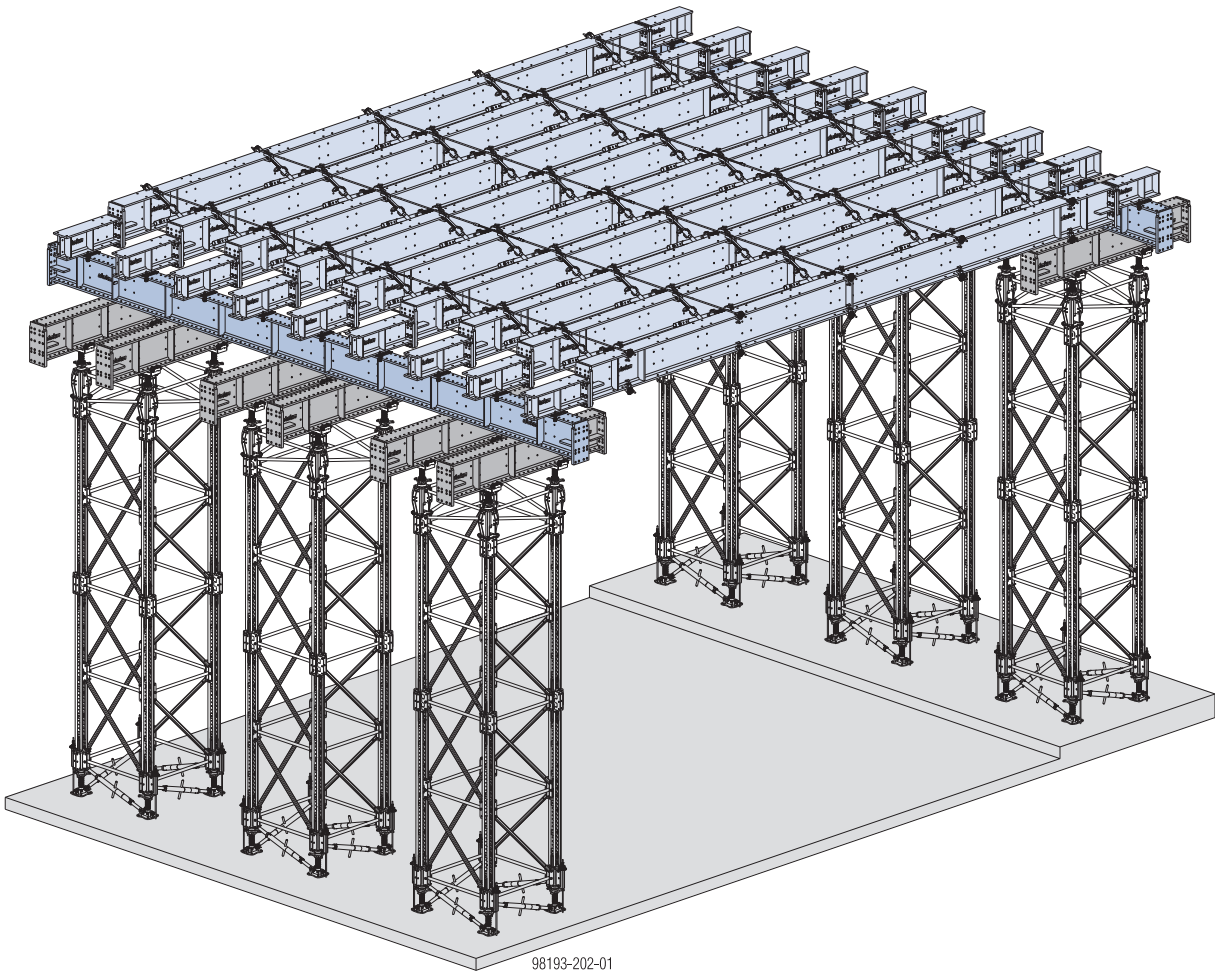
999819302 - 10/2024
en-GB

The Formwork Experts.

UniKit primary and secondary beams

User Information

Instructions for assembly and use (Method statement)



Contents

Introduction

Elementary safety warnings

User target groups

- This booklet is aimed at all persons who will be working with the Doka product or system that it describes. It contains information on the standard design for setting up this system, and on correct, compliant utilisation of the system.
- All persons working with the product described herein must be familiar with the contents of this booklet and with all the safety instructions it contains.
- Persons who are incapable of reading and understanding this booklet, or who can do so only with difficulty, must be instructed and trained by the customer.
- The customer is to ensure that the information materials provided by Doka (e.g. User Information booklets, Instructions for Assembly and Use, Operating Instruction manuals, plans etc.) are up to date and available to all users, and that they have been made aware of them and have easy access to them at the usage location.
- In the relevant technical documentation and 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 regulations throughout the entire project and to take appropriate additional or alternative workplace safety precautions where necessary.

Hazard assessment

- The customer is responsible for drawing up, documenting, implementing and continually updating a hazard assessment at every job-site.
  This booklet serves as the basis for the site-specific hazard assessment, and for the instructions given to users on how to prepare and utilise the system. It does not substitute for these, however.

Remarks on this booklet

- This document can be used as general Instructions for Assembly and Use (Method Statement) or be incorporated into site-specific Instructions for Assembly and Use (Method Statement).
- **The graphics, animations and videos in this document or app sometimes depict partially assembled assemblies and may require additional safety equipment and/or measures to comply with safety regulations.**
  The customer must ensure all applicable regulations are complied with, even if they are not shown or implied in the graphics, animations and videos provided.
- **Individual sections contain further safety instructions and/or special warnings as applicable.**

Planning

- Provide safe workplaces for those using the 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 sideguard component and/or any of its accessories, the component affected may only continue in use after it has been inspected and passed by an expert.

Rules applying during all phases of the assignment

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

Assembly

- The equipment/system must be inspected by the customer before use, to ensure that it is in an acceptable condition. Steps must be taken to exclude components that are damaged, deformed, or weakened due to wear, corrosion or rot (e.g. fungal decay).
- Using our safety and formwork systems together with those of other manufacturers can create risks that may lead to injury and damage to property. This requires separate verification by the user.
- The equipment/system must be assembled and erected in accordance with the applicable laws, standards and rules by trained customer personnel whilst maintaining any applicable safety inspections that may be required.
- It is not permitted to modify Doka products; such modifications constitute a safety risk.

Closing the formwork

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

Pouring

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

Stripping the formwork

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

Transporting, stacking and storing

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

Maintenance

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

Miscellaneous

The weights as stated are averages for new material; actual weights can differ, depending on material tolerances. Dirt accretions, moisture saturation, etc. can also affect weight.
We reserve the right to make alterations in the interests of technical progress.

Eurocodes at Doka

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

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

Allowance has been made for the following partial factors:

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

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

Symbols used

The following symbols are used in this document:

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

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

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

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

Instruction
Indicates that actions have to be performed by the user.

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

Tip
Points out useful practical tips.

Reference
Cross-references other documents.

Services

Support in every stage of the project

- Project success assured by products and services from a single source.
- Competent support from planning through to assembly directly on site.

Project assistance from start to finish

Every single project is unique and calls for individualised solutions. When it comes to the forming operations, the Doka team can help you with its consulting, planning and ancillary services in the field, enabling you to carry out your project effectively, safely and reliably. Doka assists you with individual consulting services and customised training courses.

Efficient planning for a safe project sequence

Efficient formwork solutions can only be developed economically if there is an understanding of project requirements and construction processes. This understanding is the basis of Doka engineering services.

Optimise construction workflows with Doka

Doka offers special tools that help you in designing transparent processes. This is the way to speed up pouring processes, optimise inventories and create more efficient formwork planning processes.

Custom formwork and on-site assembly

To complement its system formwork range, Doka offers customised formwork units. And specially trained personnel assemble load-bearing towers and formwork on site.

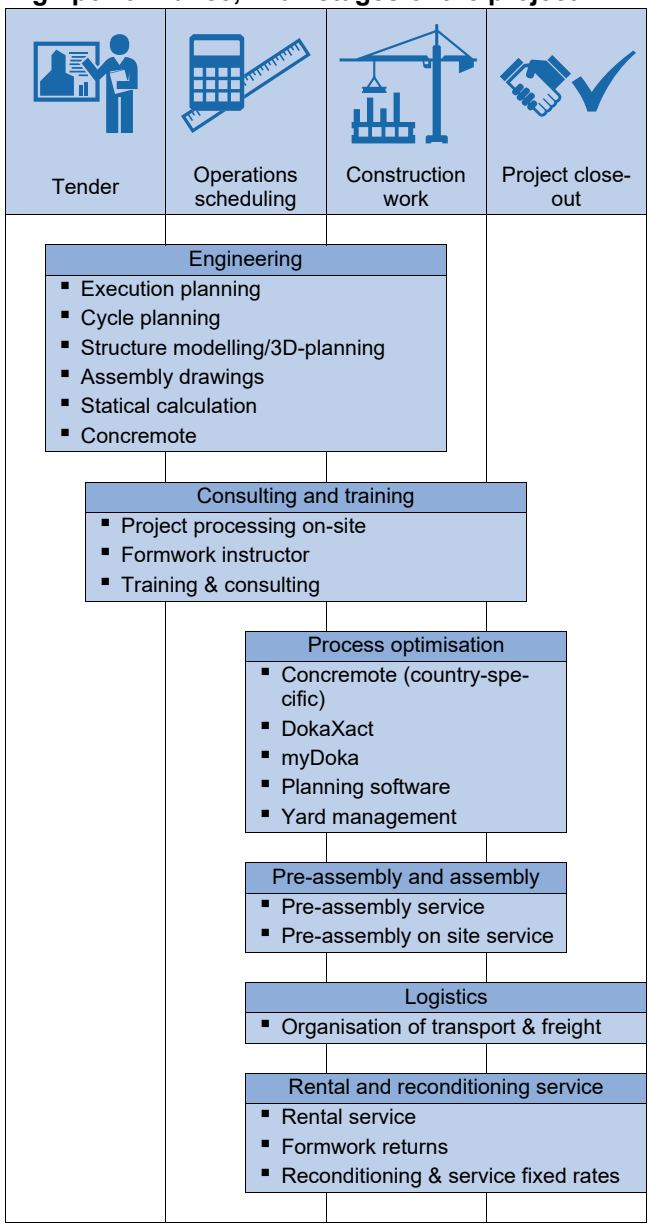
Just-in-time availability

Formwork availability is a crucial factor in realising your project on time and on budget. The worldwide logistics network puts the necessary formwork quantities on site at the agreed time.

Rental and reconditioning service

The formwork material needed for any particular project can be rented from Doka's high-performing rental park. Doka Reconditioning cleans and overhauls both client-owned equipment and Doka rental equipment.

High performance, in all stages of the project



Digital Services
for higher productivity in construction

From planning to completion of construction - with our digital services we want to set the pace for boosting productivity in construction. Our digital portfolio includes solutions for planning, procuring and managing to performing on site. Learn more about our digital offer at doka.com/digital.

System description

The modular UniKit primary and secondary beams form the basis for your shoring solution and free up space on your jobsite. Whenever high load-bearing capacity and safe transfer of loads are important on the jobsite, the connectable beams are real all-rounders in terms of both height and achievable span.

A huge choice of extensions permits optimum adaptation to any structure and makes the system universally usable. An end-to-end hole grid in flange and web offers versatile connection options and thus easy and uncomplicated adaptation of the formwork to any structure geometry.

Doka UniKit is the universal modular system for heavy loads in infrastructure and highrise engineering. For bridge-building, tunnelling, power-plant or highrise construction - on the basis of modular standard components we develop economical shoring structures as turnkey solutions for virtually any and every application case. The beams make structural engineering as flexible, individual and diverse as playing with kits of coloured building blocks.

Economical and sustainable

With modular standard parts and made-to-measure special solutions you are always ready for the job.

Efficient project progress

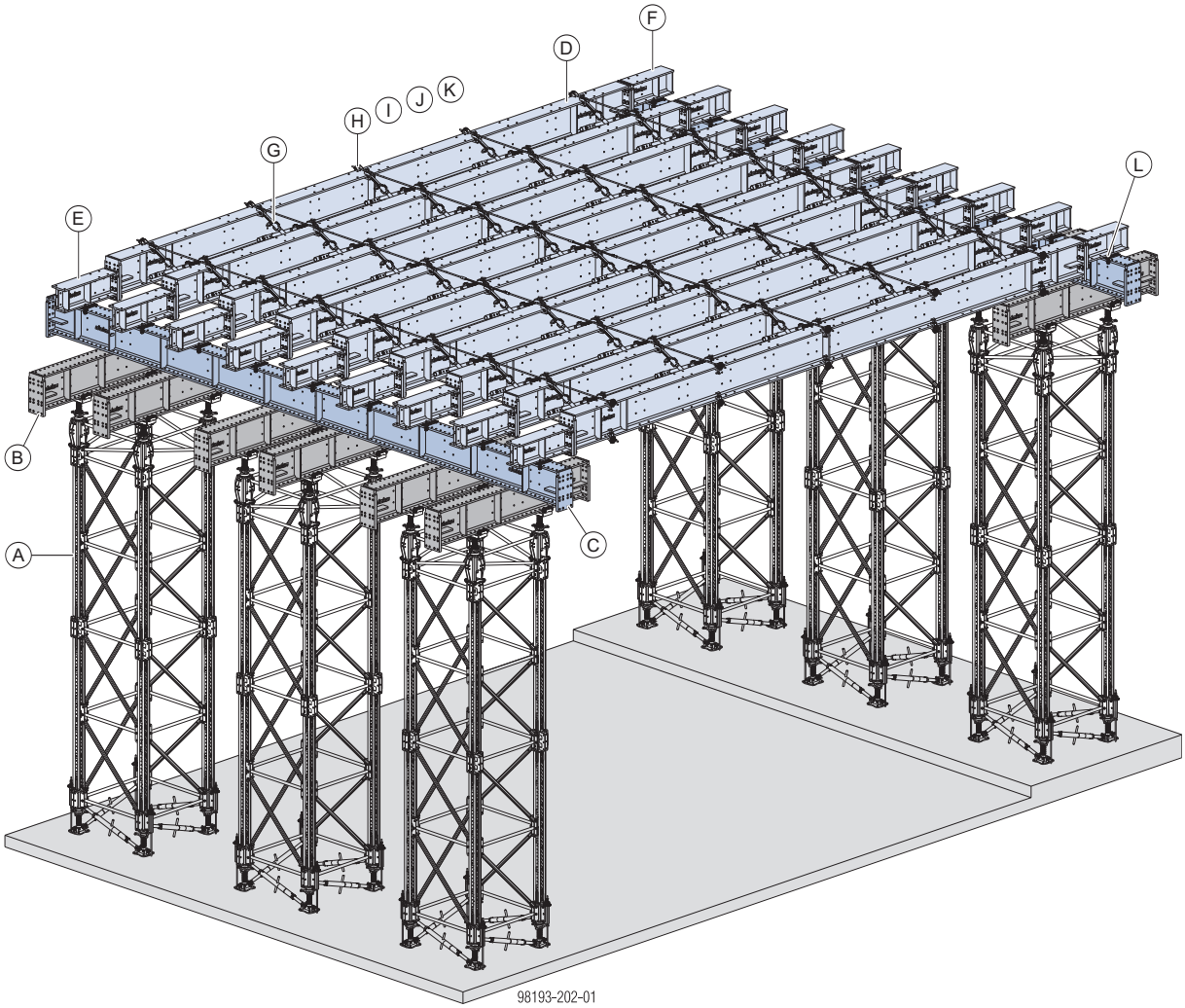
Benefit from fewer interfaces – shoring system, formwork and Doka Services all from a single source.

Fast and safe handling

The modular system concept enables fast, safe assembly and disassembly.

System overview

Girder grille with drive-through access opening



A	UniKit shoring tower 480
B	UniKit primary beam HEB600 3.50m
C	UniKit primary beam HEB600 11.90m
D	UniKit secondary beam HEB600 11.90m
E	UniKit extension HEB400 1.25m
F	UniKit extension HEB400 1.00m
G	UniKit beam bracing HEB
H	UniKit tie rod clamp HEB
I	Tie rods 15.0
J	Rod connector 15.0
K	Super plate 15.0
L	UniKit centring bar, 2x UniKit centring bar holder and 2x Beam clamp SL-1

Follow the directions in the 'UniKit shoring tower 480 and UniKit truss 1250' User Information booklets!

Note:

This document describes only the installation of the UniKit primary and secondary beams.

UniKit primary and secondary beams in detail

UniKit beams are HEB profiles for coupling by screw-sets. The beams are available in four heights.

UniKit extensions HEB enable individual length adaptation.

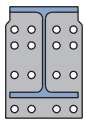
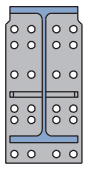
Parameters

	HEB400	HEB600	HEB800	HEB1000
Moment of inertia I_y [cm⁴]	57680	171000	359080	644750
Perm. moment M_y [kNm]	751	1523	2488	3641
Perm. shear force V_Z [kN]	1034	1674	2603	3420

UniKit primary beam

Features:

- End-to-end hole grid
- Stiffening plates set close together
- Painted yellow

HEB400	HEB600
	
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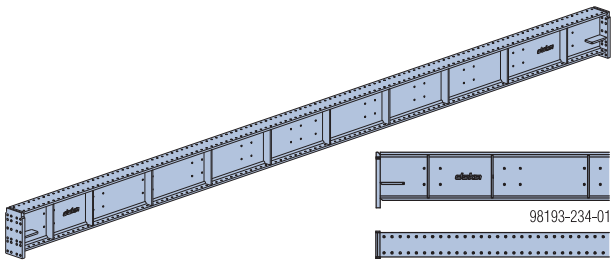
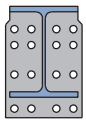
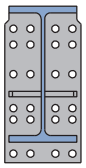
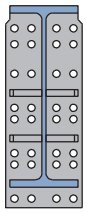
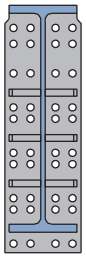
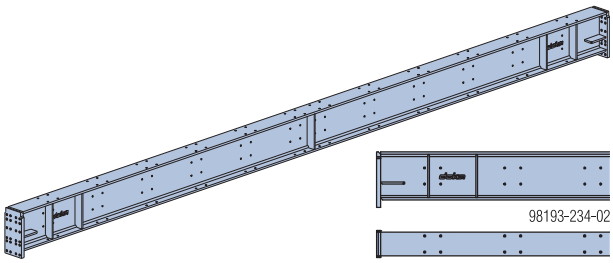
	

UniKit secondary beam

Features:

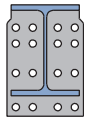
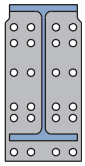
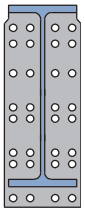
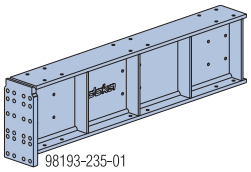
- Reduced hole grid
- Stiffening plates set wide apart
- Painted blue

HEB400	HEB600	HEB800	HEB1000
			
Lengths ▪ 5.90m ▪ 6.90m ▪ 8.90m	**Lengths** ▪ 11.90m ▪ 13.50m	**Lengths** ▪ 15.90m ▪ 17.90m	**Lengths** ▪ 19.90m
			

UniKit extension

Features:

- UniKit secondary beam HEB version
- Painted blue

HEB400	HEB600	HEB800
		
Lengths ▪ 0.125m ▪ 0.25m ▪ 0.50m ▪ 0.75m ▪ 1.00m ▪ 1.25m ▪ 1.50m ▪ 1.625m	**Lengths** ▪ 1.50m ▪ 2.00m ▪ 2.50m	**Lengths** ▪ 2.00m ▪ 2.50m
		

UniKit primary beams, secondary beams and extensions have type plates.
Data on type plate:

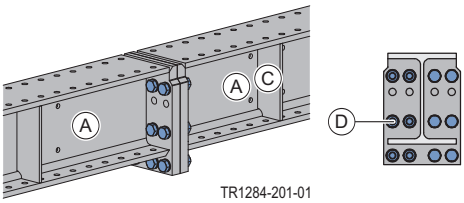
- Article number
- Designation
- Dead weight
- Length

Beam-joint connections

Follow the directions in the Calculation Guide entitled 'UniKit primary and secondary beams', and/or ask your Doka technician!

Beam HEB400 to Beam HEB400

12 bolts M30x145 10.9



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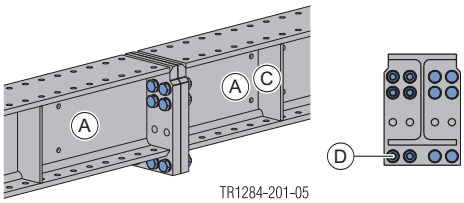

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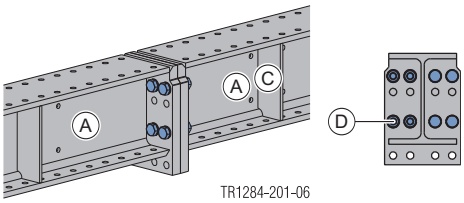
8 bolts M30x145 10.9



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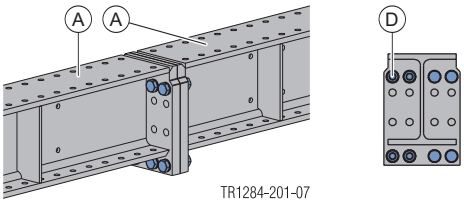
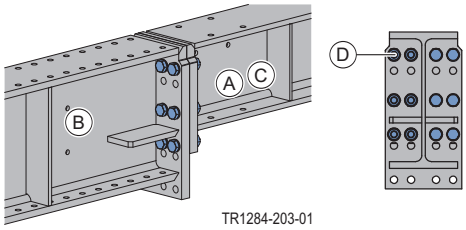


TR1284-201-07

A	UniKit primary beam HEB400 or UniKit secondary beam HEB400
C	UniKit extension HEB400
D	Screw-set UniKit HEB M30x145 10.9

Beam HEB600 to Beam HEB400

12 bolts M30x145 10.9



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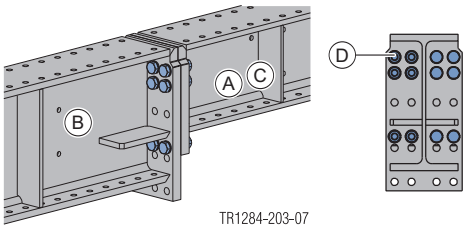

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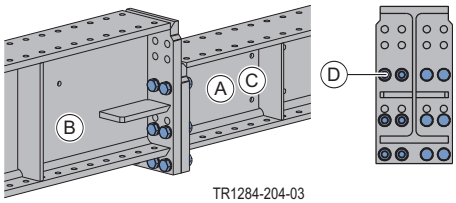

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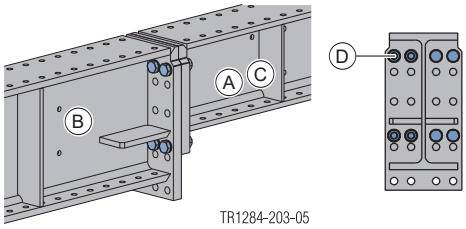
8 bolts M30x145 10.9



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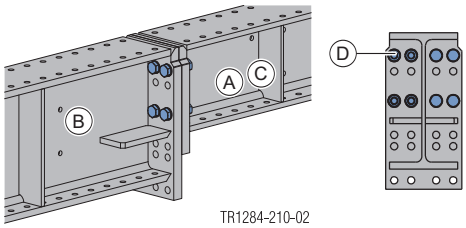

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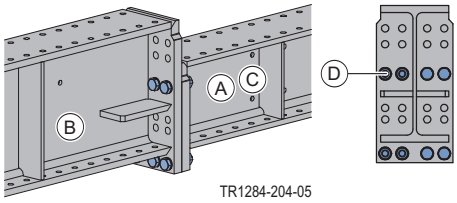
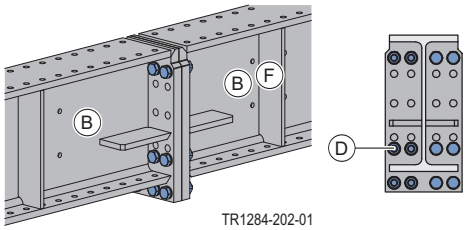


TR1284-204-05

A	UniKit primary beam HEB400 or UniKit secondary beam HEB400
B	UniKit primary beam HEB600 or UniKit secondary beam HEB600
C	UniKit extension HEB400
D	Screw-set UniKit HEB M30x145 10.9

Beam HEB600 to Beam HEB600

12 bolts M30x145 10.9



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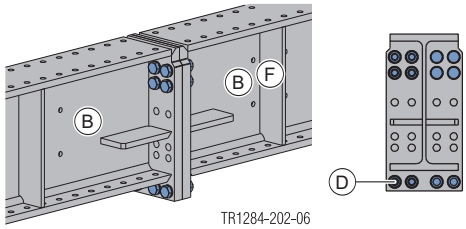

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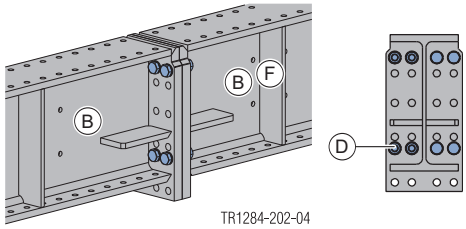
8 bolts M30x145 10.9



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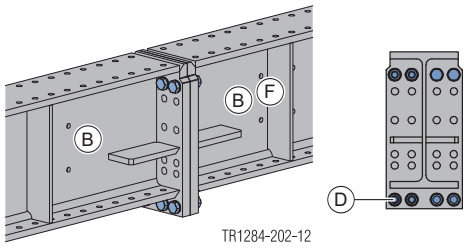

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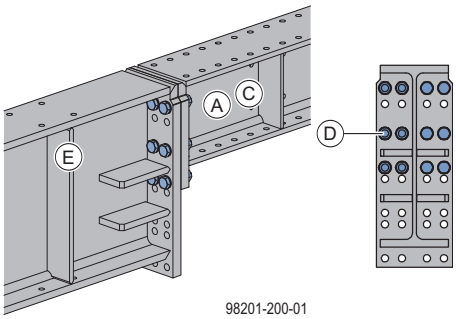
B	UniKit primary beam HEB600 or UniKit secondary beam HEB600
D	Screw-set UniKit HEB M30x145 10.9
F	UniKit extension HEB600

Beam HEB800 to Beam HEB400

12 bolts M30x145 10.9



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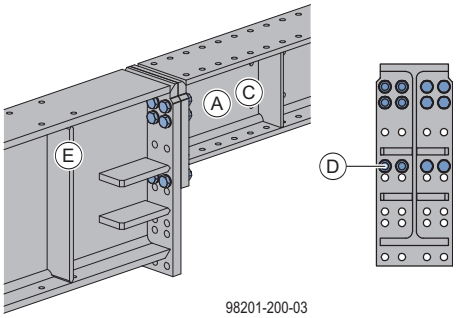

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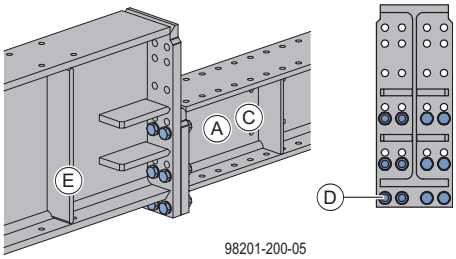
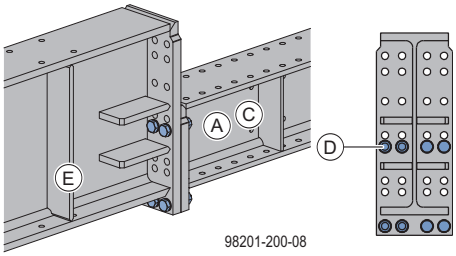


98201-200-05

8 bolts M30x145 10.9



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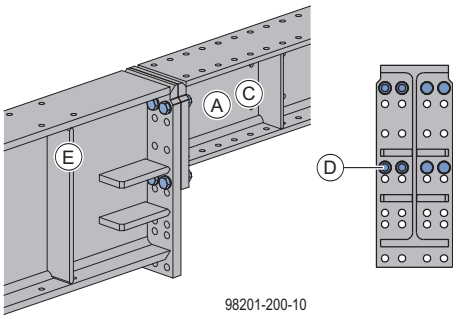

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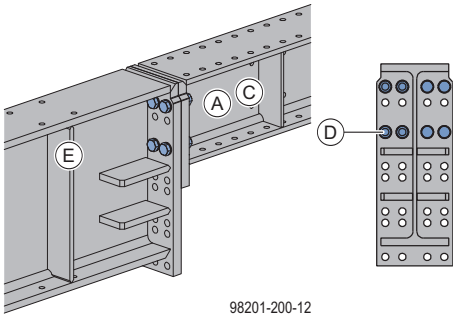
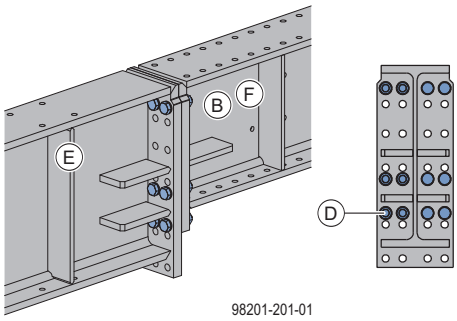


98201-200-12

A	UniKit primary beam HEB400 or UniKit secondary beam HEB400
C	UniKit extension HEB400
D	Screw-set UniKit HEB M30x145 10.9
E	UniKit secondary beam HEB800

Beam HEB800 to Beam HEB600

12 bolts M30x145 10.9



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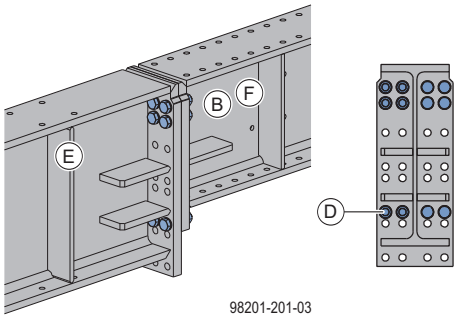

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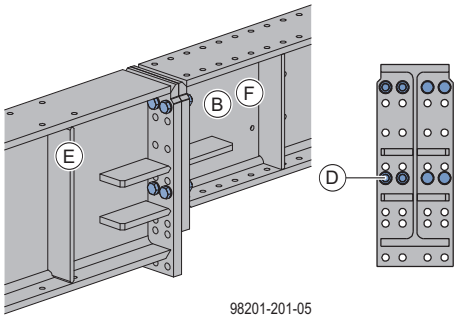
8 bolts M30x145 10.9



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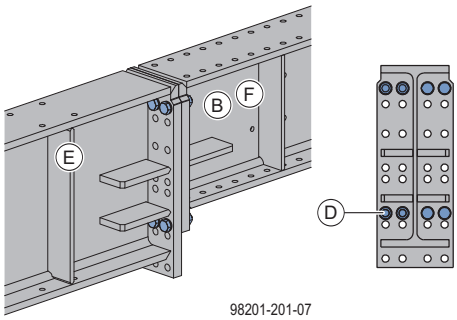
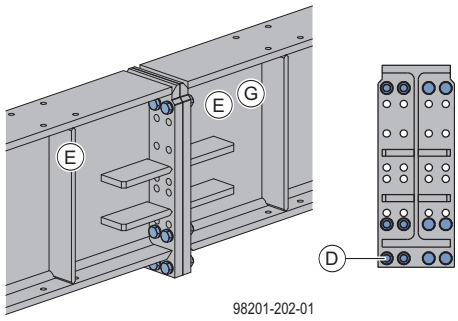


98201-201-07

B UniKit primary beam HEB600 or UniKit secondary beam HEB600
D Screw-set UniKit HEB M30x145 10.9
E UniKit secondary beam HEB800
F UniKit extension HEB600

Beam HEB800 to Beam HEB800

12 bolts M30x145 10.9



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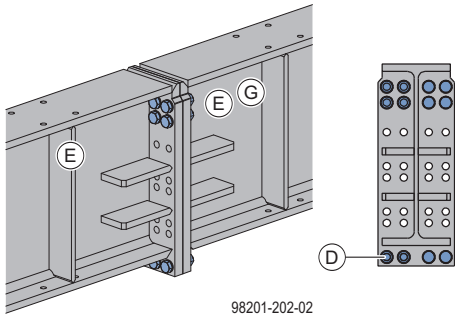
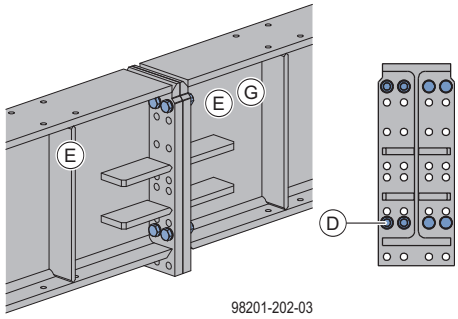


98201-202-02

8 bolts M30x145 10.9



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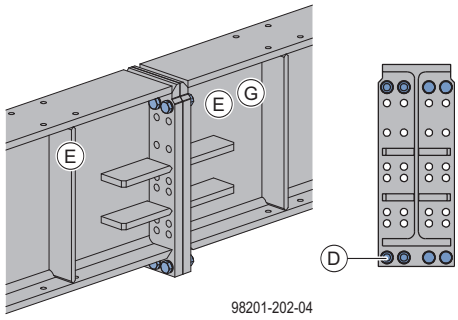
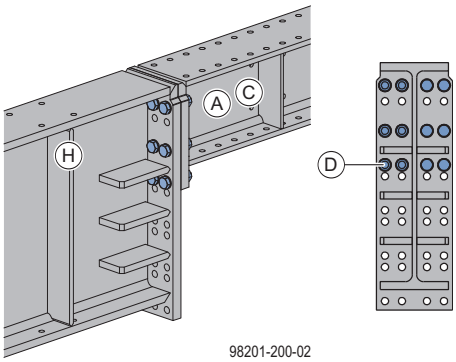


98201-202-04

D Screw-set UniKit HEB M30x145 10.9
E UniKit secondary beam HEB800
G UniKit extension HEB800

Beam HEB1000 to Beam HEB400

12 bolts M30x145 10.9



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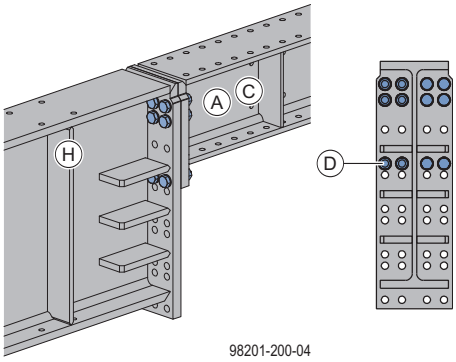

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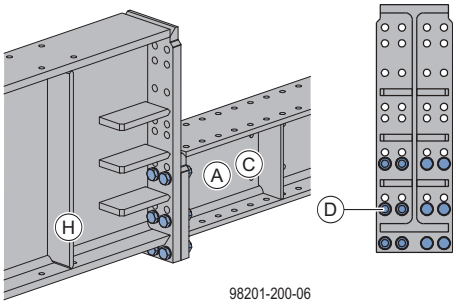

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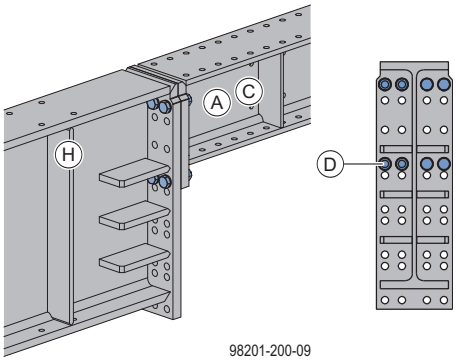
8 bolts M30x145 10.9



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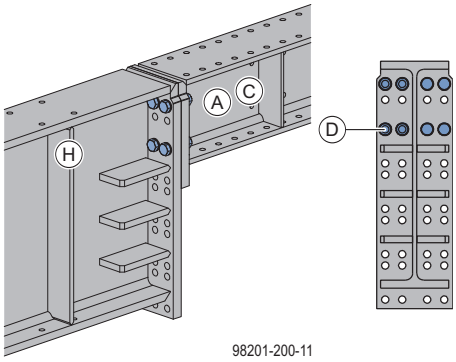

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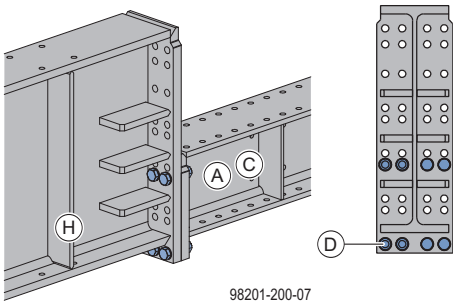
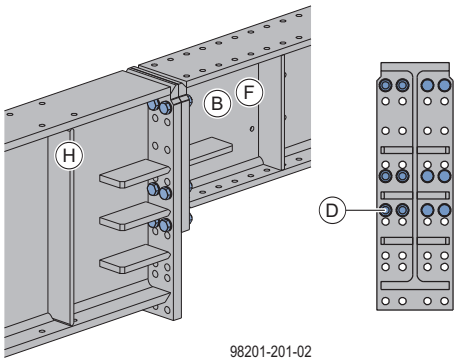


98201-200-07

A	UniKit primary beam HEB400 or UniKit secondary beam HEB400
C	UniKit extension HEB400
D	Screw-set UniKit HEB M30x145 10.9
H	UniKit secondary beam HEB1000

Beam HEB1000 to Beam HEB600

12 bolts M30x145 10.9



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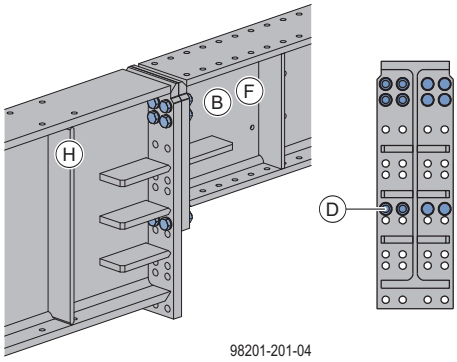

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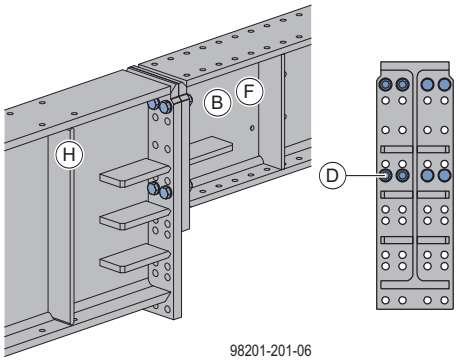
8 bolts M30x145 10.9



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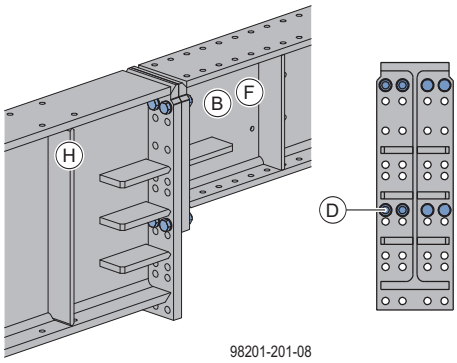
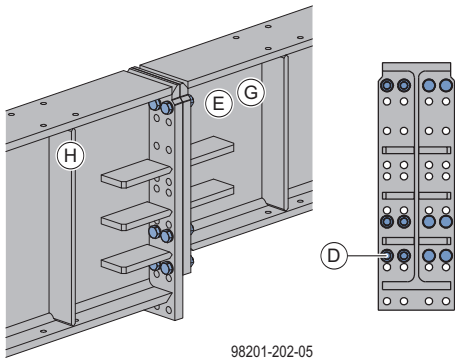


98201-201-08

B UniKit primary beam HEB600 or UniKit secondary beam HEB600
D Screw-set UniKit HEB M30x145 10.9
F UniKit extension HEB600
H UniKit secondary beam HEB1000

Beam HEB1000 to Beam HEB800

12 bolts M30x145 10.9



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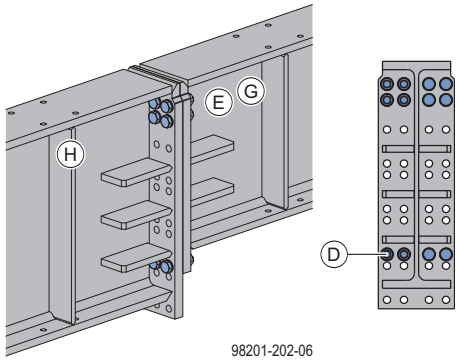

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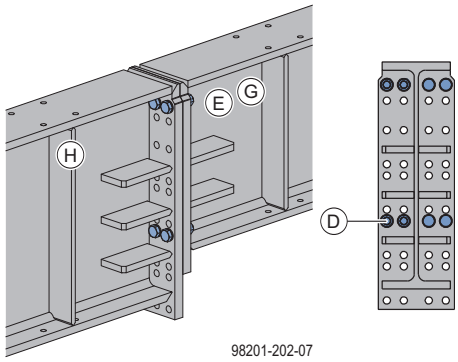
8 bolts M30x145 10.9



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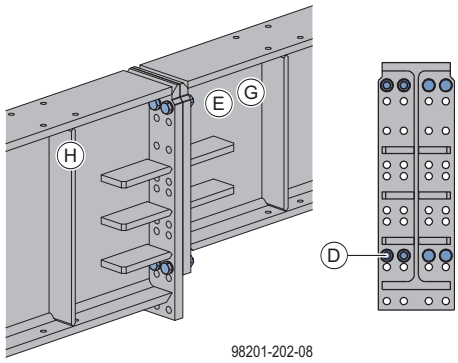
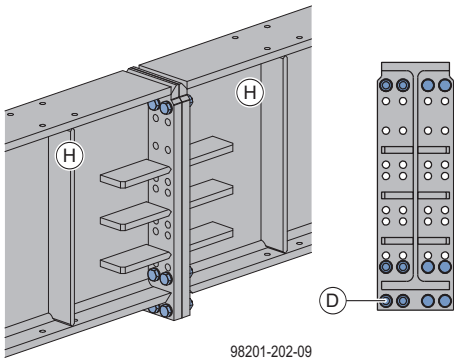


98201-202-08

D Screw-set UniKit HEB M30x145 10.9
E UniKit secondary beam HEB800
G UniKit extension HEB800
H UniKit secondary beam HEB1000

Beam HEB1000 to Beam HEB1000

12 bolts M30x145 10.9



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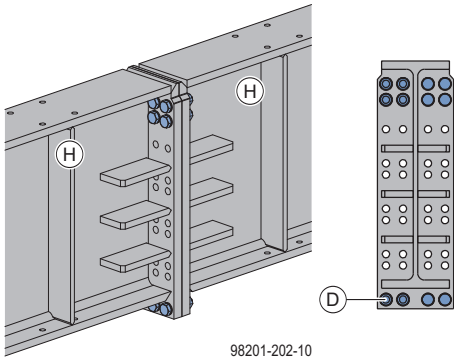

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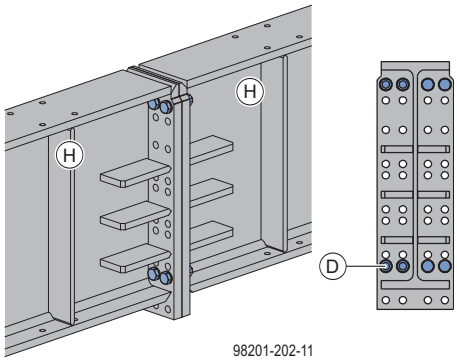
8 bolts M30x145 10.9



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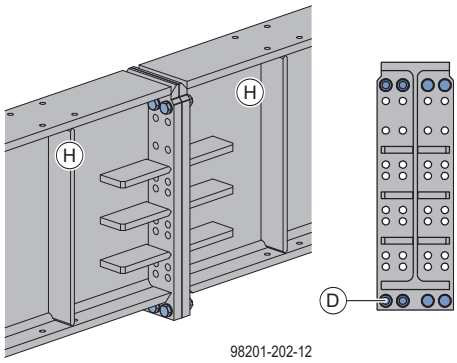
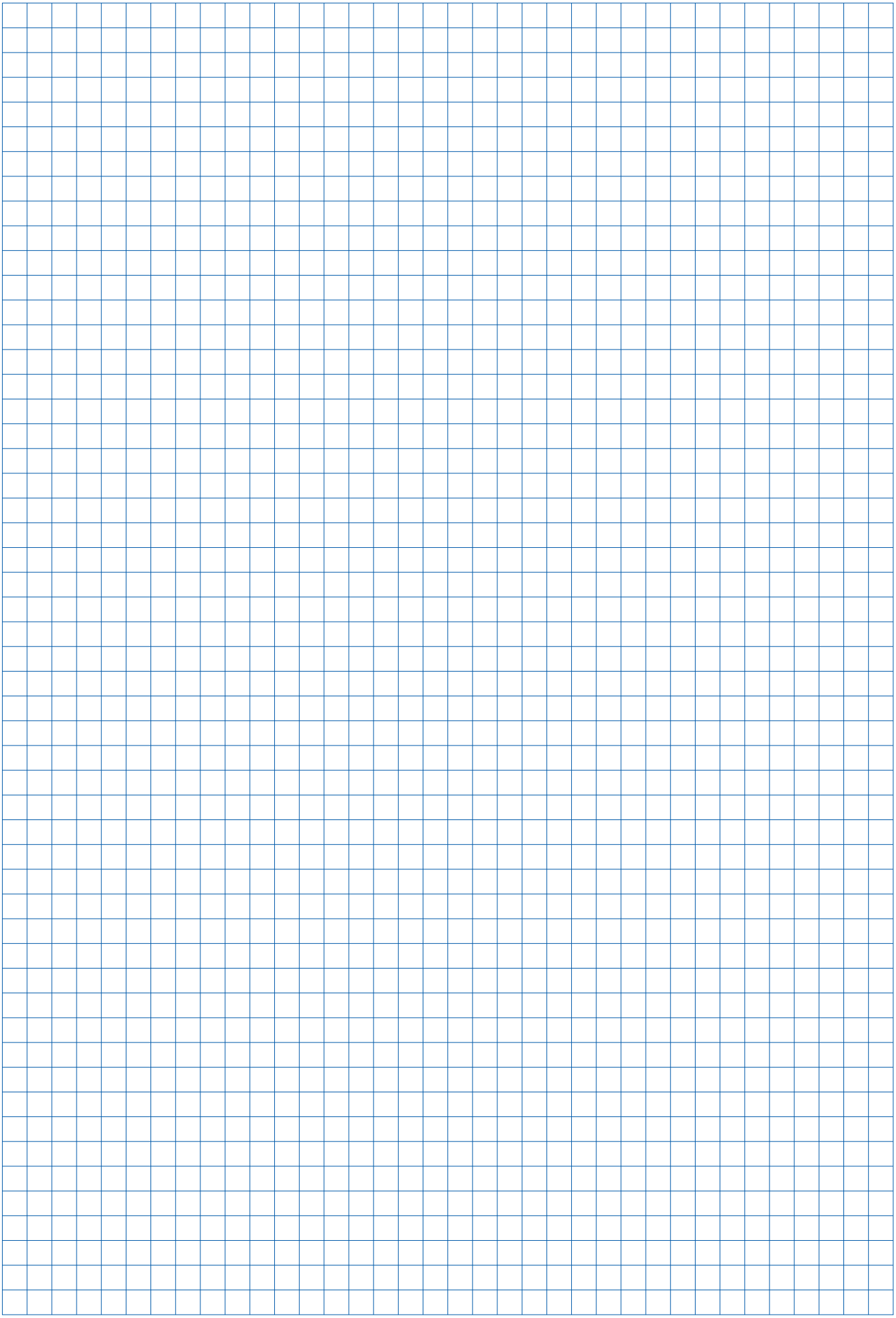


98201-202-12

D Screw-set UniKit HEB M30x145 10.9
H UniKit secondary beam HEB1000



Assembly

General instructions for site-erection

Depending on the project, the actual construction and the procedure might not be as set out in the description in this document.

- Always proceed in accordance with the shop drawing or assembly drawing, or consult your Doka technician.

NOTICE

- There must be a flat, firm base capable of supporting the load.
- Prepare a sufficiently large assembly area.

The Angular arbor SL-1 makes it easier to align the drilled holes during assembly.

Unloading / intermediate storage area

The size of the unloading and intermediate storage area must be specified in advance (length x width). This prevents the assembly work being delayed by long transport distances or by lack of storage space!

Crane capacity and position

- When stationary cranes (e.g tower cranes) are used, the site must ensure that the storage locations (unloading and intermediate storage area) and assembly zones lie within the cranes' range of action.
- It must still be possible to lift the loads even when longer crane outreach is required!
- The lifting accessories may be used only by experienced, trained persons ('crane slingers').
- The weights of the components to be lifted are given in the 'Article list' section of this User Information booklet. In cases where custom components have been planned, the weights are stated on the assembly drawing.

Fall-protection measures

The site must provide the following equipment for carrying out the assembly and dismantling work:

- suitable working platform
- personal fall-arrest system

The sections headed 'Assembly' and 'Dismantling' contain instructions on which activities these items of safety equipment are compulsory for.

NOTICE

The basic rule is that whenever there is any temporary falling-hazard in the course of assembly operations, a personal fall-arrest system (PFAS) must be used.

Secure personal fall-arrest system equipment only to suitable structural components of adequate load-bearing strength.

Make sure that the attachment points have the required minimum height!

WARNING

Danger from falling objects!

➤ During all operations, ensure that no other persons are allowed anywhere near the area where assembly is being carried out!

➤ Mark or cordon off the area concerned!

Bolted joints

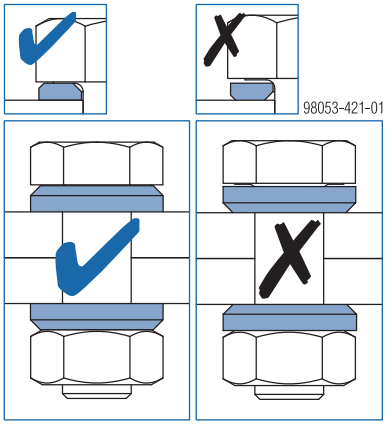
WARNING

Risk of fracture if unsuitable bolts are used.

- ➤ It is **essential** to use the specified number of bolts and position them exactly as specified.
- ➤ Use only the specified screw-sets, without exception.
- ➤ **Lubricating** the bolts, for example with WD40 spray or similar, is **not permitted**!
- ➤ Use new screw-sets **every time** the equipment is re-assembled.
- ➤ The bolted joints must comply with EN 1090-2.
- ➤ In the case of screw-sets with 2 washers per bolt:
  Fit one washer next to the nut, and the other washer next to the bolt-head.

NOTICE

Install the washers right way round: chamfer toward bolt head and hexagon nut



NOTICE

Pre-loading of the high-strength bolts must be verified and documented.

Follow the directions in the Calculation Guide entitled ‘Bolted joints used on Doka systems: pre-loading and bolt retention', and/or ask your Doka technician!

In principle, pre-loading bolted joints is a three-stage procedure:

1. Tighten all bolt sets until hand-tight.
2. First torquing step: Tighten until the mating faces make full-surface contact.
3. Second torquing step: Tighten to the final pre-load force in the threaded fasteners.

Modified torque pre-load method in accordance with Guideline 024 issued by the German Committee for Structural Steelwork (Deutscher Ausschuss für Stahlbau, DASt) with two torquing steps.

- Required pre-loading force $F_{p,C}$* : 350 kN
- Required tightening torque M_A:
  1650 Nm (165 kgm)
- (any pre-tightening torque
  max M_{pre}: ≤1240 Nm)

Tools needed:

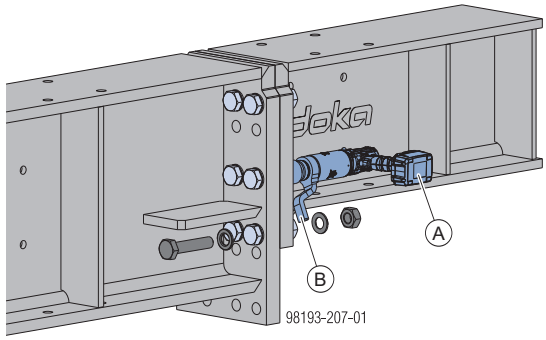
- Battery nut runner SK 300-2300Nm

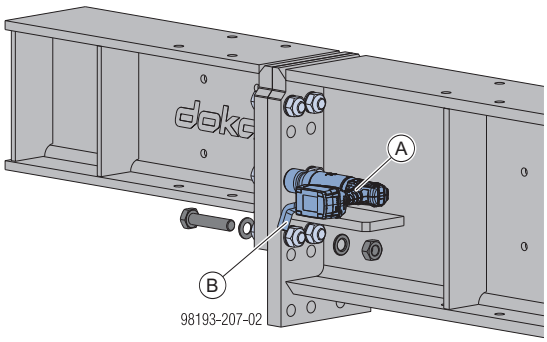
Follow the directions in the 'Battery nut runner SK 300-2300Nm' Operating Instructions!

Note:

Always insert the hexagon bolts from the left.

This permits secure support with the battery nut runner.

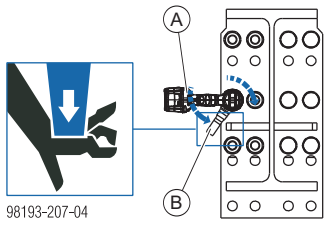




WARNING

Danger of crushing!

- ➤ Do not put your hands between support and supporting surface.



A Battery nut runner SK 300-2300Nm

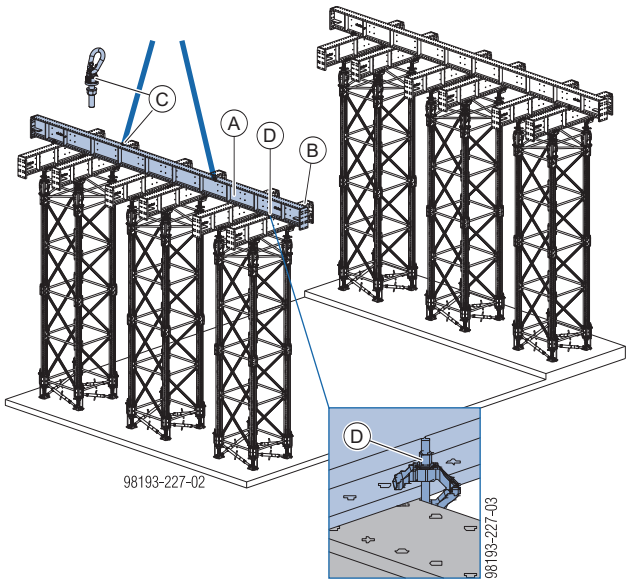
B Support

Installing UniKit primary beams

NOTICE

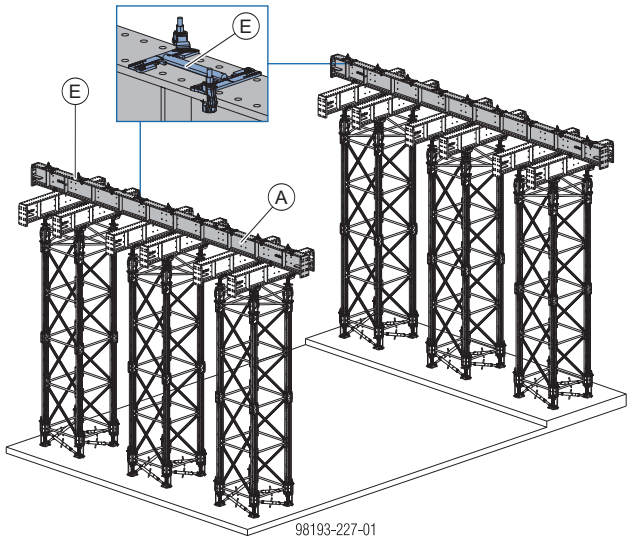
All work is done from working scaffolds, mobile scaffold towers or project-specific working platforms, as applicable.

- ➤ Set down the UniKit primary beams on hardwood blocking in accordance with the assembly drawing.
- ➤ Bolt the beams to each other in accordance with the assembly drawing (see the section headed Beam-joint connections).
- ➤ Attach tag-lines to the beams. This makes them easier to position at a later stage.
- ➤ Attach the crane lifting tackle to the UniKit primary beam (see the section headed Transporting, stacking and storing).
- ➤ Crane-lift each of the pre-assembled primary beams to the substructure. Use the tag-lines for positioning on the substructure.
- ➤ Use Beam clamps SL-1 to secure the primary beams against tip-over.



A UniKit primary beam HEB600 11.90m
B UniKit primary beam HEB600 3.50m
C Crane lifting point M24
D Beam clamp SL-1

- ➤ Detach the crane lifting tackle.
- ➤ Lay UniKit centring bars on the UniKit primary beams and secure them against falling off and slipping out of position (see the section headed UniKit centring bars).



A UniKit primary beam HEB600 11.90m
E UniKit centring bar

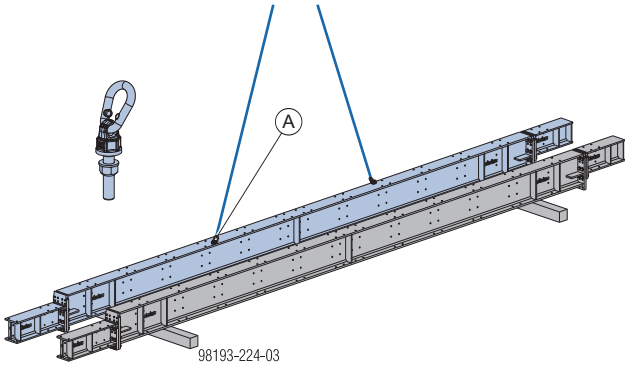
Installing UniKit secondary beams

Installation of individual beams

NOTICE

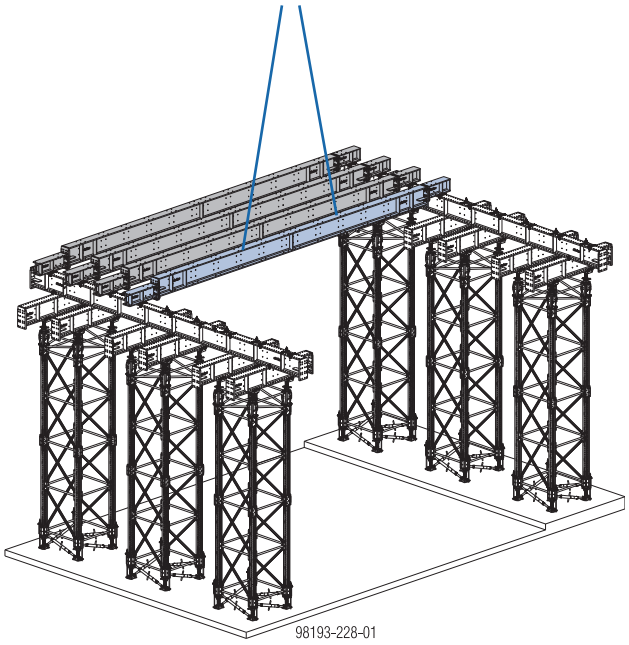
All work is done from working scaffolds, mobile scaffold towers or project-specific working platforms, as applicable.

- Set down the UniKit secondary beams on hardwood blocking in accordance with the assembly drawing.
- Bolt the beams to each other in accordance with the assembly drawing (see the section headed Beam-joint connections).
- Attach tag-lines to the beams. This makes them easier to position at a later stage.
- Attach the crane lifting tackle to the UniKit secondary beam (see the section headed Transporting, stacking and storing).



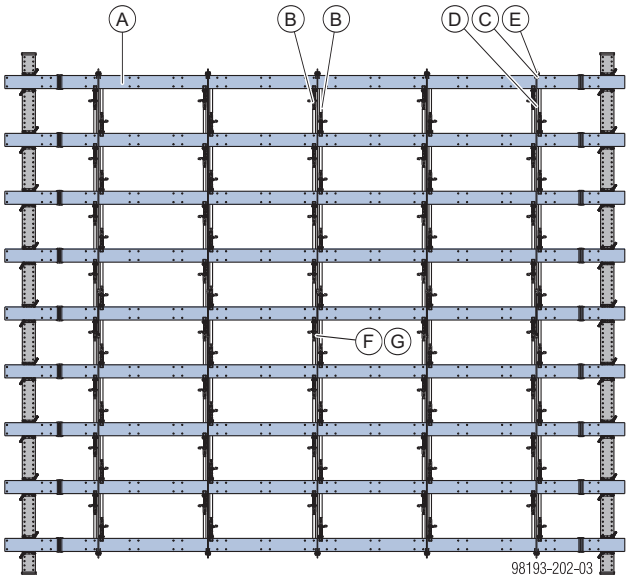
A Crane lifting point M24

- Crane-lift the pre-assembled UniKit secondary beam and lower the beam carefully on to the UniKit centring bars.



- In accordance with the statical requirements, install the UniKit beam bracings HEB and UniKit tie rod clamps HEB with tie rods at the defined positions on the UniKit secondary beams (see the section headed Installation of stiffening cross-brace).

Practical example:

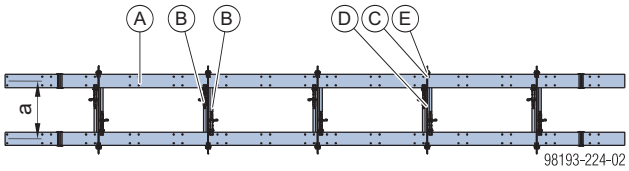


A	UniKit secondary beam HEB600
B	UniKit beam bracing HEB
C	UniKit tie rod clamp HEB
D	Tie rod 15.0
E	Super plate 15.0
F	Rod connector 15.0
G	Connection lock 15.0

Installation of beam pairs

➤ Set down the UniKit secondary beams on hardwood blocking in accordance with the assembly drawing.
➤ Bolt the beams to each other in accordance with the assembly drawing (see the section headed Beam-joint connections).
➤ In accordance with the statical requirements, install the UniKit beam bracings HEB and UniKit tie rod clamps HEB with tie rods at the defined positions on the UniKit secondary beams (see the section headed Installation of stiffening cross-brace).

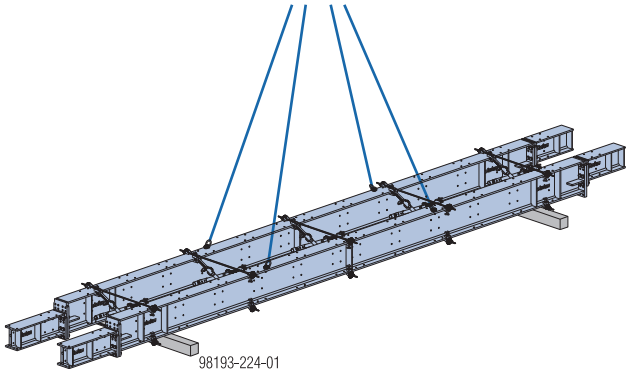
Practical example:



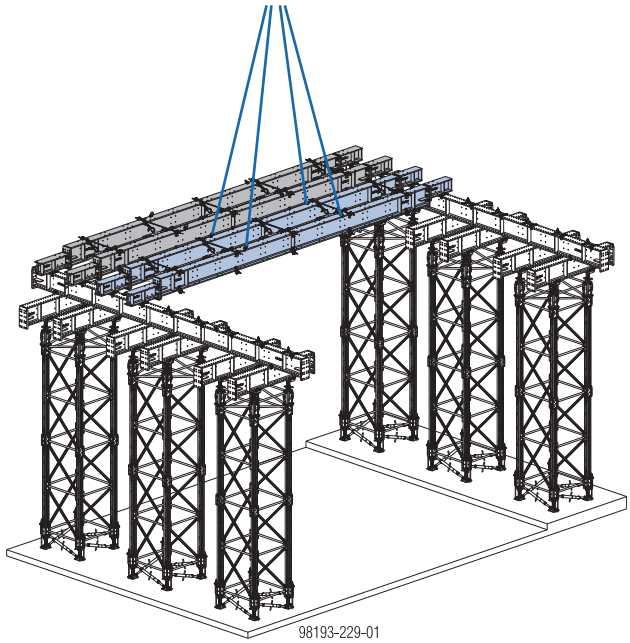
a ... 1320mm

A	UniKit secondary beam HEB600
B	UniKit beam bracing HEB
C	UniKit tie rod clamp HEB
D	Tie rod 15.0
E	Super plate 15.0

➤ Attach tag-lines to the beams. This makes them easier to position at a later stage.
➤ Attach the crane lifting tackle to the lifting points provided.



➤ Carefully lower the pre-assembled UniKit secondary beam pair on to the UniKit centring bars.



Installation of stiffening cross-brace

Items needed for one stiffening cross-brace:

- 2 UniKit beam bracings HEB
- 4 UniKit tie rod clamps HEB
- 2 tensioning rods (tie rod 15.0)
- 4 Super plates 15.0

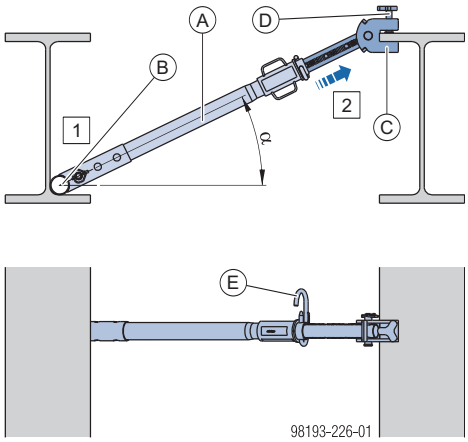
UniKit beam bracing HEB at an angle of inclination α max. 40°

NOTICE

➤ Use the fastening clamps to adjust all UniKit beam bracings HEB to approximately the correct length.

➤ The beam bracing support can also be telescoped 150 mm to extend the beam bracing HEB.

1) Position the beam bracing support in the fillet between the beam flange and the beam web.
2) Extend the clamping part to the neighbouring beam and bolt it securely to the beam flange.



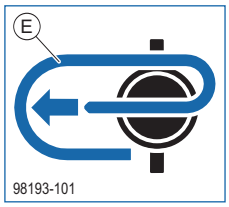
α ... max. 40°

A	UniKit beam bracing HEB
B	Beam bracing support
C	Clamping part
D	Clamping part securing screw
E	Safety pin

NOTICE

When installing the beam bracings, make sure that the beams are **not** twisted or moved out of position!

- Safety pin **(E)** must be pushed all the way into the beam bracing.

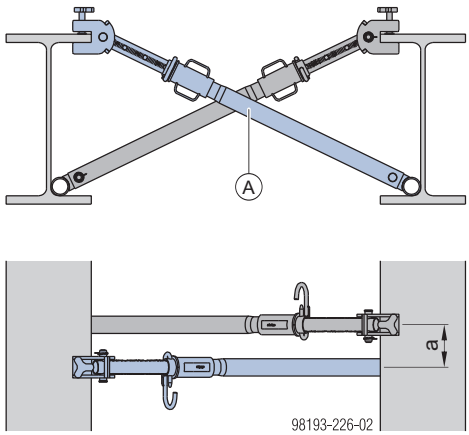


- Adjusting nut has to be tightened into contact with the fastening clamp.

Follow the same procedure to install the opposing UniKit beam bracing HEB.

Note:

The two UniKit opposing beam bracings should be as close to each other as possible.

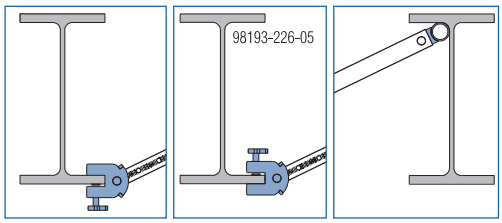


a ... max. 150 mm

A	UniKit beam bracing HEB

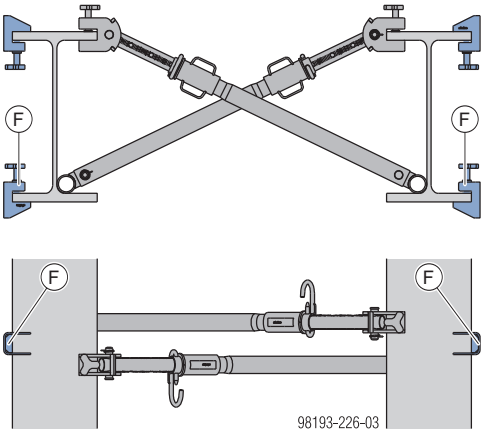
Note:

Depending on the project, it is also possible to install the UniKit beam bracing upside down.



UniKit tie rod clamp HEB

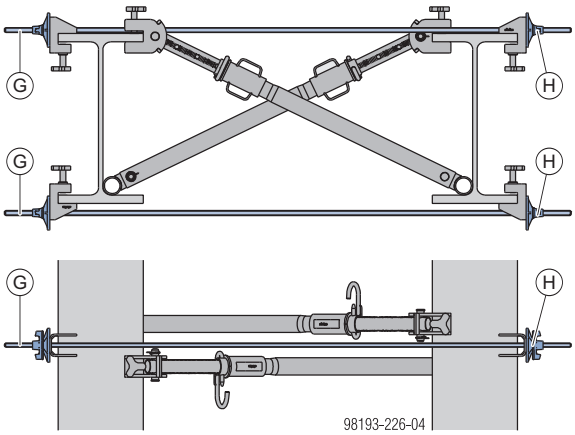
➤ Install a UniKit tie rod clamp HEB on each beam at top and bottom on the outside of the flange, centred between the two UniKit beam bracings.



F	UniKit tie rod clamp HEB

Tie rod 15.0

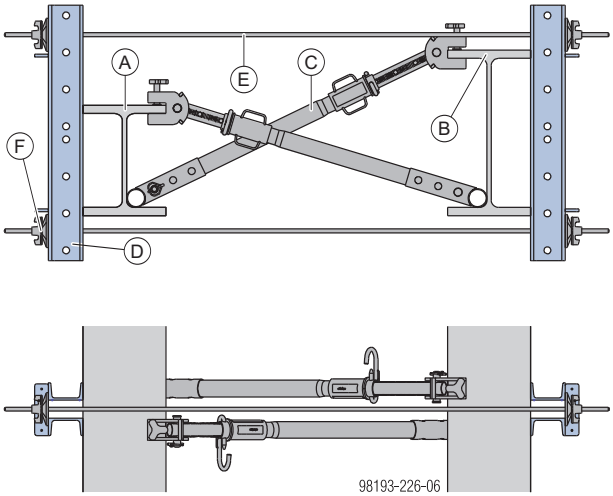
➤ Pass a Tie rod 15.0 between each pair of clamps and bring each tie rod securely into tension with 2 super plates.



G Tie rods 15.0
H Super plate 15.0

Arrangement with different beam heights

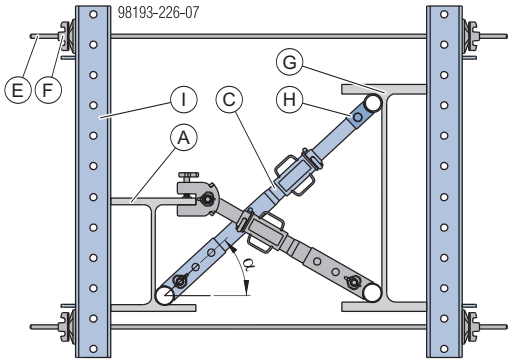
α up to max. 40°



A UniKit secondary beam HEB400
B UniKit secondary beam HEB600
C UniKit beam bracing HEB
D Multi-purpose waling WS10 Top50 0.75m
E Tie rods 15.0
F Super plate 15.0

Larger angles and closer beam spacing can be implemented with the UniKit beam bracing HEB end piece.

α up to max. 60°



α ... > 40°

A UniKit secondary beam HEB400
C UniKit beam bracing HEB
E Tie rods 15.0
F Super plate 15.0
G UniKit secondary beam HEB800
H UniKit beam bracing HEB end piece
I Multi-purpose waling WS10 Top50 1.25m

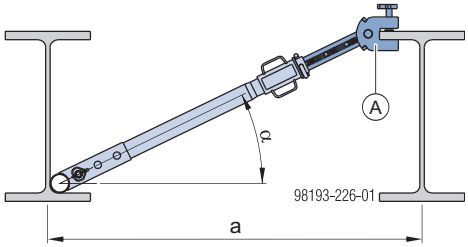
Beam centre-to-centre distances

NOTICE

The following beam centre-to-centre distances ‘a’ apply only when the conditions below are satisfied.

- Uniform beam profiles.
- Beams are set plumb on the same support level (e.g. UniKit primary beams).

UniKit beam bracing HEB original state

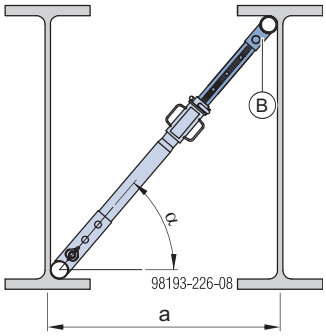


Beam	HEB400		HEB600		HEB800		HEB1000	
Distance 'a'	min.	max.	min.	max.	min.	max.	min.	max.
HEB 1	730	1080	860	980	-	-	-	-
HEB 2	890	1360	870	1290	1100	1170	-	-
HEB 3	1200	1910	1110	1860	1100	1780	1330	1680
HEB 4	1740	3000	1690	2970	1600	2930	1480	2870
HEB 5	2270	3780	2230	3760	2170	3730	2090	3680

α ... max. 40°

A Clamping part

UniKit beam bracing HEB with UniKit beam bracing HEB end piece



Beam	HEB400		HEB600		HEB800		HEB1000	
Distance 'a'	min.	max.	min.	max.	min.	max.	min.	max.
HEB 1	690	1030	560	950	470	820	-	-
HEB 2	840	1300	740	1240	550	1150	590	1000
HEB 3	1150	1840	1080	1800	960	1740	770	1650
HEB 4	1680	2930	1630	2910	1560	2870	1460	2820
HEB 5	2200	3710	2170	3690	2120	3660	2050	3620

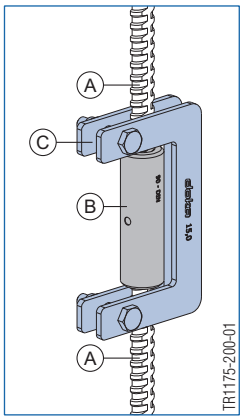
α ... max 60°

B UniKit beam bracing HEB end piece

Connecting tie rods

NOTICE

Secure the interconnected tie rods with a connection lock to prevent them from working loose.



A Tie rod 15.0

B Rod connector 15.0

C Connection lock 15.0

WARNING

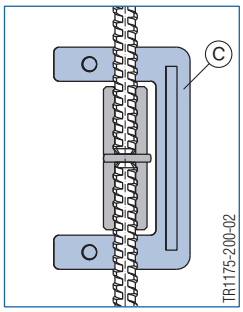
➤ Screw in both tie rods to the midway point of the rod connector (stop or mark).

Not screwing the rod sufficiently far into the connector may lead to reduced load-bearing capacity and failure of the suspension point – resulting in possible injury and/or damage.

➤ Align the flats of the tie rods in the same plane relative to each other.

➤ Push the connection lock on to the tie rods.

➤ Clamp the connection lock in position on the tie rods with hexagon bolts.



C Connection lock 15.0

Included in the scope of supply:

- 2 hexagon bolts ISO 4014 M10x50 8.8 galv.
- 2 washers ISO 7089 10 St-200 HV galv.
- 2 hexagon nuts ISO 7040 M10 8, self-locking

Dismantling

NOTICE

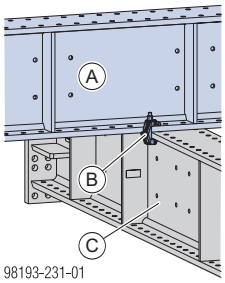
- There must be a flat, firm base capable of supporting the load.
- Provide a sufficiently large dismantling space.
- All work is done from working scaffolds, mobile scaffold towers or project-specific working platforms, as applicable.
- Discuss all steps in the dismantling procedure with the client.

Dismantling of UniKit secondary beams

Note:
The formwork has already been removed.

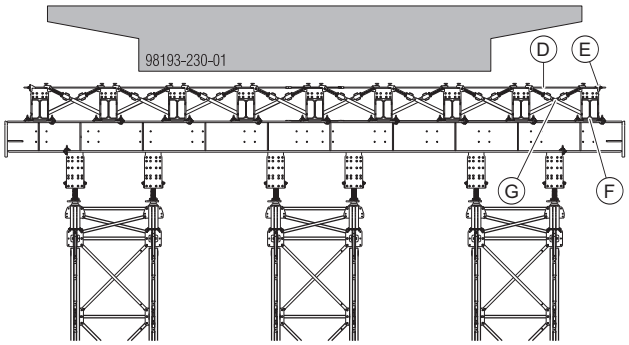
NOTICE

Before the work of dismantling starts, the safe condition of the UniKit primary beams on the substructure must be verified by examination to ensure that all beam clamps and other securing systems are still securely force-locked in place.



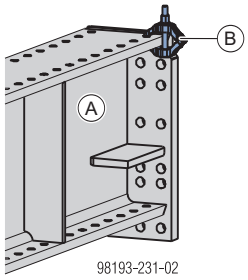
A UniKit primary beam HEB600
B Beam clamp SL-1
C UniKit primary beam HEB600 3.50m - substructure

➤ Remove the top and bottom tie rods and UniKit tie rod clamps HEB.
➤ Remove all UniKit beam bracings HEB between the first and second UniKit secondary beams.
➤ Remove the UniKit centring bars and UniKit centring bar holders.



D Tie rod 15.0
E UniKit tie rod clamp HEB
F UniKit centring bar
G UniKit beam bracing HEB

➤ Install a Beam clamp SL-1 at the end of the UniKit primary beam.
This serves as an end stop and as a blocker when the UniKit secondary beam is pushed along.

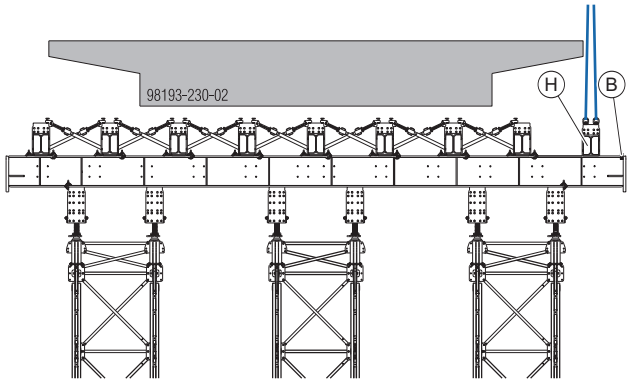


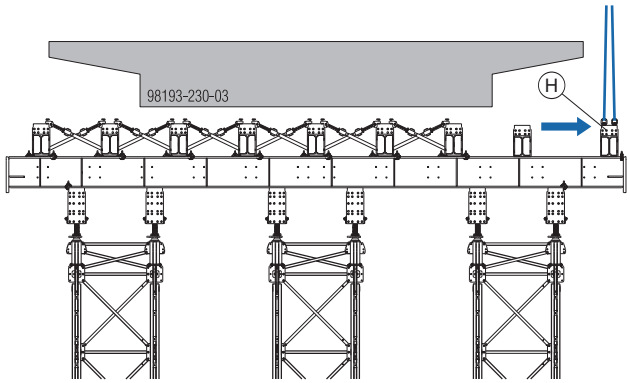
A UniKit primary beam HEB600
B Beam clamp SL-1

NOTICE

➤ To secure the beam against accidental turning in danger zones (e.g. in railway yards, at roadways) secure the beam at one end with a tag-line.

➤ Lift the UniKit secondary beam HEB clear.
➤ Push the UniKit secondary beam to the end of the UniKit primary beam and lift it clear.





B Beam clamp SL-1
H UniKit secondary beam HEB600

➤ Remove other secondary beams in the same way.

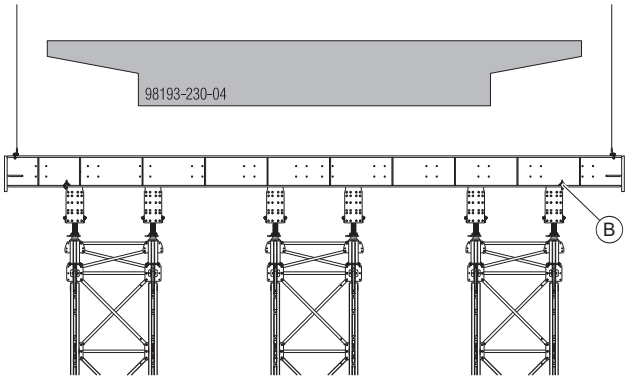
Dismantling of UniKit primary beams

➤ Attach the crane lifting tackle to the lifting points provided for the purpose at the beam ends.

NOTICE

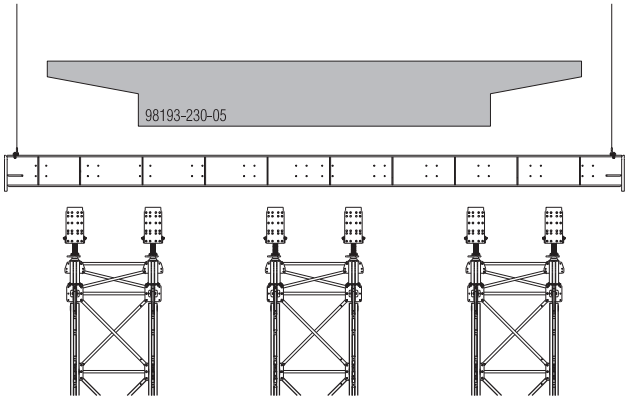
➤ Do not remove the beam clamps between the UniKit primary beam HEB600 3.50m - substructure and the UniKit primary beam HEB600 11.90m until all crane lifting tackle has been attached.

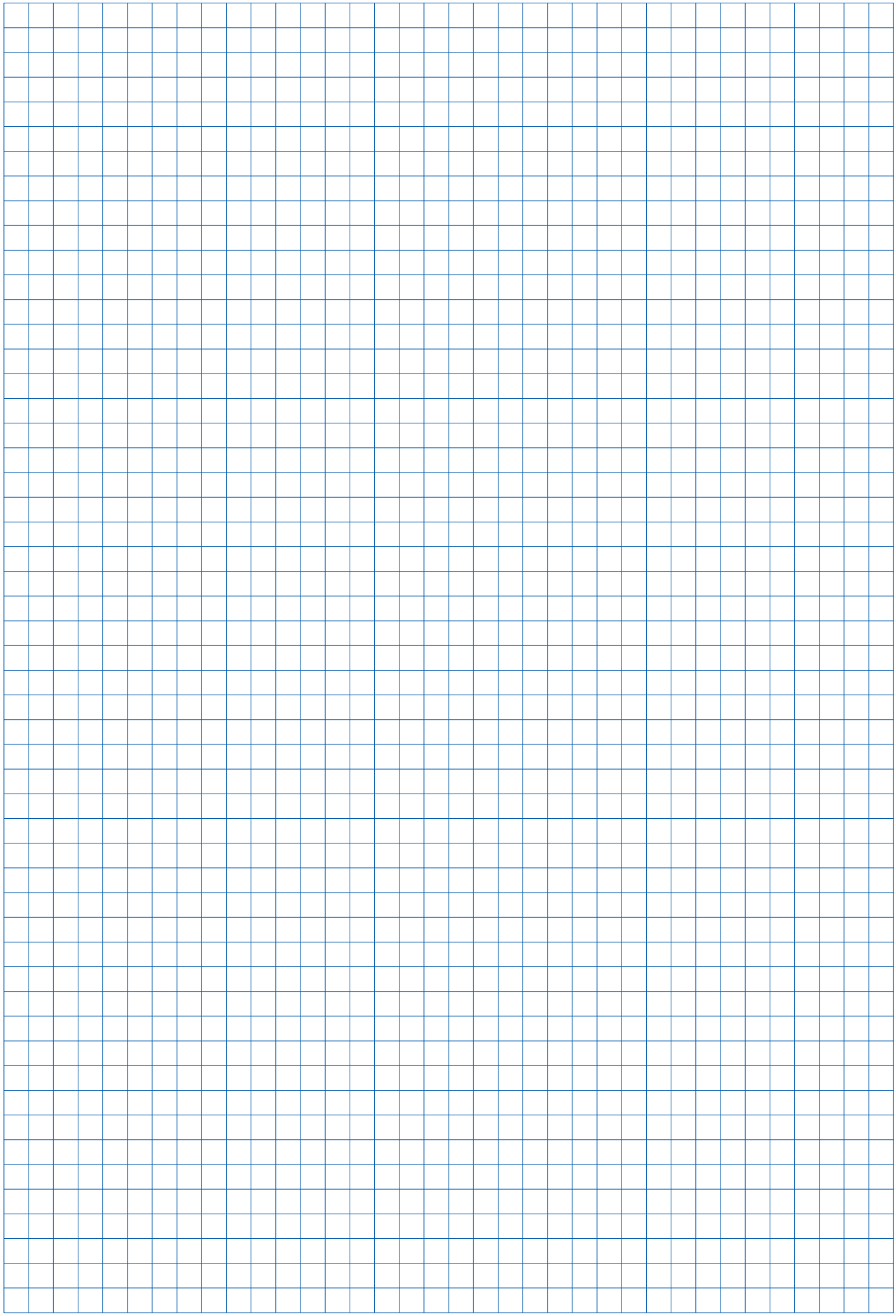
➤ Remove the Beam clamps SL-1.



B Beam clamp SL-1

➤ Using 2 cranes, carefully lift the UniKit primary beam HEB600 and set it down alongside the substructure.





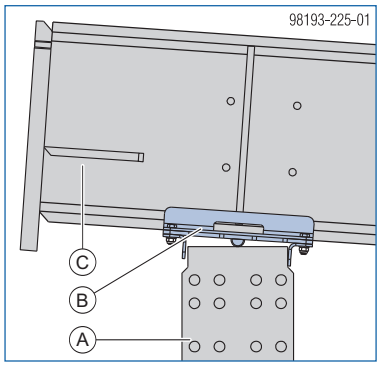
General

Centring supports and centring bars

UniKit centring supports 210-330mm

The UniKit centring supports 210-330mm are for centred and restraint-free load transfer and permit free deformability of the UniKit primary and secondary beams.

Use at an angle of 90°

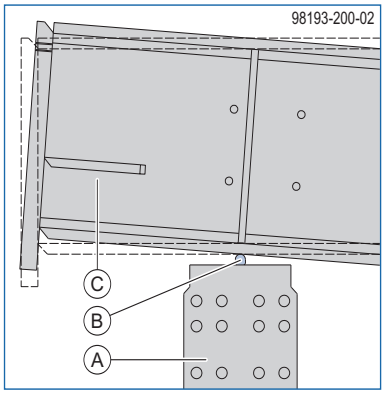


A	UniKit primary beam HEB
B	UniKit centring support 210-330mm
C	UniKit secondary beam HEB

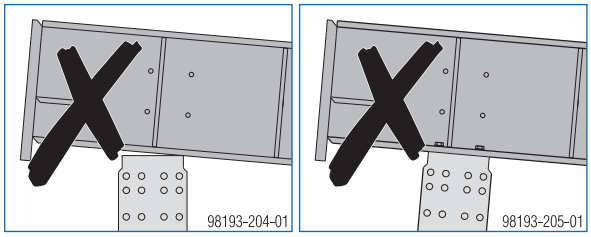
UniKit centring bars

The UniKit centring bars are for centred and restraint-free load transfer and permit free deformability of the UniKit secondary beams.

Use at an angle of 45° to 90°



A	UniKit primary beam HEB
B	UniKit centring bar
C	UniKit secondary beam HEB



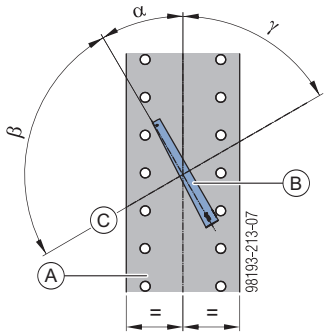
Note:
Direct bolting is possible if the span is short and no deformation occurs.

Positioning

CAUTION
Danger from parts falling off!
➤ Secure the UniKit centring bars so that they cannot fall off.

NOTICE
➤ Position the centring bar at 90° relative to the secondary beam if the secondary beam is angled relative to the primary beam.

➤ Centre the UniKit centring bar on the UniKit primary beam.



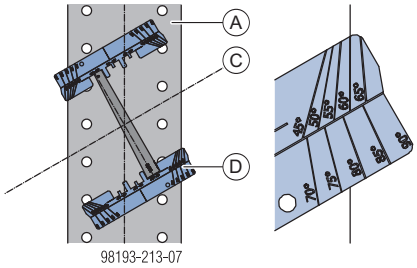
α ... 30°
β ... 90°
γ ... 60°

A	UniKit primary beam HEB
B	UniKit centring bar
C	Centreline of UniKit secondary beam HEB

NOTICE

➤ The angle marks on the UniKit centring bar holder facilitate alignment on the UniKit primary beam.

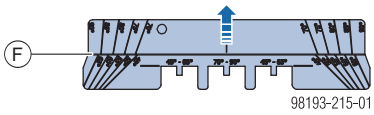
➤ Position the centring bar holders at the centring bar.



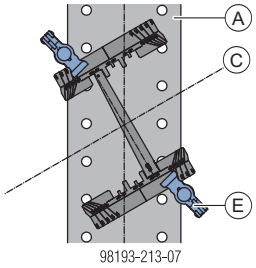
A UniKit primary beam HEB
C Centreline of UniKit secondary beam HEB
D UniKit centring bar holder

NOTICE

To prevent collision with the UniKit secondary beam, the Beam clamp SL-1 must be installed behind the line **(F)** .



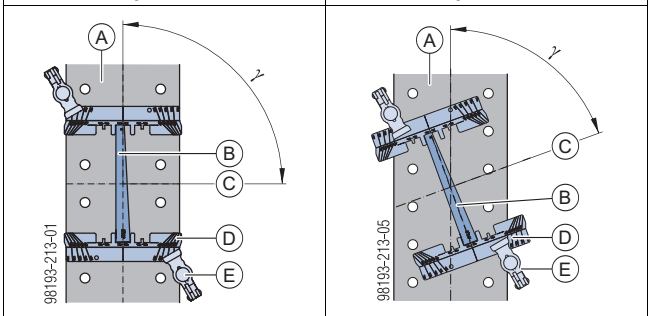
➤ Secure the UniKit centring bar holders to the UniKit primary beam with one Beam clamp SL-1 per holder.

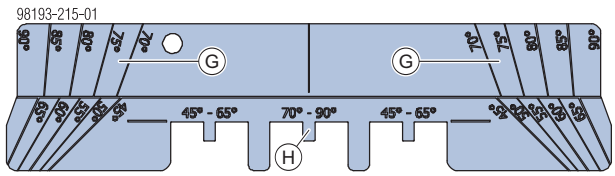


A UniKit primary beam HEB
C Centreline of UniKit secondary beam HEB
E Beam clamp SL-1

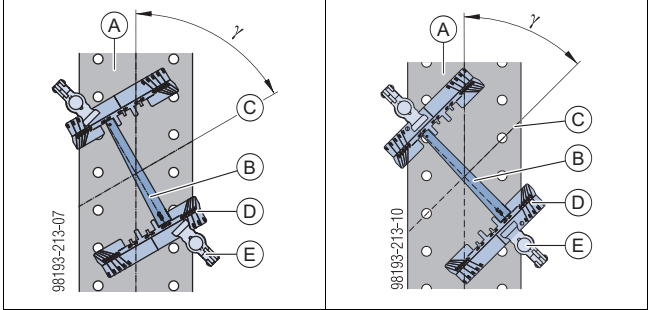
Practical examples - UniKit centring bar holder at ...

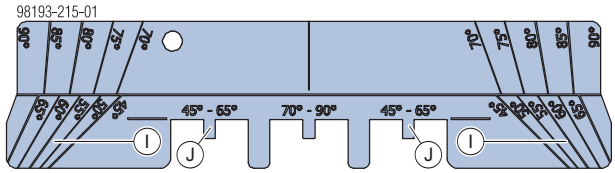
γ = 90° | **γ = 70°**





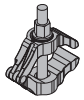
γ = 60° | **γ = 45°**





A UniKit primary beam HEB
B UniKit centring bar
C Centreline of UniKit secondary beam HEB
D UniKit centring bar holder
E Beam clamp SL-1
F Installation line for Beam clamp SL-1
G Angle marks γ = 70° to 90° (5° grid)
H Position of the UniKit centring bar (γ = 70° to 90°)
I Angle marks γ = 45° to 65° (5° grid)
J Position of the UniKit centring bar (γ = 45° to 65°)

Beam clamp SL-1



Clamping range: 16 to 70 mm
Width-across flats 24 mm

Tightening torque 150 Nm

CAUTION

Beam clamps SL-1 may only be used for fixing components in the right positions to one another.

- In a connection made with beam clamps, the only permissible forces to be transferred are friction forces in the friction surfaces, and/or compressive forces perpendicular to these.
- Tensile forces perpendicular to the friction surface are not allowed.
- At least 2 beam clamps for each component connection.
- The components to be joined must be planned with level, parallel bearing surfaces.
- May only be used where mainly dead loads are encountered - **not for HD supporting units that will be repositioned**!

Note:

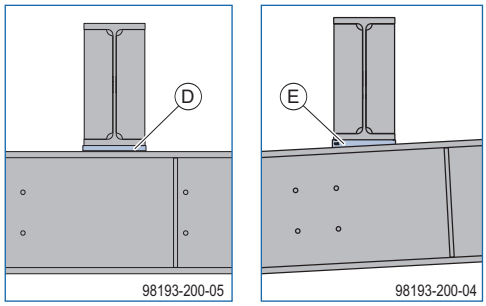
Comply with the General Building-Inspectorate Approval (Z-8.34-873)!

Compensating for the transverse gradient

Angles between UniKit primary and secondary beams caused by transverse gradients can be compensated with the UniKit centring bars 1.0-5.5%.

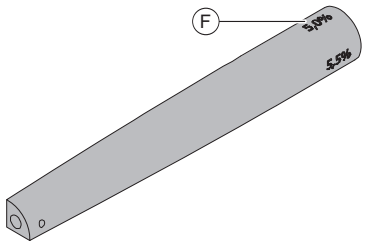
NOTICE

- Install the UniKit secondary beam plumb. Use Centring bars 1.0-5.5% to compensate for the longitudinal gradient of the primary beam.



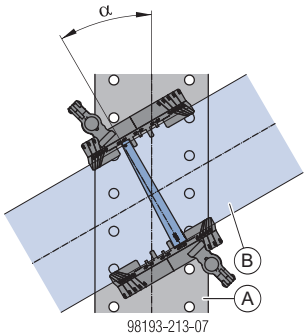
D UniKit centring bar 0%
E UniKit centring bar 1.0 to 5.5%

The UniKit centring bar must be installed with the required gradient percentage visible on the top.



F Gradient percentage on the top

To deal with a combination of transverse gradients and angled secondary beams, calculate the gradient of the centring bar as follows:
Angle $_{\text{centring bar}}$ = cos (α) x angle $_{\text{primary beam}}$

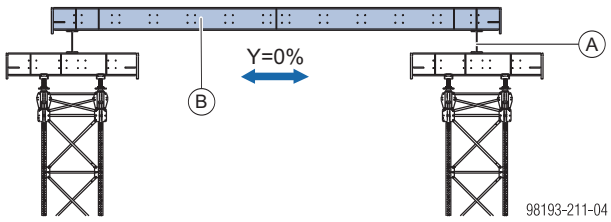


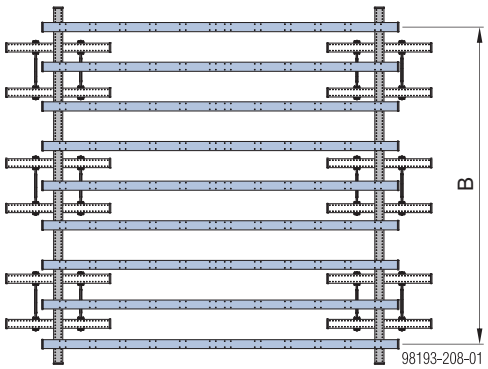
A UniKit primary beam HEB (angled relative to secondary beam)
B UniKit secondary beam HEB

Calculation of gradient of the centring bar

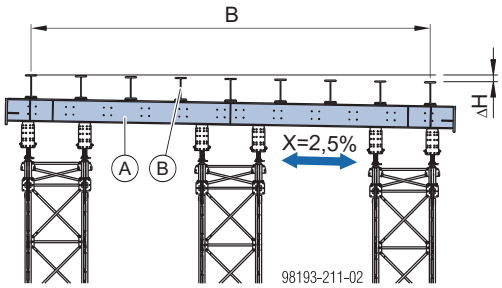
Practical examples for calculation of the permissible UniKit centring bars.

UniKit secondary beam in longitudinal gradient



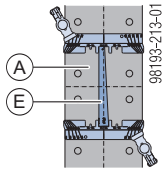


UniKit primary beam in transverse gradient

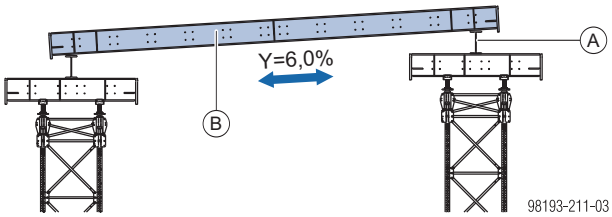


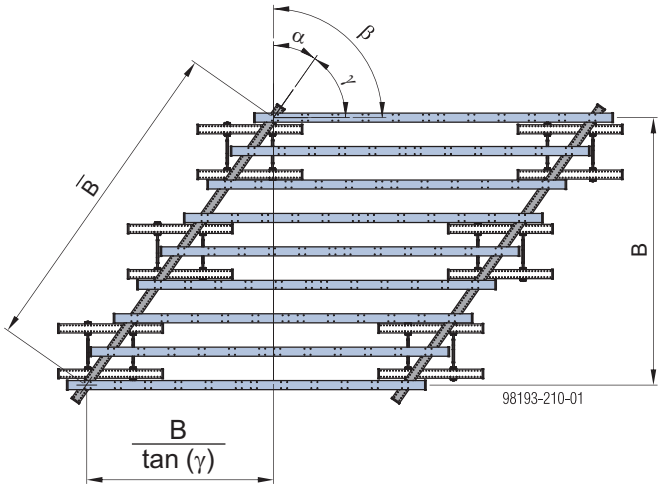
$$\Delta H = B \cdot X$$

$$\text{C} = \text{D}\ \frac{\Delta H}{B} = 2{,}5\%$$



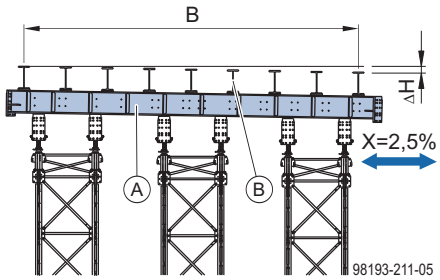
UniKit secondary beam in longitudinal gradient





α ... 35°
β ... 90°
γ ... 55°

UniKit primary beam in transverse gradient

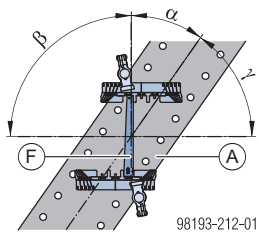


$$\Delta H = B \cdot X + \frac{B}{\tan(\gamma)} \cdot Y$$

$$\bar{B} = \frac{B}{\sin(\gamma)}$$

$$\text{C} \quad \frac{\Delta H}{\bar{B}} = 5{,}5\%$$

$$\text{D} \quad \frac{\Delta H}{\bar{B}} \cdot \cos(\alpha) = 4{,}5\%$$



A	UniKit primary beam HEB
B	UniKit secondary beam HEB
C	Calculation of the gradient of the UniKit primary beam HEB
D	Calculation (%) of the UniKit centring bar
E	UniKit centring bar 2/2.5%
F	UniKit centring bar 4/4.5%

Levelling plate 3.3%

The Levelling plate 3.3% is for supporting inclined primary beams.

- Inclination range: 1.75% to 5.0%
- Suitable for Lowering wedge SL-1 420kN and Lowering wedge 1000kN

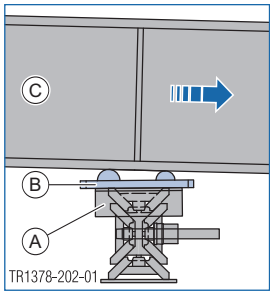
Follow the directions in the 'Lowering wedge SL-1 420kN, Lowering wedge 1000kN' User Information booklet!

NOTICE

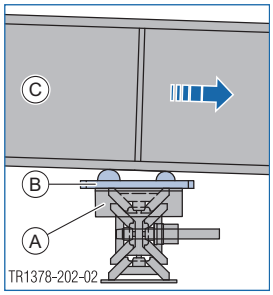
- For turning of the lowering wedge, the lowering spindle must be aligned along the beam's longitudinal axis.
- In this position the lowering wedge can adapt to beam inclination up to 1°.
- Centre the levelling plate on the lowering wedge.

Inclination range with Levelling plate 3.3%

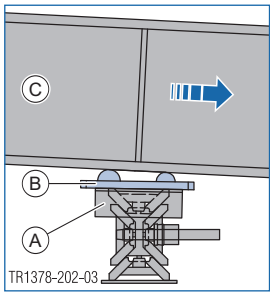
- 1.75% - 3.2%: Inclination of lowering wedge opposite to the direction of downslope!



- 3.3%: No inclination of the lowering wedge!



- 3.4% - 5.0%: Inclination of lowering wedge in the direction of downslope!



A	Lowering wedge SL-1 420kN or Lowering wedge 1000kN
B	Levelling plate 3.3%
C	e.g. UniKit secondary beam, UniKit primary beam or System beam SL-1

UniKit stiffener screwable HEB

UniKit stiffeners screwable HEB400 or UniKit stiffeners screwable HEB600 are used for load through-transfer of concentrated forces and to avoid plastic deformation of the top flange.

WARNING

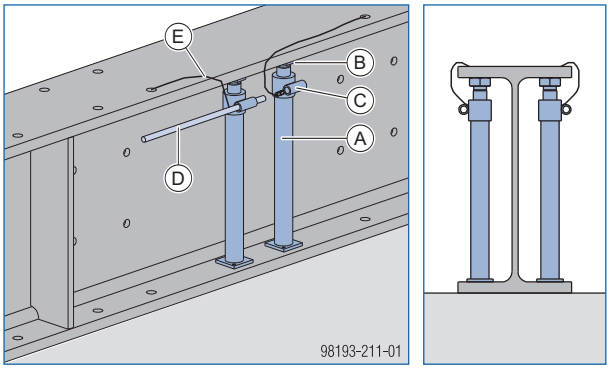
- ➤ UniKit stiffeners screwable must always be secured to the beam.
- ➤ It is **not** permissible to use UniKit stiffeners screwable as crane lifting points or as attachment points for personal fall arrest systems.

NOTICE

- UniKit stiffeners screwable may be installed only on-site.
- The surfaces of the beam must always be flat and clean.
- UniKit stiffeners screwable do not create a fork bearing or provide stiffening against lateral torsional buckling of the beams.

Assembly

- ➤ Position UniKit stiffeners screwable at the defined positions between the flanges in accordance with statical requirements.
- ➤ Use a fork wrench to tighten the hexagon bolt up to the top flange, counter-holding with a length of Tie rod 15.0 at the tubular sleeve.
- ➤ Use the securing cable to secure each UniKit stiffener screwable to the beam so that no stiffener can fall.



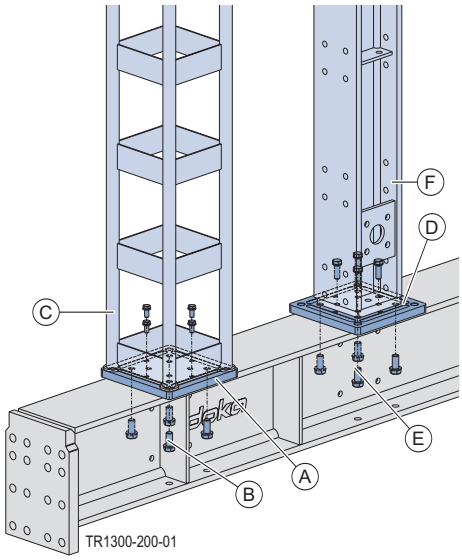
A	UniKit stiffener screwable HEB400 or UniKit stiffener screwable HEB600
B	Hexagon bolt M36x100
C	Tubular sleeve
D	Tie rod 15.0
E	Securing cable

Check that the UniKit stiffeners screwable are correctly seated.

Follow the directions in the Calculation Guide entitled ‘UniKit primary and secondary beams', and/or ask your Doka technician!

UniKit beams in combination with SL-1 components

UniKit basic plate SL-1/HEB and UniKit adapter plate HEB/SL-1 enable the UniKit beams to be connected to components of the DokaShore struts and SL-1 group.



A	UniKit basic plate SL-1/HEB
B	Screw set UniKit basic plate SL-1/HEB
C	Strut SL-1
D	UniKit basic plate SL-1/HEB or UniKit adapter plate HEB/SL-1
E	Screw set UniKit adapter plate HEB/SL-1
F	System beam SL-1

Transporting, stacking and storing

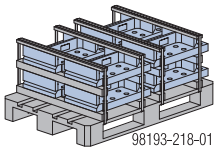
The following instructions must be complied with when storing and transporting separate parts or assemblies. This ensures careful, safe treatment of the equipment:

Bundling the beams

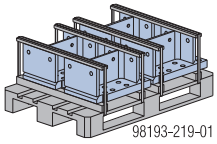
- The parts must be onloaded and off-loaded, transported and stacked in such a way that it is not possible for them to fall off, tip over or slide apart.
- Only set down the parts or assembly units on flat, firm, clean surfaces.
- When transporting the equipment by truck, bundle the components or otherwise secure them against slippage, or else transport them in suitable containers.
- Protect the parts against soiling. This will help prolong their service life.
- Clearly arranged, logical storage arrangements reduce the time needed for assembly.
- Using intermediate packing timbers during storage and transport lessens the risk of damage.

Please co-ordinate arrangements for return delivery of the equipment with the Doka branch responsible.

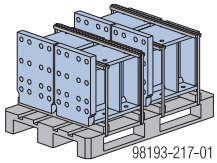
UniKit extension HEB400 0.125m



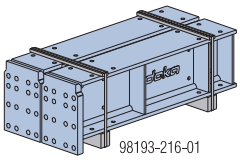
UniKit extension HEB400 0.25m



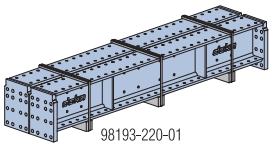
UniKit extension HEB400 0.50m



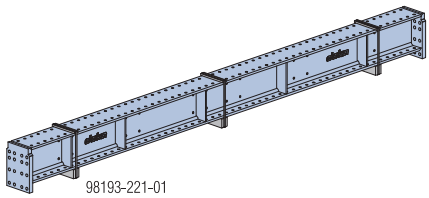
UniKit extension HEB400 0.75m to 1.625m
UniKit extension HEB600 1.50m to 2.50m
UniKit extension HEB800 2.00m and 2.50m



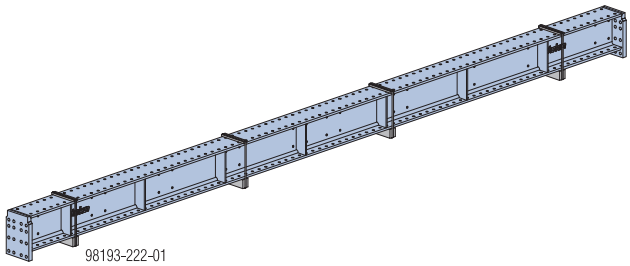
UniKit primary beam HEB400 3.00m
UniKit primary beam HEB600 3.50m



UniKit primary beam HEB400 5.90m
UniKit secondary beam HEB400 5.90m



UniKit primary beam HEB400 8.90m
UniKit secondary beam HEB400 8.90m
UniKit primary beam HEB600 11.90m
UniKit secondary beam HEB600 11.90m
UniKit primary beam HEB600 13.50m
UniKit secondary beam HEB600 13.50m
UniKit secondary beam HEB800 15.90m
UniKit secondary beam HEB800 17.90m
UniKit secondary beam HEB1000 19.90m



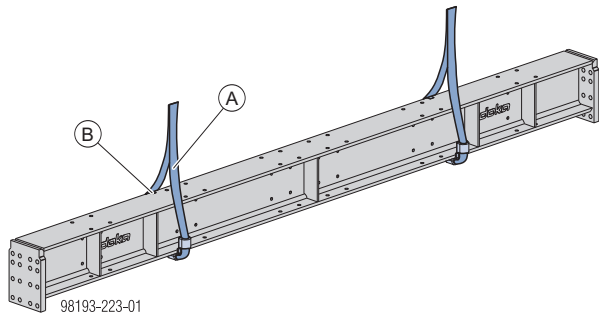
Repositioning the beams

The following instructions must be complied with when transporting separate parts or assemblies. This ensures careful, safe treatment of the equipment:

- Comply with the permitted sling angle of the slinging means.
- Do not detach parts until they have been safely set down.

Suitable slinging means for repositioning the UniKit beams and subassemblies:

Round slings or lifting slings (only with edge protectors)



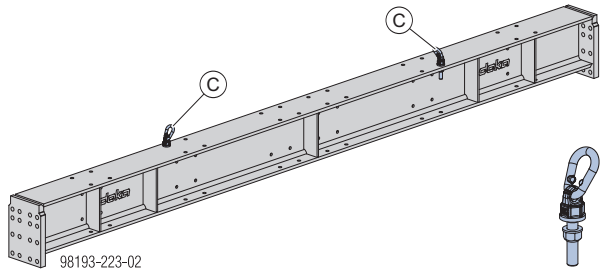
A Round sling or lifting sling
B Edge protector

CAUTION

➤ Use edge protectors on the edges of the beam flanges.

➤ Secure the round slings or lifting slings against slippage.

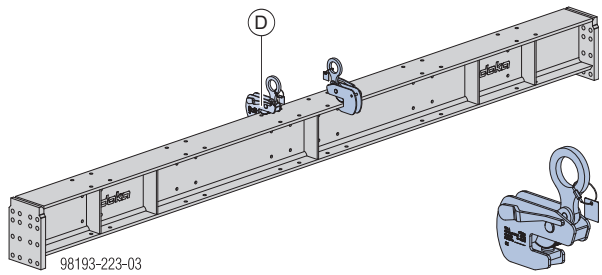
Crane lifting point M24



C Crane lifting point M24

Follow the directions in the ‘Crane lifting point M24’ Operating Instructions!

Girder grab 4.5t



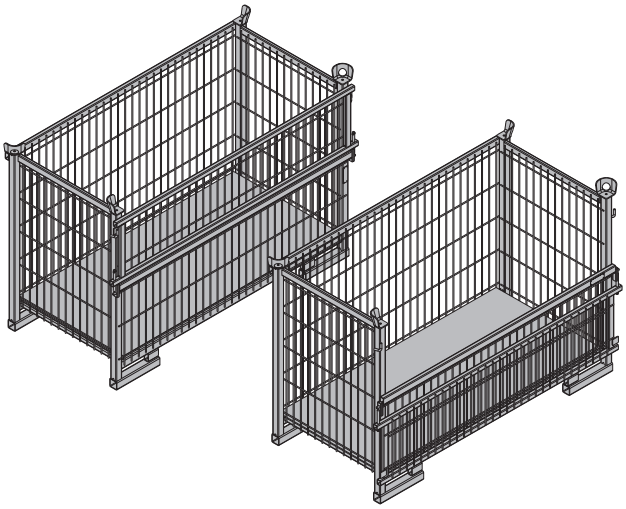
D Girder grab 4.5t

Follow the directions in the 'Girder grab 4.5t' Operating Instructions.

Utilise the benefits of Doka multi-trip packaging on the jobsite.

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

Doka skeleton transport box 1.70x0.80m



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

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

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

Max. n° of units on top of one another

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

NOTICE

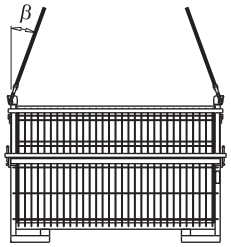
Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top.

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

Lifting by crane

NOTICE

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



9234-203-01

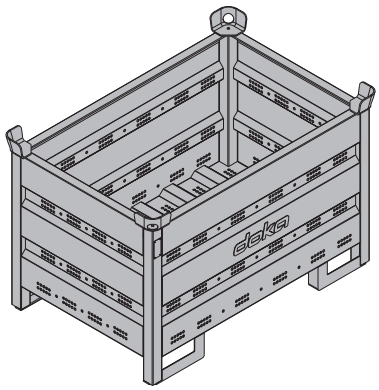
Repositioning by forklift truck or pallet stacking truck

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

Doka multi-trip transport box

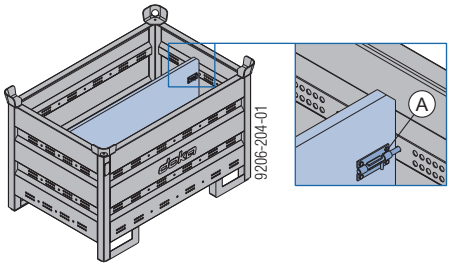
Storage and transport device for small items

Doka multi-trip transport box 1.20x0.80m



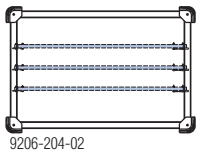
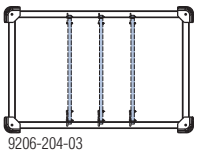
Permitted load-bearing capacity: 1500 kg (3300 lbs)
Permitted imposed stacking load: 7850 kg (17300 lbs)

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

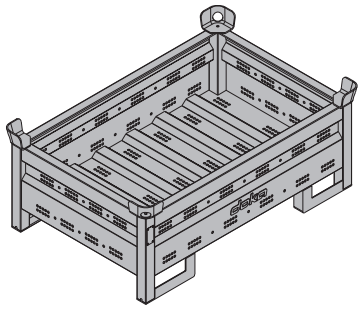


A Slide-bolt for fixing the partition

Possible ways of dividing the box

Multi-trip transport box partition	in the longitudinal direction	in the transverse direction
1.20m	max. 3	-
0.80m	-	max. 3
	 9206-204-02	 9206-204-03

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



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

Using Doka multi-trip transport boxes as storage units

Max. n° of units on top of one another

Outdoors (on the site) Floor gradients up to 3%		Indoors Floor gradients up to 1%	
Doka multi-trip transport box		Doka multi-trip transport box	
1.20x0.80m	1.20x0.80x0.41m	1.20x0.80m	1.20x0.80x0.41m
3	5	6	10
It is not allowed to stack empty pallets on top of one another!			

NOTICE

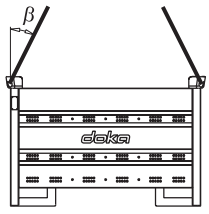
Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top.

Using Doka multi-trip transport boxes as transport devices

Lifting by crane

NOTICE

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



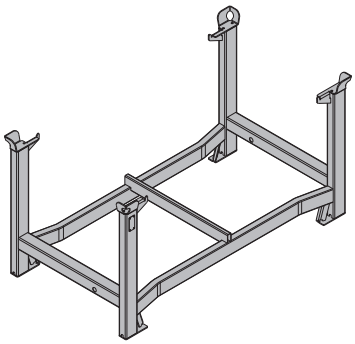
9206-202-01

Repositioning by forklift truck or pallet stacking truck

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

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

Storage and transport device for long items.



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

Using Doka stacking pallets as storage units

Max. n° of units on top of one another

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

NOTICE

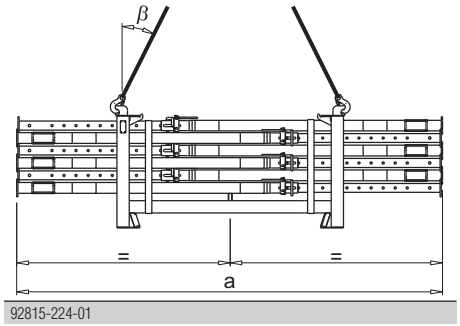
- Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top.
- **How to use with Bolt-on castor set B:**
  - Always apply the fixing brake when the container is 'parked'.
  - When Doka stacking pallets are stacked, the bottom pallet must NOT be one with a bolt-on castor set mounted to it.

Using Doka stacking pallets as transport devices

Lifting by crane

NOTICE

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



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

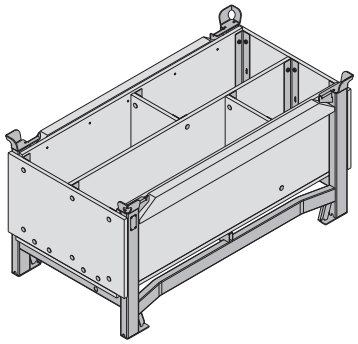
Repositioning by forklift truck or pallet stacking truck

NOTICE

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

Doka accessory box

Storage and transport device for small items.



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

Doka accessory boxes as storage units

Max. n° of units on top of one another

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

NOTICE

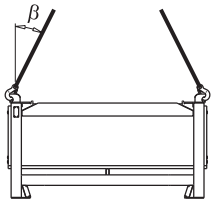
- Stacked multi-trip boxes or pallets must have the heaviest boxes at the bottom and the lightest at the top.
- **How to use with Bolt-on castor set B:**
  - Always apply the fixing brake when the container is 'parked'.
  - When Doka stacking pallets are stacked, the bottom pallet must NOT be one with a bolt-on caster set mounted to it.

Doka accessory box as transport devices

Lifting by crane

NOTICE

- Multi-trip packaging items must be lifted individually.
- Use suitable lifting chains:
  - e.g. Doka 4-part chain 3.20m
  - Do not exceed the permitted working load limit of the lifting chains.
- When lifting units to which Bolt-on castor sets B have been attached, you must also follow the directions in the ‘Bolt-on castor set B’ User information booklet!
- Sling angle β max. 30°!



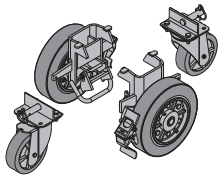
92816-206-01

Repositioning by forklift truck or pallet stacking truck

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

Bolt-on castor set B

The Bolt-on castor set B turns multi-trip packaging items into fast and manoeuvrable transport devices.
Suitable for drive-through access openings > 90 cm.



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

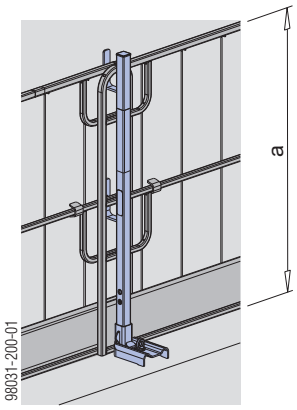
- Doka accessory box
- Doka stacking pallets
- Protective barrier Z pallets

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

Fall protection on the structure

Xsafe edge protection XP

- Attached with screw-on shoe, railing clamp, hand-rail-post shoe or Step bracket XP
- Protective grating XP, guardrail boards or scaffold tubes can be used as the safety barrier

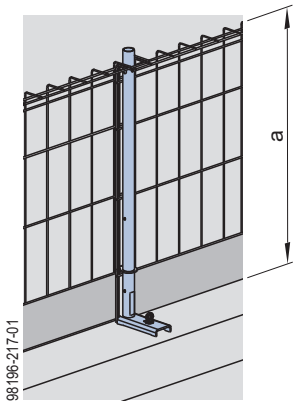


a ... > 1.00 m

Follow the directions in the 'Xsafe edge protection XP' User Information booklet.

Xsafe edge protection Z

- Attachment by integral screw-on shoe
- Protective barrier Z can be used as the safety barrier

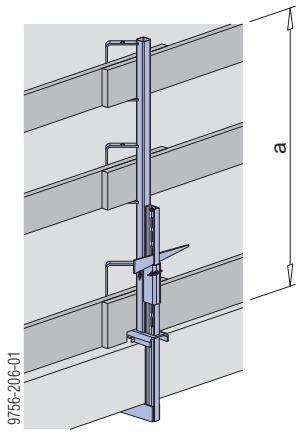


a ... > 1.17 m

Follow the directions in the 'Xsafe edge protection Z' User Information booklet.

Handrail clamp S

- Attached with integral clamp
- Guard-rail boards or scaffold tubes can be used as the safety barrier

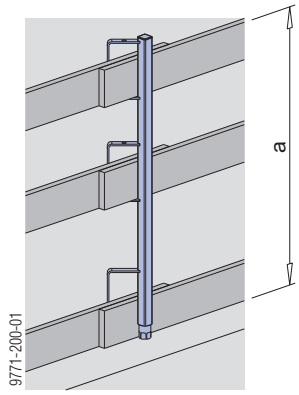


a ... > 1.00 m

Follow the directions in the “Handrail clamp S” User information!

Handrail post 1.10m

- Fixed in a Screw sleeve 20.0 or Attachable sleeve 24mm
- Guard-rail boards or scaffold tubes can be used as the safety barrier



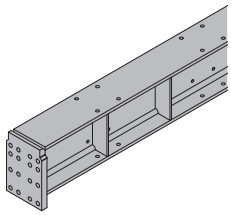
a ... > 1.00 m

Follow the directions in the 'Handrail post 1.10m' User Information!

	[kg]	Article N°
UniKit secondary beam HEB400 5.90m	**1066.0**	**583600000**
UniKit secondary beam HEB400 6.90m	**1220.0**	**583618000**
UniKit secondary beam HEB400 8.90m	**1528.0**	**583601000**
UniKit secondary beam HEB600 11.90m	**2798.0**	**583602000**
UniKit secondary beam HEB600 13.50m	**3133.0**	**583603000**
UniKit secondary beam HEB800 15.90m	**4709.0**	**583669000**
UniKit secondary beam HEB800 17.90m	**5231.0**	**583670000**
UniKit secondary beam HEB1000 19.90m	**6960.0**	**583671000**

UniKit-Längsträger HEB

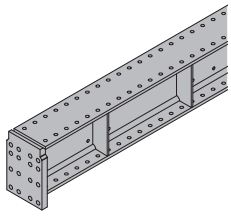
Painted blue



UniKit primary beam HEB400 3.00m	**587.0**	**583616000**
UniKit primary beam HEB400 5.90m	**1048.0**	**583604000**
UniKit primary beam HEB400 8.90m	**1523.0**	**583605000**
UniKit primary beam HEB600 3.50m	**944.0**	**583617000**
UniKit primary beam HEB600 11.90m	**2865.0**	**583606000**
UniKit primary beam HEB600 13.50m	**3219.0**	**583607000**

UniKit-Jochträger HEB

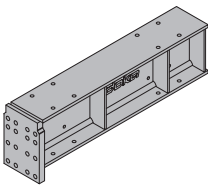
Painted yellow



UniKit extension HEB400 0.125m	**70.0**	**583608000**
UniKit extension HEB400 0.25m	**88.0**	**583609000**
UniKit extension HEB400 0.50m	**137.0**	**583610000**
UniKit extension HEB400 0.75m	**179.5**	**583611000**
UniKit extension HEB400 1.00m	**215.0**	**583612000**
UniKit extension HEB400 1.25m	**264.0**	**583613000**
UniKit extension HEB400 1.50m	**301.0**	**583614000**
UniKit extension HEB400 1.625	**320.0**	**583615000**
UniKit extension HEB600 1.50m	**462.0**	**583672000**
UniKit extension HEB600 2.00m	**571.0**	**583674000**
UniKit extension HEB600 2.50m	**700.0**	**583675000**
UniKit extension HEB800 2.00m	**718.0**	**583677000**
UniKit extension HEB800 2.50m	**878.0**	**583678000**

UniKit-Verlängerung HEB

Painted blue

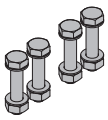


Screw-set UniKit HEB 4x M30x145 10.9	**6.4**	**583619000**

Schraubensatz UniKit HEB 4x M30x145 10.9

Galvanised

Width-across: 50 mm

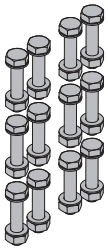


Screw-set UniKit HEB 12x M30x145 10.9	**18.0**	**583620000**

Schraubensatz UniKit HEB 12x M30x145 10.9

Galvanised

Width-across: 50 mm

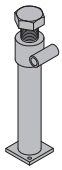


	[kg]	Article N°
UniKit stiffener screwable HEB400	**3.4**	**583641000**

UniKit-Schraubschott HEB400

Galvanised

Height: 35 cm

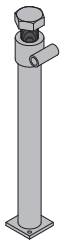


UniKit stiffener screwable HEB600	**4.2**	**583642000**

UniKit-Schraubschott HEB600

Galvanised

Height: 54 cm



UniKit centring support 210-330mm	**27.0**	**583736000**

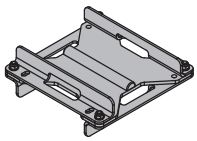
UniKit-Zentrierlager 210-330mm

Galvanised

Length: 45 cm

Width: 45 cm

Height: 15 cm

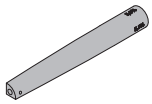


UniKit centring bar 0%	**1.9**	**583624000**
UniKit centring bar 1.0/1.5%	**1.9**	**583625000**
UniKit centring bar 2.0/2.5%	**1.9**	**583626000**
UniKit centring bar 3.0/3.5%	**1.9**	**583627000**
UniKit centring bar 4.0/4.5%	**1.9**	**583628000**
UniKit centring bar 5.0/5.5%	**1.9**	**583629000**

UniKit-Zentrierleiste

Galvanised

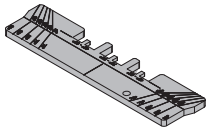
Length: 31 cm



UniKit centring bar holder	**1.5**	**583658000**

UniKit-Zentrierleistenhalter

Galvanised



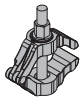
Beam clamp SL-1	**1.7**	**582824000**

Trägerklemme SL-1

Galvanised

Height: 17 cm

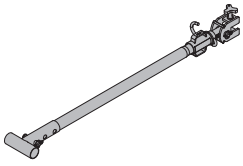
Width-across: 24 mm



UniKit beam bracing HEB 1	**11.3**	**583648000**
UniKit beam bracing HEB 2	**12.0**	**583649000**
UniKit beam bracing HEB 3	**14.1**	**583650000**
UniKit beam bracing HEB 4	**17.2**	**583651000**
UniKit beam bracing HEB 5		**583689000**

UniKit-Kippaussteifung HEB

Galvanised



	[kg]	Article N°
UniKit beam bracing HEB end piece UniKit-Kippaussteifung HEB Endstück Galvanised	**1.7**	**583665000**
UniKit tie rod clamp HEB UniKit-Ankerstabklemme HEB Galvanised	**1.8**	**583659000**
Lowering wedge 1000kN Absenkkeil 1000kN Painted blue Height: 19.2 - 27.2 cm	**53.5**	**582905000**
Lowering wedge SL-1 420kN Absenkkeil SL-1 420kN Painted blue Height: 16.8 - 26.8 cm	**30.0**	**582821000**
Levelling plate 3.3% Ausgleichsplatte 3,3% Galvanised	**19.6**	**582953000**
UniKit universal connector UK12/HEB UniKit-Universalanschluss UK12/HEB Galvanised Length: 15.5 cm Width: 27 cm Height: 27 cm	**12.8**	**583746000**
UniKit adapter plate HEB/SL-1 UniKit-Adapterplatte HEB/SL-1 Galvanised Length: 29 cm Height: 3 cm	**19.0**	**583623000**
Screw-set UniKit adapter plate HEB/SL-1 Schraubensatz UniKit-Adapterplatte HEB/SL-1 Galvanised	**2.1**	**583621000**

	[kg]	Article N°
UniKit basic plate SL-1/HEB UniKit-Grundplatte SL-1/HEB Galvanised Length: 37 cm Height: 3 cm	**30.5**	**582808500**
Screw-set UniKit basic plate SL-1/HEB Schraubensatz UniKit-Grundplatte SL-1/HEB Galvanised	**1.8**	**583622000**
Angular arbor SL-1 Winkeldorn SL-1	**1.4**	**582867000**
Scaffold tube 48.3mm 0.50m	**1.7**	**682026000**
Scaffold tube 48.3mm 1.00m	**3.6**	**682014000**
Scaffold tube 48.3mm 1.50m	**5.4**	**682015000**
Scaffold tube 48.3mm 2.00m	**7.2**	**682016000**
Scaffold tube 48.3mm 2.50m	**9.0**	**682017000**
Scaffold tube 48.3mm 3.00m	**10.8**	**682018000**
Scaffold tube 48.3mm 3.50m	**12.6**	**682019000**
Scaffold tube 48.3mm 4.00m	**14.4**	**682021000**
Scaffold tube 48.3mm 4.50m	**16.2**	**682022000**
Scaffold tube 48.3mm 5.00m	**18.0**	**682023000**
Scaffold tube 48.3mm 5.50m	**19.8**	**682024000**
Scaffold tube 48.3mm 6.00m	**21.6**	**682025000**
Scaffold tube 48.3mm .....m Gerüstrohr 48,3mm Galvanised	**3.6**	**682001000**
Swivel coupler 48mm Drehkupplung 48mm Galvanised Width-across: 22 mm	**1.5**	**582560000**
Screw-on coupler 48mm 50 Anschraubkupplung 48mm 50 Galvanised Width-across: 22 mm	**0.8**	**682002000**
Screw-on coupler 48mm 95 Anschraubkupplung 48mm 95 Galvanised Width-across: 22 mm	**0.88**	**586013000**

	[kg]	Article N°
Handrail post XP 1.20m Geländersteher XP 1,20m Galvanised Height: 118 cm	**4.1**	**586460000**
Handrail-post shoe XP Geländerschuh XP Galvanised Length: 20 cm	**2.2**	**586457000**
Handrail clamp S Schutzgeländerzwinge S Galvanised Height: 123 - 171 cm	**11.5**	**580470000**
Handrail post 1.10m Schutzgeländer 1,10m Galvanised Height: 134 cm	**5.5**	**584384000**
Doka express anchor 16x125mm Doka-Expressanker 16x125mm Galvanised Length: 18 cm	**0.31**	**588631000**
Doka coil 16mm Doka-Coil 16mm Galvanised Diameter: 1.6 cm	**0.009**	**588633000**
Information plate for express anchor Plakette Expressanker PS Width: 8 cm Height: 7.5 cm	**0.1**	**588630000**
Box nut 50 1" Stecknuss 50 1"	**1.6**	**583630000**

	[kg]	Article N°
Tie rod 15.0mm galvanised 0.50m	**0.72**	**581821000**
Tie rod 15.0mm galvanised 0.75m	**1.1**	**581822000**
Tie rod 15.0mm galvanised 1.00m	**1.4**	**581823000**
Tie rod 15.0mm galvanised 1.25m	**1.8**	**581826000**
Tie rod 15.0mm galvanised 1.50m	**2.2**	**581827000**
Tie rod 15.0mm galvanised 1.75m	**2.5**	**581828000**
Tie rod 15.0mm galvanised 2.00m	**2.9**	**581829000**
Tie rod 15.0mm galvanised 2.50m	**3.6**	**581852000**
Tie rod 15.0mm galvanised .....m	**1.4**	**581824000**
Tie rod 15.0mm non-treated 0.50m	**0.73**	**581870000**
Tie rod 15.0mm non-treated 0.75m	**1.1**	**581871000**
Tie rod 15.0mm non-treated 1.00m	**1.4**	**581874000**
Tie rod 15.0mm non-treated 1.25m	**1.8**	**581886000**
Tie rod 15.0mm non-treated 1.50m	**2.1**	**581876000**
Tie rod 15.0mm non-treated 1.75m	**2.5**	**581887000**
Tie rod 15.0mm non-treated 2.00m	**2.9**	**581875000**
Tie rod 15.0mm non-treated 2.50m	**3.6**	**581877000**
Tie rod 15.0mm non-treated 3.00m	**4.3**	**581878000**
Tie rod 15.0mm non-treated 3.50m	**5.0**	**581888000**
Tie rod 15.0mm non-treated 4.00m	**5.7**	**581879000**
Tie rod 15.0mm non-treated 5.00m	**7.2**	**581880000**
Tie rod 15.0mm non-treated 6.00m	**8.6**	**581881000**
Tie rod 15.0mm non-treated .....m	**1.4**	**581873000**
Ankerstab 15,0mm		
Super plate 15.0 Superplatte 15,0 Galvanised Height: 6 cm Diameter: 12 cm Width-across: 27 mm	**1.1**	**581966000**
Rod connector 15.0 Verbindungsmuffe 15,0 Non-treated Length: 10.5 cm Diameter: 3.2 cm	**0.49**	**581981000**
Connection lock 15.0 Verbindungssicherung 15,0 Galvanised Powder-coated red Length: 16.3 cm	**0.88**	**581810000**
Battery nut runner SK 300-2300Nm Akku-Drehschrauber SK 300-2300Nm Follow the directions in the "Operating Instructions"!	**15.0**	**583275500**
Crane lifting point M24 Krananschlagpunkt M24 Follow the directions in the "Operating Instructions"!	**1.8**	**583666000**
Girder grab 4.5t Trägergreifer 4,5t Painted yellow Follow the directions in the "Operating Instructions"!	**14.8**	**583668000**

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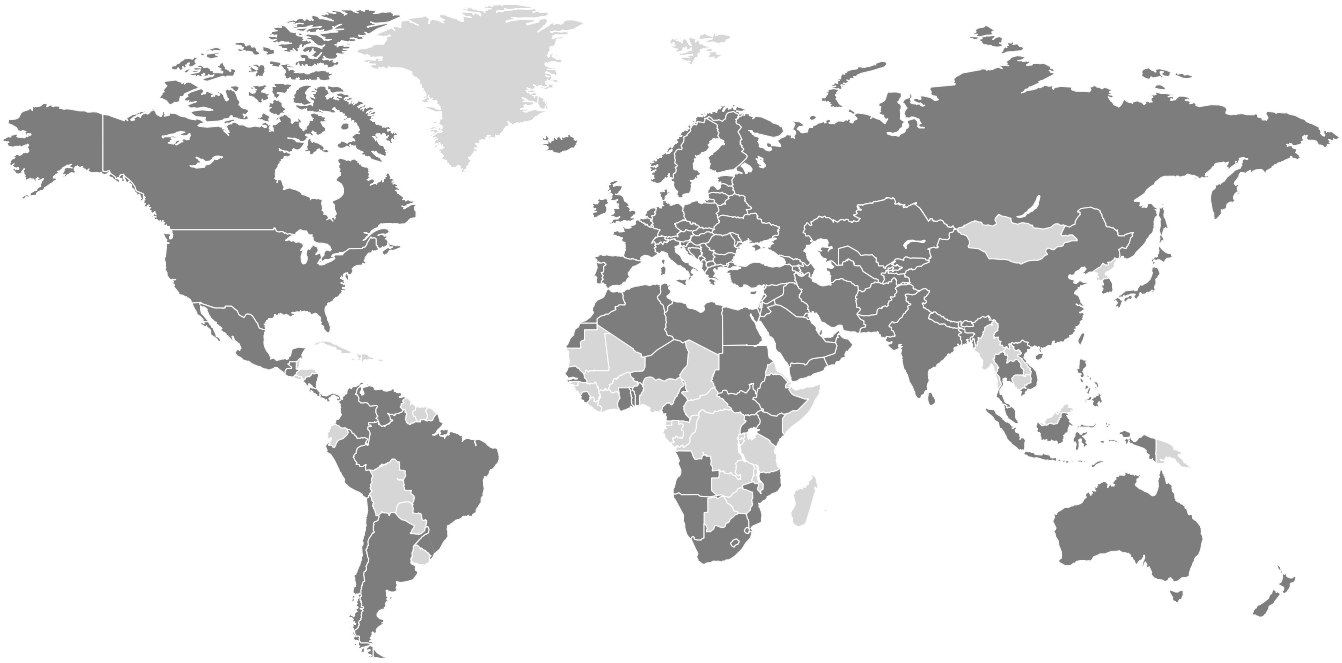

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