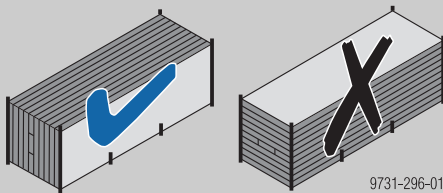
Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top.



WARNING

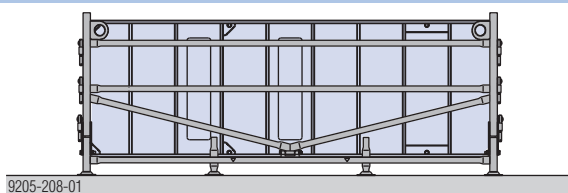
If panels were stacked flat, they might slip out of the pallet (between the horizontal braces) when in transit!

➤ Only stack panels **in the upright!**



9731-296-01

Used for 2.70 m high Frami panels



9205-208-01

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

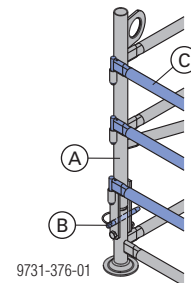
Using Alu-Framax pallets as transport devices

Lifting by crane

➤ Before attaching the lifting chain, check that:



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

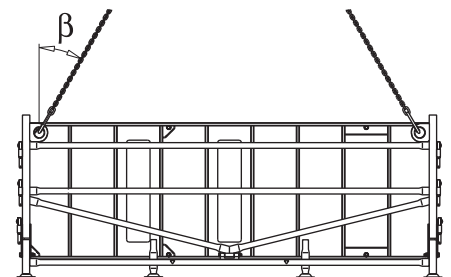


9731-376-01



NOTICE

- Multi-trip packaging items must be lifted individually.
- Secure the load in part-loaded pallets!
- Use a suitable lifting chain (e.g. Doka 4-part chain 3.20m). Do not exceed the permissible working load limit.
- Sling angle β max. 30°!



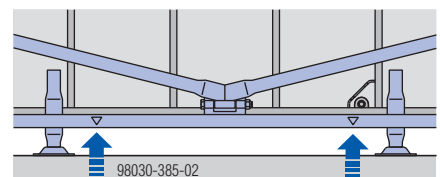
9731-377-01

Repositioning by forklift truck or pallet stacking truck



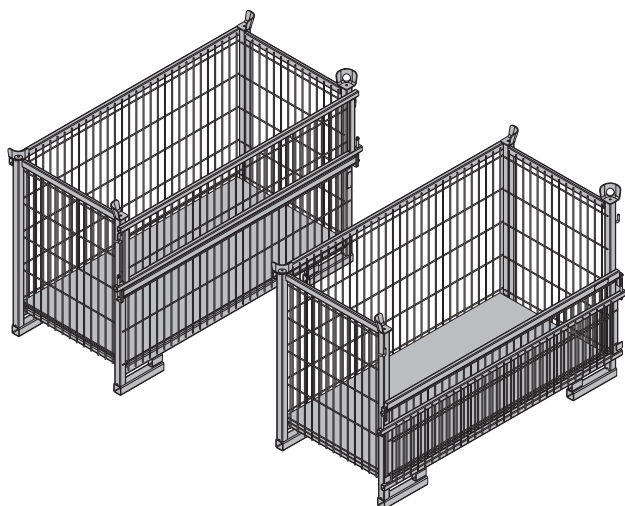
NOTICE

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



98030-385-02

Doka skeleton transport box 1.70x0.80m



Storage and transport device for small items.
To make the Doka skeleton transport box easier to load and unload, one of its sidewalls can be opened.

Permitted load-bearing capacity: 700 kg (1540 lbs)
Permitted imposed stacking load: 3150 kg (6950 lbs)

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

Max. n° of units on top of one another

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



NOTICE

Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top.

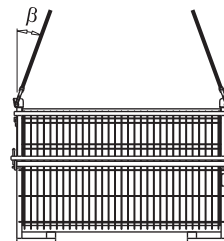
Using Doka skeleton transport boxes 1.70x0.80m as transport devices

Lifting by crane



NOTICE

- Multi-trip packaging items must be lifted individually.
- Only lift the boxes when their sidewalls are closed!
- Use suitable lifting chains:
 - e.g. Doka 4-part chain 3.20m
 - Do not exceed the permitted working load limit of the lifting chains.
- Sling angle β max. 30°!



9234-203-01

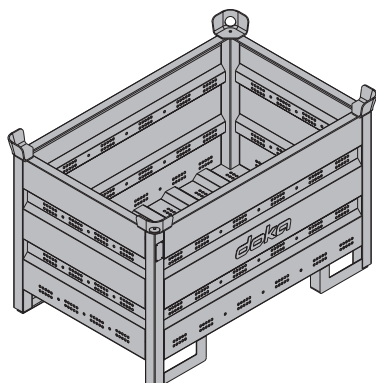
Repositioning by forklift truck or pallet stacking truck

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

Doka multi-trip transport box

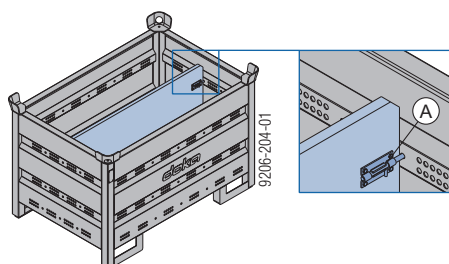
Storage and transport device for small items

Doka multi-trip transport box 1.20x0.80m



Permitted load-bearing capacity: 1500 kg (3300 lbs)
Permitted imposed stacking load: 7850 kg (17300 lbs)

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



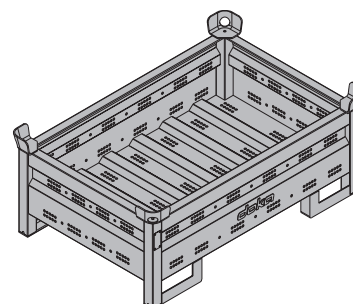
A Slide-bolt for fixing the partition

Possible ways of dividing the box

Multi-trip transport box partition	in the longitudinal direction	in the transverse direction
1.20m	max. 3	-
0.80m	-	max. 3

9206-204-02	9206-204-03

Doka multi-trip transport box 1.20x0.80mx0.41m



Permitted load-bearing capacity: 750 kg (1650 lbs)
Permitted imposed stacking load: 7200 kg (15870 lbs)

Using Doka multi-trip transport boxes as storage units

Max. n° of units on top of one another

Outdoors (on the site)		Indoors	
Floor gradients up to 3%		Floor gradients up to 1%	
Doka multi-trip transport box 1.20x0.80m	Doka multi-trip transport box 1.20x0.80x0.41m	Doka multi-trip transport box 1.20x0.80m	Doka multi-trip transport box 1.20x0.80x0.41m
3	5	6	10
It is not allowed to stack empty pallets on top of one another!			



NOTICE

Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top.

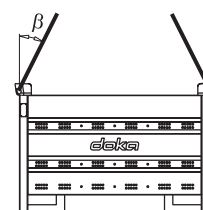
Using Doka multi-trip transport boxes as transport devices

Lifting by crane



NOTICE

- Multi-trip packaging items must be lifted individually.
- Use suitable lifting chains:
 - e.g. Doka 4-part chain 3.20m
 - Do not exceed the permitted working load limit of the lifting chains.
- Sling angle β max. 30°!



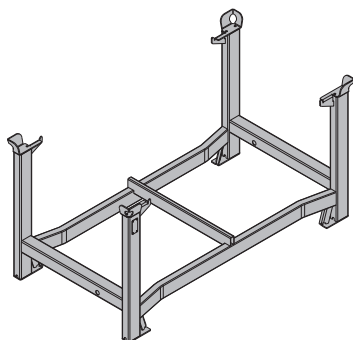
9206-202-01

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 device for long items.



Permitted load-bearing capacity: 1100 kg (2420 lbs)
Permitted imposed stacking load: 5900 kg (13000 lbs)

Using Doka stacking pallets as storage units

Max. number of units on top of one another

Outdoors (on the site) Floor gradients up to 3%	Indoors Floor gradients up to 1%
2	6
Empty multi-trip packagings must not be stacked on top of one another!	



NOTICE

- Stacked multi-trip packagings with widely differing loads must have the heaviest boxes at the bottom and the lightest at the top!
- No castor wheels may be fitted to the bottom multi-trip packaging item in the stack.
- Secure multi-trip packagings with installed castor wheels using the fixing brake when setting down.

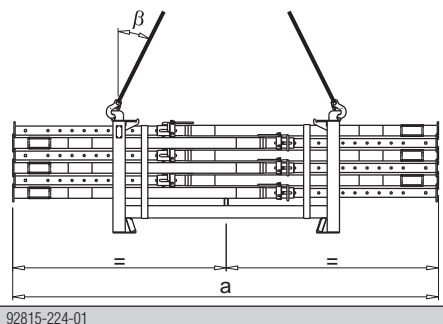
Using Doka stacking pallets as transport devices

Lifting by crane



NOTICE

- Multi-trip packaging items must be lifted individually.
- Use suitable lifting chains:
 - e.g. Doka 4-part chain 3.20m
 - Do not exceed the permitted working load limit of the lifting chains.
- Load the items centrally.
- Fasten the load to the stacking pallet (e.g. with strapping tape or lashing strap) so that it cannot slide or tip out.
- Sling angle β max. 30°!



	a
Doka stacking pallet 1.55x0.85m	max. 4.5 m
Doka stacking pallet 1.20x0.80m	max. 3.0 m

Repositioning by forklift truck or pallet stacking truck

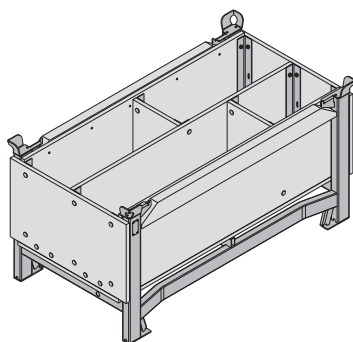


NOTICE

- Load the items centrally.
- Fasten the load to the stacking pallet (e.g. with strapping tape or lashing strap) so that it cannot slide or tip out.

Doka accessory box

Storage and transport device for small items.



Permitted load-bearing capacity: 1000 kg (2200 lbs)
Permitted imposed stacking load: 5530 kg (12190 lbs)

Doka accessory boxes as storage units

Max. number of units on top of one another

Outdoors (on the site) Floor gradients up to 3%	Indoors Floor gradients up to 1%
3	6
It is not allowed to stack empty multi-trip boxes or pallets on top of one another!	



NOTICE

- Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top!
- Castor wheels must not be fitted to the bottom multi-trip packaging in the stack.
- Secure multi-trip packagings with installed castor wheels using the fixing brake when parking.

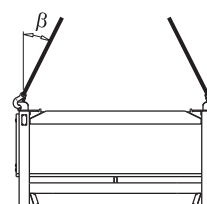
Doka accessory box as transport devices

Lifting by crane



NOTICE

- Multi-trip packaging items must be lifted individually.
- Use suitable lifting chains:
 - e.g. Doka 4-part chain 3.20m
 - Do not exceed the permitted working load limit of the lifting chains.
- When lifting units to which Bolt-on castor sets B have been attached, you must also follow the directions in the 'Bolt-on castor set B' User information booklet!
- Sling 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.

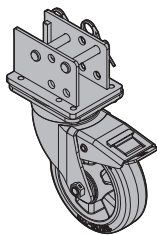
Universal castor wheel for transport pallet

The Universal castor wheel for transport pallet turns multi-trip packaging items into fast and manoeuvrable transport devices.

- 4 castor wheels needed per multi-trip packaging item.
- Compatible multi-trip packaging items:
 - Doka stacking pallets (all sizes)
 - Doka multi-trip transport box 1.20x0.80m
 - Doka skeleton transport box 1.70x0.80m
 - DokaXdek panel pallets (all sizes)
 - Superdek beam pallet 1.22x1.10m



Follow the directions in the 'Universal castor wheel for transport pallet' User Information booklet.



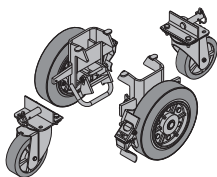
Bolt-on castor set B

The Bolt-on castor set B turns multi-trip packaging items into fast and manoeuvrable transport devices.

- Suitable for drive-through access openings > 90 cm.
- Compatible multi-trip packaging items:
 - Doka accessory box
 - Doka stacking pallets (all sizes)
 - Protective barrier Z pallets



Follow the directions in the 'Bolt-on castor set B' User Information booklet!



General

Areas of use

Forming self-compacting concrete (SCC)

The **Universal panel SCC 0.45x1.50m** enables the placement of self-compacting concrete (SCC).



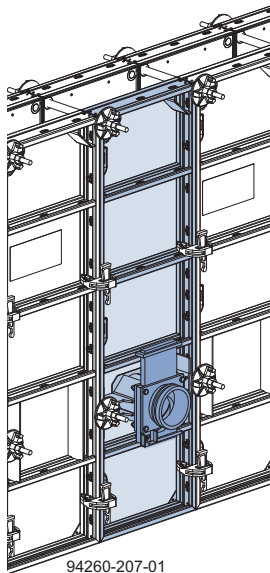
NOTICE

The connection point for self-compacting concrete (SCC) is not suitable for pouring conventional concrete!



Follow the directions in the 'Forming self-compacting concrete (SCC)' User Information booklet.

Practical example



Using as downturned-beam formwork

Using **tie-holder brackets** for the **top and bottom ties** has the following effects:

- The tie-points are above or below the panel – no ties in the concrete
- Form-tie spacing freely selectable

Required numbers of Frami tie-holder brackets:

Frami Xlife panel (longside horizontal)	Number of Frami tie-holder brackets	
	top	bottom
1.20m	2 / 1 *)	2 / 1 *)
1.50m	2 / 1 *)	2 / 1 *)
2.70m	2	2
3.00m	2	2

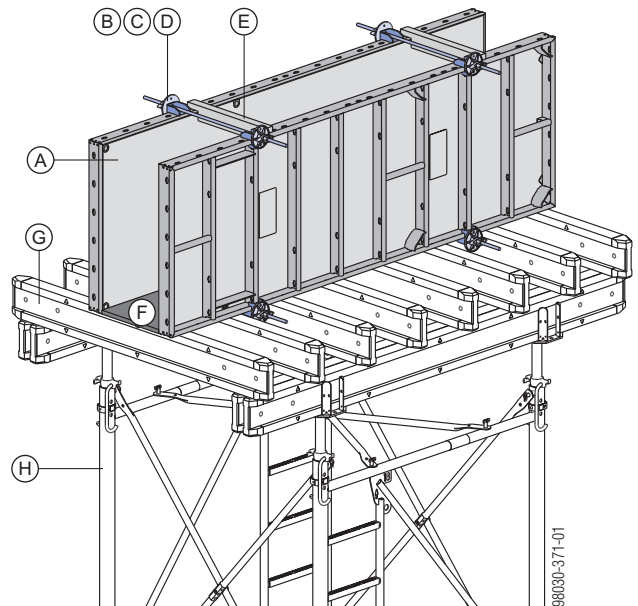
Downturned beam height: max.90 cm

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

Frami tie-holder bracket:

Permissible load-bearing capacity: 10 kN

Example with 0.90x2.70m panel



A Frami Xlife panel 0.90x2.70m

B Frami tie-holder bracket

C Tie rod 15.0mm

D Super plate 15.0

E Wooden spacer

F Formwork sheet

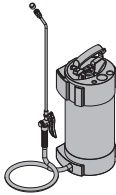
G Doka beam H20

H Load-bearing tower (e.g. Staxo 100)

Cleaning and care of your equipment

Release agents

Doka-Trenn and Doka-OptiX are applied using the Doka release-agent sprayer.



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



NOTICE

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



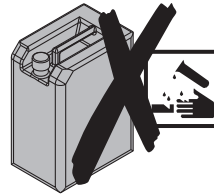
To determine the right dosage and to make sure that you are using the agent correctly, test it on less important parts of the structure first.

Cleaning



NOTICE

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



Cleaning high formwork:

Provide a working platform at a suitable cleaning location.

- Wheel-around scaffold DF (working heights of up to 3.50 m)
- Ringlock (working heights of up to 12.00 m)

Cleaning equipment

High-pressure spray cleaner

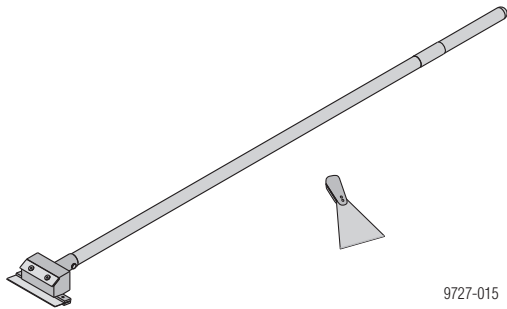


NOTICE

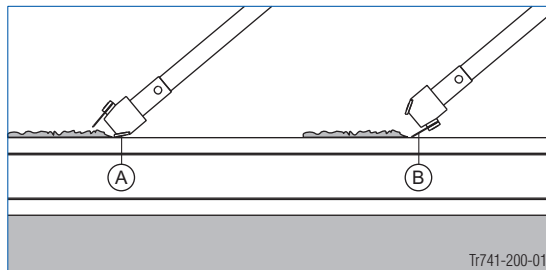
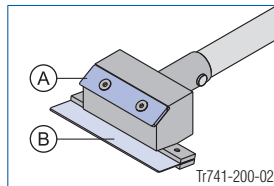
- Appliance pressure rating: 200 to max. 300 bar
- Keep the water-jet the correct distance from the formwork, and move it at the right speed:
 - The higher the pressure, the further away from the formwork you must keep the jet and the faster you must move it across the surface.
- Do not aim the jet at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

Concrete scraper

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



Functional description:



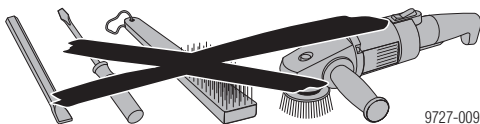
A Blade for dealing with heavy soiling

B Blade for dealing with slight soiling



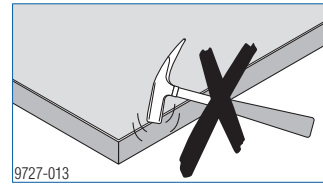
NOTICE

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

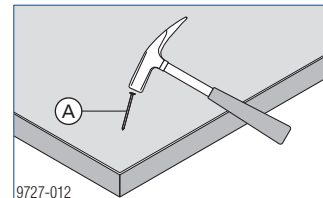


Care

- No hammer-blows to the frame profiles

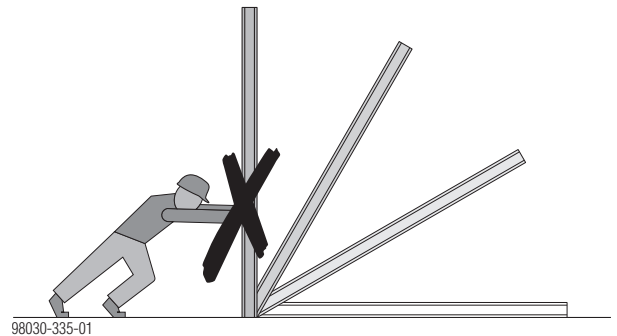


- Do not use nails on the formwork that are longer than 60 mm

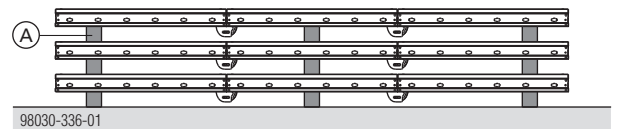


A max. l=60 mm

- Never push over panels or allow them to fall



- Always insert suitable, correctly aligned timber battens (**A**) as spacers when stacking gang-forms one on top of another.

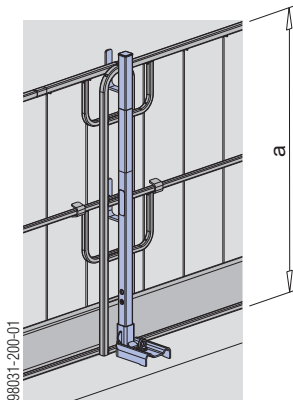


This prevents the formwork sheets from being damaged by the connector components.

Fall protection on the structure

Xsafe edge protection XP

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



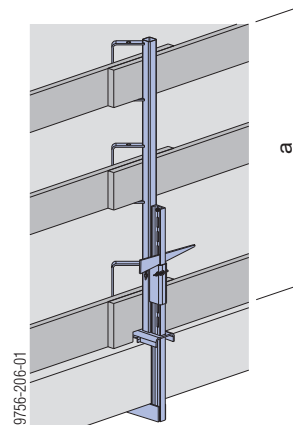
a ... > 1.00 m



Follow the directions in the 'Xsafe edge protection XP' User Information booklet.

Handrail clamp S

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



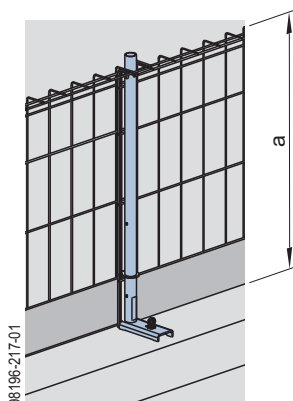
a ... > 1.00 m



Follow the directions in the "Handrail clamp S" User information!

Xsafe edge protection Z

- Attachment by integral screw-on shoe
- Protective barrier Z can be used as the safety barrier



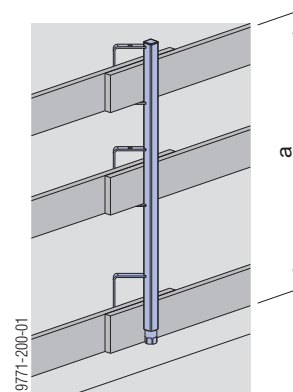
a ... > 1.17 m



Follow the directions in the 'Xsafe edge protection Z' User Information booklet.

Handrail post 1.10m

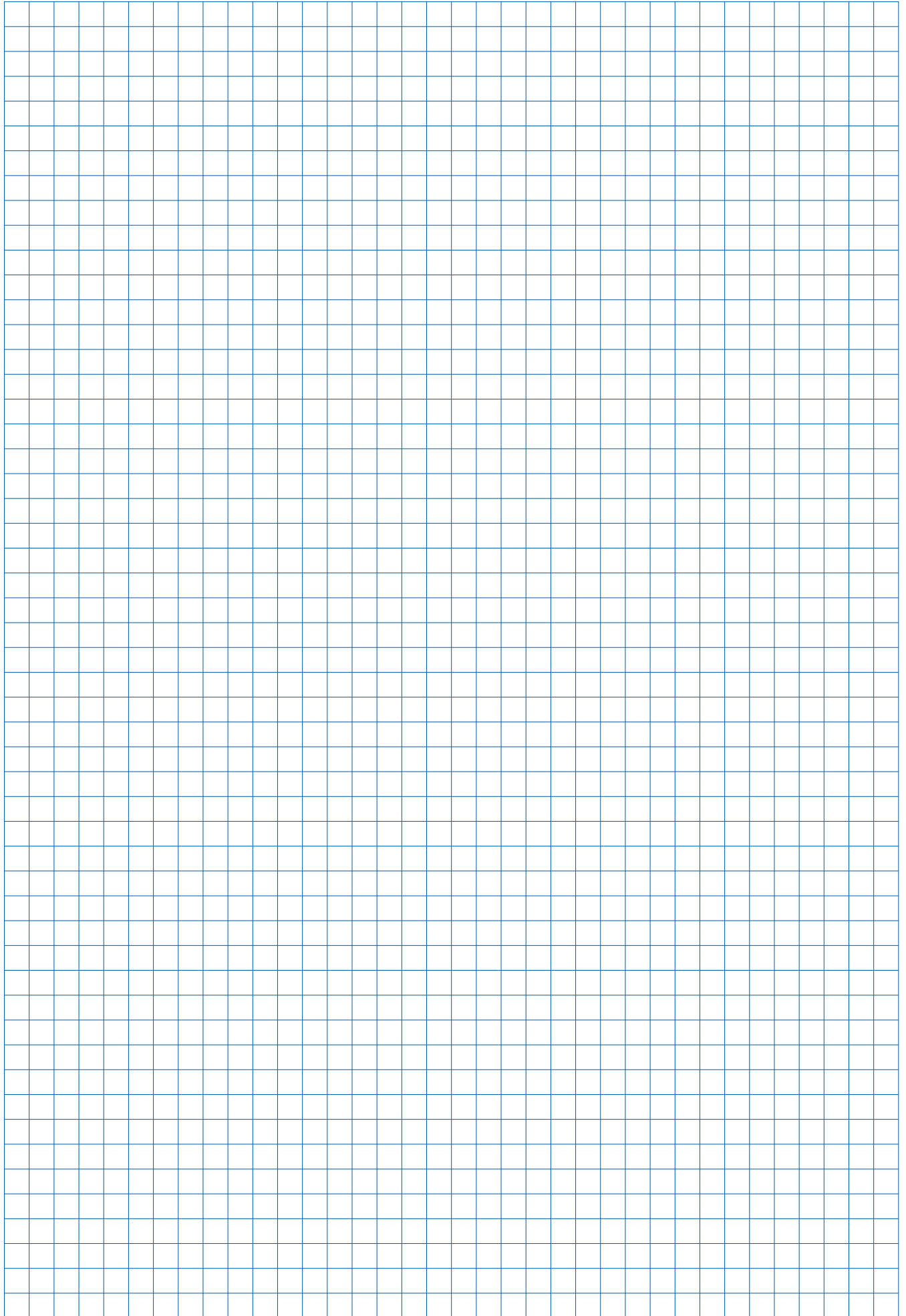
- Fixed in a Screw sleeve 20.0 or Attachable sleeve 24mm
- Guard-rail boards or scaffold tubes can be used as the safety barrier

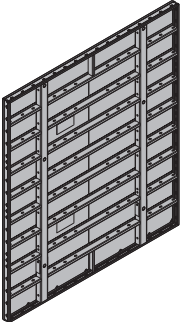


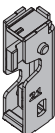
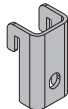
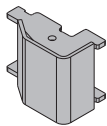
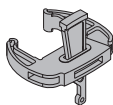
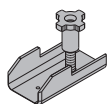
a ... > 1.00 m

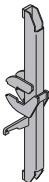
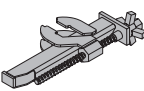
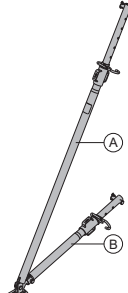
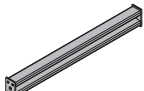
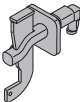
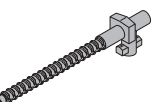
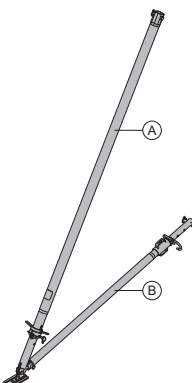
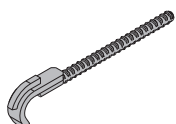
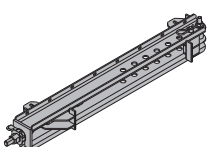
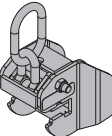
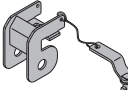
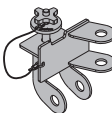


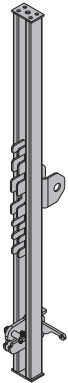
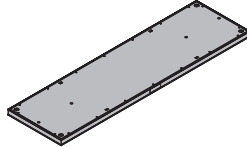
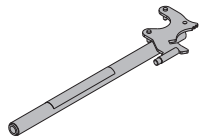
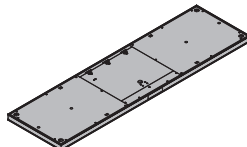
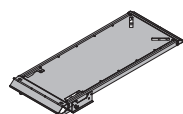
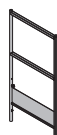
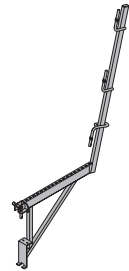
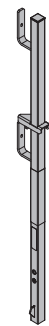
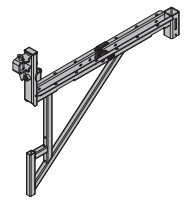
Follow the directions in the 'Handrail post 1.10m' User Information!

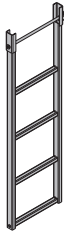
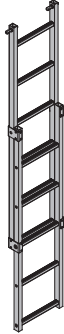
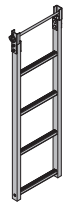
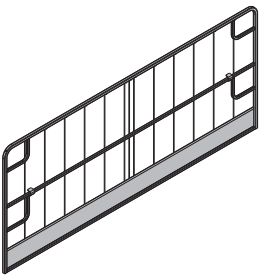
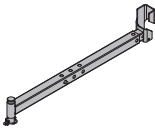
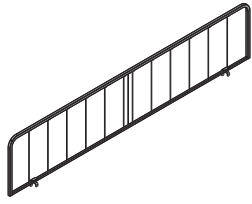
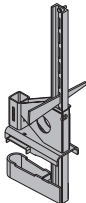
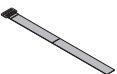
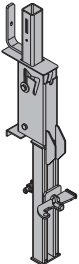
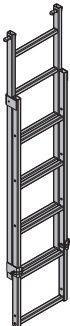


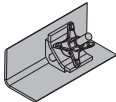
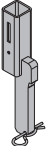
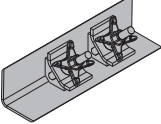
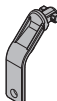
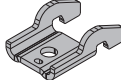
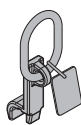
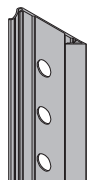
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Frami Xlife panel 0.90x1.20m	39.0	588401500	Frami Xlife universal panel 0.90x0.60m	25.4	588470500
Frami Xlife panel 0.75x1.20m	33.5	588447500	Frami Xlife universal panel 0.90x1.20m	49.0	588423500
Frami Xlife panel 0.60x1.20m	29.5	588463500	Frami Xlife universal panel 0.90x1.50m	61.0	588424500
Frami Xlife panel 0.45x1.20m	24.0	588404500	Frami Xlife universal panel 0.90x2.70m	106.4	588427500
Frami Xlife panel 0.30x1.20m	19.5	588405500	Frami Xlife universal panel 0.90x3.00m	117.5	588428500
Frami Xlife panel 0.90x1.50m	46.5	588406500	Frami Xlife-Uni-Element 0,90m		
Frami Xlife panel 0.75x1.50m	41.3	588448500			
Frami Xlife panel 0.60x1.50m	35.5	588464500			
Frami Xlife panel 0.45x1.50m	28.9	588409500			
Frami Xlife panel 0.30x1.50m	24.8	588410500			
Frami Xlife panel 0.90x2.70m	79.2	588481500			
Frami Xlife panel 0.75x2.70m	69.5	588449500			
Frami Xlife panel 0.60x2.70m	60.5	588465500			
Frami Xlife panel 0.45x2.70m	49.5	588482500			
Frami Xlife panel 0.30x2.70m	38.5	588483500			
Frami Xlife panel 0.90x3.00m	86.5	588411500			
Frami Xlife panel 0.75x3.00m	76.5	588412500			
Frami Xlife panel 0.60x3.00m	65.0	588413500			
Frami Xlife panel 0.45x3.00m	54.3	588414500			
Frami Xlife panel 0.30x3.00m	45.0	588415500			
Frami Xlife-Element					
	Galvanised Custom sizes on enquiry!			Galvanised	
Frami Xlife panel 2.40x2.70m	263.0	589442500	Universal panel SCC 0.45x1.50m	47.5	589446000
Frami Xlife-Element 2,40x2,70m			Uni-Element SCC 0,45x1,50m		
	Galvanised			Galvanised, powder-coated	
			Frami Xlife pilaster panel 1.20m	42.7	588450000
			Frami Xlife pilaster panel 1.50m	51.0	588432000
			Frami Xlife pilaster panel 3.00m	96.6	588431000
			Frami Xlife-Stützevorlageelement		
				Galvanised	
Frami Xlife universal panel 0.75x0.60m	22.0	588469500	Frami inside corner 1.20m 20cm	25.3	588471000
Frami Xlife universal panel 0.75x1.20m	39.0	588402500	Frami inside corner 1.50m 20cm	30.7	588472000
Frami Xlife universal panel 0.75x1.50m	49.5	588407500	Frami inside corner 2.70m 20cm	51.6	588485000
Frami Xlife universal panel 0.75x2.70m	83.5	588484500	Frami inside corner 3.00m 20cm	57.4	588417000
Frami Xlife universal panel 0.75x3.00m	93.0	588416500	Frami-Innenecke		
Frami Xlife-Uni-Element 0,75m				Galvanised	
	Galvanised				
			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	

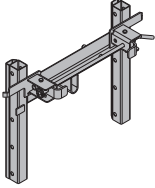
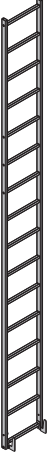
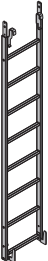
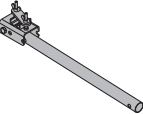
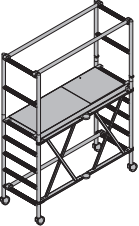
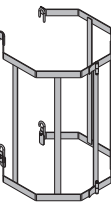
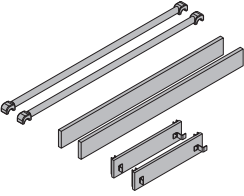
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Frami hinged inside corner I galv. 1.20m Frami hinged inside corner I galv. 1.50m Frami-Scharnierecke I verzinkt Galvanised	34.1 40.8	588425500 588426500			
Frami hinged inside corner I 1.20m Frami hinged inside corner I 1.50m Frami-Scharnierecke I Powder-coated blue	33.5 40.0	588425000 588426000			
Frami hinged outside corner A galv. 1.20m Frami hinged outside corner A galv. 1.50m Frami-Scharnierecke A verzinkt Galvanised	12.9 16.0	588419000 588420000			
Frami hinged outside corner A 1.20m Frami hinged outside corner A 1.50m Frami-Scharnierecke A Powder-coated blue	12.8 15.9	588429000 588430000			
Frami fitting timber 10x9cm 1.50m Frami fitting timber 5x9cm 1.50m Frami fitting timber 3x9cm 1.50m Frami fitting timber 2x9cm 1.50m Frami fitting timber 10x9cm 2.70m Frami fitting timber 5x9cm 2.70m Frami fitting timber 3x9cm 2.70m Frami fitting timber 2x9cm 2.70m Frami-Passholz Varnished yellow	6.0 3.0 1.9 1.3 12.3 6.1 3.7 2.5	176035000 176034000 176033000 176032000 176083000 176082000 176081000 176080000			
Frami plywood support 27mm Frami plywood support 21mm Frami plywood support 18mm Frami-Schalhautwinkel Galvanised Height: 56 cm	2.0 2.1 2.2	588473000 588474000 588499000			
Frami stacking angle 18mm Frami stacking angle 21mm Frami-Aufstockwinkel Powder-coated blue Length: 24 cm	2.9 2.8	589134000 589144000			
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	0.6	588491000			
Framax quick acting clamp RU Framax-Schnellspanner RU Galvanised Length: 20 cm	3.1	588153400			
Frami panel shoe Frami-Elementschuh Galvanised Length: 16 cm	1.3	588490000			
Frami clamp Frami-Spanner Galvanised Length: 11 cm	1.2	588433000			

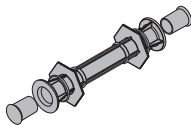
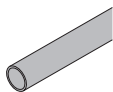
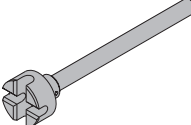
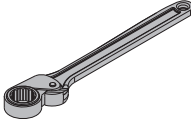
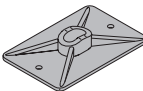
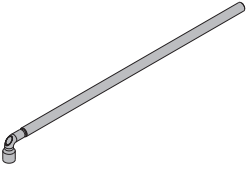
	[kg]	Article N°		[kg]	Article N°
Frami aligning clamp Frami-Richtspanner  Galvanised Length: 62 cm	3.2	588435000	Plumbing strut 260 IB Justierstütze 260 IB  Galvanised Length: 146.8 - 256.7 cm	12.8	588437500
Frami adjustable clamp Frami-Ausgleichsspanner  Galvanised Length: 40 cm	3.6	588436000	Panel strut 340 IB Elementstütze 340 IB consisting of: (A) Plumbing strut 340 IB Galvanised Length: 190.8 - 341.8 cm (B) Adjusting strut 120 IB Galvanised Length: 81.5 - 130.6 cm  Galvanised Delivery condition: folded closed	24.3	580365000
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	Panel strut 540 IB Elementstütze 540 IB consisting of: (A) Plumbing strut 540 IB Galvanised Length: 310.5 - 549.2 cm (B) Adjusting strut 220 IB Galvanised Length: 172.5 - 221.1 cm  Galvanised Delivery condition: folded closed	41.4	580366000
Frami profile connector 5-18cm Frami-Profilverbinder 5-18cm  Galvanised Length: 33 cm	0.8	588493000			
Frami stop-end waler tie 15-45cm Frami-Stirnabschaltzwinge 15-45cm  Galvanised Length: 85 cm	8.8	588498000			
Frami lifting hook Frami-Umsetzbügel  Galvanised Width: 15 cm Height: 21 cm Follow the directions in the "Operating Instructions"!	7.5	588438000	Strut head EB Strebenkopf EB  Galvanised Width: 9 cm Height: 14 cm	1.4	588945000
			Frami prop head EB Frami-Stützenkopf EB  Galvanised Width: 17 cm Height: 22 cm	2.6	589443000

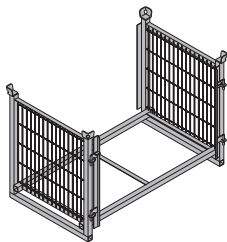
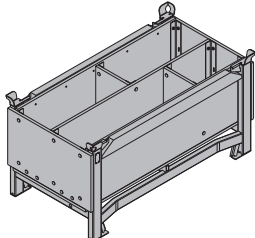
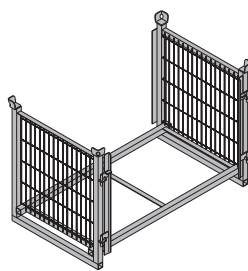
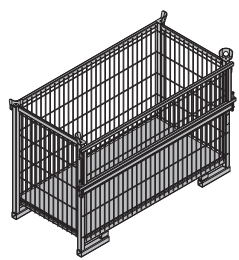
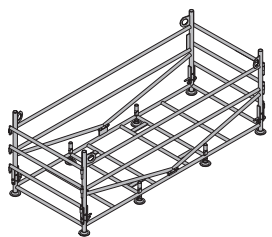
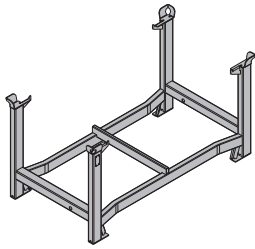
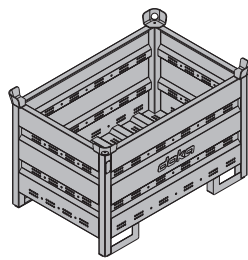
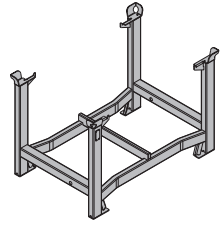
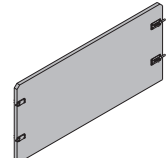
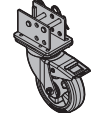
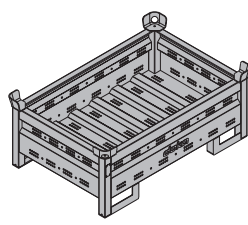
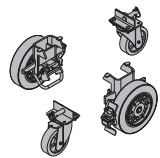
	[kg]	Article N°		[kg]	Article N°
Frami connection profile EB Frami-Anschlussprofil EB  Painted blue Height: 125 cm	10.1	588462000	Deck XBS 75/270cm Deck XBS 75/135cm Belag XBS  Aluminium	23.0 8.0	588702000 588710000
Universal dismantling tool Universal-Lösewerkzeug  Galvanised Length: 75.5 cm	3.6	582768000	Hatch deck XBS 75/270cm Durchstiegsbelag XBS 75/270cm  Aluminium	24.9	588703000
Doka express anchor 16x125mm Doka-Expressanker 16x125mm  Galvanised Length: 18 cm	0.31	588631000	Infill deck XBS 75cm Ausgleichsbelag XBS 75cm  Aluminium	25.0	588704000
Doka coil 16mm Doka-Coil 16mm  Galvanised Diameter: 1.6 cm	0.009	588633000	Side railing XBS 75cm Seitengeländer XBS 75cm 	10.0	588706000
Information plate for express anchor Plakette Expressanker  PS Width: 8 cm Height: 7.5 cm	0.004	588630000	Handrail extension XBS Geländerverlängerung XBS 	6.3	588707000
Frami bracket 60 Frami-Konsole 60  Galvanised Length: 98 cm Height: 157 cm	7.7	588442000	Handrail post XBS 1.40m Geländersteher XBS 1,40m 	4.0	588705000
Frami bracket XBS 75 EP Frami-Konsole XBS 75 EP 	7.8	589445000	Handrail post XP 1.20m Geländersteher XP 1,20m  Galvanised Height: 118 cm	4.1	586460000

	[kg]	Article N°		[kg]	Article N°
Toeboard holder XP 1.20m Fußwehrhalter XP 1,20m  Galvanised Height: 21 cm	0.64	586461000	Xsafe plus ladder extension 1.15m Xsafe plus-Leiternverlängerung 1,15m  Galvanised Height: 126 cm	7.0	586422000
Handrail post XP 0.60m Geländersteher XP 0,60m  Galvanised Height: 68 cm	5.0	586462000	Xsafe aluminium telescopic ladder 1.55-2.70m Xsafe-Alu-Teleskopleiter 1,55-2,70m Aluminium 	9.2	586448000
Toeboard holder XP 0.60m Fußwehrhalter XP 0,60m  Galvanised Height: 21 cm	0.77	586463000	Xsafe aluminium ladder extension 1.15m Xsafe-Alu-Leiternverlängerung 1,15m Aluminium 	4.1	586449000
Protective grating XP 2.70x1.20m Protective grating XP 2.50x1.20m Protective grating XP 2.00x1.20m Protective grating XP 1.20x1.20m Schutzgitter XP  Galvanised	22.2 20.5 17.4 12.0	586450000 586451000 586452000 586453000	Xsafe universal ladder holder Xsafe-Uni-Leiternhalter  Galvanised Galvanised, powder-coated	3.3	586447000
Protective grating XP 2.70x0.60m Protective grating XP 2.50x0.60m Protective grating XP 2.00x0.60m Protective grating XP 1.20x0.60m Schutzgitter XP  Galvanised	10.1 9.5 8.0 5.0	586466000 586472000 586473000 586491000	Railing clamp XP 40cm Geländerzwinge XP 40cm  Galvanised Height: 73 cm	7.7	586456000
Velcro fastener 30x380mm Klettverschluss 30x380mm  Yellow	0.02	586470000	Frami adapter XP Frami-Adapter XP  Galvanised Height: 91.5 cm	10.0	586477000
Xsafe plus telescopic ladder Xsafe plus-Teleskopleiter  Galvanised Height: 158 - 274 cm	15.0	586421000			

	[kg]	Article N°		[kg]	Article N°
Handrail clamp S Schutzgeländerzwinge S  Galvanised Height: 123 - 171 cm	11.5	580470000	Box-out clamp type 1cm Aussparungsklemme Typ 1cm  Painted blue Length: 10 cm Width: 10 cm	17.4	580066000
Bracket adapter XP FRR 50/30 Konsolenadapter XP FRR 50/30  Galvanised Height: 32 cm	2.4	586486000	Box-out clamp type 2cm Aussparungsklemme Typ 2cm  Painted blue Length: 10 cm Width: 10 cm	17.4	580067000
Scaffold tube 48.3mm 0.50m Scaffold tube 48.3mm 1.00m Scaffold tube 48.3mm 1.50m Scaffold tube 48.3mm 2.00m Scaffold tube 48.3mm 2.50m Scaffold tube 48.3mm 3.00m Scaffold tube 48.3mm 3.50m Scaffold tube 48.3mm 4.00m Scaffold tube 48.3mm 4.50m Scaffold tube 48.3mm 5.00m Scaffold tube 48.3mm 5.50m Scaffold tube 48.3mm 6.00m Scaffold tube 48.3mmm Gerüstrohr 48,3mm  Galvanised	1.7 3.6 5.4 7.2 8.4 10.8 12.6 14.4 16.2 18.0 19.8 21.6 3.6	682026000 682014000 682015000 682016000 682017000 682018000 682019000 682021000 682022000 682023000 682024000 682025000 682001000	Frami plug Frami-Abdeckstopfen  Yellow Diameter: 2 cm	0.003	588445000
			Frami tie-holder bracket Frami-Ankerhaltewinkel  Galvanised	0.58	588453000
			Frami clip Frami-Stecker  Galvanised Width: 3 cm Height: 12 cm	0.26	588434000
Scaffold tube connection Gerüstrohranschluss  Galvanised Height: 7 cm	0.27	584375000	Frami floor fixing plate Frami-Bodenhalter  Galvanised Length: 12.7 cm Width: 6.7 cm	0.7	588495000
Screw-on coupler 48mm 50 Anschraubkupplung 48mm 50  Galvanised Width-across: 22 mm	0.8	682002000	Frami stacking cone Frami-Stapelkonus  Blue Diameter: 2.6 cm	0.01	589444000
Frami frame hole plug Frami-Ankerstopfen  Blue Diameter: 2.5 cm	0.002	588444000	Doka 4-part chain 3.20m Doka-Vierstrangkette 3,20m  Follow the directions in the "Operating Instructions"!	15.0	588620000
Framax triangular ledge 2.70m Framax-Dreikanteiste 2,70m 	0.38	588170000	Frami transport hook Frami-Transporthaken  Galvanised Length: 17.5 cm Follow the directions in the "Operating Instructions"!	0.56	588494000
Frami frontal triangular ledge 2.70m Frami frontal triangular ledge 3.00m Frami-Stirndreikanteiste  Grey	1.5 1.7	588496000 588497000			

	[kg]	Article N°		[kg]	Article N°
Dokamatic lifting strap 13.00m Dokamatic-Umsetzgurt 13,00m  Green Follow the directions in the "Operating Instructions"!	10.5	586231000	Ladder system XS  Connector XS wall formwork Anschluss XS Wandschalung Galvanised Width: 89 cm Height: 63 cm	20.8	588662000
Framax assembling tool Framax-Montagestange  Galvanised Length: 193 cm	4.2	588678000	System ladder XS 4.40m System-Leiter XS 4,40m  Galvanised	33.2	588640000
Framax telescopic assembling tool Framax-Teleskop-Montagestange  Aluminium Length: 230 - 400 cm	3.8	588651000	Ladder extension XS 2.30m Leiternverlängerung XS 2,30m  Galvanised	19.1	588641000
Double scraper Xlife 100/150mm 1.40m Doppelschaber Xlife 100/150mm 1,40m 	2.8	588674000	Securing barrier XS Sicherungsschranke XS  Galvanised Length: 80 cm	4.9	588669000
Wheel-around scaffold DF Mobilgerüst DF  Aluminium Length: 185 cm Width: 80 cm Height: 255 cm Delivery condition: separate parts	44.0	586157000	Ladder cage XS 1.00m Ladder cage XS 0.25m Rückenschutz XS  Galvanised	16.5 10.5	588643000 588670000
Wheel-around scaffold DF accessory set Zubehörset Mobilgerüst DF  Aluminium Timber parts varnished yellow Length: 189 cm	13.3	586164000			

	[kg]	Article N°		[kg]	Article N°
Ladder cage exit XS Rückenschutz-Ausstieg XS  Galvanised Height: 132 cm	17.0	588666000	Frami pressure plate 8/9 Frami-Druckplatte 8/9  Galvanised	0.55	588466000
Tie rod system 15.0			Distance piece 20cm Distance piece 25cm Distance piece 30cm Distanzhalter  PE Grey Blue	0.04 0.05 0.06	581907000 581908000 581909000
Tie rod 15.0mm galvanised 0.50m Tie rod 15.0mm galvanised 0.75m Tie rod 15.0mm galvanised 1.00m Tie rod 15.0mm galvanised 1.25m Tie rod 15.0mm galvanised 1.50m Tie rod 15.0mm galvanised 1.75m Tie rod 15.0mm galvanised 2.00m Tie rod 15.0mm galvanised 2.50m Tie rod 15.0mm galvanisedm Tie rod 15.0mm non-treated 0.50m Tie rod 15.0mm non-treated 0.75m Tie rod 15.0mm non-treated 1.00m Tie rod 15.0mm non-treated 1.25m Tie rod 15.0mm non-treated 1.50m Tie rod 15.0mm non-treated 1.75m Tie rod 15.0mm non-treated 2.00m Tie rod 15.0mm non-treated 2.50m Tie rod 15.0mm non-treated 3.00m Tie rod 15.0mm non-treated 3.50m Tie rod 15.0mm non-treated 4.00m Tie rod 15.0mm non-treated 5.00m Tie rod 15.0mm non-treated 6.00m Tie rod 15.0mm non-treatedm Ankerstab 15,0mm	0.72 1.1 1.4 1.8 2.2 2.5 2.9 3.6 1.4 0.73 1.1 1.4 1.8 2.1 2.5 2.9 3.6 4.3 5.0 5.7 7.2 8.6 1.4	581821000 581822000 581823000 581826000 581827000 581828000 581829000 581852000 581824000 581870000 581871000 581874000 581886000 581876000 581887000 581875000 581877000 581878000 581888000 581879000 581880000 581881000 581873000	Plastic tube 22mm 2.50m Kunststoffrohr 22mm 2,50m  PVC Grey Diameter: 2.6 cm	0.45	581951000
			Universal cone 22/10mm Universal-Konus 22/10mm  Grey Diameter: 4 cm	0.005	581995000
			Plug 22mm Verschlussstopfen 22mm  PE Grey	0.003	581953000
			Protective cap 15.0/20.0 Schutzkappe 15,0/20,0  Yellow Length: 6 cm Diameter: 6.7 cm	0.03	581858000
Super plate 15.0 Superplatte 15,0  Galvanised Height: 6 cm Diameter: 12 cm Width-across: 27 mm	0.98	581966000	Tie-rod wrench 15.0/20.0 Ankerstabschlüssel 15,0/20,0  Galvanised	1.8	580594000
Wing nut 15.0 Flügelmutter 15,0  Galvanised Length: 10 cm Height: 5 cm Width-across: 27 mm	0.31	581961000	Friction type ratchet SW27 Freilaufknarre SW27  Manganese-phosphated Length: 30 cm	0.49	581855000
Angle anchor plate 12/18 Winkelplatte 12/18  Galvanised	1.5	581934000	Box spanner 27 0.65m Steckschlüssel 27 0,65m  Galvanised	1.9	581854000
Hexagon nut 15.0 Sechskantmutter 15,0  Galvanised Length: 5 cm Width-across: 30 mm	0.23	581964000			

	[kg]	Article N°		[kg]	Article N°
Multi-trip packaging					
Frami pallet 1.20m Frami-Palette 1,20m  Galvanised Length: 138 cm Width: 100 cm Height: 114 cm			Doka accessory box Doka-Kleinteilebox  Timber parts varnished yellow Steel parts galvanised Length: 154 cm Width: 83 cm Height: 77 cm		
Frami pallet 1.50m Frami-Palette 1,50m  Galvanised Length: 168 cm Width: 100 cm Height: 114 cm			Doka skeleton transport box 1.70x0.80m Doka-Gitterbox 1,70x0,80m  Galvanised Height: 113 cm		
Alu-Framax pallet Alu-Framax-Palette  Galvanised Length: 280 cm Width: 110 cm Height: 107 cm Delivery condition: folded closed			Doka stacking pallet 1.55x0.85m Doka-Stapelpalette 1,55x0,85m  Galvanised Height: 77 cm		
Doka multi-trip transport box 1.20x0.80m Doka-Mehrwegcontainer 1,20x0,80m  Galvanised Height: 78 cm			Doka stacking pallet 1.20x0.80m Doka-Stapelpalette 1,20x0,80m  Galvanised Height: 77 cm		
Multi-trip transport box partition 0.80m Multi-trip transport box partition 1.20m Mehrwegcontainer Unterteilung  Steel parts galvanised Timber parts varnished yellow			Universal castor wheel for transport pallet Universal-Lenkrolle Transportgebinde  Galvanised Height: 28.8 cm		
Doka multi-trip transport box 1.20x0.80x0.41m Doka-Mehrwegcontainer 1,20x0,80x0,41m  Galvanised			Bolt-on castor set B Anklemm-Radsatz B  Painted blue		



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