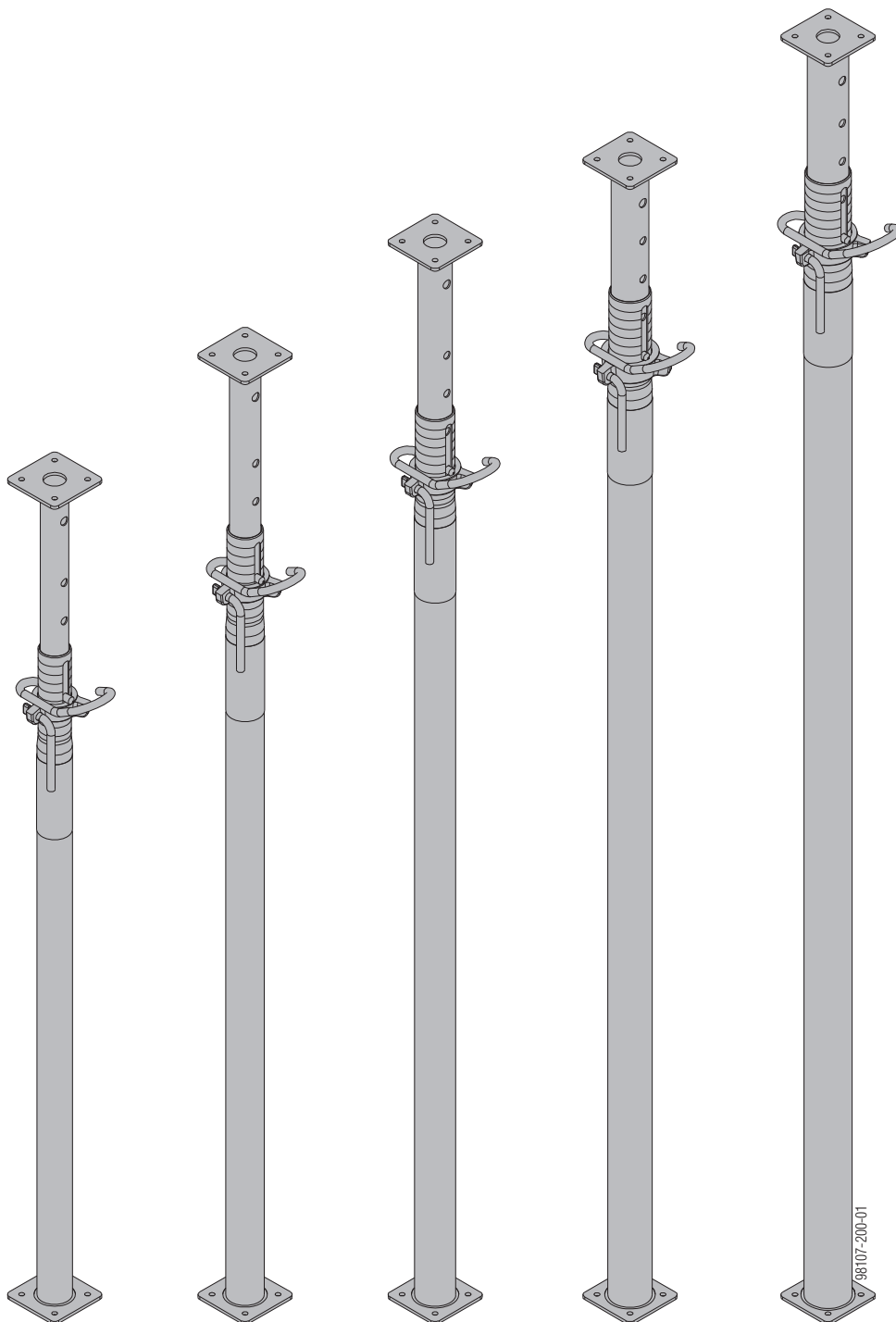


The Formwork Experts.

Floor props Eurex 20 eco

User Information

Instructions for assembly and use (Method statement)



Elementary safety warnings

User target groups

- This booklet is aimed at all persons who will be working with the Doka product or system that it describes. It contains information on the standard design for setting up this system, and on correct, compliant utilisation of the system.
- All persons working with the product described herein must be familiar with the contents of this booklet and with all the safety instructions it contains.
- Persons who are incapable of reading and understanding this booklet, or who can do so only with difficulty, must be instructed and trained by the customer.
- The customer is to ensure that the information materials provided by Doka (e.g. User Information booklets, Instructions for Assembly and Use, Operating Instruction manuals, plans etc.) are available to all users, and that they have been made aware of them and have easy access to them at the usage location.
- In the relevant technical documentation and formwork utilisation plans, Doka shows the workplace safety precautions that are necessary in order to use the Doka products safely in the usage situations shown.
In all cases, users are obliged to ensure compliance with national laws, Standards and 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 booklet serves as the basis for the site-specific hazard assessment, and for the instructions given to users on how to prepare and utilise the system. It does not substitute for these, however.

Remarks on this booklet

- This 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 booklet!**

Planning

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

Regulations; industrial safety

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

Rules applying during all phases of the assignment

- The customer must ensure that this product is erected and dismantled, reset and generally used for its intended purpose in accordance with the applicable laws, Standards and rules, under the direction and supervision of suitably skilled persons. These persons' mental and physical capacity must not in any way be impaired by alcohol, medicines or drugs.
- Doka products are technical working appliances which are intended for industrial/commercial use only, always in accordance with the respective Doka User Information booklets or other technical documentation authored by Doka.
- The stability 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.
- It is strictly forbidden to weld Doka products – in particular anchoring/tying components, suspension components, connector components and castings etc. – or otherwise subject them to heating. Welding causes serious change in the microstructure of the materials from which these components are made. This leads to a dramatic drop in the failure load, representing a very great risk to safety.
The only articles which are allowed to be welded are those for which the Doka literature expressly points out that welding is permitted.

Assembly

- The equipment/system must be inspected by the customer before use, to ensure that it is in 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 equipment/system must be assembled and erected in accordance with the applicable laws, Standards and rules by suitably skilled personnel of the customer's, having regard to any and all required safety inspections.
- It is not permitted to modify Doka products; any such modifications constitute a safety risk.

Closing the formwork

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

Pouring

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

Stripping out the formwork

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

Transporting, stacking and storing

- Observe all 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 booklet!

Maintenance

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

Miscellaneous

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

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.

Eurocodes at Doka

In Europe, a uniform series of Standards known as **Eurocodes** (EC) was developed for the construction field by the end of 2007. These are intended to provide a uniform basis, valid throughout Europe, for product specifications, tenders and mathematical verification. The EC are the world's most highly developed Standards in the construction field.

In the Doka Group, the EC are to be used as standard from the end of 2008. They will thus supersede the DIN norms as the "Doka standard" for product design.

The widely used "Permissible stress design" (comparing the actual stresses with the permissible stresses) has been superseded by a new safety concept in the EC.

The EC contrast the actions (loads) with the resistance (capacity). The previous safety factor in the permissible stresses is now divided into several partial factors. The safety level remains the same!

$$E_d \leq R_d$$

E_d **Design value of effect of actions**
 (E ... effect; d ... design)
 Internal forces from action F_d
 (V_{Ed}, N_{Ed}, M_{Ed})

F_d **Design value of an action**
 F_d = γ_F · F_k
 (F ... force)

F_k **Characteristic value of an action**
 "actual load", service load
 (k ... characteristic)
 e.g. dead weight, live load, concrete pressure, wind

γ_F **Partial factor for actions**
 (in terms of load; F ... force)
 e.g. for dead weight, live load, concrete pressure, wind
 Values from EN 12812

R_d **Design value of the resistance**
 (R ... resistance; d ... design)
 Design capacity of cross-section
 (V_{Rd}, N_{Rd}, M_{Rd})

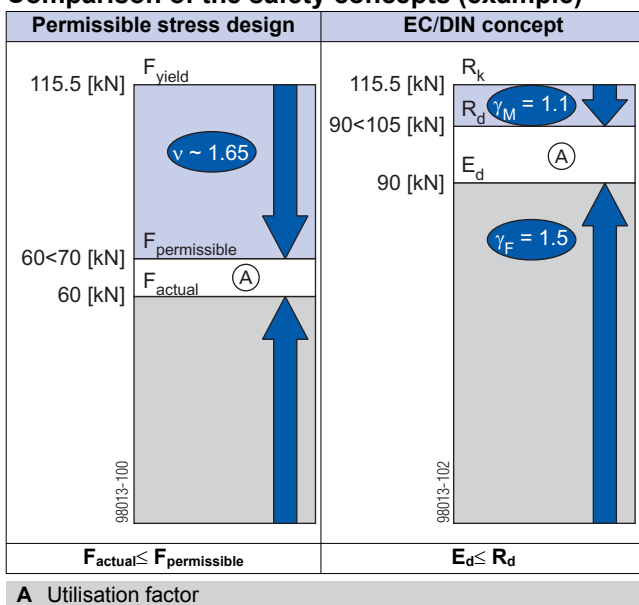
Steel: $R_d = \frac{R_k}{\gamma_M}$ Timber: $R_d = k_{mod} \cdot \frac{R_k}{\gamma_M}$

R_k **Characteristic value of the resistance**
 e.g. moment resistance to yield stress

γ_M **Partial factor for a material property**
 (in terms of material; M...material)
 e.g. for steel or timber
 Values from EN 12812

k_{mod} **Modification factor** (only for timber – to take account of the moisture and the duration of load action)
 e.g. for Doka beam H20
 Values as given in EN 1995-1-1 and EN 13377

Comparison of the safety concepts (example)



⚠ The "permissible values" communicated in Doka documents (e.g.: Q_{permissible} = 70 kN) do not correspond to the design values (e.g.: V_{Rd} = 105 kN)!

- Avoid any confusion between the two!
- Our documents will continue to state the permissible values.

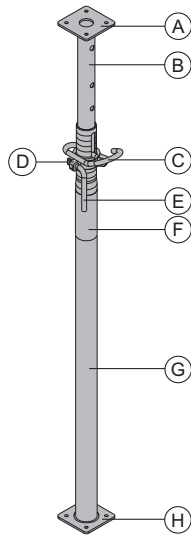
Allowance has been made for the following partial factors:

γ_F = 1.5
 γ_{M, timber} = 1.3
 γ_{M, steel} = 1.1
 k_{mod} = 0.9

In this way, all the design values needed in an EC design calculation can be ascertained from the permissible values.

Product description

Doka floor props Eurex 20 eco are adjustable telescopic steel props that conform to EN 1065. They are intended to be used as vertical props for temporary works equipment.



- A Head-plate
- B Inner tube
- C Fastening clamp
- D Adjusting nut
- E Toggle lever
- F Rating label
- G Outer tube
- H Baseplate

The main features:

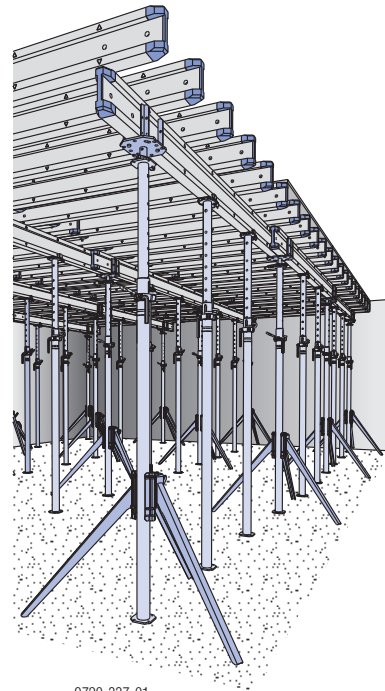
- DIB (German Institute of Construction Engineering) approval n° Z-8.311-942
- EN 1065-compliant prop
- high load-bearing capacity
 - see the section headed 'Permitted carrying capacity'
- numbered pegging holes, for easier height adjustment



- Quick connection: Head adapters of various types can be attached in a crane-handling-safe manner with the spring-locked connecting pin
- Drop-out latch: For safety reasons, Doka props have latches to prevent the inner tube sliding out of the outer tube.
- special thread geometry, which makes the prop easier to release even when it is under high load
- When the prop is pushed in all the way, it still leaves a clear 10 cm gap so that the operator's hands are not trapped.
- Galvanised, long-life constructional design

Practical examples

Doka Floor Systems



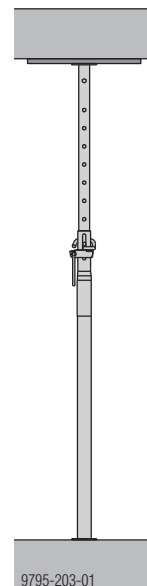
9720-337-01

- Dokaflex 1-2-4
- Doka Xtra
- Dokamatic table
- Dokaflex table



Follow the directions in the relevant User Information booklet!

Temporary reshores



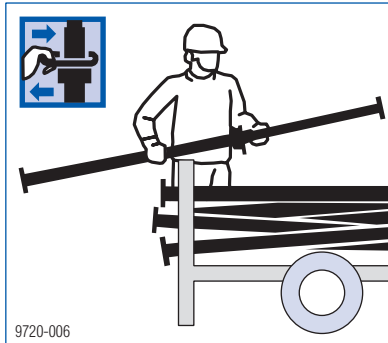
9795-203-01

Instructions for assembly and use

Setting up with tripod

Applies only for use as free-standing props. Comply with the instructions in the applicable user information document when using the props in combination with a formwork system.

- Roughly adjust the height of the floor prop, using the fastening clamp.



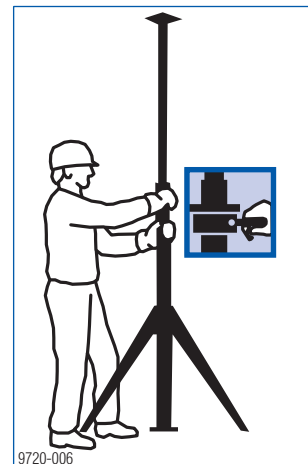
The pegging holes are all numbered, which makes it easier to adjust the props to the same height.

- Put up each removable folding tripod.
- Put the floor prop into the tripod and fix it in place with the clamping lever.

Before stepping onto the formwork, check again to make sure that the props have been correctly fixed in the tripods.



- With the prop upright, use the adjusting nut for precision adjustment.

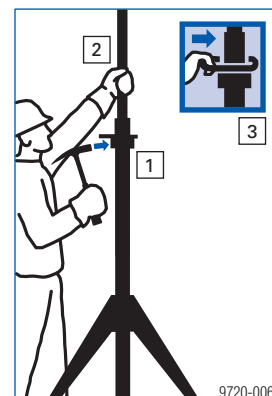


Setting up without tripod

- To prevent toppling, use the Supporting head H20 DF to secure intermediate props on the floor formwork (see Dokaflex 1-2-4 or Doka Xtra User Information booklets, as applicable).
- When using props as temporary reshoring, press them sufficiently tightly to the underside of the floor slab so that they cannot topple.

Backing off floor props under load

- 1) Use a hammer to back off the adjusting nut.
- 2) Hold the inner tube with one hand.
- 3) Open the fastening clamp to unfix the inner tube. Guide this by hand while lowering it into the outer tube.



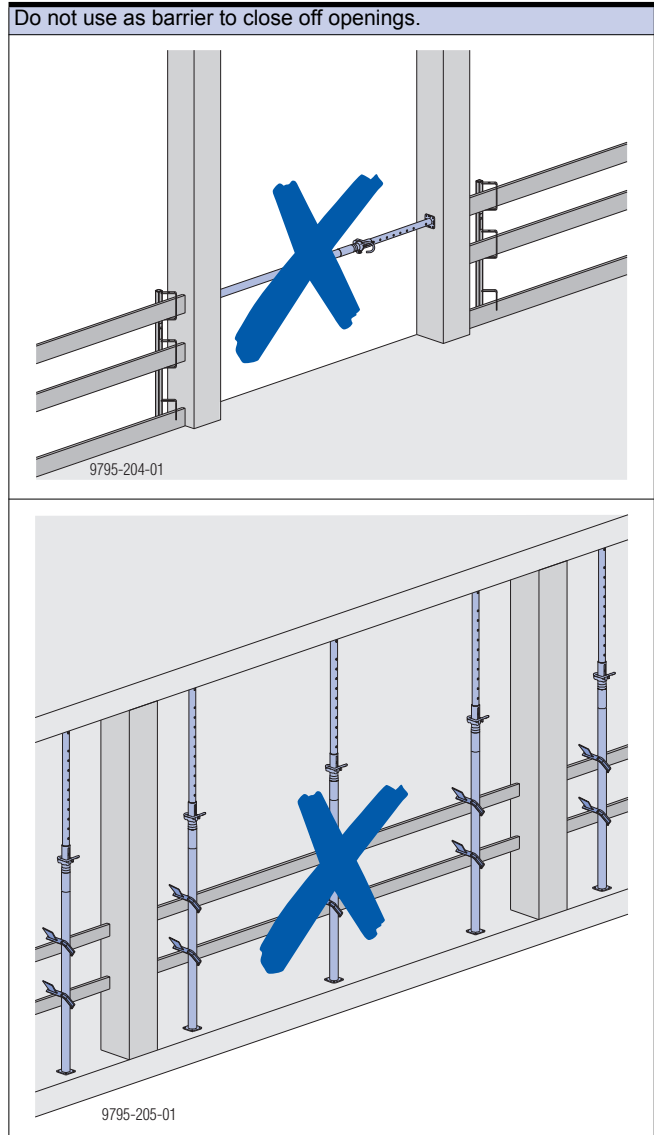
Possible incorrect usages



WARNING

► The uses illustrated below are prohibited, as are other, similar uses!

<p>Use only perfectly upright and plumb.</p>	<p>Baseplate must make full-surface contact with the ground.</p>
<p>9790-205-01</p>	<p>98107-201-03</p>
<p>Place only on ground of adequate load-bearing strength.</p>	
<p>98107-201-02</p>	<p>98107-201-01</p>
<p>Do not attempt to use floor props one on top of another.</p>	<p>Do not use anchor rods or lengths of rebar as substitutes for the fastening clamps.</p>
<p>9790-206-01</p>	<p>9790-200-01</p>
<p>Do not use to support formwork panels.</p>	<p>Do not use as trenching braces.</p>
<p>9790-203-01</p>	<p>9790-204-01</p>



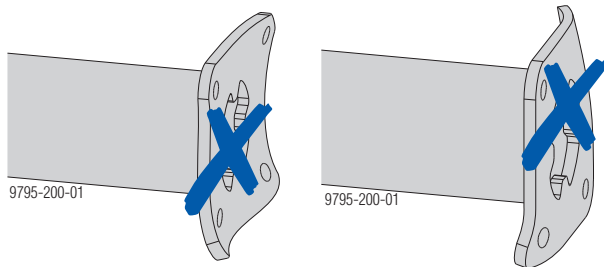
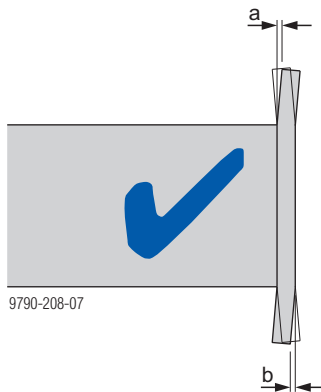
Technical condition

The following quality criteria define the extent of damage permissible in terms of load-bearing strength. Use is prohibited if damage is beyond these limits.

Outer tube - inner tube

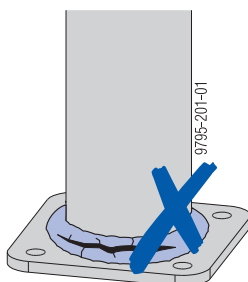
Head plate or baseplate bent out of shape

- **a max. 1 mm** outward and
- **b max. 3 mm** inward is permissible



Cracks in welds

- Not permissible.



Threads

- must be greased over entire length and action must be smooth.

Inner tube

- When the inner tube is rotated inside the outer tube so that the U-bolt fixing-holes of both tubes are lined up, it must be possible to fully extend and retract the inner tube.

Widening

- of the pegging holes in the inner tube is permissible up to 2 mm.

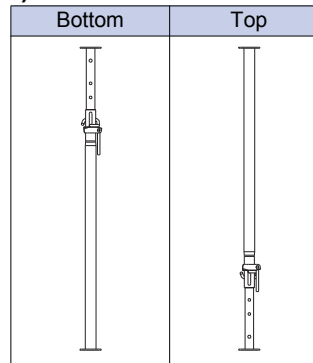
Permitted carrying capacity

Used as free (non-system-dependent) construction props

Permitted capacities [kN] as a function of the extension length and the position of the outer tube (as per DIBT General Building-Inspectorate Approval Z-8.311-942)

		Eurex 20 eco										Position outer tube*)
		250		300		350		400		450		
Prop length [m]		at bottom	at top	at bottom	at top	at bottom	at top	at bottom	at top	at bottom	at top	
		B25	B25	B30	B30	B35	B35	B40	B40	B25	C25	
		D25	D25	D30	D30	D35	D35	D40	D40	D25	D25	
											Prop category to DIN EN 1065	
4.5										22.9	25.8	
4.4										24.3	27.5	
4.3										25.7	29.3	
4.2										27.2	31.2	
4.1										28.9	33.3	
4.0							21.3	24.5	30.5	35.4		
3.9							22.8	26.4	32.4			
3.8							24.2	28.3	34.3			
3.7							25.8	30.4	36.3			
3.6							27.4	32.7				
3.5					20.6	24.1	29.0	35.1				
3.4					22.1	26.3	30.7					
3.3					23.7	28.4	32.3					
3.2					25.3	30.8	33.6					
3.1					27.0	33.6	34.5					
3.0			20.4	24.4	28.7	36.4	35.5		36.7			
2.9			22.0	26.9	29.5				36.7			
2.8			23.7	29.4	30.4				36.7			
2.7			25.0	31.8	31.3				36.7			
2.6			25.9	34.2	32.4				36.7			
2.5	20.0	24.2	26.9		33.5	36.7						
2.4	21.1	26.7	27.7		34.7							
2.3	22.2	29.1	28.6		35.9							
2.2	23.0	31.6	29.6	36.7								
2.1	23.7	34.0	31.0		36.7							
2.0	24.3	36.4	32.3									
1.9	25.4		33.9									
1.8	26.6		35.5									
1.7	28.0	36.7										
1.6	29.8											
1.5	31.5											

*) Position of outer tube



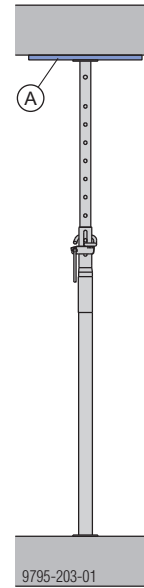
When used in Dokamatic and Dokaflex tables, or as temporary reshoring (with props restrained)



Using the props for temporary reshoring:
 The headplate and baseplate are placed directly against the slab (a formwork-sheeting packing strip **(A)** is permissible).

Permitted load-bearing capacity [kN]

Prop length [m]	Eurex 20 eco				
	250	300	350	400	450
4.5					30
4.4					32
4.3					34
4.2					36
4.1					36.7
4.0				30	
3.9				32	
3.8				34	
3.7				36	
3.6				36.7	
3.5			30		
3.4			32		
3.3			34		
3.2			36		
3.1			36.7	36.7	
3.0		30			
2.9		32			
2.8		34			
2.7		36	36.7	36.7	
2.6		36.7			
2.5	30				
2.4	32				
2.3	34	36.7	36.7		
2.2	36				
2.1	36.7	36.7	36.7	36.7	
2.0					
1.9					
1.8					
1.7					
1.6					
1.5					



Transporting, stacking and storing

Doka stacking pallet 1.55x0.85m

Storage and transport devices for long items:

- durable
- stackable

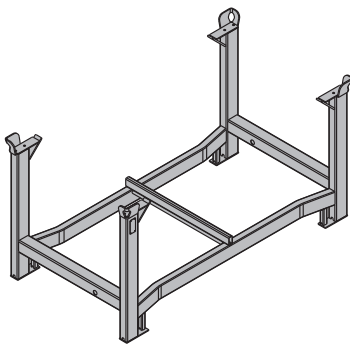
Suitable transport appliances:

- 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 caster set B" Operating Instructions!



Max. load: 1100 kg
Permitted imposed load: 5900 kg

Loading capacity of the stacking pallet

Doka floor props	
Eurex 20 eco 250, 300 and 350	40
Eurex 20 eco 400 and 450	30



- 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 units 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".

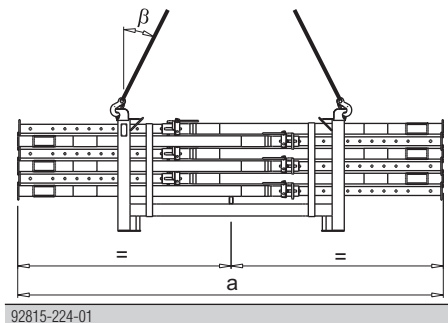
When Doka stacking pallets are stacked, the bottom pallet must NOT be one with a bolt-on caster set mounted to it.

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 (e.g. Doka 4-part chain 3.20m). Do not exceed the permitted load-bearing capacity.
- Load the items centrally.
- Fasten the load to the stacking pallet so that it cannot slide or tip out.
- When lifting stacking pallets to which Bolt-on caster sets B have been attached, you must also follow the directions in these Operating Instructions!
- Spread-angle β max. 30°!



a ... max. 4.0 m

Repositioning by forklift truck or pallet stacking truck

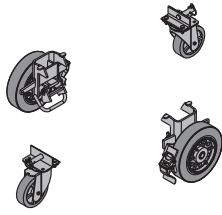


- Load the items centrally.
- Fasten the load to the stacking pallet so that it cannot slide or tip out.

Bolt-on castor set B

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

Suitable for drive-through access openings > 90 cm.

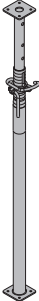


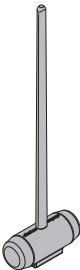
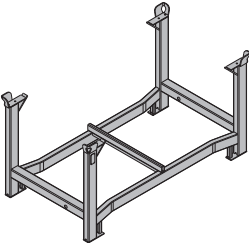
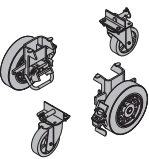


The Bolt-on castor set B can be mounted to the following multi-trip packaging items:

- Doka accessory box
- Doka stacking pallets



Follow the directions in the Operating Instructions!

	[kg]	Article n°	[kg]	Article n°
Doka floor prop Eurex 20 eco 250 Length: 148 - 250 cm	11.5	586270000		
Doka floor prop Eurex 20 eco 300 Length: 173 - 300 cm	14.0	586271000		
Doka floor prop Eurex 20 eco 350 Length: 198 - 350 cm	16.9	586272000		
Doka floor prop Eurex 20 eco 400 Length: 223 - 400 cm	20.5	586273000		
Doka floor prop Eurex 20 eco 450 Length: 248 - 450 cm Doka-Deckenstütze Eurex 20 eco Galvanised	24.1	586275000		
				
Removable folding tripod top Stützbein top Galvanised Height: 80 cm Delivery condition: folded closed	12.0	586155500		
				
Removable folding tripod Stützbein Galvanised Height: 80 cm Delivery condition: folded closed	15.6	586155000		
				
Plastic mallet 4kg Kunststoffhammer 4kg Blue Length: 110 cm	4.5	586097000		
				
Doka stacking pallet 1.55x0.85m Doka-Stapelpalette 1,55x0,85m Galvanised Height: 77 cm	42.0	586151000		
				
Bolt-on castor set B Anklemm-Radsatz B Painted blue	33.6	586168000		
				

Near to you, worldwide

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

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

technical support are provided swiftly and professionally.

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

