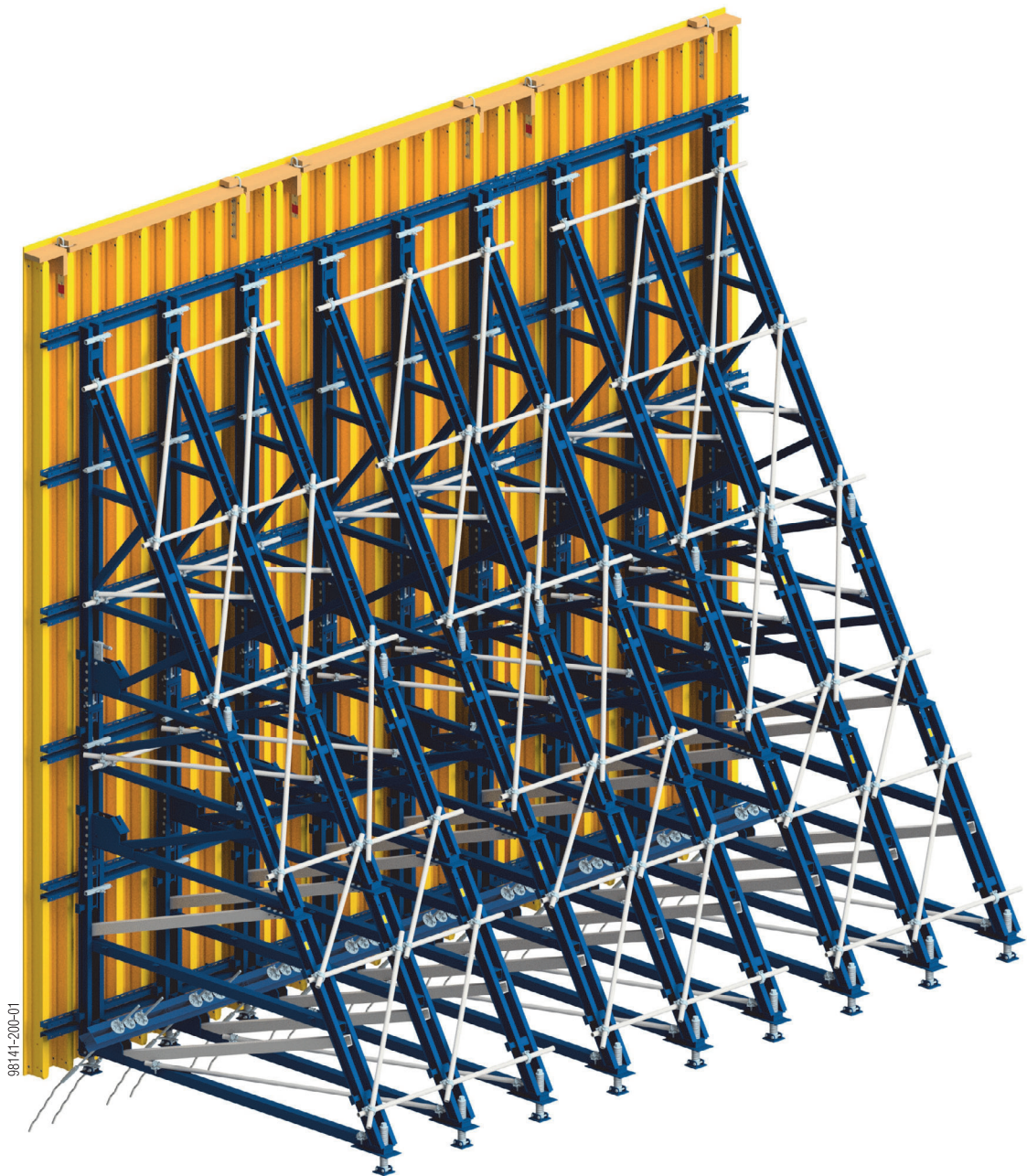


Supporting construction frame "Universal"

User Information

Instructions for assembly and use (Method statement)



98141-200-01

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Introduction

Elementary safety warnings

User target groups

- This booklet is aimed at all persons who will be working with the Doka product or system that it describes. It contains information on the standard design for setting up this system, and on correct, compliant utilisation of the system.
- All persons working with the product described herein must be familiar with the contents of this booklet and with all the safety instructions it contains.
- Persons who are incapable of reading and understanding this booklet, or who can do so only with difficulty, must be instructed and trained by the customer.
- The customer is to ensure that the information materials provided by Doka (e.g. User Information booklets, Instructions for Assembly and Use, Operating Instruction manuals, plans etc.) are up to date and available to all users, and that they have been made aware of them and have easy access to them at the usage location.
- In the relevant technical documentation and 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 by the user.
- The equipment/system must be assembled and erected in accordance with the applicable laws, standards and rules by trained customer personnel whilst maintaining any applicable safety inspections that may be required.
- It is not permitted to modify Doka products; such modifications constitute a safety risk.

Closing the formwork

- Doka products and systems must be set up so that all loads acting upon them are safely transferred!

Pouring

- Do not exceed the permitted fresh-concrete pressures. Over-high pouring rates overload the formwork, cause greater deflection and risk breakage.

Stripping the formwork

- Do not strip out the formwork until the concrete has reached sufficient strength and the person in charge has given the order for the formwork to be stripped out!
- When stripping out the formwork, never use the crane to break concrete cohesion. Use suitable tools such as timber wedges, special pry-bars or system features such as Framax stripping corners.
- When stripping out the formwork, do not endanger the stability of any part of the structure, or of any scaffolding, platforms or formwork that is still in place!

Transporting, stacking and storing

- Observe all country-specific regulations applying to the handling of formwork and scaffolding. For system formwork the Doka slinging means stated in this booklet must be used – this is a mandatory requirement.
If the type of sling is not specified in this document, the customer must use slinging means that are suitable for the application envisaged and that comply with the regulations.
- When lifting, always make sure that the unit to be lifted and its individual parts can absorb the forces that occur.
- Remove loose parts or secure them so that they cannot slip out of position and drop.
- When lifting formwork or formwork accessories with a crane, no persons must be carried along, e.g. on working platforms or in multi-trip packaging.
- All components must be stored safely, following all the special Doka instructions given in the relevant sections of this document!

Maintenance

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

Miscellaneous

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

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

Eurocodes at Doka

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

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

Allowance has been made for the following partial factors:

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

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.

Intended use

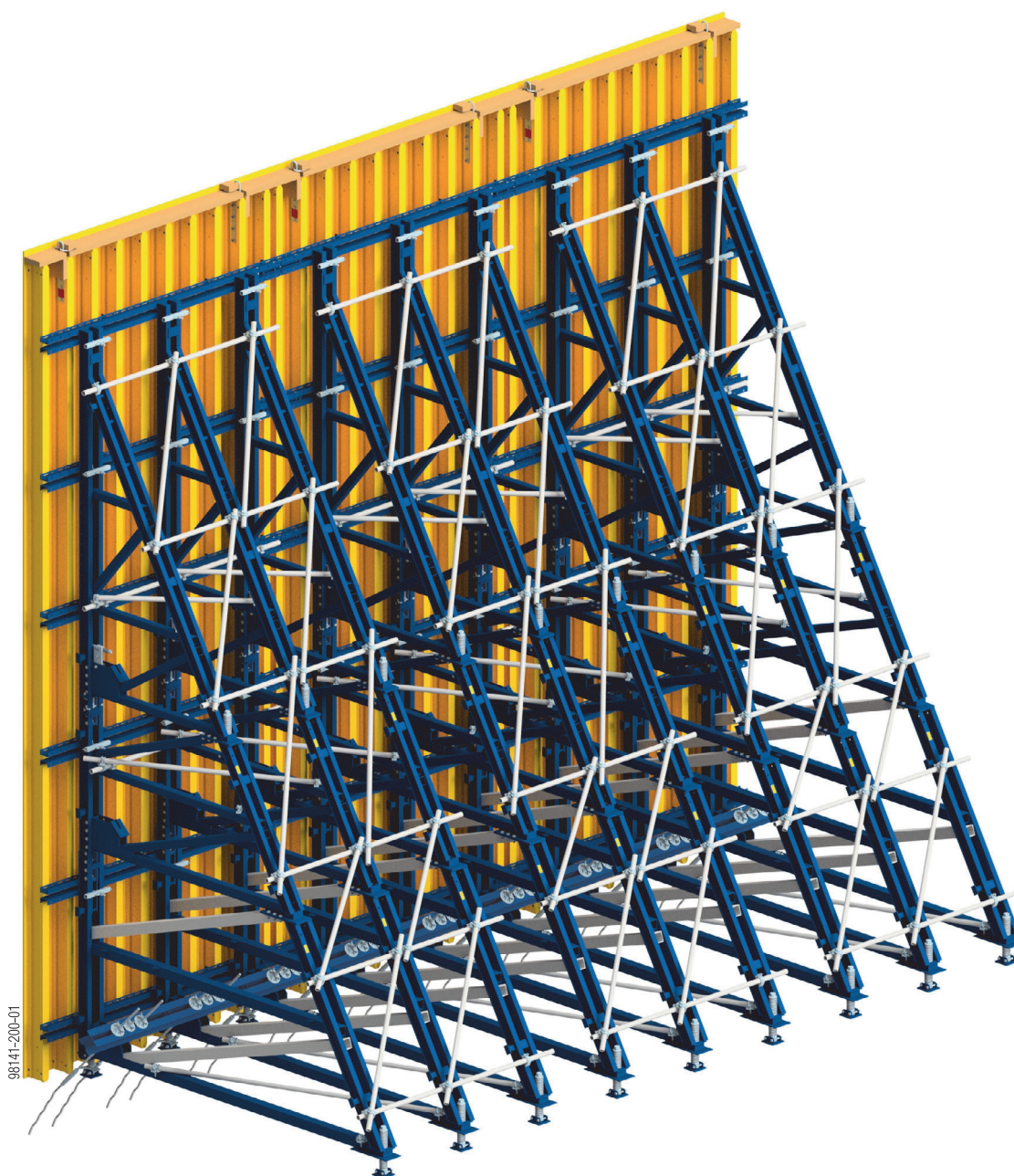
The Supporting construction frame "Universal" is a supporting construction for transferring the fresh-concrete pressure in single-sided wall formwork. The Supporting construction frame "Universal" is designed for setting up using a crane.

Boundary conditions for use:

- Max. pour height: 8.10 m

In special cases, boundary conditions can vary. The relevant information in the Doka technical documents must be observed.

Other use or use not in conformity with that stated above is non-intended use and requires the prior written approval of the Doka company!



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

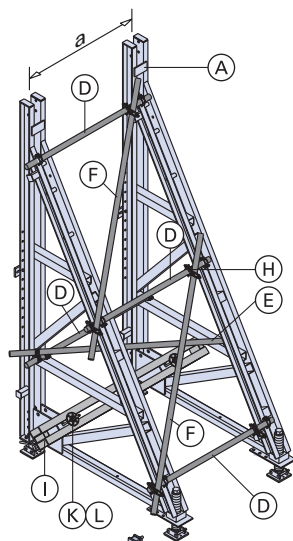
Distance between swivel coupler and screw-on coupler: max. 160 mm.

Centre-to-centre distance ¹⁾ a [m]

SC-frame type

A

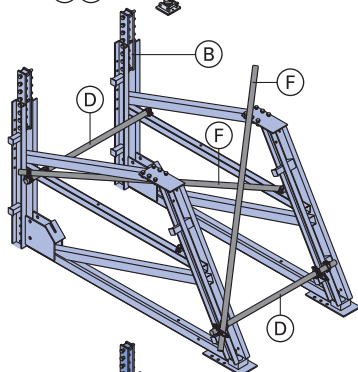
Supporting construct. frame Universal F 4.50m



SC-frame type

B

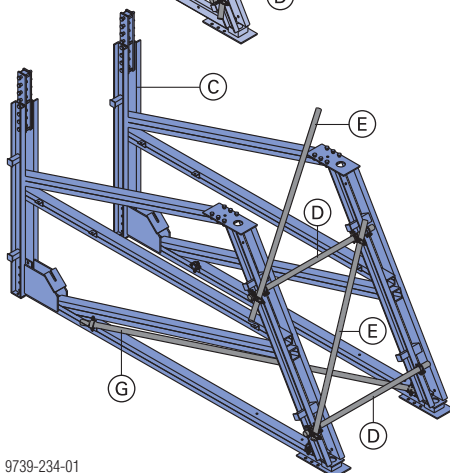
Vertical stacking with Attachable frame F 1.50m



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)

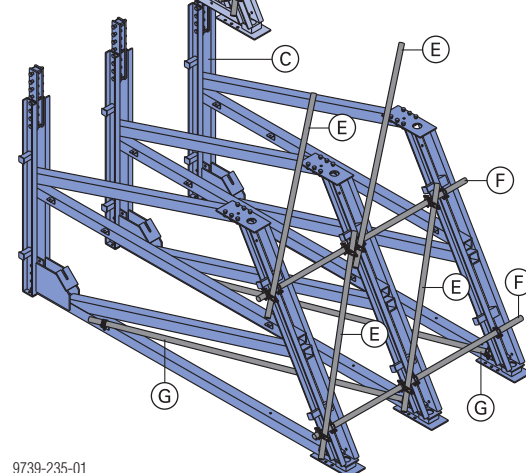
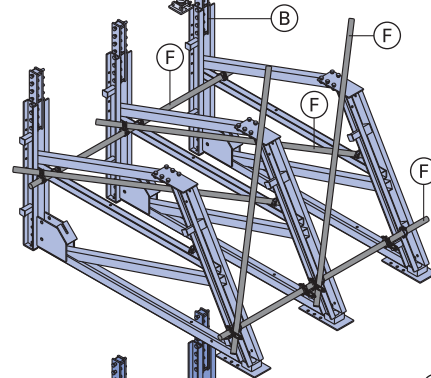
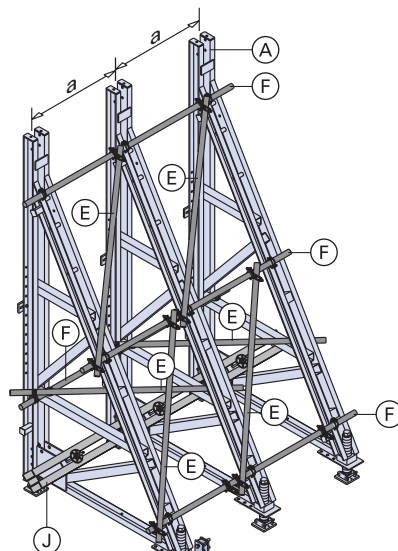
3 girderframe units

Timber-beam formwork

Framed formwork

1.00

0.90 or 1.35



9739-235-01

Items needed for 2 girderframe units

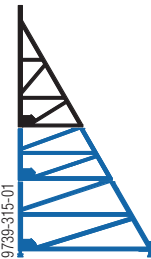
Valid for the following **centre-to-centre distances 'a'**:

- 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 constr. 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

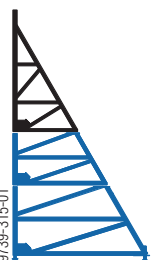
¹⁾ Required length of the scaffold tubes for a centre-to-centre distance of **1.35 m**:
stated length + **0.50 m**

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](#)

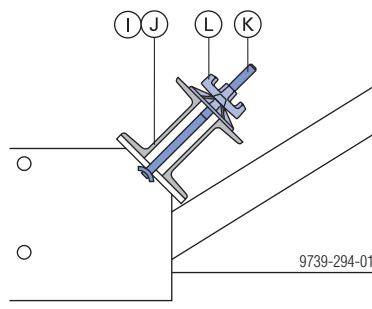
³⁾ Repositioning units with centre-to-centre distance 0.90 m or 1.35 m:

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

	SC-frame type		
	A	B	C
			
(A) Supporting constr. 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.



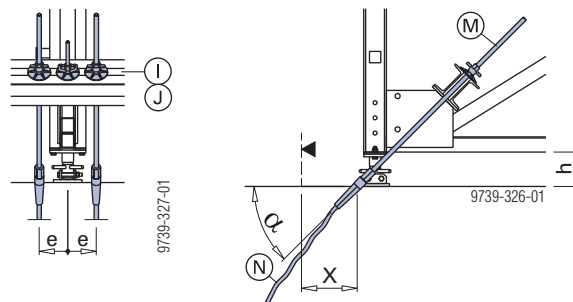
Anchor positioning

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 frame's vertical axis (i.e. two in all).

For more details on different anchoring variants, see section [Anchoring solutions for the supporting construction frames](#).

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



e ... 15.0 cm

α ... 45°

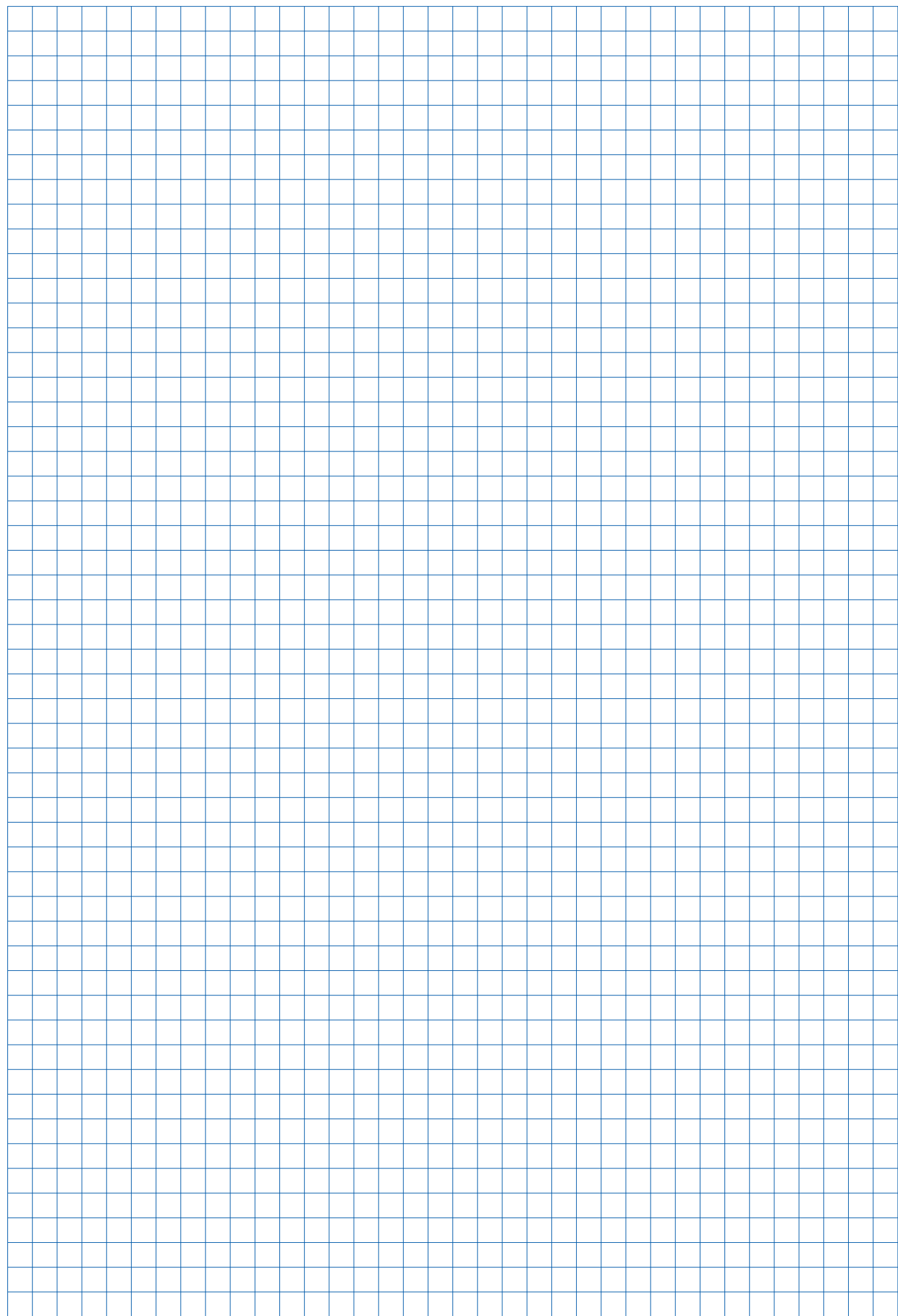
▲ ... Inside line of wall

M She-bolt

N Pigtail anchor

Timber-beam formwork		X ^{*)}
Formwork sheeting 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. constr. distancer 12cm		22.0 cm
with Multi-purpose waling WS10 Top50	at function-profile level	19.0 cm
	at tying level	20.0 cm
with Multi-purpose waling WU12 Top50	at function-profile level	21.0 cm
	at tying level	22.0 cm

*) anchor angle 45° and h = 18.0 cm



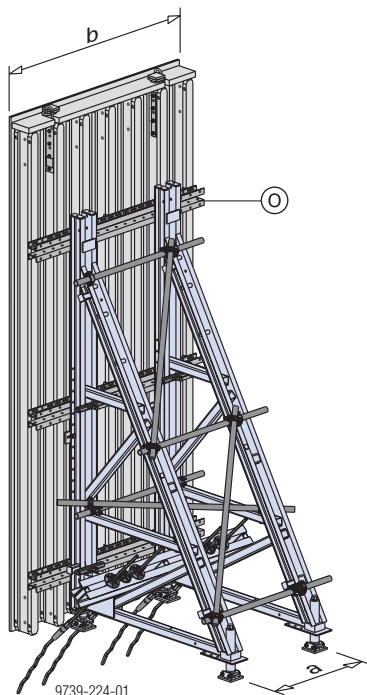
Combination with timber-beam formwork systems

Example: Formwork height 4.50 m

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

Influence width = 1,00 m

SC-frame type **A**



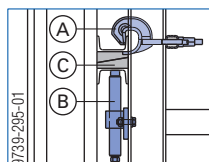
a ... 1.00 m

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:

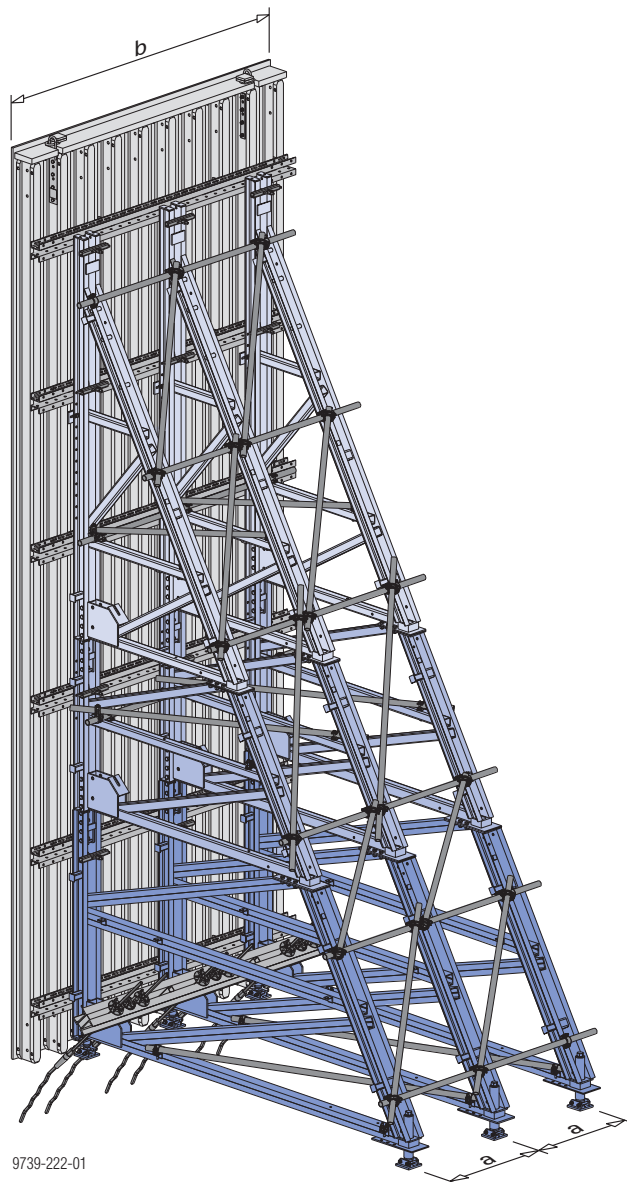
2 girderframe units	3 girderframe units
2	3

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

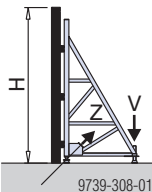
The values given in the table are only applicable to forming situations where there is no kicker. In cases

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

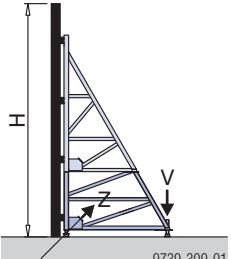
The loading data is stated per parallel frame unit for an anchor inclination of 45°.

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

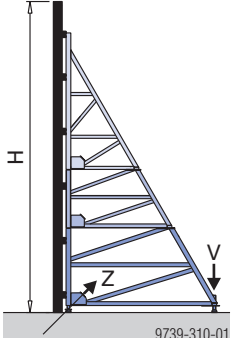
Pour heights of up to 4.50 m

SC-frame type		Influence width 1.00 m			Influence width 1.25 m			
A Supporting construct. frame Universal F 4.50m 		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		
B Supporting constr. frame Universal F 4.50m + Attachable frame F 1.50m 	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		
C 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]	
	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:

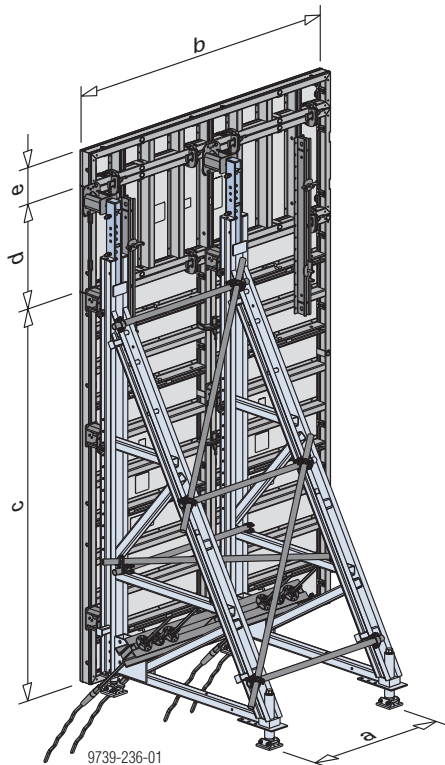
Applies to use with Framed formwork Framax Xlife, Alu-Framax Xlife and Framax Xlife plus.

Example: Formwork height 4.50 m

Influence width = 1,35 m

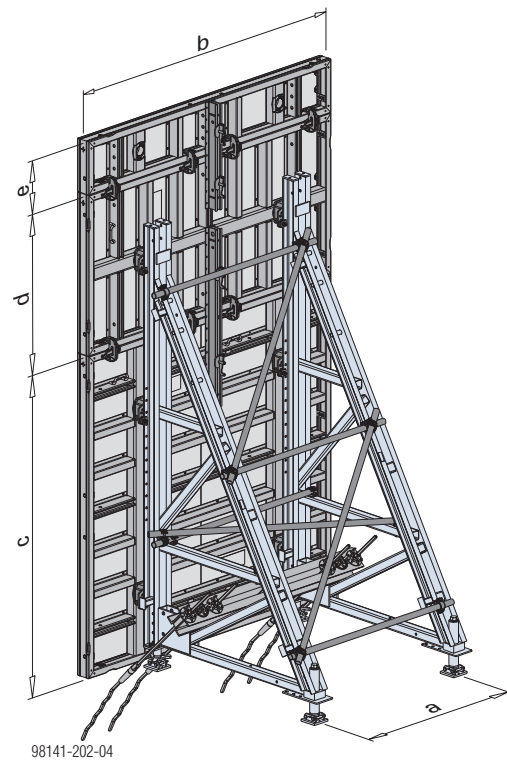
SC-frame type **A**

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



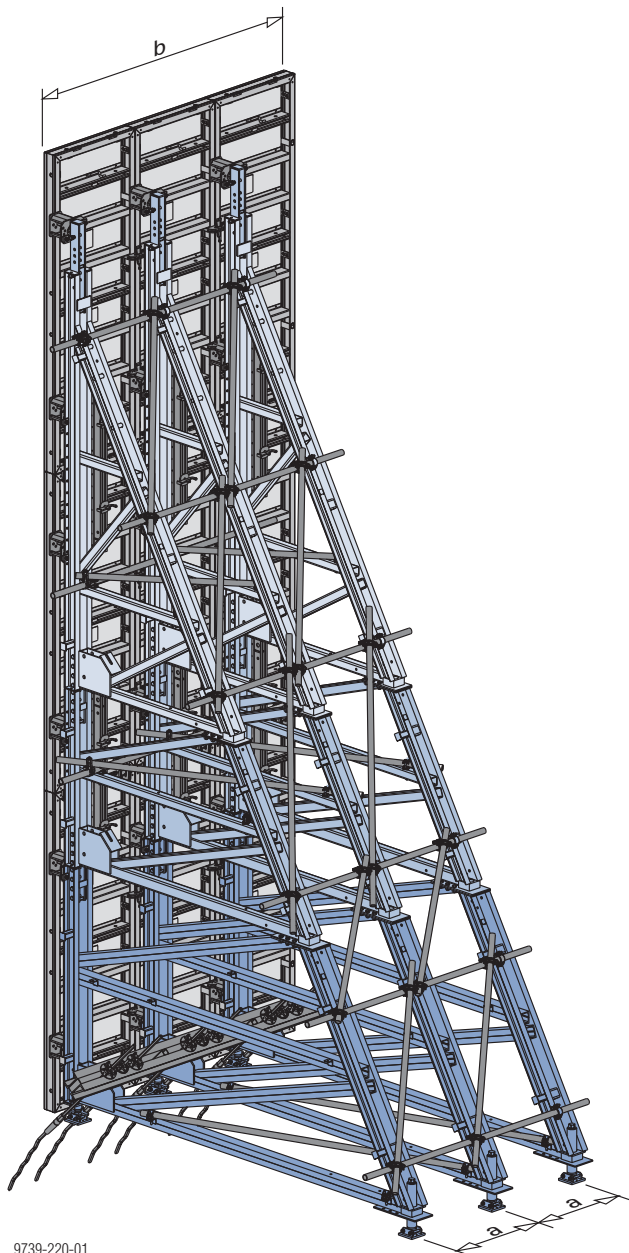
- a ... 1.55 m (centre-to-centre distance)
- b ... 2.70 m
- c ... 2.70 m
- d ... 1.35 m
- e ... 0.45 m

Example: Formwork height 8.10 m

Influence width = 0,90 m

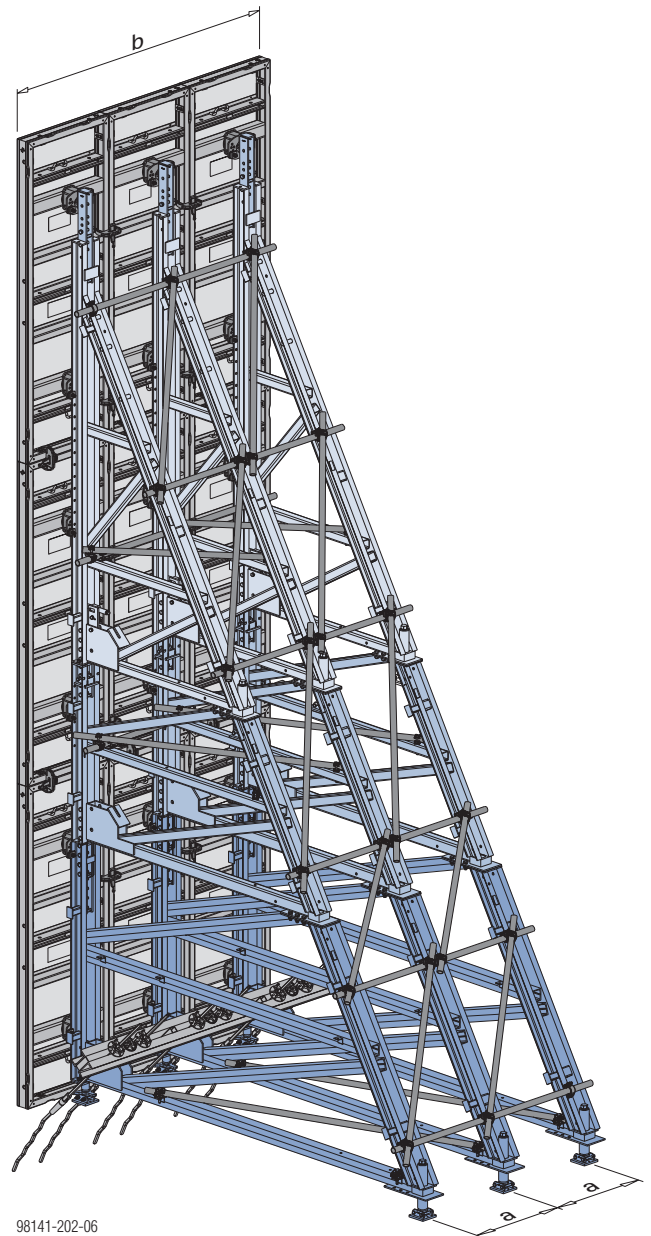
SC-frame type **C**

Framed formwork Framax Xlife



a ... 0.90 m (centre-to-centre distance)
 b ... 3 x 0.90 m = 2.70 m

Framed formwork Framax Xlife plus



a ... 0.90 m (centre-to-centre distance)
 b ... 3 x 0.90 m = 2.70 m

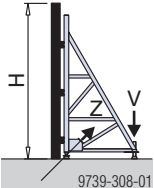
Structural design

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.

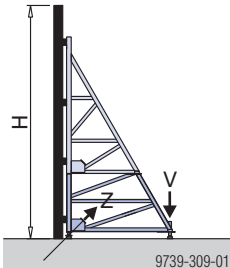
Loading data per parallel frame and anchor angle 45°. Fields containing no data (----) are not permissible – SC-frame would be overloaded!

Pour heights of up to 4.50 m

SC-frame type		Influence width 0.90 m			Influence width 1.35 m			
A Supporting construct. frame Universal F 4.50m 		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

Permitted fresh-concrete pressure:

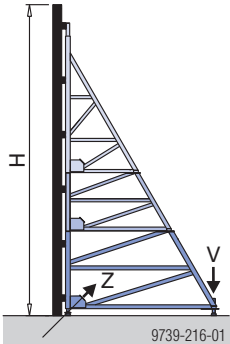
Pour heights from 4.50 m to 6.00 m

SC-frame type		Influence width 0.90 m				Influence width 1.35 m		
B Supporting constr. frame Universal F 4.50m + Attachable frame F 1.50m  9739-309-01	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	-----	-----	-----

Permitted fresh-concrete pressure:

Pour heights from 6.00 m to 8.00 m

SC-frame type		Influence width 0.90 m			Influence width 1.35 m			
C	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]	
Supporting constr. frame Universal F 4.50m + Attachable frame F 1.50m + Attachable frame F 2.00m	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	-----	-----	-----



9739-216-01

Permitted fresh-concrete pressure:

Permitted fresh-concrete pressure:

Fixing the formwork

Used with Framed formwork Framax Xlife

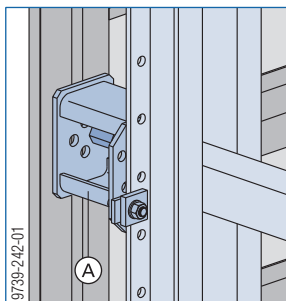
The **'Supporting-construction distancer 20 cm'** is fastened in the form-tie sleeve of the formwork panel using the 'Supporting construction frame bolt 27cm' supplied.



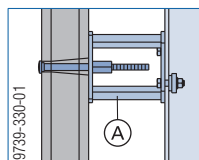
During assembly, the SC-frame bolt can be secured with a Sealing sleeve 15.0 5cm so that it cannot drop out.

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

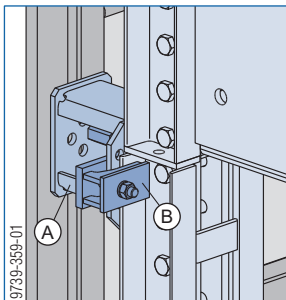


View:

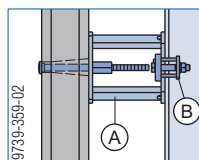


A Supporting construction distancer 20cm

to the Attachable frame F 2.00m



View:



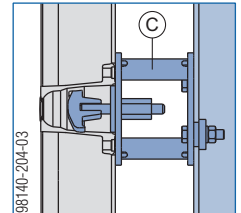
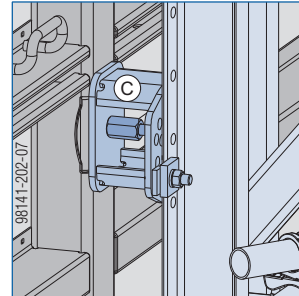
A Supporting construction distancer 20cm

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:



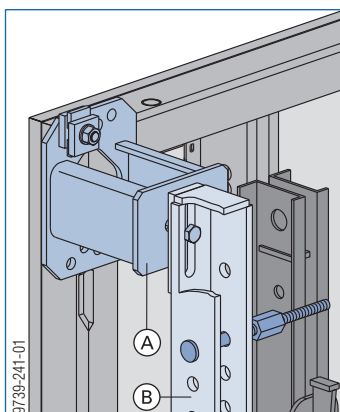
C Framax Xlife plus supp.-frame distancer 12cm

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).

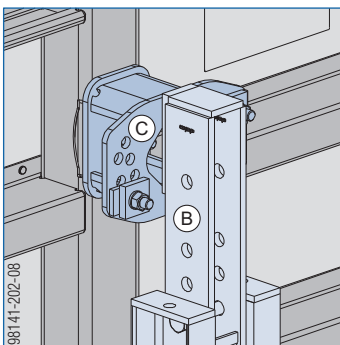


A Supporting construction distancer 20cm

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	
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	
5.55	1.35+0.90	10	—	2	2	
6.00	2.70	10	—	2	2	
6.60	3.30	10	4	—	2	C
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	
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.

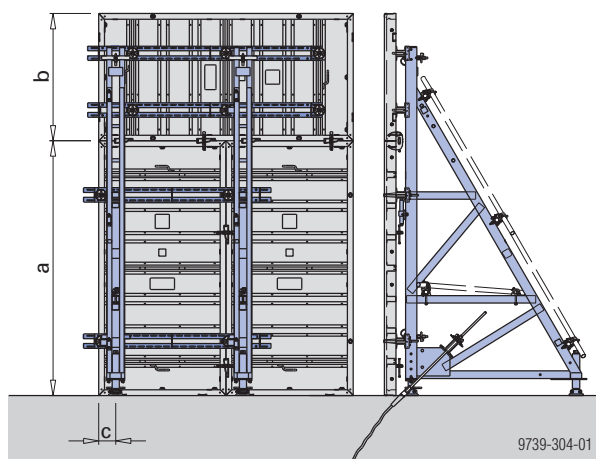
Your regional Doka branch will be pleased to advise you on the exact planning and dimensioning.

Basic rules:

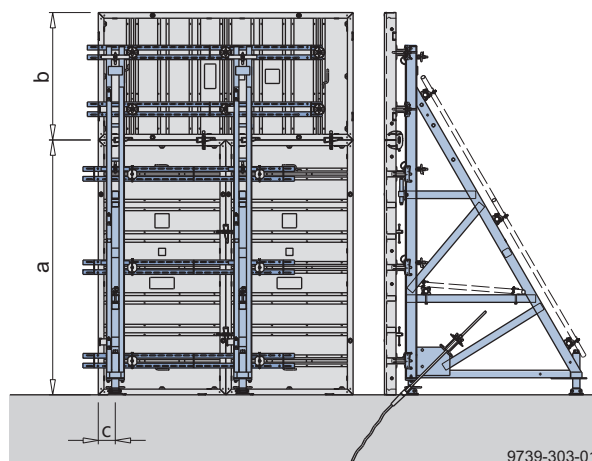
1. **Up to a formwork height of 4.50 m:**
Supporting constr. frame Universal F 4.50m
- Up to a formwork height of 6.00 m:**
Supporting constr. frame Universal F 4.50m
+ Attachable frame F 1.50m
- Up to a formwork height of 8.10 m:**
Supporting constr. frame Universal F 4.50m
+ Attachable frame F 1.50m
+ 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)



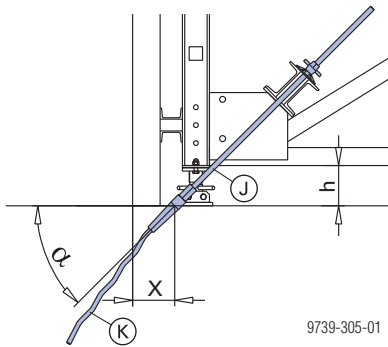
Variant 2 (multi-purpose walings at the function-profile levels)



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



$\alpha \dots 45^\circ$

Framed formwork Framax Xlife	X*)
with Multi-purpose waling WS10 Top50	19.0 cm

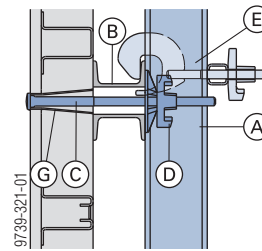
Framed formwork Framax Xlife plus	X*)
with Multi-purpose waling WS10 Top50	at function-profile level at tying level
	19.0 cm 20.0 cm
with Multi-purpose waling WU12 Top50	at function-profile level at tying level
	21.0 cm 22.0 cm

*) anchor angle 45° and $h = 18.0$ cm

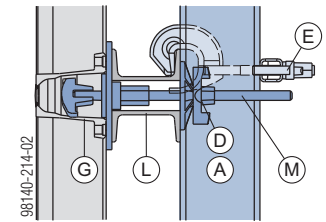
Fixing the panel

in variant 1:

Framax Xlife

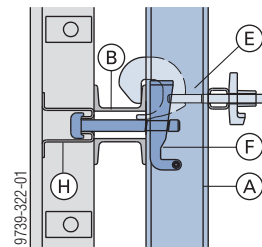


Framax Xlife plus

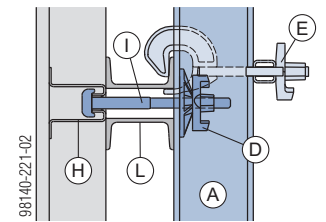


in variant 2:

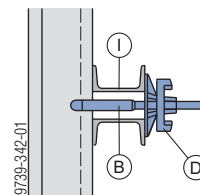
Framax Xlife



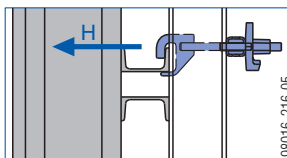
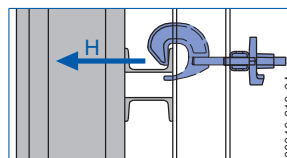
Framax Xlife plus



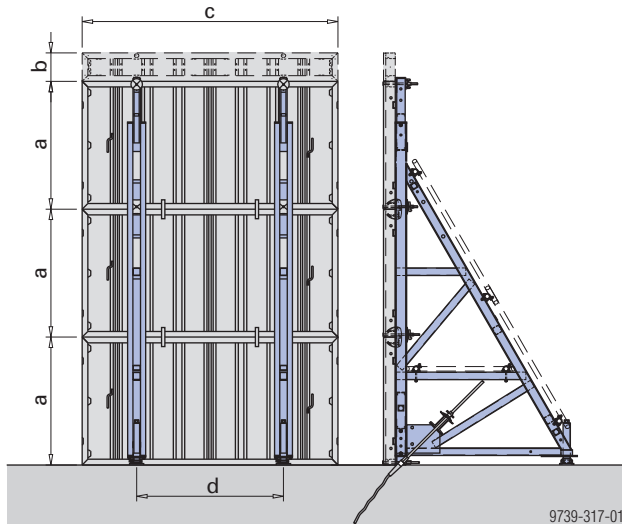
Alternatively:



- A** Supporting construction frame Universal F
- B** Multi-purpose waling WS10 Top50
- C** Framax supporting construct. frame bolt 36cm (installation 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 formwork panel
- H** Integral function profile of the framed formwork 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 (installation with Tie-rod wrench 15.0/20.0)

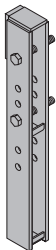
Waling-to-bracket holder	Waling-to-bracket holder (new version)
H ... permissible horizontal load: 11 kN	H ... permissible horizontal load: 22 kN
	
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Variant 3 (directly on the supporting construction frame)



View shown without bracing.

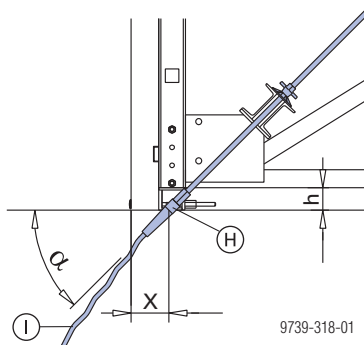
- a ... 1.35 m
- b ... 0.30 m (vertical stacking above the Framax/SC-frame connector: max. with 0.30m panel)
- c ... 2.70 m
- d ... 1.55 m



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 positions



- X ... 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.

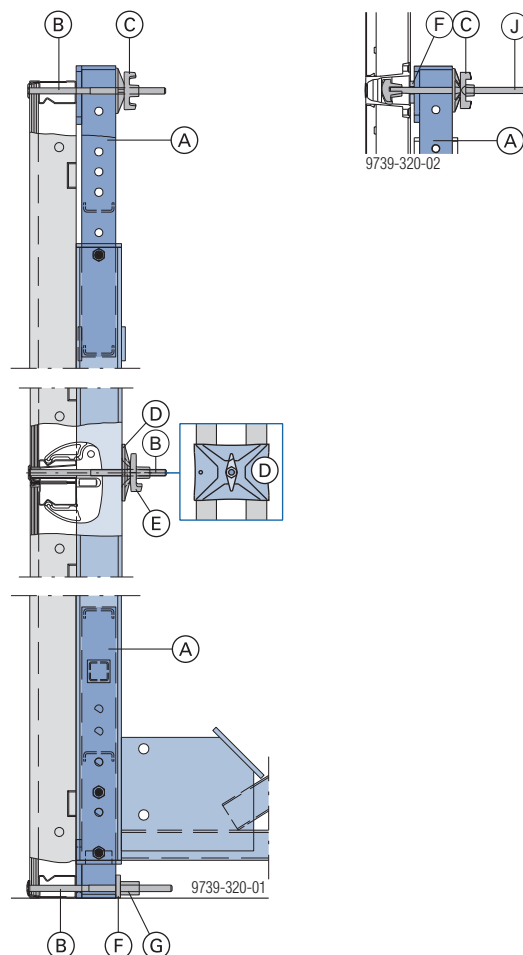
Means of attachment:

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

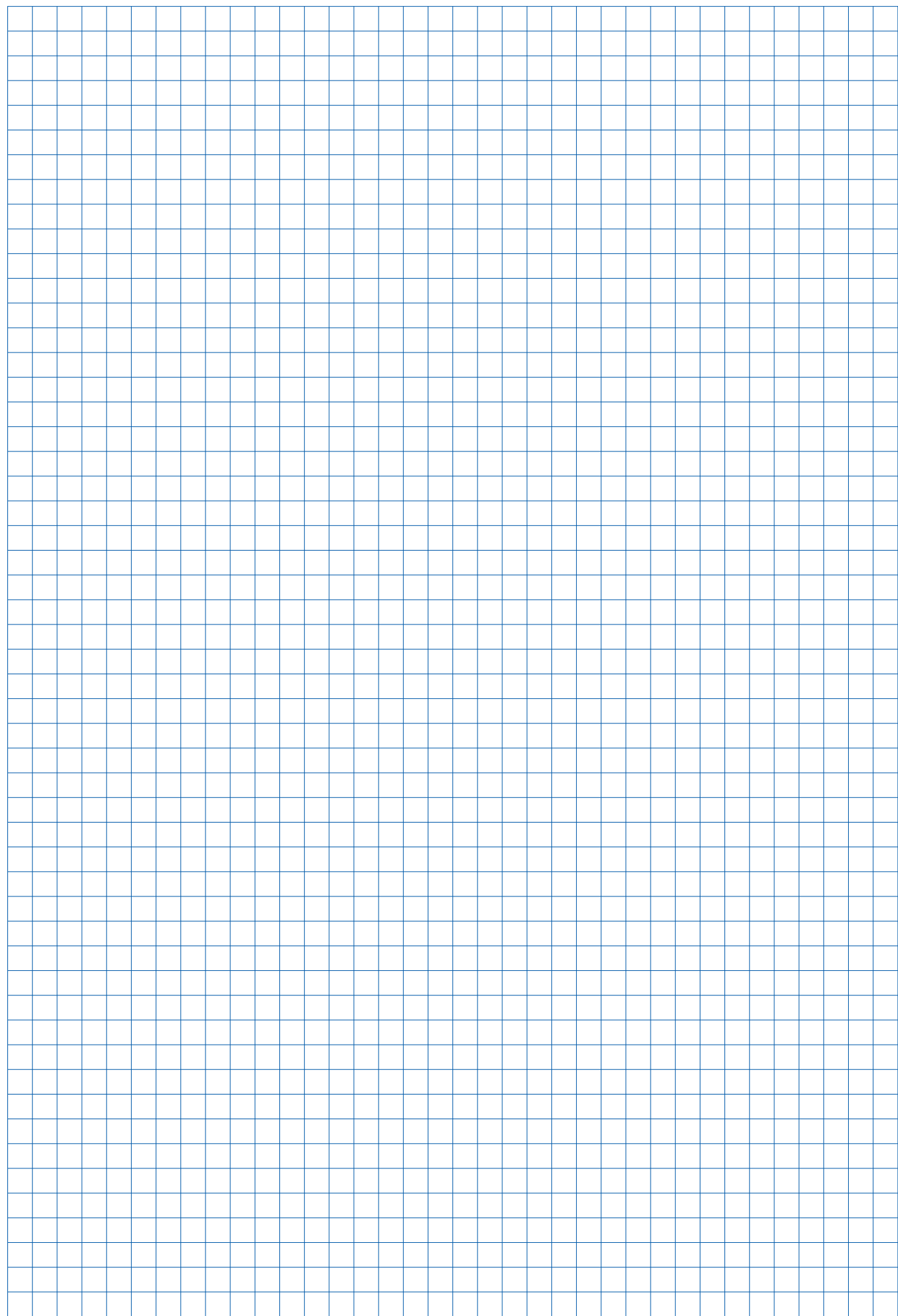
Note:

- 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

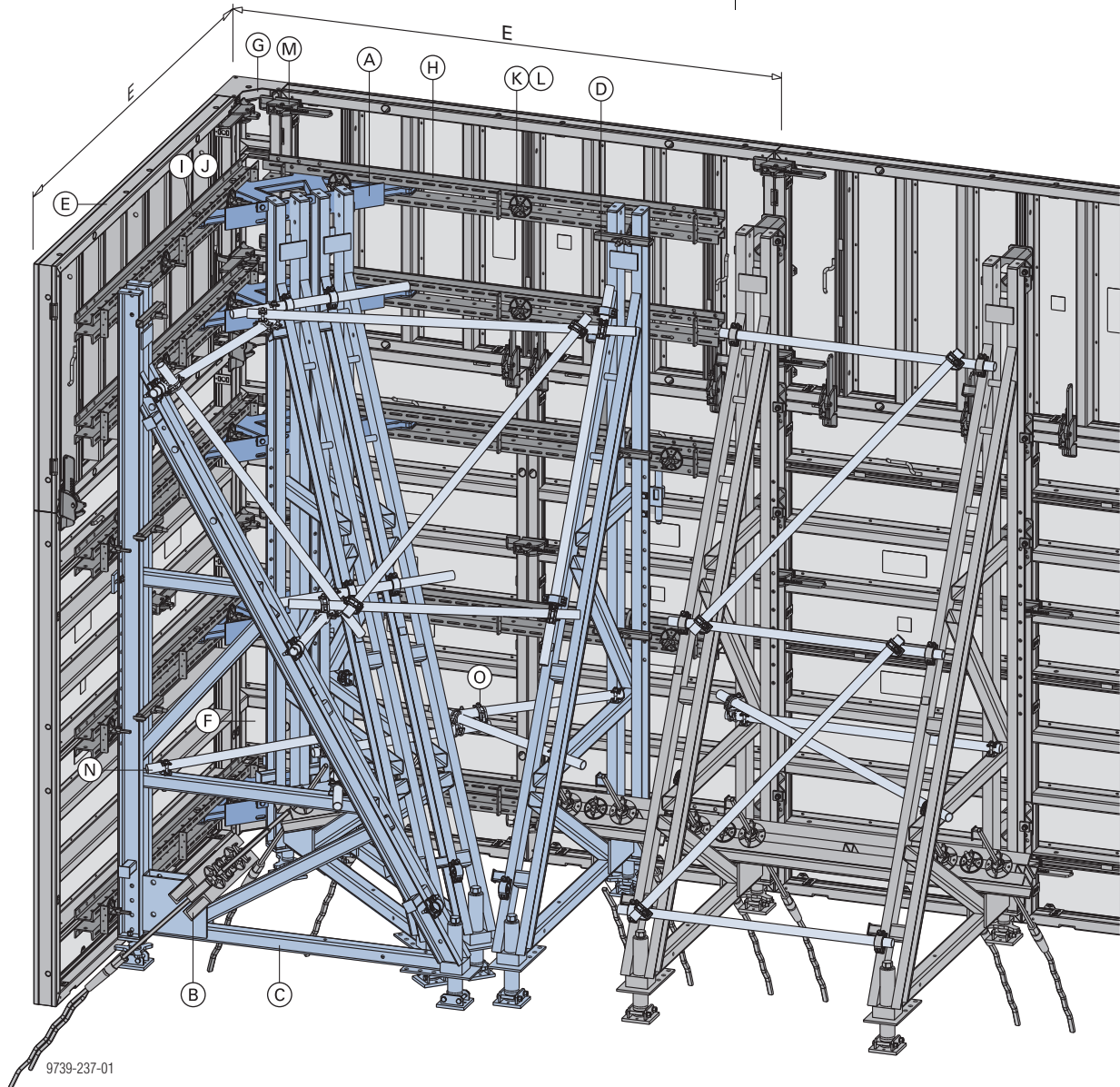
General

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 constr. frame Universal F 4.50m is needed in the corner zone.



E ... 3.00 m

On account of the supporting construction frame's geometry, the following influence widths apply in the corner zone, resulting in higher anchor loads:

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

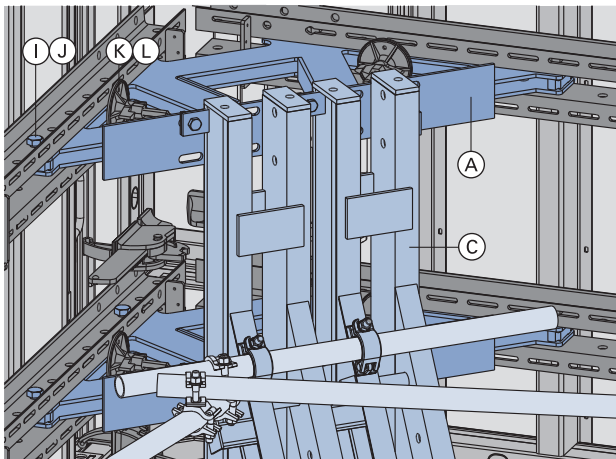
	Pour height H [m]	Anchor force Z _k [kN]
▪ Permissible fresh-concrete pressure: 50 kN/m ²	3.15	190
	3.60	230
▪ Influence width: 2.50 m	4.05	270
	4.50	310



NOTICE

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

Close-up of Corner plate for SC frame



9739-237-02

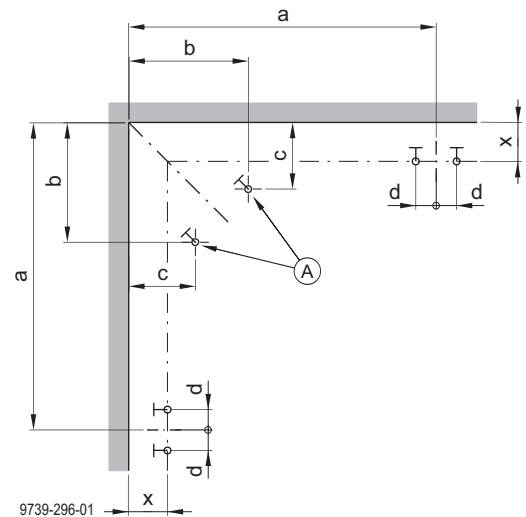
Items needed for corner zone 3.00 x 3.00 m

	Formwork height	
	2.70 m	4.05 m
(A) Corner plate supporting constr. frame	3	5
(B) Anchor waling 0.70m	3	3
(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

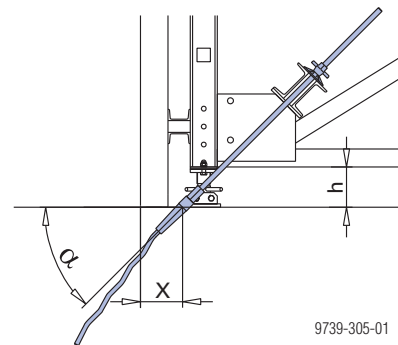
Plan view



9739-296-01

A Increased anchor load!

View



9739-305-01

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

- **h = 18.0 cm**
 - anchor angle $\alpha = 45^\circ$

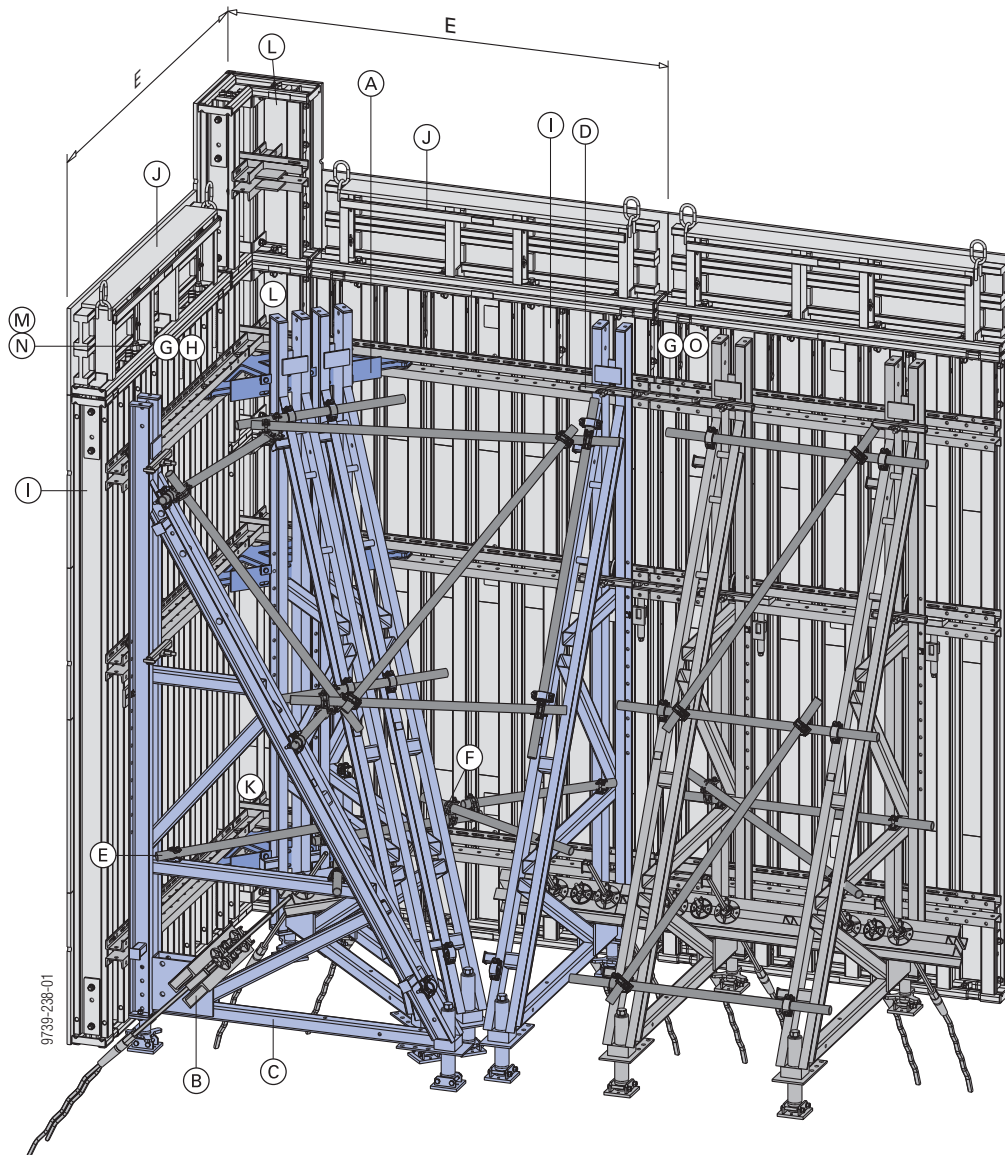
a ... 226.0 cm
 b ... 78.0 cm
 c ... 39.0 cm
 d ... 15.0 cm
 X ... 19.0 cm

Example with Wall formwork FF20

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

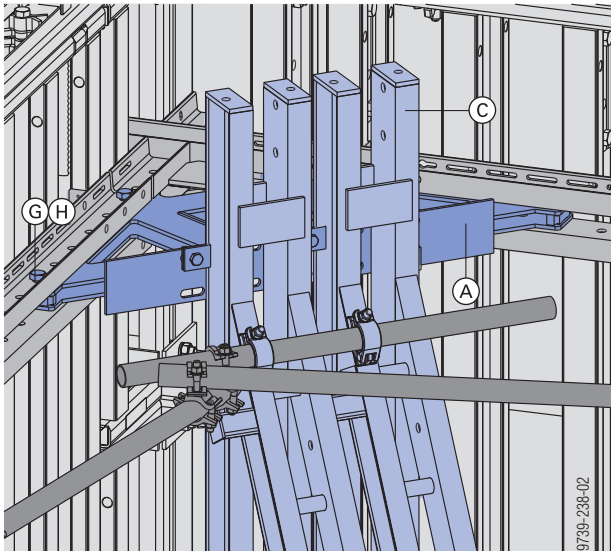
Note:

For structural design, see section [Example with framed formwork Framax Xlife](#).



Formwork sheeting	Corner zone – Dimension E
21mm	255.0 cm
27mm	255.6 cm

Close-up of Corner plate for SC frame



Items needed for corner zone E

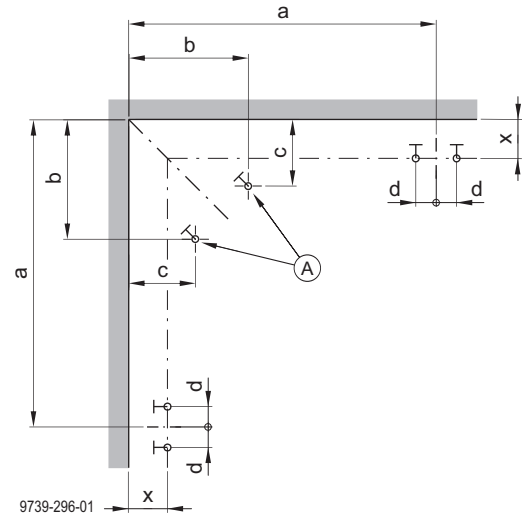
	Formwork height	
	2.75 m	4.25 m ¹⁾
(A) Corner plate supporting constr. frame	2	3
(B) Anchor waling 0.70m	3	3
(C) Supporting construct. frame Universal F 4.50m	3	4
(D) Waling-to-bracket holder 9-15cm	4	6
(E) Scaffold tube 48.3mm 1.00m	5	5
(F) Swivel coupler 48mm	4	4
(G) Connecting pin 10cm	20	30
(H) Spring 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.

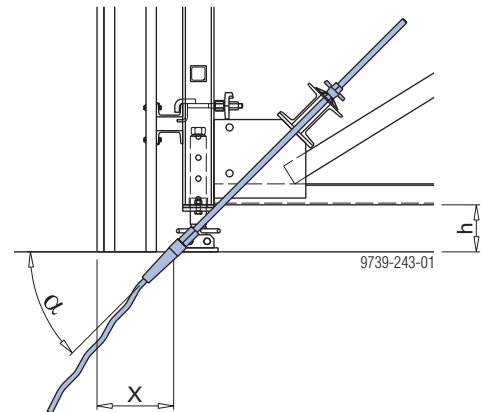
¹⁾ The maximum permissible pouring height is 4.10 m.

Location of anchoring points

Plan view



View



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

- **h = 18.0 cm**

- anchor angle $\alpha = 45^\circ$

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.

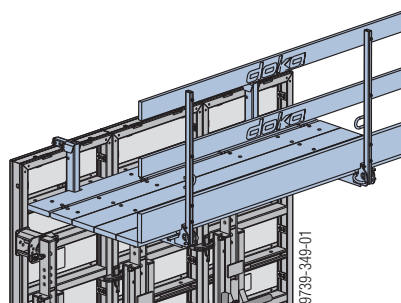
Formwork-dependent platforms

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

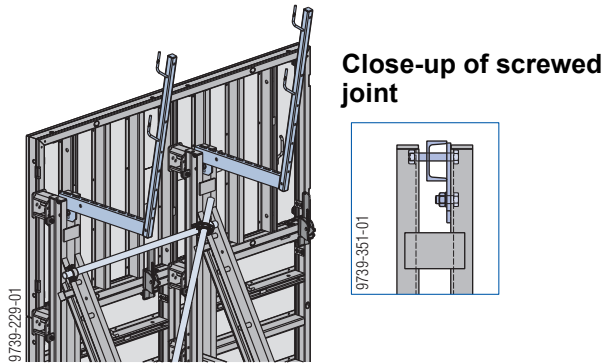


Non-formwork dependent platforms

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:

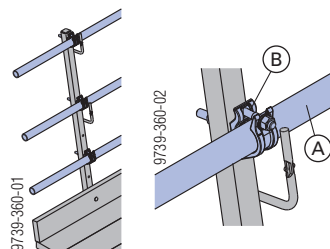
The plank and board thicknesses given here comply with the C24 category to EN 338.

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: Open-end spanner 22 for mounting the couplers and scaffold tubes.

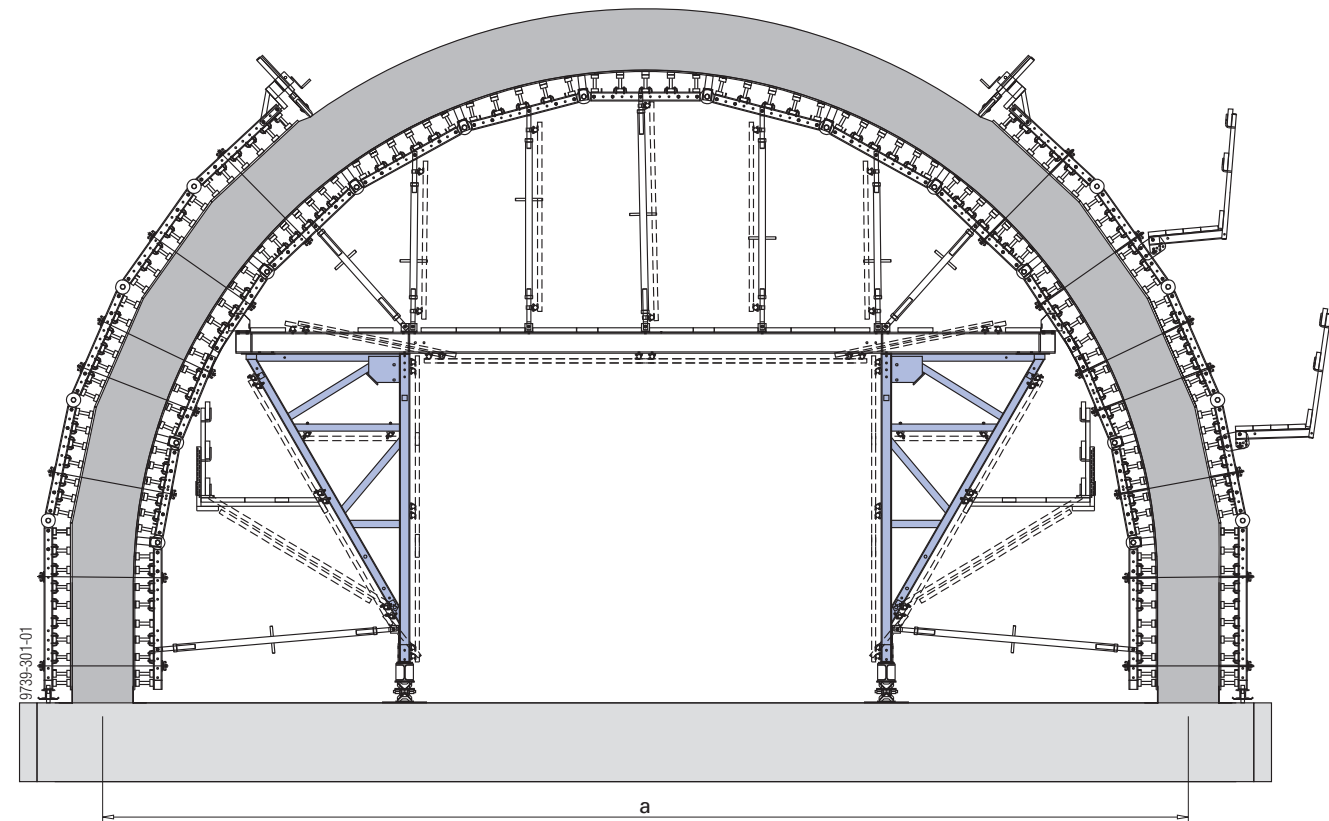
A Scaffold tube 48.3mm

B Screw-on coupler 48mm 95

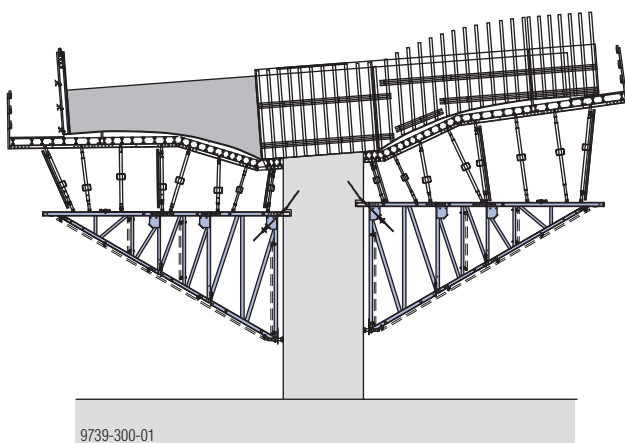
Special applications

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).

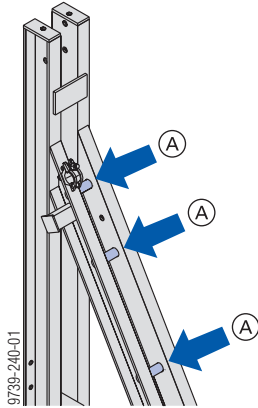


a ... e.g. 11.7 m



Lifting by crane

The Supporting construction frame Universal F is equipped with 3 crane lifting 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 supporting construction frame (e.g. vertically stacked configurations using attachable frames).



A Crane lifting points

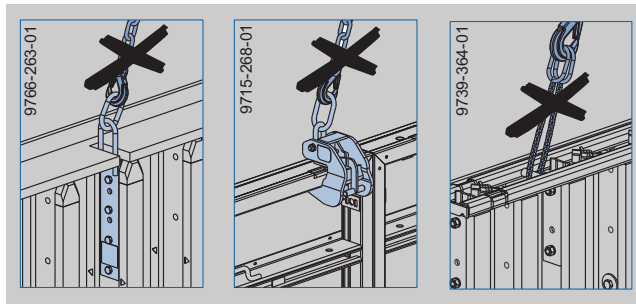
Permissible working load limit:

2500 kg per crane lifting point

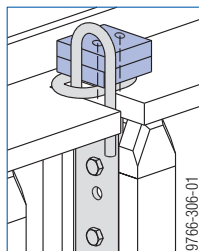


WARNING

► Any crane lifting 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 lifting chains cannot be hung into place in the lifting bracket.



NOTICE

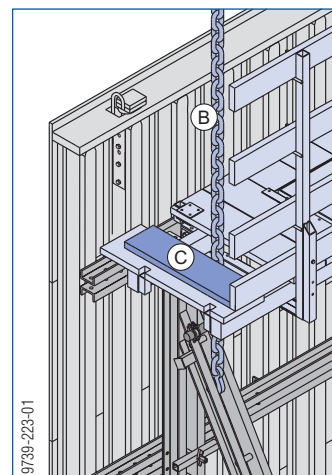
- When repositioning supporting construction frames, do **not attach the crane to the formwork element or panel or to other components** such as multi-purpose walings.
- Permitted lift-in-one unit:
Supporting construction frame unit with **max. 3 girderframe units**.
- **Only lift/reposition units that 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 supporting construction frames with the formwork attached is **only permitted at near-ground level**.
- Make sure that the **lifting chains are 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 supporting construction 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 constr. frame Universal F 4.50m
- Attachable frame F 1.50m

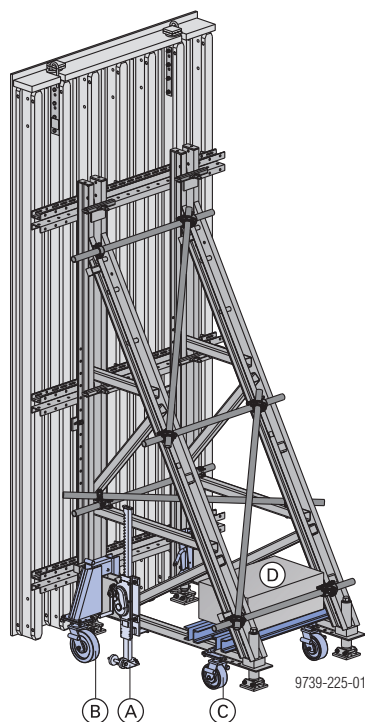


Follow the directions in the 'Winch with transport device' Operating Instructions!

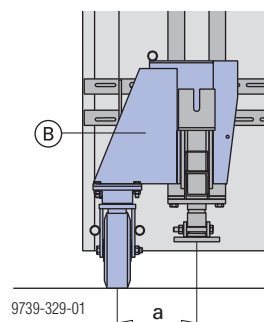
Permissible load-bearing capacity:

Attachable roller 250: 1400 kg

Attachable roller 200: 1000 kg



Section view



a ... 27 cm

A Winch with transport device

B Attachable roller 250

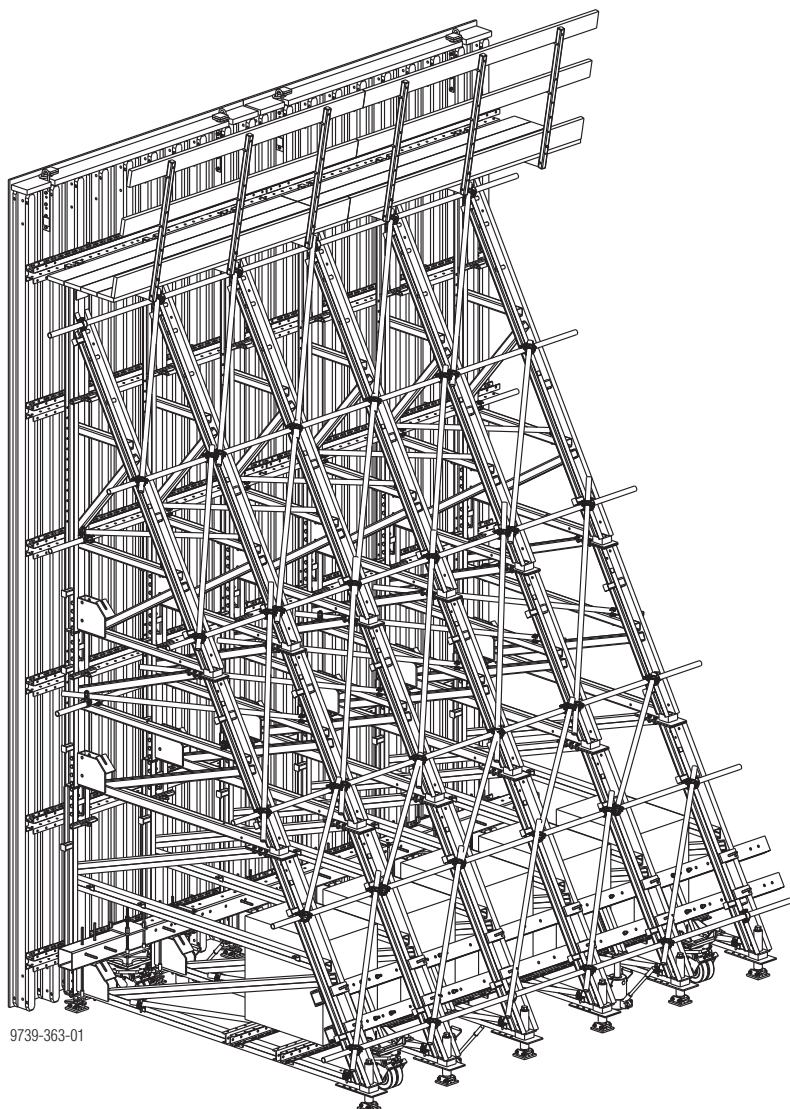
C Attachable roller 200

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



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 60kN
Lowering cylinder SL-1 250kN

Note:

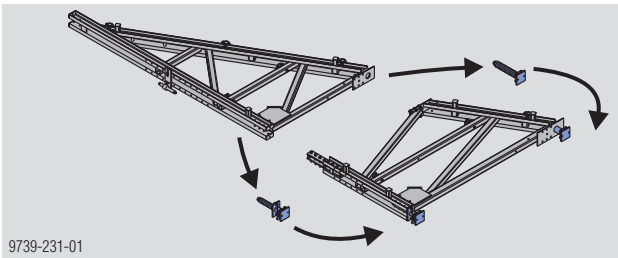
For more information, please contact Doka.

Assembly; transporting, stacking and storing

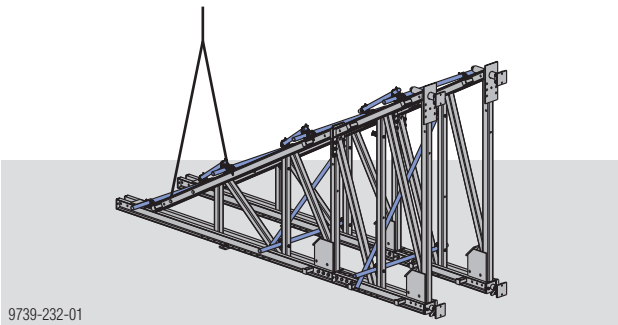
Example of a vertically stacked configuration:

Pre-assembly

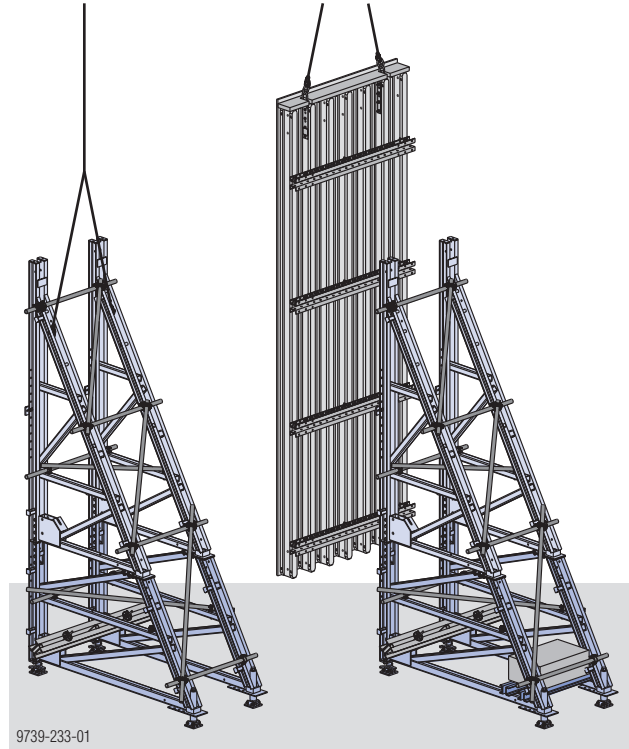
- Place a Supporting constr. frame Universal F 4.50m and an Attachable frame F 1.50m (plus an Attachable frame F 2.00m if needed) flat on the ground.
- Dismount the front spindle, including the nut plate, from the Supporting constr. frame Universal F 4.50m. Mount this spindle in the appropriate attachable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



- Bolt the Supporting constr. frame Universal F 4.50m onto the attachable frame (width 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). For details on how to arrange the scaffold-tube bracing, see section [Standard units](#).



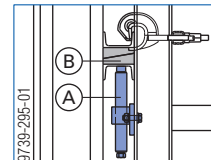
- Lift the pre-assembled gang-form by crane and position it against the supporting construction frame unit.
- Secure the gang-form to the supporting construction frame unit (using the connectors appropriate to the formwork system).
- Detach the gang-form from the crane.



- Crane-lift the entire formwork unit to the usage location (see section [Lifting by crane](#)).
- Adjust the unit with the spindles.
- Anchor the unit.

Note:

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



A Adjusting spindle

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

Closing the formwork



WARNING

- In all phases of the work, ensure sufficient stability when setting down the supporting construction frame units! (Where necessary, provide ballast, tie-backs or extra shoring.)
- Raise the entire supporting construction frame unit by crane and stand it in the upright (see section [Lifting by crane](#)).
- Mount the anchor walings.

Tools needed for assembly:

For	Width-across [mm]	Tool
Vertical stacking	30	Reversible ratchet 1/2" with Box nut 30 1/2" or Open-end spanner 30/32
Bracing-tube couplers	22	Open-end spanner 22/24
Relocating the Adjusting spindle	24	Reversible ratchet 1/2" with Box nut 24 1/2" or Open-end spanner 22/24
Removing and refitting the front spindle incl. nut-plate	24	Reversible ratchet 1/2" with Box nut 24 1/2" or Open-end spanner 22/24
Supporting construction distancer 20cm	30 / 24	- Open-end spanner 30/32 - Reversible ratchet 1/2" with Box nut 24 1/2" or Open-end spanner 22/24
Holding the SC-frame bolt		Tie rod wrench 15.0/20.0

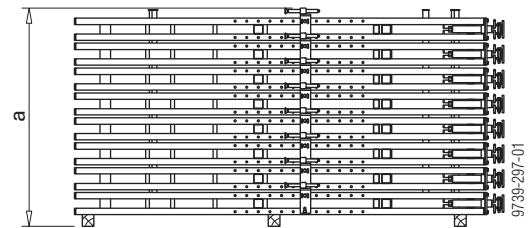
Tools needed for operation:

For	Width-across [mm]	Tool
Adjusting spindle	19	Reversible ratchet 1/2" with Box nut 19 1/2" L and Extension piece 11cm
Spindles (front and rear)	46	Reversible ratchet 3/4" with Box nut 46 3/4" and Extension piece 20cm 3/4"
Attachable roller 200 (rear)	22	Open-end spanner 22/24

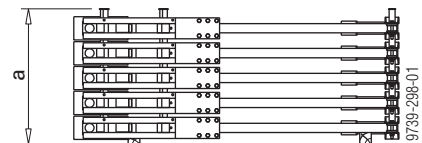
Transporting, stacking and storing

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

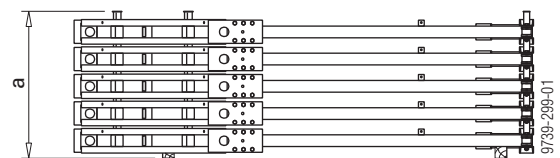
The fact that the SC-frames can be separated not only provides a high degree of adaptability to different heights of formwork, but also means that they are transported by truck easily and (thanks to the integral spacers) safely.

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

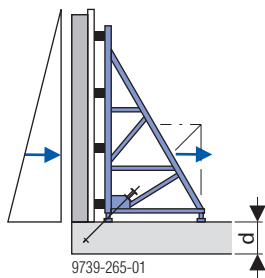
Transferring the forces which occur



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.

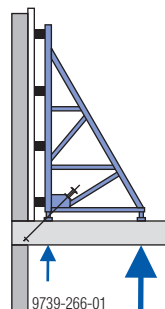


- Verify the stability of each of the structure members – and, if necessary, of the entire structure.

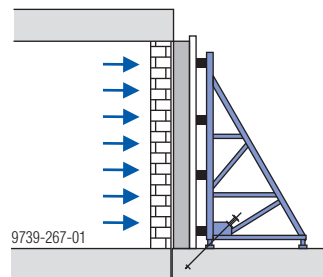


NOTICE

- 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).

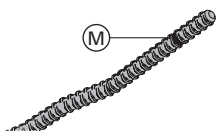
Exception: If the load-bearing capacity is sufficient for 1 anchor per SC-frame, the anchors on each unit must be placed symmetrically.

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

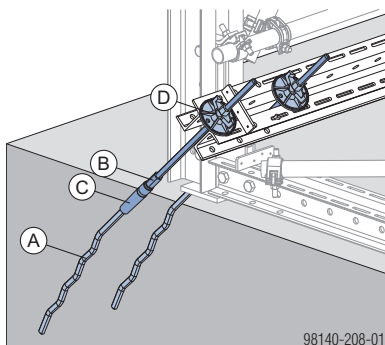
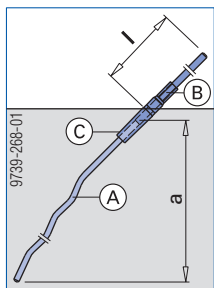
The introduction of the forces, the transfer of these forces into the structure, and the stability of the overall construction, must all be verified by the structural designer.



Follow the directions in the Calculation Guide 'Load-bearing capacity of anchorages in concrete' or contact Doka.

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
- Open-end spanner 24

Alternative method of preparing the positioning-point

- Positioning cone 15.0 5cm with Sealing sleeve 15.0 5cm (consumable form-tie component)
- Tie rod 15.0mm (length as required)

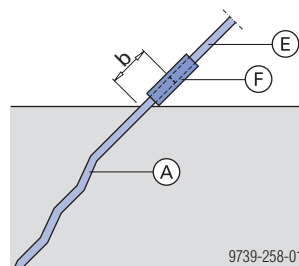
Dismantling tools:

- for 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:

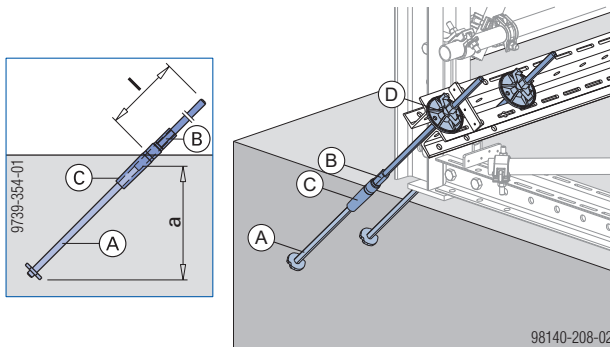
Instead of the she-bolt, fasten a Tie rod 15.0mm to the pigtail anchor using a Rod connector 15.0.



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 A40	30 cm
Stop anchor 15.0 A16	13 cm

- A** Stop anchor 15.0 (consumable form-tie 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 (consumable form-tie 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
- Open-end spanner 24

Alternative method of preparing the positioning-point

- Positioning cone 15.0 5cm with Sealing sleeve 15.0 5cm (consumable form-tie component)
- Tie rod 15.0mm (length as required)

Dismantling tools:

- for 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:

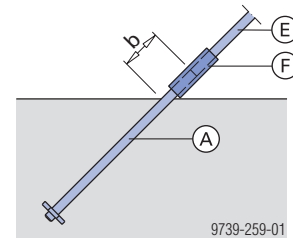
Instead of the she-bolt, fasten a Tie rod 15.0mm to the stop anchor using a Rod connector 15.0.



WARNING

Placement depth of the Stop anchor 15.0 A16 is too shallow!

► Use Stop anchor 15.0 A40!



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

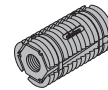
- A** Stop anchor 15.0 A40
- E** Tie rod 15.0mm
- F** Rod connector 15.0

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 (consumable form-tie component)



Extra components needed for preparing the anchoring point:

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

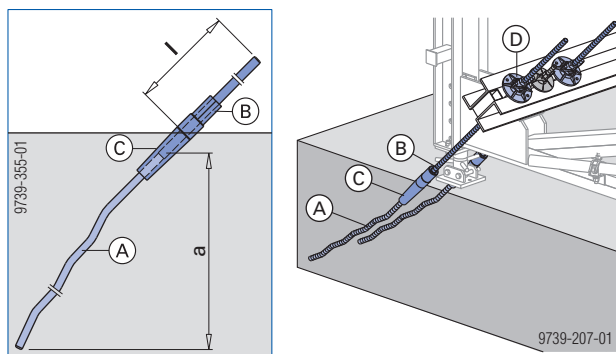
Observe load-bearing capacity as stated in section 'Carrying out the acceptance test' in the 'Rock anchor spreader unit 15.0' Fitting Instructions!

Note:

Also, a slip-proof support surface must be provided so that the tensioning instrument 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!

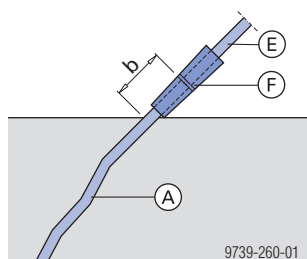
Tools for removing she-bolts:

- Tie rod wrench 15.0/20.0 or 20.0/26.5
or
- Open-end 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.



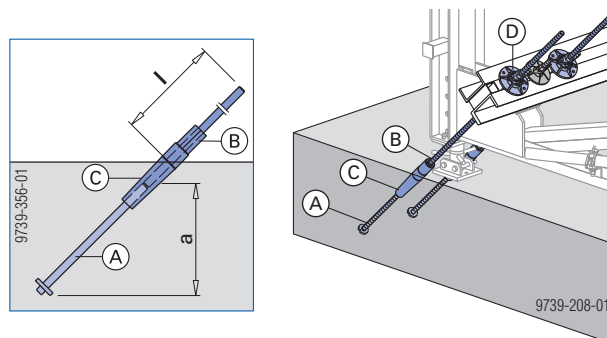
b ... min. 10.0 cm

- 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
- Open-end spanner 36/41

Another alternative:

Stop anchor protrudes from concrete:

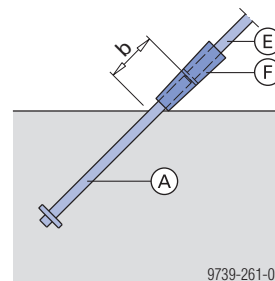
Instead of the she-bolt, fasten a Tie rod 20.0mm to the stop anchor using an Anchoring cone 20.0.



WARNING

Placement depth of the Stop anchor 20.0 C17 is too shallow!

► Use Stop anchor 20.0 C40!



b ... min. 10.0 cm

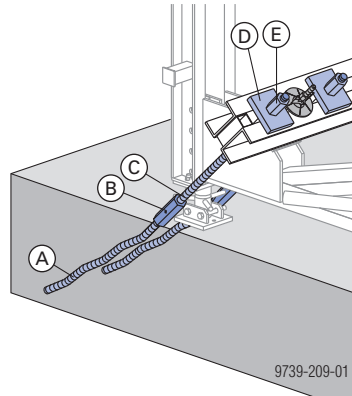
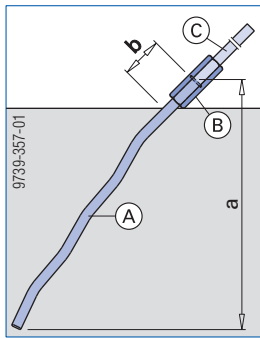
- A** Stop anchor 20.0 C40
- E** Tie rod 20.0mm
- F** Anchoring cone 20.0

Tool for removing Anchoring cone 20.0:

- Cone spanner 20.0

Tie rod system 26.5

Variant using pigtail anchor

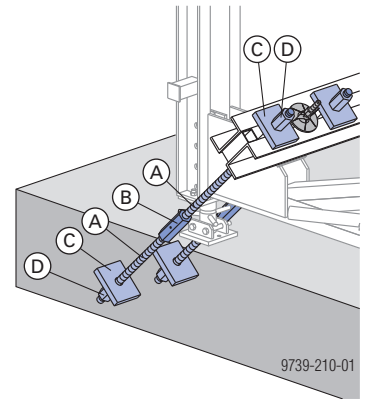
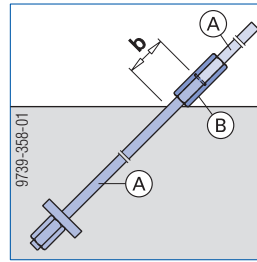


a ... min 41.5 cm – max. 58.5 cm
b ... min. 11.5 cm

- 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.

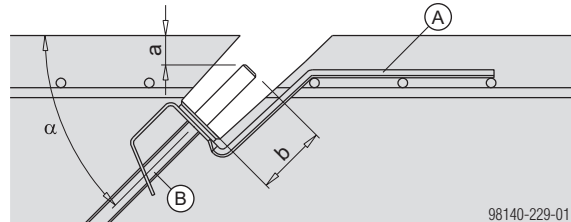
Anchor holders and clearance cones

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

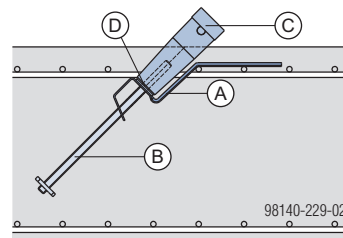
α ... 45°

A Anchor holder

B Stop anchor or pigtail anchor

Installation:

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



A Anchor holder

B Stop anchor or pigtail anchor

C Clearance cone

D Sealing disc 15/43 15.0 (Anchor holder 15.0)

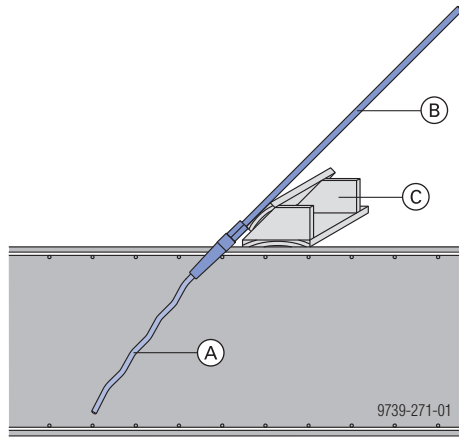
- After pouring, replace the clearance cone with a she-bolt.

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.



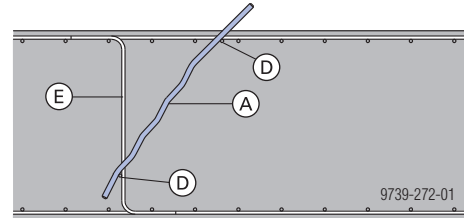
- A** Pigtail anchor or stop anchor
- B** She-bolt with sealing sleeve
- C** Wooden template

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.

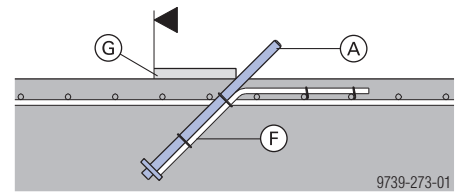


- A** Pigtail anchor or stop anchor
- D** Extra reinforcement rod
- E** Extra hoop

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

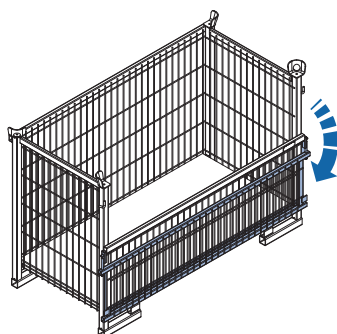
- A** Stop anchor 15.0 40cm 55 or 20.0 40cm 55
- F** Hoop with stop anchor, fastened to reinforcement
- G** Spacer board

Transporting, stacking and storing

Doka skeleton transport box 1.70x0.80m



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



Permissible load-bearing capacity: 700 kg (1540 lbs)
Permissible imposed stacking load: 3150 kg (6950 lbs)

Using Doka skeleton transport boxes 1.70x0.80m as storage units

Max. number 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 multi-trip boxes or 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!
- Castor wheels must not be fitted to the bottom multi-trip packaging in the stack.
- Secure multi-trip packagings with installed castor wheels using the fixing brake when parking.

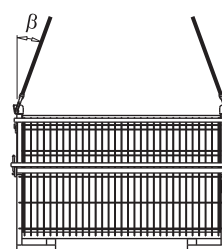
Using Doka skeleton transport boxes 1.70x0.80m as transport devices

Lifting by crane



NOTICE

- Multi-trip packaging items must be lifted individually.
- Only lift the boxes when their sidewalls are closed!
- Use suitable lifting chains:
 - e.g. Doka 4-part chain 3.20m
 - Do not exceed the permissible working load limit of the lifting chains.
- Sling angle β max. 30°!



9234-203-01

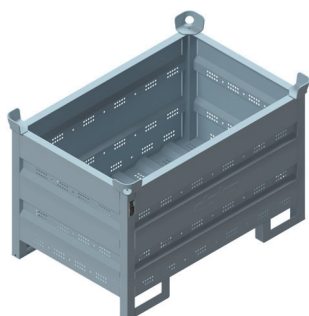
Repositioning by forklift truck or pallet stacking truck

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

Doka multi-trip transport box

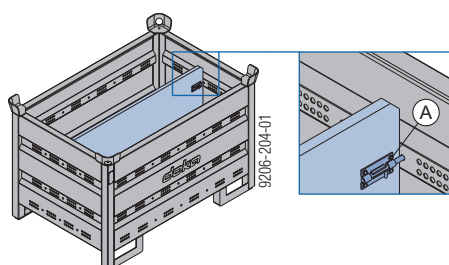
Storage and transport device for small items

Doka multi-trip transport box 1.20x0.80m



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

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

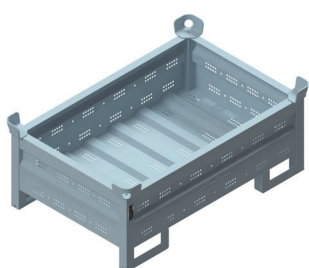


A Slide-bolt for fixing the partition

Possible ways of dividing the box

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

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



Permissible load-bearing capacity: 750 kg (1650 lbs)
Permissible imposed stacking load: 7200 kg (15870 lbs)

Using Doka multi-trip transport boxes as storage units

Max. number 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	1.20x0.80x0.41m	Doka multi-trip transport box 1.20x0.80m	1.20x0.80x0.41m
3	5	6	10
It is not allowed to stack empty multi-trip boxes or 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!
- Castor wheels must not be fitted to the bottom multi-trip packaging in the stack.
- Secure multi-trip packagings with installed castor wheels using the fixing brake when parking.

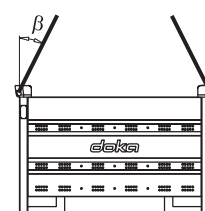
Using Doka multi-trip transport boxes as transport devices

Lifting by crane



NOTICE

- Multi-trip packaging items must be lifted individually.
- Use suitable lifting chains:
 - e.g. Doka 4-part chain 3.20m
 - Do not exceed the permissible working load limit of the lifting chains.
- Sling angle β max. 30°!



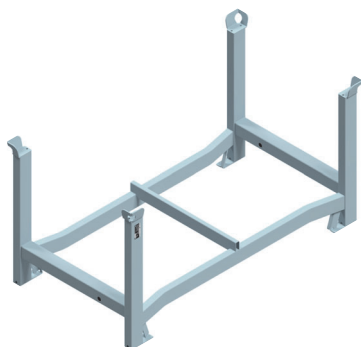
9206-202-01

Repositioning by forklift truck or pallet stacking truck

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

Doka stacking pallet 1.55x0.85m and 1.20x0.80m

Storage and transport device for long items.



Permissible load-bearing capacity: 1100 kg (2420 lbs)
Permissible imposed stacking load: 5900 kg (13000 lbs)

Using Doka stacking pallets as storage units

Max. number 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 multi-trip boxes or 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!
- Castor wheels or bolt-on castor sets must not be fitted to the bottom multi-trip packaging in the stack.
- Secure multi-trip packagings with installed castor wheels using the fixing brake when parking.

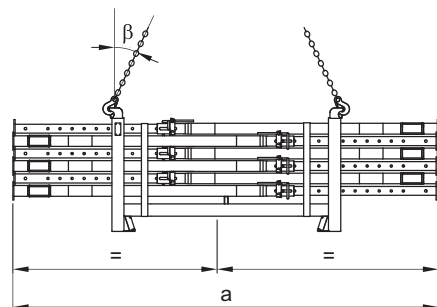
Using Doka stacking pallets as transport devices

Lifting by crane



NOTICE

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



92815-224-01

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

Repositioning by forklift truck or pallet stacking truck

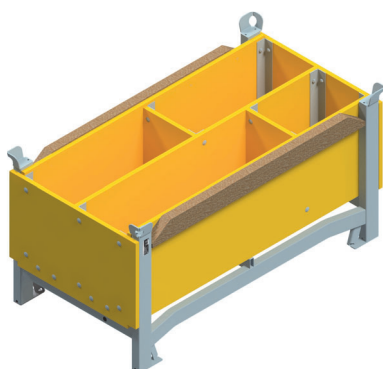


NOTICE

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

Doka accessory box

Storage equipment and means of transport for small items.



Permissible load-bearing capacity: 1000 kg (2200 lbs)
Permissible imposed stacking load: 5530 kg (12190 lbs)

Doka accessory boxes as storage units

Max. number 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 multi-trip boxes or 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!
- Castor wheels or bolt-on castor sets must not be fitted to the bottom multi-trip packaging in the stack.
- Secure multi-trip packagings with installed castor wheels using the fixing brake when parking.

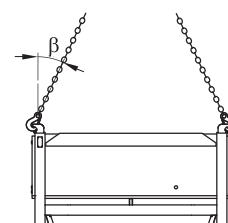
Doka accessory box as transport devices

Lifting by crane



NOTICE

- Multi-trip packaging items must be lifted individually.
- Use suitable lifting chains:
 - e.g. Doka 4-part chain 3.20m
 - Do not exceed the permissible working load limit of the lifting chains.
- Sling angle β max. 30° .



92816-206-01

Repositioning by forklift truck or pallet stacking truck

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

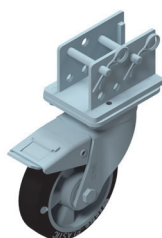
Universal castor wheel for transport pallet

The Universal castor wheel for transport pallet turns multi-trip packaging items into fast and manoeuvrable transport devices.

- 4 castor wheels needed per multi-trip packaging item.
- Compatible multi-trip packaging items:
 - Doka stacking pallets (all sizes)
 - Doka accessory box
 - Doka multi-trip transport box 1.20x0.80m
 - Doka skeleton transport box 1.70x0.80m
 - DokaXdek panel pallets (all sizes)
 - Dokadek infill beam pallet
 - Superdek beam pallet 1.22x1.10m



Follow the directions in the 'Universal castor wheel for transport pallet' User Information booklet.



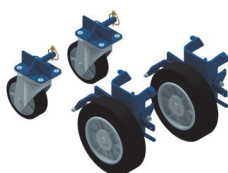
Bolt-on castor set B

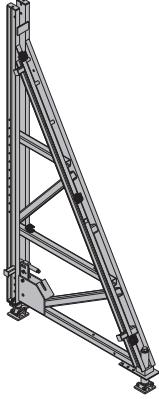
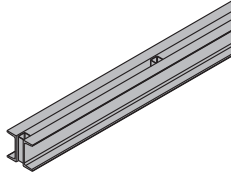
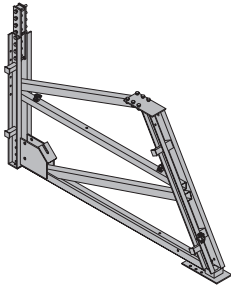
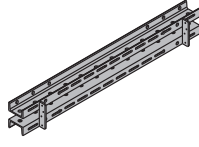
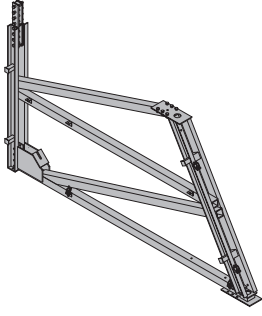
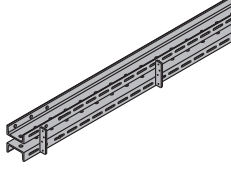
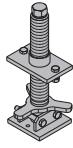
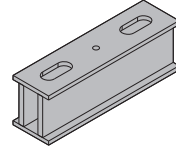
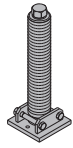
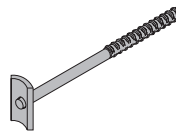
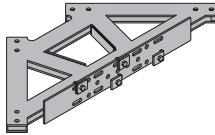
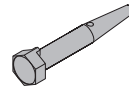
The Bolt-on castor set B turns multi-trip packaging items into fast and manoeuvrable transport devices.

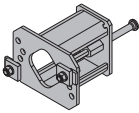
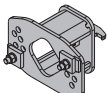
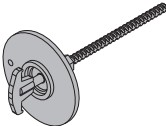
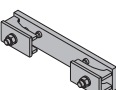
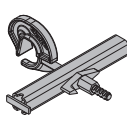
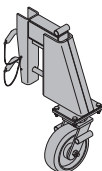
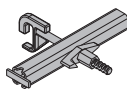
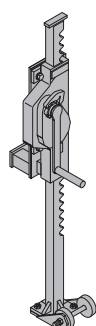
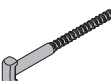
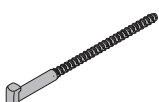
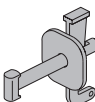
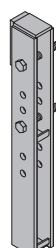
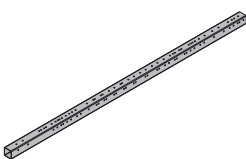
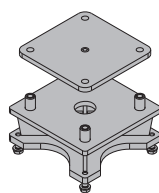
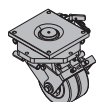
- Suitable for drive-through access openings > 90 cm.
- Compatible multi-trip packaging items:
 - Doka accessory box
 - Doka stacking pallets (all sizes)
 - Protective barrier Z pallets

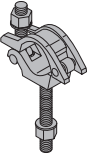
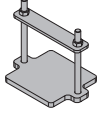
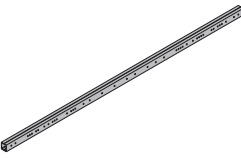
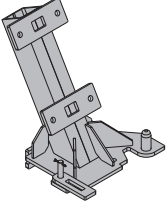
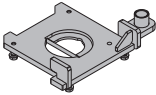
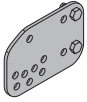
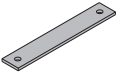
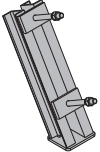
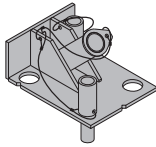


Follow the directions in the 'Bolt-on castor set B' User Information booklet!

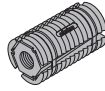
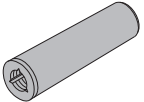
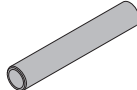
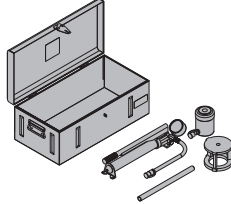
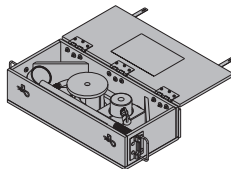
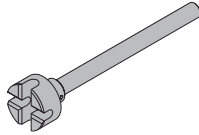
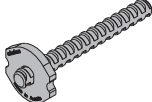
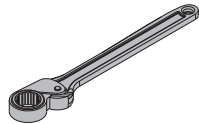
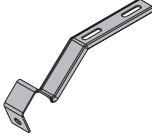
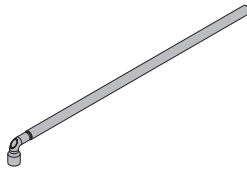
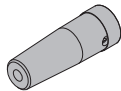


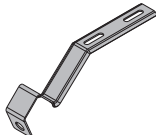
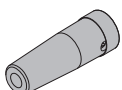
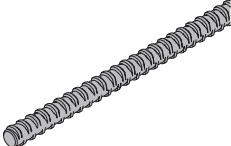
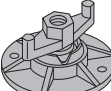
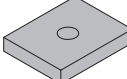
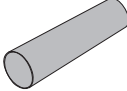
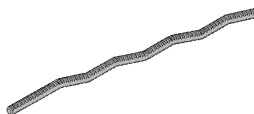
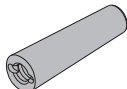
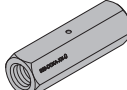
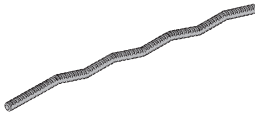
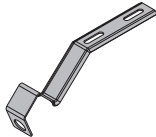
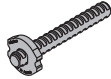
	[kg]	Article N°		[kg]	Article N°
Supporting constr. frame Universal F 4.50m Abstützbock-Universal F 4,50m  Painted blue Length: 196 cm Height: 365 - 394 cm	306.0	580500000	Anchor waling 0.70m Anchor waling 1.95m Anchor waling 2.95m Ankerriegel  Painted blue	27.0 76.3 110.0	580517000 580545000 580546000
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
			Connecting pin 10cm Verbindungsbolzen 10cm  Galvanised Length: 14 cm	0.34	580201000
			Spring cotter 5mm Federvorstecker 5mm  Galvanised Length: 13 cm	0.03	580204000

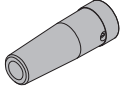
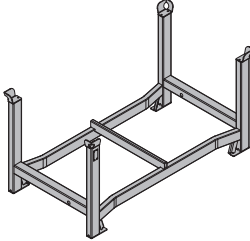
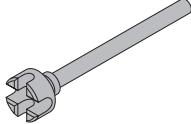
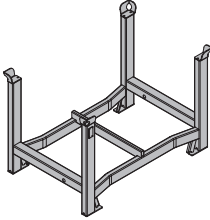
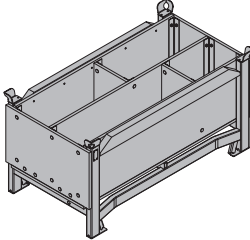
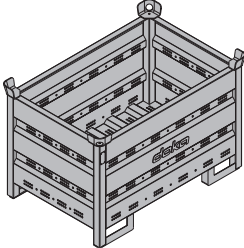
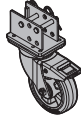
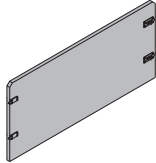
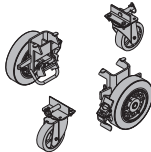
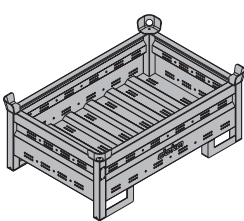
	[kg]	Article N°		[kg]	Article N°				
Supporting construction distancer 20cm Bockdistanz 20cm	9.4	580519000		Galvanised Length: 25 cm Width: 19 cm Height: 20 cm	Framax supporting construct. frame bolt 36cm Framax-Bockschraube 36cm	0.62	580505000		Galvanised
Framax Xlife plus supp.constr. distancer 12cm Framax Xlife plus-Bockdistanz 12cm	8.4	582938000		Galvanised Length: 29 cm Width: 19 cm Height: 14 cm	Framax Xlife plus supporting-frame bolt Framax Xlife plus-Bockschraube	3.5	582937000		Galvanised Length: 40.5 cm
Clamp for supp. constr. distancer 20cm Klemme für Bockdistanz 20cm	5.0	582920000		Galvanised Length: 36 cm Width: 7 cm	Attachable roller 200 Ansteckrolle 200	19.3	580538000		Painted blue Height: 38 cm
Waling-to-bracket holder 9-15cm Riegelhalter 9-15cm	2.7	580625000		Galvanised	Attachable roller 250 Ansteckrolle 250	47.0	580537000		Painted blue Height: 78 cm
Waling-to-bracket holder Keilriegelhalter	2.5	580526000		Galvanised Length: 26 cm Height: 31 cm	Winch with transport device Hubwinde mit Transportroller	37.0	580541000		Painted blue Height: 127 cm Follow the directions in the "Operating Instructions"!
Framax universal fixing bolt 10-16cm Framax-Universalsverbinder 10-16cm	0.6	588158000		Galvanised Length: 26 cm					
Framax universal fixing bolt 10-25cm Framax-Universalsverbinder 10-25cm	0.69	583002000		Galvanised Length: 36 cm					
Framax wedge clamp Framax-Spannklemme	1.5	588152000		Galvanised Length: 21 cm					
Framax supporting construct. frame connector Framax-Bocklasche	15.0	580506000		Painted blue Height: 77 cm	Travelling profile F 2.00m front Verfahrprofil F 2,00m vorne	180.0	582925000		Galvanised Length: 600 cm
					Wheel connector F 2.00m front Radanschluss F 2,00m vorne	33.7	582926000		Galvanised Length: 30 cm Width: 30 cm Height: 16.5 cm
					Heavy-duty wheel 60kN Schwerlastrad 60kN	85.0	582921000		Galvanised Height: 38 cm

	[kg]	Article N°		[kg]	Article N°
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	0.8 0.88	682002000 586013000
Clamping plate F 2.00m Klemmplatte F 2,00m  Galvanised Length: 24 cm	3.5	582928000			
Intermediate plate F 2.00m Zwischenplatte F 2,00m  Galvanised Length: 25 cm Width: 18 cm	6.0	582929000	Swivel coupler 48mm Drehkupplung 48mm  Galvanised Width-across: 22 mm	1.5	582560000
Travelling profile F 2.00m rear Verfahrprofil F 2,00m hinten  Galvanised Length: 574 cm	187.5	582930000	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 8.4 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
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	Handrail clamp S Schutzgeländerzwinge S  Galvanised Height: 123 - 171 cm	11.5	580470000
Lifting bracket F 2.00m rear Hubkonsole F 2,00m hinten  Galvanised Height: 48.6 cm	14.0	582935000	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



	[kg]	Article N°		[kg]	Article N°
She-bolt 15.0 5cm Ankerkopf 15,0 5cm  Galvanised Length: 76 cm Width-across: 24 mm 	1.7	581972000	Rock anchor spreader unit 15.0 Felsanker-Spreizeinheit 15,0  Galvanised Length: 9 cm Diameter: 4 cm	0.41	581120000
Positioning cone 15.0 5cm Vorlaufkonus 15,0 5cm  Galvanised Length: 11 cm Diameter: 3 cm	0.43	581969000	Rock anchor installation tube Felsanker-Einbaurohr  Galvanised Length: 50 cm Diameter: 3 cm	0.85	581123000
Sealing sleeve 15.0 5cm Dichtungshülse 15,0 5cm  Orange Length: 10 cm Diameter: 3 cm	0.008	581990000	Tensioning instrument 300kN Vorspanngerät 300kN  Galvanised	32.0	581815000
Rod connector 15.0 Verbindungsmuffe 15,0  Non-treated Length: 10.5 cm Diameter: 3.2 cm 	0.49	581981000	Tensioning instrument B Vorspanngerät B  Galvanised	34.5	580570000
Pigtail anchor 15.0 Wellenanker 15,0  Non-treated Length: 67 cm	0.92	581984000	Protective cap 15.0/20.0 Schutzkappe 15,0/20,0  Yellow Length: 6 cm Diameter: 6.7 cm	0.03	581858000
Stop anchor 15.0 A40 Sperranker 15,0 A40  Non-treated	0.71	581999000	Tie-rod wrench 15.0/20.0 Ankerstabschlüssel 15,0/20,0  Galvanised	1.8	580594000
Stop anchor 15.0 A16 Sperranker 15,0 A16  Non-treated	0.38	581997000	Friction type ratchet SW27 Freilaufknarre SW27  Manganese-phosphated Length: 30 cm	0.49	581855000
Anchor holder 15.0 Ankerhalter 15,0  Non-treated	0.43	581835000	Box spanner 27 0.65m Steckschlüssel 27 0,65m  Galvanised	1.9	581854000
Sealing disc 15/43 15.0 Dichtscheibe 15/43 15,0  Black Diameter: 4.2 cm	0.002	581885000			
Clearance cone 15.0 Freistellkonus 15,0  Black Blue Length: 20.6 cm Diameter: 7 cm	0.51	581865000			

	[kg]	Article N°		[kg]	Article N°		
Tie rod system 20.0			Anchor holder 20.0				
Tie rod 20.0mm galvanised 0.50m	1.3	581411000	Ankerhalter 20,0	0.43	581427000		
Tie rod 20.0mm galvanised 0.75m	1.9	581417000		Non-treated			
Tie rod 20.0mm galvanised 1.00m	2.5	581412000					
Tie rod 20.0mm galvanised 1.25m	3.2	581418000	Sealing disc 20/43 20.0/26.5				
Tie rod 20.0mm galvanised 1.50m	3.8	581413000	Dichtscheibe 20/43 20,0/26,5	0.002	581836000		
Tie rod 20.0mm galvanised 2.00m	5.0	581414000		Black			
Tie rod 20.0mm galvanised 2.50m	6.3	581430000					
Tie rod 20.0mm galvanisedm	2.5	581410000	Clearance cone 20.0				
Tie rod 20.0mm non-treated 0.50m	1.3	581405000	Freistellkonus 20,0	0.49	581866000		
Tie rod 20.0mm non-treated 0.75m	1.9	581416000		Black Yellow			
Tie rod 20.0mm non-treated 1.00m	2.5	581406000					
Tie rod 20.0mm non-treated 1.50m	3.8	581407000	Tie rod system 26.5				
Tie rod 20.0mm non-treated 2.00m	5.0	581408000	Tie rod 26.5mm non-treatedm	4.5	581883000		
Tie rod 20.0mm non-treatedm	2.5	581403000	Ankerstab 26,5mm unbehandeltm				
Ankerstab 20,0mm							
Super plate 20.0 B			Hexagon nut 26.5				
Superplatte 20,0 B	2.0	581424000	Sechskantmutter 26,5	0.73	581985000		
	Galvanised Height: 7 cm Diameter: 14 cm Width-across: 34 mm			Galvanised Length: 8 cm Width-across: 46 mm			
She-bolt 20.0			Anchor plate 26.5				
Ankerkopf 20,0	5.6	581435000	Ankerplatte 26,5	3.4	581986000		
	Galvanised Length: 140 cm Diameter: 5 cm Width-across: 41 mm			Galvanised Length: 15 cm Width: 12 cm			
Sealing sleeve 20.0			Pigtail anchor 26.5				
Dichtungshülse 20,0	0.03	581441000	Wellenanker 26,5	3.6	581900000		
	Grey Length: 16 cm Diameter: 5 cm			Non-treated Length: 80 cm			
Anchoring cone 20.0			Rod connector 26.5				
Ankerkonus 20,0	1.1	581437000	Verbindungs- muffe 26,5	1.4	581988000		
	Galvanised Length: 15 cm Diameter: 5 cm			Non-treated Length: 15 cm Width-across: 46 mm			
Pigtail anchor 20.0			Anchor holder 26.5				
Wellenanker 20,0	2.0	581450000	Ankerhalter 26,5	0.43	581943000		
	Non-treated Length: 76 cm			Non-treated			
Stop anchor 20.0 C40							
Sperranker 20,0 C40	1.2	581458000					
	Non-treated						
Stop anchor 20.0 C17							
Sperranker 20,0 C17	0.62	581457000					
	Non-treated						

	[kg]	Article N°		[kg]	Article N°
Clearance cone 26.5 Freistellkonus 26,5  Black Grey Length: 20.6 cm Diameter: 7 cm	0.46	581867000	Doka stacking pallet 1.55x0.85m Doka-Stapelpalette 1,55x0,85m  Galvanised Height: 77 cm	41.0	586151000
Tie-rod wrench 20.0/26.5 Ankerstabschlüssel 20,0/26,5  Galvanised Length: 37 cm Diameter: 8 cm	1.7	580593000	Doka stacking pallet 1.20x0.80m Doka-Stapelpalette 1,20x0,80m  Galvanised Height: 77 cm	38.0	583016000
Multi-trip packaging					
Doka skeleton transport box 1.70x0.80m Doka-Gitterbox 1,70x0,80m  Galvanised Height: 113 cm	87.0	583012000	Doka accessory box Doka-Kleinteilebox  Timber parts varnished yellow Steel parts galvanised Length: 154 cm Width: 83 cm Height: 77 cm	106.4	583010000
Doka multi-trip transport box 1.20x0.80m Doka-Mehrwegcontainer 1,20x0,80m  Galvanised Height: 78 cm	70.0	583011000	Universal castor wheel for transport pallet Universal-Lenkrolle Transportgebinde  Galvanised Height: 28.8 cm	6.0	584043000
Multi-trip transport box partition 0.80m Multi-trip transport box partition 1.20m Mehrwegcontainer Unterteilung  Steel parts galvanised Timber parts varnished yellow	3.7 5.5	583018000 583017000	Bolt-on castor set B Anklemm-Radsatz B  Painted blue	33.6	586168000
Doka multi-trip transport box 1.20x0.80x0.41m Doka-Mehrwegcontainer 1,20x0,80x0,41m  Galvanised	42.5	583009000			



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