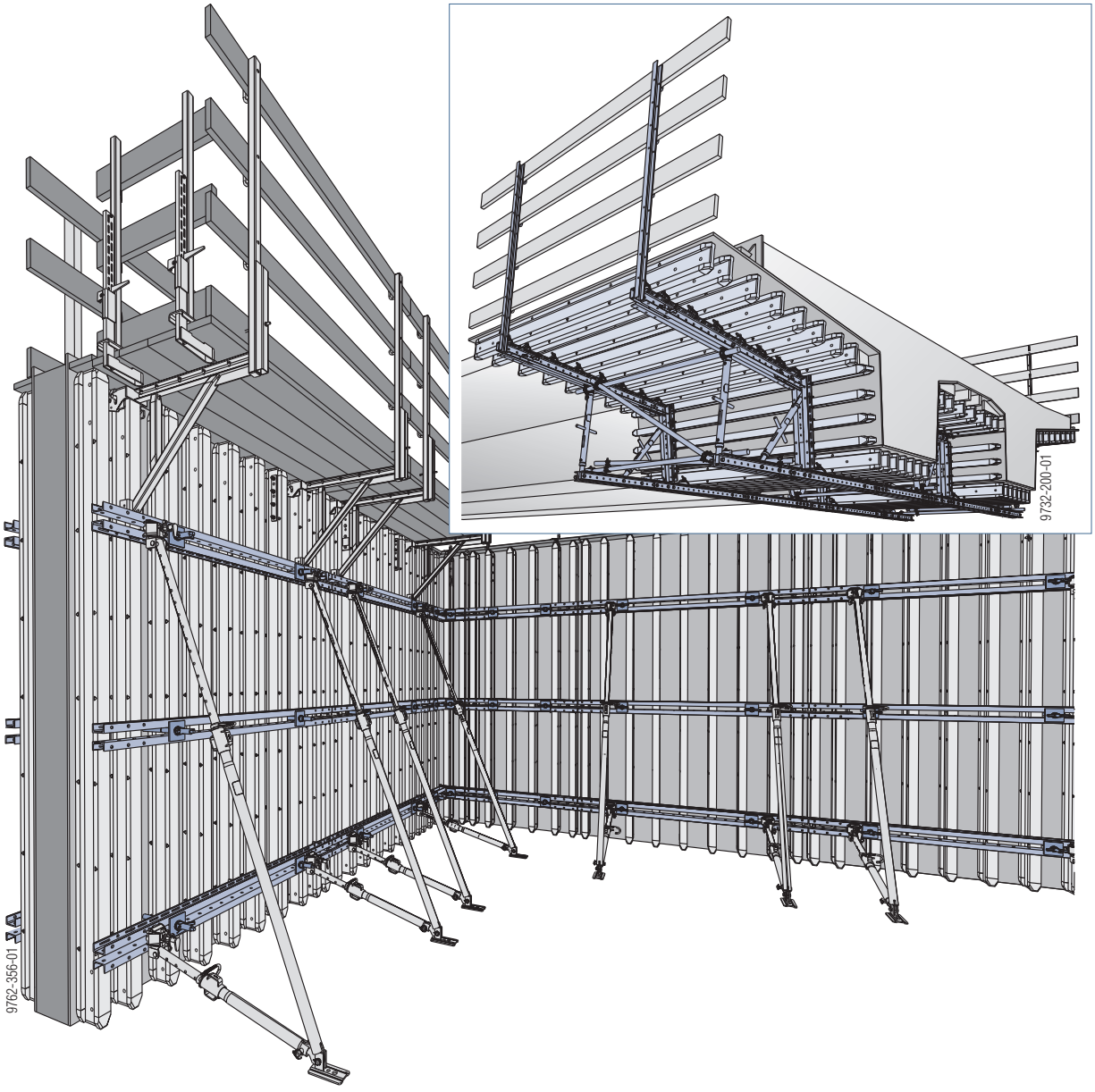
999762014 - 05/2018
en-US,US,CA

The Formwork Experts.

Large-area formwork Top 50 S

User Information

Instructions for assembly and use



Contents

Introduction

Basic 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 utilization 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 insure that the information materials provided by Doka (e.g. User Information booklets, Method Statements, Operating Instruction manuals, plans etc.) are up to date and available to all users, and that users have been made aware of them and have easy access to them at the usage location.
- In the relevant technical documentation and formwork utilization 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 insure compliance with the national applicable laws, standards and rules throughout the entire project and to take appropriate additional or alternative workplace safety precautions where necessary.

Hazard assessment

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

Remarks on this booklet

- This document can also be used as a generally valid set of Instructions for Assembly and Use (Method Statement), or it can be incorporated into a site-specific set of Instructions for Assembly and Use (Method Statement).
- **The graphics in this document or app, and also the animations and videos, depict states of partial assembly in some instances and are therefore not always complete as regards their depiction of safety equipment and measures.**
  Nevertheless, customer must ensure use in compliance with the applicable regulations of safety equipment possibly not shown in these graphics, animations and videos.
- **The individual sections contain further safety instructions and 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; occupational health & safety

- All laws, Standards, industrial safety regulations and other safety rules applying to the application and utilization 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 shall ensure that this product is erected and dismantled, repositioned 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 shall 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).
- The functional / technical instructions, safety warnings and loading data shall all be strictly observed and complied with. Non-compliance can cause accidents and severe injury (risk of fatality) and serious 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 prohibited to weld or heat Doka products, particularly parts for anchoring, suspension or connecting, and also cast parts, etc.
  Welding radically changes the micro-structure of the materials of which these components are made. This leads to a drastic reduction in failure load, constituting a serious safety risk.
  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.
  Welding work can be done only on the articles expressly mentioned in the Doka documents as being suitable for work of this nature.

Assembly

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

Erecting the formwork

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

Pouring

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

Stripping the formwork

- Do not strip the formwork until the concrete has reached sufficient strength and the person in charge has given the order for the formwork to be stripped!
- When stripping 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 S bias-cut corners.
- When stripping 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 booklet, the customer must use slinging means that are suitable for the application envisaged and that comply with the regulations.
- When lifting, always make sure that the unit to be lifted and its individual parts can absorb the forces that occur.
- Remove loose parts or secure them so that they cannot slip out of position and drop.
- All components must be stored safely, following all the special Doka instructions given in the relevant sections of this document!

Maintenance

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

Miscellaneous

The weights are averages on the basis of new material. Actual weights can vary due to material tolerances. Weights can also differ on account of dirtying, moisture absorption, etc.
We reserve the right to make alterations in the interests of technical progress.

Symbols

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.

NOTE
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.

Visual inspection
Indicates that actions performed must be checked by means of a visual inspection.

Tip
Draws attention to a useful tip for best-practice usage.

Reference
Cross-references other documents.

System overview

Doka large-area formwork Top 50 - for all formats and loads

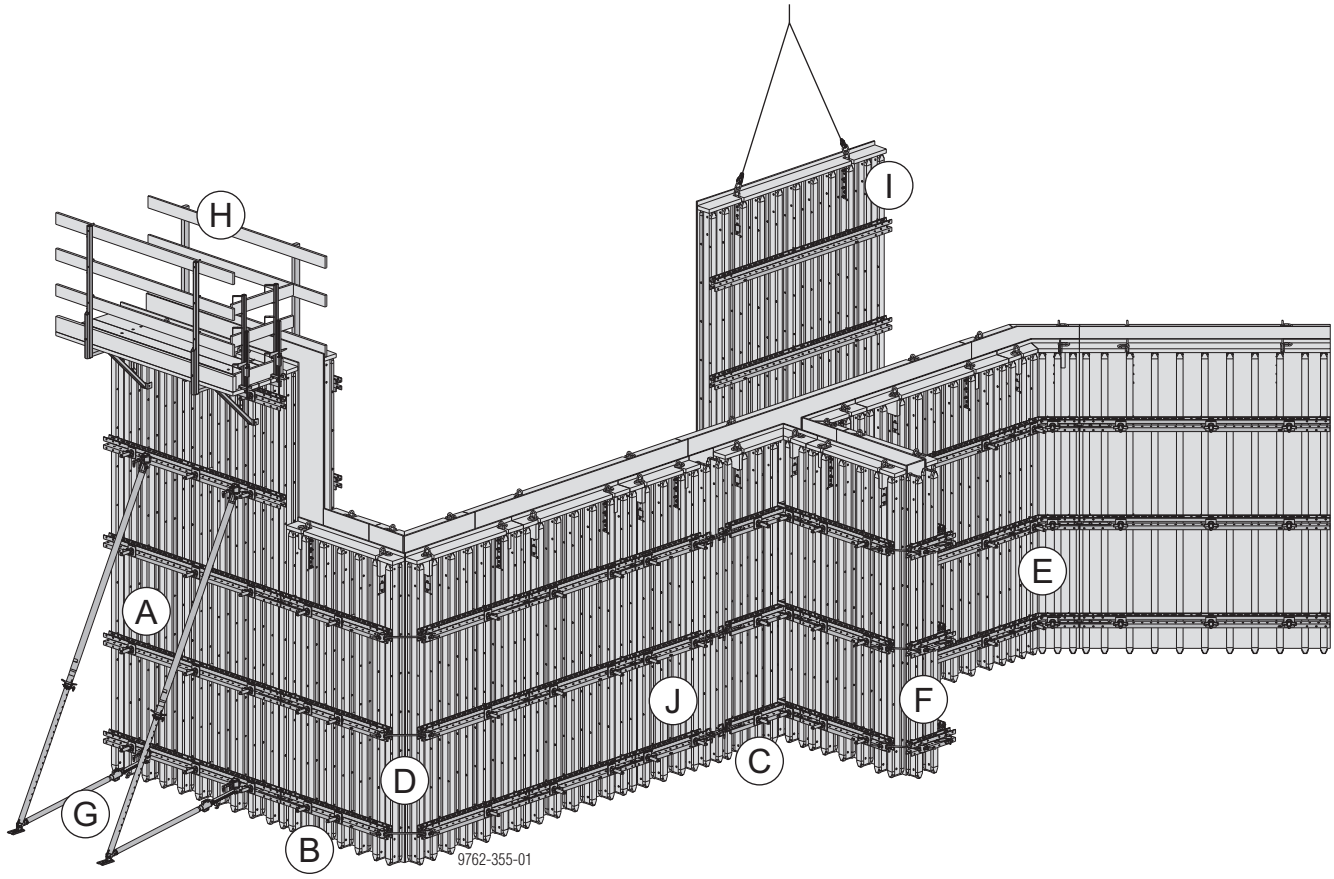
The Doka large-area formwork Top 50 is designed to be tailored to many very diverse types of projects. This means that it gives you ideal scope for adapting the shapes and sizes of the gangs to suit your structure.

The tie-hole pattern and the incremental size-grid of the gangs permit ready adaptation to meet architectural demands. The large-area gangs and exact joins deliver perfect joint patterns.

You can choose whichever form-face material best meets your requirements - e.g. for smooth architectural concrete, wood-textured surfaces, intensive re-use etc.

A range of practical accessories makes work on the site a lot easier and does away with the need for costly job-site improvisations.

Doka will plan the most economical solution for you. Also, having your formwork built by the Doka Pre-assembly Service saves time and space on site.



A Form-tie system (Page 14)
B Joining gangs (Page 16)
C Length adjustment (Page 19)
D 90 degree corners (Page 22)
E Acute and obtuse-angled corners (Page 25)
F Bulkhead formwork (Page 27)
G Plumbing accessories (Page 36)
H Pouring platforms (Page 40)
I Lifting by crane (Page 43)
J Gang assembly (Page 58)

Wall formwork

Instructions for assembly and use

The sequence shown here is based on a straight wall. As a rule, formwork set-up should start in a corner, working outward.

Ladders must be located so as to create viable "traffic routes" in the horizontal. (On a straight wall, for example, one ladder on the first gang and another one on the last).

Note:

Ladders must be secured to prevent sliding or tipping!

Preconditions for use:

Platforms and all accessories must only be mounted to the gang-form when this is face-down on the ground.

It must be possible for all formwork set-up, pouring and stripping operations to be carried out from safe workplaces.

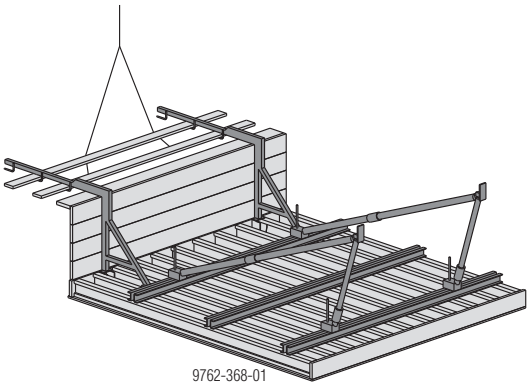
Preparations

➤ Pre-assemble the gangs face-down on an assembly bench (see ‘Gang assembly’).

The professionals from the Doka Pre-assembly Service plan and build **site-ready and custom formwork** exactly to your specifications.

➤ Mount the platforms to the face-down gang (see ‘Pouring-platforms with single brackets’).

➤ Mount panel struts to the face-down gang (see ‘Plumbing accessories’).



9762-368-01

Erecting the formwork

➤ Attach the crane suspension tackle to the lifting brackets (see ‘Lifting by crane’).

NOTICE

- Spread-angle β of the slinging chains max. 30°.
- Brace the formwork in a windproof manner when erecting it and when it is temporarily ‘parked’ in the standing position

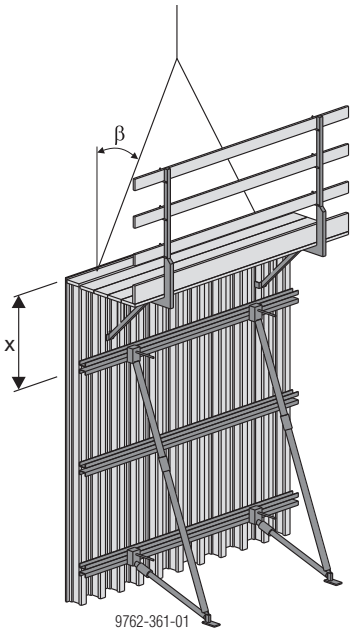
NOTICE

Never use a sledge-hammer to plumb and align the gangs! This would damage the gangs.

Use only proper plumbing tools (e.g. a special pry-bar) that cannot cause any damage.

WARNING

➤ When lifting multiple gang units (more than one) during a single lifting operation, a lifting beam with sufficient lifting points for every lifting bracket is recommended.



9762-361-01

Max. load-bearing capacity:
- 2900 lbs per lifting bracket where the space ‘x’ between the walings is less than 2’-5 1/2"
- 2200 lbs per lifting bracket where the space ‘x’ between the walings is 2’-5 1/2" to 3’-3"
- 1750 lbs per lifting bracket where the space ‘x’ between the walings is 3’-3" to 4’-0"

NOTICE
- ➤ Single or multiple gang units shall be lifted from each lifting bracket.
- ➤ For more information, please contact your Doka- technician.

- ➤ Crane-lift the gang, attached to every lifting bracket.
- ➤ Spray the plywood face with release-agent (see ‘Cleaning and care’).
- ➤ Fly the gang to its new location.
- ➤ Fix the panel struts firmly to the ground (see ‘Plumbing accessories’).
  This stabilizes the gang sufficiently for the gang to be exactly plumbed with no need for the crane.
- ➤ Mount the top guardrail board.
- ➤ Detach the gang from the crane.
- ➤ Continue lining up gangs in this way, and link them together (see ‘Joining gangs’).

Erecting the opposing formwork

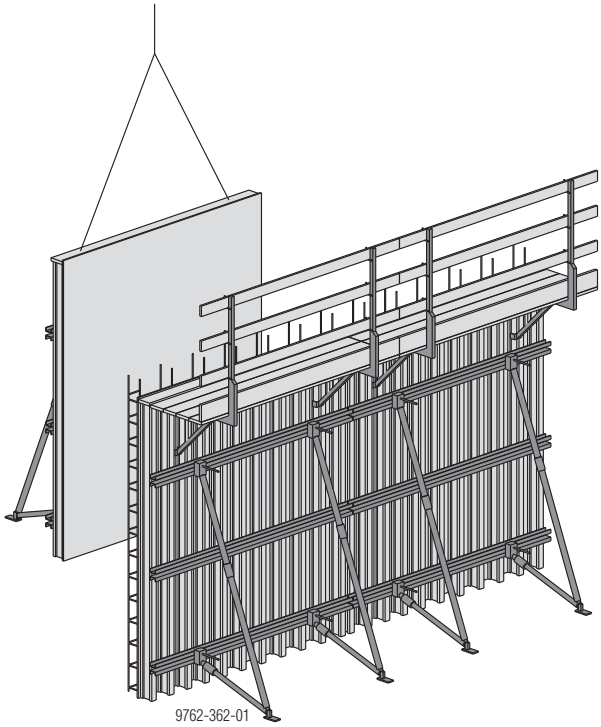
Once the reinforcement has been placed, the formwork can be closed.

- ➤ Spray the plywood face with release-agent (see ‘Cleaning and care’).

WARNING
- ➤ When lifting multiple gang units (more than one) during a single lifting operation, a lifting beam with sufficient lifting points for every lifting bracket is recommended.

NOTICE
- ➤ Single or multiple gang units shall be lifted from each lifting bracket.
- ➤ For more information, please contact your Doka- technician.

- ➤ Fly the opposing formwork by crane to its next location.



- ➤ Working from the ground, insert the bottom rows of form ties (see ‘Form-tie system’).

Before disconnecting from the crane:
- ➤ If there are no panel struts on the opposing formwork, do not disconnect the gang from the crane until a large enough number of form ties have been installed to keep it safely in the upright.

- ➤ Detach the gang from the crane.
- ➤ Insert the remaining form ties. These form-tie locations can be reached from the platforms.
- ➤ Continue lining up gangs in this way, and link them together (see ‘Joining gangs’).

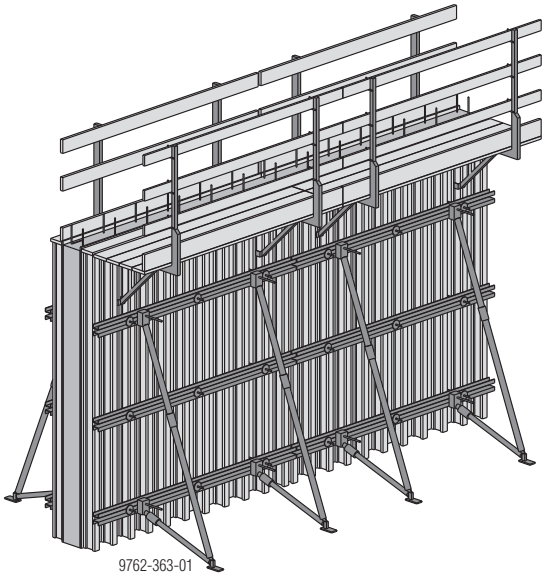
Pouring

NOTICE

- ➤ Do not exceed the maximum permissible rate of placing as defined by ACI-347.
- ➤ See also ‘Concrete pressure on perpendicular formwork to DIN 18218’ in the Doka Calculation Guide.
- ➤ Permitted pressure of the fresh concrete: depends on structural design of gangs - see also project plan
- ➤ Concrete compaction by vibration must comply with DIN 4235 Part 2.

➤ Pour the concrete.

➤ Make only moderate use of vibrators, carefully coordinating the times and locations of vibrator use.



9762-363-01

Immediately after pouring, clean the back-face of the formwork with water (see ‘Cleaning and care’).

Stripping the formwork

NOTICE

- ➤ Comply with the stipulated stripping times.

➤ Remove any loose items from the formwork and platforms, or secure them firmly.

When stripping the formwork, begin with the opposing formwork:

➤ Undo the connectors to the adjacent gangs.

WARNING

- ➤ There must be at least as many form-ties left in place as are needed to keep the gang safely in an upright position.

➤ Take out the form ties from the top rows of ties. These form-tie locations can be reached from the platforms.

WARNING

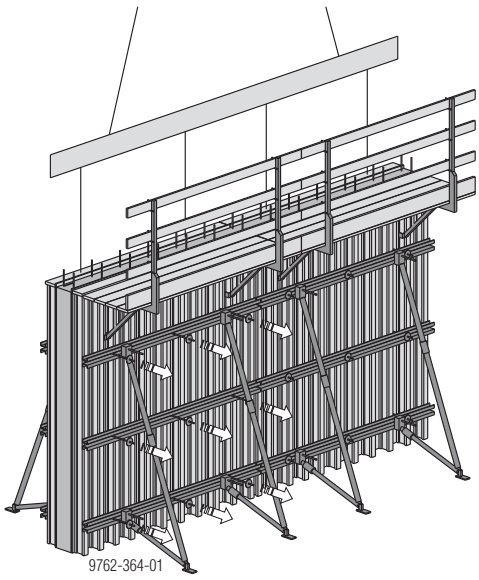
- ➤ When lifting multiple gang units (more than one) during a single lifting operation, a lifting beam with sufficient lifting points for every lifting bracket is recommended.

NOTICE

- ➤ Single or multiple gang units shall be lifted from each lifting bracket.
- ➤ The customer shall ensure that proper means and methods are employed to safely lift gangs from each lifting bracket.
- ➤ For more information, please contact your Doka- technician.

➤ Attach the gang (incl. platforms) to the crane.

➤ Working from the ground, take out the bottom rows of form ties.



9762-364-01

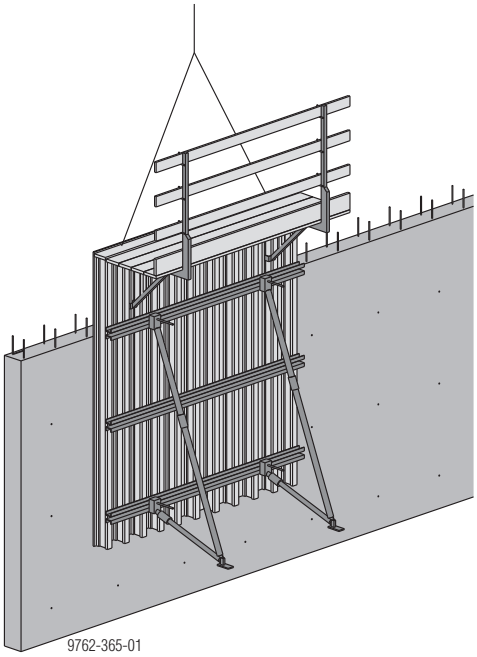
CAUTION

➤ When stripping the formwork, never use the crane to break concrete cohesion. Use suitable tools such as timber wedges or a special pry-bar.

➤ Lift the gang away and fly it to its next location, or place it face-down for intermediate storage.

➤ Clean residual concrete off the formwork sheet (see ‘Cleaning and care’).

➤ Where the gang has panel struts attached to it, first attach this gang to the crane, and only then detach the floor anchorages of the panel struts.



9762-365-01

Top 50 gang in detail

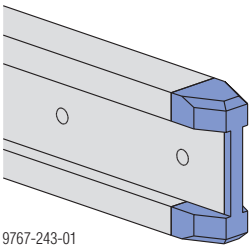
Plywood

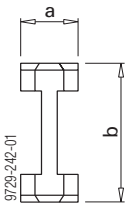
- No restrictions on what plywood face you choose - e.g. for smooth architectural concrete, wood-textured surfaces, repetitive re-use etc.
- The sheets are quick and easy to change
- Custom versions possible with profiled timber formers, open formwork and tongue-and-groove formwork

Follow the directions in the 'Formwork sheets' User Information booklet!

Doka beam H20 top

Innovative end-reinforcement:
- reduces damage to the ends of the beams
- greatly lengthens the service life





a ... 3 1/8"
b ... 7 7/8"

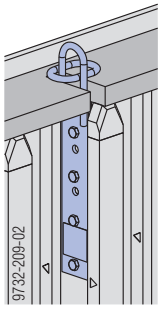
Follow the directions in the 'Timber formwork beams' User Information booklet!

Tie-holes

can be located anywhere along the middle of the waling between the formwork beams

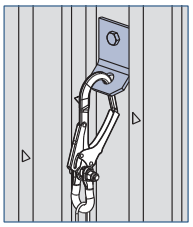
Crane slinging

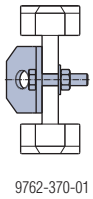
by mounting a lifting bracket and a top plank (pressure bracing). See the section headed 'Gang assembly'.



Attachment points for personal fall-arrest systems (PFAS)

The **Tie-off connector type A** can be installed if necessary in the middle of the web of the upright Doka beam.





NOTICE

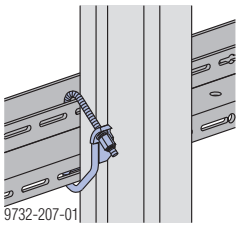
Installation in the topmost hole in the Doka beam is prohibited!

Steel walings (multipurpose walings)

- hold the Doka beams H20 in place and give the gang rigidity
- sustain the forces from the form-ties
- make the gangs easy to join, using plates and connecting pins

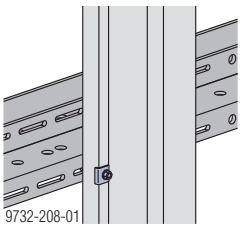
Fastening the beams

Flange-clamp H20



- Where formwork requires more frequent alterations
- can be mounted quickly anywhere on the waling

Beam screw



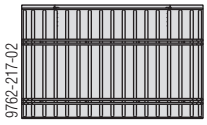
- For bolting the Doka beams directly to the walings
- can be mounted quickly anywhere on the waling

See ‘Gang assembly’ for alternative ways of fixing the Doka beams.

Flexibility

Size

Top50 gangs can be assembled in **widths of up to 16 ft** and in **heights of up to 40 ft**. Gangs of any size can be made by joining individual units.

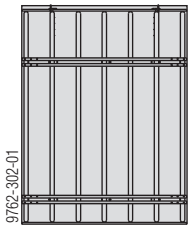


Pressure of fresh concrete

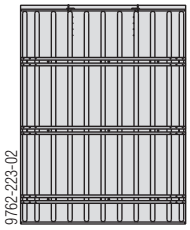
Depending on the **concrete pressure** required, the Doka beams and the walings are spaced closer together or further apart. This ensures optimum formwork design and the greatest economy of materials.

For more information on structural design of Top 50 gangs, see ‘Structural design’.

e.g. pressure of fresh concrete
800 lbs/ft²



e.g. pressure of fresh concrete
1850 lbs/ft²



Surface

Any type of plywood face can be used, as required:

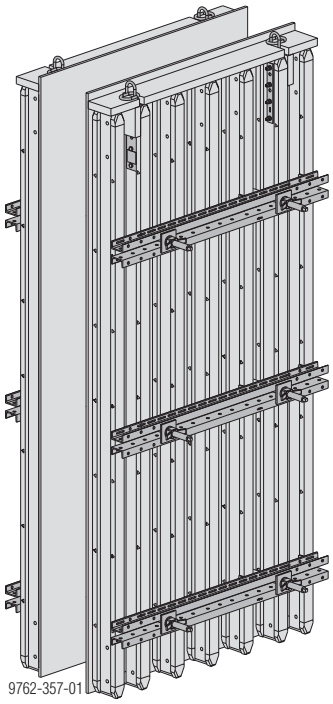
- Birch plywood
- HDO plywood
- MDO plywood
- Formliners etc.

The tie-hole pattern and the incremental size-grid of the elements permit ready adaptation to meet architectural demands. The large-area elements and exact joins deliver perfect joint patterns.

Shapes

Creating complex concrete shapes demands a high degree of formwork flexibility. On the large-area formwork Top 50, this is achieved by the use of e.g. shaping timbers.

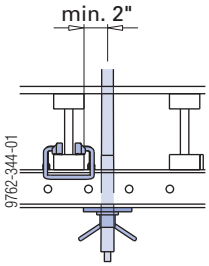
Form-tie system



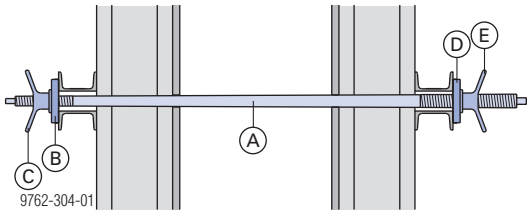
WARNING
Sensitive rod steel!
- ➤ Never weld or heat tie rods.
- ➤ Tie rods that are damaged or have been weakened by corrosion or wear must be withdrawn from use.

For correct positioning of the form ties, see ‘Top 50 gangs’ and/or the relevant project plan.
Doka also offers economical solutions for creating watertight wall-ties.

Position of flange-clamp and form tie



Taper-tie system 1¼" to 1"



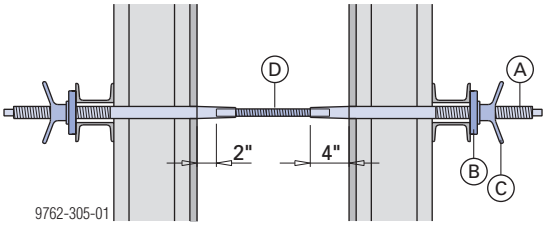
A	Taper tie 1¼" to 1"
B	Flat washer 1"
C	Wing nut 1"
D	Flat washer 1¼"
E	Wing nut 1¼"

Permitted capacity allowing a 2 : 1 factor of safety against failure: 34000 lbs

Taper ties for Top50 (with ¾" plywood)

Wall thickness	Taper-tie size
0" to 9"	42"
5" to 15"	48"
11" to 21"	54"
17" to 27"	60"
23" to 33"	66"
29" to 39"	72"

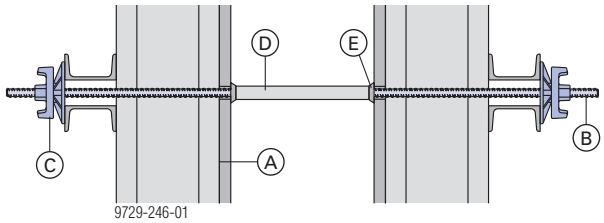
She-bolt 1¼" system



A	She-bolt 1¼" x24"
B	Flat washer 1¼"
C	Wing nut 1¼"
D	Inner unit (Coil rod ¾")

Permitted capacity allowing a 2 : 1 factor of safety against failure: 18000 lbs

Tie-rod system 15.0 ($^5/_8$")



A	Top50 gang
B	Tie rod 15.0 (DSI System)
C	Super plate 15.0
D	Plastic tube 22mm
E	Universal cone 22mm

Note:
The Plastic tubes 22mm left behind in the concrete are closed off with Plugs 22mm.

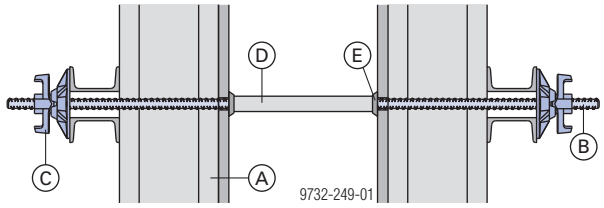
Tie rod 15.0mm:
Permitted capacity allowing a 2 : 1 factor of safety against failure:
22000 lbs (98 kN)

The ratchet SW27 or Box spanner 27 0.65m can be used for **low-noise releasing and tightening** of the following anchoring components:

- Super plate 15.0
- Wing nut 15.0
- Star grip nut 15.0

Tie-rod wrench 15.0/20.0
For turning and holding the tie rods.

Tie-rod system 20.0 ($^7/_8$")



A	Top50 gang
B	Tie rod 20.0 (DSI System)
C	Super plate 20.0 B
D	Plastic tube 26mm
E	Universal cone 26mm

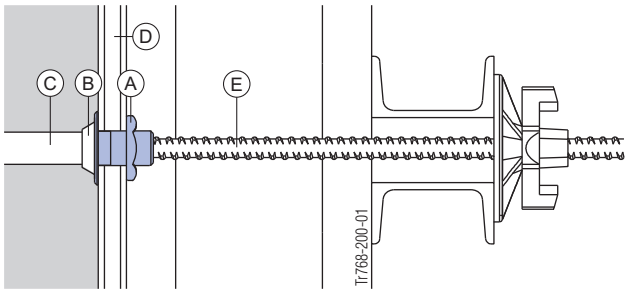
Note:
The Plastic tubes 26mm left behind in the concrete are closed off with **Plugs 26mm**.

Tie rod 20.0mm:
Permitted capacity allowing a 2 : 1 factor of safety against failure:
38000 lbs (169 kN)

Tie-rod wrench 15.0/20.0
For turning and holding the tie rods.

Form-ply protector

The Form-ply protector protects the form-ply from damage at form-tie points. This is a particular advantage for formwork with high numbers of repeat uses.
Possible thicknesses of form-ply: $^5/_8$" - $^3/_4$"



A	Form-ply protector 22mm and/or 32mm
B	Universal cone 26mm and/or 32mm
C	Plastic tube 22mm and/or 32mm
D	Form ply
E	Tie rod

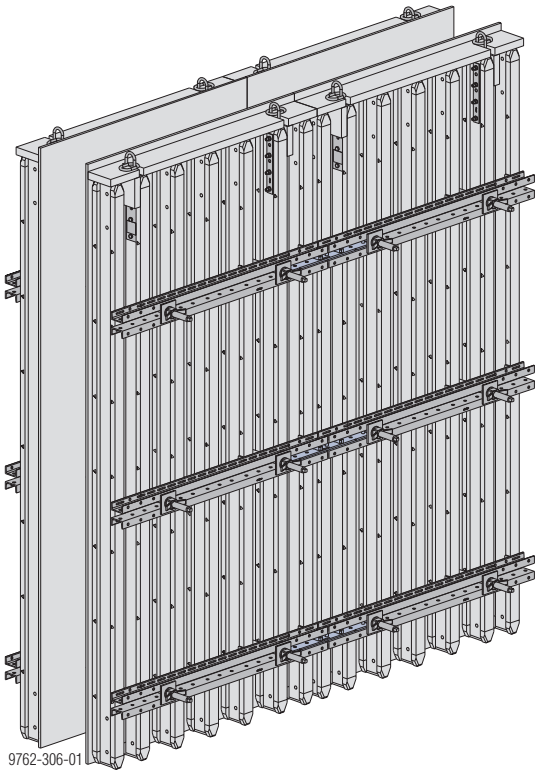
Tie-rod system 15.0:
Form-ply protector 22mm (Width-across 46 mm)

- Drilled hole for assembly: Ø 1 $^3/_{16}$"
- Seal if necessary with Framax plug R20/25.

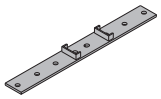
Tie-rod system 20.0:
Form-ply protector 32mm (Width-across 70 mm)

- Drilled hole for assembly: Ø 1 $^{13}/_{16}$"
- Seal if necessary with cover cap R20/25 (included in scope of supply).

Joining gangs



with Splice plate S Top50



For horizontal splicing and aligning the individual gangs use connecting pins 10cm and a single splice plate S Top50. This detail allows a fast and easy connection / disconnection.

- fast, tension-proof joints between gangs
- additionally, the gang joints can be pulled tight in 2 stages
- only tool needed is a hammer

Technical data:

Section modulus: 0.82 in^3

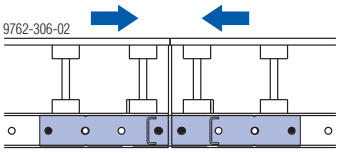
Moment of inertia: 1.46 in^4

Permitted moment: 1.98 kip-ft

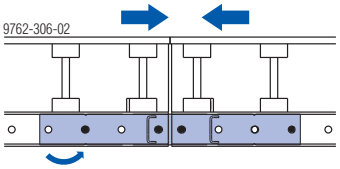
NOTICE

When the connecting pin is used in a horizontal position, secure it with a **Spring cotter 5mm**.

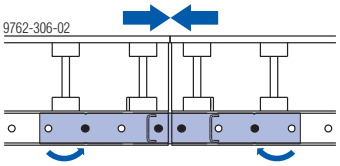
To fit normally



To pull tight half the way



To pull tight all the way



Note:

Only pull tight where there actually is a gap to close!

WARNING

- When lifting multiple gang units (more than one) during a single lifting operation, a lifting beam with sufficient lifting points for every lifting bracket is recommended.

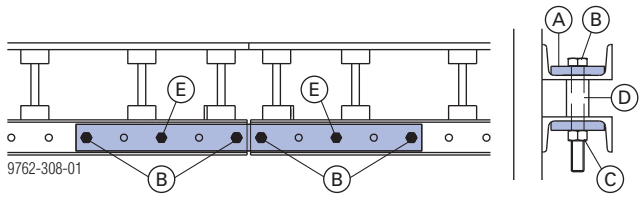
NOTICE

- Single or multiple gang units shall be lifted from each lifting bracket.
- For more information, please contact your Doka- technician.

with Splice plate S Top50 3"x1/2"

For bolting together single gangs to make large gang-forms.

Note:
Two Splice plate S Top50 Top50 3"x1/2" are needed here.



A	Splice plate S Top50 3"x1/2"
B	Speed bolt 3/4"x6"
C	Speed nut 3/4"
D	Channel wale spacer 2"
E	Connecting pin 25cm

Technical data (2 splice plates):
Section modulus: 1.5 in^3
Moment of inertia: 2.06 in^4
Permitted moment: 3.45 kip-ft

Other possible types of gang joints

Anchoring plate FF20/50 - without pull-tight function (for details of how to use on inside corners, see ‘90 degree corners’)

Examples of the system in action

Site: Riverplace, IL

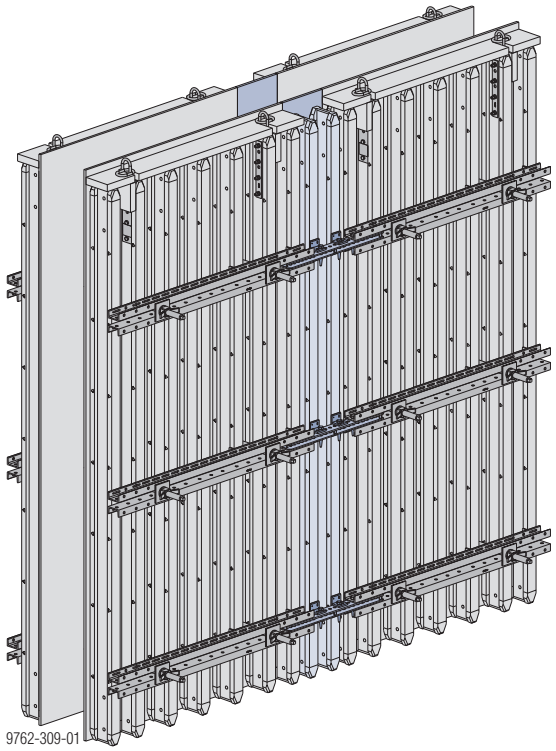
Site: Clifford Hollow Bridge, WV

Site: 37th Street Theater, NJ

Site: Mesa Art Center, AZ

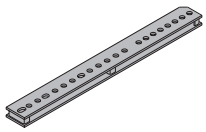
Site: Aquarium Atlanta, GA

Length adjustment using fillers



Adjustable waling extensions are used for obtaining tension-proof and slippage-free links between the Top 50 gangs.

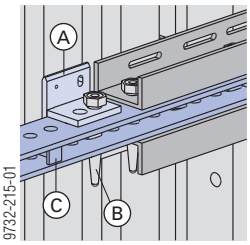
Note:
When **connecting short gangs** (2'-6"), watch out for possible collisions between the adjustable waling extensions and the Splice plate S Top50.



Adjustable waling extension Top50 S (Art. n° 741001244)
Section modulus: 1.02 in^3
Moment of inertia: 1.79 in^4
Permitted moment: 3.57 kip-ft

Beam clamp Top50

For fastening the Doka beams H20 to the Adjustable waling extensions. The beam clamp is held in place by a Connecting pin 10cm.

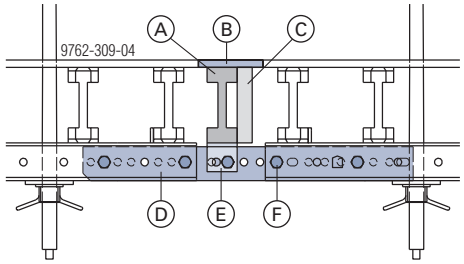


A Beam clamp Top50
B Connecting pin 10cm
C Adjustable waling extension

For filler widths of up to 20"

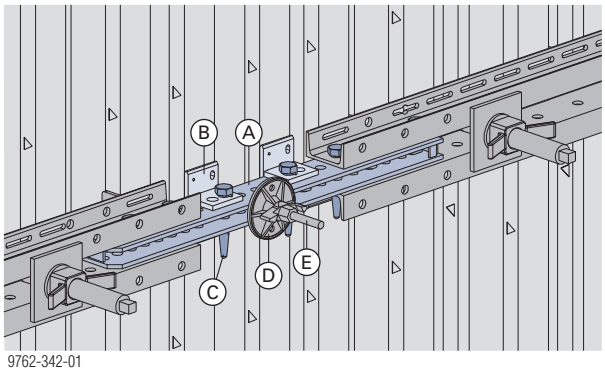
with plywood in the infill zone

Up to 8" (without form-tie)



A	Doka beam H20
B	Plywood
C	Nailed-on timber stud to add support to the infill
D	Adjustable waling extension Top50 S
E	Beam clamp Top50
F	Connecting pin 10cm

8" - 20" (with form-tie)

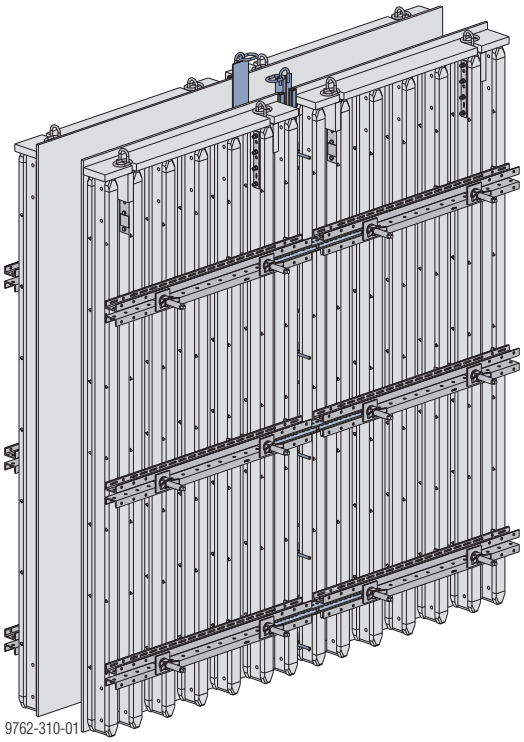


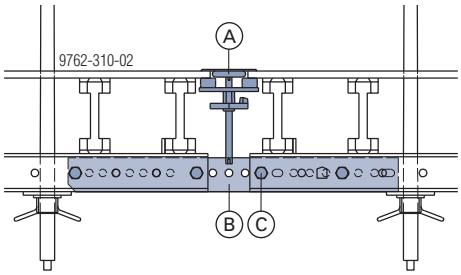
A	Adjustable waling extension Top50 S
B	Beam clamp Top50
C	Connecting pin 10cm
D	Super plate 15.0
E	Tie rod 15.0

For filler widths of 1 1/2" - 4 1/4"

with joint plate in the infill zone

To make the formwork easier to strip: approx. 2 hours after pouring, loosen the Joint plate and pull it out a short way by crane.



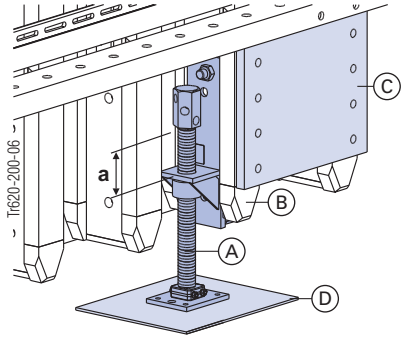


A	Joint plate
B	Adjustable waling extension Top50 S
C	Connecting pin 10cm

Height adjustment

with Height adjustment for formwork beams

The Height adjustment for formwork beams is used for vertical adjustment of **upright** Top 50 gangs, e.g. for shafts.



Adjusting range **a**: max. 9 $^{2}/_{3}$"

A	Height adjustment for formwork beams (incl. nuts & bolts)
B	Doka beam
C	Stiffening board between 2 adjacent beams (e.g. multi-ply sheet $^{3}/_{4}$") (site provided)
D	Sliding plate (site-provided)

Max. load-bearing capacity: 2200 lbs

Ways of operating:

- Box nut 50 3/4" and Reversible ratchet 3/4" (with lengthening-piece if needed)
- Tie rod 15.0mm or round steel bar (max. ø $^{2}/_{3}$")
  There are holes in the hexagonal nut of the spindle for inserting a tie rod.

For custom applications, the footplate can also be secured to multi-purpose walings, for example.

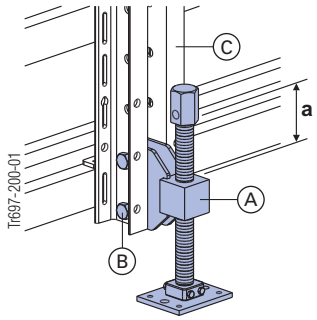
NOTICE

When using the height adjuster on shaft formwork, ensure that the shaft platform decking is adequately dimensioned, as the loads act on the decking in a concentrated manner via the spindles!

Gangs can be moved and relocated more easily using sliding plates.

using Height adjuster WS10-WU16

The Height adjuster WS10-WU16 is used for vertical adjustment of large-area formwork elements used **longside horizontal**.



Adjusting range **a**: max. 9 $^{2}/_{3}$"

A	Height adjuster WS10-WU16
B	Connecting pin 10cm and Spring cotter 5mm
C	Multi-purpose waling

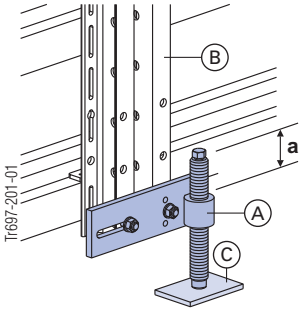
Max. load-bearing capacity: 6600 lbs

Ways of operating:

- Box nut 50 3/4" and Reversible ratchet 3/4" (with lengthening-piece if needed)
- Tie rod 15.0mm or round steel bar (max. ø $^{2}/_{3}$")
  There are holes in the hexagonal nut of the spindle for inserting a tie rod.

with Adjusting spindle M36

The Adjusting spindle M36 is used for vertical adjustment of Top50 gangs used **longside horizontal**.



Adjusting range **a**: max. 8 $^{2}/_{3}$"

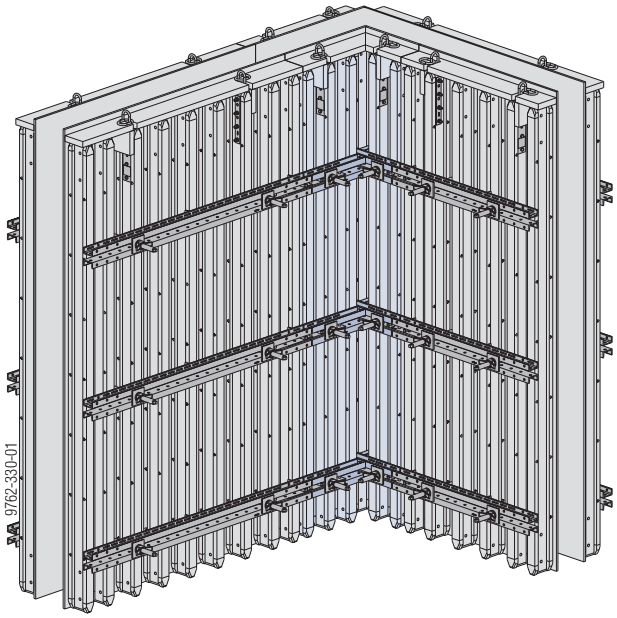
A	Adjusting spindle M36 (incl. nuts & bolts)
B	Multi-purpose waling
C	Steel plate (site-provided), e.g. 6 x 4 x $^{1}/_{2}$"

Max. load-bearing capacity: 2200 lbs

Ways of operating:

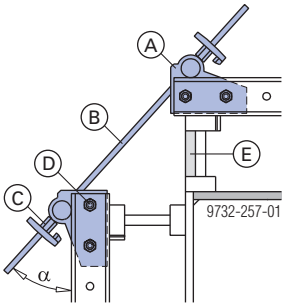
- Box nut 24 and Reversible ratchet 1/2"

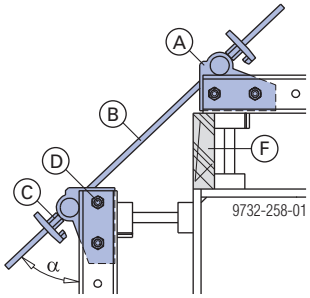
90 degree corners



Outside corners

The gangs are joined together with the **Universal angle tie bracket** and Tie-rods 15.0.





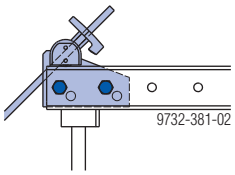
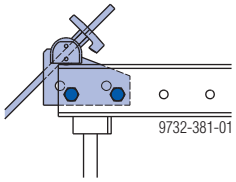
α ... 23° - 64°

A	Universal angle tie bracket
B	Tie-rod 15.0
C	Wing nut 15.0
D	Connecting pin 10cm
E	Flange reinforcement
F	Plank

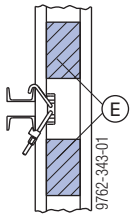
CAUTION

Risk of tie overload if not correctly positioned!

➤ Make sure that the Universal angle tie bracket is bolted into the right holes for the Multipurpose waling WS10 Top50 or WU12 Top50, depending on which type of waling is being used!

Bolting holes for Multi-purpose waling WS10 Top50	Bolting holes for Multi-purpose waling WS12 Top50
	

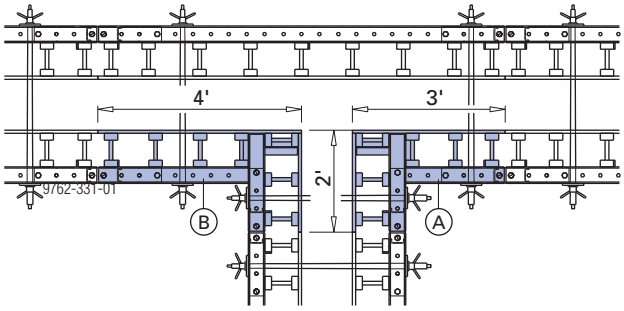
The **flange reinforcement** prevents the flange of the beam breaking when exposed to high oblique pull from the tie-rod.



E	Fit 2 flange reinforcements (plywood strips) between the flanges of the outside beam, so that the form-ply of the second corner gang is supported.

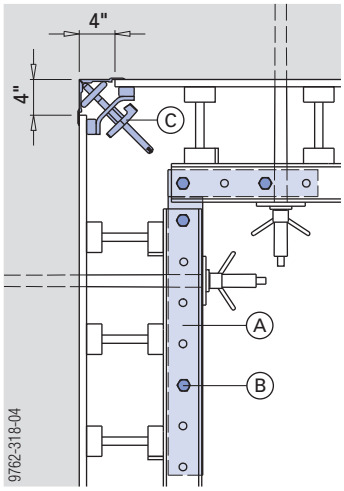
Inside corners

with Inside corner gang 3’-0"x2’-0" and 4’-0"x2’-0"



A Inside corner gang 3’-0"x2’-0"
B Inside corner gang 4’-0"x2’-0"

with Internal angle plate S H20 (without filler function)

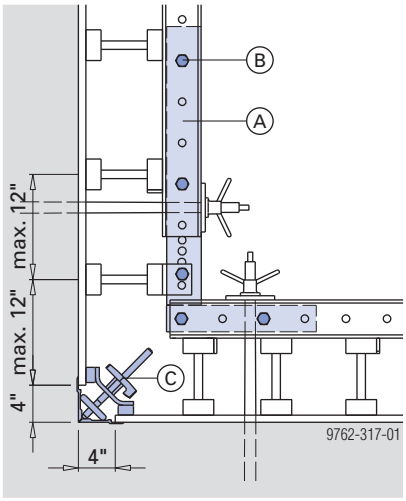


A Internal angle plate S H20
B Connecting pin 10cm
C Inside corner plate

with Internal angle plate S H20 (with filler function)

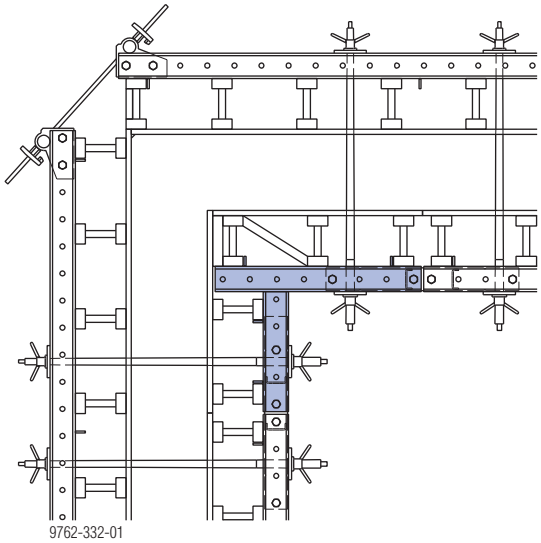
An economical way of making inside corners **with a filler function** (for filler widths of up to 1’-0$^{5}/_{8}$" in $^{3}/_{8}$" increments)

By using longer plywood on the ends of standard gangs they can be used in corner gangs.



A Internal angle plate S H20
B Connecting pin 10cm
C Inside corner plate

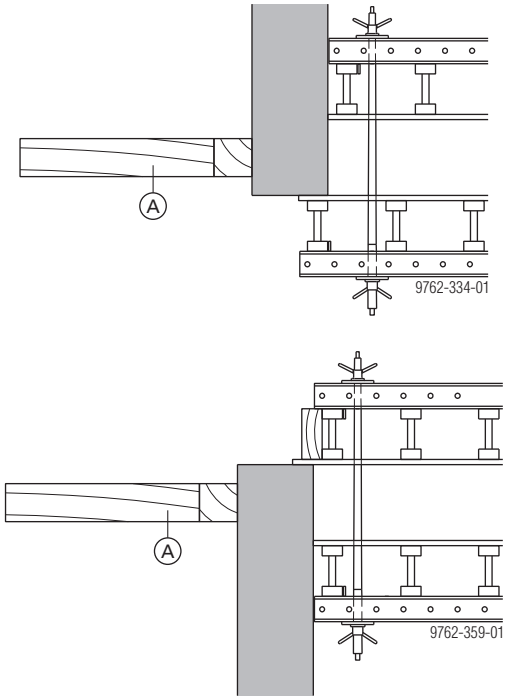
with Shaft corner waling WS10 Top50 (special order only)



The Shaft corner waling WS10 Top50 is a 90°-welded multi-purpose waling used for making sturdy corner gangs. This special waling is custom-built on a project-specific basis.

The Shaft corner waling is often used for shaft formwork (see ‘Shaft formwork’).

Corner connections



A In-place timber brace

NOTICE

Do a statics check to determine whether **shoring/tension anchoring** is required **to restrain the formwork** (horizontal forces on short walls/large wall thicknesses).

Please consult your Doka technician.

Acute and obtuse-angled corners

For non-right-angled corners, too, the standard components of the Large-area formwork Top 50 will always provide an optimum solution.

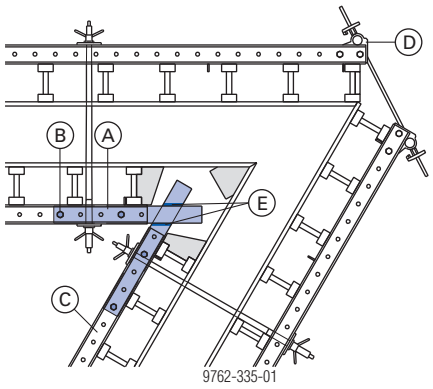
In a similar way to the 90-degree corners, on **outside corners** the gangs are also mainly connected using **Universal angle tie brackets**.

Inside corners can be formed in any of the following 4 ways:

- with Half splice plate
- with Articulated connecting plate A Top50 ..... ° (special order only)
- with Angular waling WS10 Top50 (special order only)
- Custom splice plate (special order only)

with Half splice plate

for fabricating low-cost corner plates, with **any angle**, directly on the site.



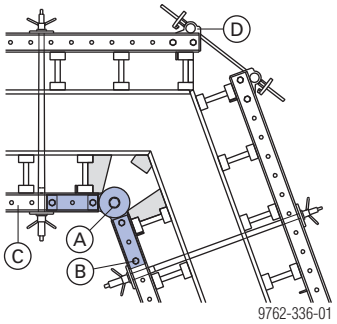
A	Half splice plate
B	Connecting pin 10cm
C	Multi-purpose waling
D	Universal angle tie bracket
E	Weld-seam

To make a corner plate in this way, two Half splice plates are needed. After the formwork has been plumbed at the prescribed angle, these two plates must be welded firmly together.

➤ The user is responsible for the integrity of the welded joint!

with Articulated connecting plate A Top50 ..... ° (special order only)

- Makes it possible to set two steel walings at any angle (in a range between 61° and 299°)
- Can be used over and over again



A	Articulated connecting plate A Top50 ..... °
B	Connecting pin 10cm
C	Multi-purpose waling
D	Universal angle tie bracket

If there are no planned moments that need to be transferred by the connecting plate (i.e. if it is being used as an ordinary user-adjustable form connector), it is sufficient to tighten the threaded joint using ordinary tools such as the Reversible ratchet 3/4".

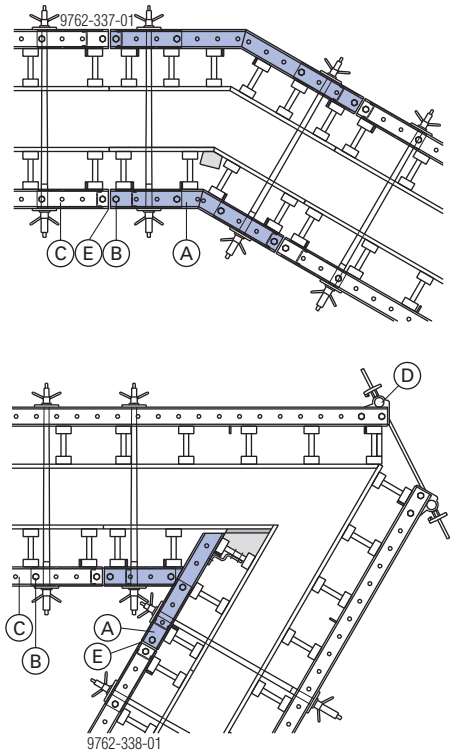
In order to achieve the stability required when the formwork is being lifted, a force of approx. 88 lbs should be applied to the approx. 2'-5$^1/_2$" long lever arm of a "Reversible ratchet 3/4" (to give a tightening torque of approx. 217 lbsft).

When used in this way as an ordinary user-adjustable form connector, it is not necessary to insert a new aluminum locking ring. The hexagonal bolt M30x90 and the nut of the connection must always be greased before being tightened.

Angular waling WS10 Top50 (special order only)

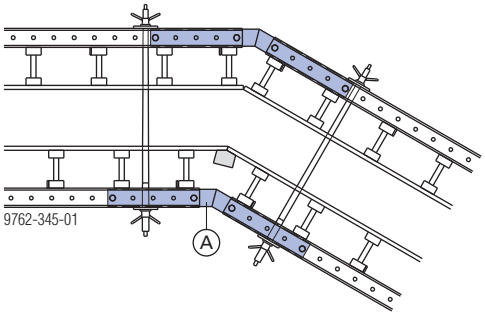
The Angular waling is a welded multipurpose waling used for making strong corner gangs. The legs are rigidly fixed at any desired angle other than 90°.

This special waling is custom-built on a project-specific basis.



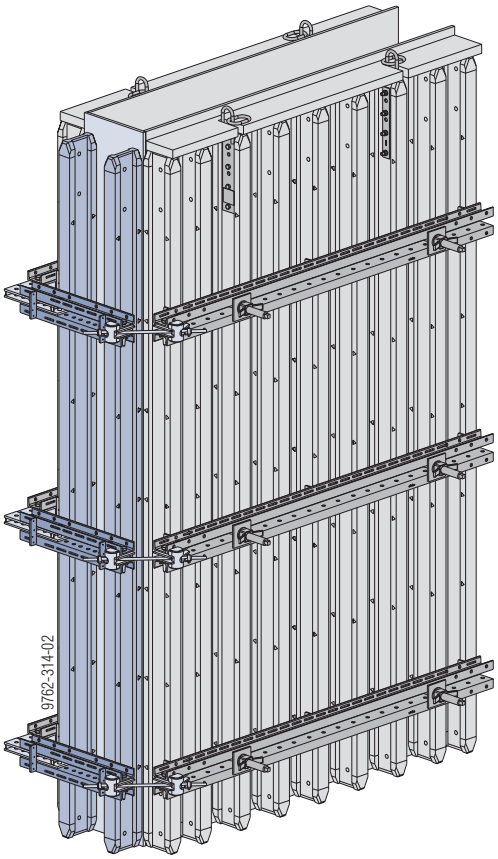
A	Angular waling WS10 Top50
B	Connecting pin 10cm
C	Multi-purpose waling
D	Universal angle tie bracket
E	Splice plate

Custom splice plate (special order only)



A	Custom splice plate

Bulkhead formwork



Large-area formwork Top50 is a complete formwork system. As such, it also offers practical solutions for e.g. the bulkhead formwork.

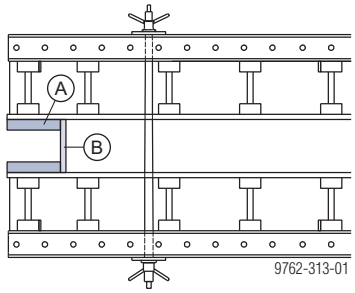
NOTICE

Do a statics check to determine whether **shoring/tension anchoring** is required **to restrain the formwork** (horizontal forces on short walls/large wall thicknesses).

Please consult your Doka technician.

Walls up to approx. 8" thick

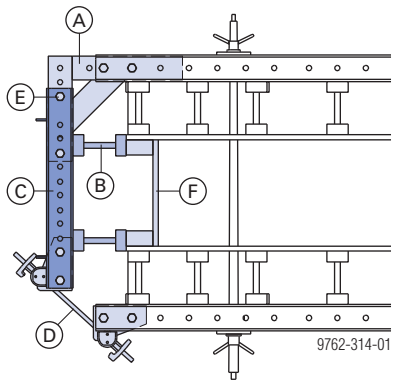
Simply nail lumber onto the Top50 gang and insert a plywood strip.



A Nailed-on plank
B Plywood

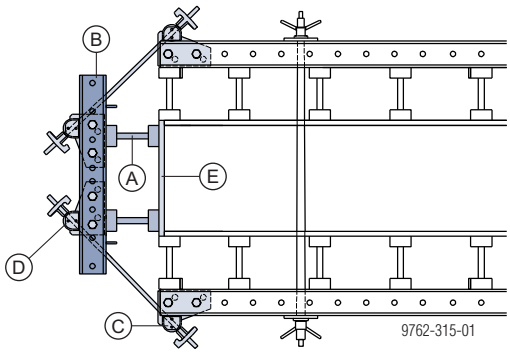
Walls thicker than approx. 8"

Bulkhead with Universal angle tie bracket & Corner connecting plate 90/50



A Corner connecting plate 90/50
B Doka beam H20
C Multi-purpose waling WS10 Top50
D Wing nut 15.0 + Universal angle tie bracket + Tie-rod 15.0
E Connecting pin 10cm
F Plywood

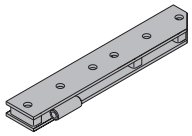
Bulkhead with Universal angle tie bracket on both sides



A Doka beam H20
B Multi-purpose waling WS10 Top50
C Wing nut 15.0 + Universal angle tie bracket + Tie rod 15.0
D Connecting pin 10cm
E Plywood

Anchoring plate FF20/50 (special order only)

The **Anchoring plate FF 20/50** ensures that the loads are safely transferred into the waling system of the Top 50 gangs.



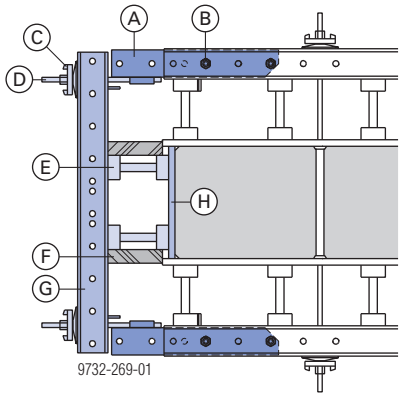
Safe working load where 2 Connecting pins 10cm are used: 12.5 kip

Technical data:

Section modulus: 2.335 in^3

Moment of inertia: 1.17 in^4

The tie rods are screwed into the Anchoring plate, and the correct spacing of the bulkhead gang is adjusted using the Super plate 15.0.



A	Anchoring plate FF20/50
B	Connecting pin 10cm
C	Super-plate 15.0
D	Tie-rod 15.0
E	Doka beam
F	Nailed-on plank
G	Multi-purpose waling
H	Plywood strip

Combining a **Corner connecting plate 90/50** with an Anchoring plate makes it possible to lift the bulkhead form along with the wall gang.

Anchoring plates are used on one side, and Corner connecting plates on the other.

Vertical stacking of panels

The vertical-stacking methods shown here are only suitable for:

- lifting
- setting down and
- crane-handling

the formwork.

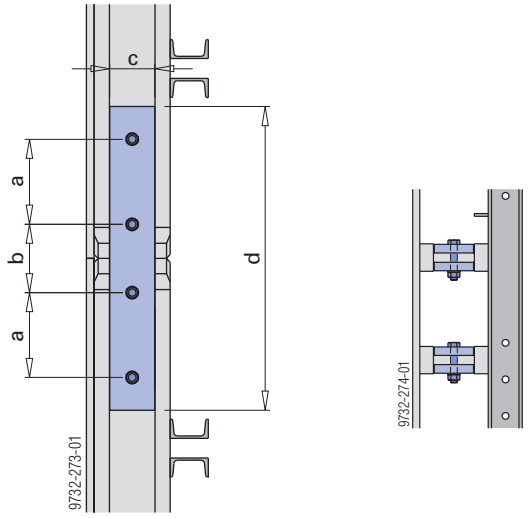
NOTICE

The vertical stacking joint must not be exposed to loads from concrete pressure or concrete weight. This means:

- that the cantilever arms at the beam-joint must be as short and symmetrical as possible,
- or that users must take all statically required measures (e.g. extra waling level).

with board-plates

A field solution that often works well in practice. The existing holes at the end of the beam can be used for making the bolted connections.



a ... $8^{13}/_{16}$"
b ... $3^{15}/_{16}$"
c ... $4^{1}/_{2}$"
d ... min. 2'-$7^{1}/_{2}$"

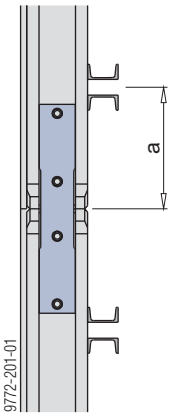
Board-plate:
Permitted moment: 517 lbsft

Items needed for each beam join:

Plank $^{3}/_{4}$"	2 pcs.
Speed bolt $^{3}/_{4}$" x 6"	4 pcs.
Speed nut $^{3}/_{4}$"	4 pcs.
Washer $^{3}/_{4}$"	4 pcs.

with Stacking plate H20

The Stacking plate H20 serves as a bolt-on longitudinal connector for Doka beams, and is used for vertical stacking of formwork gangs. The plate is bolted onto the beams through the pre-drilled holes at either end of the beam.



a ... min. 1'-4"

Stacking plate H20
Permitted moment: 1475 lbsft

The number of Stacking plates H20 needed will depend on the overall height of the gang-form:

- **Up to 19'-8" overall height:** A Stacking plate H20 must be fastened to every beam.
- **Up to 26'-3" overall height:** A Stacking plate H20 must be fastened to every beam.
  In addition, it is advisable to place extra multi-purpose walings across the horizontal joins, in order to achieve greater stability.
- **Over 26'-3", up to a max. overall height of 45'-11":** A Stacking plate H20 must be fastened to every beam.
  In addition, it is **absolutely essential** to place extra multi-purpose walings across the horizontal joins, in order to achieve sufficient stability.

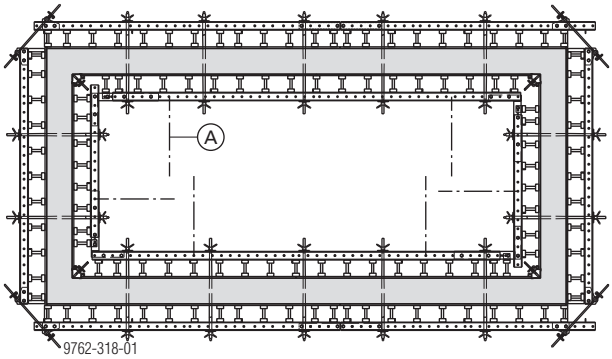
Included in scope of supply:

- 4 hexagonal bolts M20x70 (width-across 30 mm)
- 4 hexagon nuts M20
- 4 spring washers A20

Note:
Make sure that the bolted connections are tightened firmly!

Shaft formwork

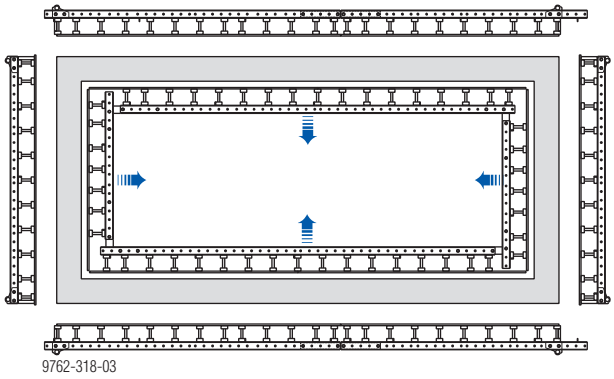
with Inside corner plate and Internal angle plate



A Panel strut

For inside formwork in narrow cross-sections (e.g. lift shafts, stairwells etc.), the Inside corner plate and Internal angle plate can be used to enable rapid stripping of the formwork and lifting of the complete shaft formwork as a single unit.

Stripping the formwork



➤ First attach the opposing-formwork gang to the crane (see illustration), and only then take out the form-ties and undo the connectors to the adjacent gangs.

To make the formwork easier to strip: Approx. 2 hours after pouring, loosen the Inside corner plate and pull it out a short way by crane.

- ➤ Loosen and remove the form-ties from the formwork.
- ➤ Remove all 4 connecting pins from the Internal angle plates.
- ➤ Loosen the Inside corner plate.
- ➤ Pull out the Inside corner plates by crane.
- ➤ Turn the spindles on the panel struts to pull the inside formwork approx. 1" to 2" away from the concrete.
- ➤ Connect the gangs back together with Internal angle plates.
- ➤ Lift and reposition the entire inside formwork and shaft platform, picking from the telescopic shaft beams.

with Transition plate S 3/4", Framax S bias cut corner I and Framax stripping spindle I with ratchet

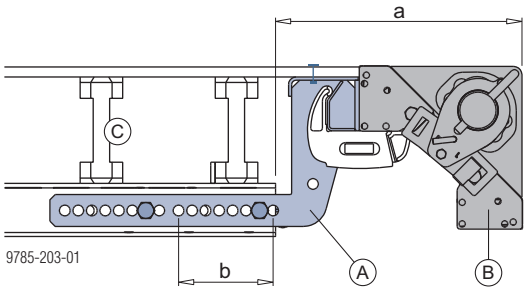
The Transition plate S 3/4" makes it possible to use the Framax S bias cut corner I with Large-area formwork Top50.

Permitted pour pressure when using the Transition plate S 3/4": **1200 psf**

The Framax S bias cut corner I was designed specifically for use with shaft formwork.
The Framax S bias cut corner I enables the entire formwork unit to be reset in one single lift.

Note:
Check for possible collisions of the transition plates in height. If necessary, use custom transition plates.

Adjustment range of Transition plate

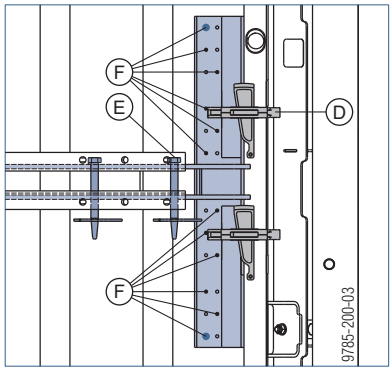


a ... 1'-5" to 2'-0"
b ... Adjusting range 7", in 1" increments

A Transition plate S 3/4"
B Framax S bias cut corner I
C Top50 gang

Length of WS10 Top50 waling	Width of shaft	
	min.	max.
3'-0"	5'-10"	7'-0"
4'-0"	6'-10"	8'-0"
5'-0"	7'-10"	9'-0"
6'-0"	8'-10"	10'-0"
7'-0"	9'-10"	11'-0"
8'-0"	10'-10"	12'-0"
9'-0" (5'-0" + 4'-0")	11'-10"	13'-0"
10'-0"	12'-10"	14'-0"

Connections

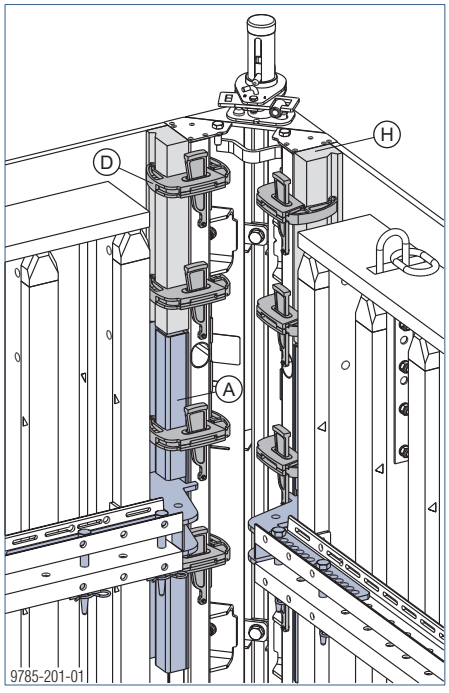


D Framax quick-acting clamp RU
E Connecting pin 25cm with spring cotter
F 10 Framax screws
2 elevator bolts + nuts
(not included in scope of supply)

Supporting the plywood face

If a more than 6" length of the plywood face is not resting on the Transition plate, the plywood must be supported by a molded timber.

up to 6"	up to 14"	up to 24"
-	Molded timber	Molded timber
-	1 Quick-acting clamp RU	2 Quick-acting clamps RU

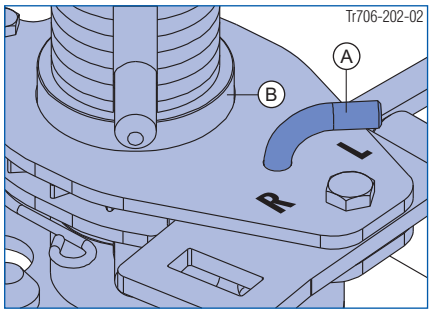


A Transition plate S 3/4"
D Framax quick-acting clamp RU
H Molded timber

Setting up and stripping the formwork

Setting the direction of spindling:

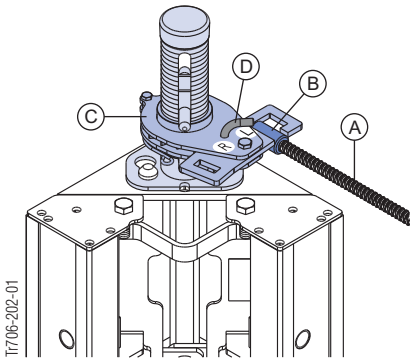
➤ Shift the change-over lever **(A)** into the desired position (L or R).



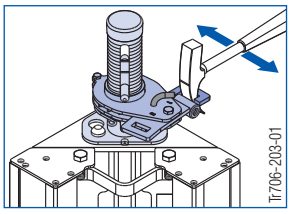
Mode of functioning	Change-over lever	Rotational direction of ratchet nut **(B)**
Setting up	L position	Clockwise
Stripping	R position	Counter-clockwise

The following tools can be used for operating the "Framax stripping spindle I with ratchet" (C) :

➤ Screw a Tie-rod 15.0 **(D)** , or other components with a 15.0 thread, into the Weldable coupler 15.0 **(E)** .

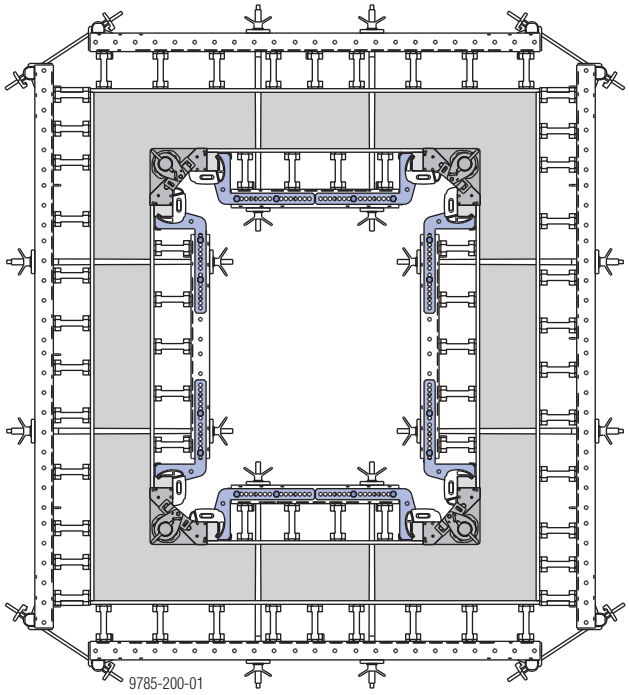


➤ Hook a formwork hammer **(F)** into the lever plate **(G)** .

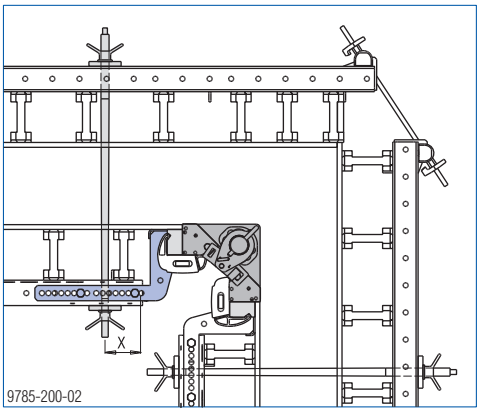


Practical example

Shaft formwork closed ready for pour



Close-up of form-ties



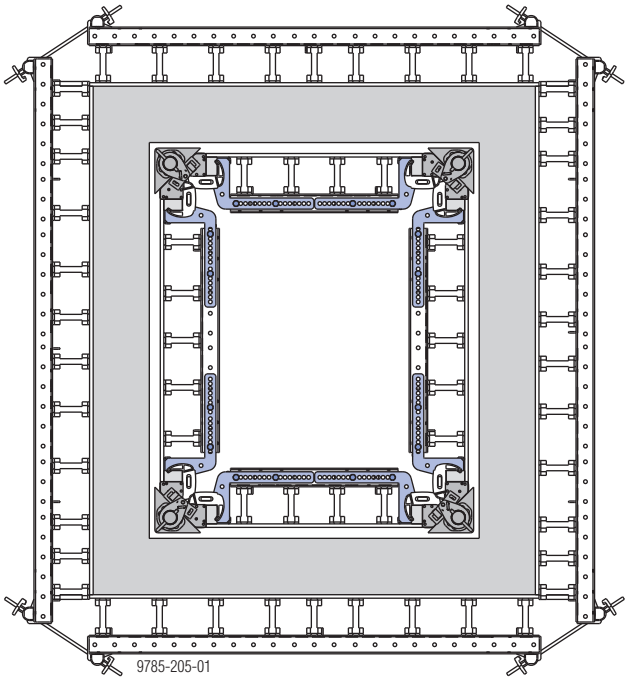
x ... $5^1/_2$" - $8^1/_2$"

Only tie through the waling.

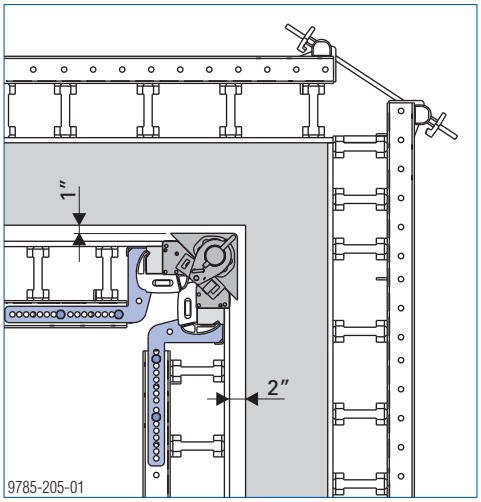
NOTICE

The outside and inside formwork must be dimensioned in line with the structural-design requirements for the Large-area formwork Top 50 and a permitted waling load of 90 kN/m!

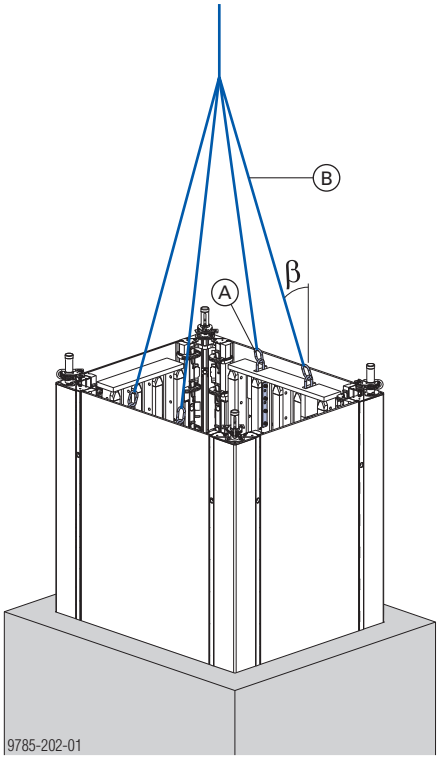
Shaft formwork stripped ready for lifting



Stripping play:



Lifting by crane (special application)



β ... max. 15°

A Lifting bracket

B Four-part lifting tackle

NOTICE

Contact your Doka engineer for permitted shaft sizes and formwork heights for repositioning.

The crane hook on the Bias-cut corner I must not be used for lifting the shaft formwork.

➤ The shaft formwork must **only be lifted using lifting brackets**, or in one piece with the shaft platform.

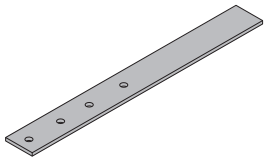
Max. load-bearing capacity:
2200 lbs per lifting bracket

Doka shaft platform

With its telescopic shaft beams, this platform can accommodate any dimension of structure. The inside formwork can be "parked" on the platform and repositioned together with the platform.

Follow the directions in the 'Shaft platform' User Information booklet.

Circular formwork

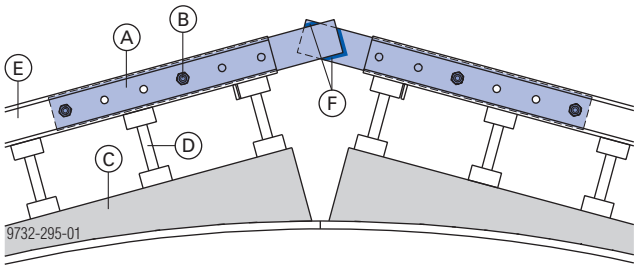


Half splice plates are used for fabricating low-cost corner plates, with any angle, directly on the site.

To make a corner plate in this way, two Half splice plates are needed. After the formwork has been plumbed at the correct angle, these two plates must be welded firmly together.

➤ The user is responsible for the integrity of the welded joint!

Profiled timber formers produce the desired shape.



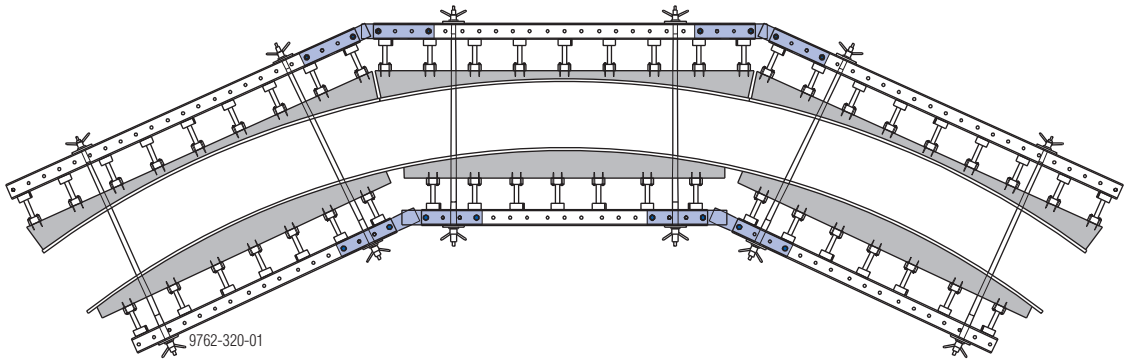
A	Half splice plate
B	Connecting pin 10cm
C	Profiled timber formers
D	Doka beam
E	Multi-purpose waling
F	After plumbing and aligning the formwork, weld here

Minimum bending radii of Doka formwork sheets:

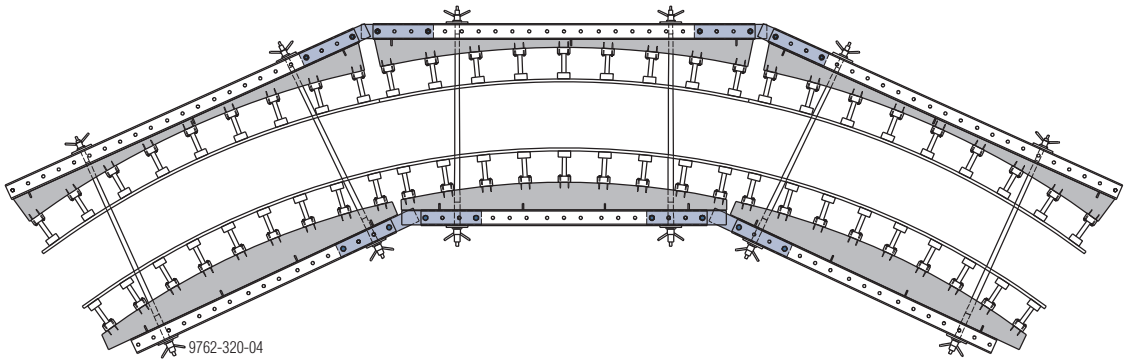
Formwork sheet	Grain direction of face layer	min. radius
Dokaplex 9mm	transverse	7'-0"
	longitudinal	11'-6"
Plywood $^3/_4$"	transverse	12'-0"
	longitudinal	20'-0"

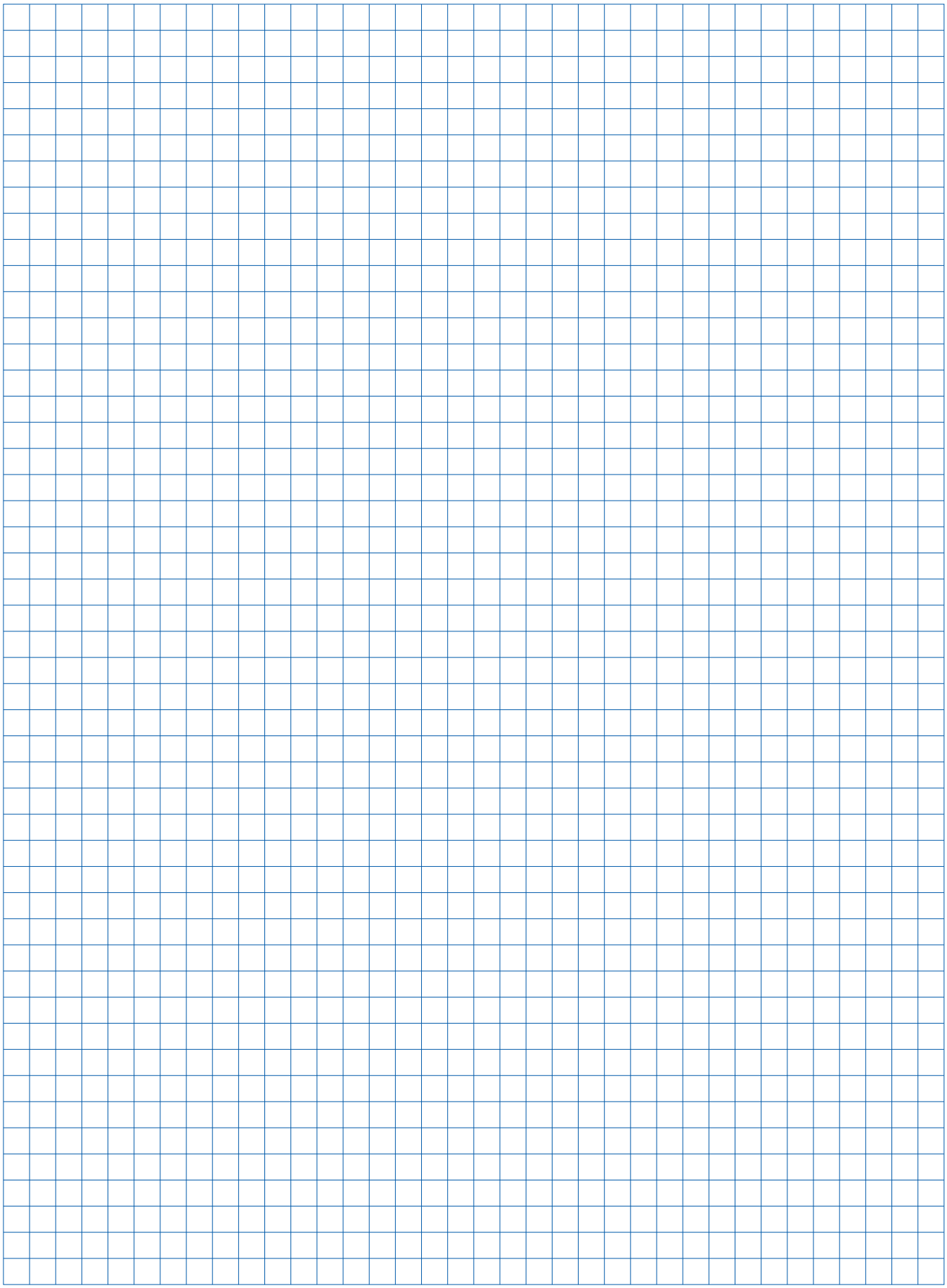
Smaller radii can be achieved by cutting into the formwork sheets or by using plywood strips.

Example - formwork for a circular tank
Variant 1:

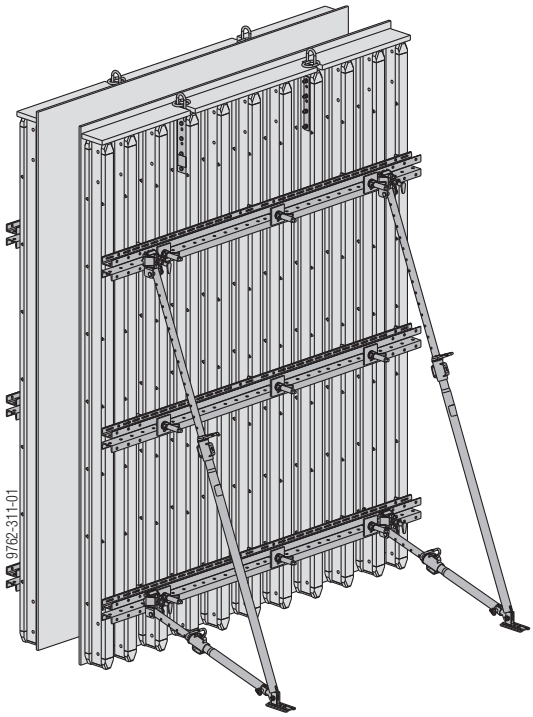


Variant 2:





Plumbing accessories



Plumbing accessories windproof the gangs and make it easier to plumb and align the formwork.

WARNING
Risk of the formwork tipping over!
- ➤ The formwork gangs must be securely braced in **every** phase of the construction work!
- ➤ Observe all applicable safety rules!
- ➤ If **high wind speeds** are likely, and when work finishes for the day or before prolonged work-breaks, always take extra precautions to fix the formwork in place.
  Suitable precautions:
  - set up the opposing formwork
  - place the formwork against a wall
  - anchor the formwork to the ground

Permitted spacings of the plumbing accessories:

Formwork height	Panel strut		Pipe brace 22'-40' or Eurex 60 550
	340	540	
8'-6"	10'-8"		
10'-0"	8'-0"		
12'-0"	6'-0"		
		10'-8"	
14'-6"		10'-8"	
16'-6"		8'-0"	
			10'-8"
19'-9"		6'-0"	
			10'-8"
26'-4"		10'-8"	10'-8"

Values apply up to a wind pressure of 15 psf. The greater wind loads encountered at exposed formwork-ends must be constructionally sustained by additional plumbing accessories (e.g. struts or pipe-braces).

The number of plumbing accessories needed must be determined separately in the following cases:
- wind pressure above 15 psf
- formwork higher than 26'-4"

For more information (wind loads etc.) see the section headed 'Plumbing Accessories' in the Calculation Guide 'Doka Formwork Engineering (USA and Canada)'.

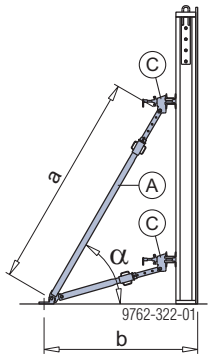
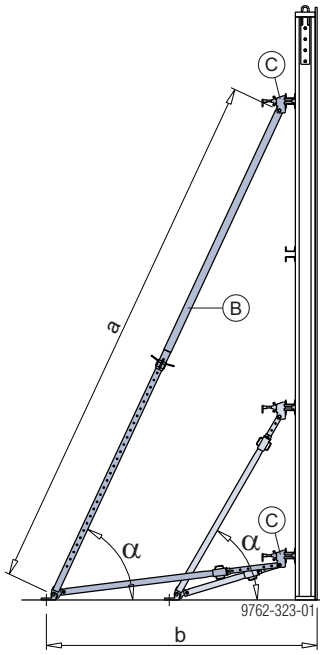
Note:
Every gang-form must be supported by **at least 2 plumbing accessories**.

Example: Where the formwork height is 26', the following are needed for every 10'-8" wide gang-form:
- 1 Panel strut 540
- 1 Pipe brace 22'-0"-40'-0"

Panel struts 340 and 540

Product features:

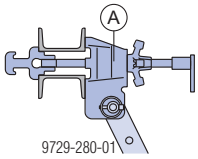
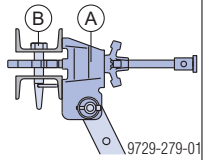
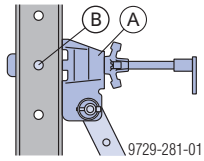
- Can be telescoped in $3^1/_8$" increments
- Fine adjustment by screw-thread
- All parts are captively integrated – including the telescopic tube (has anti-dropout safeguard)

Panel strut 340	Panel strut 540
	
a ... min. 6'-4" - max. 11'-2" b ... min. 4'-$2^1/_2$" - max. 5'-$11^1/_2$"	a ... min. 10'-2" - max. 18'-0" b ... min. 7'-$4^1/_4$" - max. 9'-$2^7/_8$"

α ... approx. 60°

A Panel strut 340 IB
B Panel strut 540 IB
C Prop head EB

Possible ways of connecting to the multipurpose waling

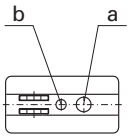
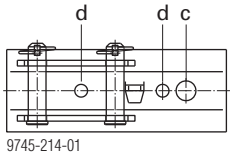
Horizontal waling		Vertical waling
Option 1	Option 2	
		

A Prop head EB
B Connecting pin 10cm + Spring cotter 5mm

Fixing to the floor

➤ Anchor the plumbing accessories in such a way as to resist tensile and compressive forces!

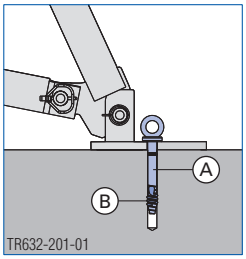
Boreholes in the footplates

Panel struts	Eurex 60 550
	

a ... Ø 1"
b ... Ø $^{11}/_{16}$" (suitable for Doka express anchor)
c ... Ø 1 $^1/_8$"
d ... Ø $^{11}/_{16}$" (suitable for Doka express anchor)

Anchoring the footplate

The **Doka express anchor** can be re-used many times over.



A Doka express anchor 16x125mm
B Doka coil 16mm

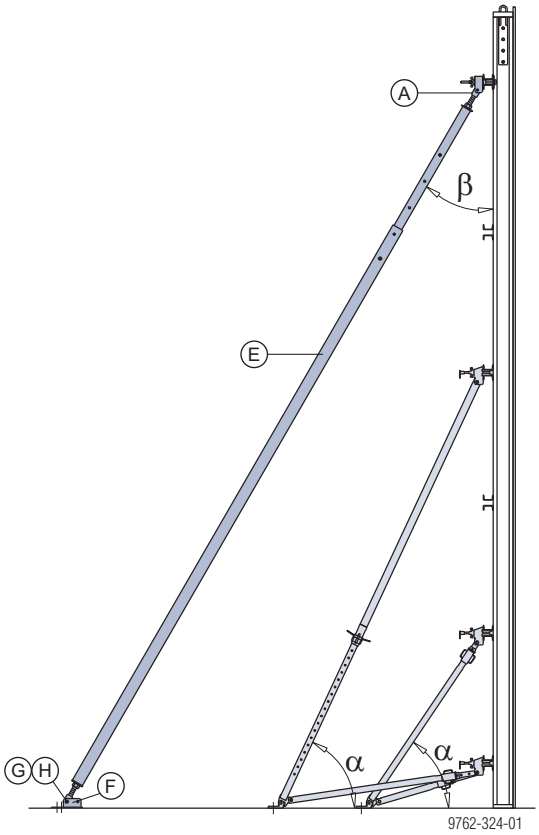
Cylinder compressive strength of concrete: min. 3000 psi (20 N/mm²)

Follow the Fitting Instructions!

Required safe working load of alternative anchor for foot-plates: min. 3,0 kip (13.5 kN)

Follow the manufacturers' applicable fitting instructions.

Pipe brace 22’-0"-40’-0"



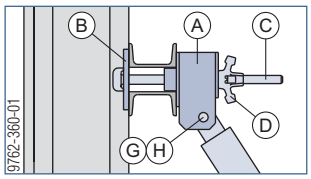
α ... approx. 60°
β ... min. 30°

A	Top50 S fixing unit
E	Pipe brace 22'-0"-40'-0"
F	Pipe brace shoe
G	Speed bolt $^3/_4$" x 4"
H	Speed nut $^3/_4$"

A good rule-of-thumb here is:

The length of the Pipe brace 22’-0"-40’-0" should be the same as the height of the gang to be supported.

Possible ways of connecting to the multi-purpose waling

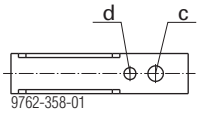


A	Top50 S fixing unit
B	Flat washer $^3/_4$"
C	Framax universal fixing bolt 10-25cm
D	Star grip nut 15.0 G
G	Speed bolt $^3/_4$" x 4"
H	Speed nut $^3/_4$"

Fixing to the floor

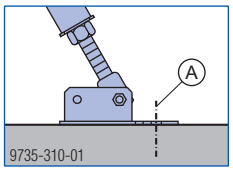
➤ Anchor the plumbing accessories in such a way as to resist tensile and compressive forces!

Boreholes in the footplates



c ... Ø $1^1/_{16}$"
d ... Ø $^{13}/_{16}$" (suitable for Doka express anchor)

Anchoring the footplate



NOTICE

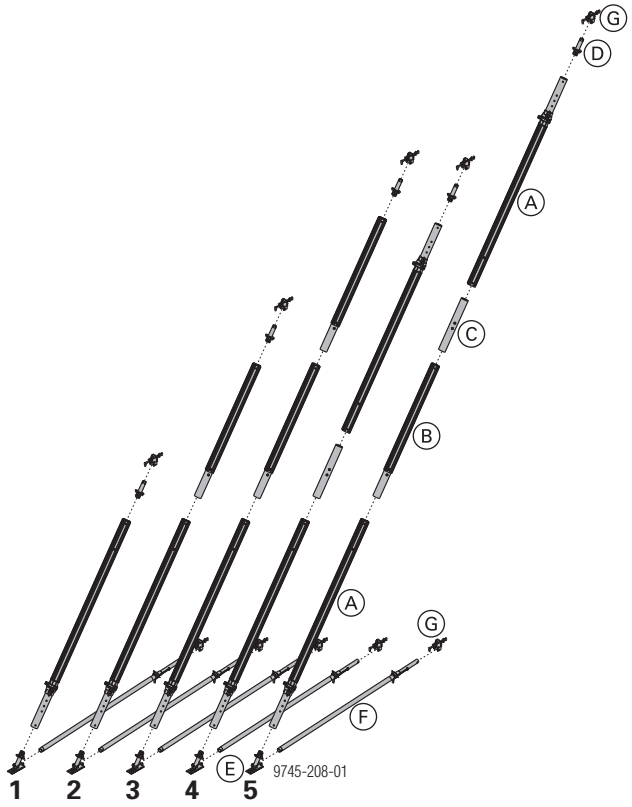
The Contractor shall supply a $^3/_4$"ø drill-in anchor **(A)** with a combined minimum safe working load of 4200 lbs in tension and 2400 lbs in shear.

Eurex 60 550 used as a strut or pipe-brace

As the Doka plumbing strut Eurex 60 550 – fitted with the appropriate accessories – this prop can also be used **for shoring high wall formwork**.

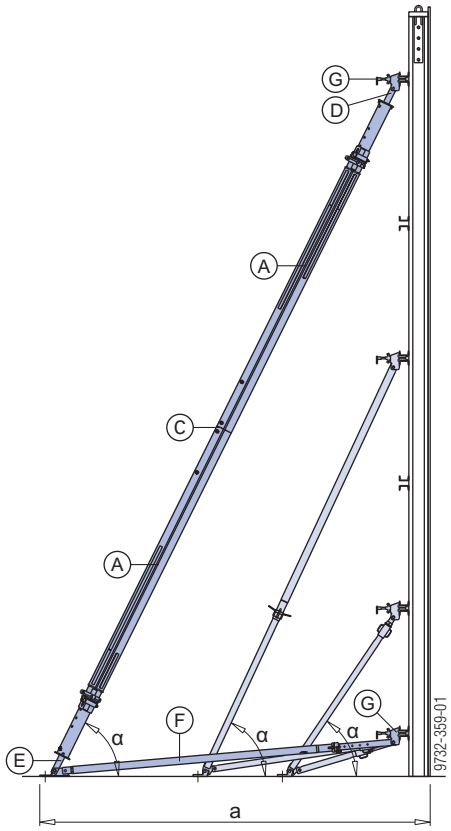
- Can be connected directly – without modification – to Doka framed formwork and Doka timber-beam formwork.
- The Adjusting strut 540 Eurex 60 makes handling much easier, especially when the formwork is being transferred.
- Can be telescoped in 4" increments, with continuous fine adjustment.

Follow the directions in the 'Eurex 60 550' User Information booklet!



Type	Extension length L [m]	Plumbing strut Eurex 60 550 **(A)**	Extension Eurex 60 2.00m **(B)**	Coupler Eurex 60 **(C)**	Connector Eurex 60 IB **(D)**	Plumbing strut shoe Eurex 60 EB **(E)**	Adjusting strut 540 Eurex 60 IB **(F)**	Prop head EB **(G)**	Weight [kg]
1	12'-5" - 19'-4"	1	—	—	1	1	1	2	200 lbs
2	19'-0" - 25'-10"	1	1	—	1	1	1	2	248 lbs
3	25'-7" - 32'-5"	1	2	—	1	1	1	2	295 lbs
4	23'-8" - 37'-5"	2	—	1	1	1	1	2	314 lbs
5	30'-3" - 44'-0"	2	1	1	1	1	1	2	360 lbs

Example of a possible combination of Type 4



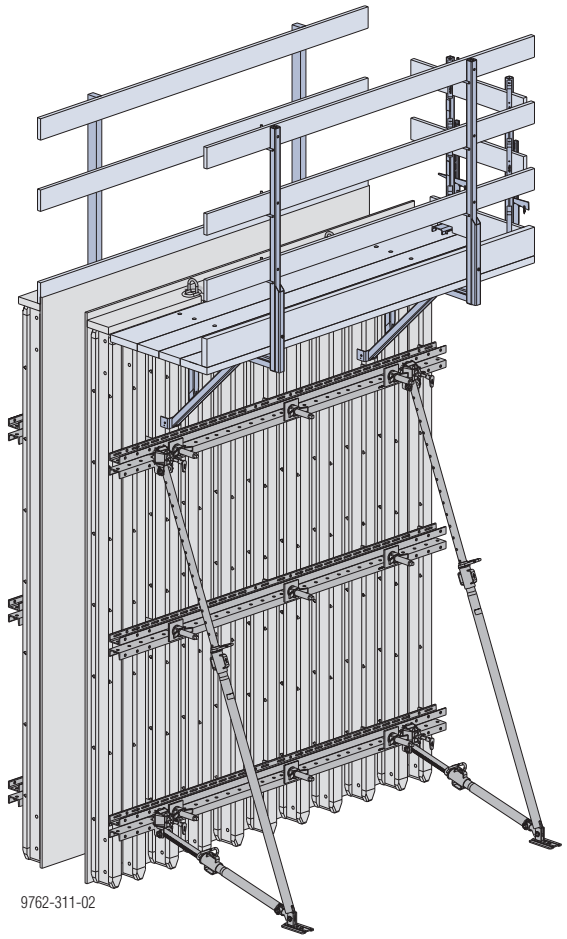
a ... 11'-10" - 19'-8"
α ... approx. 60°

A	Plumbing strut Eurex 60 550
B	Extension Eurex 60 2.00m
C	Coupler Eurex 60
D	Connector Eurex 60 IB
E	Plumbing strut shoe Eurex 60 EB
F	Adjusting strut 540 Eurex 60 IB
G	Prop head EB

A good rule-of-thumb here is:

The length of the strut or pipe-brace (i.e. the complete Eurex 60 550 plumbing-strut assembly) = the height of the gang to be braced.

Pouring-platforms with single brackets



The Universal brackets 90 enable you to assemble pouring platforms that can easily be mounted by hand.

Preconditions for use:

Only fix the pouring platform onto formwork constructions that are sufficiently stable to transfer the expected loads.

Brace the formwork in a windproof manner when erecting it and when it is temporarily ‘parked’ in the standing position

Ensure that the formwork gang has sufficient stiffness.

Observe all applicable safety rules!

Universal bracket 90

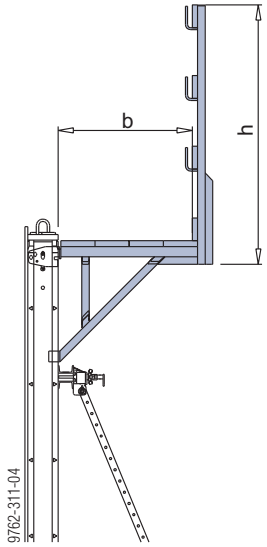
A ‘use-anywhere’ bracket for making work-platforms.

Permitted load: 25 psf
Max. influence width: 8’-0"

- scaffold plank 2" x 10" (nominal)
- scaffold plank 1 1/2" x 10"
- guardrail board 2 x 4 (1 1/2" x 3 1/2")
- guardrail board 2 x 6 (1 1/2" x 5 1/2")

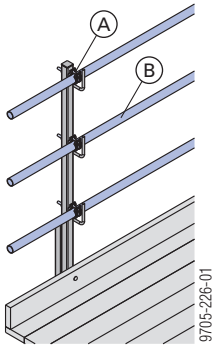
Fastening the guardrail boards: with 7 square bolts 3/8" x 3" and 1 square bolt 3/8" x 9" per bracket (not included in scope of supply).

Fastening the guardrail boards: with 4 nails per bracket (not included in scope of supply).



h ... 5’-3"
b ... 3’-5"

Using scaffold tubes

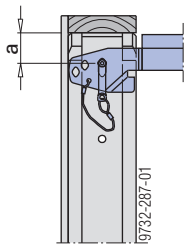
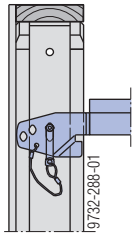
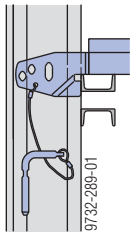


Tools needed: Fork wrench 22 for mounting the couplers and scaffold tubes.

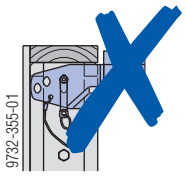
A Screw-on coupler 48mm 95
B Scaffold tube 48.3mm

Possible ways of fixing

WARNING
Risk of accidental lift-out if the bracket is fixed to a multi-purpose waling!
➤ Fix the bottom strut of every bracket with 6d nails or a hexagon bolt $^3/_8$" x 6" and hexagon nut $^3/_8$", on both sides of the strut.

In the top hole drilled in the beam	In the bottom hole drilled in the beam
 a ... min. 3 $^1/_2$"	
In multi-purpose waling	
	

CAUTION
➤ In the case of **H20 N and P** Doka beams where the first drilled hole is 2" from the end of the beam, it is not allowed to fix the bracket in the top hole in the beam!

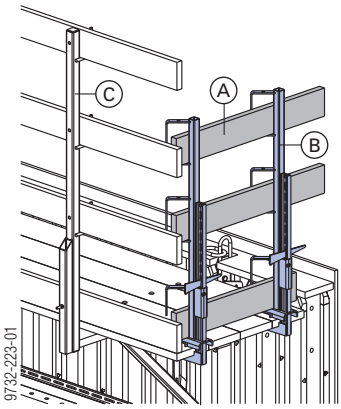


Handrail posts

Sideguards on exposed platform-ends

On pouring scaffolds that do not completely encircle the structure, suitable sideguards must be placed across exposed end-of-platform zones.

Handrail clamp S



A Guardrail plank min. 2"x6" (site-provided)
B Handrail clamp S
C Universal bracket 90

The sideguard consists of:
- 2 Handrail clamps S
- 3 guardrail planks min. 2"x6" (site-provided)

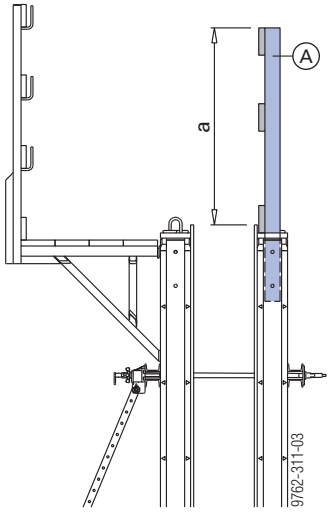
Assembly:
➤ Fasten the handrail clamps to the deck planking of the pouring scaffold, using the wedge (clamping range 1" - 1'-5").
➤ Secure the guardrail planks to the loops on the handrail clamps with one 10d nail per loop.

Follow the directions in the User Information booklet "Handrail clamp S"!

Opposing guard-rail, intermediate platforms

Opposing guard-rail

If there are work platforms mounted on one side of the formwork only, then guardrails must be mounted to the opposing formwork.



a ... 4'-7"

A Opposing guard-rail (site-provided)

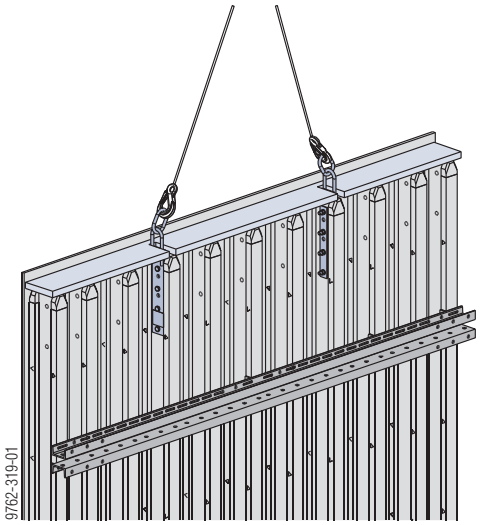
Intermediate platforms with single brackets

Universal brackets can be attached anywhere on the formwork beam, quickly and easily. This makes it possible to erect intermediate platforms.

Site: TVG Nord Bridge N° 4, Paris

Lifting by crane

with lifting-brackets and pressure bracing



WARNING

➤ When lifting multiple gang units (more than one) during a single lifting operation, a lifting beam with sufficient lifting points for every lifting bracket is recommended.

NOTICE

➤ Single or multiple gang units shall be lifted from each lifting bracket.

➤ For more information, please contact your Doka- technician.

The crane cables for lifting the gangs are fastened to the lifting brackets. These are bolted onto the webs of the formwork beams.

If necessary, the Lifting brackets can also be connected to the holes in the multi-purpose walings (e.g. where gangs are being used with vertical walings).

CAUTION

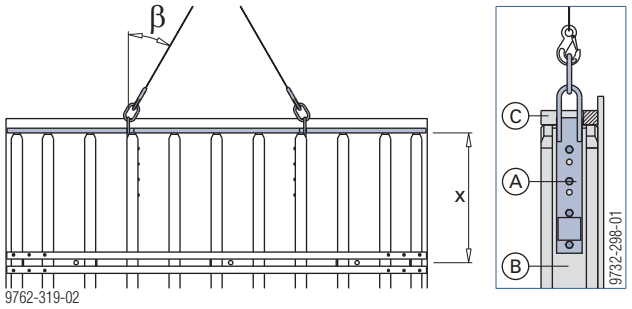
➤ It is strictly prohibited to lift the formwork without pressure bracing.

NOTICE

- Spread-angle β of the slinging chains max. 30°.
- Brace the formwork in a windproof manner when erecting it and when it is temporarily ‘parked’ in the standing position.
- Once the Top50 gangs and a climbing scaffold are assembled together as a climbing unit, all lifting brackets attached to the H20 timber beams must be removed and the climbing unit shall be lifted from the lifting location of the climbing scaffold only.

Max. load-bearing capacity:

- 2900 lbs per lifting bracket where the space ‘x’ between the walings is less than 2’-5 1/2"
- 2200 lbs per lifting bracket where the space ‘x’ between the walings is 2’-5 1/2" to 3’-3"
- 1750 lbs per lifting bracket where the space ‘x’ between the walings is 3’-3" to 4’-0"

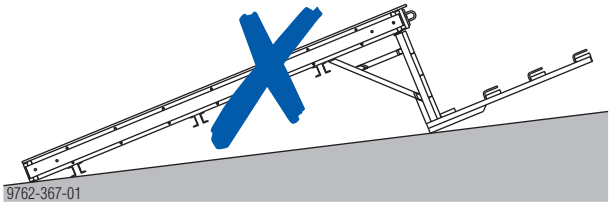


A Lifting bracket
B Doka beam
C Pressure bracing (2x8" plank)

For instructions on mounting the lifting bracket and pressure bracing (top plank), see 'Gang assembly'.

For your own safety, please also observe the following points:

- Only set down the gangs, or stack of gangs, on flat surfaces that are capable of supporting the load.
- Do not detach a gang from the lifting straps until it has been safely set down.
- Never climb onto the stack of gangs.
- Never set down the units in such a way as to impose loads on platforms and brackets.



Enhanced requirements for fair-faced concrete

Examples of enhanced requirements:

- Architectural requirements
- Special requirements regarding planeness of the concrete surface

For more information on the topic of fair-faced concrete, please refer to the Practical Information brochure entitled 'Forming fair-faced concrete'.

Formwork sheets screwed on from rear

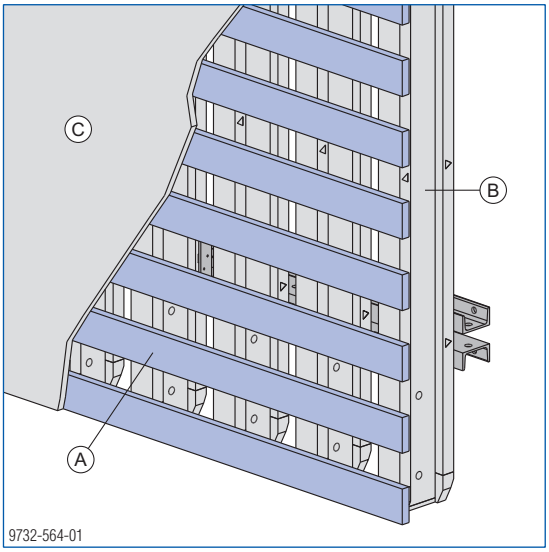
Advantages:

- High-grade concrete surfaces can be formed, without any screw imprints.
- Less finishing-work needs to be done on the concrete surfaces.
- The surfaces of the formwork sheets can easily be cleaned.

There are **two possible ways** of fixing the formwork sheets to the Doka beams:

- **Open formwork (battens)**
  - gives the elements high rigidity
  - flange clamps can be retrofitted
  - for long construction periods
- **H20 screw-on bracket for formwork sheets**
  - no swelling
  - rentable
  - for short construction periods

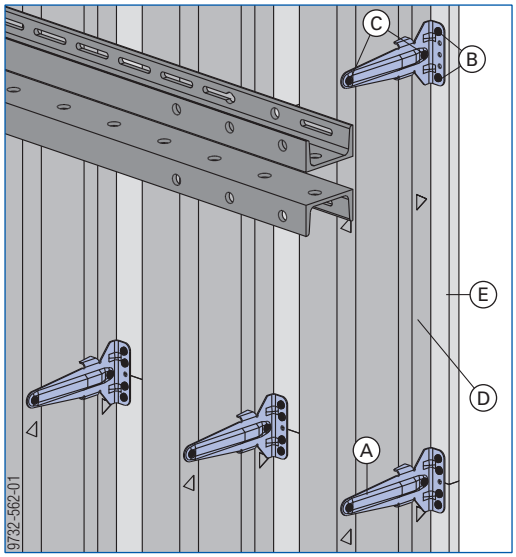
Open formwork (battens)



A	Open formwork (battens)
B	Grille
C	Plywood

H20 screw-on bracket for formwork sheets

The H20 screw-on bracket for formwork sheets makes it possible to fix formwork sheets to Doka beams from the back.



A	H20 screw-on bracket for formwork sheets
B	Framax screw (Art. n° 508302100)
C	Universal screw countersunk head Torx TG 5x50
D	Doka beam H20
E	Plywood

Advantages:

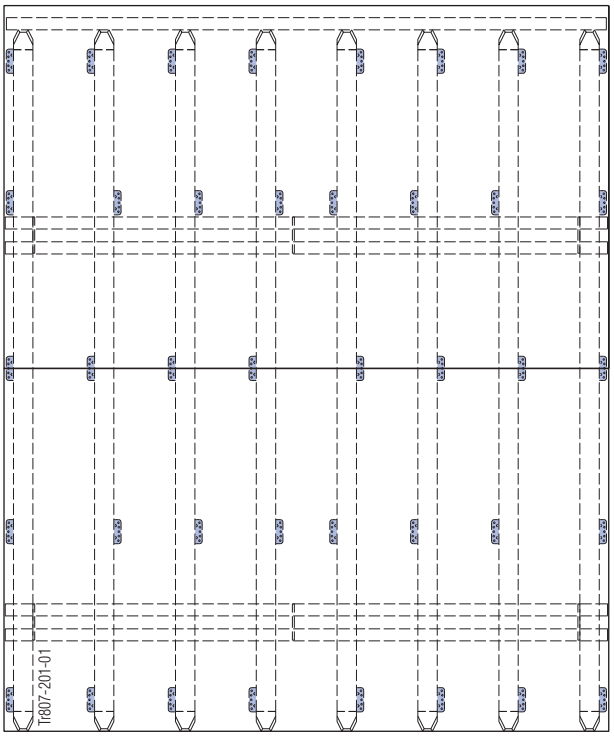
- Can be used with different thicknesses of formwork sheet, from $^{5}/_{8}$" to $^{3}/_{4}$".
- Can be dismounted quickly, leaving no damage.

NOTICE

- On $^{5}/_{8}$" thick sheets, the brackets can be used only together with an extra $^{1}/_{8}$" thick packing strip (otherwise the screws might protrude on the other side of the sheet).
- While being screwed onto the ‘H20 screw-on brackets for formwork sheets', the formwork sheet must be secured against being lifted off the beams.

Approx. five 'H20 screw-on brackets for formwork sheets' per m^2 are needed for attaching the formwork sheeting.

Practical example



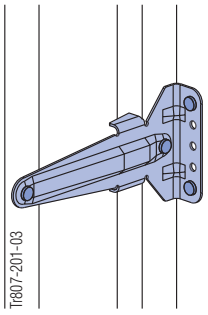
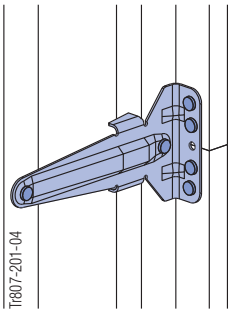
Number of Framax screws needed per H20 screw-on bracket:

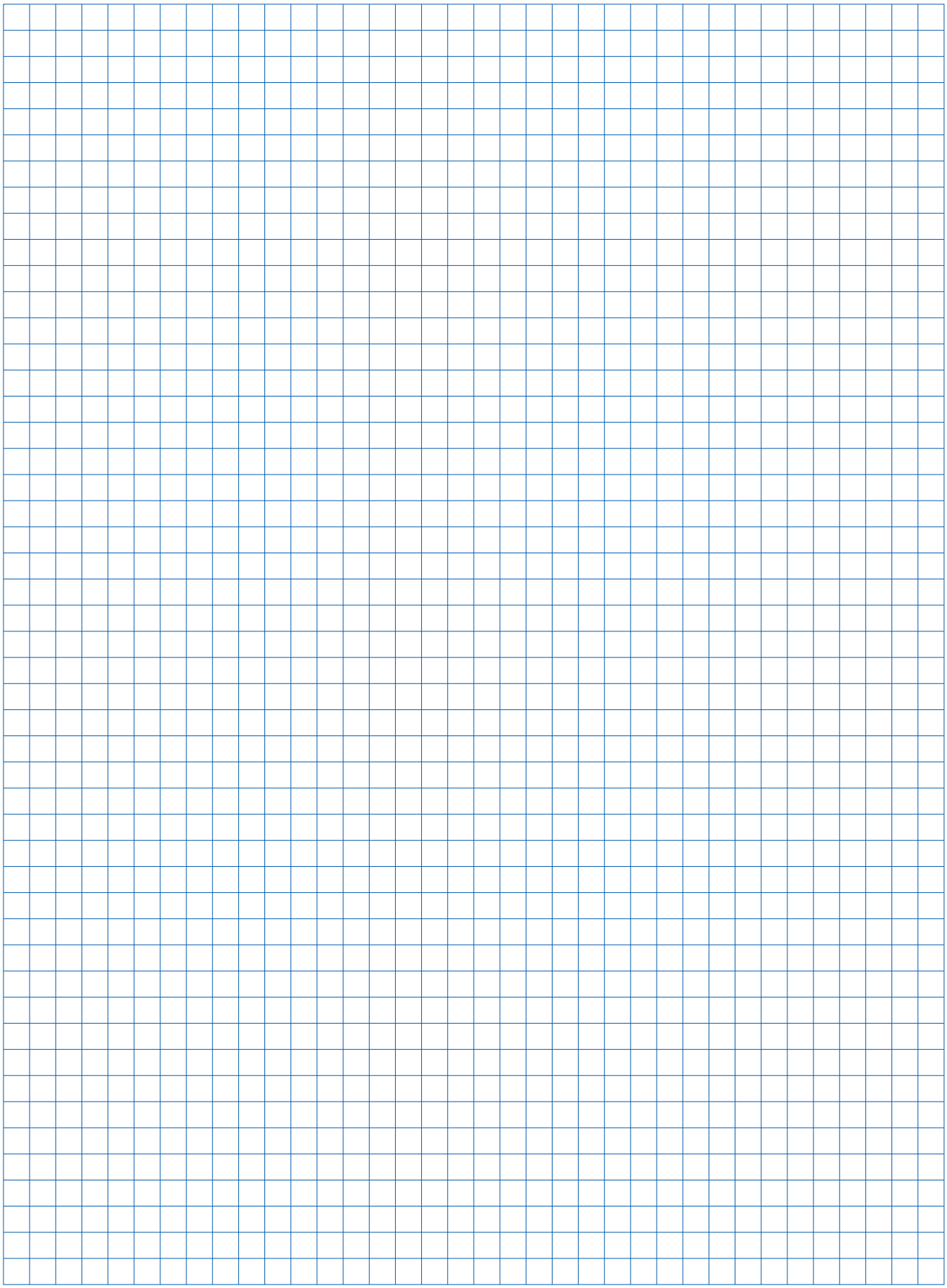
- Fixing to formwork sheet: 2
- Fixing to beam: 2

- **Screw-in depth:** $^{9}/_{16}$"
- **Permitted pull-out force per Framax screw** [1]: 112 lbf

1) Sheet was in moisture-penetrated state

Fixing options

In the middle of the sheet	At joints between sheets
	

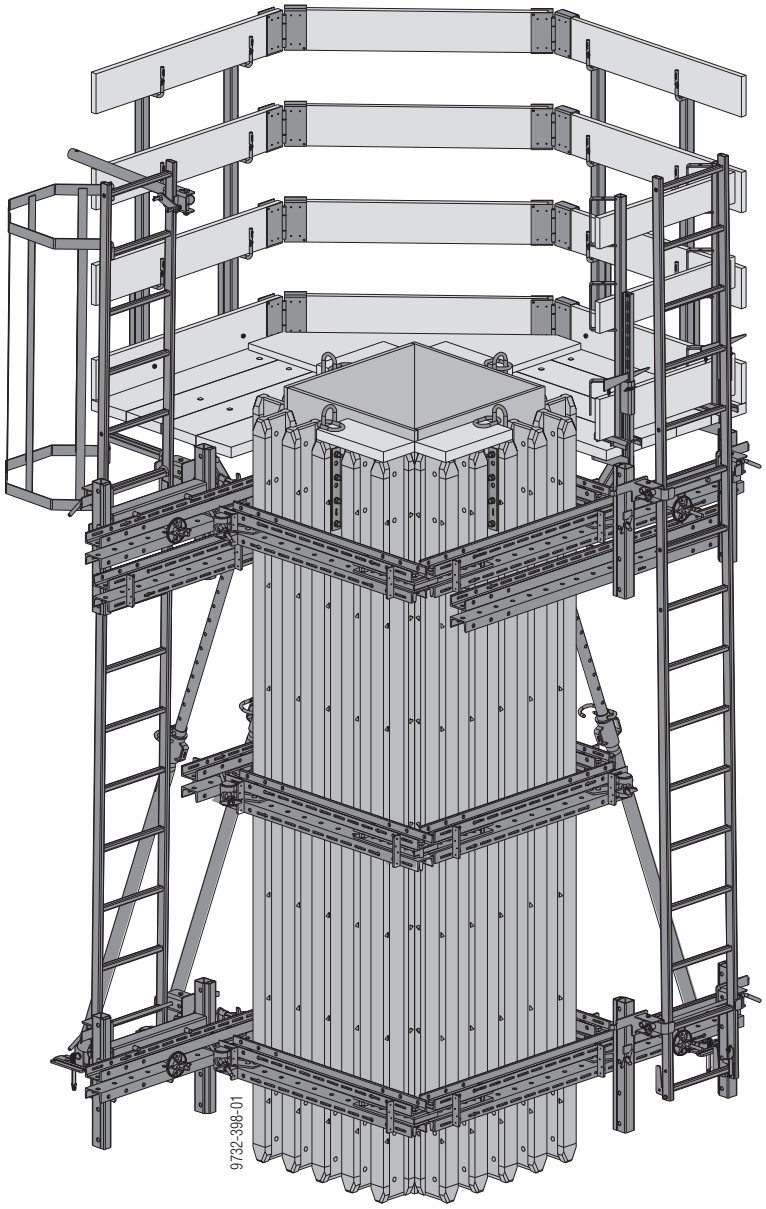


Column formwork

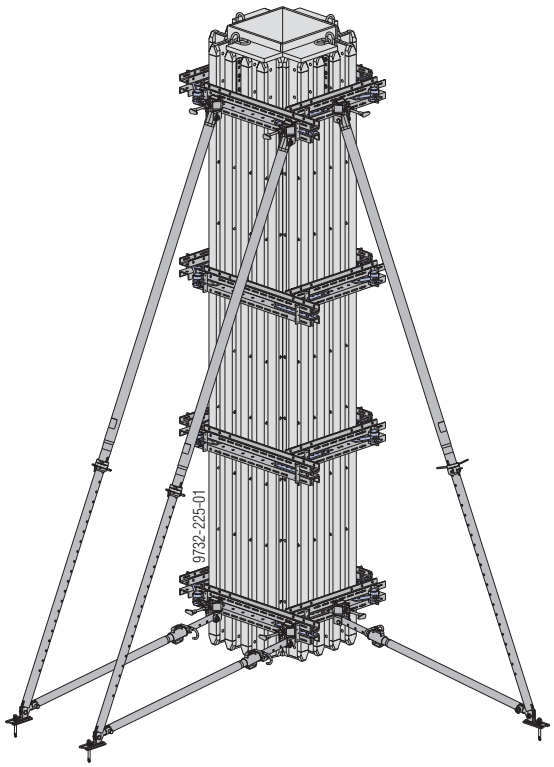
The proven Doka beams, multi-purpose walings and Doka formwork sheets are also used for column formwork.

- Cross-sections continuously adjustable up to 4’ x 4’
- No form ties through the column
- Clean, smooth concrete surfaces
- Easy assembly and handling

Permitted pressure of the fresh concrete: 1850 psf



Design of column formwork



NOTICE

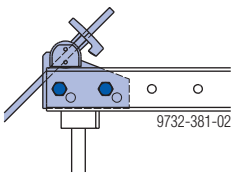
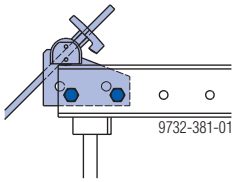
- To achieve exact plumbing & aligning of the column formwork, the best arrangement of the panel struts is as shown above.
- Always attach panel struts to free-standing formwork halves to prevent them from falling over.

The **Corner connecting plate 90/50** connects the walings rigidly and precisely across the corner.
Together with tie rods, the **Universal angle tie bracket** enables the walings to be diagonally tension-braced.

CAUTION

Risk of tie overload if not correctly positioned!

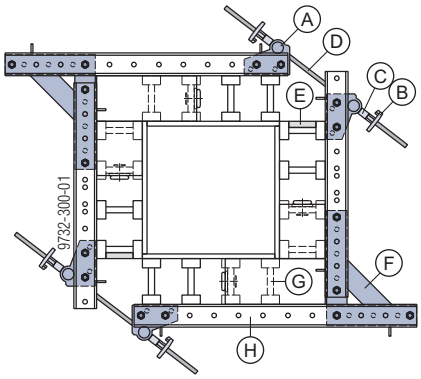
➤ Make sure that the Universal angle tie bracket is bolted into the right holes for the Multi-purpose waling WS10 Top50 or WU12 Top50, depending on which type of waling is being used!

Bolting holes for Multi-purpose waling WS10 Top50	Bolting holes for Multi-purpose waling WU12 Top50
	

NOTICE

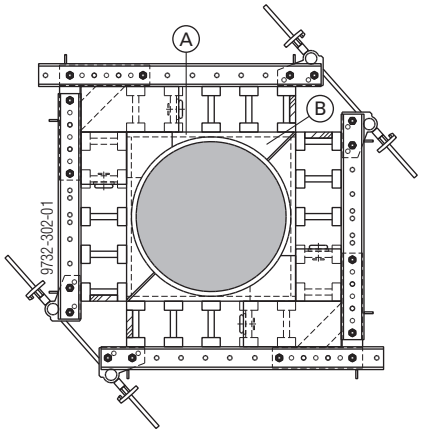
Make sure that the Wing nut 15.0 can be turned through a full turn!

If the wing nut fouls on the connection plate, put a Channel wale spacer 2" in front of Wing nut 15.0.



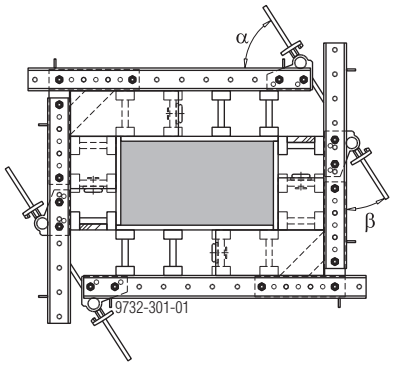
A	Universal angle tie bracket
B	Wing nut 15.0
C	Channel wale spacer 2"
D	Tie rod 15.0
E	Flange reinforcement (see '90 degree corners')
F	Corner connecting plate 90/50
G	Doka beam H20
H	Multi-purpose waling

Circular column formwork



A	Spacer plank
B	Profiled timber formers

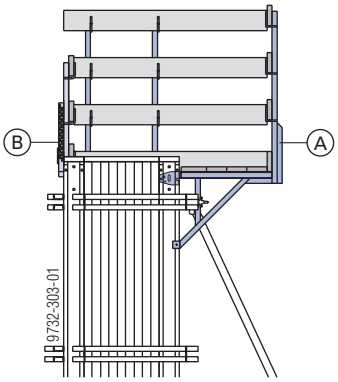
Rectangular column formwork



As far as possible, set the angles of the form ties in the same ratio as the length-to-width ratio of the column cross section.
α : β ≈ Length : Width

Pouring-platforms with single brackets

As well as on wall formwork, it is also possible to use Universal brackets on column formwork.



A Universal bracket 90
B Handrail clamp S

Assembly:

- ➤ Mount the brackets.
- ➤ Screw on the floor decking.
- ➤ Slot in the railing planks.
- ➤ Erect sideguards using the Handrail clamp S.

For more information, see the sections headed ‘Pouring platforms with single brackets’ and ‘Guard rails’.

Lifting by crane

CAUTION

- ➤ It is strictly prohibited to lift the formwork without pressure bracing.
- ➤ Only lift one half of the formwork at a time and use both lifting brackets.

NOTICE

- Spread-angle of the slinging chains max. 30°.
- Brace the formwork in a windproof manner when erecting it and when it is temporarily ‘parked’ in the standing position.

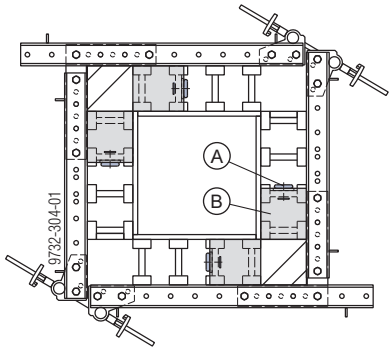
Using the easy-to-attach Lifting bracket, the column formwork can be safely lifted by crane:

CAUTION

- ➤ Where the column is 16’-5" high or more, or where one half of the column formwork has a dead weight of 1763 lbs or above, a special lifting bracket must be used. Its high inherent rigidity enables the column formwork to be lifted safely by crane.

For more information, please contact your Doka technician.

- ➤ For each half of the column formwork, attach two Lifting brackets to the Doka beams – symmetrically, so as to ensure the center-of-gravity position.
- ➤ Fit a pressure bracing between the Lifting brackets to transfer the oblique pull forces.



A Lifting bracket
B Pressure bracing

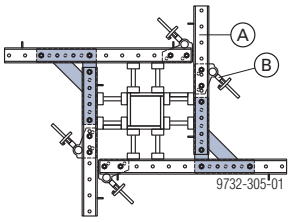
For more information on lifting the formwork by crane, see ‘Lifting by crane’.

Column formwork with Multipurpose walings WS10 Top50

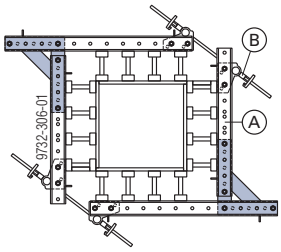
Corner connecting plate "outside"

- Possible square columns: 8" x 8" up to 22" x 22"
- Possible square columns: 8" x 8" up to 22" x 28"

Example: 8" x 8"



Example: 22" x 22"

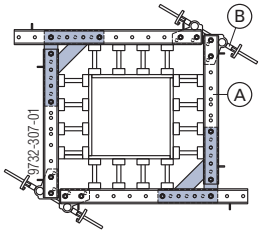


A Multi-purpose waling WS10 Top50 4'-0"
B Channel wale spacer 2"

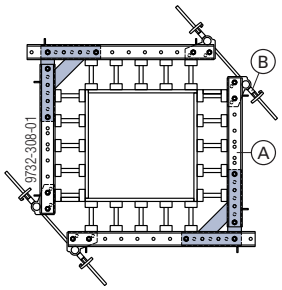
Corner connecting plate "inside"

- Possible square columns: 8" x 8" up to 28" x 28"
- Possible square columns: 8" x 28" up to 28" x 28"

Example: 20" x 20"



Example: 28" x 28"



A Multi-purpose waling WS10 Top50 4'-0"
B Channel wale spacer 2"

Items needed per waling level

Item name	Column dimensions					
	8"x8"	12"x12"	16"x16"	20"x20"	24"x24"	28"x28"
Multi-purpose waling WS10 Top50 4'-0"	4	4	4	4	4	4
Corner connecting plate 90/50	2	2	2	2	2	2
Universal angle tie bracket	4	4	4	4	4	4
Flange-clamp G	8	8	12	16	16	20
Connecting pin 10cm *)	16	16	16	16	16	16
Wing nut 15.0	4	4	4	4	4	4
Tie rod 15.0mm 1.00m	2	2	2	2	2	2

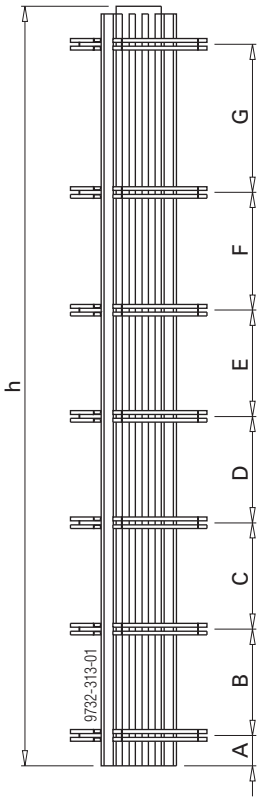
*) When column formwork is transported flat: Secure connecting pins with Spring cotters 5mm.

Site: Industrial building for SBL, Linz

Spacing of the walings

Note:

With **rectangular columns**, the longer of the two sides is the applicable dimension for structural design purposes.



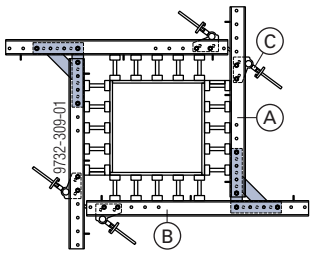
Column dimensions		8"x8"	12"x12"	16"x16"	20"x20"	24"x24"	28"x28"
Number of Formwork beams H20 per side		2	2	3	4	4	5
Column height h	Spacing of the walings						
32'-10"	G	—	—	6'-5"	6'-5"	6'-5"	6'-5"
	F			5'-1"	5'-1"	5'-1"	5'-1"
	E			4'-7"	4'-7"	4'-7"	4'-7"
	D			4'-7"	4'-7"	4'-7"	4'-7"
	C			4'-7"	4'-7"	4'-7"	4'-7"
	B			4'-7"	4'-7"	4'-7"	4'-7"
	A			1'-4"	1'-4"	1'-4"	1'-4"
29'-6"	G	—	—	4'-7"	4'-7"	4'-7"	4'-7"
	F			4'-7"	4'-7"	4'-7"	4'-7"
	E			4'-7"	4'-7"	4'-7"	4'-7"
	D			4'-7"	4'-7"	4'-7"	4'-7"
	C			4'-7"	4'-7"	4'-7"	4'-7"
	B			4'-3"	4'-3"	4'-3"	4'-3"
	A			1'-4"	1'-4"	1'-4"	1'-4"
26'-3"	F	—	—	4'-11"	4'-11"	4'-11"	4'-11"
	E			4'-7"	4'-7"	4'-7"	4'-7"
	D			4'-7"	4'-7"	4'-7"	4'-7"
	C			4'-7"	4'-7"	4'-7"	4'-7"
	B			4'-7"	4'-7"	4'-7"	4'-7"
	A			1'-4"	1'-4"	1'-4"	1'-4"
23'-0"	E	—	—	5'-11"	5'-11"	5'-11"	5'-11"
	D			4'-11"	4'-11"	4'-11"	4'-11"
	C			4'-7"	4'-7"	4'-7"	4'-7"
	B			4'-7"	4'-7"	4'-7"	4'-7"
	A			1'-4"	1'-4"	1'-4"	1'-4"
19'-10"	E	—	—	4'-3"	4'-3"	4'-3"	4'-3"
	D			4'-3"	4'-3"	4'-3"	4'-3"
	C			4'-3"	4'-3"	4'-3"	4'-3"
	B			4'-3"	4'-3"	4'-3"	4'-3"
	A			1'-4"	1'-4"	1'-4"	1'-4"
16'-6"	D	4'-11"	4'-11"	4'-11"	4'-11"	4'-11"	4'-11"
	C	4'-3"	4'-3"	4'-3"	4'-3"	4'-3"	4'-3"
	B	4'-3"	4'-3"	4'-3"	4'-3"	4'-3"	4'-3"
	A	1'-4"	1'-4"	1'-4"	1'-4"	1'-4"	1'-4"
13'-3"	C	5'-7"	5'-7"	5'-7"	5'-7"	5'-7"	5'-7"
	B	4'-7"	4'-7"	4'-7"	4'-7"	4'-7"	4'-7"
	A	1'-4"	1'-4"	1'-4"	1'-4"	1'-4"	1'-4"
10'-0"	B	5'-5"	5'-5"	5'-5"	5'-5"	5'-5"	5'-5"
	A	1'-4"	1'-4"	1'-4"	1'-4"	1'-4"	1'-4"

Column formwork with Multipurpose walings WU12 Top50

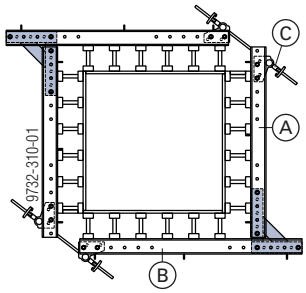
Corner connecting plate "outside"

- Possible square columns: 28" x 28" up to 42" x 42"
- Possible square columns: 28" x 28" up to 42" x 48"

Example: 28" x 28"



Example: 42" x 42"

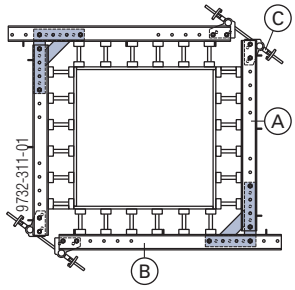


A Multi-purpose waling WU12 Top50 5'-0"
B Multi-purpose waling WU12 Top50 6'-0"
C Channel wale spacer 2"

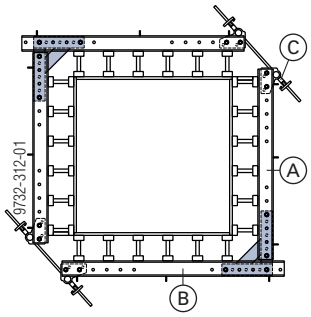
Corner connecting plate "inside"

- Possible square columns: 42" x 42" up to 48" x 48"
- Possible square columns: 28" x 42" up to 48" x 48"

Example: 42" x 42"



Example: 48" x 48"



A Multi-purpose waling WU12 Top50 5'-0"
B Multi-purpose waling WU12 Top50 6'-0"
C Channel wale spacer 2"

Items needed per waling level

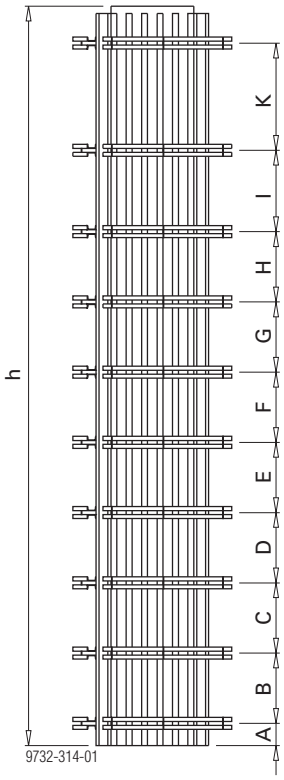
Item name	Column dimensions					
	28"x28"	32"x32"	36"x36"	40"x40"	44"x44"	48"x48"
Multi-purpose waling WU12 Top50 5'-0"	2	2	2	2	2	2
Multi-purpose waling WU12 Top50 6'-0"	2	2	2	2	2	2
Corner connecting plate 90/50	2	2	2	2	2	2
Universal angle tie bracket	4	4	4	4	4	4
Flange-clamp G	20	20	20	20	24	24
Connecting pin 10cm *)	16	16	16	16	16	16
Wing nut 15.0	4	4	4	4	4	4
Tie rod 15.0mm 1.00m	2	2	2	2	2	2

*) When column formwork is transported flat: Secure connecting pins with Spring cotters 5mm.

Spacing of the walings

Note:

With **rectangular columns**, the longer of the two sides is the applicable dimension for structural design purposes.



Column dimensions		28"x28"	32"x32"	36"x36"	40"x40"	44"x44"	48"x48"
Number of Formwork beams H20 per side		5	5	5	5	6	6
Column height h		Spacing of the walings					
32'-10"	K	—	—	—	—	4'-9"	4'-9"
	I	—	—	—	5'-2"	3'-7"	3'-7"
	H	—	5'-7"	5'-7"	3'-11"	3'-1"	3'-1"
	G	13'-1"	4'-7"	4'-7"	3'-5"	3'-1"	3'-1"
	F	5'-1"	3'-11"	3'-11"	3'-5"	3'-1"	3'-1"
	E	4'-7"	3'-11"	3'-11"	3'-5"	3'-1"	3'-1"
	D	4'-7"	3'-11"	3'-11"	3'-5"	3'-1"	3'-1"
	C	4'-7"	3'-11"	3'-11"	3'-5"	3'-1"	3'-1"
	B	4'-7"	3'-11"	3'-11"	3'-5"	3'-1"	3'-1"
	A	1'-4"	1'-4"	1'-4"	1'-4"	12"	12"
29'-6"	I	—	—	—	—	5'-1"	5'-1"
	H	—	5'-5"	5'-5"	5'-5"	3'-7"	3'-7"
	G	4'-7"	3'-11"	3'-11"	3'-11"	3'-1"	3'-1"
	F	4'-7"	3'-5"	3'-5"	3'-5"	3'-1"	3'-1"
	E	4'-7"	3'-5"	3'-5"	3'-5"	3'-1"	3'-1"
	D	4'-7"	3'-5"	3'-5"	3'-5"	3'-1"	3'-1"
	C	4'-7"	3'-5"	3'-5"	3'-5"	3'-1"	3'-1"
	B	4'-3"	3'-5"	3'-5"	3'-5"	3'-1"	3'-1"
	A	1'-4"	1'-4"	1'-4"	1'-4"	12"	12"
26'-3"	H	—	—	—	—	4'-5"	4'-5"
	G	—	5'-7"	5'-7"	5'-7"	3'-7"	3'-7"
	F	4'-11"	3'-11"	3'-11"	3'-11"	3'-1"	3'-1"
	E	4'-7"	3'-5"	3'-5"	3'-5"	3'-1"	3'-1"
	D	4'-7"	3'-5"	3'-5"	3'-5"	3'-1"	3'-1"
	C	4'-7"	3'-5"	3'-5"	3'-5"	3'-1"	3'-1"
	B	4'-7"	3'-5"	3'-5"	3'-5"	3'-1"	3'-1"
	A	1'-4"	1'-4"	1'-4"	1'-4"	12"	12"
23'-0"	G	—	—	—	4'-5"	4'-5"	4'-5"
	F	—	4'-7"	4'-7"	3'-5"	3'-5"	3'-5"
	E	5'-11"	3'-11"	3'-11"	3'-1"	3'-1"	3'-1"
	D	4'-11"	3'-11"	3'-11"	3'-1"	3'-1"	3'-1"
	C	4'-7"	3'-11"	3'-11"	3'-1"	3'-1"	3'-1"
	B	4'-7"	3'-11"	3'-11"	3'-1"	3'-1"	3'-1"
	A	1'-4"	1'-4"	1'-4"	12"	12"	12"
19'-10"	F	—	—	—	4'-5"	4'-5"	4'-5"
	E	4'-3"	4'-11"	4'-11"	3'-4"	3'-4"	3'-4"
	D	4'-3"	3'-11"	3'-11"	3'-1"	3'-1"	3'-1"
	C	4'-3"	3'-11"	3'-11"	3'-1"	3'-1"	3'-1"
	B	4'-3"	3'-11"	3'-11"	3'-1"	3'-1"	3'-1"
	A	1'-4"	1'-4"	1'-4"	12"	12"	12"
16'-6"	E	—	—	—	4'-5"	4'-5"	4'-5"
	D	4'-11"	5'-7"	5'-7"	3'-4"	3'-4"	3'-4"
	C	4'-3"	4'-3"	4'-3"	3'-1"	3'-1"	3'-1"
	B	4'-3"	3'-7"	3'-7"	3'-1"	3'-1"	3'-1"
	A	1'-4"	1'-4"	1'-4"	12"	12"	12"
13'-3"	D	—	—	—	4'-5"	4'-5"	4'-5"
	C	5'-7"	5'-7"	5'-7"	3'-1"	3'-1"	3'-1"
	B	4'-7"	4'-7"	4'-7"	3'-1"	3'-1"	3'-1"
	A	1'-4"	1'-4"	1'-4"	12"	12"	12"
10'-0"	C	—	—	—	4'-5"	4'-5"	4'-5"
	B	5'-5"	5'-5"	5'-5"	3'-1"	3'-1"	3'-1"
	A	1'-4"	1'-4"	1'-4"	12"	12"	12"

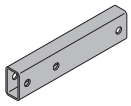
Other typical applications

Top 50 as a bridge superstructure and tunnel formwork

The modular system of the Doka large-area formwork Top50 opens up a huge range of uses - from straightforward wall formwork all the way up to tunnel forming travelers and bridge superstructure formwork.

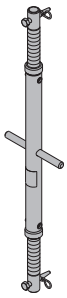
The Doka large-area formwork is adapted using the following additional components **(all special order only)**:

- **Universal support Top50** – This is a special support plate for joining the multi-purpose walings together. It is 'tailor-made' on a project-specific basis.



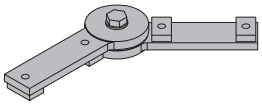
- Together with the multi-purpose walings, **Universal struts Top50** and **Spindle struts** are used to make trussed bearing elements for bridges or large-area traveling formworks.

  For more information, see the section headed 'Struts'.

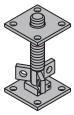


- The **Articulated connecting plate A Top50** allows the gangs of the Large-area formwork Top50 to be continuously adapted to any curvature. This speeds up formwork assembly and eliminates the need for expensive shaping-timber make-up.

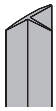
  For more information, see 'Acute and obtuse-angled corners'.

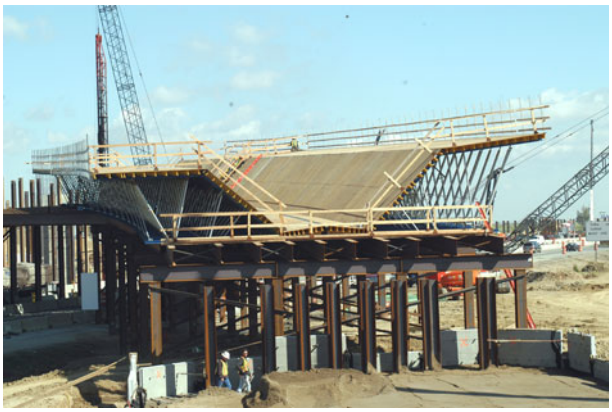


- **Universal spindle foot T8** for transferring vertical forces of up to 18 kip.



- The **T-ledge 21/42 2.00m** is a plastic ledge for covering up stripping cracks.



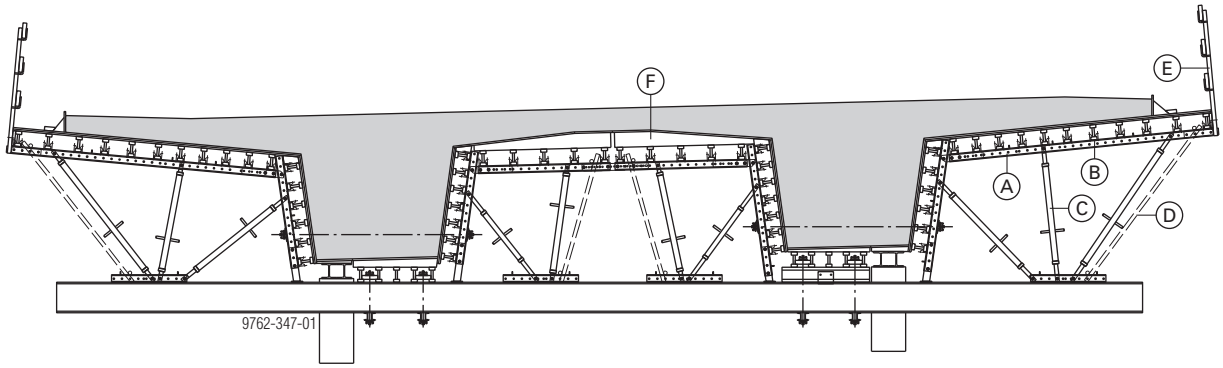


Site: Airport Interchange Bridges 170, IN

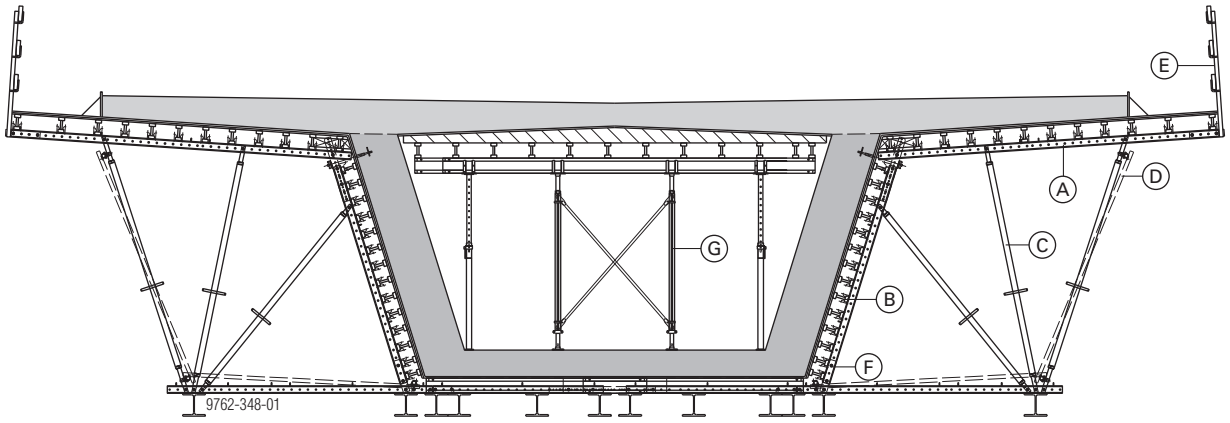
Site: Candido, Saalfelden, Austria

Site: Gluckbach Bridge, S34, Austria

Bridge superstructure formwork

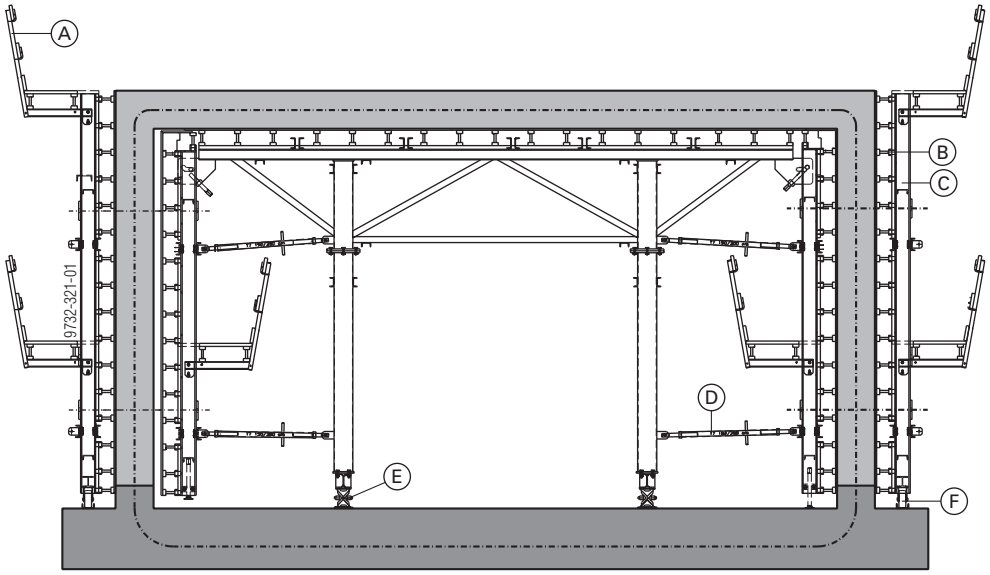


A Multi-purpose waling
B Doka beam H20
C Spindle strut
D Bracing
E Handrail post 1.50m (special order only)
F Shaping timber

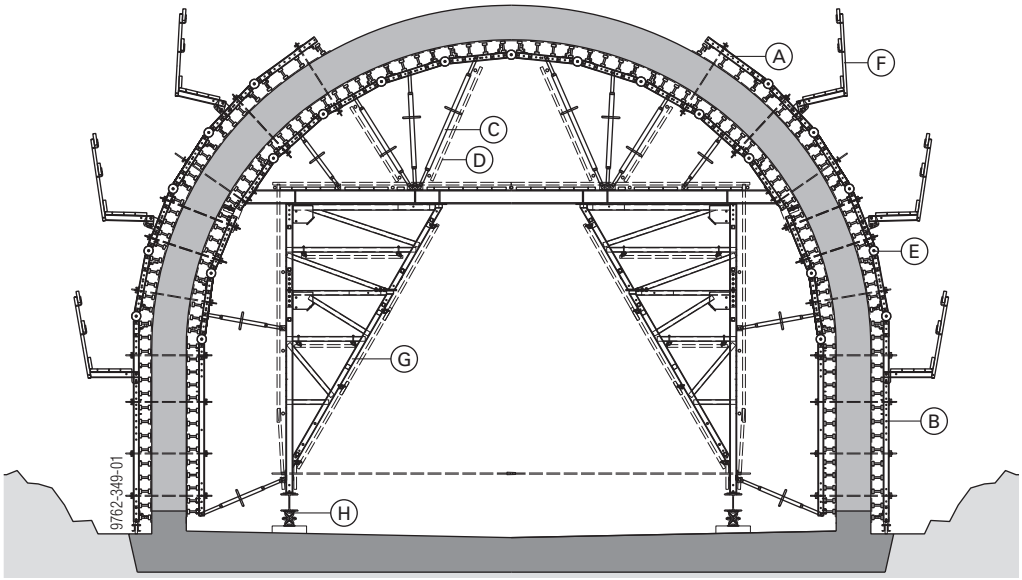


A Multi-purpose waling
B Doka beam H20
C Spindle strut
D Bracing
E Handrail post 1.50m (special order only)
F Universal support Top50 (special order only)
G 10K shoring

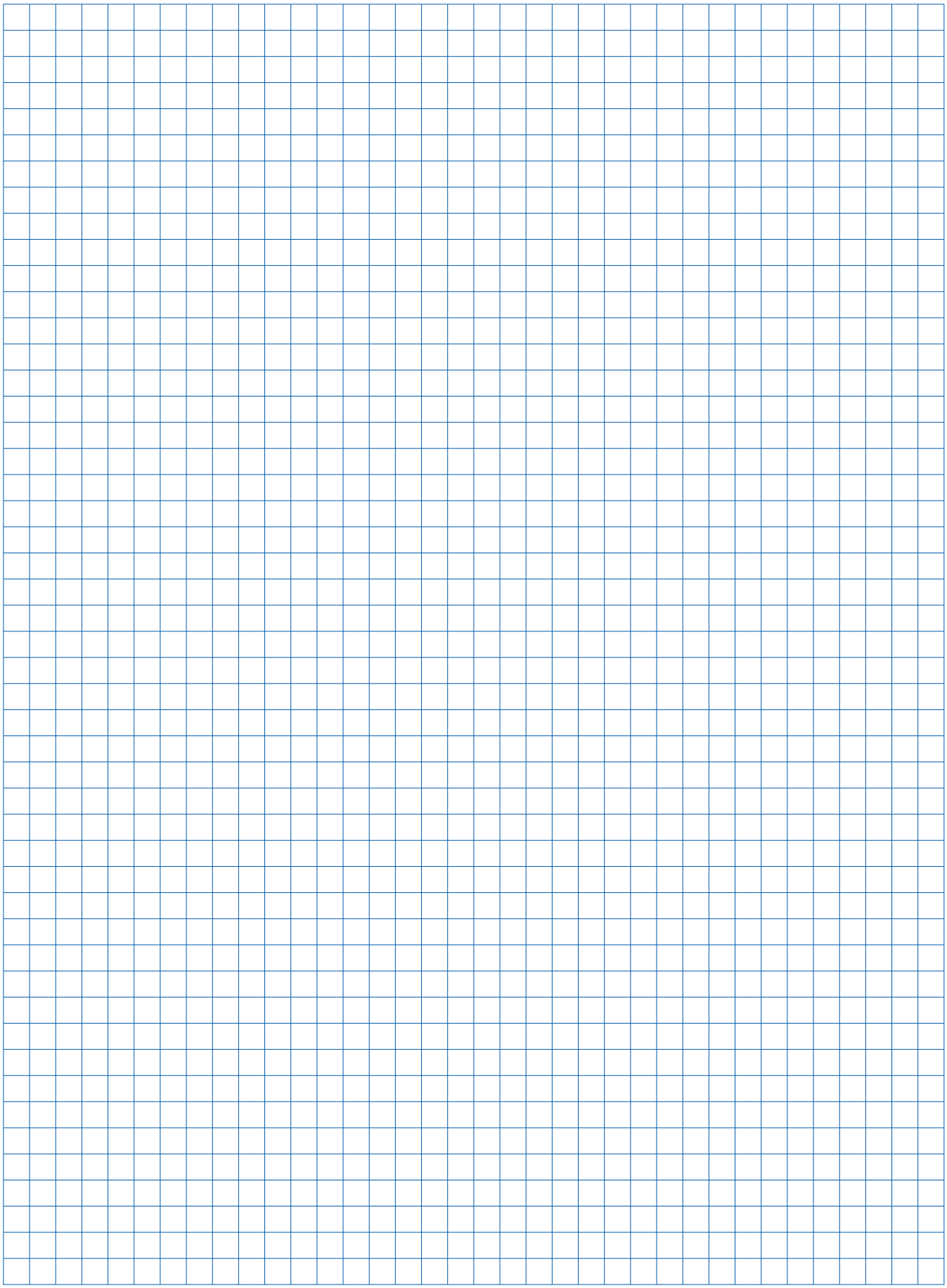
Tunnel formwork



A Screw-on access bracket (special order only)
B Doka beam
C WF-beam or Dbl Channel Assembly (special order only)
D Spindle strut
E Lowering wedge (special order only)
F Armor-plated roller (special order only)



A Multi-purpose waling
B Doka beam
C Spindle strut
D Bracing
E Articulated connecting plate A Top50 (special order only)
F Screw-on access bracket (special order only)
G e.g. Supporting construction frame Universal F
H Lowering wedge (special order only)



Gang assembly

To optimize the concrete finish and to ensure that the Doka large-area formwork Top 50 functions at its best, the gangs must be assembled correctly and precisely.
Doka beams and walings are quickly assembled into finished gangs, using simple connecting devices - either on-site or by the Doka Pre-assembly Service.

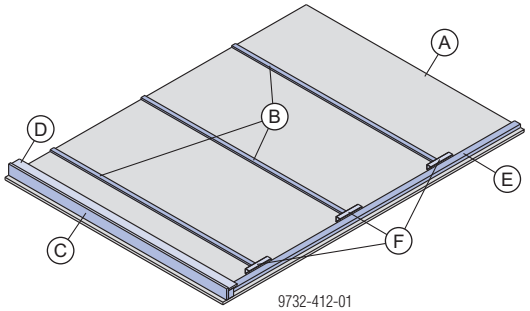
Assembly bench with stop bars

There must be a flat assembly floor (wooden drawing floor) within reach of the crane, for assembling the formwork gangs on.

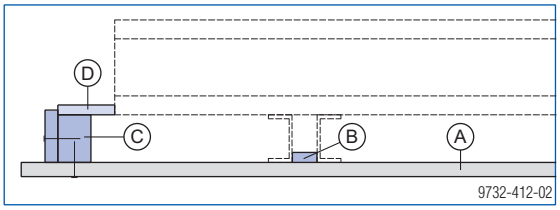
➤ Attach the end stop-bar for the Doka beams.

➤ Nail on the stop-bars for the Multi-purpose walings (as per the prescribed spacing of the walings).

➤ Attach the end stop-bar for the multi-purpose walings.



9732-412-01



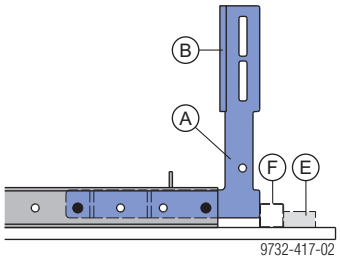
9732-412-02

A Assembly floor
B Stop-bar for multi-purpose walings
C End stop-bar for Doka beams
D Detachable spacer batten
E End stop-bar for multi-purpose walings
F Squared tube 2 $^1/_2$ x 2 $^1/_2$ x 12"

Removing the detachable spacer batten makes it possible to mount e.g. a bottom plank without having to move the gang first.

Placing the walings

➤ Use pins to fix Assembly angles Top50 into the multi-purpose walings (the multi-purpose walings with connection plates facing upwards).
The assembly angles are used to ensure exact alignment of the Doka beams, and as stop-bars for the formwork sheets.

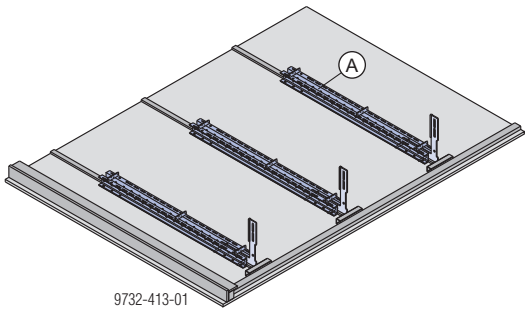


9732-417-02

A Assembly angle Top50
B Stop-bar for formwork sheets
E End stop-bar for multi-purpose walings
F Squared tube 2 $^1/_2$ x 2 $^1/_2$ x 12"

➤ Clean the assembly bench.

➤ Lay the multi-purpose walings, complete with the mounted assembly angles, on the assembly bench.



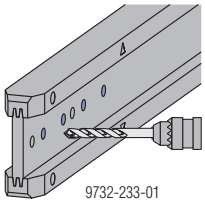
9732-413-01

A Multi-purpose waling

Use nails to prevent the walings sliding off.

Drilling extra holes in Doka beams

➤ Prepare the required number of Doka beams with such extra holes as are needed. Extra holes must be drilled for lifting brackets, Universal brackets, Top scaffold brackets and Beam splice plates.



We recommend a carbide-tipped bit for drilling through the Doka beam H20 P.

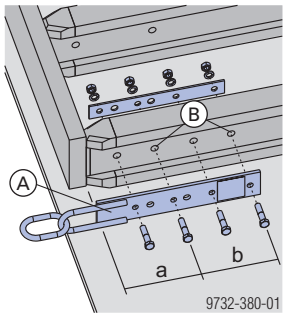
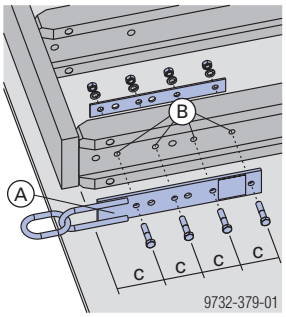
Mounting the lifting-brackets

WARNING

➤ Doka beams which have lifting brackets mounted to them must be attached to the multi-purpose walings by means of threaded joints or flange-clamps.

Simply nailing them only to the Connection plate is not sufficient.

➤ Bolt the lifting bracket into 4 drilled holes.
Tools needed: Reversible ratchet 1/2", Box nut 24, Fork wrench 24

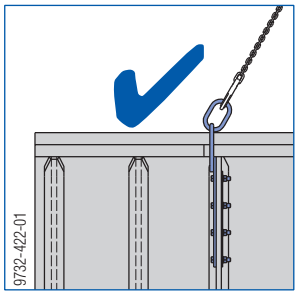
Distance of outermost hole from edge of beam	
3 $^{1}/_{2}$"	2"
	

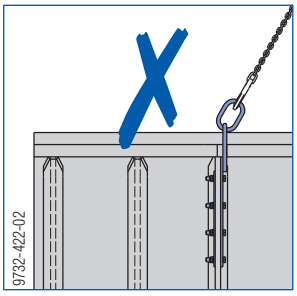
a ... 7 $^{7}/_{8}$"
b ... 8 $^{13}/_{16}$"
c ... 4 $^{7}/_{16}$"

A Lifting bracket
B Extra drilled holes (Ø $^{11}/_{16}$")

NOTICE

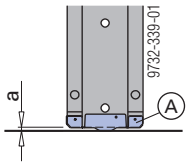
Make sure that the Lifting brackets are mounted in the correct position!





Extra protection for the bottom ends of Doka beams

➤ Secure Protective cap H20 with 6d nails.
Instead of the Protective caps, a bottom plank can be fitted (see 'Mounting a bottom plank').

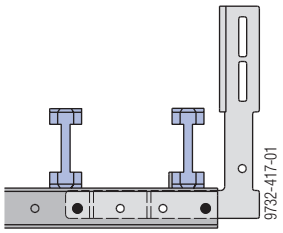


a ... 3/8"

A Protective cap H20

Placing and attaching the Doka beams

➤ Fasten on the Doka beams at the desired centers.



Various ways of fastening the Doka beams:

	WS10	WU12	WU14	WU16
Flange-clamp H20	✓	✓	—	—
Flange clamp G	✓	✓	✓	✓
Flange claw	✓	✓	✓	✓
Fastening plate	✓	✓	✓	—
Waling clamp H20	✓	✓	✓	—
Beam screw S 8/60	✓	✓	✓	—
Beam screw H8/70	✓	✓	✓	—

Flange-clamp H20

For fastening the Doka beam H20 anywhere on the multi-purpose waling.

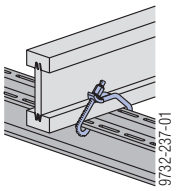
NOTICE

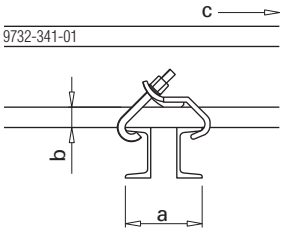
When using the Flange clamp H20, make sure that **a space of at least 2"** is left between the **form tie** and the **Doka beam**.

Tools needed:

- Reversible ratchet 1/2"
- Box nut 19 1/2" L
- Extension 22 cm

➤ Push the Flange clamps H20 onto the Doka beams.
➤ Before tightening them to the steel waling, make sure that they are centrically positioned.
➤ Gently tighten on one side. Tap the stirrup with a hammer to ensure that the clamp is sitting correctly.
➤ Tighten the clamp on the other side and tap the stirrup with the hammer.
➤ Tighten the first side of the clamp completely.





a ... 5 5/16"- 6 1/2"
b ... 1 9/16"
c ... Bottom of formwork

Mount the flange clamps with the hexagonal nuts facing downwards (towards the bottom of the formwork). This protects the nuts against soiling during pouring.

Flange clamp G

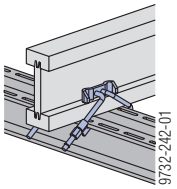
For fastening Doka beams anywhere on the waling.
Can also be used on steel girders such as I-girders etc.

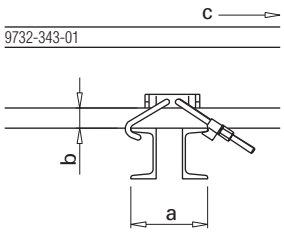
NOTICE

When using the Flange clamp G, make sure that a space of at least 2" is left between the form tie and the Doka beam.

Note:
First push the flange clamps onto the Doka beams, and only then place the Doka beam onto the waling.

Tools needed:
- Reversible ratchet 1/2"
- Box nut 19 1/2" L





c ... Bottom of formwork

Clamping ranges

b	0	3/16"	3/8"	9/16"	13/16"	1"	1 3/16"
a_{min}	6 1/4"	6 1/4"	5 7/8"	5 11/16"	5 1/4"	5 3/16"	5 1/8"
a_{max}	9 3/8"	9 3/16"	9 1/8"	8 15/16"	8 3/4"	8 5/8"	8 3/8"

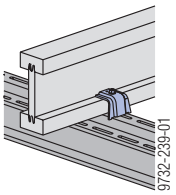
b	1 3/8"	1 9/16"	1 3/4"	1 15/16"	2 3/16"	2 3/8"
a_{min}	5 1/8"	5 1/16"	4 13/16"	4 1/2"	4 5/8"	4 3/4"
a_{max}	8 1/8"	7 7/8"	7 5/8"	7 3/16"	6 5/8"	5 3/4"

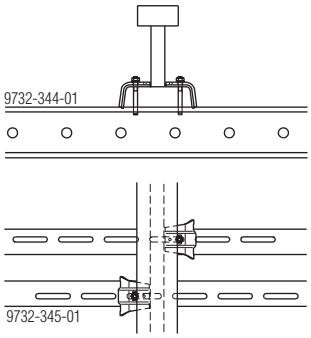
- Push the Flange clamps G onto the Doka beams.
- Before tightening them to the steel waling, make sure that they are centrically positioned.
- Gently tighten on one side. Tap the stirrup with a hammer to ensure that the clamp is sitting correctly.
- Tighten the clamp on the other side and tap the stirrup with the hammer.
- Tighten the first side of the clamp completely.

Waling clamp H20

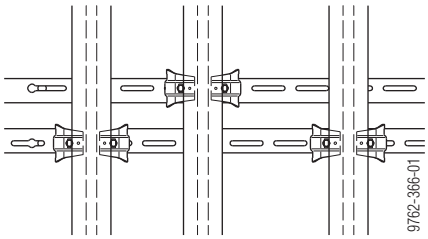
For clamping Doka beams anywhere on the waling.
Can also be used for retrofitting beams at a later stage.

Tools needed:
- Reversible ratchet 1/2"
- Box nut 13 1/2"





Alternate fixing:

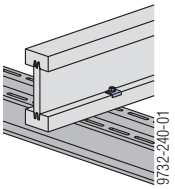


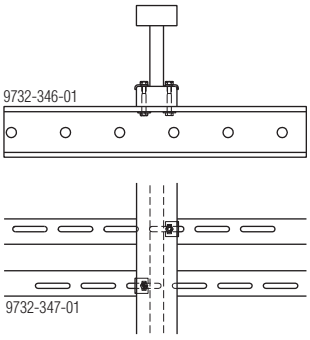
Note:
Fix roughly the same number of waling clamps to each flange of the multi-purpose walings.

Beam screws S8/70

For screwing the Doka H20 beams to any point of the multi-purpose waling.

Tools needed:
- Drill bit with 3/8"Ø
- Fork wrench 13/17





Beam screws H8/70

For screwing any type of Doka beam to any point on the waling. The hammerhead is for slotting into the oblong holes in the waling.

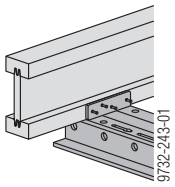
Positioning rail with hole gauge Top50 (special order only)

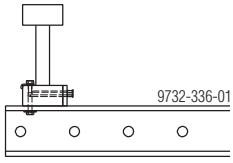
This speeds up the work of assembling the gangs where beam-screws are being used between the formwork beams and the walings. The hole-gauge plates allows infinite adjustment in line with the required spacing between the beam-screws.

Double-headed nails

The connection plates serve as end stops for the edge beams and can also be used for fixing the beams in place.

Fasten the Doka beam to the connection plate with 4 double-headed nails.



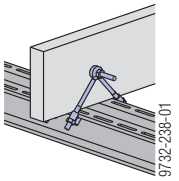


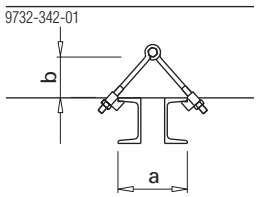
Flange claw (special order only)

Also for subsequent fastening of Doka beams or squared timbers to any position on walings and steel girders (IPB-section).

Tools needed:

- Drill bit with $^{11}/_{16}$"Ø
- Reversible ratchet 1/2"
- Box nut 19 1/2" L





Clamping ranges of the Flange claw

b	0	$^{3}/_{16}$"	$^{3}/_{8}$"	$^{9}/_{16}$"	$^{13}/_{16}$"	1"	$1^{3}/_{16}$"	$1^{3}/_{8}$"
a_{min}	$6^{13}/_{16}$"	$6^{3}/_{4}$"	$6^{11}/_{16}$"	$6^{9}/_{16}$"	$6^{7}/_{16}$"	$6^{5}/_{16}$"	$6^{1}/_{8}$"	$5^{13}/_{16}$"
a_{max}	$11^{7}/_{16}$"	$11^{3}/_{8}$"	$11^{5}/_{16}$"	$11^{5}/_{16}$"	$11^{1}/_{4}$"	$11^{3}/_{16}$"	$11^{1}/_{16}$"	$10^{7}/_{8}$"

b	$1^{9}/_{16}$"	$1^{3}/_{4}$"	$1^{15}/_{16}$"	$2^{3}/_{16}$"	$2^{3}/_{8}$"	$2^{9}/_{16}$"	$2^{3}/_{4}$"	$2^{15}/_{16}$"
a_{min}	$5^{9}/_{16}$"	$5^{1}/_{4}$"	$4^{15}/_{16}$"	$4^{1}/_{2}$"	4"	$3^{15}/_{16}$"	$3^{15}/_{16}$"	$3^{15}/_{16}$"
a_{max}	$10^{13}/_{16}$"	$10^{11}/_{16}$"	$10^{1}/_{2}$"	$10^{1}/_{4}$"	$10^{1}/_{16}$"	$9^{7}/_{8}$"	$9^{5}/_{8}$"	$9^{5}/_{16}$"

b	$3^{1}/_{8}$"	$3^{3}/_{8}$"
a_{min}	$3^{15}/_{16}$"	$3^{15}/_{16}$"
a_{max}	$9^{1}/_{16}$"	$8^{3}/_{4}$"

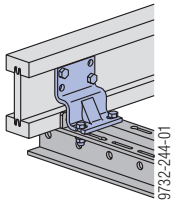
Fastening plate (special order only)

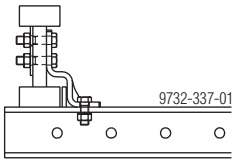
For formwork gangs intended for high numbers of repeat uses, or for providing stiffening reinforcement and for transferring longitudinal forces.

Can only be screwed onto the ends of the waling (in the case of walings of 1.00 m and above), to the left or right of the connection plate, in the flanges.

Tools needed:

- Drill bit with $^{11}/_{16}$"Ø
- Reversible ratchet 1/2"
- Box nut 24 1/2"
- Fork wrench 24



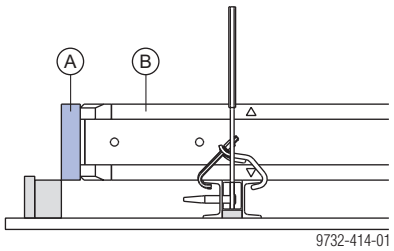


Mounting a wood sill

As an alternative to Protective caps H 20, it is also possible to mount a wood sill to protect the bottom ends of the Doka beams.

➤ Remove the detachable spacer batten from the assembly bench.

➤ Fasten the bottom sill to each beam-flange using a 10d nail.



A Wood sill

B Doka beam

Mounting the top plank (pressure bracing)

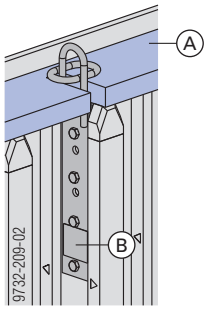
CAUTION

➤ Fit a pressure bracing between the Lifting brackets.

➤ The gap between the two Lifting brackets must be firmly braced, without any play, to prevent any oblique pull being applied to the Doka beams.

This means that the recesses must be profiled very precisely into the web of the beam.

➤ Fasten the pressure bracing to each beam-flange a compressed-air nailing gun and screws.



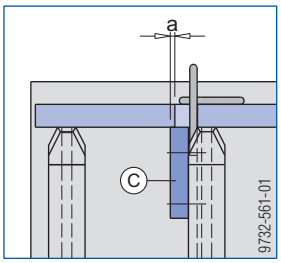
A Top plank (pressure bracing)

B Lifting bracket

CAUTION

➤ If the lifting bracket is mounted on the 2nd beam from the outside, the top plank must be supported where it has been recessed.

➤ Nail a supporting board onto the formwork beam.

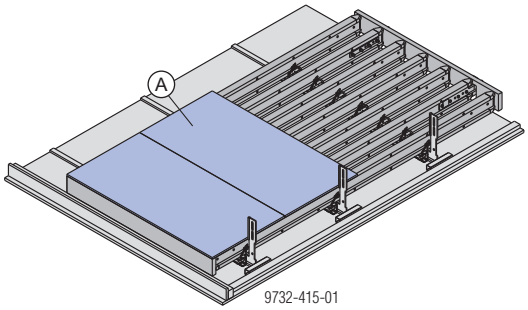


a ... min. $^{3}/_{8}$" (minimum support surface)

C e.g. board 8x8"

Fixing the formwork sheets

➤ Place the plywood up against the assembly angles and nail them onto each Doka beam. Make sure that the grain of the face layer runs at right angles to the supports (i.e. to the Doka beams).



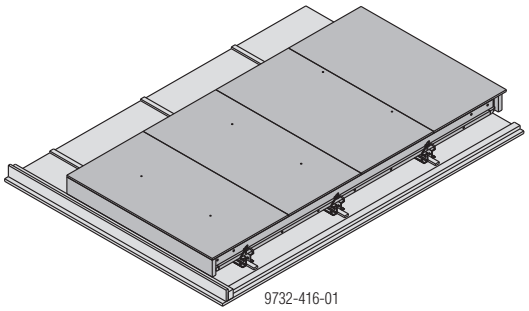
A Doka formwork sheet

The Strip tensioner B 6.00m presses the joints between the sheets tightly together prior to fixing.

Drilling the form-tie holes

➤ Drill as specified in the formwork plan.
Taper tie 11/4"ø to 1"ø: Ø $1^{5}/_{16}$"
Tie rod system 15.0: Ø $^{7}/_{8}$" (can be sealed with Universal plug R20/25)
Tie rod system 20.0: Ø 1"

➤ Seal cut edges, and around holes, with edge varnish.

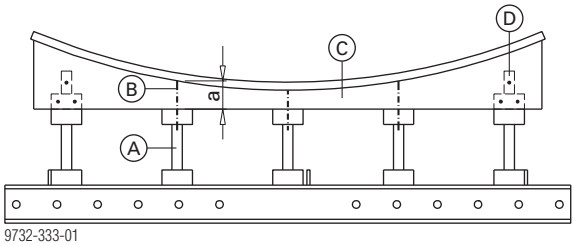


Mounting profiled timber formers

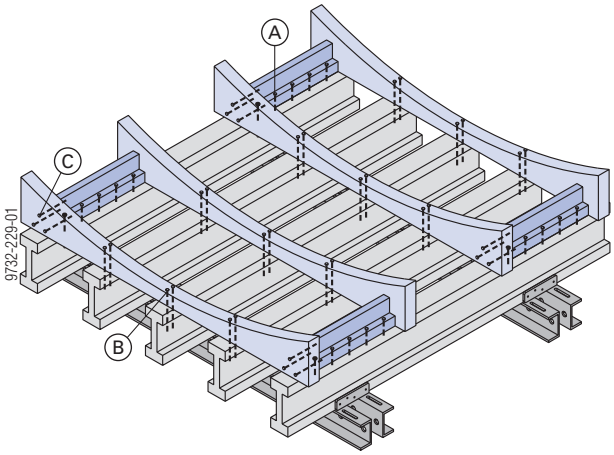
Up to a max. nailing thickness of (**a**) $^{5}/_{16}$", the curb timber can be nailed directly onto the beam.

Where the curb timbers are thicker than this, they are nailed from the side through blocks screwed onto the beams. These 'beam-blocks' also prevent the profiled timber formers from tipping over on their sides.

The blocks are cut to size from used Doka beams.



A	Doka beam
B	Nailed joint
C	Profiled timber formers
D	Beam block



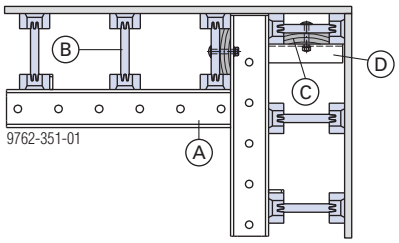
A	Beam block screwed onto Doka beam
B	Curb timber nailed onto Doka beam
C	Curb timber nailed onto beam-block

Assembling the inside corner

Doka beams, timber packing and compensating pieces are screwed together and onto the Corner waling 2'-0"x3'-0" or 2'-0"x4'-0" to make a dimensionally stable corner element.

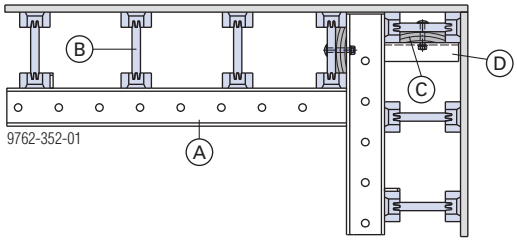
These Corner walings are available in "right" and "left" versions.

with Corner waling 2'-0"x3'-0"



A	Corner waling
B	Doka beam H20
C	Timber packing (L = $9^{7}/_{16}$")
D	Compensating piece made of plank 4.0 (L = $9^{7}/_{16}$")

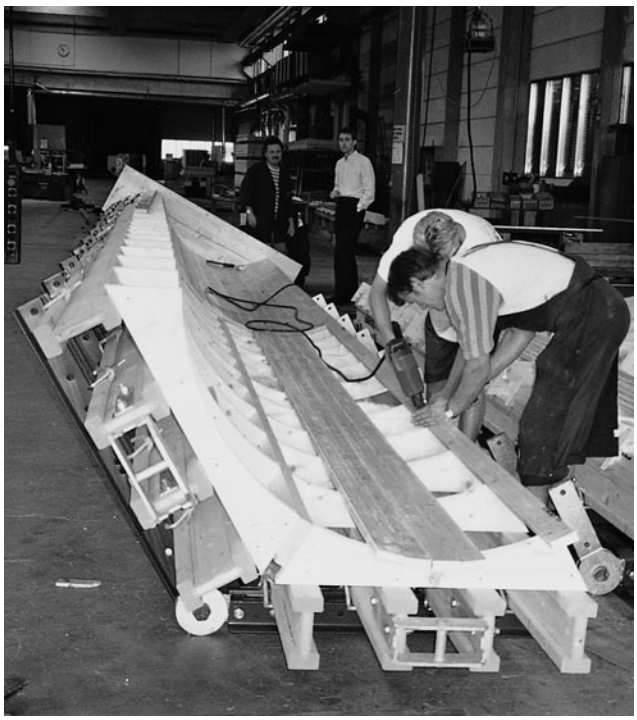
with Corner waling 2'-0"x4'-0"



A	Corner waling
B	Doka beam H20
C	Timber packing (L = $9^{7}/_{16}$")
D	Compensating piece made of plank 4.0 (L = $9^{7}/_{16}$")

Doka Pre-assembly Service

Site-ready formwork - for even the most unusual assignments



Whatever it is you need to construct from concrete, the Doka Pre-assembly Service can put together the right formwork for you - quickly, and in guaranteed Doka quality.

No matter whether you are looking for a special concrete finish or a custom solution for a tunnel or bridge.

The professionals from the Doka Pre-assembly Service plan and build **site-ready standard and custom formworks** exactly to your specifications.

By delivering "just-in-time", straight to your site, we **save space** on your worksite and **reduce the amount of planning and assembly work** that you have to do.

We'll be pleased to inform you about all that the Doka Pre-assembly Service Service can do for you. Your local/regional Doka branch would also be happy to draw up a proposal for your next project.

Structural design

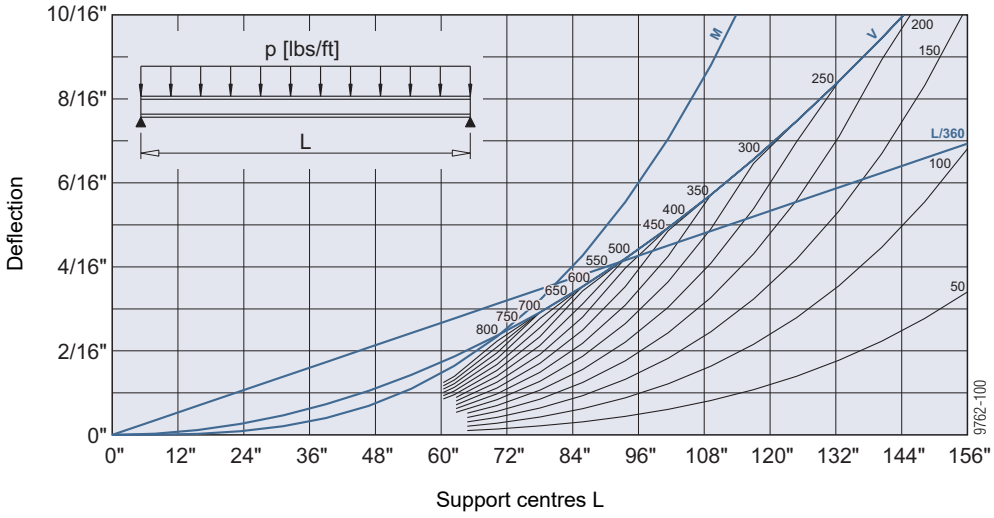
Doka beams H20

Beam load span table

Span	Permitted deflection L/360 (inches)	Single-span beam (lbs/ft)
4’-0"	0.13	1240 R
4’-6"	0.15	1100 R
5’-0"	0.17	990 R
5’-6"	0.18	900 R
6’-0"	0.20	825 R
6’-6"	0.22	700 R
7’-0"	0.23	605 R
7’-6"	0.25	525 R
8’-0"	0.27	465 R
8’-6"	0.28	380*
9’-0"	0.30	320*
9’-6"	0.32	275*
10’-0"	0.33	230*

R ... Reaction governs
* ... Deflection governs
Safety factor = 2.5:1

Deflection diagram



Permitted bending moment
V ... Permitted shear force

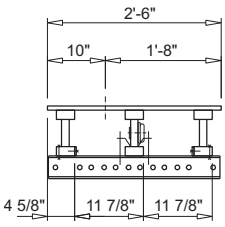
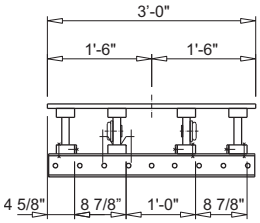
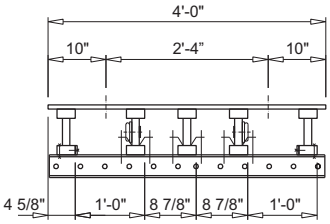
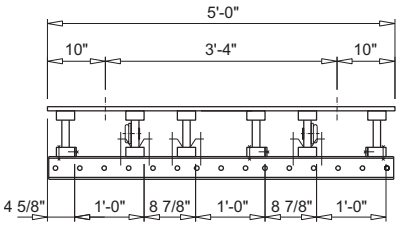
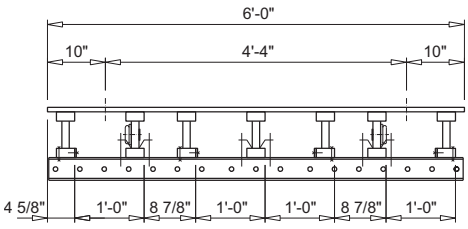
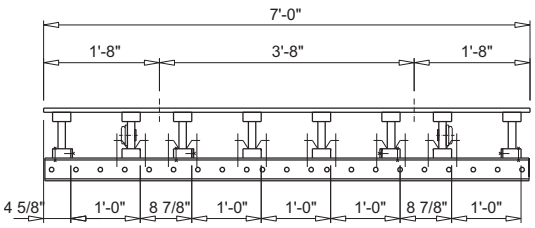
Top 50 gangs

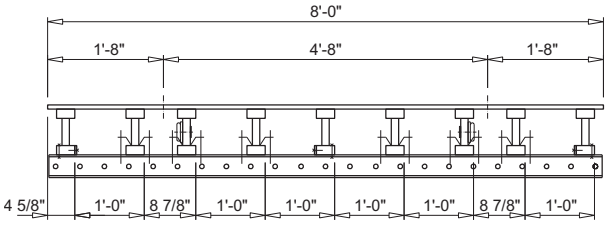
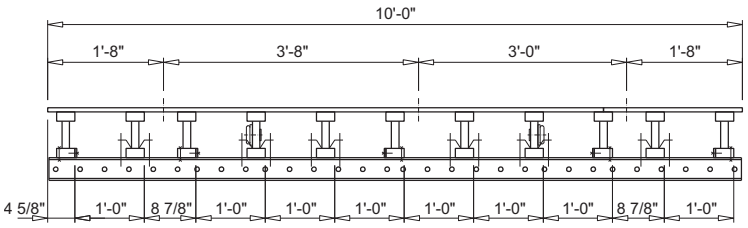
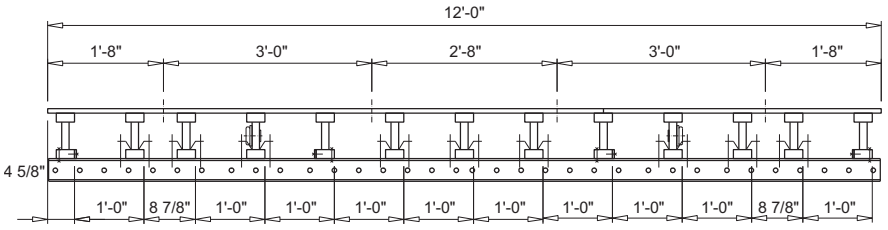
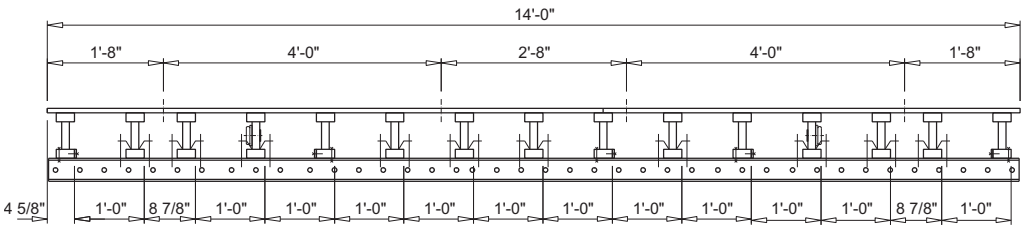
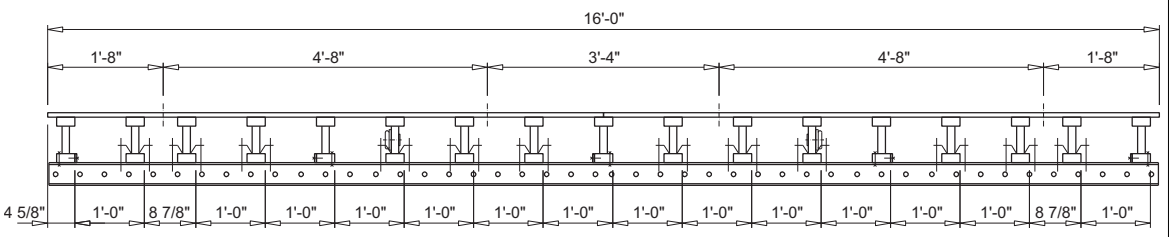
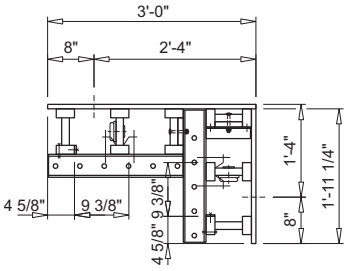
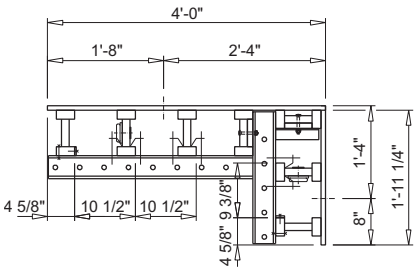
Standard Top 50 gangs

Form ply: 3/4" birchwood plywood sheet, designed for 1200 psf

Note:

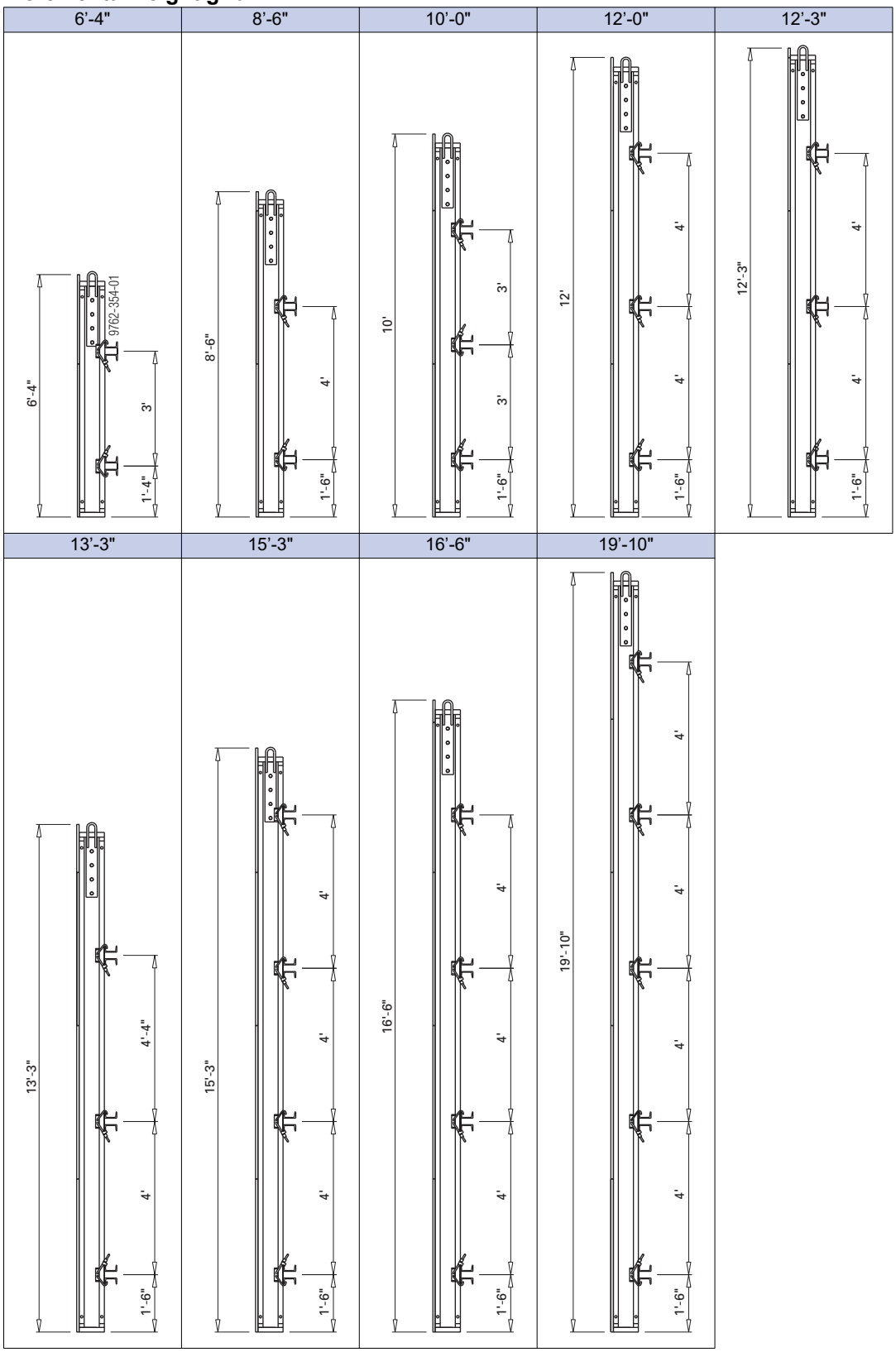
- Indicated tie spacing are used with opposing gangs of equal size. Tie spacing on extension corner gangs must be adjusted to accommodate inside corner forms and wall thickness.
- The number of lifting brackets needed is determined by the actual weight of the gang.

Length (weight [1])	
2'-6"	
3'-0"	
4'-0" (48 lbs/ft h)	
5'-0" (60 lbs/ft h)	
6'-0" (72 lbs/ft h)	
7'-0" (84 lbs/ft h)	

Length (weight [1])	
8'-0" (96 lbs/ft h)	
10'-0" (120 lbs/ft h)	
12'-0" (144 lbs/ft h)	
14'-0" (168 lbs/ft h)	
16'-0" [2] (192 lbs/ft h)	
3'-0" x 2'-0"	 Available in 'left' and 'right' versions.
4'-0" x 2'-0"	 Available in 'left' and 'right' versions.

1) lbs/ft h ... Weight per ft formwork height
2) Formwork height ≥ 16'-6" requires separate statics verification of the crane hoisting points!

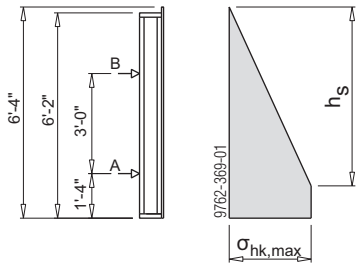
Incremental height grid



Alternative gang assemblies with different concrete pressures

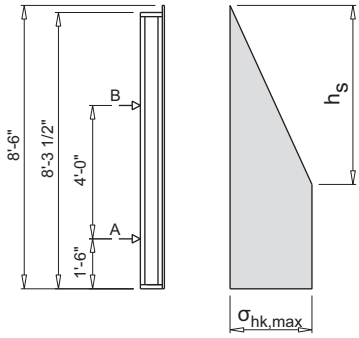
Doka beams H20

Formwork height 6’-4"



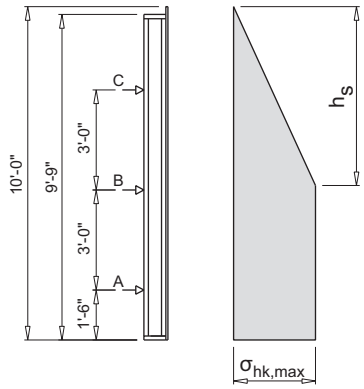
Pressure of fresh concrete $\sigma_{hk,max}$ [psf]	650	800	1000	hydrostatic
Beam centers	2’-5"	2’-2"	2’-0"	2’-0"
Max. span deflection	0"	0"	0"	0"
Max. cantilever deflection	1/64"	1/64"	1/64"	1/64"
Waling load B [lbs/ft]	905	868	828	828
Waling load A [lbs/ft]	1879	2183	2363	2363

Formwork height 8’-6"



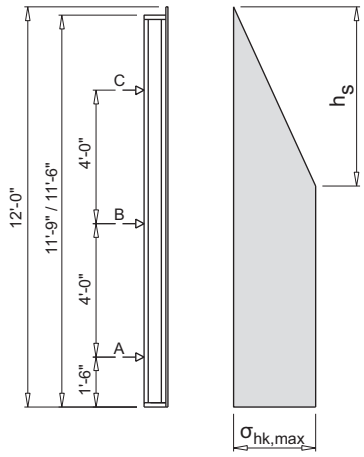
Pressure of fresh concrete $\sigma_{hk,max}$ [psf]	650	800	1000	1200
Beam centers	1’-10"	1’-6"	1’-3"	1’-3"
Max. span deflection	1/64"	1/64"	1/64"	1/64"
Max. cantilever deflection	1/64"	0"	0"	1/64"
Waling load B [lbs/ft]	1931	1997	1986	1943
Waling load A [lbs/ft]	2273	2793	3362	3744

Formwork height 10’-0"



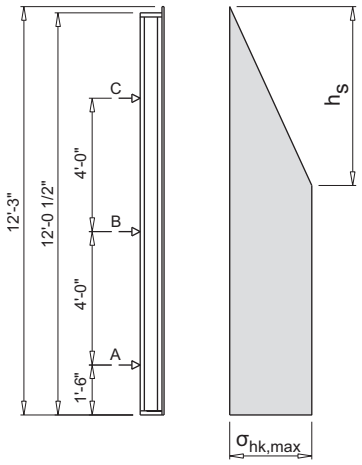
Pressure of fresh concrete $\sigma_{hk,max}$ [psf]	650	800	1000	1200
Beam centers	2’-3"	1’-10"	1’-5"	1’-2"
Max. span deflection	0"	0"	0"	0"
Max. cantilever deflection	1/64"	1/64"	1/64"	1/64"
Waling load C [lbs/ft]	1305	1302	1292	1293
Waling load B [lbs/ft]	1815	2142	2369	2396
Waling load A [lbs/ft]	2050	2543	3184	3794

Formwork height 12’-0"



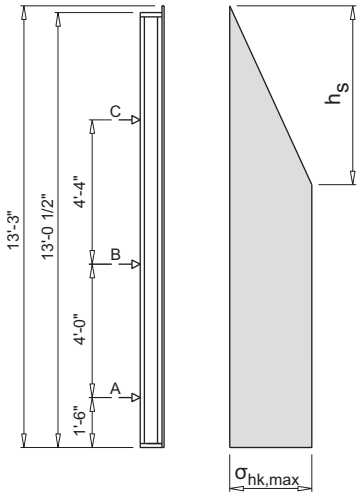
Pressure of fresh concrete $\sigma_{hk,max}$ [psf]	650	800	1000	1200
Beam centers	1’-8"	1’-5"	1’-2"	1’-0"
Max. span deflection	1/64"	1/64"	1/64"	1/64"
Max. cantilever deflection	1/64"	1/64"	0"	0"
Waling load C [lbs/ft]	1481	1505	1483	1450
Waling load B [lbs/ft]	2781	3353	3926	4267
Waling load A [lbs/ft]	2215	2725	3440	4160

Formwork height 12’-3"



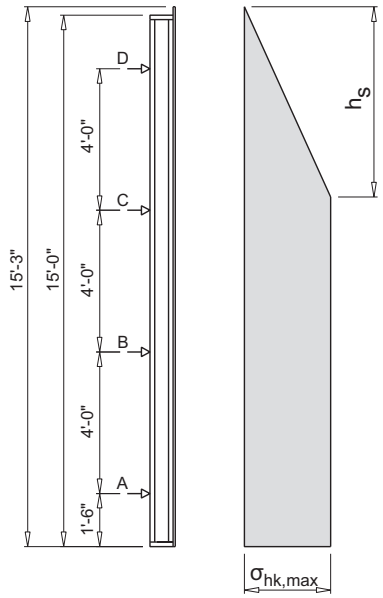
Pressure of fresh concrete $\sigma_{hk,max}$ [psf]	650	800	1000	1200
Beam centers	1’-9"	1’-5"	1’-2"	1’-0"
Max. span deflection	1/64"	1/64"	1/64"	1/64"
Max. cantilever deflection	0"	0"	0"	0"
Waling load C [lbs/ft]	1677	1721	1700	1665
Waling load B [lbs/ft]	2748	3336	3969	4348
Waling load A [lbs/ft]	2219	2727	3445	4152

Formwork height 13’-3"



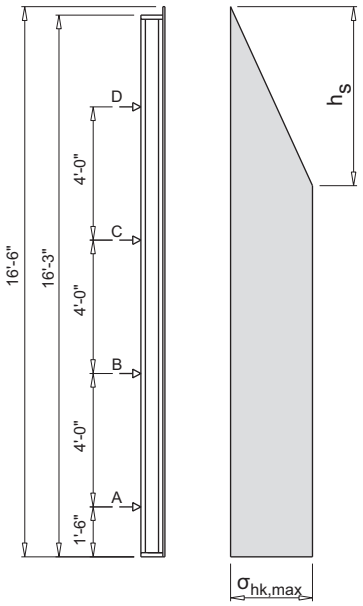
Pressure of fresh concrete $\sigma_{hk,max}$ [psf]	650	800	1000	1200
Beam centers	1’-9"	1’-5"	1’-1"	1’-0"
Max. span deflection	1/64"	1/64"	1/64"	1/64"
Max. cantilever deflection	3/64"	2/64"	1/64"	1/64"
Waling load C [lbs/ft]	2325	2444	2491	2459
Waling load B [lbs/ft]	2745	3428	4210	4782
Waling load A [lbs/ft]	2211	2714	3399	4128

Formwork height 15’-3"



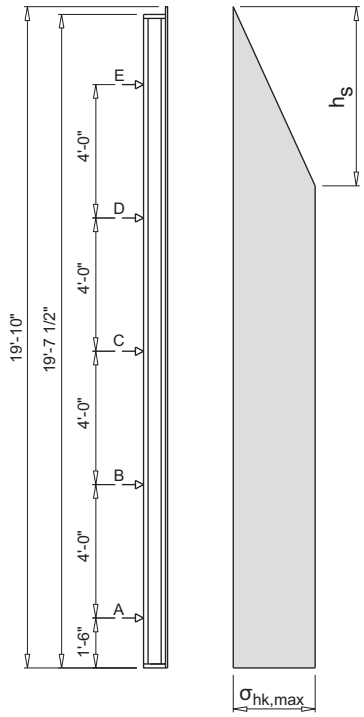
Pressure of fresh concrete $\sigma_{hk,max}$ [psf]	650	800	1000	1200
Beam centers	1’-8"	1’-5"	1’-2"	1’-0"
Max. span deflection	1/64"	1/64"	1/64"	1/64"
Max. cantilever deflection	1/64"	1/64"	1/64"	1/64"
Waling load D [lbs/ft]	988	982	953	934
Waling load C [lbs/ft]	2740	3213	3617	3776
Waling load B [lbs/ft]	2611	3243	4107	4952
Waling load A [lbs/ft]	2236	2747	3429	4116

Formwork height 16’-6"



Pressure of fresh concrete $\sigma_{hk,max}$ [psf]	650	800	1000	1200
Beam centers	1’-10"	1’-5"	1’-2"	1’-0"
Max. span deflection	1/64"	1/64"	1/64"	1/64"
Max. cantilever deflection	1/64"	1/64"	0"	1/64"
Waling load D [lbs/ft]	1882	1952	1956	1923
Waling load C [lbs/ft]	2635	3243	3875	4281
Waling load B [lbs/ft]	2647	3258	4101	4961
Waling load A [lbs/ft]	2234	2747	3424	4100

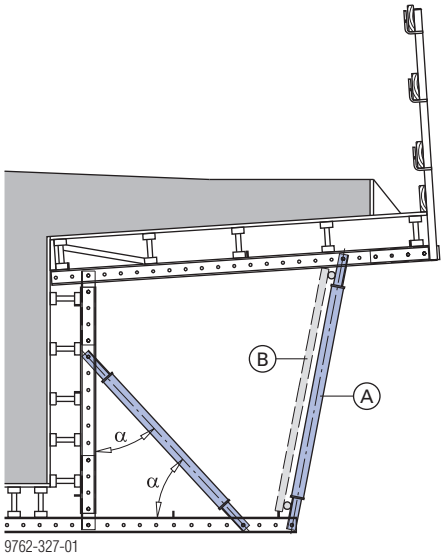
Formwork height 19’-10"



Pressure of fresh concrete $\sigma_{hk,max}$ [psf]	650	800	1000	1200
Beam centers	1’-8"	1’-5"	1’-2"	1’-0"
Max. span deflection	1/64"	1/64"	1/64"	1/64"
Max. cantilever deflection	1/64"	1/64"	1/64"	0"
Waling load E [lbs/ft]	1360	1384	1360	1333
Waling load D [lbs/ft]	2759	3300	3814	4098
Waling load C [lbs/ft]	2538	3148	4001	4841
Waling load B [lbs/ft]	2668	3269	4077	4886
Waling load A [lbs/ft]	2228	2752	3438	4121

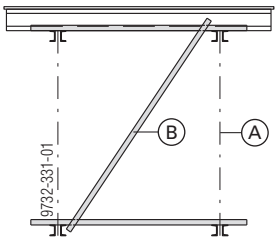
Struts

Universal struts Top50 (special order only)

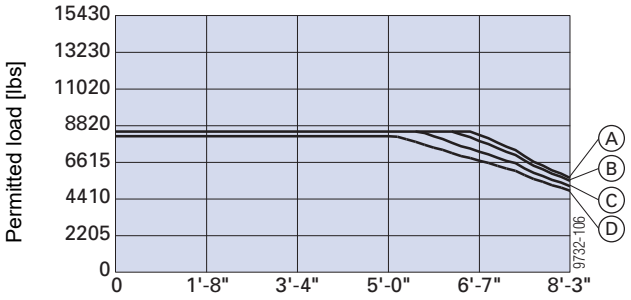


min. Angle α between strut and waling = 30°

A Strut
B Bracing

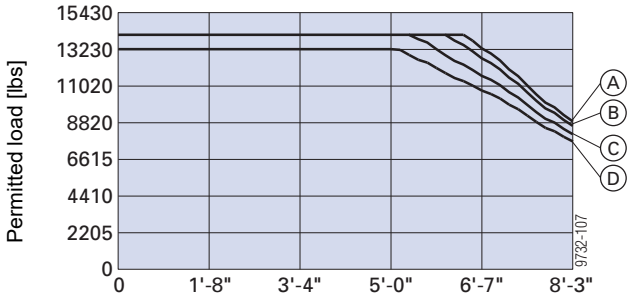


Universal strut T5/3 Top50



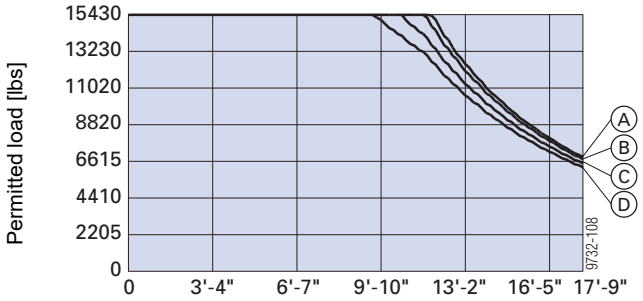
Length of strut

Universal strut T5/5 Top50



Length of strut

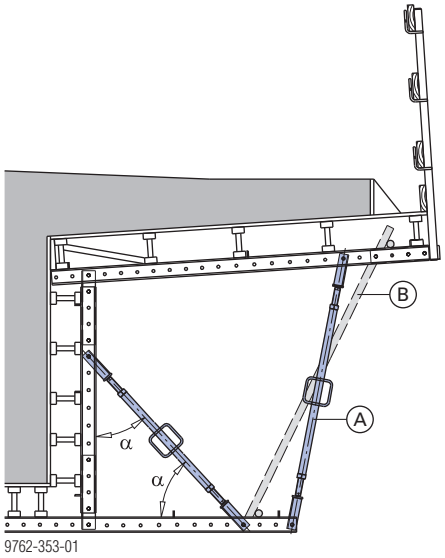
Universal strut T8/4 Top50



Length of strut

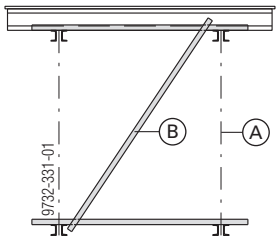
A With no bracing on the strut. Ensure that the parallel frame sections are adequately braced!
B With bracing on the strut
C With bracing on the strut + 2% longitudinal bridge slope
D With bracing on the strut + 4% longitudinal bridge slope

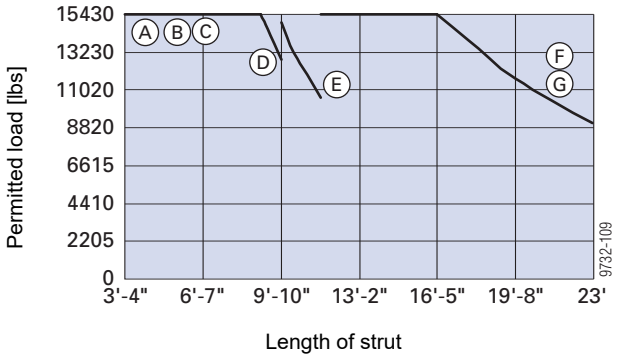
Spindle struts



min. angle between strut and waling = 30°

A	Spindle strut
B	Bracing





A	Spindle strut T7 100/150cm
B	Spindle strut T7 150/200cm
C	Spindle strut T7 200/250cm
D	Spindle strut T7 250/300cm
E	Spindle strut T7 305/355cm
F	Spindle strut T10 350/400cm
G	Spindle strut T10 ....mm (specify min. length of strut)

General remarks

Top 50 combined with . . .

Doka climbing formwork MF240

Climbing formwork MF240 proves its versatility on all tall structures. The formwork and climbing scaffold are linked together as a single unit which can be repositioned in one single crane cycle.

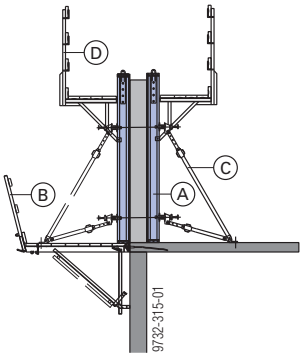
Follow the directions in the 'Climbing formwork MF240' User Information booklet!

Doka folding platforms

The high capacity of these work and safety scaffolds means that the formwork can safely be stood on the folding platforms.

Adding a few standard parts turns your work platform into a climbing formwork unit which can be shifted as a complete form and access-platform in one single operation.

This makes work at great heights faster and more efficient.

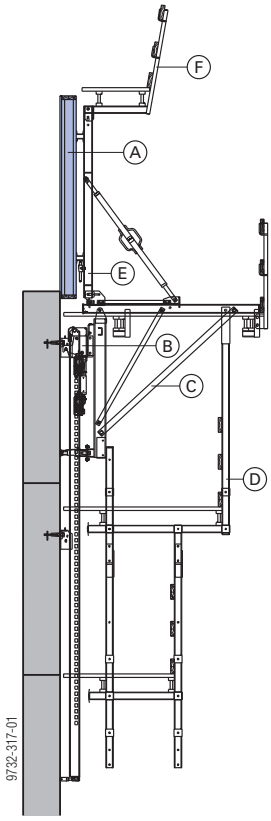


A	Top 50 gang
B	Folding platform K
C	Panel strut
D	Universal bracket

Follow the directions in the "Folding platform K" and "Climbing formwork K" User Information booklets!

Doka automatic climbing formwork

With their modular design concept, these crane-independent automatic climbing formwork systems provide an efficient solution for every type of structure.



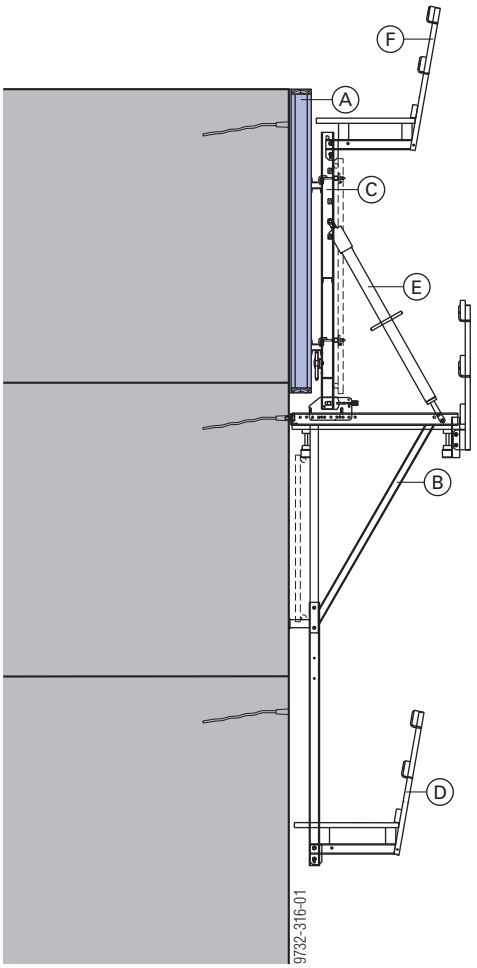
A	Top 50 gang
B	Automatic climber SKE50
C	Climbing bracket MF240
D	Suspended platform SKE/MF 425
E	Traveling unit MF
F	Screw-on access bracket MF75

Follow the directions in the ‘Doka automatic climbing formwork SKE 50’ User Information booklet!

Doka dam formwork

Doka dam formwork is used for building mass concrete structures that have to be constructed in several casting sections, such as dams, barrages and navigation locks etc.

The pressure of the fresh concrete is transferred into the previous casting section by the climbing scaffold, meaning that no form-ties are needed.

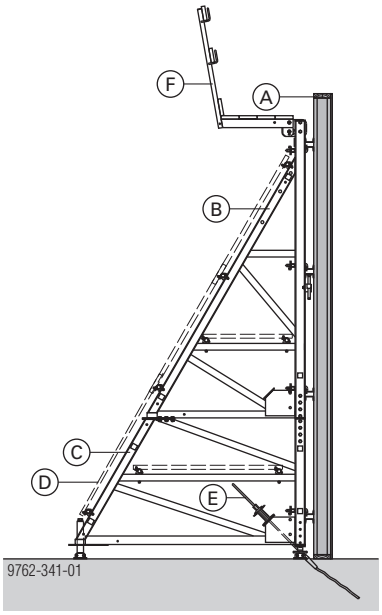


A	Top 50 gang
B	Cantilever bracket
C	Vertical waling
D	Suspended platform
E	Spindle strut
F	Screw-on access bracket MF75

Follow the directions in the “Doka dam formwork” User Information!

Doka supporting construction frames

The **Doka supporting construction frame Universal F** or **Starter block D22** also enable the sturdy Top 50 gangs to be used as single-sided wall formwork.



A	Top 50 gang
B	Supporting construction frame Universal F 4.50m
C	Attachable frame F 1.50m
D	Bracing
E	Tension anchoring
F	Screw-on access bracket MF 75

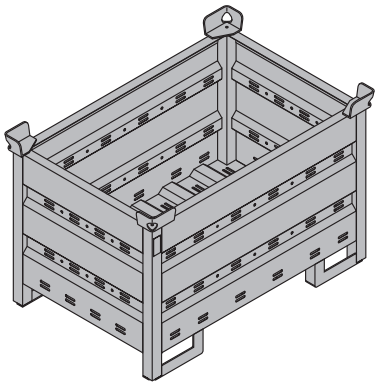
Follow the directions in the "Doka supporting construction frames" and "Doka dam formwork" User Information!

Doka multi-trip packaging

Utilize the benefits of Doka multi-trip packaging on your worksite.
Our Multi-trip packaging such as transport boxes, stacking pallets, accessory boxes and skeleton transport boxes keep everything in place on the site.

Doka multi-trip transport box 1.20x0.80m

The ideal container for all small components:
- durable
- stackable
- safe to lift by crane

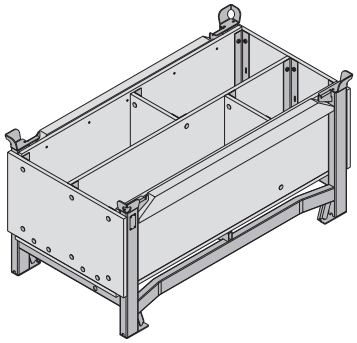


Max. load-bearing capacity: 3300 lbs (1500 kg)

Follow the directions in the Operating Instructions!

The multi-trip transport box is used for delivering e.g.:
- Formwork element connector FF20/50
- Adjustable waling extension Top50 S
- Anchoring plates FF20/50
- Beam clamps Top50
- Corner connecting plates 90/50
- Flange-clamps G
- Lifting brackets
- Universal angle tie bracket

Doka accessory box



Storage and transport devices for small items:
- durable
- stackable

Suitable transport appliances:
- crane
- pallet stacking truck
- forklift truck

This box is the tidy, easy-to-find way of storing and stacking all interconnection and form-tie components.
The Bolt-on caster set B turns the stacking pallet into a fast and maneuverable transport trolley.

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

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

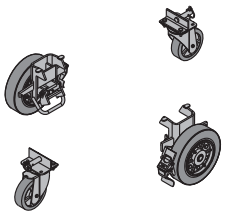
NOTICE
- Multi-trip packaging items that each contain very different loads must be stacked with the heaviest ones at the bottom and the lightest ones at the top!
- The rating plate must be in place and clearly legible.

Bolt-on caster set B

The quick-fit bolt-on caster set (with rapid-acting couplings) turns the accessory box into a fast and maneuverable transport trolley. Its width of only 2’-10" makes it easy to maneuver through any doorway.

A bolt-on caster set consists of:

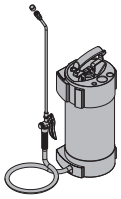
- 2 heavy-duty wheels, complete
- 2 bolt-on casters, complete



Cleaning and care of your equipment

Concrete release agent

Doka-Trenn or Doka-OptiX is applied using the Doka sprayer for release agent.



Follow the directions in the 'Doka sprayer for release agent' Operating Instructions and on the containers of release agent.

NOTICE

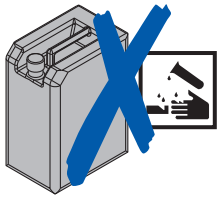
- Before every pour:
  - Apply release agent to the formwork sheet and the end faces **extremely thinly, evenly and in a continuous layer**.
- Make sure there are no drips of release agent running down the formwork sheet.
- Applying too much release agent will spoil the concrete finish.

To determine the right dosage and to make sure that you are using the agent correctly, test it on less important parts of the structure first.

Cleaning

NOTICE

- Immediately after pouring:
  - Remove any blobs of concrete from the back-face of the formwork, using water (without any added sand).
- Immediately after stripping the formwork
  - Clean the formwork with a high-pressure washer and a concrete scraper.
- Do not use any chemical cleaning agents!

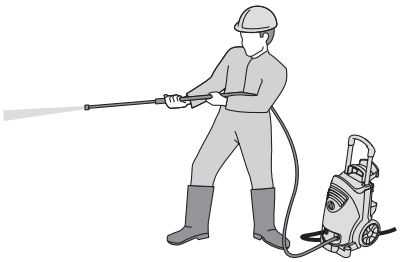


Cleaning high formwork:
Provide a service tower at a suitable cleaning location.

- Wheel-around scaffold DF (formwork height up to 3,90 m)
- Working scaffold Modul (formwork height up to 6,70 m)
- Load-bearing tower Staxo 40 (formwork height over 6,70 m)

Cleaning equipment

High-pressure washer

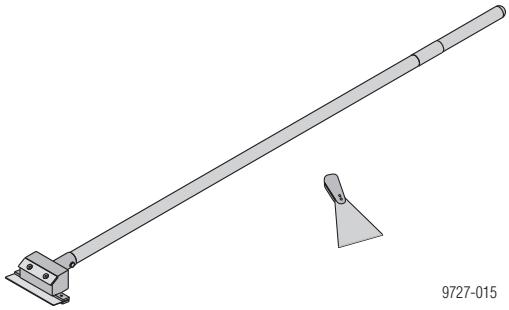


NOTICE

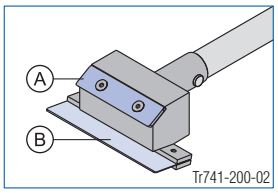
- Appliance pressure rating: 200 to max. 300 bar
- Keep the water-jet the correct distance from the formwork, and move it at the right speed:
  - The higher the pressure, the further away from the formwork you must keep the jet and the faster you must move it across the surface.
- Do not aim the jet at one place for too long.

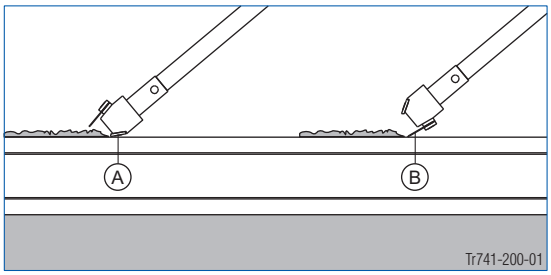
Concrete scraper

For removing concrete remnants, we recommend using a **Double scraper Xlife** and a paint scraper.



Functional description:



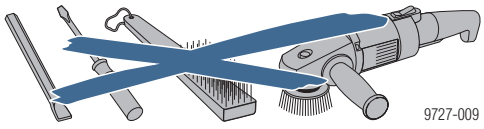


A Blade for dealing with heavy soiling

B Blade for dealing with slight soiling

NOTICE

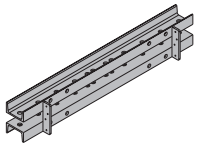
Do not use pointed or sharp objects, wire brushes, abrasive disks or cup brushes.



	[lbs]	Article #
Multi-purpose waling WS10 Top50 2'-6"	**34.2**	**581601000**
Multi-purpose waling WS10 Top50 3'-0"	**39.7**	**581621000**
Multi-purpose waling WS10 Top50 4'-0"	**53.8**	**581602000**
Multi-purpose waling WS10 Top50 5'-0"	**67.7**	**581617000**
Multi-purpose waling WS10 Top50 6'-0"	**82.2**	**581603000**
Multi-purpose waling WS10 Top50 7'-0"	**92.6**	**581616000**
Multi-purpose waling WS10 Top50 8'-0"	**109.0**	**581604000**
Multi-purpose waling WS10 Top50 10'-0"	**134.0**	**581605000**
Multi-purpose waling WS10 Top50 12'-0"	**164.0**	**581606000**
Multi-purpose waling WS10 Top50 14'-0"	**192.0**	**581607000**
Multi-purpose waling WS10 Top50 16'-0"	**218.0**	**581608000**

Mehrzweckriegel WS10 Top50

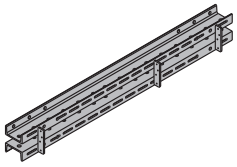
Painted blue



Multi-purpose waling WU12 Top50 5'-0"	**84.7**	**581609000**
Multi-purpose waling WU12 Top50 6'-0"	**101.0**	**581610000**

Mehrzweckriegel WU12 Top50

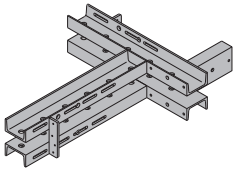
Painted blue



Corner waling WS10 Top50 3'-0"x2'-0"	**56.4**	**581611000**
Corner waling WS10 Top50 4'-0"x2'-0"	**70.8**	**581612000**

Eckriegel WS10 Top50

Painted blue



Shaft corner waling WS10 Top50 .....m	**45.2**	**580069000**

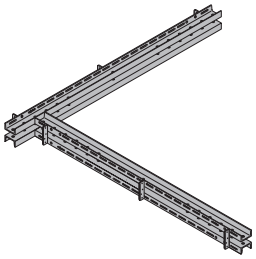
Eckwandriegel WS10 Top50 .....m

Painted blue

Project-specific!

Also available in profiles of thickness U120 (Order designation: WU12).

Special order only!



Angular waling WS10 Top50 .....m	**47.4**	**580068000**

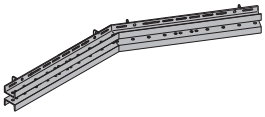
Winkelriegel WS10 Top50 .....m

Painted blue

Project-specific!

Also available in profiles of thickness U120 (Order designation: WU12).

Special order only!



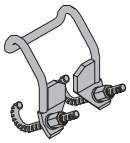
Flange clamp H20	**2.2**	**580135000**

Flanschklammer H20

Galvanized

Width: 5" (13 cm)

Width-across: 19 mm



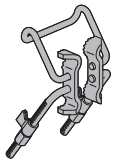
Flange clamp G	**2.4**	**580120000**

Flanschklammer G

Galvanized

Width: 5" (13 cm)

Width-across: 19 mm



Flange claw	**2.2**	**580137000**

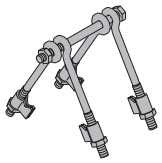
Flanschkralle

Galvanized

Width: 6 1/2" (17 cm)

Width-across: 19 mm

Special order only!



Waling clamp H20	**0.49**	**580114000**

Riegelklammer H20

Galvanized

Width: 3 1/4" (8 cm)

Width-across: 13 mm

Beam screw S 8/70	**0.13**	**580116500**

Riegelverschraubung S 8/70

Galvanized

Length: 3 1/4" (8 cm)

Width-across: 13 mm

Beam screw H 8/70	**0.13**	**580117000**

Riegelverschraubung H 8/70

Galvanized

Length: 3 1/4" (8 cm)

Width-across: 13 mm

Fastening plate	**6.0**	**580110000**

Anschraublasche

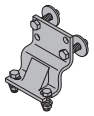
Painted blue

Width: 5" (13 cm)

Height: 6" (15 cm)

Width-across: 24 mm

Special order only!



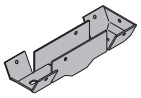
Protective cap H20	**0.79**	**587248000**

Stirnschuh H20

Galvanized

Length: 8" (20 cm)

Width: 2 3/4" (7 cm)



Lifting bracket	**13.7**	**580460000**

Kranöse

Galvanized

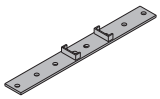
Height: 1'-11" (59 cm)

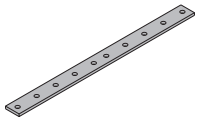
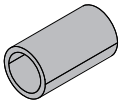
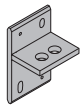
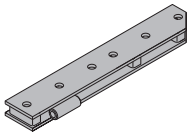
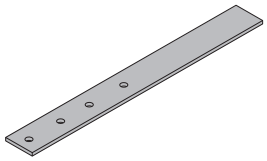
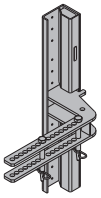
Splice plate S Top50	**11.9**	**581614000**

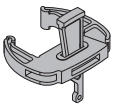
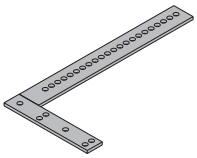
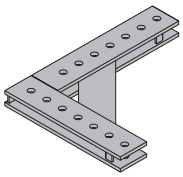
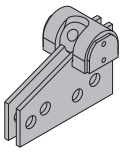
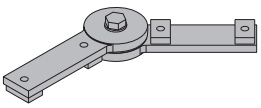
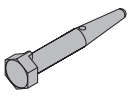
Verbindungslasche S Top50

Painted blue

Length: 2'-6" (76 cm)



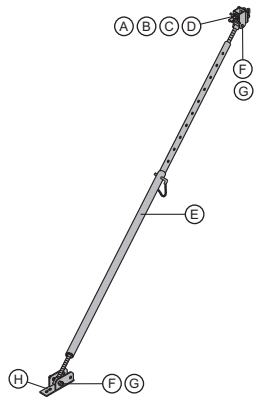
	[lbs]	Article #
Splice plate S Top50 3"x1/2" Verbindungslasche S Top50 3"x1/2"  Painted blue Length: 3'-3" (99 cm)	**16.5**	**581620000**
Channel waler spacer 2" Abstandsrohr 2" 	**0.29**	**585044000**
Speed bolt 3/4"x6" **Speed bolt 3/4"x4"** Schnellgewindeschraube	**0.86** **0.64**	**585651000** **585650000**
Speed nut 3/4" Schnellgewindemutter 3/4"	**0.2**	**585652000**
Beam clamp Top50 Trägerklammer Top50  Painted blue Height: 6" (15 cm)	**2.6**	**580081000**
Anchoring plate FF20/50 Ankerungslasche FF20/50  Painted blue Length: 1'-10" (55 cm) Special order only!	**14.6**	**587531000**
Half splice plate Halblasche  Painted blue Length: 2'-7" (78 cm)	**11.5**	**580267000**
Transition plate S 3/4" Übergangslasche S 3/4"  Painted blue Length: 2' (59,9 cm) Height: 2'-11" (89 cm)	**56.2**	**588586000**

	[lbs]	Article #
Framax S bias cut corner I 2.70m **Framax S bias cut corner I 1.35m** Framax S Ausschalecke I  Galvanized, powder-coated	**388.0** **207.0**	**588527000** **588528000**
Framax stripping spindle I with ratchet Framax-Ausschalspindel I mit Ratsche  Galvanized Height: 10" (24,8 cm)	**12.1**	**588653000**
Framax quick acting clamp RU Framax-Schnellspanner RU  Galvanized Length: 8" (20 cm)	**7.3**	**588153400**
Internal angle plate S H20 Innenecklasche S H20  Painted blue Length: 2'-7" (79 cm) Width: 1'-3" (39 cm)	**16.8**	**581613000**
Corner connecting plate 90/50 Winkellasche 90/50  Painted blue Length: 1'-8" (51 cm) Width: 1'-4" (40 cm)	**30.4**	**580603000**
Universal angle tie bracket Universal-Winkelspanner  Painted blue Length: 8" (20 cm)	**9.7**	**580604000**
Articulated conn. plate A Top50 ..... degrees Gelenklasche A Top50 ..... Grad  Galvanized Leg length: 1'-2" (36 cm) Special order only!	**44.1**	**580208000**
Connecting pin 10cm Verbindungsbolzen 10cm  Galvanized Length: 5 1/2" (14 cm)	**0.75**	**580201000**

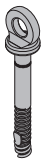
	[lbs]	Article #
Connecting pin 25cm Verbindungsbolzen 25cm Galvanized Length: 10" (25 cm)	**1.3**	**580202000**
Spring cotter 5mm Federvorstecker 5mm Galvanized Length: 5" (13 cm)	**0.066**	**580204000**
Stacking plate H20 Aufstocklasche H20 Galvanized Length: 2'-3" (68,8 cm) Width-across: 30 mm	**18.3**	**580310000**
Inside corner plate 3.00m **Inside corner plate 4.00m** Eckschiene Powder-coated, blue	**117.0** **152.0**	**580282000** **580284000**
Joint plate 3.00m **Joint plate 4.00m** Ausgleichsschiene Powder-coated, blue	**81.1** **105.0**	**580332000** **580334000**
T ledge 21/42 2.00m T-Leiste 21/42 2,00m Gray Special order only!	**0.75**	**580196000**

	[lbs]	Article #
Panel strut 340 IB Elementstütze 340 IB consisting of:	**53.6**	**580365000**
(A) **Plumbing strut 340 IB** Galvanized Length: 6'-3" - 11'-3" (190,8 - 341,8 cm)	**36.8**	**588696000**
(B) **Adjusting strut 120 IB** Galvanized Length: 2'-8" - 4'-3" (81,5 - 130,6 cm)	**16.8**	**588248500**
Galvanized Delivery condition: folded closed		
Panel strut 540 IB Elementstütze 540 IB consisting of:	**91.3**	**580366000**
(A) **Plumbing strut 540 IB** Galvanized Length: 10'-2" - 18' (310,5 - 549,2 cm)	**67.7**	**588697000**
(B) **Adjusting strut 220 IB** Galvanized Length: 5'-8" - 7'-3" (172,5 - 221,1 cm)	**24.0**	**588251500**
Galvanized Delivery condition: folded closed		
Prop head EB Stützenkopf EB Galvanized Length: 1'-4" (40,8 cm) Width: 4 1/2" (11,8 cm) Height: 7" (17,6 cm)	**6.8**	**588244500**

	[lbs]	Article #
Pipe brace 22'-0"-40'-0" Rohrstütze 22'-0"-40'-0" consisting of:		
(A) **Top50 S fixing unit**	**5.1**	**585690000**
(B) **Flat washer 3/4" (5x5x3/8)**	**3.5**	**585529000**
(C) **Framax universal fixing bolt 10-25cm** Galvanized Length: 1'-2" (36 cm)	**1.5**	**583002000**
(D) **Star grip nut 15.0 G** Galvanized Width: 4" (10 cm) Height: 2" (5 cm) Width-across: 26 mm	**1.0**	**587544000**
(E) **Pipe brace 22'-0"-40'-0"**	**410.0**	**585092000**
(F) **Speed bolt 3/4"x4"** 2 pcs.	**0.64**	**585650000**
(G) **Speed nut 3/4"** 2 pcs.	**0.2**	**585652000**
(H) **Pipe brace shoe** Galvanized Delivery condition: separate parts	**10.4**	**585088000**

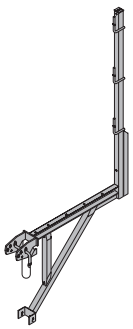


Doka express anchor 16x125mm Doka-Expressanker 16x125mm Galvanized Length: 7" (18 cm) Follow fitting instructions!	**0.68**	**588631000**

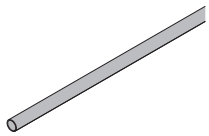


Doka coil 16mm Doka-Coil 16mm Galvanized Diameter: 5/8" (1,6 cm)	**0.02**	**588633000**

Universal bracket 90 Universal-Konsole 90 Galvanized Length: 4' (121 cm) Height: 7'-9" (235 cm)	**67.0**	**580476000**

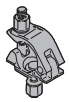


	[lbs]	Article #
Scaffolding tube 1 1/2"x6'-0"	**16.3**	**585070000**
Scaffolding tube 1 1/2"x8'-0"	**21.8**	**585071000**
Scaffolding tube 1 1/2"x10'-6"	**28.7**	**585072000**
Scaffolding tube 1 1/2"x13'-0"	**35.3**	**585073000**
Scaffolding tube 1 1/2"x15'-0"	**40.8**	**585074000**
Scaffolding tube 1 1/2"x21'-0"	**57.1**	**585075000**
Gerüstrohr 1 1/2" Galvanized		

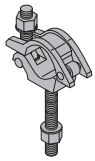


Scaffold tube connection Gerüstrohranschluss Galvanized Height: 2 3/4" (7 cm) Special order only!	**0.6**	**584375000**

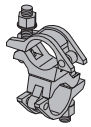
Screw-on coupler 48mm 50 Anschraubkupplung 48mm 50 Galvanized Width-across: 22 mm Follow fitting instructions!	**1.9**	**682002000**



Screw-on coupler 48mm 95 Anschraubkupplung 48mm 95 Galvanized Width-across: 22 mm Follow fitting instructions!	**1.9**	**586013000**

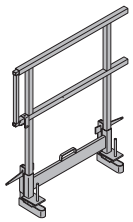


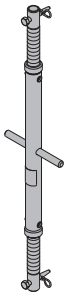
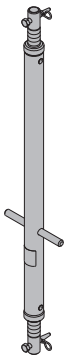
Swivel coupler 48mm Drehkupplung 48mm Galvanized Width-across: 22 mm Follow fitting instructions!	**3.3**	**582560000**

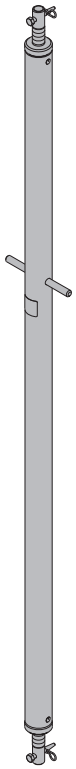
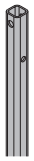
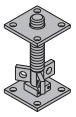
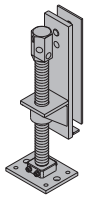


Handrail clamp S Schutzgeländerzwinge S Galvanized Height: 4' - 5'-7" (123 - 171 cm)	**25.4**	**580470000**

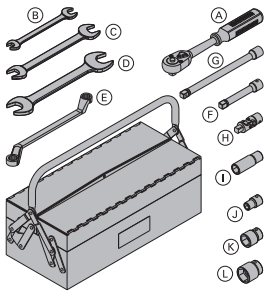
Side handrail clamping unit T Seitenschutzgeländer T Galvanized Length: 3'-9" - 5'-9" (115 - 175 cm) Height: 3'-8" (112 cm) Special order only!	**64.2**	**580488000**



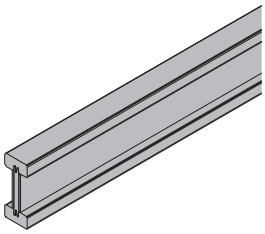
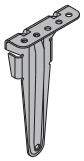
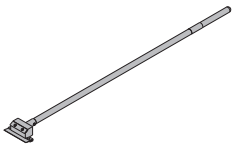
	[lbs]	Article #
Doka 4-part chain 3.20m Doka-Vierstrangkette 3,20m  Follow the directions in the "Operating Instructions"! CE	**33.1**	**588620000**
Framax transport bolt Framax-Transportbolzen  Follow the directions in the "Operating Instructions"! CE	**4.2**	**588621000**
Spindle strut T6 100/150cm Spindelstrebe T6 100/150cm Galvanized 	**27.6**	**584323000**
Spindle strut T7 75/110cm **Spindle strut T7 100/150cm** **Spindle strut T7 150/200cm** **Spindle strut T7 200/250cm** **Spindle strut T7 250/300cm** **Spindle strut T7 305/355cm** Spindelstrebe T7 Galvanized 	**29.1** **37.0** **47.6** **57.8** **64.8** **77.2**	**584308000** **584309000** **584324000** **584325000** **584326000** **584327000**

	[lbs]	Article #
Spindle strut T10 350/400cm **Spindle strut T10 .....mm** Spindelstrebe T10 	**127.0** **37.3**	**584328000** **584391000**
Universal strut T5/5 .....mm Strebe T5/5 .....mm Painted blue Weight per linear foot 	**14.3**	**584311000**
Universal spindle foot T8 Universal-Spindelfuß T8 Painted blue Galvanized Height: 1' (30 cm) Special order only! 	**19.0**	**584314000**
Height adjustment for formwork beams Höhenjustierung für Schalungsträger Galvanized Height: 1'-6" (46 cm) 	**26.2**	**580218000**

	[lbs]	Article #
Height adjuster WS10-WU16 Höhenjustierung WS10-WU16 Galvanized Height: 1'-6" (45 cm)	**22.3**	**580206500**
Adjusting spindle M36 Höhenjustierspindel M36 Galvanized Length: 1' (31 cm) Height: 11" (29,2 cm) Width-across: 24 mm	**13.7**	**500663002**
Suspension head WS10 Aufhängekopf WS10 Galvanized Length: 8" (21 cm) Width: 7" (18 cm) Height: 9" (23 cm) Special order only!	**17.9**	**580449000**
Universal support Top50 .....mm Tragwerklasche Top50 .....mm Painted blue Weight per linear foot Special order only!	**24.5**	**584312000**
Tie-off connector type A Anhängewinkel Typ A Galvanized Length: 5 1/2" (13,7 cm)	**2.1**	**581641000**
Tool box GF GF-Werkzeugbox included in scope of supply:	**14.3**	**580390000**
(A) **Reversible ratchet 1/2"** Galvanized Length: 1' (30 cm)	**1.6**	**580580000**
(B) **Fork wrench 13/17**	**0.18**	**580577000**
(C) **Fork wrench 22/24**	**0.49**	**580587000**
(D) **Fork wrench 30/32**	**1.8**	**580897000**
(E) **Ring spanner 17/19**	**0.6**	**580590000**
(F) **Extension 11cm 1/2"**	**0.44**	**580581000**
(G) **Extension 22cm 1/2"**	**0.68**	**580582000**
(H) **Universal joint coupling 1/2"**	**0.35**	**580583000**
(I) **Box nut 19 1/2" L**	**0.35**	**580598000**
(J) **Box nut 13 1/2"**	**0.13**	**580576000**
(K) **Box nut 24 1/2"**	**0.26**	**580584000**
(L) **Box nut 30 1/2"**	**0.44**	**580575000**



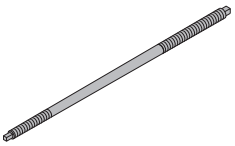
	[lbs]	Article #
Filler neck GF SCC GF-Füllstutzen SCC Galvanized Length: 2'-2" (66 cm) Special order only!	**86.0**	**580217000**
Panel closure tool D125 SCC Sperrschieber D125 SCC Galvanized Length: 7" (18 cm) Width: 1'-1" (33 cm) Height: 11" (27 cm) Special order only!	**39.7**	**588127000**
Assembly angle Top50 Montagelasche Top50 Galvanized Length: 1'-9" (53,2 cm) Width: 1'-7" (48,6 cm)	**14.8**	**580082000**
Strip tensioner B 6.00m Bandzwinge B 6,00m Galvanized Special order only!	**7.3**	**580394500**
Strip tensioner B 5.00m Bandzwinge B 5,00m Galvanized Special order only!	**7.7**	**580394000**
Doka beam H20 top P 1.80m	**21.8**	**189701000**
Doka beam H20 top P 2.45m	**29.1**	**189702000**
Doka beam H20 top P 2.65m	**31.5**	**189703000**
Doka beam H20 top P 2.90m	**34.4**	**189704000**
Doka beam H20 top P 3.90m	**45.9**	**189707000**
Doka beam H20 top P 4.50m	**52.7**	**189708000**
Doka beam H20 top P 5.90m	**68.8**	**189710000**
Doka beam H20 top P .....m	**11.9**	**189700000**
Doka beam H20 top P 11'-6"	**42.5**	**189713000**
Doka beam H20 top P 16'-0"	**59.1**	**189712000**
Doka-Träger H20 top P Varnished yellow		

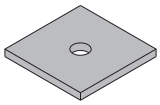
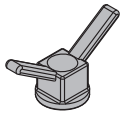
	[lbs]	Article #
Doka beam H20 eco N 12.00m Doka-Träger H20 eco N 12,00m Varnished yellow Special order only! 	**133.0**	**189288000**
Dokaplex formwork sheet 9mm 250/150cm **Dokaplex formwork sheet 9mm 300/150cm** Dokaplex-Schalungsplatte 9mm	**53.8** **64.6**	**185001000** **185006000**
H20 screw-on bracket for formwork sheets Schalhaut-Schraubwinkel H20 Galvanized Height: 7 1/2" (19,2 cm) 	**0.42**	**586256000**
Double scraper Xlife 100/150mm 1.40m Doppelschaber Xlife 100/150mm 1,40m 	**6.2**	**588674000**
Doka personal fall-arrest set Doka-Auffanggurt Follow the directions in the "Operating Instructions"! CE 	**7.9**	**583022000**

Taper tie system 1 1/4"-1"

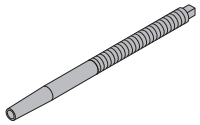
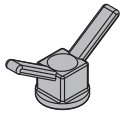
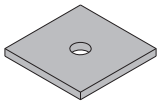
Taper tie 1 1/4" to 1"x36"	**14.8**	**585545000**
Taper tie 1 1/4" to 1"x42"	**17.2**	**585546000**
Taper tie 1 1/4" to 1"x48"	**20.1**	**585547000**
Taper tie 1 1/4" to 1"x54"	**22.0**	**585548000**
Taper tie 1 1/4" to 1"x60"	**24.7**	**585549000**
Taper tie 1 1/4" to 1"x66"	**29.1**	**585550000**
Taper tie 1 1/4" to 1"x72"	**34.0**	**585551000**

Konischer Ankerstab 1 1/4" auf 1"



	[lbs]	Article #
Flat washer 3/4" (5x5x3/8)	**3.5**	**585529000**
Flat washer 1" (5x5x3/4)	**5.3**	**585530000**
Flat washer 1 1/4" (5x5x3/4) Ankerplatte 	**5.3**	**585531000**
Battered washer 1"	**4.0**	**585540000**
Battered washer 1 1/4" Winkelplatte	**5.5**	**585635000**
Wing nut 1"	**1.1**	**585632000**
Wing nut 1 1/4" Flügelmutter 	**1.2**	**585633000**

She-bolt system 1 1/4"

She-bolt 1 1/4"x20"	**5.5**	**585541000**
She-bolt 1 1/4"x24" Ankerkopf 1 1/4" 	**7.1**	**585542000**
Coil rod 3/4"x12'-0" Rollgewindestab 3/4"x12'-0"	**13.9**	**585501000**
Wing nut 1 1/4" Flügelmutter 1 1/4" 	**1.2**	**585633000**
Flat washer 1 1/4" (5x5x3/4) Ankerplatte 1 1/4" 	**5.3**	**585531000**
Battered washer 1 1/4" Winkelplatte 1 1/4"	**5.5**	**585635000**

Tie rod system 15.0

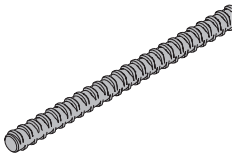
	[lbs]	Article #
Tie rod 15.0mm galvanized 0.50m	**1.6**	**581821000**
Tie rod 15.0mm galvanized 0.75m	**2.4**	**581822000**
Tie rod 15.0mm galvanized 1.00m	**3.1**	**581823000**
Tie rod 15.0mm galvanized 1.25m	**4.0**	**581826000**
Tie rod 15.0mm galvanized 1.50m	**4.9**	**581827000**
Tie rod 15.0mm galvanized 1.75m	**5.5**	**581828000**
Tie rod 15.0mm galvanized 2.00m	**6.4**	**581829000**
Tie rod 15.0mm galvanized 2.50m	**7.9**	**581852000**
Tie rod 15.0mm galvanized .....m	**3.1**	**581824000**
Tie rod 15.0mm non-treated 0.50m	**1.6**	**581870000**
Tie rod 15.0mm non-treated 0.75m	**2.4**	**581871000**
Tie rod 15.0mm non-treated 1.00m	**3.1**	**581874000**
Tie rod 15.0mm non-treated 1.25m	**4.0**	**581886000**
Tie rod 15.0mm non-treated 1.50m	**4.6**	**581876000**
Tie rod 15.0mm non-treated 1.75m	**5.5**	**581887000**
Tie rod 15.0mm non-treated 2.00m	**6.4**	**581875000**
Tie rod 15.0mm non-treated 2.50m	**7.9**	**581877000**
Tie rod 15.0mm non-treated 3.00m	**9.5**	**581878000**
Tie rod 15.0mm non-treated 3.50m	**11.0**	**581888000**
Tie rod 15.0mm non-treated 4.00m	**12.6**	**581879000**
Tie rod 15.0mm non-treated 5.00m	**15.9**	**581880000**
Tie rod 15.0mm non-treated 6.00m	**19.0**	**581881000**
Tie rod 15.0mm non-treated 7.50m	**23.6**	**581882000**
Tie rod 15.0mm non-treated .....m	**3.1**	**581873000**

Ankerstab 15,0mm

DIN 18216

Tie rod 15.0mm galv. 12'-0"	**11.9**	**585520000**
Tie rod 15.0mm non-treated 12'-0"	**11.9**	**585520010**

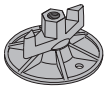
Ankerstab 5/8" [15,0mm] 12'-0"



DIN 18216

Super plate 15.0 — **2.4** — **581966000**

Superplatte 15,0



Galvanized
Height: 2 1/4" (6 cm)
Diameter: 4 1/2" (12 cm)
Width-across: 27 mm

DIN 18216

Wing nut 15.0 — **0.68** — **581961000**

Flügelmutter 15,0

Galvanized
Length: 4" (10 cm)
Height: 2" (5 cm)
Width-across: 27 mm

DIN 18216

Hexagon nut 15.0 — **0.51** — **581964000**

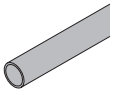
Sechskantmutter 15,0

Galvanized
Length: 2" (5 cm)
Width-across: 30 mm

DIN 18216

Plastic tube 22mm 2.50m — **0.99** — **581951000**

Kunststoffrohr 22mm 2,50m



PVC
Gray
Diameter: 1" (2,6 cm)

Universal cone 22mm — **0.011** — **581995000**

Universal-Konus 22mm

Gray
Diameter: 1 5/8" (4 cm)

Plug 22mm — **0.007** — **581953000**

Verschlussstopfen 22mm

PE
Gray

Universal plug R20/25 — **0.007** — **588180000**

Kombi-Ankerstopfen R20/25

Blue
Diameter: 1 1/8" (3 cm)

Battered washer 15.0mm — **1.8** — **585516000**

Winkelplatte 15,0mm

Round coupler 15.0mm (DSI Thread) — **1.2** — **585519000**

Verbindungsmuffe 15,0mm (DSI Thread)

Form-ply protector 22mm — **0.55** — **580219000**

Schalhautschutz 22mm

Galvanized
Width-across: 46 mm

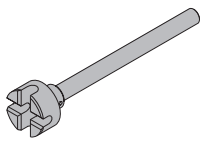
Protective cap 15.0/20.0 — **0.066** — **581858000**

Schutzkappe 15,0/20,0

Yellow
Length: 2 1/4" (6 cm)
Diameter: 2 3/4" (6,7 cm)

Tie-rod wrench 15.0/20.0 — **4.2** — **580594000**

Ankerstabschlüssel 15,0/20,0



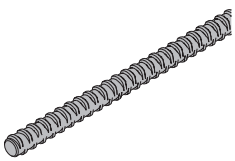
Galvanized
Length: 1'-3" (37 cm)
Diameter: 3 1/4" (8 cm)

Tie rod system 20.0

Tie rod 20.0mm galvanized 0.50m	**2.9**	**581411000**
Tie rod 20.0mm galvanized 0.75m	**4.2**	**581417000**
Tie rod 20.0mm galvanized 1.00m	**5.5**	**581412000**
Tie rod 20.0mm galvanized 1.25m	**7.1**	**581418000**
Tie rod 20.0mm galvanized 1.50m	**8.4**	**581413000**
Tie rod 20.0mm galvanized 2.00m	**11.0**	**581414000**
Tie rod 20.0mm galvanized 2.50m	**13.9**	**581430000**
Tie rod 20.0mm galvanized .....m	**5.5**	**581410000**
Tie rod 20.0mm non-treated 0.50m	**2.9**	**581405000**
Tie rod 20.0mm non-treated 0.75m	**4.2**	**581416000**
Tie rod 20.0mm non-treated 1.00m	**5.5**	**581406000**
Tie rod 20.0mm non-treated 1.50m	**8.4**	**581407000**
Tie rod 20.0mm non-treated 2.00m	**11.0**	**581408000**
Tie rod 20.0mm non-treated .....m	**5.5**	**581403000**

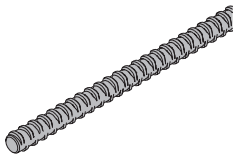
Ankerstab 20,0mm

Special order only!



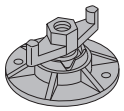
DIN 18216

	[lbs]	Article #
Tie rod 20.0mm galv. 12'-0"	**20.5**	**585517000**
Tie rod 20.0mm galv. 25'-0"	**42.1**	**585606000**
Ankerstab 7/8" [20,0mm]		



DIN 18216

Super plate 20.0 B	**4.4**	**581424000**
Superplatte 20,0 B		



Galvanized
Height: 2 3/4" (7 cm)
Diameter: 5 1/2" (14 cm)
Width-across: 34 mm

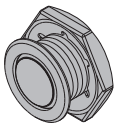
DIN 18216

Wing nut 20.0mm	**0.79**	**585507000**
Flügelmutter 20,0mm		
Hexagon nut 20.0	**0.88**	**581420000**
Sechskantmutter 20,0		

Galvanized
Length: 2 3/4" (7 cm)
Width-across: 41 mm

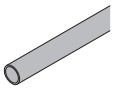
DIN 18216

Battered washer 20.0mm	**4.0**	**585506000**
Winkelplatte 20,0mm		
Round coupler 20.0mm (DSI Thread)	**2.4**	**585514000**
Verbindungsmuffe 20,0mm (DSI Thread)		
Form-ply protector 32mm	**0.84**	**580220000**
Schalhautschutz 32mm		



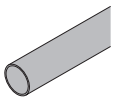
Galvanized
Width-across: 70 mm

Plastic tube 26mm 2.00m	**1.3**	**581463000**
Kunststoffrohr 26mm 2,00m		



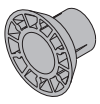
PVC
Gray
Diameter: 1 1/4" (3,1 cm)

Plastic tube 32mm 2.00m	**1.3**	**581460000**
Kunststoffrohr 32mm 2,00m		



PVC
Gray
Diameter: 1 3/8" (3,6 cm)
Special order only!

Universal cone 26mm	**0.018**	**581464000**
Universal-Konus 26mm		



Gray
Diameter: 2" (5 cm)

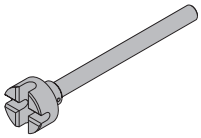
Universal cone 32mm	**0.018**	**581461000**
Universal-Konus 32mm		

Gray
Diameter: 2" (5 cm)
Special order only!

	[lbs]	Article #
Plug 26mm	**0.013**	**581465000**
Verschlussstopfen 26mm		

PE
Gray

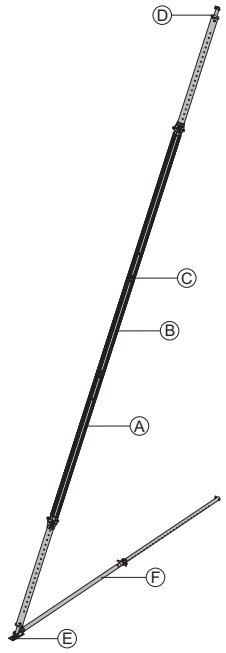
Tie-rod wrench 15.0/20.0	**4.2**	**580594000**
Ankerstabschlüssel 15,0/20,0		



Galvanized
Length: 1'-3" (37 cm)
Diameter: 3 1/4" (8 cm)

Specific parts for Canada

Eurex 60 550		
Eurex 60 550		
depending on length, comprising:		
(A) **Plumbing strut Eurex 60 550**	**93.7**	**582658000**
Powder-coated, blue		
Aluminum		
Length: 11'-3" - 18'-2" (343 - 553 cm)		
(B) **Extension Eurex 60 2.00m**	**47.0**	**582651000**
Powder-coated, blue		
Aluminum		
Length: 8'-2" (250 cm)		
(C) **Coupler Eurex 60**	**19.0**	**582652000**
Aluminum		
Length: 3'-3" (100 cm)		
Diameter: 5" (12,8 cm)		
(D) **Connector Eurex 60 IB**	**9.3**	**582657500**
Galvanized		
Length: 6" (15 cm)		
Width: 6" (15 cm)		
Height: 1' (30 cm)		
(E) **Plumbing strut shoe Eurex 60 EB**	**17.6**	**582660500**
Galvanized		
Length: 1' (31 cm)		
Width: 4 1/2" (12 cm)		
Height: 1'-1" (33 cm)		
(F) **Adjusting strut 540 Eurex 60 IB**	**61.3**	**582659500**
Galvanized		
Length: 9'-11" - 17'-9" (303,5 - 542,2 cm)		
Delivery condition: separate parts		



Multi-trip packaging

	[lbs]	Article #
Doka skeleton transport box 1.70x0.80m Doka-Gitterbox 1,70x0,80m Galvanized Height: 3'-8" (113 cm)	**192.0**	**583012000**
Doka multi-trip transport box 1.20x0.80m Doka-Mehrwegcontainer 1,20x0,80m Galvanized Height: 2'-7" (78 cm)	**154.0**	**583011000**
Multi-trip transport box partition 0.80m **Multi-trip transport box partition 1.20m** Mehrwegcontainer Unterteilung Steel parts galvanized Timber parts varnished yellow	**8.2** **12.1**	**583018000** **583017000**
Doka stacking pallet 1.55x0.85m Doka-Stapelpalette 1,55x0,85m Galvanized Height: 2'-6" (77 cm)	**90.4**	**586151000**
Doka stacking pallet 1.20x0.80m Doka-Stapelpalette 1,20x0,80m Galvanized Height: 2'-6" (77 cm)	**83.8**	**583016000**

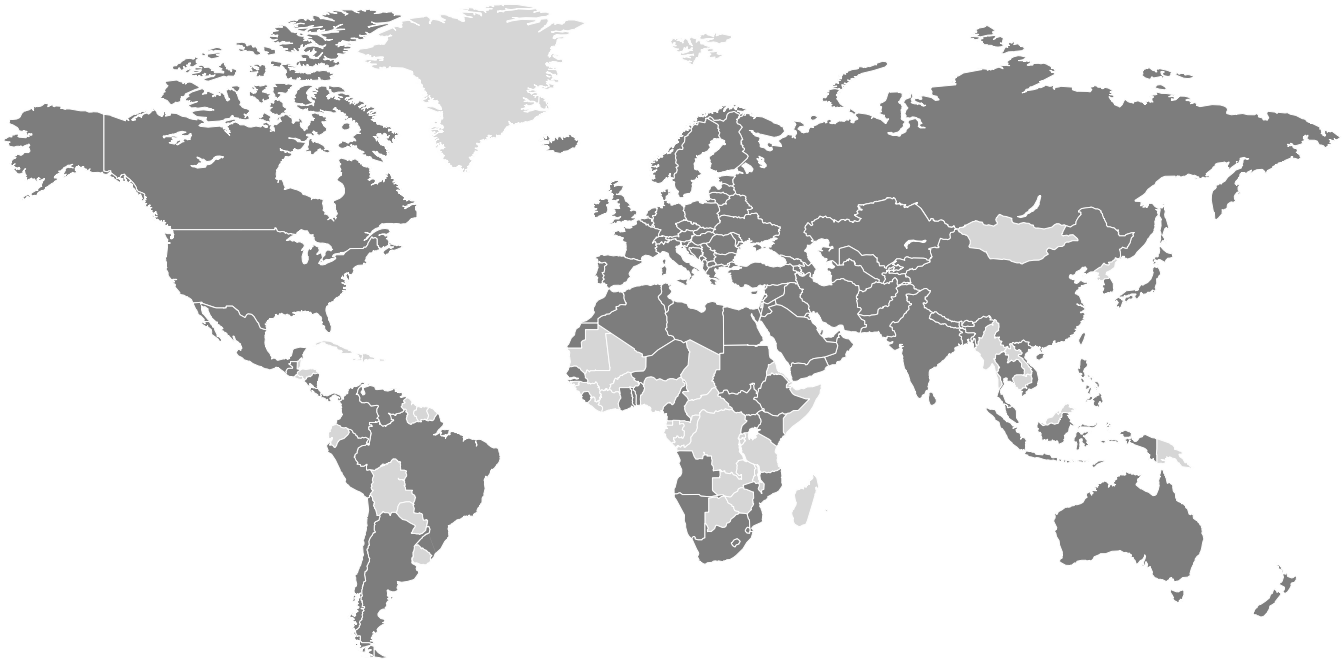
	[lbs]	Article #
Doka accessory box Doka-Kleinteilebox Timber parts varnished yellow Steel parts galvanized Length: 5'-1" (154 cm) Width: 2'-9" (83 cm) Height: 2'-6" (77 cm) Special order only!	**235.0**	**583010000**
Bolt-on castor set B Anklemm-Radsatz B Painted blue	**74.1**	**586168000**

Near to you, worldwide

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

With more than 160 sales and logistics facilities in over 70 countries, the Doka Group has a highly efficient distribution network which ensures that equipment and technical support are provided swiftly and professionally.

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



www.doka.com/top50-us