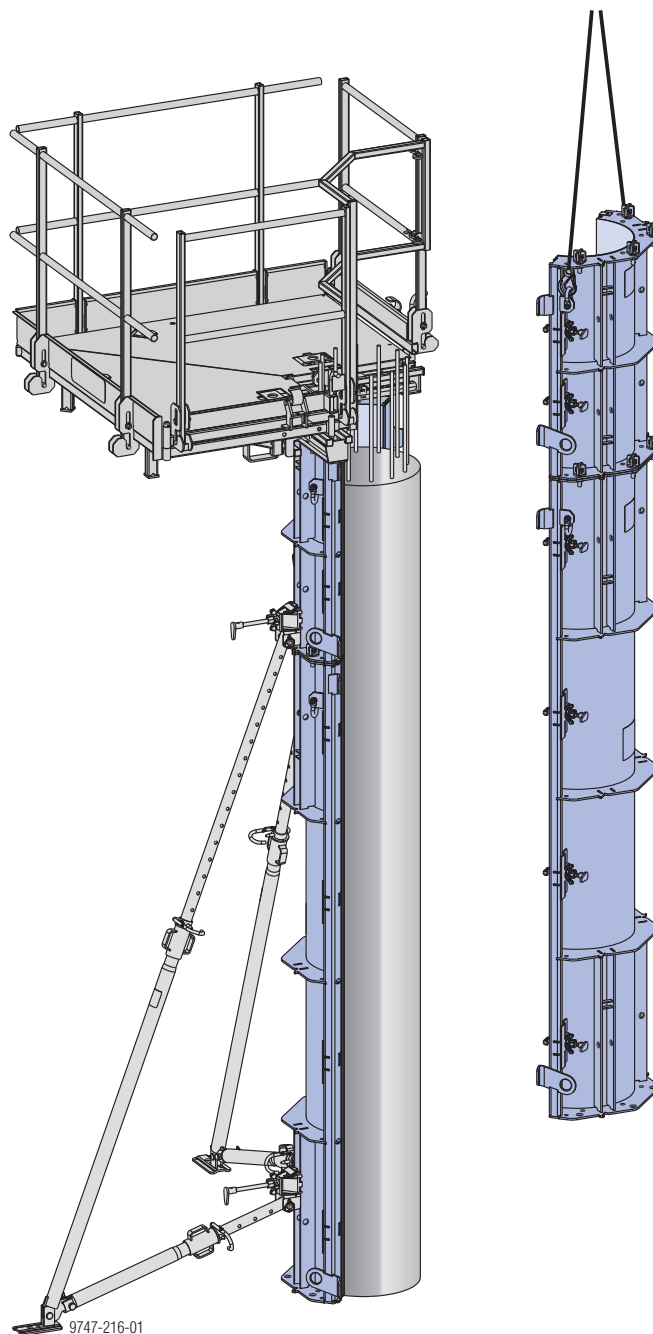


The Formwork Experts.

Column formwork RS

User Information

Instructions for assembly and use (Method statement)



9747-216-01

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Introduction

Elementary safety warnings

User target groups

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

Hazard assessment

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

Remarks on this booklet

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

Planning

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

Regulations; industrial safety

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

Rules applying during all phases of the assignment

- The customer must ensure that this product is erected and dismantled, reset and generally used for its intended purpose in accordance with the applicable laws, standards and rules, under the direction and supervision of suitably skilled persons. These persons' mental and physical capacity must not in any way be impaired by alcohol, medicines or drugs.
- Doka products are technical working appliances which are intended for industrial / commercial use only, always in accordance with the respective Doka User Information booklets or other technical documentation authored by Doka.
- The stability and load-bearing capacity of all components and units must be ensured during all phases of the construction work!
- Do not step on or apply strain to cantilevers, closures, etc. until suitable measures to ensure their stability have been correctly implemented (e.g. by tie-backs).
- Strict attention to and compliance with the functional instructions, safety instructions and load specifications are required. Non-compliance can cause accidents and severe injury (risk of fatality) and considerable damage to property.
- Sources of fire in the vicinity of the formwork are prohibited. Heaters are permissible only when used correctly and situated 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)!

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

Allowance has been made for the following partial factors:

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

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.

Services

Support in every stage of the project

- Project success assured by products and services from a single source.
- Competent support from planning through to assembly directly on site.

Project assistance from start to finish

Every single project is unique and calls for individualised solutions. When it comes to the forming operations, the Doka team can help you with its consulting, planning and ancillary services in the field, enabling you to carry out your project effectively, safely and reliably. Doka assists you with individual consulting services and customised training courses.

Efficient planning for a safe project sequence

Efficient formwork solutions can only be developed economically if there is an understanding of project requirements and construction processes. This understanding is the basis of Doka engineering services.

Optimise construction workflows with Doka

Doka offers special tools that help you in designing transparent processes. This is the way to speed up pouring processes, optimise inventories and create more efficient formwork planning processes.

Custom formwork and on-site assembly

To complement its system formwork range, Doka offers customised formwork units. And specially trained personnel assemble load-bearing towers and formwork on site.

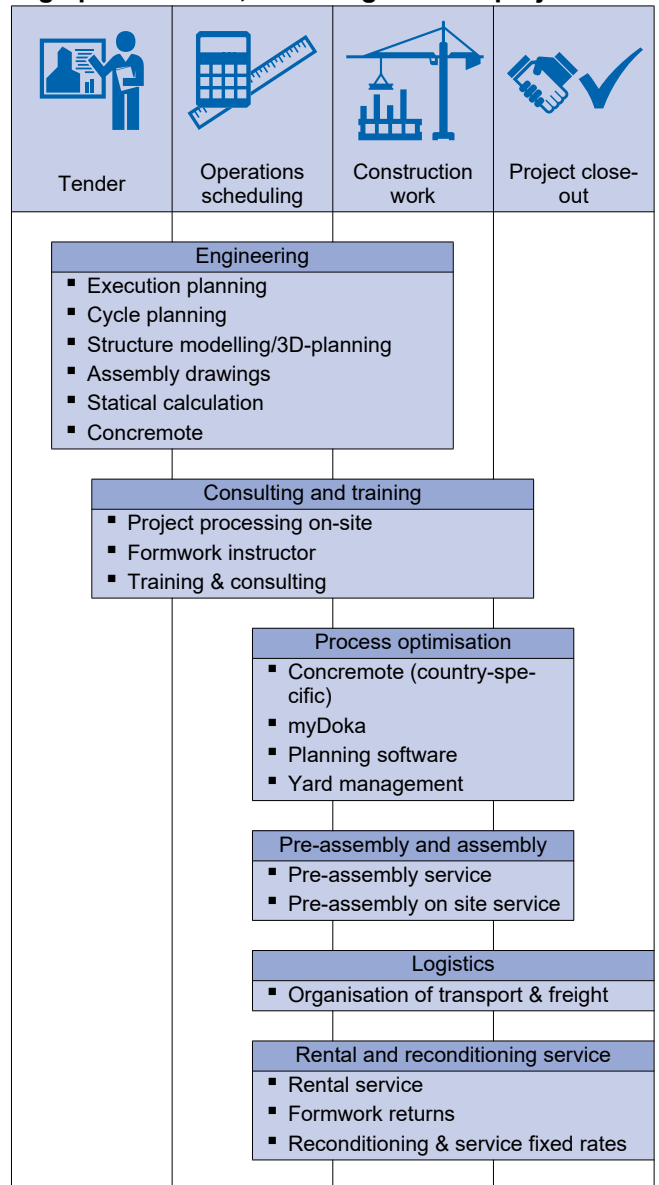
Just-in-time availability

Formwork availability is a crucial factor in realising your project on time and on budget. The worldwide logistics network puts the necessary formwork quantities on site at the agreed time.

Rental and reconditioning service

The formwork material needed for any particular project can be rented from Doka's high-performing rental park. Doka Reconditioning cleans and overhauls both client-owned equipment and Doka rental equipment.

High performance, in all stages of the project



Digital Services

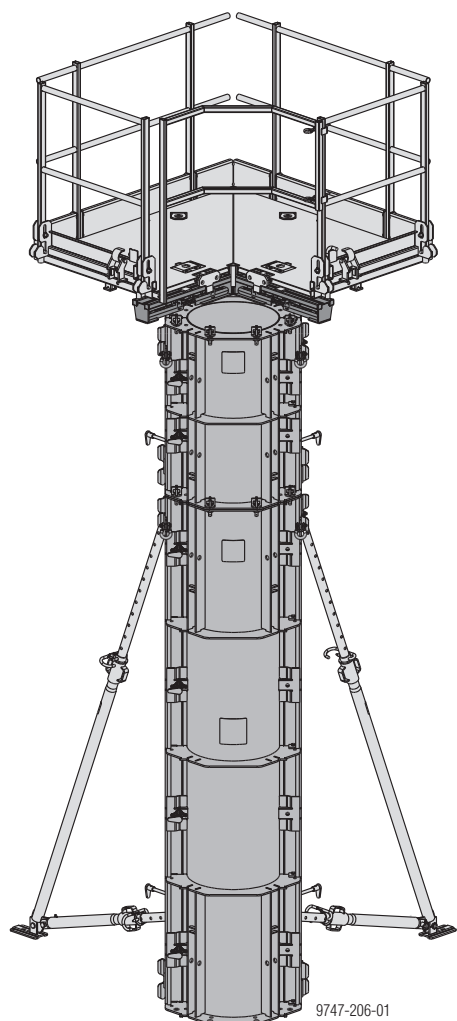
for higher productivity in construction

From planning to completion of construction - with our digital services we want to set the pace for boosting productivity in construction. Our digital portfolio includes solutions for planning, procuring and managing to performing on site. Learn more about our digital offer at doka.com/digital.

Product description

Doka column formwork RS - the steel formwork for high-grade circular reinforced concrete columns

Column formwork RS is used for producing concrete surfaces that meet more stringent (fair-faced) specifications. Its precision-manufactured half-shells ensure that the column cross-section is perfectly circular, even at the shell joins.



Circular-section columns, straight from Doka's modular "construction kit" ...

- with integral quick-acting connectors for fast, zero-play connections between the shells
- with exactly fitting shell joins, thanks to the integral centring function
- for forming curved stop-ends or oval columns, Column formwork RS can be connected directly (i.e. without adapters) to:
 - Framed formwork Framax Xlife and Alu-Framax Xlife
 - Circular formwork H20

Permissible fresh-concrete pressure

Column diameter (\varnothing)	Permitted fresh-concrete pressure $\sigma_{hk, \max}$
up to 60cm	150 kN/m²
65 to 150cm	125 kN/m²
180cm	100 kN/m²

Areas of use

The following features are integrated in every **Column element RS**:

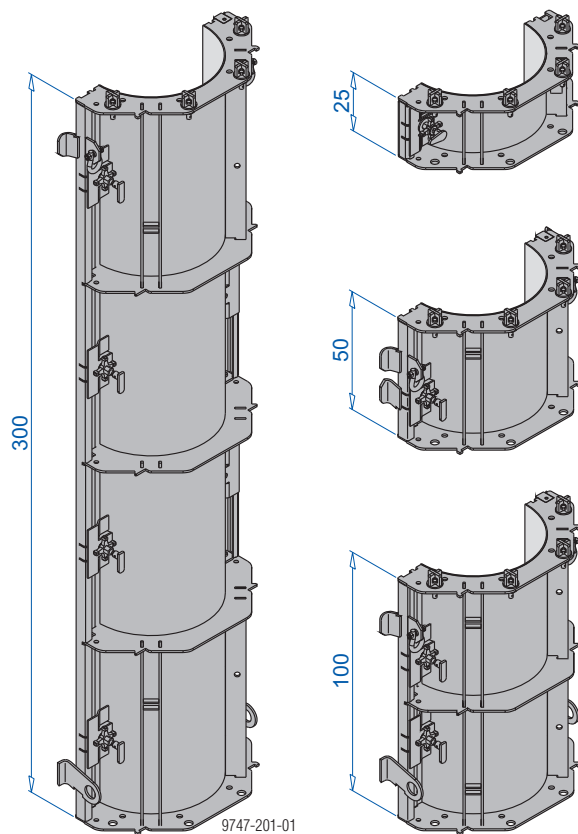
- connectors for joining together and vertically stacking the half-shells
- crane-hoisting point
- stacking lugs
- centring mechanism

To form a column cross-section, two Column elements RS are joined together.

Height grid

By combining panels with heights of 0.25 m, 0.50 m, 1.00 m and 3.00 m, a 25 cm height grid is obtained.

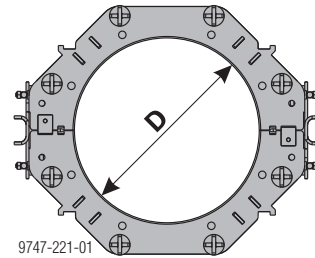
Column elements RS 0.25 m may only be used as the top elements. The crane lifting chain, and all connections to the vertical profile, must be attached to the column element below this top element.



Dimensions in cm

Column diameters

D= 30, 35, 40, 45, 50 and 60 cm



Diameters 24, 25, 55, 65, 70, 75, 80, 90, 100, 110, 120, 130, 140, 150 and 180 cm **on enquiry**.

Materials schedule

Formwork height [m]	Column element RS			
	3.00m	1.00m	0.50m	0.25m
0.25				2
0.50			2	
0.75			2	2
1.00		2		
1.25		2		2
1.50		2	2	
1.75		2	2	2
2.00		4		
2.25		4		2
2.50		4	2	
2.75		4	2	2
3.00	2			
3.25	2			2
3.50	2		2	
3.75	2		2	2
4.00	2	2		
4.25	2	2		2
4.50	2	2	2	
4.75	2	2	2	2
5.00	2	4		
5.25	2	4		2
5.50	2	4	2	
5.75	2	4	2	2
6.00	4			
6.25	4			2
6.50	4		2	
6.75	4		2	2
7.00	4	2		
7.25	4	2		2
7.50	4	2	2	
7.75	4	2	2	2
8.00	4	4		

Follow the directions in the section headed "Additional precautions" in the following cases:

- high (over 4.50 m) stacked multi-element gangs, to stiffen the formwork when lifting it into the upright
- multi-element gangs made by stacking many small column elements

Instructions for assembly and use (Method statement)

Design of column formwork

Cleaning and care of your equipment

Before using

The steel form-facing is supplied coated with a rust inhibitor that also acts as a release agent.

- ▶ Wipe off excess rust inhibitor with a cloth, leaving only a very thin film.

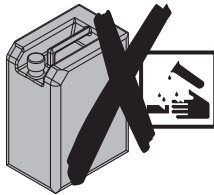
After pouring:

- ▶ Remove any blobs of concrete from the back-face of the formwork, using water (without any added sand).
- ▶ Do not use pointed or sharp objects, wire brushes, abrasive disks or cup brushes.
- ▶ Apply release agent to the formwork sheet and the end faces **extremely thinly, evenly and in a continuous layer** (make sure there are no traces of release agent running down the formwork sheet)! Applying too much release agent will spoil the concrete finish.



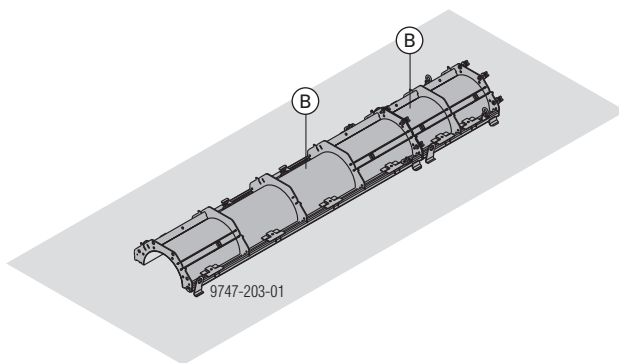
NOTICE

Do not use any chemical cleaning agents!

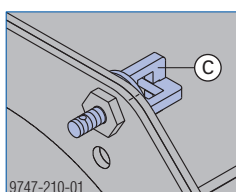


Vertical stacking of column elements

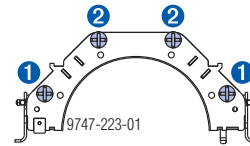
- ▶ Place the Column elements RS (B) on a flat surface.



- ▶ Fix the Connecting screws RS (C) between the elements to be stacked.



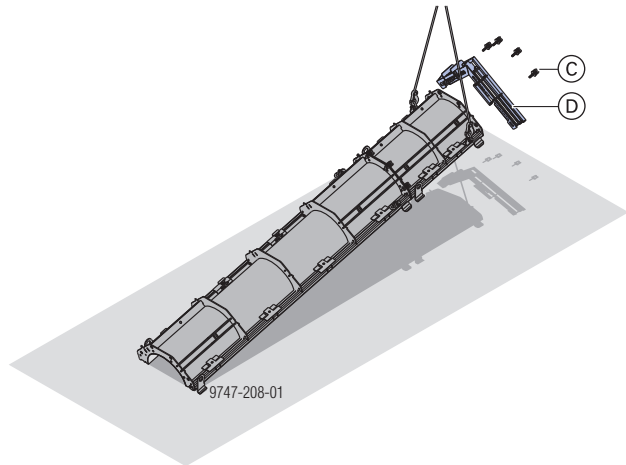
To achieve a precision stacking joint between the Column elements RS, we recommend fixing the Connecting screws RS in the following order.



- ▶ Pre-assemble the other half-shell in the same way.

Preparations for using the Doka column formwork platform 150/90 cm

- ▶ Attach the lifting chain to the integrated crane-hoisting points and raise the formwork-half.
- ▶ Attach the Platform adapter RS (D) with Connecting screws RS (C) (is only needed on one of the formwork-halves).



Closing the formwork

Stand the pre-assembled formwork-halves on end, and secure them

- ▶ Use the crane to lift the first half of the formwork into the upright.
- ▶ Attach two panel struts (**A**) to this formwork-half to prevent it from falling over (see the section headed 'Plumbing accessories' for details of how to attach the panel struts); do not disengage the formwork-half from the crane until the panel struts are attached.

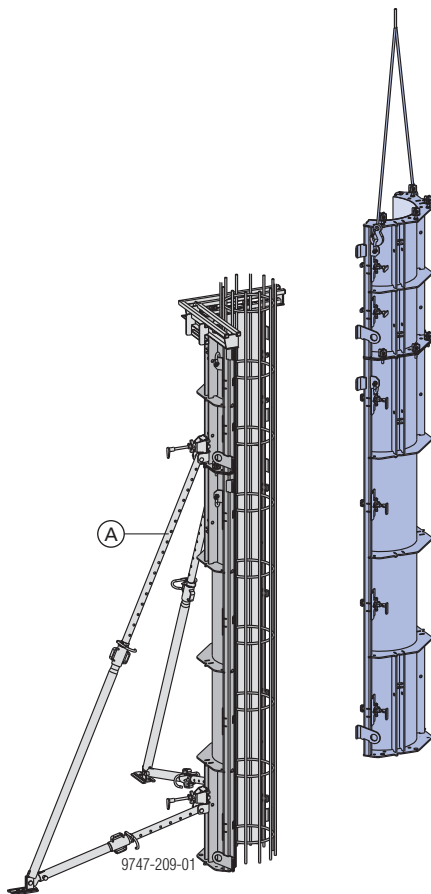


To save crane time, the panel struts can be attached to the half-shell while it is still lying on the ground.

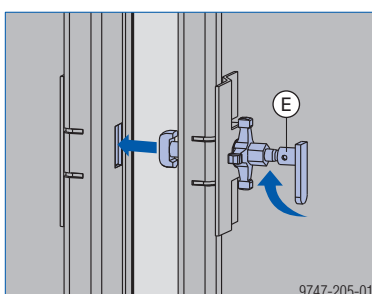
Joining the formwork-halves together

The integrated centring tool makes it easy to position the two halves exactly.

- ▶ Lift the second half of the formwork into the upright by crane.



- ▶ Link the formwork-halves with the integrated quick-acting connectors (**E**). Do not detach the second half-shell from the crane before both halves of the formwork are properly connected.



Stripping and repositioning the formwork

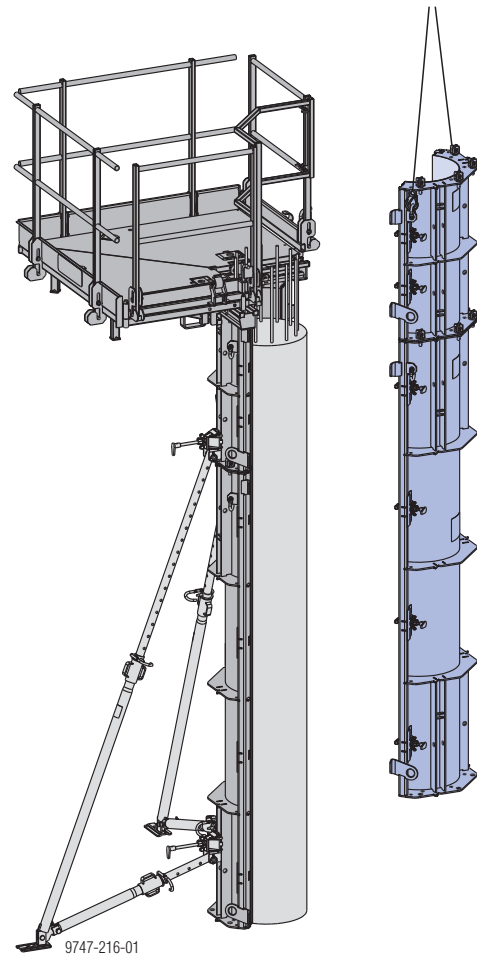
First formwork-half

- ▶ Attach the crane lifting tackle to the formwork-half that is not shored by panel struts.
- ▶ Undo the quick-acting connector and separate the two formwork-halves.



CAUTION

- ▶ When stripping the formwork, never use the crane to break concrete cohesion. Use suitable tools such as timber wedges or a plumbing tool.
- ▶ Lift the formwork-half that is attached to the crane, and set it down on the ground for cleaning.

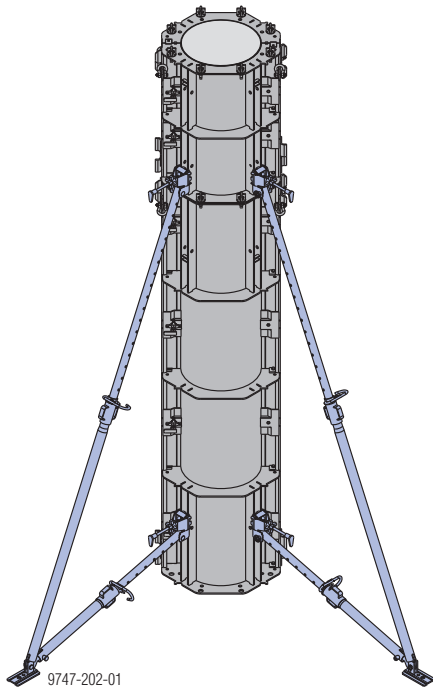


Second formwork-half

- ▶ Attach the crane lifting tackle to the shored (i.e. still standing) formwork-half.
- ▶ Undo the panel-strut anchorages from the ground.
- ▶ Set down this crane-held formwork-half ready for cleaning, and secure it so that it cannot fall over.

For information on how to reposition a formwork-half complete with a platform, see the section headed 'Platform configurations with Doka column formwork platform 150/90cm'.

Plumbing accessories



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



NOTICE

Formwork panels must be held stable in every phase of construction work!
Observe all applicable safety regulations!



For more information (wind loads etc.) see the section headed 'Vertical and horizontal loads' in the Calculation Guide 'Doka formwork engineering'.

Number of struts for each formwork-half to be shored:

Formwork height [m]	Panel strut		Eurex 60 550
	340	540	
up to 4.00	2		
up to 5.50		2	
up to 8.00			2
Max. anchoring load: $F_k = 13.5 \text{ kN}$ ($R_d = 20.3 \text{ kN}$)			

Fixing to the ground

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

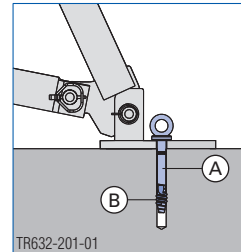
Drilled holes in footplate

Panel struts	Eurex 60 550
<p>9727-343-01</p>	<p>9745-214-01</p>

- a ... diam. 26 mm
- b ... diam. 18 mm (suitable for Doka express anchors)
- c ... diam. 28 mm
- d ... diam. 18 mm (suitable for Doka express anchors)

Anchoring the footplate

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



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

Characteristic cube compressive strength of the concrete ($f_{ck,cube}$):
min. 15 N/mm² (C12/15 grade concrete)



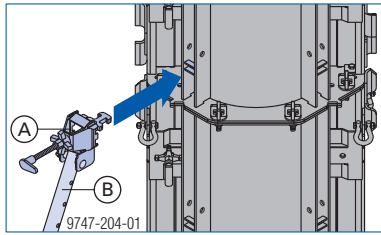
Follow the Fitting Instructions!

Required safe working load of alternative anchors for foot-plates:
 $R_d \geq 20.3 \text{ kN}$ ($F_{permissible} \geq 13.5 \text{ kN}$)
 Follow the manufacturers' applicable fitting instructions.

Fixing the struts to the formwork

Variant 1

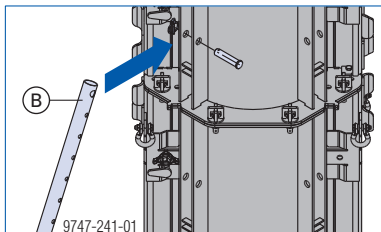
- Place the Prop head EB up against one of the clamping points on the Column element RS, and fix it in place with the star grip nut.



- A Prop head EB
- B Panel strut 340 IB or 540 IB

Variant 2

- Pin the panel strut directly into the pin-holes on the vertical profile.

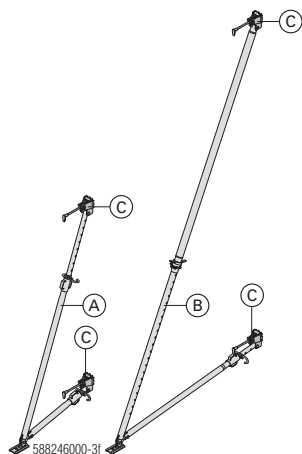


- B Panel strut 340 IB

Panel struts

Product features:

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



- A Panel strut 340 IB
- B Panel strut 540 IB
- C Prop head EB

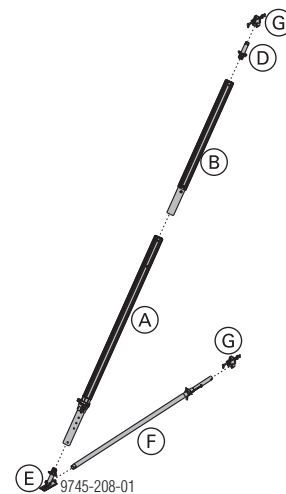
Eurex 60 550 used as a shoring & plumbing accessory

As Doka plumbing strut Eurex 60 550 – fitted with the appropriate accessories – this prop can also be used **for shoring high formwork**.

- Can be connected directly – without modification – to Doka framed formwork and Doka timber-beam formwork
- The Adjusting strut 540 Eurex 60 IB makes handling much easier, especially when the formwork is being transferred.
- Can be telescoped in 10 cm increments, with continuous fine adjustment.



Follow the directions in the 'Eurex 60 550' User Information booklet!



- A Plumbing strut Eurex 60 550
- B Extension Eurex 60 2.00m
- D Connector Eurex 60 IB
- E Plumbing strut shoe Eurex 60 EB
- F Adjusting strut 540 Eurex 60 IB
- G Prop head EB

Ladder system XS

Combined with the Column formwork platform 150/90cm, the Ladder system XS provides a safe and reliable way of climbing up and down column formworks:

- during pouring
- when placing reinforcing cages
- when opening/closing the formwork-halves
- when attaching/detaching the formwork-halves

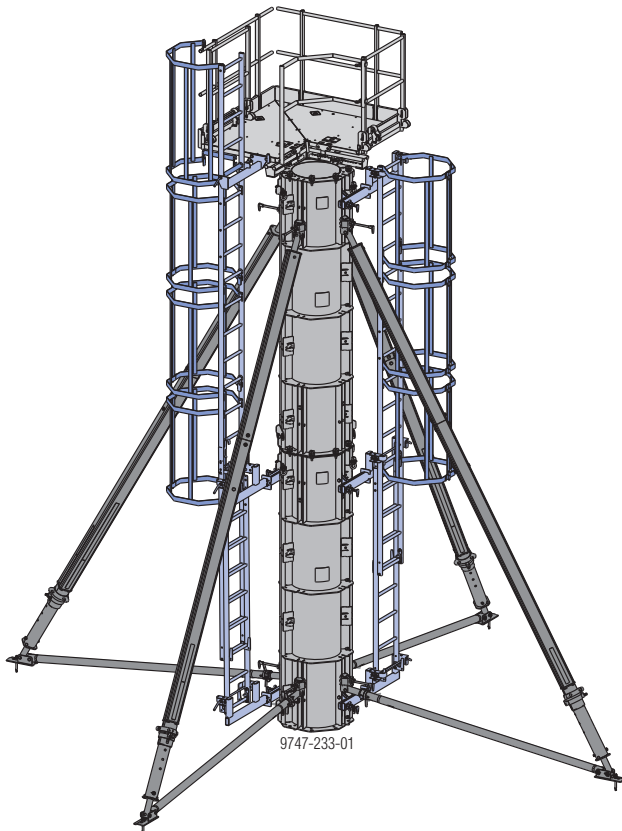
Note:

The Ladder system XS must be implemented in such a way that all national regulations are complied with.



WARNING

- ▶ The Ladders XS may only be used as part of the XS system, and must NOT be used separately (as "lean-to" ladders).



Note:

When used with the Ladder system XS, both formwork-halves must each be fitted with 2 panel struts.

Pre-assembly

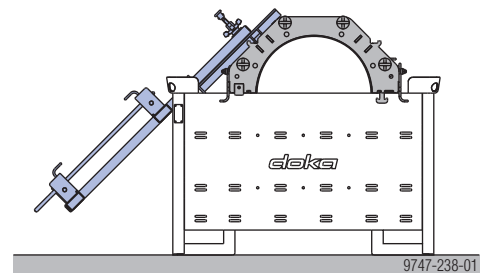
Formwork-half without column formwork platform

Mount the ladder system to the horizontal half of the formwork.

- ▶ For information on vertical stacking of the column elements, see the section headed 'Column formwork set-up'.



To make it easier to mount and dismantle the Connectors XS RS, the formwork-half can be placed on top of Doka multi-trip transport boxes.



- ▶ Fit the Connector XS RS into the vertical profile of the Column element RS and use a bolt and linch pin to fix it in the top hole.



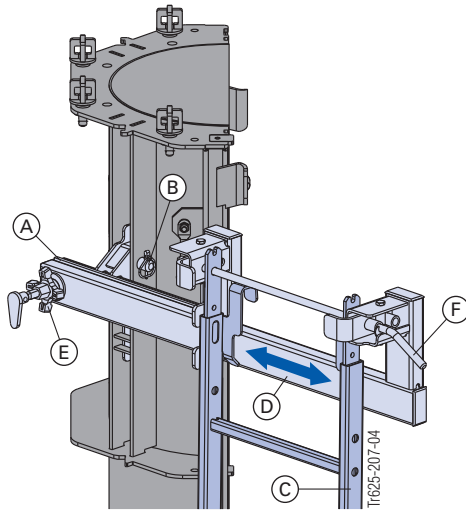
NOTICE

- Panel height 0.25 m: Connector XS RS cannot be installed!
- Panel height 0.50 m: Connector XS RS and panel strut cannot be installed in combination!

In the event of a collision with panel strut or transverse plate:

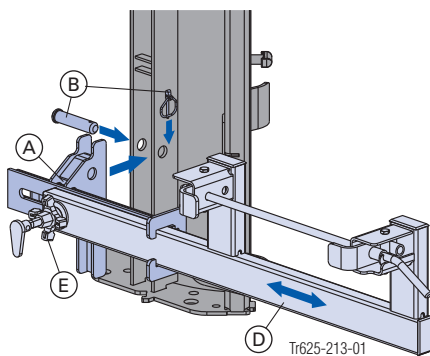
- Bolt the Connector XS RS into the bottom hole.
- Install the panel strut in another plane.
- Install the panel strut first, then the Connector XS RS (can be manoeuvred into position).

- ▶ Slide the cantilever profile into the ideal position and fix it in place with the star grip nut.
- ▶ Bolt the ladder to the XS connector in the front position, using the push-in bolt. Secure the push-in bolt with a linch pin.



- A Connector XS RS
- B Bolt and linch pin
- C Ladder
- D Cantilever profile
- E Star grip nut
- F Push-in bolt

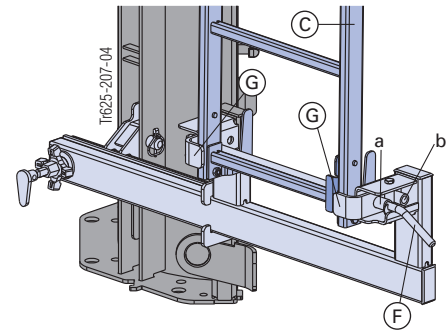
- ▶ Fit the Connector XS RS into the bottom vertical profile of the Column element RS and fix it with a bolt and linch pin.
- ▶ For formwork heights above 5.00 m, an extra Connector XS RS must be fitted approx. half-way up the column, in the same way. This extra connector prevents the ladder swaying when site crew climb up or down it.
- ▶ Slide the cantilever profile to align it to the ladder, and fix it in place with the star grip nut.



- A Connector XS RS
- B Bolt and linch pin
- D Cantilever profile
- E Star grip nut

- ▶ Pull out the push-in bolt, pivot the two safety hooks out of the way, and insert the ladder.

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



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

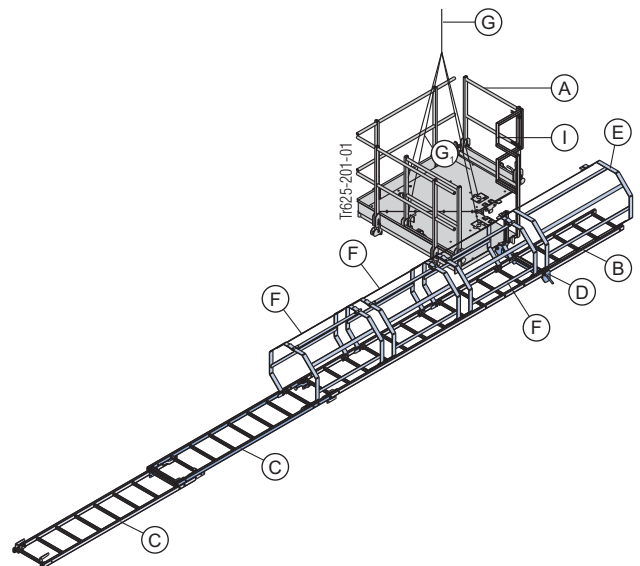
- C Ladder
- F Push-in bolt
- G Safety hook

Formwork-half with Column formwork platform

- ▶ Prepare the formwork-half ready to be used with the Doka column formwork platform 150/90 cm (see the section headed 'Column formwork set-up')

Column formwork platform with Ladder system XS

The Ladder system XS and the Column formwork platform 150/90cm are pre-assembled flat on the ground, then lifted on to the upright column formwork using the Doka 4-part chain 3.20m. (Shorten the 2 lengths of chain nearest the entry-point by removing approx. five chain-links!)

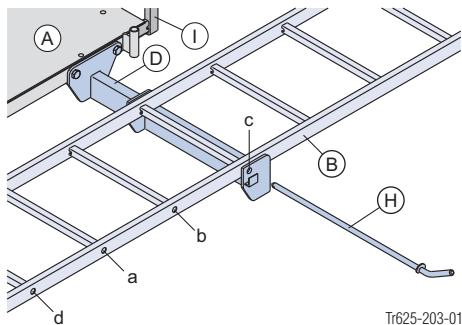


- A Doka column formwork platform 150/90cm
- B System ladder XS 4.40m
- C Ladder extension XS 2.30m
- D Connector XS column formwork platform
- E Ladder cage exit XS
- F Ladder cage XS 1.00m
- G Doka 4-part chain 3.20m
- G₁ shortened chain-strands
- I Counter railing col. formwork plat. 150/90cm

Note:

First install the counter railing of the column formwork platform (see the section headed 'Platform configurations with Doka column formwork platform150/90cm'). The counter railing is bolted on together with the Connector XS for column formwork platform!

- ▶ Fasten the Connector XS column formwork platform to the Doka column formwork platform 150/90cm, using the threaded-fastener material supplied.
- ▶ Place the System ladder XS 4.40m onto the Connector XS, with the hooking brackets facing downwards.
- ▶ Insert the push-in bolt into the rung that is suitable for the height of the column, and twist to secure.



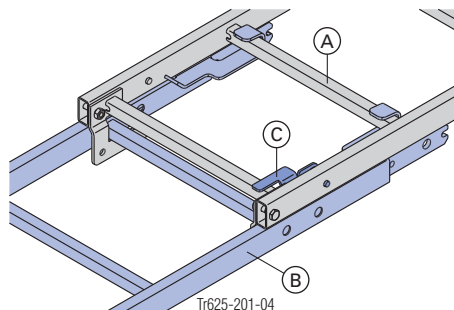
- a ... Hole for a column height of 2.75 m
- b ... Hole for a column height of 3.00 m
- c ... Hole for a column height > 3.00 m
- d ... Extra hole for special applications

- A** Doka column formwork platform 150/90cm
- B** System ladder XS 4.40m
- D** Connector XS column formwork platform
- H** Push-in bolt
- I** Counter railing col. formwork plat. 150/90cm

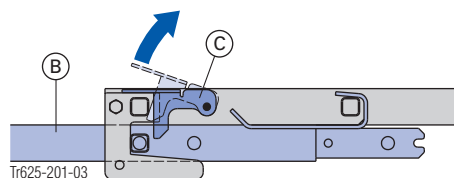
Ladder system XS for heights above 3.60 m

Telescoping ladder extension (for adjusting to ground level)

- ▶ To telescope the ladders past one another, lift the safety latch on the ladder and fix the Ladder extension XS 2.30m onto the desired rung of the other ladder.



Close-up

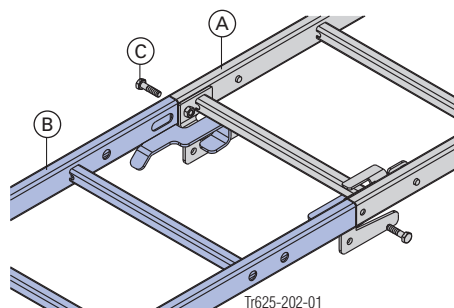


- A** System ladder XS 4.40m
- B** Ladder extension XS 2.30m
- C** Safety latch

A telescoping joint between two Ladder extensions XS 2.30m can be made in the same way.

Permanently fixed ladder extension

- ▶ Insert the Ladder extension XS 2.30m into the uprights of the System ladder XS 4.40m, with its hooking brackets facing downwards, and fasten it. Tighten the screws only **very slightly!**



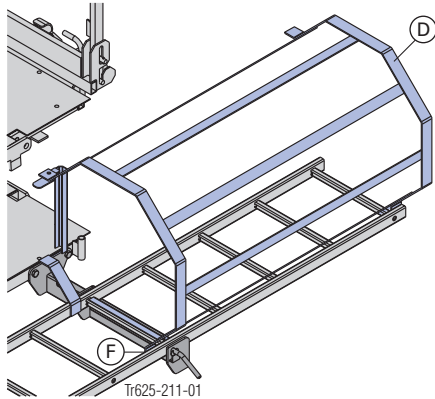
Screws (C) are included in the scope of supply of the System ladder XS 4.40m and the Ladder extension XS 2.30m.

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

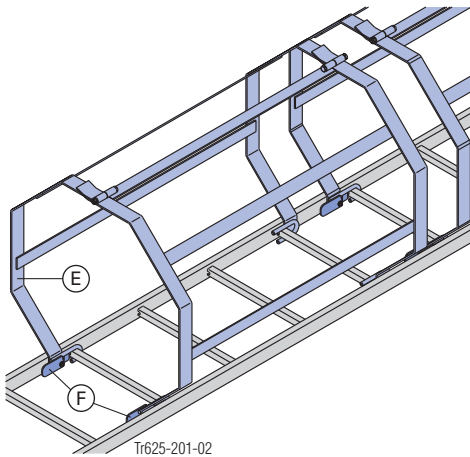
Two Ladder extensions XS 2.30m can be fixed together in the same way.

**NOTICE**

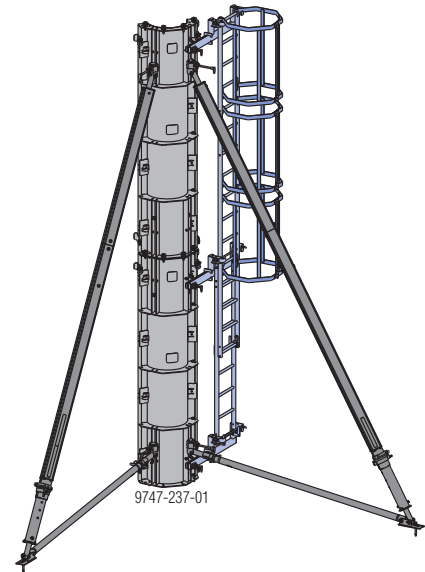
- ▶ Always observe all relevant safety regulations applying to the use of the Ladder cage XS in the country in which you are operating (e.g. in Germany: BGV D 36).
- ▶ Fix the Ladder cage exit XS (the underside must always be at the same height as the "Connector XS for column formwork platform"). The safety latches prevent the cage being accidentally lifted out.

**D** Ladder cage exit XS**F** Safety latch

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

**E** Ladder cage XS**F** Safety latches (lift-out guard)**Closing the formwork**

- ▶ Use the crane to lift the pre-assembled formwork-half (without the column formwork platform) upright.



- ▶ Attach two panel struts to this formwork-half to prevent it from falling over (see the section headed 'Plumbing accessories' for details of how to attach the panel struts); do not disengage the formwork-half from the crane until the panel struts are attached.



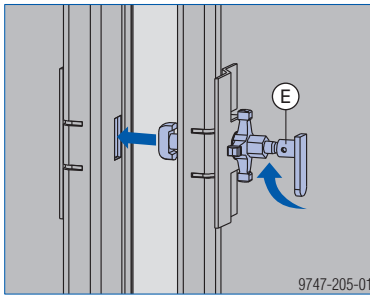
To save crane time, the panel struts can be attached to the half-shell while it is still lying on the ground.

Joining the formwork-halves together

- ▶ Lift the second pre-assembled formwork-half upright by crane.



- ▶ Link the formwork-halves with the integrated quick-acting connectors (E).

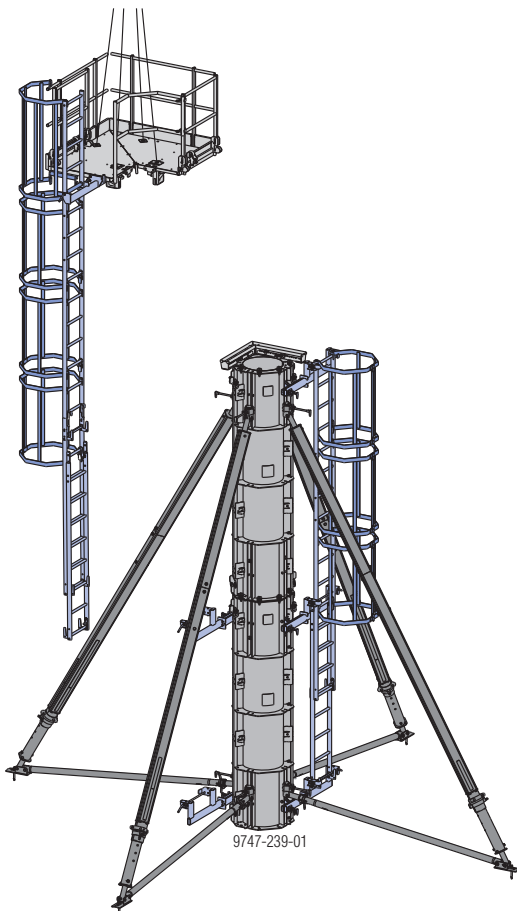


- ▶ Attach two panel struts to this formwork-half to prevent it from falling over (see the section headed 'Plumbing accessories' for details of how to attach the panel struts); do not disengage the formwork-half from the crane until the panel struts are attached.



To save crane time, the panel struts can be attached to the half-shell while it is still lying on the ground.

- ▶ Mount the bottom Connector XS RS as shown in 'Formwork-half without column formwork platform'.
- ▶ For formwork heights above 5.50 m, an extra Connector XS RS must be fitted approx. half-way up the column, in the same way. This prevents the ladder from swaying when site crew climb up or down.
- ▶ Engage the pre-assembled column formwork platform with Ladder system XS in the column formwork.



- ▶ Fix the ladder in the Connectors XS RS.
- ▶ After the column formwork platform has been hung into place on the formwork, detach the four-part lifting tackle.

Stripping and repositioning the formwork

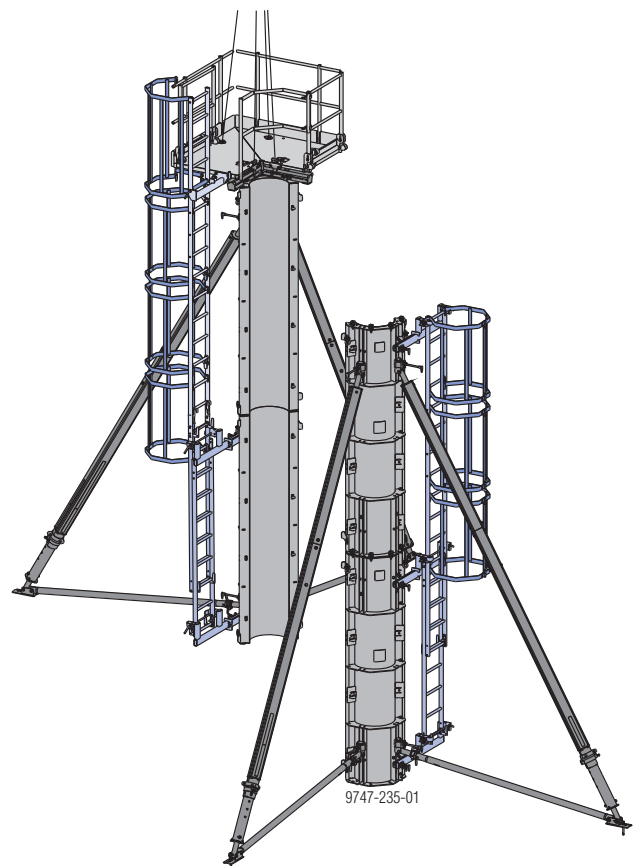
First formwork-half

- ▶ Attach the crane suspension tackle to the formwork-half on which the Column formwork platform is mounted.
- ▶ Undo the panel-strut anchorages from the ground.
- ▶ Undo the quick-acting connector and separate the two formwork-halves.



CAUTION

- ▶ When stripping the formwork, never use the crane to break concrete cohesion. Use suitable tools such as timber wedges or a special pry-bar.
- ▶ Set down the crane-held half of the formwork ready for cleaning, and secure it so that it cannot fall over.



See the section headed 'Lifting the formwork and platform in one piece' for details of how to lift and reposition the formwork-half complete with the platform.

Second formwork-half

- ▶ Attach the crane suspension tackle to the shored (i.e. still standing) formwork-half.
- ▶ Undo the panel-strut anchorages from the ground.
- ▶ Set down the crane-held half of the formwork ready for cleaning, and secure it so that it cannot fall over.

For more information on cleaning and care of the equipment, see the section headed 'Design of column formwork'.

Items needed

Formwork-half with Column formwork platform

Platform + ladder	Formwork height		
	2.75-3.50 m	>3.50-5.50 m	>5.50-8.00 m
Connector XS column formwork platform	1	1	1
Connector XS RS	1	1	2
System ladder XS 4.40m	1	1	1
Ladder extension XS 2.30m	—	1	2

Ladder cage	Formwork height					
	2.70-3.15 m	>3.15-4.20 m	>4.20-5.40 m	>5.40-6.50 m	>6.50-7.75 m	>7.75-8.00 m
Ladder cage exit XS	1	1	1	1	1	1
Securing barrier XS ¹⁾	1	1	1	1	1	1
Ladder cage XS 1.00m	—	1	2	3	4	5

¹⁾ The side railing of the Doka column formwork platform 150/90cm can be used as the securing barrier.

Formwork-half without column formwork platform

Ladder	Formwork height			
	2.75-3.00 m	>3.00-5.00 m	>5.00-7.25 m	>7.25-8.00 m
Connector XS RS	2	2	3	3
System ladder XS 4.40m	—	—	1	1
Ladder extension XS 2.30m	1	2	1	2

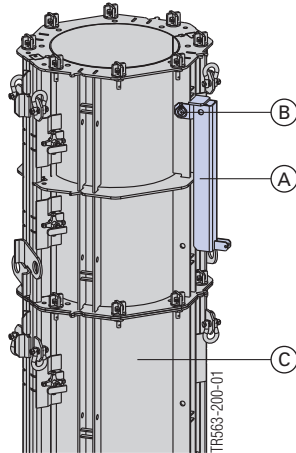
Ladder cage	Formwork height				
	2.70-3.25 m	>3.25-4.30 m	>4.30-5.50 m	>5.50-6.75 m	>6.75-8.00 m
Ladder cage XS 1.00m	—	1	2	3	4

Pouring platforms with single brackets

In conjunction with the Framax bracket 90, the Bracket connection RS makes it possible to mount pouring platforms on the Column elements RS.

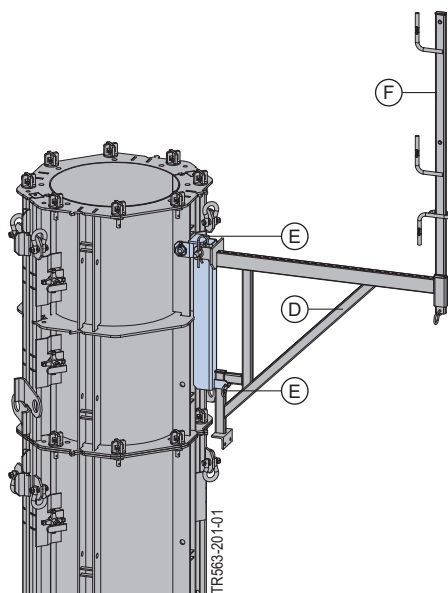
Basic design concept

- ▶ Hook the Bracket connection RS into the Column element RS and fix it with a bolt and lynch pin.



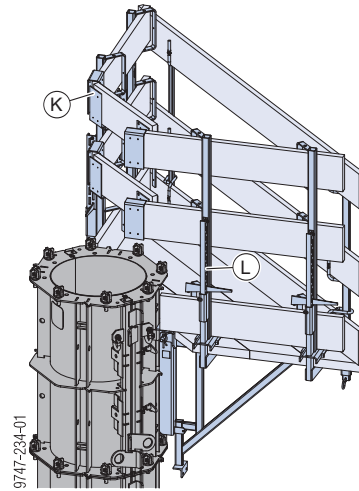
- A Bracket connection RS (incl. pos. B)
- B Pin d25/93.5 + lynch pin 6x42 steel, galvanised
- C Column element RS

- ▶ Using Framax wedge bolts RA 7.5, bolt the Framax bracket 90 EP into the Bracket connection RS.
- ▶ Secure the Framax bracket 90 EP with a Spring cotter 5mm at top and bottom.
- ▶ Slot a Handrail post 1.00m into the Framax bracket 90 EP and secure it with a Spring cotter 5mm.



- D Framax bracket 90 EP
- E Spring cotter 5mm
- F Handrail post 1.00m

Platform decking and guard rails



- K Universal railing shackle
- L Handrail clamp S

Permitted service load: 1.5 kN/m² (150 kg/m²)
 Load Class 2 to EN 12811-1:2003
 Max. influence width: 2.00 m

Note:

The plank and board thicknesses stated comply with the EN 338 C24 timber.
 Observe all national regulations applying to deck and guardrail boards.

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

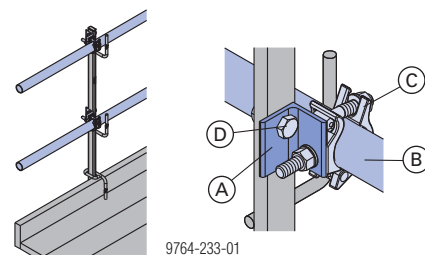
- Deck-boards min. 20/5 cm
- Guardrail boards min. 15/3 cm

Threaded-fastener material required for securing the deck-boards:

- Cup square bolts M10x120
- Spring washers A10
- Hexagon nuts M10

Fixing the guardrail boards: use nails

Using scaffold tubes

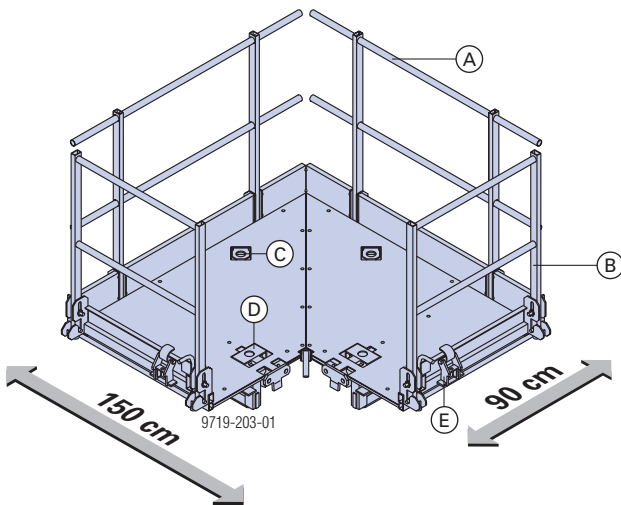


Tools required: Fork wrench 22 for mounting the couplers and scaffold tubes.

- A Scaffold tube connection
- B Scaffold tube 48.3mm
- C Screw-on coupler 48mm 50
- D Hexagon bolt M14x40 + hexagon nut M14 (threaded-fastener material required)

Platform configurations with Doka column formwork platform 150/90cm

Product description



- A Rear railing
- B Side railing
- C Rear hoisting point
- D Safety hook (blue) = front hoisting point
- E Extra hoisting point (red) in parked position

Permitted service load: 1.5 kN/m² (150 kg/m²)
 Load Class 2 to EN 12811-1:2003

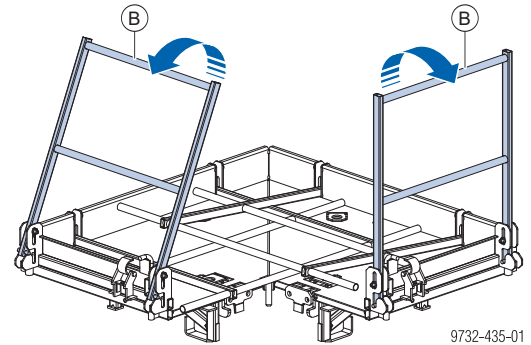
The main features:

- This pre-assembled, ready-to-use platform ensures convenient and safe working on column formworks. It can be used on columns of any cross-section.
- The slinging points recessed into the decking make it a quick and easy job to lift the platform by crane. Only one column formwork platform can be used on each column!
- Because the platform can be re-suspended so quickly, it can "migrate" from one formwork to the next during concreting. This means that one platform is sufficient to serve several column formworks.
- The practical swing-out side railings make it easy to get on or off the platform. Both the side railings can be fixed in either the open or closed position.

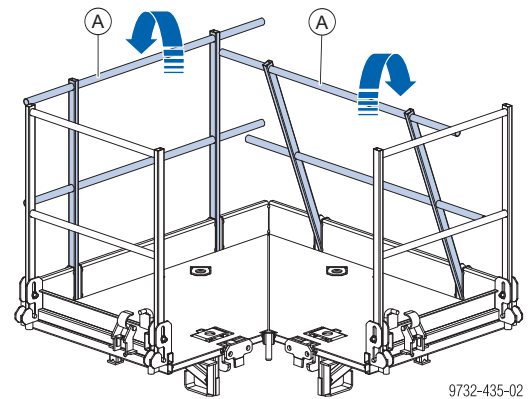
Combined with the Column formwork platform 150/90cm, the Doka Ladder system XS provides a safe and reliable way of climbing up and down column formworks.

Basic design concept

► Tilt up the side railings. They lock into place automatically.



► Tilt up the rear railings. They lock into place automatically.



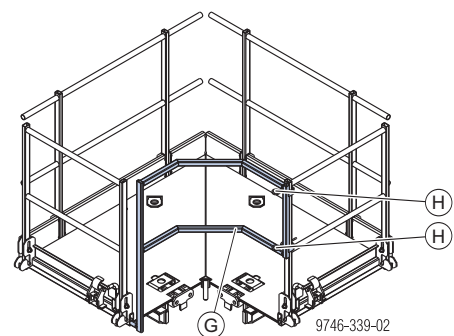
- A Rear railing
- B Side railing

The column formwork platform is now ready for use.

Note:

When folding the platform back down, first fold down the rear railings, and then the side ones.

► Mount the Counter railing Col. formwork plat. 150/90cm and secure with Spring cotters 5mm.



- G Counter railing col. formwork plat. 150/90cm
- H Spring cotter 5mm

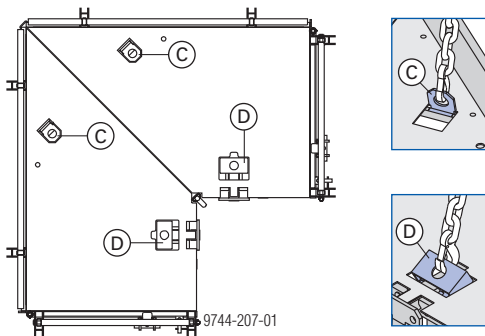
Preparing the formwork

- ▶ Attach the Platform adapter RS to the formwork.

For information on preparing the formwork for using the Doka column formwork platform, see the section headed 'Column formwork set-up'.

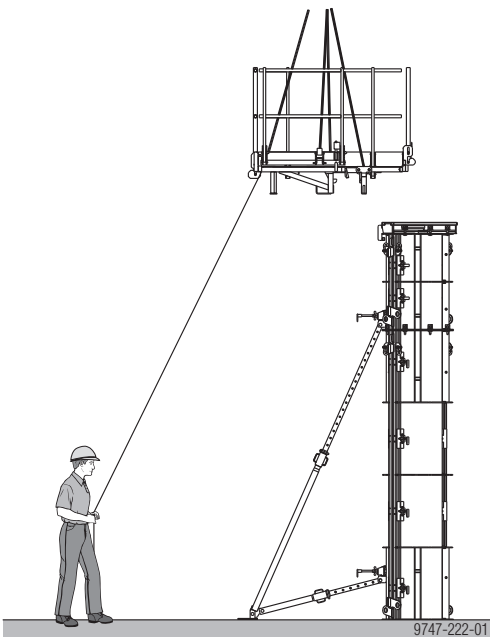
Moving the platform

- ▶ Attach a four-part lifting chain (e.g. Doka 4-part chain 3.20m) to the points shown here.



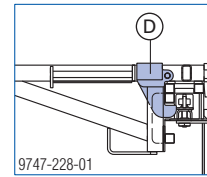
- C** Rear crane suspension point
- D** Front crane suspension point

- ▶ Hook the platform onto the pre-mounted Platform adapter RS.



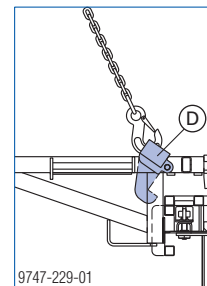
Suspending the platform exactly in position is made much easier when guide-cables are used.

- ▶ After the column formwork platform has been hung into place on the formwork, detach the four-part lifting chain.



The safety hook (**D**) drops down into its starting position and automatically secures the platform against being accidentally lifted out.

- ▶ When the platform is lifted, the lifting chain acts on the safety hook (**D**) and the platform is automatically unlocked.

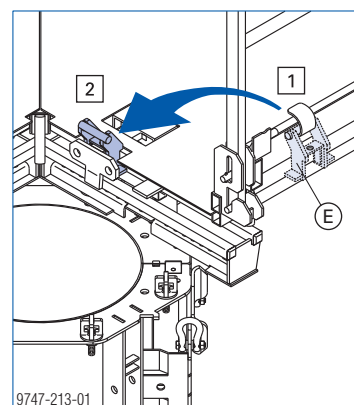


Follow the directions in the "Doka 4-part chain 3.20m" Operating Instructions!

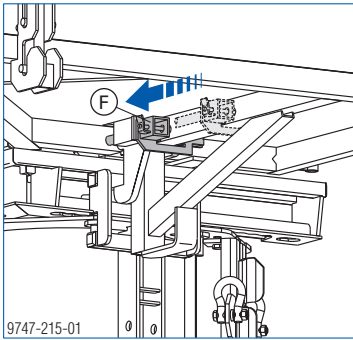
Moving the formwork and the platform in one piece

To save crane time, the Doka column formwork platform can also be repositioned together with the formwork:

- ▶ Hang the platform into place on the formwork (proceed as in "Moving the platform").
- ▶ Move the extra crane hoisting point (**E**) from the parked position to the "in-use" position. Right position = inclined forward towards formwork.

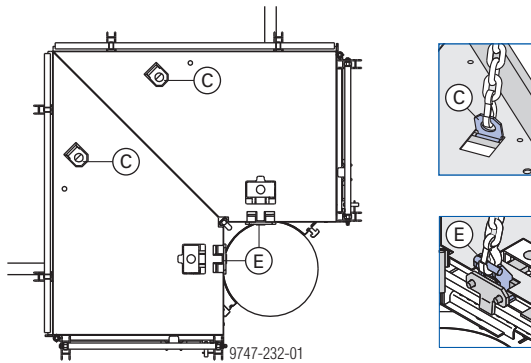


- ▶ Fix the extra crane hoisting point with the slide bolt **(F)** on the underside of the platform.



Make sure that the slide bolt latches in in the frontmost position.

- ▶ Attach a four-part lifting chain (e.g. Doka 4-part chain 3.20m). When the formwork plus platform are to be lifted in one piece, the extra hoisting point must be used.

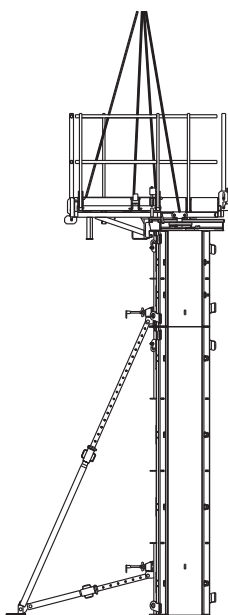


C Rear hoisting point

E Extra hoisting point



Follow the directions in the "Doka 4-part chain 3.20m" Operating Instructions!



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Separating the platform from the formwork

- ▶ Fix the slide bolt **(F)** back in the rear position and move the extra crane lifting point into the 'parked' position.
- ▶ Attach the crane to the locations shown in section 'Moving the platform'.

General

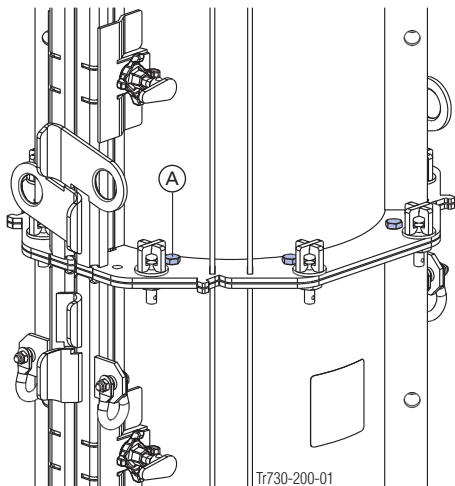
Additional precautions

Bracing

- on high (over 4.50 m) multi-element gangs, to stiffen the formwork when lifting it into the upright
- on multi-element gangs made by stacking many small column elements

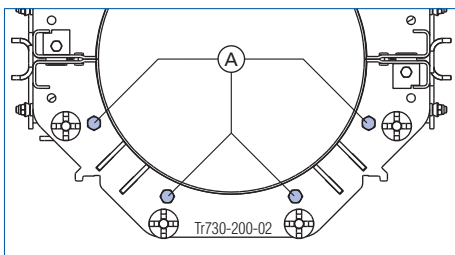
with a "Screw-set M16x40 DIN 933 8.8"

- ▶ Fit the "Screw-set M16x40" on the shell join.



The screws must be fitted in the diam. 20 mm holes on the outside reinforcement ribs

For each formwork-half, one "Screw-set M16x40" must be provided for every vertical stacking join.



with Multipurpose walings WS10 Top50

Length of Multi-purpose walings:

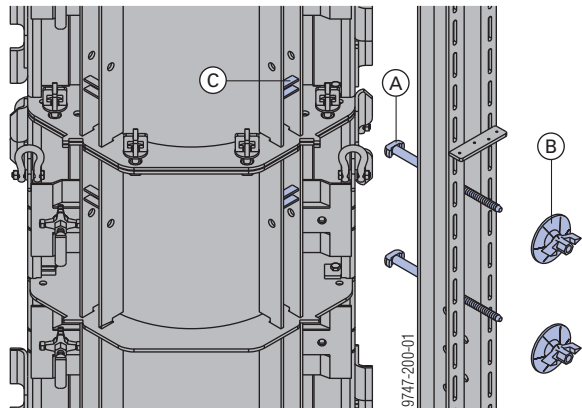
The Multi-purpose walings should be long enough to overlap the column-element reinforcement ribs immediately above and below the join.

Attaching the Multipurpose waling:

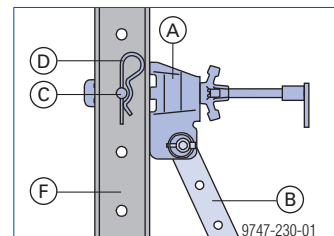
Do this with Framax universal fixing bolts 10-25 cm (A) and Super-plates 15.0 (B) fixed to the clamping points on the column elements (C).

In each case, there should be one fixing-point above the join, and one below it.

Mount one Multi-purpose waling WS10 or WU12 per formwork-half, on the connector-free side of the formwork.



Attaching the panel struts



- A Prop head EB
- B Panel strut 340 IB or 540 IB
- C Connecting pin 10cm
- D Spring cotter 5mm
- F Multi-purpose waling WS10 Top50

Sealing the shell joins

Optimum sealing of the joins between the column elements is obtained by using the self-adhesive Sealing tape KS.

As the sealing tape is squeezed outward when the column elements are pressed together, the tape should be positioned between 0.5 mm and 1 mm away from the edge facing the concrete. This prevents any tape protruding and making a negative impression in the concrete.

Column formwork RS used together with other formwork systems.



NOTICE

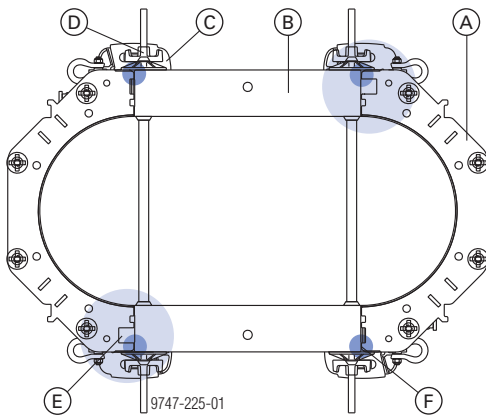
Follow the directions in the User Information booklets for the formwork system concerned, especially regarding the permitted fresh-concrete pressure.

Framed formwork Framax Xlife

Practical example

'Oval columns' with column-formwork stop-ends.

The Column elements RS are connected using the standard connectors of the framed-formwork systems. The positions of the Framax quick acting clamps RU or Framax multi-function clamps needed here are dictated by the integrated quick acting connectors.

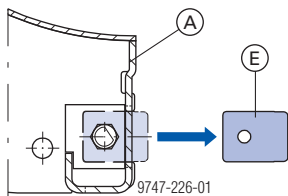


- A Column element RS
- B Framax Xlife panel
- C Framax quick acting clamp RU
- D Super plate 15.0
- E Centring mechanism
- F Hardboard strip 3mm

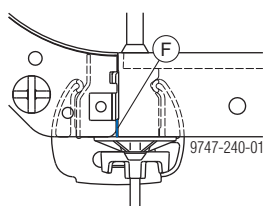
When used with Framax Xlife:

The Column elements RS come with a centring mechanism on one side. This has to be removed for direct clamping to framed formwork panels.

- ▶ Dismount the centring mechanism (E)



- ▶ Add a hardboard strip (F)



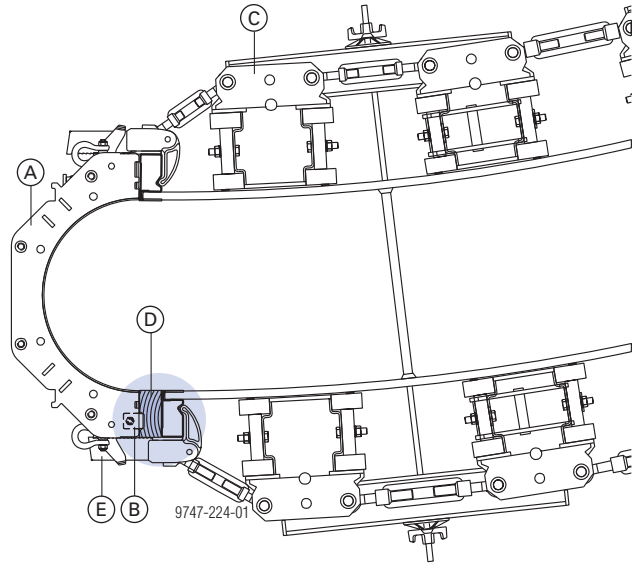
Circular formwork H20

Practical example: Guiding walls

Column elements RS used as stop-ends on Circular formwork H20.

The Column elements RS are connected with the standard connectors for Circular formwork H20.

The positions of the 'Adjustable clamps 10cm' needed here are dictated by the integrated quick-acting connectors.

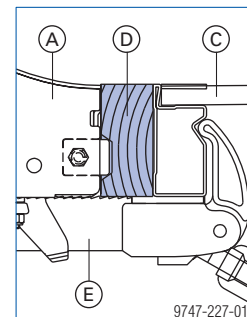


- A Column element RS
- B Centring mechanism
- C Circular formwork H20
- D Timber filler
- E Adjustable clamp 10cm

The centring mechanism can either

- be dismantled (see previous example) or
- be left on the column element if it can protrude into a recess cut out of a timber filler.

Close-up of timber filler



Transporting, stacking and storing

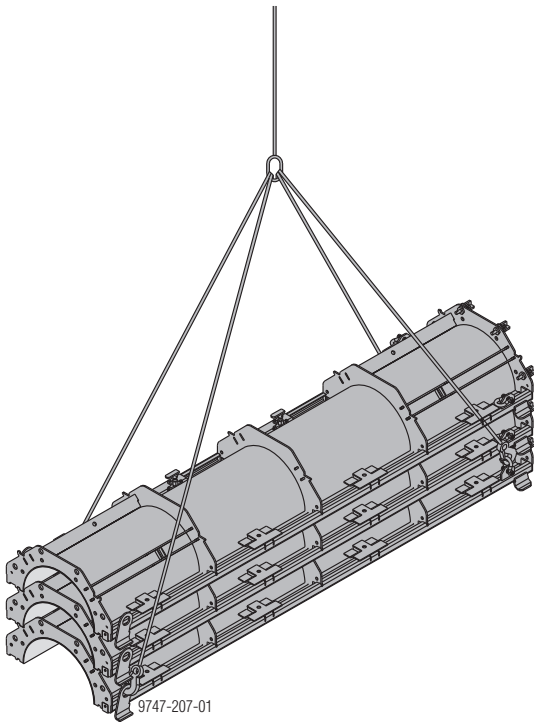
The Column elements RS can be hoisted either individually or in a stack.

Max. 8 Column elements RS may be stacked on top of one another outdoors – on flat, even ground – without being specially secured.

► To protect the steel form-facing from corrosion, store the shells in a roofed-over place or under tarpaulins.

The "Skeleton transport box" and "Multi-trip transport box" are suitable for storing and transporting 0.25 and 0.50 m high Column elements RS.

The integral stacking lugs on the Column elements RS secure the stack against both lengthways and sideways slippage.



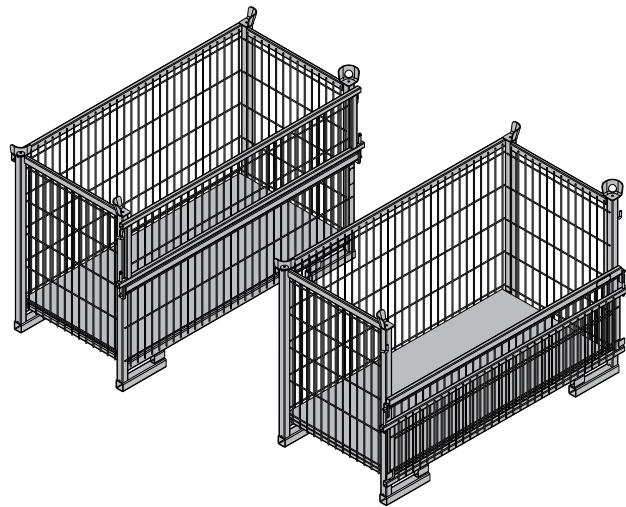
9747-207-01

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



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

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

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.

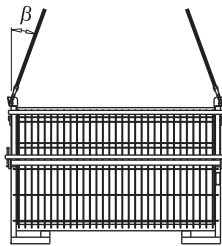
Using Doka skeleton transport boxes 1.70x0.80m as transport devices

Lifting by crane



NOTICE

- Multi-trip packaging items may only be lifted one at a time.
- Only lift the boxes when their sidewalls are closed!
- Use a suitable crane suspension tackle (e.g. Doka 4-part chain 3.20m). Do not exceed the permitted working load limit.
- Sling angle β max. 30°!



9234-203-01

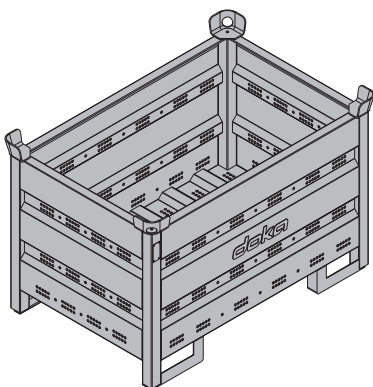
Repositioning by forklift truck or pallet stacking truck

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

Doka multi-trip transport box

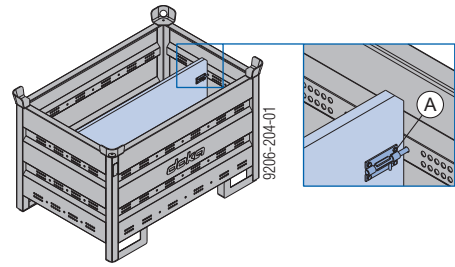
Storage and transport device for small items

Doka multi-trip transport box 1.20x0.80m



Max. carrying capacity: 1500 kg (3300 lbs)
Permitted imposed 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**.



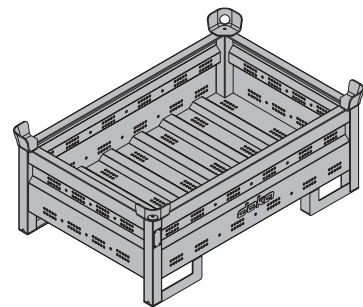
A Slide-bolt for fixing the partition

Possible ways of dividing the box

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

9206-204-02	9206-204-03

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



Max. carrying capacity: 750 kg (1650 lbs)
Permitted imposed load: 7200 kg (15870 lbs)

Using Doka multi-trip transport boxes as storage units

Max. n° of units on top of one another

Outdoors (on the site)		Indoors	
Floor gradients up to 3%		Floor gradients up to 1%	
Doka multi-trip transport box 1.20x0.80m	Doka multi-trip transport box 1.20x0.80x0.41m	Doka multi-trip transport box 1.20x0.80m	Doka multi-trip transport box 1.20x0.80x0.41m
3	5	6	10

It is not allowed to stack empty pallets on top of one another!



NOTICE

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

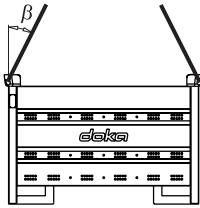
Using Doka multi-trip transport boxes as transport devices

Lifting by crane



NOTICE

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



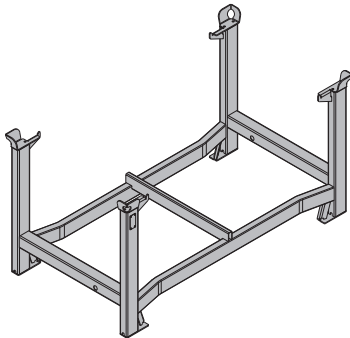
9206-202-01

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 devices for long items.



Max. carrying capacity: 1100 kg (2420 lbs)
Permitted imposed load: 5900 kg (12980 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.

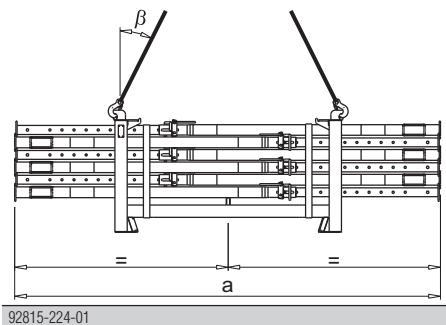
Using Doka stacking pallets as transport devices

Lifting by crane



NOTICE

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



92815-224-01

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

Repositioning by forklift truck or pallet stacking truck

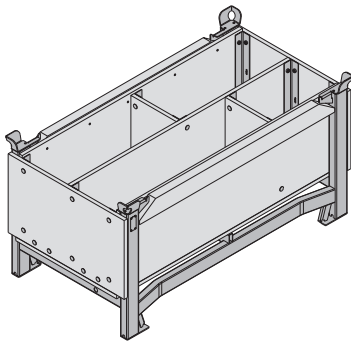


NOTICE

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

Doka accessory box

Storage and transport device for small items



Max. carrying capacity: 1000 kg (2200 lbs)
Permitted imposed load: 5530 kg (12191 lbs)

Doka accessory 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%
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.

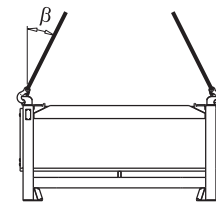
Doka accessory box as transport devices

Lifting by crane



NOTICE

- Multi-trip packaging items must be lifted individually.
- Use a suitable crane lifting tackle (e.g. Doka 4-part chain 3.20m). Do not exceed the permitted working load limit.
- When lifting accessory boxes to which Bolt-on castor sets B have been attached, you must also follow the 'Bolt-on castor set B' User Information booklet!
- Sling angle β max. 30°!



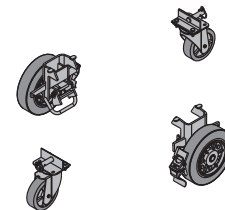
92816-206-01

Repositioning by forklift truck or pallet stacking truck

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

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.

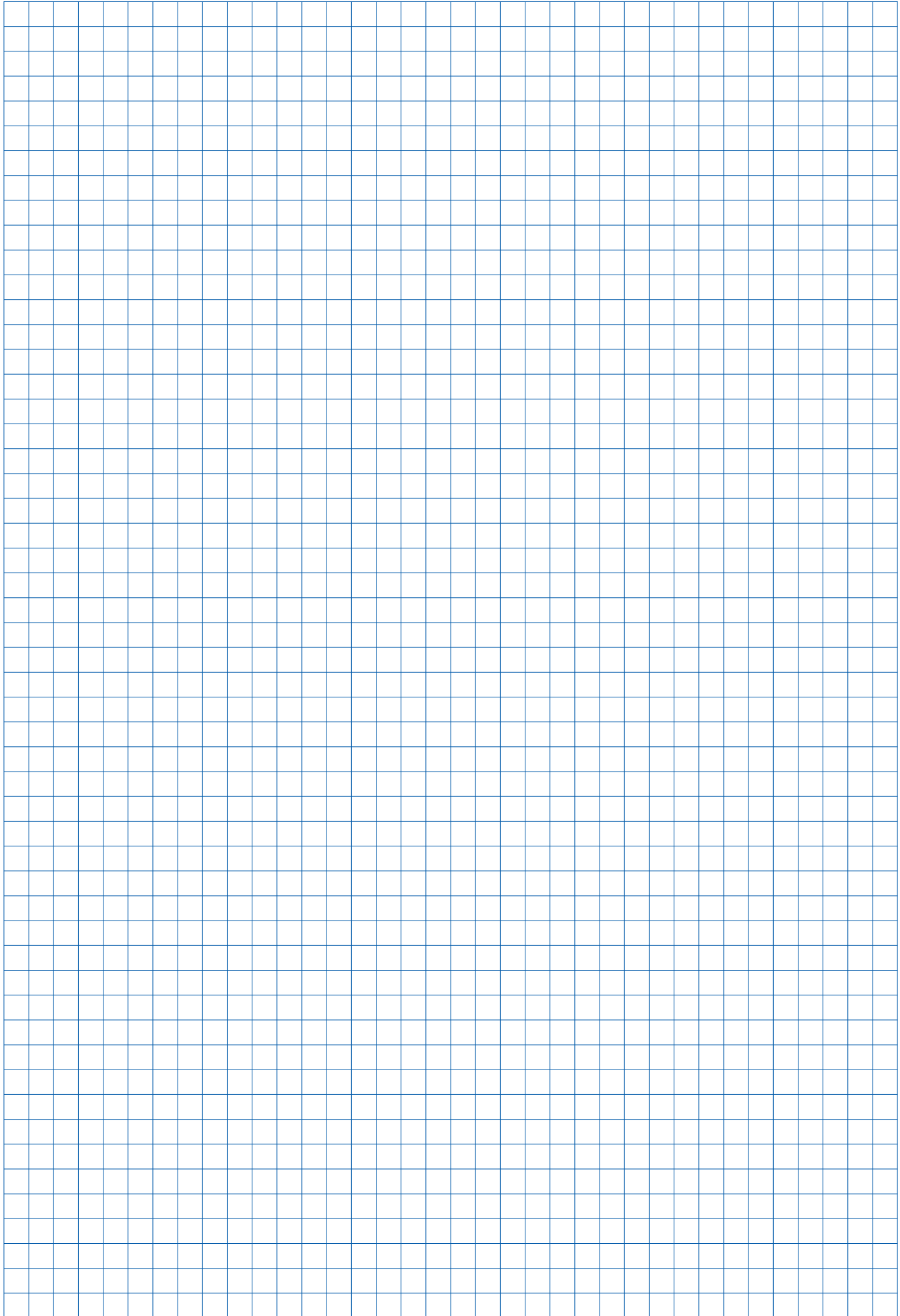


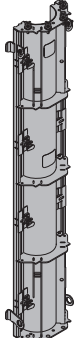
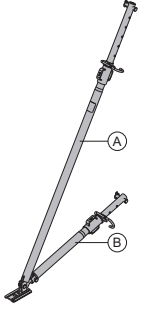
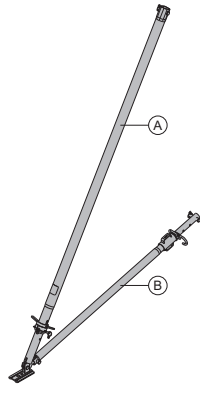
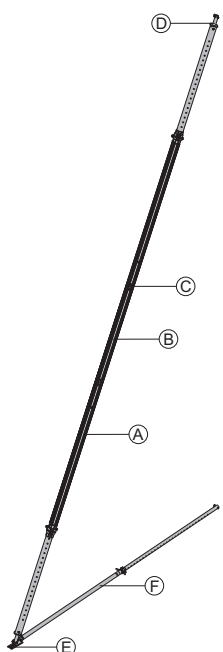
The Bolt-on castor set B can be mounted to the following multi-trip packaging items:

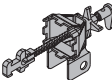
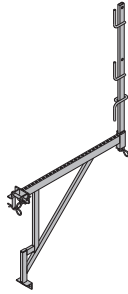
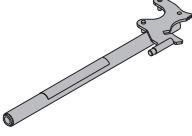
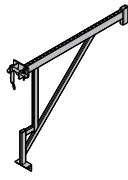



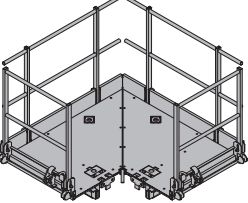
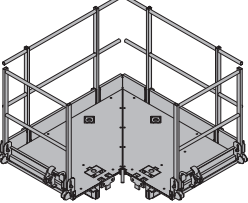
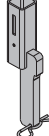
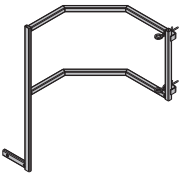
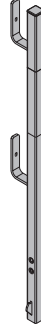
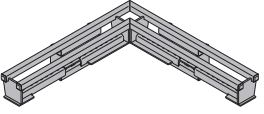
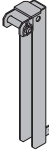
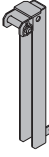

- Doka accessory box
- Doka stacking pallets
- Protective barrier Z pallets


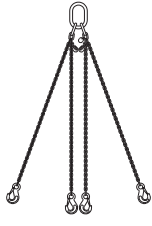

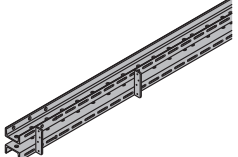
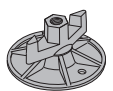
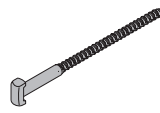
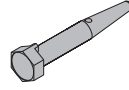

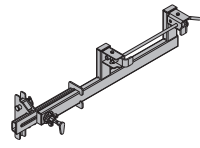
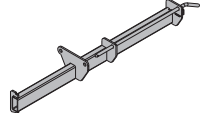
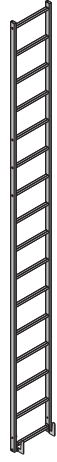
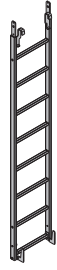
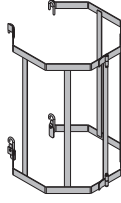



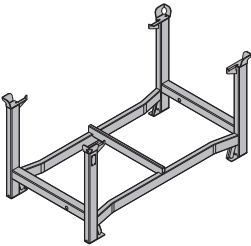
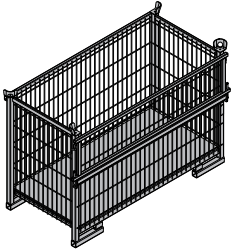
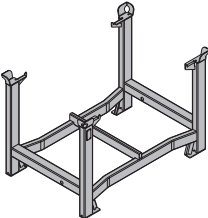
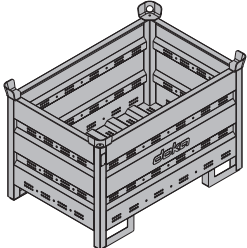
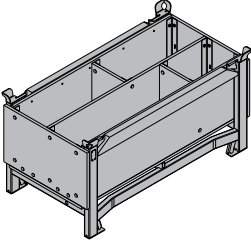
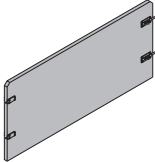
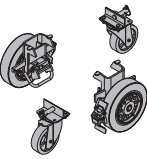
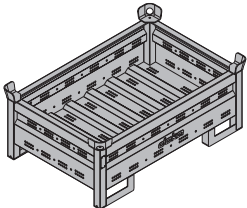
Follow the directions in the 'Bolt-on castor set B' User Information booklet!



	[kg]	Article N°		[kg]	Article N°
Column element RS D30 3.00m	149.0	587909000			
Column element RS D30 1.00m	65.0	587908000			
Column element RS D30 0.50m	36.0	587907000			
Column element RS D30 0.25m	22.5	587944000			
Column element RS D35 3.00m	166.0	587912000			
Column element RS D35 1.00m	76.0	587911000			
Column element RS D35 0.50m	42.0	587910000			
Column element RS D35 0.25m	26.0	587945000			
Column element RS D40 3.00m	175.0	587915000			
Column element RS D40 1.00m	80.7	587914000			
Column element RS D40 0.50m	44.9	587913000			
Column element RS D40 0.25m	27.7	587946000			
Column element RS D45 3.00m	188.0	587918000			
Column element RS D45 1.00m	85.0	587917000			
Column element RS D45 0.50m	48.0	587916000			
Column element RS D45 0.25m	29.0	587947000			
Column element RS D50 3.00m	195.0	587921000			
Column element RS D50 1.00m	88.0	587920000			
Column element RS D50 0.50m	49.0	587919000			
Column element RS D50 0.25m	31.5	587948000			
Column element RS D60 3.00m	217.0	587927000			
Column element RS D60 1.00m	96.5	587926000			
Column element RS D60 0.50m	53.0	587925000			
Column element RS D60 0.25m	34.2	587950000			
Stützelement RS					
			Painted blue Ø 24, 25, 55, 65, 70, 75, 80, 90, 100, 110, 120, 130, 140, 150 and 180 cm on inquiry!		
Panel strut 340 IB Elementstütze 340 IB consisting of:	24.3	580365000			
(A) Plumbing strut 340 IB Galvanised Length: 190.8 - 341.8 cm	16.7	588696000			
(B) Adjusting strut 120 IB Galvanised Length: 81.5 - 130.6 cm	7.6	588248500			
			Galvanised Delivery condition: folded closed		
Panel strut 540 IB Elementstütze 540 IB consisting of:	41.4	580366000			
(A) Plumbing strut 540 IB Galvanised Length: 310.5 - 549.2 cm	30.7	588697000			
(B) Adjusting strut 220 IB Galvanised Length: 172.5 - 221.1 cm	10.9	588251500			
			Galvanised Delivery condition: folded closed		
Eurex 60 550 Eurex 60 550 depending on length, comprising:					
(A) Plumbing strut Eurex 60 550 Powder-coated blue Aluminium Length: 343 - 553 cm	42.5	582658000			
(B) Extension Eurex 60 2.00m Powder-coated blue Aluminium Length: 250 cm	21.3	582651000			
(C) Coupler Eurex 60 Aluminium Length: 100 cm Diameter: 12.8 cm	8.6	582652000			
(D) Connector Eurex 60 IB Galvanised Length: 15 cm Width: 15 cm Height: 30 cm	4.2	582657500			
(E) Plumbing strut shoe Eurex 60 EB Galvanised Length: 31 cm Width: 12 cm Height: 33 cm	8.0	582660500			
(F) Adjusting strut 540 Eurex 60 IB Galvanised Length: 303.5 - 542.2 cm	27.8	582659500			
			Galvanised Delivery condition: separate parts		

	[kg]	Article N°		[kg]	Article N°
Prop head EB Stützenkopf EB  Galvanised Length: 40.8 cm Width: 11.8 cm Height: 17.6 cm	3.1	588244500	Framax bracket 90 Framax-Konsole 90  Galvanised Length: 103 cm Height: 185 cm Delivery condition: railing included	12.5	588167000
Universal dismantling tool Universal-Lösewerkzeug  Galvanised Length: 75.5 cm	3.7	582768000	Framax bracket 90 EP Framax-Konsole 90 EP  Galvanised Length: 103 cm Height: 84 cm	9.0	588979000
Doka express anchor 16x125mm Doka-Expressanker 16x125mm  Galvanised Length: 18 cm	0.31	588631000	Handrail post 1.00m Geländer 1,00m  Galvanised Length: 124 cm	3.8	584335000
Doka coil 16mm Doka-Coil 16mm  Galvanised Diameter: 1.6 cm	0.009	588633000	Doka column formwork platform 150/90cm Doka-Stützenbühne 150/90cm  Galvanised Length: 173 cm Width: 173 cm Height: 130 cm Delivery condition: folded closed	211.8	588382000
Doka column formwork platform 150/90cm Doka-Stützenbühne 150/90cm  Galvanised Length: 173 cm Width: 173 cm Height: 130 cm Delivery condition: folded closed	211.8	588382000	Bracket adapter XP FRR 50/30 Konsolenadapter XP FRR 50/30  Galvanised Height: 32 cm	2.4	586486000
Counter railing col. formwork plat. 150/90cm Gegengeländer Stützenbühne 150/90cm  Galvanised Width: 87 cm Height: 170 cm	8.0	588385000	Handrail post XP 1.20m Geländersteher XP 1,20m  Galvanised Height: 118 cm	4.1	586460000
Platform adapter RS Bühnenanschluss RS  Galvanised Length: 78 cm Width: 78 cm Height: 19 cm	17.5	587940000	Bracket connection RS Konsolenanschluss RS  Galvanised Height: 61 cm	5.2	587941000
Bracket connection RS Konsolenanschluss RS  Galvanised Height: 61 cm	5.2	587941000	Handrail clamp S Schutzgeländerzwinde S  Galvanised Height: 123 - 171 cm	11.5	580470000

	[kg]	Article N°		[kg]	Article N°
Universal railing shackle Universal-Geländerbügel  Galvanised Height: 20 cm	3.0	580478000			
Doka 4-part chain 3.20m Doka-Vierstrangkette 3,20m  Follow the directions in the "Operating Instructions"! CE	15.0	588620000			
Screw-set M16x40 8.8 Schraubensatz M16x40 8.8  Galvanised Width-across: 24 mm	0.56	582831000			
Multi-purpose waling WS10 Top50 2.50m 48.7 580009000 Multi-purpose waling WS10 Top50 2.75m 54.2 580010000 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 Multi-purpose waling WS10 Top50 4.50m 89.1 580014000 Multi-purpose waling WS10 Top50 5.00m 102.0 580015000 Multi-purpose waling WS10 Top50 5.50m 112.4 580016000 Multi-purpose waling WS10 Top50 6.00m 118.0 580017000 Mehrzweckriegel WS10 Top50 Painted blue 					
Super plate 15.0 Superplatte 15,0  Galvanised Height: 6 cm Diameter: 12 cm Width-across: 27 mm DIN 18216	1.1	581966000			
Framax universal fixing bolt 10-25cm Framax-Universalverbinder 10-25cm  Galvanised Length: 36 cm	0.69	583002000			
Connecting pin 10cm Verbindungsbolzen 10cm  Galvanised Length: 14 cm	0.34	580201000			
Spring cotter 5mm Federvorstecker 5mm  Galvanised Length: 13 cm	0.03	580204000			
Sealing tape KS 20x5mm 10m Dichtungsband KS 20x5mm 10m	0.17	580348000			
			Ladder system XS		
Connector XS RS Anschluss XS RS  Galvanised Length: 115 cm	22.2	587955000			
Connector XS column formwork platform Anschluss XS Stützenbühne  Galvanised Length: 123 cm	10.0	588637000			
System ladder XS 4.40m System-Leiter XS 4,40m  Galvanised	33.2	588640000			
Ladder extension XS 2.30m Leiternverlängerung XS 2,30m  Galvanised	19.1	588641000			
Ladder cage XS 1.00m Ladder cage XS 0.25m Rückenschutz XS  Galvanised	16.5	588643000	10.5	588670000	

	[kg]	Article N°		[kg]	Article N°
Ladder cage exit XS Rückenschutz-Ausstieg XS  Galvanised Height: 132 cm	17.0	588666000	Doka stacking pallet 1.55x0.85m Doka-Stapelpalette 1,55x0,85m  Galvanised Height: 77 cm	41.0	586151000
Multi-trip packaging					
Doka skeleton transport box 1.70x0.80m Doka-Gitterbox 1,70x0,80m  Galvanised Height: 113 cm	87.0	583012000	Doka stacking pallet 1.20x0.80m Doka-Stapelpalette 1,20x0,80m  Galvanised Height: 77 cm	38.0	583016000
Doka multi-trip transport box 1.20x0.80m Doka-Mehrwegcontainer 1,20x0,80m  Galvanised Height: 78 cm	70.0	583011000	Doka accessory box Doka-Kleinteilebox  Timber parts varnished yellow Steel parts galvanised Length: 154 cm Width: 83 cm Height: 77 cm	106.4	583010000
Multi-trip transport box partition 0.80m Multi-trip transport box partition 1.20m Mehrwegcontainer Unterteilung  Steel parts galvanised Timber parts varnished yellow	3.7 5.5	583018000 583017000	Bolt-on castor set B Anklemm-Radsatz B  Painted blue	33.6	586168000
Doka multi-trip transport box 1.20x0.80x0.41m Doka-Mehrwegcontainer 1,20x0,80x0,41m  Galvanised	42.5	583009000			

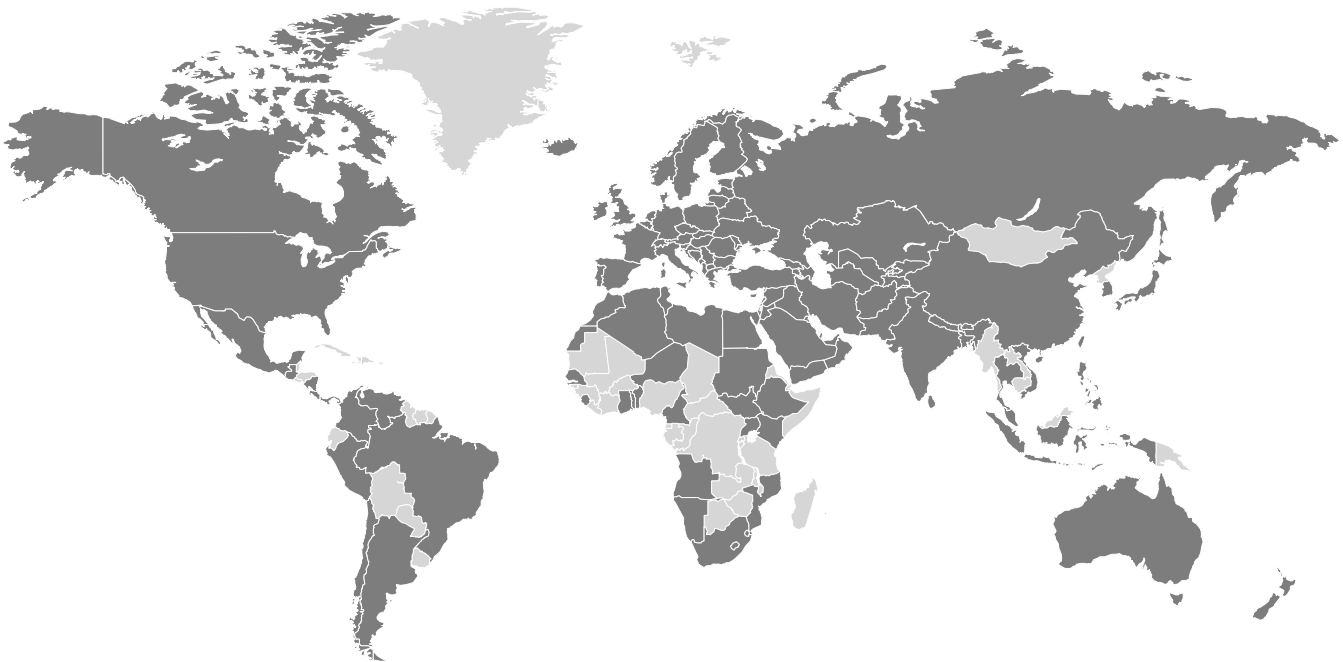
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