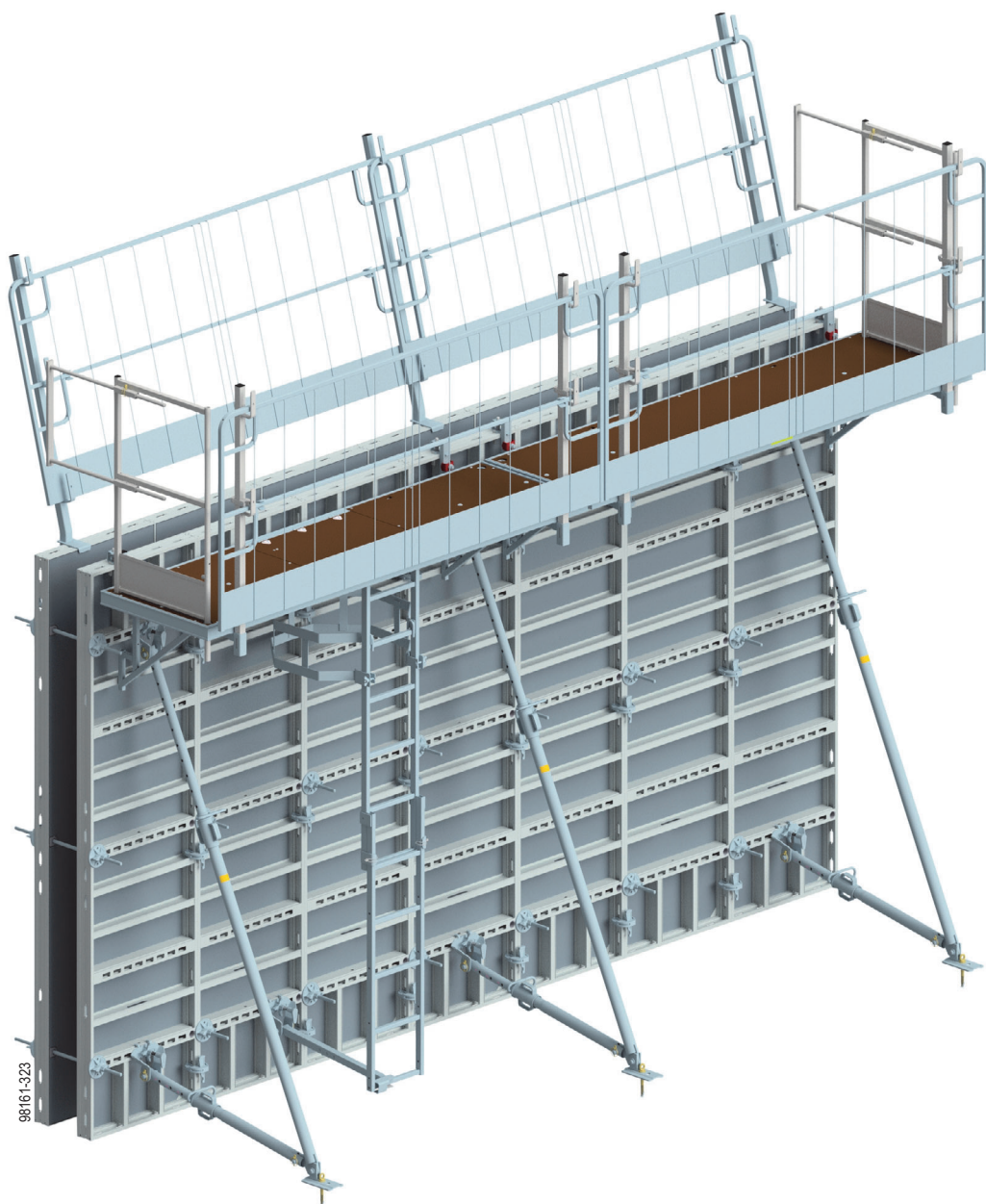


Framed formwork DokaXlight

User Information

Instructions for assembly and use (Method statement)



99161-323

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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 DokaXlight is a formwork system for the cast-in-place concrete construction of walls, slabs, foundations, shafts and columns. The Framed formwork DokaXlight is designed for forming by hand.

Boundary conditions for use:

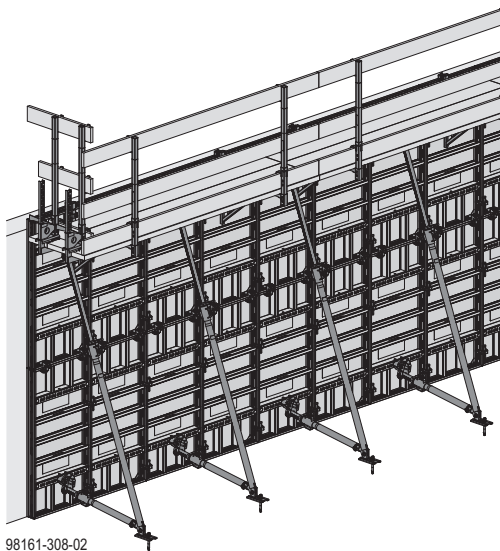
- Max. formwork height: 4.50 m
- Max. wall thickness: 50 cm
- Max. slab thickness: 50 cm
- Max. room height: 3.50 m

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!

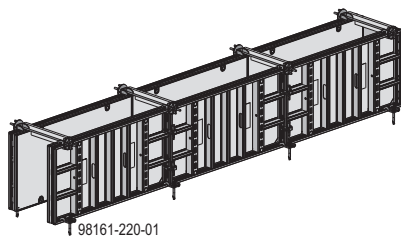
Areas of use

Wall formwork



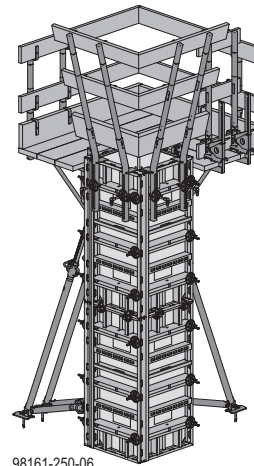
see section [Wall formwork](#)

Foundation formwork



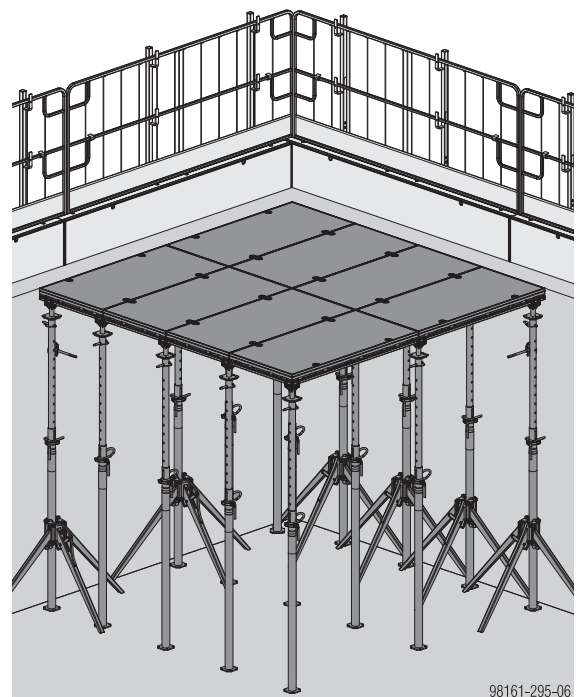
see section [Foundation formwork](#)

Column formwork



see section [Column formwork](#)

Floor formwork



see section [Floor formwork](#)

Wall formwork

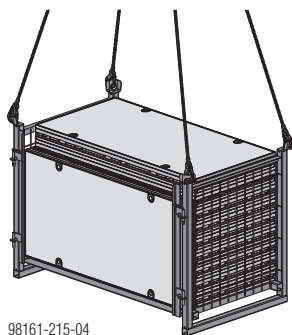
Instructions for assembly and use (Method statement)

DokaXlight 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

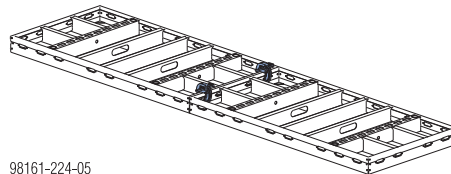
- Unload panel stacks and multi-trip boxes and pallets from the truck (see section [Transporting, stacking and storing](#)).



98161-215-04

Closing the formwork

- Pre-assemble gang-forms face-down on a prepared flat area (see section [Inter-panel connections](#)).



98161-224-05

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



WARNING

- DokaXlight panels must be securely braced in every phase of the construction work!
- Fix panels to the ground using plumbing struts or panel struts (see section [Plumbing accessories](#)). This stabilises the panels so that they cannot fall over.

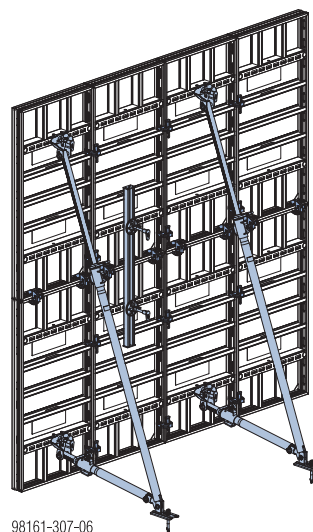


NOTICE

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 and connect them together (see section [Inter-panel connections](#)) and fix them to the ground using plumbing struts or panel struts.
The gang-form can now be exactly plumbed and aligned.

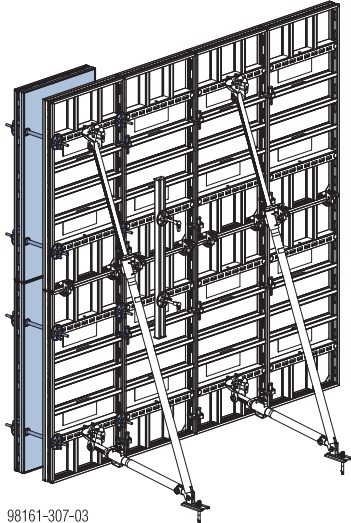


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Erecting the opposing formwork:

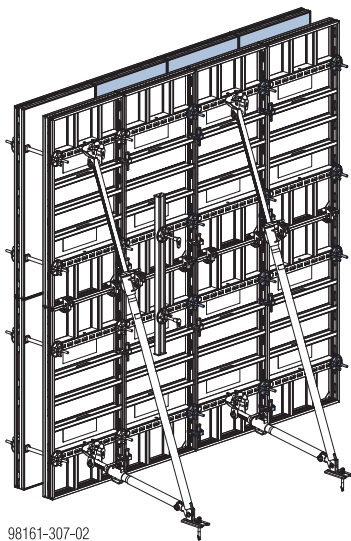
Once the reinforcement has been placed, the formwork can be closed.

- 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](#)).

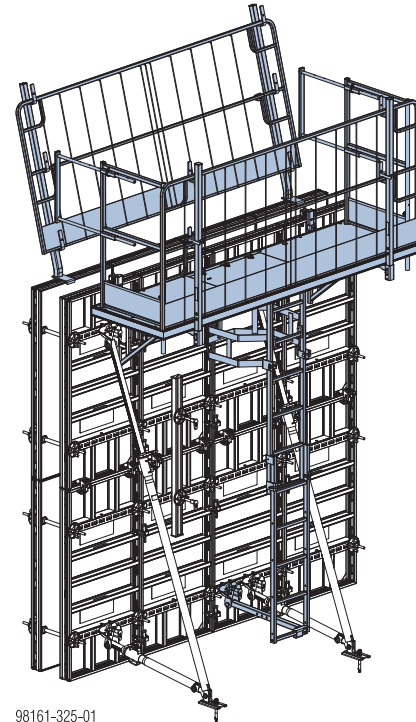


Now the opposing formwork is also secured against tipping over.

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

**Mounting the pouring platform**

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

**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.

Ladder systems and working scaffolds

Platform stairway 0.97m



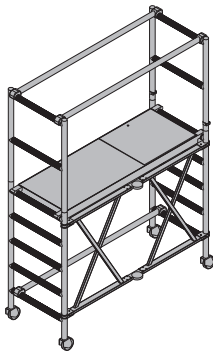
- Mobile folding platform stairway made of light alloy
- Working heights of up to 3.00 m (height of top step 0.97 m)
- Stair width: 1.20 m

Permissible load-bearing capacity: 150 kg



Follow all country-specific regulations!

Wheel-around scaffold DF

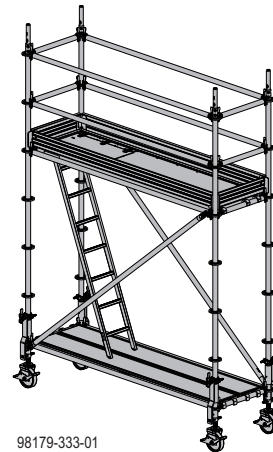


- Collapsible wheelaround platform made of light alloy.
- variable working heights of up to 3.50 m (max. platform height 1.50 m)
- width of scaffold: 0.75 m



Follow the directions in the User Information booklet!

Ringlock



Movable working scaffold:

- Variable working heights of up to 12.0 m
- Variable scaffold width and length



Follow the directions in the User Information booklet!

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.

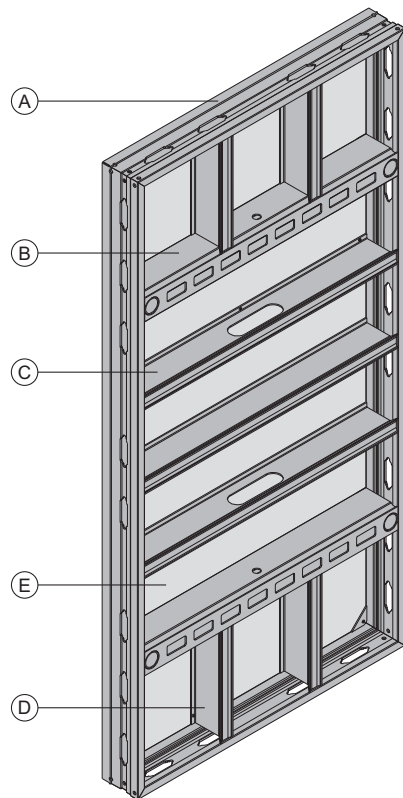
- Beginning with the opposing formwork, dismantle the panels one by one - take out the pouring platform, remove the ties and remove the connectors to the neighbouring panel.
- Lift the panel away and clean concrete residues off the formwork sheet (see section [Cleaning and care of your equipment](#)).

DokaXlight as a crane-handled formwork

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

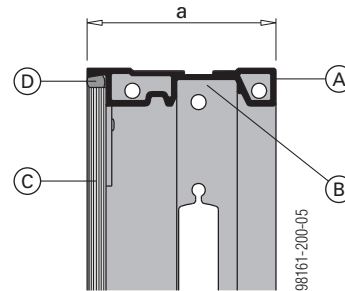
These gang-forms can be repositioned with lifting chains and Frami lifting hooks. For detailed information, see section [Lifting by crane](#).

DokaXlight panel in detail



- A** Frame profile
- B** Function profile
- C** Cross profile
- D** Stiffening profile
- E** Xlife sheet

Dimensionally stable aluminium frame



a ... 100 mm

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

- Dimensionally stable, powder-coated aluminium profiles
- Long lifespan
- Edges are easy to clean - panels always butt tightly
- All-round hardware slot for fastening the inter-panel connectors at any point
- Xlife sheet is edge-protected by the frame profile
- Cross boreholes for corner configurations and stop-ends



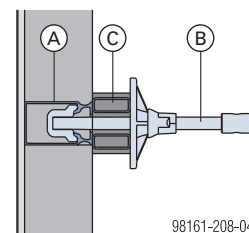
WARNING

► As a general rule, it is not permissible to use the cross profiles and function profiles as climbing rungs. They are not a substitute for a ladder.

Exception:

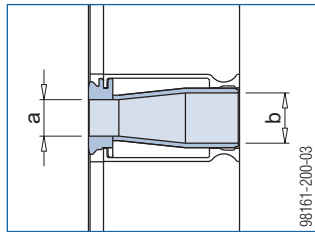
In some countries and states, occupational health and safety regulations permit climbing on the profiles if suitable personal protective equipment is used. Ensure the stability of the formwork!

Function profile for securing accessories



- A** Function profile
- B** Universal clamp 5-10cm
- C** Frami universal waling

Form-tie sleeves



a ... Ø 24 mm
b ... Ø 33 mm

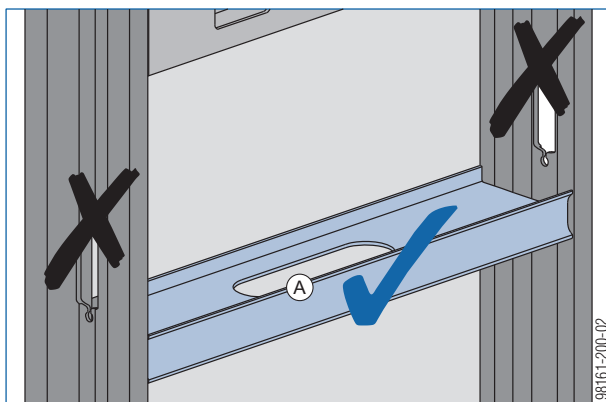
- Tie rods are very easy to insert through the large, conical form-tie sleeves

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 in the cross profile



CAUTION

Do not use cross holes in the frame profiles as handles!

- Use the handles in the cross profiles.



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](#).

Anchorage points for personal fall arrest systems (PFAS)

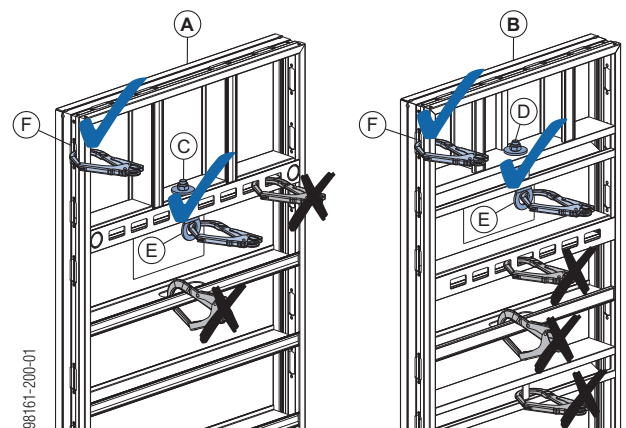
The following attachment points on the DokaXlight panel can be used for personal protective equipment:

- cross holes in the frame profile
- on the installed Tie-off set PPE type A



WARNING

- Make sure that the attachment point is at or above the required minimum height, as otherwise there will not be sufficient room to arrest a fall.



A DokaXlight panel

B DokaXlight universal panel

C Drill-hole in the function profile (DokaXlight panel)

D Drill-hole in the anchoring profile (DokaXlight universal panel)

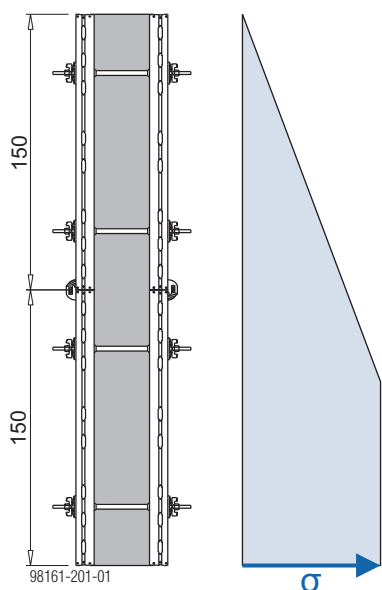
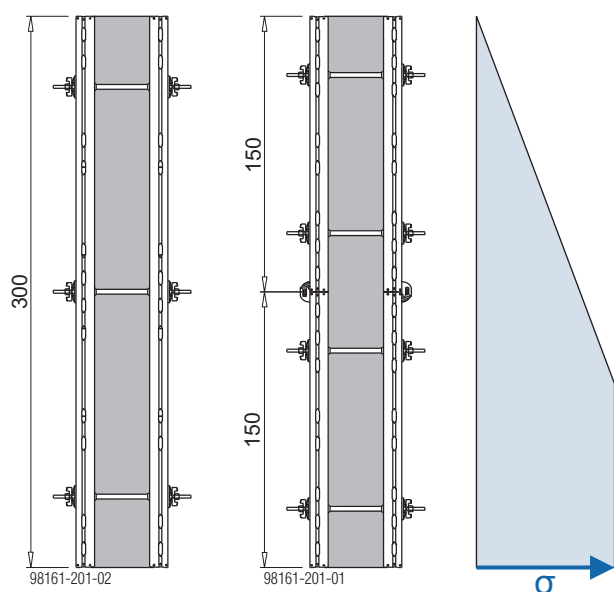
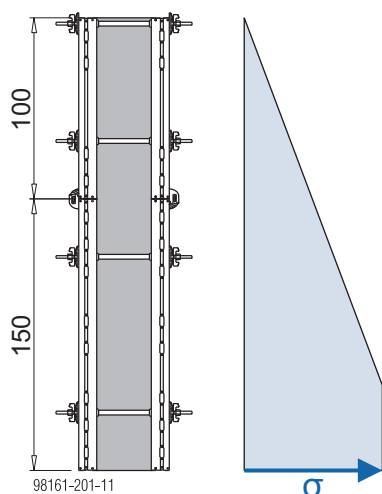
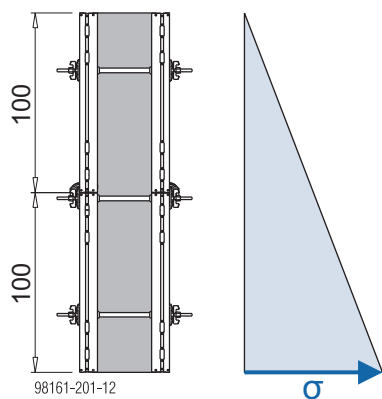
E Tie-off set PPE type A

F Slotted hole in the frame profile

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:

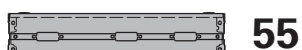
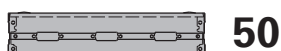
$$\sigma_{hk, \max} = 50 \text{ kN/m}^2$$



System grid

DokaXlight panels

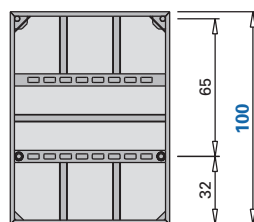
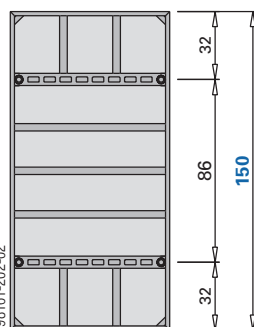
Panel widths

**75****60****55****50****45****30**

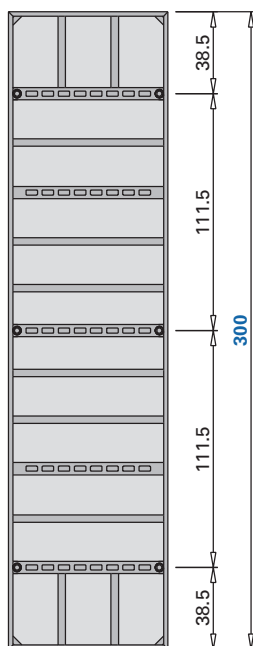
98161-202-01

Additional panel widths are available on request.

Panel heights

**100****150**

98161-202-02

**300**

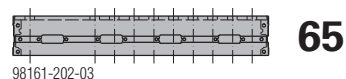
Dimensions in cm

DokaXlight universal panels

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

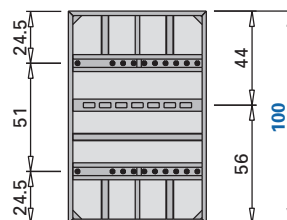
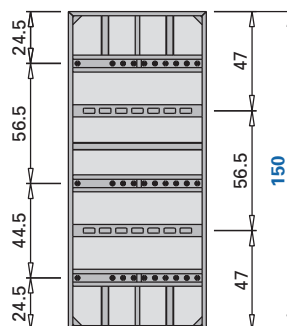
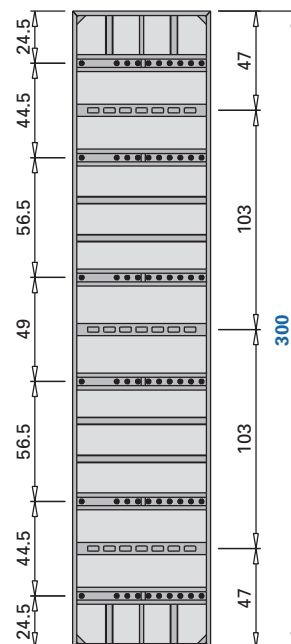
- corners
- wall junctions
- stop-ends
- columns

Panel width

**65**

98161-202-03

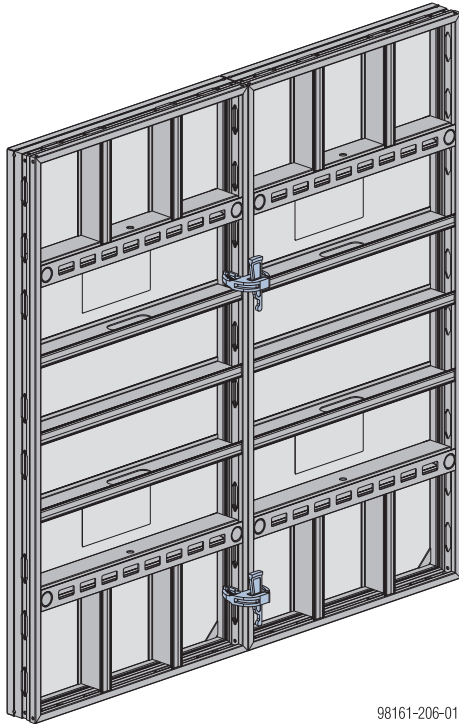
Panel heights

**100****150****300**

98161-202-04

Dimensions in cm

Inter-panel connections



98161-206-01

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 formwork element connectors (longitudinal joints)

Panel height (upright panels)	Number of connectors
1.00 m	2
1.50 m	2
3.00 m	3

Panel width (panels on their sides)	Number of connectors
0.30 m	1
0.45 m	1
0.50 m	1
0.55 m	2
0.60 m	2
0.75 m	2

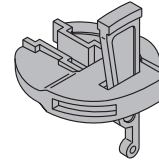
Note:

- 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](#).
- Mixing different connectors is permitted in principle.

Simple inter-panel connections

with the Frami clamp

The slot all round the frame profile allows the inter-panel connection to be made anywhere. Any height offset between adjacent panels is possible.



Frami clamp:

Permitted tensile force: 10.0 kN

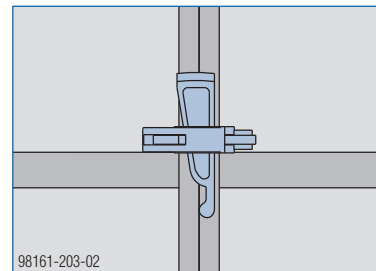
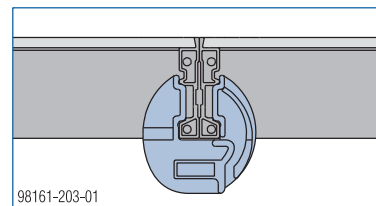
Permitted shear force: 5.0 kN

Permitted moment: 0.2 kNm



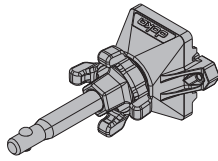
NOTICE

Note the number of connectors needed. See tables headed 'Required number of connectors (longitudinal joins)'.



with DokaXlight I-Connector

The shaped holes in the frame profile enable inter-panel connections to be made with the I-Connector.



Features:

- Connector is integrated into the panel - fewer loose parts.
- No protruding components - risk of injury is minimised and there are fewer obstructions for clamp-on parts (universal walings, brackets, etc.).
- Small gang-forms can remain assembled, stacked for short-term storage.
- For low-noise tightening use a suitable tool with width across flats 27 mm.

DokaXlight I-Connector:

Permitted tensile force: 10.0 kN

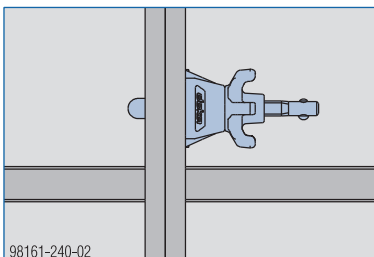
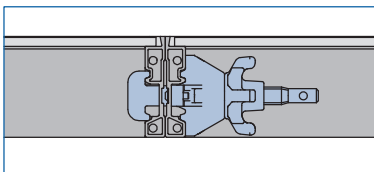
Permitted shear force: 5.0 kN

Permitted moment: 0.2 kNm



NOTICE

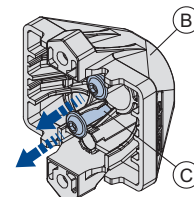
Note the number of connectors needed. See tables headed 'Required number of connectors (longitudinal joins)'.



98161-240-02

Installation on the DokaXlight panel

- Remove oval-head screws from the inside of the bearer box.



98161-243-01

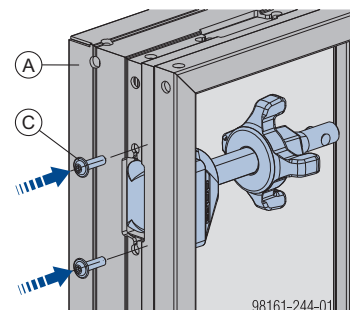
B Bearer box

C Oval-head screw

- Secure I-Connector to Doka Xlight panel frame with the oval-head screws (T30).

Tightening torque:

Oval-head screw: max. 4 Nm



98161-244-01

A DokaXlight panel

C Oval-head screw

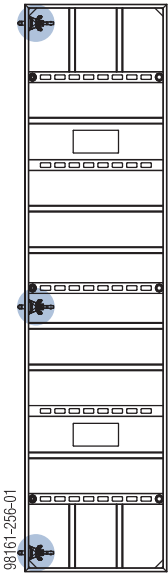
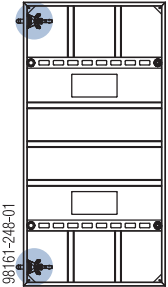
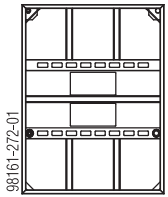
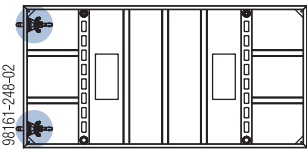
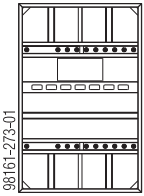
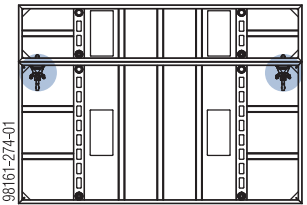


CAUTION

Take care when tightening the oval-head screws!

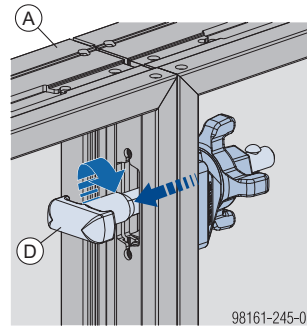
- Do not exceed the maximum permissible tightening torque.

Suggested positions of the I-Connectors

Panel used upright	
Panel height 3.00 m: one-sided arrangement recommended - take care with narrow panels (space needed)	 98161-256-01
Panel height 1.50 m: one-sided arrangement recommended - take care with narrow panels (space needed)	 98161-248-01
Panel height 1.00 m: few suitable positions - not recommended	 98161-272-01
Panel used on its side	
Not recommended with vertical stacking of panels: - few openings in alignment one-sided arrangement recommended for foundation formwork - take care with narrow panels (space needed)	 98161-248-02
Universal panels	
no suitable positions (space needed, operation)	 98161-273-01
Gang-forms of panels often used together	
Panels that are often used together can remain permanently connected to each other (gang-form)	 98161-274-01

Inter-panel connections

- Position the next DokaXlight panel, push clamping bolt through the opening in the second DokaXlight panel and turn the bolt 90°.



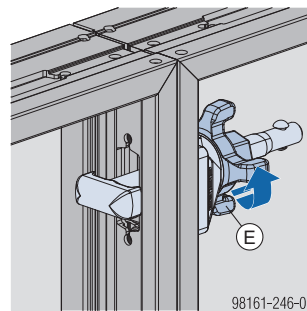
A DokaXlight panel

D Framax clamping bolt 4-8cm

- Tighten the Star-grip nut 15.0 with combination wrench 27 mm or similar.

Tightening torque:

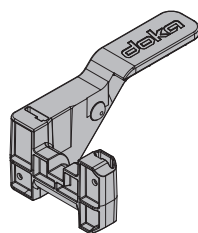
Star-grip nut 15.0: max. 70 Nm



E Star grip nut 15.0

with DokaXlight clip

The cross holes in the frame profile enable inter-panel connections to be made with the DokaXlight clip.

**DokaXlight clip:**

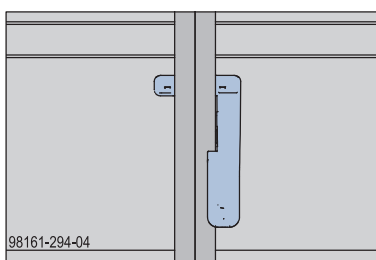
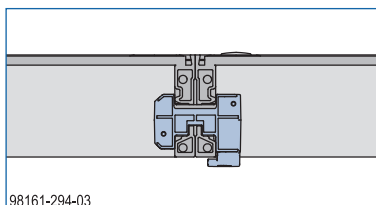
Permitted tensile force: 10.0 kN

Permitted shear force: 5.0 kN

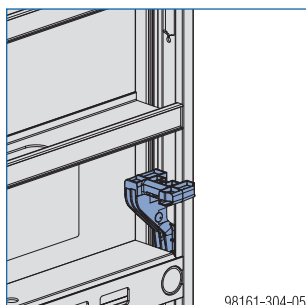
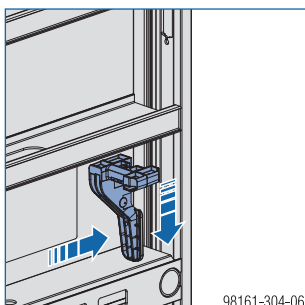
Permitted moment: 0.2 kNm

**NOTICE**

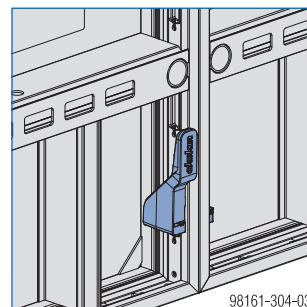
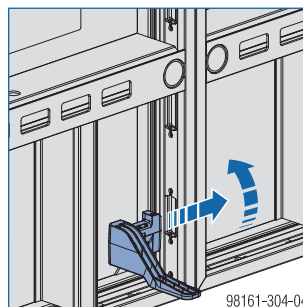
Note the number of connectors needed. See tables headed 'Required number of connectors (longitudinal joins)'.



Inter-panel connections

Parked position of the DokaXlight clip:

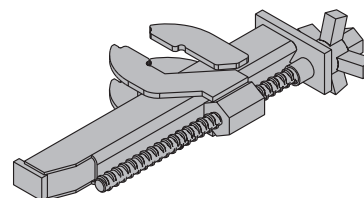
- Position the next DokaXlight panel, push the DokaXlight clip through the cross holes in both DokaXlight panels and turn the toggle lever through 90°.



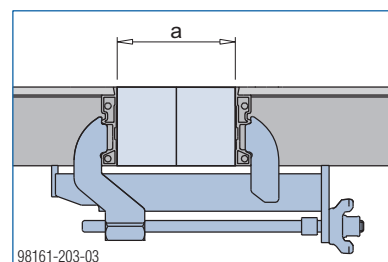
Inter-panel connection with closure possibility

with the Frami adjustable clamp

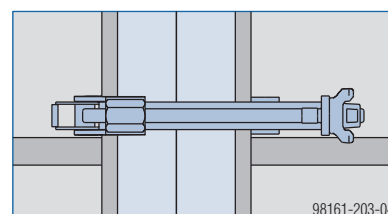
Closures can be bridged easily and economically with fitting timbers. With the Frami adjustable clamp, the panels are joined giving resistance to tensile forces.

**Frami adjustable clamp:**

Permitted tensile force: 7.5 kN



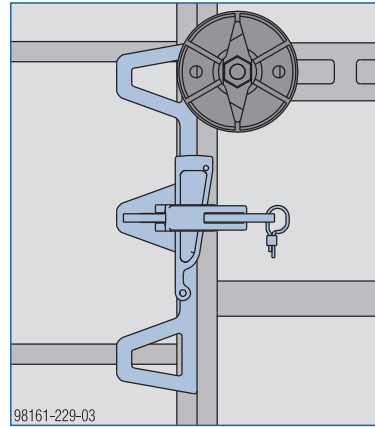
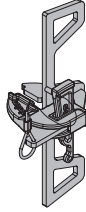
a ... max. 15 cm



Inter-panel connection to Framed formwork Frami Xlife

with DokaXlight adapter Frami

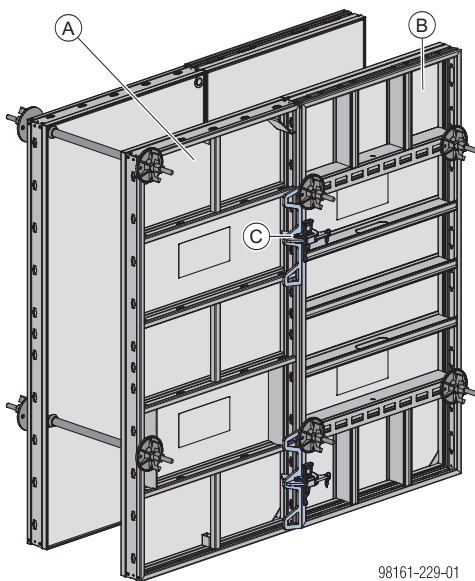
The DokaXlight adapter Frami enables DokaXlight to be combined with Frami Xlife.



98161-229-03

DokaXlight adapter Frami:

Permitted tensile force: 7.0 kN



98161-229-01

A Frami Xlife panel

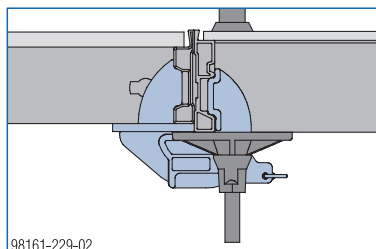
B DokaXlight panel

C DokaXlight adapter Frami



NOTICE

At the inter-panel joint the form tie has to be positioned in the DokaXlight panel.

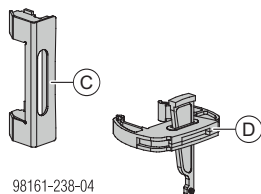


98161-229-02

Inter-panel connection to Framed formwork Framax Xlife

with DokaXlight adapter Framax

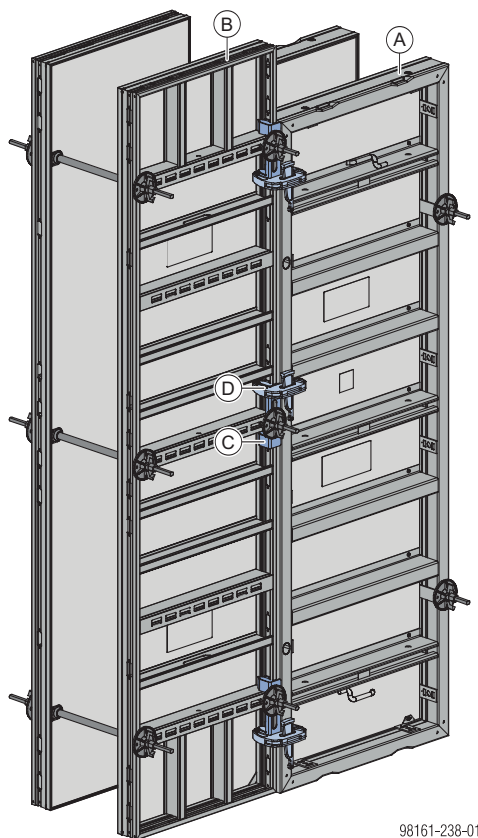
With the DokaXlight adapter Framax and the Framax quick acting clamp RU, DokaXlight can be combined for example with Framax Xlife or Alu-Framax Xlife.



Framax quick acting clamp RU:

When used with DokaXlight:

Permitted tensile force: 10.0 kN

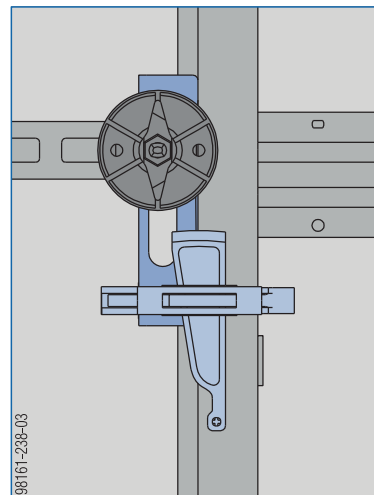
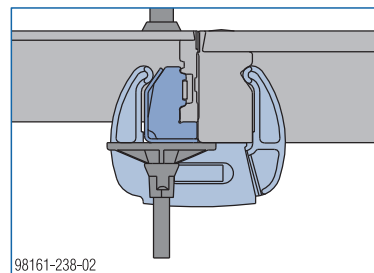


A Framax Xlife panel or Alu Framx Xlife panel

B DokaXlight panel

C DokaXlight adapter Framax

D Framax quick acting clamp RU



CAUTION

Accidental dropping of the connectors!

- When opening this inter-panel connection, always hold each adapter and quick acting clamp firmly by hand.

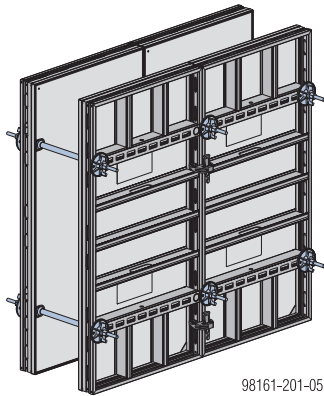


NOTICE

At the inter-panel joint the form tie has to be positioned in the DokaXlight panel.

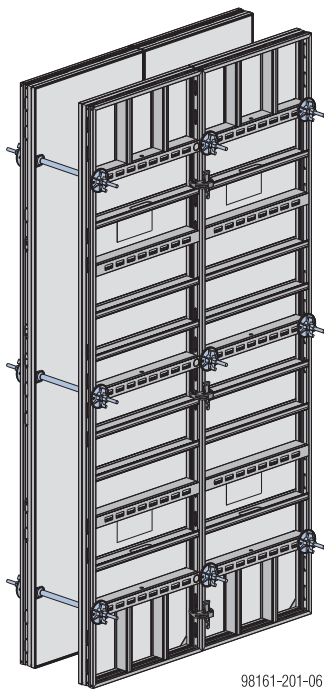
Tie rod system

Tying the DokaXlight panels



98161-201-05

Shown here with DokaXlight panels 1.50m.



98161-201-06

Shown here with DokaXlight panel 3.00m.



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:

Seal off unused anchoring sleeves with **Universal plugs R20/25**.



Tie-rod wrench 15.0/20.0

For turning and holding the tie rods.

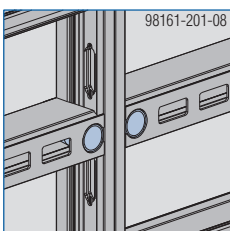
Note:

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

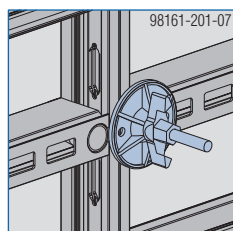
As a general rule:

- fit one form tie in each anchoring sleeve.
- Anchoring sleeves directly beside each other at the inter-panel joint need only one anchor (see illustration).
- Always tie in the larger (wider) of the two panels.

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

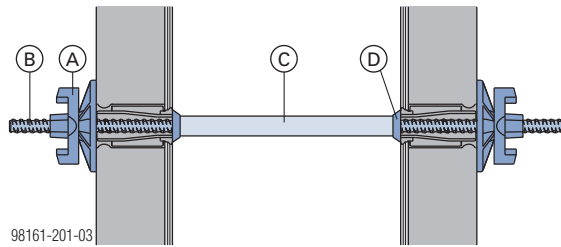


98161-201-08



98161-201-07

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

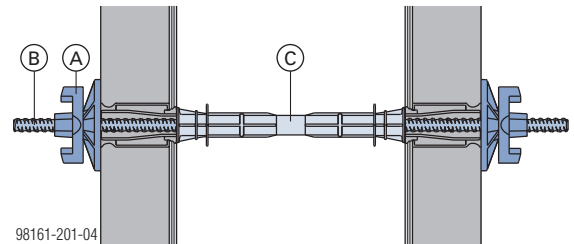


The Friction type ratchet SW27 or Box spanner 27 0.65m can be used for **low-noise releasing and tightening** of the following form-tie components:

- 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, Doka also offers a **distance piece** designed as an all-in-one form-tie distance tube.

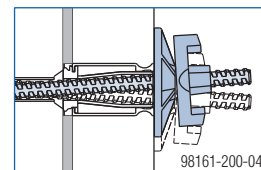


- A** Super plate 15.0
- B** Tie rod 15.0 mm
- C** Distance piece (ready-to-use for certain wall thicknesses)

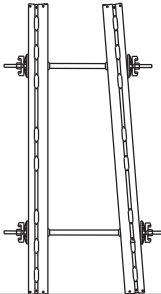
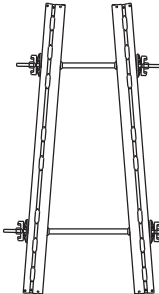
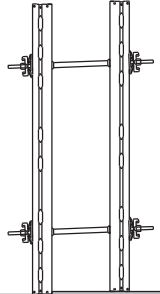
The plugs for sealing the ends of each distance piece are supplied with it.

Inclined and height-mismatched positioning

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



Limit-values when super plates are used

Conical on one 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
		
98161-210-01	98161-210-02	98161-210-03

Note:

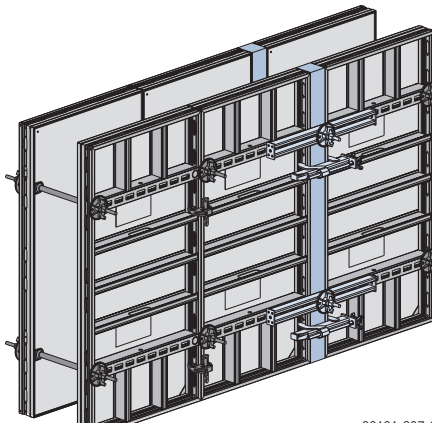
Secure inclined panels against uplift.

Length adjustment using closures

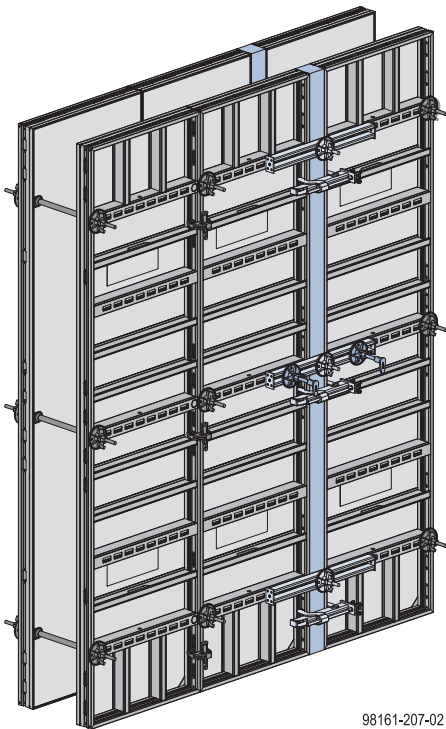
Closures: 0 - 15 cm

By combining fitting timbers with thicknesses of 2, 3, 5 and 10 cm, closures can be made in a 1 cm increment-grid.

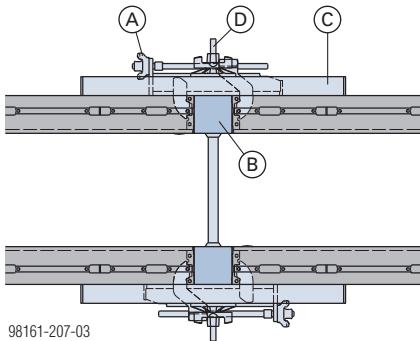
Frami universal waling:
Permitted moment: 1.3 kNm



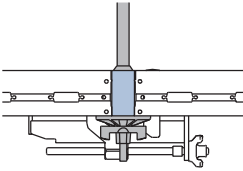
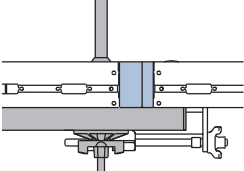
Shown here with DokaXlight panel 1.50m.

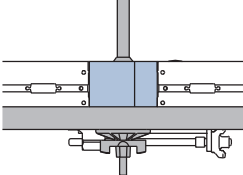


Shown here with DokaXlight panel 3.00m.

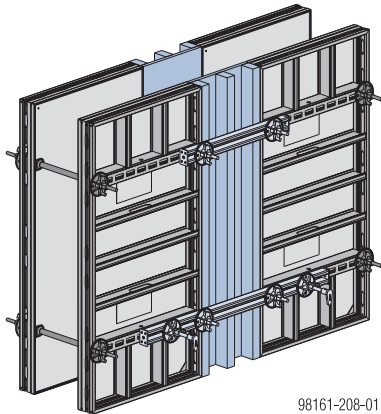


- A Frami adjustable clamp
- B DokaXlight fitting timber
- C Frami universal waling (for supporting form-ties)
- D Form tie

up to 5 cm closure	up to 7.5 cm closure
form tie in fitting timber without universal waling	form tie in the panel with universal waling
	

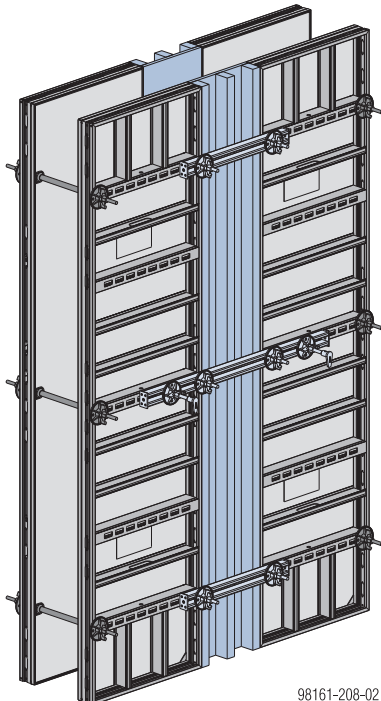
up to 15 cm closure
form tie in fitting timber with universal waling


Closures: 0 - 50 cm



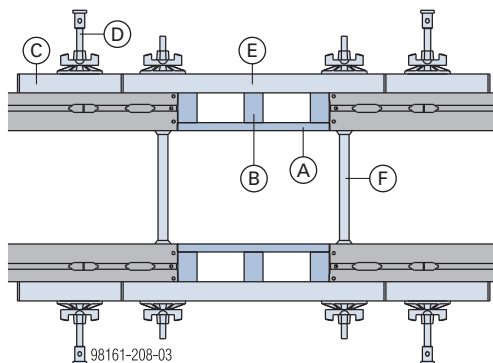
98161-208-01

Shown here with DokaXlight panel 1.50m.



98161-208-02

Shown here with DokaXlight panel 3.00m.



98161-208-03

- A Formwork sheet
- B Squared timber
- C Frami universal waling 1.25m
- D Universal clamp 5-10cm
- E Frami universal waling 0.70m
- F Tie rod

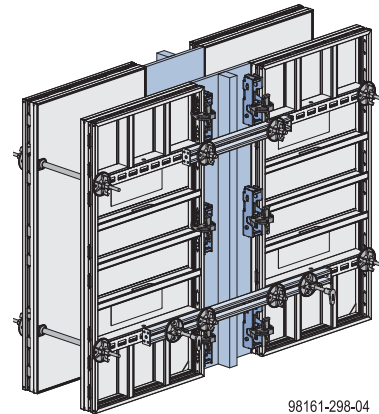


NOTICE

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

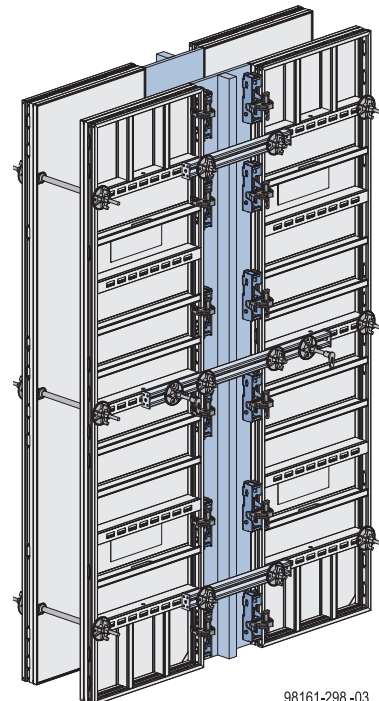
Closures: 15 - 50 cm

with Frami stacking angle and formwork sheet



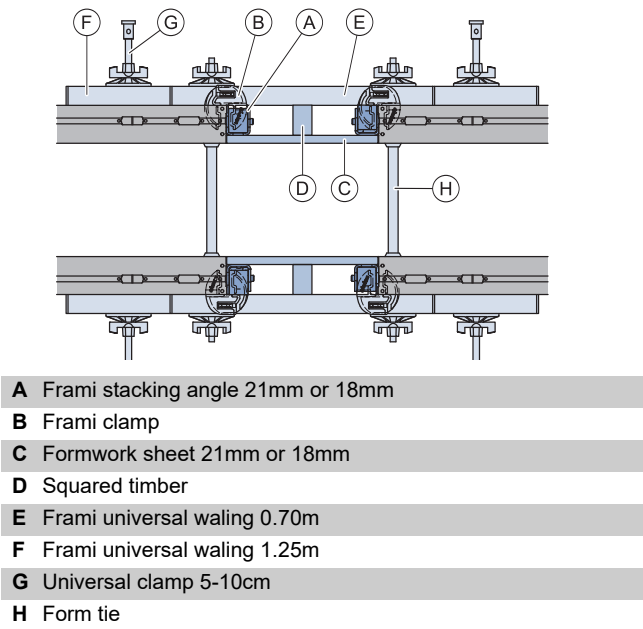
98161-298-04

Shown here with DokaXlight panel 1.50m.



98161-298-03

Shown here with DokaXlight panel 3.00m.



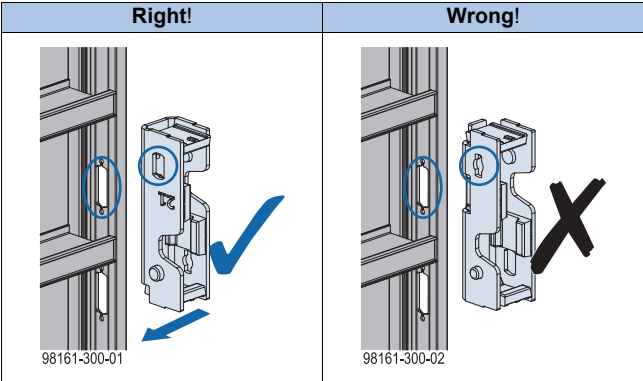
NOTICE

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

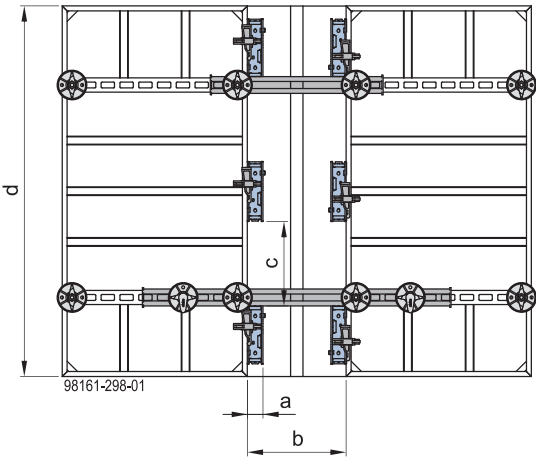


NOTICE

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)
- d ... 150 cm

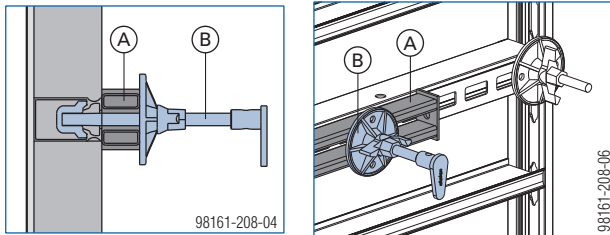
Required number of Frami stacking angles (per formwork side)

Panel height	Number of stacking angles / Frami clamps
1.00 m	4
1.50 m	6
3.00 m	10

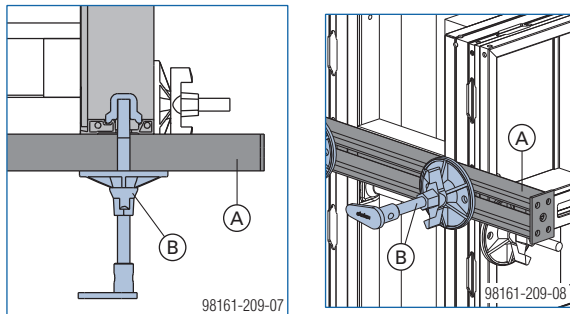
Securing universal walings

Clamp-on parts with an overall height of 5 to 10 cm can be clamped to the DokaXlight panels using the **universal clamp**. They can be clamped to the function profile or the frame profile.

Clamping to the function profile:



Clamping to the frame profile:



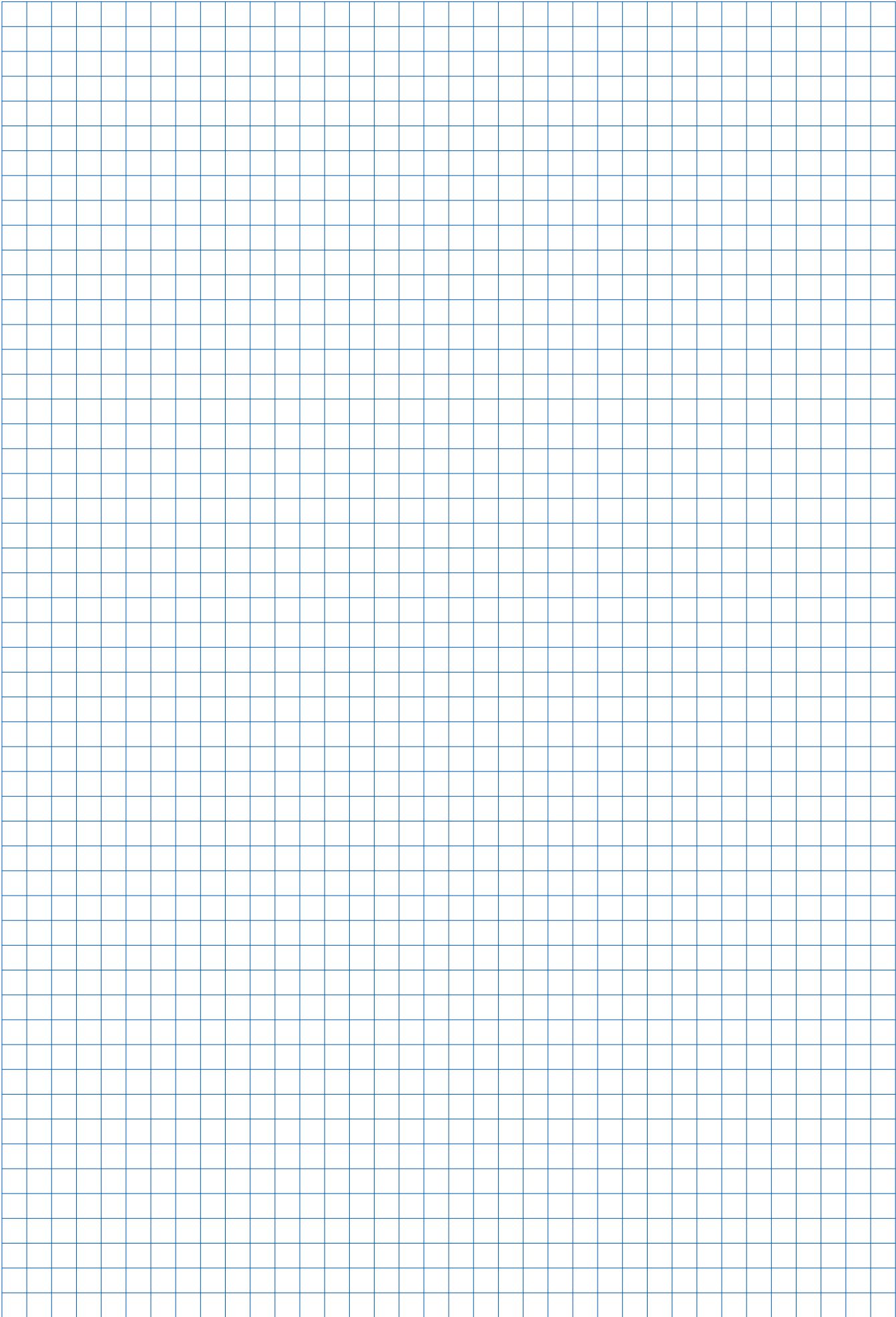
- A** Frami universal waling (overall height 5 cm)
or
Framax universal waling (overall height 10 cm)
B Universal clamp 5-10cm



In the illustrations in this document, universal clamps are shown only where they are statically required.

Additional universal clamps can be used as **installation or removal aids** for clamp-on parts.

Example closure: Securing the universal waling to the panel.



90 degree corners

General

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

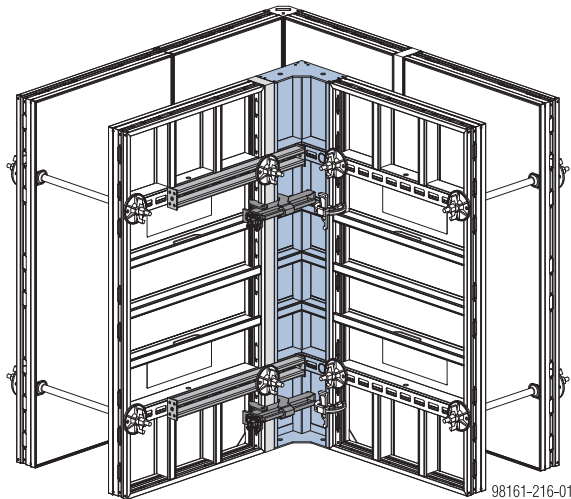
There are **2 ways** of forming right-angled **outside corners**:

- DokaXlight universal panel
- DokaXlight aluminium outside corner

Note:

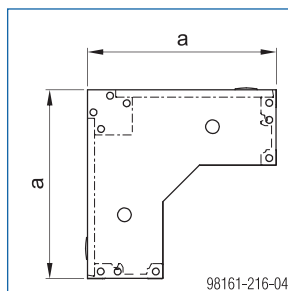
For details regarding additional inter-panel connections on outside corners (for increased tensile loads) see section [Inter-panel connections for increased tensile loads](#).

Inside corners



Shown here with DokaXlight panel 1.50m.

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



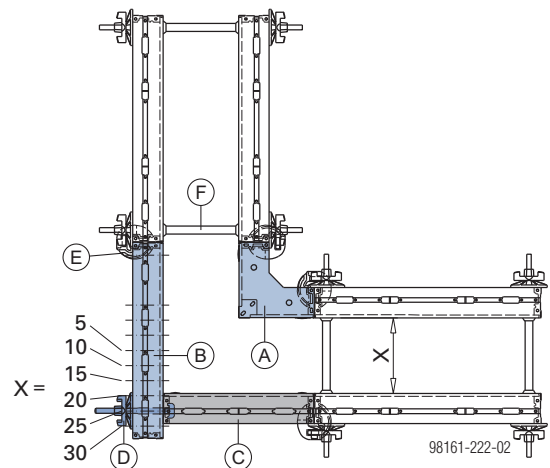
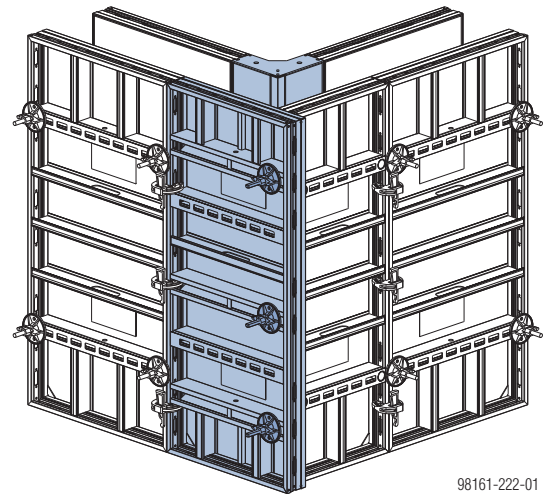
a ... 25 cm

The holes in the inside corner enable a vertical stacking connection to be made using bolts and nuts. Threaded-fastener material required:

- 2 hexagon bolts ISO 4017 M16x40
- 2 washers ISO 7089 16
- 2 hexagon nuts ISO 4032 M16

Outside corner with universal panel

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



X ... Achievable wall thicknesses in 5 cm grid

- A** DokaXlight inside corner
- B** DokaXlight universal panel
- C** DokaXlight panel
- D** Framax universal fixing bolt 10-16cm + Super plate 15.0
- E** Frami clamp
- F** Form tie

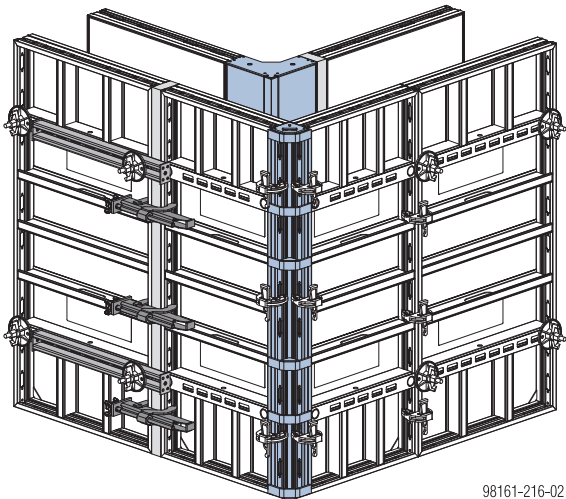
Note:

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

Number of connectors:

Panel height	Universal fixing bolts + Super plates 15.0
1.00m	2
1.50m	3
3.00m	6

Outside corner with DokaXlight
aluminium outside corner



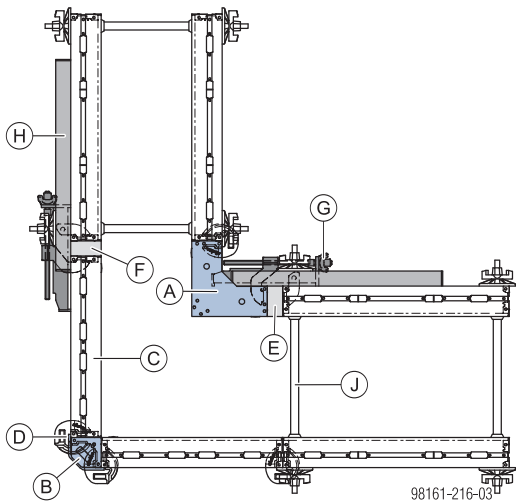
Shown here with DokaXlight panel 1.50m.
The **DokaXlight aluminium outside corner** permits corners to be formed even when space in the excavation is limited.

Required number of connectors when using Frami clamps, I-Connectors or DokaXlight clips:

	Up to wall thick- ness 30 cm	Up to wall thick- ness 57.5 cm
Aluminium outside corner 1.00m	4	4
Aluminium outside corner 1.50m	4	6
Aluminium outside corner 3.00m	8	12

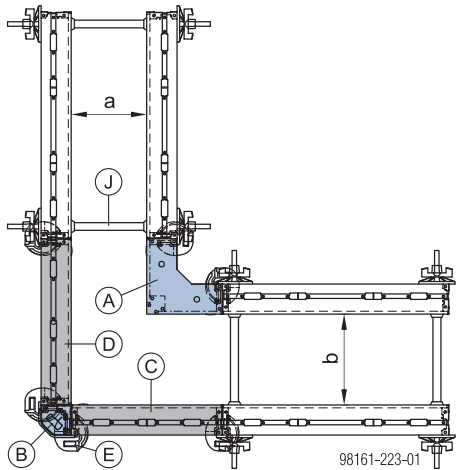
Practical examples

with closure



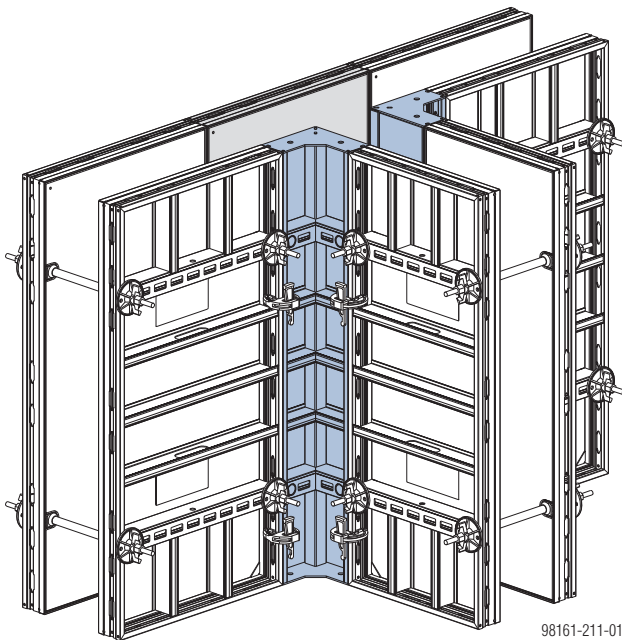
- A DokaXlight inside corner
- B DokaXlight aluminium outside corner
- C DokaXlight panel
- D Frami clamp
- E Fitting timber on the inside (max. 7.5 cm)
- F Fitting timber on the outside (max. 7.5 cm)
- G Frami adjustable clamp
- H Frami universal waling
- J Form tie

without closure



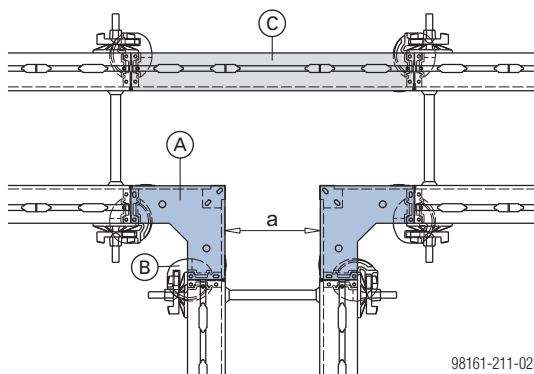
- a ... 25 cm
b ... 30 cm
- A DokaXlight inside corner
 - B DokaXlight aluminium outside corner
 - C DokaXlight panel 0.50m
 - D DokaXlight panel 0.55m
 - E Frami clamp
 - J Form tie

Example: T-junction



98161-211-01

Shown here with DokaXlight panel 1.50m.



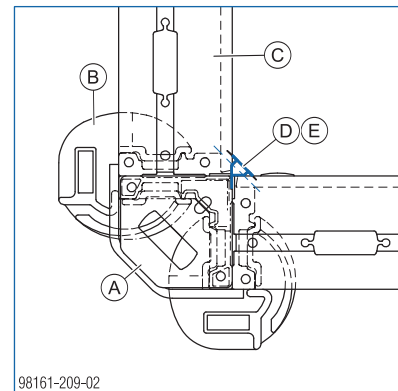
98161-211-02

a ... 25 cm

- A** DokaXlight inside corner
- B** Frami clamp
- C** DokaXlight panel 0.75m

Edges

with the Framax triangular ledge

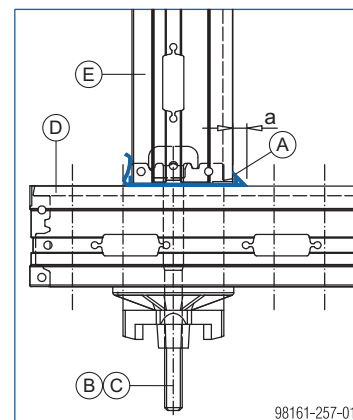


98161-209-02

- A** DokaXlight aluminium outside corner
- B** Frami clamp
- C** DokaXlight panel
- D** Framax triangular ledge
- E** Wire nail 22x40

with DokaXlight frontal triangular ledge 3.00m

The DokaXlight frontal triangular ledge 3.00m can be slipped over the front end of the panel without being nailed and is used with the universal panel to form outside corners (integral slot grid for universal fixing bolts).

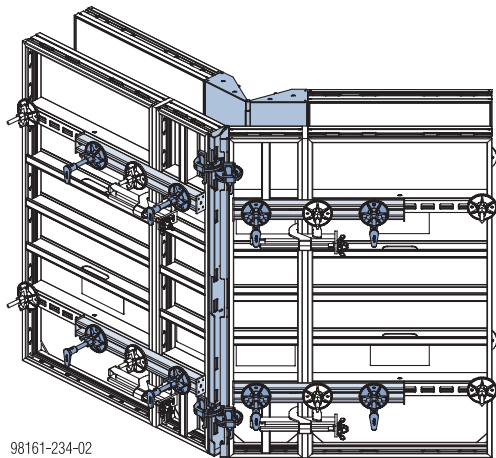
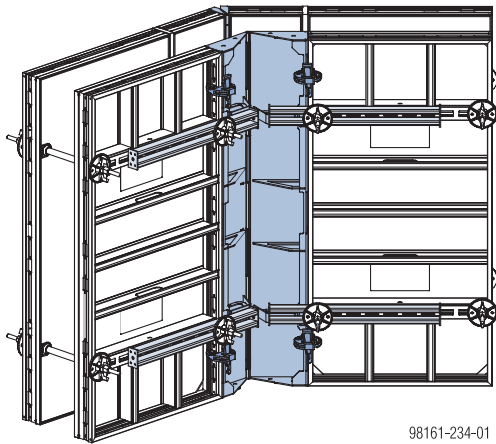


98161-257-01

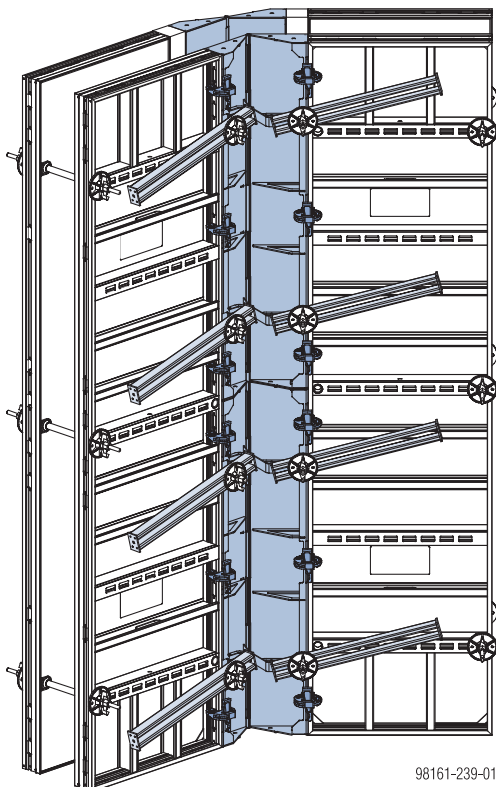
a ... 15mm

- A** DokaXlight frontal triangular ledge 3.00m
- B** Framax universal fixing bolt 10-16cm
- C** Super plate 15.0
- D** DokaXlight universal panel
- E** DokaXlight panel

Acute & obtuse-angled corners



Shown here with DokaXlight panel 1.50m.



Shown here with DokaXlight panel 3.00m.

DokaXlight also has the perfect solution for acute and obtuse-angled corners - the hinged corners.

Panel height of the hinged corners:

- 1.50m

The holes in the Hinged inside corner I enable a vertical stacking connection to be made using bolts and nuts.

Bolting items required:

- 2 x hexagon bolt ISO 4017 M16x40
- 2 x washer ISO 7089 16
- 2 x hexagon nut ISO 4032 M16

Hinged inside corner I	Hinged outside corner A
98161-235-01 a ... 0.7 cm b ... 24.3 cm	98161-235-02 a ... 0.85 cm



NOTICE

Whenever geometrically possible, tying through the Hinged inside corner I is preferable.

Number of universal walings in the outside or inside corner:

Panel height of the hinged corner	Number of universal walings
1.50 m	4

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 Hinged inside corners I.



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 of the hinged corner	Width of panel next to hinged outside corner	
	up to 60 cm	up to 75 cm
1.50 m	4	6



NOTICE

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

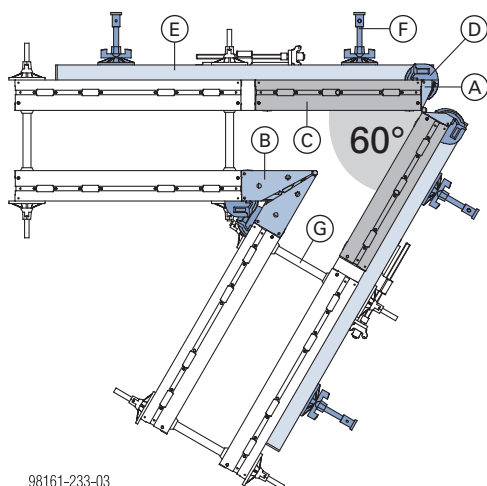


CAUTION

Tightening can cause the hammer head to twist out of position.

- When using DokaXlight I-Connectors, make sure that everything is secure.

60° - 135° angles, with Hinged inside corner I and Hinged outside corner A



98161-233-03

A DokaXlight hinged outside corner A

B DokaXlight hinged inside corner I

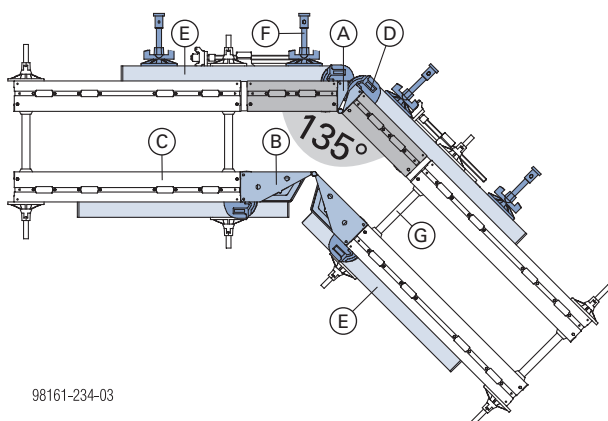
C DokaXlight panel

D Frami clamp

E Frami universal waling 1.25m

F Universal clamp 5-10cm

G Form tie



98161-234-03

A DokaXlight hinged outside corner A

B DokaXlight hinged inside corner I

C DokaXlight panel

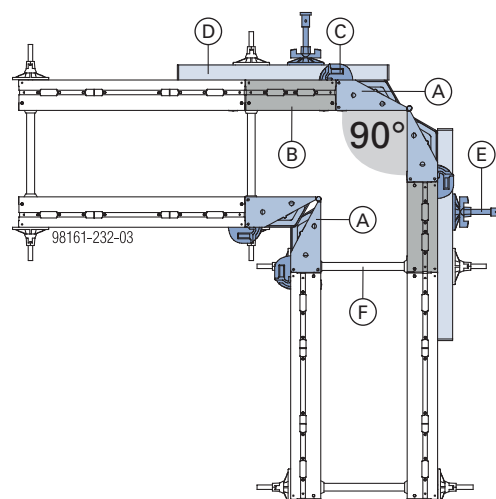
D Frami clamp

E Frami universal waling

F Universal clamp 5-10cm

G Form tie

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



98161-232-03

A DokaXlight hinged inside corner I

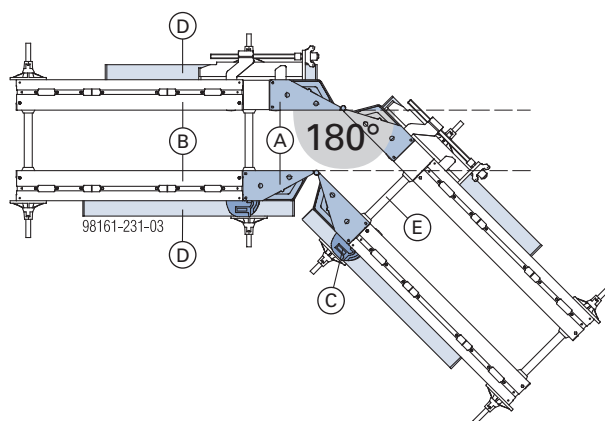
B DokaXlight panel

C Frami clamp

D Frami universal waling

E Universal clamp 5-10cm

F Form tie



98161-231-03

A DokaXlight hinged inside corner I

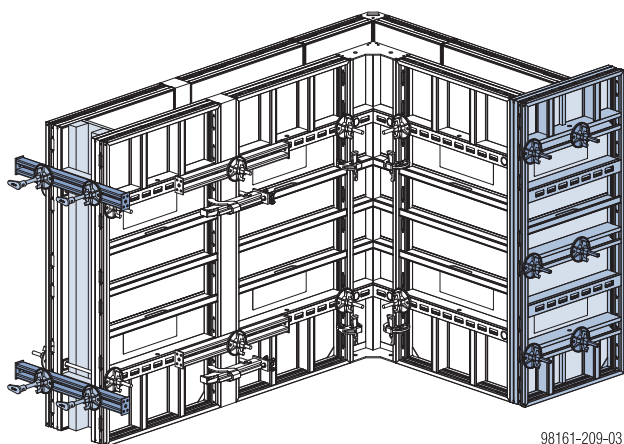
B DokaXlight panel

C Frami clamp

D Frami universal waling

E Form tie

Stop-end formwork



98161-209-03

Shown here with DokaXlight panel 1.50m.

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

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

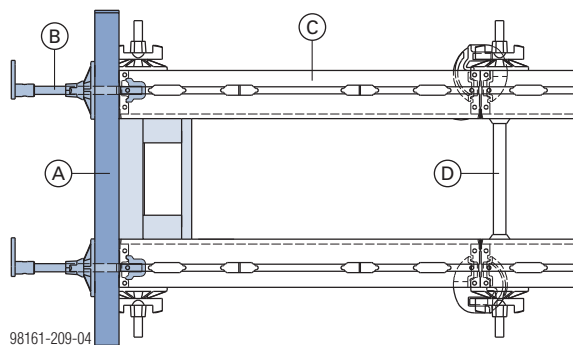


NOTICE

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

with universal walings

The universal waling makes it possible to precision-form continuously adjusted stop-ends across any wall thickness. Universal clamps 5-10cm are used for assembly.



98161-209-04

- A Frami universal waling
- B Universal clamp 5-10cm
- C DokaXlight panel
- D Form tie

Frami universal waling:

Permitted moment: 1.3 kNm

Universal clamp 5-10cm:

Permitted tensile load:

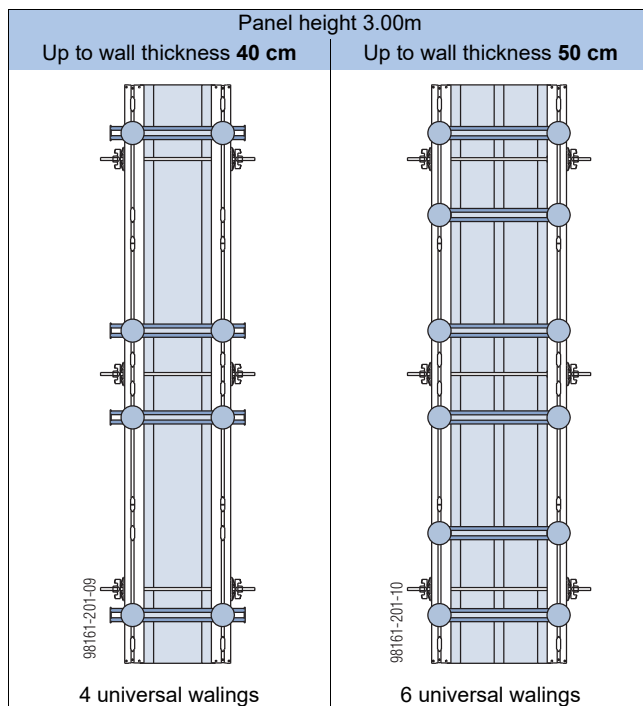
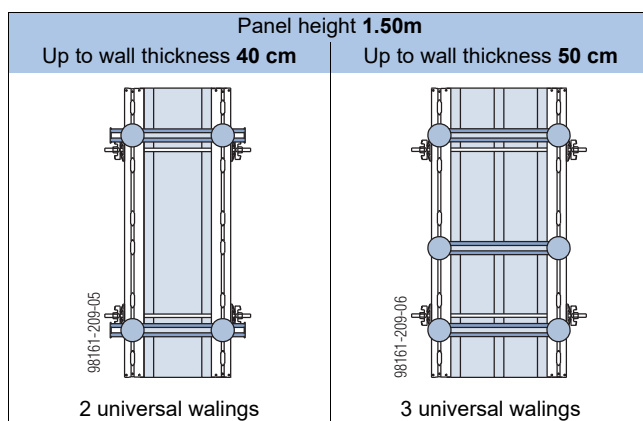
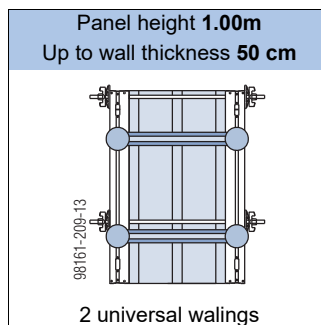
10.5 kN (when used in DokaXlight panels)



Instead of the Frami universal waling, the **foundation clamp** can also be used for the stop-end formwork.

Framax foundation clamp 0.90m:
Permitted moment: 1.3 kNm

Number and position of universal walings:

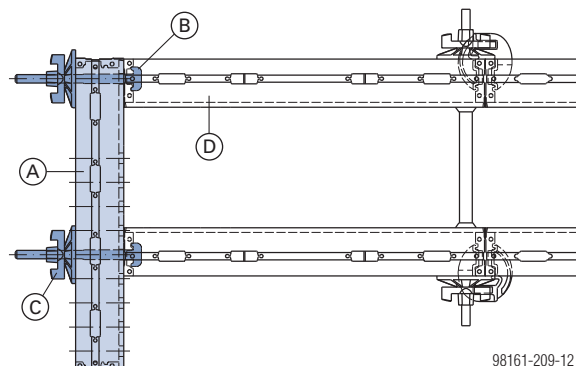


For wall thicknesses over 50 cm, use the **Framax universal waling** instead of Frami. Static analysis is required!

with a DokaXlight universal panel

The 5 cm hole-grid of the DokaXlight universal panels can be used to form stop-ends for **wall thicknesses of up to 45 cm**.

Make the connection to the DokaXlight panel with Framax universal fixing bolts 10-16cm and Super plates 15.0.



98161-209-12

- A** DokaXlight universal panel
- B** Framax universal fixing bolt 10-16cm
- C** Super plate 15.0
- D** DokaXlight panel

Note:

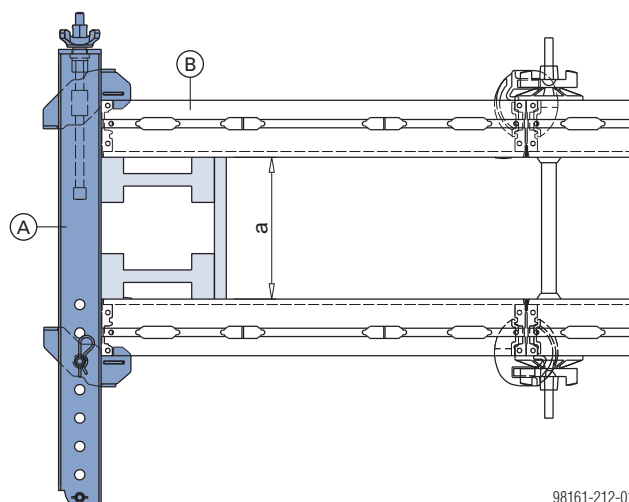
Close off unneeded grid holes in the form-facing of the DokaXlight universal panels with **DokaXlight plugs**.

Number of connectors:

Panel height	Universal fixing bolts + Super plates 15.0
1.00m	4
1.50m	6
3.00m	12

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.



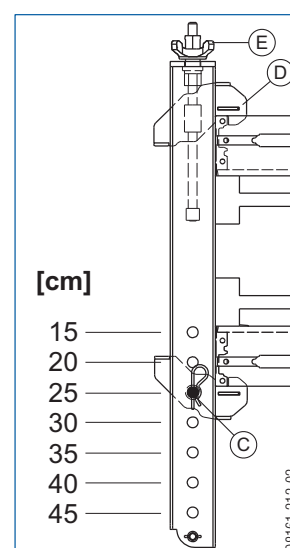
98161-212-01

a ... 15 to 45 cm

- A** Frami stop-end waler tie 15-45cm
- B** DokaXlight panel

Installation:

- Fix the required wall thickness with a spar-pin.
- Position the stop-end waler tie on the formwork.
- Fine-adjust the screwjack clamp with the star grip nut, and tighten it.



98161-212-02

- C** Spar-pin
- D** Screwjack clamp
- E** Star grip nut

Number and position of stop-end waler ties:

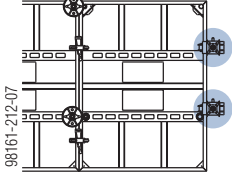
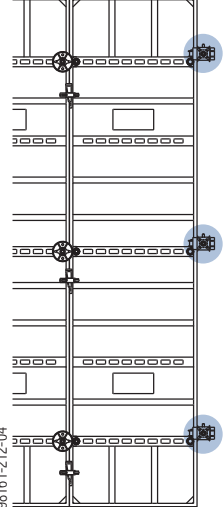
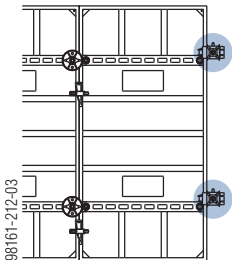
Required number of stop-end waler ties:

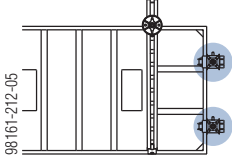
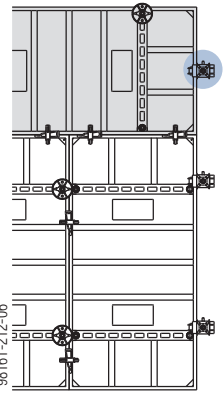
Panel height (upright panels)	Frami stop-end waler tie
1.00m	2
1.50m	2
3.00m	3

Panel width (panel on its side)	Frami stop-end waler tie
0.30 to 0.75m	1*)

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

Positions of the stop-end waler ties:

Panel height 1.00 m	Panel height 3.00 m
	
Panel height 1.50 m	
	

up to a panel width of 0.75 m	
Panel on its side in foundation formwork (single panel)	Panel on its side in vertical stacking configuration
	

Inter-panel connections for increased tensile loads

As a rule, the number of connectors needed to link the panels is pre-defined (see the following table from section [Inter-panel connections](#)).

Required number of connectors (longitudinal joints):

Panel height (upright panels)	Number of connectors
1.00 m	2
1.50 m	2
3.00 m	3



NOTICE

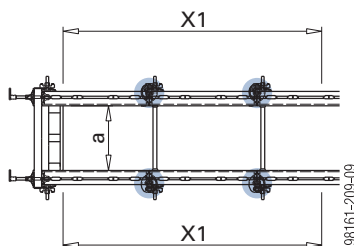
Where **increased tensile loads** need to be withstood near outside corners and stop-ends, **additional inter-panel connections are needed**.

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 50 cm

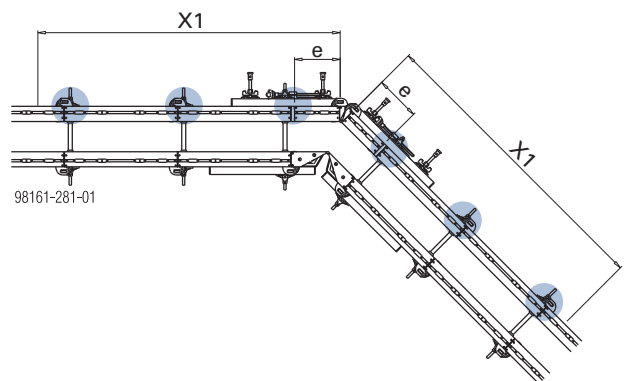
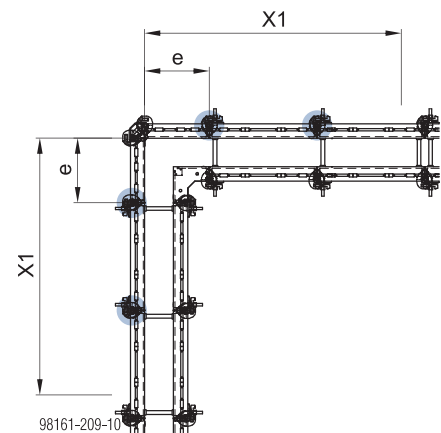


a ... 40 cm to 50 cm

Panel height	Number of connectors: in zone 'X1' (inter-panel joints up to 1.8 m from a stop-end)
1.00 m	2
1.50 m	2
3.00 m	3 + 1

Near outside corners

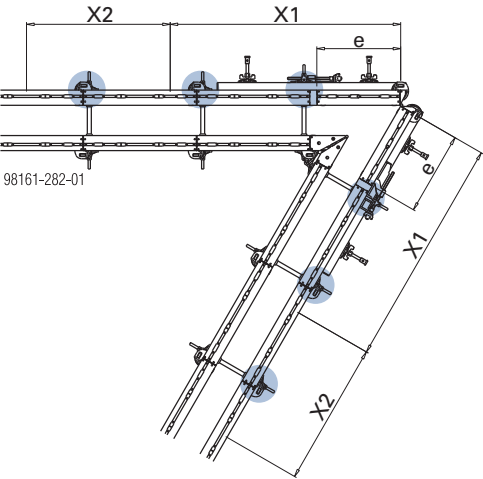
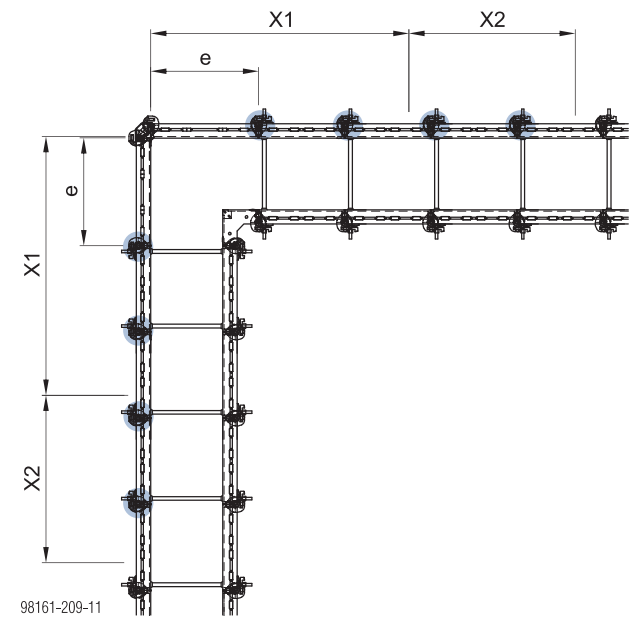
for panel widths up to 60 cm



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

Panel height	Number of connectors in zone 'X1' (inter-panel joints up to 1.8 m from an outside corner)
1.00 m	2
1.50 m	2
3.00 m	3 + 1

for panel widths from 60 cm to 75 cm

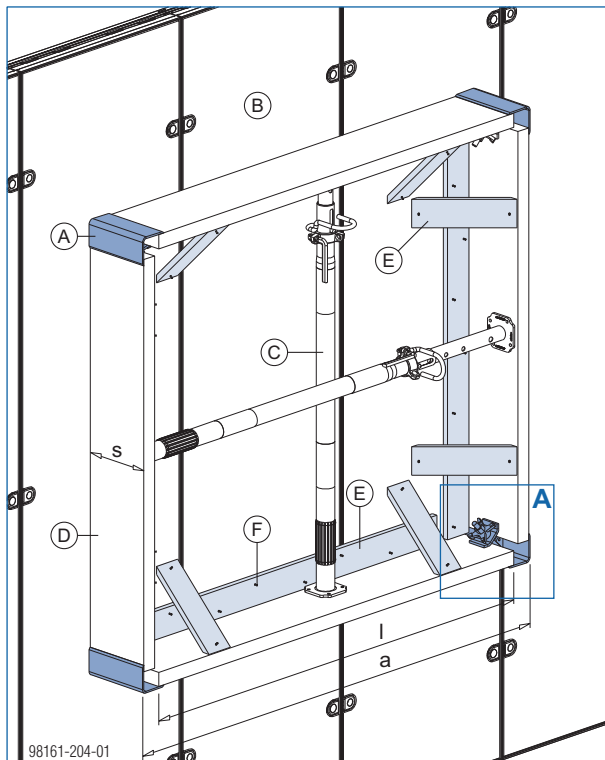


e ... > 60 cm to 75 cm (panel width)

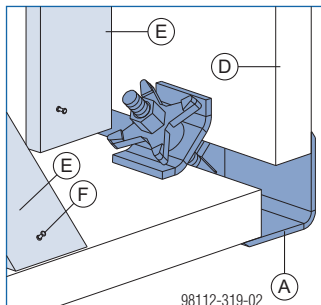
Panel height	Number of connectors	
	in zone 'X1' (inter-panel joints up to 1.8 m from an outside corner)	in zone 'X2' (inter-panel joints between 1.8 m and 3.0 m from an outside corner)
1.00 m	2	2
1.50 m	2 + 1	2
3.00 m	3 + 2	3 + 1

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 using 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 DokaXlight panel
- C Doka floor prop
- D Plank (wall thickness/2-5 cm)
- E Board (10/3 cm)
- F Double-headed nail

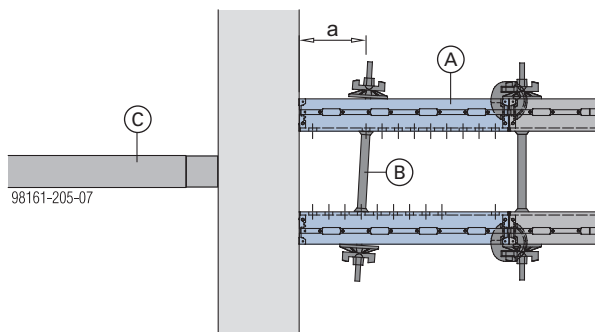
Installation:

- 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).

Wall junctions

Right-angled connections

with a DokaXlight universal panel



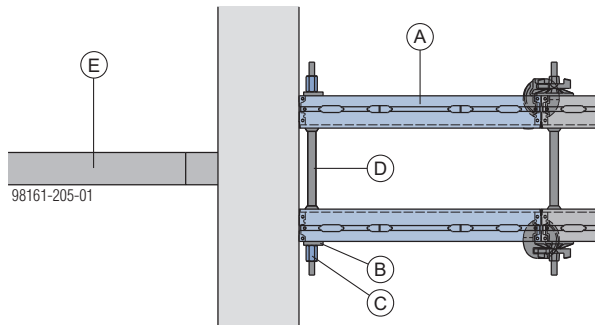
a ... max. 20 cm

- A** DokaXlight universal panel
- B** Form tie
- C** Timber brace

Number of form ties in universal panel:

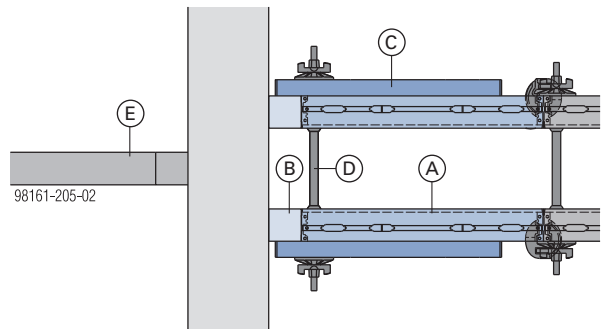
Panel height	Number of ties
1.00 m	2
1.50 m	3
3.00 m	6

with Frami pressure plate 8/9



- A** DokaXlight panel
- B** Frami pressure plate 8/9
- C** Hexagon nut 15.0
- D** Doka tie rod system 15.0mm
- E** Timber brace

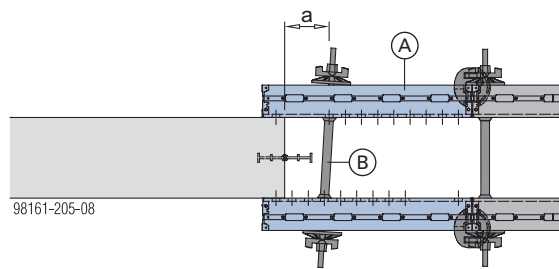
with squared timber



- A** DokaXlight panel
- B** Squared timber (min. 3.0 cm up to max. 10 cm)
- C** Frami universal waling (not necessary with squared timbers up to 5 cm wide)
- D** Form tie
- E** Timber brace

In-line connections

with a DokaXlight universal panel



a ... max. 15 cm

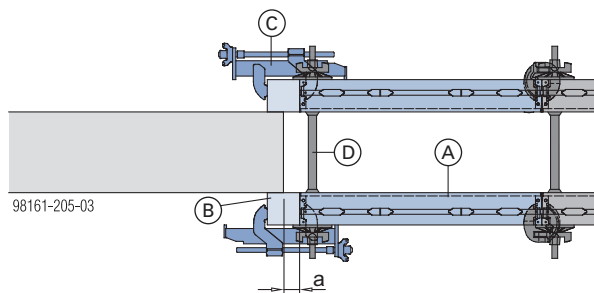
A DokaXlight universal panel

B Form tie

Number of form ties in universal panel:

Panel height	Number of ties
1.00 m	2
1.50 m	3
3.00 m	6

with squared timber



a ... max. 5 cm

A DokaXlight panel

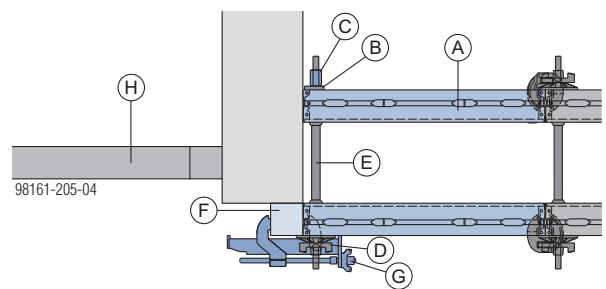
B Squared timber

C Frami adjustable clamp

D Form tie

Corner connections

without closure



A DokaXlight panel

B Frami pressure plate 8/9

C Hexagon nut 15.0

D Super plate 15.0

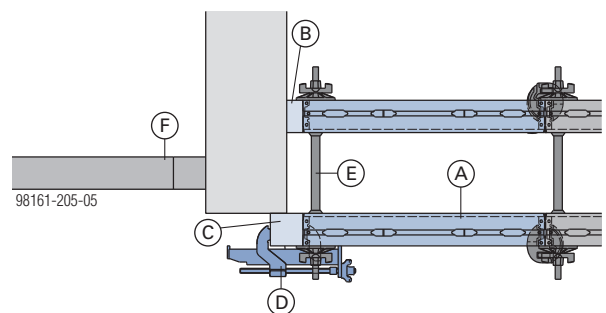
E Doka tie rod system 15.0mm

F Squared timber

G Frami adjustable clamp

H Timber brace

with closure



A DokaXlight panel

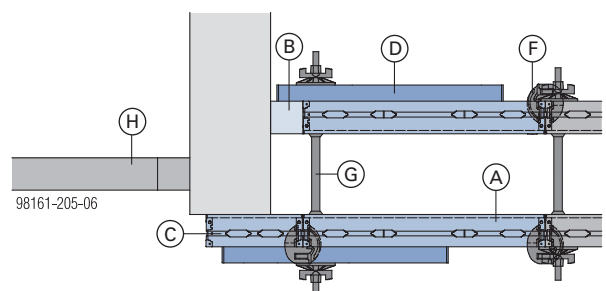
B Squared timber (min. 3 cm up to max. 5 cm)

C Squared timber

D Frami adjustable clamp

E Form tie

F Timber brace



A DokaXlight panel

B Squared timber (min. 3 cm up to max. 10 cm)

C DokaXlight panel 0.30m

D Frami universal walings (not necessary with squared timbers up to 5 cm wide)

F Frami clamp

G Form tie

H Timber brace

Vertical stacking of panels

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

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

Frami clamp:

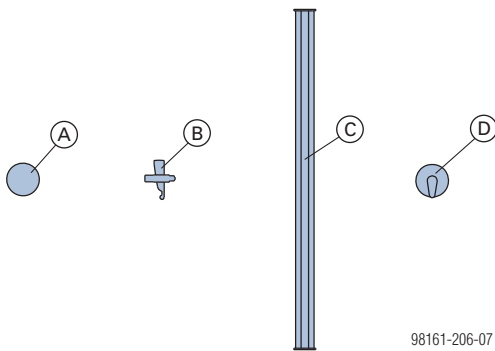
Permitted tensile force: 10.0 kN

Permitted shear force: 5.0 kN

Permitted moment: 0.2 kNm

Frami universal waling:

Permitted moment: 1.3 kNm



98161-206-07

A Tie rod 15.0mm + Super plate 15.0

B Frami clamp or DokaXlight I-Connector

C Frami universal waling 1.25m

D Universal clamp 5-10cm

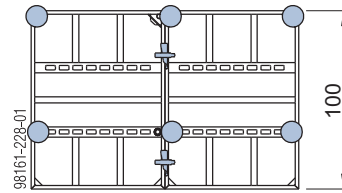


NOTICE

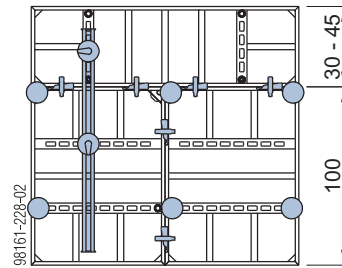
Do not oil or grease wedged connections.

Examples of combinations

Formwork height: 100 cm

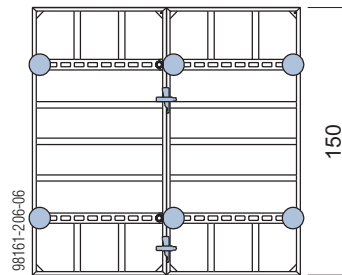


Formwork height: 130 and 145 cm *)

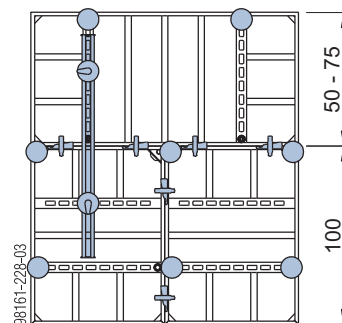


*) Universal waling needed only when pouring platforms are used and panel bracing is secured to the bottom panel.

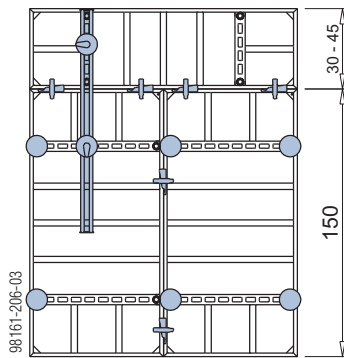
Formwork height: 150 cm



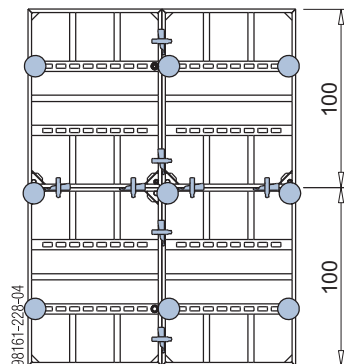
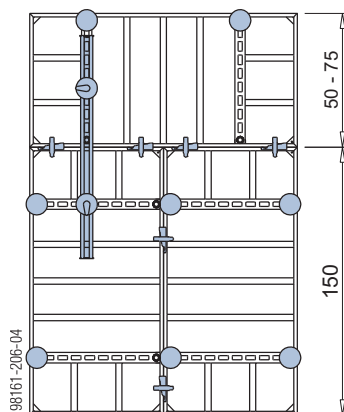
Formwork height: 150, 155, 160 and 175 cm*)



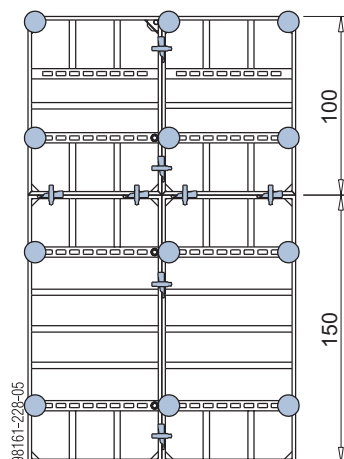
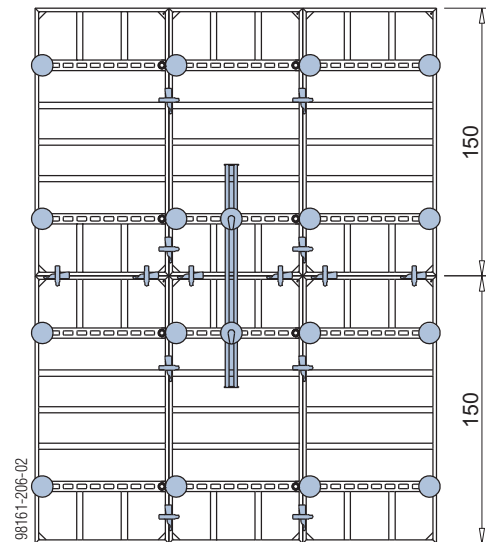
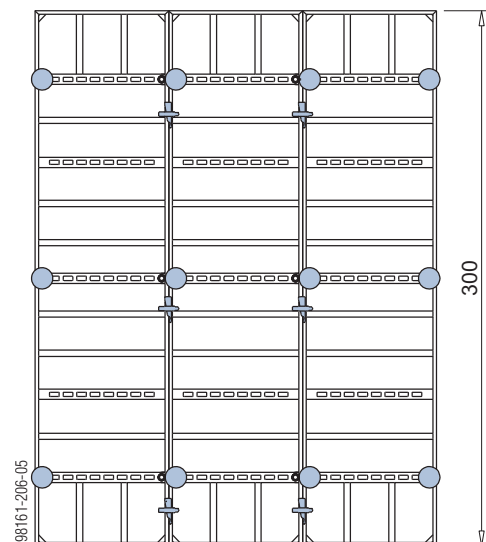
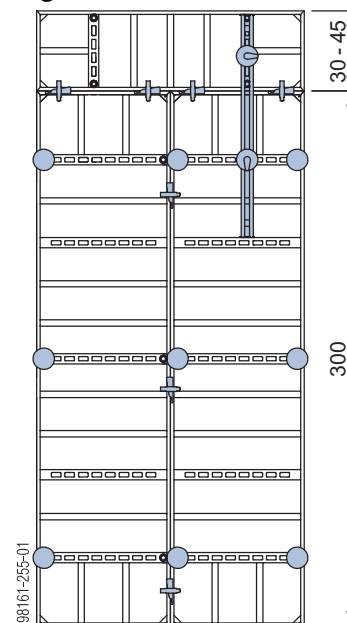
*) Universal waling needed only when pouring platforms are used and panel bracing is secured to the bottom panel.

Formwork height: 180 and 195 cm *)

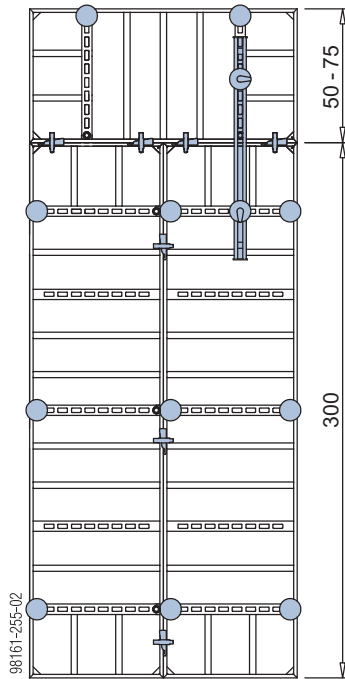
*) Universal waling needed only when pouring platforms are used and panel bracing is secured to the bottom panel.

Formwork height: 200 cm**Formwork height: 200, 205, 210 and 225 cm*)**

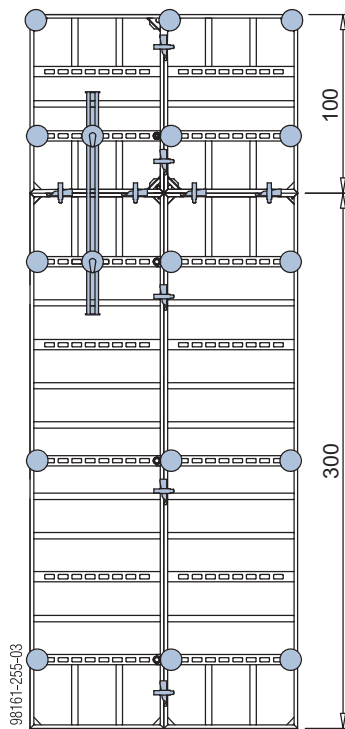
*) Universal waling needed only when pouring platforms are used and panel bracing is secured to the bottom panel.

Formwork height: 250 cm**Formwork height: 300 cm****Formwork height: 300 cm****Formwork height: 330 and 345 cm *)**

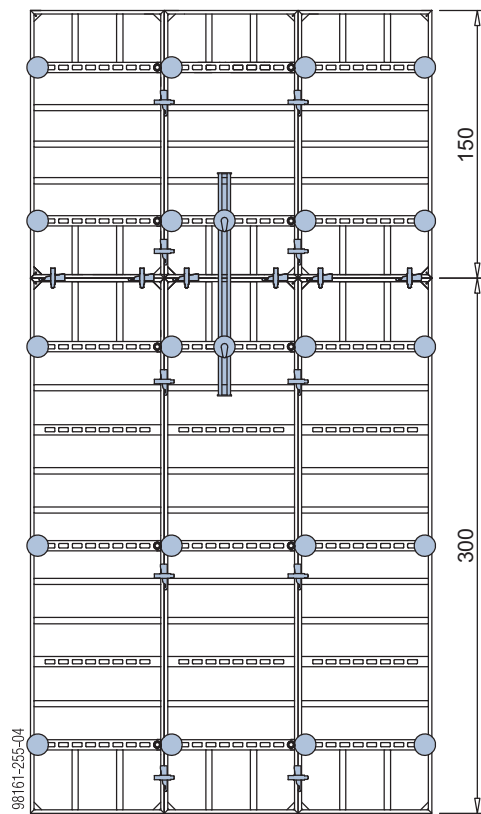
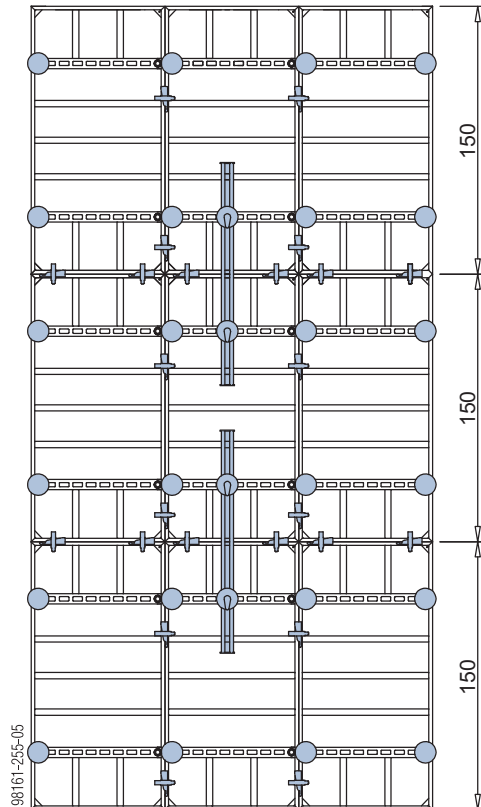
*) Universal waling needed only when pouring platforms are used and panel bracing is secured to the bottom panel.

Formwork height: 350, 355, 360 and 375 cm *)

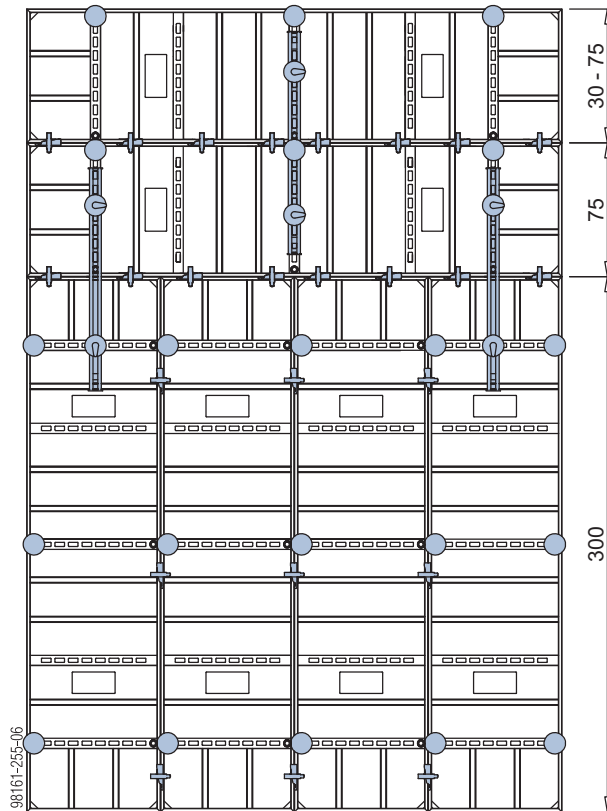
*) Universal waling needed only when pouring platforms are used and panel bracing is secured to the bottom panel.

Formwork height: 400 cm *)

*) Universal waling needed only when pouring platforms are used and panel bracing is secured to the bottom panel.

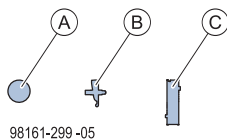
Formwork height: 450 cm**Formwork height: 450 cm**

**Formwork height: 405, 420, 425, 430, 435
and 450 cm**



Vertical stacking with Frami stacking angle and formwork sheet

The Frami stacking angle can be used to sheet 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
98161-299-04 a ... max. 100 mm b ... 21 mm or 18 mm c ... 75 mm	98161-299-03 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



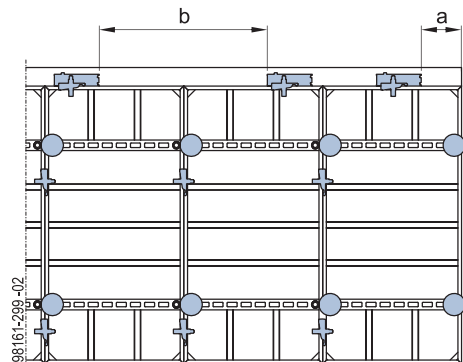
WARNING

Falling hazard if Frami lifting hooks not positioned in accordance with correct procedure!

► Before repositioning by crane, remove the 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

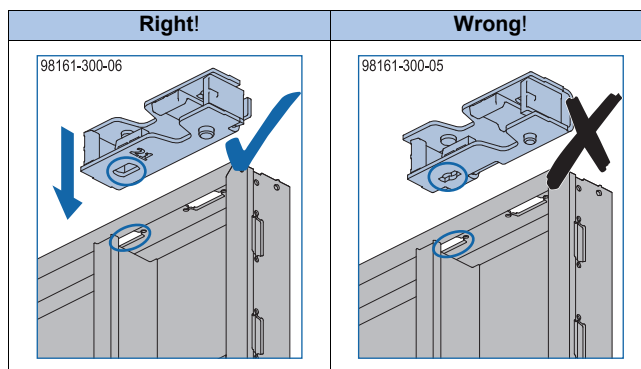


a ... min. 10 cm / max. 30 cm
b ... max. 100 cm

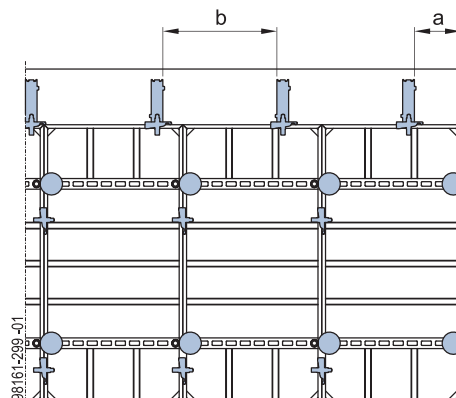


NOTICE

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



Stacking angle upright - up to 30 cm

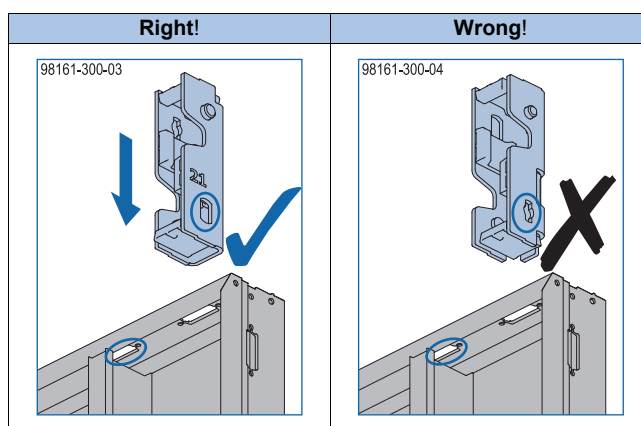


a ... min. 10 cm / max. 25 cm
b ... max. 70 cm



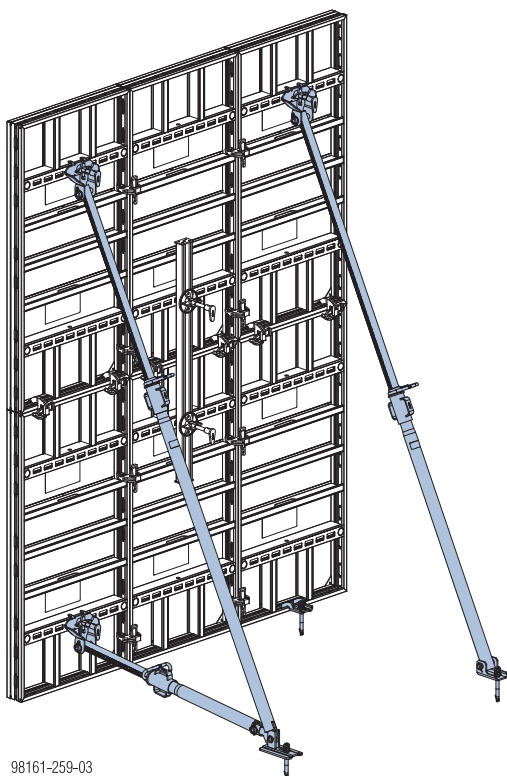
NOTICE

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 DokaXLight panel!

Plumbing accessories



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

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



WARNING

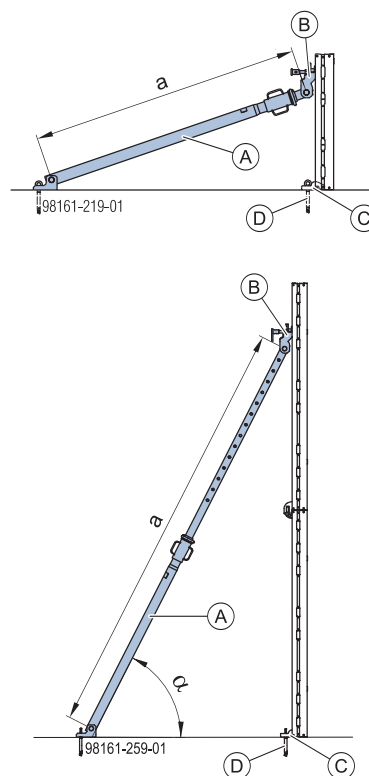
Risk of the formwork tipping over!

- 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
- The safety pin is only for rough adjustment of the plumbing accessory. Do not attempt to remove or release the safety pin under load.

Plumbing strut 260



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

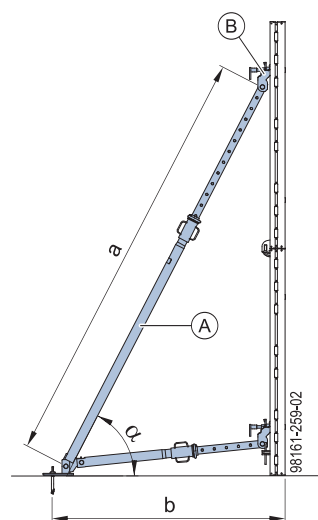
A Plumbing strut 260 IB

B DokaXlight prop head EB

C Frami floor fixing plate

D Doka express anchor 16x125mm

Panel strut 340

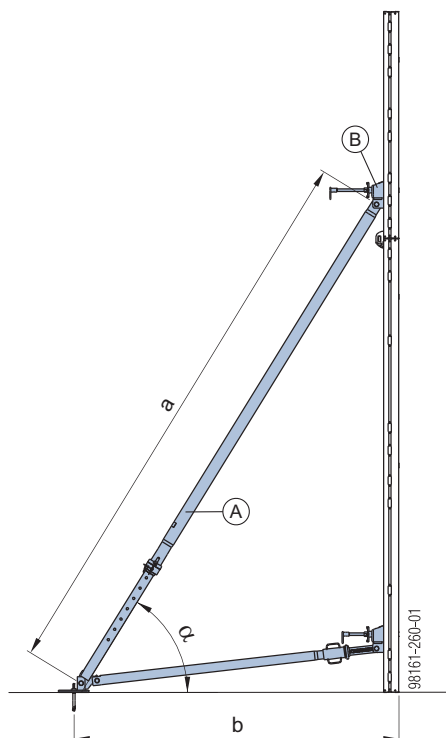


a ... min. 191 cm, max. 341 cm
b ... min. 120 cm - max. 164 cm
α ... approx. 60°

A Panel strut 340 IB

B DokaXlight prop head EB

Panel strut 540



a ... min. 309 cm, max. 550 cm
b ... min. 192.5 cm - max. 248.9 cm
α ... approx. 60°

A Panel strut 540 IB

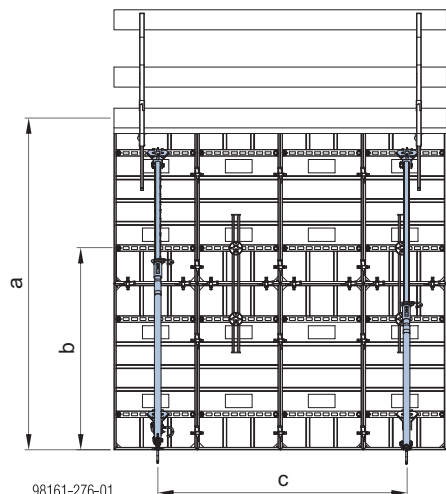
B Prop head EB

Structural design

The values apply for a wind pressure of $w_e = 0.65 \text{ kN/m}^2$. 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 struts 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**.

Plumbing strut 260 + DokaXlight prop head:

Formwork height 'a' [m]	Connection height 'b' [m]	Perm. spacing 'c' [m]
1.80	1.60	2.50
1.95		
2.00		
2.05		
2.10	1.75	2.25
2.25		
2.50 (1.50+1.00m panel)	2.18	1.50
3.00 (1.50+1.50m panel)		
3.00 (3.00m panel)	2.15	1.80

Max. prevailing anchoring load:

$F_{\text{exist}} = 6.5 \text{ kN}$ (actual load)

$F_d = 9.8 \text{ kN}$ (design value incl. safety factors)

Panel strut 340 + DokaXlight prop head:

Formwork height [m]	Connection height [m]	Perm. spacing [m] at 6.5 kN
2.10	1.85	2.50
2.25	1.85	
2.50	2.18	
3.00 (1.50+1.50m panel)	2.62	2.25
3.00 (3.00m panel)		
3.30		1.80
3.45		
3.50		1.50
3.55		
3.60		
3.75		

Max. prevailing anchoring load:

$F_{\text{exist}} = 6.5 \text{ kN}$ (actual load)

$F_d = 9.8 \text{ kN}$ (design value incl. safety factors)

Panel strut 540 + Prop head EB:

Formwork height [m]	Connection height [m]	Perm. spacing [m]
4.00	3.32	2.50
4.50		2.00

Max. prevailing anchoring load:

$F_{\text{exist}} = 9.5 \text{ kN}$ (actual load)

$F_d = 14.3 \text{ kN}$ (design value incl. safety factors)

Example: Where the formwork height is 3.00 m (1.50+1.50m panel), the following are needed for every 3.75 m wide gang-form:

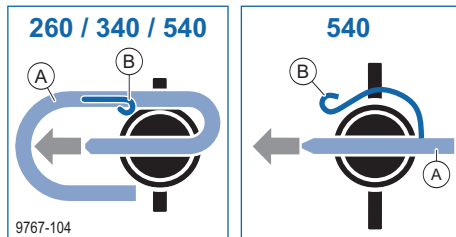
- 3 plumbing struts + DokaXlight prop head
- Connection height: 1.85 m

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.

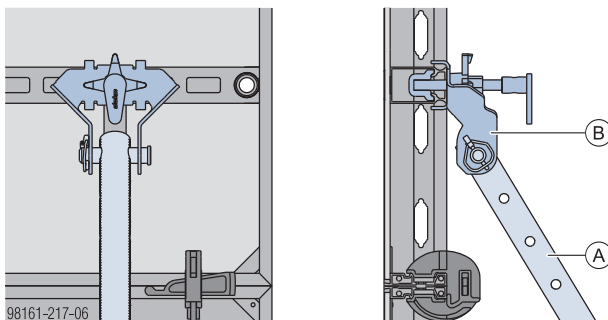


- The safety pin **(A)** must be fully inserted into the plumbing accessory and secured in this position by the locking spring **(B)**.
- The function of the locking spring **(B)** must be ensured.



Fixing the struts to the formwork

- ▶ Install the prop head on the **function profile**.



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

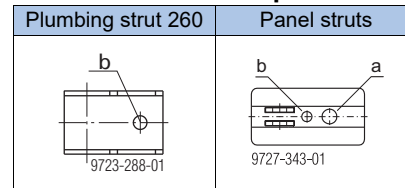


The **Prop head EB** can be used instead of the DokaXlight prop head EB.

Fixing to the ground

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

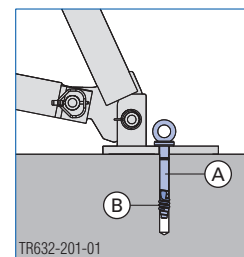
Drilled holes in baseplate



- 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: $f_{ck, cube, current} = \min. 15 \text{ N/mm}^2$ (corresponds to B15)



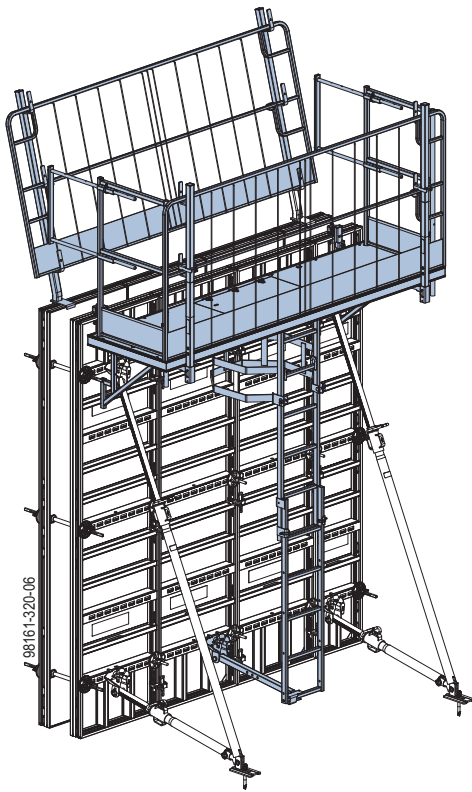
Follow the directions in the 'Doka express anchor 16x125mm' User Information booklet!

Required load-bearing capacity of alternative anchoring elements:

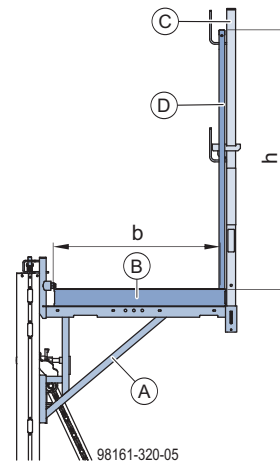
Max. anchoring load must be in accordance with the tables in the section headed 'Structural design'.

Follow the manufacturers' applicable fitting instructions.

Pouring platforms with single brackets



Xsafe bracket system



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

- A** DokaXlight bracket XBS 75
- 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



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 the formwork, see section [Closing the formwork](#).

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.



WARNING

Risk of the formwork tipping over!

- Gang-forms with pouring platforms and Plumbing struts 260, when without the opposing formwork, must be secured to the ground.

Suitable possibilities:

- with Frami floor fixing plates and Doka express anchors 16x125mm

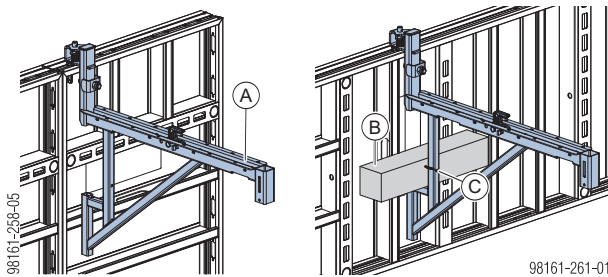
Fitting brackets

Mounting options for the bracket:

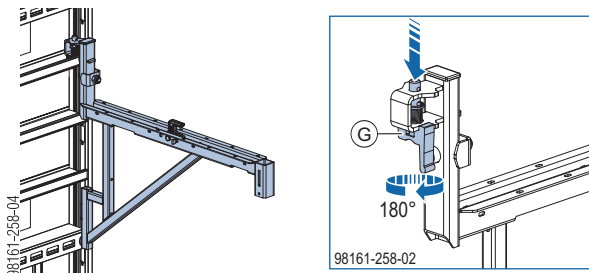
Horizontal frame profile*)

Panel upright

Panel on its side



Vertical frame profile*)



*) also possible at the inter-panel joint

A DokaXlight bracket XBS 75

B Squared timber 10x10 cm

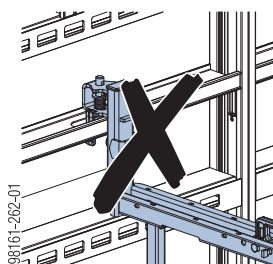
C Universal countersunk screw 5x60

G Suspension bolt

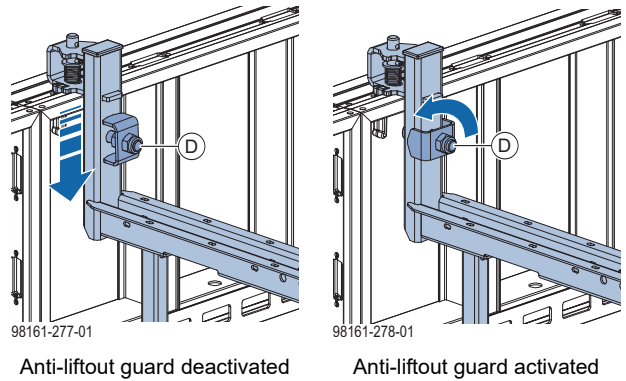


NOTICE

- Check the possible suspension position dictated by the toothed strip of the deck XBS!
- 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!
- It is not permissible to use the handle in the **cross profile** as suspension point for the bracket!

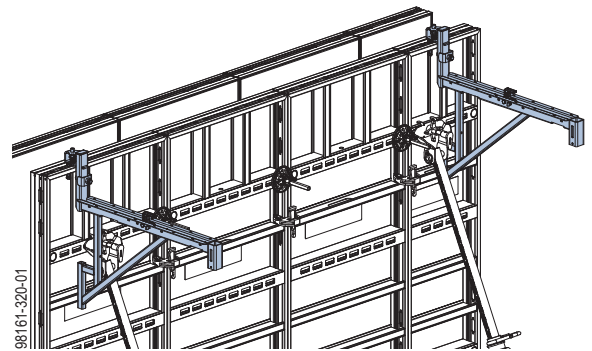


- When installing in the vertical frame profile, press the suspension bolt of the bracket down and twist through 180° until it engages in the new position.
- Engage the DokaXlight bracket XBS 75 in the upright gang-form with the anti-liftout guard (D) 'deactivated'.
- Activate the anti-liftout guard (D) by turning it 90°.



Anti-liftout guard deactivated

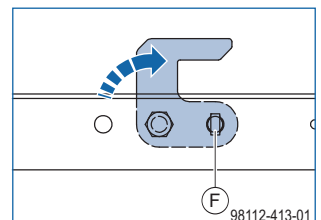
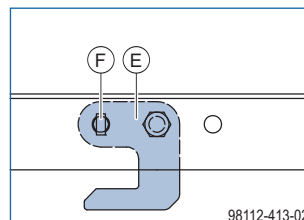
Anti-liftout guard activated



- 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 planks

Operational position for deck XBS



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

The wooden planks are secured from below using wood screws.

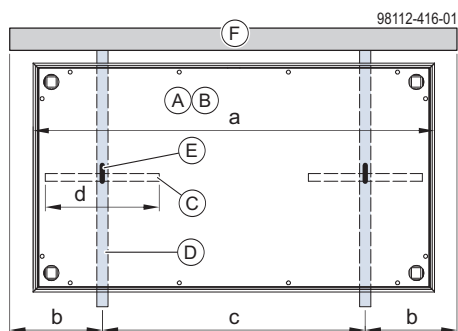
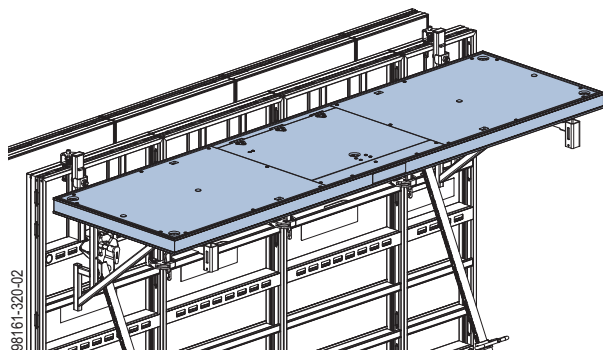
In this case the securing hook remains in parking position.

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

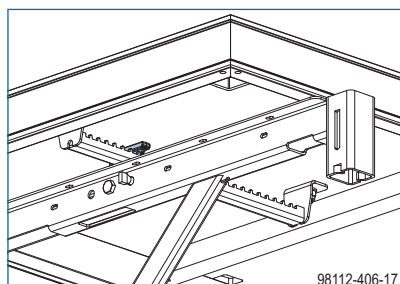
D Bracket XBS

E Securing hook of the bracket XBS

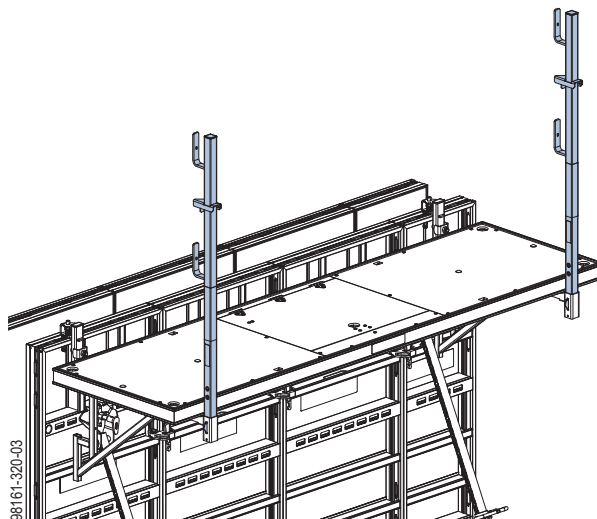
F Formwork panel or gang-form
(schematic diagram)



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



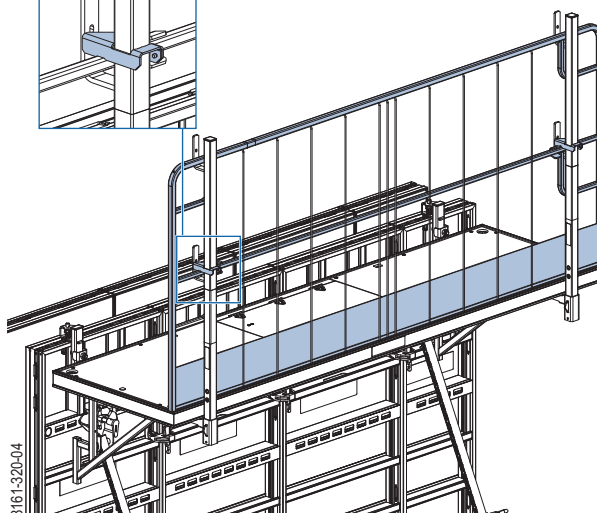
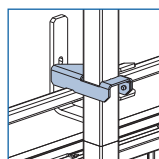
- Attach Handrail posts XBS 1.40m until the lock engages ('Easy-Click' function) and push the anti-lift-out guard of the handrail posts upwards.



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

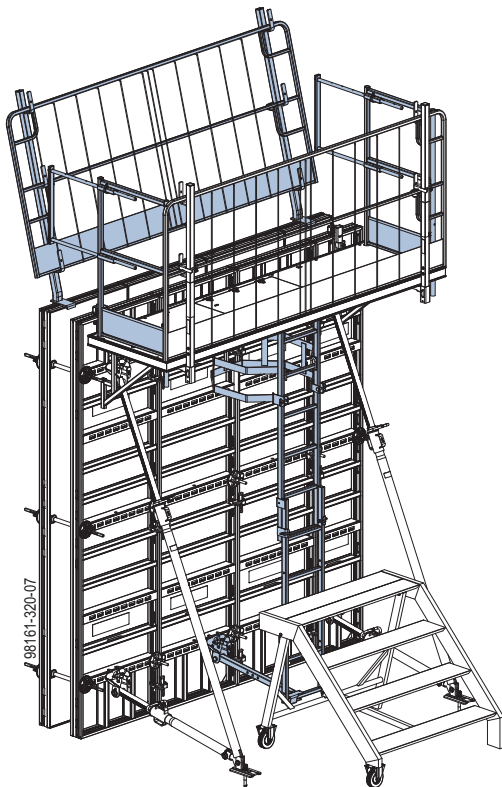
Fitting the edge protection and ladder system

- 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!

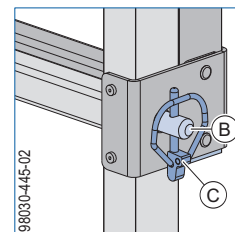
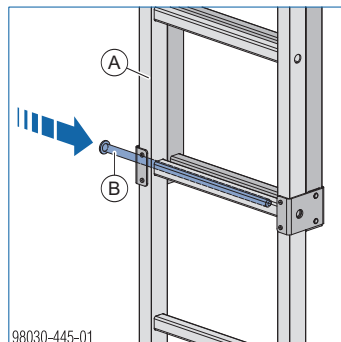
Telescopic ladder



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).

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
(Xsafe plus telescopic ladder optional)

B Ladder bolt

C Linch pin



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

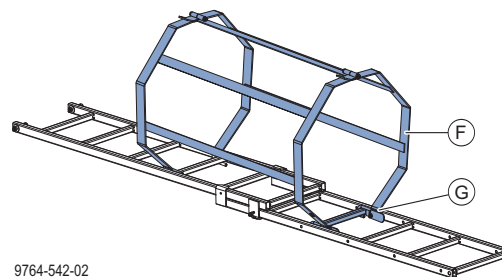
Installing Ladder cage XS:

- Engage the ladder cage. The safety latches prevent the cage from being accidentally lifted out.



For installation, slightly squeeze the sides of the ladder cage together so that it sits against the inside of the ladder rails.

- Additionally secure the safety latches against accidental opening (e.g. with cable ties)

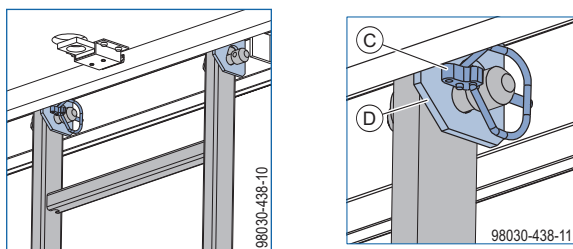


F Ladder cage XS

G Safety latches (anti-liftout guard)

Connection to deck XBS:

- ▶ Hook the telescopic ladder into the integrated ladder connection and secure.

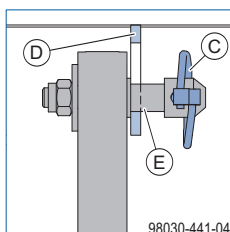


D Integrated ladder connection on Hatch deck XBS 75/270cm

C Linch pin, spring cotter, etc.

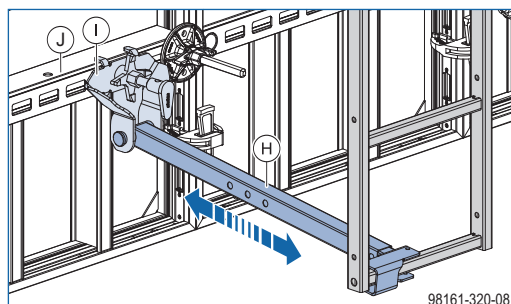


- The groove in the ladder pin (**E**) must be engaged in the hole of the ladder connection (**D**) !
- The telescopic ladder must be secured with a linch pin, spring cotter, or similar fastener (**C**) !

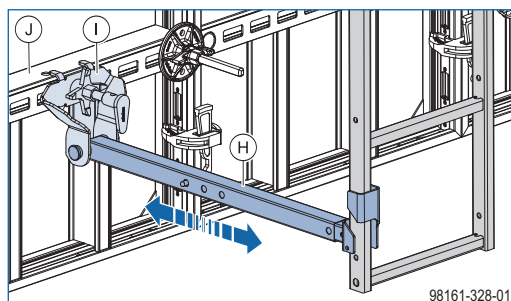


Connection to the formwork:

Option 1: Ladder rung



Option 2: Ladder rail



H Xsafe universal ladder holder

I DokaXlight prop head EB

J Function profile of the DokaXlight panel

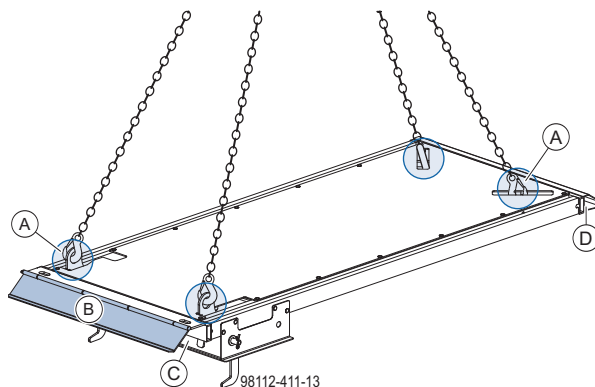
Gap Filler Plank

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.



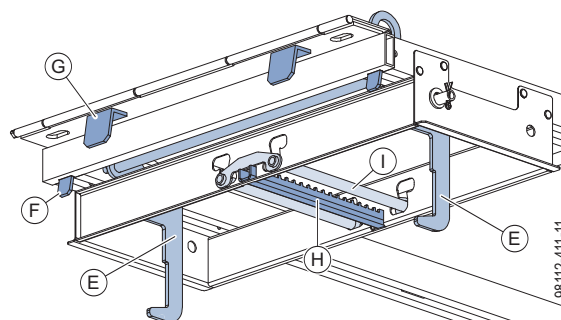
A Crane lifting point

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

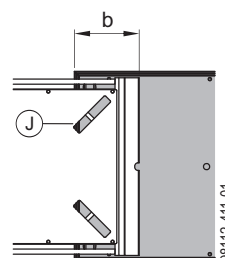
H Toothed strip for securing the position

I Anti-slip guard

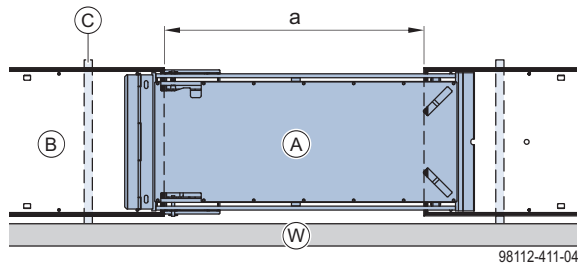


NOTICE

- 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

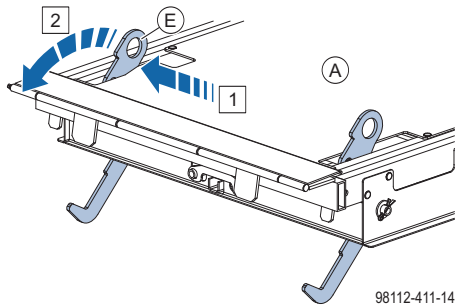
Closure in the straight wall

a ... 0.30m - 1.35m

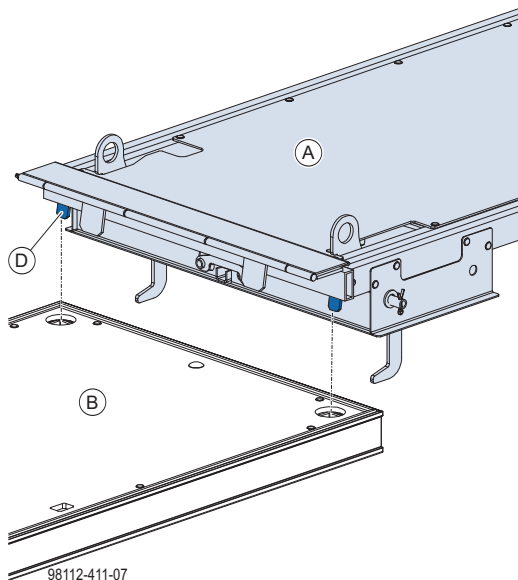
A Infill deck XBS**B** Deck XBS**C** Bracket XBS**W** Gang-form (schematic diagram)**Installation:**

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)**.

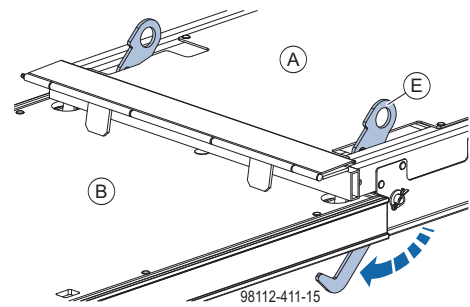
**A** Infill deck XBS**E** Securing element

- Lift the infill deck to its intended location.

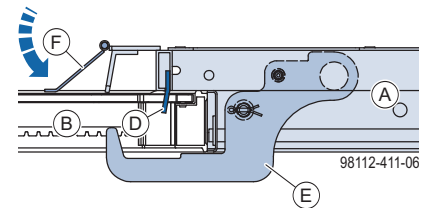
**A** Infill deck XBS**B** Deck XBS**D** Suspension plate for hooking into deck XBS

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

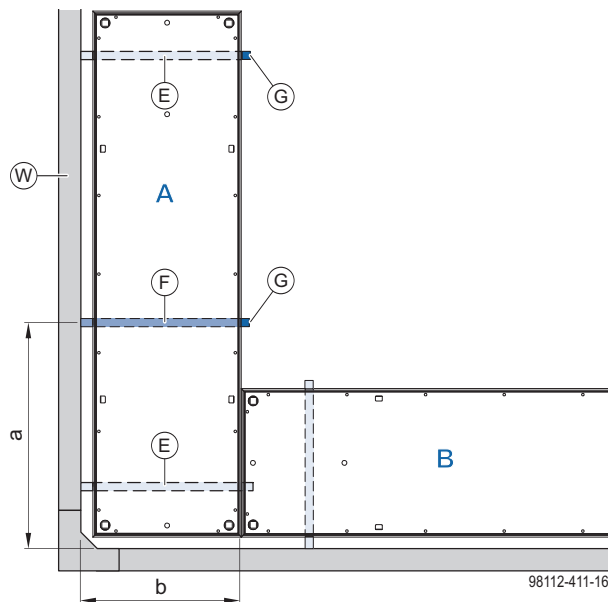
Do a sight-check to ensure that the securing element is closed.

- 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)



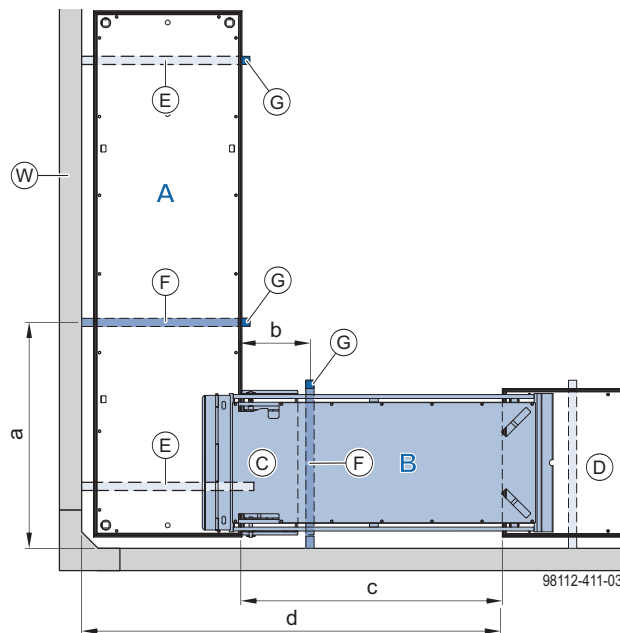
NOTICE

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

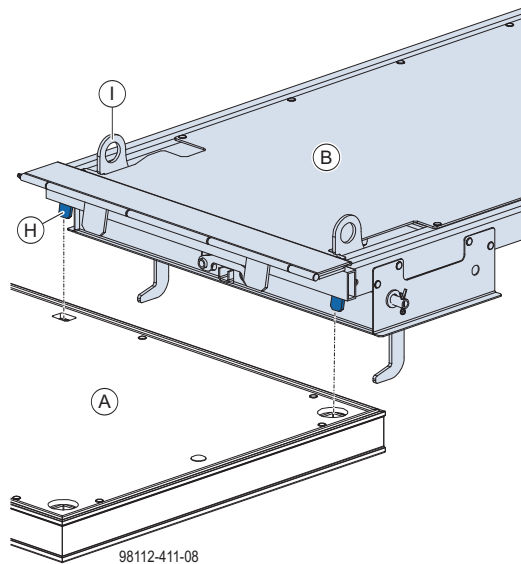
- An additional bracket XBS with handrail post XBS is required for installation of the edge protection!

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!

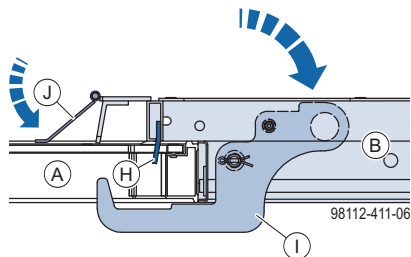
- Swing up the securing element of the infill deck XBS (see section [Gap Filler Plank](#)).

- 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

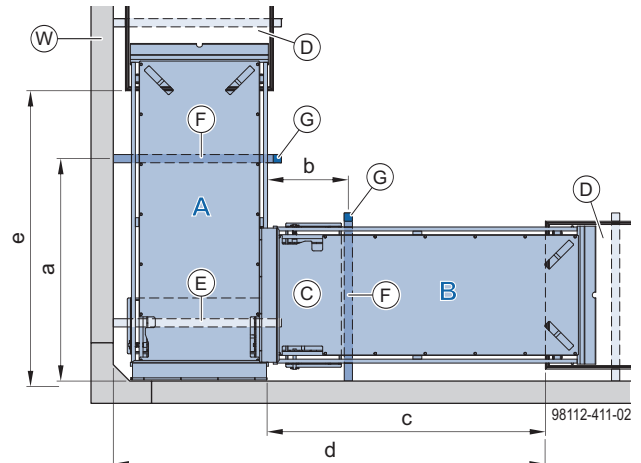


Do a sight-check to ensure that the securing element is closed.

- 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:

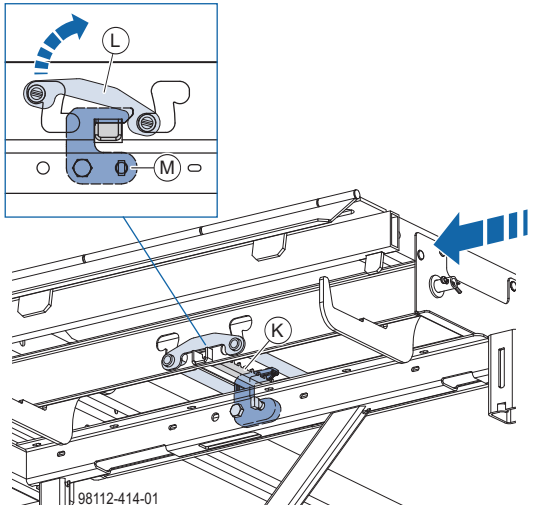


NOTICE

- 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.



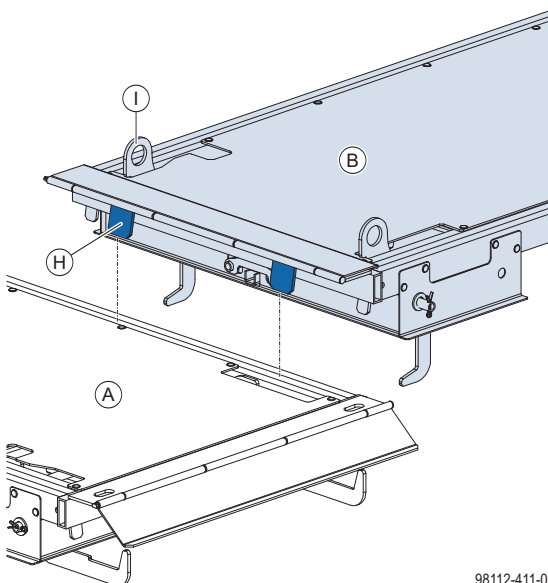
Do a sight-check to ensure that the anti-slip guard is closed.

Installation of deck B:

NOTICE

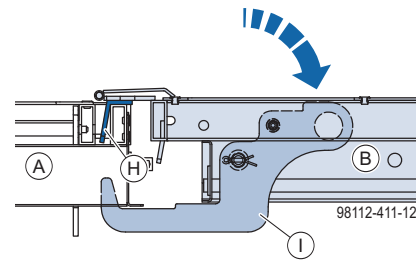
- An additional bracket XBS with handrail post XBS is required for installation of the edge protection!
Exception: The first bracket of the next standard deck is less than 0.60 m from the corner.
- Do not install the additional bracket directly under the securing housing of the infill deck!

- 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.

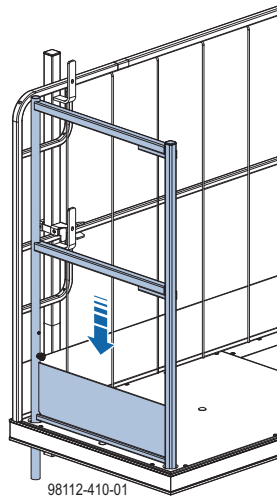
- Install Handrail post XBS 1.40m and Protective grating XP 1.20m.

Sideguards on exposed platform-ends

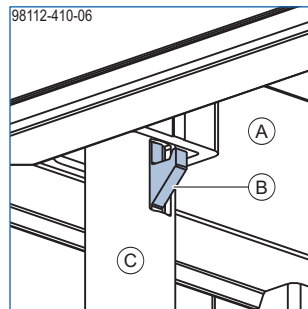
On pouring platforms that do not completely encircle the structure, suitable sideguards must be placed across exposed end-of-platform zones.

Installation:

- Insert Side railing XBS 75cm into deck XBS.

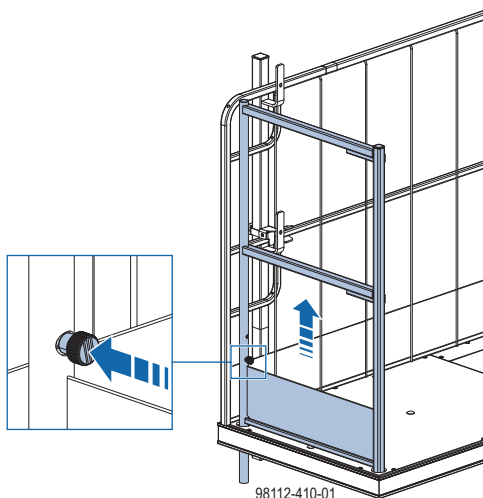


Safety latch **(B)** on post **(C)** must engage on the underside of deck XBS **(A)**.

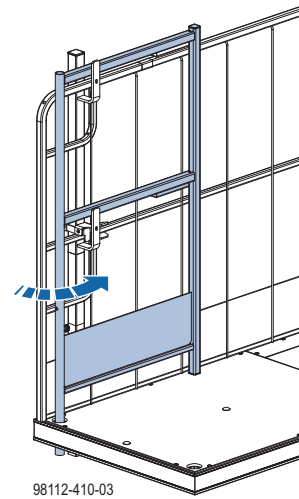


To open the side railing:

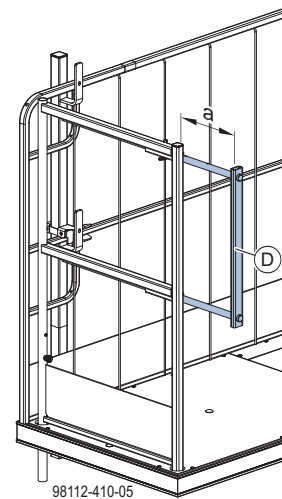
- Press the locking button and lift Side railing XBS 75cm by approx. 10 cm.



- 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

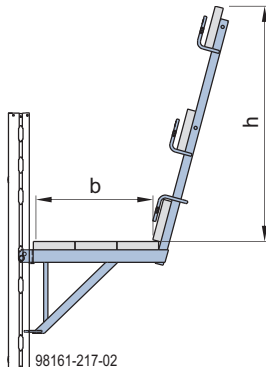
DokaXlight bracket 60

Note:

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

Observe all national regulations applying to deck and guardrail boards.

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



b ... 60 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



NOTICE

The brackets must be secured against accidental lift-out.

Deck-boards and guardrail boards: Per 1 metre length of platform, 0.6 m² of deck-boards and 0.45 m² of guardrail boards are needed (provided on site).

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

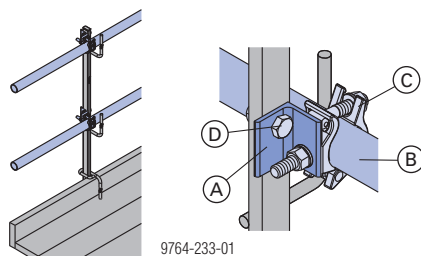
- Deck-boards min. 20/5 cm
- Guardrail boards min. 15/3 cm

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

- 3 x cup square bolt M6x90
- 3 x spring washer A6
- 3 x hexagon nut M6

Fixing the guardrail boards: use nails

Using scaffold tubes



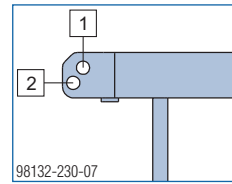
Tools required: Fork wrench 22 for mounting the couplers and scaffold tubes.

A Scaffold tube connection

B Scaffold tube 48.3mm

C Screw-on coupler 48mm 50

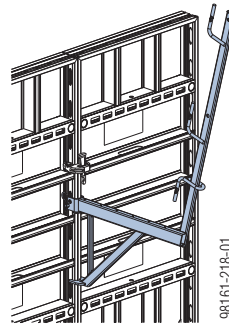
D Hexagon bolt M14x40 + hexagon nut M14
(Bolting items required)



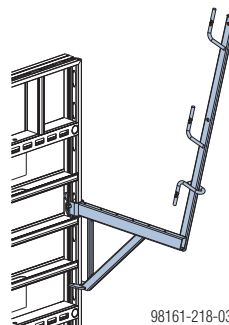
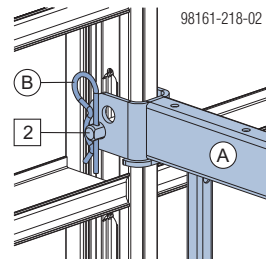
1, 2 ... holes for pinning to the DokaXlight profile

Possible ways of fixing:

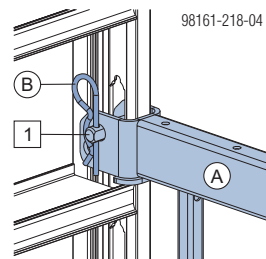
Pinning position:



at a panel joint



at the panel edge



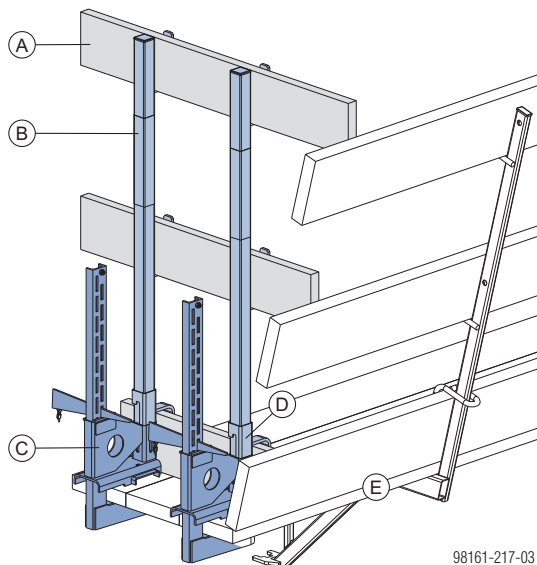
A DokaXlight bracket 60

B Spring cotter

Sideguards on exposed platform-ends

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

Xsafe edge protection XP



98161-217-03

A Guardrail board min. 15/3 cm (site-provided)

B Handrail post XP 1.20m

C Railing clamp XP 40cm

D Toeboard holder XP 1.20m

E Pouring platform

Installation:

- ▶ 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 until the locking mechanism engages.
- ▶ Fix guardrail boards to the handrail-post plates with nails (Ø 5 mm).

Animation:

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

Handrail clamp S



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

Opposing guardrail

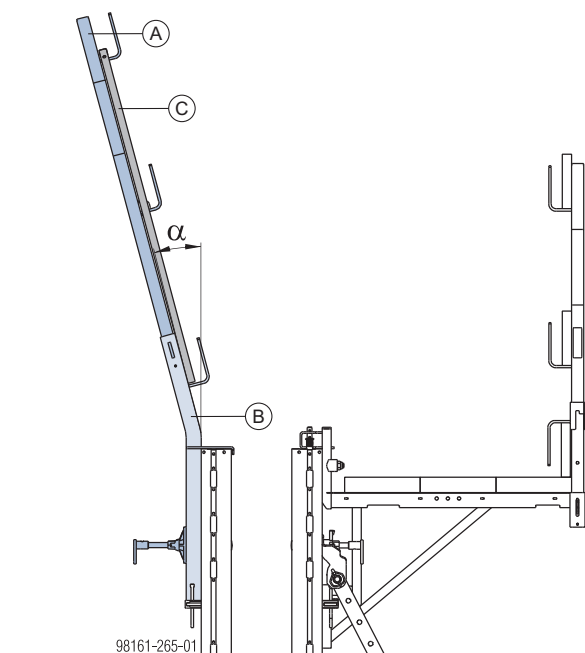
If there are work platforms mounted on one side of the formwork only, then a guardrail system must be mounted to the opposing formwork.

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

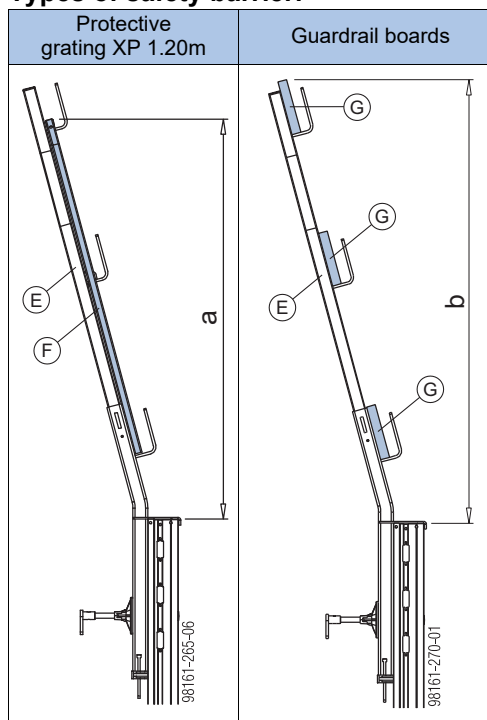


$\alpha \dots 15^\circ$

- A** Handrail post XP
- B** DokaXlight adapter XP
- C** Protective grating XP or guardrail boards

The adapter for the counter railing has a fixed 15° outward inclination.

Types of safety barrier:

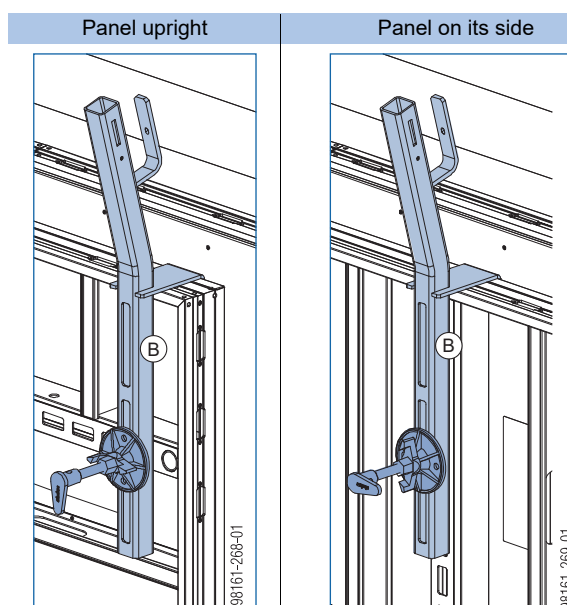


a ...132 cm
b ...147 cm

- E** Handrail post XP 1.20m
- F** Protective grating XP 1.20m
- G** Guardrail board

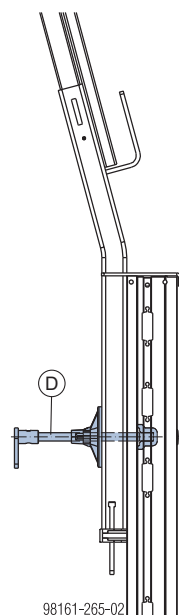
Assembly

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



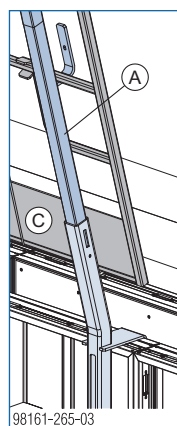
- B** DokaXlight adapter XP

- Install Adapter XP on the DokaXlight panel and secure it with a Universal clamp 5-10cm.



D Universal clamp 5-10cm

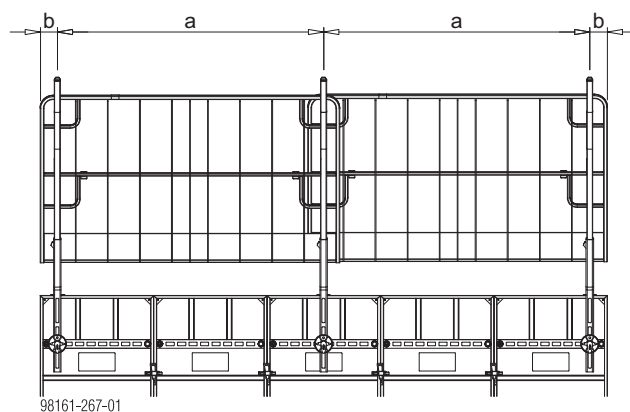
- Push the handrail post XP into the post-holding fixture on the DokaXlight adapter until the locking mechanism engages.
- Fit on a Protective grating XP or guardrail boards.
- Use Velcro® fasteners 30x380mm to secure the Protective gratings XP to the Handrail posts XP, or use nails (Ø 5 mm) to secure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



A Handrail post XP

C Protective grating or guardrail boards

Structural design



a ... centre-to-centre 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			

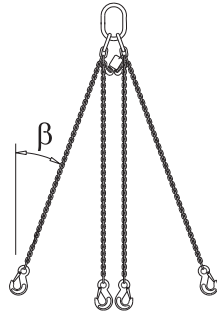
Permitted cantilever (b)

		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			

Lifting by crane

Safe crane-handling of DokaXlight 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

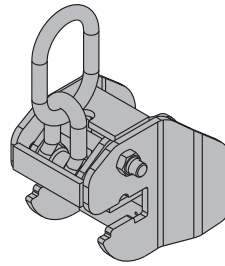
- ▶ Attach the Doka 4-part chain 3.20m to the Frami lifting hooks.
- ▶ Hang the remaining chain-lengths back in place.

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

Area of formwork that can be lifted using 2 lifting hooks:

approx. 15 m²

Frami lifting hooks with the rated working load limit of max. 500 kg (1100 lbs) also comply with the requirements for a 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 **stiffening profiles**
- over **function profiles** (single panels installed on their side)

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

Position of the lifting hooks

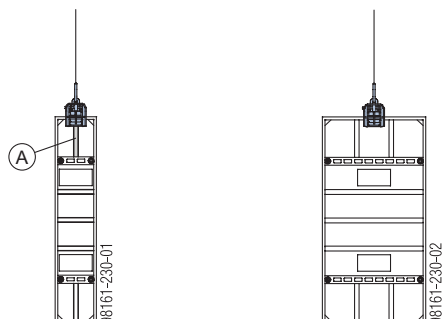
Note:

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

Single panel:

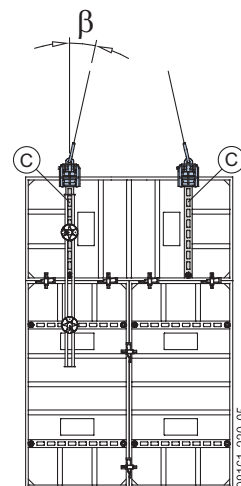
Panels up to 0.50m wide

Panels more than 0.50m wide



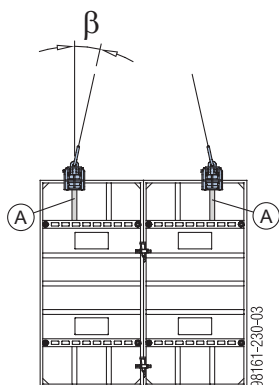
A Stiffening profile

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



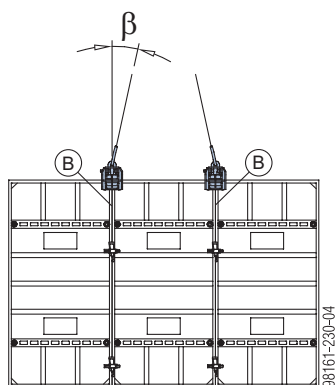
C Function profile

Gang-form - two panels upright:



A Stiffening profile

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



B Panel joint

Transporting, stacking and storing

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.

Bundling the panels

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

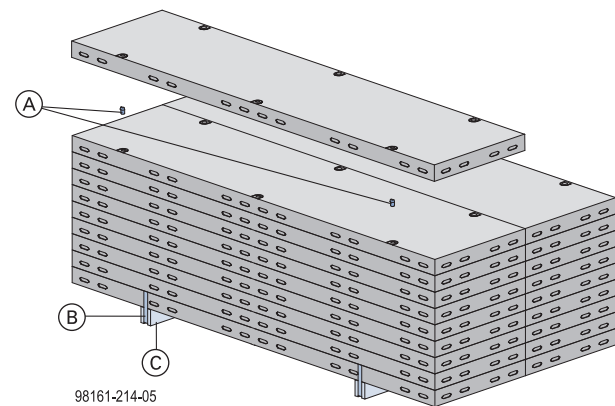
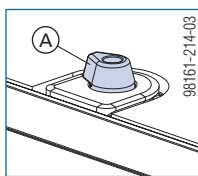


WARNING

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

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

- 3) Insert Framax stacking cones.



- A Framax stacking cone
- B Strapping band
- C Sleeper

The stacking cones stop the panels slipping.



CAUTION

- Stack max. 10 panels on top of one another (corresponds to a stack height including sleepers of approx 110 cm).

- 4) Strap the whole stack together tightly with strapping band.

Table of stacking combinations

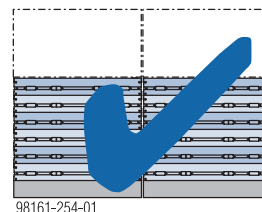
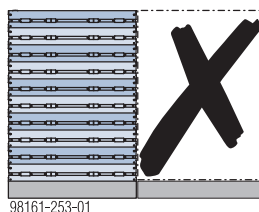
Panel width	Number of stacks in the bundle	Number of panels per stack	Total number of panels
20	4	10	40
25	3	10	30
30	3	10	30
45	2	10	20
50	2	10	20
55	2	10	20
60	2	10	20
65	2	10	20
75	2	10	20



CAUTION

Pay attention to minimum stability requirement.

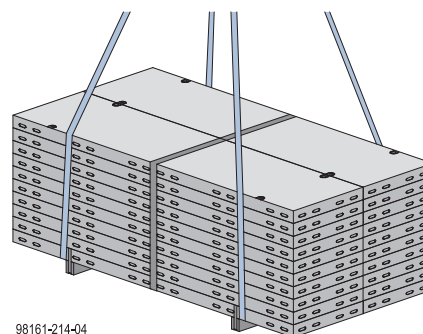
- Do not reduce bundled units in width.
- When removing panels, work down the entire stack one complete layer at a time.



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:

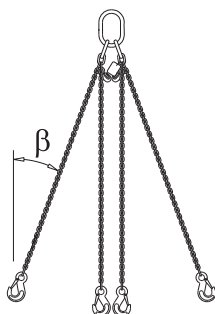
Permissible working load limit 2000 kg / lifting strap



Follow the Operating Instructions!

Transporting multi-trip boxes and pallets by crane

The **Doka 4-part chain 3.20m** is a lifting accessory with load compensation. It is suitable for hoisting formwork, platforms and multi-trip packaging items.



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:

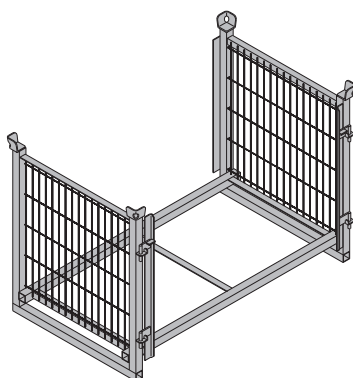
	Sling angle β			
	0°	0°-30°	30°-45°	45°-60°
Using one chain	1400 kg	-	-	-
Using two chains	-	2400 kg	2000 kg	1400 kg
Using all four chains	-	3600 kg	3000 kg	2120 kg



Follow the Operating Instructions!

Frami pallet 1.50m and DokaXlight pallet 1.00m

For holding DokaXlight articles with system heights of 1.50m or 1.00m.



Other features:

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

Frami pallet 1.50m:

Permissible load-bearing capacity: 800 kg (1760 lbs)

Permitted imposed stacking load: 3500 kg (7700 lbs)

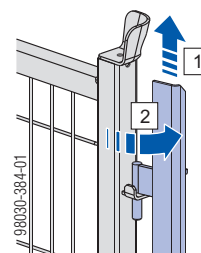
DokaXlight pallet 1.00m:

Permissible load-bearing capacity: 800 kg (1760 lbs)

Permitted imposed stacking load: 3450 kg (7600 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%
Do not stack Frami pallets on top of each other outdoors!	6



NOTICE

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

Width of DokaXlight panels	Max. n° of panels that can be loaded
0.75m	10
0.65m	11
0.60m	12
0.55m	12
0.50m	13
0.45m	18
0.30m	27

Panels laid flat	Panels stood upright	Mixed orientation
 98161-215-01	 98161-215-02	 98161-215-03

Using Frami pallets as transport devices

Lifting by crane

- Before attaching the lifting chains, check:

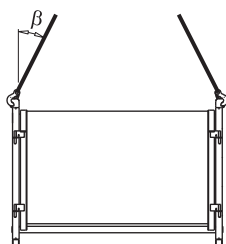


Both side hinges must be locked in place



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°!

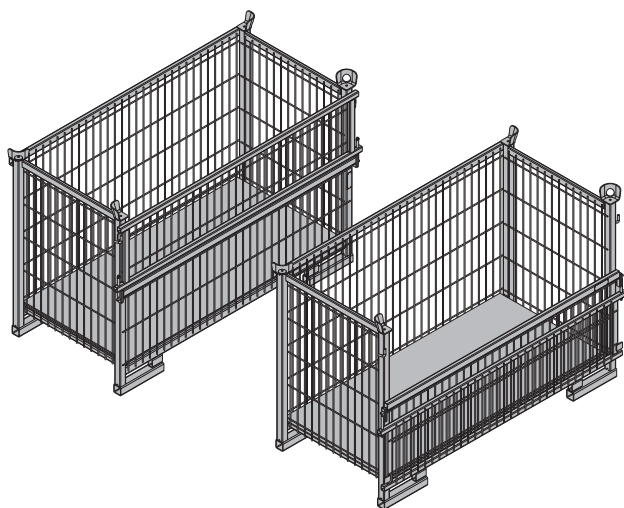


98030-383-01

Repositioning by forklift truck or pallet stacking truck

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

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.

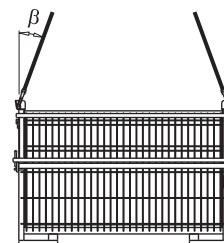
Using Doka skeleton transport boxes 1.70x0.80m as transport devices

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

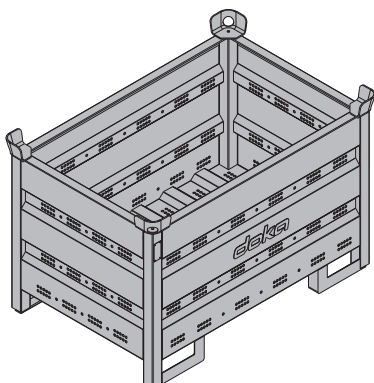
Repositioning by forklift truck or pallet stacking truck

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

Doka multi-trip transport box

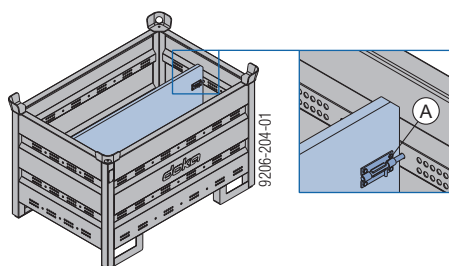
Storage and transport device for small items

Doka multi-trip transport box 1.20x0.80m



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

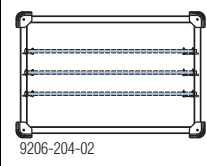
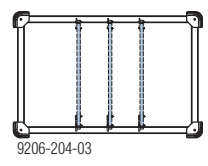
Different items in the Doka multi-trip transport box can be kept separate with the **Multi-trip transport box partitions 1.20m or 0.80m**.



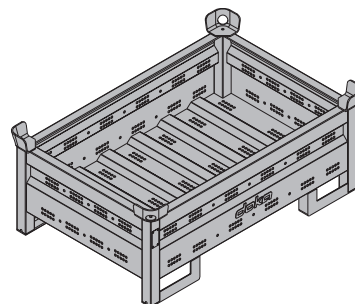
A Slide-bolt for fixing the partition

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.

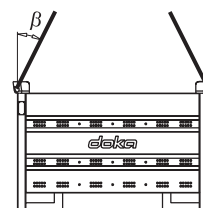
Using Doka multi-trip transport boxes as transport devices

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°!



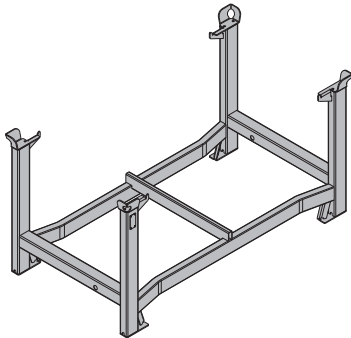
9206-202-01

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.

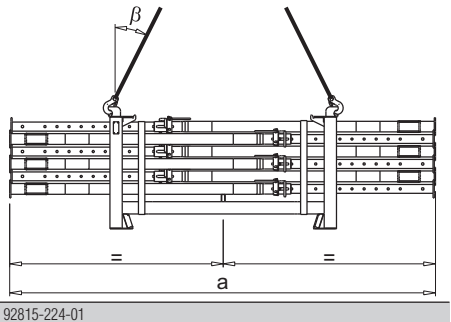
Using Doka stacking pallets as transport devices

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

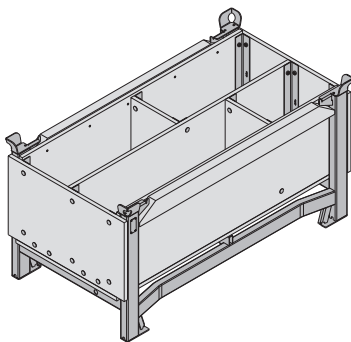


NOTICE

- 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.

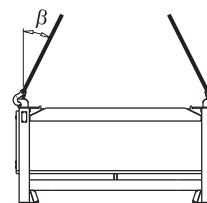
Doka accessory box as transport devices

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°!



92816-206-01

Repositioning by forklift truck or pallet stacking truck

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

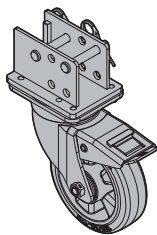
Universal castor wheel for transport pallet

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.



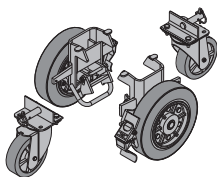
Bolt-on castor set B

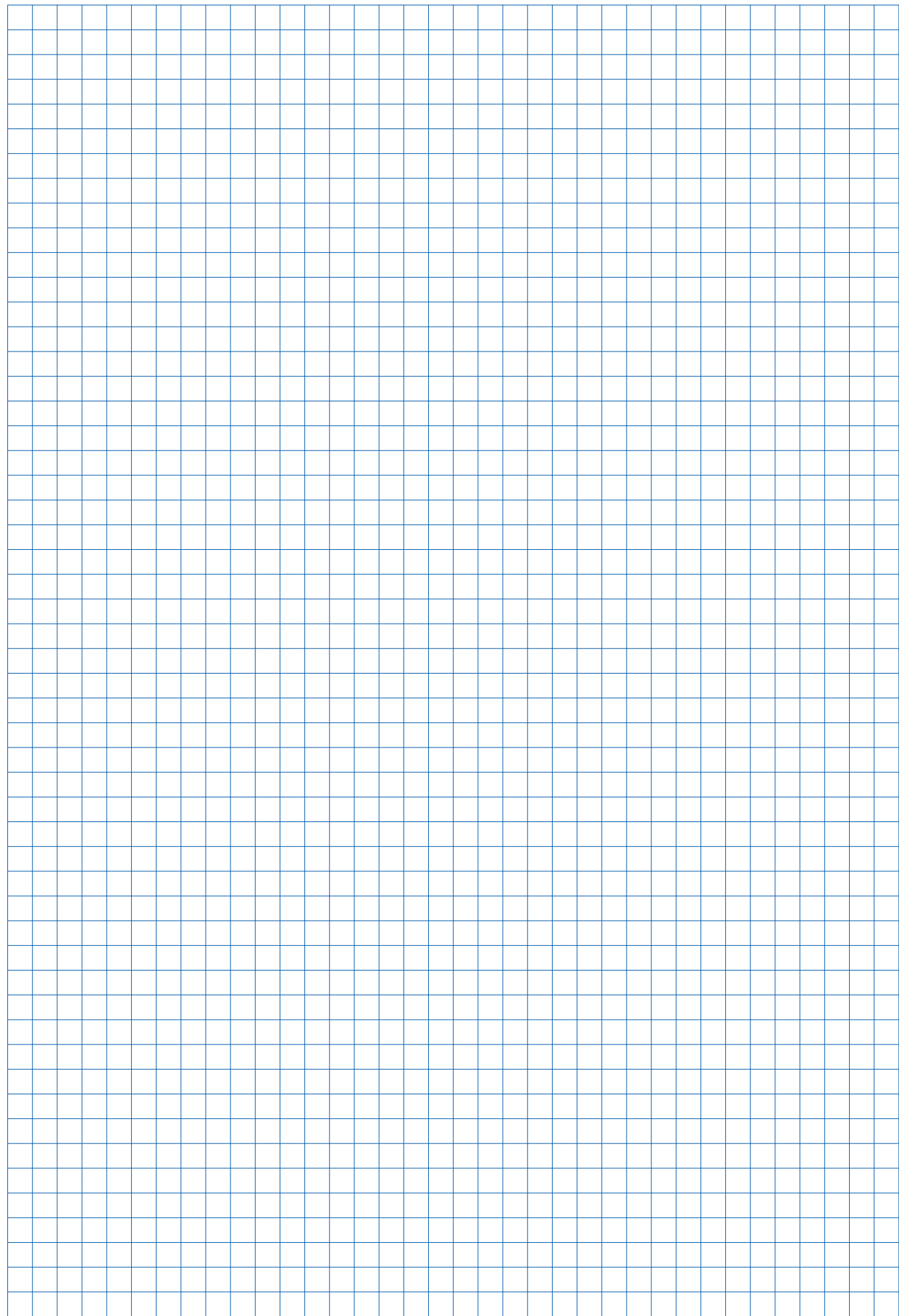
The Bolt-on castor set B turns multi-trip packaging items into fast and manoeuvrable transport devices.

- 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!



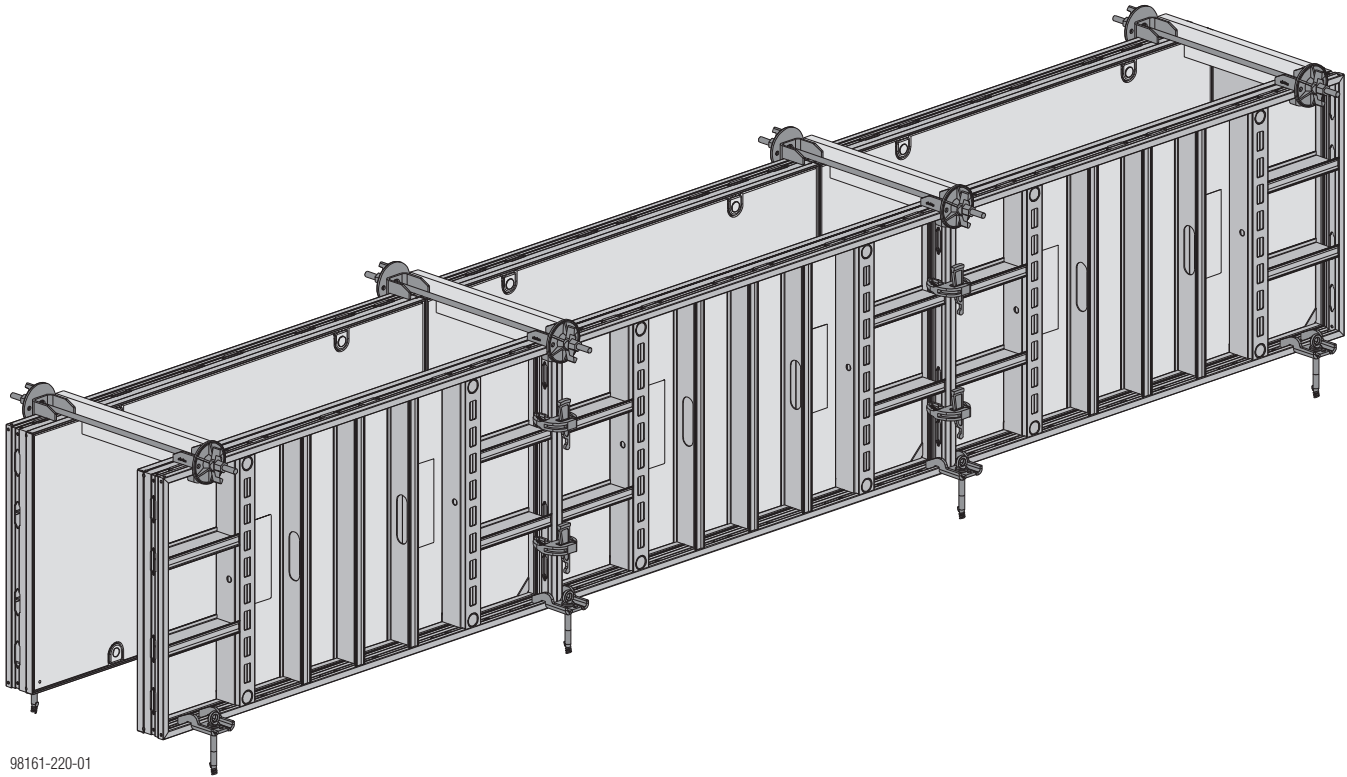


Foundation formwork

The DokaXlight panels can also be used for foundations.

This is particularly advantageous where it is intended to continue using the same panels for the walls. Foundations can quickly be formed with any of the DokaXlight

panels, either upright or horizontal. Inter-panel connection, length closures and corners are just as easy to solve here as they are on "normal" walls. A range of practical accessories makes this work easier.



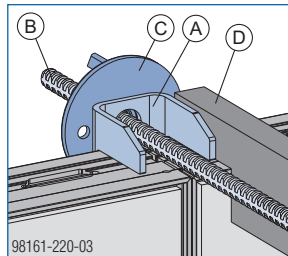
98161-220-01

DokaXlight panels on their side, on compacted surface

Top tie

with Frami anchoring brackets and Tie-rod system 15.0

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



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

Bottom tie

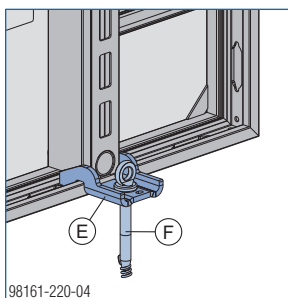
with Frami floor fixing plates and Doka Express anchors 16x125mm

- The form tie is not in the concrete



NOTICE

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



- E Frami floor fixing plate
- F Doka express anchor 16x125mm + Doka coil 16mm

Frami floor fixing plate with express anchor:

Permitted capacity in B10 concrete: 9.2 kN
 Permitted capacity in B20 concrete: 12.9 kN
 Required concrete thickness: min. 20 cm
 Required distance from edge: min. 15 cm

Structural design

Number and position of tie-holder brackets and floor fixing plates:

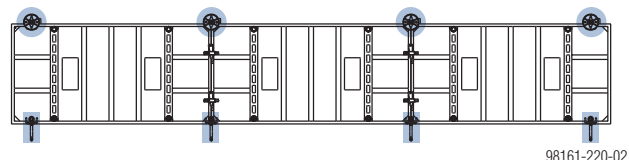
DokaXlight panel (on its side)	Frami tie-holder bracket and Frami floor fixing plate
1.00m	over every inter-panel joint ¹⁾
1.50m	over every inter-panel joint ¹⁾
3.00m	over every inter-panel joint ²⁾ and over or close beside function profile in the middle of the panel

¹⁾ at end of formwork: 15 cm from end of panel

²⁾ at end of formwork: 30 cm from end of panel

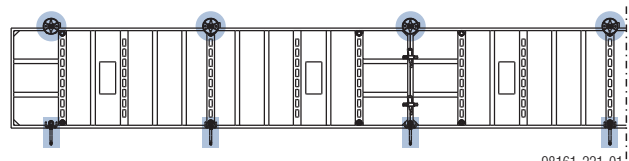
Practical example

DokaXlight panel 0.75x1.50m



98161-220-02

DokaXlight panel 0.75x3.00m

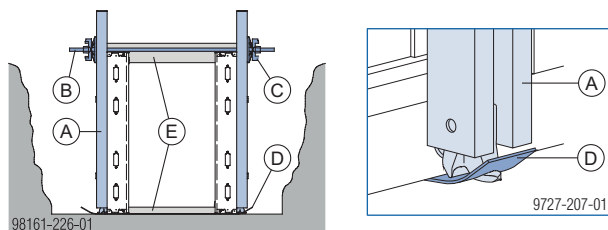


98161-221-01

DokaXlight panels on their side, on uncompacted surface

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

- Wall thicknesses in 5cm increments
- Narrow excavation
- No ties in the concrete



A Framax foundation clamp 0.90m

B Tie rod 15.0mm

C Super plate 15.0

D Doka perforated tape 50x2.0mm 25m

E Wooden spacer

Number of foundation clamps:

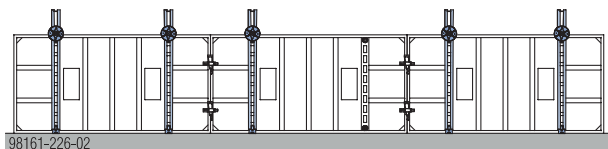
Panel length	Pour height	Foundation clamp and perforated tape
1.50m	up to 0.90 m	1 ¹⁾ / 2 ²⁾
3.00m	up to 0.90 m	3 ³⁾

¹⁾ panels in the middle of the formwork. Position: over the anchoring sleeve

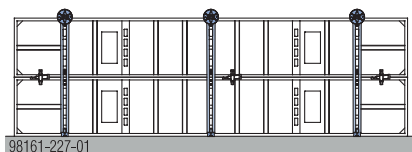
²⁾ panels at the end of the formwork. Position: over each anchoring sleeve

³⁾ Position: over each anchoring sleeve

DokaXlight panel 1.50m

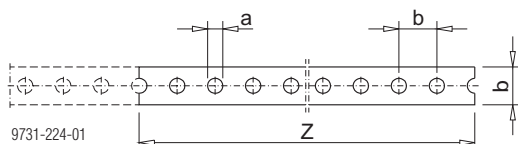


DokaXlight panel 3.00m



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

Doka perforated tape 50x2.0mm 25m



a ... 18 mm

b ... 50 mm

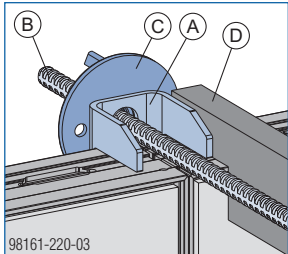
Z ... Length of tape cut: Wall thickness + 35 cm

DokaXlight panels longside vertical

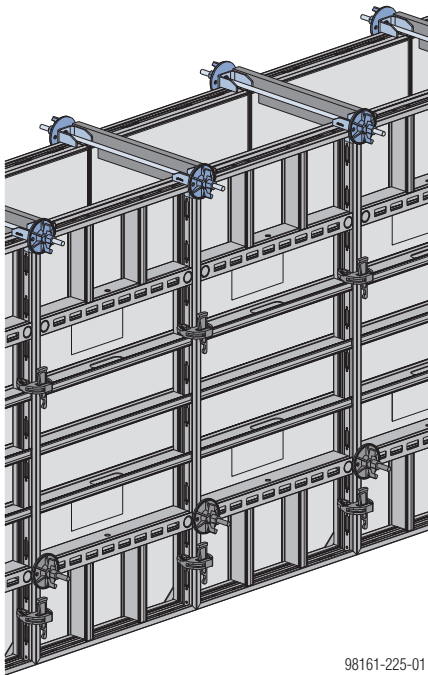
Top tie

with Frami anchoring brackets and Tie-rod system 15.0

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



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



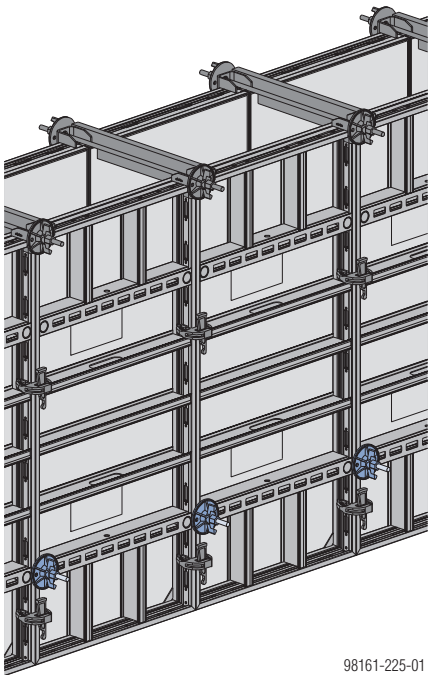
98161-225-01

Required numbers of Frami tie-holder brackets:

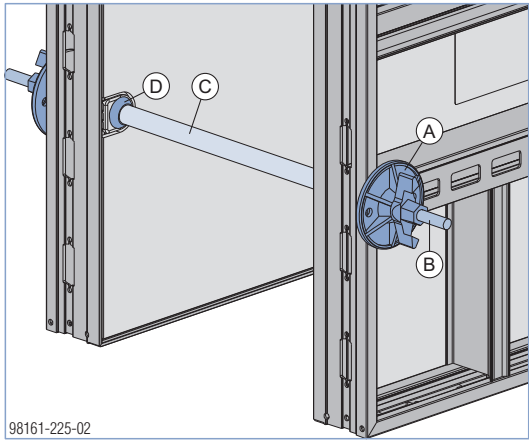
DokaXlight panel (upright)	Number and position of Frami tie-holder brackets
1.50m	Over every panel joint

Bottom tie

with Tie-rod system 15.0



98161-225-01



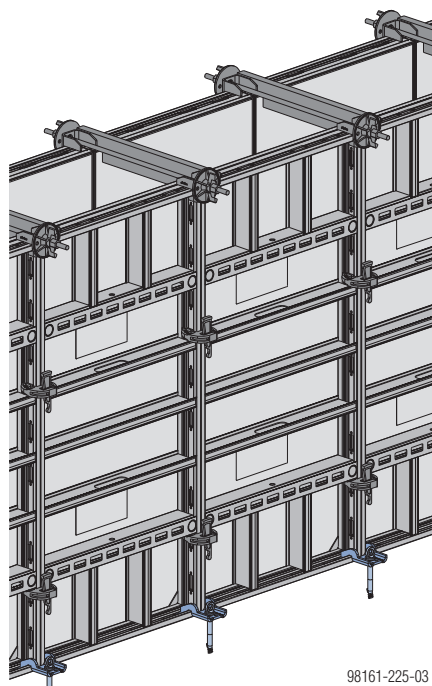
98161-225-02

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

Required number of form ties:

DokaXlight panel (upright)	Number and position of anchors
1.50m	At every panel joint

with Frami floor fixing plates and Doka Express anchors 16x125mm



98161-225-03



NOTICE

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

Max. pour heights:

Concrete grade of the foundation slab	Panel width	Max. pour height with panel height 1.50m
B10	0.75 m	1.05 m
	0.60 m	1.20 m
	0.45 m	1.45 m
B20	0.75 m	1.30 m
	0.60 m	1.40 m
	0.45 m	1.50 m

Required numbers of Frami floor fixing plates:

DokaXlight panel (upright)	Number and position of Frami floor fixing plate
1.50m	Over every inter-panel joint

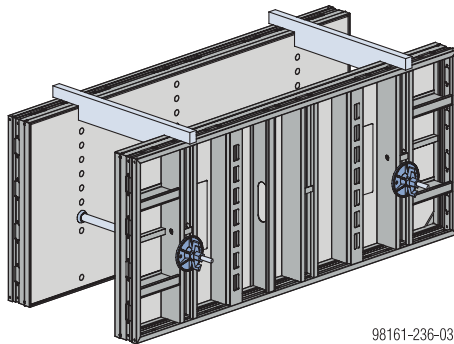
For more information, see section [DokaXlight panels on their side, on compacted surface.](#)

DokaXlight universal panels on their side

DokaXlight universal panels can be tied above a joint-sealing tape.

Note:

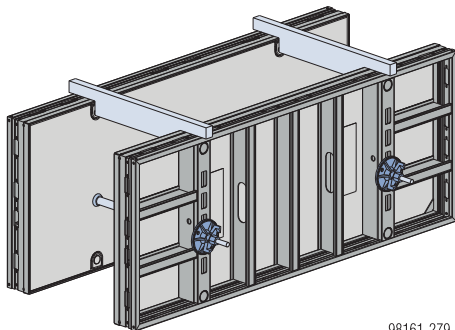
Note the tying height of 25 cm!



DokaXlight panels instead of universal panels.

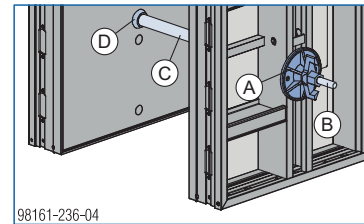
DokaXlight panels can be used as well, if form-tie holes are drilled in the formwork sheet.

- Diameter of the holes: 24 mm
- Position of the holes:
 - Tying height: at the 1/3 point ¹⁾ of the panel width (e.g. 25 cm for panel 0.75 m wide)
 - ¹⁾ Adapt the position to the hole grid of the function profile.
 - Number: in each function profile with integral anchor sleeve (e.g. 3 holes in panel 3.00m)
- Sealing the hole: with DokaXlight plug.



Tying inside the panel:

with Tie-rod system 15.0

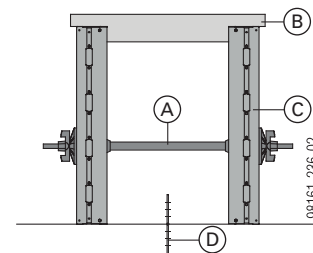


- A Super plate 15.0
- B Tie rod 15.0mm
- C Plastic tube 22mm
- D Universal cone 22/10mm

Required number of form ties:

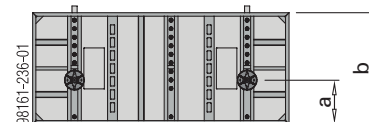
DokaXlight universal panel 0,65m (longside horizontal)	Number of ties
1.00m	2
1.50m	2
3.00m	3

Practical example

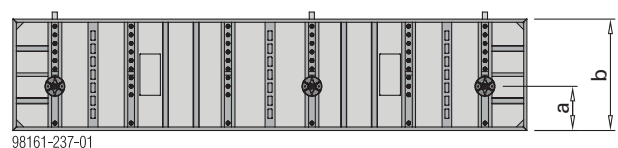


- A Form tie 15.0
- B Wooden spacer
- C DokaXlight universal panel
- D Joint-sealing tape

DokaXlight universal panel 0.65x1.50m



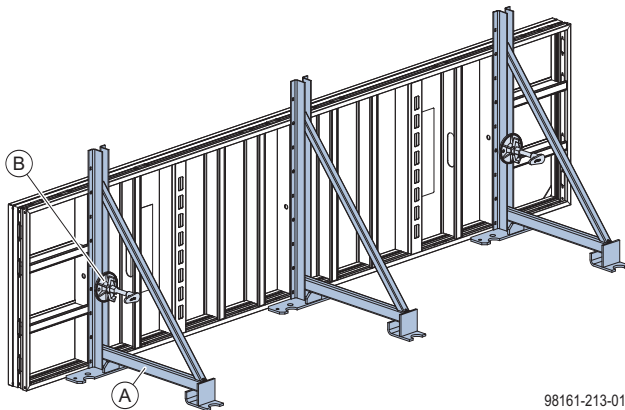
DokaXlight universal panel 0.65x3.00m



- a ... Tying height = 25 cm
- b ... 65 cm

Slab stop-end with Supporting construction

The Supporting construction is used for erecting non-tied, single-sided formwork up to 1.20 m high (e.g. stop ends of floor slabs).



98161-213-01

A Supporting construction

B Universal clamp 5-10cm

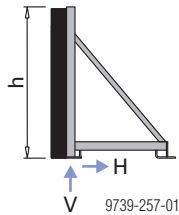


NOTICE

Transfer the vertical and horizontal forces by suitable means!

e.g.:

- 2 ground nails per Supporting construction.
- Anchoring with dowel in the blinding layer.



9739-257-01

Pour height h [m]	Influence width [m]	Vertical force V [kN]	Horizontal force H [kN]
0.30	3.00	0.00	3.40
0.45	3.00	0.20	7.60
0.60	1.80	1.00	8.10
0.75	1.15	1.80	8.10
0.90	0.80	2.60	8.10
1.05	0.60	3.40	8.10
1.20	0.45	4.10	8.10

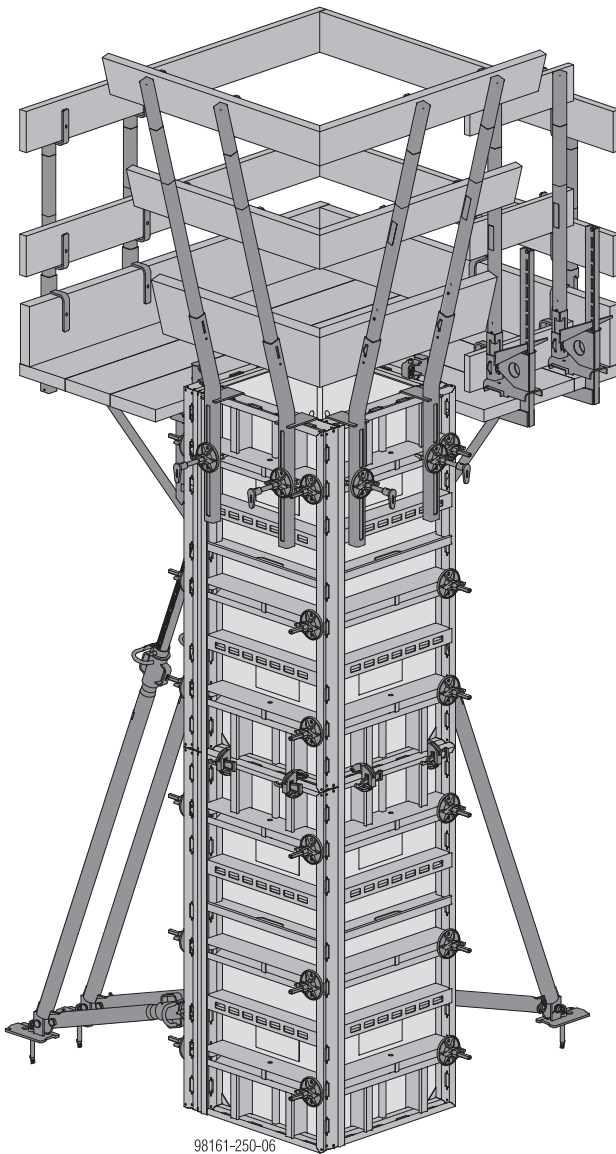
Support at minimum every second panel with a Supporting construction.

Column formwork

System description

There are several different ways of using Framed formwork DokaXlight to make column formworks:

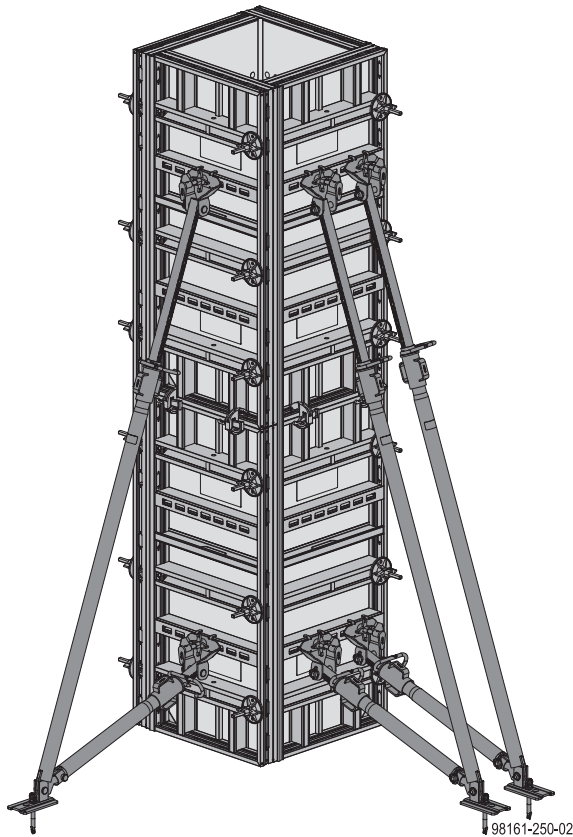
- with **DokaXlight universal panels**
- combining **DokaXlight universal panels and standard DokaXlight panels**
- with **DokaXlight panels and DokaXlight aluminium outside corners**



98161-250-06

Shown here with DokaXlight panel 1.50m.
Shown here without ladder.

Design of column formwork



NOTICE

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

Note:

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

Erecting and striking the formwork

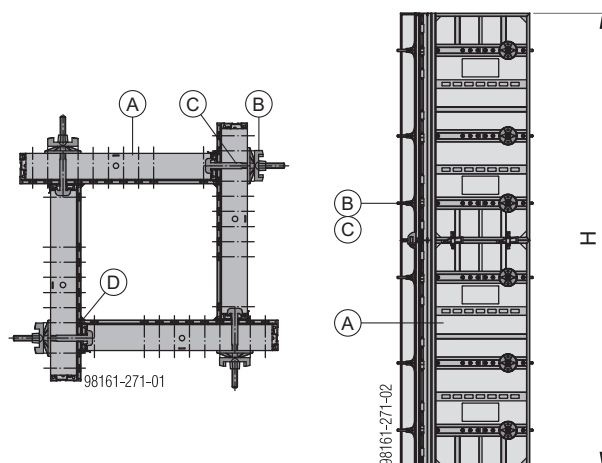
Setting up the formwork:

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

Stripping the formwork:

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

with DokaXlight universal panels



Example: Column, 45x45 cm

For column cross sections **15 x 15 cm up to 55 x 55 cm**

- A** DokaXlight universal panel
- B** Super plate 15.0
- C** Framax universal fixing bolt 10-16cm
- D** DokaXlight frontal triangular ledge 3.00m

Permitted fresh-concrete pressure $\sigma_{hk, max}$: **75 kN/m²**

Framax universal fixing bolt 10-16cm:

Permitted tensile load: 10.5 kN
when used in DokaXlight panels

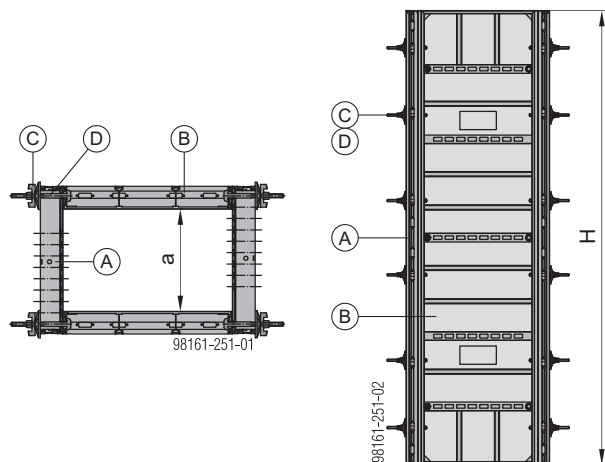
Materials schedule

Formwork height (H)	DokaXlight universal panel 0.65m (A)			Frami clamp (E)	Universal fixing bolt (C)	Super plate 15.0 (B)
	1.0m	1.50m	3.00m			
1.00m	4				8	8
1.50m		4			8	8
2.00m	8			8	16	16
2.50m	4	4		8	16	16
3.00m			4		24	24
3.50m	8	4		12	28	28
4.00m	4		4	8	32	32
4.50m		4	4	8	36	36

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

with DokaXlight universal panels and standard DokaXlight panels

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



Example: Column, 45x75 cm

for column cross-sections of **up to 45 x 75 cm**

- A** DokaXlight universal panel
- B** DokaXlight panel
- C** Super plate 15.0
- D** Framax universal fixing bolt 10-16cm

	Dimension 'a'
DokaXlight universal panel 0,65m	up to 45 cm , in 5 cm increments

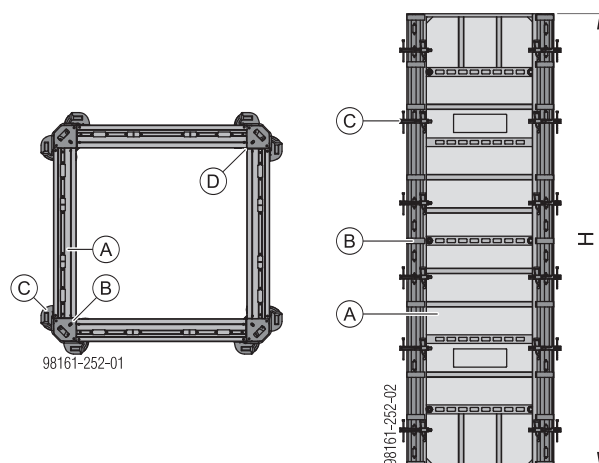
Permitted fresh-concrete pressure $\sigma_{hk, max}$: **50 kN/m²**

Materials schedule

Formwork height (H)	DokaXlight universal panel 0,65m (A) / DokaXlight panel (B)			Frami clamp (E)	Universal fixing bolt (D)	Super plate 15.0 (C)
	1.0m	1.50m	3.00m			
1.00m	2/2				8	8
1.50m		2/2			12	12
2.00m	4/4			8	16	16
2.50m	2/2	2/2		8	20	20
3.00m			2/2		24	24
3.50m	4/4	2/2		16	28	28
4.00m	2/2		2/2	8	32	32
4.50m		2/2	2/2	8	36	36

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

with DokaXlight panels and DokaXlight aluminium outside corners



Example: Column, 45x45 cm

for column cross-sections of **up to 75 x 75 cm**

- A** DokaXlight panel
- B** DokaXlight aluminium outside corner 3.00m
- C** Frami clamp
- D** DokaXlight frontal triangular ledge 3.00m

Permitted fresh-concrete pressure $\sigma_{hk, max}$: **50 kN/m²**

Some dimensions can also be formed using **outside corners** and **DokaXlight panels**.

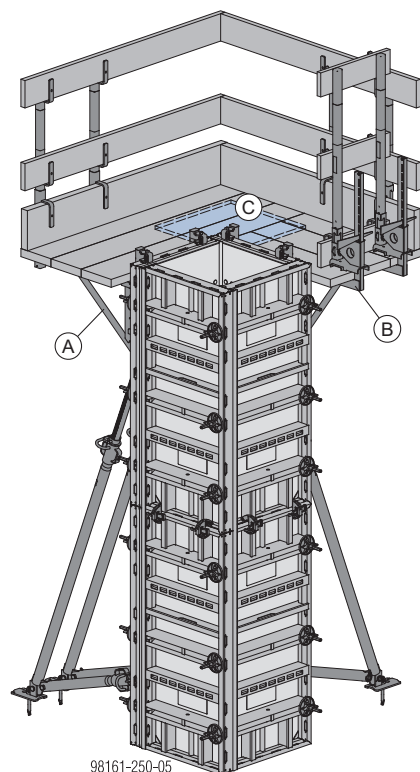
Materials schedule

Formwork height (H)	DokaXlight panel (A) and DokaXlight aluminium outside corner (B)			Frami clamp (C)
	1.0m	1.50m	3.00m	
1.00m	4			16
1.50m		4		24
2.00m	8			40
2.50m	4	4		48
3.00m			4	48
3.50m	8	4		64
4.00m	4		4	64
4.50m		4	4	80

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

Pouring platform

Pouring platform with DokaXlight bracket 75 EP



Shown here without counter railings.
Shown here without ladder.

- A** DokaXlight bracket 75 EP
- B** Xsafe edge protection XP (guardrail boards site-provided)
- C** Board for screwing the platform decking onto

Note:

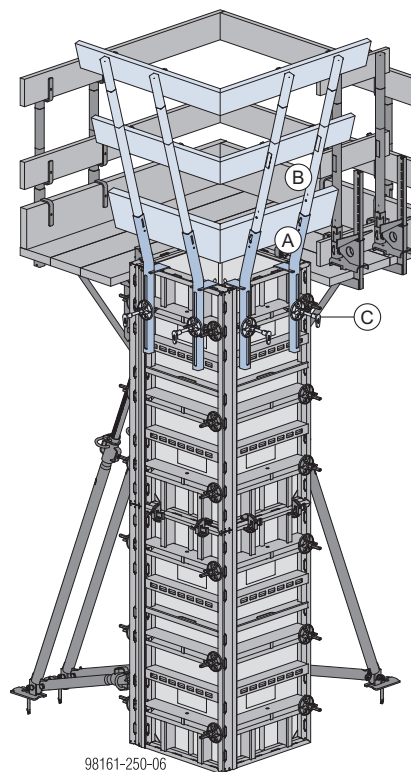
Where the two planks meet, a joining board must be screwed onto the underside.



NOTICE

The brackets must be secured against accidental lift-out.

Opposing guardrail

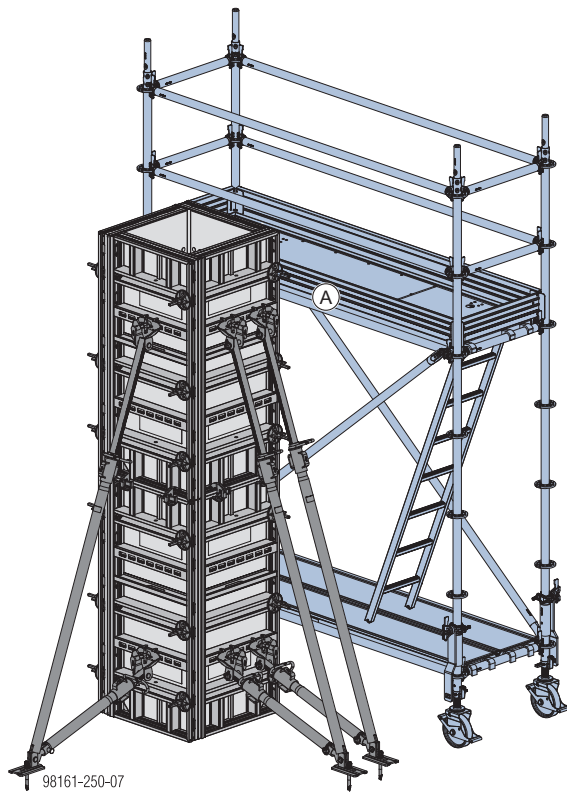


Shown here without ladder.

- A** DokaXlight adapter XP
- B** Handrail posts XP 1.20m (guardrail boards provided at site)
- C** Universal clamp 5-10cm

Working platform

Alternative to pouring platform constructed from single brackets.



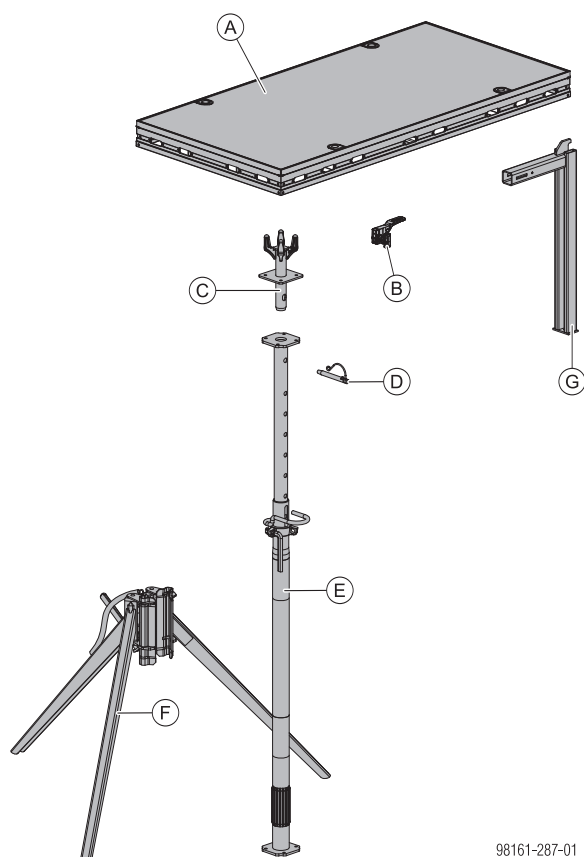
A e.g. Ringlock



Follow the directions in the User Information booklet!

Floor formwork

System overview

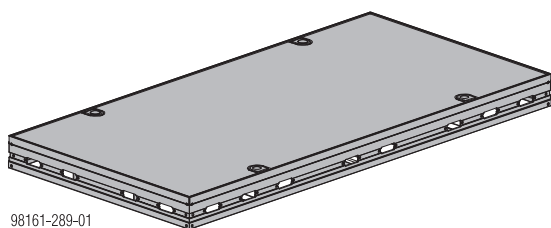


98161-287-01

- A DokaXlight panel
- B DokaXlight clip
- C DokaXlight support head
- D Spring locked connecting pin 16mm
- E Doka floor props Eurex 20 top
- F Removable folding tripod top
- G DokaXlight universal waling 0.70m

DokaXlight panels

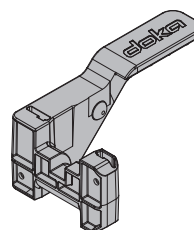
All DokaXlight panels used in the wall formwork can **also be used as slab-formwork panels.**



98161-289-01

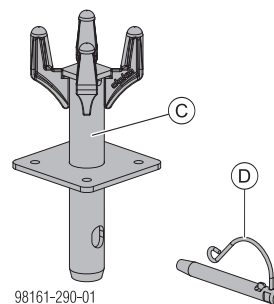
DokaXlight clip

The DokaXlight clip is for connecting the DokaXlight panels to each other. This connection is made through the cross holes in the frame profile.



DokaXlight support head

For holding the DokaXlight panels safely. The support head is installed on the floor prop with the Spring cotter 16mm.



98161-290-01

Spring locked connecting pin 16mm not included in the scope of supply of the support head.

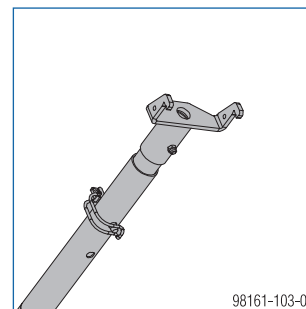
- C DokaXlight support head
- D Spring locked connecting pin 16mm

DokaXlight assembling tool

The DokaXlight assembling tool is used to tilt the DokaXlight panels up into position.



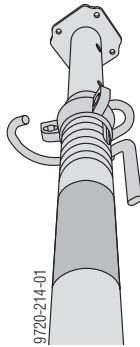
98161-103-01



98161-103-01

Doka floor props Eurex 20 top

- approved in accordance with Z-8.311-905
- EN 1065-compliant floor prop



Their high load-bearing capacity is complemented by many practical details making them very easy to handle:

- numbered pegging holes for height adjustment
- elbowed fastening clamps, reducing the risk of injury and making the props easier to operate
- special geometry of the thread makes the prop easier to release even under high load



Follow the directions in the 'Floor props Eurex top' User Information booklet.

Note:

Optionally, Doka floor props Eurex 20 eco, Eurex 20 LW, Eurex 30 top or Eurex 30 eco can be used instead.



WARNING

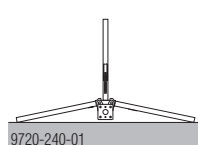
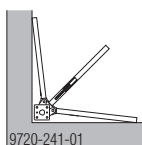
- ▶ It is **not permitted** to use the **Floor prop extension 0.50m**.
- ▶ Floor props must not be used extended to their full lengths! A **reduction of 12 cm** is necessary.

Removable folding tripod 'top'

- Set-up aid for floor props
- swing-out legs allow flexible placement in constricted situations such as along edges and in corners



Setting up in corners and against walls



CAUTION

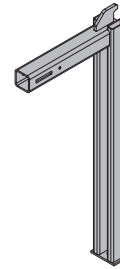
Not a substitute for the bracing necessary for load-bearing towers.

- ▶ Use as a set-up aid only!

DokaXlight universal waling 0.70m

Areas of use of the DokaXlight universal waling 0.70m when DokaXlight is used as floor-slab formwork:

- fixing a DokaXlight panel to the wall
- as universal waling in the closure zone
- as adapter for the Xsafe edge protection XP



DokaXlight universal waling 0.70m:

Permitted moment: 1.3 kNm



WARNING

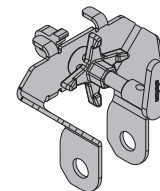
Do **not** attempt to tilt a universal waling up together with a panel!

- ▶ Always install the universal waling from below after the panel has been tilted up into position.

Risk of the panel tipping out of the DokaXlight support heads as it is being tilted up.

DokaXlight prop head EB

The floor-slab formwork is **tied back** and thus **secured against lift-out** with the DokaXlight prop head EB, the associated pin and a lashing strap.



Ground rules

DokaXLight panels

Permitted slab thickness: max. 50 cm

Permitted room height: 3.50 m

Note:

Seal off all anchoring sleeves in the panels with **Universal plugs R20/25**.

Inter-panel connections



NOTICE

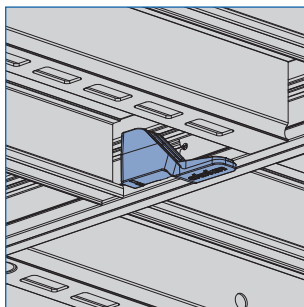
To ensure stability in all phases of work, inter-connect the panels in gang-forms.

Required number of connectors (DokaXLight clips, DokaXLight I-Connectors or optionally Frami clamps):

Panel length	Number of connectors
1.00 m	1
1.50 m	1
3.00 m	2

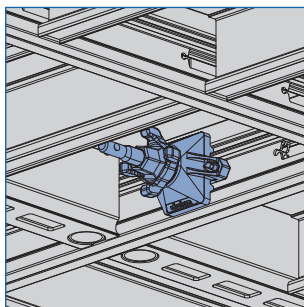
Panel width	Number of connectors
0.30 m	1
0.45 m	1
0.50 m	1
0.55 m	1
0.60 m	1
0.75 m	1

DokaXLight clip



98161-292-03

DokaXLight I-Connector



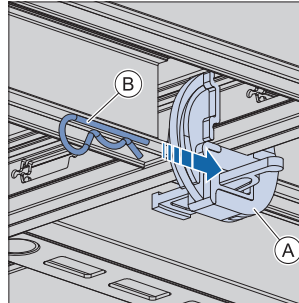
98161-292-04



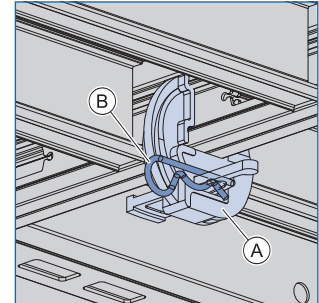
WARNING

▶ When using **Frami clamps** in floor-slab formwork, **secure each clamp with a Spring cotter 5mm!**

Frami clamp



98161-315-02

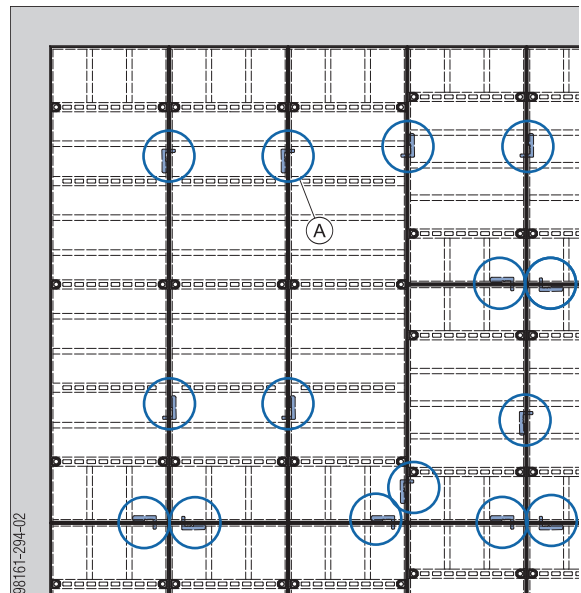


98161-315-01

A Frami clamp

B Spring cotter 5mm

Position of panel connectors:



98161-294-02

A DokaXLight clips (optionally I-Connectors or Frami clamps)

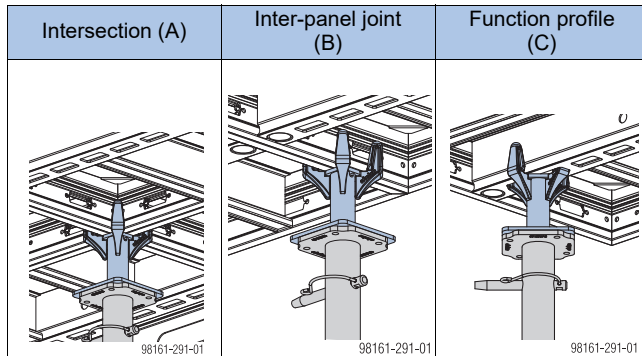
DokaXLight support head



WARNING

- Each DokaXLight support head must be secured in the floor prop with Spring locked connecting pin 16mm.

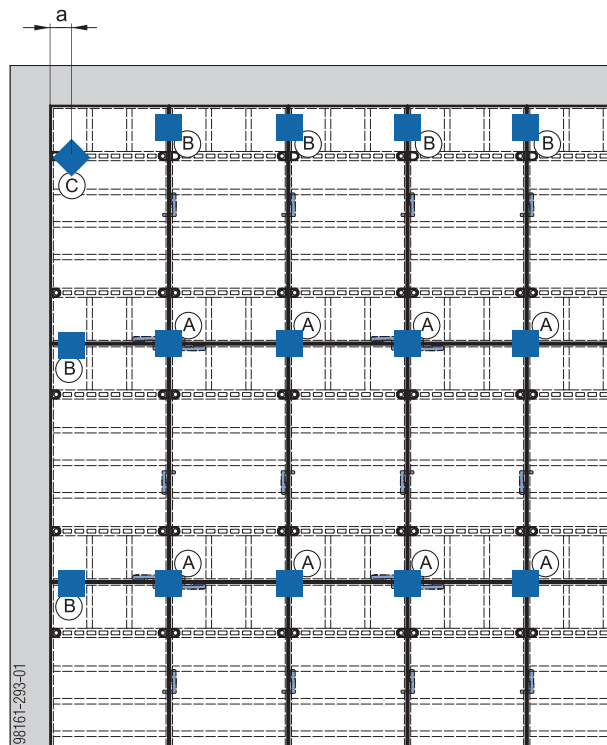
Possible positions of the DokaXLight support heads:



WARNING

- If the support head is not positioned in the function profile or at an intersection, the floor props have to be secured with Removable folding tripods so that they cannot tip over.

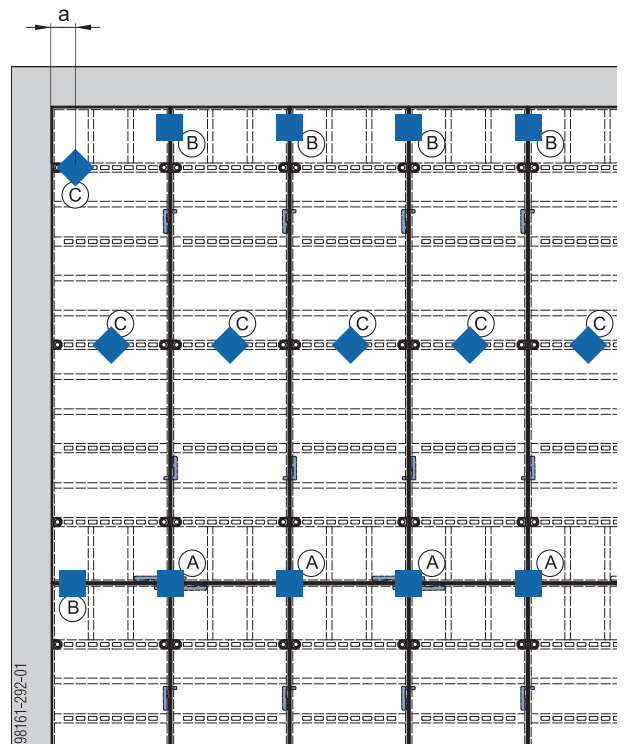
Practical example with 0.75x1.50m panels:



a ... max. 145 mm distance between support head and wall

- A Intersection of four panels
- B Inter-panel joint
- C Function profile

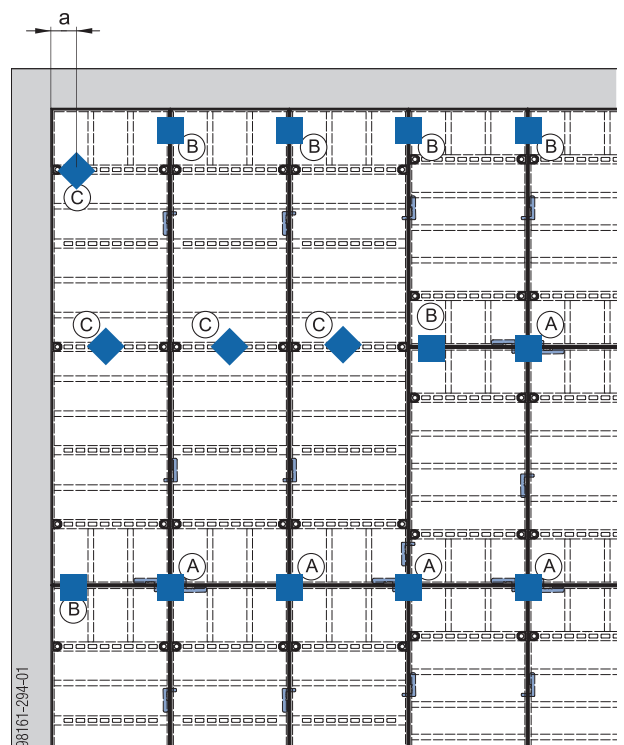
Practical example with 0.75x3.00m panels:



a ... max. 145 mm distance between support head and wall

- A Intersection of four panels
- B Inter-panel joint
- C Function profile

Practical example with 0.75x3.00m and 0.75x1.50m panels:



a ... max. 145 mm distance between support head and wall

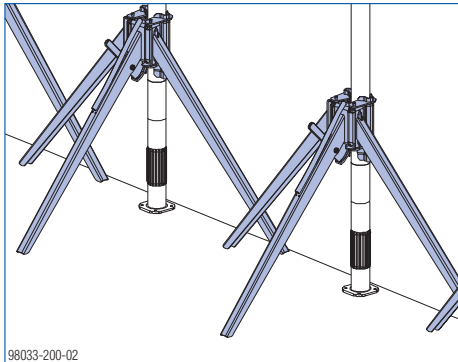
- A Intersection of four panels
- B Inter-panel joint
- C Function profile

Removable folding tripod 'top'



NOTICE

Do not oil or grease the clamping mechanism of the Removable folding tripod.



CAUTION

Risk of floor props tipping over when DokaXlight panel is tilted up!

- Make sure that the Removable folding tripod is facing in the right direction.
- The leg with the clamping lever must be pointing in the longitudinal direction of the panels.



Once the 1st panel has been secured (e.g. with universal waling) so that it cannot tip over, the Removable folding tripods can be removed. However, the Removable folding tripods **MUST** be put up again before the formwork is stripped!

Stability of formwork



WARNING

- Before anybody steps on to the surface of the formwork its stability must be ensured, for example by securing with DokaXlight universal walings 0.70m or securing with lashing straps.
- Panels must be connected to each other.
- The transfer of horizontal loads during pouring must be ensured by other measures (e.g. by transferring these loads into the structure or by bracing).

- Formwork next to walls must be secured against tip-over as shown in the illustrations.

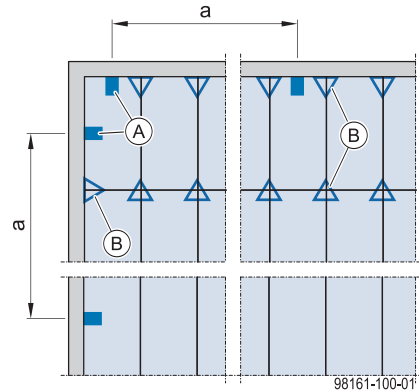


Follow the directions in the 'Lashing strap 5.00m' User Information booklet.



When the 1st row of panels has been secured (e.g. with DokaXlight universal waling 0.70m) so that it cannot tip over, the Removable folding tripods can be removed. However, the Removable folding tripods **MUST** be put up again before the formwork is stripped!

Securing with DokaXlight universal waling 0.70m



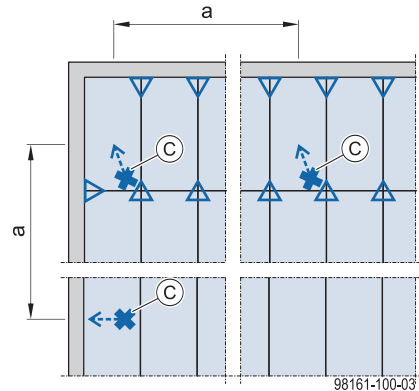
a ... fixing point on 1st panel, every max. 6.00 m and on last panel

A DokaXlight universal waling 0.70m

B Removable folding tripod

Fixing point with lashing straps

- See section [Floor formwork around edges](#).



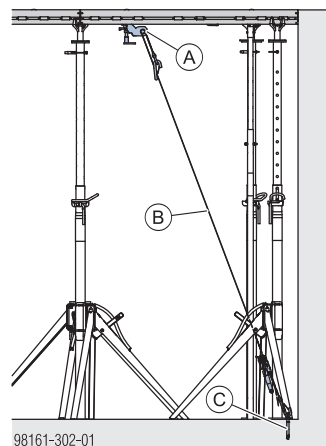
a ... fixing point on 1st panel, max. every 6.00 m **and** on last panel

C Fixing point with lashing straps

Arrow = direction of the bracing

Practical example

Tip-over protection using lashing straps secured to the concrete floor:



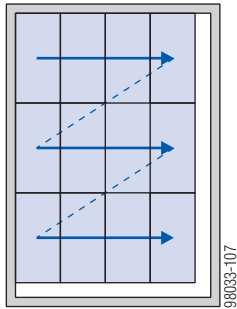
A DokaXlight prop head EB

B Lashing strap 5.00m

C Doka express anchor 16x125mm

Forming up and stripping out

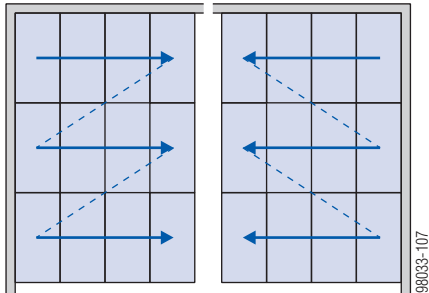
Laying direction



- 1) Start by setting up the panels row by row until only the planned infill zone is left unformed.
- 2) Then install closures.



If necessary, you can start setting up the panels working from more than one side. The separate sections that have been formed are then joined by fillers (see section [Forming infill zones](#)).



The formwork is stripped in the same way, but in reverse order.

Ladder systems and working scaffolds

Platform stairway 0.97m



- Mobile folding platform stairway made of light alloy
- Working heights of up to 3.00 m (height of top step 0.97 m)
- Stair width: 1.20 m



NOTICE

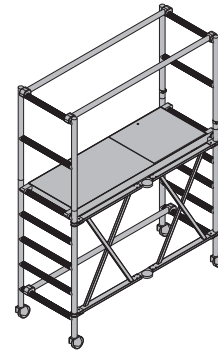
- Do not use the platform stairway for installing and removing the panels.
- Areas of use include, for example, for safety barriers, for closure areas or installation of universal walings.

Permissible load-bearing capacity: 150 kg



Follow all country-specific regulations!

Wheel-around scaffold DF



- Collapsible wheel-around platform made of light alloy.
- Variable working heights of up to 3.50 m (max. platform height 1.50 m)
- Width of scaffold: 0.75 m



NOTICE

- Do not use the Wheel-around scaffold DF for installing and removing the panels (because of the risk of tip-over).
- When work is being carried out near drop-off edges (i.e. at a distance of < 2 m), the Wheel-around scaffold DF accessory set (consisting of a toeboard and intermediate guardrail) is needed.



Follow the directions in the User Information booklet!

Instructions for assembly and use (Method statement)



NOTICE

As well as the instructions given here, you must follow the instructions in [section Reshoring props, concrete technology and stripping out](#).



NOTICE

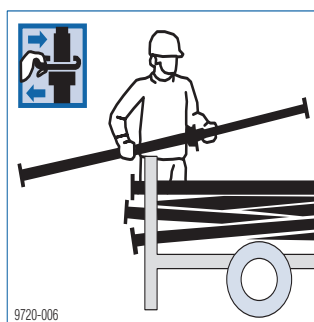
For manual transport, hold the floor prop only at the outer and inner tubes.



Closing the formwork

Preparations

- Set the **assembling tools** to the required length (= approx. room height). Min. 2 assembling tools needed per site-erection team.
- Roughly adjust the height of the floor prop, using the fastening clamp.



The pegging holes are all numbered, which makes it easier to adjust the props to the same height.
Required length of the floor prop = room height minus 21.4 cm.



WARNING

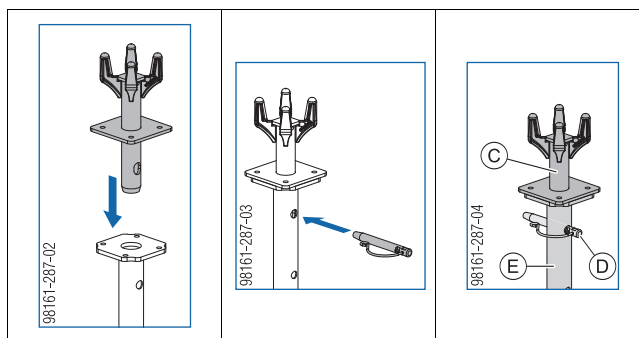
- It is **not permitted** to use the **Floor prop extension 0.50m**.
- Floor props must not be used extended to their full lengths! A **reduction of 12 cm** is necessary.



- The fastening clamp **(A)** has to be pushed all the way into the floor prop.
- Adjusting nut **(B)** has to be tightened into contact with the fastening clamp.



- Insert the DokaXlight support head into the floor prop and **secure it with a Spring locked connecting pin 16mm**.



C DokaXlight support head

D Spring locked connecting pin 16mm

E Doka floor prop Eurex 20 top

Putting up 2 floor props

- Position floor props one panel length (e.g. 150 cm) away from the wall and set up Removable folding tripods to secure them against tip-over.



CAUTION

Risk of floor props tipping over when DokaX-light panel is tilted up!

- Make sure that the Removable folding tripod is facing in the right direction.
- The leg with the clamping lever must be pointing in the longitudinal direction of the panels.



CAUTION

- When tilting up the panel, give the floor props additional fixing to prevent them tipping over (i.e. the Removable folding tripods alone are insufficient).

Mounting the 1st row of panels

Mount the 1st panel

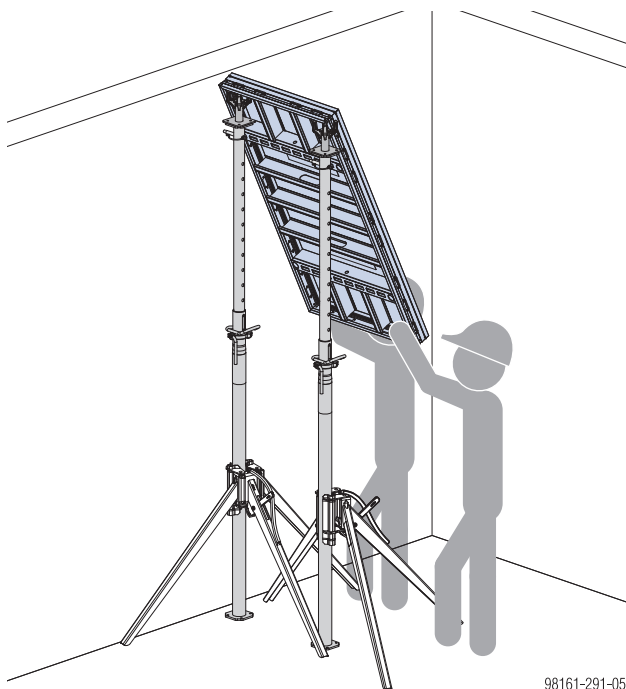


CAUTION

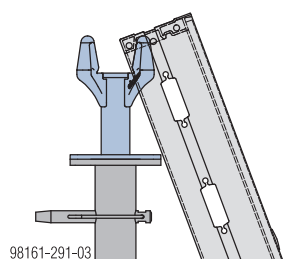
If it collides with the wall as it is being swung up, the panel can disengage from the support head.

- Position floor props one panel length away from the wall to prevent collisions.

- Persons 1 and 2: Engage the panel in the support heads of both props. Make sure that the distance from the wall is at least one panel length.



Make sure that the panel is correctly fitted onto the pins of both supporting heads.



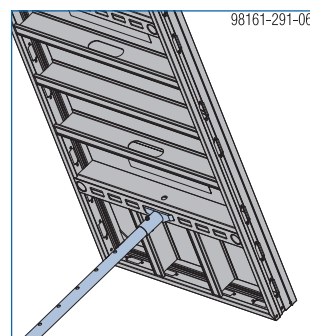
CAUTION

- Never leave panels hanging in only two support heads.

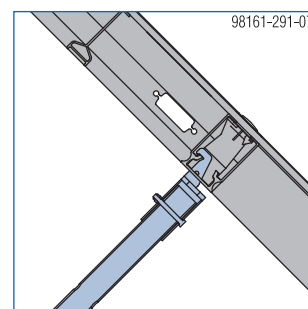
There is a risk of the floor props tipping over.

- Person 1: Tilt the panel part-way up.

- Person 2: Engage the DokaXlight assembling tool in the function profile of the panel.



Check that the hooks of the assembling tool are correctly engaged in the function profile (approximately centred).



- Person 1: Secure the floor props so that they cannot tip over.
- Person 2: Tilt the panel up into place and secure the DokaXlight assembling tool so that it cannot tip over.



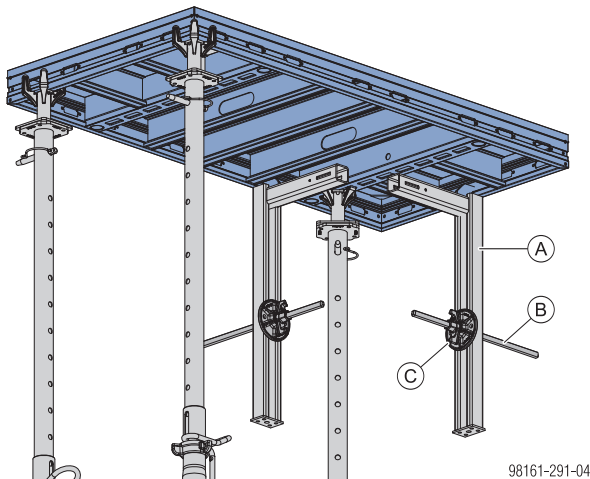
- Person 1: Prop the panel with a floor prop (including support head) and secure the prop so that it cannot tip over.



Make sure that the panel is correctly fitted onto the pins of the supporting heads.

- Use the screw jacks of the floor props to plumb and level the panel.

- Secure the panel to the wall in both directions with universal walings. Do not fully tighten the super plate until after the first row has been completely installed.



98161-291-04

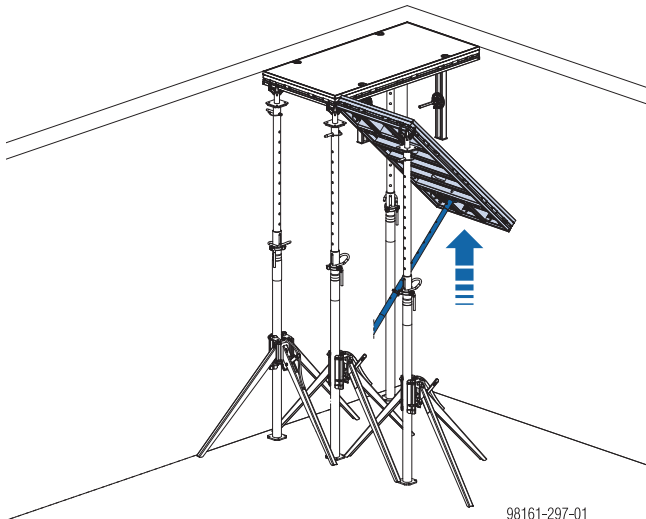
A DokaXlight universal waling 0.70m

B Tie rod 15.0mm

C Super plate 15.0

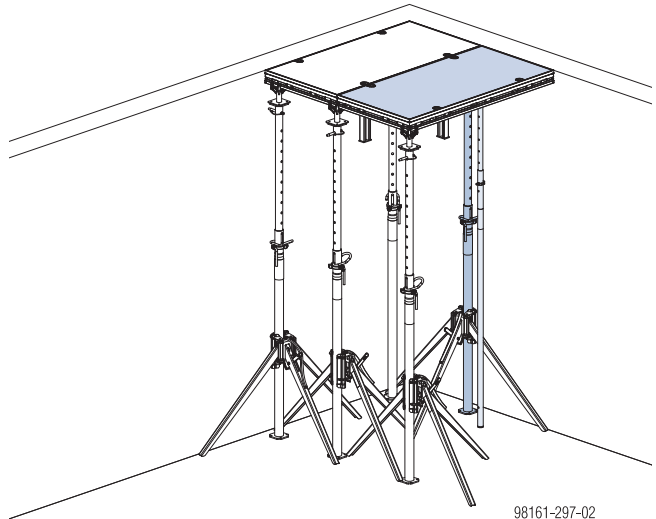
Installing the 2nd panel

- Set up another floor prop for the next panel and secure the floor prop so that it cannot tip over.
- Persons 1 and 2: Engage the second panel in the support heads of the two props and tilt it part-way up.
- Person 2: Engage the DokaXlight assembling tool in the function profile of the panel. Tilt the panel up into place, position the assembling tool as close as possible to the vertical and secure it so that it cannot tip over.



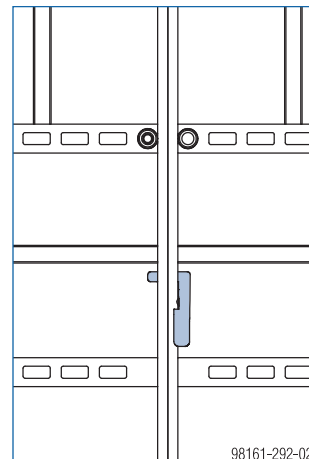
98161-297-01

- Person 1: Support the panel on a floor prop (including support head). Ensure stability during the set-up operations (see section [Ground rules](#))!



98161-297-02

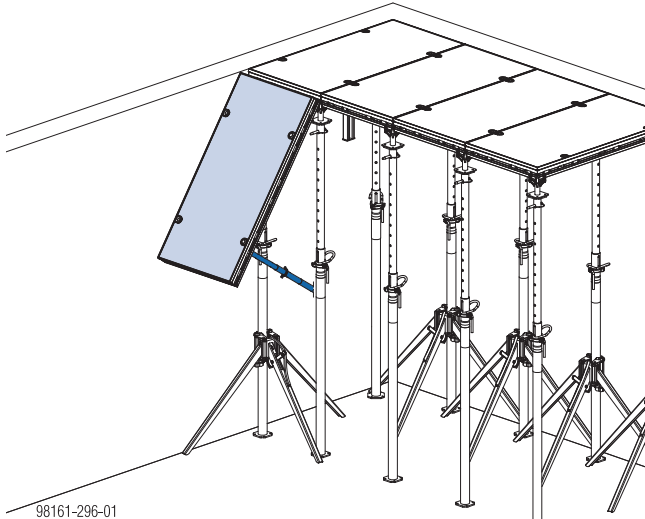
- Precision-align the panels with each other so that there is zero offset and level the panels.
- Install DokaXlight clips or DokaXlight I-Connectors to connect the two panels to each other so that they cannot pull apart.



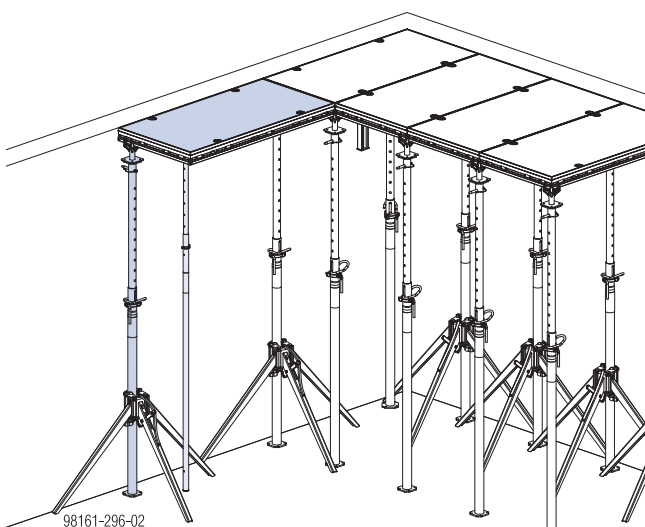
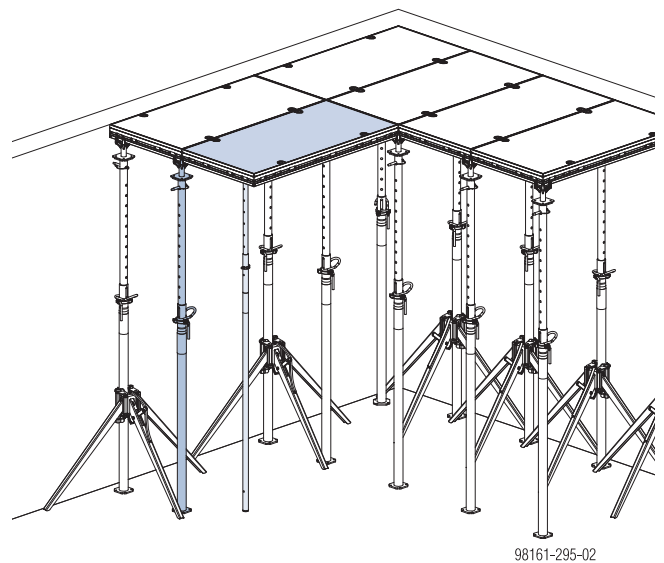
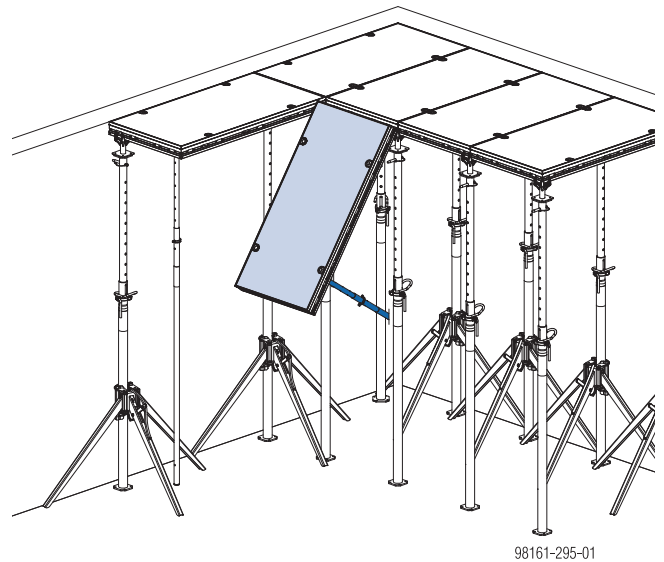
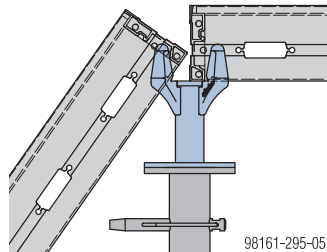
98161-292-02

Putting up further rows of panels

- ▶ Set up further rows of panels in the same way, until only the planned infill zone is left unformed. Ensure stability during the set-up operations (see section [Ground rules](#))!
- ▶ Continue connecting panels together along the long side and the broad side.

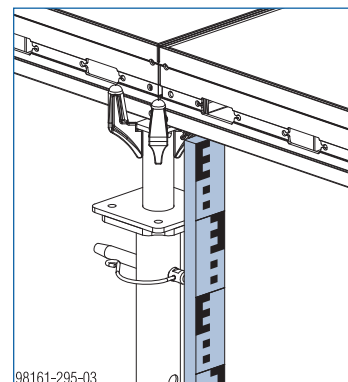


Make sure that the panel is correctly fitted onto the pins of both supporting heads.



Levelling the formwork

- ▶ Level the panels at room height minus 10 cm.



a ... 10 cm (frame profile height of the DokaXlight panels)

Mounting fillers

- ▶ See the section headed [Forming infill zones](#).

Pouring

► Before pouring, recheck all floor props.



- The fastening clamp **(A)** has to be pushed all the way into the floor prop.
- Adjusting nut **(B)** has to be tightened into contact with the fastening clamp.



Permitted slab thickness: max. 50 cm

To protect the surface of the form-facing, we recommend using a vibrator with a protective rubber cap.

Stripping the formwork

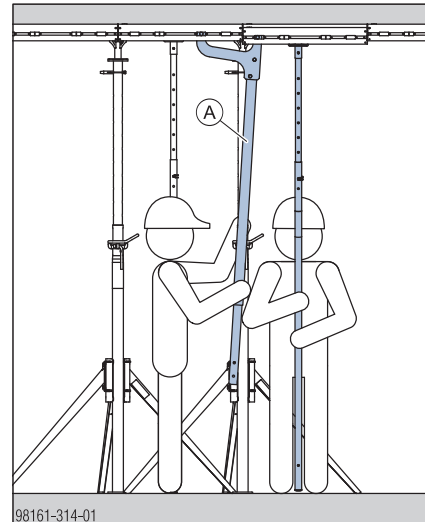


NOTICE

- Comply with the stipulated stripping times.
- Always strip out the formwork in reverse order.
- As well as the instructions given here, you must follow the instructions in section [Reshoring props, concrete technology and stripping out](#).



The Dokadek stripping tool **(A)** provides an easy, safe way of detaching panels from the concrete where necessary.



Preparations



NOTICE

- Before stripping the formwork, make sure that the floor props in the last row of panels to be struck are still fixed with Removable folding tripods.
- Set the **assembling tools needed** to the required length (= approx. room height).
- Secure the panels so that they cannot suddenly drop.
- Lower the formwork in the infill zone (floor props approx. 2 cm).
- Remove the fitting timber, for example using a working scaffold.
- Remove the panels.

Dismantling the floor props and panels



NOTICE

- Loosen the adjusting nut with a blow of the hammer and turn it to lower the floor prop.
- Lower the floor props of the first row of panels to be stripped out by approx. 2 cm.

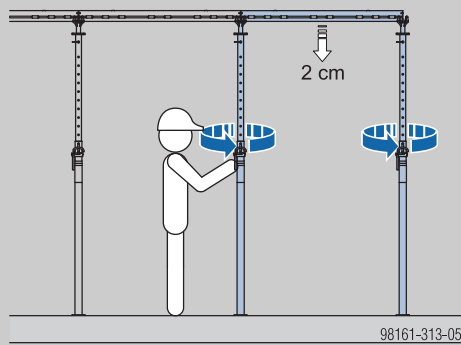


WARNING

Do not lower the floor props too far.

Floor props can tip over if they are lowered too far.

- Consequently, lower the floor props no more than max. 2 cm (approx. 1 full turn of the adjusting nut)



- Prop the 1st and 2nd panels on assembling tools. (Max. inclination of the assembling tool with respect to the perpendicular: 5°)
- Remove the 1st and 2nd floor props and place them in a stacking pallet.



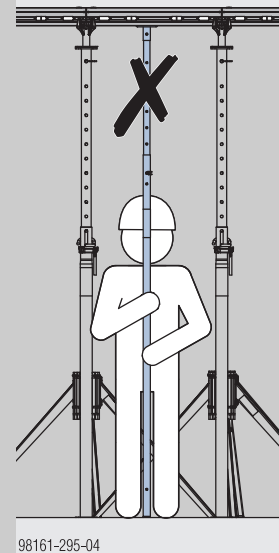
NOTICE

- Bring the floor prop into a horizontal position.
- If necessary, open the fastening clamp and push the inner tube into the outer tube.
- Lay the floor prop on the stacking pallet.



CAUTION

- Use only the Dokadek stripping tool to release the panels from the concrete.



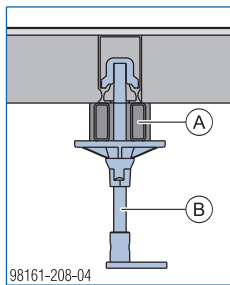
- Using the assembling tool, lower the panel until the 2nd person can take hold of it and tilt it all the way down.
- Lift the panel off the prop-heads and set it down.
- Place the assembling tool beneath the 3rd panel, remove the 3rd floor prop and place it in the stacking pallet. (Max. inclination of the assembling tool with respect to the perpendicular: 5°)
- Unhook the 2nd panel and place it on a panel pallet.
- Take down all the other panels in the same way.

Reshoring

- Before pouring the next floor-slab (i.e. above the one that has just been stripped), put up reshoring props.
- See the section headed [Reshoring props, concrete technology and stripping out](#).

Forming infill zones

As with length adjustment using closures, the infill area here is supported by a universal waling. It is secured from below to the function profile with a universal clamp.



A DokaXlight universal waling 0.70m, Frami universal waling (overall height 5 cm) or Framax universal waling (overall height 10 cm)

B Universal clamp 5-10cm



NOTICE

- Ideally, closures should be mounted from below (e.g. from a Wheel-around scaffold DF).
- If closures have to be mounted from above, the crew must use a personal fall-arrest system (e.g. safety harness).
- Suitable attachment points must be defined by an approved person appointed by the contractor.

Areas where closures may be needed:

- at wall connections
 - between 2 DokaXlight forming-sections
 - around columns
- Use a universal clamp to secure the DokaXlight universal waling to each function profile.



NOTICE

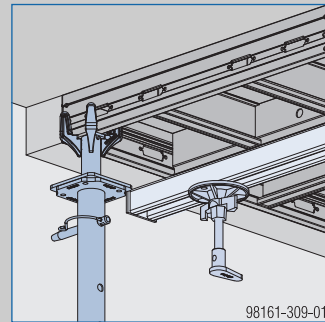
- Tighten the super plate of the universal clamp with blows of a hammer. This secures the universal waling against accidental loosening.
- Lay squared timber and formwork sheet on the pre-installed universal walings.



WARNING

Falling hazard! Do not step onto loose sheets and squared timber!

- If possible, use DokaXlight universal walings 0.70m to support the cantilevered lengths of squared timbers.
- If this is not possible, use site-provided screws or nails to secure the cantilevered lengths of squared timbers so that they cannot suddenly lift out.

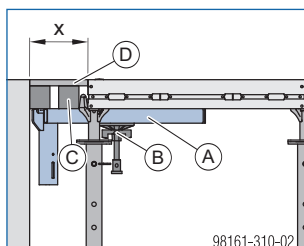


- Only step onto these once the entire infill zone has been closed and secured by nailing!

Recommended nail lengths:

- Sheet thickness of 18 mm: approx. 60 mm
- Sheet thickness of 21 mm: approx. 65 mm
- Sheet thickness of 27 mm: approx. 70 mm

Infilling along wall connections



x ... max. closure width

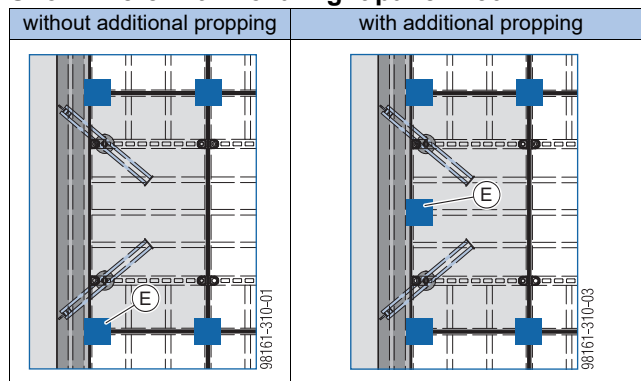
- A** DokaXlight universal waling 0.70m or Frami universal waling
- B** Universal clamp 5-10cm
- C** Squared timber
- D** Formwork sheet

Closures along wall connections [cm]

Max. slab thickness 'd'	Max. closure width 'x'	
	without additional propping ¹⁾	with additional propping
20	25	30
25	17	30
30	10	30
40	—	29
50	—	26

¹⁾ permissible only with DokaXlight panels up to 1.50m

Shown here with DokaXlight panel 1.50m



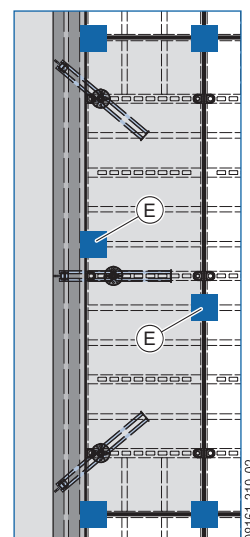
E Doka floor prop Eurex 20 top with DokaXlight support head



NOTICE

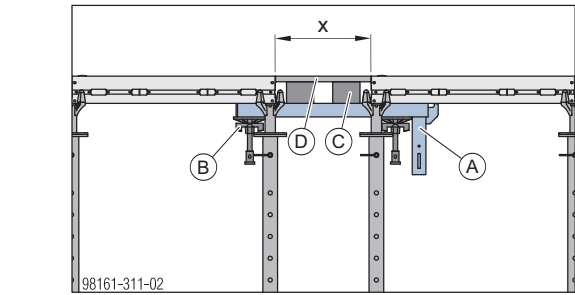
As a general rule, additional propping is necessary for closure at a DokaXlight panel 3.00m!

Shown here with DokaXlight panel 3.00m and additional propping



E Doka floor prop Eurex 20 top with DokaXlight support head

Closures between 2 DokaXlight forming-sections



x ... max. closure width

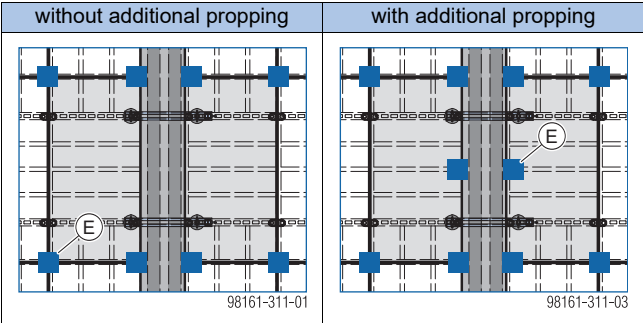
- A DokaXlight universal waling 0.70m or Frami universal waling
- B Universal clamp 5-10cm
- C Squared timber
- D Formwork sheet

Closure between 2 DokaXlight forming-sections [cm]

Max. slab thick-ness 'd'	Max. closure width 'x'	
	without additional prop-ping ¹⁾	with additional prop-ping
20	65	75
25	40	75
30	25	75
40	—	75
50	—	50

¹⁾ permissible only with DokaXlight panels up to 1.50m

Shown here with DokaXlight panel 1.50m

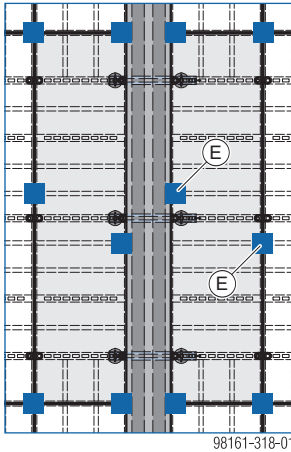


- E Doka floor prop Eurex 20 top with DokaXlight support head

!

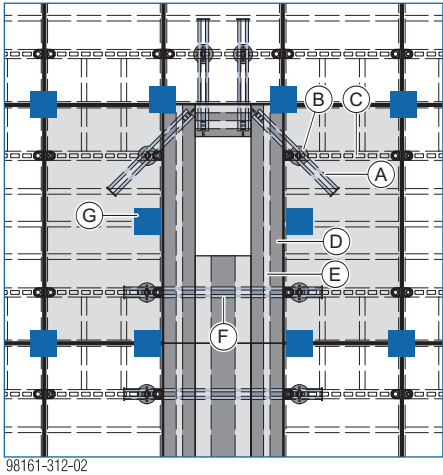
NOTICE
As a general rule, additional propping is necessary for closure at a DokaXlight panel 3.00m!

Shown here with DokaXlight panel 3.00m and additional propping



- E Doka floor prop Eurex 20 top with DokaXlight support head

Infill zones around columns



- A DokaXlight universal waling 0.70m or Frami universal waling
- B Universal clamp 5-10cm
- C Function profile
- D Squared timber
- E Formwork sheet
- F Frami universal waling 1.25m
- G Doka floor prop Eurex 20 top

Floor formwork around edges

Tie-back with Lashing strap 5.00m and Doka express anchor 16x125mm



Follow the directions in the 'Lashing strap 5.00m' and 'Doka express anchor 16x125mm' User Information booklets.



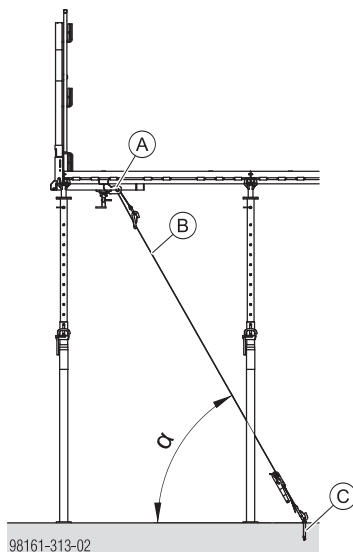
WARNING

- Use bracing to transfer horizontal forces. These forces can also be transferred into existing structural members such as concrete columns or walls.
- Do NOT exceed the permitted tie-back angle and tie-back force to avoid damage to the DokaXLight panel and to ensure that all forces from horizontal loads can be transferred in conformity with EN 12812.



NOTICE

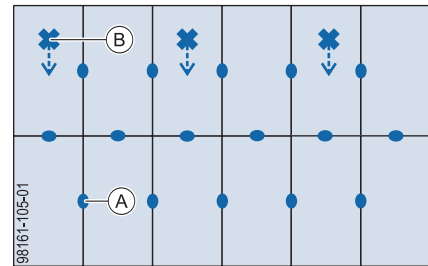
- Install Lashing strap 5.00m only as shown (attachment e.g. directly to the framed formwork panel is forbidden).
- Pay attention to the direction of the tensile forces!
- When calculating the leg loads, allow for the additional forces imposed by the bracing!



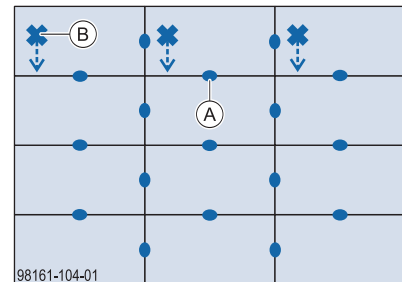
α ... tie-back angle approx. 60°

- A** DokaXLight prop head EB
- B** Lashing strap 5.00mm
- C** Doka express anchor 16x125mm

Bracing in longitudinal direction



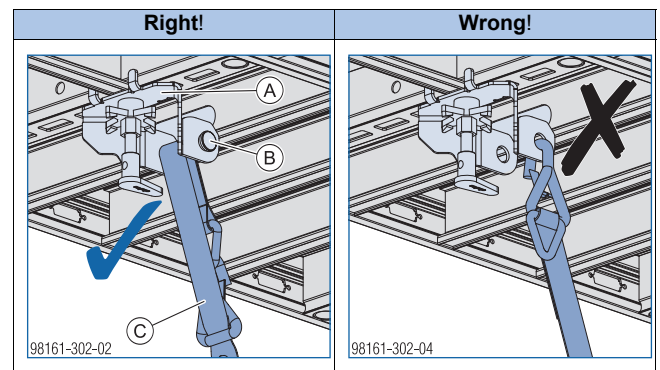
Bracing in transverse direction



- A** Formwork element connector
- B** Fixing point with lashing straps
Arrow = direction of bracing

Tie-back at DokaXLight prop head EB

- Install the prop head on the function profile according to the necessary direction of the tensile forces.
- Insert the pin into the prop head and secure the pin.
- Loop a Lashing strap 5.00m round the pin and secure it to the floor.

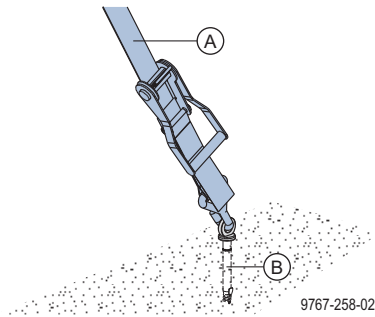


- A** DokaXLight prop head EB
- B** Pin D25/93.5 + Spring cotter 5mm
- C** Lashing strap 5.00m

Permitted tensile force per lashing strap: 5 kN

Anchoring in the ground

- Prepare an anchorage point in the ground with the Doka express anchor.
- Attach the lashing strap and tighten it.



A Lashing strap 5.00m

B Doka express anchor

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

Permitted load where $f_{ck, cube, current} \geq 10 \text{ N/mm}^2$:

$F_{perm.} = 10.0 \text{ kN}$ ($R_d = 15.0 \text{ kN}$)



Follow the directions in the 'Doka express anchor 16x125mm' and 'Lashing strap 5.00m' User Information booklets.

Always perform a static check if other-make heavy-duty dowels are used to fabricate anchorages in the floor slab.

Follow the manufacturers' applicable fitting instructions.

Fall protection on the formwork



NOTICE

- Ideally, fall protection should be mounted from below (e.g. using a Wheel-around scaffold DF).
- When installing and removing the edge protection from above, the crew must use a personal fall-arrest system (e.g. the Doka personal fall-arrest set).
- Suitable attachment points must be defined by an approved person appointed by the contractor.



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



CAUTION

- Allowance for a DIN 4420 walkway of at least 60 cm in width has to be made when using the Handrail post XP 1.20m.

Permitted influence width [cm] of the DokaXlight universal walings 0.70m for slab thicknesses up to 50 cm (with additional precautions)

Peak velocity pressure q [kN/m ²]	Safety barrier			
	Guardrail board 15 cm	Guardrail board 20 cm	Scaffold tube 48.3mm	Protective grating XP 2.70x1.20m
0.2	100	92	122	122

Permitted influence width [cm] of the DokaXlight universal walings 0.70m with Handrail post XP 1.20m

Peak velocity pressure q [kN/m ²]	Safety barrier			
	Guardrail board 15 cm ¹⁾	Guardrail board 20 cm ¹⁾	Scaffold tube 48.3mm	Protective grating XP 2.70x1.20m
0.2	270	260	500	250
0.6	270	190	500	250
1.1	140	100	390	250
1.3	120	90	330	250

¹⁾ Minimum thickness 3 cm for influence width greater than 137 cm.

Permitted influence width [cm] of the DokaXlight universal walings 0.70m with Handrail post XP 1.80m

Peak velocity pressure q [kN/m ²]	Safety barrier			
	Guardrail board 15 cm ¹⁾	Guardrail board 20 cm ¹⁾	Scaffold tube 48.3mm	Protective grating XP 2.70x1.20m + 2.70x0.60m
0.2	270	280	500	250
0.6	240	170	500	250
1.1	130	90	380	250
1.3	110	80	320	250

¹⁾ Minimum thickness 3 cm for influence width greater than 37 cm.

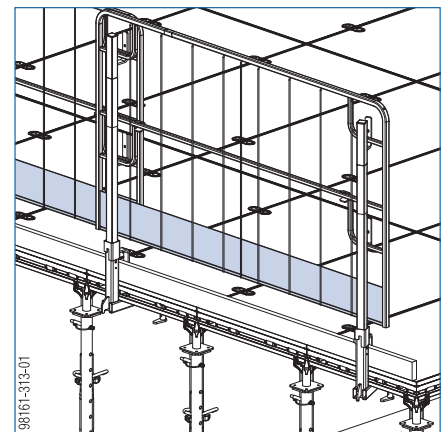


- The span of the handrail posts is roughly equal to the influence width if
 - they are evenly spaced,
 - the guardrail boards are either continuous or are jointed at the handrail posts, and
 - there are no cantilevering projections.
- The wind conditions likely to be encountered in Europe, in accordance with EN 13374, are largely recognised by the peak velocity pressure $q=0.6 \text{ kN/m}^2$ (highlighted grey in the tables).



NOTICE

For slab thicknesses > 14.5 cm, raise the Protective grating XP into the position shown here, so as to obtain the required railing height after pouring.



Securing DokaXlight universal waling 0.70m



NOTICE

The universal waling must be seated against the panel.



NOTICE

When Universal clamps 5-10cm are used to secure the universal waling, the permitted distance between the universal clamp and the edge of the panel is max. 385 mm.

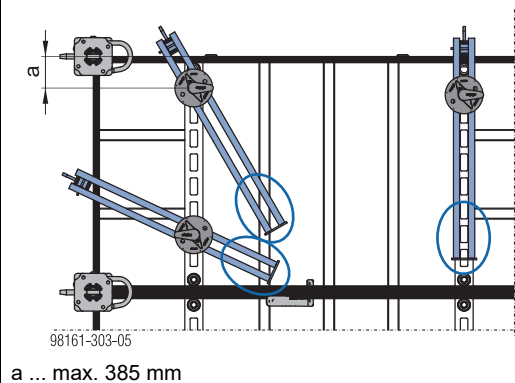
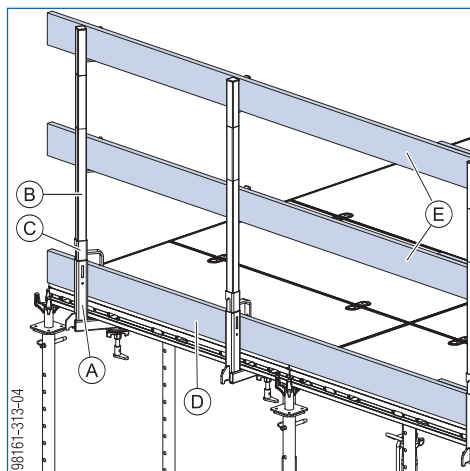
- Working from below, install the DokaXlight universal waling 0.70m on the function profile with Universal clamp 5-10cm.

**NOTICE**

Tighten the super plate of the universal clamp with blows of a hammer. This secures the universal waling against accidental loosening.



Make sure that the end of the waling is supported on a profile

**Practical example with guardrail boards**

A DokaXlight universal waling 0.70m

B Handrail post XP 1.20m

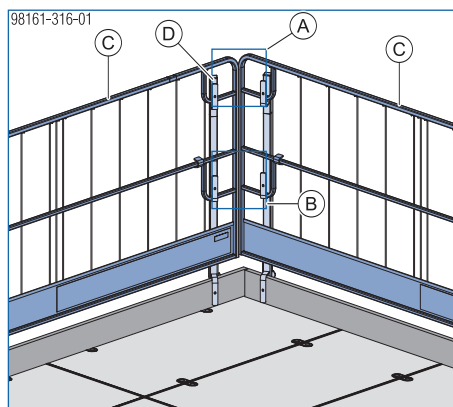
C Toeboard holder XP 0.60m

D Toeboard

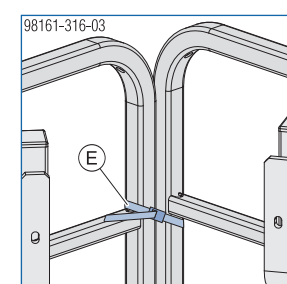
E Guardrail boards

Fall protection at corners**NOTICE**

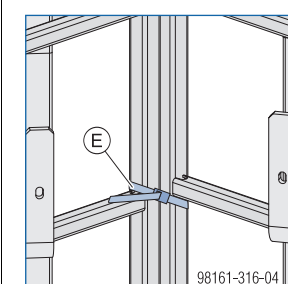
- In corner zones, the two Protective gratings XP must be attached to each other with cable ties or binding wire (see the blue markings in the examples illustrated here). It is not permitted to use the Velcro® fastener 30x380mm.

Practical example for slab thickness ≤ 35 cm

Close-up A: Means of attachment



Close-up B: Means of attachment



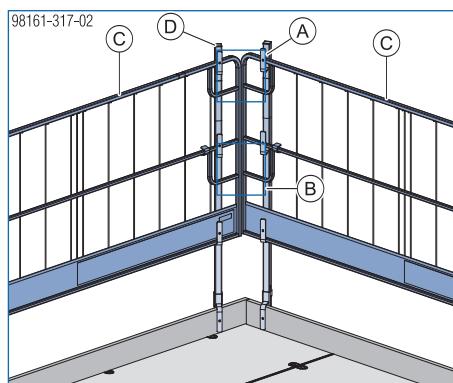
A Close-up A

B Close-up B

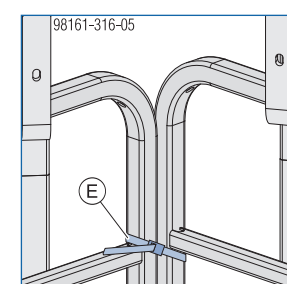
C Protective grating XP 2.70x1.20m

D Handrail post XP 1.20m

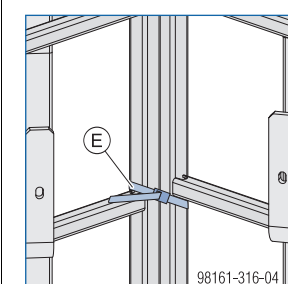
E Attached with cable tie or binding wire

Practical example for slab thickness > 35 cm

Close-up A: Means of attachment



Close-up B: Means of attachment



A Close-up A

B Close-up B

C Protective grating XP 2.70x1.20m

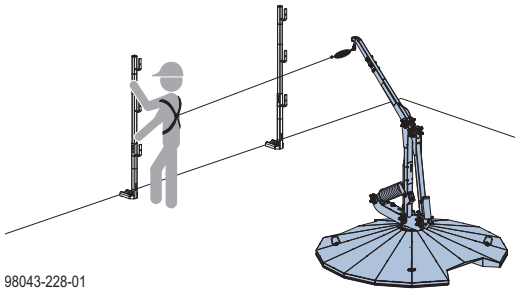
D Handrail post XP 1.80m

E Attached with cable tie or binding wire

FreeFalcon



A fall arrester such as the FreeFalcon provides a mobile anchorage point for the safety harness.



98043-228-01

Symbolic representation



WARNING

Risk of falling at open edges!

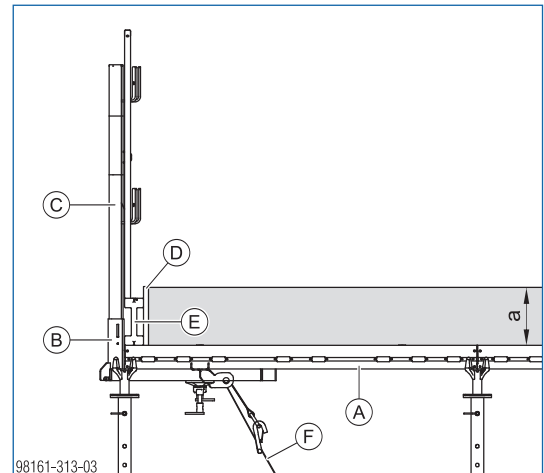
- The crew must use personal fall-arrest systems (e.g. safety harnesses) until all fall protection has been installed.
- Suitable anchorage points must be defined by an approved person appointed by the contractor.



User instruction prior to use of the FreeFalcon is mandatory. Follow the directions in the 'FreeFalcon' Operating Instructions.

Slab stop-ends

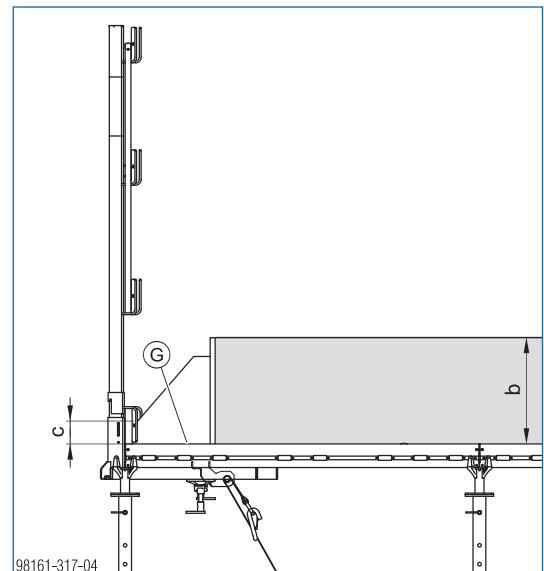
Practical example for slab thickness ≤ 35 cm



98161-313-03

a ... max. 32 cm

Practical example for slab thickness > 35 cm



98161-317-04

b ... max. 50 cm

c ... max. 5 cm

A DokaXlight panel

B DokaXlight universal waling 0.70m

C Handrail post XP 1.20m

D Formwork sheeting

E Doka beam H20

F Lashing strap 5.00m

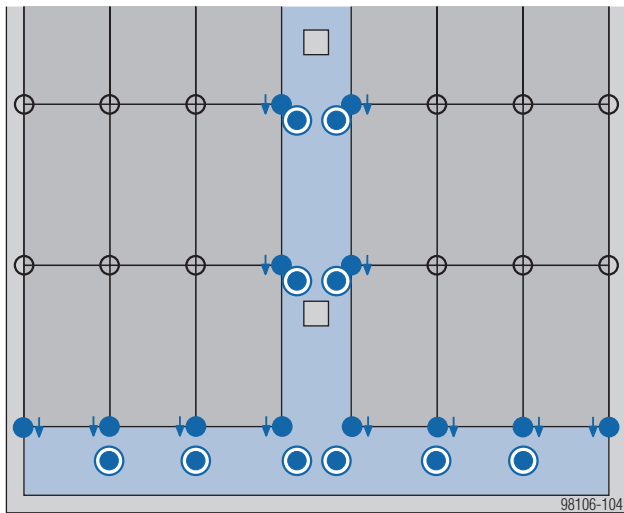
G Screws securing the stop-end to the DokaXlight panel

Early stripping

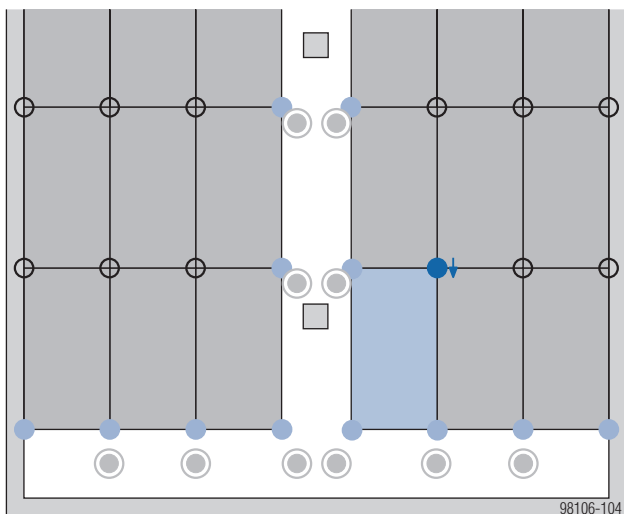
The precondition for this is the presence of an upper reinforcement layer (minimum reinforcement is sufficient) to sustain the stresses occurring above the props.

Key to symbols:

- System prop under load
 - ↓ ● Floor prop to be lowered
 - ⊙ Temporary reshore to be installed - same type of floor prop as system prop
 - ⊙ Temporary reshore already under load
 - Lowered floor props
- Lower all the floor props of the panels in the edge zone of the closure.
 - Install floor props to support the formwork sheets of the closure zone.

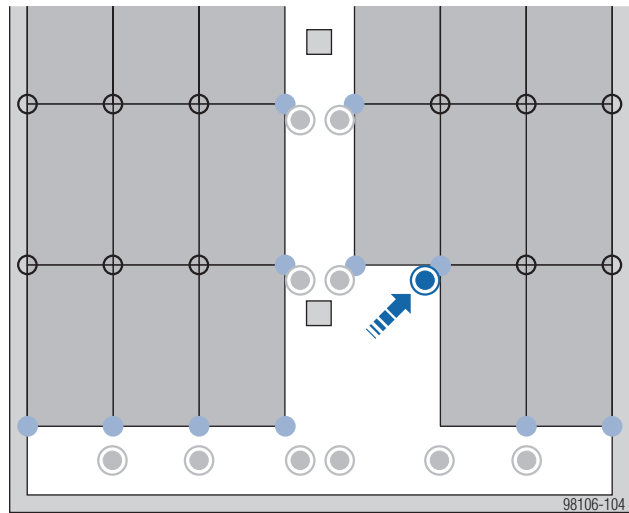


- With the exception of the formwork sheeting, remove the substructure in the closure zone.
- Lower the floor prop of the first panel.

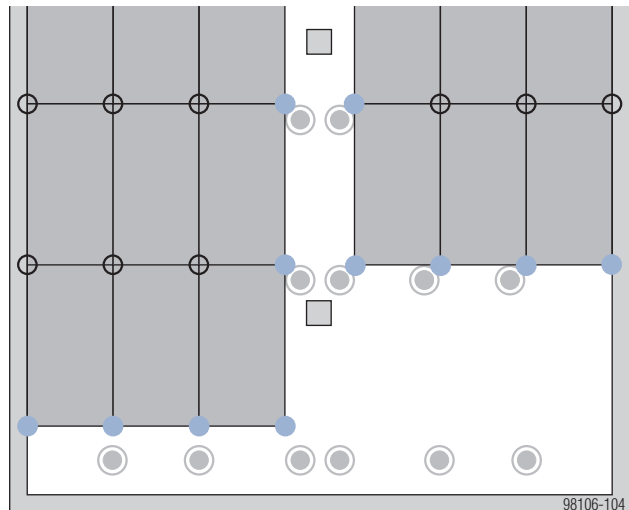


- Strip out the panel.

- Install the floor prop for the temporary reshore.



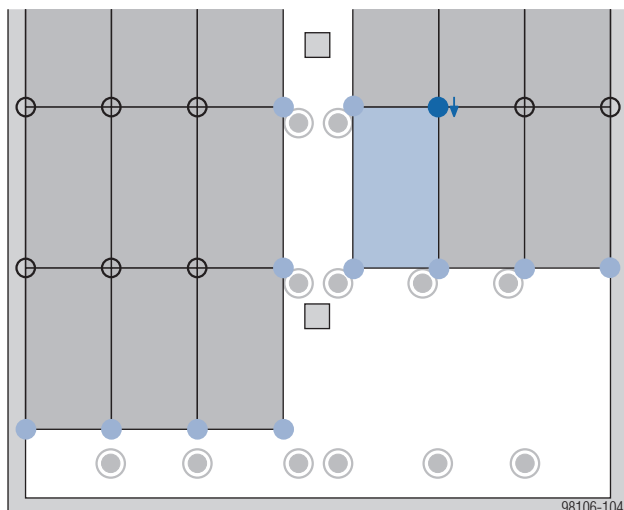
- Following the same procedure for each panel in turn, lower the floor props of the next panels, strip out the panels and install the floor props for the temporary reshore.



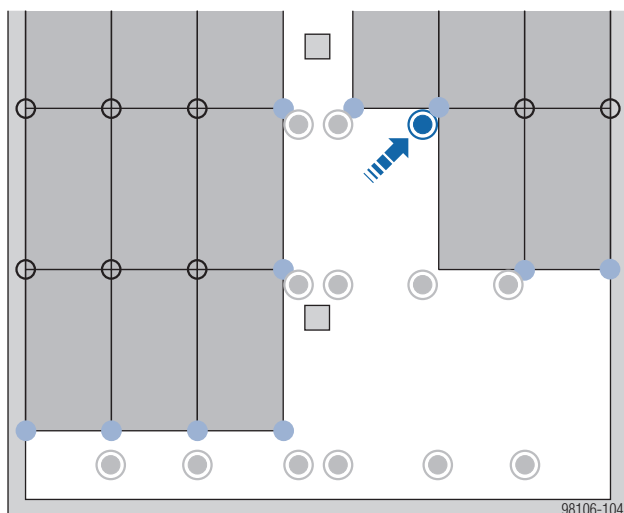
Note:

In the wall zone the extra floor prop for the temporary reshore is not necessary.

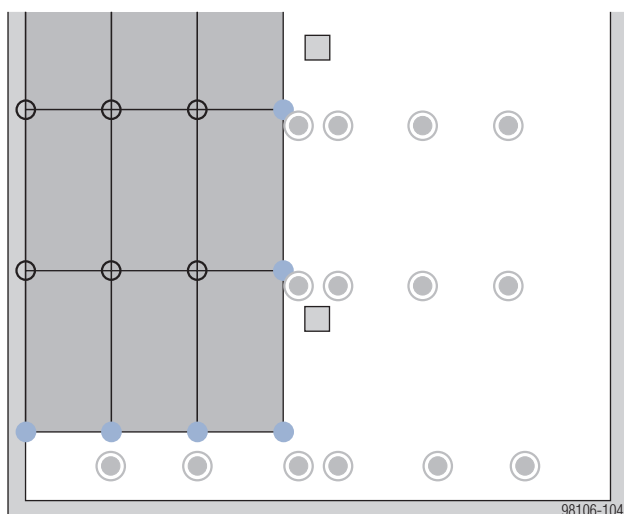
- Follow the same procedure for each row of panels in turn.
- Lower the floor props.



- Strip out the panel.
- Install the floor prop for the temporary reshore.



- Using this principle, strip out the remaining panels and install the floor props for the temporary reshore.



- Follow the same procedure to strip out the rest of the room. Now only the temporary reshore remains in place.

**NOTICE**

All systems in which the floor props are re-installed directly after section-by-section stripping, with the result that the floor slab is not activated.

In early stripping without drop head without activation of the slab, the formwork is removed section by section, with the props being re-installed immediately to reshore each section as it is stripped.

One possibility with Dokaflex 1-2-4 is to insert strips of formwork sheeting that can be propped to carry the slab, permitting the actual formwork to be stripped.

Strips of formwork sheeting can also be positioned between tables, and propped.

Important parts of the procedure:

- As each floor prop is placed it has to be pre-stressed by a blow with a hammer against the adjusting nut.
- The entire slab is not stripped at once, because it does not yet have the strength necessary to support its dead load; instead, stripping proceeds by small degrees, section by section.
- At the time of stripping concrete strength must be adequate and for the slab to support its dead load between the floor props. A minimum concrete strength of C8/10 and the presence of top reinforcement suffice for a span of max. 2.6 m between props. Top reinforcement of $1.88 \text{ cm}^2/\text{m}$ is required. If slab thickness is less than 16 cm the top reinforcement has to be at least $2.1 \text{ cm}^2/\text{m}$.
- Consequently, the slab is not activated.
- Before the next slab is poured, the floor props must be completely stress-relieved, so that they can be subsequently re-used as temporary reshores.
- It is important to allow for adequate curing.

Note:

For more information on correct positioning of the reshoring props, see section [Reshoring props, concrete technology and stripping out](#).

Reshoring props, concrete technology and stripping out



Follow the directions in the 'Stripping formwork from slabs in building construction' Calculation Guide or contact Doka!

When is the best time to strip out the formwork?

The concrete strength needed before the formwork can be stripped out will depend upon the load factor α . This can be read off from the following table.

Load factor α

This is calculated by:

$$\alpha = \frac{DL_{\text{concrete}} + LL_{\text{construction state}}}{DL_{\text{concrete}} + DL_{\text{finishing}} + LL_{\text{final state}}}$$

Slab thickness 'd' [m]	Dead load DL_{concrete} [kN/m ²]	Load factor α $LL_{\text{final state}}$			
		2.00 kN/m ²	3.00 kN/m ²	4.00 kN/m ²	5.00 kN/m ²
0.14	3.50	0.67	0.59	0.53	0.48
0.16	4.00	0.69	0.61	0.55	0.50
0.18	4.50	0.71	0.63	0.57	0.52
0.20	5.00	0.72	0.65	0.59	0.54
0.22	5.50	0.74	0.67	0.61	0.56
0.25	6.25	0.76	0.69	0.63	0.58
0.30	7.50	0.78	0.72	0.67	0.62
0.35	8.75	0.80	0.75	0.69	0.65

Valid for a finishing-load $DL_{\text{finishing}} = 2.00 \text{ kN/m}^2$ and a live load in the early-stripped state of $LL_{\text{construction state}} = 1.50 \text{ kN/m}^2$

DL_{concrete} : calculated with $\gamma_{\text{concrete}} = 25 \text{ kN/m}^3$

$DL_{\text{finishing}}$: load for floor finish, etc.

Example: Slab thickness 0.20 m with a final live load of 5.00 kN/m^2 results in a load factor α of 0.54.

This means that formwork removal / stress-release can take place once the concrete has reached 54% of its 28-day strength. The load-bearing capacity will then correspond to that of the finished structure.



NOTICE

If the floor props are not stress-relieved, meaning that the floor-slab has not been activated, then the props will remain loaded with the dead weight of the floor-slab.

When the floor above is concreted, this may lead to a doubling of the load that is being applied to the floor props.

The floor props are not designed to cope with such an overload, and the result may be damage to the formwork, the floor props and the structure.

Why put up reshoring props after stripping out the formwork?

After the formwork has been stripped and the floor-slab has been stress-relieved or dismantled, the floor-slab is able to bear its dead load and live loads resulting from the construction state, but not the concreting loads from subsequent floor-slabs.

The temporary reshoring serves to support the floor-slab and distribute the concreting loads across several floors.

Positioning the reshoring props correctly

Reshoring props have the job of spreading loads between the new floor-slab and the floor beneath it. The load distribution will depend on the relationship between these two floor-slabs and their rigidity.



NOTICE

Ask an expert!

As a rule, the question of using reshoring props should be referred to the responsible experts (e.g. structural engineers), regardless of the information given above.

Observe all local standards and regulations!



The **Floor prop spring clamp** provides extra stability of the floor prop.

- This accessory reduces the risk of the floor prop tipping over when the load on it is relieved in the course of construction work.



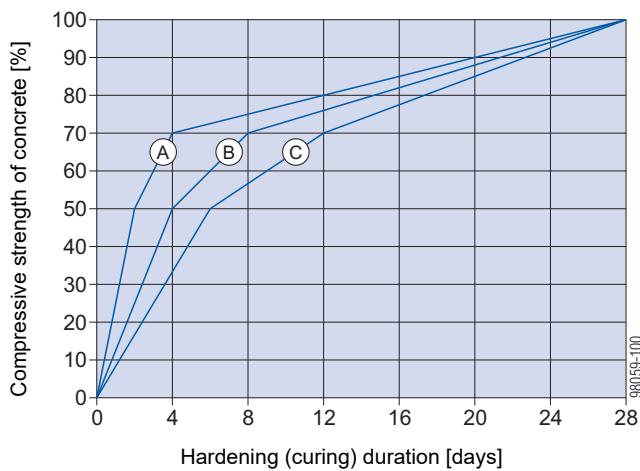
- The spring clamp is designed to be pushed into the top end of the inner tube of the floor prop.

Strength development in the new concrete

Rough reference values can be found in DIN 1045-3:2008, Table 2. The length of time until 50 percent of the final (28-day) strength is reached can be read off from this Table as a function of the temperature and the type of concrete.

The values are only valid if the concrete is given correct, appropriate curing throughout the entire period. For a concrete with medium strength development, the following inferred graph may thus be used.

Concrete-strength development – medium



A $\vartheta \geq 15^\circ$

B $\vartheta \geq 10^\circ$

C $\vartheta \geq 5^\circ$

Deflection of the new concrete

The concrete's modulus of elasticity develops faster than compressive strength. At 60 % of its compressive strength f_{ck} , the concrete has already reached approximately 90% of its modulus of elasticity $E_{c(28)}$.

The increase in the elastic deformation taking place in the new concrete is thus only negligible.

The creep deformation, which only finally ceases after several years, is several times more than the elastic deformation.

Early striking – e.g. after 3 days instead of 28 – thus only leads to an increase in the total deformation of less than 5%.

The part of this deformation accounted for by creep deformation, however, may be anything between 50% and 100% of the standard value, due to such variable influences as the strength of the aggregates, and the atmospheric humidity. This means that the total deflection of the floor-slab is practically independent of the time at which the formwork was struck.

Cracks in new concrete

The bonding strength between the reinforcement steel and the concrete develops more rapidly in the new concrete than does its compressive strength. This means that early stripping does not have any negative influence upon the size and distribution of cracks on the tension side of reinforced concrete constructions.

Other cracking phenomena can be countered effectively by appropriate curing methods.

Curing of new concrete

New site-placed concrete is exposed to influences which may cause cracking and slow down its strength development:

- premature drying
- over-rapid cooling in the first few days
- excessively low temperatures or frost

- mechanical damage to the surface of the concrete
- hydration heat
- etc.

The simplest precaution is to leave the formwork on the concrete surface for longer. As well as the familiar extra curing measures, this measure should be carried out in any case.

Removing the load from the formwork from wide-spanned floor-slabs with support centres of over 7.5m

In the case of thin, wide-spanned concrete slabs (e.g. in multistorey car parks), the following points must be remembered:

- When the formwork beneath these slab spans is released (i.e. when the load is taken off the floor props), the floor props that are still in place are briefly subjected to additional loads. This may lead to overloading, and to the floor props being damaged.
- Please consult Doka.



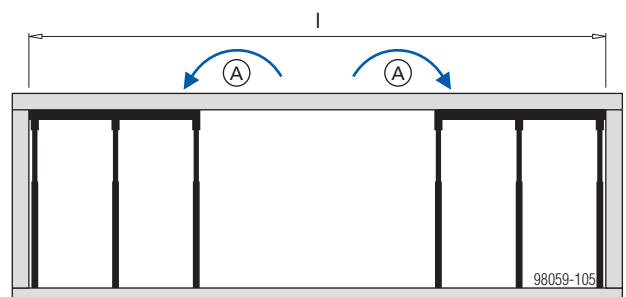
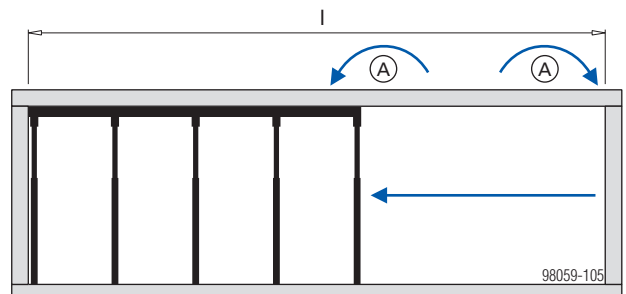
NOTICE

As a general rule:

- Stress-release should always be carried out working **from one side towards the other, or from the middle of the slab (mid-span) towards the slab edges**.

For wide spans, this procedure **MUST** be followed!

- Stress-release must **NEVER** be carried out **from both sides towards the middle!**



I ... effective floor-slab spans of 7.50 m and over

A Load redistribution

General

Areas of use

Forming self-compacting concrete (SCC)

The **Universal panel SCC 0.45x1.50m** allows self-compacting concrete (SCC) to be poured.



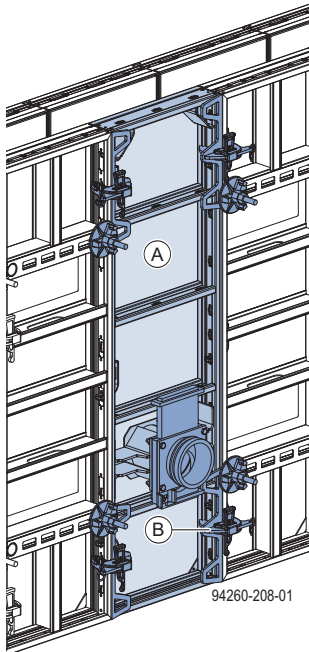
NOTICE

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



A Universal panel SCC 0.45x1.50m

B DokaXlight adapter Frami

Using as downturned-beam formwork

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

- The tie-points are above/below the panel – No form ties in the concrete
- Form-tie spacing freely selectable

Required numbers of Frami tie-holder brackets:

DokaXlight panel (on its side)	Number of Frami tie-holder brackets	
	top	bottom
1.00m	2 / 1 *)	2 / 1 *)
1.50m	2 / 1 *)	2 / 1 *)
3.00m	3	3

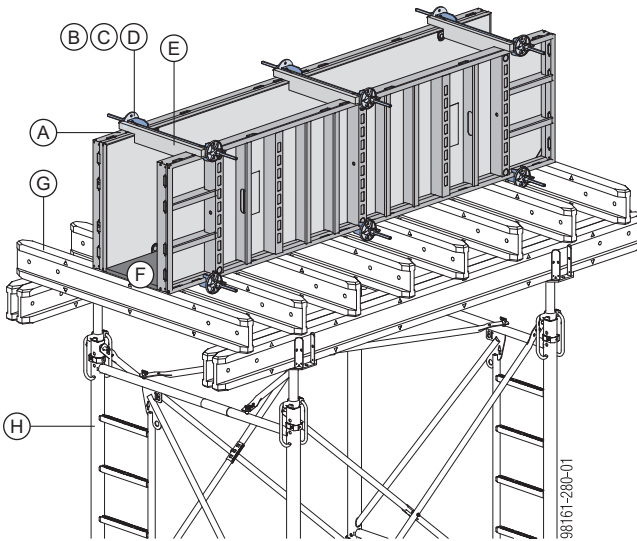
Downturned beam height: max.75 cm

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

Frami tie-holder bracket:

Permitted load-bearing capacity: 10 kN

Example with 0.75x3.00m panel



A DokaXlight panel 0.75x3.00m

B Frami tie-holder bracket

C Tie rod 15.0mm

D Super plate 15.0

E Wooden spacer

F Formwork sheet

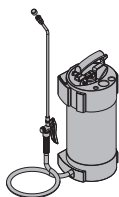
G Doka beam H20

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.



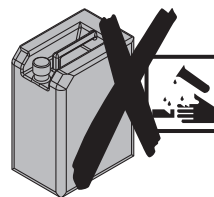
To determine the right dosage and to make sure that you are using the agent correctly, test it on less important parts of the structure first.

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

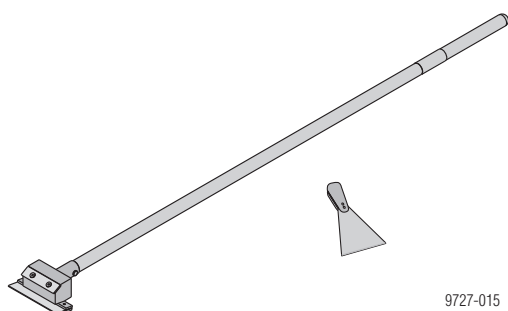


NOTICE

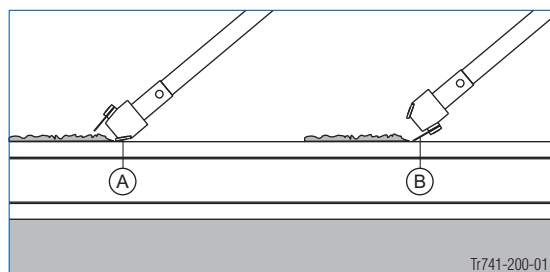
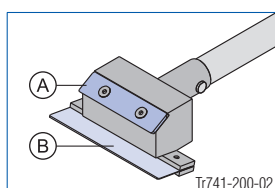
- Appliance pressure rating: 200 to max. 300 bar
- Keep the water-jet the correct distance from the formwork, and move it at the right speed:
 - The higher the pressure, the further away from the formwork you must keep the jet and the faster you must move it across the surface.
- Do not aim the jet at 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:



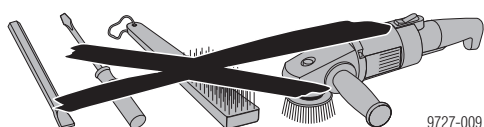
A Blade for dealing with heavy soiling

B Blade for dealing with slight soiling



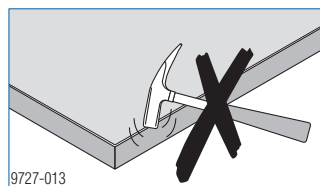
NOTICE

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

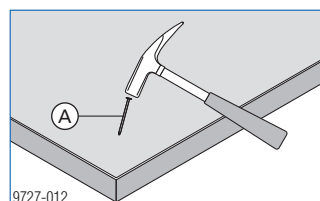


Care

- No hammer-blows to the frame profiles

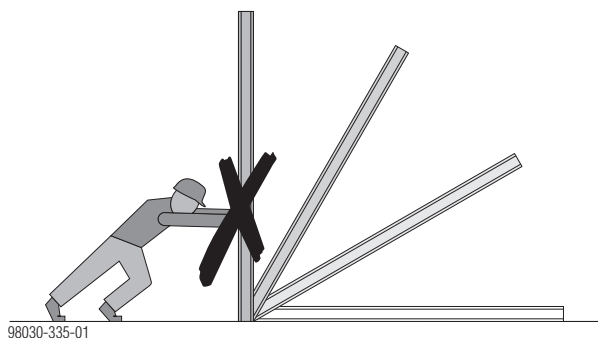


- Do not use nails on the formwork that are longer than 60 mm

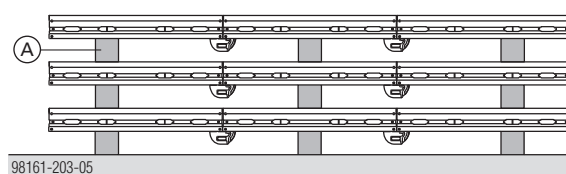


A max. l=60 mm

- 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.

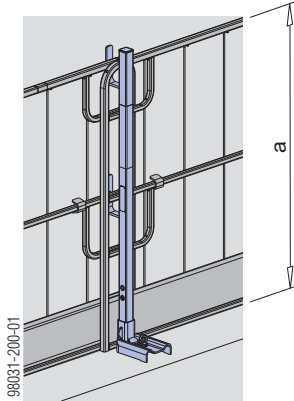


This prevents the formwork sheets from being damaged by the connector components.

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



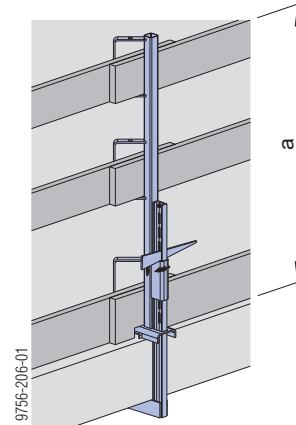
a ... > 1.00 m



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



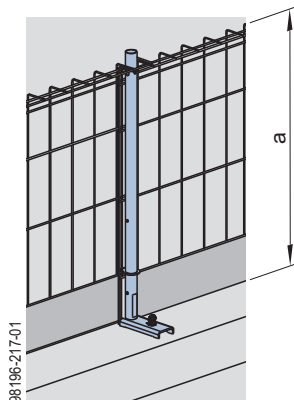
a ... > 1.00 m



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



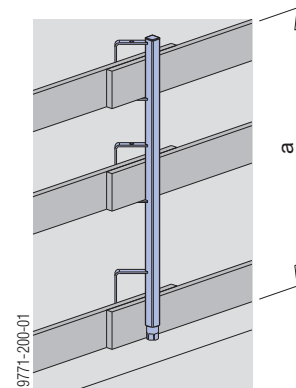
a ... > 1.17 m



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

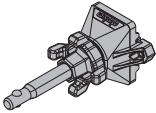
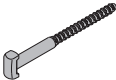
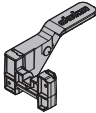
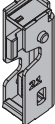
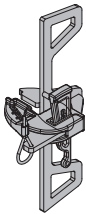
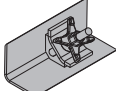
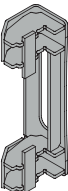
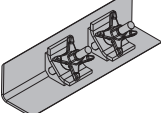
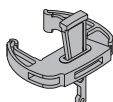
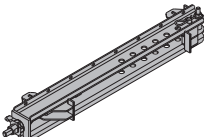
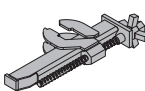
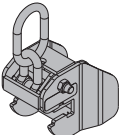
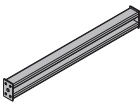
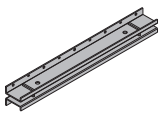
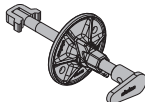


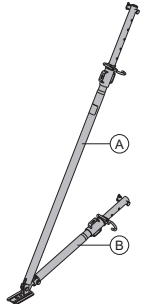
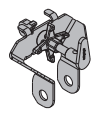
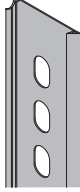
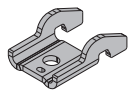
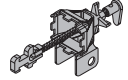
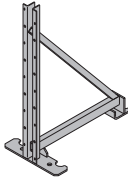
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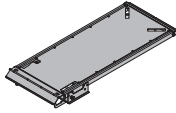
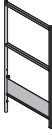
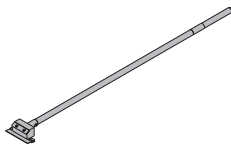
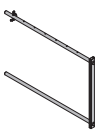
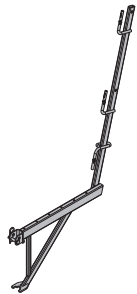
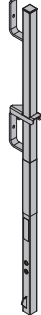
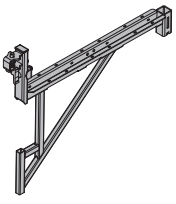
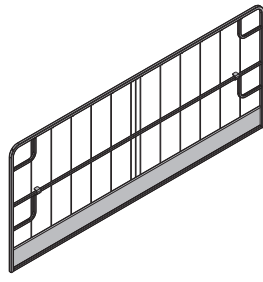
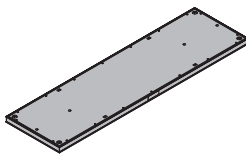
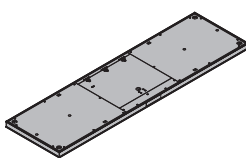


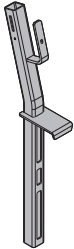
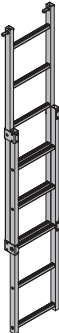
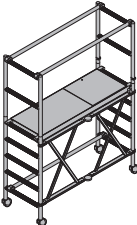
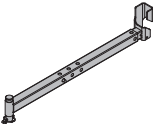
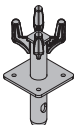
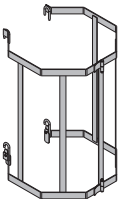
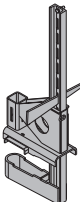
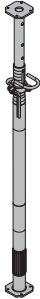
Follow the directions in the 'Handrail post 1.10m' User Information!

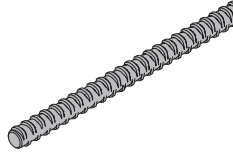
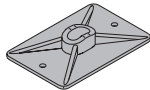
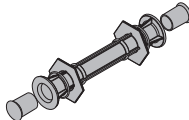


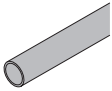
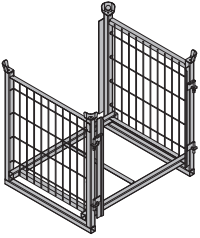
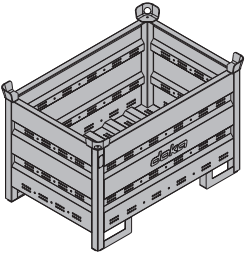
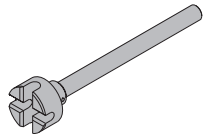
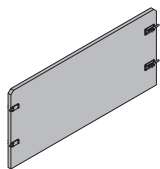
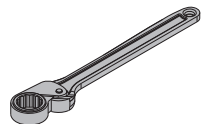
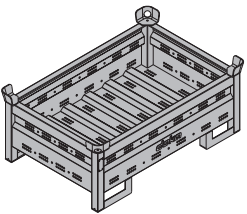
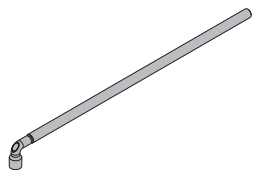
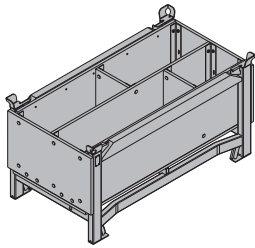
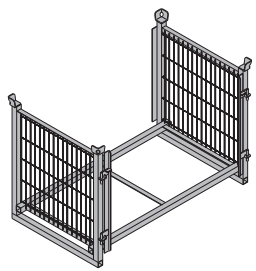
	[kg]	Article N°		[kg]	Article N°
DokaXlight I-Connector DokaXlight-Elementverbinder I  Galvanised Length: 19 cm	0.86	589149000	Framax universal fixing bolt 10-16cm Framax-Universalverbinder 10-16cm  Galvanised Length: 26 cm	0.6	588158000
DokaXlight clip DokaXlight-Stecker  Yellow	0.2	589143000	Frami stacking angle 18mm Frami stacking angle 21mm Frami-Aufstockwinkel  Powder-coated blue Length: 24 cm	2.9 2.8	589134000 589144000
DokaXlight adapter Frami DokaXlight-Adapter Frami  Galvanised Height: 35 cm	2.0	589153000	Box-out clamp type 1cm Aussparungsklemme Typ 1cm  Painted blue Length: 10 cm Width: 10 cm	17.4	580066000
DokaXlight adapter Framax DokaXlight-Adapter Framax  Galvanised Height: 25 cm	1.4	589154000	Box-out clamp type 2cm Aussparungsklemme Typ 2cm  Painted blue Length: 10 cm Width: 10 cm	17.4	580067000
Framax quick acting clamp RU Framax-Schnellspanner RU  Galvanised Length: 20 cm	3.1	588153400	Frami stop-end waler tie 15-45cm Frami-Stirnabschaltzwinge 15-45cm  Galvanised Length: 85 cm	8.8	588498000
Frami adjustable clamp Frami-Ausgleichsspanner  Galvanised Length: 40 cm	3.6	588436000	Frami lifting hook Frami-Umsetzbügel  Galvanised Width: 15 cm Height: 21 cm Follow the directions in the "Operating Instructions"!	7.5	588438000
Frami universal waling 0.70m Frami universal waling 1.25m Frami-Klemmschiene  Painted blue	3.7 6.4	588439000 588440000	Plumbing strut 260 IB Justierstütze 260 IB  Galvanised Length: 146.8 - 256.7 cm	12.8	588437500
Framax universal waling 0.90m Framax-Klemmschiene 0,90m  Painted blue	10.6	588150000			
Universal clamp 5-10cm Universalklemme 5-10cm  Galvanised Length: 28 cm	1.9	589184000			

	[kg]	Article N°		[kg]	Article N°
Panel strut 340 IB Elementstütze 340 IB consisting of:	24.3	580365000	Universal plug R20/25 Kombi-Ankerstopfen R20/25	0.003	588180000
(A) Plumbing strut 340 IB Galvanised Length: 190.8 - 341.8 cm	16.7	588696000	 Blue Diameter: 3 cm		
(B) Adjusting strut 120 IB Galvanised Length: 81.5 - 130.6 cm	7.6	588248500	Framax triangular ledge 2.70m Framax-Dreikantleiste 2,70m	0.38	588170000
 Galvanised Delivery condition: folded closed					
DokaXlight prop head EB DokaXlight-Stützenkopf EB	2.2	589151000	DokaXlight frontal triangular ledge 3.00m DokaXlight-Stirndreikantleiste 3,00m	1.5	589164000
 Galvanised Width: 21 cm Height: 18 cm			 Grey		
Bolt D25/93.5 Bolzen D25/93,5	0.45	508244050	Frami tie-holder bracket Frami-Ankerhaltewinkel	0.58	588453000
 Galvanised			 Galvanised		
Spring cotter 5mm Federvorstecker 5mm	0.03	580204000	Frami floor fixing plate Frami-Bodenhalter	0.7	588495000
 Galvanised Length: 13 cm			 Galvanised Length: 12.7 cm Width: 6.7 cm		
Prop head EB Stützenkopf EB	3.1	588244500	Framax foundation clamp 0.90m Framax-Fundamentspanner 0,90m	4.9	588141000
 Galvanised Length: 40.8 cm Width: 11.8 cm Height: 17.6 cm			 Galvanised		
Doka express anchor 16x125mm Doka-Expressanker 16x125mm	0.31	588631000	Doka perforated tape 50x2.0mm 25m Doka-Lochband 50x2,0mm 25m	17.0	588206000
 Galvanised Length: 18 cm					
Doka coil 16mm Doka-Coil 16mm	0.009	588633000	Supporting construction Abstützwinkel	10.7	588477000
 Galvanised Diameter: 1.6 cm			 Galvanised Length: 66 cm Width: 37 cm Height: 91 cm		
Information plate for express anchor Plakette Expressanker	0.004	588630000			
 PS Width: 8 cm Height: 7.5 cm					
Framax stacking cone Framax-Stapelkonus	0.01	588234000			
 Blue Diameter: 2.3 cm					

	[kg]	Article N°		[kg]	Article N°
Doka 4-part chain 3.20m Doka-Vierstrangkette 3,20m  Follow the directions in the "Operating Instructions"!	15.0	588620000	Infill deck XBS 75cm Ausgleichsbelag XBS 75cm Aluminium 	25.0	588704000
Dokamatic lifting strap 13.00m Dokamatic-Umsetzgurt 13,00m  Green Follow the directions in the "Operating Instructions"!	10.5	586231000	Side railing XBS 75cm Seitengeländer XBS 75cm 	10.0	588706000
Double scraper Xlife 100/150mm 1.40m Doppelschaber Xlife 100/150mm 1,40m 	2.8	588674000	Handrail extension XBS Geländerverlängerung XBS 	6.3	588707000
DokaXlight bracket 60 DokaXlight-Konsole 60  Galvanised	8.0	589186000	Handrail post XBS 1.40m Geländersteher XBS 1,40m 	4.0	588705000
DokaXlight bracket 75 EP DokaXlight-Konsole 75 EP  Galvanised Length: 87 cm Height: 73 cm	7.4	589167000	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
Deck XBS 75/270cm Deck XBS 75/135cm Belag XBS  Aluminium	23.0 8.0	588702000 588710000	Handrail post XP 1.20m Geländersteher XP 1,20m  Galvanised Height: 118 cm	4.1	586460000
Hatch deck XBS 75/270cm Durchstiegsbelag XBS 75/270cm  Aluminium	24.9	588703000			

	[kg]	Article N°		[kg]	Article N°
Toeboard holder XP 1.20m Fußwehrhalter XP 1,20m  Galvanised Height: 21 cm	0.64	586461000	DokaXlight adapter XP DokaXlight-Adapter XP  Galvanised Height: 88.6 cm	5.5	589148000
Xsafe aluminium telescopic ladder 1.55-2.70m Xsafe-Alu-Teleskopleiter 1,55-2,70m Aluminium 	9.2	586448000	Platform stairway 0.97m Podesttreppe 0,97m  Aluminium Width: 121 cm Pay attention to the national, technical safety regulations!	23.5	586555000
Xsafe aluminium ladder extension 1.15m Xsafe-Alu-Leiternverlängerung 1,15m Aluminium 	4.1	586449000	Wheel-around scaffold DF Mobilgerüst DF  Aluminium Length: 185 cm Width: 80 cm Height: 255 cm Delivery condition: separate parts	44.0	586157000
Xsafe universal ladder holder Xsafe-Uni-Leiternhalter  Galvanised Galvanised, powder-coated	3.3	586447000	DokaXlight support head DokaXlight-Auflagerkopf  Galvanised	2.1	589141000
Ladder cage XS 1.00m Ladder cage XS 0.25m Rückenschutz XS  Galvanised	16.5 10.5	588643000 588670000	Spring locked connecting pin 16mm Federbolzen 16mm  Galvanised Length: 15 cm	0.25	582528000
Railing clamp XP 40cm Geländerzwinge XP 40cm  Galvanised Height: 73 cm	7.7	586456000	Doka floor prop Eurex 20 top 250 Length: 148 - 250 cm Doka floor prop Eurex 20 top 300 Length: 173 - 300 cm Doka floor prop Eurex 20 top 350 Length: 198 - 350 cm Doka-Deckenstütze Eurex 20 top  Galvanised	11.8 14.3 17.4	586086400 586087400 586088400
			Removable folding tripod top Stützbein top  Galvanised Height: 80 cm Delivery condition: folded closed	12.0	586155500

	[kg]	Article N°		[kg]	Article N°
DokaXlight universal waling 0.70m DokaXlight-Uni-Klemmschiene 0,70m  Galvanised	5.1	589140000	Tie rod system 15.0		
			Tie rod 15.0mm galvanised 0.50m	0.72	581821000
			Tie rod 15.0mm galvanised 0.75m	1.1	581822000
			Tie rod 15.0mm galvanised 1.00m	1.4	581823000
			Tie rod 15.0mm galvanised 1.25m	1.8	581826000
			Tie rod 15.0mm galvanised 1.50m	2.2	581827000
			Tie rod 15.0mm galvanised 1.75m	2.5	581828000
			Tie rod 15.0mm galvanised 2.00m	2.9	581829000
			Tie rod 15.0mm galvanised 2.50m	3.6	581852000
			Tie rod 15.0mm galvanisedm	1.4	581824000
			Tie rod 15.0mm non-treated 0.50m	0.73	581870000
			Tie rod 15.0mm non-treated 0.75m	1.1	581871000
			Tie rod 15.0mm non-treated 1.00m	1.4	581874000
			Tie rod 15.0mm non-treated 1.25m	1.8	581886000
			Tie rod 15.0mm non-treated 1.50m	2.1	581876000
			Tie rod 15.0mm non-treated 1.75m	2.5	581887000
			Tie rod 15.0mm non-treated 2.00m	2.9	581875000
			Tie rod 15.0mm non-treated 2.50m	3.6	581877000
			Tie rod 15.0mm non-treated 3.00m	4.3	581878000
			Tie rod 15.0mm non-treated 3.50m	5.0	581888000
			Tie rod 15.0mm non-treated 4.00m	5.7	581879000
			Tie rod 15.0mm non-treated 5.00m	7.2	581880000
			Tie rod 15.0mm non-treated 6.00m	8.6	581881000
			Tie rod 15.0mm non-treatedm	1.4	581873000
			Ankerstab 15,0mm 		
			Super plate 15.0 Superplatte 15,0 	0.98	581966000
			Galvanised Height: 6 cm Diameter: 12 cm Width-across: 27 mm		
			Wing nut 15.0 Flügelmutter 15,0 	0.31	581961000
			Galvanised Length: 10 cm Height: 5 cm Width-across: 27 mm		
			Angle anchor plate 12/18 Winkelplatte 12/18 	1.5	581934000
			Galvanised		
			Hexagon nut 15.0 Sechskantmutter 15,0 	0.23	581964000
			Galvanised Length: 5 cm Width-across: 30 mm		
			Frami pressure plate 8/9 Frami-Druckplatte 8/9 	0.55	588466000
			Galvanised		
			Distance piece 20cm	0.04	581907000
			Distance piece 25cm	0.05	581908000
			Distance piece 30cm	0.06	581909000
			Distanzhalter 		PE Grey Blue

	[kg]	Article N°		[kg]	Article N°
Plastic tube 22mm 2.50m Kunststoffrohr 22mm 2,50m  PVC Grey Diameter: 2.6 cm	0.45	581951000	DokaXlight pallet 1.00m DokaXlight-Palette 1,00m  Galvanised Length: 118 cm Width: 100 cm Height: 114 cm	64.0	589135000
Universal cone 22/10mm Universal-Konus 22/10mm  Grey Diameter: 4 cm	0.005	581995000			
Plug 22mm Verschlussstopfen 22mm  PE Grey	0.003	581953000	Doka multi-trip transport box 1.20x0.80m Doka-Mehrwegcontainer 1,20x0,80m  Galvanised Height: 78 cm	70.0	583011000
Protective cap 15.0/20.0 Schutzkappe 15,0/20,0  Yellow Length: 6 cm Diameter: 6.7 cm	0.03	581858000			
Tie-rod wrench 15.0/20.0 Ankerstabschlüssel 15,0/20,0  Galvanised	1.8	580594000	Multi-trip transport box partition 0.80m Multi-trip transport box partition 1.20m Mehrwegcontainer Unterteilung  Steel parts galvanised Timber parts varnished yellow	3.7 5.5	583018000 583017000
Friction type ratchet SW27 Freilaufknarre SW27  Manganese-phosphated Length: 30 cm	0.49	581855000	Doka multi-trip transport box 1.20x0.80x0.41m Doka-Mehrwegcontainer 1,20x0,80x0,41m  Galvanised	42.5	583009000
Box spanner 27 0.65m Steckschlüssel 27 0,65m  Galvanised	1.9	581854000	Doka accessory box Doka-Kleinteilebox  Timber parts varnished yellow Steel parts galvanised Length: 154 cm Width: 83 cm Height: 77 cm	106.4	583010000
Multi-trip packaging					
Frami pallet 1.50m Frami-Palette 1,50m  Galvanised Length: 168 cm Width: 100 cm Height: 114 cm	69.0	588476000	Doka skeleton transport box 1.70x0.80m Doka-Gitterbox 1,70x0,80m  Galvanised Height: 113 cm	87.0	583012000

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