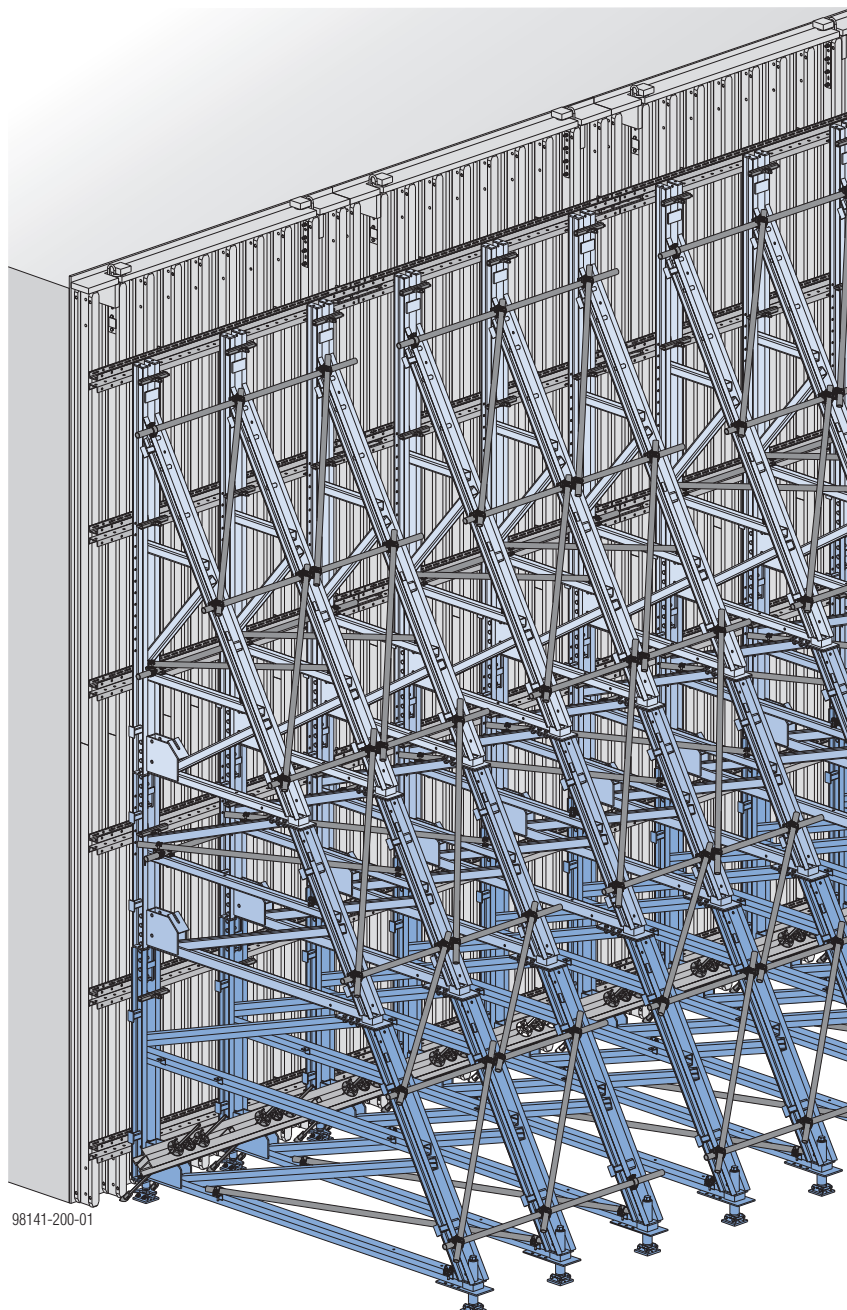


The Formwork Experts.

Supporting construction frame "Universal"

User Information

Instructions for assembly and use (Method statement)



Contents

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

Regulations; industrial safety

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

Rules applying during all phases of the assignment

- The customer must ensure that this product is erected and dismantled, reset and generally used for its intended purpose in accordance with the applicable laws, standards and rules, under the direction and supervision of suitably skilled persons. These persons' mental and physical capacity must not in any way be impaired by alcohol, medicines or drugs.
- Doka products are technical working appliances which are intended for industrial / commercial use only, always in accordance with the respective Doka User Information booklets or other technical documentation authored by Doka.
- The stability and load-bearing capacity of all components and units must be ensured during all phases of the construction work!
- Do not step on or apply strain to cantilevers, closures, etc. until suitable measures to ensure their stability have been correctly implemented (e.g. by tie-backs).
- Strict attention to and compliance with the functional instructions, safety instructions and load specifications are required. Non-compliance can cause accidents and severe injury (risk of fatality) and considerable damage to property.
- Sources of fire in the vicinity of the formwork are prohibited. Heaters are permissible only when used correctly and situated at a correspondingly safe distance from the formwork.
- Customer must give due consideration to any and all effects of the weather on the equipment and regards both its use and storage (e.g. slippery surfaces, risk of slipping, effects of the wind, etc.) and implement appropriate precautionary measures to secure the equipment and surrounding areas and to protect workers.
- All connections must be checked at regular intervals to ensure that they are secure and in full working order.
In particular threaded connections and wedged connections have to be checked and retightened as necessary in accordance with activity on the jobsite and especially after out-of-the-ordinary occurrences (e.g. after a storm).
- It is strictly forbidden to weld Doka products – in particular anchoring/tying components, suspension components, connector components and castings etc. – or otherwise subject them to heating.
Welding causes serious change in the microstructure of the materials from which these components are made. This leads to a dramatic drop in the failure load, representing a very great risk to safety.
It is permissible to cut individual tie rods to length with metal cutting discs (introduction of heat at the end of the rod only), but it is important to ensure that flying sparks do not heat and thus damage other tie rods.
The only articles which are allowed to be welded are those for which the Doka literature expressly points out that welding is permitted.

Assembly

- The equipment/system must be inspected by the customer before use, to ensure that it is in an acceptable condition. Steps must be taken to exclude components that are damaged, deformed, or weakened due to wear, corrosion or rot (e.g. fungal decay).
- Using our safety and formwork systems together with those of other manufacturers can create risks that may lead to injury and damage to property. This requires separate verification.
- 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.
- All components must be stored safely, following all the special Doka instructions given in the relevant sections of this document!

Maintenance

- Only original Doka components may be used as spare parts. Repairs may only be carried out by the manufacturer or authorised facilities.

Miscellaneous

The weights as stated are averages for new material; actual weights can differ, depending on material tolerances. Dirt accretions, moisture saturation, etc. can also affect weight.

We reserve the right to make alterations in the interests of technical progress.

Eurocodes at Doka

The permissible values stated in Doka documents (e.g. $F_{perm} = 70 \text{ kN}$) are not design values (e.g. $F_{Rd} = 105 \text{ kN}$)!

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

Allowance has been made for the following partial factors:

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

Consequently, all the design values for an EC design calculation can be determined from the permissible values.

Symbols used

The following symbols are used in this document:



DANGER

This is a notifier drawing attention to an extremely dangerous situation in which non-compliance with this notifier will lead to death or severe, irreversible injury.



WARNING

This is a notifier drawing attention to a dangerous situation in which non-compliance with this notifier can lead to death or severe, irreversible injury.



CAUTION

This is a notifier drawing attention to a dangerous situation in which non-compliance with this notifier can lead to slight, reversible injury.



NOTICE

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



Instruction

Indicates that actions have to be performed by the user.



Sight-check

Indicates that you need to do a sight-check to make sure that necessary actions have been carried out.



Tip

Points out useful practical tips.



Reference

Cross-references other documents.

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.

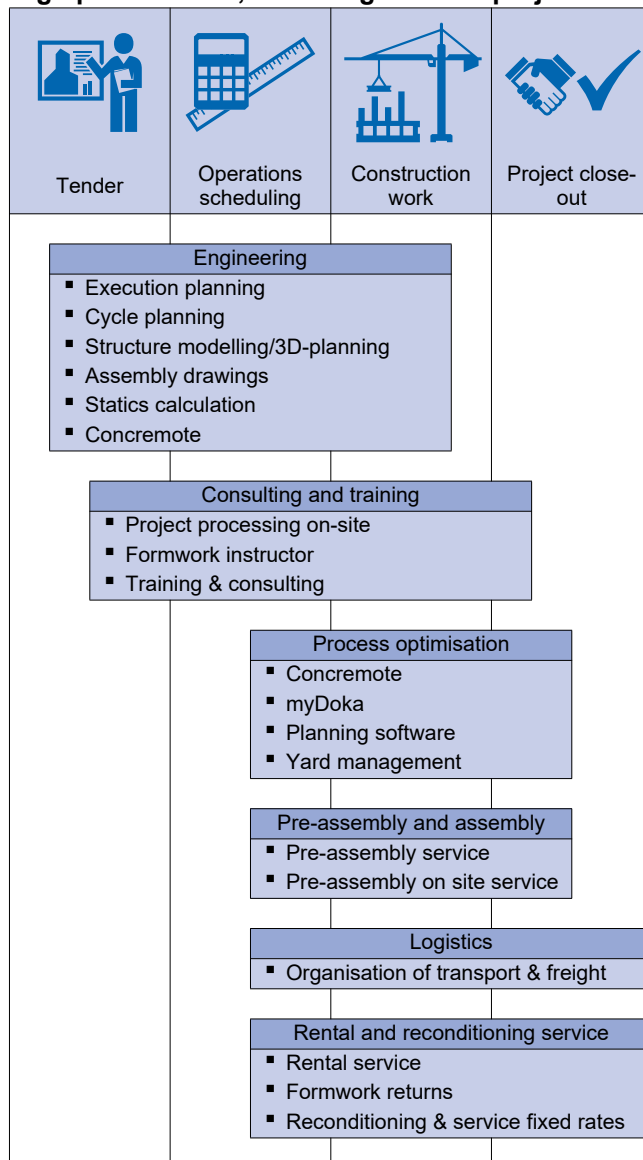
Just-in-time availability

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



upbeat construction digital services for higher productivity

From planning through to completion - with upbeat construction we'll be moving construction forward and upping the beat for more productive building with all our digital services. Our digital portfolio covers the entire construction process and is being extended all the time. To find out more about our specially developed solutions go to doka.com/upbeatconstruction.

System description

Supporting construction frame "Universal" - for pour-heights of up to max. 8.10 m

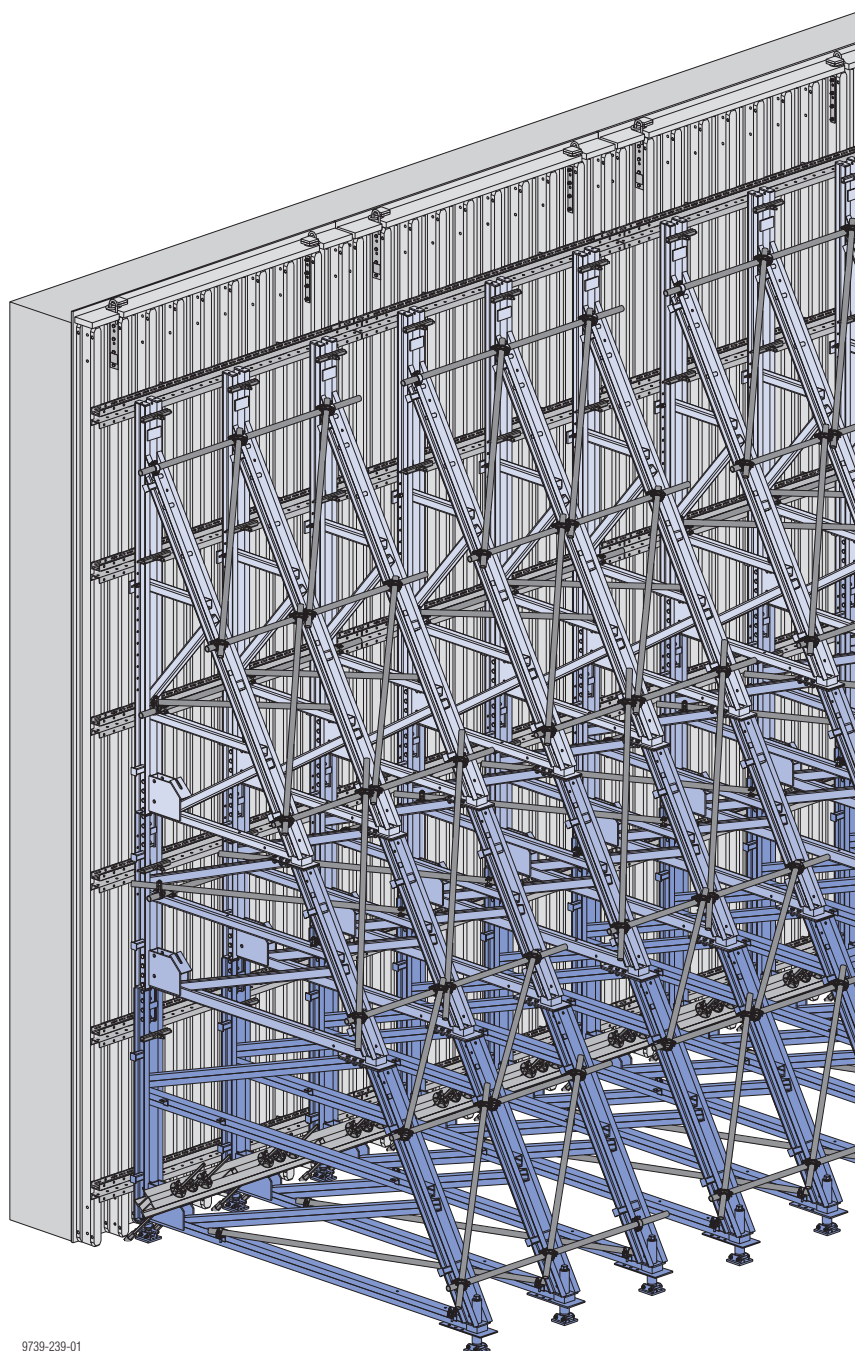
Product features:

- Modular vertical stacking facility.

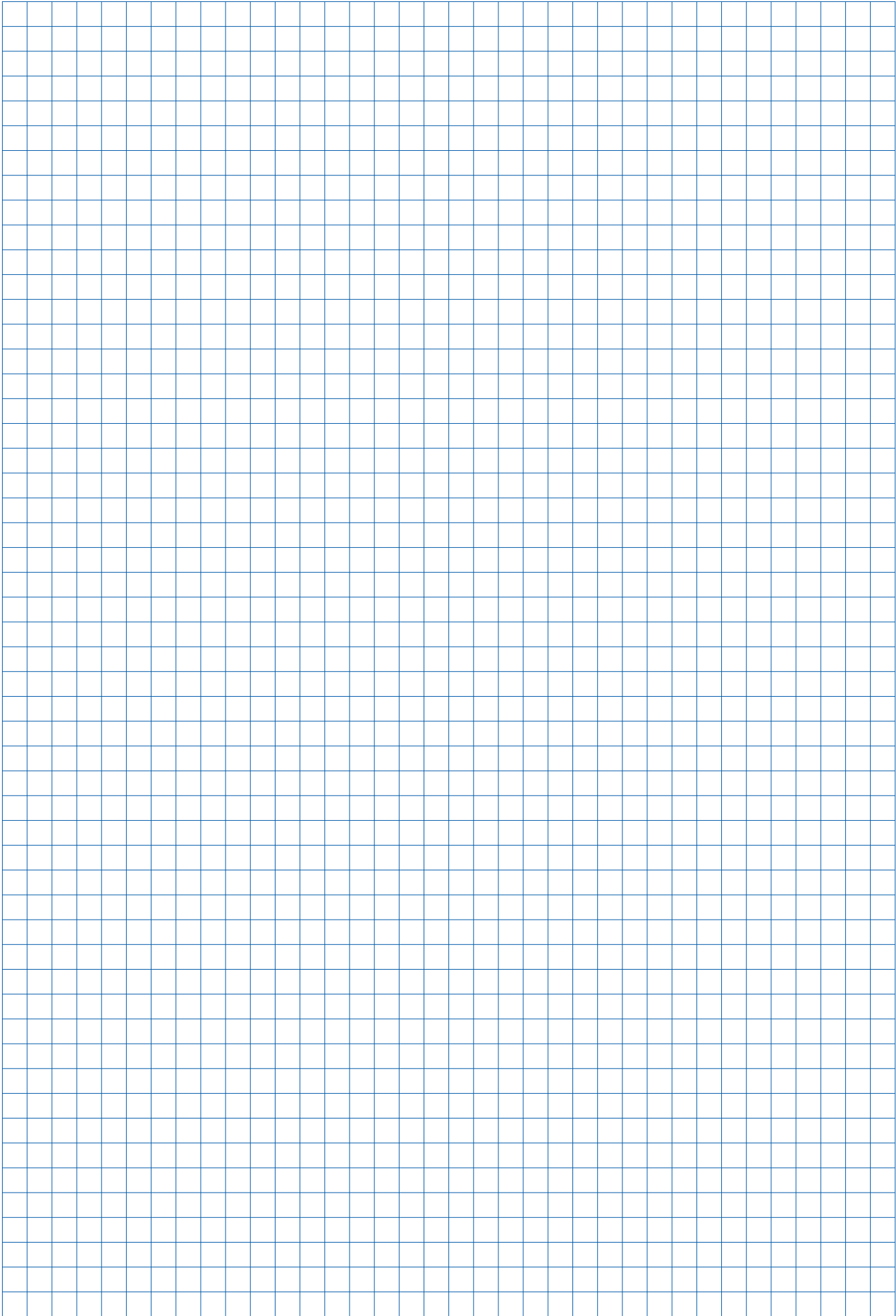
Optimum adaptability to the required pour-height, from 3.00 m up to max. 8.10 m, by combining:

- Supporting construct. frame Universal F 4.50m
 - Attachable frame F 1.50m
 - Attachable frame F 2.00m
- Suitable for timber-beam and framed formwork.
 - Tensile forces are reliably transferred by means of diagonal anchors.
 - Adapts to uneven ground by means of spindles with articulated footplates.

- Vertical stacking is easy and fast. Attachable frames with stacking plates pre-installed.
- Integral lifting brackets enable the frames to be lifted in their respective centre-of-gravity positions.
- Couplers for connecting the bracing pre-installed.
- Craneless repositioning with traveller units possible.
- Integral spacers prevent stacked frames from sliding off one another during storage and transit.
- Adjusting for the different fresh-concrete pressures required is easy and economical – simply increase or decrease the spacing between the supporting construction frames, as appropriate.



9739-239-01



Standard units



NOTICE

The Supporting construction frames of each unit **must be braced with scaffold tubes**:

- statically necessary (load-bearing capacity)
- needed during repositioning (stability)

The examples illustrated here show the correct way to brace the supporting construction frame units.

The Supporting construction frames Universal F come with screw-on couplers already pre-mounted.

Tightening torque of the bracing tube couplers: 50 Nm

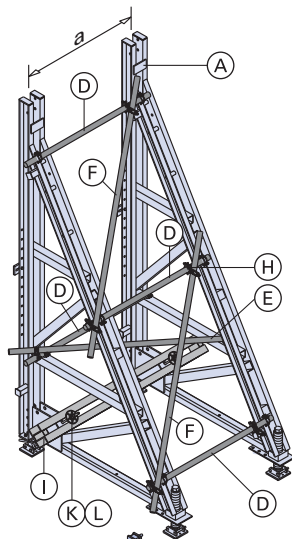
Distance between swivel coupler and screw-on coupler: max. 160 mm.

Centre-to-centre distance ¹⁾ a [m]

SC-frame type

A

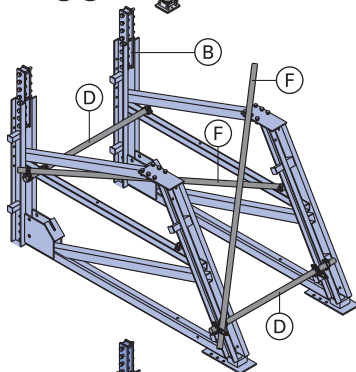
Supporting construct. frame Universal F 4.50m



SC-frame type

B

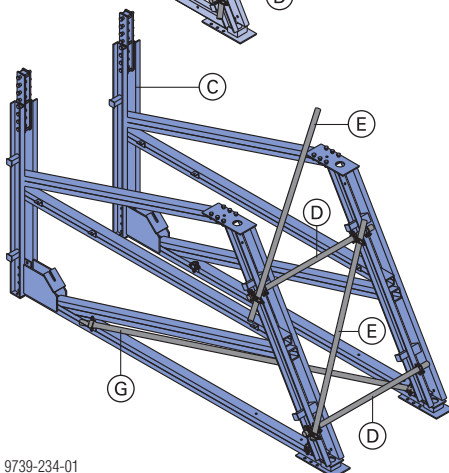
Vertical stacking with Attachable frame F 1.50m



SC-frame type

C

Vertical stacking with Attachable frame F 2.00m



9739-234-01

¹⁾ is normally the same as the influence width

²⁾ only when the following framed panels are used:

- 2.70x2.70m

- 2.70x3.30m

- . . . x2.70m - on its side

(results in an influence width of 1.35 m in each case)

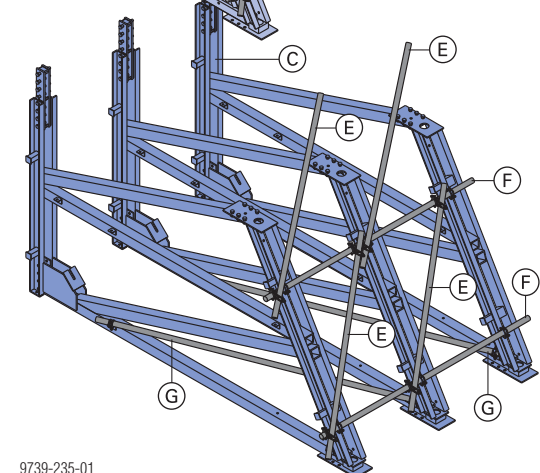
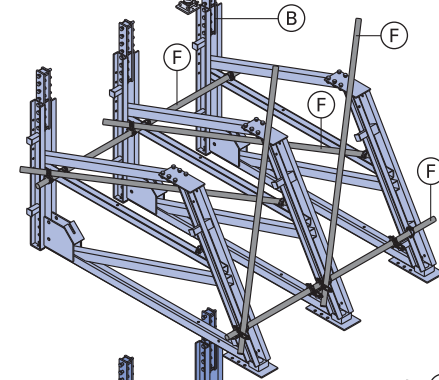
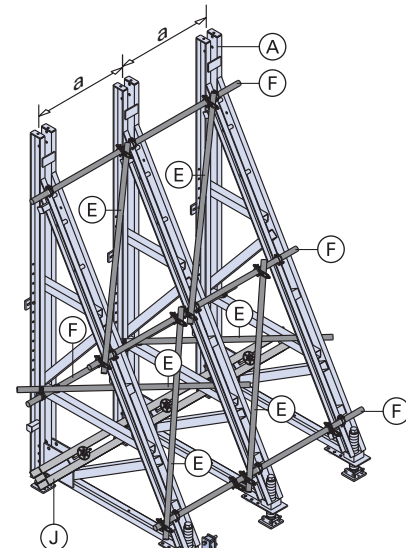
3 girderframe units

Timber-beam formwork

Framed formwork

1.00

0.90 or 1.35



9739-235-01

Items needed for 2 girderframe units


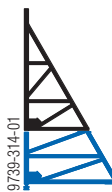
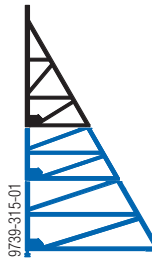
Valid for the following **centre-to-centre distances 'a'**:

- 1.00 m
- 1.25 m
- 1.35 m
- 1.55 m

¹⁾ Required length of the scaffold tubes for a centre-to-centre distance of **1.55 m**:
stated length + **0.50 m**

²⁾ For dimensioning details, see the following sections:

- 'Combination with timber-beam formwork systems'
- 'Combination with framed formwork systems'
- "Anchoring solutions for the supporting construction frames"

	SC-frame type		
	A	B	C
			
(A) Supporting construct. frame Universal F 4.50m	2	2	2
(B) Attachable frame F 1.50m	--	2	2
(C) Attachable frame F 2.00m	--	--	2
(D) Scaffold tube 48.3mm 1.50m ¹⁾	4	6	8
(E) Scaffold tube 48.3mm 2.00m ¹⁾	1	1	3
(F) Scaffold tube 48.3mm 2.50m ¹⁾	2	4	4
(G) Scaffold tube 48.3mm 3.00m ¹⁾	--	--	1
(H) Swivel coupler 48mm	5	8	12
(I) Anchor waling 1.95m ²⁾	1	1	1
(K) Anchor waling positioner	2	2	2
(L) Super plate 15.0	2	2	2
Weight of the unit [kg] – rounded	750	1250	2200

Items needed for 3 girderframe units

Valid for the following **centre-to-centre distances 'a'**:

- 0.90 m
- 1.00 m
- 1.35 m



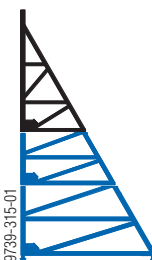
¹⁾ Required length of the scaffold tubes for a centre-to-centre distance of **1.35 m**:
stated length + **0.50 m**

²⁾ For dimensioning details, see the following sections:

- 'Combination with timber-beam formwork systems'
- 'Combination with framed formwork systems'
- "Anchoring solutions for the supporting construction frames"

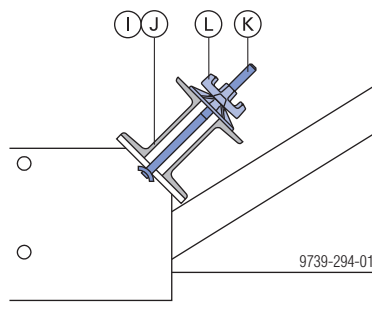
³⁾ Repositioning units with centre-to-centre distance 0.90 m or 1.35 m:

It is also possible to use 3 Anchor walings 0.70m instead of 1 Anchor waling 2.95m.

	SC-frame type		
	A	B	C
			
(A) Supporting construct. frame Universal F 4.50m	3	3	3
(B) Attachable frame F 1.50m	--	3	3
(C) Attachable frame F 2.00m	--	--	3
(E) Scaffold tube 48.3mm 2.00m ¹⁾	6	6	10
(F) Scaffold tube 48.3mm 2.50m ¹⁾	4	10	12
(G) Scaffold tube 48.3mm 3.00m ¹⁾	--	--	2
(H) Swivel coupler 48mm	10	16	24
(J) Anchor waling 2.95m ^{2) 3)}	1	1	1
(K) Anchor waling positioner	3	3	3
(L) Super plate 15.0	3	3	3
Weight of the unit [kg] – rounded	1150	1900	3350

Fixing the anchor waling

Together with the Super plate 15.0, the **Anchor waling positioner** secures the Anchor waling so that it cannot tilt or slip out of position.



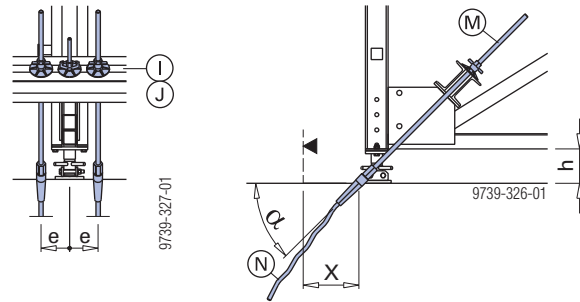
Anchor positioning

The loads from the diagonal anchors are transferred via anchor walings.

For each Supporting construction frame, an anchor is placed 15 cm either side of the vertical axis of the Supporting construction frame (i.e. 2 in all).

For more details on different anchoring variants, see the section headed 'Anchoring solutions for the supporting construction frames'.

Exception: If the load-bearing capacity is sufficient for 1 anchor per SC-frame, the anchors on each unit must be placed symmetrically.



e ... 15.0 cm

α ... 45°

▲ ... Inside line of wall

M She-bolt

N Pigtail anchor

Timber-beam formwork	X ^{*)}
Form-ply 21 and 27 mm	29.0 cm

Framed formwork Framax Xlife	X ^{*)}
with Supporting construction distancer 20cm	29.0 cm
with Multi-purpose waling WS10 Top50	19.0 cm

Framed formwork Framax Xlife plus	X')
with Framax Xlife plus supp.-frame distancer 12cm	22.0 cm
with Multi-purpose waling WS10 Top50	at waling profile levels at tying levels
	19.0 cm 20.0 cm
with Multi-purpose waling WU12 Top50	at waling profile levels at tying levels
	21.0 cm 22.0 cm

*) anchor angle 45 ° and h = 18.0 cm

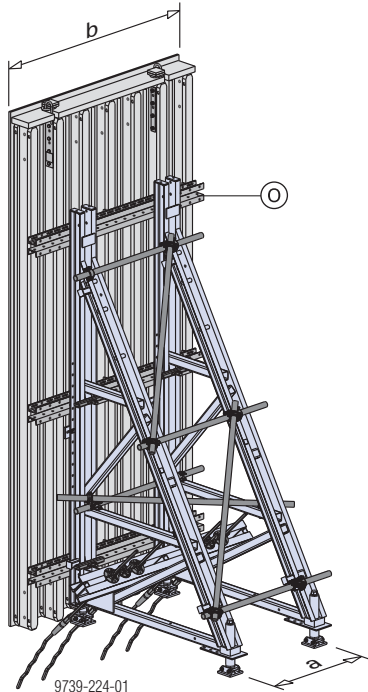
Combination with timber-beam formwork systems

Example: Formwork height 4.50 m

Centre-to-centre distance 'a' = 1,00 m

Influence width = 1,00 m

SC-frame type **A**

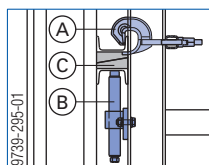


a ... 1.00 m
b ... 2.00 m

Fixing the formwork

Top50 or FF20 formwork elements are clamped directly onto the SC-frame using **Waling-to-bracket holders**. The SC-frames are designed so that the walings of the elements can be fixed anywhere onto the frame.

The **Adjusting spindle** fixes the formwork elements at the desired height (to transfer the load from the weight of the formwork) and also permits fine adjustment.



A Waling-to-bracket holder 9-15cm

B Adjusting spindle

C Timber wedges in the multi-purpose walings (near the Adjusting spindles – for ensuring better load transfer)

Number of Waling-to-bracket holders:

Formwork height	2 girderframe units	3 girderframe units
Up to 4.50 m	4	6
Up to 6.00 m	6	9
Up to 8.00 m	8	12

N° of Adjusting spindles:

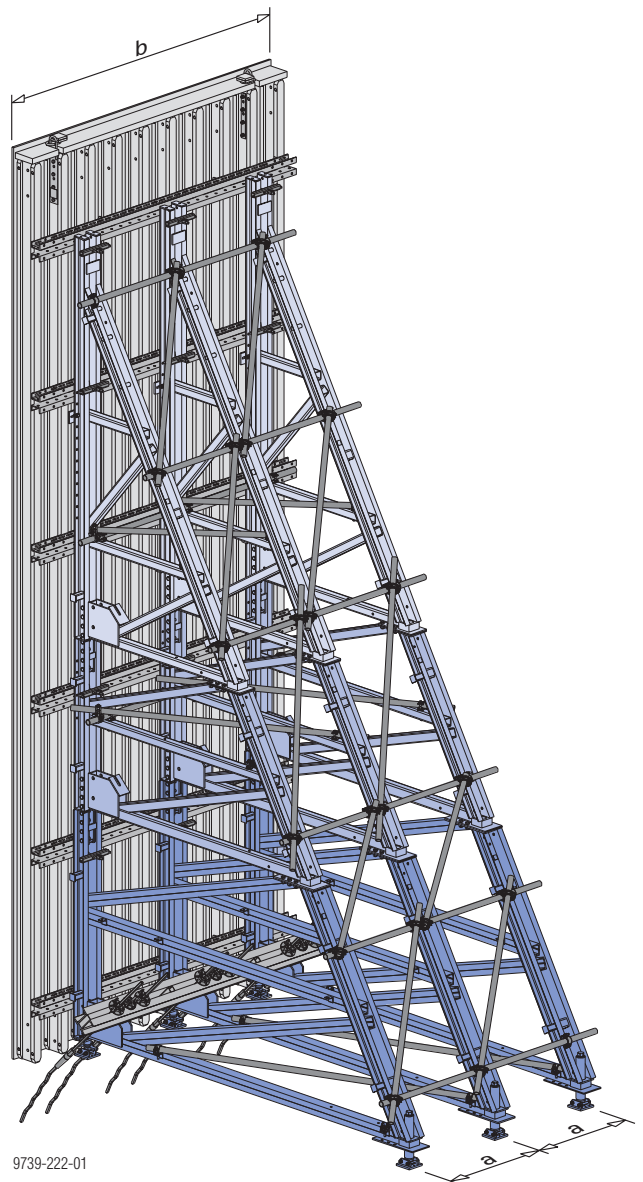
2 girderframe units	3 girderframe units
2	3

Example: Formwork height 8.00 m

Centre-to-centre distance 'a' = 1,00 m

Influence width = 1,00 m

SC-frame type **C**



a ... 1.00 m
b ... 3.00 m

Structural design

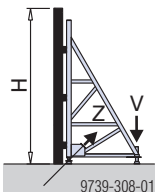
The values given in the table are only applicable to forming situations where there is no kicker. In cases

with large kickers, the overall stability of the SC-frame must be reviewed.

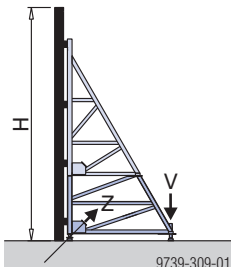
The loading data is stated per parallel frame unit for an anchor inclination of 45°.

Fields containing no data (-----) are not permissible – SC-frame would be overloaded!


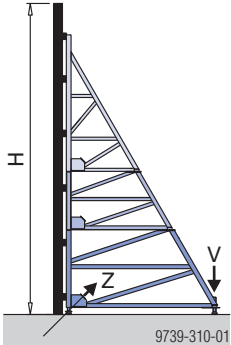
Pour heights of up to 4.50 m

SC-frame type		Influence width 1.00 m			Influence width 1.25 m			
<div><div>A</div><div>Supporting construct. frame Universal F 4.50m</div><div></div></div> <div>Permitted fresh-concrete pressure:</div>	Pour height H [m]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	
	40 kN/m ²	3.00	124	55	1	156	68	2
		3.50	153	81	2	191	101	2
		4.00	181	113	3	226	141	4
		4.50	209	150	10	262	188	12
	50 kN/m ²	3.00	141	59	1	177	73	2
		3.50	177	89	2	221	111	2
		4.00	212	126	4	265	158	4
		4.50	247	170	10	309	213	12

Pour heights from 4.50 m to 6.00 m

SC-frame type		Influence width 1.00 m				Influence width 1.25 m			
<div><div>B</div><div>Supporting constr. frame Universal F 4.50m + Attachable frame F 1.50m</div><div></div></div>	Permitted fresh-concrete pressure:	Pour height H [m]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	
		40 kN/m ²	4.50	209	105	3	262	131	3
			5.00	238	135	5	297	168	7
			5.50	266	168	9	332	210	11
			6.00	294	206	16	368	257	20
		50 kN/m ²	4.50	247	119	3	309	148	4
			5.00	283	154	5	354	193	7
			5.50	318	194	9	398	243	12
			6.00	354	239	17	----	----	----

Pour heights from 6.00 m to 8.00 m

SC-frame type		Influence width 1.00 m				Influence width 1.25 m			
	Supporting constr. frame Universal F 4.50m + Attachable frame F 1.50m + Attachable frame F 2.00m	Pour height H [m]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	
 Permitted fresh-concrete pressure:	40 kN/m ²	6.00	294	145	5	368	182	6	
		6.50	322	174	6	403	218	7	
		7.00	351	206	7	438	258	9	
		7.50	379	241	9	474	301	12	
		8.00	407	278	15	-----	-----	-----	
		50 kN/m ²	6.00	354	169	6	442	211	7
			6.50	389	204	7	486	255	8
			7.00	424	242	8	-----	-----	-----
			7.50	460	284	10	-----	-----	-----
			8.00	495	329	16	-----	-----	-----

Combination with framed formwork systems

Note:

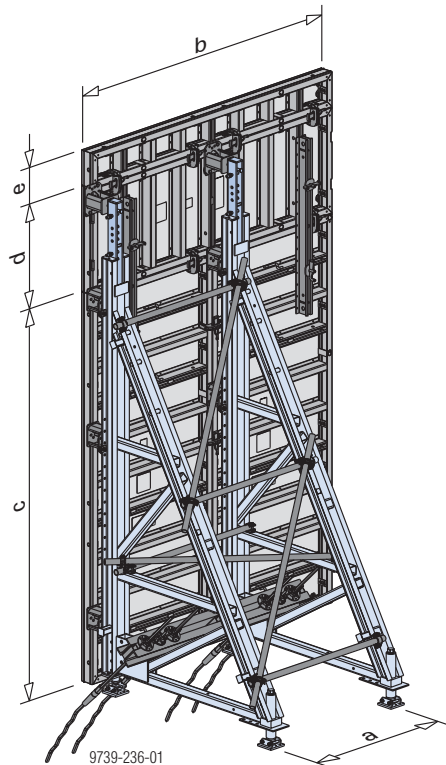
Applies to use with Framed formwork Framax Xlife, Alu-Framax Xlife and Framax Xlife plus.

Example: Formwork height 4.50 m

Influence width = 1,35 m

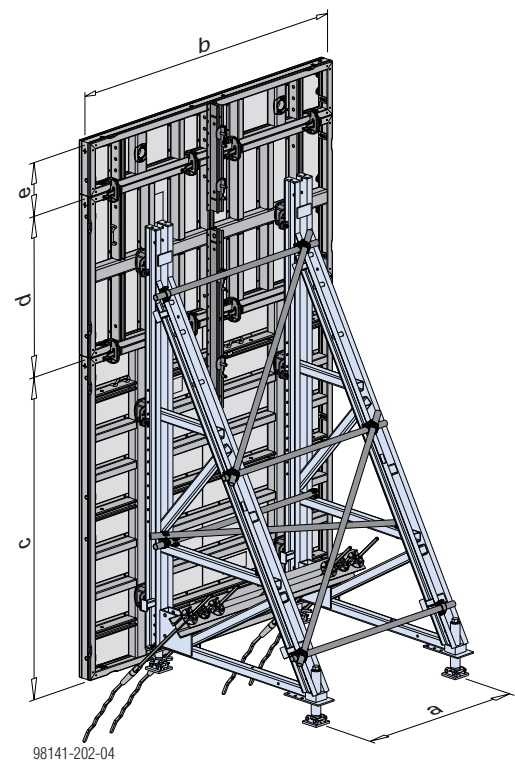
SC-frame type **A**

Framed formwork Framax Xlife



- a ... 1.35 m (centre-to-centre distance)
- b ... 2.70 m
- c ... 3.30 m
- d ... 0.90 m
- e ... 0.30 m

Framed formwork Framax Xlife plus



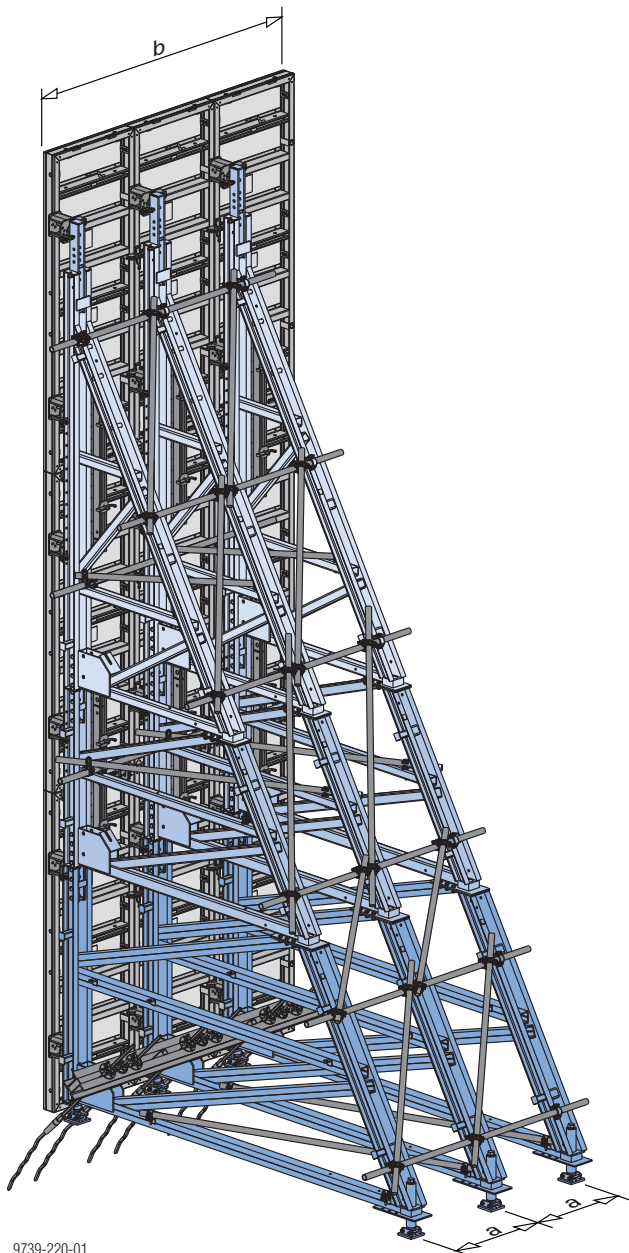
- a ... 1.55 m (centre-to-centre distance)
- b ... 2.70 m
- c ... 2.70 m
- d ... 1.35 m
- e ... 0.45 m

Example: Formwork height 8.10 m

Influence width = 0,90 m

SC-frame type **C**

Framed formwork Framax Xlife

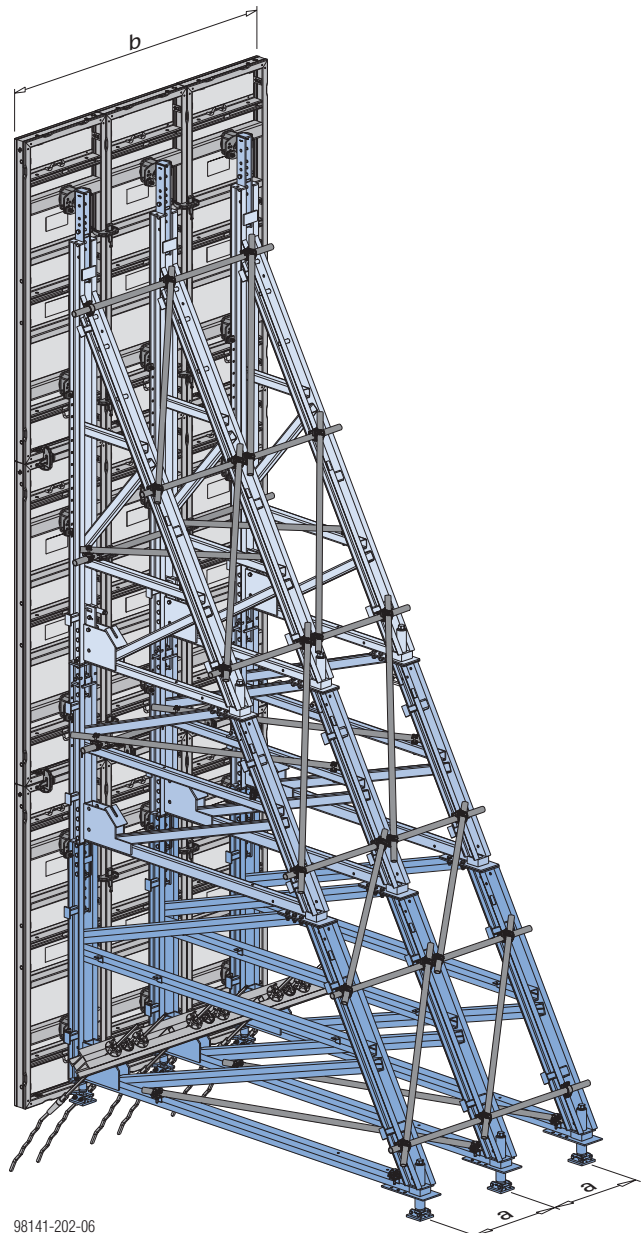


9739-220-01

a ... 0.90 m (centre-to-centre distance)

b ... 3 x 0.90 m = 2.70 m

Framed formwork Framax Xlife plus



98141-202-06

a ... 0.90 m (centre-to-centre distance)

b ... 3 x 0.90 m = 2.70 m

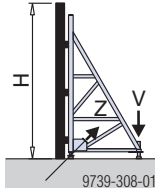
Structural design

The values given in the table are only applicable to forming situations where there is no kicker. In cases

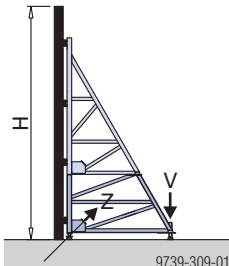
with large kickers, the overall stability of the SC-frame must be reviewed.

Loading data per parallel frame and anchor angle 45°. Fields containing no data (-----) are not permissible – SC-frame would be overloaded!


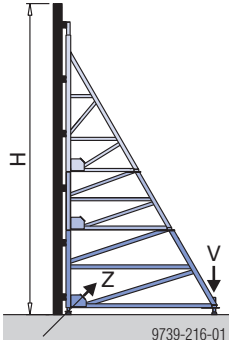
Pour heights of up to 4.50 m

SC-frame type		Influence width 0.90 m				Influence width 1.35 m		
<div><div>A</div><div>Supporting construct. frame Universal F 4.50m</div><div></div></div>	Pour height H [m]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	
	40 kN/m ²	3.15	120	56	1	179	84	2
		3.60	143	78	2	214	118	3
		4.05	165	105	3	248	157	5
		4.50	188	135	9	283	203	13
	50 kN/m ²	3.15	137	60	1	205	90	2
		3.60	165	86	2	248	129	3
		4.05	194	117	3	291	176	5
		4.50	223	153	9	334	230	13

Pour heights from 4.50 m to 6.00 m

SC-frame type		Influence width 0.90 m				Influence width 1.35 m		
<div>B</div> <div>Supporting constr. frame Universal F 4.50m + Attachable frame F 1.50m</div> <div></div>	Pour height H [m]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	
	40 kN/m ²	4.65	196	102	3	294	153	4
		5.10	219	127	5	328	191	8
		5.55	242	155	9	363	232	13
		6.00	265	185	15	397	278	22
	50 kN/m ²	4.65	232	116	3	348	174	5
		5.10	261	146	6	391	218	8
		5.55	290	179	9	434	268	13
		6.00	318	215	15	-----	-----	-----

Pour heights from 6.00 m to 8.00 m

SC-frame type		Influence width 0.90 m				Influence width 1.35 m		
	Pour height H [m]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	Anchor force Z _k [kN]	Spindle force V _k [kN]	Deformation top [mm]	
	Permitted fresh-concrete pressure:							
	40 kN/m ²	6.00	265	131	4	397	196	7
		6.45	288	154	5	431	231	8
		6.90	311	180	6	466	269	9
		7.20	326	198	7	489	296	11
		7.65	349	226	9	-----	-----	-----
		8.10	372	257	15	-----	-----	-----
	50 kN/m ²	6.00	318	152	5	477	228	8
		6.45	347	180	6	-----	-----	-----
		6.90	375	211	7	-----	-----	-----
		7.20	395	233	8	-----	-----	-----
		7.65	423	267	10	-----	-----	-----
		8.10	452	304	17	-----	-----	-----

Fixing the formwork

Used with Framed formwork Framax Xlife

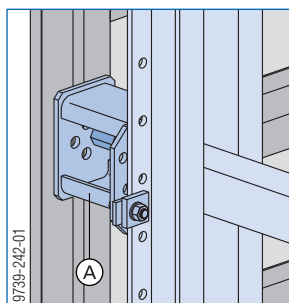
The **'Supporting-construction distancer 20 cm'** is fastened in the form-tie sleeve of the formwork panel using the **'Supporting construction frame bolt 27cm'** supplied.



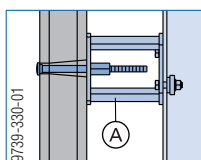
During assembly, the SC-frame bolt can be secured with a Sealing sleeve 15.0 5cm so that it cannot drop out.

The SC-distancers 20cm are positioned following the same rules as for form-ties on double-sided wall formwork (see User Information booklet "Doka framed formwork Framax Xlife" or "Alu-Framax Xlife").

to the **Supporting construction frame Universal F 4.50m** and the **Attachable frame F 1.50m**

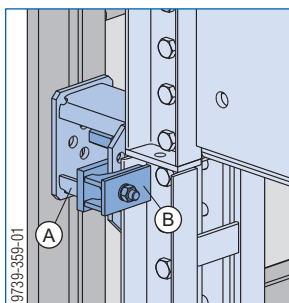


View:

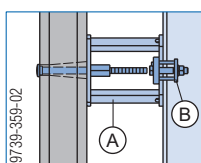


A Supporting construction distancer 20cm

to the **Attachable frame F 2.00m**



View:



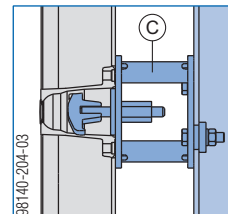
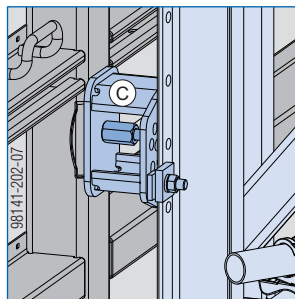
A Supporting construction distancer 20cm

B Clamp for supp. constr. distancer 20cm

Used with Framed formwork Framax Xlife plus

The **Framax Xlife plus supp.-frame distancer 12cm** is secured in the form-tie sleeve of the formwork panel. The positioning of the supporting construction distancers complies with the rules for form ties in double-sided wall formwork (see the 'Framed formwork Framax Xlife plus' User Information booklet).

View:



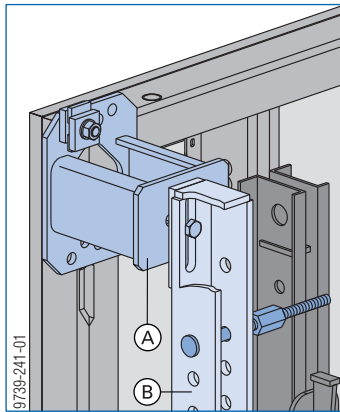
C Framax Xlife plus supp.-frame distancer 12cm

Supporting the top framed formwork panel

The **Framax supporting construct. frame connector** extends the supporting construction frame to provide secure support for the topmost framed panel.

Framax Xlife:

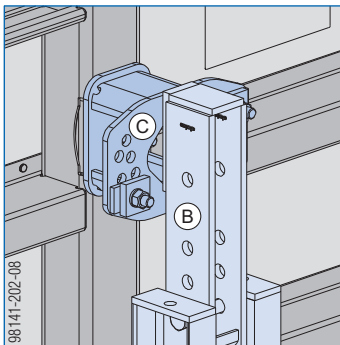
The **Supporting construction distancer 20cm** is bolted to the Framax supporting construct. frame connector using a hexagon bolt M16x60 (included with product).



- A** Supporting construction distancer 20cm
B Framax supporting construct. frame connector

Framax Xlife plus:

The **Framax Xlife plus supp.-frame distancer 12cm** is secured in the form-tie sleeve of the formwork panel. The Framax supporting construct. frame connector is seated on the supporting construction distancer.



- B** Framax supporting construct. frame connector
C Framax Xlife plus supp.-frame distancer 12cm

Number of supporting construction distancers required

Used with Framed formwork Framax Xlife

Basic panel 2.70 x 2.70 m (w x h):

Formwork height [m]	Vertical stacking [m]	Supporting construction distancer 20cm	Clamp for supp. constr. distancer 20cm	Framax supporting construct. frame connector	Number of girderframe units	SC-frame type
2.70	—	4	—	—	2	A
3.00	0.30	4	—	—	2	
3.15	0.45	6	—	—	2	
3.30	0.60	6	—	—	2	
3.60	0.90	6	—	—	2	
4.05	1.35	8	—	—	2	
4.35	1.35+0.30	8	—	2	2	
4.50	1.35+0.45	10	—	2	2	B
4.65	1.35+0.60	10	—	—	2	
4.95	1.35+0.90	10	—	—	2	
5.40	2.70	8	—	—	2	
5.70	2.70+0.30	8	—	—	2	
5.85	2.70+0.45	10	—	2	2	
6.00	2.70+0.60	10	—	2	2	
6.30	2.70+0.90	10	4	—	2	C
6.75	2.70+1.35	12	4	—	2	
7.05	2.70+1.35+0.30	12	4	—	2	
7.20	2.70+1.35+0.45	14	4	—	2	
7.35	2.70+1.35+0.60	21	6	3	3	
7.65	2.70+1.35+0.90	21	6	3	3	
8.10	2.70+2.70	18	6	3	3	

Basic panel 2.70 x 3.30 m (w x h):

Formwork height [m]	Vertical stacking [m]	Supporting construction distancer 20cm	Clamp for supp. constr. distancer 20cm	Framax supporting construct. frame connector	Number of girderframe units	SC-frame type
3.30	—	6	—	—	2	A
3.60	0.30	6	—	—	2	
3.75	0.45	6	—	—	2	
3.90	0.60	8	—	—	2	
4.20	0.90	8	—	2	2	B
4.65	1.35	8	—	—	2	
4.95	1.35+0.30	8	—	—	2	
5.10	1.35+0.45	8	—	—	2	
5.25	1.35+0.60	10	—	—	2	
5.55	1.35+0.90	10	—	2	2	
6.00	2.70	10	—	2	2	C
6.60	3.30	10	4	—	2	
6.90	3.30+0.30	10	4	—	2	
7.05	3.30+0.45	12	4	—	2	
7.20	3.30+0.60 ¹⁾	14	4	—	2	
7.50	3.30+0.90	21	6	3	3	
7.95	3.30+1.35	21	6	3	3	

¹⁾ ... Permitted fresh-concrete pressure 40 kN/m²

Basic panel 2.70 x 2.40 m (w x h):

Formwork height [m]	Vertical stacking [m]	Supporting construction distance 20cm	Clamp for supp. constr. distance 20cm	Framax supporting construct. frame connector	Number of girderframe units	SC-frame type
2.40	—	4	—	—	2	A
2.70	0.30	6	—	—	2	
2.85	0.45	6	—	—	2	
3.00	0.60	6	—	—	2	
3.30	0.90	6	—	—	2	
3.75	1.35	8	—	2	2	
4.05	1.35+0.30	8	—	2	2	
4.20	1.35+0.45	10	—	2	2	B
4.35	1.35+0.60	10	—	—	2	
4.65	1.35+0.90	10	—	—	2	
4.80	2.40	8	—	—	2	
5.10	1.35+1.35	8	—	—	2	
5.25	2.40+0.45	10	—	2	2	
5.40	2.40+0.60	10	—	2	2	
5.70	2.40+0.90	10	—	2	2	C
6.15	2.40+1.35	12	4	—	2	
6.45	2.40+1.35+0.30	12	4	—	2	
6.60	2.40+1.35+0.45	14	4	—	2	
6.75	2.40+1.35+0.60	14	4	—	2	
7.05	2.40+1.35+0.90	14	4	—	2	
7.20	2.40+2.40 ¹⁾	12	4	—	2	

¹⁾ ... Permitted fresh-concrete pressure 40 kN/m²

Used with Framed formwork Framax Xlife plus**Basic panel 2.70 x 2.70 m (w x h):**

Formwork height [m]	Vertical stacking [m]	Framax Xlife plus supp. -frame distance 12cm	Framax supporting construct. frame connector	Number of girderframe units	SC-frame type
2.70	—	4	—	2	A
3.00	0.30	4	—	2	
3.15	0.45	4	—	2	
3.30	0.60	6	—	2	
3.45	0.75	6	—	2	
3.60	0.90	6	—	2	
4.05	1.35	6	—	2	
4.35	1.35+0.30	6	—	2	B
4.50	1.35+0.45	6	—	2	
4.65	1.35+0.60	8	—	2	
4.80	1.35+0.75	8	—	2	
4.95	1.35+0.90	8	—	2	
5.40	2.70	8	—	2	
5.70	2.70+0.30	8	—	2	C
5.85	2.70+0.45	8	—	2	
6.00	2.70+0.60	10	2	2	
6.15	2.70+0.75	10	2	2	
6.30	2.70+0.90	10	—	2	
6.75	2.70+1.35	10	—	2	
7.05	2.70+1.35+0.30	10	—	2	
7.20	2.70+1.35+0.45	10	—	2	C
7.35	2.70+1.35+0.60	18	3	3	
7.50	2.70+1.35+0.75	18	3	3	
7.65	2.70+1.35+0.90	18	3	3	
8.10	2.70+2.70	18	3	3	

Basic panel 2.70 x 3.30 m (w x h):

Formwork height [m]	Vertical stacking [m]	Framax Xlife plus supp. -frame distance 12cm	Framax supporting construct. frame connector	Number of girderframe units	SC-frame type
3.30	—	6	—	2	A
3.60	0.30	6	—	2	
3.75	0.45	6	—	2	
3.90	0.60	8	—	2	
4.05	0.75	8	—	2	
4.20	0.90	8	—	2	
4.65	1.35	8	—	2	B
4.95	1.35+0.30	8	—	2	
5.10	1.35+0.45	8	—	2	
5.25	1.35+0.60	10	—	2	
5.40	1.35+0.75	10	—	2	
5.55	1.35+0.90	10	—	2	
6.00	2.70	10	2	2	C
6.60	3.30	12	—	2	
6.90	3.30+0.30	12	—	2	
7.05	3.30+0.45	12	—	2	
7.20	3.30+0.60	14	—	2	
7.35	3.30+0.75	21	3	3	
7.50	3.30+0.90	21	3	3	
7.95	3.30+1.35	21	3	3	

Other possibilities

Supporting construction distancers are Doka's preferred solution for securing the panels, but the following are also possible.

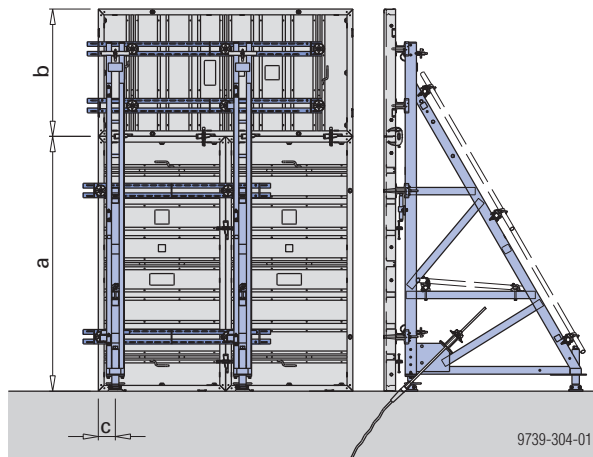
Your regional Doka branch will be pleased to advise you on the exact planning and dimensioning.

Basic rules:

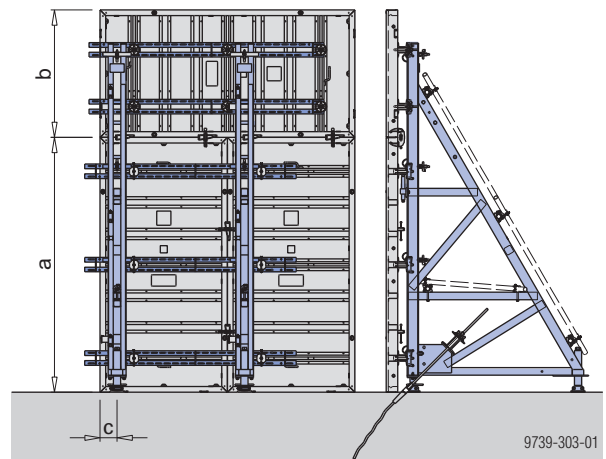
1. **Up to a formwork height of 4.50 m:**
Supporting constr. frame Universal F 4.50m
Up to a formwork height of 6.00 m:
Supporting constr. frame Universal F 4.50m
+ Attachable frame F 1.50m
Up to a formwork height of 8.10 m:
Supporting constr. frame Universal F 4.50m
+ Attachable frame F 1.50m
+ Attachable frame F 2.00m
2. If the **max. formwork height** is required (4.50 m, 6.00 m or 8.10 m), the top panels must be **upright 1.35m panels**.
3. Per girderframe unit, attach one adjusting spindle under a multi-purpose waling.
4. Lengths of multi-purpose walings:
 - panels standing upright: 2.00 m
 - panels turned on their sides: 2.50 m

Number of multi-purpose walings:	Variant	
	1	2
2.70m panels standing upright	2	3
3.30m panels standing upright	3	4
1.35m panels standing upright	1	2
panels up to 0.90m turned on their side	1	1
1.35m panels turned on their side	2	2

Variant 1 (multi-purpose walings at the tying levels)



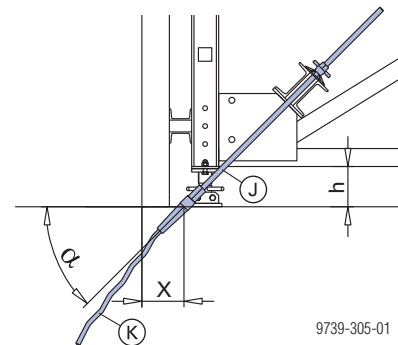
Variant 2 (multi-purpose walings at the waling-profile levels)



The examples shown are for a formwork height of 4.05 m.
View shown without bracing.

- a ... 2.70 m
b ... 1.35 m
c ... 18.0 cm

Tie-rod positions



α ... 45°

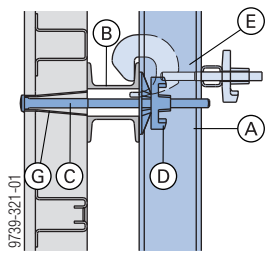
Framed formwork Framax Xlife		X*)
with Multi-purpose waling WS10 Top50		19.0 cm
Framed formwork Framax Xlife plus		X*)
with Multi-purpose waling WS10 Top50	at waling profile levels	19.0 cm
	at tying levels	20.0 cm
with Multi-purpose waling WU12 Top50	at waling profile levels	21.0 cm
	at tying levels	22.0 cm

*) anchor angle 45 ° and h = 18.0 cm

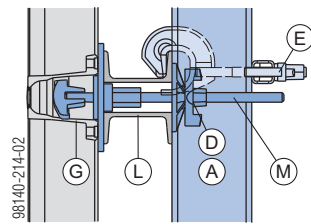
Fixing the panel

in Variant 1:

Framax Xlife

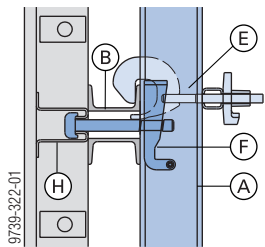


Framax Xlife plus

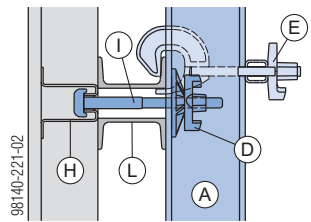


in Variant 2:

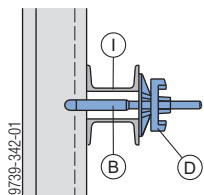
Framax Xlife



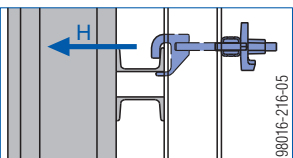
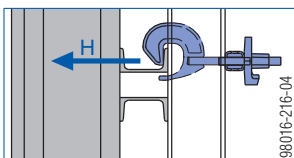
Framax Xlife plus

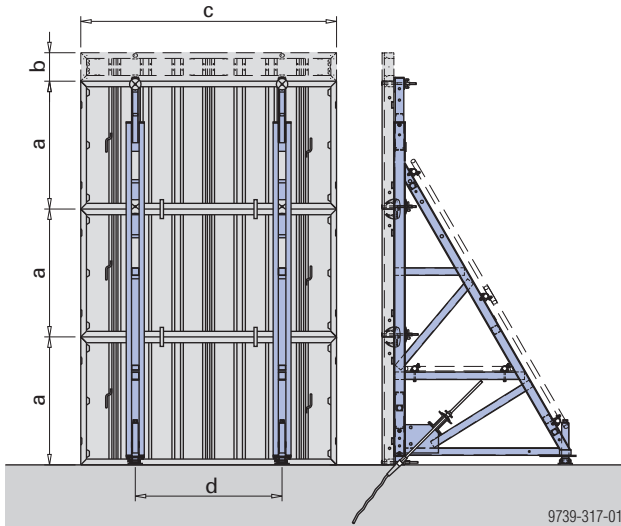


Alternatively:



- A** Supporting construct. frame Universal F
- B** Multi-purpose waling WS10 Top50
- C** Framax supporting construct. frame bolt 36cm
(assembly with Tie-rod wrench 15.0/20.0)
- D** Super plate 15.0 (or to avoid collision with the waling for supporting construction frame:
Framax pressure plate 6/15 + Hexagon nut 15.0)
- E** Waling-to-bracket holder 9-15cm
- F** Framax wedge clamp
- G** Anchoring sleeve of the framed panel
- H** Integral waling profile of the framed panel
- I** Framax universal fixing bolt 10-16cm
- J** She-bolt 15.0
- K** Pigtail anchor 15.0
- L** Multi-purpose waling WU12
- M** Framax Xlife plus supporting-frame bolt
(assembly with Tie-rod wrench 15.0/20.0)

Waling-to-bracket holder	Waling-to-bracket holder (new version)
H ... permitted horizontal load: 11 kN	H ... permitted horizontal load: 22 kN
	

Variant 3 (directly on the supporting construction frame)

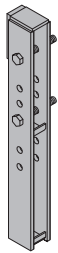
View shown without bracing.

a ... 1.35 m

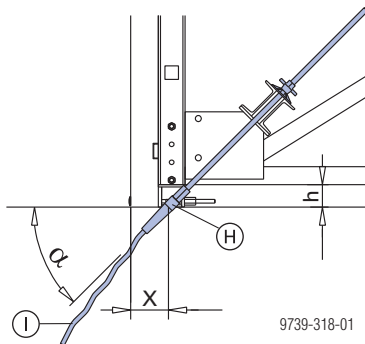
b ... 0.30 m (vertical stacking above the Framax/SC-frame connector: max. with 0.30m panel)

c ... 2.70 m

d ... 1.55 m

**Framax supporting construct. frame connector:**

- extends the length of the SC-frame sufficiently to enable the top form-tie holes of the panels to be used for fixing
- is used instead of the front spindle and makes it possible to use the bottom form-tie holes of the panel for fixing

Tie-rod positionsX ... 17.0 cm (where anchor is angled at 45° and where h = 10.0 cm)
α ... 45°**Fixing the panel**

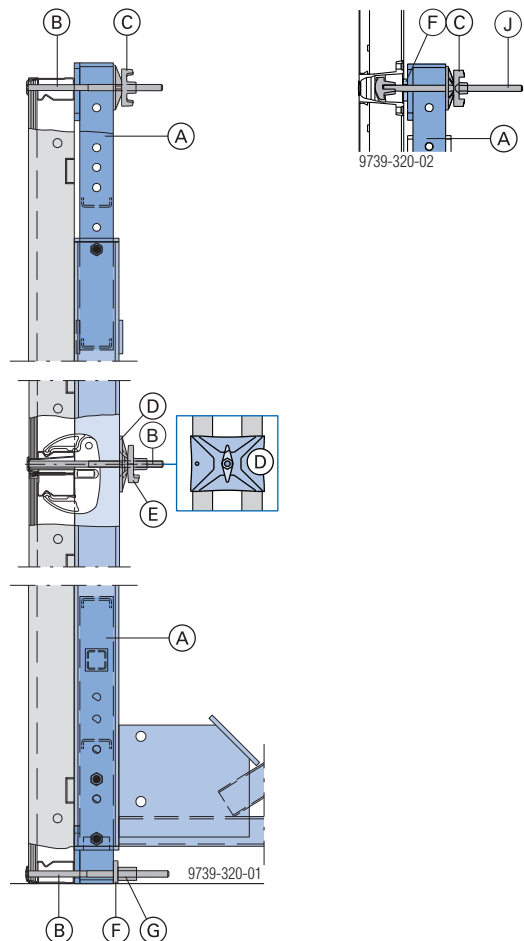
Framax Xlife plus panels and Framax Xlife panels turned on their side can be clamped directly to the supporting construction frame.

Means of attachment:

- Framax Xlife: **Framax supporting construct. frame bolt 36cm**
- Framax Xlife plus: **Framax Xlife plus supporting-frame bolt**

Note:

- Due to the wide gap between the SC-frame profiles, an Anchor plate 15/20 with Wing nut 15.0 must be used for fixing the formwork.
- Framed formwork Framax Xlife plus: At each of the two top connections, remove the washer of the supporting-frame bolt and the Hexagon nut 15.0 and replace them with a Framax pressure plate 6/15 and a Super plate 15.0.

Framax Xlife plus:

- A** Framax supporting construct. frame connector
- B** Framax supporting construct. frame bolt 36cm (use Tie-rod wrench 15.0/20.0 to install)
- C** Super plate 15.0
- D** Anchor plate 15/20
- E** Wing nut 15.0
- F** Framax pressure plate 6/15
- G** Hexagon nut 15.0
- H** She-bolt
- I** Pigtail anchor
- J** Framax Xlife plus supporting-frame bolt

General

Inside corner configurations

General

Wherever possible, inside corners should be avoided on single-sided formwork. Plan to have the construction joint in the corner instead (to avoid time-consuming planning and modification work).
If corners still need to be constructed in a single pour, two standard components are available for this:

- Corner plate for SC frame
- Anchor waling 0.70m

Example with framed formwork Framax Xlife

Up to a formwork height of 2.70 m, only 1 Supporting construct. frame Universal F 4.50m is needed in the corner zone.

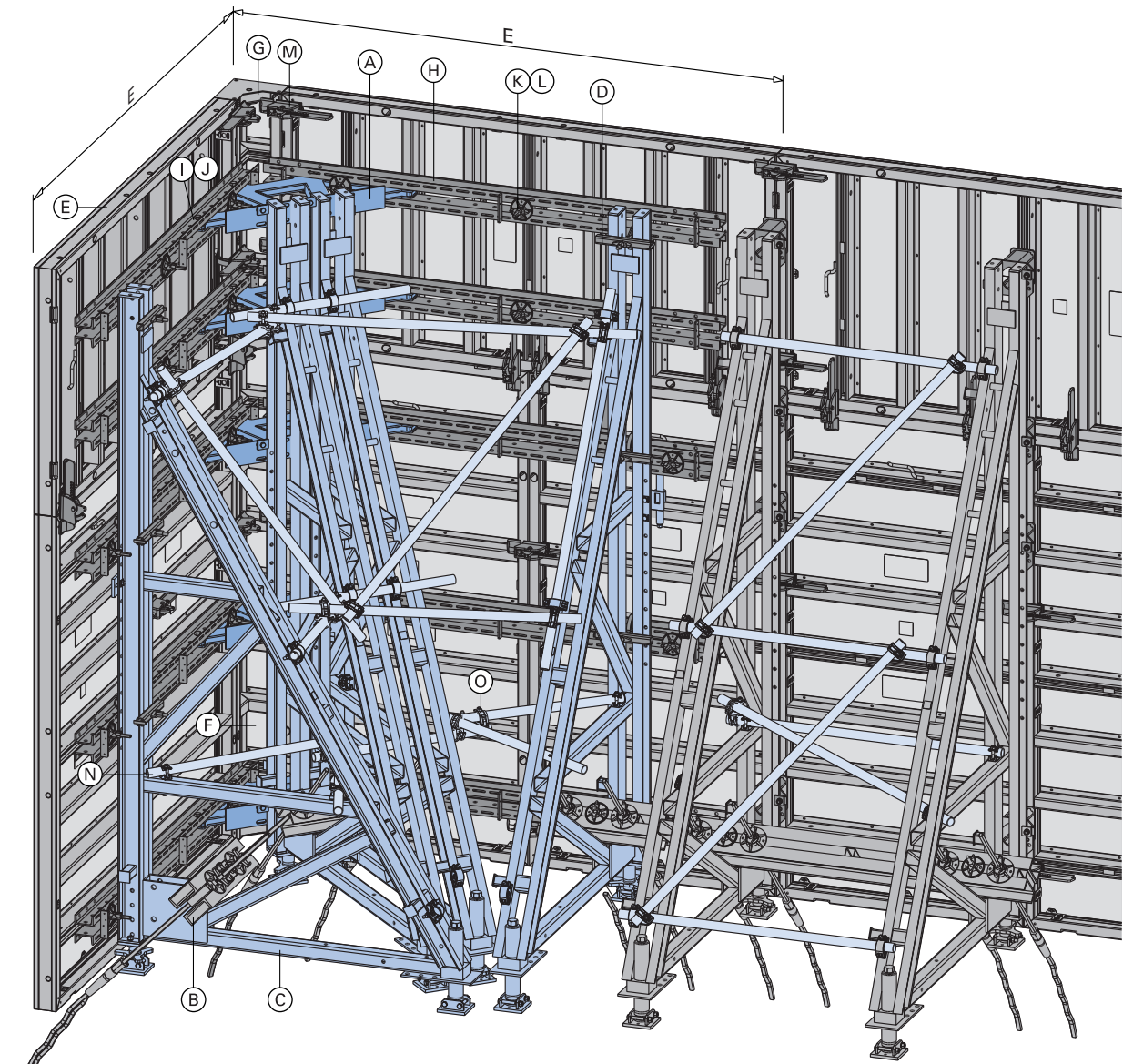
On account of the supporting construction frame's geometry, the influence widths are as follows:

	Influence width per SC-frame / pair of anchors
Supporting construction frame at the corner plate	2.50 m
Both outside SC frames	0.80 m

Permitted fresh-concrete pressure:	Pour height H [m]	Anchor force Z _k [kN]
50 kN/m ²	3.15	190
	3.60	230
	4.05	270
	4.50	310



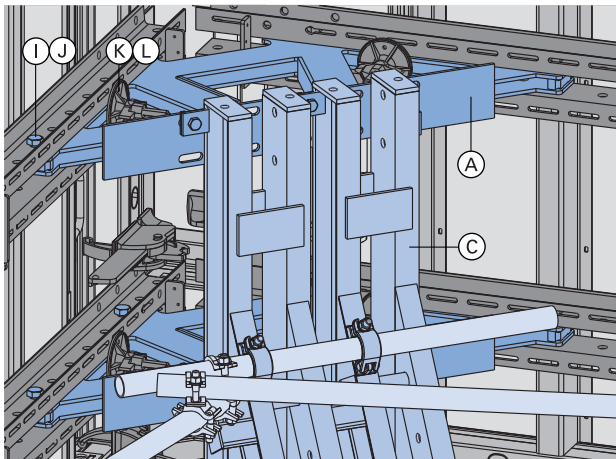
NOTICE
Anchor force Z_k is the force acting on **one** anchor!



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E ... 3.00 m

Close-up of Corner plate for SC frame



9739-237-02

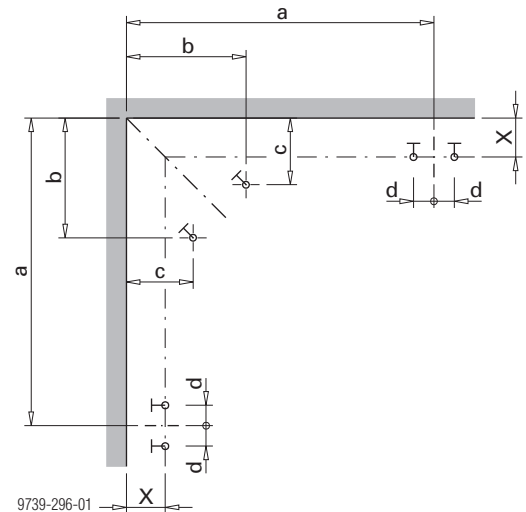
Items needed for corner zone 3.00 x 3.00 m

	Formwork height	
	2.70 m	4.05 m
(A) Corner plate supporting constr. frame	3	5
(B) Anchor waling 0.70m	3	4
(C) Supporting construct. frame Universal F 4.50m	3	4
(D) Waling-to-bracket holder 9-15cm	4	6
(E) Framax Xlife panel 1.35x2.70m	4	6
(F) Framax Xlife inside corner 2.70m	1	1
(G) Framax Xlife inside corner 1.35m	--	1
(H) Multi-purpose waling WS10 Top50 2.50m	6	10
(I) Connecting pin 10cm	12	20
(J) Spring cotter 5mm	12	20
(K) Framax universal fixing bolt 10-16cm	12	20
(L) Super plate 15.0	12	20
(M) Framax multi function clamp	10	24
(N) Scaffold tube 48.3mm 1.00m	5	5
(O) Swivel coupler 48mm	4	4
Total weight [kg] - rounded	2440	3560

The table also takes account of the components needed to connect to the adjacent element on one side.

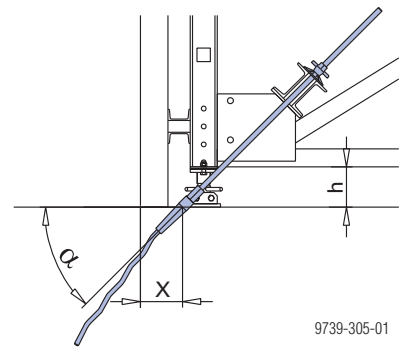
Location of anchoring points

Plan view



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View



9739-305-01

The dimensions given here apply to framed formwork Framax Xlife and Alu-Framax Xlife where:

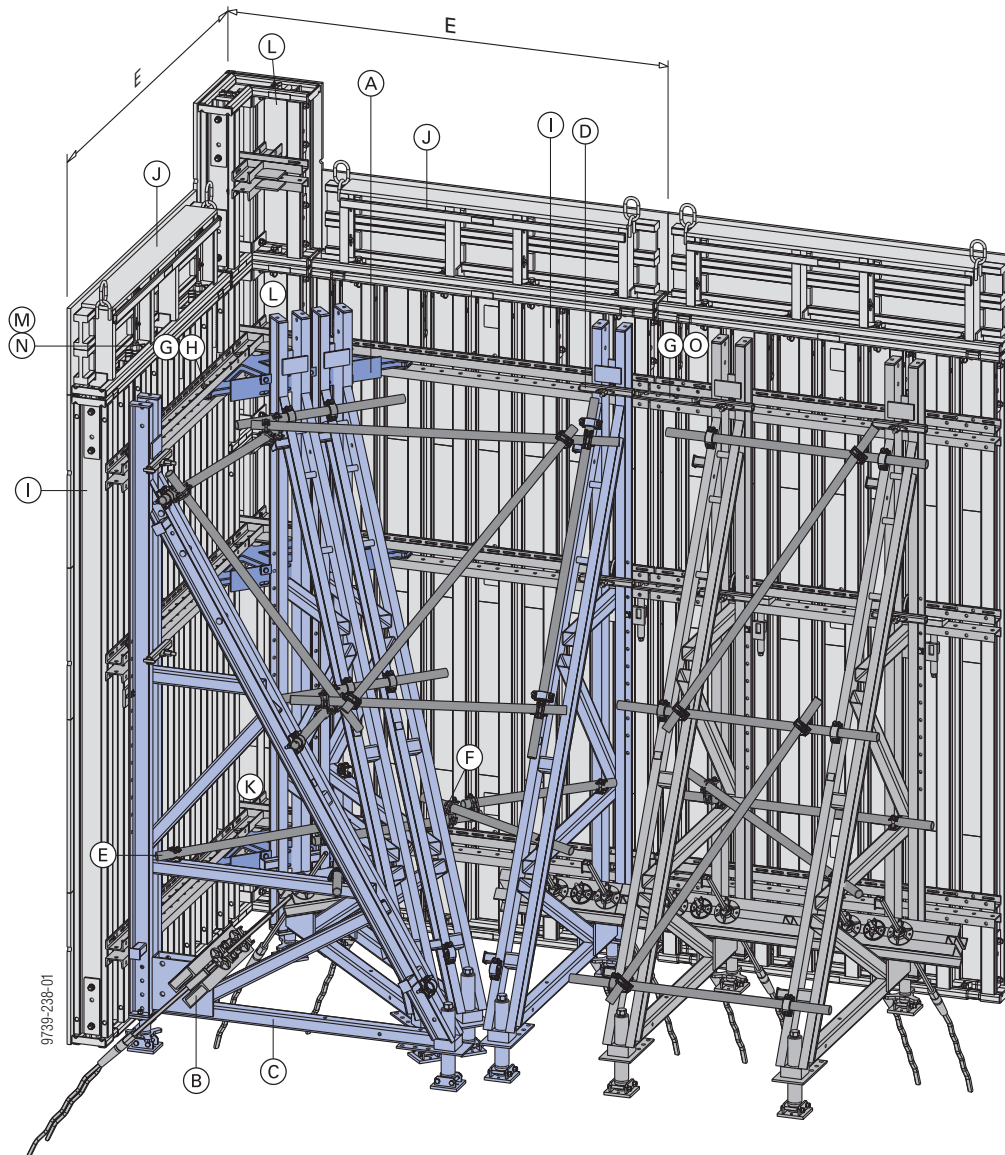
- **h = 18.0 cm**
- the anchor inclination $\alpha = 45^\circ$
- a ... 226.0 cm
- b ... 78.0 cm
- c ... 39.0 cm
- d ... 15.0 cm
- X ... 19.0 cm

Example with Wall formwork FF20

Up to a formwork height of 2.75 m, only 1 Supporting construct. frame Universal F 4.50m is needed in the corner zone.

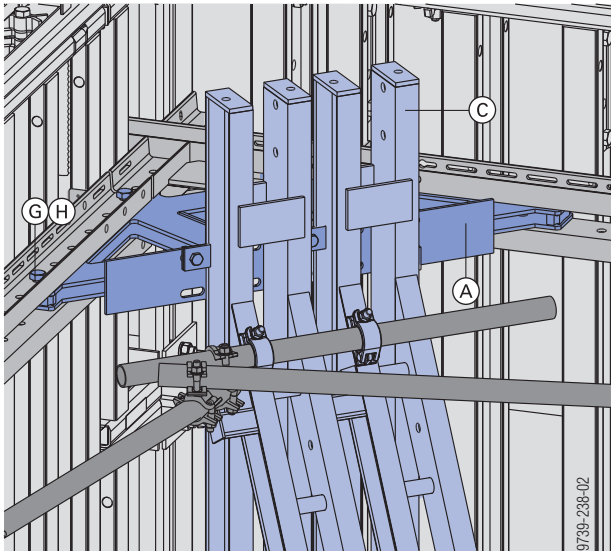
Note:

For dimensioning, see the section headed 'Example with Framed formwork Framax Xlife'.



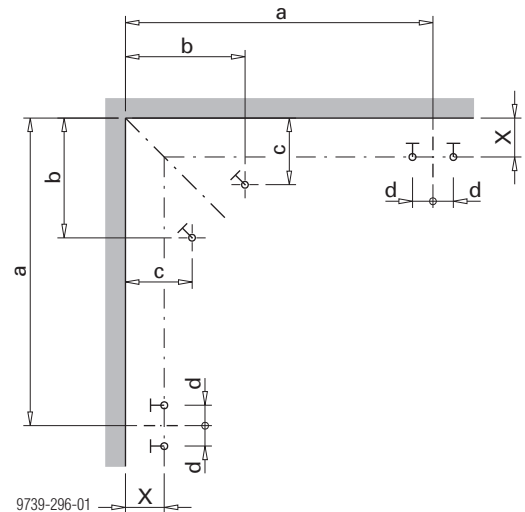
Form-ply	Corner zone – Dimension E
21mm	255.0 cm
27mm	255.6 cm

Close-up of Corner plate for SC frame



Location of anchoring points

Plan view



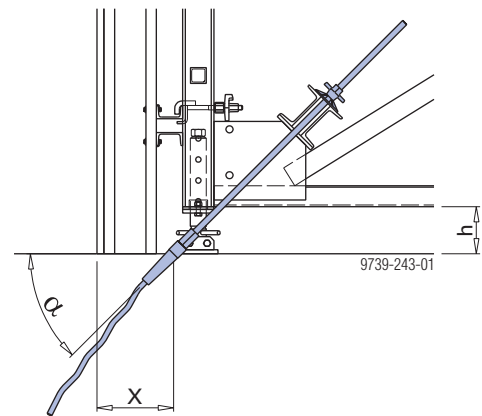
Items needed for corner zone E

	Formwork height	
	2.75 m	4.25 m ¹⁾
(A) Corner plate supporting constr. frame	2	3
(B) Anchor waling 0.70m	3	4
(C) Supporting construct. frame Universal F 4.50m	3	4
(D) Waling-to-bracket holder 9-15cm	4	6
(E) Scaffold tube 48.3mm 1.00m	5	5
(F) Swivel coupler 48mm	4	4
(G) Connecting pin 10cm	20	30
(H) Spring cotter 5mm	12	18
(I) Formwork element FF20 2.00x3.75m	--	2
(J) Stacking element FF20 2.00x0.50m	--	2
(K) Inside corner FF20 2.75m	1	1
(L) Inside corner FF20 1.00m	--	2
(M) Fastening bolt FF20	--	12
(N) Star grip nut 15.0 G	--	12
(O) Formwork element connector FF20/50 Z	2	3
(P) Formwork element FF20 2.00x2.75m	2	--
Total weight [kg] - rounded	2100	3030

The table also takes account of the components needed to connect to the adjacent element on one side.

¹⁾ The maximum permissible pouring height is 4.10 m.

View



The dimensions given here apply to H20 timber-beam formwork with a 21 mm or 27 mm thick form-ply where:

- **h = 18.0 cm**
- the anchor inclination $\alpha = 45^\circ$
- a ... 236.0 cm
- b ... 88.0 cm
- c ... 49.0 cm
- d ... 15.0 cm
- X ... 29.0 cm

Pouring platforms



NOTICE

Because of the great flexibility with which SC-frame units can be set up and combined with different formwork systems and heights, consideration should be given at the planning stage to which platform configuration is most suitable for the intended application (collision test, maximum drops etc.).

Also consider the situation applying during lifting of the SC-frame units, particularly when the platforms are above the crane hoisting points. Observe all applicable safety regulations.

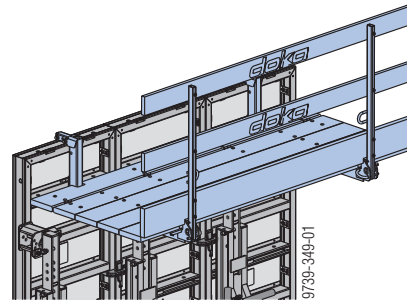
Formwork-dependent platforms

The pouring platforms and brackets belonging to the formwork system can still be used. As with normal wall formwork, these are mounted directly onto the formwork.



Follow the directions in the relevant User Information booklet.

Example: Framax pouring platform U 1.25/2.70m

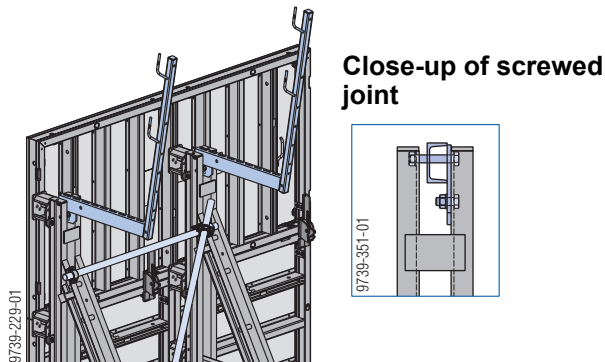


Non-formwork dependent platforms

Screw-on access bracket MF75

Features:

- a universal working bracket
- platform width 75 cm
- is fastened directly to the vertical profile of the Supporting construct. frame Universal F
- is independent of which type of formwork system is being used



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

Load Class 2 to EN 12811-1:2003

Max. influence width: 2.00 m

Deck-boards and guardrail boards: Per 1 metre length of platform, 0.75 m² of deck-boards and 0.6 m² of guardrail boards are needed (site-provided).

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

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

Note:

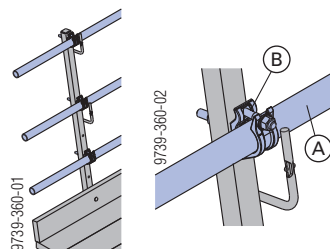
The plank and board thicknesses given here comply with the C24 category to EN 338.

Observe all national regulations applying to deck-boards and guardrail boards.

Fastening the deck-boards: with 4 square bolts M10x70 and 1 square bolt M10x180 per bracket (not included in scope of supply).

Fastening the guardrail boards: with nails

Using scaffold tubes



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

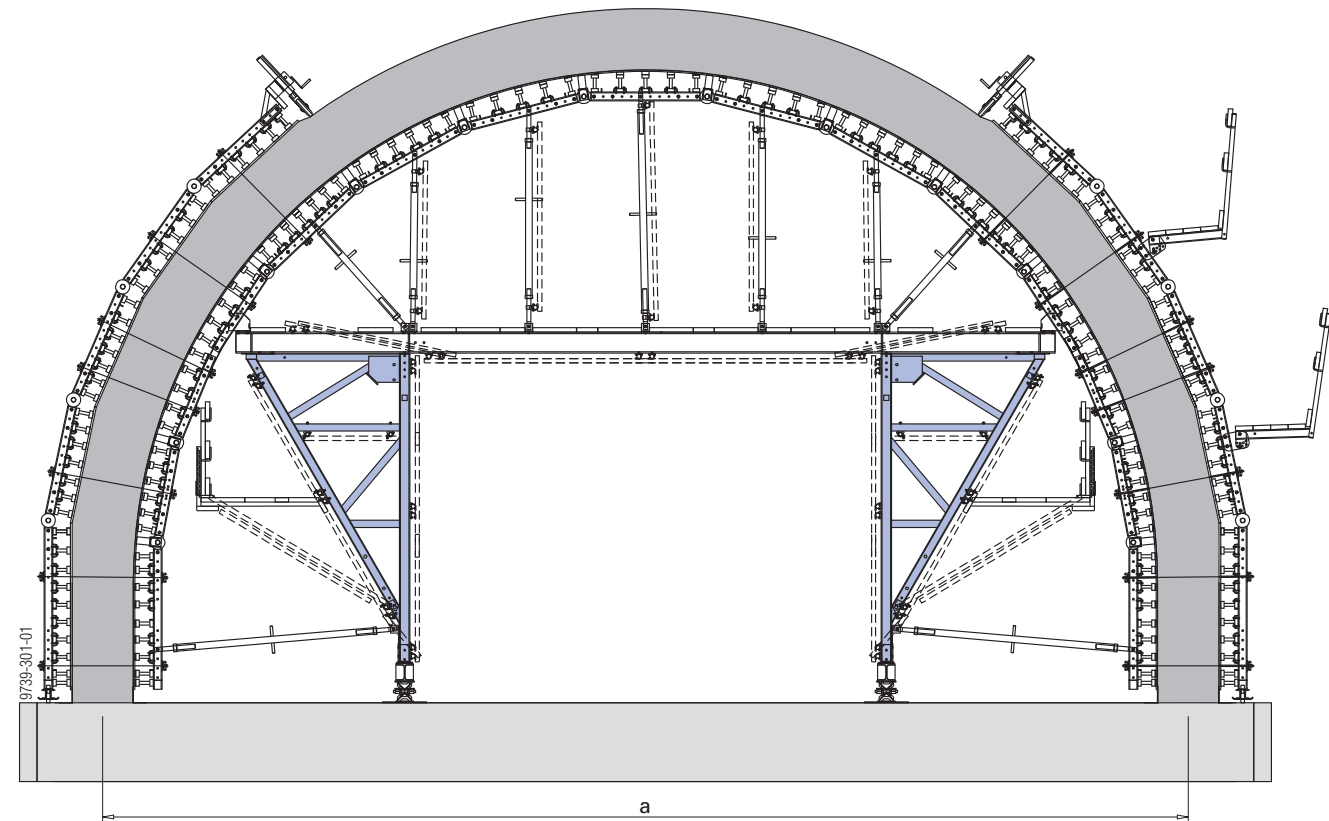
A Scaffold tube 48.3mm

B Screw-on coupler 48mm 95

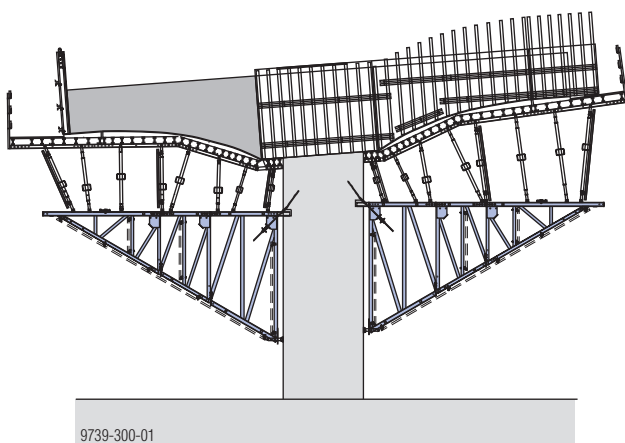
Special applications

In many cases, formwork for tunnel arches can be assembled entirely from standard Doka components. The main load-bearing elements in these examples are "inverted" Doka supporting construction frames Universal F.

They can also be used to construct cantilevering platforms, as used in e.g. bridge-building projects and for constructing cantilever slabs (e.g. on telecommunications towers).

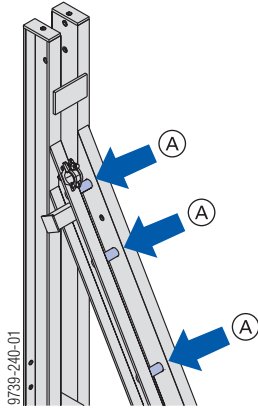


a ... e.g. 11.7 m



Lifting by crane

The Supporting construct. frame Universal F is equipped with 3 crane-hoisting points. In this way, it is always possible to find an optimum centre-of-gravity position for the whole unit, despite the many different possible configurations of the formwork and SC-frames (e.g. vertically stacked configurations using attachable frames).



A Crane-hoisting points

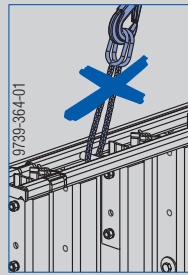
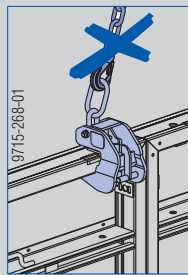
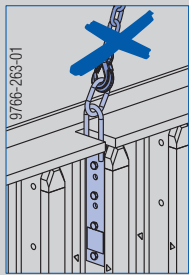
Max. load-bearing capacity:

2500 kg per crane-hoisting point

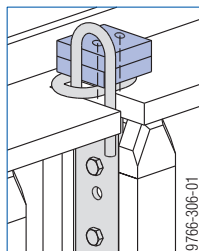


WARNING

► Any crane slinging points on the **formwork element or panel** must **not** be used for lifting the unit (SC-frame + formwork) in one piece.



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



NOTICE

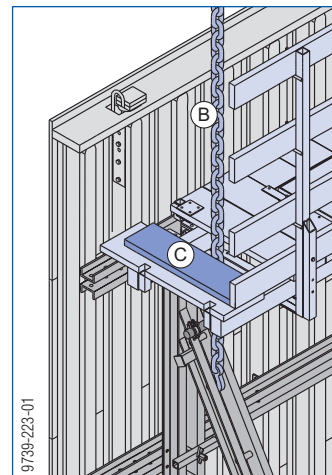
- When lifting and resetting SC-frames, do **not attach the crane to the formwork element or to other components** such as multi-purpose walings.
- Permitted lift-in-one unit:
Supporting construction frame unit with **max. 3 girderframe units**.
- **Only lift/reposition units that have been correctly braced.**
- Before repositioning, **check** that the formwork element/panel is **correctly fixed** onto the Supporting construction frame (Waling-to-bracket holder, Supporting construction distancer 20cm, Framax supporting construct. frame bolt 36cm).
- Before repositioning, check that the **Adjusting spindles are in the correct position** (to transfer the load from the weight of the formwork).
- Lifting the SC-frames with the formwork attached is **only permitted at near-ground level**.
- Make sure that the **crane suspension tackle is sufficiently long** (oblique pull).
- **Never use the crane to break concrete cohesion!**



WARNING

► In all phases of the work, ensure sufficient stability when setting down the SC-frame-units! (Where necessary, provide ballast, tie-backs or extra shoring.)

Attaching the hoisting tackle when a pouring platform is being used



B Lifting chain

C Tilt-back board in platform decking

Repositioning using traveller units

- For quick repositioning of the SC-frame units in situations where no crane assistance is available (e.g. in tunnels)
- Wherever crane time is in short supply

Note:

There must be a flat, firm (e.g. concrete), adequately dimensioned floor that is capable of supporting the load.

Supporting construction frame Universal F up to 6.00 m in height

Traveller unit can be mounted on:

- Supporting construction frame Universal F 4.50m
- Attachable frame F 1.50m

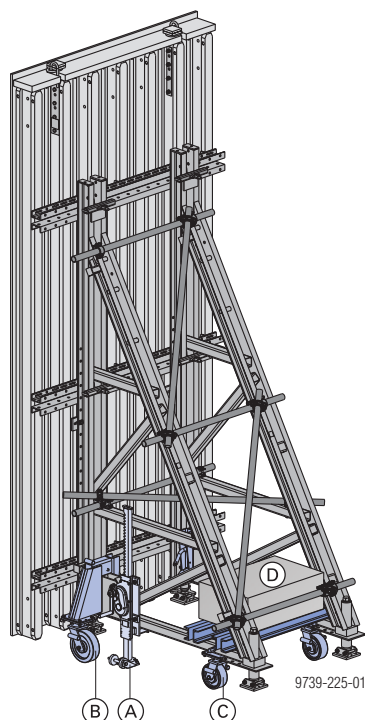


Follow the directions in the "Winch with transport device" Operating Instructions!

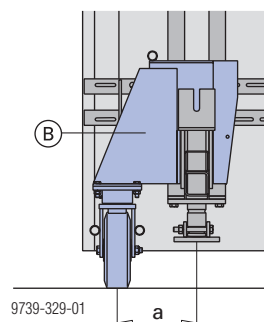
Max. load:

Attachable roller 250: 1400 kg

Attachable roller 200: 1000 kg



Cross-section



a ... 27 cm

A Winch with transport device

B Attachable roller 250

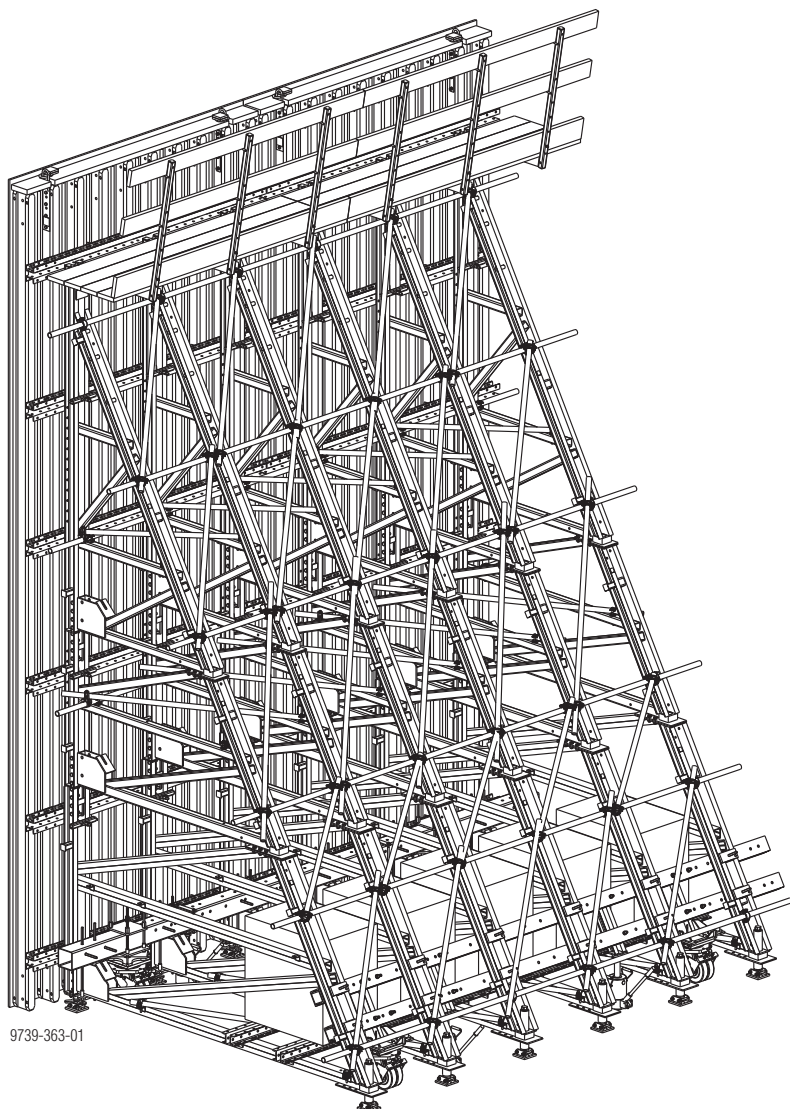
C Attachable roller 200

D Ballast

Supporting construction frame Universal F from 6.00 to 8.00 m in height

Traveller unit can be mounted on:

- Attachable frame F 2.00m



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List of components:

Travelling profile F 2.00m front
Wheel connector F 2.00m front
Clamping jaw F 2.00m
Clamping plate F 2.00m
Intermediate plate F 2.00m
Travelling profile F 2.00m rear
Wheel connector F 2.00m rear
Connecting plate F 2.00m
Bolting plate F 2.00m
Connector plate F 2.00m
Lifting bracket F 2.00m rear
Heavy-duty wheel 90kN
Lowering cylinder SL-1 250kN

Note:

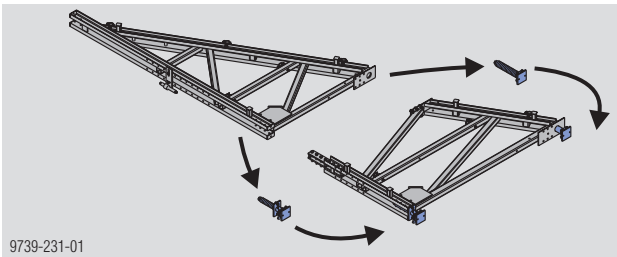
For more information, please contact your Doka technician.

Assembly; transporting, stacking and storing

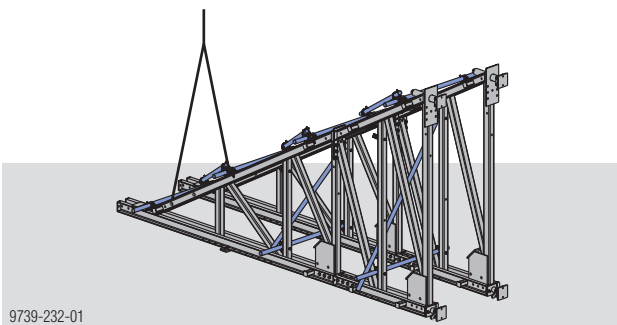
Example of a vertically stacked configuration:

Pre-assembly

- Place a Supporting construct. frame Universal F 4.50m and an Attachable frame 1.50m (plus an Attachable frame F 2.00m if needed) flat on the ground.
- Dismount the front spindle, including the nut-plate, from the Supporting construct. frame Universal F 4.50m. Mount this spindle in the appropriate Attachable frame (width across flats 24 mm).
- Unscrew the rear spindle from the Supporting construct. frame Universal F 4.50m and screw it into the appropriate Attachable frame (width across flats 46 mm).



- Bolt the Supporting construct. frame Universal F 4.50m onto the Attachable frame (across flats 30 mm).
- When it has been bolted together, raise the supporting construction frame on to its back and stabilise it so that it cannot fall over.
- Raise the next supporting construction frame on to its back in the same way. Space the two frames the required centre-to-centre distance apart and brace them with scaffold tubes (width across flats 22 mm). See the section headed 'Standard units' for details of how to arrange the scaffold tube-bracing.

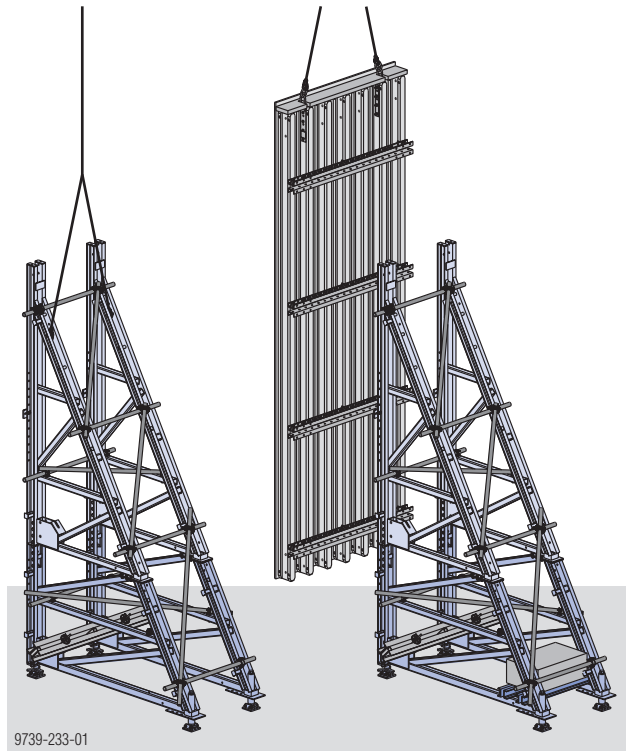


Closing the formwork



WARNING

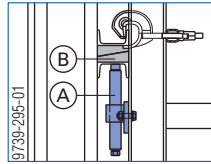
- In all phases of the work, ensure sufficient stability when setting down the SC-frame-units! (Where necessary, provide ballast, tie-backs or extra shoring.)
- Raise the entire SC-frame unit by crane and stand it in the upright (see the section headed 'Resetting by crane').
- Mount the anchor walings.
- Lift the pre-assembled formwork element by crane and position it against the SC-frame unit.
- Secure the gang-form to the supporting construction frame unit (using the connectors appropriate to the formwork system).
- Detach the gang-form from the crane.



- Crane-lift the entire unit to the usage location (see the section headed 'Resetting by crane').
- Adjust the unit with the spindles.
- Anchor the unit.

Note:

The **adjusting spindle** fixes the formwork panels at the desired height (to transfer the load from the weight of the formwork) and also permits fine adjustment.

**A** Height-adjusting spindle

B Timber wedges in the multi-purpose walings (near the adjusting spindles – for ensuring better load transfer)

Tools needed for assembly:

For	Width-across [mm]	Tool
Vertical stacking	30	<ul style="list-style-type: none"> Reversible ratchet 1/2" with Box nut 30 1/2" or Fork spanner 30/32
Bracing-tube couplers	22	<ul style="list-style-type: none"> Fork spanner 22/24
Relocating the Adjusting spindle	24	<ul style="list-style-type: none"> Reversible ratchet 1/2" with Box nut 24 1/2" or Fork spanner 22/24
Removing and refitting the front spindle incl. nut-plate	24	<ul style="list-style-type: none"> Reversible ratchet 1/2" with Box nut 24 1/2" or Fork spanner 22/24
Supporting construction distancer 20cm	30 / 24	<ul style="list-style-type: none"> Fork spanner 30/32 Reversible ratchet 1/2" with Box nut 24 1/2" or Fork spanner 22/24
Holding the SC-frame bolt		<ul style="list-style-type: none"> Tie rod wrench 15.0/20.0

Tools needed for operation:

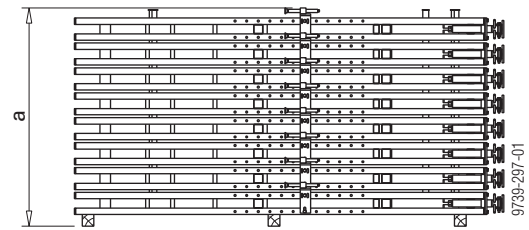
For	Width-across [mm]	Tool
Adjusting spindle	19	<ul style="list-style-type: none"> Reversible ratchet 1/2" with Box nut 19 1/2" L and Extension piece 11cm
Spindles (front and rear)	46	<ul style="list-style-type: none"> Reversible ratchet 3/4" with Box nut 46 3/4" and Extension piece 20cm 3/4"
Attachable roller 200 (rear)	22	<ul style="list-style-type: none"> Fork spanner 22/24

Transporting, stacking and storing

The welded-on spacers prevent the SC-frames sliding over one another, and ensure that the stacked "layers" are safe against overturning.

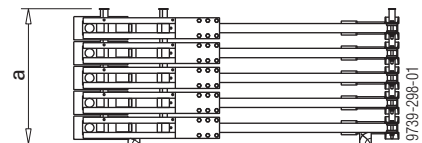
The fact that the SC-frames can be separated not only provides a high degree of adaptability to different heights of formwork, but also means that they are transported by truck easily and (thanks to the integral spacers) safely.

Supporting construction frame Universal F 4.50m

Stack of 8 (weight approx. 2500 kg)

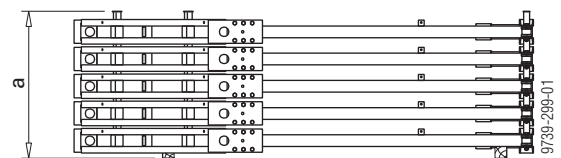
a ... 188 cm

Attachable frame F 1.50m

Stack of 5 (weight approx. 1200 kg)

a ... 116 cm

Attachable frame F 2.00m

Stack of 5 (weight approx. 2300 kg)

a ... 126 cm

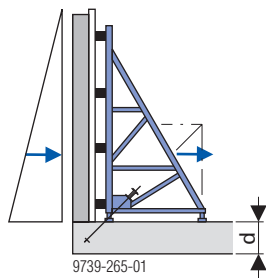
Transferring the forces which occur



NOTICE

The high anchoring and reaction forces which occur when SC-frames are used necessitate a number of additional **safety precautions**.

- For tension anchoring, choose the Doka tie rod system – 15.0, 20.0 or 26.5 – that is most suitable for the tensile forces occurring.
- Reinforce all structure members sufficiently.
- The forces can only be transferred safely into the anchorage foundation where the concrete slab (d) is sufficiently thick.

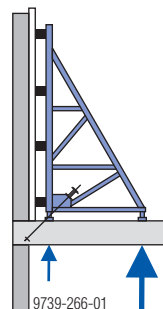


- Verify the stability of each of the structure members – and, if necessary, of the entire structure.

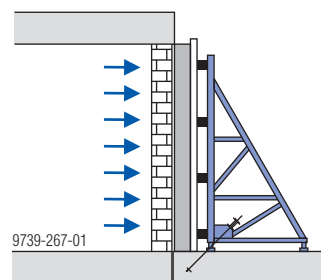


NOTICE

- Setting up SC-frames on floor-slabs: Use adequately dimensioned supports to transfer the loads to the floors below, and ultimately to the foundations, to the extent necessary to enable all floor slabs to withstand the load imposed on them by the SC-frames.



- Perform a calculation for punching, if necessary.
- Verify the capacity of the 'opposing side' (walls, rock) and secure with separate shoring if necessary.



- Separate statical calculations are required for any versions deviating from those outlined in this booklet.

Anchoring solutions for the supporting construction frames

The loads from the diagonal anchors are transferred via anchor walings.

For each SC-frame, an anchor is placed 15 cm either side of the vertical axis of the SC-frame (i.e. 2 in all).

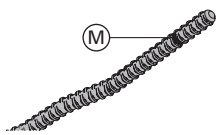
Exception: If the load-bearing capacity is sufficient for 1 anchor per SC-frame, the anchors on each unit must be placed symmetrically.

General

In each anchoring system, there are two variants to choose between:

▪ With pigtail anchor

This is the anchorage method that can best transfer the high tensile forces from SC-frames into the foundation slabs.



M The depth mark must always be at the end fitted into the she-bolt

▪ With stop anchor



CAUTION

- It is forbidden to mix suspension components that have different depths of concrete cover!
- Always screw in components until they are fully engaged. When correctly fitted, there will still be 1 cm of thread visible between the part and the depth mark on the stop anchor or pigtail anchor.



WARNING

Sensitive rod steel!

- Never weld or heat tie rods.
- Tie rods that are damaged or have been weakened by corrosion or wear must be withdrawn from use.

Permitted loads for anchor walings

Anchor waling	Permitted anchor force Z
Multi-purpose waling WS10 Top50	151 kN
Multi-purpose waling WU12 Top50	215 kN
Top100 tec waling WU14	285 kN
Multi-purpose waling SL-1 WU16	322 kN
Anchor waling 1.95m and 2.95	402 kN
Anchoring profile 0.55m	700 kN



NOTICE

The tensile forces that can be sustained only apply where the anchor is positioned exactly as required, i.e. 15 cm either side of the vertical axis of the SC-frame.

Dimensioning the anchorages

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

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

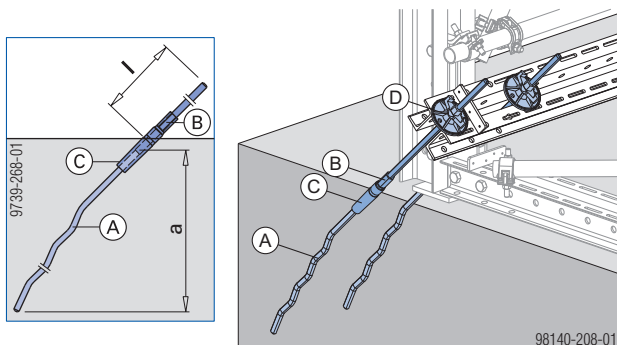
The introduction of the forces, the transfer of these forces into the structure, and the stability of the overall construction, must all be verified by the structural designer.



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

Tie rod system 15.0

Variant using pigtail anchor



a ... min. 39.5 cm - max. 52 cm

- A** Pigtail anchor 15.0 (expendable anchoring component)
- B** She-bolt 15.0 5cm (nominal length $l=65$ cm) incl. **(C)**
She-bolt 15.0 5cm 1.20m (nominal length $l=120$ cm) incl. **(C)**
- C** Sealing sleeve 15.0 5cm (expendable anchoring component)
- D** Super plate 15.0

Note:

She-bolts are supplied with sealing sleeves. Before every re-use, fit a new sealing sleeve to facilitate removal.

Tools for removing she-bolts:

- Tie-rod wrench 15.0/20.0 or
- Fork wrench 24

Alternative method of preparing the positioning-point

- Positioning cone 15.0 5cm with Sealing sleeve 15.0 5cm¹⁾
- Tie rod 15.0mm (length as required)

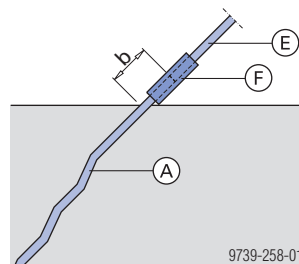
Dismantling tools:

- for the Positioning cone: Positioning cone spanner 15.0 DK
- for turning the tie rod: Tie rod wrench 15.0/20.0

Another alternative:

Pigtail anchor protrudes from concrete:

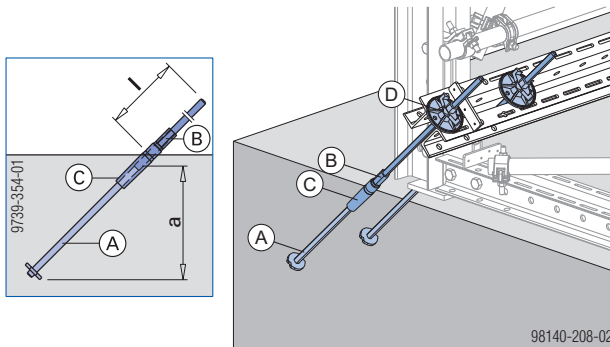
Instead of the she-bolt, fasten a Tie rod 15.0mm to the pigtail anchor using a Rod connector 15.0.



b ... min. 8.0 cm - max. 10.0 cm

- A** Pigtail anchor 15.0
- E** Tie rod 15.0mm
- F** Rod connector 15.0

Variant using stop anchor



	a
Stop anchor 15.0 40cm 55	30 cm
Stop anchor 15.0 16cm 55	13 cm

- A** Stop anchor 15.0 (expendable anchoring component)
- B** She-bolt 15.0 5cm (nominal length $l=65$ cm) incl. **(C)** or
She-bolt 15.0 5cm 1.20m (nominal length $l=120$ cm) incl. **(C)**
- C** Sealing sleeve 15.0 5cm (expendable anchoring component)
- D** Super plate 15.0

Note:

She-bolts are supplied with sealing sleeves. Before every re-use, fit a new sealing sleeve to facilitate removal.

Tools for removing she-bolts:

- Tie-rod wrench 15.0/20.0 or
- Fork wrench 24

Alternative method of preparing the positioning-point

- Positioning cone 15.0 5cm with Sealing sleeve 15.0 5cm¹⁾
- Tie rod 15.0mm (length as required)

Dismantling tools:

- for the Positioning cone: Positioning cone spanner 15.0 DK
- for turning the tie rod: Tie rod wrench 15.0/20.0

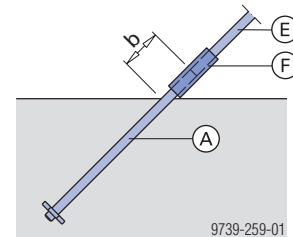
Another alternative:

Stop anchor protrudes from concrete:

Instead of the she-bolt, fasten a Tie rod 15.0mm to the stop anchor using a Rod connector 15.0.



- ▶ The Stop anchor 15.0 16cm 55 is not suitable here!
Placement depth is too shallow!



b ... min. 8.0 cm - max. 10.0 cm

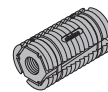
- A** Stop anchor 15.0 40cm 55
- E** Tie rod 15.0mm
- F** Rod connector 15.0

Retrofitting anchorages in the concrete



Follow the directions in the 'Rock-anchor spreader unit 15.0' Fitting Instructions!

- Tie rod 15.0mm
- Rock anchor spreader unit 15.0 ¹⁾



¹⁾ Expendable anchoring component

Extra components needed for preparing the anchoring point:

- Tensioning instrument 300kN, consisting of
 - 1 hollow-piston cylinder
 - 1 hydraulic hand pump
 - 1 pressure support
 - 1 carrying case
 - 1 Rock anchor installation tube
- Tie-rod wrench 15.0/20.0
- Super plate 15.0
- Rock drill-bits diam. 37 or 38 mm

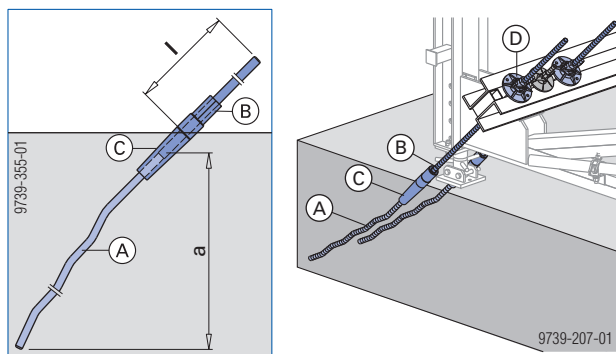
Observe load-bearing capacity as stated in the section headed 'Carrying out the acceptance test' in the 'Rock anchor spreader unit 15.0' Fitting Instructions!

Note:

Also, a slip-proof support surface must be provided so that the Tensioning instrument B can be used at a 45° angle.

Tie rod system 20.0

Variant using pigtail anchor



a ... min 48 cm – max. 65 cm

- A** Pigtail anchor 20.0¹⁾
- B** She-bolt 20.0 (nominal length l=125 cm) incl. **(C)**
- C** Sealing sleeve 20.0¹⁾
- D** Super plate 20.0 B

¹⁾ Expendable anchoring component

Note:

She-bolts are supplied with sealing sleeves. Before every re-use, fit a new sealing sleeve to make the she-bolt easier to remove!

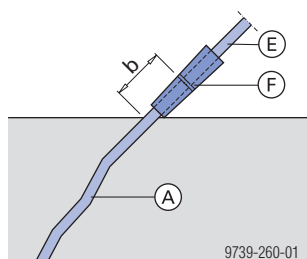
Tools for removing she-bolts:

- Tie rod wrench 15.0/20.0 or 20.0/26.5
or
- Fork spanner 36/41

Another alternative:

Pigtail anchor protrudes from concrete:

Instead of the she-bolt, fasten a Tie rod 20.0mm to the pigtail anchor using an Anchoring cone 20.0.



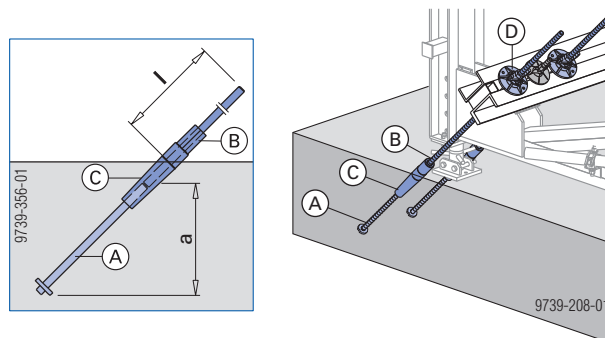
b ... min. 10.0 cm

- A** Pigtail anchor 20.0
- E** Tie rod 20.0mm
- F** Anchoring cone 20.0

Tool for removing Anchoring cone 20.0:

- Cone spanner 20.0

Variant using stop anchor



	a
Stop anchor 20.0 40cm 55	30 cm
Stop anchor 20.0 17.5cm 55	14 cm

- A** Stop anchor 20.0 17.5cm 55¹⁾ or Stop anchor 20.0 40cm 55¹⁾
- B** She-bolt 20.0 (nominal length l=125 cm) incl. **(C)**
- C** Sealing sleeve 20.0¹⁾
- D** Super plate 20.0 B

¹⁾ Expendable anchoring component

Note:

She-bolts are supplied with sealing sleeves. Before every re-use, fit a new sealing sleeve to make the she-bolt easier to remove!

Tools for removing she-bolts:

- Tie rod wrench 15.0/20.0 or 20.0/26.5
or
- Fork spanner 36/41

Another alternative:

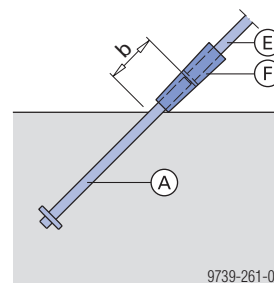
Stop anchor protrudes from concrete:

Instead of the she-bolt, fasten a Tie rod 20.0mm to the Stop anchor 20.0 40cm 55 using an Anchoring cone 20.0.



► The Stop anchor 20.0 17.5cm 55 is not suitable here!

Placement depth is too shallow!



b ... min. 10.0 cm

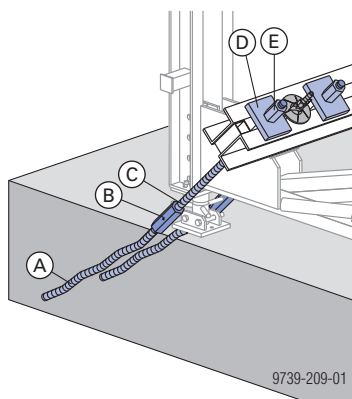
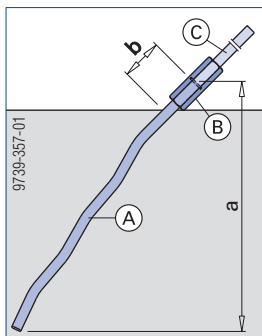
- A** Stop anchor 20.0 40cm 55
- E** Tie rod 20.0mm
- F** Anchoring cone 20.0

Tool for removing Anchoring cone 20.0:

- Cone spanner 20.0

Tie rod system 26.5

Variant using pigtail anchor



a ... min 41.5 cm – max. 58.5 cm

b ... min. 11.5 cm

A Pigtail anchor 26.5¹⁾

B Rod connector 26.5

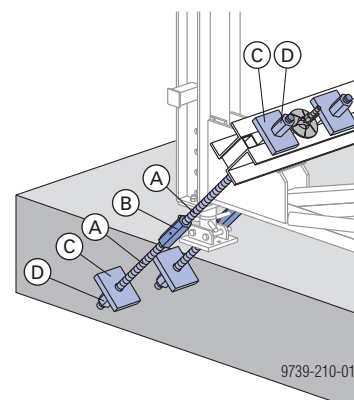
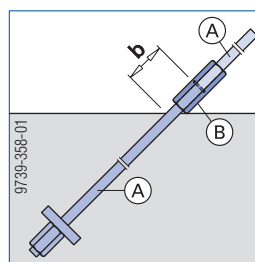
C Tie rod 26.5mm

D Anchor plate 26.5

E Hexagon nut 26.5

¹⁾ Expendable anchoring component

Variant using stop anchor



b ... min. 11.5 cm

A Tie rod 26.5mm¹⁾

B Rod connector 26.5

C Anchor plate 26.5¹⁾

D Hexagon nut 26.5¹⁾

¹⁾ The combination of

- Tie rod 26.5mm

- Anchor plate 26.5

- Hexagon nut 26.5

together serves as a substitute for a stop anchor. For this reason it counts as an "expendable anchoring component".

Fitting diagonal anchors

In everyday site practice, there are various different ways of preparing positioning points for diagonal anchors at a precise angle (usually 45°), depending on the site situation.

The following examples show several possible and effective variants. These apply equally to the use of either pigtail anchors or stop anchors.



NOTICE

Fit the anchors at a 45° angle!

Fitting a diagonal anchor at a steeper angle than this increases the load!

If the angle is increased by 10° (to 55°), this increases the load on the tie rod by over 20% and may thus lead to serious overloading.

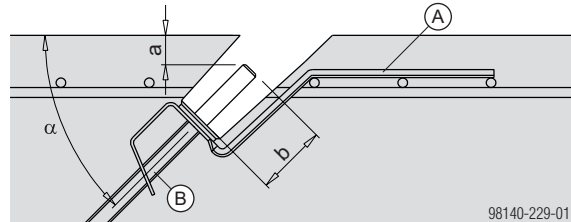
Anchor holders and clearance cones

For precise location and directionally stable fitting of anchoring components at a 45° angle.



Follow the directions in the 'Clearance cones' Fitting Instructions!

Fitting dimensions



a ... Placement depth 30 mm (=concrete cover)

b ... Screw-in depth 70 mm

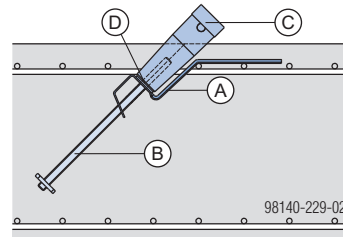
α ... 45°

A Anchor holder

B Stop anchor or pigtail anchor

Assembly:

- Mount an anchor holder on the tie rod and fasten it to the top reinforcement.
- Insert a sealing disk and install the clearance cone.



A Anchor holder

B Stop anchor or pigtail anchor

C Clearance cone

D Sealing disk 15.0 (Anchor holder 15.0)

Sealing disk 43 (Anchor holder 20.0 and 26.5)

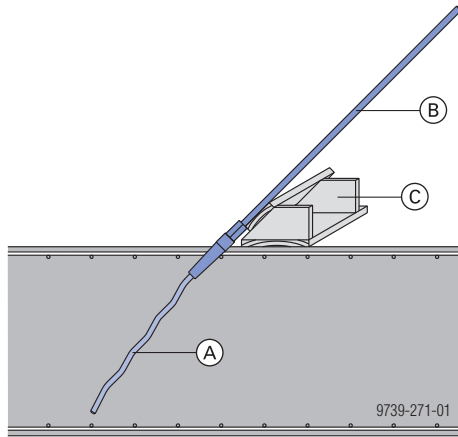
- After pouring, replace the clearance cone with a she-bolt.

Wooden template

This method permits variable distribution of the positioning points, and can therefore be re-used in any situation.

Alternatively, a clear, fixed arrangement of the positioning points can be made with nailed-on wedges of square-sawn timber.

Many variations are possible on this theme, meaning that this example can be optimised for the case in hand.



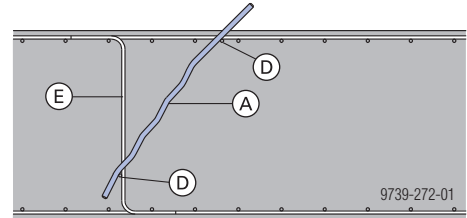
- A** Pigtail anchor or stop anchor
- B** She-bolt with sealing sleeve
- C** Wooden template

Fixing to reinforcements

Variant 1

By using two extra longitudinally-placed reinforcement rods, the anchor can be firmly fixed so that it safely withstands pouring.

The extra hoop means that the bottom reinforcement rod can be fitted in a relatively exact position.

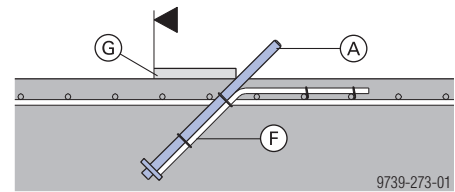


- A** Pigtail anchor or stop anchor
- D** Extra reinforcement rod
- E** Extra hoop

Variant 2

The stop anchor or pigtail anchor can be fixed to the longitudinal reinforcements with the aid of an extra hoop.

A suitably wide spacer board makes it easier to achieve exact positioning.



▲ ... Inside line of wall

- A** Stop anchor 15.0 40cm 55 or 20.0 40cm 55
- F** Hoop with stop anchor, fastened to reinforcement
- G** Spacer board

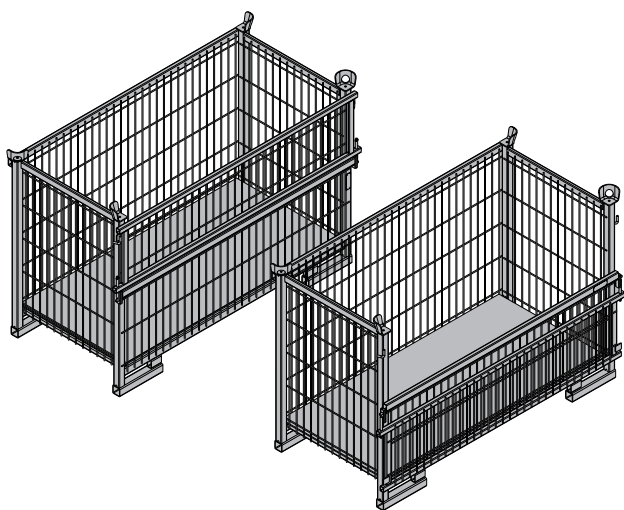
Transporting, stacking and storing

Utilise the benefits of Doka multi-trip packaging on your site.

Multi-trip packaging such as containers, stacking pallets and skeleton transport boxes keep everything in place on the site, minimise time wasted searching for parts, and streamline the storage and transport of system components, small items and accessories.

Doka skeleton transport box 1.70x0.80m

Storage and transport device for small items



Max. carrying 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.

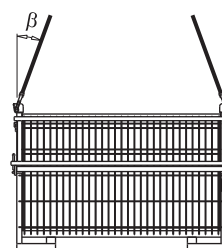
Using Doka skeleton transport boxes 1.70x0.80m as transport devices

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 load-bearing capacity.
- Spread angle β max. 30°!



9234-203-01

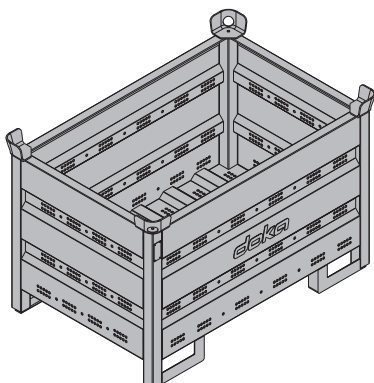
Repositioning by forklift truck or pallet stacking truck

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

Doka multi-trip transport box

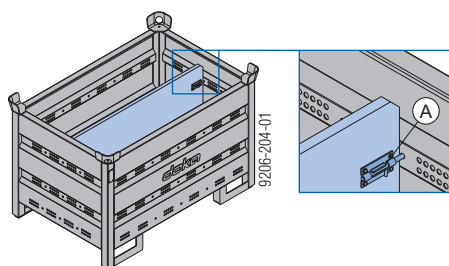
Storage and transport device for small items

Doka multi-trip transport box 1.20x0.80m



Max. carrying capacity: 1500 kg (3300 lbs)
Permitted imposed load: 7850 kg (17300 lbs)

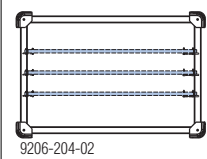
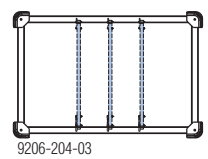
Different items in the Doka multi-trip transport box can be kept separate with the **Multi-trip transport box partitions 1.20m or 0.80m**.



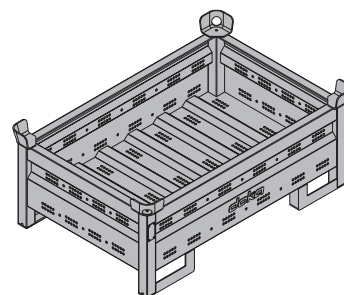
A Slide-bolt for fixing the partition

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.

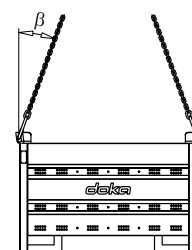
Using Doka multi-trip transport boxes as transport devices

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 load-bearing capacity.
- Spread angle β max. 30°!



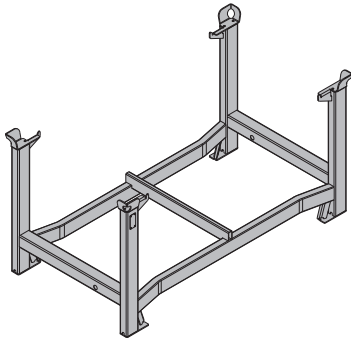
9206-202-01

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 caster set mounted to it.

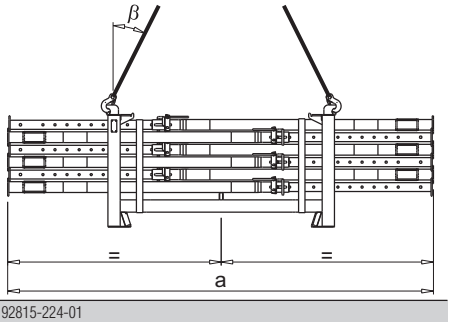
Using Doka stacking pallets as transport devices

Lifting by crane



NOTICE

- Multi-trip packaging items may only be lifted one at a time.
- Use a suitable crane suspension tackle (e.g. Doka 4-part chain 3.20m). Do not exceed the permitted load-bearing capacity.
- Load the items centrally.
- Fasten the load to the stacking pallet so that it cannot slide or tip out.
- Spread angle β max. 30°!



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

Repositioning by forklift truck or pallet stacking truck

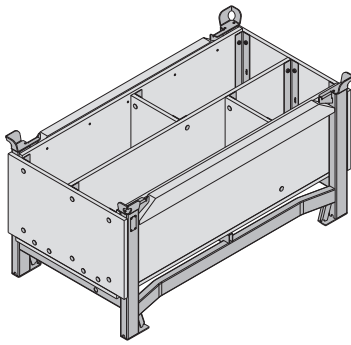


NOTICE

- Load the items centrally.
- Fasten the load to the stacking pallet 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 castor set mounted to it.

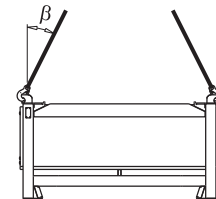
Doka accessory box as transport devices

Lifting by crane



NOTICE

- Multi-trip packaging items may only be lifted one at a time.
- Use a suitable crane suspension tackle (e.g. Doka 4-part chain 3.20m). Do not exceed the permitted load-bearing capacity.
- Spread angle β max. 30°!



92816-206-01

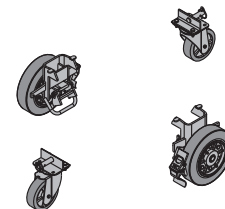
Repositioning by forklift truck or pallet stacking truck

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

Bolt-on castor set B

The Bolt-on caster set B turns the stacking pallet into a fast and manoeuvrable transport device.

Suitable for drive-through access openings > 90 cm.



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

- Doka accessory box
- Doka stacking pallets



Follow the directions in the 'Bolt-on castor set B' Operating Instructions!

Formwork planning with Tipos-Doka

Tipos-Doka helps you to form even more efficiently

Tipos-Doka has been developed to assist you in planning the use of your Doka formwork. For wall formwork, floor formwork and platforms, it puts the same tools into your hands that we at Doka use ourselves for formwork planning.

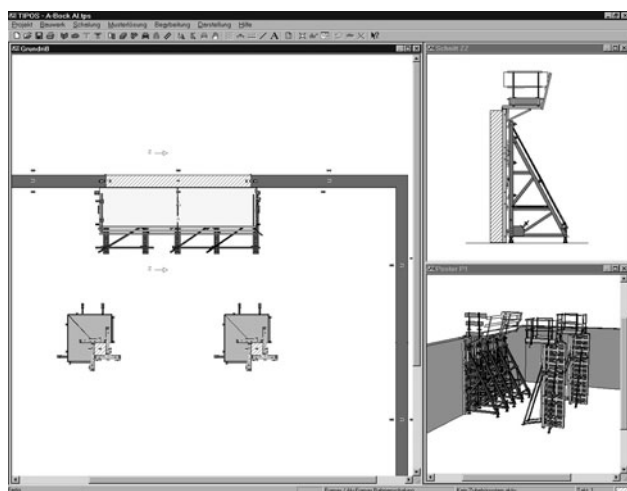


Easy to use, fast and accurate results

The easy-to-use interface makes for very fast working. From when you input your layout (with the "Schallgel"® on-screen assistant), all the way through to when you manually put the finishing touches to the formwork solution the program gives you. All this saves time - yours.

The program contains a large number of templates and wizards, so you can be sure of always getting the optimum technical and economical solution to your formwork task. This makes for greater operational reliability, and cuts costs.

You can get to work right away with the piece-lists, plans, views, sections and perspective drawings that the program gives you. Operational reliability is also enhanced by the high level of detail of the plans.



Drawings of formwork and platforms really can be this detailed! Both for the layout and for spatial representations, Tipos-Doka sets an impressive new standard of visual presentation.

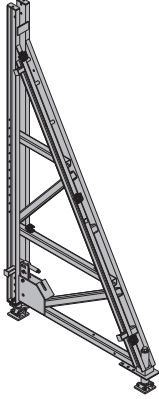
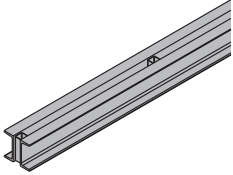
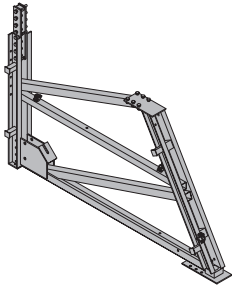
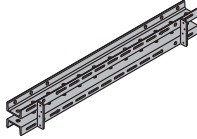
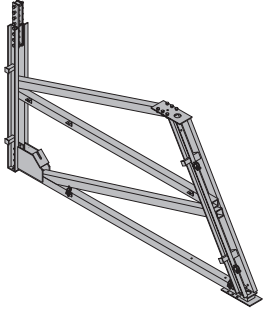
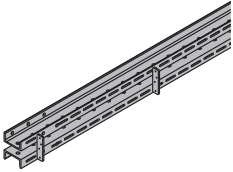
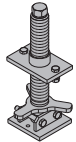
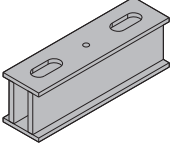
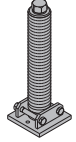
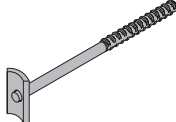
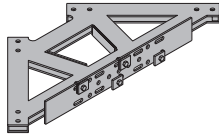
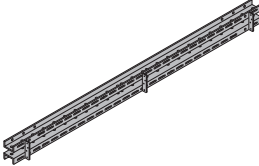
Always the right quantities of formwork and accessories

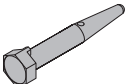


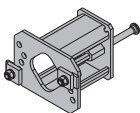

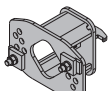
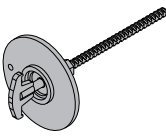
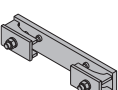

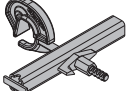
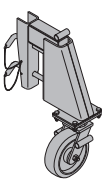
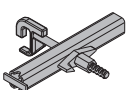
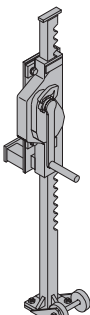
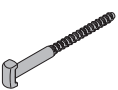
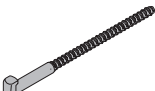
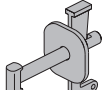
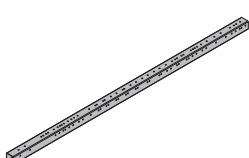
Stücklistenbearbeitung									
Hersteller	Artikelnr.	Bezeichnung	Baus	Bauh	Lief	Man	Sum	Best	
DOKA	580044000	Stahlwandriegel WS10 Top 50 2.00 m	0	0	5	0	5	5	
DOKA	580048000	Stahlwandriegel WS10 Top 50 3.00 m	0	0	5	0	5	5	
DOKA	580470000	Schutzgelenkzwinge S	0	0	2	0	2	2	
DOKA	580488000	Seitenschutzgelenker T	0	0	1	0	1	1	
DOKA	580500000	Abschubock Universal F 4.50 m	0	0	4	0	4	4	
DOKA	580525000	Reihengelenker	0	0	15	0	15	15	
DOKA	580533000	Ankernagelhalter	0	0	5	0	5	5	
DOKA	580545000	Ankernagel 1,95 m	0	0	1	0	1	1	
DOKA	580546000	Ankernagel 2,95 m	0	0	1	0	1	1	
DOKA	581966000	Superplatte 15,0	0	0	53	0	53	53	
DOKA	582560000	Drehkupplung 1 1/2"	0	0	12	0	12	12	
DOKA	588100000	Framax-Rahmenelement 1,35 x 2,70	0	0	6	0	6	6	
DOKA	588122000	Framax-Universalelement 0,90 x 2,70	0	0	8	0	8	8	
DOKA	588124000	Framax-Universalelement 0,90 x 1,35	0	0	8	0	8	8	
DOKA	588152000	Framax-Spannklemme	0	0	25	0	25	25	
DOKA	588153400	Framax-Schnellspanner RU	0	0	28	0	28	28	
DOKA	588158000	Framax-Universalschleifer 10 - 16	0	0	48	0	48	48	
DOKA	588169000	Framax-Universalspanner	0	0	8	0	8	8	
DOKA	588246000	Elementstütze 340	0	0	6	0	6	6	
DOKA	588360000	Framax-Betonierbühne O 1,25/2,70 m	0	0	2	0	2	2	
DOKA	588382000	Doka-Stützenbühne 150/90 cm	0	0	2	0	2	2	

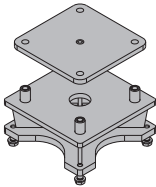
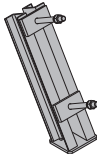

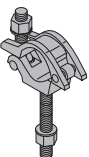

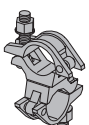
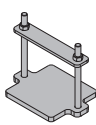
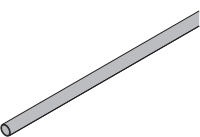
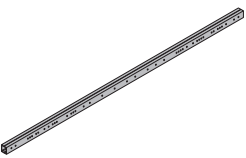
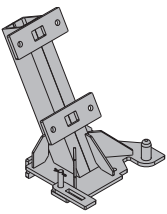
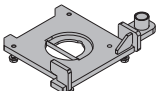
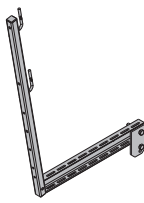


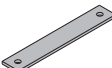
You can import the automatically generated piece-lists into many other programs for further processing.



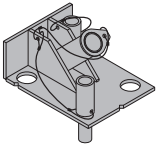
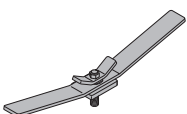
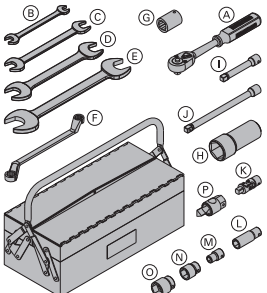
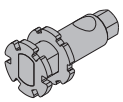
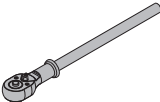
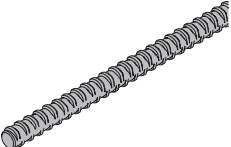

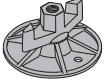


Formwork components and accessories that have to be organised at short notice, or replaced by improvisation, are the ones that cost the most. This is why Tipos-Doka offers complete piece-lists that leave no room for improvisation. Planning with Tipos-Doka eliminates costs before they have a chance to even arise. And your depot can make the best possible use of its stocks.


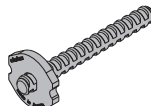
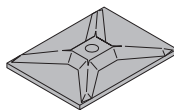
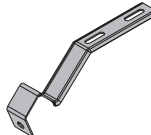
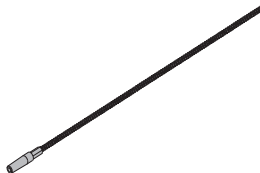


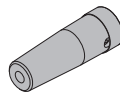
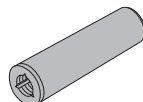
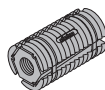

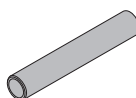

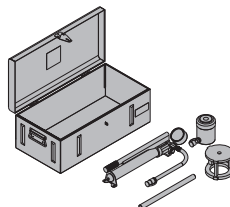

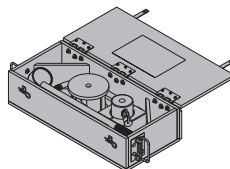
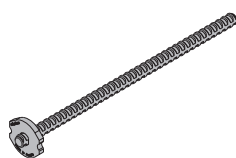



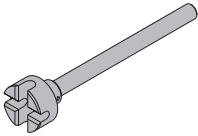
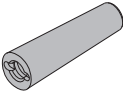

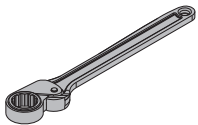
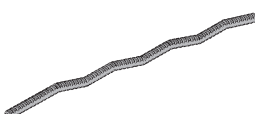
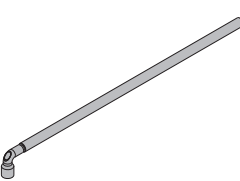


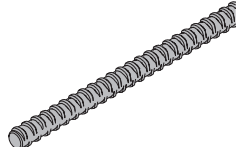

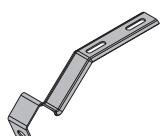
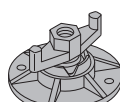




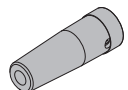
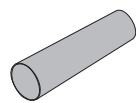
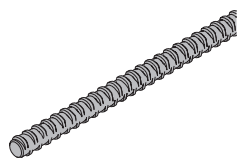



	[kg]	Article n°		[kg]	Article n°
Supporting constr. frame Universal F 4.50m Abstützbock-Universal F 4,50m  Painted blue Length: 196 cm Height: 365 - 394 cm	306.0	580500000	Anchor waling 0.70m Anchor waling 1.95m Anchor waling 2.95m Ankerriegel  Painted blue	27.0 76.3 110.0	580517000 580545000 580546000
Attachable frame F 1.50m Anbaurahmen F 1,50m  Painted blue Length: 280 cm	236.0	580502000	Multi-purpose waling WS10 Top50 1.00m Multi-purpose waling WS10 Top50 1.75m Multi-purpose waling WS10 Top50 2.00m Multi-purpose waling WS10 Top50 2.50m Multi-purpose waling WS10 Top50 2.75m Multi-purpose waling WS10 Top50 3.00m Multi-purpose waling WS10 Top50 3.50m Multi-purpose waling WS10 Top50 4.00m Mehrzweckriegel WS10 Top50  Painted blue	19.6 35.0 38.9 48.7 54.2 60.2 68.4 79.4	580003000 580006000 580007000 580009000 580010000 580011000 580012000 580013000
Attachable frame F 2.00m Anbaurahmen F 2,00m  Painted blue Length: 394 cm	451.0	580501000	Multi-purpose waling WU12 Top50 2.00m Multi-purpose waling WU12 Top50 3.00m Mehrzweckriegel WU12 Top50  Painted blue	50.0 75.7	580022000 580024000
Front spindle for supporting constr. frame Abstützbockspindel vorne  Galvanised	17.0	580508000	Anchoring profile 0.55m Ankerprofil 0,55m  Painted blue	44.5	582904000
Rear spindle for supporting constr. frame Abstützbockspindel hinten  Galvanised	18.3	580515000	Anchor waling positioner Ankerriegelhalter  Galvanised Length: 31 cm	0.62	580539000
			Corner plate supporting constr. frame Ecklasche Abstützbock  Painted blue Length: 92 cm Width: 92 cm	44.4	580518000
			Facade waling WS10 2.50m Fassadenriegel WS10 2,50m  Painted blue	50.0	580692000

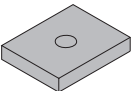
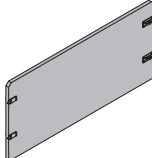
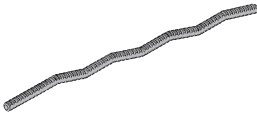
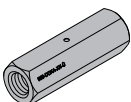
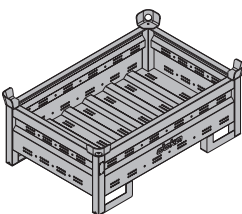
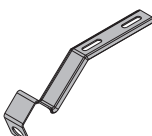
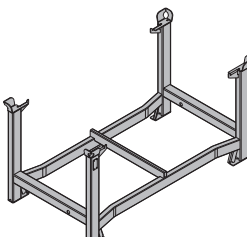
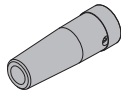
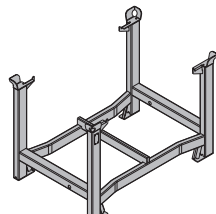
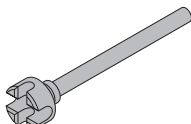
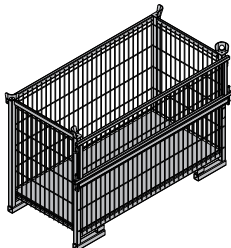
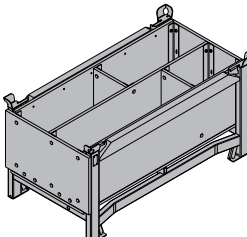
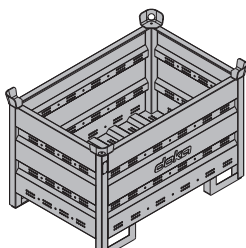
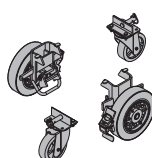
	[kg]	Article n°		[kg]	Article n°
Connecting pin 10cm Verbindungsbolzen 10cm  Galvanised Length: 14 cm	0.34	580201000	Framax supporting construct. frame connector Framax-Bocklasche  Painted blue Height: 77 cm	15.0	580506000
Spring cotter 5mm Federvorstecker 5mm  Galvanised Length: 13 cm	0.03	580204000			
Supporting construction distancer 20cm Bockdistanz 20cm  Galvanised Length: 25 cm Width: 19 cm Height: 20 cm	9.4	580519000	Framax supporting construct. frame bolt 36cm Framax-Bockschraube 36cm  Galvanised	0.62	580505000
Framax Xlife plus supp.-frame distancer 12cm Framax Xlife plus-Bockdistanz 12cm  Galvanised Length: 29 cm Width: 19 cm Height: 14 cm	8.4	582938000	Framax Xlife plus supporting-frame bolt Framax Xlife plus-Bockschraube  Galvanised Length: 40.5 cm	3.5	582937000
Clamp for supp. constr. distancer 20cm Klemme für Bockdistanz 20cm  Galvanised Length: 36 cm Width: 7 cm	5.0	582920000	Attachable roller 200 Ansteckrolle 200  Painted blue Height: 38 cm	19.3	580538000
Waling-to-bracket holder 9-15cm Riegelhalter 9-15cm  Galvanised	2.7	580625000	Attachable roller 250 Ansteckrolle 250  Painted blue Height: 78 cm	47.0	580537000
Waling-to-bracket holder Keilriegelhalter  Galvanised Length: 26 cm Height: 31 cm	2.5	580526000	Winch with transport device Hubwinde mit Transportroller  Painted blue Height: 127 cm Follow the directions in the "Operating Instructions"!	37.0	580541000
Framax universal fixing bolt 10-16cm Framax-Universalverbinder 10-16cm  Galvanised Length: 26 cm	0.60	588158000			
Framax universal fixing bolt 10-25cm Framax-Universalverbinder 10-25cm  Galvanised Length: 36 cm	0.69	583002000			
Framax wedge clamp Framax-Spannklemme  Galvanised Length: 21 cm	1.5	588152000	Travelling profile F 2.00m front Fahrprofil F 2,00m vorne  Galvanised Length: 600 cm	180.0	582925000

	[kg]	Article n°		[kg]	Article n°
Wheel connector F 2.00m front Radanschluss F 2,00m vorne  Galvanised Length: 30 cm Width: 30 cm Height: 16.5 cm	33.7	582926000	Lifting bracket F 2.00m rear Hubkonsole F 2,00m hinten  Galvanised Height: 48.6 cm	14.0	582935000
Clamping jaw F 2.00m Klemmbacke F 2,00m  Galvanised Length: 12.5 cm	0.82	582927000	Screw-on coupler 48mm 50 Screw-on coupler 48mm 95 Anschraubkupplung  Galvanised Width-across: 22 mm Follow the directions in the "Fitting instructions"!	0.84 0.88	682002000 586013000
Clamping plate F 2.00m Klemmplatte F 2,00m  Galvanised Length: 24 cm	3.5	582928000	Swivel coupler 48mm Drehkupplung 48mm  Galvanised Width-across: 22 mm Follow the directions in the "Fitting instructions"!	1.5	582560000
Intermediate plate F 2.00m Zwischenplatte F 2,00m  Galvanised Length: 25 cm Width: 18 cm	6.0	582929000	Scaffold tube 48.3mm 0.50m Scaffold tube 48.3mm 1.00m Scaffold tube 48.3mm 1.50m Scaffold tube 48.3mm 2.00m Scaffold tube 48.3mm 2.50m Scaffold tube 48.3mm 3.00m Scaffold tube 48.3mm 3.50m Scaffold tube 48.3mm 4.00m Scaffold tube 48.3mm 4.50m Scaffold tube 48.3mm 5.00m Scaffold tube 48.3mm 5.50m Scaffold tube 48.3mm 6.00m Scaffold tube 48.3mmm Gerüstrohr 48,3mm  Galvanised	1.7 3.6 5.4 7.2 9.0 10.8 12.6 14.4 16.2 18.0 19.8 21.6 3.6	682026000 682014000 682015000 682016000 682017000 682018000 682019000 682021000 682022000 682023000 682024000 682025000 682001000
Travelling profile F 2.00m rear Verfahrprofil F 2,00m hinten  Galvanised Length: 574 cm	187.5	582930000			
Wheel connector F 2.00m rear Radanschluss F 2,00m hinten  Galvanised Height: 61.5 cm	44.5	582931000			
Connecting plate F 2.00m Anschlussplatte F 2,00m  Galvanised Length: 44.1 cm Width: 35.7 cm	15.8	582932000	Screw-on access bracket MF75 Anschraubbühne MF75  Galvanised Length: 113 cm Height: 152 cm	19.0	580669000
Bolting plate F 2.00m Schraubplatte F 2,00m  Galvanised Length: 20 cm	2.9	582933000	Swivel plate MF Schwenkplatte MF  Galvanised Length: 29 cm Height: 20 cm Width-across: 30 mm	4.5	580672000
Connector plate F 2.00m Verbindungsplatte F 2,00m  Galvanised Length: 42 cm	2.3	582934000			

	[kg]	Article n°		[kg]	Article n°
Handrail clamp S Schutzgeländerzwinge S  Galvanised Height: 123 - 171 cm	11.5	580470000	Extension 20cm 3/4" Verlängerung 20cm 3/4" 	0.68	580683000
Testing truss for diagonal anchors 15.0/20.0 Prüfbock für Schräganker 15,0/20,0  Galvanised Length: 32 cm Width: 25 cm Height: 19 cm	13.5	580514000	Cone spanner 20.0 Konusschlüssel 20,0  Galvanised Length: 57 cm	3.5	581471000
Universal tool box 15.0 Universal-Werkzeugbox 15,0 included in scope of supply: (A) Reversible ratchet 1/2" Galvanised Length: 30 cm (B) Fork wrench 13/17 (C) Fork wrench 22/24 (D) Fork wrench 30/32 (E) Fork wrench 36/41 (F) Ring spanner 17/19 (G) Square nut 22 (H) Box spanner 41 (I) Extension 11cm 1/2" (J) Extension 22cm 1/2" (K) Universal joint coupling 1/2" (L) Box nut 19 1/2" L (M) Box nut 13 1/2" (N) Box nut 24 1/2" (O) Box nut 30 1/2" (P) Positioning cone spanner 15.0 DK Galvanised Length: 8 cm Width-across: 30 mm 	9.1	580392000	Clearance-cone dismantling tool Lösewerkzeug Freistellkonus  Galvanised Length: 10.7 cm Width-across: 24 mm	0.67	581864000
Reversible ratchet 3/4" Umschaltknarre 3/4"  Galvanised Length: 50 cm	1.5	580894000	Tie rod system 15.0 Tie rod 15.0mm galvanised 0.50m 0.72 581821000 Tie rod 15.0mm galvanised 0.75m 1.1 581822000 Tie rod 15.0mm galvanised 1.00m 1.4 581823000 Tie rod 15.0mm galvanised 1.25m 1.8 581826000 Tie rod 15.0mm galvanised 1.50m 2.2 581827000 Tie rod 15.0mm galvanised 1.75m 2.5 581828000 Tie rod 15.0mm galvanised 2.00m 2.9 581829000 Tie rod 15.0mm galvanised 2.50m 3.6 581852000 Tie rod 15.0mm galvanisedm 1.4 581824000 Tie rod 15.0mm non-treated 0.50m 0.73 581870000 Tie rod 15.0mm non-treated 0.75m 1.1 581871000 Tie rod 15.0mm non-treated 1.00m 1.4 581874000 Tie rod 15.0mm non-treated 1.25m 1.8 581886000 Tie rod 15.0mm non-treated 1.50m 2.1 581876000 Tie rod 15.0mm non-treated 1.75m 2.5 581887000 Tie rod 15.0mm non-treated 2.00m 2.9 581875000 Tie rod 15.0mm non-treated 2.50m 3.6 581877000 Tie rod 15.0mm non-treated 3.00m 4.3 581878000 Tie rod 15.0mm non-treated 3.50m 5.0 581888000 Tie rod 15.0mm non-treated 4.00m 5.7 581879000 Tie rod 15.0mm non-treated 5.00m 7.2 581880000 Tie rod 15.0mm non-treated 6.00m 8.6 581881000 Tie rod 15.0mm non-treated 7.50m 10.7 581882000 Tie rod 15.0mm non-treatedm 1.4 581873000 Ankerstab 15,0mm  DIN 18216		
Box nut 46 3/4" Stecknuss 46 3/4" 	0.70	580512000	Super plate 15.0 Superplatte 15,0  Galvanised Height: 6 cm Diameter: 12 cm Width-across: 27 mm DIN 18216	1.1	581966000
			Hexagon nut 15.0 Sechskantmutter 15,0  Galvanised Length: 5 cm Width-across: 30 mm DIN 18216	0.23	581964000
			Framax pressure plate 6/15 Framax-Druckplatte 6/15  Galvanised	0.80	588183000

			[kg]	Article n°				[kg]	Article n°
Wing nut 15.0 Flügelmutter 15,0		Galvanised Length: 10 cm Height: 5 cm Width-across: 27 mm	0.31	581961000	Stop anchor 15.0 A16 Sperranker 15,0 A16		Non-treated	0.38	581997000
Anchor plate 15/20 Ankerplatte 15/20		Galvanised	1.8	581929000	Anchor holder 15.0 Ankerhalter 15,0		Non-treated	0.43	581835000
She-bolt 15.0 5cm 1.20m Ankerkopf 15,0 5cm 1,20m		Galvanised Length: 131 cm Width-across: 24 mm Follow the directions in the "Fitting instructions"!	2.5	581832000	Sealing disc 15.0 Dichtscheibe 15,0		Black Diameter: 4.2 cm	0.002	581885000
She-bolt 15.0 5cm Ankerkopf 15,0 5cm		Galvanised Length: 76 cm Width-across: 24 mm Follow the directions in the "Fitting instructions"!	1.7	581972000	Clearance cone 15.0 Freistellkonus 15,0		Black Blue Length: 20.6 cm Diameter: 7 cm Follow the directions in the "Fitting instructions"!	0.51	581865000
Positioning cone 15.0 5cm Vorlaufkonus 15,0 5cm		Galvanised Length: 11 cm Diameter: 3 cm Follow the directions in the "Fitting instructions"!	0.43	581969000	Rock anchor spreader unit 15.0 Felsanker-Spreizeinheit 15,0		Galvanised Length: 9 cm Diameter: 4 cm Follow the directions in the "Fitting instructions"!	0.41	581120000
Sealing sleeve 15.0 5cm Dichtungshülse 15,0 5cm		Orange Length: 10 cm Diameter: 3 cm	0.008	581990000	Rock anchor installation tube Felsanker-Einbaurohr		Galvanised Length: 50 cm Diameter: 3 cm	0.85	581123000
Rod connector 15.0 Verbindungsuffe 15,0		Non-treated Length: 10.5 cm Diameter: 3.2 cm	0.49	581981000	Tensioning instrument 300kN Vorspanngerät 300kN		Galvanised	32.0	581815000
Pigtail anchor 15.0 Wellenanker 15,0		Non-treated Length: 67 cm	0.92	581984000	Tensioning instrument B Vorspanngerät B		Galvanised	34.5	580570000
Stop anchor 15.0 A40 Sperranker 15,0 A40		Non-treated	0.71	581999000	Protective cap 15.0/20.0 Schutzhappe 15,0/20,0		Yellow Length: 6 cm Diameter: 6.7 cm	0.03	581858000

	[kg]	Article n°		[kg]	Article n°
Tie-rod wrench 15.0/20.0 Ankerstabschlüssel 15,0/20,0  Galvanised Length: 37 cm Diameter: 8 cm	1.9	580594000	Anchoring cone 20.0 Ankerkonus 20,0  Galvanised Length: 15 cm Diameter: 5 cm 	1.0	581437000
Friction type ratchet SW27 Freilaufknarre SW27  Manganese-phosphated Length: 30 cm	0.49	581855000	Pigtail anchor 20.0 Wellenanker 20,0  Non-treated Length: 76 cm	2.0	581450000
Box spanner 27 0.65m Steckschlüssel 27 0,65m  Galvanised	1.9	581854000	Stop anchor 20.0 C40 Sperranker 20,0 C40  Non-treated	1.2	581458000
Tie rod system 20.0			Stop anchor 20.0 C17 Sperranker 20,0 C17  Non-treated	0.62	581457000
Tie rod 20.0mm galvanised 0.50m Tie rod 20.0mm galvanised 0.75m Tie rod 20.0mm galvanised 1.00m Tie rod 20.0mm galvanised 1.25m Tie rod 20.0mm galvanised 1.50m Tie rod 20.0mm galvanised 2.00m Tie rod 20.0mm galvanised 2.50m Tie rod 20.0mm galvanisedm Tie rod 20.0mm non-treated 0.50m Tie rod 20.0mm non-treated 0.75m Tie rod 20.0mm non-treated 1.00m Tie rod 20.0mm non-treated 1.50m Tie rod 20.0mm non-treated 2.00m Tie rod 20.0mm non-treatedm Ankerstab 20,0mm  	1.3 1.9 2.5 3.2 3.8 5.0 6.3 2.5 1.3 1.9 2.5 3.8 5.0 2.5	581411000 581417000 581412000 581418000 581413000 581414000 581430000 581410000 581405000 581416000 581406000 581407000 581408000 581403000	Anchor holder 20.0 Ankerhalter 20,0  Non-treated	0.43	581427000
Super plate 20.0 B Superplatte 20,0 B  Galvanised Height: 7 cm Diameter: 14 cm Width-across: 34 mm 	2.0	581424000	Sealing disc 43 Dichtscheibe 43  Black	0.002	581836000
She-bolt 20.0 Ankerkopf 20,0  Galvanised Length: 140 cm Diameter: 5 cm Width-across: 41 mm 	5.6	581435000	Clearance cone 20.0 Freistellkonus 20,0  Black Yellow Length: 20.6 cm Diameter: 7 cm Follow the directions in the "Fitting instructions"!	0.49	581866000
Sealing sleeve 20.0 Dichtungshülse 20,0  Grey Length: 16 cm Diameter: 5 cm	0.03	581441000	Tie rod system 26.5		
			Tie rod 26.5mm non-treatedm Ankerstab 26,5mm unbehandeltm  	4.5	581883000
			Hexagon nut 26.5 Sechskantmutter 26,5  Galvanised Length: 8 cm Width-across: 46 mm 	0.73	581985000

	[kg]	Article n°		[kg]	Article n°
Anchor plate 26.5 Ankerplatte 26,5 <div>  <p>Galvanised Length: 15 cm Width: 12 cm</p> </div>	3.4	581986000	Multi-trip transport box partition 0.80m Multi-trip transport box partition 1.20m Mehrwegcontainer Unterteilung <div>  <p>Steel parts galvanised Timber parts varnished yellow</p> </div>	3.7 5.5	583018000 583017000
Pigtail anchor 26.5 Wellenanker 26,5 <div>  <p>Non-treated Length: 80 cm</p> </div>	3.6	581900000			
Rod connector 26.5 Verbindungsmuffe 26,5 <div>  <p>Non-treated Length: 15 cm Width-across: 46 mm</p> </div>	1.4	581988000	Doka multi-trip transport box 1.20x0.80x0.41m Doka-Mehrwegcontainer 1,20x0,80x0,41m <div>  <p>Galvanised</p> </div>	42.5	583009000
Anchor holder 26.5 Ankerhalter 26,5 <div>  <p>Non-treated</p> </div>	0.43	581943000	Doka stacking pallet 1.55x0.85m Doka-Stapelpalette 1,55x0,85m <div>  <p>Galvanised Height: 77 cm</p> </div>	41.0	586151000
Clearance cone 26.5 Freistellkonus 26,5 <div>  <p>Black Grey Length: 20.6 cm Diameter: 7 cm Follow the directions in the "Fitting instructions"!</p> </div>	0.46	581867000	Doka stacking pallet 1.20x0.80m Doka-Stapelpalette 1,20x0,80m <div>  <p>Galvanised Height: 77 cm</p> </div>	38.0	583016000
Tie-rod wrench 20.0/26.5 Ankerstabschlüssel 20,0/26,5 <div>  <p>Galvanised Length: 37 cm Diameter: 8 cm</p> </div>	1.7	580593000			
Multi-trip packaging					
Doka skeleton transport box 1.70x0.80m Doka-Gitterbox 1,70x0,80m <div>  <p>Galvanised Height: 113 cm</p> </div>	87.0	583012000	Doka accessory box Doka-Kleinteilebox <div>  <p>Timber parts varnished yellow Steel parts galvanised Length: 154 cm Width: 83 cm Height: 77 cm</p> </div>	106.4	583010000
Doka multi-trip transport box 1.20x0.80m Doka-Mehrwegcontainer 1,20x0,80m <div>  <p>Galvanised Height: 78 cm</p> </div>	70.0	583011000	Bolt-on castor set B Anklemm-Radsatz B <div>  <p>Painted blue</p> </div>	33.6	586168000

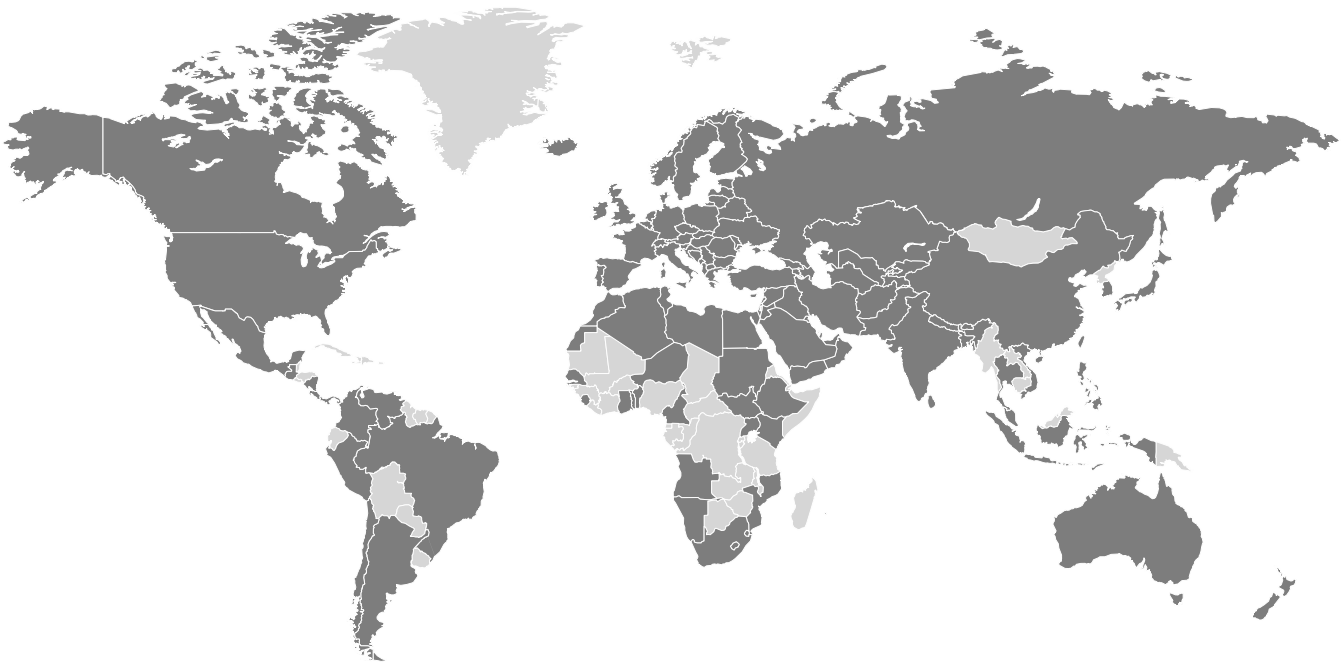
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