999715002 - 03/2025
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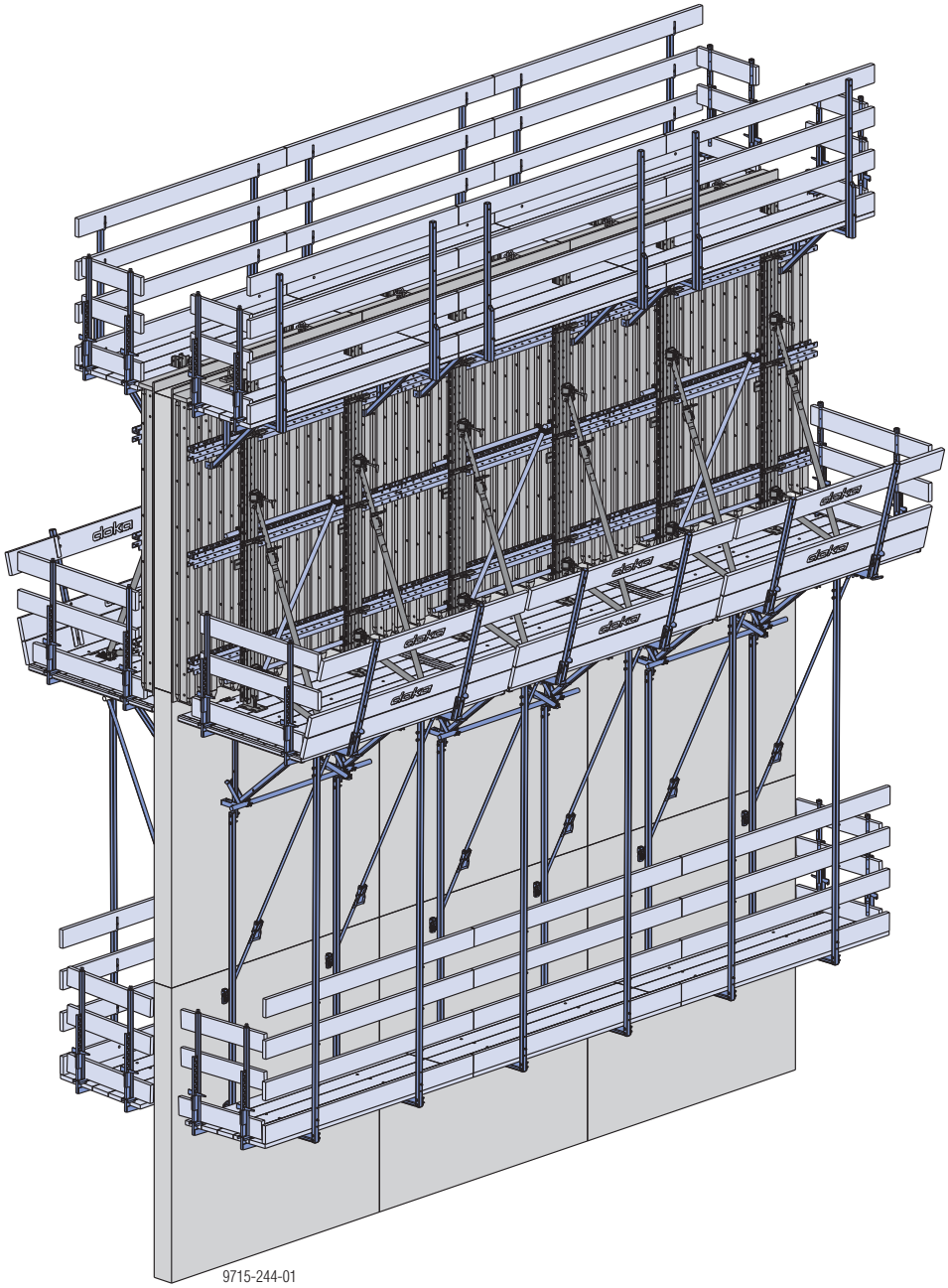
Formwork & Scaffolding.
We make it work.

Climbing formwork K

User Information

Instructions for assembly and use (Method statement)



Contents

4 Introduction
4 Elementary safety warnings

8 System description
9 System overview
10 Possible formwork systems

11 Structural design

12 Anchoring on the structure
12 Positioning point and suspension point
21 Other possible anchorages
24 Distances from edges

26 Plumbing & aligning the formwork
26 Adjusting the formwork

27 Repositioning
27 Lifting by crane

30 Operating the climbing formwork
30 Starting up
31 1st casting section
32 2nd casting section
35 3rd casting section

37 Assembly
37 Working platform – set-up procedure with Folding platforms K
40 Working platform – set-up procedure with Folding brackets K
44 Mounting the formwork
48 Assembling the suspended platform
50 Sideguards on exposed platform-ends

51 Dismantling

54 General
54 Fall protection on the structure
55 Transporting, stacking and storing

59 Article list

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 sideguard 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 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 kN) **are not design values** (e.g. F_{Rd} = 105 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:

- γ_F = 1.5
- $\gamma_{M,\ timber}$ = 1.3
- $\gamma_{M,\ steel}$ = 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.

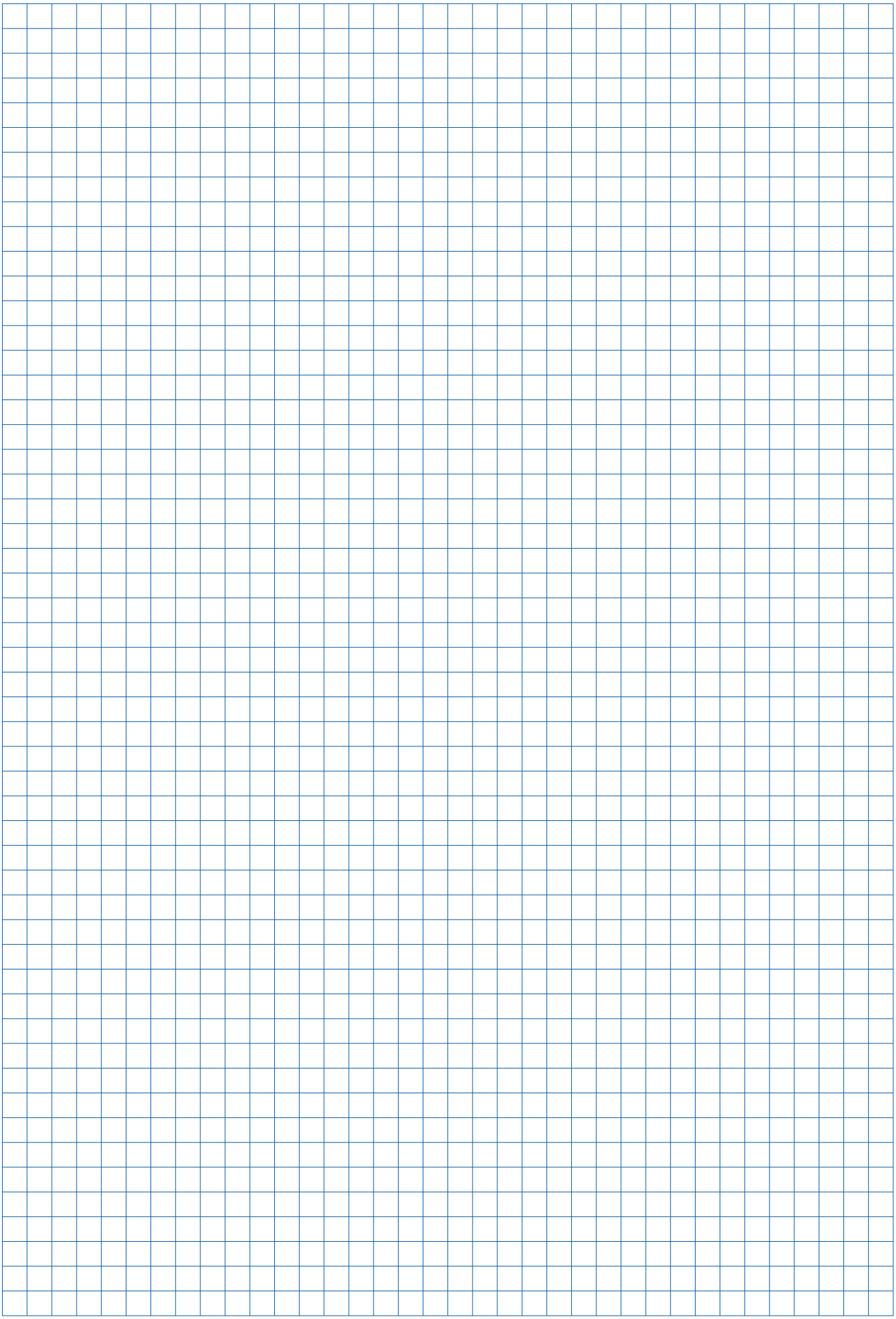
NOTICE
This is a notifier drawing attention to a situation in which non-compliance with this notifier can lead to malfunctions or damage to property.

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.



System description

Doka climbing formwork K: The versatile climbing formwork assembled from a folding platform and a formwork element or panel

The climbing formwork for structures where the formwork has to be repositioned upwards in several pouring sections, and there is no need for a retractable (roll-back) formwork. The formwork can be tilted back for easy cleaning.
The Climbing formwork K is based on the field-proven Folding platforms K, and is ideal for use with either framed or timber-beam formwork.

Climbing scaffold and formwork are lifted and repositioned together

- means that repositioning can be carried out with no need for time-consuming interim storage of the formwork
- saves time by combining several operations into one

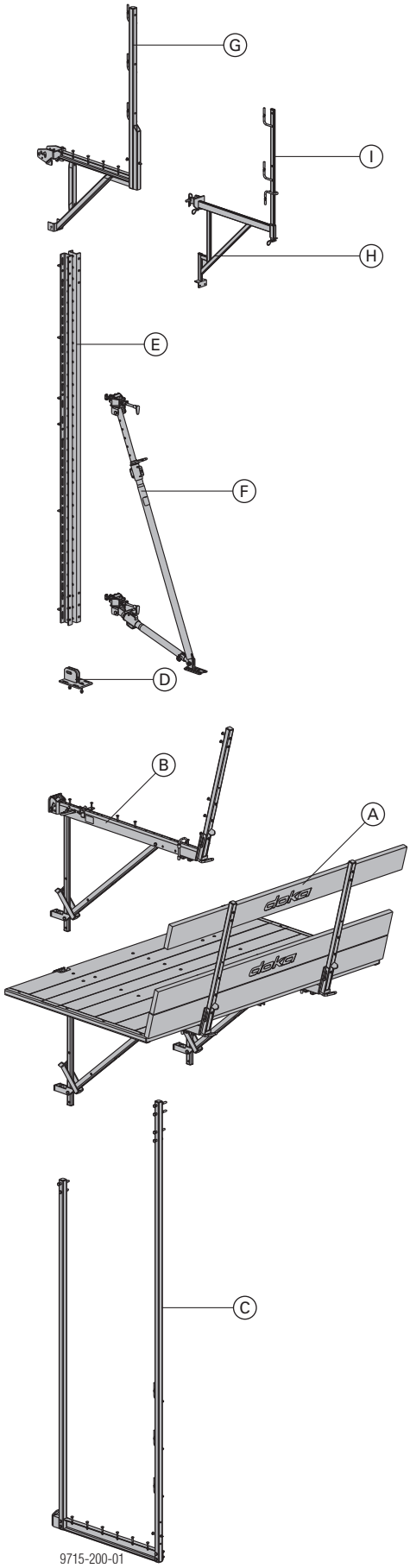
Cost-effective and geared to on-site requirements

- using standard components to combine the folding platform with a formwork element or panel results in a fully-fledged climbing formwork system
- quick and easy to assemble when using the standard Folding platform K
- low-cost, as only standard components are used
- complete safety in all phases of the work
- wide (1.80 m) work-platforms

Easy to operate

- formwork can be set up and struck with no need for a crane
- swift, precise formwork adjustment in all directions
- complete unit is lifted in one piece, quickly and easily (i.e. minimal crane time)

System overview



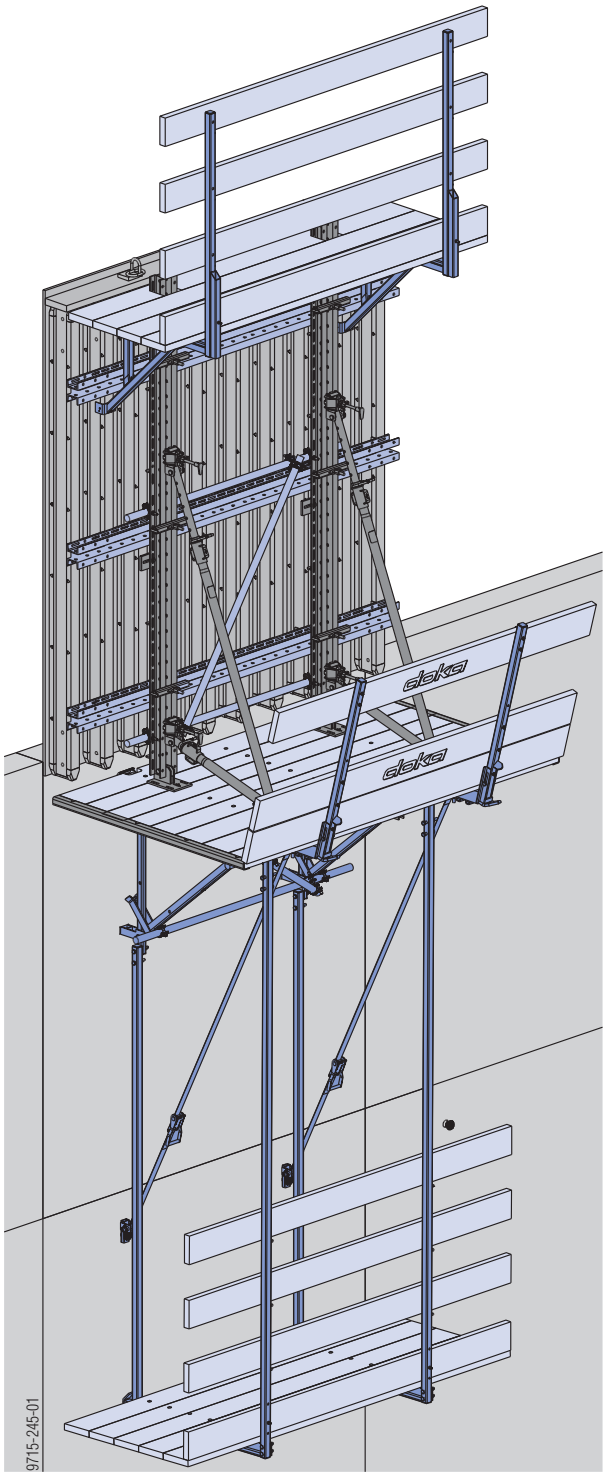
Adding a few standard components converts your working platform into a fully-fledged, tiltable climbing formwork unit which can be repositioned as a complete form and access-platform in one single operation.

- **Working platform**
  Either single Folding brackets K, or ready-assembled Folding platforms K, can be used to assemble the working platform.
  - **Folding platform K** (3.00m or 4.50m) **(A)**
    Pre-assembled, collapsible scaffold platforms with nominal lengths of 3.00 m and 4.50 m, assembled from Folding brackets K, the decking and the railings. The centre-to-centre spacing of the brackets is fixed (at 1.50 m).
  - **Folding bracket K (B)**
    Collapsible bracket for assembling the working platform.
    When single Folding brackets K are used, the centre-to-centre spacing of the brackets and the platform length can both be individually selected.
- **Suspended platform 120 4.30m (C)**
  Finishing-work platform that can be screwed onto the folding brackets
- **Connection shoe K (D)**
  for connecting the Folding bracket to the Multi-purpose waling WS10 Top50. This makes it possible for the entire climbing unit to be lifted and repositioned in one piece, together with the formwork.
- **Multi-purpose waling WS10 Top50 (E)**
  For holding the timber-beam or framed formwork. The length of this waling will depend on the height of the formwork panels.
- **Panel strut 340 (F)**
  For exact plumbing and aligning of the formwork panel.
- **Universal bracket 90 (G)** or **Framax bracket 90 EP (H)** with **Handrail post 1.00m (I)**
  For assembling pouring platforms. Choose the relevant type of bracket, depending on the formwork system being used (timber-beam or framed formwork).

Possible formwork systems

Timber-beam formwork

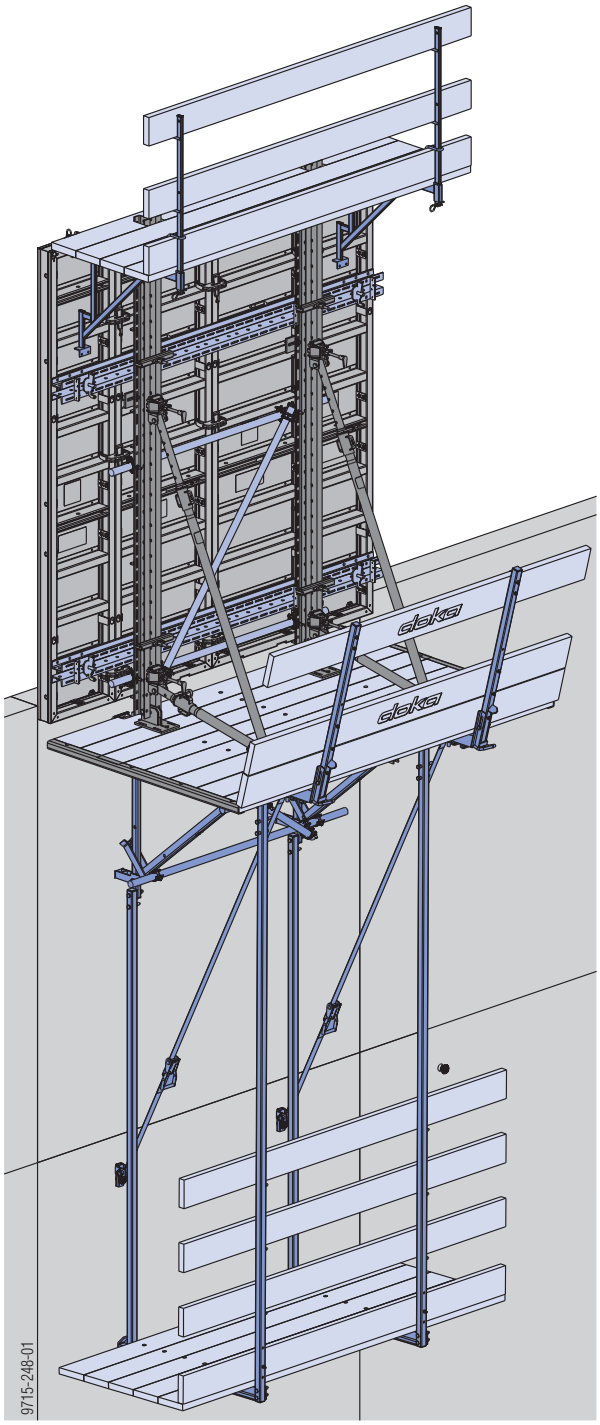
e.g. Large-area formwork Top50



For more information, see the 'Large-area formwork Top 50' User Information booklet.

Framed formwork

e.g. Framed formwork Framax Xlife



For more information, see the 'Framed formwork Framax Xlife' User Information booklet.

Structural design

CAUTION

➤ If wind speeds > 72 km/h 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 precaution:
- set up the opposing formwork

Climbing scaffold with Folding platforms K

Ready-assembled platforms

The Doka folding platforms K are pre-assembled (and thus immediately work-ready) scaffold platforms designed to be used as

- DIN 4420-1 and ÖNORM B 4007 compliant protection platforms
- EN 12811-1 compliant working platforms

See the User Information booklet "Doka folding platform K" for detailed information.

The following points must be observed when using the folding platforms as a climbing formwork:

Max. formwork height 3.75 m on structures of < 100 m in height (wind pressure w_e=1.365 kN/m²)

Permitted service load: 1.5 kN/m² (150 kg/m²) on folding platforms and on pouring platforms of Load Class 2 to EN 12811-1:2003

A suspended platform (of Load Class 2) can be added if wished

Loads on the suspension point:
- Horizontal load: 36 kN
- Vertical load: 20 kN

Climbing scaffold with Folding brackets K

Platform assembled from single brackets

Makes it possible to choose any bracket spacing and any length of platform, for constructing closure platforms (of e.g. less than 3.0 m in length) and special shapes for use in corner zones.

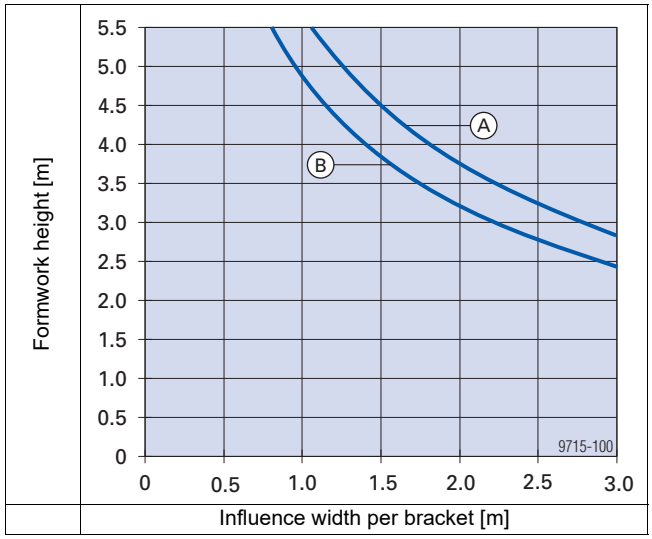
The following points must be observed when using the Folding brackets as a climbing formwork:

Permitted service load: 1.5 kN/m² (150 kg/m²) on folding platforms and on pouring platforms of Load Class 2 to EN 12811-1:2003

A suspended platform (of Load Class 2) can be added if wished

Allow for the wind-load when deciding the formwork height and the influence width of the brackets.

Wind-load on formwork



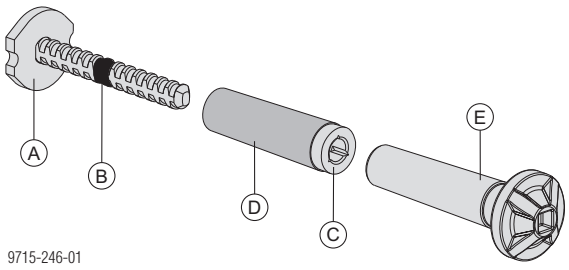
A... Structure height < 24 m (wind pressure w_e=1.0 kN/m²) (wind speed max. 130 km/h)

B... Structure height < 100 m (wind pressure w_e=1.365 kN/m²) (wind speed max. 150 km/h)

Loads on the suspension point:
- Horizontal load: 36 kN
- Vertical load: 26 kN

Anchoring on the structure

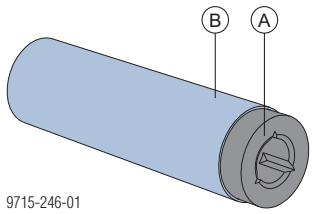
Positioning point and suspension point



A	Stop anchor 15.0 (expendable anchoring component)
B	Depth mark
C	Positioning cone 15.0 5cm
D	Sealing sleeve 15.0 5cm (expendable anchoring component)
E	Suspension cone 15.0 5cm

- **Stop anchor**
  - Expendable anchoring component for anchoring the suspension cone (and thus the climbing unit) in the concrete from one side.
- **Positioning cone**
  - Placeholder for the suspension cone on the positioning point.
  - The Positioning cone 15.0 5cm or the Cantilever positioning cone 15.0 5cm can be used as positioning cone.
- **Suspension cone**
  - For safe suspension of the Folding platform K or climbing unit.

Positioning cone 15.0 5cm

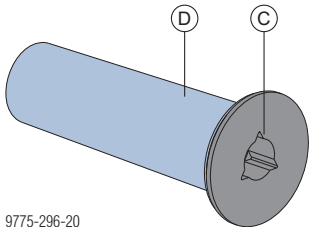


A	Positioning cone 15.0 5cm
B	Sealing sleeve 15.0 5cm (orange)

NOTICE

Positioning cones 15.0 5cm are supplied together with
Sealing sleeves 15.0 5cm. Fit **new sealing sleeves every time the cones are re-used**.

Cantilever positioning cone 15.0 5cm

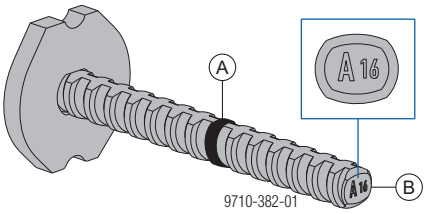


C	Cantilever positioning cone 15.0 5cm
D	Sealing sleeve S 15.0 5cm (orange)

NOTICE

Cantilever positioning cones 15.0 5cm are supplied together with
Sealing sleeves S 15.0 5cm. Fit **new sealing sleeves every time the cones are re-used**.

Types of stop anchor

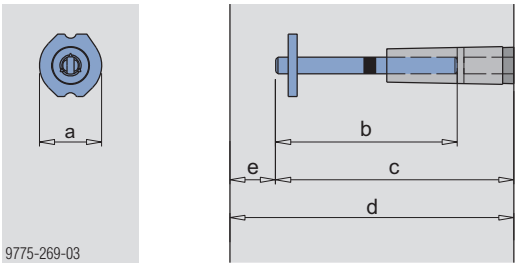


A Mark for screw-in depth
B Code for stop-anchor type

The stop anchor has an identification code on the end face.

- The code is a combination of a letter and a number and it unequivocally describes the features of the stop anchor:
  - Letter: Tie-rod size and size of the stop-anchor plate.
  - Number: Length of the stop anchor in cm
- Easy identification of the stop-anchor type before and after the concrete has been poured

Stop anchor 15.0 A16 and A21



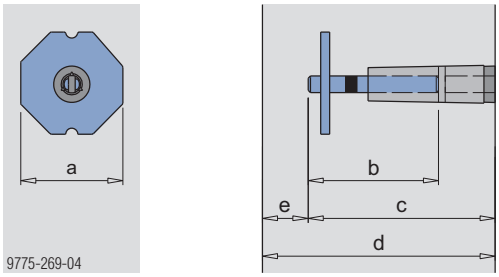
A	Stop anchor 15.0
	a ... size of stop-anchor plate: 55 mm
16	b ... tie-rod length: 16,0 cm

c ... installation depth: 21.0 cm
d ... minimum wall thickness: 23.0 cm (where the concrete cover is 2 cm)
d ... minimum wall thickness: 24.0 cm (where the concrete cover is 3 cm)
e ... concrete cover

A	Stop anchor 15.0
	a ... size of stop-anchor plate: 55 mm
21	b ... tie-rod length: 21,0 cm

c ... installation depth: 26.0 cm
d ... minimum wall thickness: 28.0 cm (where the concrete cover is 2 cm)
d ... minimum wall thickness: 29.0 cm (where the concrete cover is 3 cm)
e ... concrete cover

Stop anchor 15.0 B11



B	Stop anchor 15.0
	a ... size of stop-anchor plate: 90 mm
11	b ... tie-rod length: 11.5 cm

c ... installation depth: 16.5 cm
d ... Minimum wall thickness: 19 cm (where the concrete cover is 2 cm)
d ... Minimum wall thickness: 20 cm (where the concrete cover is 3 cm)
e ... concrete cover

WARNING

The short **Stop anchor 15.0 B11** has a much lower load-bearing capacity than the Stop anchor 15.0 A16.

- ➤ The short stop anchor may only be used on systems with low tensile loads at the anchoring location, such as on climbing systems inside shafts.
- ➤ If the geometry will only allow installation of short stop anchors, then revised static calculations and/or extra reinforcement steel may be required where any higher tensile loads are expected.
- ➤ The Stop anchor 15.0 B11 is only permitted for wall thicknesses < 24 cm. For wall thicknesses ≥ 24 cm, the Stop anchor 15.0 A16 (or larger) must be used.

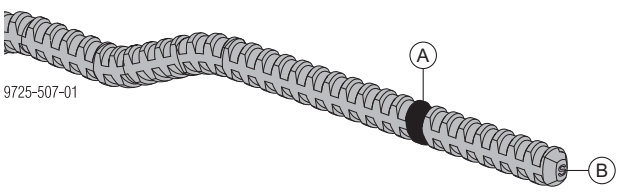
WARNING

The **Stop anchor 15.0 B11** may accidentally come unscrewed from the positioning cone while low-viscosity concrete is being poured.

- ➤ Take additional precautions to prevent the Stop anchor 15.0 B11 from being turned.

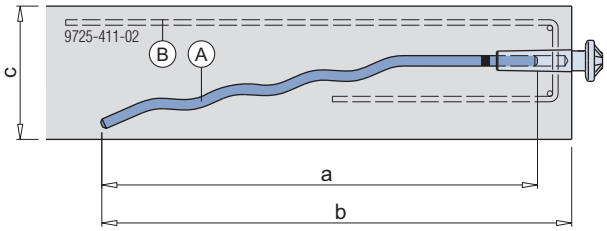
Pigtail anchor

It is also possible to use a **pigtail anchor** for a positioning point / suspension point in the floor-slab, instead of a stop anchor.



A Mark for screw-in depth

B Code on end face 'S' (= Pigtail anchor 15.0)



a ... 64.0 cm
b ... 69.0 cm
c ... min. 20.0 cm

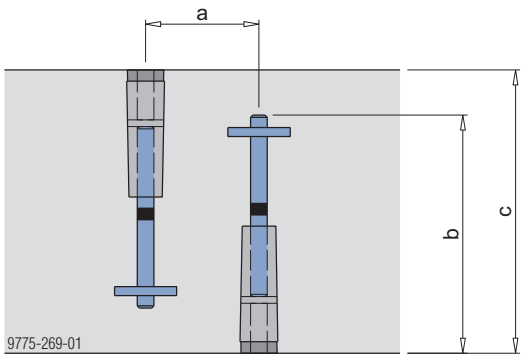
A Pigtail anchor 15.0

B Longitudinal reinforcement and U-reinforcements, min. diam. 8 mm, spaced max. 15 cm apart

Opposite anchoring points

Note:
If the wall thickness is less than twice the installation depth of the stop anchor, opposing anchor points must be offset to one another.

Plan view

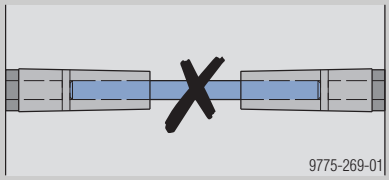


a ... min. 100 mm, if c < 2 x b
b ... installation depth
c ... wall thickness

If two cones are fitted opposite one another and joined with a tie rod there is a risk of formwork falling off.

Unscrewing the anchor on one side may cause the anchor on the opposite side to shear off.

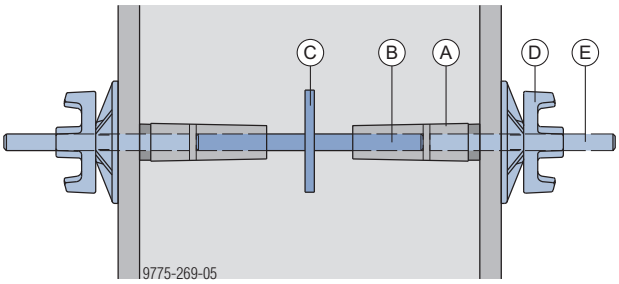
➤ Do not, under any circumstances, connect cones with a tie rod.



Anchor points with no offset

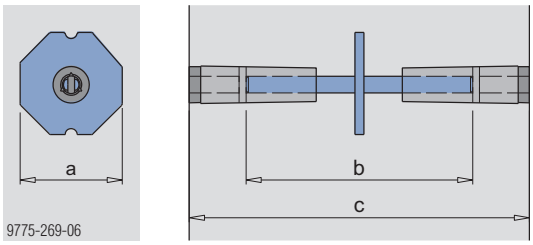
Anchor points with no offset are prepared using the **Stop anchor double-ended 15.0 K**.

Positioning point



A	Positioning cone 15.0 5cm
B	Sealing sleeve 15.0 5cm (expendable anchoring component)
C	Stop anchor double-ended 15.0 (expendable anchoring component)
D	Super plate 15.0
E	Tie rod 15.0mm

Stop anchor double-ended 15.0 K..



K	Stop anchor 15.0
	a ... size of stop-anchor plate: 90 mm
25 - 70	b ... tie-rod length: 25 - 70 cm

b ... 25 - 70 cm
c ... order length = wall thickness a - 10 cm

WARNING

In walls that are less than 39 cm thick, the Stop anchor double-ended 15.0 K.. has a much lower load-bearing capacity than the Stop anchor 15.0 A16.

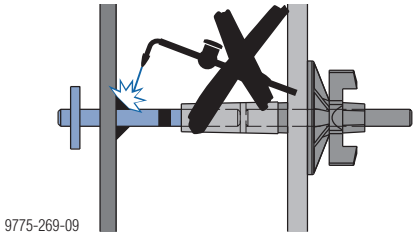
- ➤ Revised static calculations are required here.
- ➤ Where high tensile forces occur, locate extra reinforcement steel as statically required.

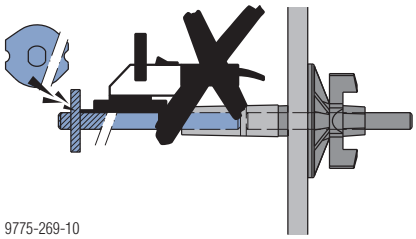
Preparing the positioning point

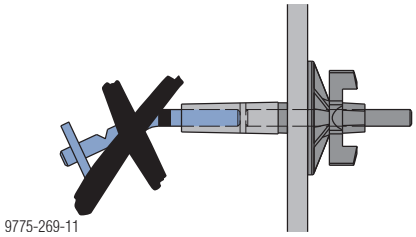
WARNING

Sensitive anchoring, suspension and connector components!

- ➤ Never weld or heat these components.
- ➤ Any components that are damaged or weakened by corrosion or wear must be withdrawn from use.

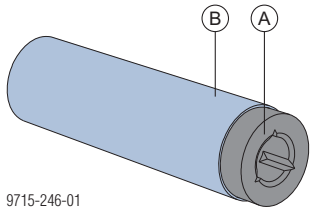






Preparing the positioning point

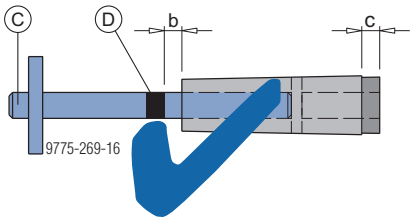
➤ Push the sealing sleeve all the way onto the positioning cone.



A Positioning cone 15.0 5cm
B Sealing sleeve 15.0 5cm (orange)

Note:
Do not screw the stop anchor in until the sealing sleeve is pushed fully on to the positioning cone.

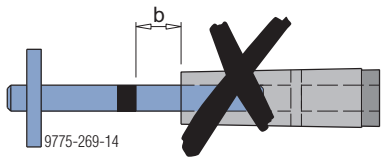
WARNING
➤ Always screw the stop anchor into the positioning cone until it fully engages.
Not screwing the stop anchor fully into the cone may lead to reduced load-bearing capacity and failure of the suspension point – resulting in possible injury and/or damage.



b ... 10 mm
c ... 10 mm

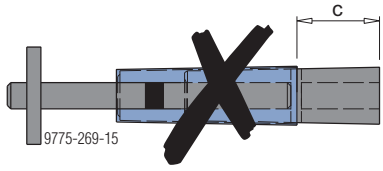
C Stop anchor 15.0 (lost anchoring component)
D Depth mark

- Always screw in components until they are fully engaged. When correctly fitted, there will still be 10 mm of thread visible between the part and the depth mark on the stop anchor or pigtail anchor.



b ... > 10 mm not permitted

- The sealing sleeve must be completely pushed onto the positioning cone.



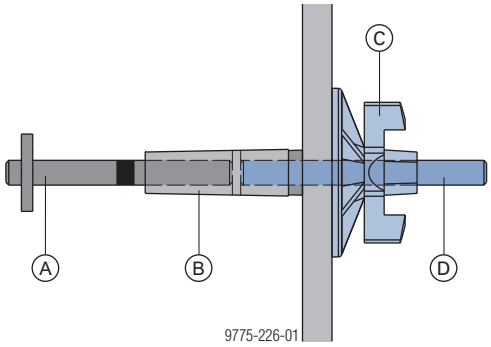
c ... > 10 mm not permitted

Positioning point with Positioning cone 15.0 5cm (with hole drilled through form-ply)

Installation:

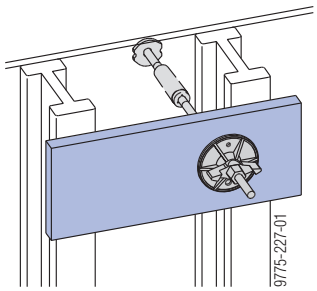
➤ Drill a diam. 18 mm hole in the form-ply (position as shown in shop drawing / assembly plan).

➤ Insert a Tie rod 15.0 (length approx. 20 cm) through the hole drilled in the form-ply, screw it into the positioning cone and tighten it with a Super plate 15.0.



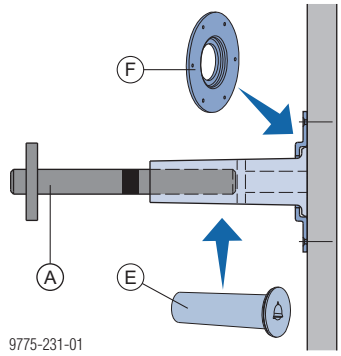
A Stop anchor 15.0
B Positioning cone 15.0 5cm + Sealing sleeve 15.0 5cm
C Super plate 15.0
D Tie rod 15.0mm

If the positioning point is located too close to a Doka beam, a board can be nailed to this and the adjoining beam to provide a support surface for the super plate.



Positioning point with Cantilever positioning cone 15.0 5cm (with no hole drilled through form-ply)

For special applications only, when it is not possible to drill through the form-ply (e.g. where there are Doka beams or formwork panel frame profiles directly behind the positioning point).



A	Stop anchor 15.0
E	Cantilever positioning cone 15.0 5cm + Sealing sleeve S 15.0 5cm
F	Fixing plate 15.0

NOTICE

It is not permitted to use the Fixing plate 15.0 more than once in the same position, as it cannot be fixed firmly and securely in the old nail-holes.

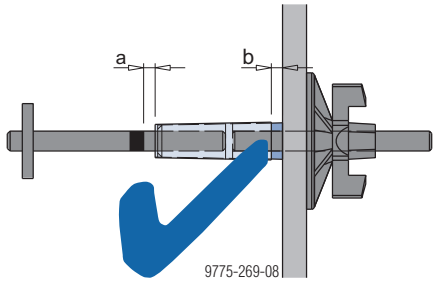
Installation:

➤ Nail a cantilever positioning cone to the form-ply using a Fixing plate 15.0 (position as shown in project plan).

Check of the positioning point

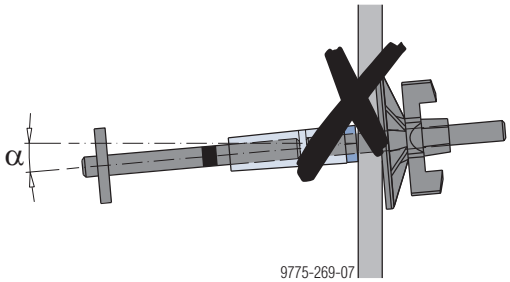
➤ Before pouring, check all positioning points and suspension points again.

- The sealing sleeve must be completely pushed onto the positioning cone.
- Always screw in components until they are fully engaged. When correctly fitted, there will still be 10 mm of thread visible between the part and the depth mark on the stop anchor or pigtail anchor.
- Tolerance for locating the positioning points and suspension points: ±10 mm in the horizontal and the vertical.



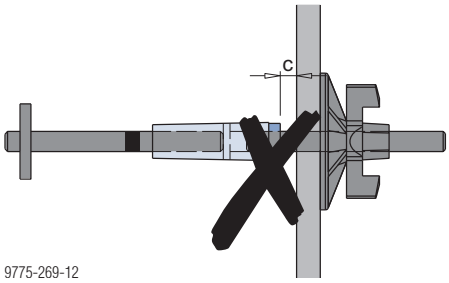
a ... 10 mm
b ... 10 mm

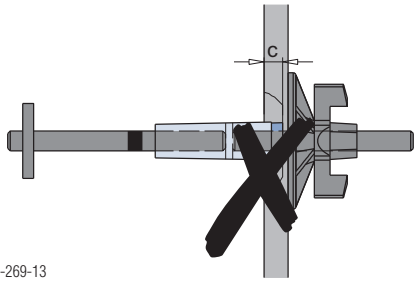
- The axis of the positioning cone must be at right-angles to the surface of the concrete – maximum angle of deviation 2°.



α ... max. 2°

- The positioning cone must be embedded so that it is flush with the concrete surface.





c ... > 0 mm not permitted

Pouring

Mark the positions of the anchoring points at the top edge of the formwork to make them easier to locate when the concrete is being poured.

➤ Prevent the vibrator from touching the stop anchors.
➤ Do not place concrete from directly above the stop anchors.

These measures prevent the anchors from working loose during pouring and vibration.

Stripping the formwork

Remove the connecting parts holding the positioning point to the formwork either before or after stripping, depending on which connecting parts are used.

Positioning point with Positioning cone 15.0 5cm:

➤ Remove the Super plate 15.0 before stripping the formwork.
➤ Unscrew the Tie rod 15.0.

Preparing the suspension point

Dimensioning the suspension point

The required **cube compressive strength** of the concrete at the time of loading must be **specified** separately for each project **by the structural designer**. It will depend on the following factors:

- load actually occurring
- length of stop anchor or pigtail anchor
- reinforcement / extra reinforcement steel
- distance from edge

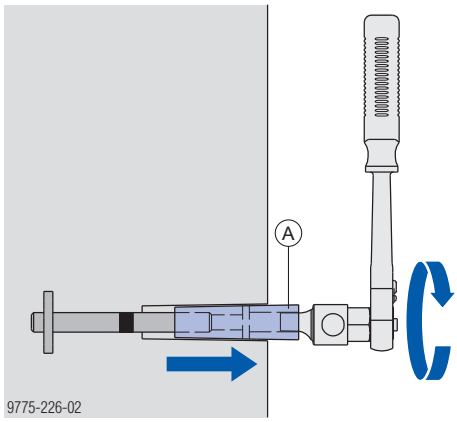
The introduction of the forces, the transfer of these forces into the structure, and the stability of the overall construction, must all be verified by the structural designer.

The required cube compressive strength $f_{ck,cube,current}$ must be at least 10 N/mm², however.

Follow the directions in the Calculation Guide entitled "Load-bearing capacity of anchorages in concrete" or ask your Doka technician!

Lowering the working platform into engagement

➤ Unscrew the Positioning cone, using a Reversible ratchet 1/2" and a Positioning-cone spanner 15.0 DK.

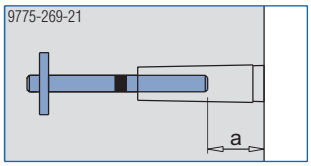


A Positioning cone 15.0 5cm

Check of the positioning point

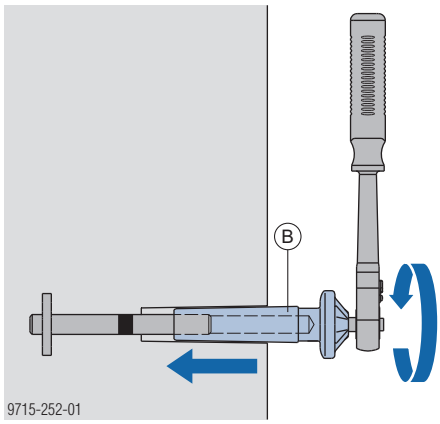
➤ Check the code on the stop anchor.

➤ Check the placement depth of the stop anchor.



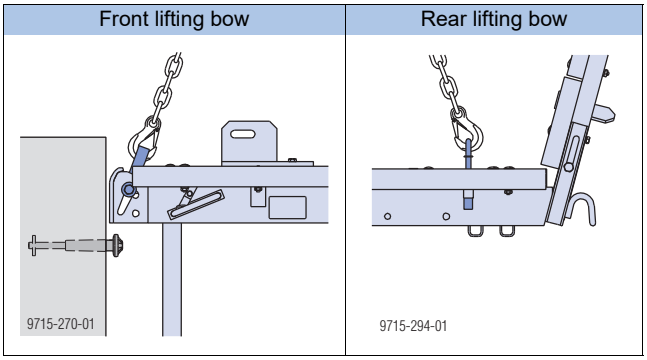
a ... placement depth: 50 mm

➤ Screw in Suspension cone 15.0 until fully engaged, and tighten using Reversible ratchet 1/2".



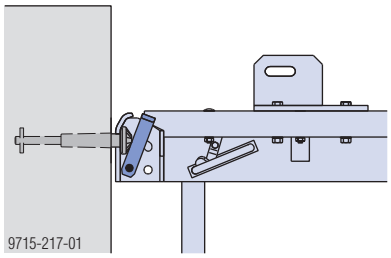
B Suspension cone 15.0 5cm

➤ Lower the working platform into engagement in the prepared suspension point by crane.



This raises the front lifting bows, opening the lift-out guard.

➤ Once the working platform has been hung into place on the suspension cone, the load is removed from the 4-part lifting chain.

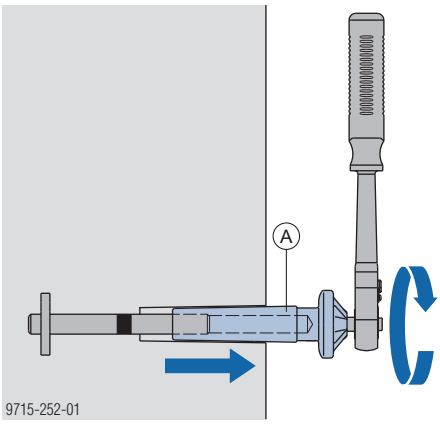


The lifting bows drop into the starting position, automatically securing the platform against accidental lift-out.

'Locked' position = lifting bow is flush with decking.

Dismounting the suspension point

➤ Unscrew the suspension cone with a Reversible ratchet 1/2".



A Suspension cone 15.0 5cm

Sealing the suspension point

Grout level with the rest of the surface

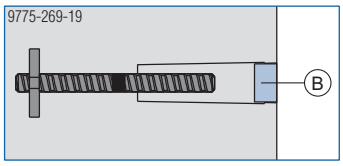
Sealing of the suspension points can be a requirement, for reasons of rust prevention.

➤ Fill the cavity of the suspension point with mortar and grout it smoothly.

Fibre concrete plugs

➤ Remove the sealing sleeve.

➤ Glue the fibre concrete plug into the hole of the suspension point.



B Fibre concrete plug 30.7mm

The concrete plug is glued into place with standard concrete adhesive.

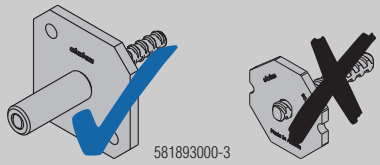
Other possible anchorages

Thin walls

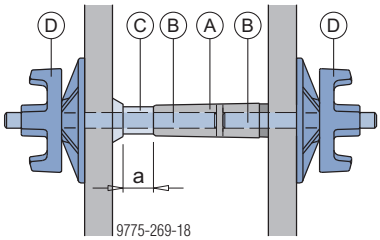
Wall thicknesses of 15 to 16 cm are prepared using the **Wall anchor 15.0 15cm**.

Risk of confusion!

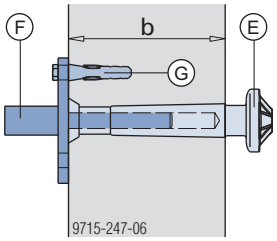
➤ NEVER use Stop anchors 15.0 for this application.



Positioning point



Suspension point

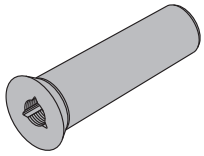


a ... length of plastic tube 3 - 4 cm
b ... 15 - 16 cm

A	Positioning cone 15.0 0.5cm + Sealing sleeve 15.0 5cm
B	Tie rod 15.0mm
C	Universal cone 22mm + Plastic tube 22mm
D	Super plate 15.0
E	Suspension cone 15.0 5cm
F	Wall anchor 15.0 15cm
G	Hexagon timber screw 10x50 + dowel Ø12

Suspension point for fair-faced concrete

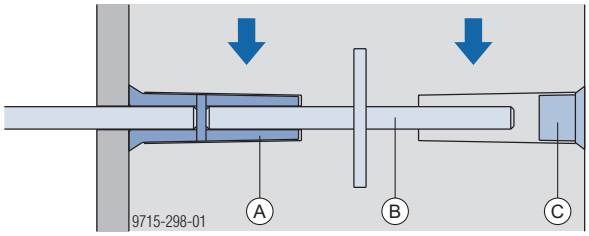
The Fair-faced concrete positioning cone 15.0 5cm is particularly suitable for fair-faced concrete projects where the form-tie points and suspension points are required to make a uniform hole-pattern.



NOTICE

Safety notice:
The Fair-faced concrete positioning cone may only be used on suspension points that are located within a maximum of 80 cm from the top edge of the concrete. The reason for this restriction is the reduced load-bearing capacity of such suspension points, due to the shallower screw-in depth of the end of the tie rod nearest the form-ply.

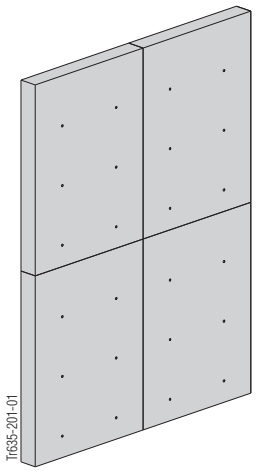
Anchoring situation — Illustrated inside the concrete



A	Fair-faced concrete positioning cone 15.0 5cm
B	Stop anchor double-ended 15.0
C	Fair-faced concrete plug 41mm

If it is intended to use this type of suspension point, a Doka technician must be contacted before the project starts.

Result (in terms of appearance):



The form-tie points and/or suspension points have a uniform, regular hole-pattern

Retrofitting a safe suspension point

Dimensioning the suspension point

The required **cube compressive strength** of the concrete and ready-mix mortar at the time of loading must be **specified** separately for each project **by the structural designer**. It will depend on the following factors:

- load actually occurring
- wall thickness
- reinforcement / extra reinforcement steel
- distance from edge

The introduction of the forces, the transfer of these forces into the structure, and the stability of the overall construction, must all be verified by the structural designer.

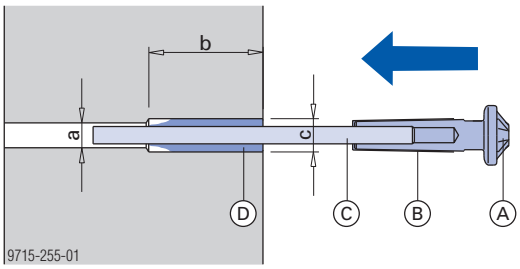
The required cube compressive strength $f_{ck,cube,current}$ must be at least 10 N/mm², however.

Drilling a hole for the suspension point through the wall

e.g.: if the crew forgot to prepare a positioning point.

Used with Suspension cone 15.0 5cm

- ➤ Drill a hole of diam. 35 mm and 115 mm depth.
- ➤ Drill a hole of diam. 25 mm.
- ➤ Push the sealing sleeve all the way onto the suspension cone.
- ➤ Screw the tie rod into the suspension cone until fully engaged, and put the rod part-way into the hole.
- ➤ Paste the ready-mix mortar (supplied by site) into the drilled hole with a spatula.



a ... 25 mm
b ... 115 mm
c ... 35 mm

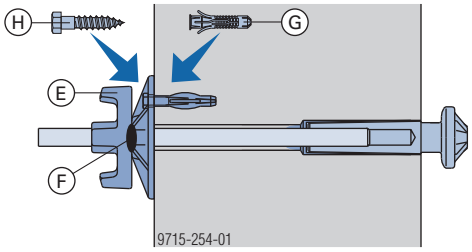
A	Suspension cone 15.0 5cm
B	Sealing sleeve 15.0 5cm
C	Tie rod 15.0mm
D	Ready-mix mortar

- ➤ Insert the unit so that it is flush with the concrete surface.
  Scrap away the excess ready-mix mortar with a spatula.

NOTICE

- ➤ Weld a bead to the super plate to join the nut and the plate. Do this BEFORE screwing the super plate onto the tie rod.

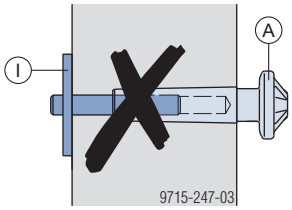
- ➤ On the other side of the concrete wall, screw on the super plate (now welded together) and secure it with a screw and dowel so that it cannot be unscrewed.



E	Super plate 15.0
F	Weld-seam
G	Dowel Ø12
H	Hexagon timber screw 10x50

WARNING

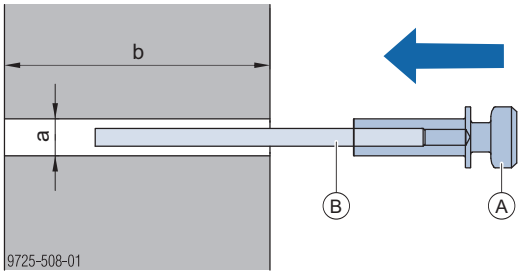
- ➤ Do NOT fit stop anchors with the anchor plate exposed! The anchor plate must always be embedded in the concrete.



A	Suspension cone
I	Stop anchor

Used with Suspension cone 15.0 with collar

➤ Drill a hole of diam. 36 mm.
➤ Screw the tie rod fully into the suspension cone with collar.



a ... 36 mm
b ... min. 150 mm

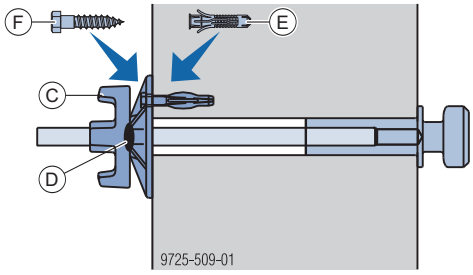
A	Suspension cone 15.0 with collar
B	Tie rod 15.0mm

➤ Insert the unit so that it is flush with the concrete surface.

NOTICE

➤ Weld a bead to the super plate to join the nut and the plate. Do this BEFORE screwing the super plate onto the tie rod.

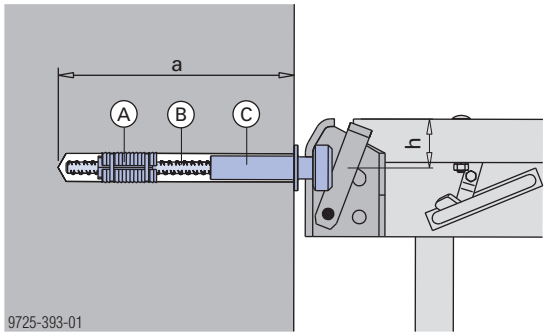
➤ On the other side of the concrete wall, screw on the super plate (now welded together) and secure it with a screw and dowel so that it cannot be unscrewed.



C	Super plate 15.0
D	Weld-seam
E	Dowel Ø12
F	Hexagon timber screw 10x50

Suspension point fixed in a hole subsequently drilled in the concrete

In concrete walls



a ... depth of drilled hole min. 250 mm
h ... 6.5 cm

A	Rock anchor spreader unit 15.0 (lost anchoring component)
B	Tie rod 15.0
C	Suspension cone 15.0 with collar

Before using, be sure to read and follow the directions in the following **Fitting Instructions** and **approvals**:
'Rock anchor spreader unit 15.0' and 'Z-21.6-1850'
'Suspension cone 15.0 with collar' and 'Z-21.6-1859'

Extra components needed for preparing the suspension point:

- Tensioning instrument B, consisting of
  - 1 hollow-piston cylinder
  - 1 hydraulic hand pump
  - 1 pressure support
  - 1 carrying case
- Rock anchor installation tube
- Tie-rod wrench 15.0/20.0
- Super plate 15.0
- Rock drill-bit diam. 37 mm

or

- Tensioning instrument 300kN, consisting of
  - 1 hollow-piston cylinder RH302
  - 1 hydraulic hand pump
  - 1 pressure support C
  - 1 carrying case
  - 1 Rock anchor installation tube
- Tie-rod wrench 15.0/20.0
- Super plate 15.0
- Rock drill-bit diam. 37 mm

NOTICE

The Tensioning instrument B cannot be combined with the Tensioning instrument 300kN!

Acceptance test

➤ Every anchoring point must undergo acceptance testing.

Distances from edges

Dimensioning the suspension point

The required **cube compressive strength** of the concrete and ready-mix mortar at the time of loading must be **specified** separately for each project **by the structural designer**. It will depend on the following factors:

- load actually occurring
- wall thickness
- reinforcement / extra reinforcement steel
- distance from edge

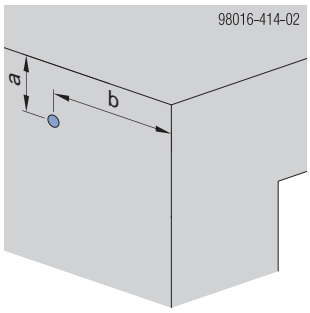
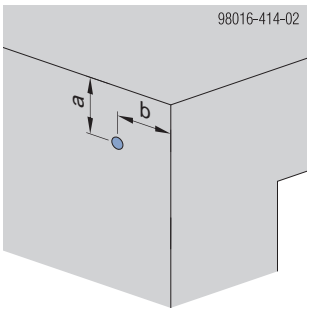
The introduction of the forces, the transfer of these forces into the structure, and the stability of the overall construction, must all be verified by the structural designer.

The required cube compressive strength $f_{ck,cube,current}$ must be at least 10 N/mm², however.

NOTICE

- It is essential to comply with the following distances from edges!
- Actual loads have to be ascertained on a project-specific basis.

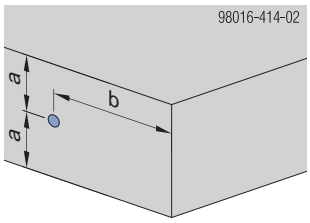
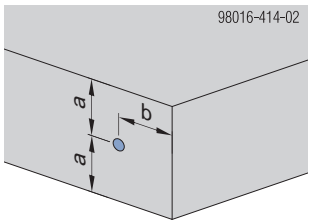
Used in the wall or in a floor slab with wall underneath

Used with Stop anchor 15.0	Used with Pigtail anchor 15.0
	
a ... min. 10 cm b ... min. 30 cm	a ... min. 10 cm b ... min. 15 cm

Used in the floor slab (without wall)

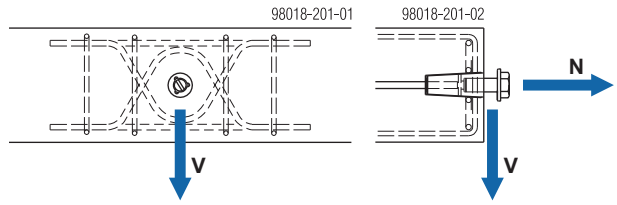
DANGER

➤ It is essential to install extra reinforcement for tensile and shear forces if there is no wall underneath the slab.

Used with Stop anchor 15.0	Used with Pigtail anchor 15.0
	
a ... min. 10 cm b ... min. 30 cm	a ... min. 10 cm b ... min. 15 cm

NOTICE

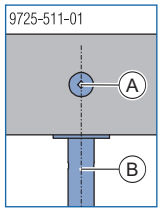
The installation of extra reinforcement always has to be agreed with the structural engineer!

Extra reinforcement steel

V_{perm} ... shear force N_{perm} ... tensile force

For more information, please contact your Doka technician.

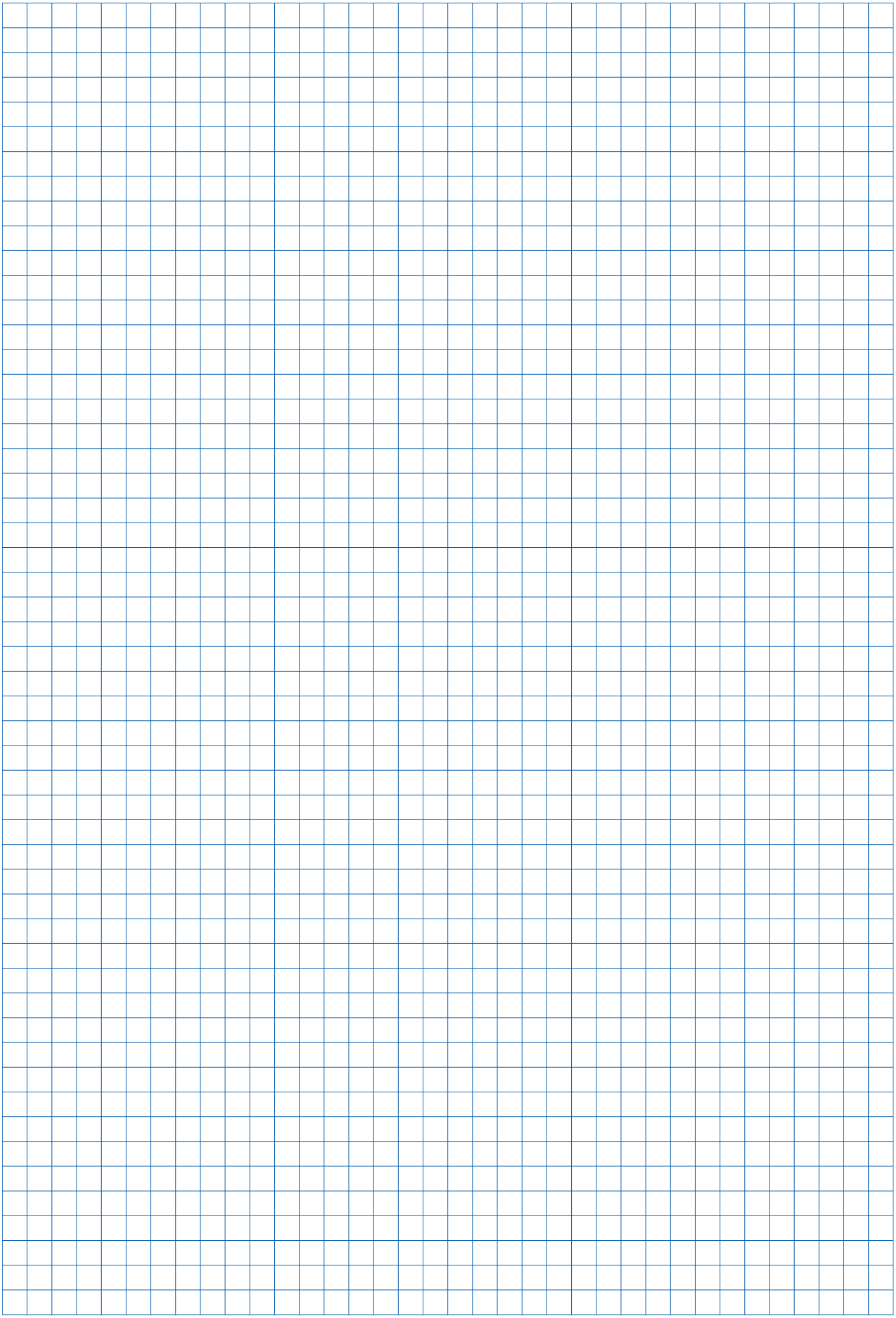
NOTICE

Floor props directly underneath the suspension points reduce the global and local load of the slab. Their positioning must be ensured throughout the entire construction process.



A Suspension point for Folding platform K

B Floor prop



Plumbing & aligning the formwork

Adjusting the formwork

In order to permit exact adjustment of the formwork elements in relation to one another and to the structure, they are adjustable in both the vertical and the horizontal.

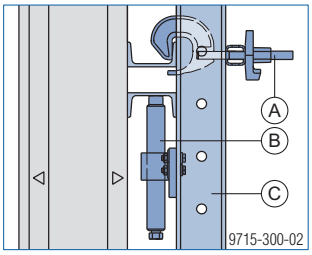
Tools needed:

- Hammer
- Reversible ratchet 1/2"
- Box nut 24 and
- Fork wrench 13/17 (for the threaded joins on the adjusting spindles)

Preparing the adjusting operation

➤ Take the load off the panel strut.
➤ Detach the formwork from the concrete.
➤ Loosen the waling-to-bracket holders with a blow of the hammer.

The **Adjusting spindles M36** permit a vertical adjustment range of approx. 150 mm. Also, the adjusting spindles can be relocated in the hole-grid of the Multi-purpose waling WS10 Top50.

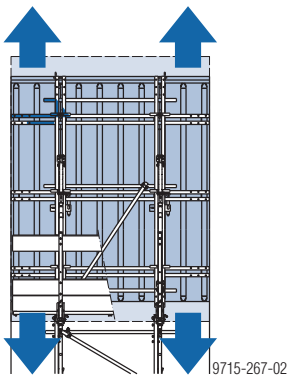


A	Waling-to-bracket holder 9-15cm
B	Adjusting spindle M36
C	Multi-purpose waling WS10 Top50

Vertical adjustment

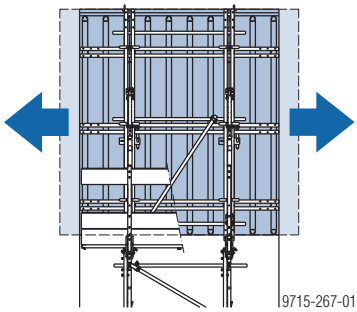
➤ Turn both adjusting spindles.

While adjusting the height, watch the waling-to-bracket holders to make sure that they do not block the adjustment process.



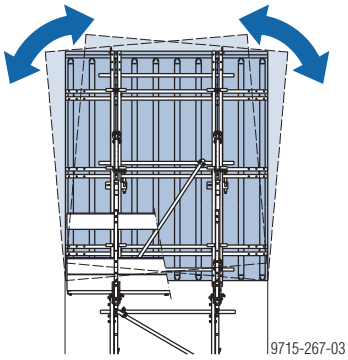
Horizontal adjustment

➤ Push the formwork to either side.



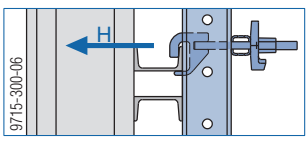
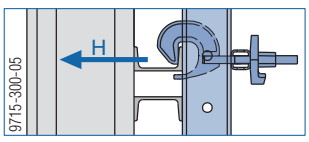
Side angle adjustment

➤ Only turn one adjusting spindle.



Ending the adjusting operation

➤ Tighten the waling-to-bracket holders with the hammer.

Waling-to-bracket holder	Waling-to-bracket holder 9-15cm
H ... permitted horizontal load: 11 kN	H ... permitted horizontal load: 22 kN
	

Repositioning

Lifting by crane

Instructions for safe repositioning of the complete unit

NOTICE

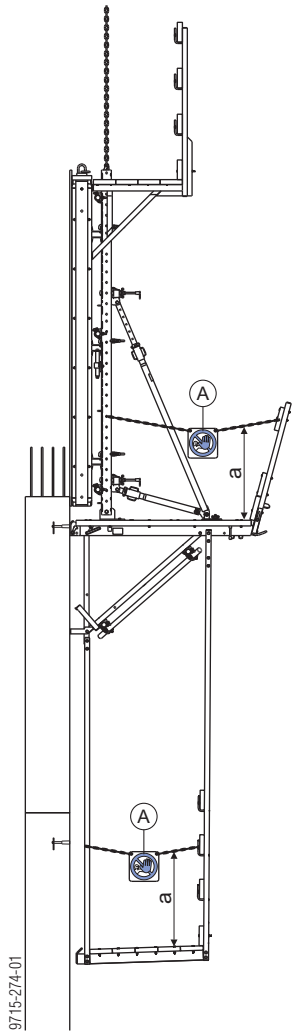
- **Before repositioning:** Remove any loose items from the formwork and platforms.
- 'Passenger transportation' is forbidden!
- Observe all regulations applying to the operation of cranes where higher wind speeds are experienced.
- Spread angle β: max. 30°
- Vertical multi-purpose walings must be adequately **(B) braced against oblique pull.**
- **Tightening torque of couplers (C) : 50 Nm**
- When using lifting beams, ensure that these have sufficient load-bearing capacity!
- When a climbing unit is repositioned, this opens up exposed fall-hazard locations on the remaining sections. These exposed locations must be made safe by putting up an access prohibition barrier.

  This access prohibition barrier must be fixed at least 2.0 m before the drop-off edge.

- The personnel in charge of the repositioning operation are responsible for positioning the access prohibition barriers correctly.
- During the lifting/repositioning cycle, no site personnel are allowed to be on the units to be climbed, or on adjacent units for repositioning.
- The persons operating the climbing formwork must use personal fall-arrest systems to prevent falls during the lifting operation.

Length of chain = at least the space between the hoisting points

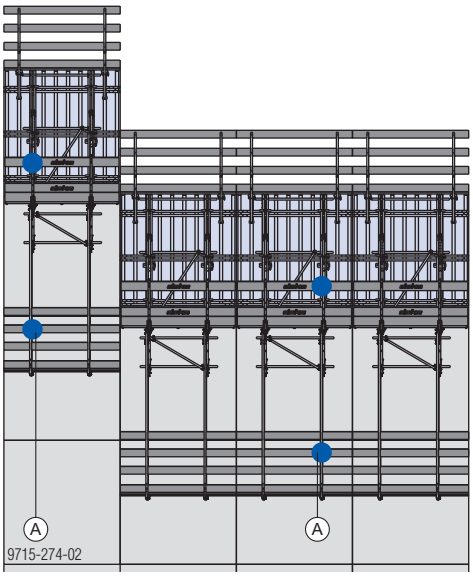
This automatically leads to the required spread angle β.



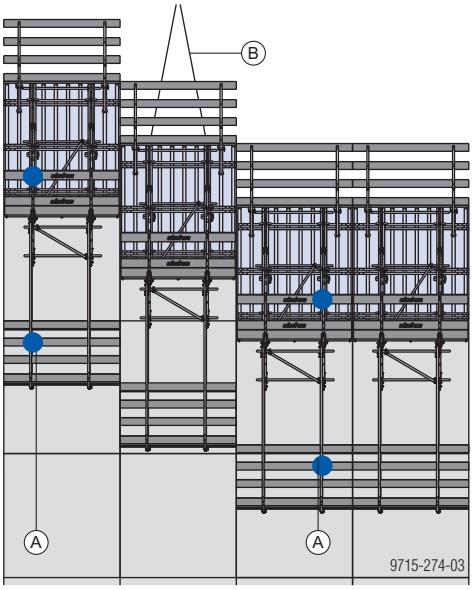
a ... 1.00 - 1.20 m

A Warning sign 'No entry' 300x300mm

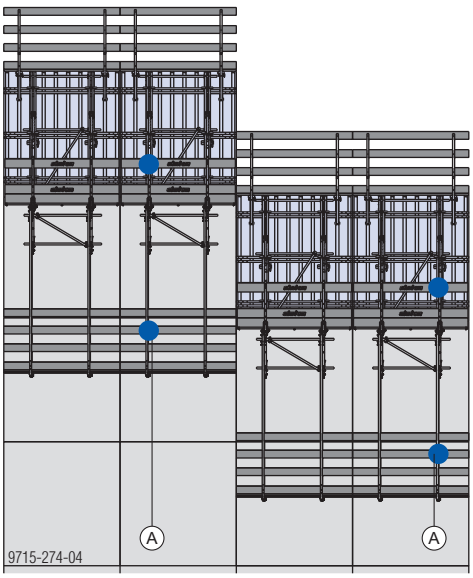
Initial situation



Hoist the unit to be repositioned up to the next section.



Horizontal repositioning of the prohibition barriers

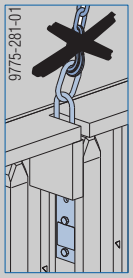


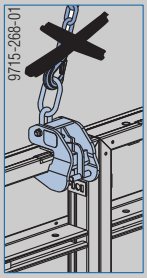
A Warning sign 'No entry' 300x300mm

B Crane lifting tackle

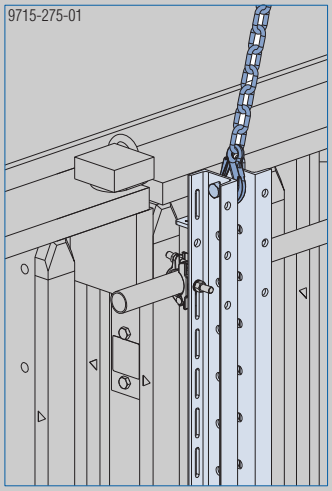
WARNING

➤ Any **lifting brackets** on the formwork elements, or **Framax lifting hooks**, must **not** be used for lifting the unit as a whole.





➤ Attach the lifting chain to the Connecting pin 10cm of the multi-purpose waling.



The suspension methods shown above are only needed for assembling and dismantling the formwork panels.

Repositioning the entire unit

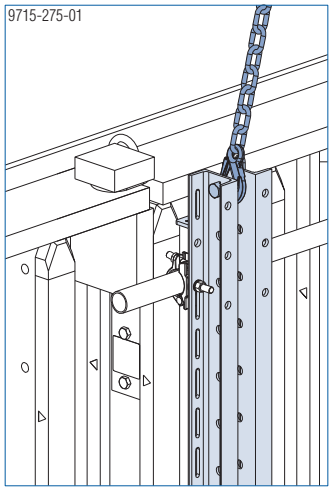
When repositioning the Climbing formwork K or units assembled from it (e.g. formwork element with multi-purpose walings), the lifting crane must always be attached to the vertical multi-purpose waling. For this, a Connecting pin 10cm must be inserted into the top hole in the multi-purpose waling and secured with a Spring cotter 5mm.

To avoid oblique pull, the **Lifting beam 110kN 6.00m** can be used.

➤ Tilt back the formwork with the panel strut.

Before every repositioning operation, check to make sure that the vertical Multi-purpose walings WS10 Top50 are each bolted into a Connection shoe K with a Connecting pin 10 cm that has been secured with a Spring cotter 5mm!

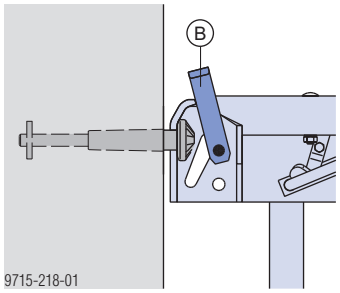
➤ Attach the lifting chain to the Connecting pin 10cm of the multi-purpose waling.



➤ Remove the wind bracing.

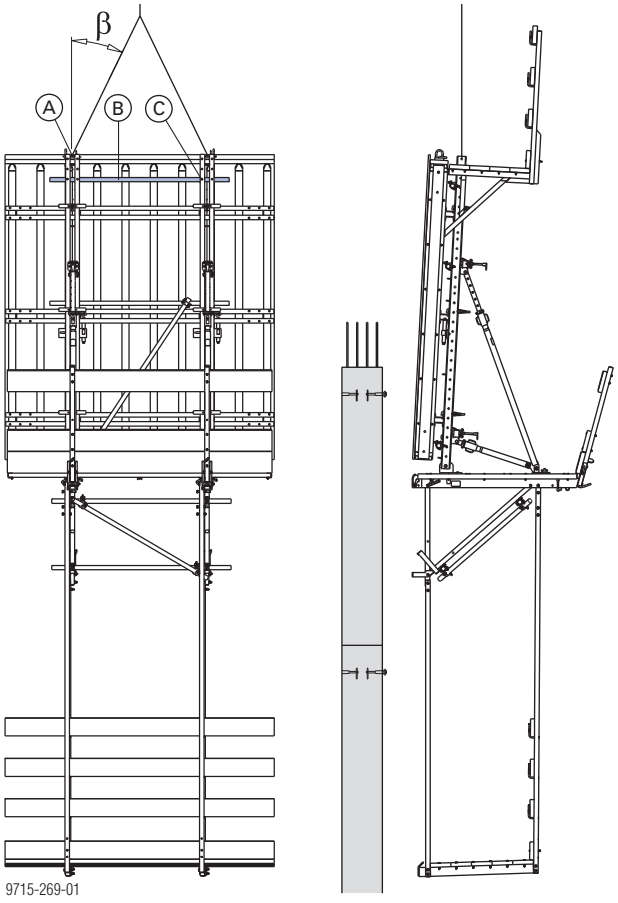
➤ Before repositioning, move the lifting bow of the Folding platform K into the stand-by position (locked in the short slot).

Before repositioning



B Lifting bow

➤ Engage the climbing unit in the prepared suspension points by crane.



β ... max. 30°

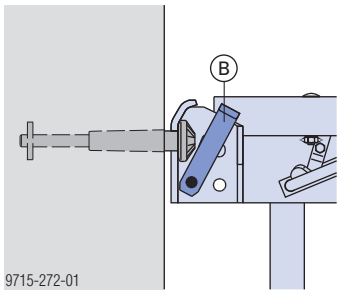
A Connecting pin 10cm with Spring cotter 5mm

B Bracing against oblique pull (e.g. scaffold tube)

C Screw-on coupler

➤ Move the lifting bow into the locked position (locked in the long slot – lifting bow flush with decking).

After suspending the climbing unit



B Lifting bow

Operating the climbing formwork

Starting up

The modular design of the Climbing formwork K system means that many different combinations are possible.

Depending on the project, the actual design may differ significantly from that described here.

➤ In these cases, you should discuss the assembly procedure with your Doka technician.

➤ Follow the directions in the shop drawing / assembly plan.

NOTICE

- There must be a flat, firm base capable of supporting the load.
- Prepare a sufficiently large assembly area.
- Tightening torque of the bracing tube couplers: 50 Nm

Note:

In order to explain the entire climbing workflow as simply as possible, the repetitive actions involved are described in detail in separate sections of this booklet. The sections in question are:

- Preparing the positioning points and suspension points (see the section headed 'Anchoring on the structure').
- Plumbing and aligning the formwork
- Repositioning by crane

For instructions on tying and joining the formwork elements, and on cleaning them and using concrete release agents, see the User Information booklets 'Large-area formwork Top50' and 'Framed formwork Framax Xlife'.

WARNING

Falling hazard!

➤ Do not step onto the pouring platforms until the formwork is securely closed up.

Possible incorrect usages

NOTICE

Improper handling and use of the formwork equipment can lead to hazardous situations. These must be prevented under all circumstances.

WARNING

No additional forces are to be transferred into the formwork:

➤ Do not use hoists or other such devices for positioning and adjusting the formwork.

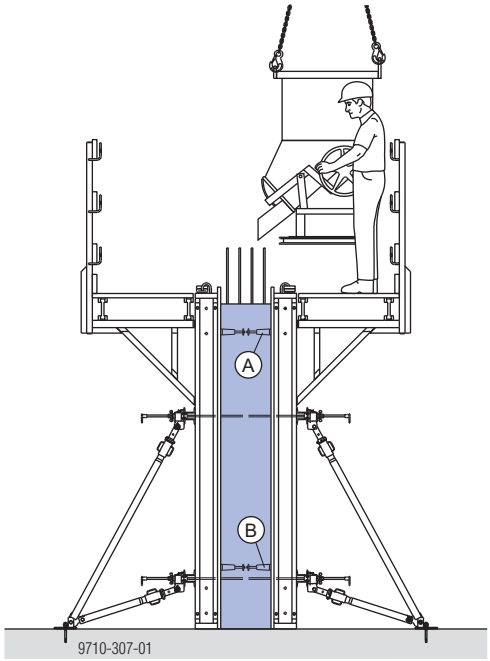
➤ Do not use the formwork to force incorrectly placed reinforcement steel into position.

➤ Always press the formwork against the concrete without applying force.

➤ Never use 'brute force' on the panel struts (e.g. with tube-extensions).

1st casting section

- ➤ Apply concrete release agent and set up one side of the formwork.
- ➤ Mount the positioning points.
- ➤ Mount positioning-points for the wind-bracing.
- ➤ Place the reinforcement.
- ➤ Close the formwork and tie it.
- ➤ Pour the 1st section.



A Positioning point
B Positioning point for wind bracing

- ➤ Strike the formwork.
- ➤ Clean the formwork.
- ➤ Set the gang-form down on a flat surface, with the form-ply facing downwards.
- ➤ Prepare the formwork for the climbing operation.

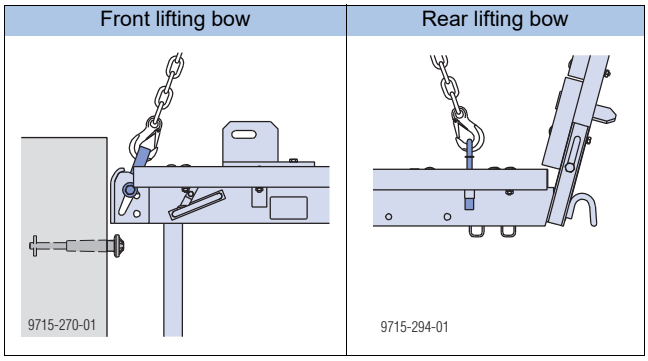
2nd casting section

Hanging the working platform into place on the suspension points:

➤ Remove the positioning cone.

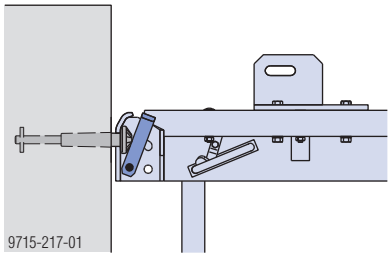
➤ Prepare the suspension points.

➤ Raise the prepared working platform with a 4-part lifting chain (e.g. Doka 4-part chain 3.20m).



This raises the front lifting bows, opening the lift-out guard.

➤ Once the working platform has been hung into place on the suspension cone, the load is removed from the 4-part lifting chain.

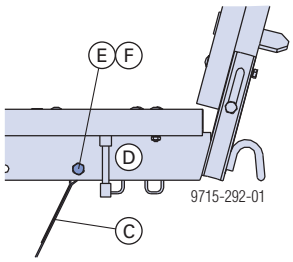


The lifting bows drop into the starting position, automatically securing the platform against accidental lift-out.

'Locked' position = lifting bow is flush with decking.

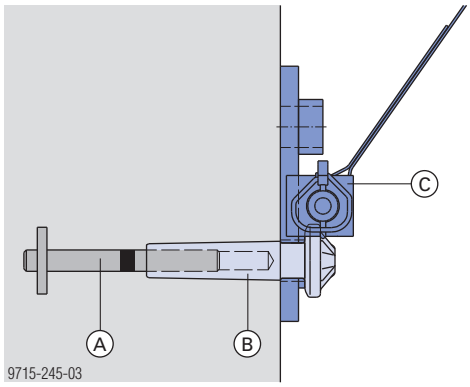
Wind bracing:

➤ Use a Hexagon bolt M16x90 and Hexagon nut M16 to secure Wind bracing MF/150F/K 6.00m to the Folding bracket K.



C	Wind bracing MF/150F/K 6.00m
D	Folding bracket K
E	Hexagon bolt M16x90
F	Hexagon nut M16

➤ Fasten the tensioning unit of the wind bracing to the structure, i.e. to the positioning point prepared with a suspension cone.



A	Stop anchor 15.0
B	Suspension cone 15.0 5cm
C	Wind bracing MF/150F/K 6.00m

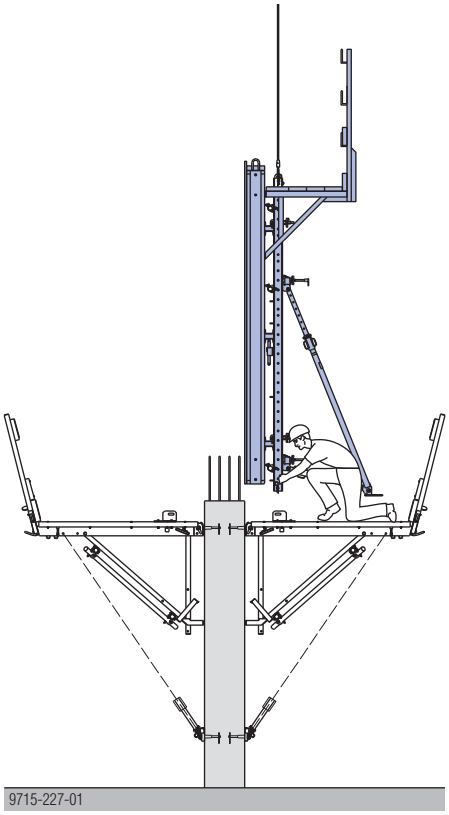
➤ Tighten the Wind bracing MF/150F/K 6.00m.

Wind bracing MF/150F/K 6.00m
Permitted tensile force: **25 kN**

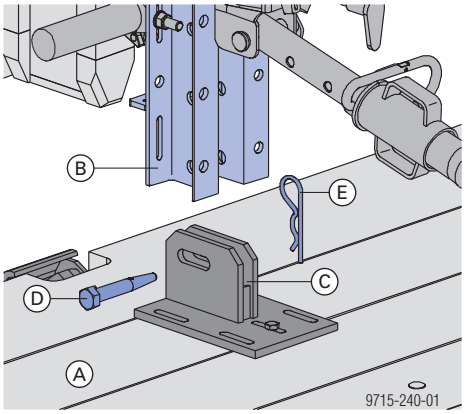
Formwork:

➤ Attach the crane lifting tackle to the vertical multi-purpose walings.

➤ Place the pre-assembled formwork onto the working platform, and fix it in place.



➤ Bolt the vertical Multi-purpose waling WS10 Top50 into the Connection shoe K with a Connecting pin 10cm, and secure this with a Spring cotter 5mm.



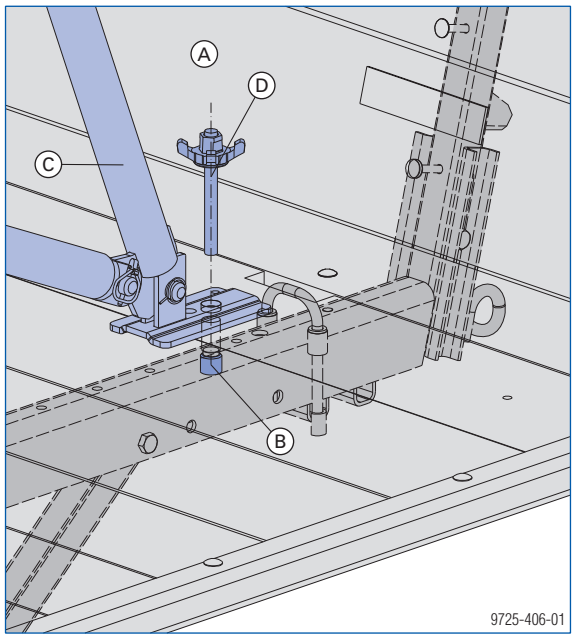
A	Folding platform K
B	Multi-purpose waling WS10 Top50
C	Connection shoe K
D	Connecting pin 10cm
E	Spring cotter 5mm

CAUTION

The panel struts on the folding platform must:

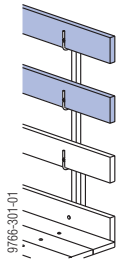
- ➤ only be positioned in the axis of the bracket
- ➤ only be fitted into the special connection sockets, and
- ➤ only be fixed with star screws **(L)** .
  Tie rod 15.0mm is forbidden!

➤ Fix the panel strut in the connection socket of the folding platform using a star screw.



A	Doka folding platform K
B	Connection socket
C	Panel strut
D	Star screw

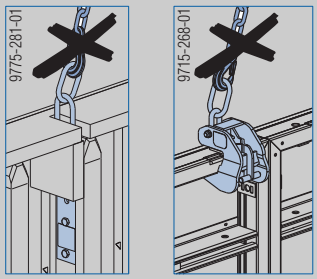
➤ Insert guardrail boards and use nails to secure them to the railing shackles.



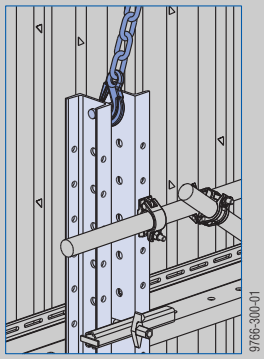
Add provisions to safeguard improper lifting and repositioning of the unit as one piece:

WARNING

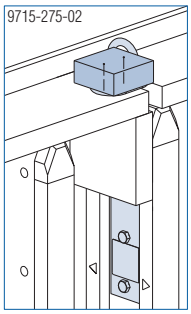
➤ Any **lifting brackets** on the formwork panels, or **Framax lifting hooks**, must **not** be used for lifting the unit as a whole.



➤ Attach the crane lifting tackle to the suspension bolt of the vertical waling.

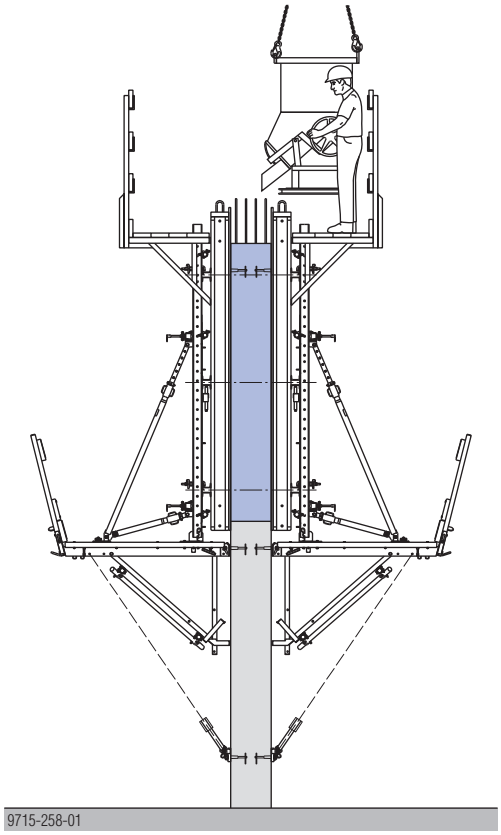


➤ E.g. nail on a board in such a way that the crane lifting tackle cannot be hung into place in the lifting bracket.



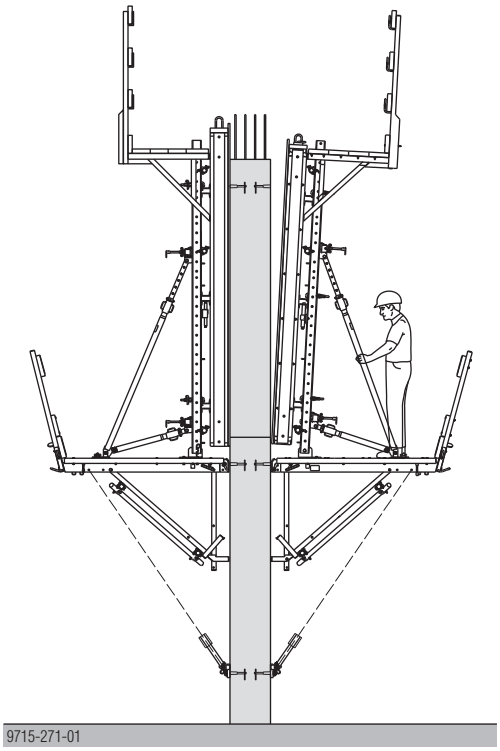
Formwork set-up and pouring

- ➤ Apply concrete release agent and set up one side of the formwork.
- ➤ Mount the positioning points.
- ➤ Place the reinforcement.
- ➤ Plumb and align the formwork element or panel, using panel struts and adjusting spindles.
- ➤ Close the formwork and tie it.
- ➤ Pour the 2nd section.



Stripping the formwork

- ➤ Take out the form ties and undo the connectors to the adjacent panels.
- ➤ Dismount the Super-plate and the threaded rod from positioning-points where a hole had to be drilled through the form-ply.
- ➤ Tilt back the formwork with the panel strut.



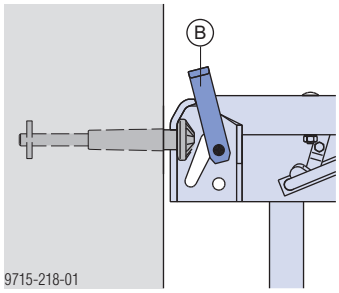
3rd casting section

- Remove the positioning cone.
- Prepare the suspension points.
- Dismount the wind bracing.

Assembling the suspended platform:

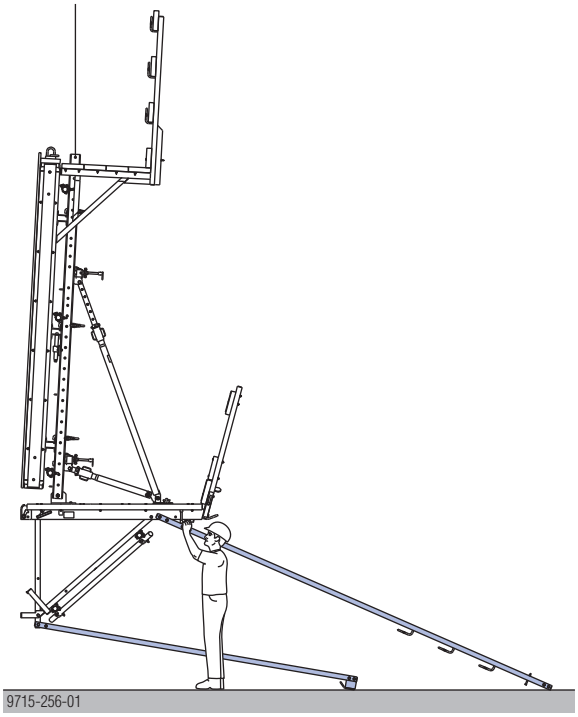
- Attach the crane suspension tackle to the vertical multi-purpose walings.
- Before repositioning, move the lifting bow of the Folding platform K into the stand-by position (locked in the short slot).

Before repositioning

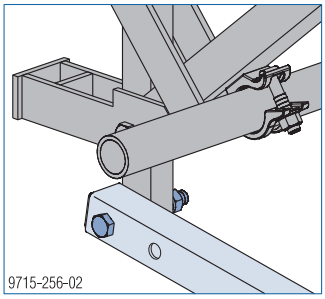


B Lifting bow

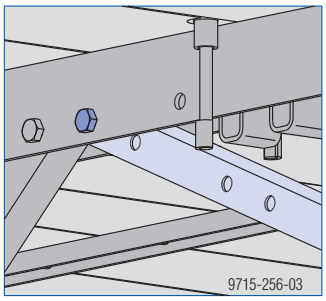
- Detach the entire climbing unit by crane.



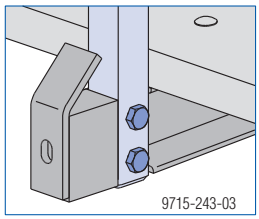
- Bolt on the inside suspension tube with an M 16x120 hexagon bolt.

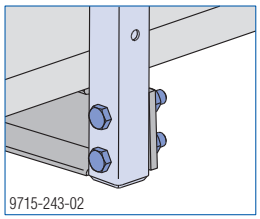


- Bolt on the outside suspension tube with an M 16x90 hexagon bolt.

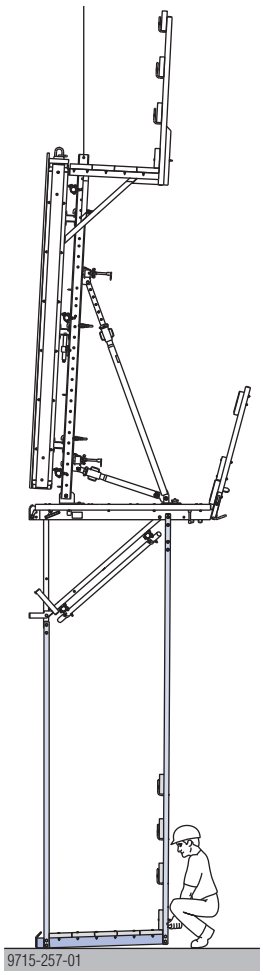


- Mount the platform profiles of the pre-assembled platform decking to the suspension tubes with 4 hexagon bolts M16x90 for each profile.





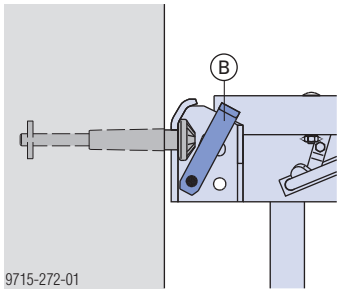
- Use an M10x120 square bolt to attach a guardrail board (min. 15x3 cm) as a toeboard.
- Insert guardrail boards (min. 15x3 cm) into the Handrail-post plates and fix them with 28x65 nails.



Note:
The plank and board thicknesses given here comply with the C24 category to EN 338.
Observe all national regulations applying to deck-boards and guardrail boards.

- ➤ Engage the climbing unit in the prepared suspension points by crane.
- ➤ Move the lifting bow into the locked position (locked in the long slot – lifting bow flush with decking).

After suspending the climbing unit

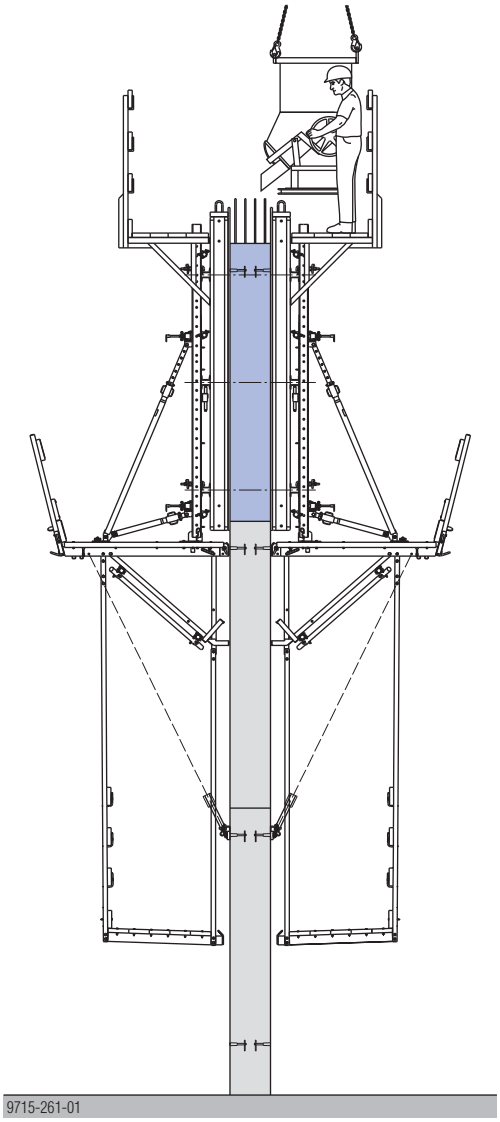


B Lifting bow

- ➤ Mount the 'Wind bracing', and tighten it.

Formwork set-up and pouring

- ➤ Apply concrete release agent and set up one side of the formwork.
- ➤ Mount the positioning points.
- ➤ Place the reinforcement.
- ➤ Plumb and align the formwork element or panel, using panel struts and adjusting spindles.
- ➤ Close the formwork and tie it.
- ➤ Pour the 3rd section.



Assembly

Working platform – set-up procedure with Folding platforms K

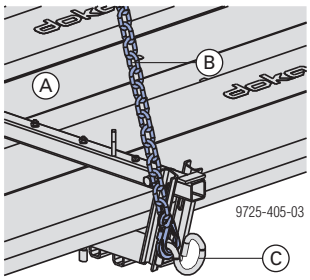
Separating the platforms

➤ Lift the stacked platforms off the truck by crane or forklift truck, and set them down on a flat, paved surface.

➤ Attach the four-part lifting chain to the crane lifting points at the front and to the extra lifting bows at the rear.

NOTICE

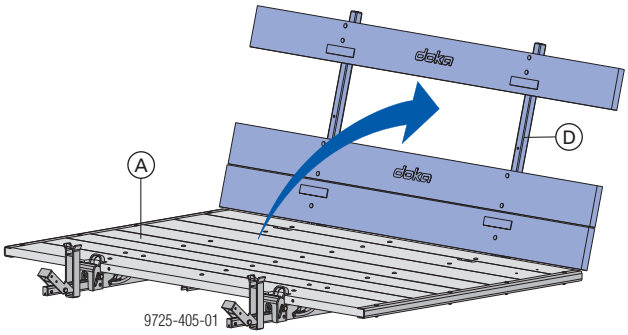
Only attach and lift 1 platform at a time.



A Doka folding platform K
B Doka 4-part chain 3.20m
C Lifting bow

Putting up the railings

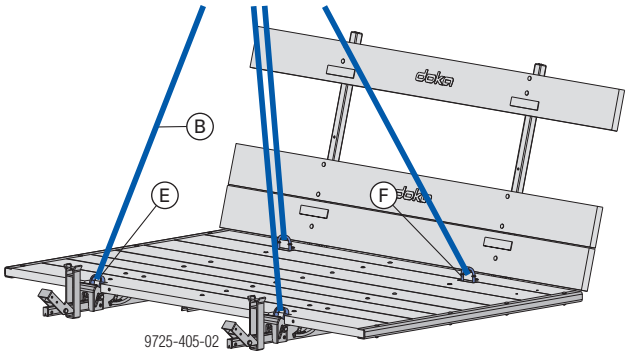
➤ Tilt up the rear railings. When you reach the stop, lift the railings and slot them into place.



A Doka folding platform K
D Rear railing

Attaching the crane

➤ Pull the lifting bows up out of their recesses, attach the four-part lifting chain (e.g. Doka 4-part chain 3.20m) and raise the Folding platform K.



B Doka 4-part chain 3.20m
E Lifting bow (at front)
F Lifting bow (at rear)

Pulling out the pressure rod

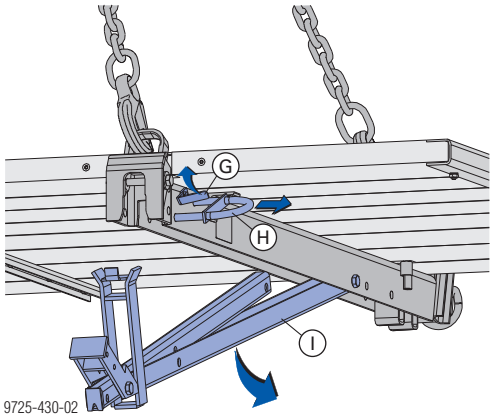
WARNING

After being released, the pressure rod swings downwards!

➤ Hold the pressure rod in one hand.

➤ Then, with the other hand, lift up the red safety bow and pull out the fastening clamp as far as it will go.

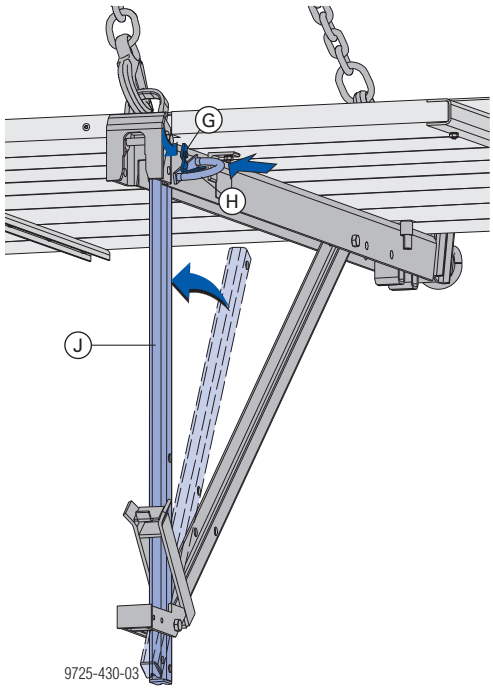
➤ **Gradually lower the pressure rod by hand.**



G Safety bow (red)
H Fastening clamp
I Pressure rod

Bolting the vertical rod in place

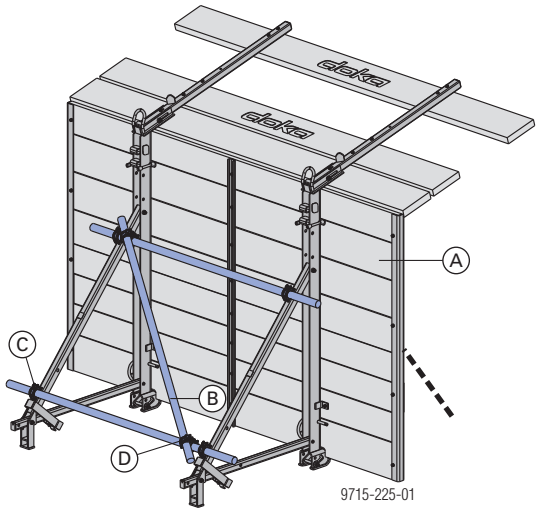
➤ Tilt up the vertical rod and fix it by inserting the U-bolt.
➤ Secure the fastening clamp with the red safety bow to prevent it being opened accidentally.



G	Safety bow (red)
H	Fastening clamp
J	Vertical rod

Fitting the bracing

➤ Prepare an assembly bench.
➤ Prepare the bracing.
➤ Tilt up the folding platforms and secure them so that they cannot topple over.
➤ Brace the Folding platforms K in the horizontal, with 4 screw-on couplers and 2 scaffolding tubes.
➤ Mount a scaffold tube as a diagonal stiffening reinforcement between the brackets, using 2 swivel couplers.



A	Folding platform K
B	Scaffolding tube 48.3mm 2.00m
C	Screw-on coupler 48mm 50
D	Swivel coupler 48mm

Distance between screw-on coupler and swivel coupler: max. 160 mm.

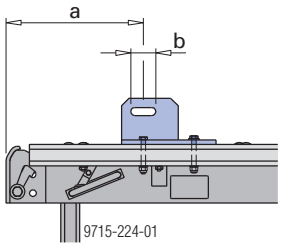
This set-up scheme is for 3.0 m long folding platforms – on 4.5 m long folding platforms, the number of couplers and scaffolding tubes, and the length of the scaffolding tubes, will need to be adjusted accordingly.

Fitting the Connection shoe K

➤ Bolt the Connection shoe K to the folding platform at the selected distance from the edge, as shown in the drawing.

Included with the Connection shoe K:

- 2 hexagon bolts ISO 4014 M12x90 8.8 galv.
- 3 washers ISO 7089 12
- 2 hexagon nuts ISO 7040 M12 self-locking, 8 galv.



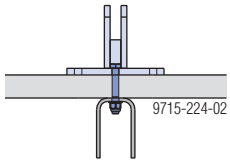
a ... 363 mm with Top50 and FF20
a ... 264 mm with Framax Xlife and Alu-Framax Xlife
b ... 45 mm

CAUTION

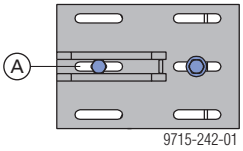
➤ It is not sufficient to fix the Connection shoe K only through the deck-boards.

How to fix the Connection shoe K

Folding platform K



Plan view without platform decking



A Holes drilled for Folding platform K

Working platform – set-up procedure with Folding brackets K

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

NOTICE

When making project-specific platforms, observe the following points:

- Position brackets as symmetrically as possible and keep their cantilever short.
- Ensure that all loads are applied centrally.
- The stability of the platforms must be ensured during all phases of the construction work!

CAUTION

Risk of platforms tipping over when **loads are applied eccentrically**.

If it is unavoidable to extend a cantilever to one side, observe the following points:

➤ Choose the widest possible bracket spacing in relation to the cantilever!

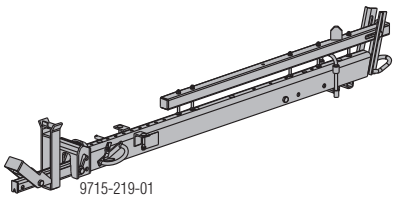
➤ Allow for the greater influence on the bracket in the cantilevering region!

➤ Contact your Doka technician for information on further measures to prevent platforms tipping over.

The anti-liftout guards are not suitable for sustaining planned forces! The anti-liftout guard is only designed to prevent the platform from being accidentally lifted out of its suspension point while work is in progress.

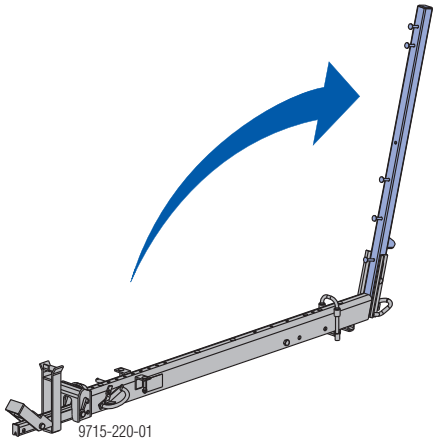
Separating the brackets

➤ Lift the Folding brackets K off the truck and set them down on a flat surface.



Putting up the railings

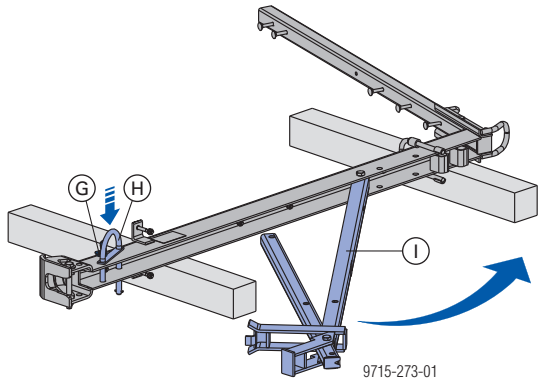
➤ Tilt up the railings. When you reach the stop, lift the railings and slot them into place.



➤ Place the Folding bracket K on its side, on timber supports on the ground.

Pulling out the pressure rod

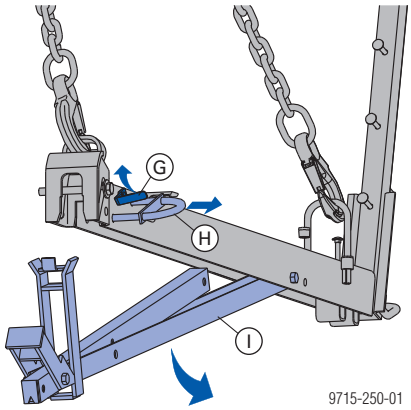
➤ Raise the red safety bow and pull out the fastening clamp as far as it will go.
➤ Pull out the pressure rod.



G	Safety bow (red)
H	Fastening clamp
I	Pressure rod

Note:
In cases where the bracket is unfolded while suspended from the crane:

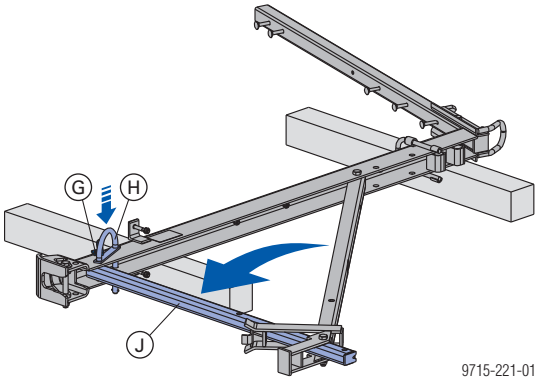
WARNING
After being released, the pressure rod swings downwards!
➤ Hold the pressure rod in one hand.
➤ Then, with the other hand, lift up the red safety bow and pull out the fastening clamp as far as it will go.
➤ **Gradually lower the pressure rod by hand.**



G	Safety bow (red)
H	Fastening clamp
I	Pressure rod

Bolting the vertical rod in place

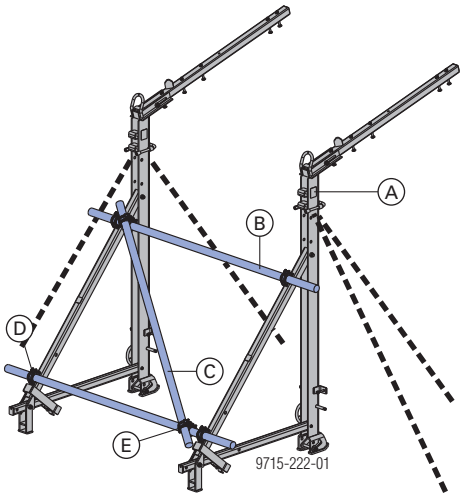
➤ Tilt up the vertical rod and fix it by inserting the U-bolt.
➤ Secure the fastening clamp with the red safety bow to prevent it being opened accidentally.



G	Safety bow (red)
H	Fastening clamp
J	Vertical rod

Fitting the bracing

- ➤ Prepare an assembly bench.
- ➤ Prepare the bracing.
- ➤ Tilt up the Folding brackets K and stand them spaced the specified centre-to-centre distance apart (see shop drawing / assembly plan).
- ➤ Secure them so that they cannot topple over.
- ➤ The length of the scaffold tubes used will depend on the centre-to-centre spacing of the brackets.
- ➤ Brace the Folding brackets K in the horizontal, with 4 screw-on couplers and 2 scaffold tubes.
- ➤ Mount a scaffold tube as a diagonal stiffening reinforcement between the brackets, using 2 swivel couplers.



A	Folding bracket K
B	Scaffold tube 48.3mm (length = centre-to-centre distance + 20 cm)
C	Scaffold tube 48.3mm (length = centre-to-centre distance + 50 cm)
D	Screw-on coupler 48mm 50
E	Swivel coupler 48mm

Distance between swivel coupler and screw-on coupler: max. 160 mm.

This set-up scheme is for platform units with 2 brackets. On platform units with 3 brackets, the number of couplers and scaffold tubes will need to be adjusted accordingly.

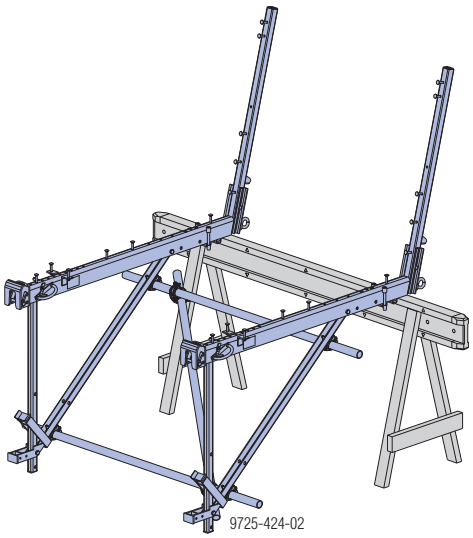
Attaching the platform decking

Note:

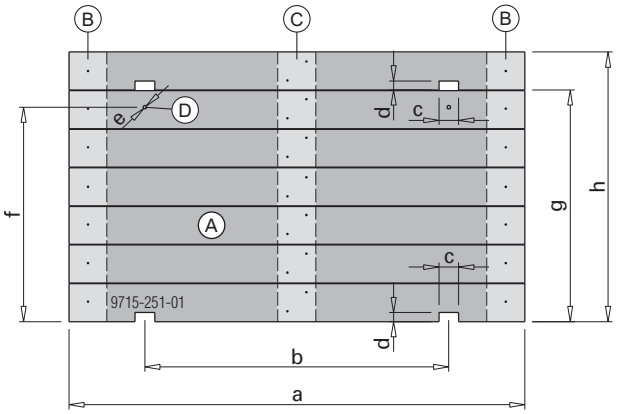
The plank and board thicknesses stated comply with the EN 338 C24 timber.

Observe all national regulations applying to deck and guardrail boards.

- ➤ Place the braced Folding brackets K onto a trestle.



- ➤ Lay deck-boards onto the bracket. (Cut them to size as shown in the illustration)

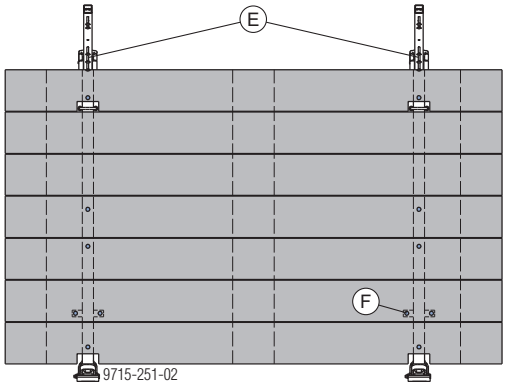


a ... platform length
b ... centre-to-centre distance
c ... 13 cm
d ... 6 cm
e ... diam. 2.4 cm
f ... 141 cm
g ... 154 cm
h ... 177 cm

A	Deck-boards 25/5 cm
B	outside reinforcement plank min. 20/5 cm
C	middle reinforcement plank min. 20/5 cm
D	Drilled hole for securing panel strut

- ➤ Screw on an outside reinforcing plank at each end of the platform (secure each reinforcing board with 1 Torx TG 6x90 A2 universal countersunk-head screw per deck-board).
- ➤ Screw on the middle reinforcing plank centred between the brackets (2 Torx TG 6x90 A2 universal countersunk-head screws per deck-board).

➤ Use the square bolts included in the scope of supply to secure the deck-boards to the brackets (6 pcs. included in scope of supply of the Folding bracket K).



E Folding bracket K

F Bolting items in scope of supply

NOTICE

➤ Attach guard rails so as to comply with the applicable national regulations.

➤ On each bracket, fasten handrail planks onto the handrail post using carriage bolts M 10x110, spring washers A 10 and hexagon nuts M 10 (5 bolts are included with each Folding bracket K).

Note:

In corner zones, or where the corners are not right-angled, the platform planking must be trimmed accordingly.

Mount passage units as shown in the shop drawing / assembly plan.

Mounting the formwork

After the first casting section, the formwork is completed in the steps outlined below. This makes it possible to place the formwork onto the folding platform.

Framed formwork

e.g. Framed formwork Framax Xlife

Follow the directions in the 'Framed formwork Framax Xlife' User Information booklet.

NOTICE

- There must be a flat, firm base capable of supporting the load.
- Tightening torque of the bracing tube couplers: 50 Nm

Tools needed:

- Universal tool box 15.0

Preparing the vertical Multi-purpose waling

Length of the multi-purpose waling:

The Multi-purpose waling WS10 Top50 must be long enough to project up through the pouring platform which will later be mounted to the formwork.

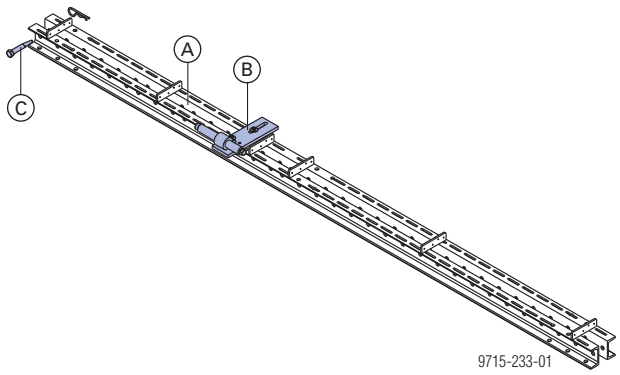
It must also be long enough to permit the necessary excess length beyond the bottom of the formwork.

Threaded-fastener material required:

- 2 hexagon bolts M10x45
- 2 limpet washers DIN 434 10
- 2 hexagon nuts ISO 7040 M10 self-locking, 8 galv.
- 1 R-type washer, ISO 7094 10

➤ Screw an Adjusting spindle M36 into the hole-grid on the vertical Multi-purpose waling WS10 Top50. (Position as shown in shop drawing / assembly plan)

➤ Push a Connecting pin 10cm into the top hole in the Multi-purpose waling WS10 Top50, and secure it with a Spring cotter 5mm.

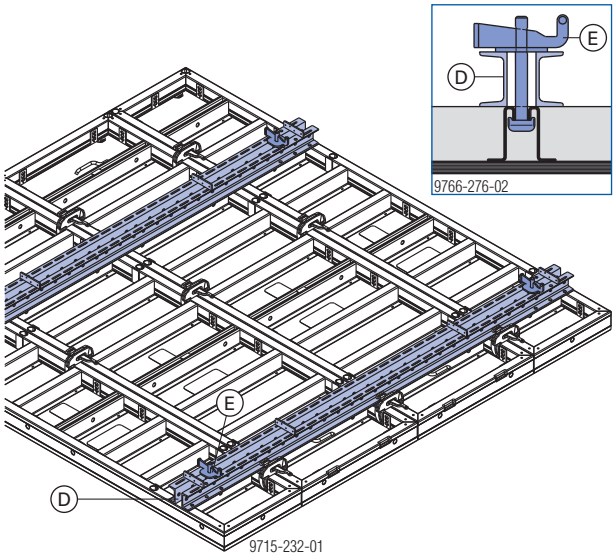


A	Multi-purpose waling WS10 Top50
B	Adjusting spindle M36
C	Connecting pin 10cm + Spring cotter 5mm

Preparing the formwork

➤ Set the gang-form down on a flat surface, with the form-ply facing downwards.

➤ Fix Multi-purpose walings WS10 Top50 in the function profiles of the framed formwork panels, using Framax wedge clamps.



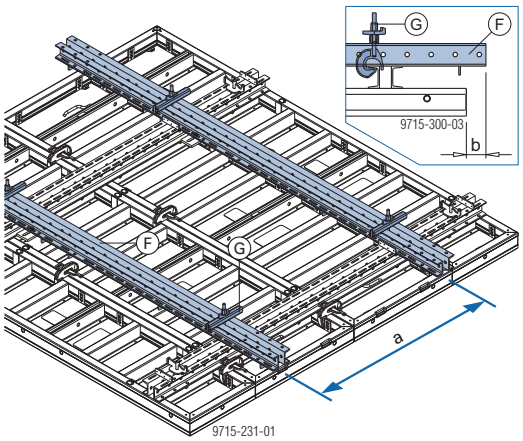
The length of the Multi-purpose waling WS10 Top50 will depend on the width of the gang-form.

D	Multi-purpose waling WS10 Top50
E	Framax wedge clamp

Mounting Multi-purpose walings to the formwork

➤ Lay down vertical Multi-purpose walings WS10 Top50 spaced at the centre-to-centre distance "a" of the brackets (use an assembly template).

➤ Adjust the overlap dimension "b" as shown in the shop drawing / assembly plan. Use Waling-to-bracket holders to fix the multi-purpose walings at right-angles.



F Multi-purpose waling WS10 Top50

G Waling-to-bracket holder 9-15cm

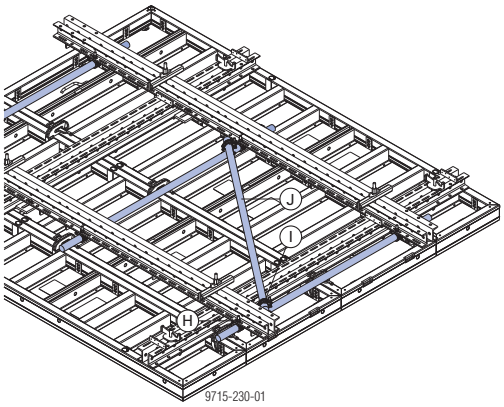
Example:

- Suspension point 30 cm beneath the concrete edge
- Formwork overlap 10 cm

b = 7.8 cm

Fitting the bracing

➤ Brace the vertical Multi-purpose walings in the horizontal and the diagonal.



The length of the scaffolding tubes used will depend on the centre-to-centre spacing of the brackets.

H Screw-on couplers 48mm 50 (x6)

I Swivel couplers 48mm (x2)

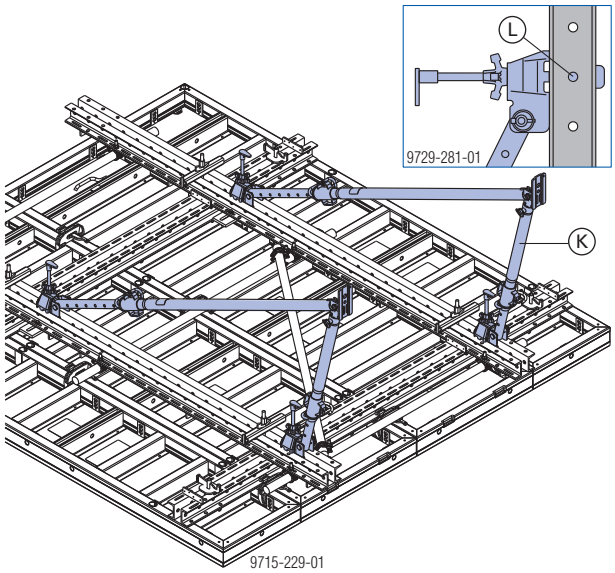
J Scaffolding tubes 48.3mm (x4)

Distance between screw-on coupler and swivel coupler: max. 160 mm.

This set-up scheme is for platform units with 2 brackets. On platform units with 3 brackets, the number of couplers and scaffolding tubes will need to be adjusted accordingly.

Fitting the panel struts

➤ Fix a Panel strut 340 in the multi-purpose waling with a Connecting pin 10cm, and secure this with a Spring cotter 5mm.



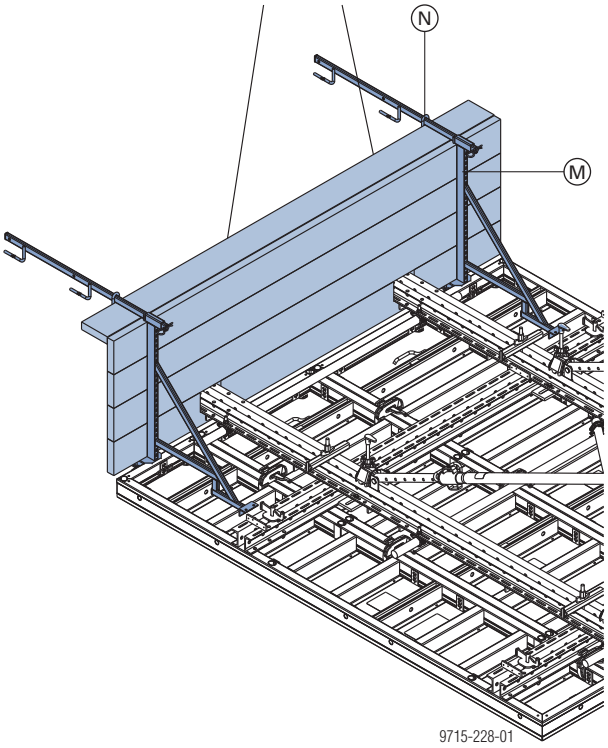
K Panel strut 340 IB + Prop head EB

L Connecting pin 10cm + Spring cotter 5mm

Mounting the pouring platform

➤ Secure the Framax brackets and install the deck-boards.

➤ Also install Handrail posts 1.00m and guardrail boards, except where they would get in the way of the lifting chains when the gang-form is lifted into the upright.



M Framax bracket 90 EP

N Handrail post 1.00m

Timber-beam formwork

e.g. Large-area formwork Top 50

Follow the directions in the 'Large-area formwork Top 50' User Information booklet!

NOTICE

- There must be a flat, firm base capable of supporting the load.
- Tightening torque of the bracing tube couplers: 50 Nm

Tools needed:

- Universal tool box 15.0

Preparing the vertical Multi-purpose waling

Length of the multi-purpose waling:

The Multi-purpose waling WS10 Top50 must be long enough to project up through the pouring platform which will later be mounted to the formwork.

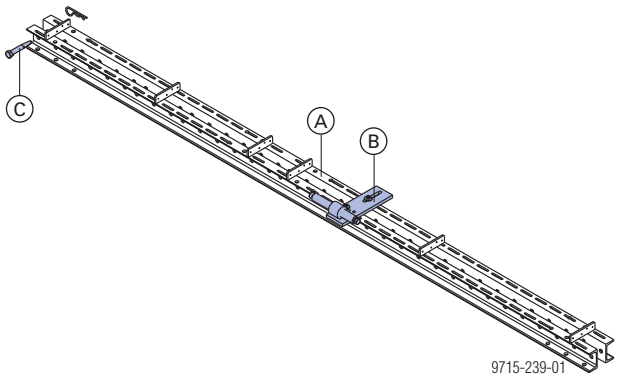
It must also be long enough to permit the necessary excess length beyond the bottom of the formwork.

Threaded-fastener material required:

- 2 hexagon bolts M10x45
- 2 limpet washers DIN 434 10
- 2 hexagon nuts ISO 7040 M10 self-locking, 8 galv.
- 1 R-type washer, ISO 7094 10

➤ Screw an Adjusting spindle M36 into the hole-grid on the vertical Multi-purpose waling WS10 Top50. (Position as shown in shop drawing / assembly plan)

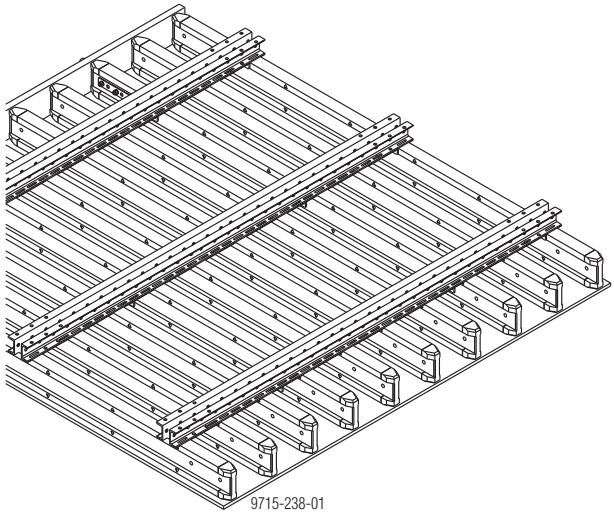
➤ Push a Connecting pin 10cm into the top hole in the Multi-purpose waling WS10 Top50, and secure it with a Spring cotter 5mm.



A Multi-purpose waling WS10 Top50
B Adjusting spindle M36
C Connecting pin 10cm + Spring cotter 5mm

Preparing the formwork

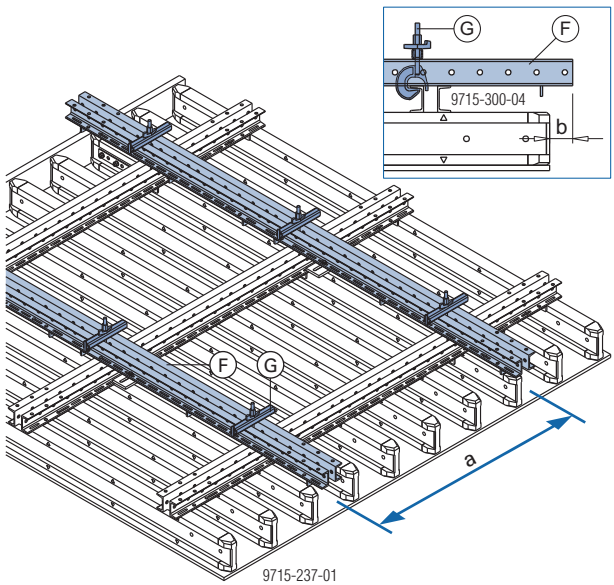
➤ Set the formwork element down on a flat surface, with the form-ply facing downwards.



Mounting Multi-purpose walings to the formwork

➤ Lay down vertical Multi-purpose walings WS10 Top50 spaced at the centre-to-centre distance "a" of the brackets (use an assembly template).

➤ Adjust the overlap dimension "b" as shown in the shop drawing / assembly plan. Use Waling-to-bracket holders to fix the multi-purpose walings at right-angles.



F Multi-purpose waling WS10 Top50
G Waling-to-bracket holder 9-15cm

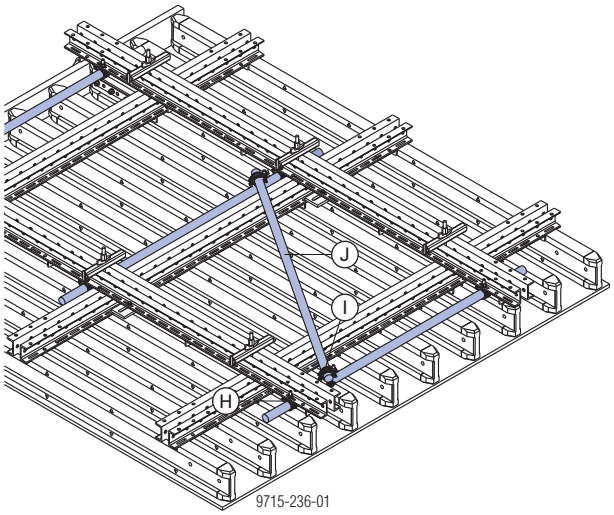
Example:

- Suspension point 30 cm beneath the concrete edge
- Formwork overlap 10 cm

b = 7.8 cm

Fitting the bracing

➤ Brace the vertical Multi-purpose walings in the horizontal and the diagonal.



The length of the scaffolding tubes used will depend on the centre-to-centre spacing of the brackets.

H Screw-on couplers 48mm 50 (x6)

I Swivel couplers 48mm (x2)

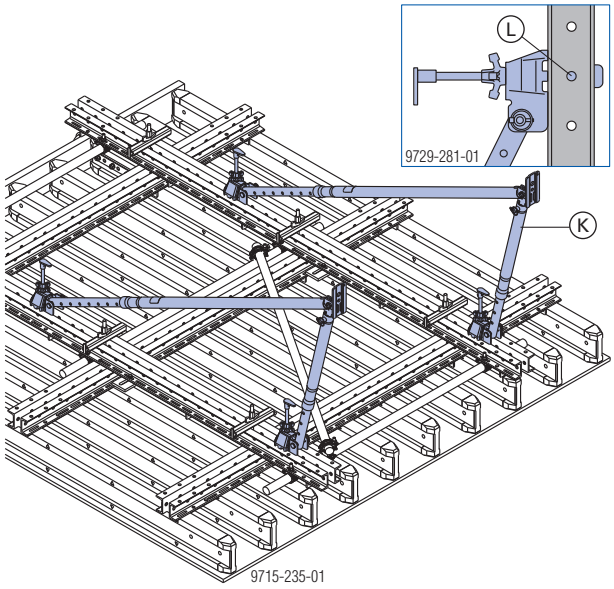
J Scaffolding tubes 48.3mm (x4)

Distance between screw-on coupler and swivel coupler: max. 160 mm.

This set-up scheme is for platform units with 2 brackets. On platform units with 3 brackets, the number of couplers and scaffolding tubes will need to be adjusted accordingly.

Fitting the panel struts

➤ Fix a Panel strut 340 in the multi-purpose waling with a Connecting pin 10cm, and secure this with a Spring cotter 5mm.



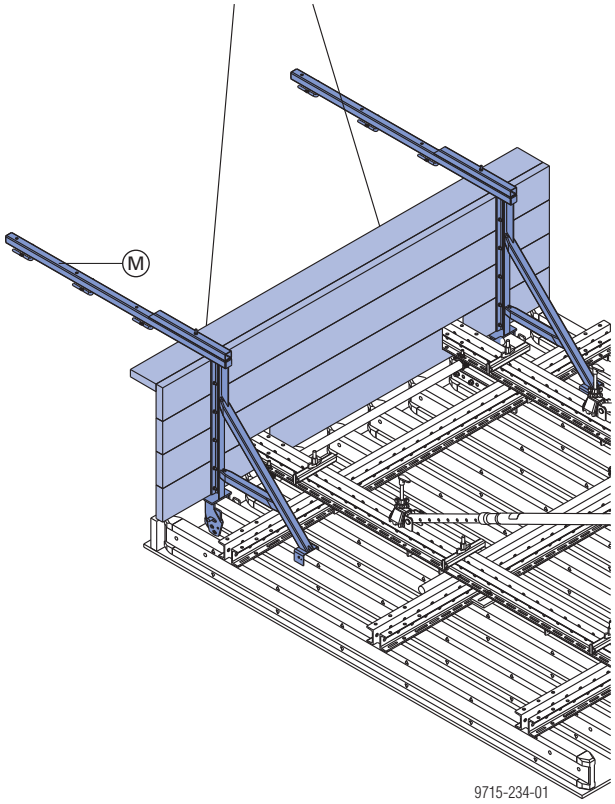
K Panel strut 340 IB + Prop head EB

L Connecting pin 10cm + Spring cotter 5mm

Mounting the pouring platform

➤ Attach Universal brackets and mount deck-boards.

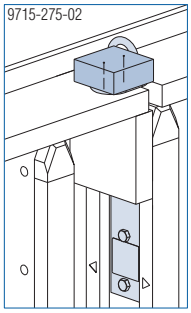
➤ Also mount guard-rail boards, except where they would get in the way of the lifting chains when the gang-form is lifted into the upright.



M Universal bracket 90

Making it impossible to use any of the forbidden suspension methods when carrying out standard lifting of the unit as a whole:

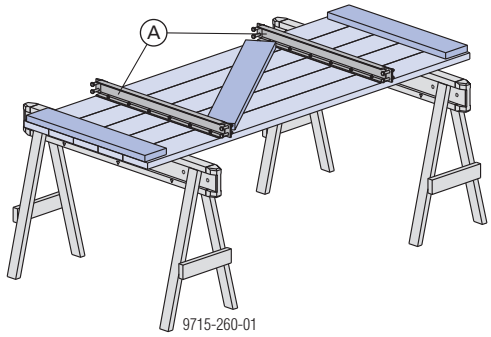
➤ e.g. nail on a board in such a way that the crane lifting tackle cannot be hung into place in the lifting bracket.



Assembling the suspended platform

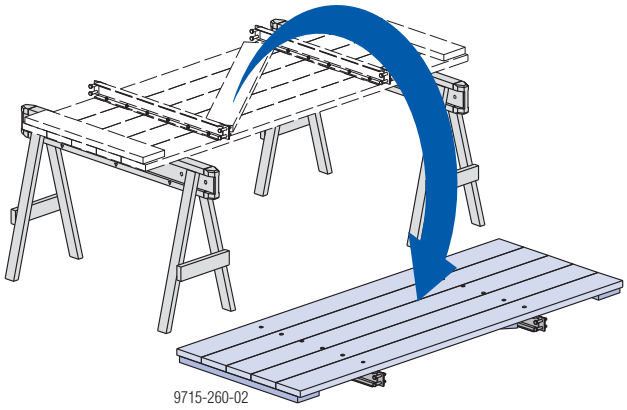
Preparing the platform decking

- ➤ Place the deck-boards on trestles.
- ➤ Place platform profiles onto the deck-boards, spaced apart at the centre-distance of the brackets.
- ➤ Fasten the platform profiles to the deck-boards with M 10x70 square bolts.
- ➤ Fix planks to the ends of the platforms, and diagonally between the platform profiles. (2 nails per deck-board)



A Platform profiles

- ➤ Turn over the pre-assembled decking and set it down on the ground.

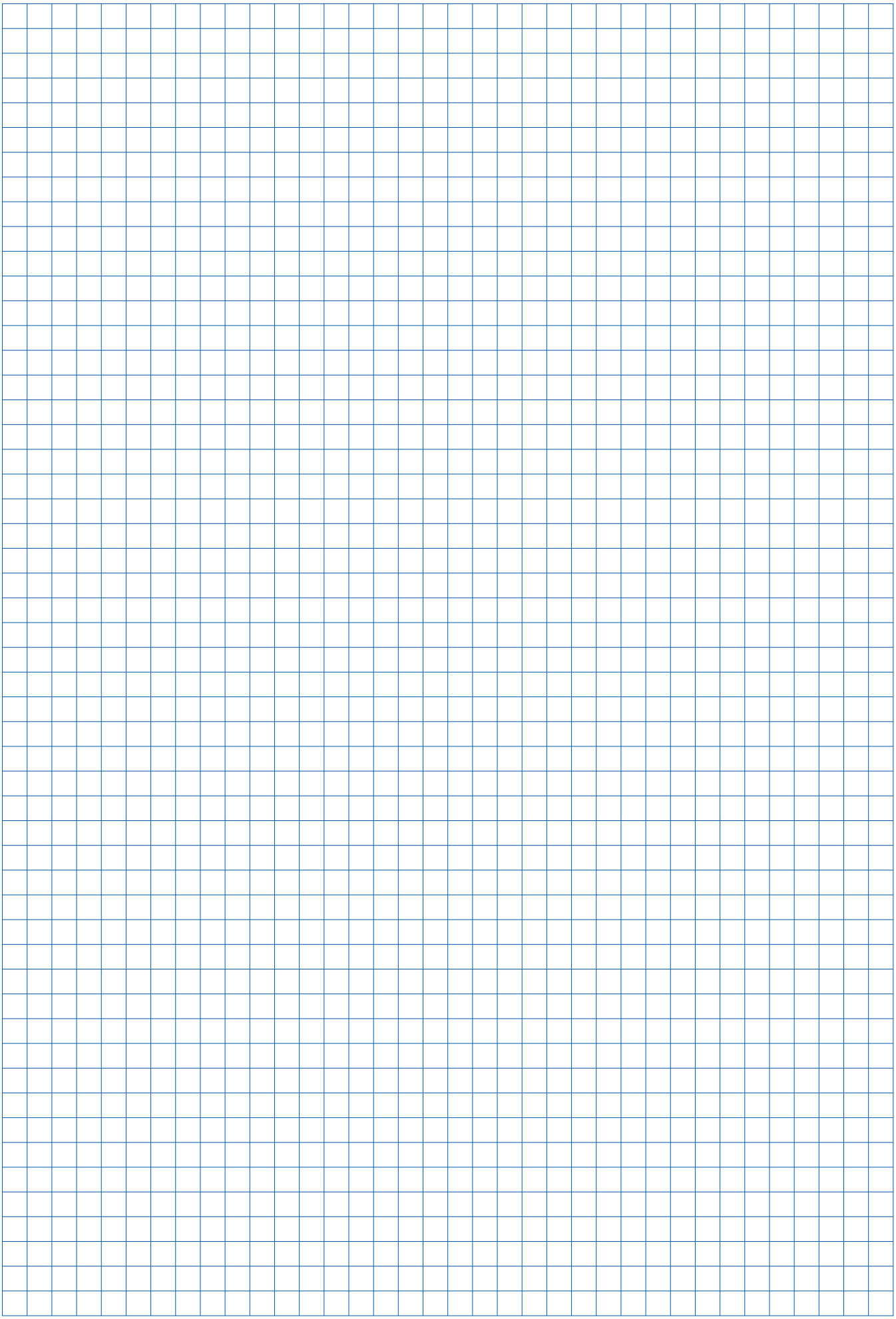


Note:
In corner zones, or where the corners are not right-angled, the platform planking must be trimmed accordingly.

Items needed:

Item	Designation	N° of items	
		Folding platform K 3.00m	Folding platform K 4.50m
A	Suspended platform 120 4.30m	2	3
B	Planks and guard-rail boards*	--	--

The Support lengthening piece is supplied knocked-down, incl. all necessary fixing items (except for *).
* site-provided

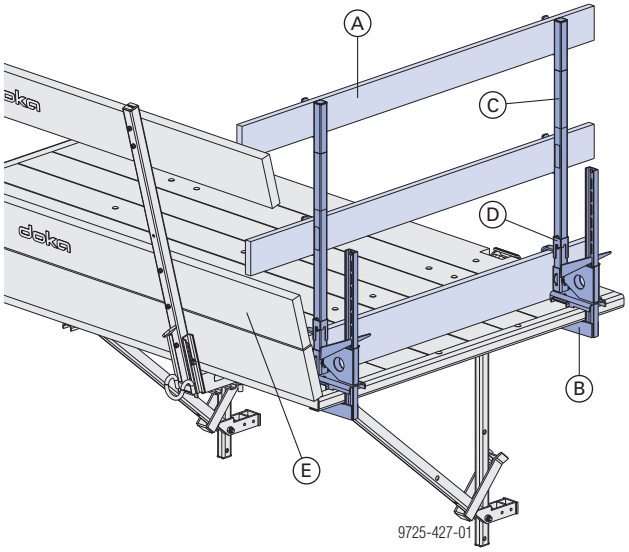


Sideguards on exposed platform-ends

Suitable sideguards must be provided on exposed ends of platforms.

Note:
The plank and board thicknesses given here comply with the C24 category of EN 338.
Observe all national regulations applying to deck-boards and guard-rail boards.

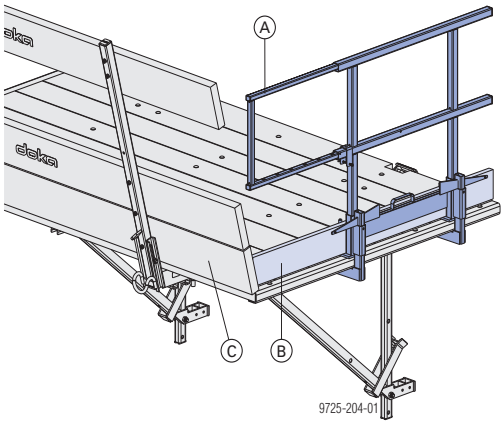
Handrail post XP 1.20m



A	Guardrail board min. 15/3 cm (provided on site)
B	Railing clamp XP 40cm
C	Handrail post XP 1.20m
D	Toeboard holder XP 1.20m
E	Doka folding platform K

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

Side handrail clamping unit T

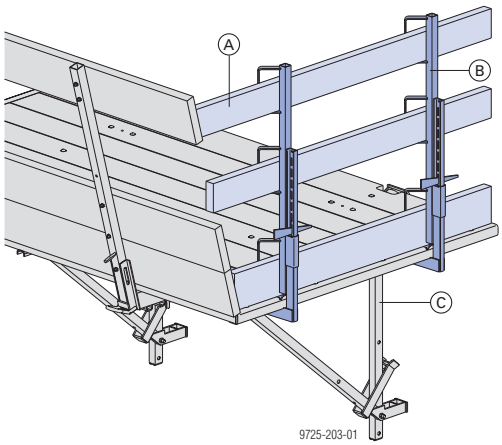


A	Side handrail clamping unit T with integral telescopic handrail
B	Guard-rail board min. 15x3 cm (site-provided)
C	Doka folding platform K

How to mount:

- ➤ Fasten the clamping part to the decking of the folding platform using the wedge (clamping range 4 to 6 cm).
- ➤ Slot in the railing.
- ➤ Extend the telescopic railing to the desired length and secure it.
- ➤ Insert toeboard (guard-rail board).

Handrail clamp S



A	Guard-rail board min. 15x3 cm (in-situ)
B	Handrail clamp S
C	Folding platform

How to mount:

- ➤ Fasten the handrail clamps to the decking of the folding platform using the wedge (clamping range 2 to 43 cm).
- ➤ Secure the guardrail boards to the loops on the Handrail clamp S with one 28 x 65 nail per loop.

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

Dismantling

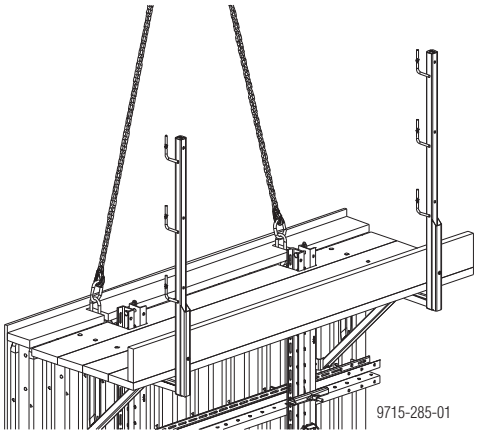
NOTICE

- A hard, flat, firm surface is needed!
- Provide a sufficiently large dismantling space.
- Read and observe the section headed "Resetting by crane".

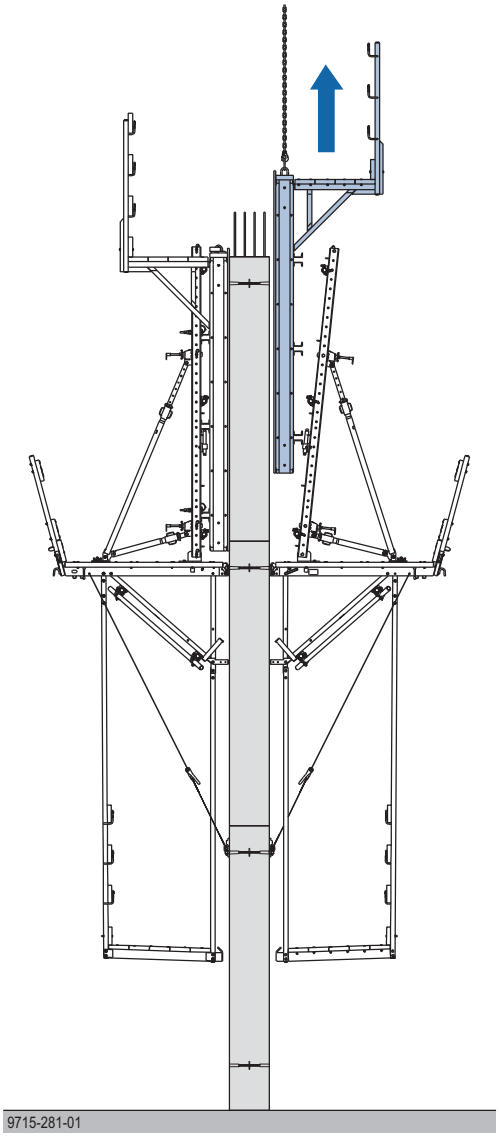
Lifting the formwork off the climbing unit

➤ Attach the crane suspension tackle to the lifting brackets on the formwork gang.
This protects the formwork against tipping over.

➤ Remove the two top guardrail boards from the pouring platform.



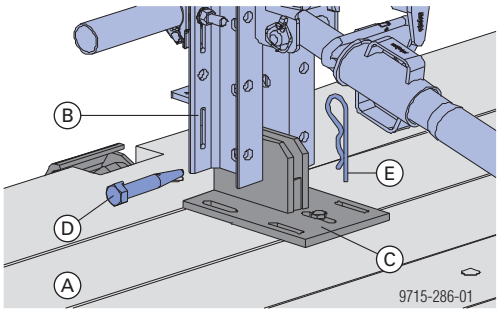
➤ Remove the waling-to-bracket holders and lift the formwork element or panel off the climbing unit.



➤ Set down and dismantle the formwork element.

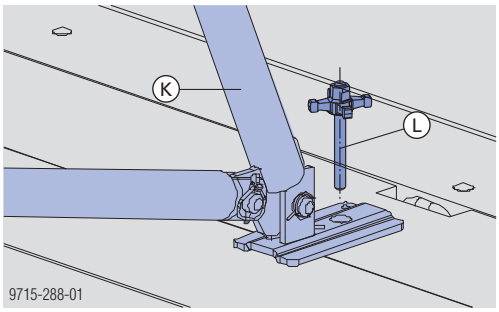
➤ Attach the crane suspension tackle to the vertical multi-purpose walings.

➤ Disengage the pinned connection between the vertical Multi-purpose waling WS10 Top50 and Connection shoe K.



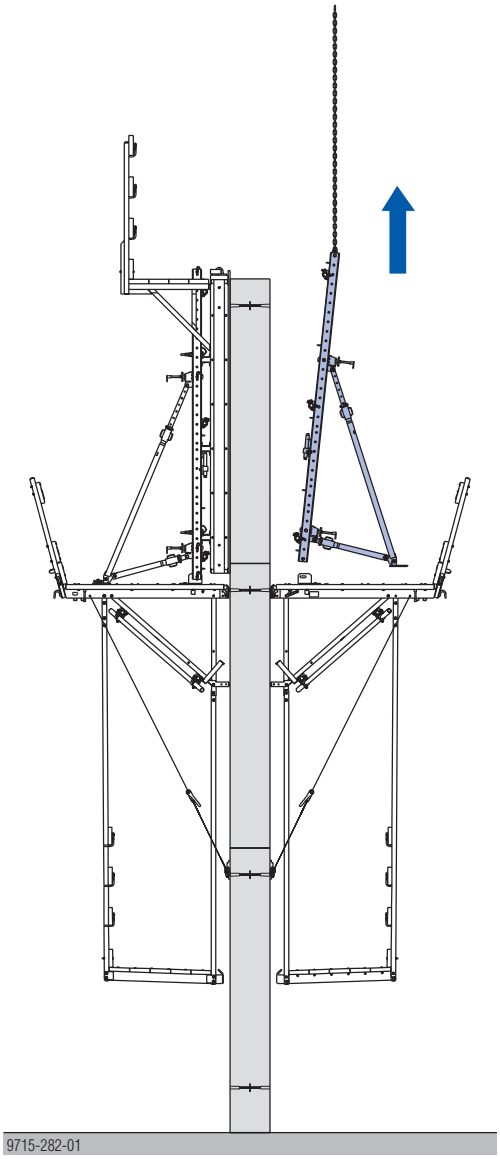
A	Folding platform K
B	Multi-purpose waling WS10 Top50
C	Connection shoe K
D	Connecting pin 10cm
E	Spring cotter 5mm

➤ Remove the star screw.



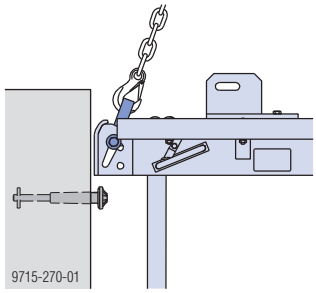
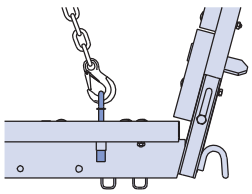
K Panel strut
L Star screw

➤ Lift the vertical Multi-purpose waling WS10 Top50 complete with panel strut clear of the Folding platform K and set down.



Lifting the climbing unit off the structure

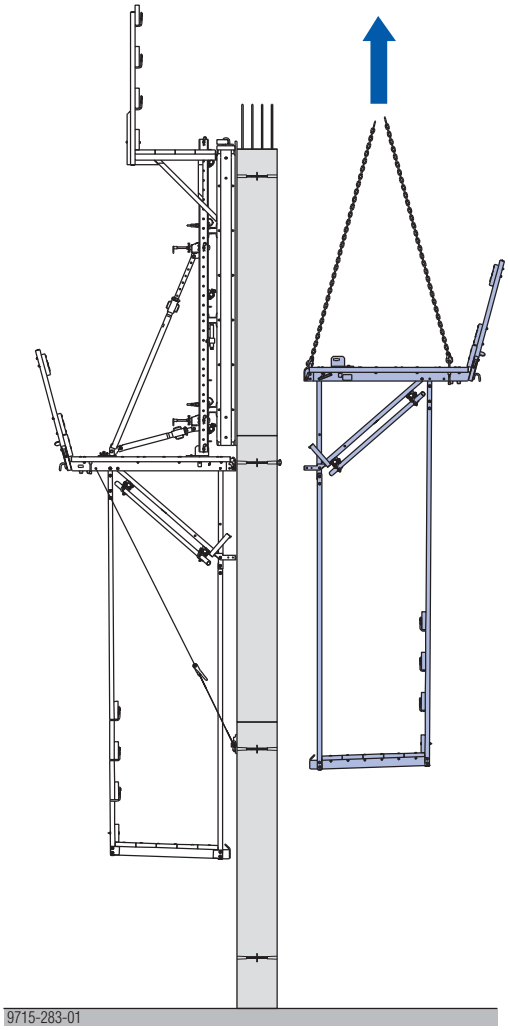
➤ Attach the climbing unit to the crane with a 4-part lifting chain (e.g. Doka 4-part chain 3.20m).

Front lifting bow	Rear lifting bow
	
9715-270-01	9715-294-01

This raises the front lifting bows, opening the lift-out guard.

➤ Dismount the wind bracing.

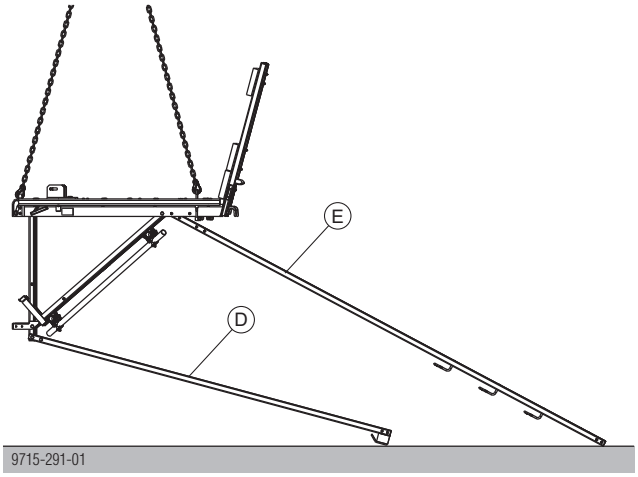
➤ Gently raise the entire unit by crane, and move it away from the building.



9715-283-01

➤ At the follow-up platform, remove the guardrail boards, platform decking and platform profile.

➤ Remove the inside suspension tubes and the outside suspension tubes.



9715-291-01

D Inside suspension tube

E Outside suspension tube

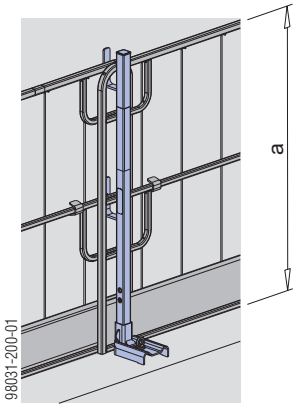
➤ From this point on dismantling takes place on the ground and is the reverse of the assembly procedure.

General

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

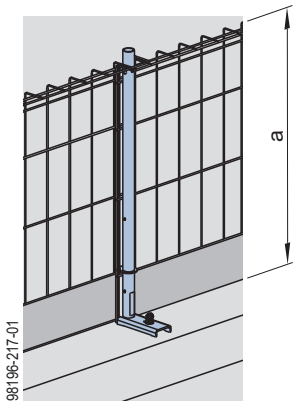


a ... > 1.00 m

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

Xsafe edge protection Z

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

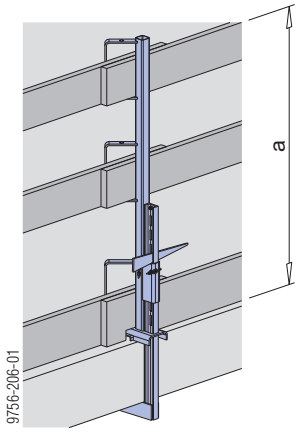


a ... > 1.17 m

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

Handrail clamp S

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

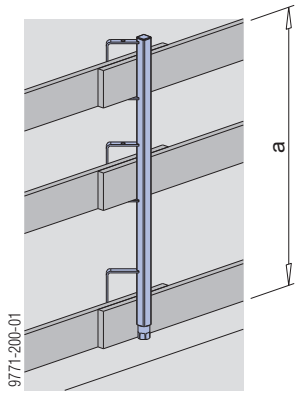


a ... > 1.00 m

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

Handrail post 1.10m

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



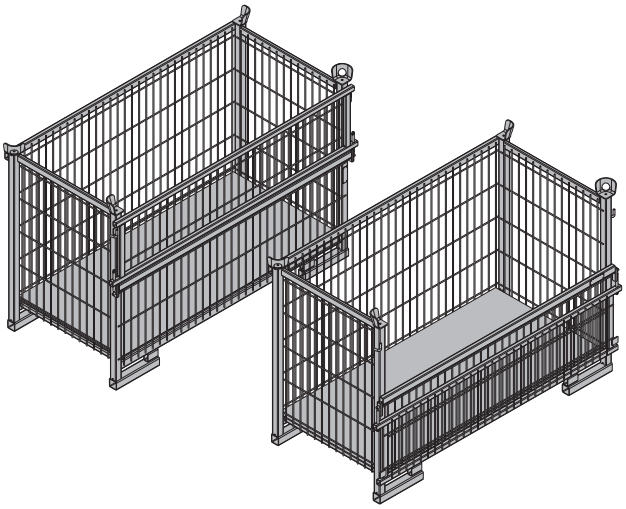
a ... > 1.00 m

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

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.

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

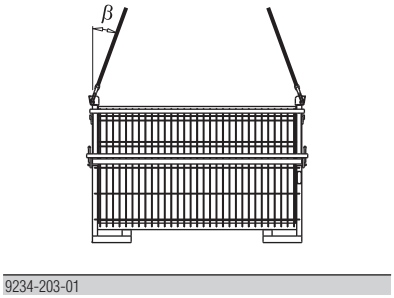
Outdoors (on the site) Floor gradients up to 3%	Indoors Floor gradients up to 1%
2	5
It is not allowed to stack empty pallets on top of one another!	

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°!



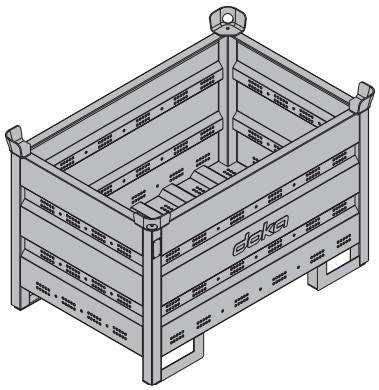
Repositioning by forklift truck or pallet stacking truck

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

Doka multi-trip transport box

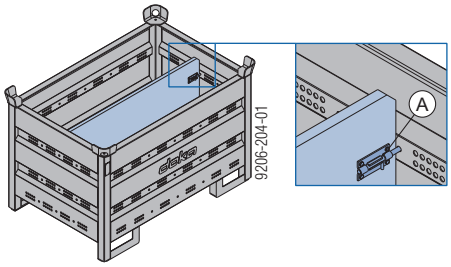
Storage and transport device for small items

Doka multi-trip transport box 1.20x0.80m



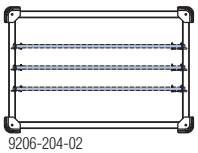
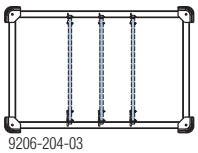
Permitted load-bearing capacity: 1500 kg (3300 lbs)
Permitted imposed stacking load: 7850 kg (17300 lbs)

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**.

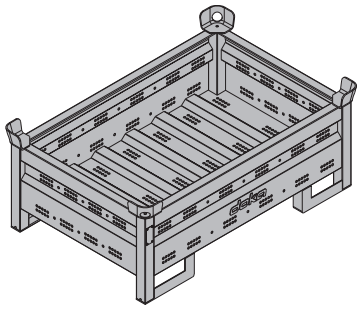


A Slide-bolt for fixing the partition

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

NOTICE

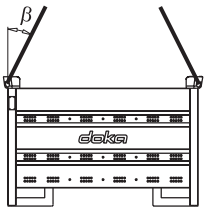
Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top.

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°!



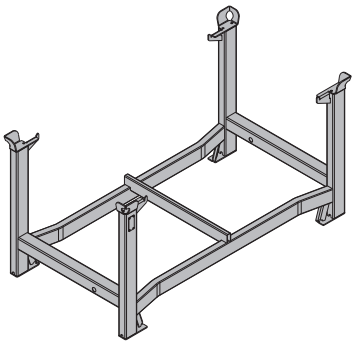
9206-202-01

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. n° of units on top of one another

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

NOTICE

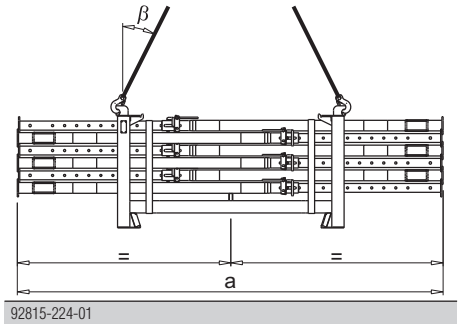
- Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top.
- **How to use with Bolt-on castor set B:**
  - Always apply the fixing brake when the container is 'parked'.
  - When Doka stacking pallets are stacked, the bottom pallet must NOT be one with a bolt-on castor set mounted to it.

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 centrically.
- 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

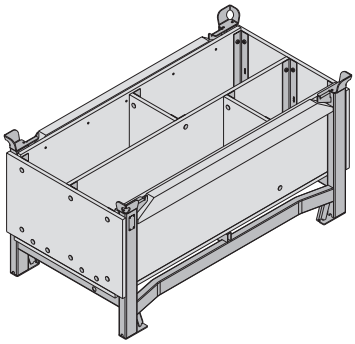
Repositioning by forklift truck or pallet stacking truck

NOTICE

- Load the items centrically.
- 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. n° of units on top of one another

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

NOTICE

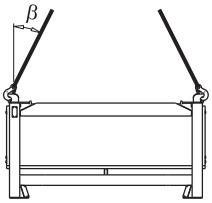
- Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top.
- **How to use with Bolt-on castor set B:**
  - Always apply the fixing brake when the container is 'parked'.
  - When Doka stacking pallets are stacked, the bottom pallet must NOT be one with a bolt-on caster set mounted to it.

Doka accessory box as transport devices

Lifting by crane

NOTICE

- Multi-trip packaging items must be lifted individually.
- Use suitable lifting chains:
  - e.g. Doka 4-part chain 3.20m
  - Do not exceed the permitted working load limit of the lifting chains.
- When lifting units to which Bolt-on castor sets B have been attached, you must also follow the directions in the ‘Bolt-on castor set B’ User information booklet!
- Sling angle β max. 30°!



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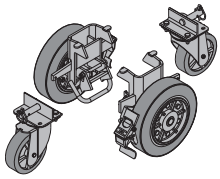
Repositioning by forklift truck or pallet stacking truck

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

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.



The Bolt-on castor set B can be mounted to the following multi-trip packaging items:

- Doka accessory box
- Doka stacking pallets
- Protective barrier Z pallets

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

	[kg]	Article N°
Doka folding platform K 3.00m	**291.5**	**580442000**
Doka folding platform K 4.50m	**444.5**	**580443000**

Doka-Faltbühne K

Steel parts galvanised
Timber parts varnished yellow
Delivery condition: folded closed

Folding bracket K	**52.4**	**580441000**

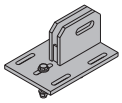
Faltkonsole K

Galvanised
Length: 224 cm
Height: 245 cm
Delivery condition: folded closed

Connection shoe K	**6.4**	**580451000**

Anschlussschuh K

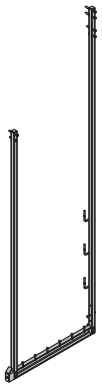
Galvanised
Length: 25 cm
Width: 17 cm



Suspended platform 120 4.30m	**52.6**	**580412000**

Hängebühne 120 4,30m

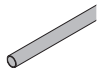
Galvanised
Delivery condition: separate parts



Scaffold tube 48.3mm 0.50m	**1.7**	**682026000**
Scaffold tube 48.3mm 1.00m	**3.6**	**682014000**
Scaffold tube 48.3mm 1.50m	**5.4**	**682015000**
Scaffold tube 48.3mm 2.00m	**7.2**	**682016000**
Scaffold tube 48.3mm 2.50m	**9.0**	**682017000**
Scaffold tube 48.3mm 3.00m	**10.8**	**682018000**
Scaffold tube 48.3mm 3.50m	**12.6**	**682019000**
Scaffold tube 48.3mm 4.00m	**14.4**	**682021000**
Scaffold tube 48.3mm 4.50m	**16.2**	**682022000**
Scaffold tube 48.3mm 5.00m	**18.0**	**682023000**
Scaffold tube 48.3mm 5.50m	**19.8**	**682024000**
Scaffold tube 48.3mm 6.00m	**21.6**	**682025000**
Scaffold tube 48.3mm .....m	**3.6**	**682001000**

Gerüstrohr 48,3mm

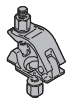
Galvanised



	[kg]	Article N°
Screw-on coupler 48mm 50	**0.8**	**682002000**

Anschraubkupplung 48mm 50

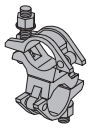
Galvanised
Width-across: 22 mm



Swivel coupler 48mm	**1.5**	**582560000**

Drehkupplung 48mm

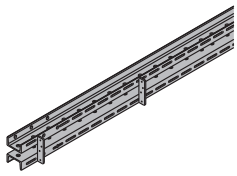
Galvanised
Width-across: 22 mm



Multi-purpose waling WS10 Top50 3.00m	**60.2**	**580011000**
Multi-purpose waling WS10 Top50 3.50m	**68.4**	**580012000**
Multi-purpose waling WS10 Top50 4.00m	**79.4**	**580013000**

Mehrzweckriegel WS10 Top50

Painted blue



Adjusting spindle M36	**6.2**	**500663002**

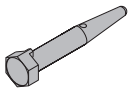
Höhenjustierspindel M36

Galvanised
Length: 31 cm
Height: 29.2 cm
Width-across: 24 mm

Connecting pin 10cm	**0.34**	**580201000**

Verbindungsbolzen 10cm

Galvanised
Length: 14 cm



Spring cotter 5mm	**0.03**	**580204000**

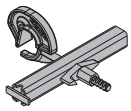
Federvorstecker 5mm

Galvanised
Length: 13 cm

Waling-to-bracket holder 9-15cm	**2.7**	**580625000**

Riegelhalter 9-15cm

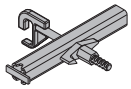
Galvanised



Waling-to-bracket holder	**2.5**	**580526000**

Keilriegelhalter

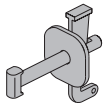
Galvanised
Length: 26 cm
Height: 31 cm

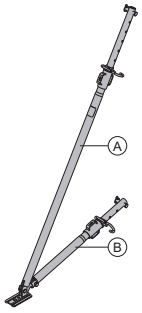
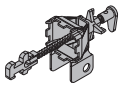
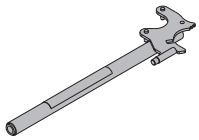
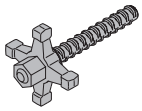
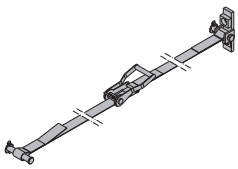
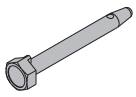
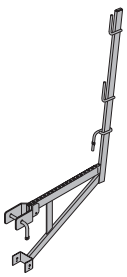


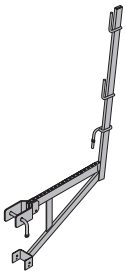
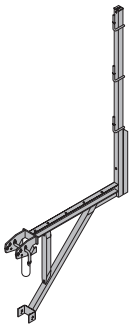
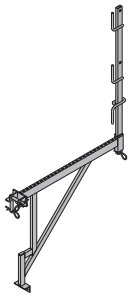
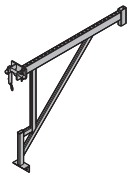
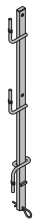
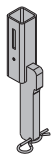
Framax wedge clamp	**1.5**	**588152000**

Framax-Spannklemme

Galvanised
Length: 21 cm



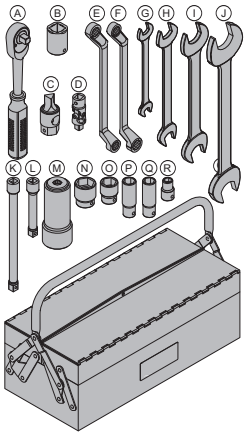
	[kg]	Article N°
Panel strut 340 IB Elementstütze 340 IB consisting of: (A) **Plumbing strut 340 IB** Galvanised Length: 190.8 - 341.8 cm (B) **Adjusting strut 120 IB** Galvanised Length: 81.5 - 130.6 cm Galvanised Delivery condition: folded closed 	**24.3** **16.7** **7.6**	**580365000** **588696000** **588248500**
Prop head EB Stützenkopf EB Galvanised Length: 40.8 cm Width: 11.8 cm Height: 17.6 cm 	**3.1**	**588244500**
Universal dismantling tool Universal-Lösewerkzeug Galvanised Length: 75.5 cm 	**3.6**	**582768000**
Star screw Sternschraube Galvanised Length: 17 cm Width-across: 24 mm 	**0.75**	**580425000**
Wind bracing MF/150F/K 6.00m Windabspannung MF/150F/K 6,00m Galvanised 	**4.7**	**580665000**
Pin D16/112 Steckbolzen D16/112 Galvanised Length: 16 cm 	**0.29**	**500403330**
Top scaffold bracket L Betonierkonsole L Galvanised Length: 101 cm Height: 159 cm 	**12.6**	**587153500**

	[kg]	Article N°
Top scaffold bracket L painted Betonierkonsole L lackiert Painted blue Length: 101 cm Height: 159 cm 	**12.0**	**587153000**
Universal bracket 90 Universal-Konsole 90 Galvanised Length: 121 cm Height: 235 cm 	**30.4**	**580476000**
Framax bracket 90 Framax-Konsole 90 Galvanised Length: 103 cm Height: 185 cm Delivery condition: railing included 	**12.5**	**588167000**
Framax bracket 90 EP Framax-Konsole 90 EP Galvanised Length: 103 cm Height: 84 cm 	**9.0**	**588979000**
Handrail post 1.00m Geländer 1,00m Galvanised Length: 124 cm 	**3.8**	**584335000**
Bracket adapter XP FRR 50/30 Konsolenadapter XP FRR 50/30 Galvanised Height: 32 cm 	**2.4**	**586486000**

	[kg]	Article N°
Railing clamp XP 40cm Geländerzwinge XP 40cm Galvanised Height: 73 cm	**7.7**	**586456000**
Handrail post XP 1.20m Geländersteher XP 1,20m Galvanised Height: 118 cm	**4.1**	**586460000**
Toeboard holder XP 1.20m Fußwehrhalter XP 1,20m Galvanised Height: 21 cm	**0.64**	**586461000**
Side handrail clamping unit T Seitenschutzgeländer T Galvanised Length: 115 - 175 cm Height: 112 cm	**29.1**	**580488000**
Handrail clamp S Schutzgeländerzwinge S Galvanised Height: 123 - 171 cm	**11.5**	**580470000**
Universal railing shackle Universal-Geländerbügel Galvanised Height: 20 cm	**3.0**	**580478000**
Scaffold tube connection Gerüstrohranschluss Galvanised Height: 7 cm	**0.27**	**584375000**

	[kg]	Article N°
Doka 4-part chain 3.20m Doka-Vierstrangkette 3,20m Follow the directions in the "Operating Instructions"!	**15.0**	**588620000**
Lifting beam 110kN 6.00m Umsetzbalken 110kN 6,00m Galvanised Length: 626 cm Follow the directions in the "Operating Instructions"!	**136.5**	**586359000**
Manhole B 70/60cm Bühnendurchstieg B 70/60cm Steel parts galvanised Timber parts varnished yellow Length: 81 cm Width: 71 cm	**22.0**	**581530000**
Warning sign "No entry" 300x300mm Verbotsschild "Zutritt Verboten" 300x300mm	**0.7**	**581575000**

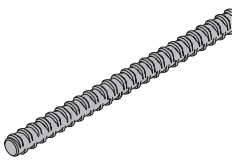
	[kg]	Article N°
Universal tool box 15.0	**8.4**	**580392000**
Universal-Werkzeugbox 15,0		
included in scope of supply:		
(A) **Reversible ratchet 1/2"**	**0.73**	**580580000**
Galvanised		
(B) **Square nut 22**	**0.31**	**580589000**
(C) **Positioning cone spanner 15.0 DK**	**0.3**	**580579000**
Galvanised		
Length: 8 cm		
Width-across: 30 mm		
(D) **Universal joint coupling 1/2"**	**0.16**	**580583000**
(E) **Ring spanner 16/18**	**0.23**	**580644000**
(F) **Ring spanner 17/19**	**0.27**	**580590000**
(G) **Fork wrench 13/17**	**0.08**	**580577000**
(H) **Fork wrench 22/24**	**0.22**	**580587000**
(I) **Fork wrench 30/32**	**0.8**	**580897000**
(J) **Fork wrench 36/41**	**1.0**	**580586000**
(K) **Extension 22cm 1/2"**	**0.31**	**580582000**
(L) **Extension 11cm 1/2"**	**0.2**	**580581000**
(M) **Box spanner 41**	**0.99**	**580585000**
(N) **Box nut 30 1/2"**	**0.2**	**580575000**
(O) **Box nut 24 1/2"**	**0.12**	**580584000**
(P) **Box nut 19 1/2" L**	**0.16**	**580598000**
(Q) **Box nut 18 1/2" L**	**0.15**	**580642000**
(R) **Box nut 13 1/2"**	**0.06**	**580576000**



Tie rod system 15.0

Tie rod 15.0mm galvanised 0.50m	**0.72**	**581821000**
Tie rod 15.0mm galvanised 0.75m	**1.1**	**581822000**
Tie rod 15.0mm galvanised 1.00m	**1.4**	**581823000**
Tie rod 15.0mm galvanised 1.25m	**1.8**	**581826000**
Tie rod 15.0mm galvanised 1.50m	**2.2**	**581827000**
Tie rod 15.0mm galvanised 1.75m	**2.5**	**581828000**
Tie rod 15.0mm galvanised 2.00m	**2.9**	**581829000**
Tie rod 15.0mm galvanised 2.50m	**3.6**	**581852000**
Tie rod 15.0mm galvanised .....m	**1.4**	**581824000**
Tie rod 15.0mm non-treated 0.50m	**0.73**	**581870000**
Tie rod 15.0mm non-treated 0.75m	**1.1**	**581871000**
Tie rod 15.0mm non-treated 1.00m	**1.4**	**581874000**
Tie rod 15.0mm non-treated 1.25m	**1.8**	**581886000**
Tie rod 15.0mm non-treated 1.50m	**2.1**	**581876000**
Tie rod 15.0mm non-treated 1.75m	**2.5**	**581887000**
Tie rod 15.0mm non-treated 2.00m	**2.9**	**581875000**
Tie rod 15.0mm non-treated 2.50m	**3.6**	**581877000**
Tie rod 15.0mm non-treated 3.00m	**4.3**	**581878000**
Tie rod 15.0mm non-treated 3.50m	**5.0**	**581888000**
Tie rod 15.0mm non-treated 4.00m	**5.7**	**581879000**
Tie rod 15.0mm non-treated 5.00m	**7.2**	**581880000**
Tie rod 15.0mm non-treated 6.00m	**8.6**	**581881000**
Tie rod 15.0mm non-treated .....m	**1.4**	**581873000**

Ankerstab 15,0mm

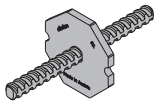


DIN 18216

	[kg]	Article N°
Stop anchor 15.0 B11	**0.55**	**581868000**
Stop anchor 15.0 A16	**0.38**	**581997000**
Stop anchor 15.0 A40	**0.71**	**581999000**
Sperranker 15,0		
Non-treated		

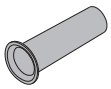
Pigtail anchor 15.0	**0.92**	**581984000**
Wellenanker 15,0		
Non-treated		
Length: 67 cm		

Stop anchor double-ended 15.0 K20	**0.76**	**581820000**
Sperranker beidseitig 15,0 K20		
Non-treated		
Custom lengths can be ordered under the special-component Art.n° 580100000, quoting the designation and the desired length in mm.		



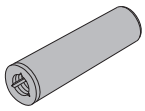
Cantilever positioning cone 15.0 5cm	**0.45**	**581699000**
Sperrenvorlauf 15,0 5cm		
Length: 11 cm		
Diameter: 5 cm		

Sealing sleeve S 15.0 5cm	**0.009**	**581697000**
Dichtungshülse S 15,0 5cm		
Orange		
Length: 11 cm		
Diameter: 4.7 cm		



Fixing plate 15.0	**0.16**	**581692000**
Nagelblech 15,0		
Galvanised		
Diameter: 10 cm		

Positioning cone 15.0 5cm	**0.43**	**581969000**
Vorlaufkonus 15,0 5cm		
Galvanised		
Length: 11 cm		
Diameter: 3 cm		



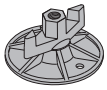
Fibre concrete plug 30.7mm	**0.03**	**581902000**
Faserbetonstopfen 30,7mm		
Grey		

Fair-faced concrete positioning cone 15.0 5cm	**0.46**	**581973000**
Sichtbetonvorlauf 15,0 5cm		
Galvanised		
Length: 11 cm		
Diameter: 4.3 cm		

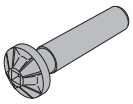
Sealing sleeve 15.0 5cm	**0.008**	**581990000**
Dichtungshülse 15,0 5cm		
Orange		
Length: 10 cm		
Diameter: 3 cm		

	[kg]	Article N°
Fair-faced concrete plug 41mm plastic	**0.007**	**581851000**
Fair-faced concrete plug 41mm concrete	**0.05**	**581848000**
Sichtbetonstopfen		
Grey		

Super plate 15.0	**0.98**	**581966000**
Superplatte 15,0		
Galvanised Height: 6 cm Diameter: 12 cm Width-across: 27 mm		DIN 18216

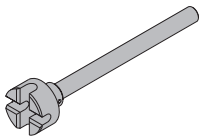


Suspension cone 15.0 5cm	**0.88**	**581971000**
Aufhängekonus 15,0 5cm		
Galvanised Length: 16 cm Diameter: 6 cm		



Protective cap 15.0/20.0	**0.03**	**581858000**
Schutzkappe 15,0/20,0		
Yellow Length: 6 cm Diameter: 6.7 cm		

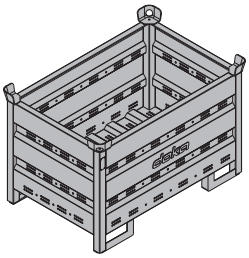
Tie-rod wrench 15.0/20.0	**1.8**	**580594000**
Ankerstabschlüssel 15,0/20,0		
Galvanised		



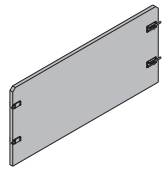
Multi-trip packaging

Doka skeleton transport box 1.70x0.80m	**87.0**	**583012000**
Doka-Gitterbox 1,70x0,80m		
Galvanised Height: 113 cm		

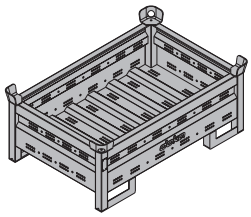
Doka multi-trip transport box 1.20x0.80m	**70.0**	**583011000**
Doka-Mehrwegcontainer 1,20x0,80m		
Galvanised Height: 78 cm		



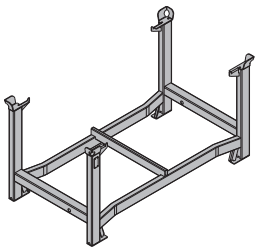
Multi-trip transport box partition 0.80m	**3.7**	**583018000**
Multi-trip transport box partition 1.20m	**5.5**	**583017000**
Mehrwegcontainer Unterteilung		
Steel parts galvanised Timber parts varnished yellow		



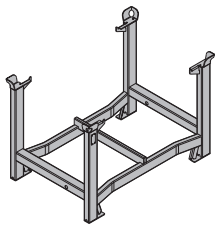
Doka multi-trip transport box 1.20x0.80x0.41m	**42.5**	**583009000**
Doka-Mehrwegcontainer 1,20x0,80x0,41m		
Galvanised		



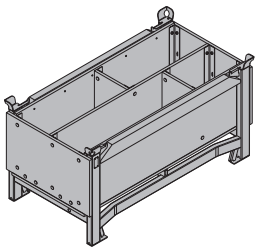
Doka stacking pallet 1.55x0.85m	**41.0**	**586151000**
Doka-Stapelpalette 1,55x0,85m		
Galvanised Height: 77 cm		



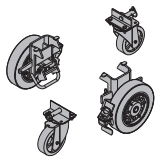
Doka stacking pallet 1.20x0.80m	**38.0**	**583016000**
Doka-Stapelpalette 1,20x0,80m		
Galvanised Height: 77 cm		



Doka accessory box	**106.4**	**583010000**
Doka-Kleinteilebox		
Timber parts varnished yellow Steel parts galvanised Length: 154 cm Width: 83 cm Height: 77 cm		



Bolt-on castor set B	**33.6**	**586168000**
Anklemm-Radsatz B		
Painted blue		



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