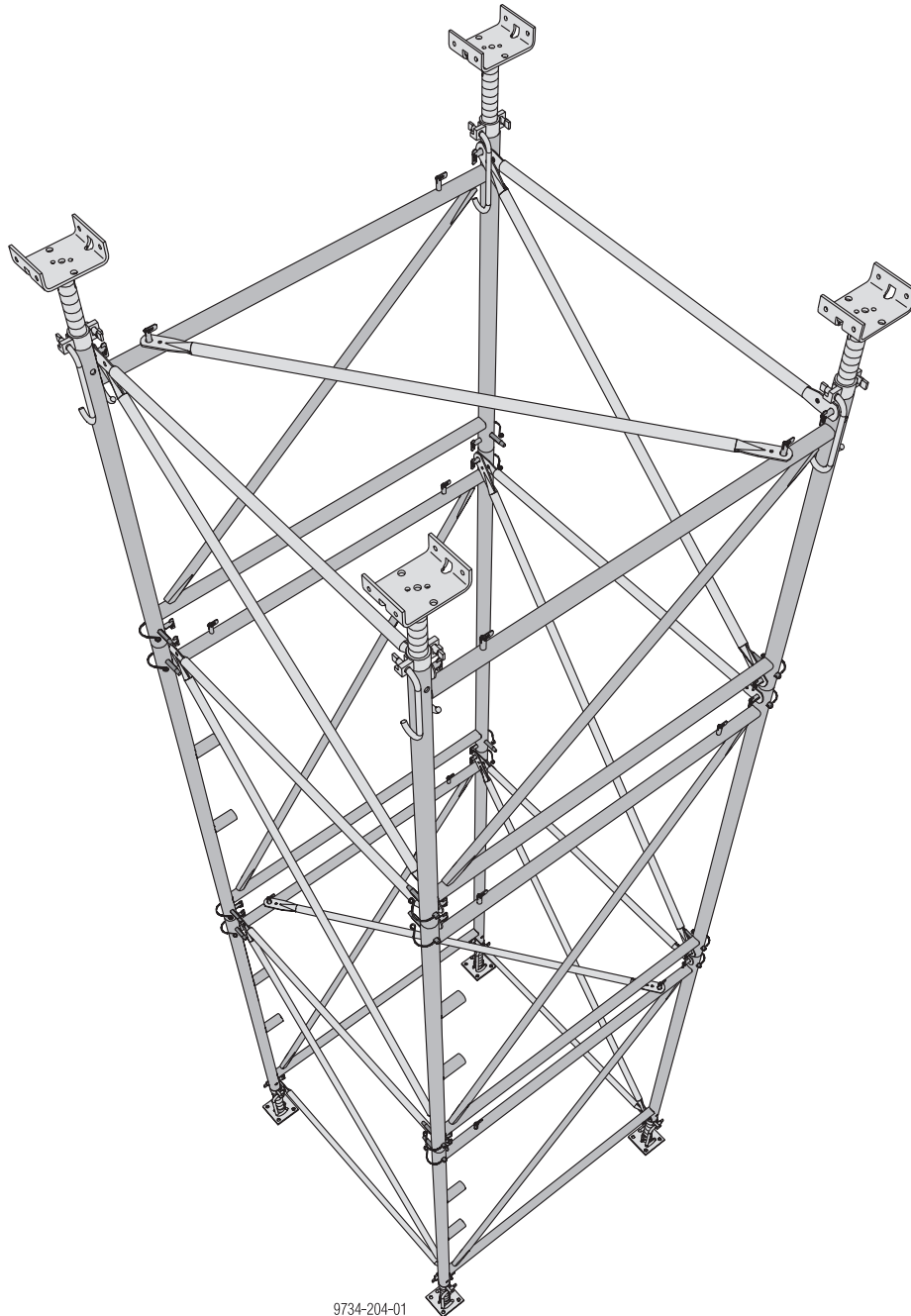


Load-bearing tower d2



9734-204-01



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Elementary safety warnings

User target groups

- This User Information booklet (Method Statement) is aimed at everyone who will be working with the Doka product or system 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 manual 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 available to all users, and that they have been made aware of them and have easy access to them at the usage location.
- In the relevant technical documentation and formwork utilisation plans, Doka shows the workplace safety precautions that are necessary in order to use the Doka products safely in the usage situations shown.
In all cases, users are obliged to ensure compliance with national OH&S (occupational health and safety) rules 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 document 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 document

- This User Information booklet can also be used as a generic method statement or incorporated with a site-specific method statement.
- **Many of the illustrations in this booklet show the situation during formwork assembly and are therefore not always complete from the safety point of view.**
Any safety accessories not shown in these illustrations must still be used by the customer, in accordance with the applicable rules and regulations.
- **Further safety instructions, especially warnings, will be found in the individual sections of this document!**

Planning

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

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 under the direction and supervision of suitably skilled persons with the authority to issue instructions.
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 of all components and units must be ensured during all phases of the construction work!
- The functional/technical instructions, safety warnings and loading data must all be strictly observed and complied with. Failure to do so can cause accidents and severe (even life-threatening) damage to health, as well as very great material damage.
- Fire-sources are not permitted anywhere near the formwork. Heating appliances are only allowed if properly and expertly used, and set up a safe distance away from the formwork.
- The work must take account of the weather conditions (e.g. risk of slippage). In extreme weather, steps must be taken in good time to safeguard the equipment, and the immediate vicinity of the equipment, and to protect employees.
- All connections must be checked regularly to ensure that they still fit properly and are functioning correctly.
It is very important to check all screw-type connections and wedge-clamped joints whenever the construction operations require (particularly after exceptional events such as storms), and to tighten them if necessary.

Assembly

- The equipment/system must be inspected by the customer before use, to ensure that it is in suitable condition. Steps must be taken to rule out the use of any components that are damaged, deformed, or weakened due to wear, corrosion or rot.
- Combining our formwork systems with those of other manufacturers could be dangerous, risking damage to both health and property. If you intend to combine different systems, please contact Doka for advice first.
- The assembly work must be carried out by suitably qualified employees of the client's.
- It is not permitted to modify Doka products; any such modifications constitute a safety risk.

Erecting the formwork

- Doka products and systems must be set up in such a way that all loads acting upon them are safely transferred!

Pouring

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

Striking the formwork

- Do not strike the formwork until the concrete has reached sufficient strength and the person in charge has given the order for the formwork to be struck!
- When striking 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 striking 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 regulations applying to the handling of formwork and scaffolding. In addition, the Doka slinging means must be used - this is a mandatory requirement.
- Remove any loose parts or fix them in place so that they cannot be dislodged or fall free!
- All components must be stored safely, following all the special Doka instructions given in the relevant sections of this User Information booklet!

Regulations; industrial safety

- Always observe all industrial safety regulations and other safety rules applying to the application and utilisation of our products in the country and/or region in which you are operating.

Instruction as required by EN 13374:

- If a person or object falls against, or into, the edge protection system and/or any of its accessories, the edge protection component affected may only continue in use after it has been inspected and passed by an expert.

Maintenance

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

Symbols used

The following symbols are used in this booklet:



Important note

Failure to observe this may lead to malfunction or damage.



CAUTION / WARNING / DANGER

Failure to observe this may lead to material damage, and to injury to health which may range up to the severe or even life-threatening.



Instruction

This symbol indicates that actions need to be taken 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

Refers to other documents and materials.

Miscellaneous

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

Doka services

Support in every phase of the project

Doka offers a broad spectrum of services, all with a single aim: to help you succeed on the site.

Every project is unique. Nevertheless, there is one thing that all construction projects have in common – and that is a basic structure with five phases. We at Doka know our clients' varying requirements. With our consulting, planning and other services, we help you achieve effective implementation of your formwork assignment using our formwork products – in every one of these phases.



Project development phase



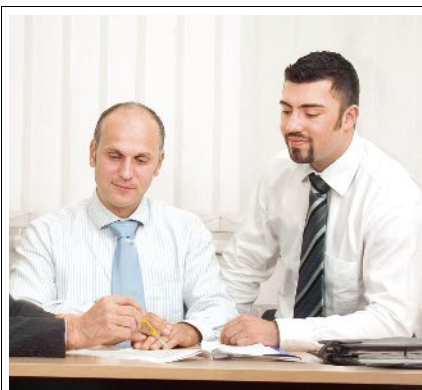
Taking well-founded decisions thanks to professional advice and consulting

Find precisely the right formwork solutions, with the aid of

- help with the bid invitation
- in-depth analysis of the initial situation
- objective evaluation of the planning, execution, and time-risks



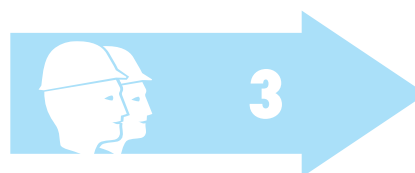
Tendering phase



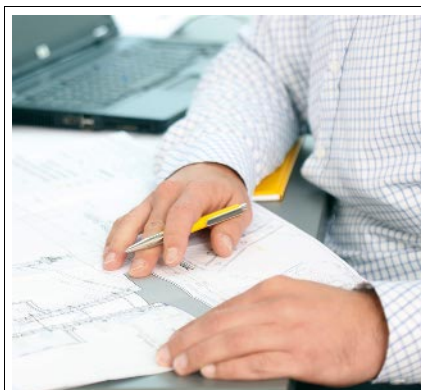
Optimising the preliminary work with Doka as an experienced partner

Draw up potentially winning bids, by

- basing them on realistically calculated guideline prices
- making the right formwork choices
- having an optimum time-calculation basis



Operations scheduling phase



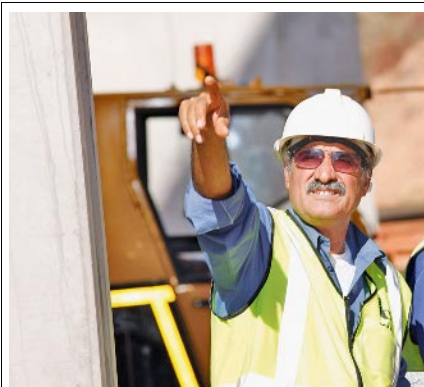
Controlled, regular forming operations, for greater efficiency resulting from realistically calculated formwork concepts

Plan cost-effectively right from the outset, thanks to

- detailed offers
- determination of the commissioning quantities
- co-ordination of lead-times and handover deadlines



(Shell) construction phase



Optimum resource utilisation
with assistance from the Doka
Formwork Experts

Workflow optimisation, thanks to

- thorough utilisation planning
- internationally experienced project technicians
- appropriate transport logistics
- on-site support



(Shell) completion phase



Seeing things through to a positive conclusion
with professional support

Doka Services are a byword for transparency and efficiency here, offering

- jointly handled return of rented formwork
- professional dismantling
- efficient cleaning and reconditioning using special equipment

The advantages for you
thanks to professional advice and consulting

● **Cost savings and time gains**

When we advise and support you right from the word "go", we can make sure that the right formwork systems are chosen and then used as planned. This lets you achieve optimum utilisation of the formwork equipment, and effective forming operations because your workflows will be correct.

● **Maximised workplace safety**

The advice and support we can give you in how to use the equipment correctly, and as planned, leads to greater safety on the job.

● **Transparency**

Because our services and costs are completely transparent, there is no need for improvisation during the project – and no unpleasant surprises at the end of it.

● **Reduced close-out costs**

Our professional advice on the selection, quality and correct use of the equipment helps you avoid damage, and minimise wear-and-tear.

System description

Doka d2 - the strong, economical load-bearing tower made of steel

Sturdy galvanised steel frames, in three different heights, are the basis of this highly economical load-bearing tower, designed for highly varied areas of use.

High load-bearing capacity, quick and easy assembly using only a small number of separate system components and connectors, and great versatility - these are the outstanding characteristics of d2.

Wherever high loads occur, in either the building-construction or civil-engineering fields, this load-bearing tower is the ideal solution.

The tried-and-tested load-bearing tower

- with lightweight components (frames up to h=1.20 m can be manhandled)
- ergonomical: easy-to-handle parts

... speeds up work

- the small number of system components makes for easier handling and means that no time is wasted searching for parts
- simple stacking of the basic frames
- no tools are needed for assembling the towers

... provides optimum safety

- high capacity of up to 60 kN per leg
- high stability, due to its 1.52 m wide frames
- climbing rungs are integrated in the frames, enabling them to be used as a ladder.
(May not be used in this way in the UK. A separate ladder is required here).

... is flexible

- the inter-frame spacing can be varied (from 1.00 m to 2.50 m), for optimum utilisation of the frames' load-bearing capacity
- different frame heights - 0.90 m, 1.20 m and 1.80 m - for rough height adjustment in 30 cm increments: 0.90, 1.20 and 1.80 m
- fine adjustment by means of screw-jack U-heads and feet
- can be used in conjunction with floor props and Dokaflex

... is economical

- The tower units are quick and easy to assemble:
 - either on their sides or in the upright
 - for tall towers, tower units can be pre-assembled on their sides, and then simply stacked by crane
 - scaffold planking units make it easy to erect and dismantle the tower and superstructure
- with special wheel units, complete tableforms can quickly be wheeled to their next location



Site: Flyover at Rheinfelden customs zone on Swiss/German border

Areas of use

The Load-bearing tower d2 is ideal:

- as falsework for use in bridge-building, where high loads occur and where great stability is called for in that horizontal forces such as wind loads have to be safely transferred
- in the building construction field, e.g. for administration buildings and multistorey car-park decks, where large-area tableform units reduce forming-times
- in the industrial and power-station construction field, as a load-bearing tower for all manner of applications

Doka stair tower d2-225

The Doka stair tower d2-225 is made up of 1.20m high frames and a small number of special accessories.

Quick to erect, the stair tower provides "high-level" safety and lets the site crew get quickly to their work-places.



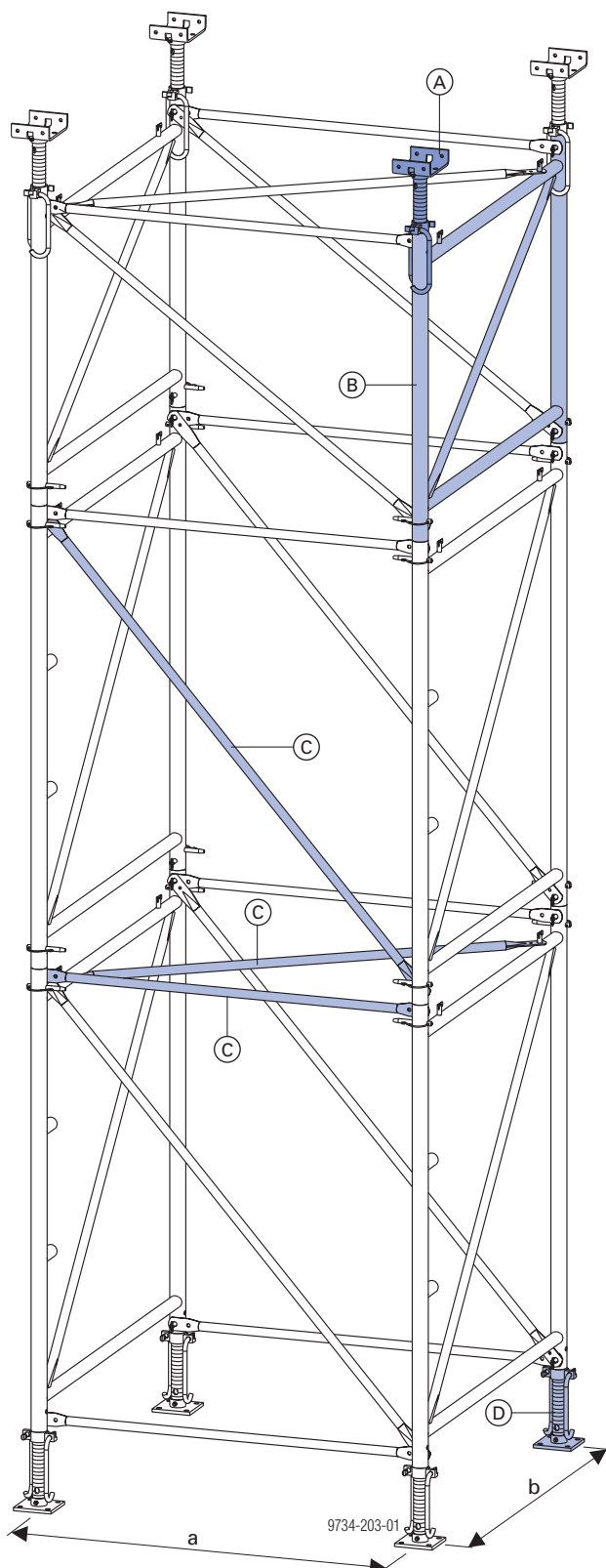
Follow the directions in the "Doka stair tower d2-225" User Information!



Site: Communications Tower, Kuwait

System overview

Basic design concept



a ... Inter-frame spacing = 100 / 125 / 152 / 175 / 200 / 225 / 250 cm
 b ... Frame width = 152 cm

A Head unit

B Basic frame d2

C Brace d2

D Base unit

The d2 system components

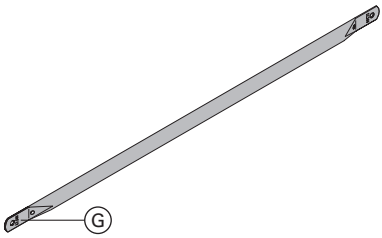
Head units (A)

4-way screw-jack head	Screw jack U-head	U-head D
Top height-adjustment screwjacks for load-bearing towers. For holding the superstructure and adjusting its height.	For holding the primary beams (e.g. steel walings, steel girders).	Rotatable, but with no height adjustment.
May be used with either one or two Doka H20 beams. The primary beams are fixed so that they cannot tip over.		For holding the primary beams (e.g. WS10 steel walings or double H20 beams).

Basic frames d2 (B)

Basic frame d2 1.80m	Basic frame d2 1.20m	Basic frame d2 0.90m

Braces d2 (A)

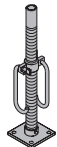
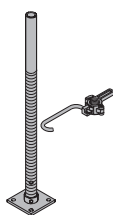
Horizontal brace	Diagonal brace 9	Diagonal brace 12	Diagonal brace 18
			
Horizontal connection brace between the basic frames.	Diagonal stiffening brace between the Basic frames 0.90m.	Diagonal stiffening brace between the Basic frames 1.20m. Is also used as a horizontal diagonal for all types of basic frame.	Diagonal stiffening brace between the Basic frames 1.80m.
Slot-in bracing crosses made of tubular steel, for mounting between the frames.			
Identified by: ● Embossed marking (G) e.g. 18.250 (diagonal brace) - 18 = frame height 1.80 m - 250 = inter-frame spacing 250 cm ● Embossed marking (G) e.g. 250 (horizontal brace) - 250 = inter-frame spacing 250 cm			

As an alternative to the Braces d2, diagonal crosses from the **Doka load-bearing tower Staxo** can also be used here.

**Important note:**

- The diagonal crosses cannot be used in cases where the frames are spaced 100 cm apart, as the crosses would foul the cross-bars of the frames.
- Do not mix diagonal crosses and diagonal braces on the same load-bearing tower.
- It is not possible to use diagonal crosses to erect quadratic tower frames where the frames of each section are placed at 90° to those of the previous section (see "Quadratic tower frames").
- In levels in which assembly battens are mounted, horizontal bracing with "Diagonal braces 12" or with diagonal crosses is no longer needed. This only applies, of course, if the assembly battens are left in place in this "storey" until the very end of the assignment (assembly, pouring etc.).

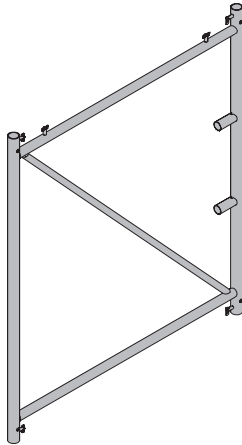
Base units (D)

Screw jack foot	Heavy duty screw jack 70 + Split nut B
	
Bottom height-adjustment spindle for load-bearing towers.	
	The Split nut B can be swung apart, meaning that it does not need to be turned through the full length of the threaded spindle.

This image shows a full page of blank graph paper. The grid consists of small, uniform squares formed by thin, light blue horizontal and vertical lines. There are no margins, text, or other markings on the page.

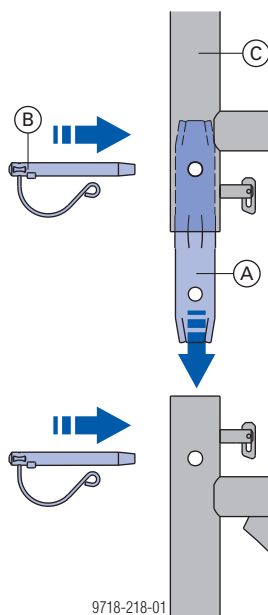
d2 in detail

Basic frame d2



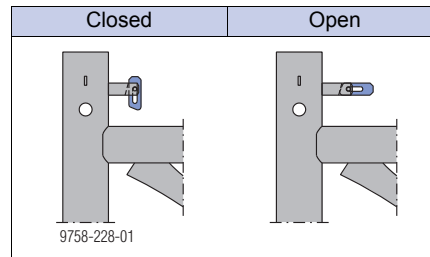
Interconnection system on d2 load-bearing towers

- Easy, safe interconnection using the couplers and spring-locked connecting pins 16 mm.
- 1) Fix the coupler (A) in the top frame (C), using the Spring-locked connecting pin 16 mm (B).
- 2) Place this frame on top of the one below it.
- 3) Secure it with a Spring-locked connecting pin 16 mm.

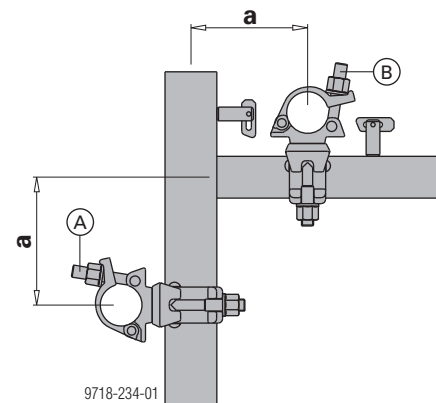


Safety catch

- tried-and-tested interconnection system (captive)
- secures the diagonal and horizontal braces
- two defined positions (closed – open)



Connecting the couplers



a ... max. 16 cm (exception: where tubes are being connected for constructional design purposes)

A Transition swivel coupler 48/60mm or Transition angle coupler 48/60mm

B Swivel coupler 48mm or Normal coupler 48mm

Climbing rungs and access openings

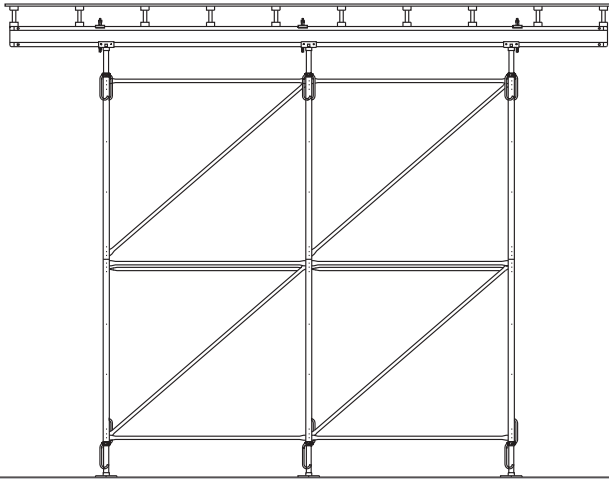
- integral climbing rungs
(May not be used in this way in the UK. A separate ladder is required here).
- extra "handles" to pick the frame up by
- convenient climb-through access opening

Practical examples

Tableforms and tower frames are both assembled from the same system components.

Tableform units

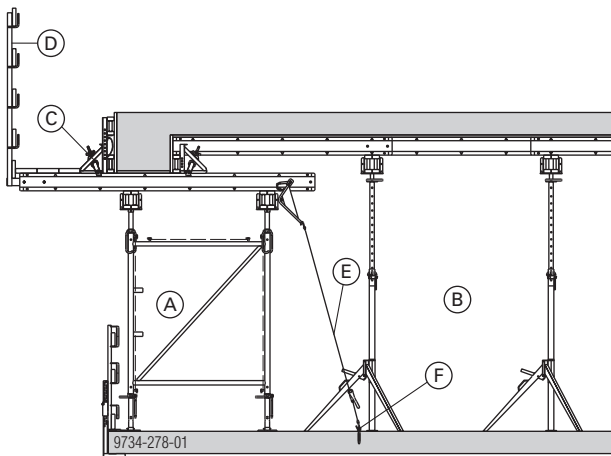
- For repetitive use, the load-bearing tower can be assembled into complete table-forms.



Combined with Dokaflex

For downstand beams, the **load-bearing towers and beam-forming supports** can be combined very effectively with Dokaflex.

Edge floor-beam



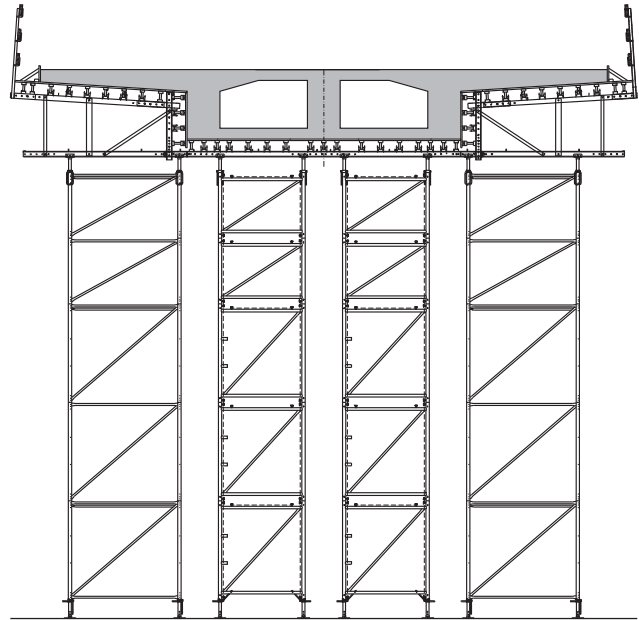
- A Load-bearing tower
- B Dokaflex
- C Beam forming support 20
- D Handrail post T 1.80m (optionally with Toeboard holder T 1.80m), Handrail clamp S or Handrail post 1.50m
- E Lashing strap 5.00m
- F Doka Express anchor 16x125mm and Doka coil 16mm

Tower frames

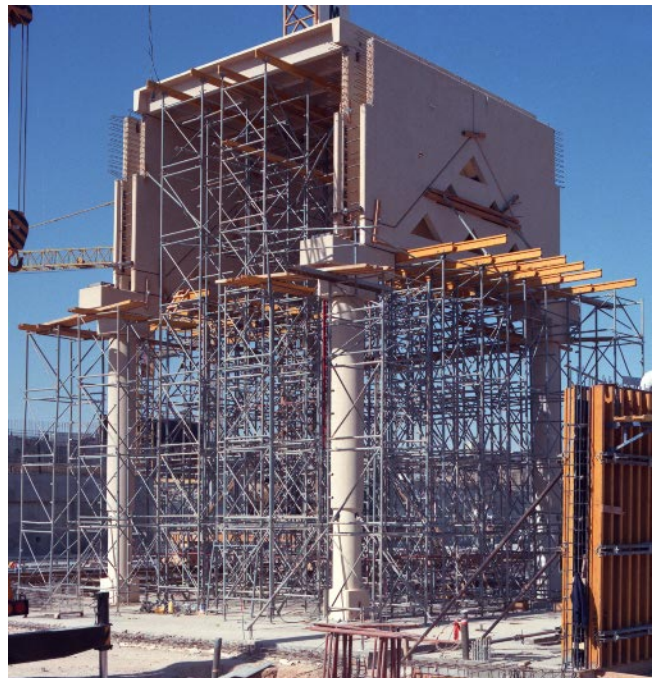
With a load-bearing capacity of up to 60 kN per leg, d2 is an extremely strong loadbearing tower system.

It safely withstands horizontal forces such as wind loads.

The wide frames make for high stability right from the word "go".



The Universal dismantling tool makes it easier to turn the Split nut B - even when it is under higher loads.



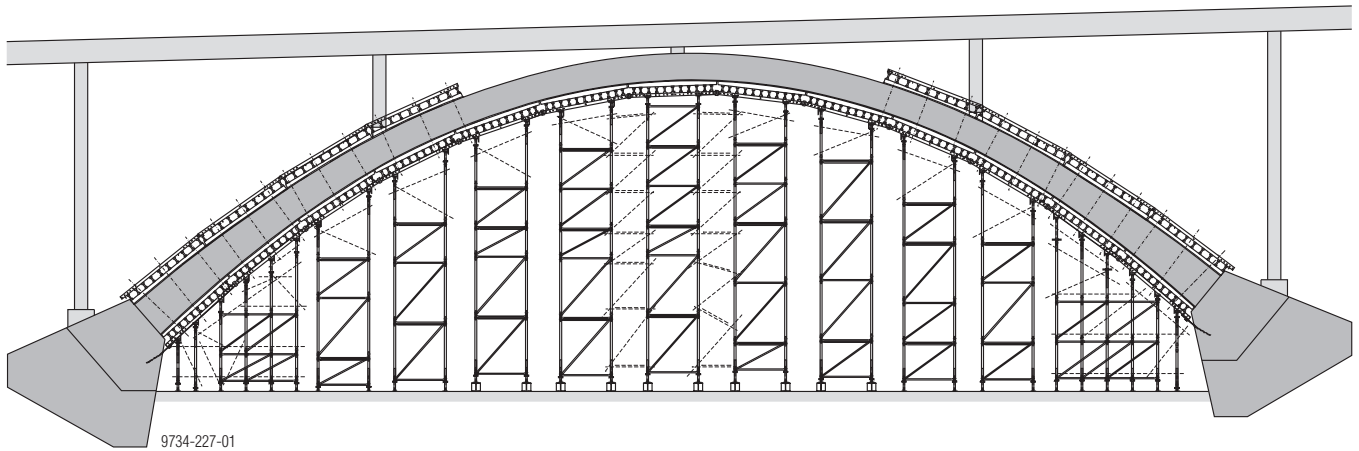
Site: Jamea Mosque Project, Riyadh

Shoring load-bearing structures

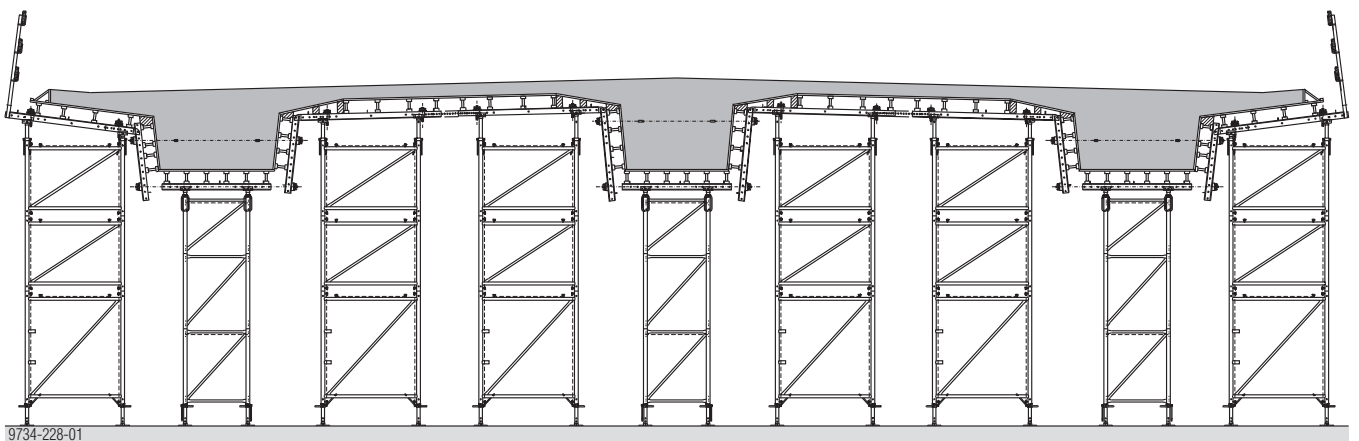
On bridges, culverts and industrial structures, the load-bearing tower and Doka large-area formwork Top 50 together make an ideal combination.

In this way, even complex structures can be formed using mostly standard parts - at lower cost.

Falsework beneath arched bridge



Typical cross-section - Falsework beneath super-structure formwork



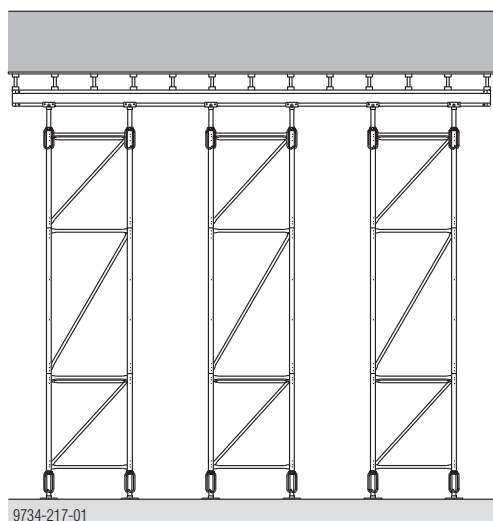
Site: School building, Birch

Adapts to different ground plans, heights, floor shapes and loads

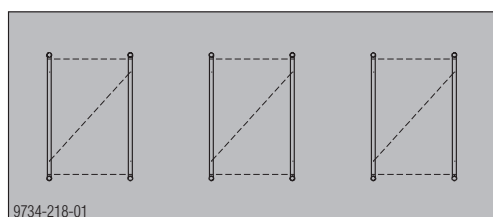
The different sizes of diagonal brace for each height of frame enable the frames to be spaced close together or further apart, depending on the load.

In this way, only as much material is used as is really needed.

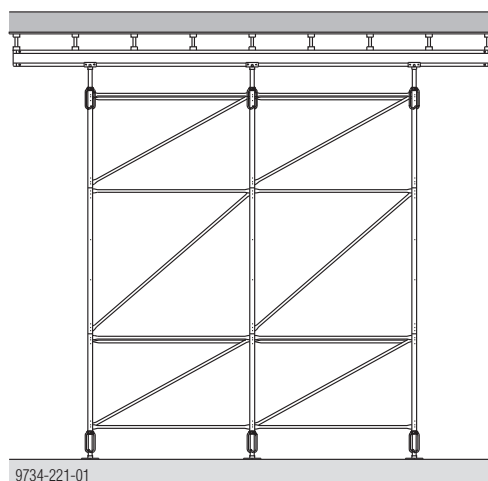
e.g.: Heavy loads - frames spaced close together



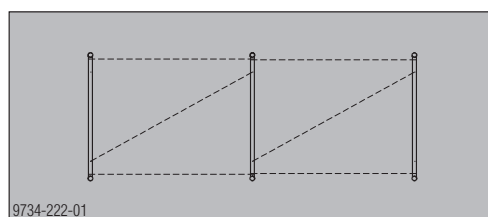
Plan view



e.g.: Light loads - frames spaced further apart

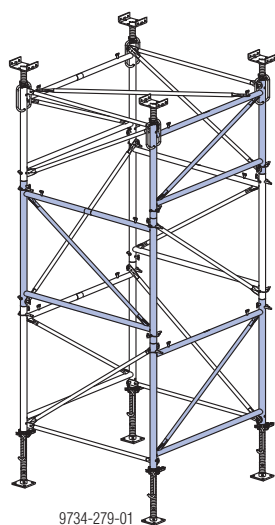


Plan view



Quadratic tower frames

For quadratic tower frames, the frames of each section (i.e. "storey") can be placed at 90° to those of the previous section. This saves Horizontal braces 152, and so is a very economical method.



It is not possible to use diagonal crosses to erect quadratic tower frames where the frames of each section are placed at 90° to those of the previous section.

The centre-to-centre spacing of the frame tubes is 152 cm.

This makes it impossible to use diagonal braces 150.

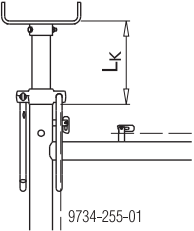
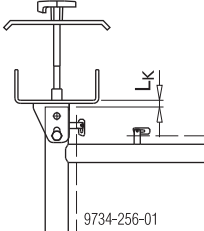
Height adjustment

- The 3 different heights of frame (0.90 m, 1.20 m and 1.80 m) enable coarse adjustment to within 30 cm.
- Fine adjustment, to the last mm, is then made using screw-jack head/feet.

System dimensions

on multi-storey towers

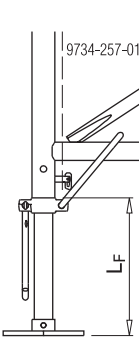
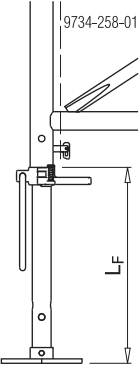
Table B: Head zone

	Screw jack U-head and 4-way screw-jack head	U-head D
		
	9734-255-01	9734-256-01
	Frames in the top section	
	1.80 / 1.20 / 0.90m	1.80 / 1.20 / 0.90m
L _K max.	35.0	1.6
L _K min.	7.8	1.6

Values in cm

Min. values with no formwork-striking play

Table C: Base zone

	Screw jack foot	Heavy duty screw jack 70 + Split nut B		
				
	Frames in the bottom section			
	1.80 / 1.20 / 0.90m	1.80m	1.20m	0.90m
L _F max.	35.0	70.0	70.0	70.0
L _F min.	8.2	8.7	8.7	24.7

Values in cm

Min. values with no formwork-striking play

Note:

Where the bottom section is assembled from 0.90 m frames, be sure to allow for L_F min. when using Heavy duty screw jacks 70!

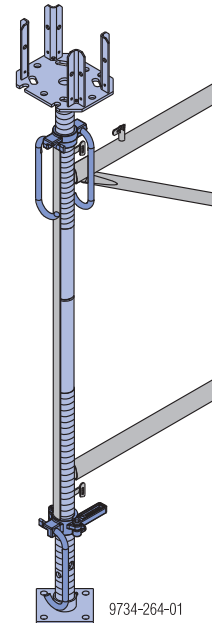
on single-storey towers

Note:

For towers consisting of one section only, the min. values L_K and L_F given in Tables B and C for the head and base units respectively will often not be reached.

Reason: The lengths of the head and base units add up to a larger dimension than the height of the frame. These constraint points have already been allowed for in the operational height data given in Table A (in the section headed "Height ranges and materials schedule").

Close-up: Cut-away view of frame tube

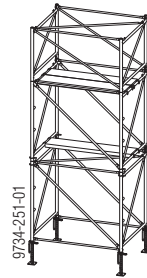
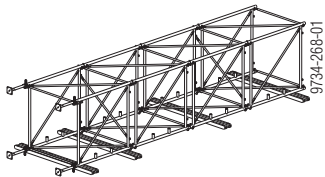


Assembly

Approaches to assembling the d2 load-bearing tower

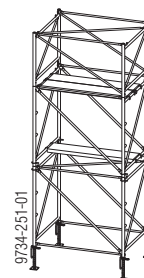
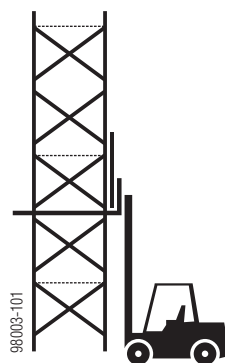
Horizontal assembly
Standard set-up

Assembling in the upright



By forklift truck

By hand



Horizontal assembly

Preliminary remark:

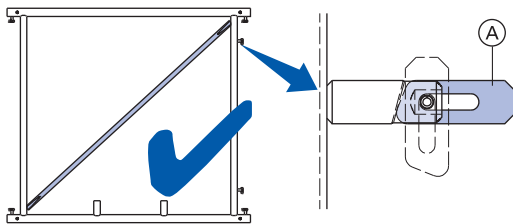
- The terms "vertical" and "horizontal" (e.g. referring to the diagonal braces) are always used here with reference to their installation situation in the finished, upright tower.
- The job of erecting the load-bearing tower begins with the bottom (i.e. first) "storey".



General remarks:

- Make sure that the frames are the right way round! Otherwise, the safety catches (A) for the horizontal diagonal braces will not work when the crane lifts the tower into the upright position.

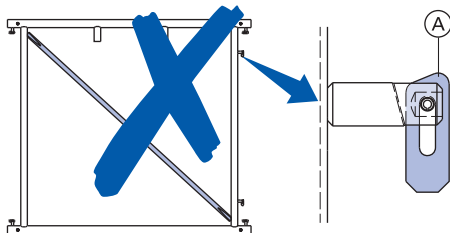
Right:



9734-272-01

When the safety catch is open, it remains in a horizontal position.

Wrong:



9734-272-02

If the frame is the wrong way round, the safety catch drops from the open position to point downwards. In this case, turn the frame round!

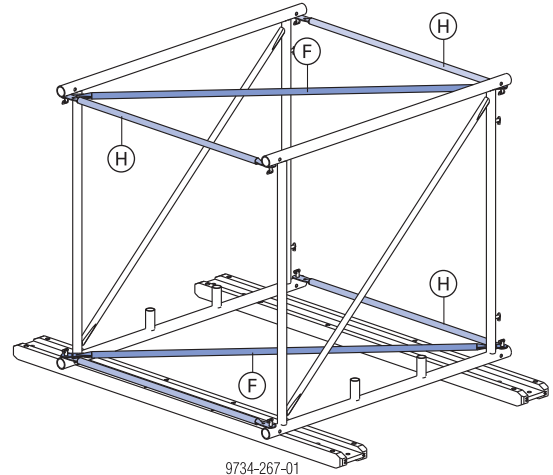
- Slide the diagonal or horizontal brace onto the safety-catch bolt and immediately secure it with the safety catch.
- During assembly and dismantling, no mechanical strains (e.g. from knocks and impact) are allowed on the components.

Erecting the first storey

- Having regard to the instructions given above, place the tower frames on their sides on timber supports (min. 4cm high).

Bracing the frames in the vertical

- Join the frames together with diagonal braces (F) and horizontal braces (H).



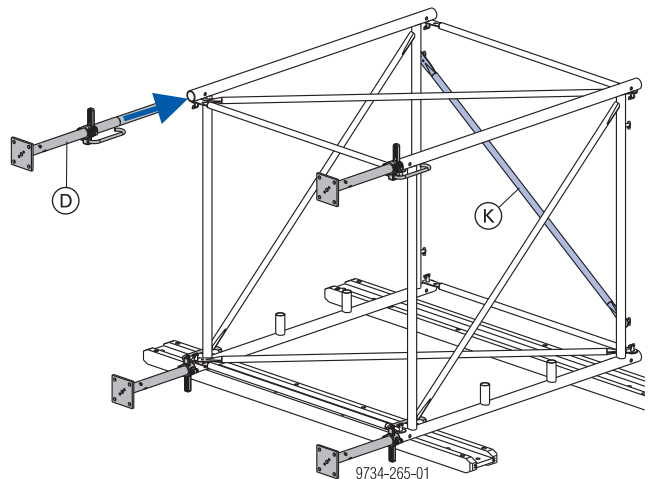
9734-267-01

Plan-bracing the frames (in the horizontal)

Basic rule:

Horizontal diagonal braces d2 12.xxx are required:

- at intervals of every two sections - beginning with the first section.
- Slot a diagonal brace (K) onto the gravity latches of the horizontal frame tube and secure it.



9734-265-01

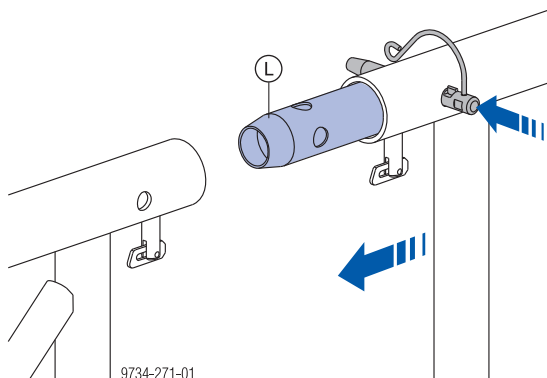
- Push in and secure the base units. See the section headed "Lifting by crane".

Erecting further storeys

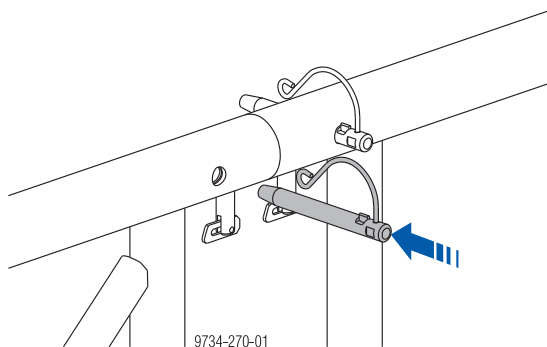
Note:

Do not pre-assemble units any higher than 10 m.

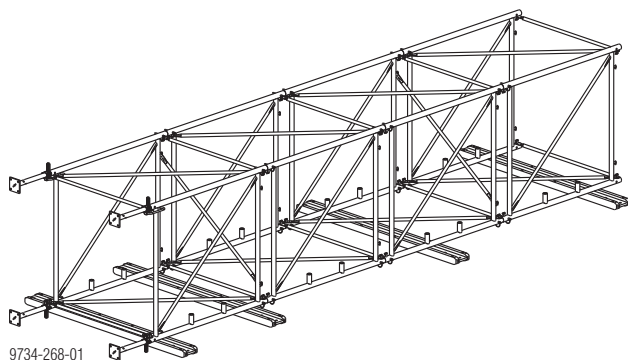
- Insert the couplers (L) into the frames that you are about to add, and secure them with Spring-locked connecting pins 16 mm.



- Add the next frame and connect it to the frame below with Spring-locked connecting pins 16 mm.



- Fit and secure diagonal and horizontal braces in the same way as in the first section.



Lifting into the upright by crane

- Check before attaching the crane suspension tackle:



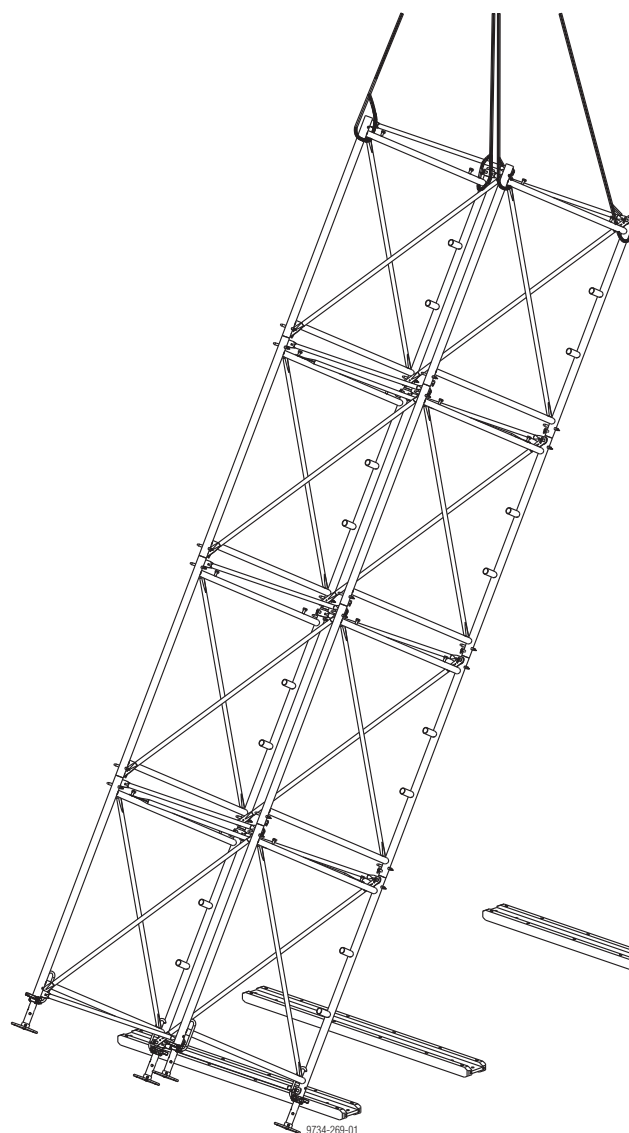
- All the spring-locked connecting pins must have been fitted (to link the frames).
- All safety catches must be closed.
- All base units must be secured.



Max. extension length of the base units when the tower is being lifted into the upright: 35 cm!

Lifting into the upright

- Attach the crane suspension tackle to the frames of the top "storey" and lift the entire tower into the upright.



When the tower is standing in the upright, check once again to make sure that all the safety catches are closed.



Detaching the crane suspension tackle near ground level:

This method must **not be used for placing the tower back on its side!**

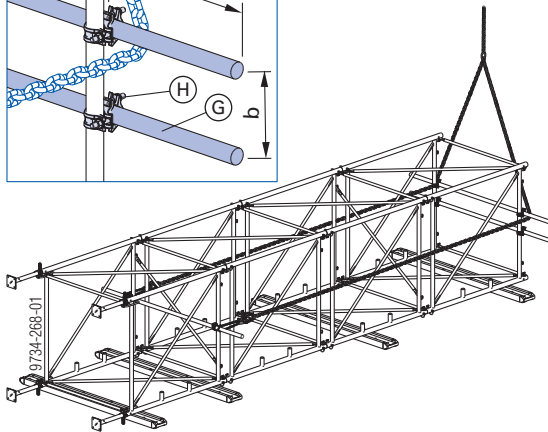
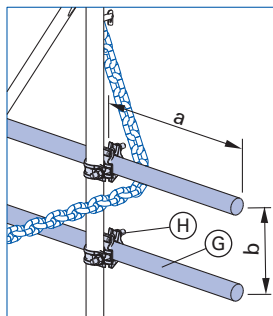
Items needed:

- 3 x Scaffolding tube 48.3mm (G)

- Minimum length:
Inter-frame space + 1.00 m

- 6 x normal or swivel couplers, 48mm (H)

- Attach the scaffolding tubes:
 - one between the bottom frames
 - two between the top frames
- Attach two cables, chains or lifting straps to the bottom scaffold tube.
- Lead the cables, chains or lifting straps along the outside of the tower and between the top scaffold tubes.



a ... min. 0.5 m
b ... max. 0.2 m

After the tower has been lifted into the upright, the cables, chains or lifting straps are detached by a crewman working from ground level.

Dismantling

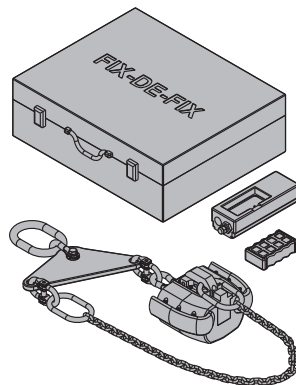
To dismantle, perform the above steps in reverse order.



Do not open the safety catches too soon! Wait until immediately before you remove the brace.



The **Fix-De-Fix 3150kg remote uncoupling system** makes it possible to detach slinging chains by remote-control from ground level. Follow the directions in the Operating Instructions!



Assembling towers in the upright by hand



Important note:

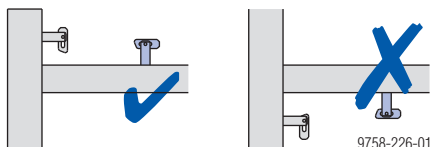
- Erect the load-bearing tower in the vertical on ground that is statically capable of supporting the load.
- If the load-bearing tower is over 6 m high, back-stay it or combine it with other towers.

e.g. with Heavy duty screw jack 70 and 4-way screw-jack head.



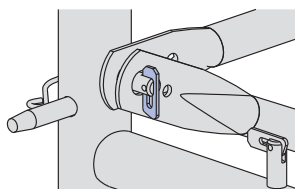
General remarks:

- The gravity latches of the frame must always point upwards.



9758-226-01

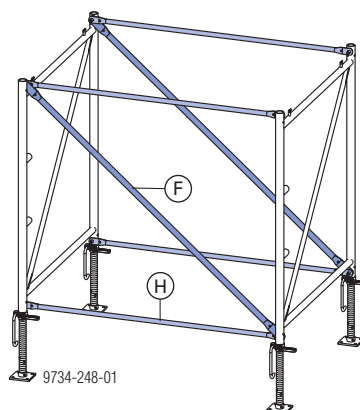
- Slide the diagonal or horizontal brace onto the safety-catch bolt and immediately secure it with the safety catch.



9758-227-01

- During assembly and dismantling, no mechanical strains (e.g. from knocks and impact) are allowed on the components.

- Join the frames together with diagonal braces (F) and horizontal braces (H).

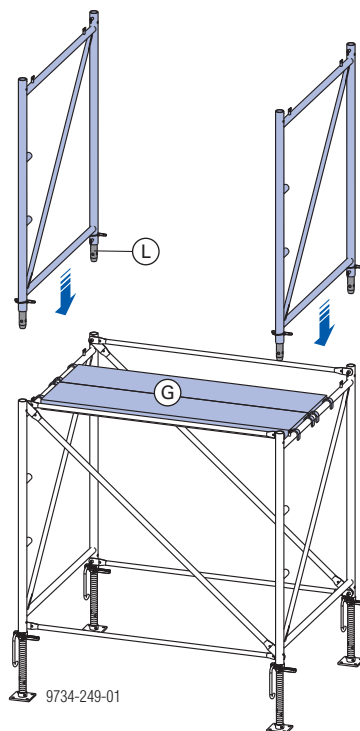


9734-248-01

Erecting the second storey

Stacking the frames

- Place a scaffold planking unit (G) on the finished "storey".
- Insert the couplers (L) into the frames that you are about to add, and secure them with Spring-locked connecting pins 16 mm.
- Add the next frame and connect it to the frame below with Spring-locked connecting pins 16 mm.



9734-249-01

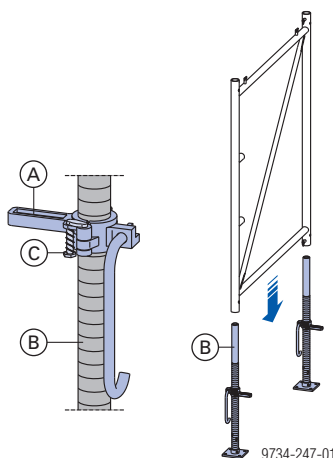
Erecting the first storey

- Place a Split nut B (A) on the Heavy duty screw jack 70 (B), push the two halves together and secure it with the spring locking pin.



Make sure that the spring locking pin (C) points downwards when it is secured.

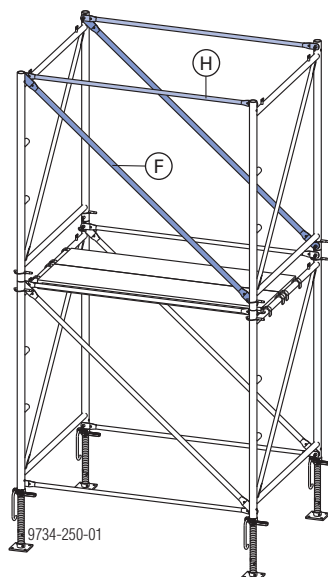
- Insert the Heavy duty screw jacks 70 into the frames.



9734-247-01

Bracing the frames in the vertical

- Fit and secure diagonal braces (**F**) and horizontal braces (**H**) in the same way as in the first section.



Erecting further storeys

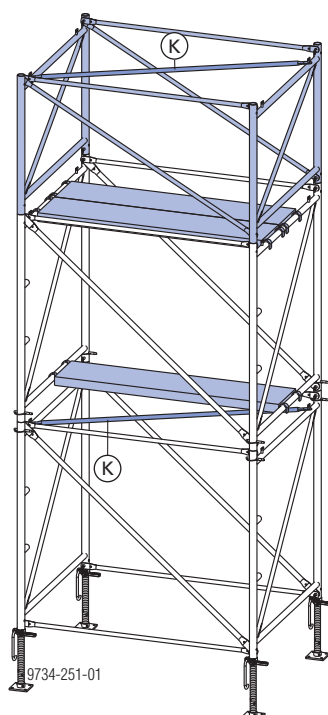
- Place the scaffold planking units 1 storey higher up.
- Add further frames in the same way as for the 2nd section, and brace them in the vertical with diagonal braces.

Plan-bracing the frames (in the horizontal)

Basic rule:

Horizontal diagonal braces d2 12.xxx are required:

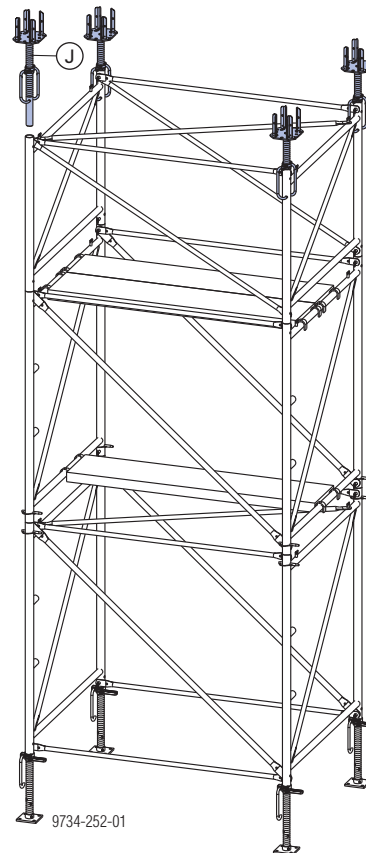
- at intervals of every two sections - beginning with the first section.
- Slot a diagonal brace (**K**) onto the gravity latches of the horizontal frame tube and secure it.



Head zone

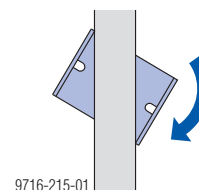
Fitting 4-way screw-jack heads or Screw jack U-heads

- Insert the 4-way screw-jack head (**J**)



Always place the primary beams (single or double formwork beams) centrally.

On the Screw-jack U-head, too, it is also possible to twist the head so as to hold single beams centrally.



WARNING

- Where the primary beams cantilever out a long way, protect them against being lifted out or tipped over (e.g. with a tie-back, by nailing board-plates over the beam joins, or by fastening the beams to the screwjack head-unit).



Important note:

- When lifting and repositioning the entire tower unit (or pre-assembled sub-units) by crane: Follow the instructions in the section headed "Lifting by crane"!

Dismantling

To dismantle, perform the above steps in reverse order.



- Do not open the safety catches too soon! Wait until immediately before you remove the brace.

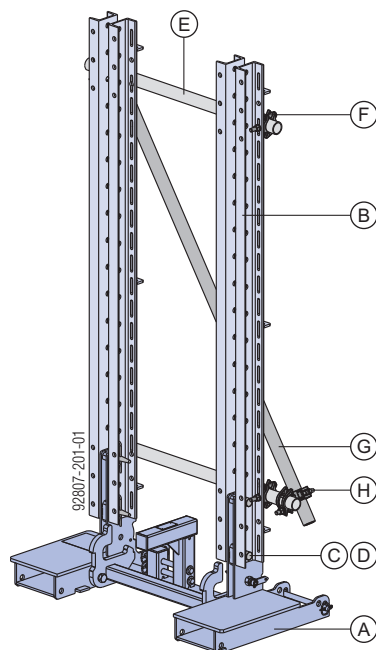
Assembling towers in the upright by forklift truck

Forklift shifting device TG

The Forklift shifting device TG may only be used for erecting, dismantling and transporting Doka load-bearing towers Staxo, Staxo 100 and d2.



Follow the directions in the Operating Instructions!



Items needed:

Item	Designation	Q'ty
(A)	Forklift shifting device TG	1
(B)	Multi-purpose walings WS10 Top50 2.00m	2
(C)	Connecting pins 10cm	4
(D)	Spring cotters 6mm	4
(E)	Scaffolding tubes 48.3mm 1.00m	2
(F)	Screw-on couplers 48mm 50	4
(G)	Scaffolding tube 48.3mm 2.00m	1
(H)	Swivel couplers 48mm	2
	Operating cord, site-provided (optional)	1



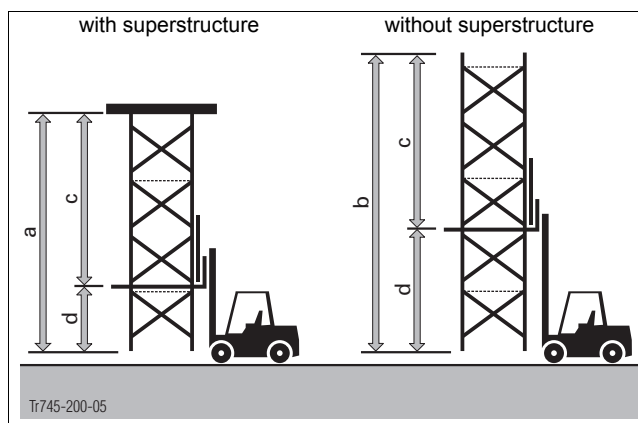
WARNING

While load-bearing towers are being erected or dismantled, lifted or lowered: It is forbidden to walk or stand beneath suspended loads.

Max. load:

- when using box-style fork extensions: 1000 kg
- when using telescopic fork prongs: 600 kg

Max. heights of load-bearing towers



	When being travelled	When being lifted
a	max. 7.20 m	max. 9.00 m
b	max. 9.00 m	max. 12.60 m
c	max. 5.40 m	max. 9.00 m
d	max. 3.60 m	max. 3.60 m

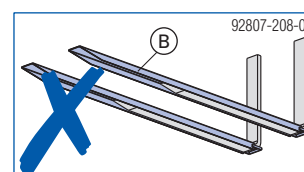
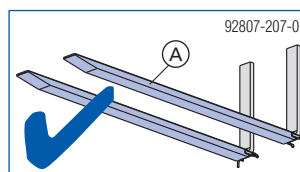
Requirements for fork-lift trucks or telescoping stacker trucks

- Min. load carrying capacity: 4000 kg
- Driver protection roof
- Centre-to-centre distance of the fork prongs: 850 mm



WARNING

- It is forbidden to use forklift or telescoping stacker trucks to erect/dismantle or transport load-bearing towers **without** a Forklift shifting device TG.
- It is not permitted to use non-enclosed (open) fork extensions.



A Box-style fork extension

B Open fork extension

- Permitted types of fork extension:
 - box-style fork extensions ¹⁾
 - telescopic fork prongs
- Min. fork length:
Distance between the frames of the load-bearing tower + 400 mm
- Max. fork width: 195 mm
- Max. fork height: 71 mm

¹⁾ observe the following manufacturer data:

- load carrying capacity of the fork extension
- required length of the fork prongs

Travelling the towerframe units



Important points to remember when wheeling load-bearing towers:

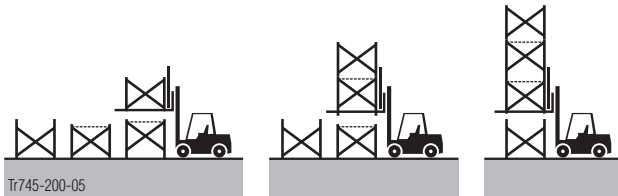
- As well as the fork-lift driver, a specially trained watchman must also be on hand during all lifting, assembly and travelling operations:
- max. inclination of trackway: 2%.
- The floor must be stable, firm and sufficiently smooth (e.g. concrete).

Assembling the towerframe units



➤ For details of how to assemble and join together the individual "towerframe storeys", see "Assembling towers in the upright"!

- Build each storey at ground level.
- Use a forklift truck to stack the towerframe storeys into a single towerframe unit.



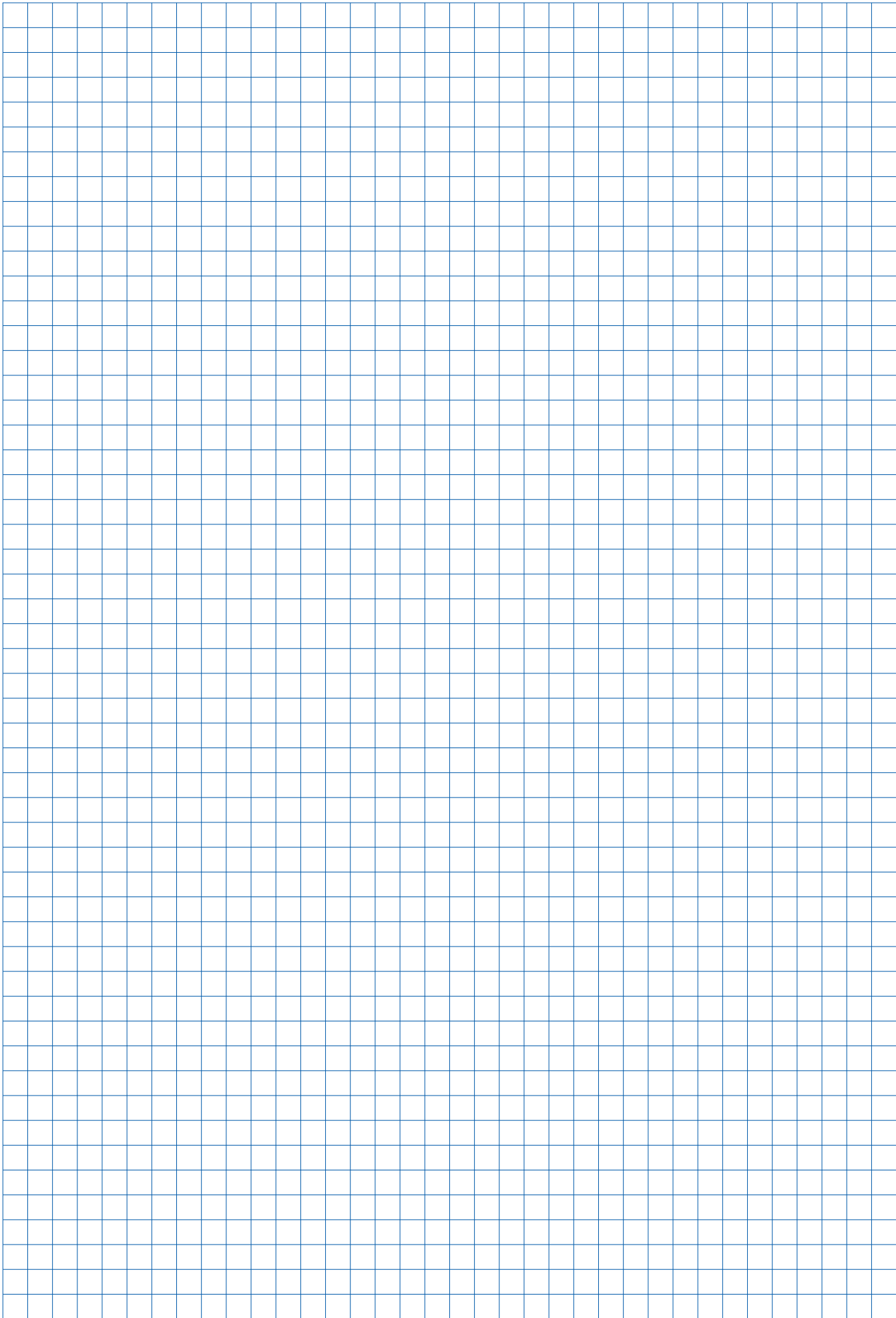
Dismantling

To dismantle, perform the above steps in reverse order.

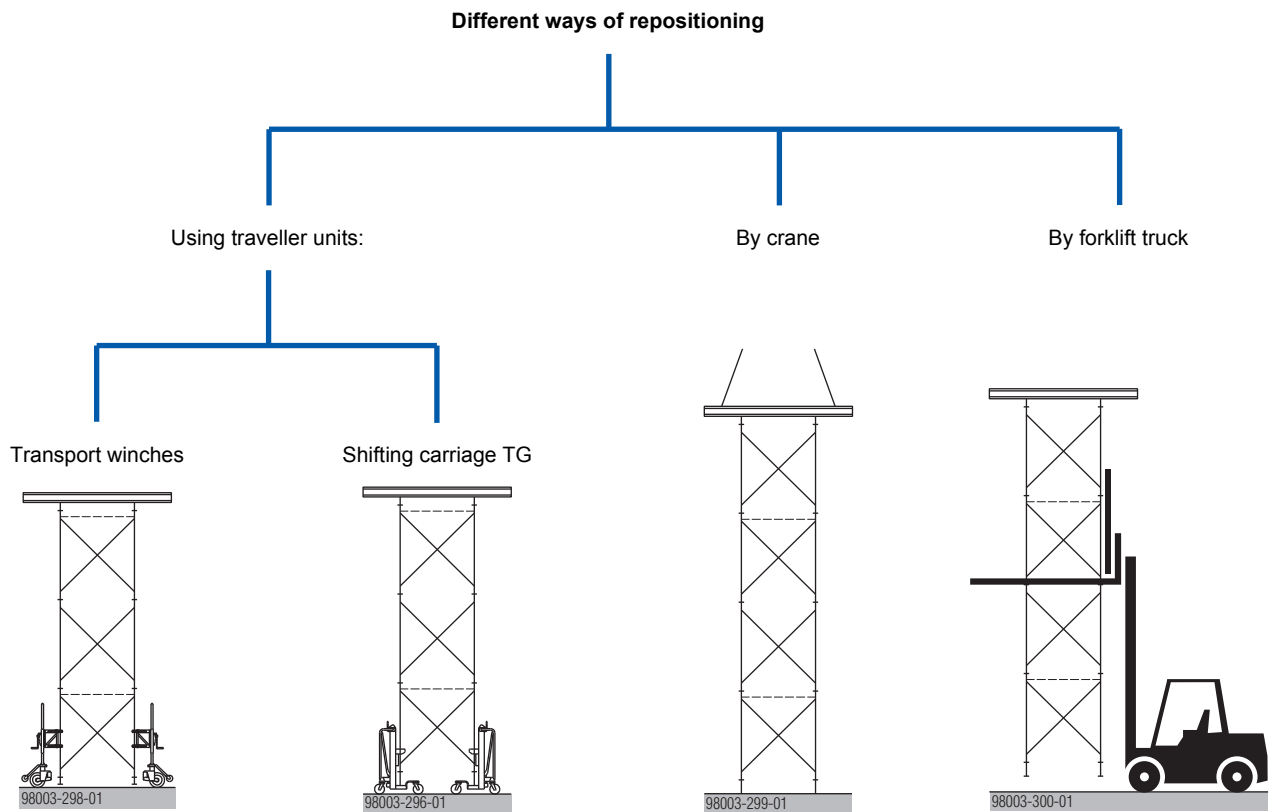


Important note:

Always only dismantle the bottom "storey" of the towerframe unit.



Repositioning



Repositioning using wheel units

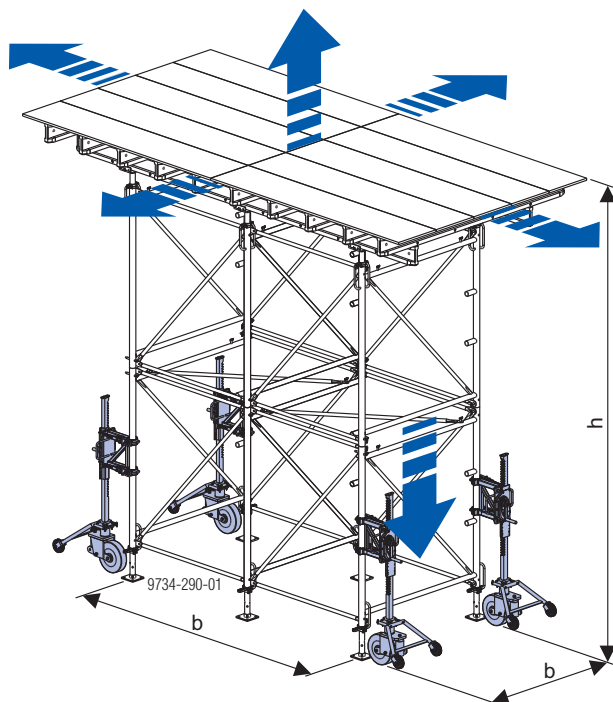
Completely assembled tableforms can be wheeled to their next location, quickly and easily, using wheel units.

The following different types of wheel unit are available for this. The crane is only needed when the tower has to be lifted up to the next storey.

All types of wheel unit can perform the following functions:

- Lifting
- Wheeling
- Lining-and-levelling
- Lowering

Example with Winch 70:



Wheel-unit variants:

- Shifting carriage TG
- Modular system (with winches)

Important note:

When repositioning load-bearing towers that include standard superstructures, remember: Ratio $w:h = \max. 1:3$, with 'w' being the narrowest side.

Custom constructions must be statically verified!

Modular system (with winches)

Optimum adaptability to on-site requirements.

There is a choice of 2 types of winch and 2 types of wheel.

Max. load:

1000 kg per Winch 70

(lifting height 70 cm) with solid-tyre wheel

1500 kg per Winch 125

(lifting height 125 cm) with Heavy-duty wheel 15 kN

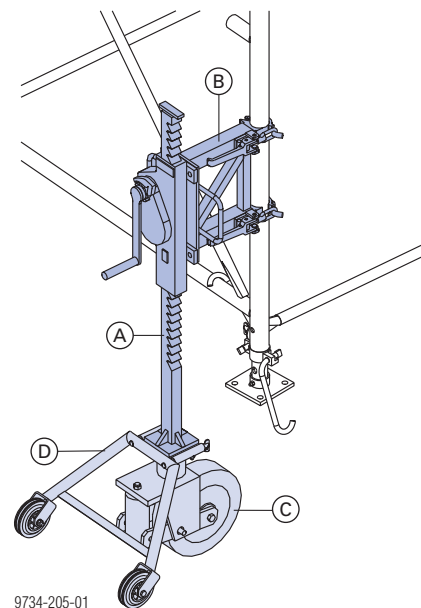


- The floor must be stable, firm and sufficiently smooth (e.g. concrete).



Follow the directions in the Operating Instructions!

- Clamp the winch to the frame of the load-bearing tower, using the "Frame for Staxo/d2 winch".
- Secure the foot-pieces to prevent them dropping out. See the section headed "Lifting by crane".



Equipment needed for one shifting unit

Item	Designation	N° of items
A	Winch 70 or 125	4
B	Frame for Staxo/d2 winch	4
C	Solid-tyre wheel or Heavy-duty wheel 15kN	4
D	Double wheeled transporter	4

Accessory for transporting the winches when empty:

The **Double-wheeled transporter (A)** is bolted into the connecting sockets on the wheel flange and makes it easier to wheel the (empty) wheel units.



Shifting carriage TG

This is an easy-to-operate, manual hydraulic lifting carriage for shifting light to medium-weight tableform units. As well as making the tableforms easier to move around, it also makes it easier to erect and strike the formwork.

- Hydraulic, for near-effortless lifting.
- Tables can be "inched" down slowly with handle-control.
- 3 guide-rolls, for maximum manoeuvrability.
- With an overall width of only 82 cm, the carriage can pass easily through any doorway when empty.

Max. load per Shifting carriage TG 1000 kg

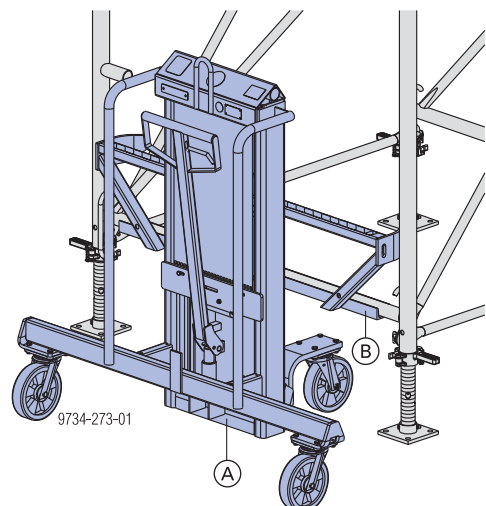


- The floor must be stable, firm and sufficiently smooth (e.g. concrete).
- Max. gradient of floor: 5 %.
- Max. configuration that can be transported using 2 Shifting carriages TG: Tables with 3 cross-frames per storey and a max. height of 5.0 m.



Follow the directions in the Operating Instructions!

- Push the Shifting carriage TG **(A)** up against the front and rear faces of the tableform - the slot-in lifting profile **(B)** reaches under the bottom crossbar of the frame.
- Secure the foot-pieces to prevent them dropping out. See the section headed "Lifting by crane".



Equipment needed for one shifting unit

Item	Designation	N° of items
A	Shifting carriage TG	2

Lifting by crane

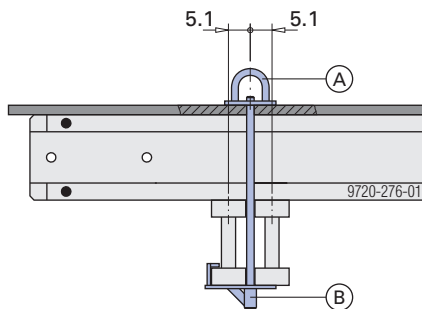
Where the tableforms are to be repositioned in the vertical, i.e. crane-lifted, they must be fitted with a **Lifting rod 15.0** and **Retaining plate 15.0**, which make it easy to attach the transfer cables.

Max. load:

1000 kg per Lifting rod 15.0 - where the load is applied centrally

Assembly instructions

- Mount the Lifting rod 15.0 **(A)** and Retaining plate 15.0 **(B)**.



Use a 20 mm diam. bit to drill the hole through the form-ply. It can later be filled with a Universal plug R20/25.



Follow the directions in the Operating Instructions!

Preparations



WARNING

Danger from loose and unsecured parts.

- Observe the following points before lifting!

Connect superstructure components together

- e.g. connect the primary and secondary beams to rafter plates, and nail on the form-ply.

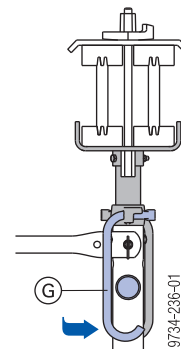
Connect the superstructure to the head units

- e.g. with Locking rod 15.0 **(D)**, Clamping plate **(E)** and Wing nut 15.0 **(F)**.

On Screw jack U-head	On 4-way screw-jack head
	Only possible with Clamping plate a = 28 cm (2002 models onward)

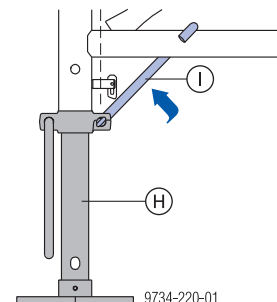
Secure the head units so that they cannot be lifted out

- Slot the fixing-handle **(G)** into the cross-bar of the frame.



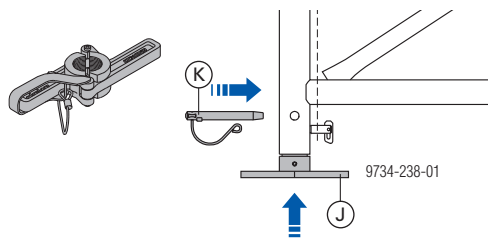
Secure the base units to prevent them dropping out: On Screw jack foot **(H)** and Heavy duty screw jack 70 or 130 using Split nut **B**

- Slot the fixing-handle **(I)** into the cross-bar of the frame.



Secure the base units to prevent them dropping out: On Heavy duty screw jack 70 or 130 using split nut, art.n°582640 (as manufactured up until end of '96)

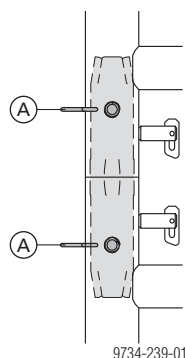
- First take the weight off the Heavy duty screw jack 70 (e.g. with wheel units), then open the split nut.
- Push the Heavy duty screw jack 70 (J) into the frame and secure it with a Spring-locked connecting pin 16 mm (K).



The split nut can be swung apart, meaning that it does not need to be turned through the full length of the threaded spindle. During lifting, the split-nut can be placed around one of the cross-bars of the frame and fixed in place.

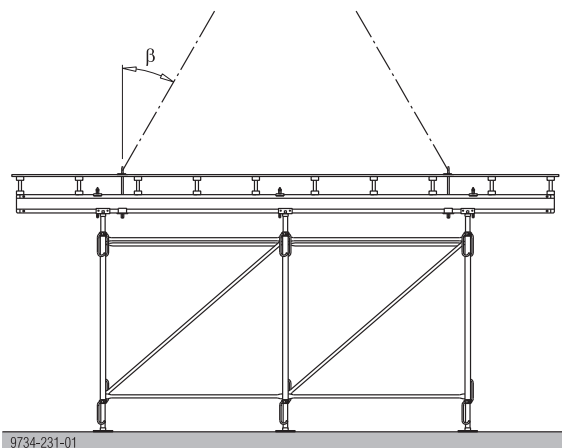
Link the frames in a crane-handling-safe manner

- Check whether all the Spring-locked connecting pins 16 mm (A) are bolted in.



Repositioning operation

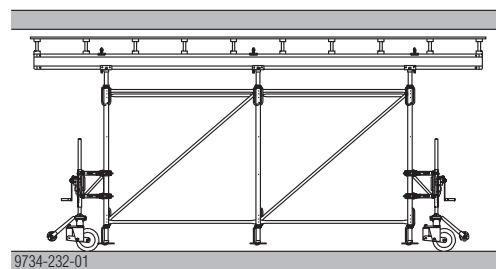
- Attach the crane sling to the Lifting rods 15.0 and lift the tableform to its next location. Spread-angle β max. 30°.



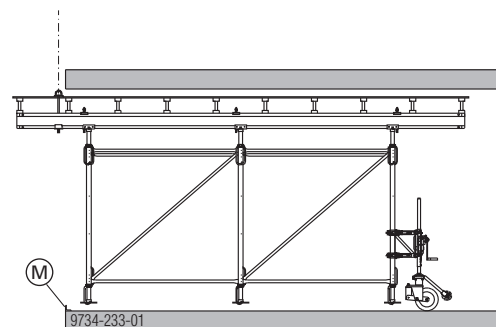
While the tableform is being lifted, there must NOT be any loose parts, tools or other items on the tableform!

Shifting the table in skeleton construction

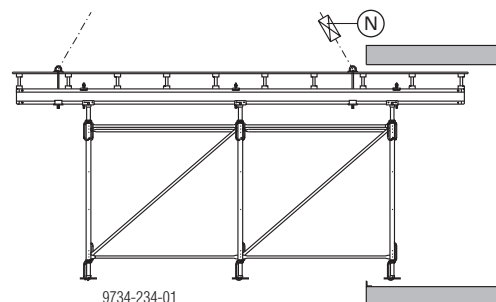
- Take the load off the table by turning the threaded spindles.
- Clamp on the wheel-units.
- Push in and secure the base units.



- Using the wheel-units, lower the table, and wheel it out as far as the stop (M).
- Remove the front wheel-units.
- Screw the Lifting rod 15.0 into the previously mounted Retaining plate 15.0.
- Attach the crane sling to the Lifting rod 15.0, then raise the crane until the front legs are just off the floor.



- Push the table outwards until only the innermost legs are still over the floor.
- Mount more lifting rods and attach crane slings.
- Use a pulley-type adjuster (N) to shorten the rear cables until the table is suspended in the horizontal.
- Manoeuvre the table all the way out with the crane, then lift it to the next storey.



Lifting by forklift truck

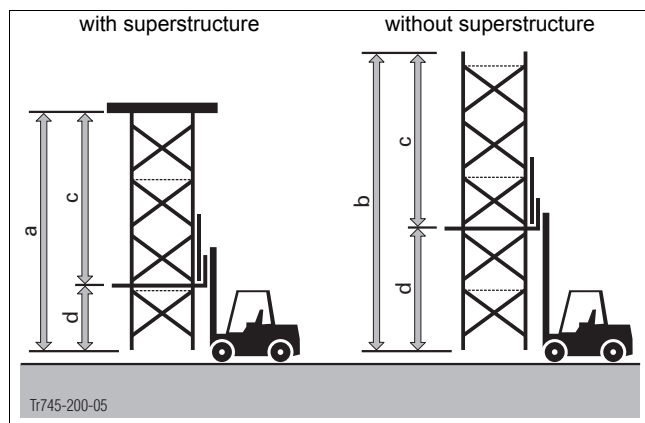
Forklift shifting device TG

For product information on the Forklift shifting device TG and the requirements in respect of the forklift truck, see "Assembling towers in the upright by forklift truck".



Follow the directions in the Operating Instructions!

Max. heights of load-bearing towers



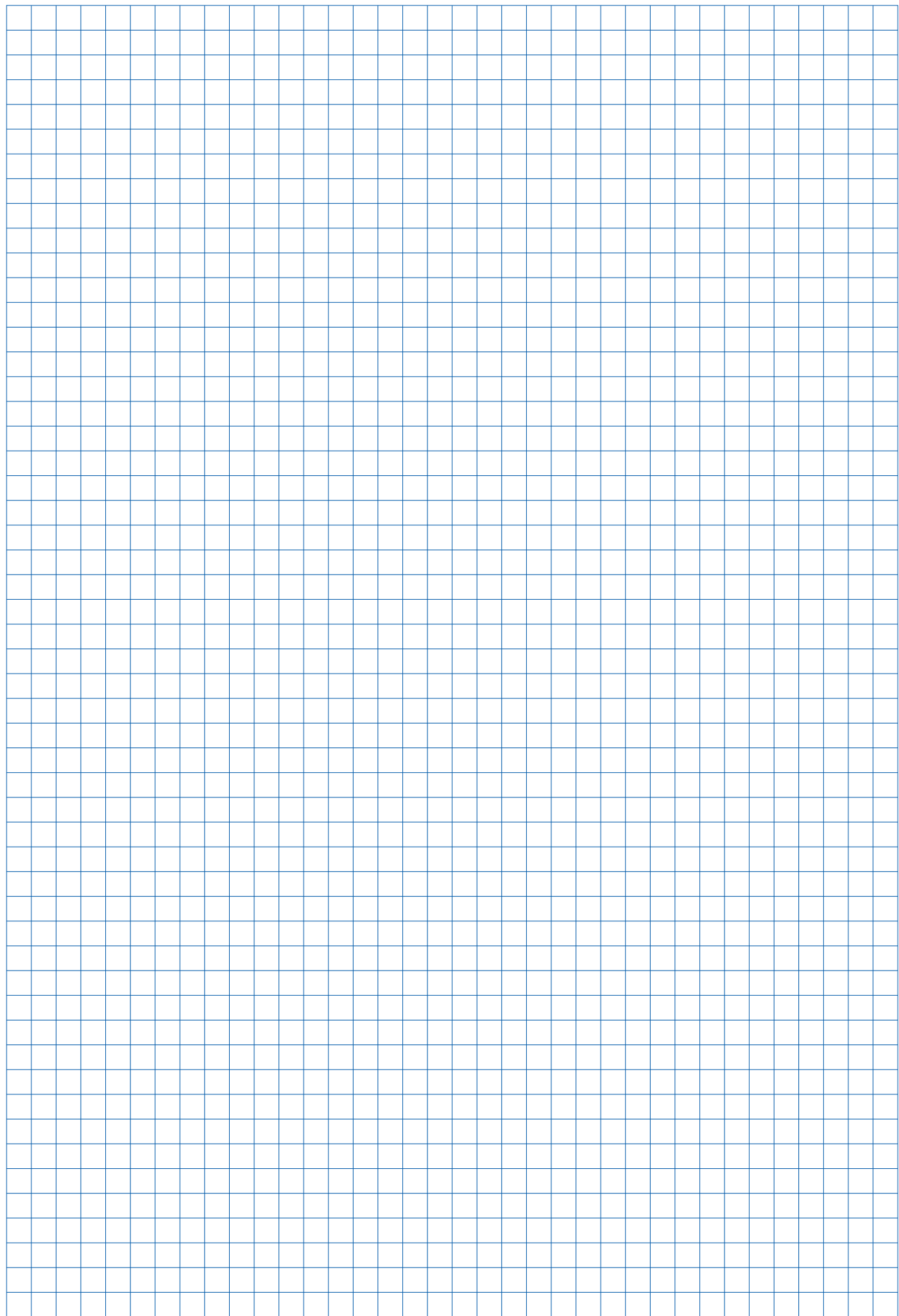
	When being travelled	When being lifted
a	max. 7.20 m	max. 9.00 m
b	max. 9.00 m	max. 12.60 m
c	max. 5.40 m	max. 9.00 m
d	max. 3.60 m	max. 3.60 m

Travelling the towerframe units



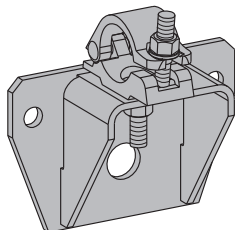
Important points to remember when wheeling load-bearing towers:

- As well as the fork-lift driver, a specially trained watchman must also be on hand during all lifting, assembly and travelling operations:
- max. inclination of trackway: 2%.
- The floor must be stable, firm and sufficiently smooth (e.g. concrete).



Anchoring on the structure

With "Anchoring shoe for stair tower"



Permissible force transmission for each "Anchoring shoe for stair tower": 12 kN in all directions
Applies when fastened with Cone screw B 7cm and Universal climbing cone 15.0 or two dowels.

Methods for fixing in concrete:

- By using a Cone screw B 7cm to fix the anchoring shoe to an existing suspension point prepared with Universal climbing cones 15.0 (diameter of hole in anchoring shoe = 32 mm). Hardwood shim (essential for ensuring a firm fit) prevents damage to the concrete (scratch marks).
This fixing method is only possible with anchoring shoes manufactured from 05/2009 onwards.
- With one or two dowels (diameter of hole in anchoring shoe = 18 mm).

Required load-bearing capacity of the dowels used:

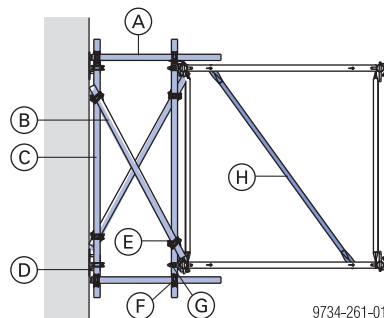
- Tensile force: min. 14.0 kN
 - Shear force: min. 4.0 kN
- e.g. Hilti HST M16 - in uncracked B30 concrete, or equivalent products from other manufacturers. Follow the manufacturer's applicable fitting instructions!

Design of the anchoring levels

The load-bearing tower is connected to the "Anchoring shoe for stair tower" by scaffolding tubes and couplers.



When designing units assembled from tubes and couplers, all applicable standards and regulations must be observed, in particular EN 12812 "Falsework", EN 39 "Loose steel tubes for tube and coupler scaffolds" and EN 74 "Couplers, spigot pins and baseplates for use in falsework and scaffolds".

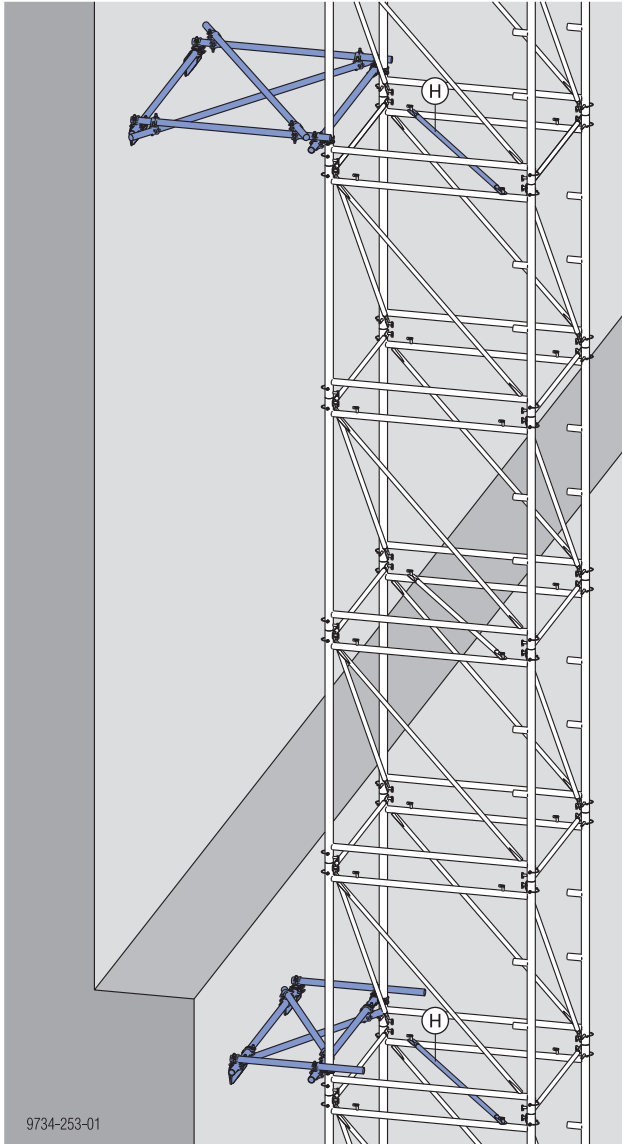


- A Scaffolding tube 48.3mm (L min = distance from structure)
- B Scaffolding tube 48.3mm (L = variable)
- C Scaffolding tube 48.3mm (L = variable)
- D Anchoring shoe for stair tower
- E Swivel coupler 48mm
- F Normal coupler 48mm
- G Transition swivel coupler 48/60mm
- H Horizontal diagonal brace

Vertical distance between the anchoring levels

- At least every 8.0 m;
- near junctions (frame-joins)

 At the level of the anchoring point, the load-bearing tower must be stiffened with a horizontal diagonal brace (**H**) .



-  ● The actual design of the anchoring levels, and the maximum permitted distances from the structure, must be reviewed separately for each project.
- Adjacent load-bearing towers must be braced to one another as statically required, in a similar way to when towers are anchored to the structure.

Back-stays/shoring supports for the load-bearing towers

Back-stay on the superstructure

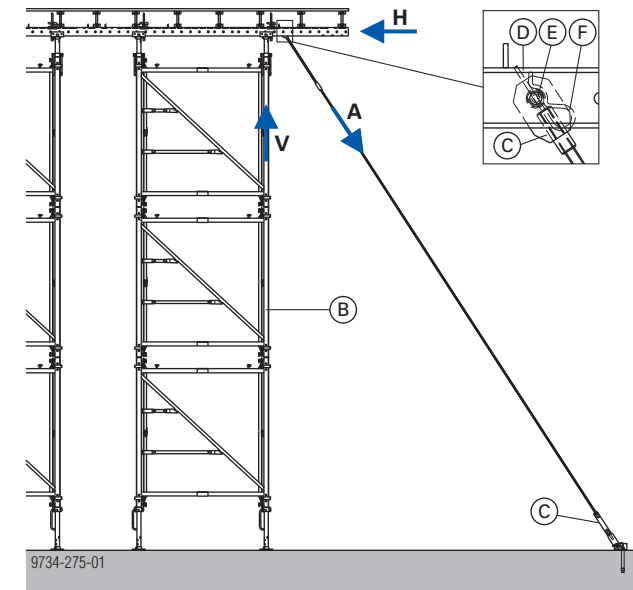
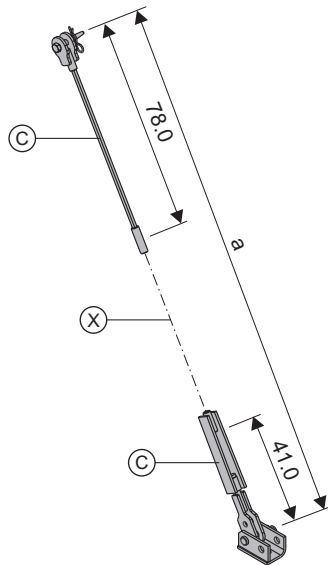
Back-stay for load-bearing towers

For transferring **planned horizontal loads** e.g. wind loads, concrete loads or in custom applications (e.g. on inclined load-bearing towers or for high load-bearing capacities).



Important note:

Lashing straps are **not** suitable for transferring planned horizontal loads.



H ... Horizontal force

V ... Resulting vertical force from H

A ... Back-stay/shoring force

B Load-bearing tower

C Bracing for load-bearing towers

D Multi-purpose waling

E Connecting pin 10cm

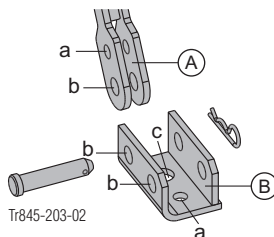
F Spring cotter 5mm

X Tie-rod 15.0 (not included in scope of supply)

Length = 'a' minus 119 cm

This leaves a 17 cm adjustment range available

Bores in spindle unit and "Shoe (complete)"



a ... diam. 21 mm

b ... diam. 27 mm

c ... diam. 35 mm

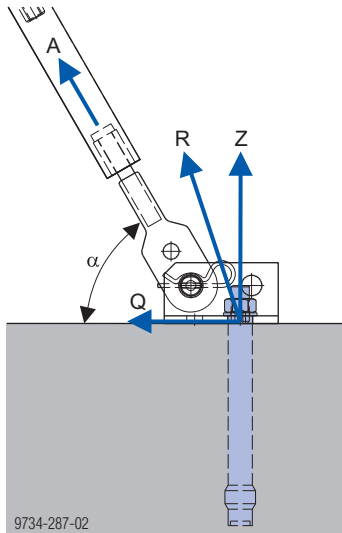
A Spindle unit

B Shoe (complete)



Important note:

- Screw the tie-rods all the way in to the rod connectors of the back-stay (i.e. until they are fully engaged)!
- When calculating the leg loads, allow for the additional forces imposed by the back-stay!
- With high loads and long back-stays, watch out for any elongation of the back-stay!



A ... Back-stay force
 Q ... Shear force (corresponds to horizontal force H)
 R ... Resulting anchor force
 Z ... Anchor tensile force

Back-stay force $A_k = 30 \text{ kN}$

Anchor force [kN]	Z_k	$Q_k = H_k$	R_k
$\alpha 30^\circ \text{ a)}$	18.2	26.0	31.7
$\alpha 45^\circ \text{ a)}$	27.6	21.2	34.8
$\alpha 60^\circ \text{ a)}$	44.8	15.0	47.2

Back-stay force $A_k = 40 \text{ kN}$

Anchor force [kN]	Z_k	$Q_k = H_k$	R_k
$\alpha 30^\circ \text{ a)}$	24.3	34.6	42.3
$\alpha 45^\circ \text{ a)}$	36.8	28.3	46.4
$\alpha 60^\circ \text{ c)}$	59.7	20.0	62.9

Back-stay force $A_k = 50 \text{ kN}$

Anchor force [kN]	Z_k	$Q_k = H_k$	R_k
$\alpha 30^\circ \text{ b)}$	30.4	43.3	52.9
$\alpha 45^\circ \text{ b)}$	46.0	35.4	58.0
$\alpha 60^\circ \text{ c)}$	74.6	25.0	78.7

Examples of anchor points in uncracked C 25/30 concrete:

- a) HILTI heavy duty anchor HSL M20
 - b) HILTI self-undercutting anchor HDA-T-M16
 - c) HILTI self-undercutting anchor HDA-P-M20, with an extra 50x10 washer with a diam. 22 mm hole
- or equivalent products from other manufacturers.
 Follow the manufacturer's applicable fitting instructions.



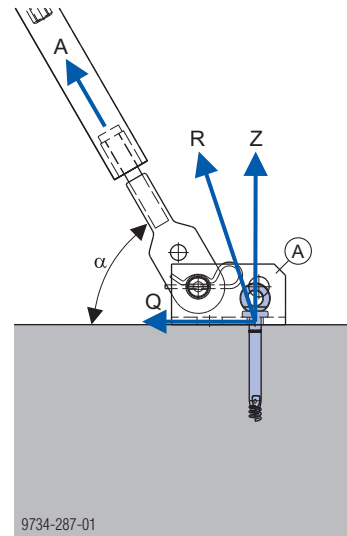
CAUTION

- The "Back-stay for load-bearing towers" must not be dismantled until it is certain that there is sufficient stability for the load-bearing tower.

Anchored with Doka Express anchor 16x125mm

Note:

The "Shoe (complete)" (A) must be turned by 180° in the horizontal.



Permissible back-stay force A_k [kN]

	In new concrete	In C20/25 concrete
$\alpha = 30^\circ$	9.0	16.1
$\alpha = 45^\circ$	8.1	14.6
$\alpha = 60^\circ$	6.0	10.8



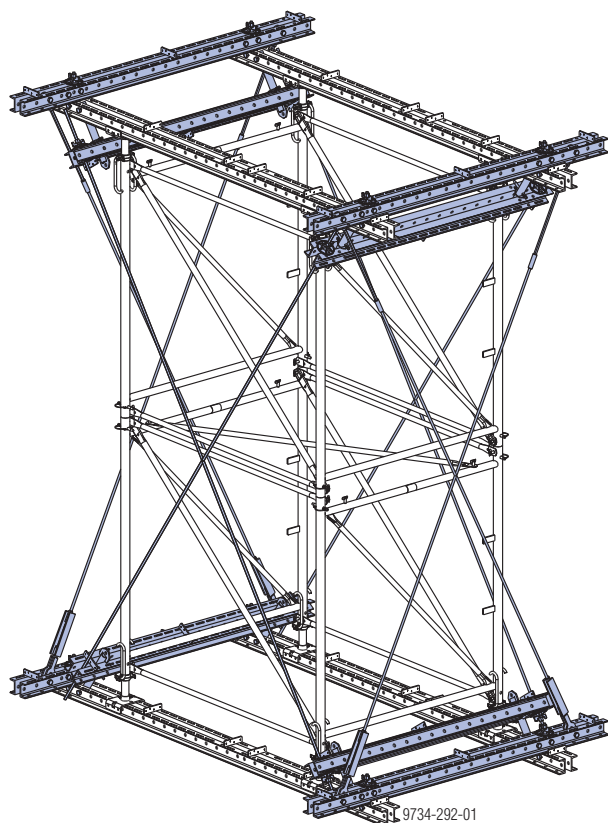
Follow the directions in the "Doka Express anchor 16x125mm" Installation Instructions!

Bracing waling connector WS10

The Bracing waling connector WS10 is used for bracing load-bearing towers erected on ground which has sufficient load-bearing capacity but in which it is not possible to fix tension anchoring.

It is also possible to brace several load-bearing towers to one another to transfer the horizontal loads jointly.

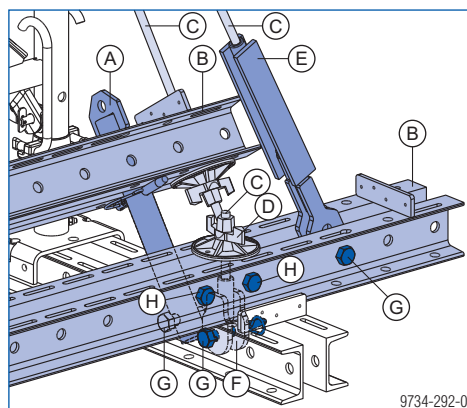
Bracing individual towers in the bracing-strut and frame planes



Note:

Separate towers may also be braced in the frame plane or bracing-strut plane only.

Close-up

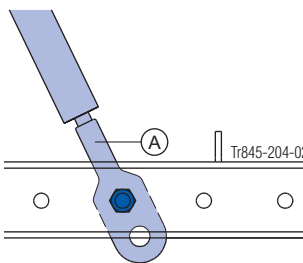
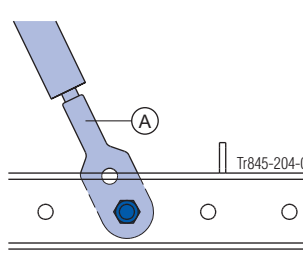


- A** Bracing waling connector WS10
- B** Multi-purpose waling WS10 Top50 2.25m
- C** Tie-rod 15.0mm galvanised ...m
- D** Super-plate 15.0
- E** Bracing for load-bearing towers – without "Shoe (complete)"
- F** Eye-lug anchor 15.0 without tie-rod
- G** Connecting pin 10cm and Spring cotter 5mm
- H** Extra safeguard against slippage (end-stop) with Connecting pin 10cm and Spring cotter 5mm

Note:

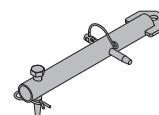
The "Bracing for load-bearing towers" is attached to the multi-purpose waling directly by means of a "Spindle unit", without a "Shoe (complete)".

Permissible bracing force [kN]

Bolted on through the upper bore (diam. 21 mm) of the Spindle unit	Bolted on through the lower bore (diam. 27 mm) of the Spindle unit
50.0	40.0
	

A Spindle unit

Bracing waling connector WS10



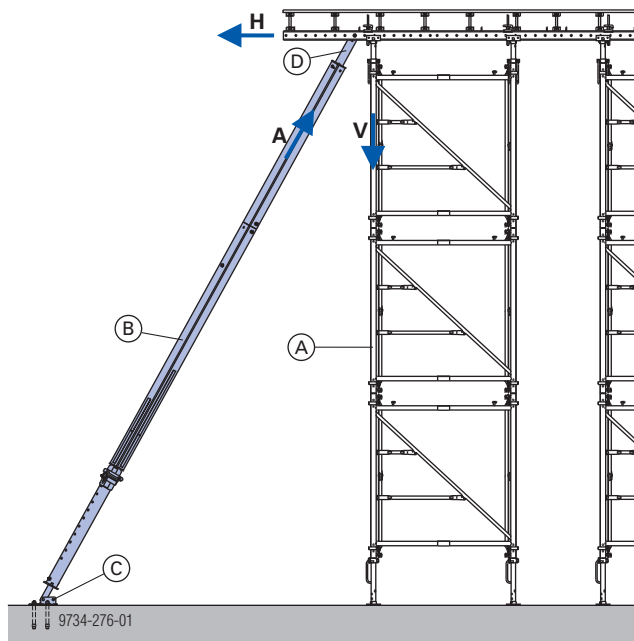
Permitted tensile force: 50 kN



► When calculating the leg loads on the Load-bearing tower, allow for the additional forces from the bracing!

Shoring to the superstructure

For transferring **planned horizontal loads** e.g. wind loads, concrete loads or in custom applications (e.g. on inclined load-bearing towers or for high load-bearing capacities).



H ... Horizontal force
V ... Resulting vertical force from H
A ... Back-stay/shoring force

- A Staxo or d2 load-bearing tower
- B Plumbing strut Eurex 60 550
- C Plumbing strut shoe Eurex 60
- D Prop head Eurex 60 Top50

Required load-bearing capacity of the dowels used:

Min. 17 kN in any direction when 2 dowels are used.

Follow the manufacturer's applicable fitting instructions.

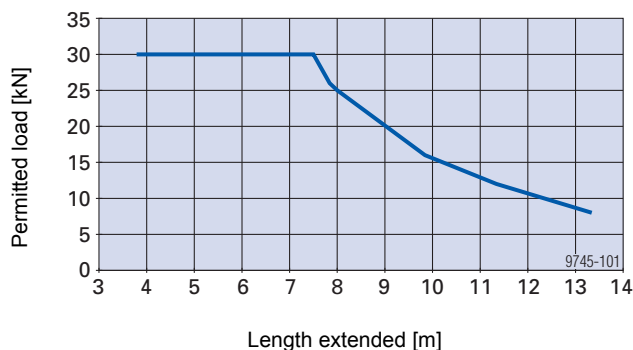


CAUTION

- The plumbing strut must not be dismantled until it is certain that there is sufficient stability for the load-bearing tower.

Loading capacity data for Eurex 60 550 (compressive force)*

- when used as a shoring & plumbing accessory



* 15 kN tensile force at any extension length
30 kN tensile force at any extension length and when anchored with 2 dowels



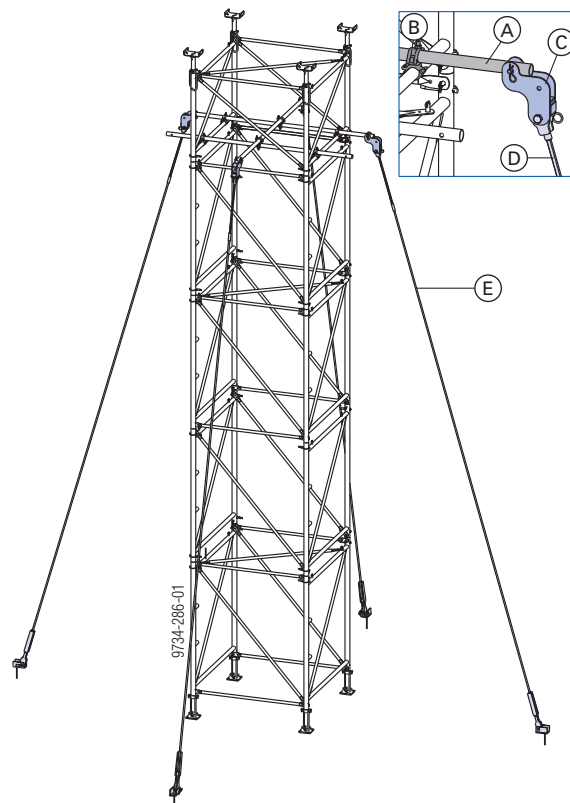
Follow the directions in the "Eurex 60 550" User Information!

Temporary back-stays directly on the load-bearing tower, for site-erection



Important note:

Only suitable for use during erection of the load-bearing tower, but **not** for transferring planned horizontal loads.



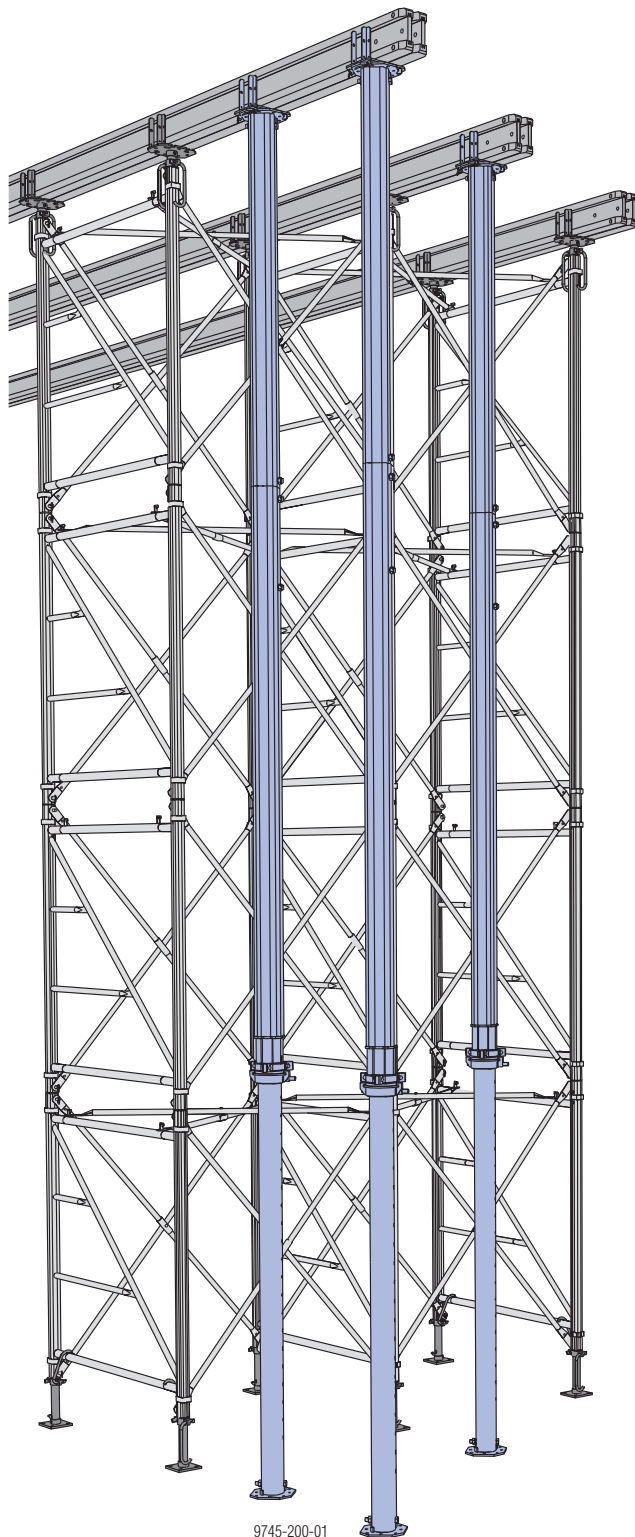
- A Scaffolding tube 48.3mm (with drilled hole $\varnothing 17\text{mm}$)
- B Normal coupler 48mm
- C Spindle connecting plate T
- D Back-stay for load-bearing towers
- E Tie-rod 15.0mm

Adapting to the building layout

with Eurex 60 550 floor props

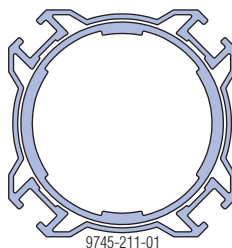


Follow the directions in the "Eurex 60 550" User Information!



Product description

- The perfect complement to all Doka load-bearing towers.
- Transfers loads economically, also in confined spaces.
- Extension range: 3.50 to 5.50 m
- For even greater heights, the prop can be lengthened to 7.50 m or 11.0 m. In this case, allow for the reduction in capacity as shown in the diagram!
- Meets "DIB" - German Institute of Building Technology - approvals criteria.
- Special aluminium profile tubes give the prop its low weight of only 47.0 kg.



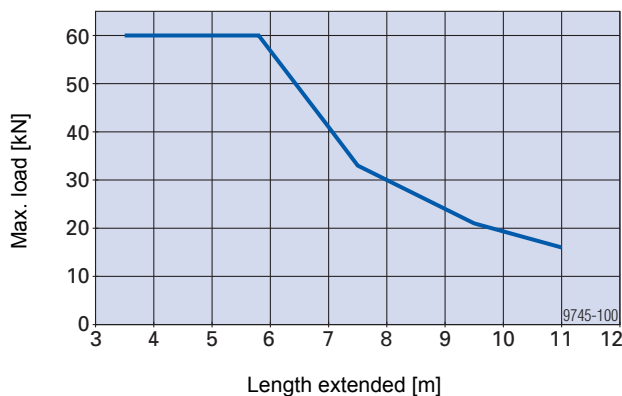
- Can be telescoped in 10 cm increments, with continuous fine adjustment.
- All parts are captively integrated - telescopic tube has anti-dropout safeguard.

Permitted capacity: 60 kN at any extension length from 3.50 to 5.50 m.

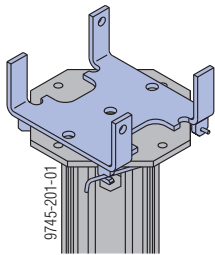
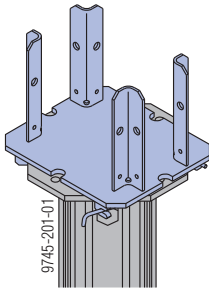
If the prop is lengthened, allow for the reduction in capacity as shown in the diagram!

Load-bearing capacity data for Eurex 60 550

- when used as a floor prop

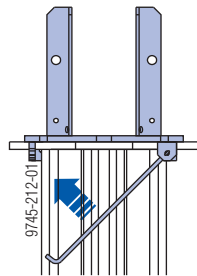


Holding primary beams

U-head Eurex 60 for steel girders (e.g. WS10), squared timbers or formwork beams H20	Four-way head Eurex 60 for single or double formwork beams H 20
	

Assembly instructions

- Place the U-head or four-way head on the prop and fix with spring-steel stirrup.

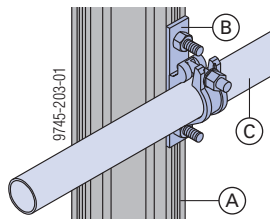


Bracing

Swivel couplers Eurex 60 can be fixed at any height on the outer tube. This means that bracing tubes can be attached wherever needed.

Examples:

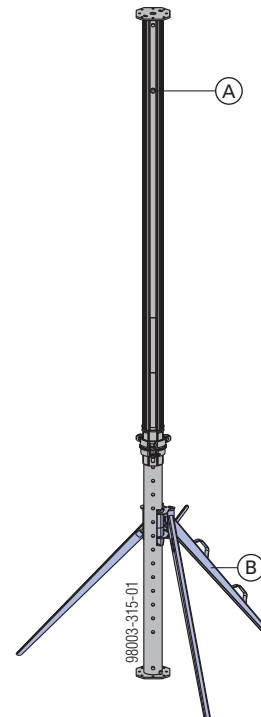
- between prop and load-bearing tower frame
- between two or more props
- to facilitate erection of the prop (as a "handle" for workers to hold onto)



- A Floor prop Eurex 60 550
- B Swivel coupler Eurex 60
- C Scaffolding tube 48.3mm

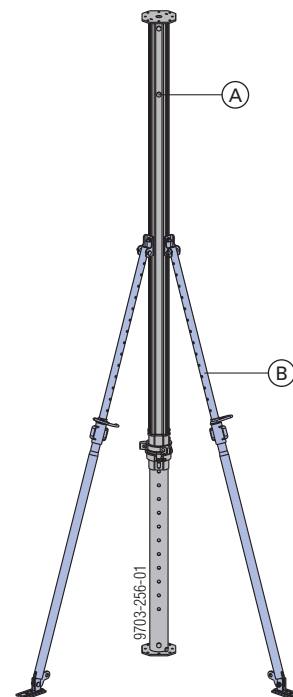
Holding Eurex 60 550 floor props upright during erection

Removable folding tripod 1.20m



- A Floor prop Eurex 60 550
- B Removable folding tripod 1.20m

Plumbing strut for pre-cast members



- A Floor prop Eurex 60 550
- B Plumbing strut 340 or 540 for pre-cast members

Inclination adjustment

If the superstructure or the ground are **inclined at an angle of 1% or more**, slope compensation must be provided.

using Wedges for screw-jack %

These prefabricated birch plywood wedges make it possible to stand load-bearing towers in the perpendicular on surfaces with various inclinations, even when utilising the full leg load.



CAUTION

Excessively steep wedges may slip away!

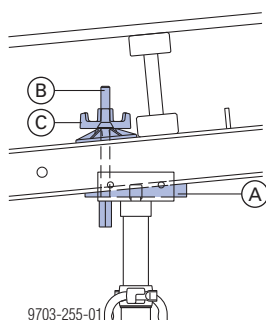
➤ Maximum inclination: 20%!

For this reason, wedges must NOT be placed on top of one another in an attempt to compensate for inclinations that are greater than 20%.

Inclined superstructures

Securing the superstructure at angles of over 12%:

➤ Connect the head-plate to the longitudinal beam (e.g. with Locking rod 15.0/33cm and Super-plate 15.0 or Angle anchor plate 12/18)

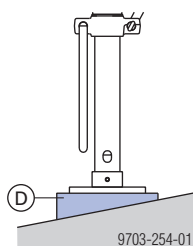


A Wedge for screw-jack %

B Locking rod 15.0/33cm

C Super-plate 15.0

Inclined ground surface



D Wedge for screw-jack %

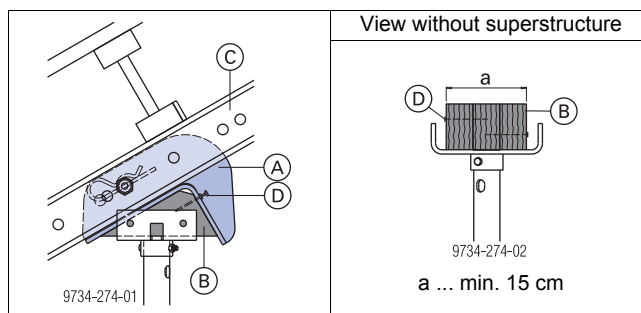
using Staxo wedge support WS10

Used with timber wedges, this component provides angle adjustment to floor-slab constructions with a max. inclination of 45°.

Bolted into the multipurpose waling or steel waling, this wedge support prevents the timber wedges slipping and ensures that the loads are safely transferred.



This type of connection is no substitute for extra structural design measures such as back-stays.



A Staxo wedge support WS10

B Timber wedge, project-specific

C Multi-purpose waling or Steel waling WS10 Top50

D Nailed connection



The grain of the timber wedges must always be in the vertical!

Note:

If the legs of the load-bearing tower have to be located outside the pattern of drilled holes in the multi-purpose waling or steel waling, then a suitable 20 mm diam. hole must be drilled in the web of the waling.

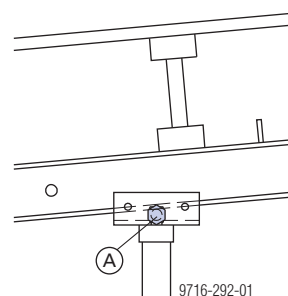
using an M20 hexagonal bolt

In this case, the superstructure rests on e.g. an M20x240 hexagonal bolt (**A**). This bolt is inserted through the recessed opening in the Screw jack U-head and is secured with a self-locking M20 hexagon nut.

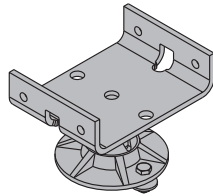


CAUTION

➤ Maximum inclination: 8%!



with "Swivel bearing plates for Screw jack U-head"



Rotatable in all directions, the Swivel bearing plate for Screw jack U-head has been designed for use with slab supports where the superstructure slopes on both sides.

On projects where the superstructure slopes on one side only, the solutions shown above are preferable.

The Swivel bearing plate for Screw jack U-head is only allowed to be used in conjunction with the Screw jack U-head or Heavy duty screw jack 70 top.

Note:

When assessing the oblique bending, always consult the Statical Calculation Dept.!



The following structural-design limitations must be taken into account:

- "Swivel bearing plate for Screw jack U-head" on screwjack head unit only: **25% load reduction**
- Swivel bearing plate for Screw jack U-head on both screwjack head and base units: **40% load reduction**
- Maximum inclination of superstructure: 18%
- Permitted overall inclination (in both the longitudinal and transverse directions): 18%
- From an overall inclination of 12%: Superstructure must be secured!
- Allow for the oblique bending on the primary beam!
- When calculating the extension lengths of the head and base units, always allow for the extra height of the Swivel bearing plate for Screw jack U-head (92 mm).



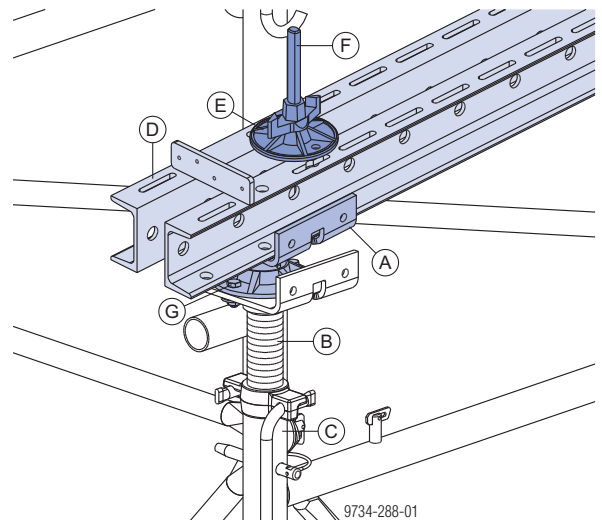
The following geometrical limitations must be taken into account:

- Maximum widths of walings / beams (see the section headed "Steel primary beams").
- Additional height of the Swivel bearing plate for Screw jack U-head (92 mm).
- Different foot/U-head extension lengths caused by inclined superstructures.

Assembly

Multi-purpose waling centrally clamped on the Swivel bearing plate for Screw jack U-head:

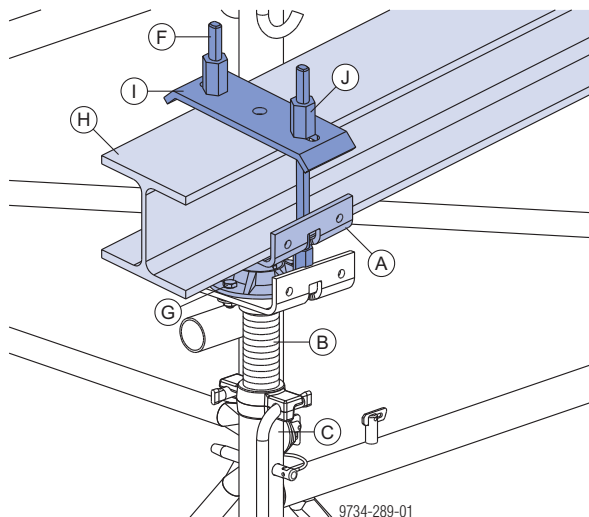
- Insert a "Locking rod 15.0 330mm" through one of the side holes (diam. 18 mm) on the Swivel bearing plate for Screw jack U-head.
- Using the nuts & bolts etc. supplied with the product, fix the "Swivel bearing plate for Screw jack U-head" to the "Screw jack U-head" or "Heavy duty screw jack 70 top" (spanner size 17 mm).
- Place the multi-purpose waling on the "Swivel bearing plate for Screw jack U-head".
- Screw a Super-plate 15.0 onto the Locking rod 15.0 and tighten it.



- | | |
|----------|---|
| A | Swivel bearing plate for Screw jack U-head |
| B | Screw jack U-head or Heavy duty screw jack 70 top |
| C | Staxo 100 frame |
| D | Multi-purpose waling |
| E | Super-plate 15.0 |
| F | Locking rod 15.0 330mm |
| G | Nuts, bolts etc. |

IPB structural steel section clamped on its side on the Swivel bearing plate for Screw jack U-head:

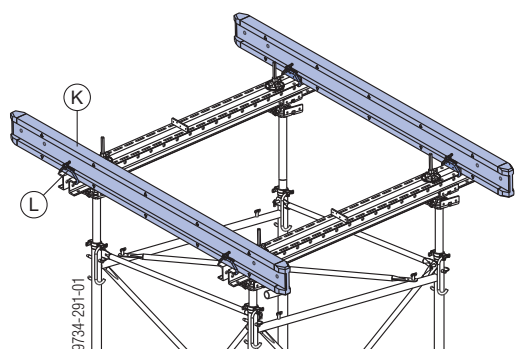
- Using the nuts & bolts etc. supplied with the product, fix the "Swivel bearing plate for Screw jack U-head" to the "Screw jack U-head" or "Heavy duty screw jack 70 top" (spanner size 17 mm).
- Place the IPB structural steel section on the "Swivel bearing plate for Screw jack U-head".
- From below, insert "Locking rods 15.0 330mm" through the punched-out holes on the bent edge of the "Swivel bearing plate for Screw jack U-head".
- Place a "Clamping plate for U-head" over the Locking rods 15.0 and screw it down tightly with hexagon nuts 15.0.



- | | |
|---|---|
| A | Swivel bearing plate for Screw jack U-head |
| B | Screw jack U-head or Heavy duty screw jack 70 top |
| C | Staxo 100 frame |
| F | Locking rod 15.0 330mm |
| G | Nuts, bolts etc. |
| H | IPB structural steel section |
| I | Clamping plate for U-head |
| J | Hexagon nut 15.0 |



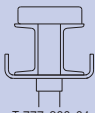
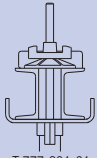
To prevent the Multi-purpose walings tipping over while an unattached superstructure is being mounted, it is advisable – even where the overall inclination is less than 12 % (in both the longitudinal and transverse directions) – to attach 2 Doka H20 beams (**K**) to each Multi-purpose waling using Flange-clamps H20 (**L**) .



Steel primary beams

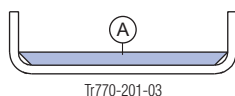
The following tables will be helpful to you when you are planning load-bearing tower superstructures consisting of steel primary beams and Screw jack U-heads, Heavy duty screw jacks 70 top or Swivel bearing plates for Screw jack U-head.

Usage conditions for Doka series walings

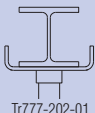
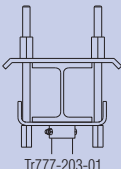
Doka series walings	Width x height [mm]	 Unsecured Max. width = 165 mm	 Secured centrally (necessary from 12%) Max. width = 165 mm
Multi-purpose waling WS10 Top50	153 x 100	Yes	Yes
Multi-purpose waling WU12 Top50	163 x 120	Yes	Yes
Facade waling WU14	172 x 140	Yes ¹⁾	Yes ¹⁾
Multi-purpose waling SL-1 WU16	183 x 160	Yes ¹⁾	Yes ¹⁾
System beam SL-1	226 x 240	No	No

¹⁾ Hardwood support (A) needed.

The bevelled edges prevent it resting in the curved radius zone.
This results in a max. available width of 188 mm.



Usage conditions for various I-section girders

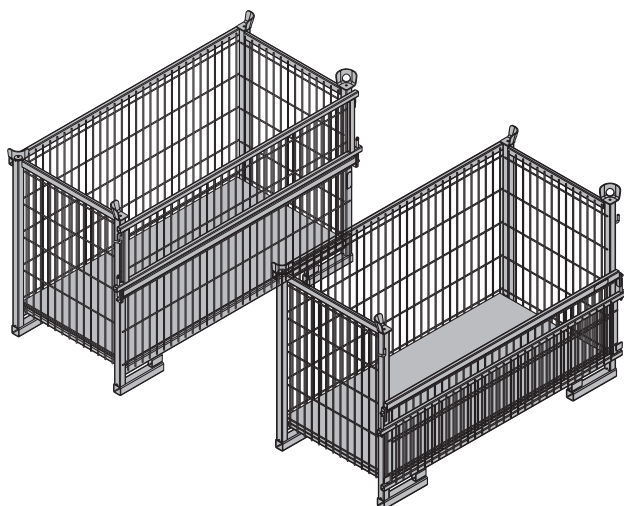
Selection of I-girders	Width x height [mm]	 Unsecured Max. width = 165 mm	 Secured at side (necessary from 12%) Max. width = 150 mm
I 380	149 x 380	Yes	Yes
I 425	163 x 425	Yes	No
IPE 300	150 x 300	Yes	Yes
IPE 330	160 x 330	Yes	No
IPBI 140	140 x 133	Yes	Yes
IPBI 160	160 x 152	Yes	No
IPB 140	140 x 140	Yes	Yes
IPB 160	160 x 160	Yes	No

Transporting, stacking and storing

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

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

Doka skeleton transport box 1.70x0.80m



Storage and transport devices for small items:

- durable
- stackable

Suitable transport appliances:

- crane
- pallet stacking truck
- forklift truck

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

Max. load: 700 kg

Permitted imposed load: 3150 kg



- Multi-trip packaging items that each contain very different loads must be stacked with the heaviest ones at the bottom and the lightest ones at the top!
- Rating plate must be in place and clearly legible

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

Max. n° of boxes on top of one another

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

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

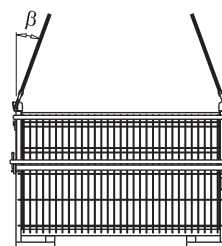
Lifting by crane



- Only lift the boxes when their sidewalls are closed!



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

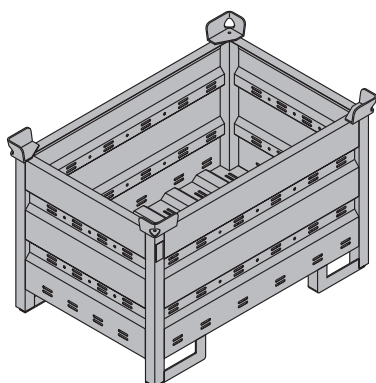


9234-203-01

Repositioning by forklift truck or pallet stacking truck

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

Doka multi-trip transport box 1.20x0.80m galv.



Storage and transport devices for small items:

- durable
- stackable

Suitable transport appliances:

- crane
- pallet stacking truck
- forklift truck

Max. load: 1500 kg

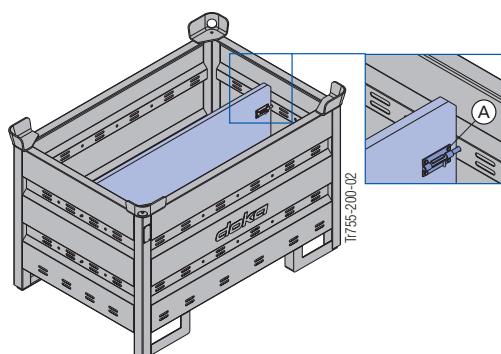
Permitted imposed load: 7900 kg



- Multi-trip packaging items that each contain very different loads must be stacked with the heaviest ones at the bottom and the lightest ones at the top!
- Rating plate must be in place and clearly legible

Multi-trip transport box partition

Different items in the 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	Lengthways	Crossways
1.20m	max. 3 partitions	—
0.80m	—	max. 3 partitions
	Tr755-200-04	Tr755-200-05

Using Doka multi-trip transport boxes as storage units

Max. n° of boxes on top of one another

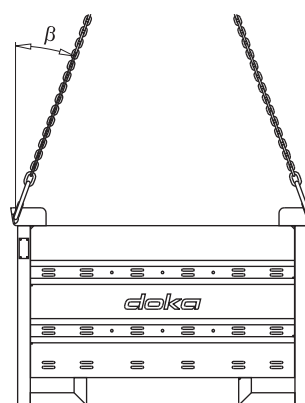
Outdoors (on the site) Floor gradient up to 3%	Indoors Floor gradient up to 1%
3	6
It is not allowed to stack empty pallets on top of one another!	

Using Doka multi-trip transport boxes as transport devices

Lifting by crane



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



9206-202-01

Repositioning by forklift truck or pallet stacking truck

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

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

Storage and transport devices for long items:

- durable
- stackable

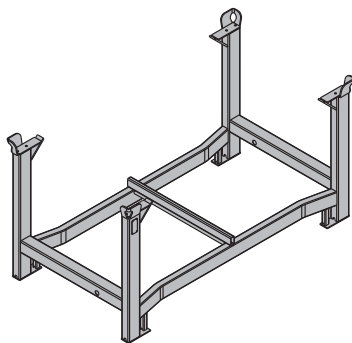
Suitable transport appliances:

- crane
- pallet stacking truck
- forklift truck

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



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



Max. load: 1100 kg

Permitted imposed load: 5900 kg



- Multi-trip packaging items that each contain very different loads must be stacked with the heaviest ones at the bottom and the lightest ones at the top!
- Rating plate must be in place and clearly legible

Using Doka stacking pallets as storage units

Max. n° of boxes on top of one another

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



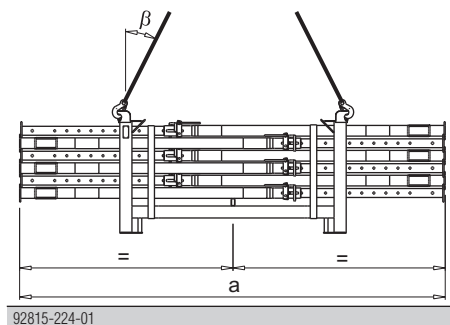
- **How to use with bolt-on caster set:**
Always apply the fixing brake when the container is "parked".
When Doka stacking pallets are stacked, the bottom pallet must NOT be one with a bolt-on caster set mounted to it.

Using Doka stacking pallets as transport devices

Lifting by crane



- Multi-trip packaging items may only be lifted one at a time.
- Use a suitable lifting chain. (Do not exceed the permitted load capacity). e.g: Doka 4-part chain 3.20m.
- Load the items centrally.
- Fasten the load to the stacking pallet so that it cannot slide or tip out.
- When lifting stacking pallets to which Bolt-on castor sets B have been attached, you must also follow the directions in these Operating Instructions!
- Spread-angle β max. 30°!



	a
Doka stacking pallet 1.55x0.85m	max. 4.0 m
Doka stacking pallet 1.20x0.80m	max. 3.0 m

Repositioning by forklift truck or pallet stacking truck



- Load the items centrally.
- Fasten the load to the stacking pallet so that it cannot slide or tip out.

Doka accessory box

Storage and transport devices for small items:

- durable
- stackable

Suitable transport appliances:

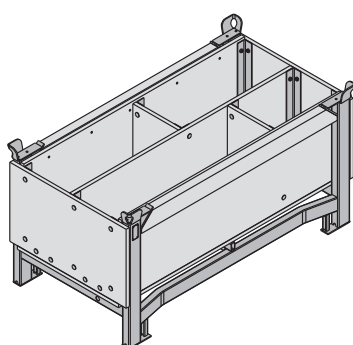
- crane
- pallet stacking truck
- forklift truck

The Doka accessory box is the tidy, easy-to-find way of storing and stacking all interconnection and form-tie components.

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



Follow the directions in the "Bolt-on caster set B" Operating Instructions!



Max. load: 1000 kg

Permitted imposed load: 5530 kg



- Multi-trip packaging items that each contain very different loads must be stacked with the heaviest ones at the bottom and the lightest ones at the top!
- Rating plate must be in place and clearly legible

Doka accessory box as storage units

Max. n° of boxes on top of one another

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



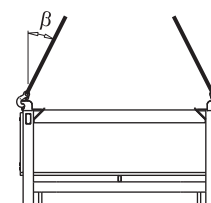
- **How to use with bolt-on caster set:**
Always apply the fixing brake when the container is "parked".
When Doka accessory boxes are stacked, the bottom box must NOT be one with a bolt-on caster set mounted to it.

Doka accessory box as transport devices

Lifting by crane



- Multi-trip packaging items may only be lifted one at a time.
- Use a suitable lifting chain. (Do not exceed the permitted load capacity). e.g: Doka 4-part chain 3.20m.
- When lifting stacking pallets to which Bolt-on castor sets B have been attached, you must also follow the directions in these Operating Instructions!
- Spread-angle β max. 30°!



92816-206-01

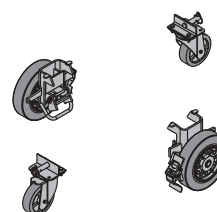
Repositioning by forklift truck or pallet stacking truck

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

Bolt-on caster set B

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

Suitable for drive-through access openings > 90 cm.



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

- Doka accessory box
- Doka stacking pallets



Follow the directions in the Operating Instructions!

Structural design

Height ranges and materials schedule

Use the appropriate size of diagonal cross -12.100 to 12.250, or 18.100 bis 18.250 - as dictated by the height of frame and the inter-frame spacing required (1.0 m, 1.52 m, 1.75 m, 2.0 m or 2.25 m or 2.5 m).



- The minimum values "h_{min.}" given in Table A are only applicable if the biggest possible frame is always used in the base storey.
- The **lowering distance of 6 cm** is already allowed for in Table A!

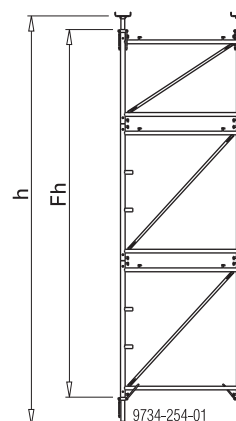
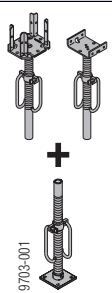
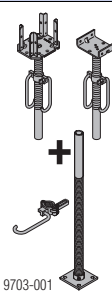
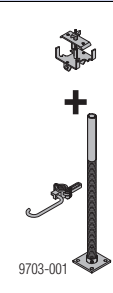


Table A

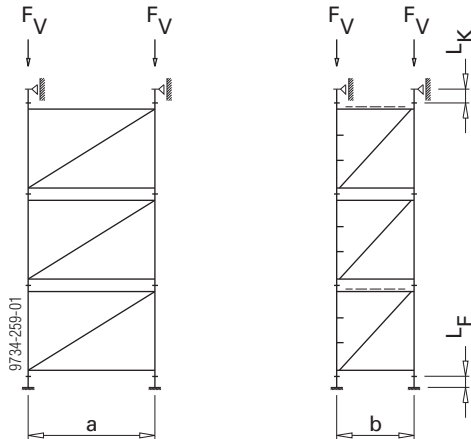
Fixed height of frame F _h [m]	Variant A		Variant B		Variant C		Basic items									
	 9703-001 Operational height h [m] min. - max.	4-way screw-jack heads or Screw jack U-heads Screw jack feet	 9703-001 Operational height h [m] min. - max.	4-way screw-jack heads or Screw jack U-heads Heavy duty screw jacks 70 + Split nuts B	 9703-001 Operational height h [m] min. - max.	U-heads D Heavy duty screw jacks 70 + Split nuts B	Basic frames 0.90m	Basic frames 1.20m	Basic frames 1.80m	Diagonal braces 9.xxx	Diagonal braces 12.xxx	Diagonal braces 18.xxx	Horizontal braces xxx	Horizontal braces 152 ¹⁾	Couplers	Spring-locked connecting pins 16 mm
0.90	1.44 - 1.60	4 4	1.76 - 1.95	4 4	1.17 - 1.62	4 4	2	-	-	2	1	-	4	4	-	-
1.20	1.44 - 1.90	4 4	1.76 - 2.25	4 4	1.36 - 1.92	4 4	-	2	-	-	3	-	4	4	-	-
1.80	2.02 - 2.50	4 4	2.02 - 2.85	4 4	1.96 - 2.52	4 4	-	-	2	-	1	2	4	4	-	-
1.80	2.02 - 2.50	4 4	2.19 - 2.85	4 4	2.12 - 2.52	4 4	4	-	-	4	1	-	6	4	4	8
2.10	2.32 - 2.80	4 4	2.32 - 3.15	4 4	2.26 - 2.82	4 4	2	2	-	2	3	-	6	4	4	8
2.40	2.62 - 3.10	4 4	2.62 - 3.45	4 4	2.56 - 3.12	4 4	-	4	-	-	5	-	6	4	4	8
2.70	2.92 - 3.40	4 4	2.92 - 3.75	4 4	2.86 - 3.42	4 4	2	-	2	2	1	2	6	4	4	8
3.00	3.22 - 3.70	4 4	3.22 - 4.05	4 4	3.16 - 3.72	4 4	-	2	2	-	3	2	6	4	4	8
3.30	3.52 - 4.00	4 4	3.52 - 4.35	4 4	3.46 - 4.02	4 4	2	4	-	2	6	-	8	4	8	16
3.60	3.82 - 4.30	4 4	3.82 - 4.65	4 4	3.76 - 4.32	4 4	-	-	4	-	1	4	6	4	4	8
3.90	4.12 - 4.60	4 4	4.12 - 4.95	4 4	4.06 - 4.62	4 4	2	2	2	2	4	2	8	4	8	16
4.20	4.42 - 4.90	4 4	4.42 - 5.25	4 4	4.36 - 4.92	4 4	-	4	2	-	6	2	8	4	8	16
4.50	4.72 - 5.20	4 4	4.72 - 5.55	4 4	4.66 - 5.22	4 4	2	-	4	2	2	4	8	4	8	16
4.80	5.02 - 5.50	4 4	5.02 - 5.85	4 4	4.96 - 5.52	4 4	-	2	4	-	4	4	8	4	8	16
5.10	5.32 - 5.80	4 4	5.32 - 6.15	4 4	5.26 - 5.82	4 4	2	4	2	2	6	2	10	4	12	24
5.40	5.62 - 6.10	4 4	5.62 - 6.45	4 4	5.56 - 6.12	4 4	-	-	6	-	2	6	8	4	8	16
5.70	5.92 - 6.40	4 4	5.92 - 6.75	4 4	5.86 - 6.42	4 4	2	2	4	2	4	4	10	4	12	24
6.00	6.22 - 6.70	4 4	6.22 - 7.05	4 4	6.16 - 6.72	4 4	-	4	4	-	6	4	10	4	12	24
6.30	6.52 - 7.00	4 4	6.52 - 7.35	4 4	6.46 - 7.02	4 4	2	-	6	2	2	6	10	4	12	24
6.60	6.82 - 7.30	4 4	6.82 - 7.65	4 4	6.76 - 7.32	4 4	-	2	6	-	4	6	10	4	12	24
6.90	7.12 - 7.60	4 4	7.12 - 7.95	4 4	7.06 - 7.62	4 4	2	4	4	2	7	4	12	4	16	32
7.20	7.42 - 7.90	4 4	7.42 - 8.25	4 4	7.36 - 7.92	4 4	-	-	8	-	2	8	10	4	12	24
7.50	7.72 - 8.20	4 4	7.72 - 8.55	4 4	7.66 - 8.22	4 4	2	2	6	2	5	6	12	4	16	32
7.80	8.02 - 8.50	4 4	8.02 - 8.85	4 4	7.96 - 8.52	4 4	-	4	6	-	7	6	12	4	16	32
8.10	8.32 - 8.80	4 4	8.32 - 9.15	4 4	8.26 - 8.82	4 4	2	-	8	2	3	8	12	4	16	32
8.40	8.62 - 9.10	4 4	8.62 - 9.45	4 4	8.56 - 9.12	4 4	-	2	8	-	5	8	12	4	16	32
8.70	8.92 - 9.40	4 4	8.92 - 9.75	4 4	8.86 - 9.42	4 4	2	4	6	2	7	6	14	4	20	40
9.00	9.22 - 9.70	4 4	9.22 - 10.05	4 4	9.16 - 9.72	4 4	-	-	10	-	3	10	12	4	16	32
9.30	9.52 - 10.00	4 4	9.52 - 10.35	4 4	9.46 - 10.02	4 4	2	2	8	2	5	8	14	4	20	40

¹⁾The values in this column only apply to quadratic tower frames with the frames of each section placed at 90° to those of the previous section. In this case, the column "Horizontal brace xxx" is no longer relevant and should be ignored.

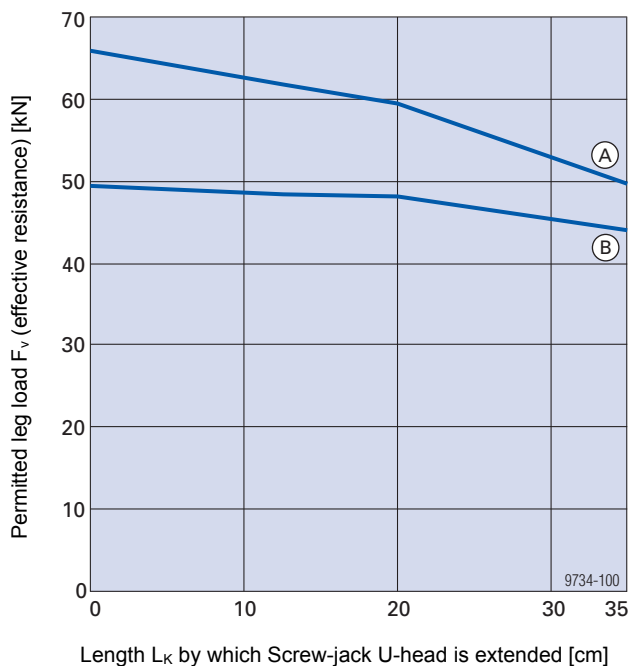
Load-bearing tower d2 held at top

Max. 5 storeys, with any combination of the 1.80/1.20/0.90 m frames, or single-storey with 1.20 m frames

- Bottom height adjustment:
 - Heavy duty screw jack 70 or Screw jack foot
- Top height adjustment:
 - Screw jack U-head, 4-way screw-jack head or U-head placed directly on frame

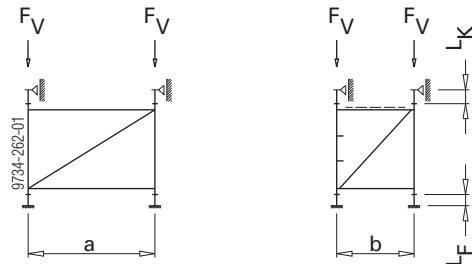


Also allows for wind-loads acting on the load-bearing tower
a ... 1.0 - 2.5 m
b ... 1.5 m

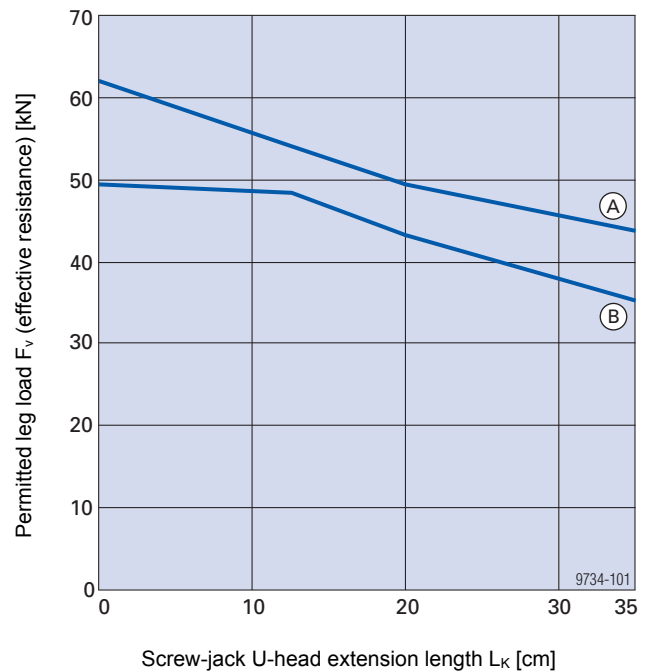


- A** L_F 35 cm
B L_F 70 cm

Single-storey, with 1.80m frame



Also allows for wind-loads acting on the load-bearing tower
a ... 1.0 - 2.5 m
b ... 1.5 m



- A** L_F 35 cm
B L_F 70 cm

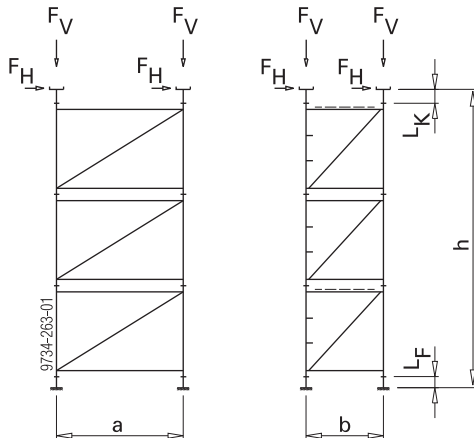


It is a good idea to distribute the extension lengths of the screw-jacks in such a way that the "heads" are not extended as far as the "feet". In this way, a higher max. leg load can be obtained (see diagrams).

Free standing load-bearing tower d2

- Bottom height adjustment:
 - Heavy duty screw jack 70 or Screw jack foot
- Top height adjustment:
 - Screw jack U-head, 4-way screw-jack head or U-head placed directly on frame

Permitted vertical load F_V per leg: 57.6 kN Permitted horizontal load F_H per leg: 1.15 kN



Also allows for wind-loads acting on the load-bearing tower

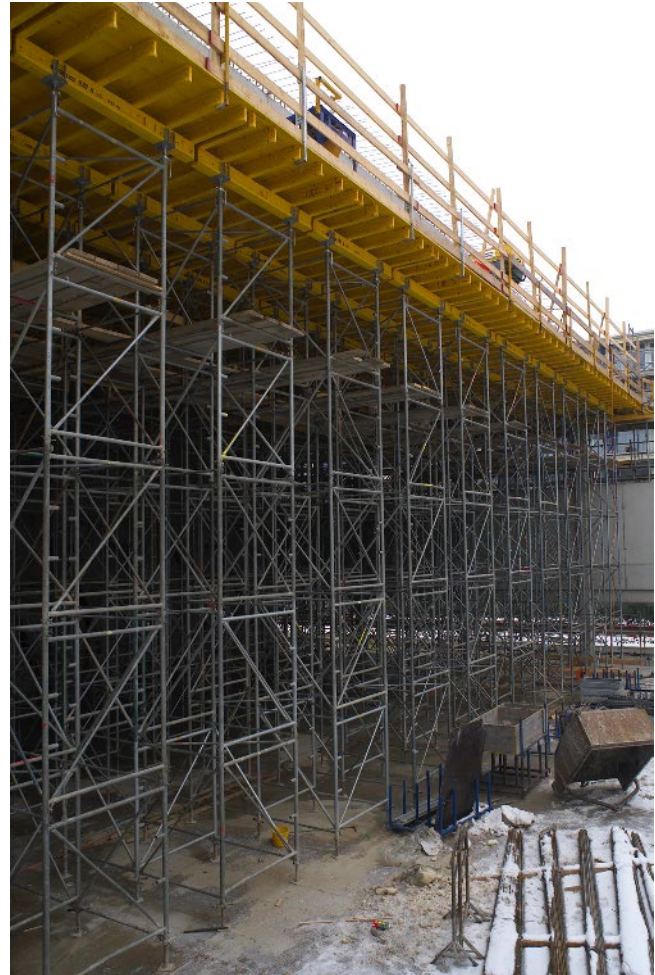
a ... 1.5 - 2.5 m

b ... 1.5 m

h ... max. 8.0 m

L_K max 25 cm

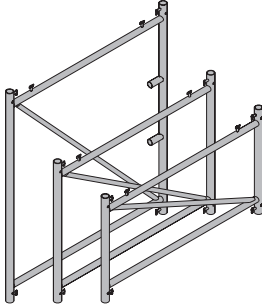
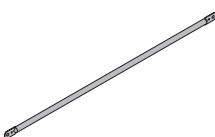
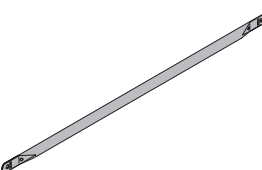
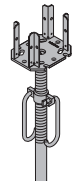
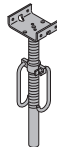
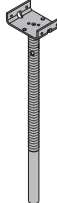
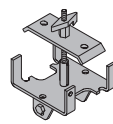
L_F max 35 cm

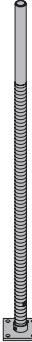
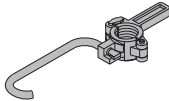
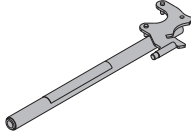
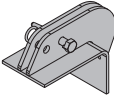
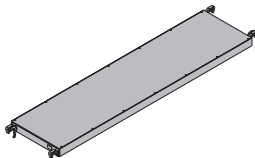
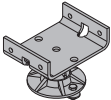
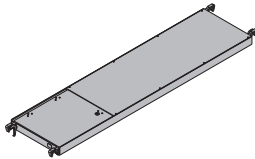
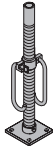
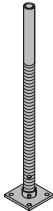


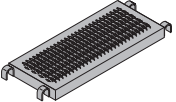
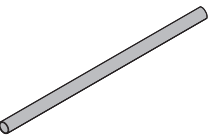
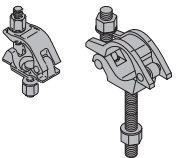
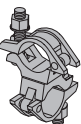
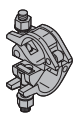
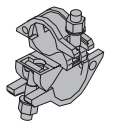
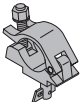
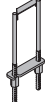
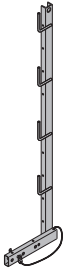
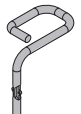
Site: School building, Birch

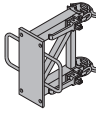
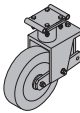
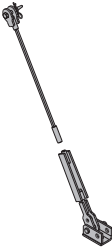
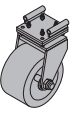
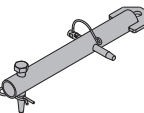
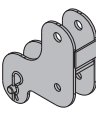
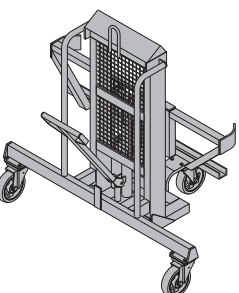
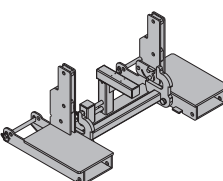
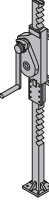
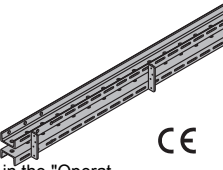
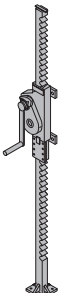
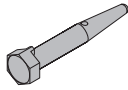


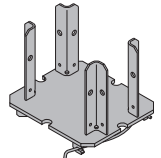
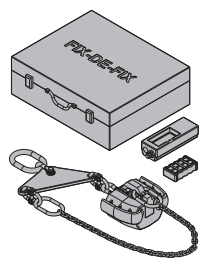
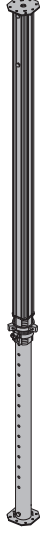
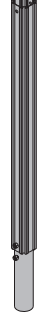
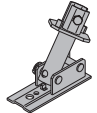
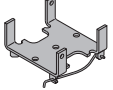
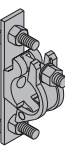
Site: PTT administration building, Schlieren, Switzerland

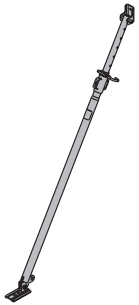
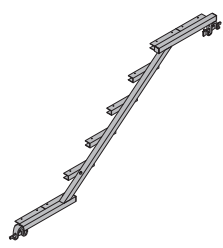
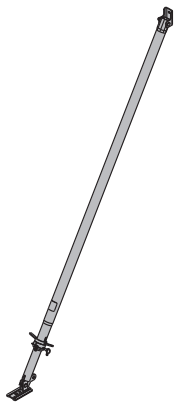
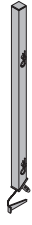
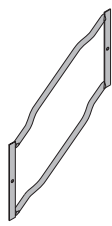
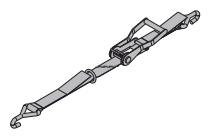
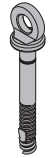
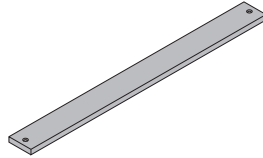
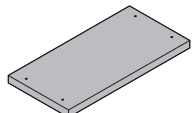
	[kg]	Article n°		[kg]	Article n°
Basic frame d2 0.90m Basic frame d2 1.20m Basic frame d2 1.80m Grundrahmen d2	21.0 24.1 32.8	582703000 582701000 582702000	 Galvanised		
Coupler Kupplungsstück	0.57	582527000	 Galvanised Height: 27 cm		
Spring locked connecting pin 16mm Federbolzen 16mm	0.25	582528000	 Galvanised Length: 15 cm		
Horizontal brace d2 100 Horizontal brace d2 125 Horizontal brace d2 152 Horizontal brace d2 175 Horizontal brace d2 200 Horizontal brace d2 225 Horizontal brace d2 250 Horizontalstrebe d2	1.6 1.9 2.3 2.7 3.0 3.4 3.8	582730000 582731000 582732000 582733000 582734000 582735000 582736000	 Galvanised		
Diagonal brace d2 9.100 Diagonal brace d2 9.125 Diagonal brace d2 9.152 Diagonal brace d2 9.175 Diagonal brace d2 9.200 Diagonal brace d2 9.225 Diagonal brace d2 9.250 Diagonal brace d2 12.100 Diagonal brace d2 12.125 Diagonal brace d2 12.152 Diagonal brace d2 12.175 Diagonal brace d2 12.200 Diagonal brace d2 12.225 Diagonal brace d2 12.250 Diagonal brace d2 18.100 Diagonal brace d2 18.125 Diagonal brace d2 18.152 Diagonal brace d2 18.175 Diagonal brace d2 18.200 Diagonal brace d2 18.225 Diagonal brace d2 18.250 Diagonalstrebe d2	2.0 2.2 2.6 3.0 3.3 5.9 6.8 2.2 2.5 2.9 3.1 3.5 6.0 6.7 3.0 3.3 5.8 6.1 6.4 6.9 7.4	582740000 582741000 582742000 582743000 582744000 582745000 582746000 582712000 582713000 582714000 582715000 582716000 582717000 582718000 582720000 582721000 582722000 582723000 582724000 582725000 582726000	 Galvanised		
Diagonal cross 9.150 Diagonal cross 9.165 Diagonal cross 9.175 Diagonal cross 9.200 Diagonal cross 9.250 Diagonal cross 12.150 Diagonal cross 12.165 Diagonal cross 12.175 Diagonal cross 12.200 Diagonal cross 12.250 Diagonal cross 18.150 Diagonal cross 18.165 Diagonal cross 18.175 Diagonal cross 18.200 Diagonal cross 18.250 Diagonalkreuz	5.2 5.7 6.1 6.6 7.7 5.7 6.1 6.3 6.9 8.3 6.9 7.3 7.8 7.8 9.1	582773000 582627000 582334000 582774000 582775000 582612000 582628000 582335000 582614000 582616000 582622000 582629000 582336000 582624000 582626000	 Galvanised Delivery condition: folded closed		
4-way screw-jack head Vierwegkopfspindel	10.4	582638000	 Galvanised Height: 86 cm		
Screw jack U-head Kopfspindel	9.2	582636000	 Galvanised Height: 74 cm		
Heavy duty screw jack 70 top Lastspindel 70 oben	9.2	582327000	 Height: 106 cm		
U-head D Gabelkopf D	6.7	582709000	 Galvanised Length: 20 cm Width: 22 cm Height: 37 cm		
Clamping plate for U-head Klemmplatte für Gabelkopf	2.0	502709030	 Galvanised Length: 24 cm Width: 9 cm		

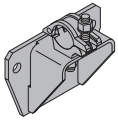
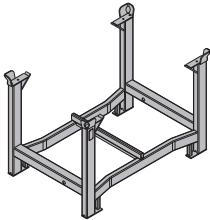
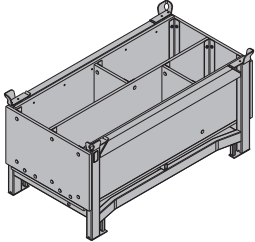
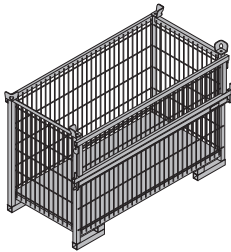
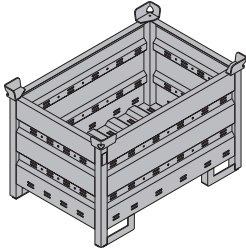
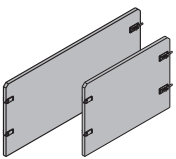
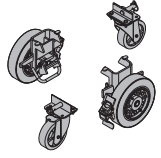
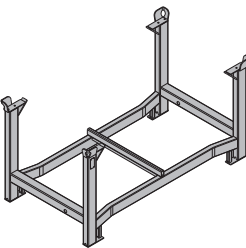
	[kg]	Article n°		[kg]	Article n°
Wing nut 15.0 Flügelmutter 15,0  Galvanised Length: 10 cm Height: 5 cm Width-across: 27 mm	0.31	581961000	Heavy duty screw jack 130 Lastspindel 130  Galvanised Height: 173 cm	13.0	582711000
Locking rod 15.0 330mm Quetschteil 15,0  Galvanised Width-across: 24 mm	0.48	582641000			
Dokamatic table Staxo spindle connector Staxo-Spindelanschluss Dokamatic-Tisch  Galvanised Length: 20.7 cm	3.9	582347000	Split nut B Spannmutter B  Galvanised	2.0	582634000
Wedge for screw jack % Spindelkeil %  Length: 20 cm Width: 16 cm	0.46	176071000	Universal dismantling tool Universal-Lösewerkzeug  Galvanised Length: 75.5 cm	3.7	582768000
Staxo wedge support WS10 Staxo-Keilaufleger WS10  Galvanised Length: 31 cm Width: 15 cm Height: 23 cm	8.7	582796000	Scaffold planking 60/150cm Scaffold planking 60/175cm Scaffold planking 60/200cm Scaffold planking 60/250cm Scaffold planking 60/300cm Gerüstbelag  Aluminium	13.6 15.5 17.8 22.2 26.2	582307500 582332500 582308500 582309500 582310500
Swivel bearing plate for screw jack U-head Gelenkaufsatz Kopfspindel  Galvanised Length: 20.8 cm Width: 15.0 cm Height: 14.4 cm	5.2	582799000	Scaffold planking 60/150cm with manhole Scaffold planking 60/175cm with manhole Scaffold planking 60/200cm with manhole Scaffold planking 60/250cm with manhole Scaffold planking 60/300cm with manhole Gerüstbelag mit Durchstieg  Aluminium	13.8 15.5 17.7 20.8 26.3	582312500 582333500 582313500 582314500 582315500
Screw jack foot Fußspindel  Galvanised Height: 69 cm	9.0	582637000	Scaffold planking 30/100cm Scaffold planking 30/200cm Scaffold planking 30/250cm Scaffold planking 30/300cm Gerüstbelag  Galvanised	7.4 13.5 16.4 19.5	582231000 582234000 582235000 582236000
Heavy duty screw jack 70 Lastspindel 70  Galvanised Height: 101 cm	8.8	582639000			

	[kg]	Article n°		[kg]	Article n°
Assembly batten 40/100cm Assembly batten 40/200cm Assembly batten 40/250cm Montagebelag Aluminium 	4.2 7.5 9.7	582630000 582632000 582633000			
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 	3.6 5.4 7.2 9.0 10.8 12.6 14.4 16.2 18.0 19.8 21.6 3.6	682014000 682015000 682016000 682017000 682018000 682019000 682021000 682022000 682023000 682024000 682025000 682001000			
Screw-on coupler 48mm 50 Screw-on coupler 48mm 95 Anschraubkupplung Galvanised Width-across: 22 mm 	0.84 0.88	682002000 586013000			
Swivel coupler 48mm Drehkupplung 48mm Galvanised Width-across: 22 mm 	1.5	582560000			
Normal coupler 48mm Normalkupplung 48mm Galvanised Width-across: 22 mm 	1.2	682004000			
Transition swivel coupler 48/60mm Übergangsdrehkupplung 48/60mm Galvanised Width-across: 22 mm 	1.5	582561000			
Transition angle coupler 48/60mm Übergangsnormalkupplung 48/60mm Galvanised Width-across: 22 mm 	1.6	582562000			
Pin coupling 60mm Zapfenkupplung 60mm Galvanised Width-across: 22 mm 	1.0	582546000			
Brace stirrup 8 Spannbügel 8 Galvanised Width: 19 cm Height: 46 cm Width-across: 30 mm 	2.7	582751000			
Rafter plate right Rafter plate left Sparrenpfettenanker Galvanised Length: 17 cm 	0.09 0.09	582521000 582522000			
Handrail post 1.50m Geländer 1,50m Galvanised 	12.4	582754000			
Handrail clamp S Schutzgeländerzwinge S Galvanised Height: 123 - 171 cm 	11.5	580470000			
Handrail post T 1.80m Einschubgeländer T 1,80m Galvanised 	17.7	584373000			
Toeboard holder T 1.80m Fußwehrhalter T 1,80m Galvanised Height: 13.5 cm 	0.53	584392000			
Scaffold tube connection Gerüstrohranschluss Galvanised Height: 7 cm 	0.27	584375000			

	[kg]	Article n°		[kg]	Article n°
Lifting rod 15.0 Umsetzstab 15,0  Painted blue Height: 57 cm Follow the directions in the "Operating Instructions"!	1.9	586074000	Staxo/d2 adapter frame Staxo/d2-Adapter  Painted blue Length: 37 cm Width: 36 cm Height: 36 cm	14.1	582781000
Retaining plate 15.0 Jochplatte 15,0  Galvanised Length: 17 cm Width: 12 cm Height: 11 cm	1.8	586073000	Solid tire wheel Vollelastikrad  Painted blue Height: 45 cm	34.5	582573000
Bracing for load-bearing towers Abspannung für Traggerüste  Galvanised Painted blue	11.6	582795000	Heavy duty wheel 15kN Schwerlastrad 15kN  Painted blue Height: 41 cm	33.0	582575000
Bracing waling connector WS10 Abspann-Riegelverbinder WS10  Galvanised Length: 46.7 cm	2.7	582756000	Double wheeled transporter Zweirad-Transportroller  Painted blue Width: 57 cm	5.0	582558000
Spindle connecting plate T Spindellasche T  Galvanised Width: 20 cm Height: 25 cm	3.1	584371000	Shifting carriage TG Hubwagen TG  Galvanised Length: 99 cm Width: 152 cm Height: 148 cm Follow the directions in the "Operating Instructions"!	168.0	582778000
Universal plug R20/25 Kombi Ankerstopfen R20/25  Blue Diameter: 3 cm	0.003	588180000	Fork lift shifting device TG Umsetzgerät TG für Stapler  Galvanised Length: 60 cm Width: 113 cm Height: 52 cm Follow the directions in the "Operating Instructions"!	83.0	582797000
Winch 70 Zahnstangenwinde 70  Painted blue Height: 126 cm Follow the directions in the "Operating Instructions"!	31.0	582779000	Multi-purpose waling WS10 Top50 2.00m Mehrzweckriegel WS10 Top50 2,00m  Painted blue	38.9	580007000
Winch 125 Zahnstangenwinde 125  Painted blue Height: 189 cm Follow the directions in the "Operating Instructions"!	63.8	582780000	Connecting pin 10cm Verbindungsbolzen 10cm  Galvanised Length: 14 cm	0.34	580201000

	[kg]	Article n°		[kg]	Article n°
Spring cotter 5mm Federvorstecker 5mm  Galvanised Length: 13 cm	0.05	580204000	4-way head Eurex 60 Vierwegkopf Eurex 60  Galvanised Length: 25 cm Width: 21 cm Height: 21 cm	4.5	582655000
Fix-De-Fix remote uncoupling system 3150kg Abhängeautomat Fix-De-Fix 3150kg  Follow the directions in the "Operating Instructions"!	27.0	586014000	Plumbing strut Eurex 60 550 Justierstütze Eurex 60 550  Powder-coated, blue Aluminium Length: 343 - 553 cm	42.5	582658000
Doka floor prop Eurex 60 550 Doka-Deckenstütze Eurex 60 550  Aluminium Length: 345 - 555 cm	47.0	582650000	Prop head Eurex 60 Top50 Stützenkopf Eurex 60 Top50  Galvanised Height: 50 cm	7.1	582665000
Extension Eurex 60 2.00m Verlängerung Eurex 60 2,00m  Powder-coated, blue Aluminium Length: 250 cm	21.3	582651000	Connector Eurex 60 Verbindungsstück Eurex 60  Galvanised Length: 15 cm Width: 15 cm Height: 30 cm	3.9	582657000
Coupler Eurex 60 Kupplungsstück Eurex 60  Aluminium Length: 100 cm Diameter: 12.8 cm	8.6	582652000	Plumbing strut shoe Eurex 60 Justierstützenfuß Eurex 60  Galvanised Length: 31 cm Width: 12 cm Height: 33 cm	8.5	582660000
U-head Eurex 60 Gabelkopf Eurex 60  Galvanised Length: 22 cm Width: 20 cm Height: 12 cm	2.9	582656000	Swivel coupler 48mm Eurex 60 Drehkupplung 48mm Eurex 60  Galvanised Width-across: 22 mm	1.0	582654000

	[kg]	Article n°		[kg]	Article n°
Plumbing strut 340 for precast members Justierstütze 340 für Fertigteile	18.2	588296000	Stair tower d2-225		
 Galvanised Length: 190 - 341 cm			Stair bracket 225 right Stair bracket 225 left Treppenlauf 225	24.6 24.6	582681000 582682000
			 Galvanised Length: 263 cm Height: 111 cm		
Plumbing strut 540 for precast members Stützerstütze 540 für Fertigteile	33.3	588297000	Pin 7x60mm Steckbolzen 7x60mm	0.02	582683000
 Galvanised Length: 309 - 550 cm			 Galvanised		
			Inner handrailing 225 Innenholm 225	5.7	582685000
			 Galvanised Height: 111 cm		
Removable folding tripod 1.20m Stützbein 1,20m	20.7	586145000	Intermediate railing 225 Zwischengeländer 225	5.7	582686000
 Galvanised Height: 120 cm Delivery condition: folded closed			 Galvanised Length: 87 cm Height: 114 cm		
Lashing strap 5.00m Zurrgurt 5,00m	2.8	586018000	Connection angle 225 Anschlusswinkel 225	6.0	582687000
 Yellow			 Galvanised Height: 116 cm		
Doka express anchor 16x125mm Doka-Expressanker 16x125mm	0.31	588631000	Railing board 15x160cm Geländerdiele 15x160cm	4.0	183011000
 Galvanised Length: 18 cm Follow fitting instructions!			 Varnished yellow		
Doka coil 16mm Doka-Coil 16mm	0.009	588633000	Tread board 35mm 30x60cm Trittbrett 35mm 30x60cm	3.0	183010000
 Galvanised Diameter: 1.6 cm			 Varnished yellow		

	[kg]	Article n°		[kg]	Article n°
Anchoring shoe for stair tower Ankerschuh für Treppenturm  Galvanised Length: 22 cm Width: 12 cm Height: 22 cm	3.4	582680000	Doka stacking pallet 1.20x0.80m Doka-Stapelpalette 1,20x0,80m  Galvanised Height: 77 cm Follow the directions in the "Operating Instructions"!	39.5	583016000
Cone screw B 7cm Konusschraube B 7cm  red Length: 10 cm Diameter: 7 mm Width-across: 50 mm	0.86	581444000	Doka accessory box Doka-Kleinteilebox  Timber parts varnished yellow Steel parts galvanised Length: 154 cm Width: 83 cm Height: 77 cm Follow the directions in the "Operating Instructions"!	106.4	583010000
Multi-trip packaging					
Doka skeleton transport box 1.70x0.80m Doka-Gitterbox 1,70x0,80m  Galvanised Height: 113 cm Follow the directions in the "Operating Instructions"!	87.0	583012000			
Doka multi-trip transport box 1.20x0.80m Doka-Mehrwegcontainer 1,20x0,80m  Galvanised Height: 78 cm Follow the directions in the "Operating Instructions"!	75.0	583011000			
Multi-trip transport box partition 0.80m Multi-trip transport box partition 1.20m Mehrwegcontainer Unterteilung  Timber parts varnished yellow Steel parts galvanised	3.7 5.5	583018000 583017000	Bolt-on castor set B Anklemm-Radsatz B  Painted blue	33.6	586168000
Doka stacking pallet 1.55x0.85m Doka-Stapelpalette 1,55x0,85m  Galvanised Height: 77 cm Follow the directions in the "Operating Instructions"!	42.0	586151000			

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Herzegovina	Netherlands
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Croatia	Poland
Czech Republic	Portugal
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