

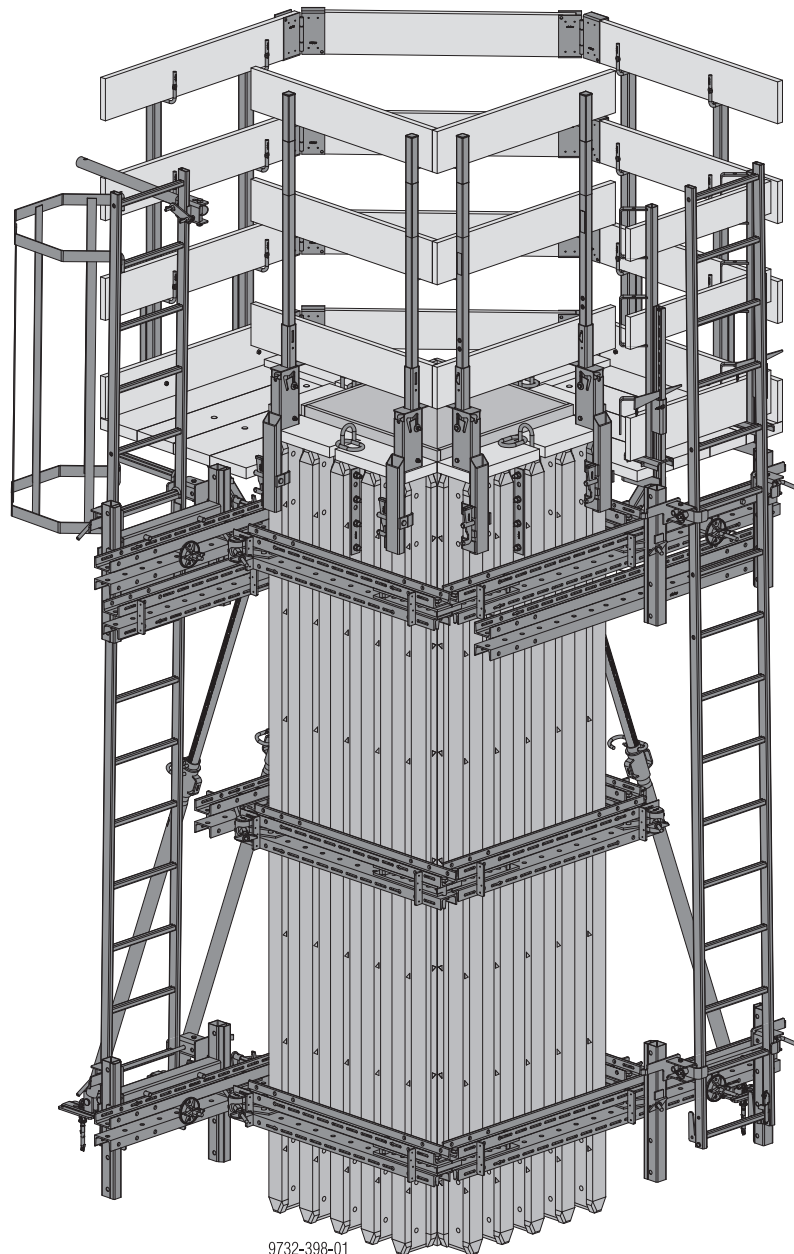
The Formwork Experts.

Column formwork Top 50

Large-area formwork Top 50

User Information

Instructions for assembly and use (Method statement)



9732-398-01

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System description

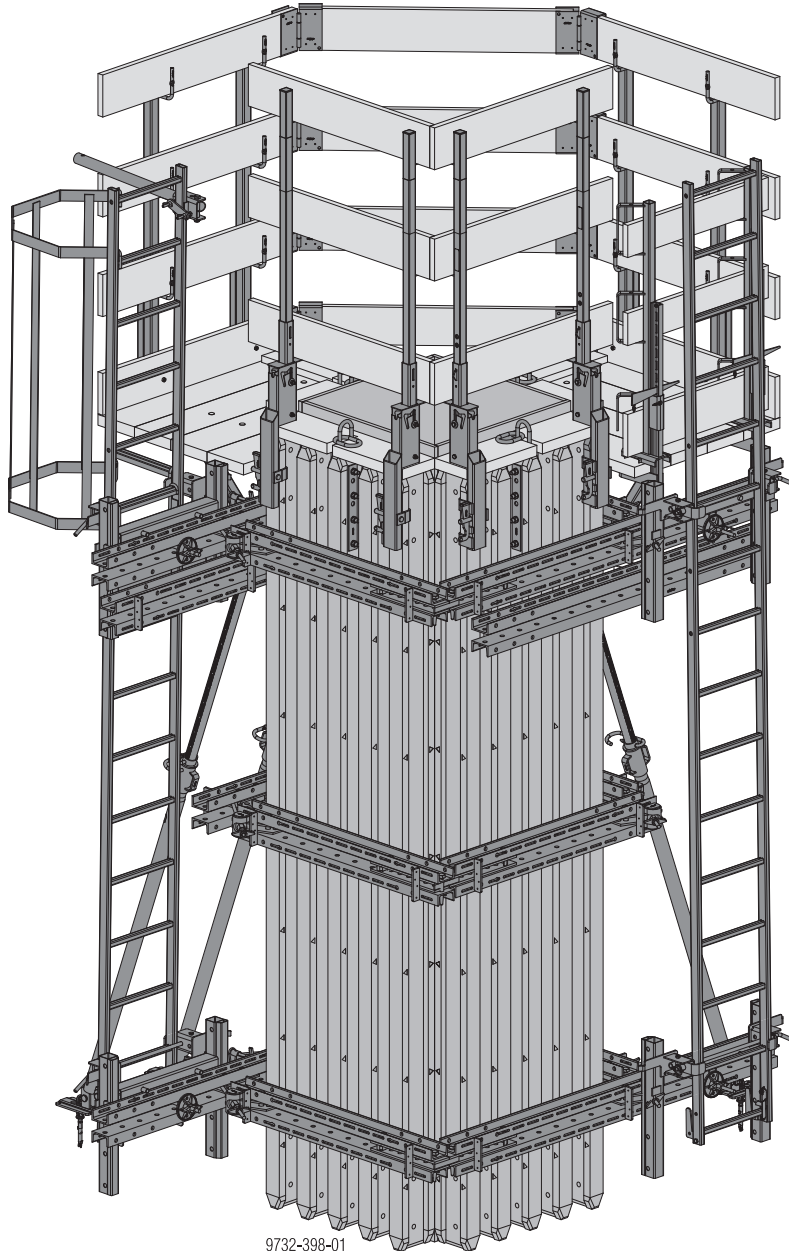
The proven Doka beams, multi-purpose walings and Doka formwork sheets are also used for column formwork.

- Cross-sections continuously adjustable up to 120 x 120 cm
- No form ties through the column
- Clean, smooth concrete surfaces
- Easy assembly and handling

Permitted fresh-concrete pressure: 90 kN/m²

Note:

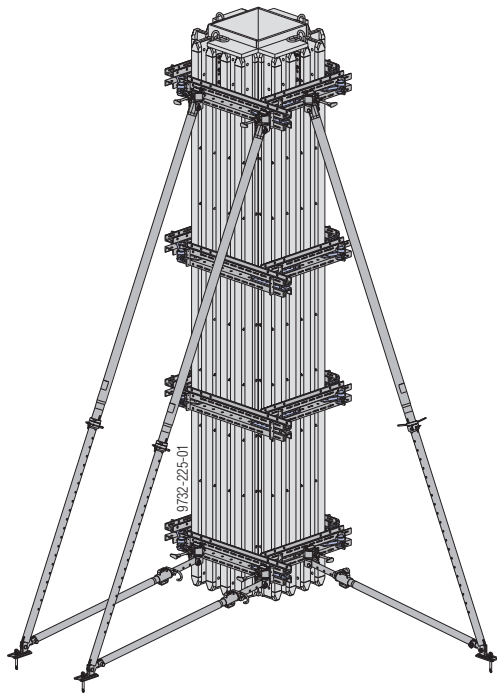
The Column formwork Top 50 can be adapted for fresh-concrete pressures higher or lower than 90 kN/m². For more information, please contact your Doka technician.



Note:

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

Design of column formwork



NOTICE

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

The **Corner connecting plate 90/50** connects the walings rigidly and precisely across the corner.

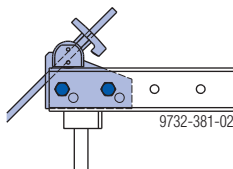
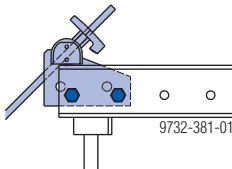
Together with tie rods, the **Universal angle tie bracket** enables the walings to be diagonally tension-braced.



CAUTION

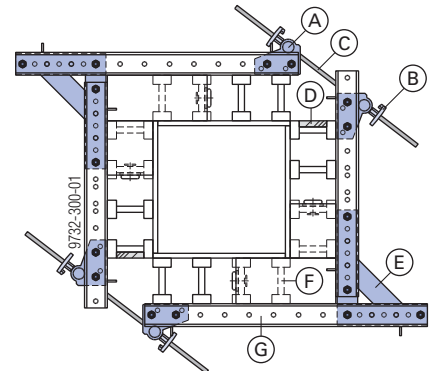
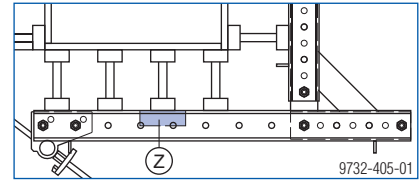
Risk of tie overload if not correctly positioned!

- Make sure that the Universal angle tie bracket is bolted into the right holes for the Multi-purpose waling WS10 Top50 or WU12 Top50, depending on which type of waling is being used!

Pinning holes for Multi-purpose waling WS10 Top50	Pinning holes for Multi-purpose waling WU12 Top50
	

Note:

To prevent deformation of the waling profiles, put a site-provided wooden spacer (**Z**) between the profiles of each waling and nail it to the Doka beam.



A Universal angle tie bracket

B Wing nut 15.0

C Tie rod 15.0

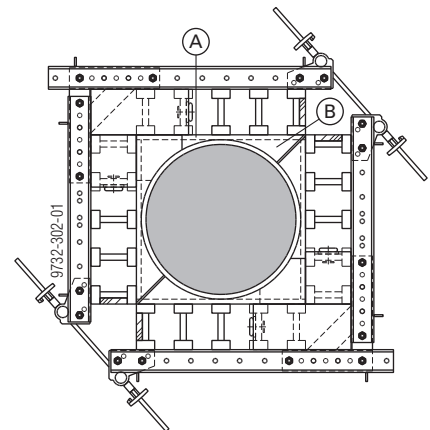
D Flange reinforcement

E Corner connecting plate 90/50

F Doka beam H20

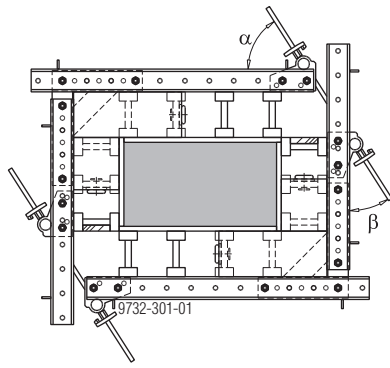
G Multi-purpose waling

Circular column formwork



A Spacer plank

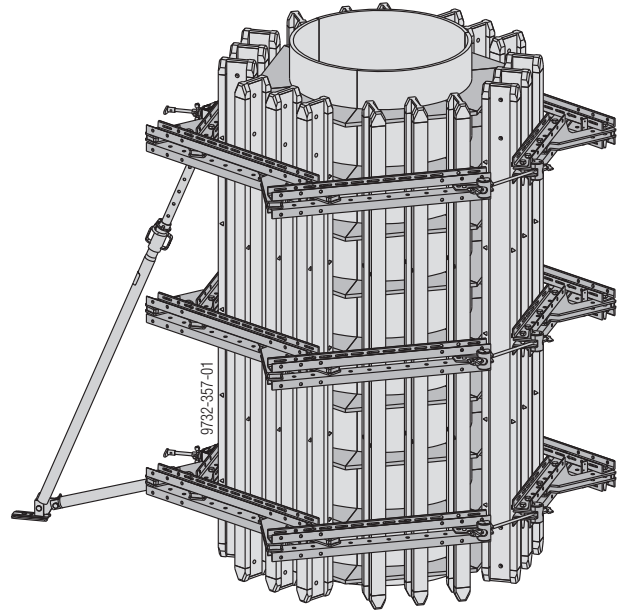
B Profiled timber former

Rectangular column formwork

As far as possible, set the angles of the form ties in the same ratio as the length-to-width ratio of the column cross section.
 $\alpha : \beta \approx \text{length} : \text{width}$

Column formwork with Column connecting plate 6/8

For forming circular or polygonal columns up to a max. diameter of 4.00 m.



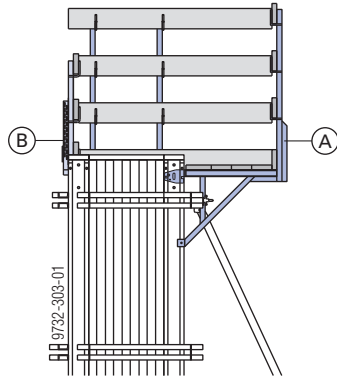
For more information, please contact your Doka technician.

Pouring platforms with single brackets

As well as on wall formwork, it is also possible to use

- **Universal brackets** and
- **Top scaffold brackets L**

on column formwork.



A Universal bracket or Top scaffold bracket

B Edge protection system XP

How to mount:

- Mount the brackets.
- Screw on the floor decking.
- Slot in the railing planks.
- Put up sideguards with Edge protection system XP.



Adjustable **Universal railing shackle** for easy mounting of guard-rail boards around corners and in closure zones.



Lifting by crane



CAUTION

- It is strictly prohibited to lift the formwork without pressure bracing.
- Only lift one half of the formwork at a time.

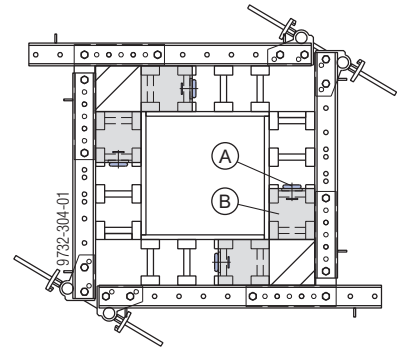


NOTICE

- Spread angle β of slinging chains: max. 30°.
- Brace the formwork in a windproof manner when erecting it or when it is temporarily placed in the standing position.

Using the easy-to-attach Lifting bracket, the column formwork can be safely lifted by crane:

- For each half of the column formwork, attach two lifting brackets to the Doka beams symmetrically (so as to ensure the centre-of-gravity position).
- Fit a pressure bracing between the Lifting brackets to transfer the oblique pull forces.



A Lifting bracket

B Pressure bracing



CAUTION

- Where the column is 5.0 m high or more, or where one half of the column formwork has a dead weight of 800 kg or above, the **Lifting bracket for column formwork** is used. Its high inherent rigidity enables the column formwork to be lifted safely by crane.

For more information, please contact your Doka technician.



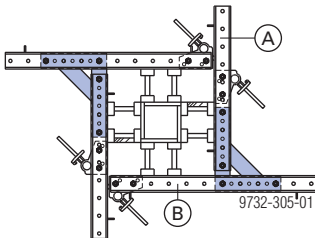
It is also possible to mount the Doka column formwork platform 150/90cm on the Lifting bracket for column formwork.

Column formwork with Multipurpose walings WS10 Top50

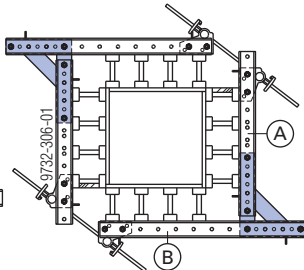
Corner connecting plate "outside"

- Possible quadratic columns:
20 x 20 up to 56 x 56 cm
- Possible rectangular columns:
20 x 20 up to 56 x 70 cm

Example 20 x 20 cm



Example 56 x 56 cm



A Multi-purpose waling WS10 Top50 1.00m

B Multi-purpose waling WS10 Top50 1.25m

Materials needed per waling level

Designation	Column dimensions [cm]					
	20/20	30/30	40/40	50/50	60/60	70/70
Multi-purpose walings WS10 Top50 1.00m	2	2	2	2	2	2
Multi-purpose walings WS10 Top50 1.25m	2	2	2	2	2	2
Corner connecting plate 90/50	2	2	2	2	2	2
Universal angle tie bracket	4	4	4	4	4	4
Flange clamp H20	8	8	12	16	16	20
Connecting pin 10cm *)	16	16	16	16	16	16
Wing nut 15.0	4	4	4	4	4	4
Tie rod 15.0mm 1.00m	2	2	2	2	2	2

*) When column formwork is transported flat: Secure the connecting pins with Spring cotters 5mm.

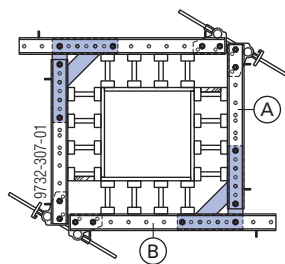
Corner connecting plate "inside"

- Possible quadratic columns:
52 x 52 up to 70 x 70 cm
- Possible rectangular columns:
20 x 52 up to 70 x 70 cm

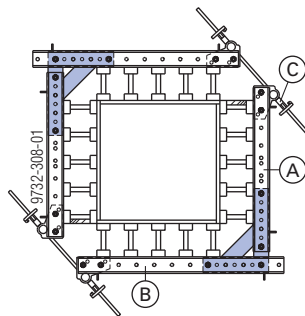
Note:

On 70 x 70 cm columns: Place an approx. 4 cm long steel-tube sleeve (inside diameter 20 mm) in front of the Wing nut 15.0.

Example 52 x 52 cm



Example 70 x 70 cm



A Multi-purpose walings WS10 Top50 1.00m

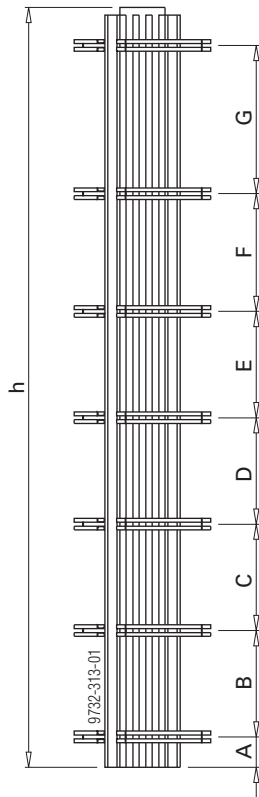
B Multi-purpose walings WS10 Top50 1.25m

C Steel-tube sleeve

Spacing of the walings

Note:

With **rectangular columns**, the longer of the two sides is the applicable dimension for structural design purposes.



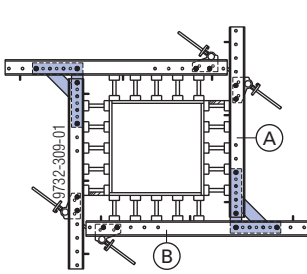
Column dimensions [cm]	20/20	30/30	40/40	50/50	60/60	70/70
Number of Doka beams H20 on each side	2	2	3	4	4	5
Column height h [m]	Space [cm] between walings					
10.0	G	—	—	195	195	195
	F			155	155	155
	E			140	140	140
	D			140	140	140
	C			140	140	140
	B			140	140	140
	A			40	40	40
9.0	G	—	—	140	140	140
	F			140	140	140
	E			140	140	140
	D			140	140	140
	C			140	140	140
	B			130	130	130
	A			40	40	40
8.0	F	—	—	150	150	150
	E			140	140	140
	D			140	140	140
	C			140	140	140
	B			140	140	140
	A			40	40	40
7.0	E	—	—	180	180	180
	D			150	150	150
	C			140	140	140
	B			140	140	140
	A			40	40	40
6.0	E	—	—	130	130	130
	D			130	130	130
	C			130	130	130
	B			130	130	130
	A			40	40	40
5.0	D	150	150	150	150	150
	C	130	130	130	130	130
	B	130	130	130	130	130
	A	40	40	40	40	40
4.0	C	170	170	170	170	170
	B	140	140	140	140	140
	A	40	40	40	40	40
3.0	B	165	165	165	165	165
	A	40	40	40	40	40

Column formwork with Multi-purpose walings WU12 Top50

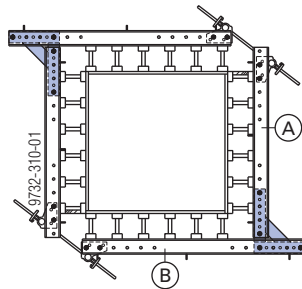
Corner connecting plate "outside"

- Possible quadratic columns:
70 x 70 up to 107 x 107 cm
- Possible rectangular columns:
70 x 70 up to 107 x **120** cm

Example 70 x 70 cm



Example 107 x 107 cm



A Multi-purpose waling WU12 Top50 1.50m

B Multi-purpose waling WU12 Top50 1.75m

Materials needed per waling level

Item name	Column dimensions [cm]					
	70/70	80/80	90/90	100/100	110/110	120/120
Multi-purpose waling WU12 Top50 1.50m	2	2	2	2	2	2
Multi-purpose waling WU12 Top50 1.75m	2	2	2	2	2	2
Corner connecting plate 90/50	2	2	2	2	2	2
Universal angle tie bracket	4	4	4	4	4	4
Flange-clamp H20	20	20	20	20	24	24
Connecting pin 10cm *)	16	16	16	16	16	16
Wing nut 15.0	4	4	4	4	4	4
Tie-rod 15.0mm 1.00m	2	2	2	2	2	2

*) When column formwork is transported flat:
Secure the connecting pins with Spring cotters 5mm.

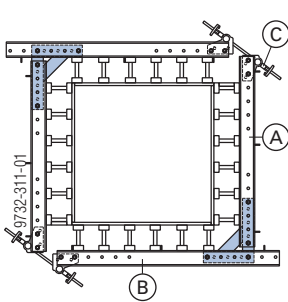
Corner connecting plate "inside"

- Possible quadratic columns:
107 x 107 up to 120 x 120 cm
- Possible rectangular columns:
70 x 107 up to 120 x 120 cm

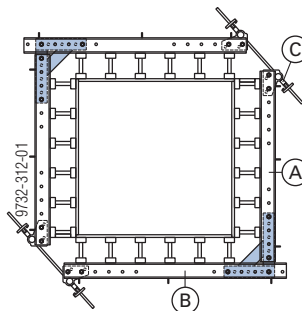
Note:

On 120 x 120 cm columns: Place an approx. 4 cm long steel-tube sleeve (inside diameter 20 mm) in front of the Wing nut 15.0.

Example 107 x 107 cm



Example 120 x 120 cm



A Multi-purpose waling WU12 Top50 1.50m

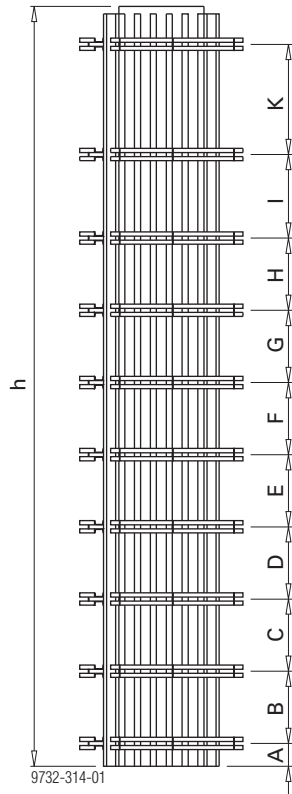
B Multi-purpose waling WU12 Top50 1.75m

C Steel-tube sleeve

Spacing of the walings

Note:

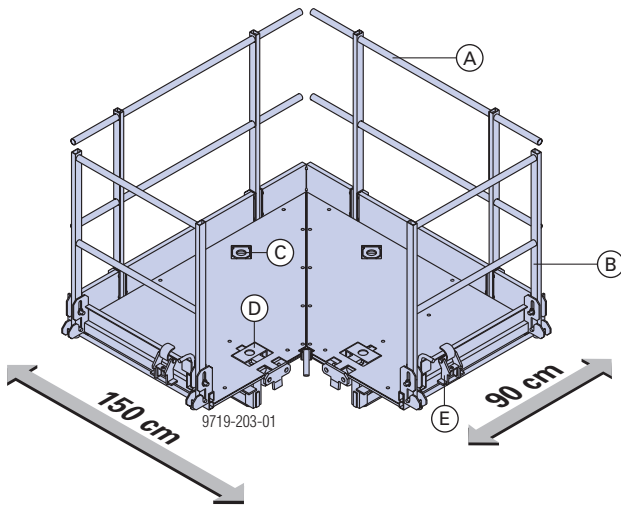
With **rectangular columns**, the longer of the two sides is the applicable dimension for structural design purposes.



Column dimensions [cm]	70/70	80/80	90/90	100/100	110/110	120/120
Number of Doka beams H20 on each side	5	5	5	5	6	6
Column height h [m]	Space [cm] between walings					
10.0	K	—	—	—	145	145
	I	—	—	—	160	110
	H	—	170	170	120	95
	G	195	140	140	105	95
	F	155	120	120	105	95
	E	140	120	120	105	95
	D	140	120	120	105	95
	C	140	120	120	105	95
	B	140	120	120	105	95
	A	40	40	40	40	30
9.0	I	—	—	—	155	155
	H	—	165	165	165	110
	G	140	120	120	120	95
	F	140	105	105	105	95
	E	140	105	105	105	95
	D	140	105	105	105	95
	C	140	105	105	105	95
	B	130	105	105	105	95
	A	40	40	40	40	30
	A	40	40	40	40	30
8.0	H	—	—	—	135	135
	G	—	170	170	170	110
	F	150	120	120	120	95
	E	140	105	105	105	95
	D	140	105	105	105	95
	C	140	105	105	105	95
	B	140	105	105	105	95
	A	40	40	40	40	30
	A	40	40	40	40	30
	A	40	40	40	40	30
7.0	G	—	—	135	135	135
	F	—	140	140	105	105
	E	180	120	120	95	95
	D	150	120	120	95	95
	C	140	120	120	95	95
	B	140	120	120	95	95
	A	40	40	40	30	30
	A	40	40	40	30	30
6.0	F	—	—	135	135	135
	E	130	150	150	100	100
	D	130	120	120	95	95
	C	130	120	120	95	95
	B	130	120	120	95	95
	A	40	40	40	30	30
	A	40	40	40	30	30
5.0	E	—	—	135	135	135
	D	150	170	170	100	100
	C	130	130	130	95	95
	B	130	110	110	95	95
	A	40	40	40	30	30
4.0	D	—	—	135	135	135
	C	170	170	170	95	95
	B	140	140	140	95	95
	A	40	40	40	30	30
3.0	C	—	—	135	135	135
	B	165	165	165	95	95
	A	40	40	40	30	30

Doka column formwork platform 150/90cm

Product description



A Rear railing

B Side railing

C Rear crane suspension point

D Safety hook (blue) = front crane suspension point

E Extra crane suspension point (red) in parked position

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

Load Class 2 to EN 12811-1:2003

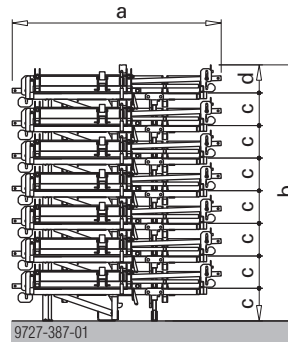
The main features:

- 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!
- Re-attachment is fast, so the platform can be moved from formwork unit to formwork unit for the pouring operations. Consequently, one platform is sufficient for several column formwork units.
- 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.

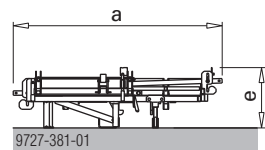
Transporting, stacking and storing

The Doka column-formwork platforms are pre-assembled and are easy to transport and store in the folded-down position - it is not possible for them to slide sideways.

Stack of 7 column formwork platforms



Single folded-down platform



a ... 183 cm

b ... 225 cm

c ... 28.6 cm

d ... 24.8 cm

e ... 53 cm



WARNING

There is a risk of the stack tipping over in high winds.

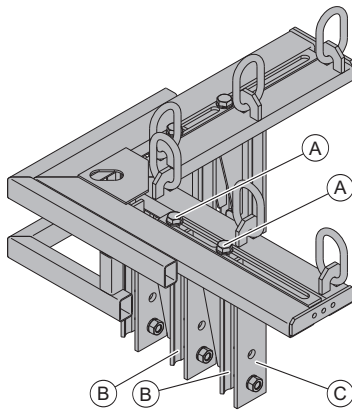
- If high wind speeds are likely always take extra precautions to fix the stack in place, or reduce it to 3 platforms.

Installation of lifting bracket

Note:

The Lifting bracket for column formwork can be used on one column formwork half-shell when the cross-section is 20 x 20 cm or larger and on both column formwork half-shells when the cross-section is 60 x 60 cm or larger.

Several engagement positions are possible, depending on the centre of gravity of the column elements. 2 lifting points are necessary.



A Position-lock of the relocatable toothed plates

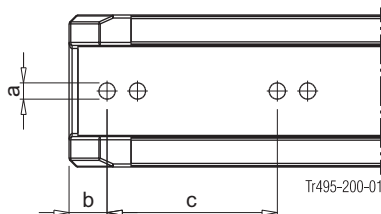
B Toothed plate

C Counter-plate

Max. load-bearing capacity: 2500 kg

Note:

When Doka beams H20 top and H20 eco are used, 2 extra holes (diam. 22 mm) must be drilled.



a ... diam. 22 mm

b ... 50 mm

c ... 224mm

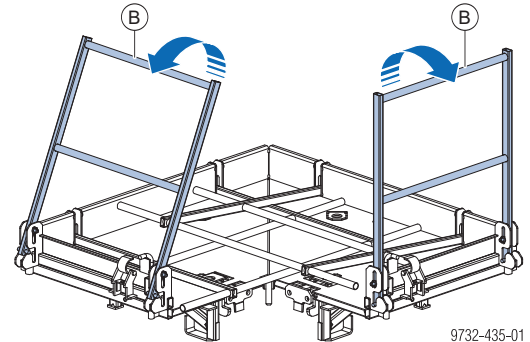
Installation

- 1) Loosen the position-locks of the relocatable toothed plates, slide the plates to the approximate locations of the formwork beams and release all the counter-plates.
- 2) Place the Lifting bracket for column formwork Top50 across one corner (formwork beams in the corners are not secured to the top waling).
- 3) Bolt the formwork beams in the corner to the toothed plates permanently welded to the lifting bracket*. Use a counter-plate!
- 4) Position the relocatable toothed plates flat against the other formwork beams and bolt the plates to the beams*. Use a counter-plate!
- 5) Tighten the position-locks of the relocatable toothed plates*.

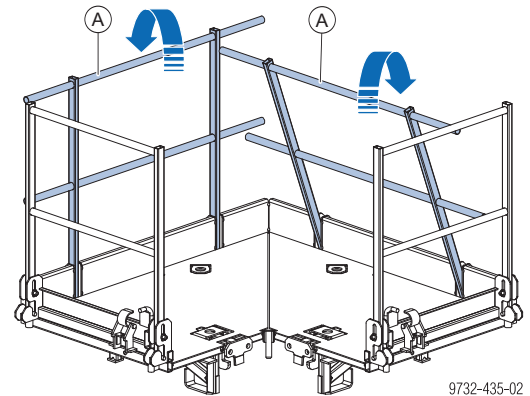
Required tightening torque MA*:
70 Nm (17 kgm)

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

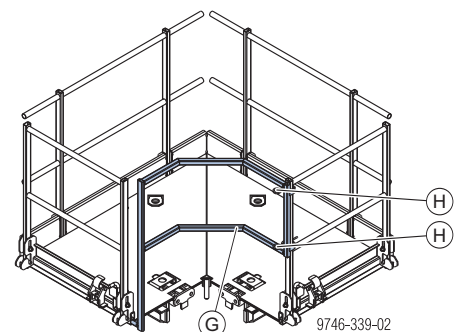
B Side railing

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.

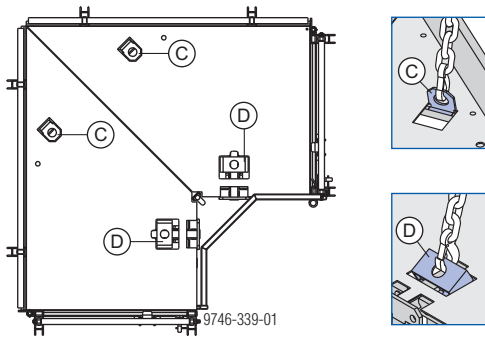


G Counter railing col. formwork plat. 150/90cm

H Spring cotter 5mm

Moving the platform

- Attach the crane to the locations shown.



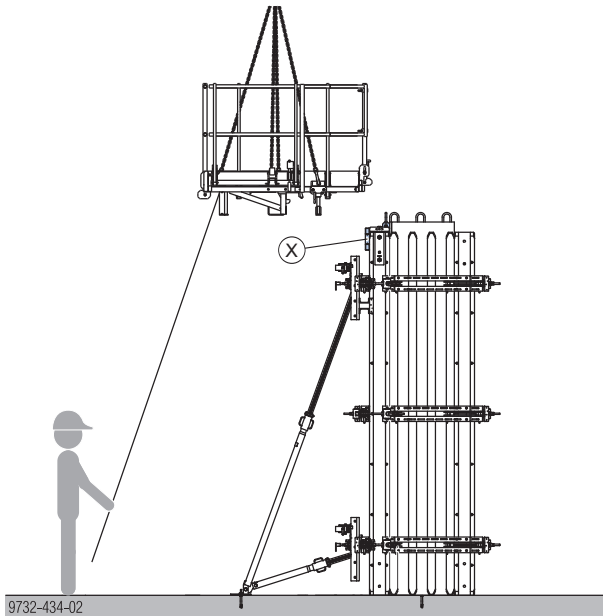
C Rear crane suspension point

D Front crane suspension point with integral safety hook



Red extra crane suspension point in parked position.

- Engage the column formwork platform on the Lifting bracket for column formwork.

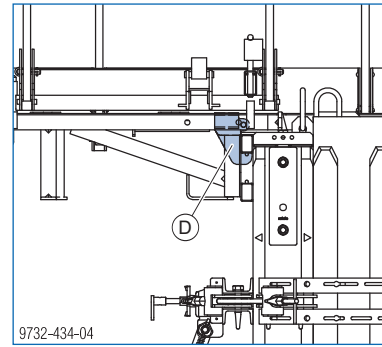


X Lifting bracket for column formwork



Tag-lines make precision engagement considerably easier.

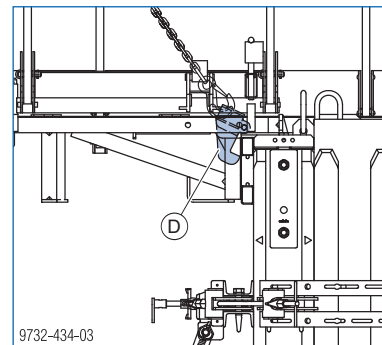
- After the column formwork platform has been hung into place on the formwork, detach the four-part lifting tackle.



D Front crane suspension point with integral safety hook

The safety hook drops into the starting position, automatically securing the platform against accidental lift-out.

- When the platform is raised by the four-part lifting chain on the safety hook, the platform is automatically unlocked.



D Front crane suspension point with integral safety hook

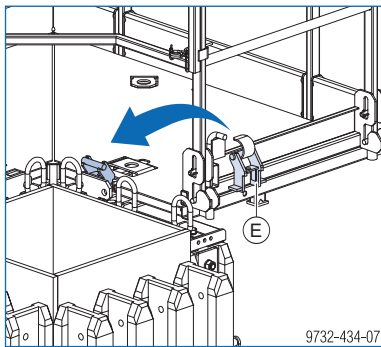
Moving the formwork and the platform in one piece

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



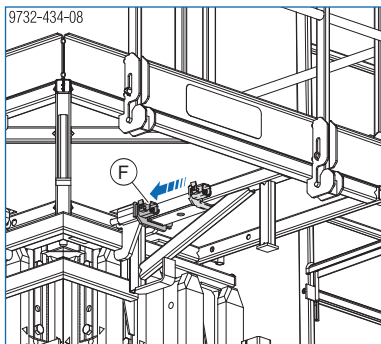
NOTICE

- Only ever lift and reposition one formwork half at a time.
- Engage the platform on the formwork (procedure as described in the section headed 'Moving the platform').
- Move the extra hoisting point from the parked position to the working position. Correctly positioned = tilted forward toward the formwork.



E Extra hoisting point

- Lock the extra hoisting point with the slide bolt on the underside of the platform.



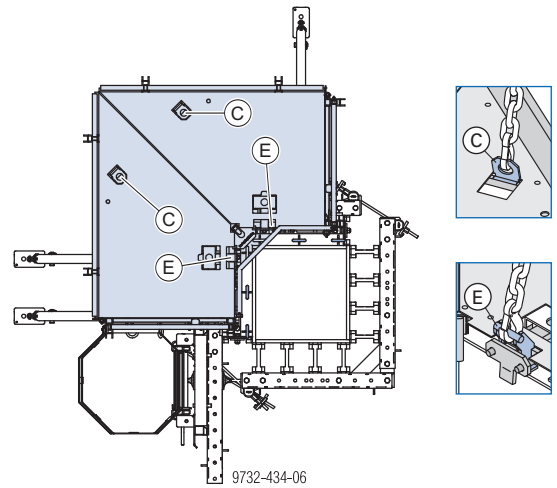
F Gate



Make sure the slide bolt engages in the front-most position.

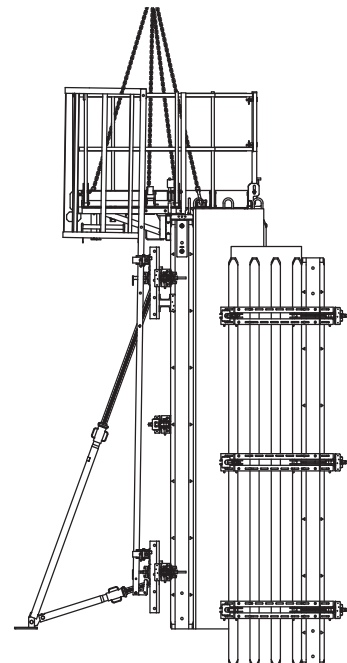
- Use additional panel struts to secure the formwork-half that has no platform mounted on it.

- Attach the crane to the locations shown.



C Rear crane suspension point

E Extra hoisting point

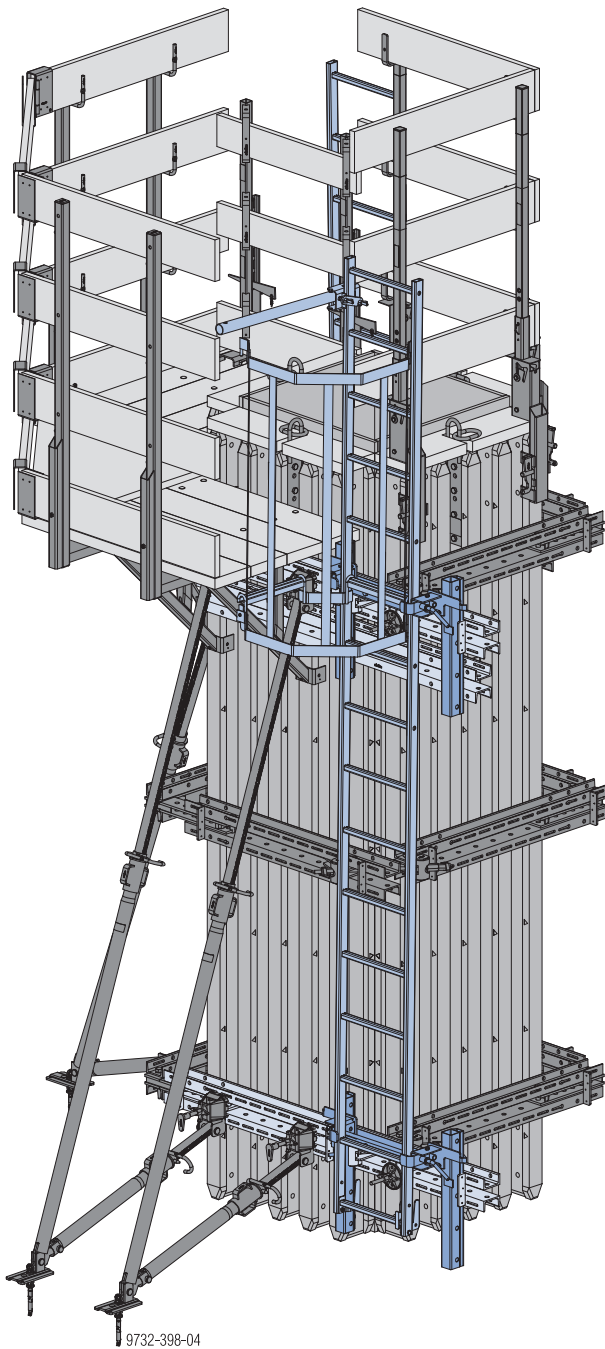


The platform can stay attached to the formwork throughout this entire operation.

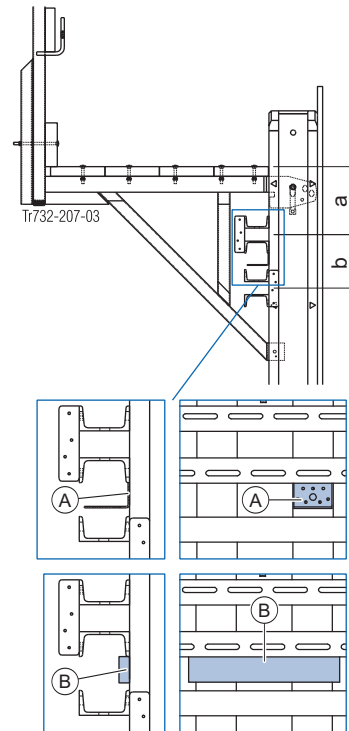
Separating the platform from the formwork

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

Ladder system



- To take shear forces, secure Angle connector 9x5cm to the outer beam or secure strips of formwork sheeting to the two outer beams directly below the multi-purpose waling, using 4 suitable screws.

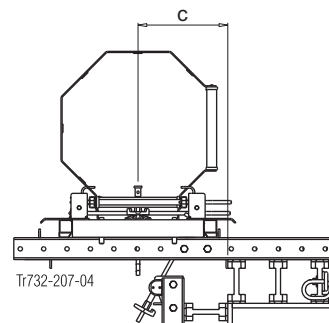


a ... 24.0 cm
b ... 22.0 cm

A Angle connector 9x5cm or

B strip of formwork sheeting or squared timber 5x2cm / L=30cm

- Position **a** of the top waling level:
24 cm below the platform decking (despite what is stated in the User Information booklet)
- Position **b** of the extra multi-purpose waling:
22 cm below the top waling level, as a pressure point.
Risk of collision between multi-purpose waling and Universal bracket 90.
- Distance **c** from mid-point of Connector XS wall formwork to outside edge of beam:
max. 45.0 cm



Every Top 50 column must be individually planned. When doing this, remember the following points:

- Max. column height: 10.40 m
- Despite what is stated in the User Information booklet, the lengths of the multi-purpose walings to which a Connector XS wall formwork is secured have to be planned separately.
- Attach these longer multi-purpose walings to at least 3 Doka H20 beams (min. column width 40 cm).

- Watch out for possible collisions between the Universal angle tie bracket, the multi-purpose waling and the System ladder XS.

Instructions for assembly and use (Method statement)

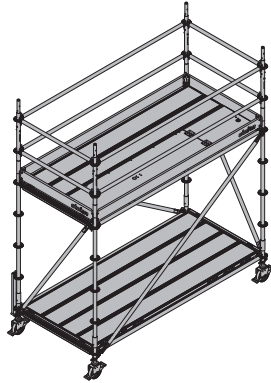


NOTICE

Platforms and all accessories must be installed on the element when it is face-down. All work involved in set-up, pouring and stripping operations must be carried out from safe workplaces.



A good way of creating safe workplaces is to use a mobile scaffold tower.



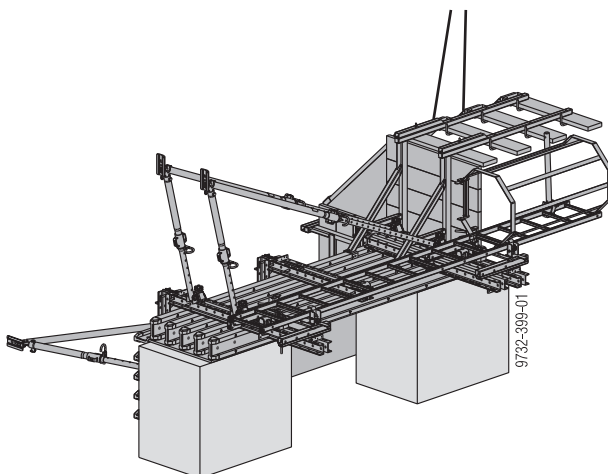
Preparation

- ▶ The half-shells are pre-assembled face-down on a prepared flat area.



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

- ▶ Install the platforms on the face-down element.
- ▶ Install the ladder on the face-down element.
- ▶ Mount the panel struts to the face-down element.



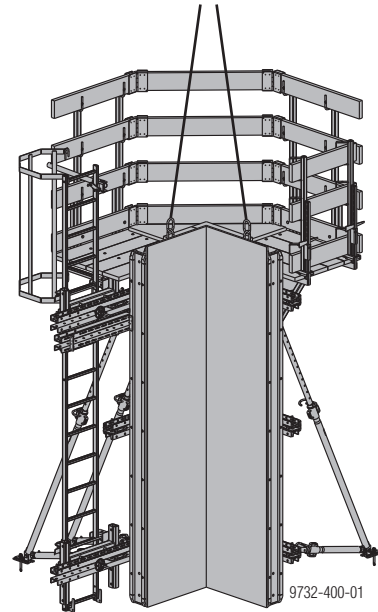
Closing the formwork

- ▶ Attach the lifting chain to the lifting-brackets provided.

Max. load:

1300 kg per lifting-bracket

- ▶ Raise the half-shell by crane and lift it to the erection location.
- ▶ Fix the panel struts to the ground stably.
- ▶ Mount the top guard-rail boards.

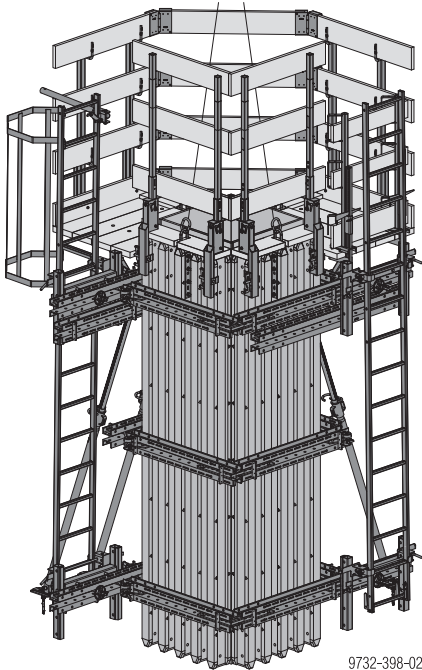


- ▶ Detach the half-shell from the crane.

Setting up the second half-shell

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

- Raise the second half-shell by crane and lift it to the erection location.
- Join the second half-shell to the first half-shell.



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- Detach the half-shell from the crane.

Stripping the formwork

- Remove any loose items from the formwork and platforms, or secure them firmly.
- Attach the first half-shell (the one without panel struts) to the crane.
- Undo the connections between the first and second half-shell.

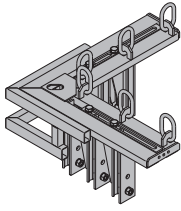
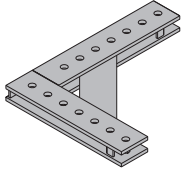
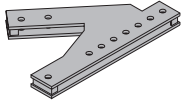
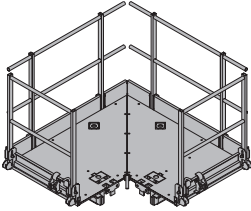
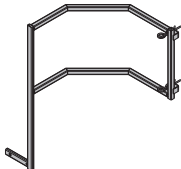
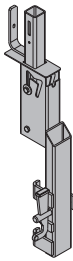


WARNING

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

Risk of crane overload.

- Use suitable tools such as timber wedges or a special pry-bar to detach the formwork from the concrete.
- Lift away the first half-shell by crane and place it down flat for intermediate storage.
- Attach the second half-shell (the one with panel struts) to the crane.
- Undo the ground anchors of the panel struts.
- Lift away the second half-shell by crane and transfer it to its next location, or place it down flat for intermediate storage.

	[kg]	Article N°		[kg]	Article N°
Lifting bracket for column formwork Kranöse für Stützenschalung	65.0	580607000	Handrail post XP 1.20m Geländersteher XP 1,20m	4.1	586460000
 Galvanised, powder-coated Length: 85 cm Width: 85 cm			 Galvanised Height: 118 cm		
Corner connecting plate 90/50 Winkellasche 90/50	13.8	580603000	Toeboard holder XP 1.20m Fußwehrhalter XP 1,20m	0.64	586461000
 Painted blue Length: 51 cm Width: 40 cm			 Galvanised Height: 21 cm		
Column connecting plate 6/8 Stützenlasche 6/8	15.0	580072000			
 Painted blue Length: 58 cm					
Doka column formwork platform 150/90cm Doka-Stützenbühne 150/90cm	211.8	588382000			
 Galvanised Length: 173 cm Width: 173 cm Height: 130 cm Delivery condition: folded closed					
Counter railing col. formwork plat. 150/90cm Gegengeländer Stützenbühne 150/90cm	8.0	588385000			
 Galvanised Width: 87 cm Height: 170 cm					
Timber-beam formwork adapter XP Trägerschalungsadapter XP	9.5	586476000			
 Galvanised Height: 83.5 cm					

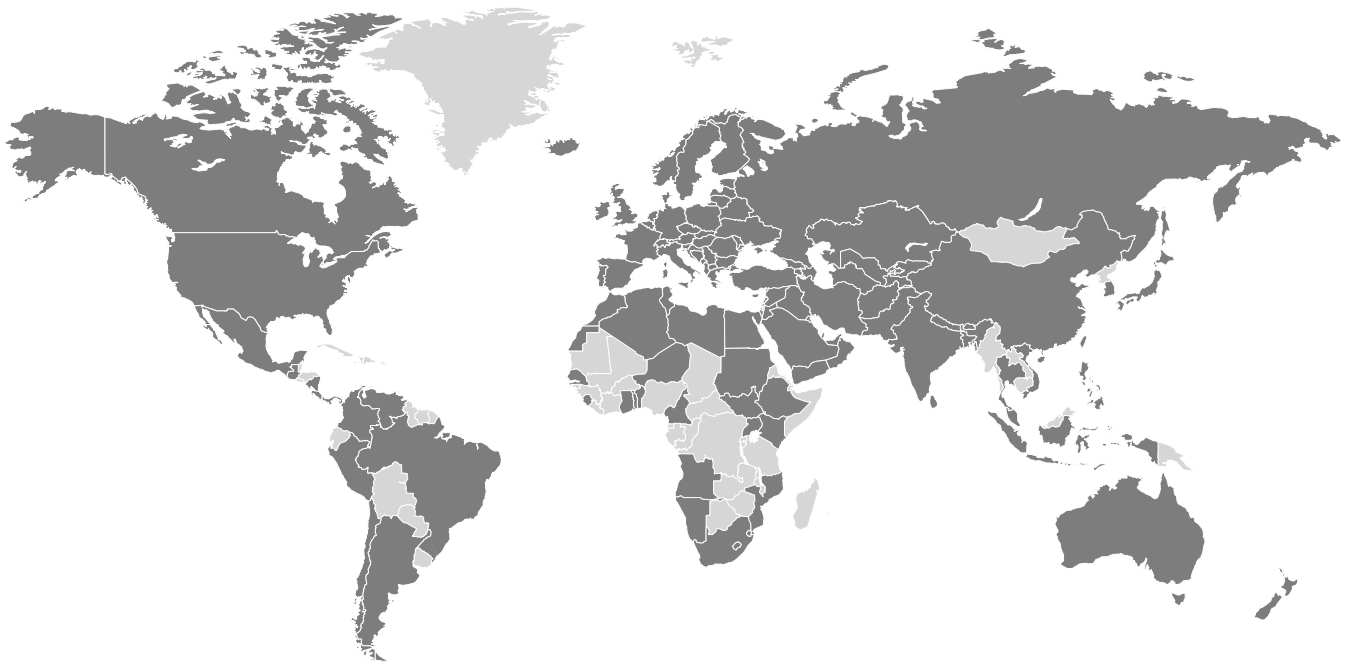
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Doka is one of the world leaders in developing, manufacturing and distributing formwork technology for use in all fields of the construction sector.

With more than 160 sales and logistics facilities in over 70 countries, the Doka Group has a highly efficient distribution network which ensures that equipment and

technical support are provided swiftly and professionally.

An enterprise forming part of the Umdasch Group, the Doka Group employs a worldwide workforce of more than 6000.



www.doka.com/column-formwork-top-50