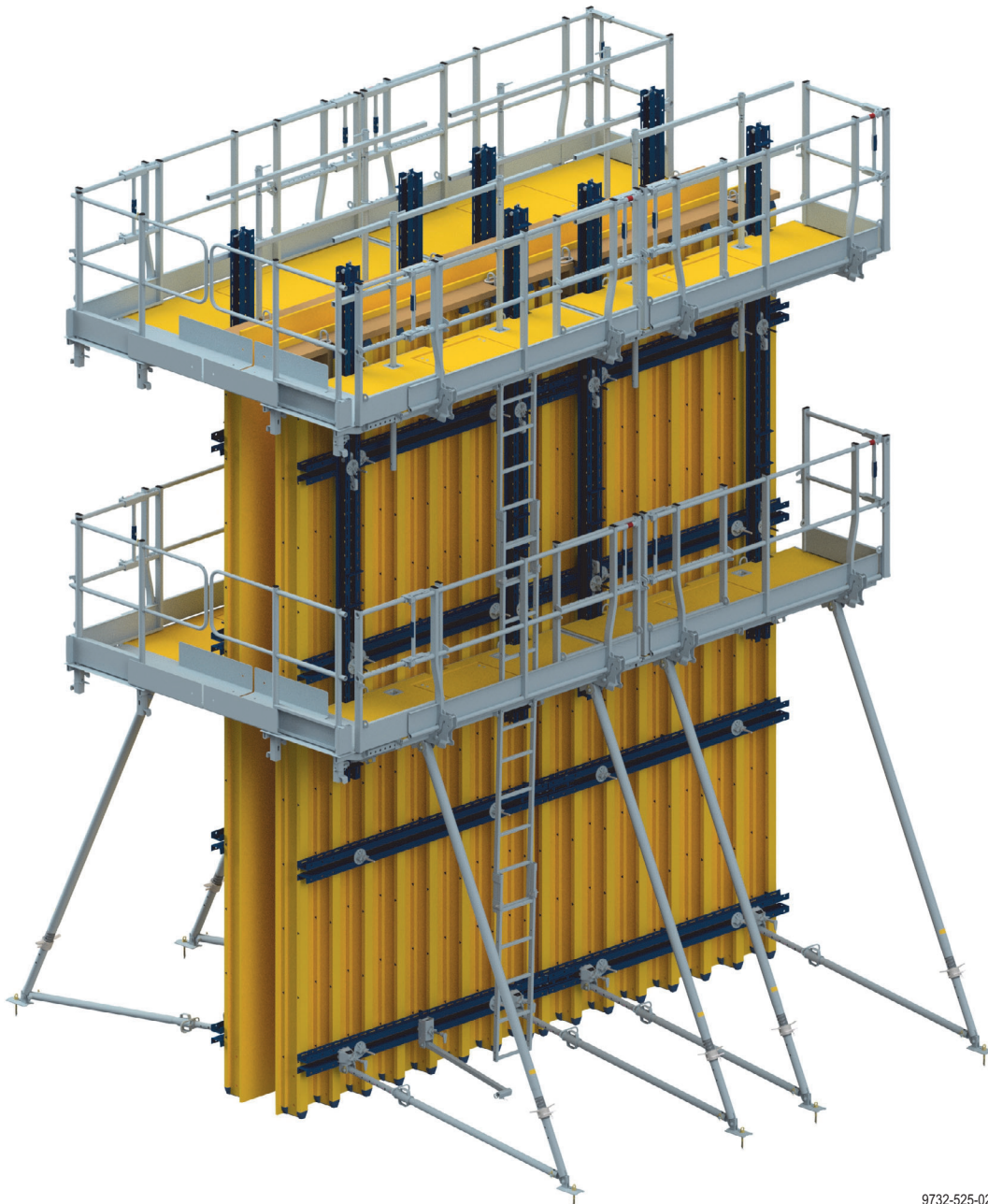


Xsafe platform system plus

Large-area formwork Top 50

User Information

Instructions for assembly and use (Method statement)



9732-525-02



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Introduction

Intended use

Xsafe platform system plus is a system for constructing working platforms and access systems on the formwork and on precast cavity walls.

It is used for constructing safe work places and transportation routes for the following Doka wall systems:

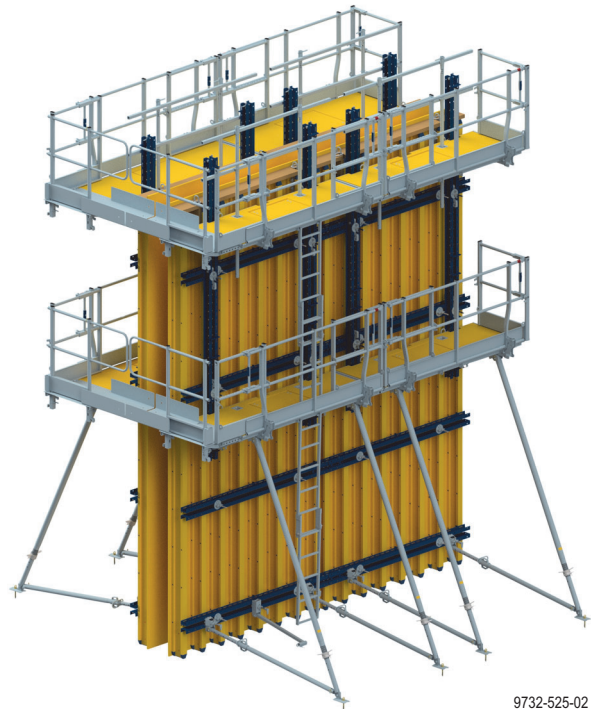
- Framed formwork Framax Xlife
- Framed formwork Framax Xlife plus
- Large-area formwork Top 50
- Large-area formwork Top 100 tec
- Wall formwork FF20
- Wall formwork FL20

Boundary conditions for use:

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

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!



9732-525-02



NOTICE

This document is only valid in combination with the underlying User Information booklet 'Large-area formwork Top 50'!

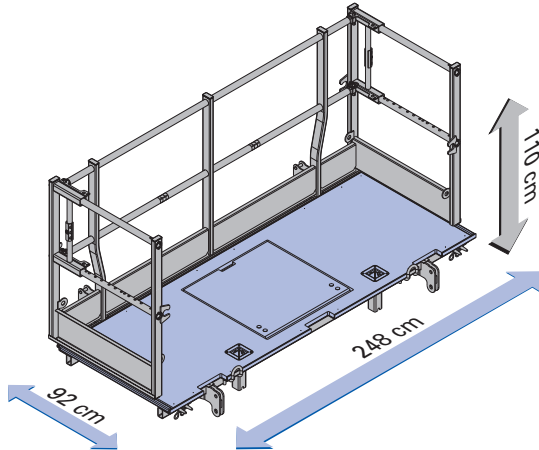
System dimensions

Xsafe plus platforms:

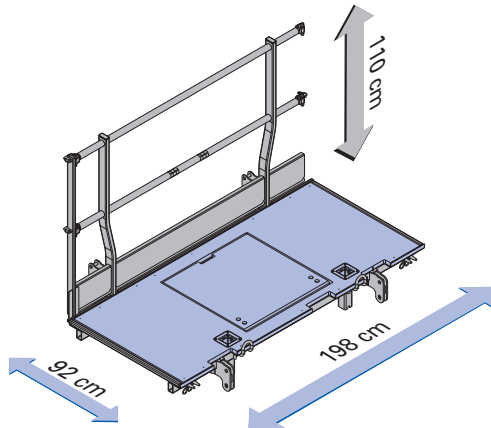
Load Class 2 to EN 12811-1

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

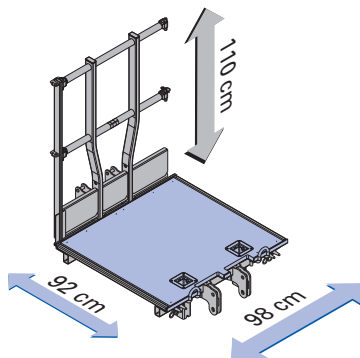
Xsafe plus platform 2.50m with side railing (or without side railing)



Xsafe plus platform 2.00m (Xsafe plus side railings can be added)

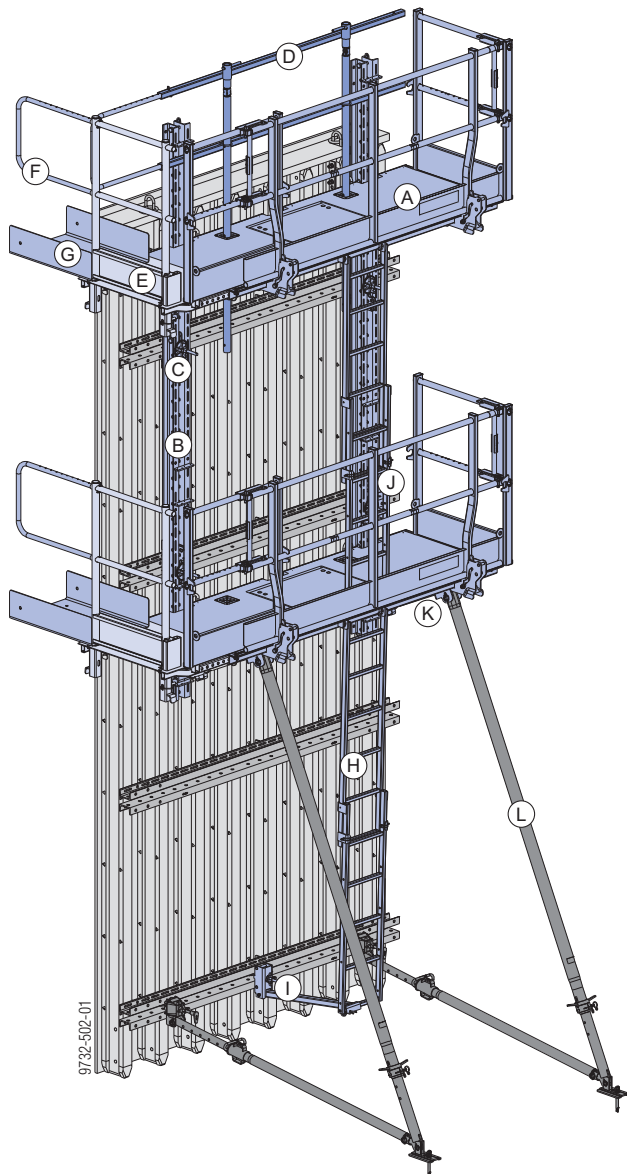


Xsafe plus platform 1.00m (Xsafe plus side railings can be added)



For information on other available Xsafe plus platforms, see the 'Xsafe platform system plus (Framed formwork Framax Xlife | Framax Xlife plus)' User Information booklet.

Platform system in detail

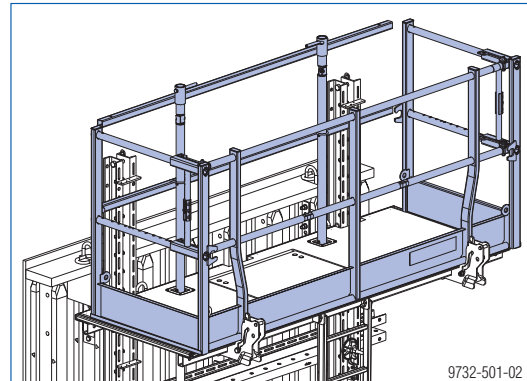


- A Xsafe plus platform
- B Multi-purpose waling
- C Xsafe plus waling connector
- D Xsafe plus counter railing
- E Xsafe plus platform extension
- F Xsafe plus handrail extension
- G Xsafe plus platform transition
- H Xsafe plus telescopic ladder
- I Xsafe plus ladder starter piece
- J Xsafe plus ladder support
- K Xsafe plus supporting strut EB
- L Panel strut

Immediately work-ready platform

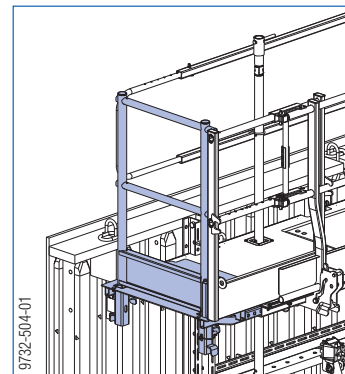
- quick and easy to assemble

Integral guard rails on all four sides



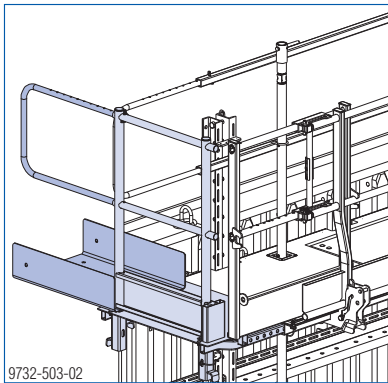
- enables work to take place in complete safety

Platform extension

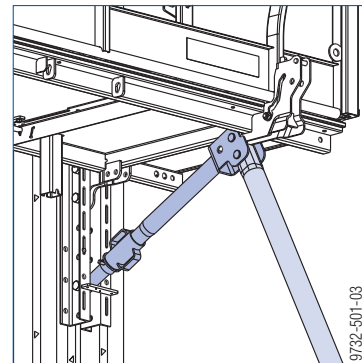


- permits flexible adaptation to formwork, with no need for improvisations

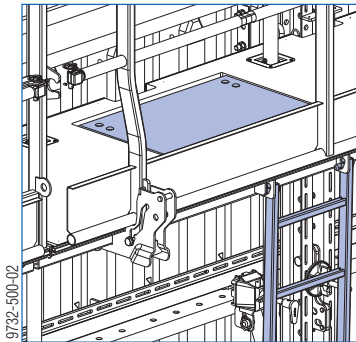
Safe solutions for corner transitions as well



Panel struts connected to rear of platform



Integral ladder and manhole



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

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

Manhole lid

The spring integrated in the manhole has 2 functions:

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

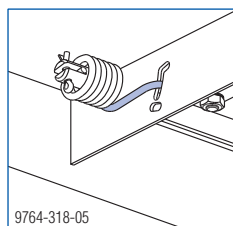
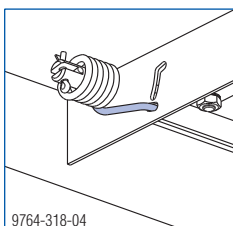
Where local regulations permit, the self-closing function of the manhole lid can be deactivated.

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

Self-closing function

activated

deactivated



Instructions for assembly and use (Method statement)

Planning guidelines

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

Permissible total weight of the unit to be repositioned (formwork incl. platforms, panel struts etc.):
2400 kg



NOTICE

Vertical stacking of elements with e.g. Stacking plate H20 is only permitted if the following **measures** have been implemented.

- Use of e.g. continuous vertical multi-purpose walings.
- Structural verification.

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

▪ Option 1

Divide up the work into separate pouring sections (i.e. separated by a construction joint):

- Set up formwork and pour first straight wall.
- Set up formwork and pour second straight wall, with corner connection.

▪ Option 2

Cast in a single pour (no construction joint):

- First set up the formwork for the corners.
- Then set up the formwork for the straight wall between the corners.
- Cast in one single pour.

The sequence outlined below is based on a straight wall.

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

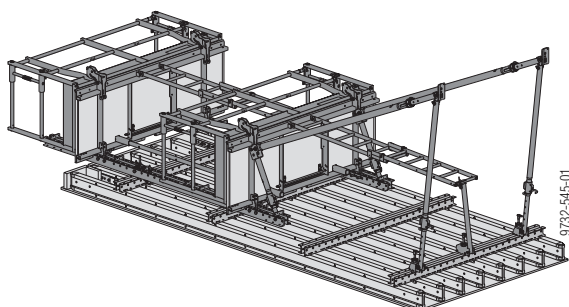
Pre-assembly

- Pre-assemble the elements face-down on an assembly floor.



The professionals from the Doka "Pre-assembly Service" plan and assemble **site-ready and custom formworks** exactly to your specifications.

- Mount the vertical multi-purpose walings, platforms, ladders and panel struts to the face-down gang (see the relevant sections of this manual).



Closing the formwork

- Attach the lifting chains to the vertical multi-purpose walings (see section [Lifting by crane](#)).
- Pick up the element by crane.
- Spray the formwork sheet with release agent.
- Fly the element to its new location.



CAUTION

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

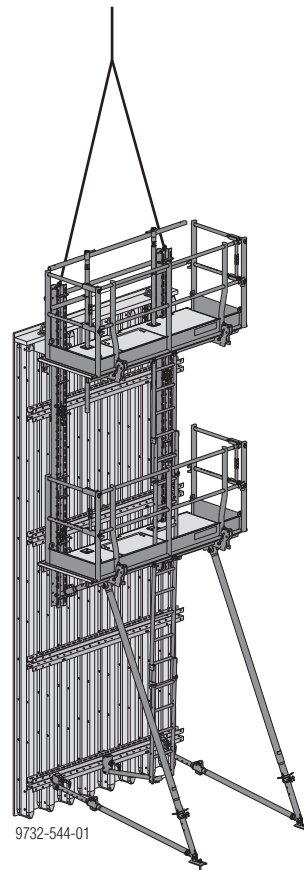
This would damage the elements.

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

- Fix the panel struts firmly to the ground (see section [Plumbing accessories](#)).

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

- Extend the Xsafe plus counter railing (see section [Railings facing formwork](#)).



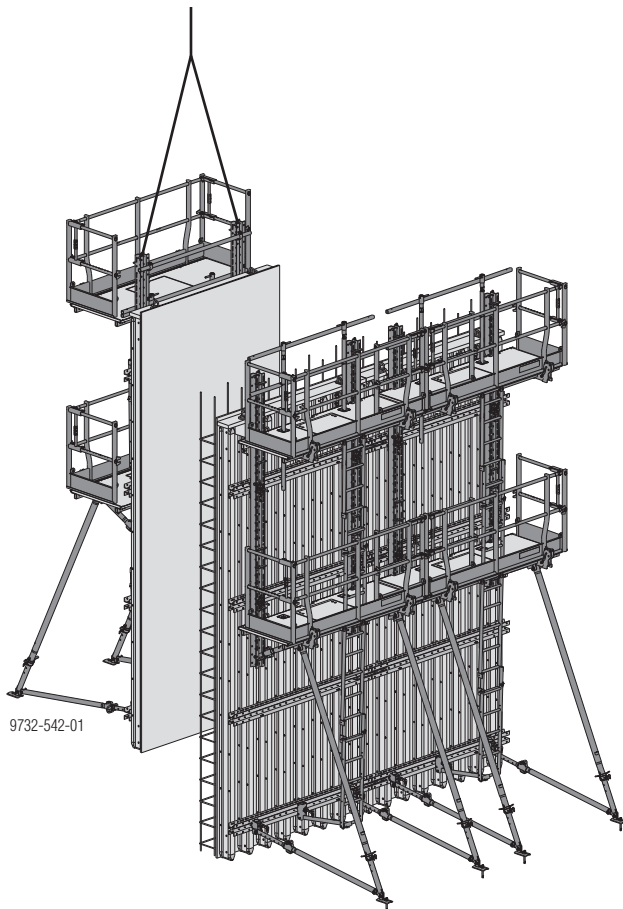
The **platform railings** are now in place **on all sides**, making it safe to get up onto the platform.

- Detach the element from the crane.
- Continue lining up elements in this way, and link them together.

Erecting the opposing formwork:

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

- Spray the formwork sheet with release agent.
- Lift the opposing formwork by crane to its next location.



- Working from the ground, install the bottom rows of form ties.



Before disconnecting from the crane:

- If there are no panel struts on the opposing formwork, do not disconnect the element from the crane until a large enough number of form ties have been installed to keep it safely in the upright.
- Fix the panel struts firmly to the ground (see section [Plumbing accessories](#)).
- Detach the element from the crane.
- Insert the remaining form ties. These form-tie points can be reached from the platforms.
- Continue lining up elements in this way, and link them together.

Pouring



NOTICE

Do not exceed the maximum permissible rate of placing.

Permissible fresh-concrete pressure:

will depend on the dimensioning of the elements (see project plan).

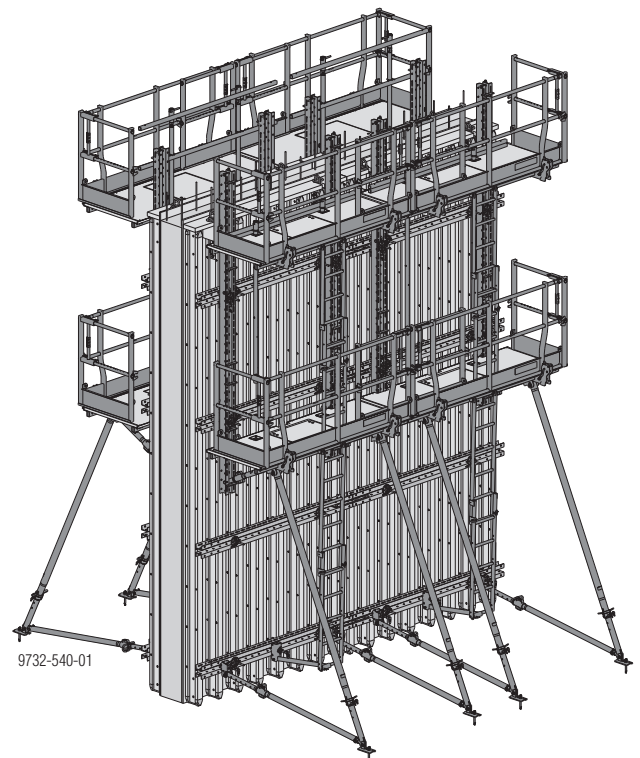


Observe the section 'Pressure of fresh concrete on vertical formwork, DIN 18218' in the Calculation Guide 'Doka formwork engineering' or contact Doka.



Observe DIN 4235 Part 2 'Compacting of concrete by vibrating; Compacting by internal vibrators'.

- Lower the Xsafe plus counter railing.
- Pour the concrete.
- Make only moderate use of vibrators, carefully coordinating the times and locations of vibrator use.



Stripping the formwork



NOTICE

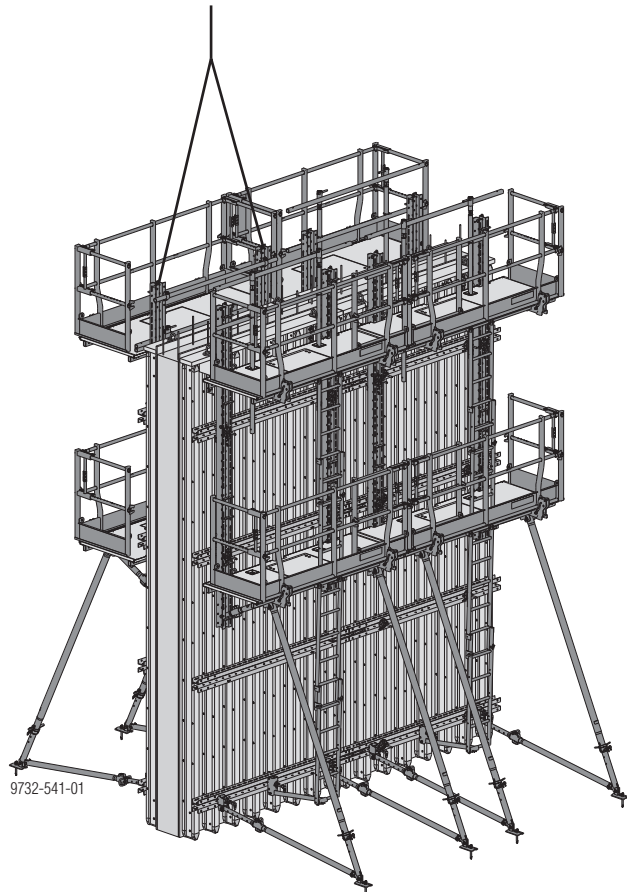
- ▶ Comply with the stipulated stripping times.
- ▶ Remove any loose items from the formwork and platforms, or secure them firmly.

Begin work on stripping the formwork on the opposing formwork:



Where the opposing formwork has no panel struts:

- ▶ When removing form ties, leave enough form ties in place to safely keep the element in the upright.
- ▶ Attach the gang-form of the opposing formwork to the crane.
- ▶ Remove the remaining form ties.
- ▶ Take out the form ties and undo the connectors to the adjacent elements.
- ▶ Attach the lifting chains to the vertical multi-purpose walings (see section [Lifting by crane](#)).
- ▶ Undo the ground anchors of the panel struts.



WARNING

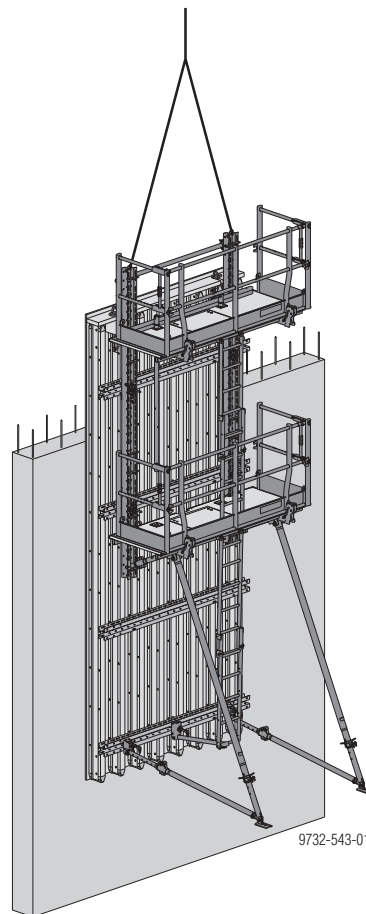
The formwork tends to adhere to the concrete. When stripping the formwork, do not try to break concrete cohesion using the crane!

Risk of crane overload.

- ▶ Use suitable tools such as timber wedges or an aligning tool to detach the formwork from the concrete.
- ▶ Lift the element away and to its next location, or place it face-down for intermediate storage. If the gang-form is 'parked' prior to its next use, it must have sufficient stability (see section [Plumbing accessories](#)). Gang-forms with only one panel strut must not be 'parked' upright, but placed face-down.
- ▶ Clean residual concrete from the formwork sheet.

Stripping the holding formwork:

- ▶ Undo the connectors to the adjacent elements.
- ▶ Extend the Xsafe plus counter railing (see section [Railings facing formwork](#)).
- ▶ Attach the lifting chains to the vertical multi-purpose walings (see section [Lifting by crane](#)).
- ▶ Lower the Xsafe plus counter railing.
- ▶ Undo the ground anchors of the panel struts.
- ▶ Lift the element away and to its next location, or place it face-down for intermediate storage.



If the gang-form is 'parked' prior to its next use, it must have sufficient stability (see section [Plumbing accessories](#)).

Gang-forms with only one panel strut must not be 'parked' upright, but placed face-down.

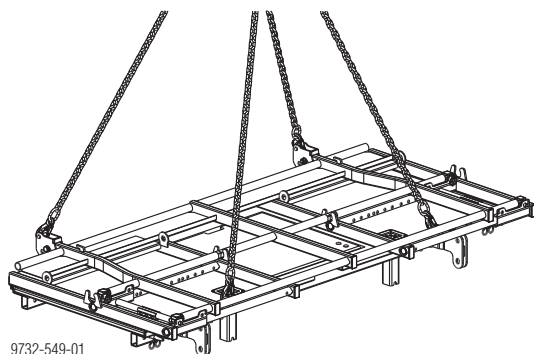
- ▶ Clean residual concrete from the formwork sheet.

Xsafe plus platform

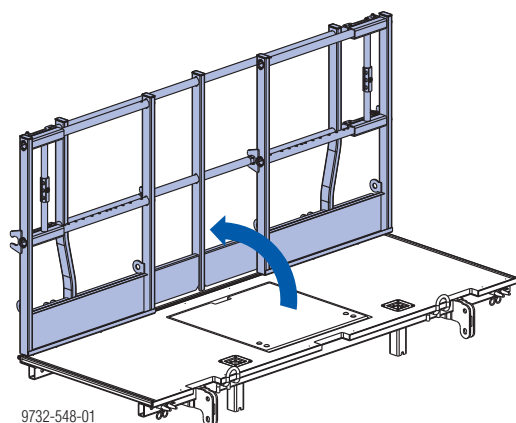
Preparing the platform

Tilting up rear railing

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



- Tilt up the rear railings.



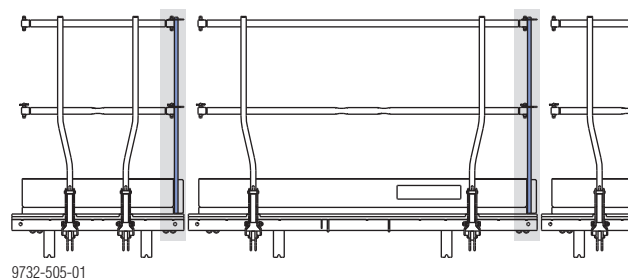
They lock into place automatically.

Railing-closure post on platforms without side railings

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



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

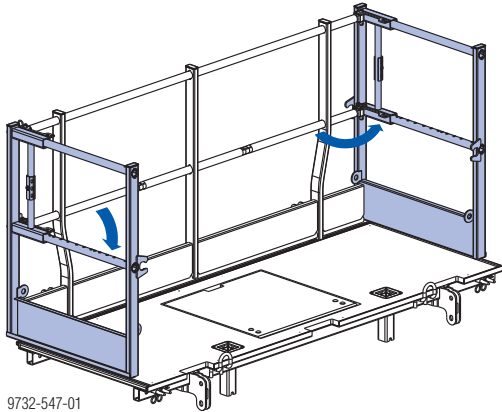


Where necessary, the railing-closure post can also be mounted to the other end of the rear railings.

Sideguards on exposed platform-ends

Activating end-of-platform sideguards

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



Starting position:

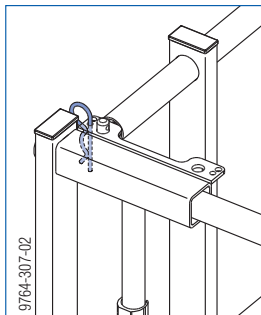
The side railings are completely pushed in against the rear railing.

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



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

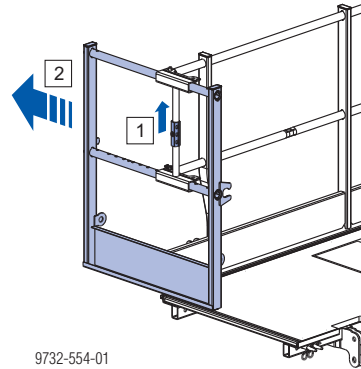
The side railing can be fixed in this position with a Spring cotter 5mm.



Moving the end-of-platform sideguards backwards

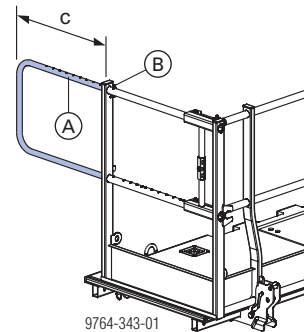
The sideguards can be moved backwards if needed (e.g. at corner transitions or to create an access opening).

- 1) Slide the telescope-lock upwards.
- 2) Push the side railings backwards.



Extending the end-of-platform sideguards

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



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

A Xsafe plus handrail extension

B Linch pin of Xsafe plus handrail extension

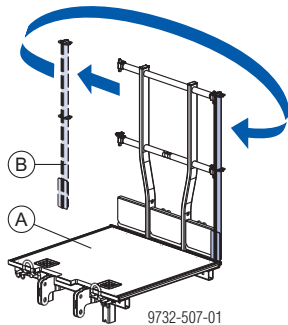
Mounting end-of-platform sideguards

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

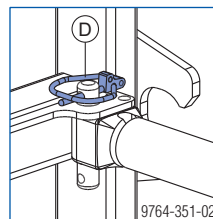
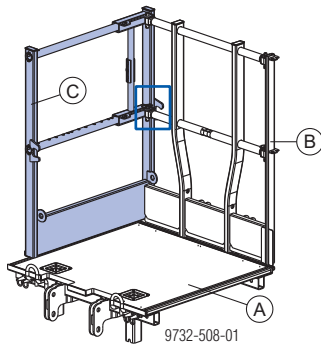
Note:

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

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



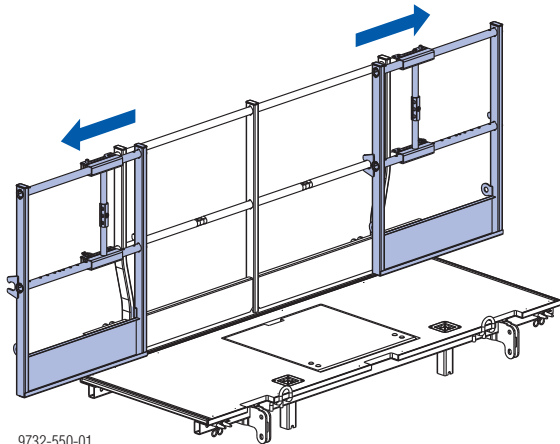
- 2) Hook the Xsafe plus side railing into the rear railing and secure it with a linch pin. When doing this, swivel the side railing inwards slightly (by approx. 5°). This makes it easier to hook the side railing into the rear railing.



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

Extending the rear railings

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

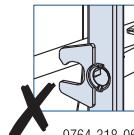
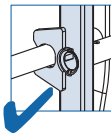


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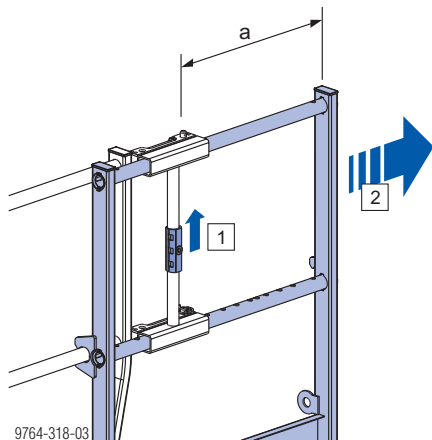
- 1) Slide the telescope-lock upwards.
- 2) Extend the side railings to the desired length.



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



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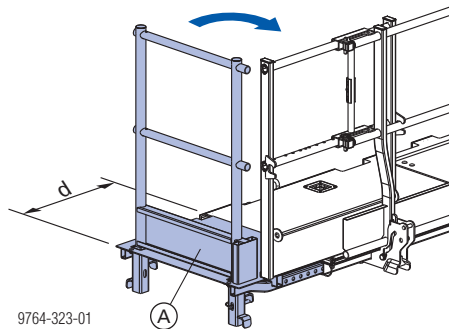
9764-318-03

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

Extending the platform to either side

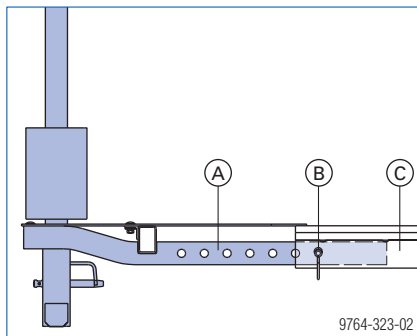
The platform can be lengthened at either end by using the **Xsafe plus platform extension**.

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



	Dimension 'd' in 5 cm increments
Xsafe plus platform extension 0.60m	30 to 60 cm
Xsafe plus platform extension 0.75m	30 to 75 cm

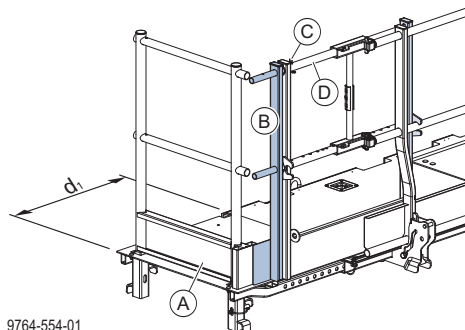
Attaching the platform extension:



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

Note:

When extending the platform by 75 cm, the back railing of the Xsafe plus platform has to be extended additionally with the railing-closure post 0.15m.



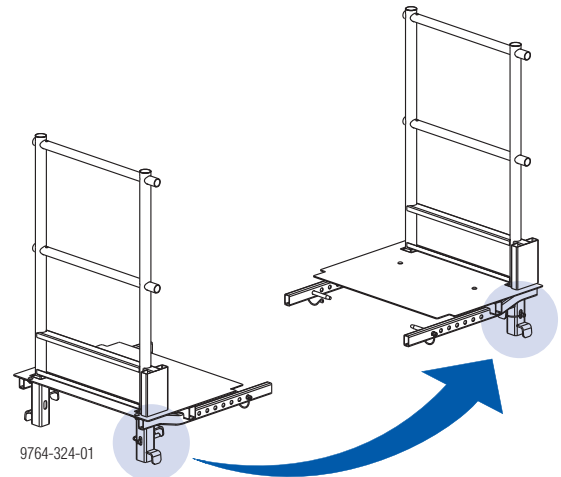
$d_1 \dots 75 \text{ cm}$

- A Xsafe plus platform extension 0.75m
- B Xsafe plus railing-closure post 0.15m
- C Hinged pin of the railing-closure post
- D Back railing of the Xsafe plus platform

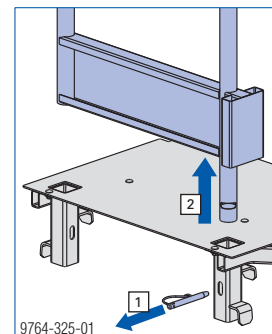
- Insert the railing-closure post 0.15m into the back railing and secure it with the hinged pin.

Adapting the platform extension for use on left or right

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



- 1) Take out the spring-locked connecting pin.
- 2) Pull out the railing.

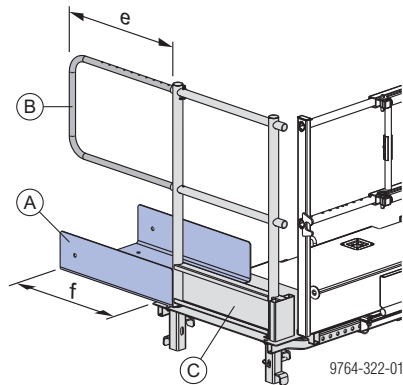


The railing can now be mounted on the other side, in reverse order.

Platform transition

Configuration with the Xsafe plus platform extension 0.60m

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

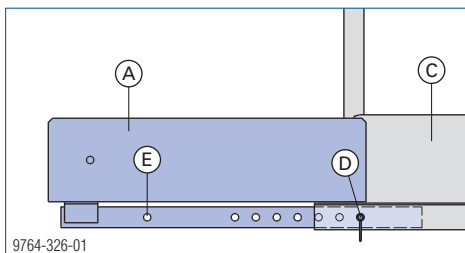


e ... can be telescoped between 15 cm and 70 cm, in a 5 cm grid
f ... can be telescoped between 33.5 cm and 63.5 cm, in a 5 cm grid

Wall thickness	Xsafe plus platform transition	Xsafe plus handrail extension
up to 45 cm	2 *)	2 *)

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

Attaching the platform transition:

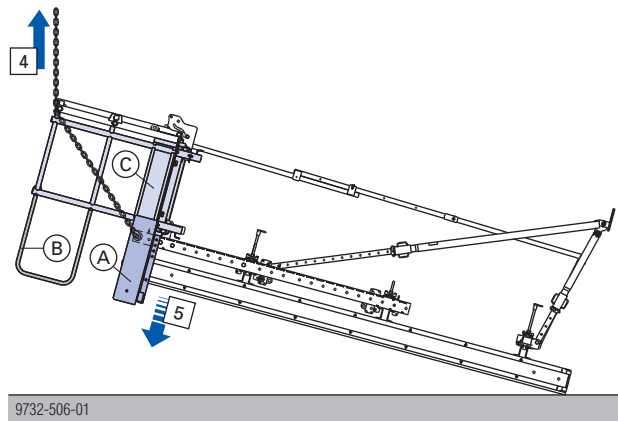


- A** Xsafe plus platform transition
- B** Xsafe plus handrail extension
- C** Xsafe plus platform extension 0.60m
- D** Spring locked connecting pin of the Xsafe plus platform transition
- E** Fixing position for mounting to a panel placed on its side

Installation:

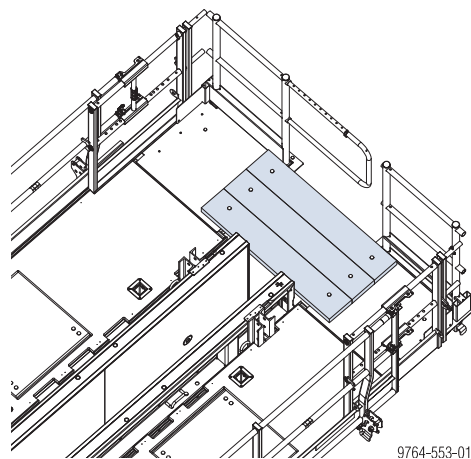
- 1) Slightly raise the railing of the Xsafe plus platform extension (**C**) .
- 2) Slide the Xsafe plus platform transition (**A**) all the way into the Xsafe plus platform extension (**C**) and fix it in the fixing position (**E**) with the spring locked connecting pin.
- 3) Slide the Xsafe plus platform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

- 6) Install the Xsafe plus handrail extension (**B**) .



Configuration with the Xsafe plus platform extension 0.75m

Instead of the Xsafe plus platform transition install **platform decking**.



Note:

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

Observe all national regulations applying to deck and guardrail boards.

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

- Deck-boards min. 20/5 cm

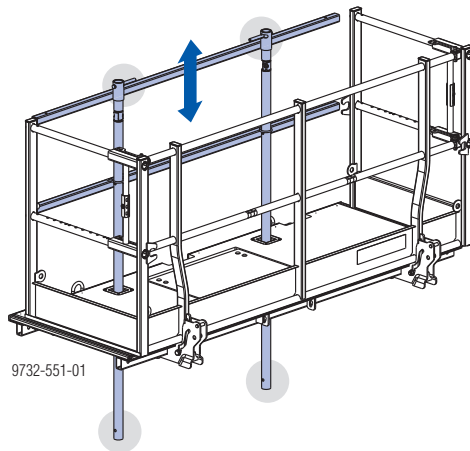
Bolting items required for fastening the deck-boards to the platform extension 0.75m:

- 6 x cup square bolt M10x70
- 6 x spring washer A10
- 6 x hexagon nut M10

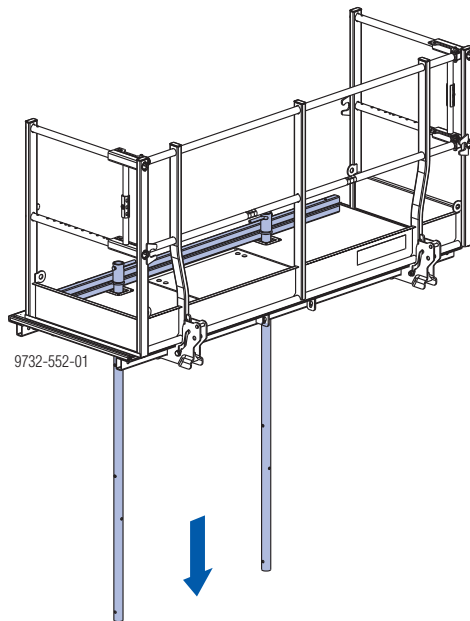
Railings facing formwork

The **Xsafe plus counter railing** is used to set up a front (formwork-side) railing.

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



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



Lowering / raising the counter railing:

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

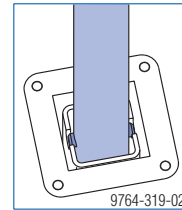
- Slightly raise the counter railing.
- Twist the lever / handrail-post upright 45°
This unlocks the counter railing.
- Lower the counter railing or raise it to the same level as the platform railings.

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

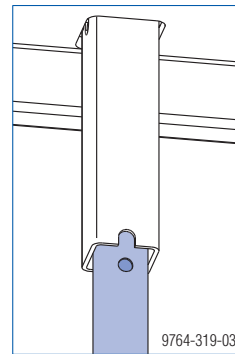


Check whether properly locked:

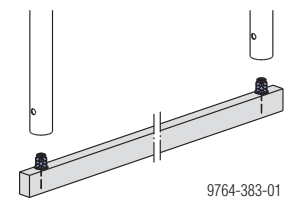
- When operating the lever (top):
The railing bolt must engage in the notch of the guide tube.



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



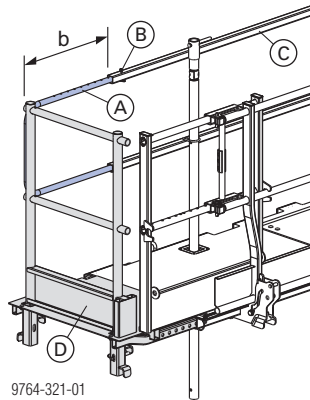
Implement for raising the 'Xsafe plus counter railing 2.50m' from below:



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

Lengthening the counter railing to either side

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



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

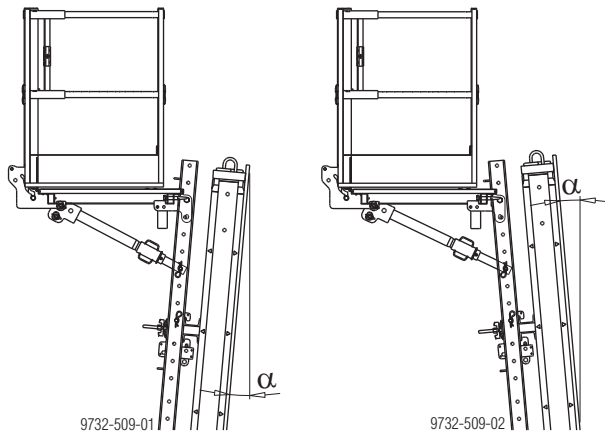
- A** Xsafe plus handrail lengthening piece
- B** Linch pin of Xsafe plus handrail lengthening piece
- C** Xsafe plus counter railing
- D** Xsafe plus platform extension 0.60m

Note:

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

Adjusting the platform inclination

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

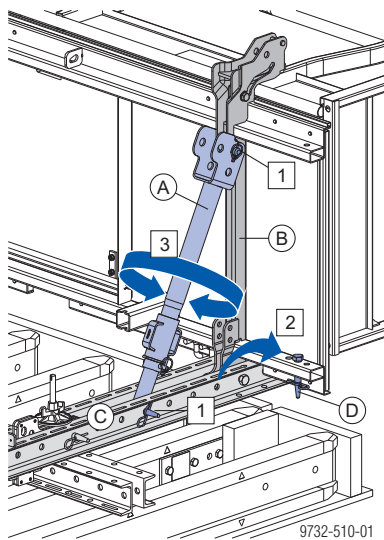


α ... up to approx. 5°

Note:

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

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



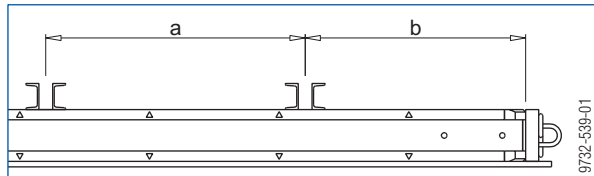
- A Xsafe plus supporting strut EB
- B Xsafe plus platform
- C Multi-purpose waling
- D Connecting pin 10cm

Mounting the Xsafe plus platform onto the formwork

Preparing the formwork

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

When planning and assembling the formwork elements, allow for the following minimum spacings of the steel walings:



Total weight of gang-form *)	Spacing of steel walings	
	a	b
Up to 1250 kg	No limitation	min. 260 mm
Over 1250 kg, up to 2400 kg	min. 1000 mm	

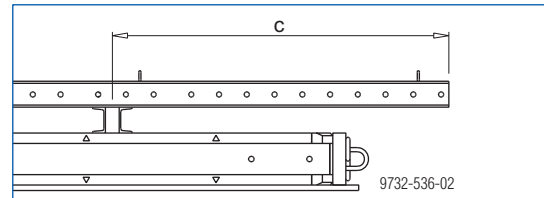
*) Formwork incl. platforms, panel struts etc.

Determining the length of the vertical multi-purpose walings

The length of the vertical multi-purpose walings must be planned on a project-specific basis.

Pay attention to the following:

- Max. distance between top horizontal steel waling and end of vertical multi-purpose waling.



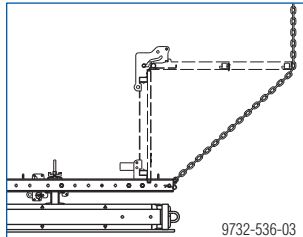
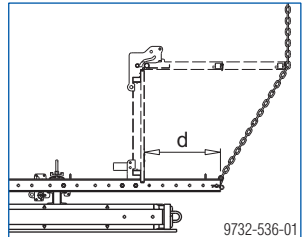
c ... max. 1600 mm

- Spacing of horizontal steel walings of formwork element.
- Number and position of platform levels.

Longer vertical multi-purpose walings on gang-forms of over 1250 kg

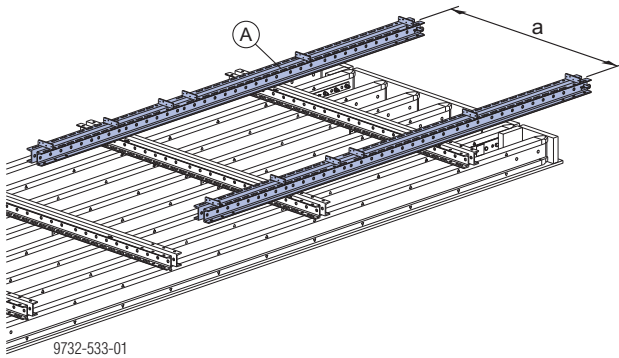
On gang-forms with a total weight of **more than 1250 kg** or with **more than one platform level**, the vertical multi-purpose walings must project beyond the top of the formwork.

This reduces the load on the rear railings when the gang-form is lifted by crane.

Total weight of gang-form	
Up to 1250 kg	Over 1250 kg, up to 2400 kg
	
	d ... min. 600 mm (distance between platform decking and end of vertical multi-purpose waling)

Mounting the vertical multi-purpose walings

- Position the vertical multi-purpose walings on the formwork element.



A Multi-purpose waling

Xsafe plus platform	Centre-to-centre distance 'a'
2.50m	1740 mm
2.00m	1240 mm
1.00m	317 mm

Xsafe plus waling connector:

Permissible tensile load (when gang-form is crane-lifted into the upright): 25 kN

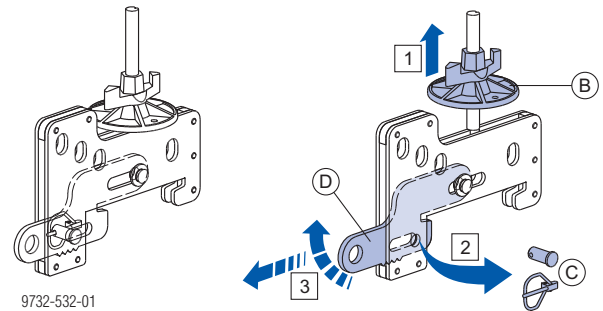
Permissible axial load (when gang-form is lifted and set down by crane): 14 kN

These values refer to the forces permitted between the steel waling and the vertical multi-purpose waling. Force transmission between the steel waling and the Doka beam (e.g. Flange clamp H20) only needs to be verified in the following cases:

- Total weight of gang-form >2400 kg or
- Formwork height of gang-form >8.00 m

Prepare the Xsafe plus waling connectors:

- 1) Unscrew (i.e. raise) the super plate of the waling connector.
- 2) Remove the linch pin and pull out the bolt.
- 3) Tilt up the stop-plate and pull it out.



B Super plate

C Bolt with linch pin

D Stop-plate

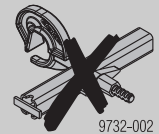
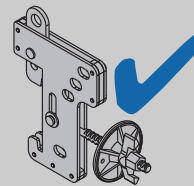
Attach the vertical multi-purpose walings to the steel walings of the formwork element:

Every vertical multi-purpose waling is attached to the formwork element by 2 waling connectors.

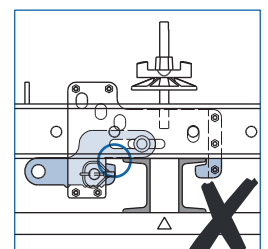
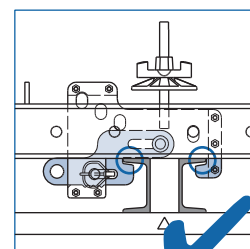


WARNING

- Only use Xsafe plus waling connectors to make this connection!

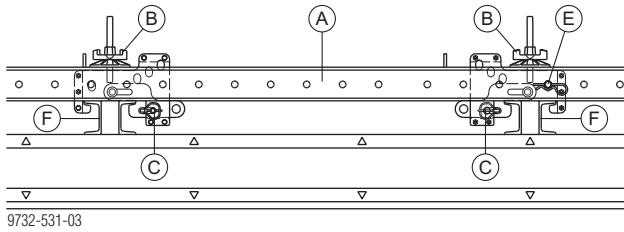


- 1) Slot the waling connector into the vertical multi-purpose waling and hook it over the steel waling of the formwork element.
- 2) Clasp the stop plate around the steel waling of the formwork element.
- 3) Secure the stop plate with the bolt and linch pin.



- 4) Re-adjust the vertical multi-purpose waling and fix it onto the waling connector with a connecting pin and spring cotter.
- 5) Tighten the super plate of the waling connector.

- 6) Mount the second waling connector.
It is not necessary to fix the second waling connector with a connecting pin.



A Multi-purpose waling (WS10, WU12, WU14 or WU16)

B Super plate

C Bolt with linch pin

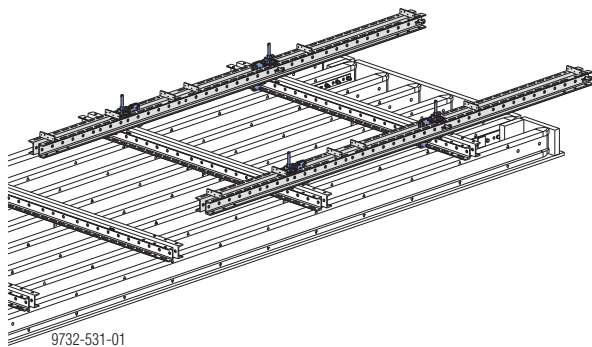
E Connecting pin 10cm + Spring cotter 5mm

F Steel waling (WS10, WU12, WU14 or WU16)

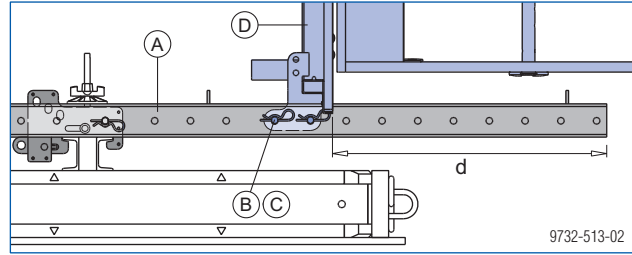


Adjust the vertical multi-purpose waling into its approximate position and only gently fasten it with the super plate of the waling connector.

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



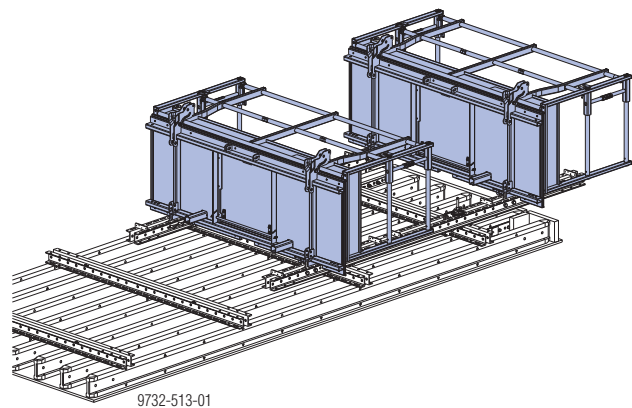
- Fix the Xsafe plus platform in the multi-purpose waling with the Connecting pins 10cm and Spring cotters 5mm.



d ... min. 600 mm (distance between platform decking and end of vertical multi-purpose waling) where total weight is over 1250 kg

Leave the top hole of the multi-purpose waling free for attaching the crane.

- Check that the multi-purpose walings are properly attached (with Xsafe plus waling connectors), and tighten if necessary.



A Multi-purpose waling

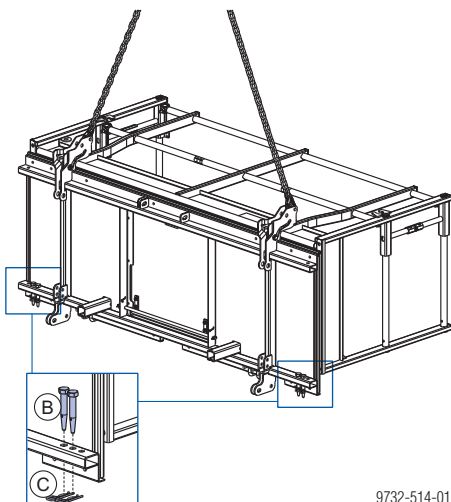
B Connecting pin 10cm of the Xsafe plus platform

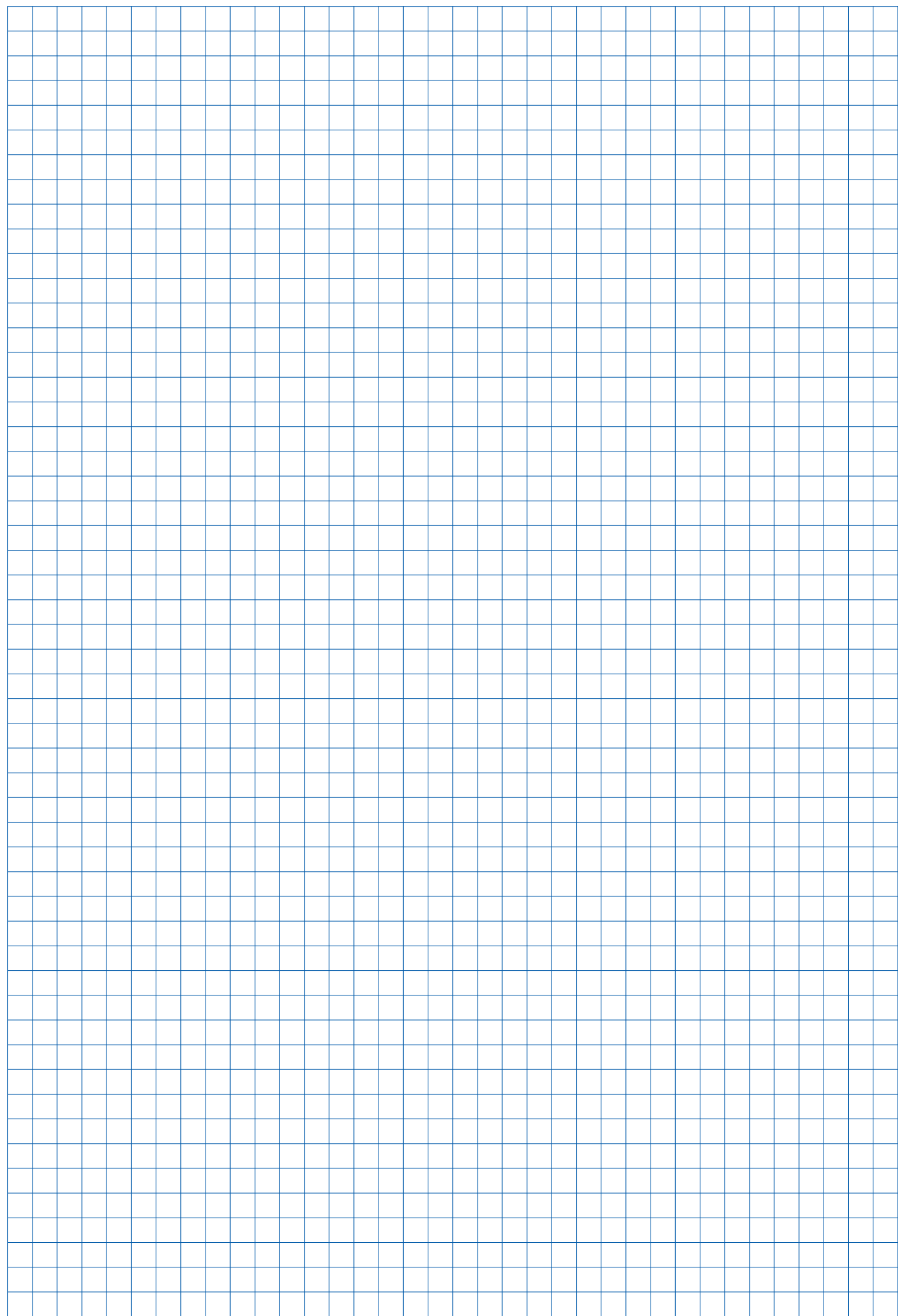
C Spring cotter 5mm of the Xsafe plus platform

D Xsafe plus platform

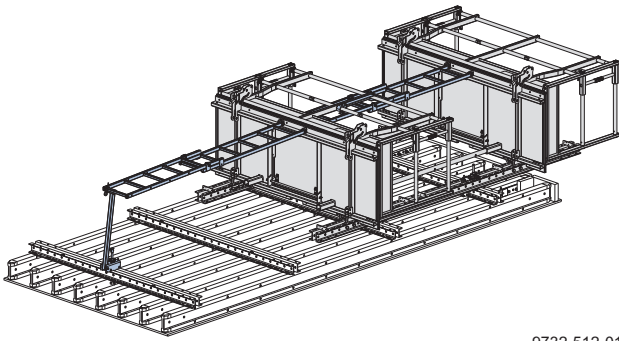
Mounting the Xsafe plus platform

- Raise the Xsafe plus platform by crane and lift it to the formwork.
► Remove the Connecting pins 10cm and Spring cotters 5mm of the Xsafe plus platform from their stand-by positions.





Ladder system



9732-512-01

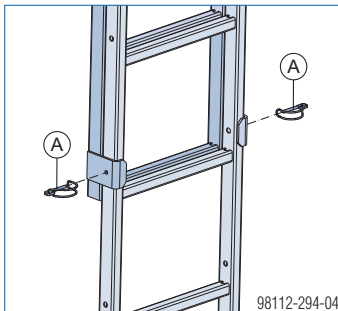
Preparing the formwork

- Pre-assemble the formwork element face-down on a prepared flat area.
- Install platforms and panel struts on the laid-flat formwork element.

Telescoping the ladder

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

- Extend the Xsafe plus telescopic ladder to the required length and secure it with hinged pins (push the pins through from the outside to the inside).

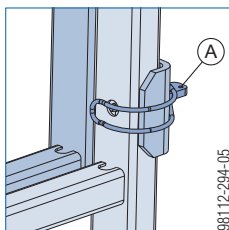


98112-294-04

A Hinged pins of the Xsafe plus telescopic ladder

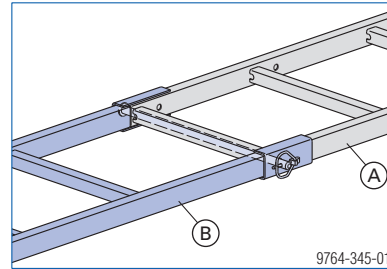


- Check that the hinged pin is inserted the right way round!
- The clip of each hinged pin must be closed!



98112-294-05

Permanently fixed ladder extension



9764-345-01

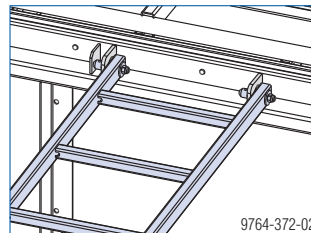
A Xsafe plus telescopic ladder

B Xsafe plus ladder extension 1.15m

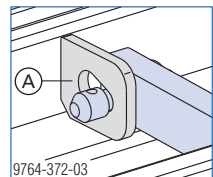
Note:

The Xsafe plus telescopic ladder can be extended with **a maximum of two** Xsafe plus ladder extensions.

Connecting the ladder to the Xsafe plus platform



9764-372-02



9764-372-03

A Integrated ladder connection on the Xsafe plus platform

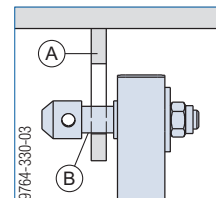
The integrated ladder connection secures the ladder against accidental lift-out.

Note:

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

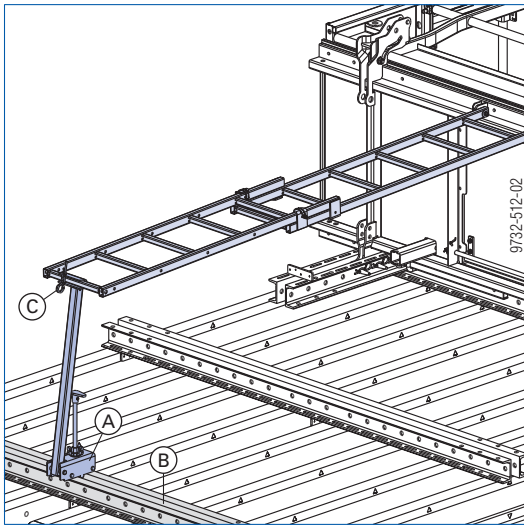


The groove in the ladder pin (**B**) must be engaged in the hole of the ladder connection (**A**) !



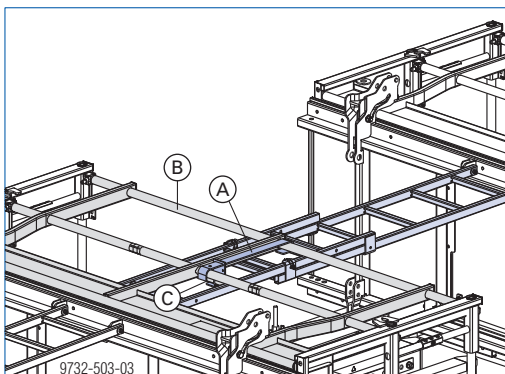
9764-330-03

Connecting the ladder to the formwork



- A** Xsafe plus ladder starter piece
- B** Multi-purpose waling of Top 50 element
- C** Spring cotter of the Xsafe plus ladder starter piece

Connecting the ladder to the rear railings



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

Installing the ladder cage on the ladder



Always observe all relevant safety regulations applying to the correct positioning of the ladder cage in the country in which you are operating (e.g. in Germany: DGUV 208-016 and 101-014).



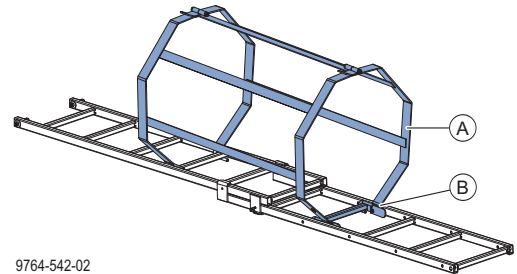
For installation on the Xsafe plus telescopic ladder, slightly squeeze the sides of the ladder cage together so that it sits against the inside of the ladder rails.

Installing Ladder cage XS 1.00m:



NOTICE

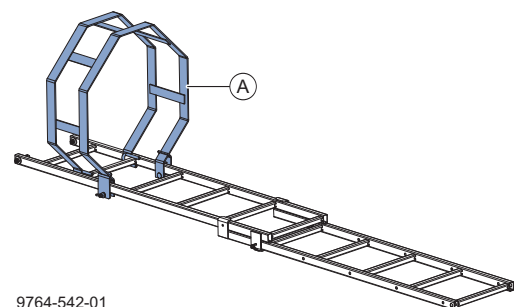
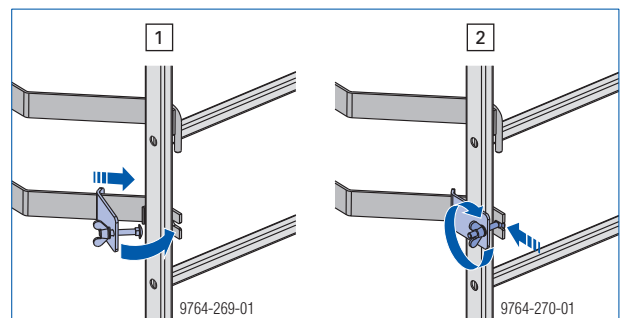
- Where a permanently fixed ladder extension is installed, do not install the Ladder cage XS 1.00m over the ladder-to-extension joint!
- Engage the ladder cage. The safety latches prevent the cage from being accidentally lifted out.
- Additionally secure the safety latches against accidental opening (e.g. with cable ties)



- A** Ladder cage XS 1.00m
- B** Safety latches (anti-liftout guard)

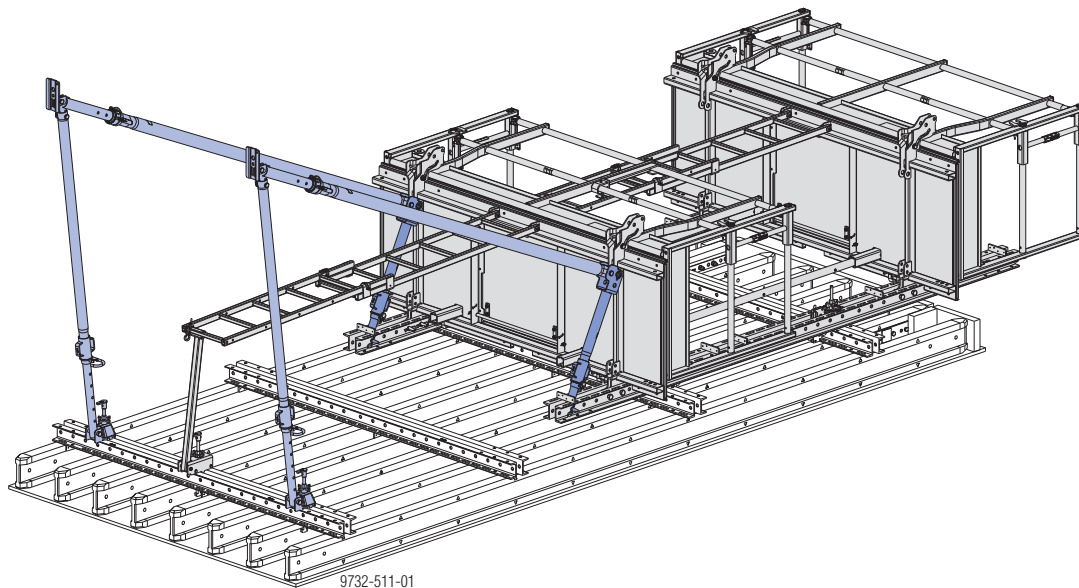
Installing Ladder cage XS 0.25m:

- Hook the ladder cage into position and secure it against accidental lift-out.



- A** Ladder cage XS 0.25m

Plumbing accessories



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



WARNING

Risk of the formwork tipping over!

- ▶ Ensure stability of the formwork elements 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.



NOTICE

When using the table below, remember the following:

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

For more information, please contact Doka.

Number of panel struts on 2.50 m wide element:

Formwork height [m]	Panel strut	
	340	540
4.00	1	
6.00		1
8.00		2

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.

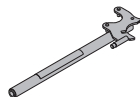


For more information, see the Calculation Guide 'Wind loads to the Eurocodes', or contact Doka!



Universal dismantling tool

For easy operation of the spindle nuts.



Mounting the plumbing accessories

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

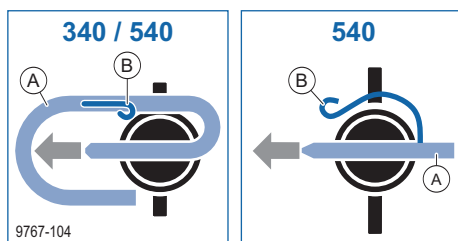
- Gang-form with only **one platform level** (only a pouring platform, no intermediate platform):
 - panel struts are connected **to formwork**
- Gang-form with **more than one platform level** (pouring platform and intermediate platforms):
 - panel struts are connected **to top intermediate platform** (second Xsafe plus platform from top)
 - **Exception:**
Where the **formwork height is 5.0 m**, the panel struts are attached **to the pouring platform**.

Pre-assembly

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

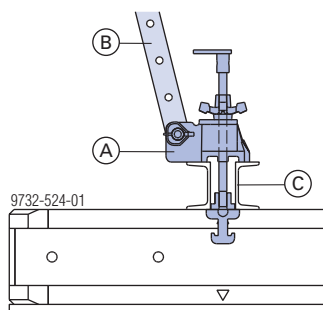


- Safety pin **(A)** must be pushed all the way into the plumbing accessory and secured in position by the locking spring **(B)**.
- Ensure functionality of the locking spring **(B)**.



Connecting panel struts to the formwork

- ▶ Mount the prop head to the panel strut.
- ▶ Fasten the panel strut to the formwork.

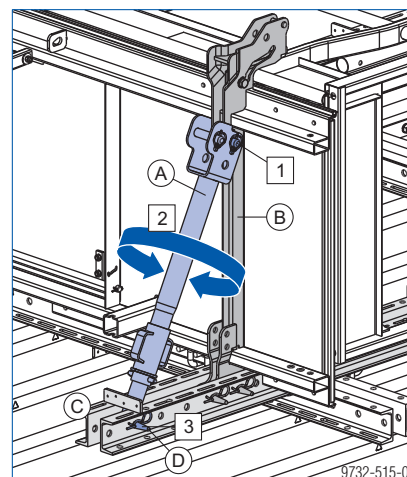


- A** Prop head EB
- B** Panel strut 340 IB, 540 IB or Eurex 60 550
- C** Multi-purpose waling

Connecting panel struts to the Xsafe plus platform

Mount the Xsafe plus supporting strut between the platform and the multi-purpose waling:

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

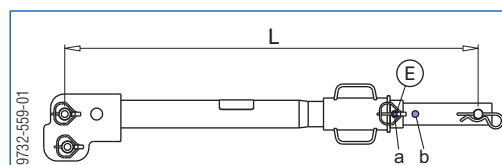


- A** Xsafe plus supporting strut EB
- B** Xsafe plus platform
- C** Multi-purpose waling
- D** Connecting pin 10cm of the Xsafe plus supporting strut EB

Note:

The supporting strut can be modified to provide two different usable-length ranges.

This allows greater flexibility regarding the pinning position in the vertical multi-purpose waling.

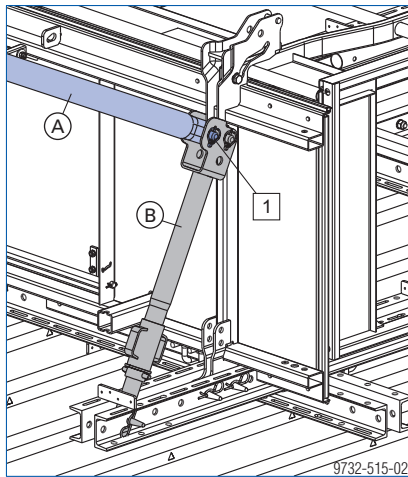


- (a) ... Usable length L: 836 - 912 mm
- (b) ... Usable length L: 881 - 957 mm

- E** Bolt + linch pin

Mount the panel strut to the Xsafe plus supporting strut:

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

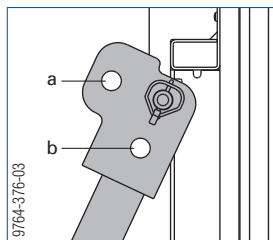


A Panel strut 340 IB, 540 IB or Eurex 60 550

B Xsafe plus supporting strut EB

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

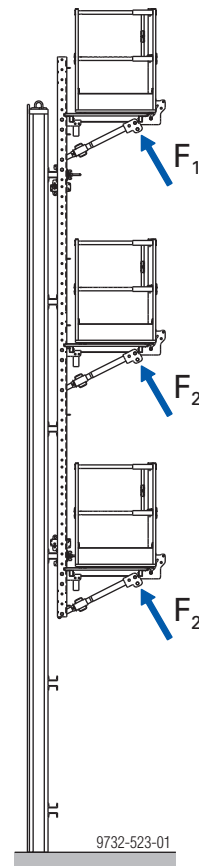
- As a **basic rule**, use Position (a).
- Advantage: more headroom on the platform.



Xsafe plus supporting strut EB:

Permitted connection forces (plumbing accessory -> supporting strut):

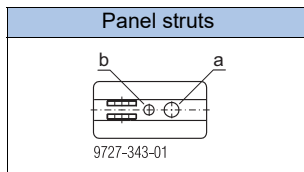
- Top platform (pouring platform): $F_{1, \text{perm.}} = 10.0 \text{ kN}$
- Intermediate platform / bottom platform: $F_{2, \text{perm.}} = 13.5 \text{ kN}$



Fixing to the ground

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

Drilled holes in the footplates

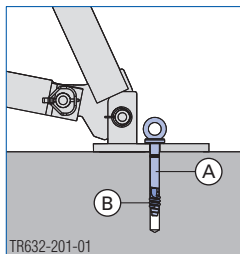


a ... Ø 26 mm

b ... ø 18 mm (suitable for Doka express anchors)

Anchoring the footplate

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



A Doka express anchor 16x125mm

B Doka coil 16mm

Doka express anchor 16x125mm:

Concrete strength class: min. C20/25

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



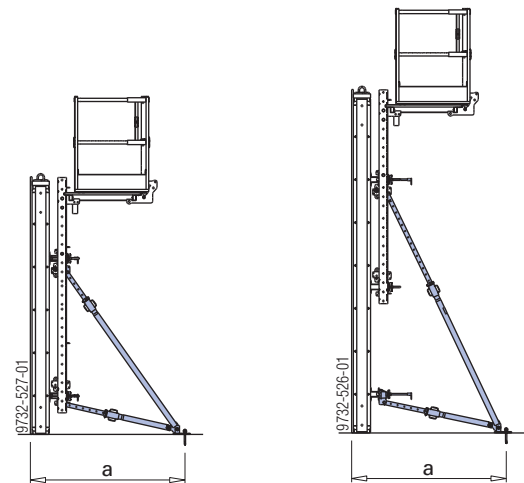
Follow the directions in the 'Doka express anchor 16x125mm' User Information booklet!

Required load-bearing capacity of alternative anchoring elements:

$R_d \geq 20.3 \text{ kN}$ ($R_k \geq 13.5 \text{ kN}$)

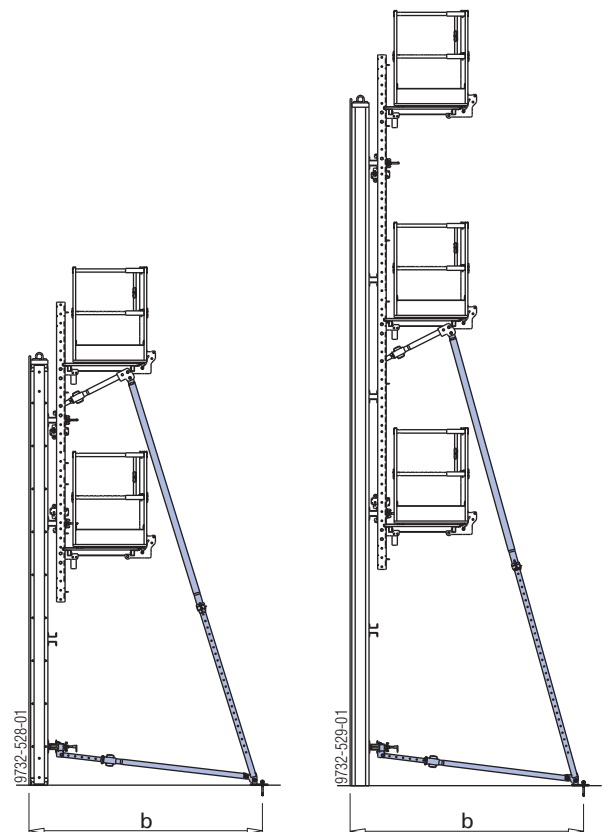
Follow the manufacturers' applicable fitting instructions.

Panel strut 340



a ... 180.0 cm

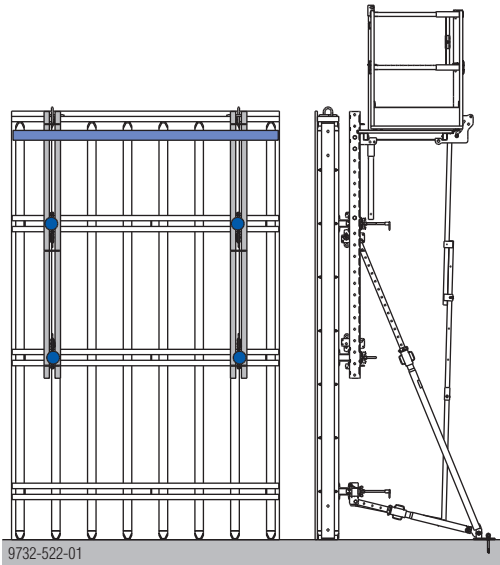
Panel strut 540



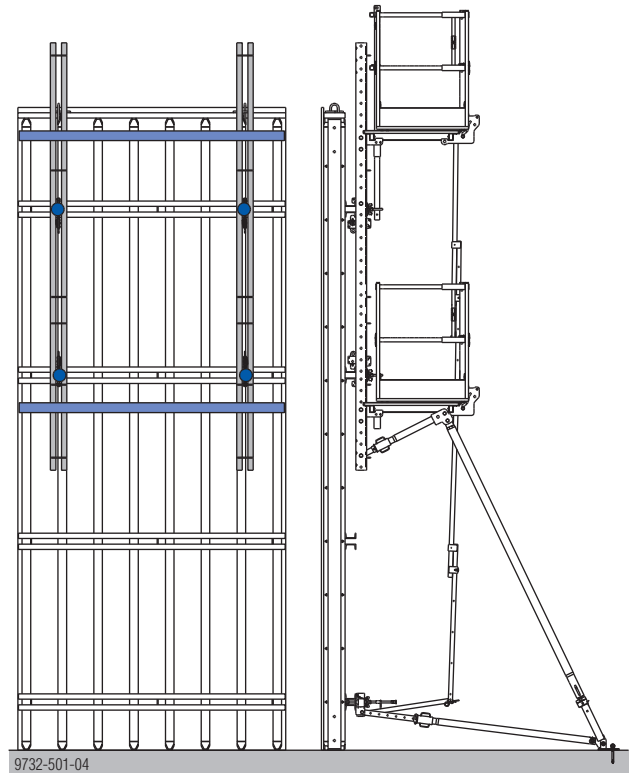
b ... 272.0 cm

Examples of Top 50 elements with Xsafe plus

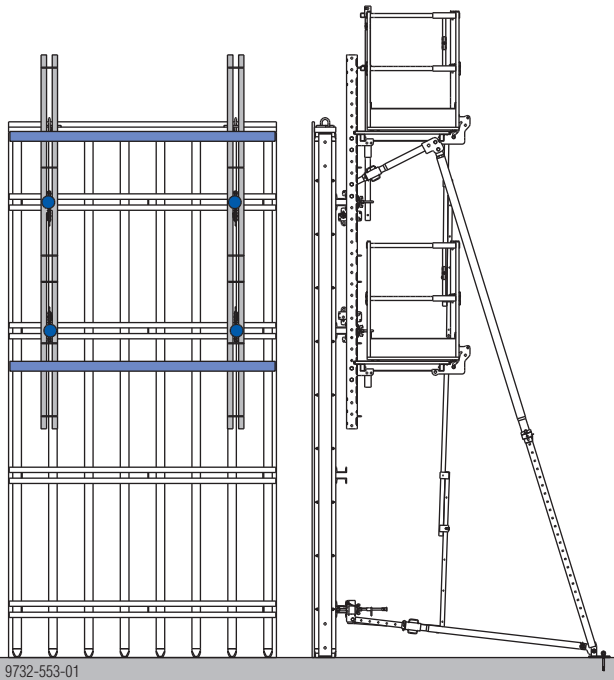
Formwork height: 4.00 m



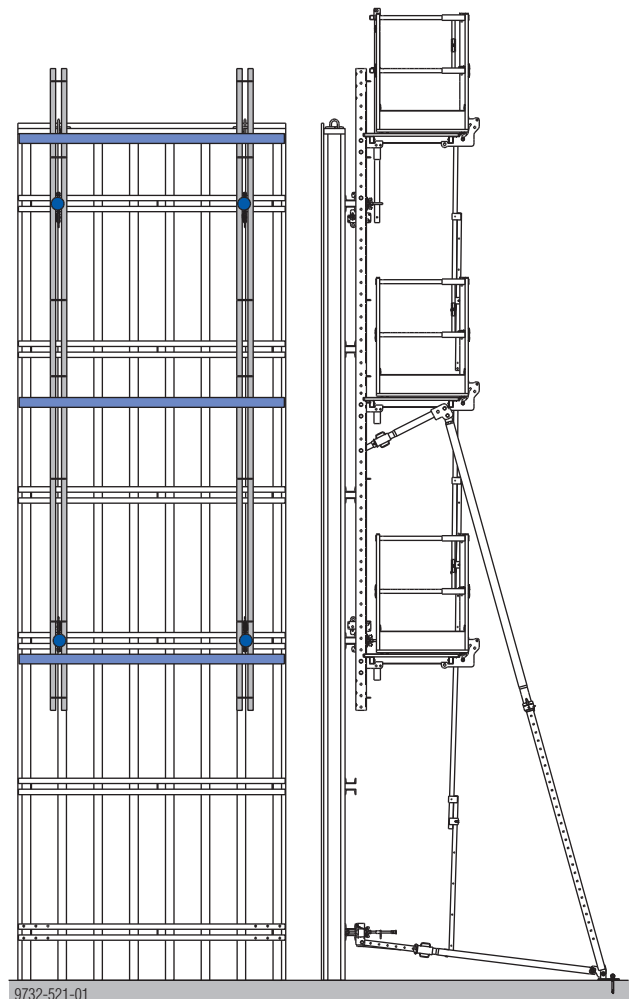
Formwork height: 6.00 m



Formwork height: 5.00 m

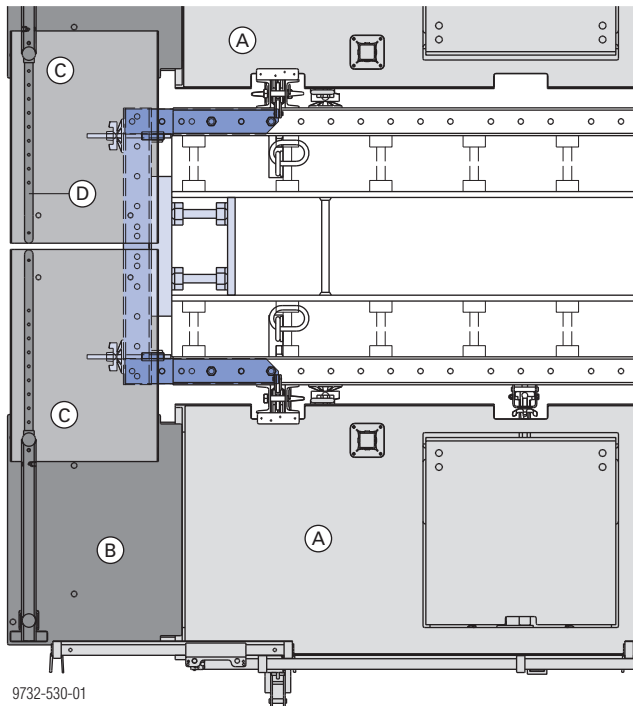


Formwork height: 8.00 m

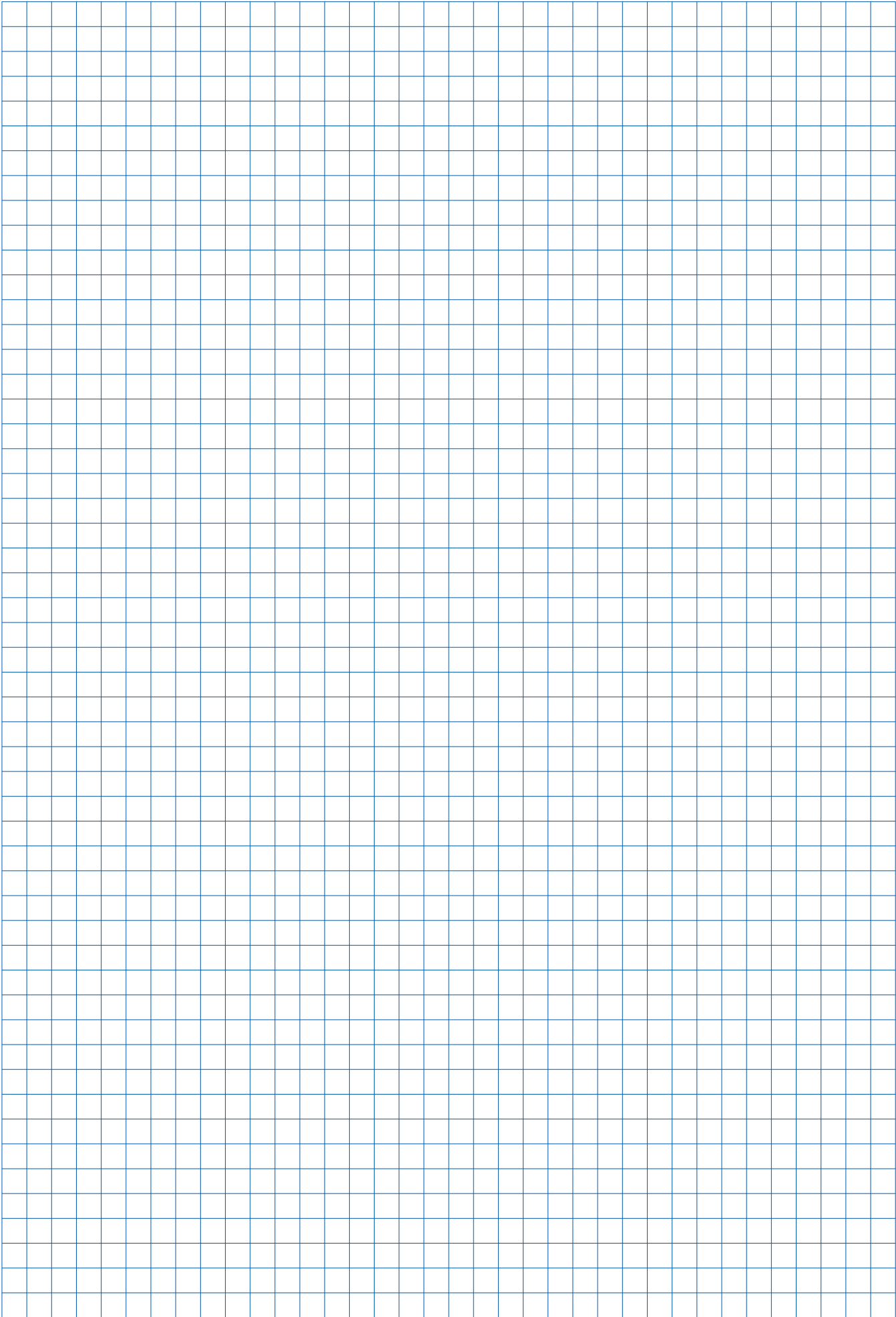


Stop-end formwork

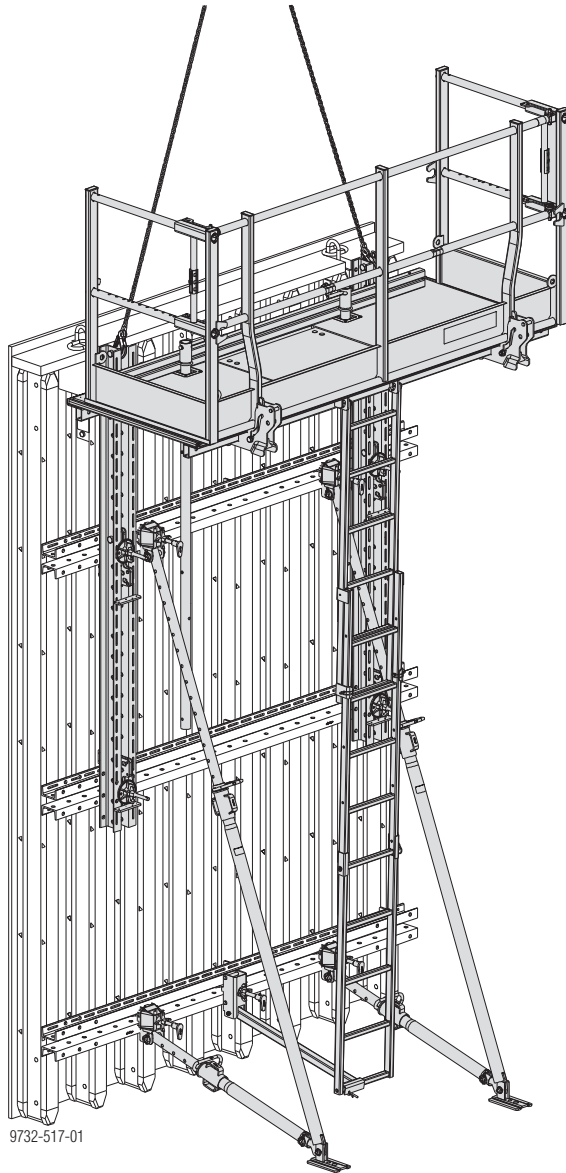
Wall thicknesses up to 45 cm



- A** Xsafe plus platform
- B** Xsafe plus platform extension 0.60m
- C** Xsafe plus platform transition
- D** Xsafe plus handrail extension

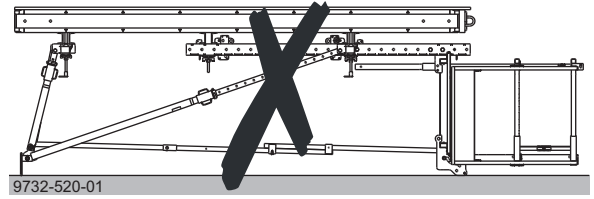


Lifting by crane



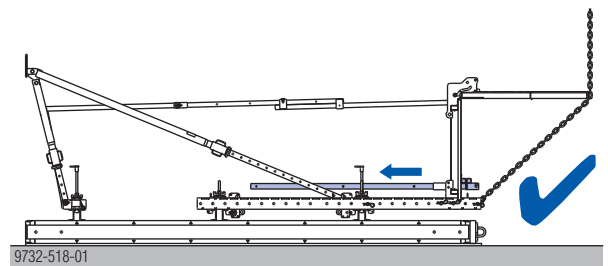
For gang-forms with Xsafe plus platforms, observe the following points:

- It is only allowed to **operate** the crane lifting points when the platform railings are in place on all sides.
- Do not set down the gang-form on the platform.

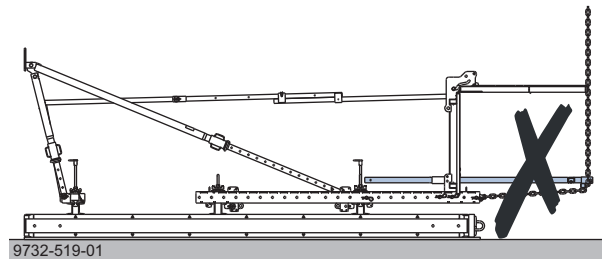


- It is **only** allowed to raise or set down the gang-form after the **Xsafe plus counter railing** has been pushed in (lowered).

Right:



Wrong:

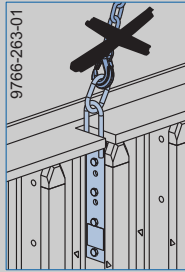


Crane lifting points

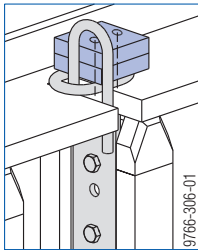


WARNING

- Any **lifting brackets** on the formwork element must **not** be used for lifting, setting down or repositioning the complete unit (i.e. in one piece).

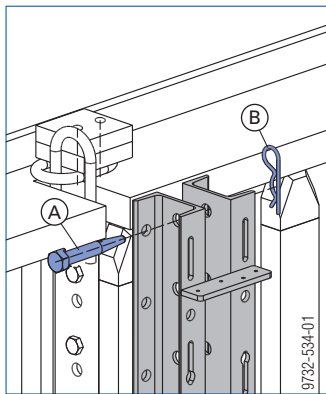


- e.g. nail on a board in such a way that the lifting chains cannot be hung into place in the lifting brackets.



Mounting the crane lifting points:

- Fit a Connecting pin 10cm in the top hole of both vertical multi-purpose walings.



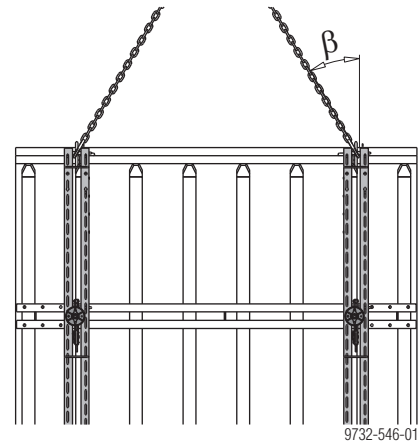
A Connecting pin 10cm

B Spring cotter 5mm

Connecting pin 10cm:

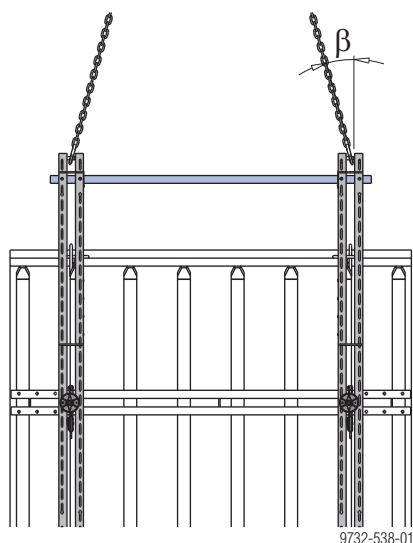
Permissible load-bearing capacity: 1200 kg

Gang-form up to 1250 kg (approx. 9 m²)



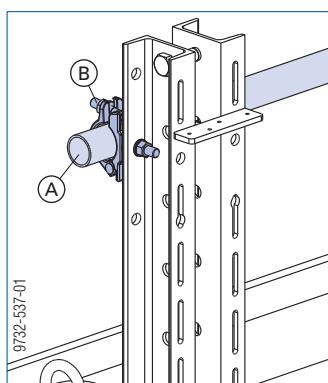
β ... max. 30°

Gang-form of over 1250 kg and up to 2400 kg (approx. 18 m²)



Weight of gang-form	β
up to 1600 kg	max. 30°
over 1600 kg, up to 2400 kg	max. 15°

Pressure bracing between the vertical multi-purpose walings



- A Scaffold tube 48.3mm
- B Screw-on coupler 48mm 50

Stripping and repositioning the panels

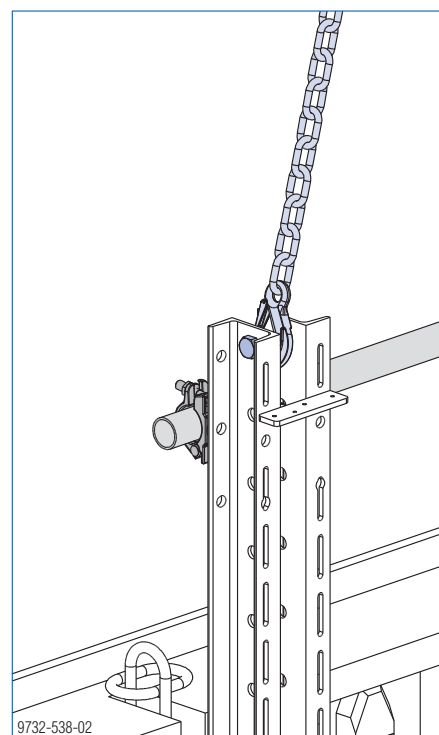
Before lifting: Remove any loose items from the formwork and platforms, or secure them firmly.



WARNING

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

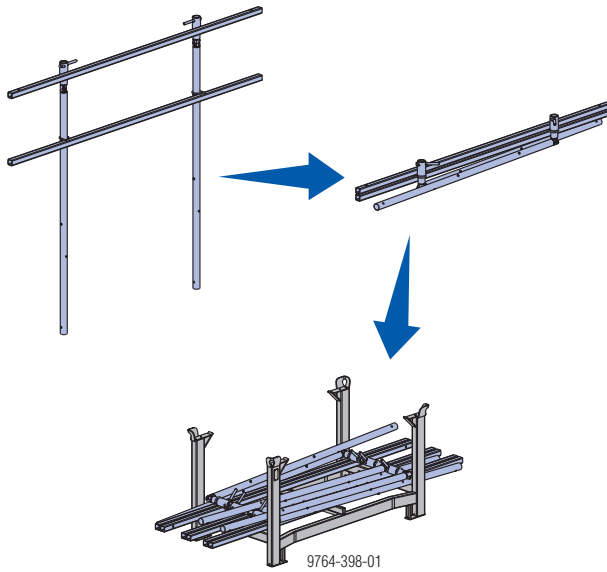
- Use suitable tools such as timber wedges or a special pry-bar to detach the formwork from the concrete.
- Attach the lifting chain to the two Connecting pins 10cm.

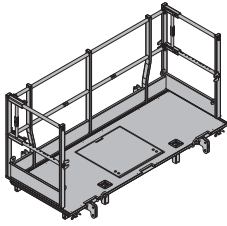
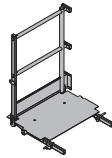
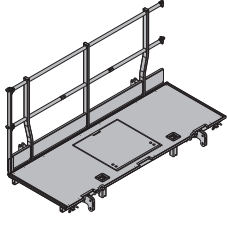
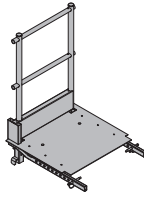
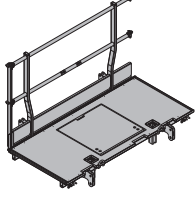
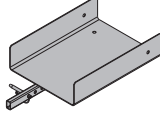
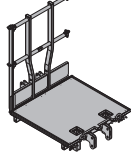
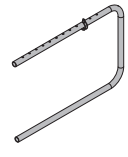
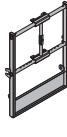
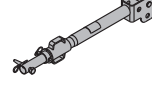
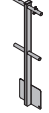
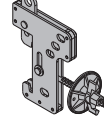


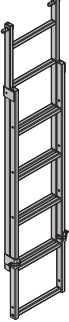
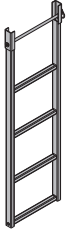
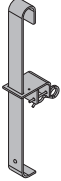
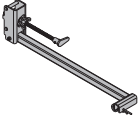
- Lift the gang-form to its new location (guide with tag-lines if necessary).

Storing the Xsafe plus counter railings

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



	[kg]	Article N°		[kg]	Article N°
Xsafe plus platform 2.50m with side railing Xsafe plus-Bühne 2,50m mit Seitengeländer  Steel parts galvanised Timber parts varnished yellow Height: 136 cm Delivery condition: folded closed	182.2	586402000	Xsafe plus platform extension 0.60m Xsafe plus-Bühnenverlängerung 0,60m  Galvanised Height: 120 cm Delivery condition: railing included	43.4	586418000
Xsafe plus platform 2.50m Xsafe plus-Bühne 2,50m  Steel parts galvanised Timber parts varnished yellow Height: 136 cm Delivery condition: folded closed	144.5	586405000	Xsafe plus platform extension 0.75m Xsafe plus-Bühnenverlängerung 0,75m  Galvanised Delivery condition: railing included	34.5	586496000
Xsafe plus platform 2.00m Xsafe plus-Bühne 2,00m  Steel parts galvanised Timber parts varnished yellow Height: 136 cm Delivery condition: folded closed	122.5	586407000	Xsafe plus platform transition Xsafe plus-Bühnenübergang  Galvanised Length: 85 cm Width: 48 cm	26.5	586419000
Xsafe plus platform 1.00m Xsafe plus-Bühne 1,00m  Steel parts galvanised Timber parts varnished yellow Height: 136 cm Delivery condition: folded closed	78.5	586409000	Xsafe plus handrail extension Xsafe plus-Geländerverlängerung  Galvanised Length: 81 cm Width: 53 cm	4.3	586420000
Xsafe plus side railing Xsafe plus-Seitengeländer  Galvanised Width: 88 cm Height: 110 cm	20.5	586410000	Xsafe plus counter railing 2.50m Xsafe plus counter railing 2.00m Xsafe plus counter railing 1.00m Xsafe plus-Gegengeländer  Galvanised Height: 200 cm Delivery condition: folded closed	22.5 20.3 15.5	586426000 586428000 586430000
Xsafe plus railing-closure post Xsafe plus-Geländerausgleich  Galvanised Height: 111 cm	3.4	586411000	Xsafe plus supporting strut EB Xsafe plus-Stützenstrebe EB  Galvanised Length: 91 - 99 cm	8.0	586412500
Xsafe plus railing-closure post 0.15m Xsafe plus-Geländerausgleich 0,15m  Galvanised	5.9	586497000	Xsafe plus waling connector Xsafe plus-Riegelverbinder  Galvanised Height: 33 cm	6.1	586433000

	[kg]	Article N°		[kg]	Article N°
Xsafe plus telescopic ladder Xsafe plus-Teleskopleiter  Galvanised Height: 158 - 274 cm	17.1	586421000			
Xsafe plus ladder extension 1.15m Xsafe plus-Leiternverlängerung 1,15m  Galvanised Height: 126 cm	7.0	586422000			
Xsafe plus ladder support Xsafe plus-Leiternstütze  Galvanised Height: 55 cm	2.1	586423000			
Xsafe plus ladder starter piece Xsafe plus-Leiternhalter  Galvanised Length: 95 cm	6.8	586424000			



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www.doka.com/xsafe-plus