

Doka

framed formwork Framax



GSV
geprüft
durch neutrales Prüfinstitut
Güteschutzverband
Betonschalungen

doka
The Formwork Experts



Important notice:

For safe use of our products, please observe all relevant regulations issued by the local health and safety authorities in the country in which you are operating.

Certain illustrations in this brochure show the situation during formwork assembly and are therefore incomplete from the point of view of safety.

The instructions for function and use of the formwork given in this brochure must be strictly adhered to. If any deviations from these instructions are contemplated, revised static calculations must be produced for checking.

All materials must be inspected before use to ensure that they are in a safe condition. Any components that are damaged, deformed, or weakened due to wear, corrosion or rot must not be used.

Use only original Doka components as replacement parts.

Combining our formwork systems with those of other manufacturers could be dangerous and therefore requires special checking.

If required, we can provide trained personnel to give on-site instruction in use of the formwork.

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

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A-3300 Amstetten

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Product description

Framax - the panel formwork system that meets every requirement on site

Framax panel formwork is a complete system with high-performance safety and working accessories, which will enable you to solve formwork projects (large-area ones in particular) **swiftly and economically**.

The **ingenious panel-size grid** (with 5 different widths and 3 different heights of panel, plus 1 extra-large panel) makes for **optimum adaptability** to all construction-site situations.

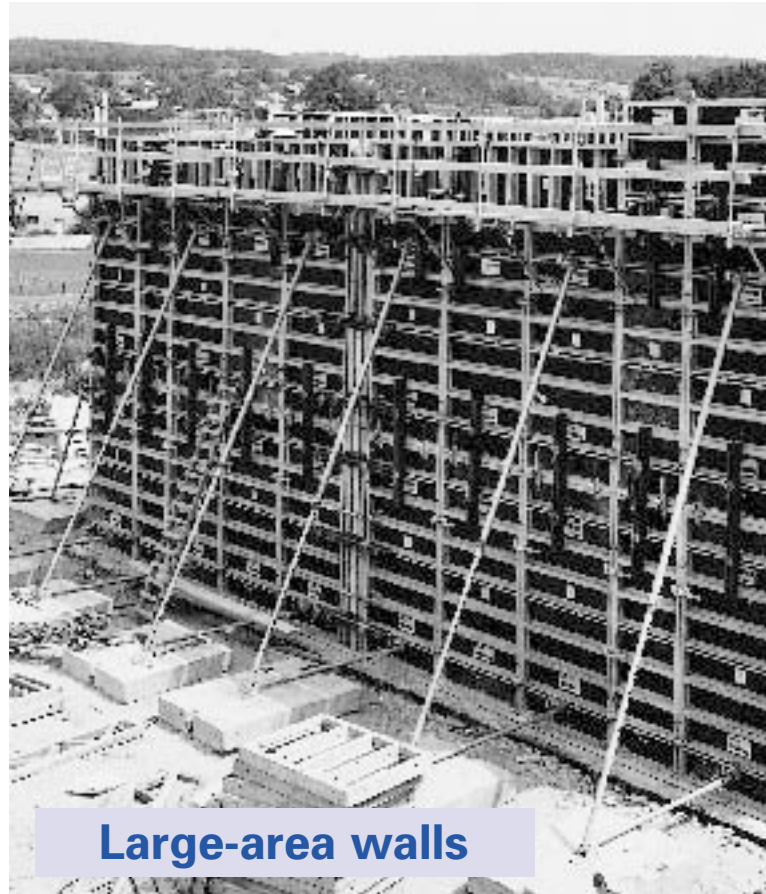
Framax is ideal for use on:

- large-area walls,
- columns,
- circular formwork and
- foundations

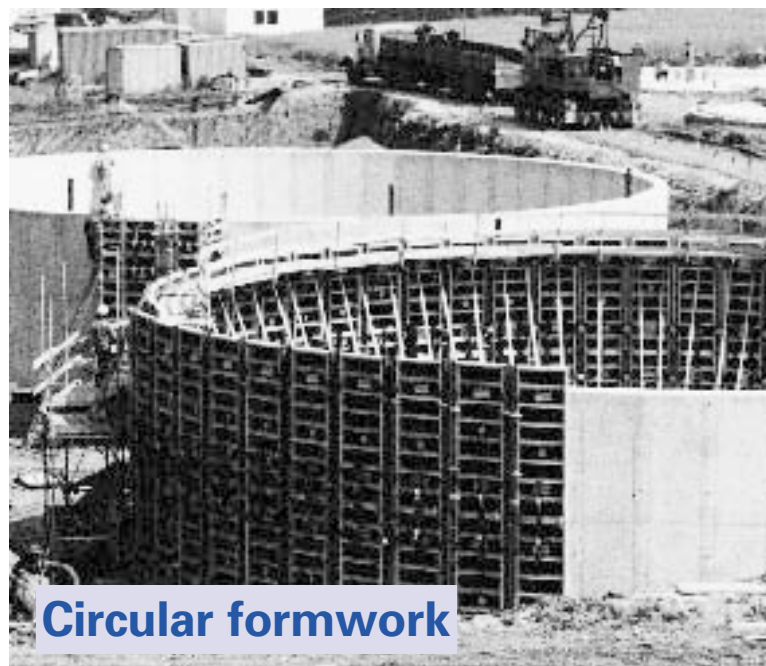
Practical Framax accessories simplify work on the site and mean that there is no need for expensive improvisations.

Framax is 100% compatible with Doka's aluminium manhandled framed formwork Alu-Framax. All the linking parts, closures and accessories are interchangeable, of course. Alu-Framax and Framax give you maximum advantages when used together.

With Framax, you can form large areas at one go, moving the formwork by crane. With Alu-Framax, you can then continue the forming operations manually straight away, without having to wait for the crane.

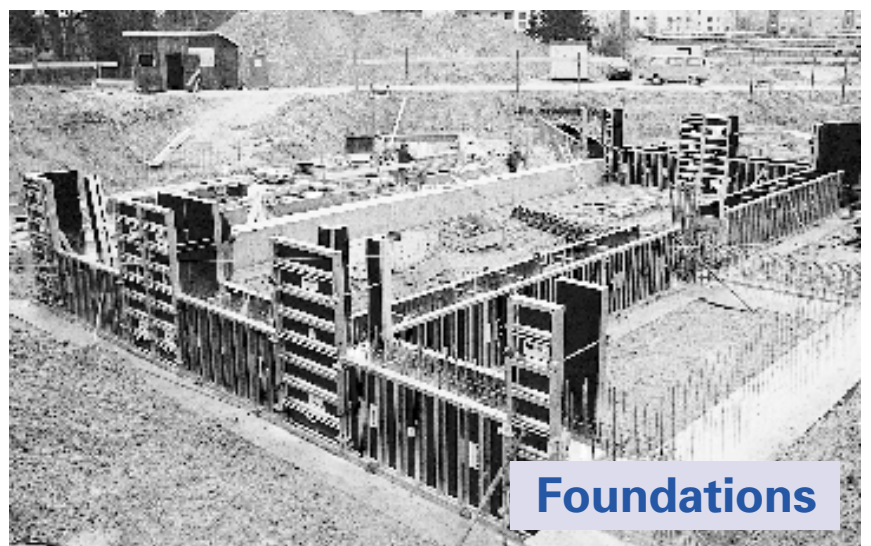
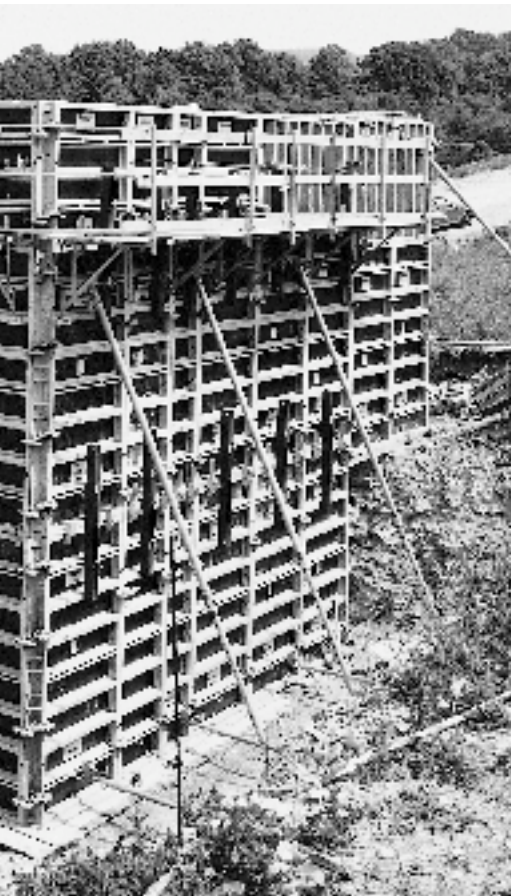


Large-area walls



Circular formwork

Areas of use





Forming walls with Framax

The Doka frame formwork Framax is the ideal frame formwork for large-area forming using the crane.

The **exceptionally high load capacity** and **long lifespan** of Framax makes it highly **economical** for all wall-forming tasks.

Max. concrete pressure: 80 kN/m² *)

Framax is unusually versatile and flexible, so you can quickly form any layout with it.

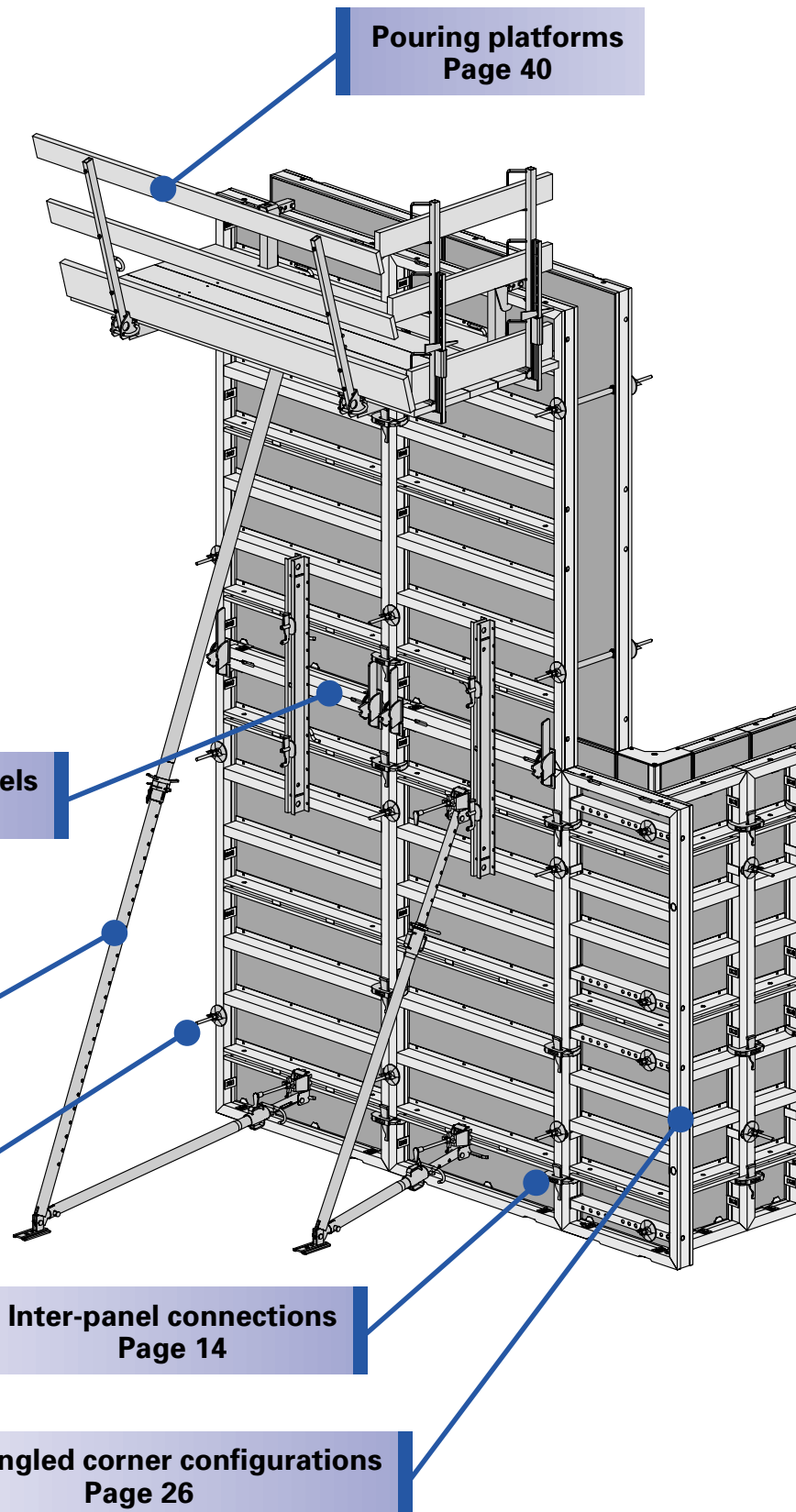
The panels can be fixed together at any point around the frame, quickly and safely, using the Framax quick acting clamp RU or the multi function clamp.

Because the Framax panels are so robust, you only need **2 form-ties per 2.70 m of panel height**.

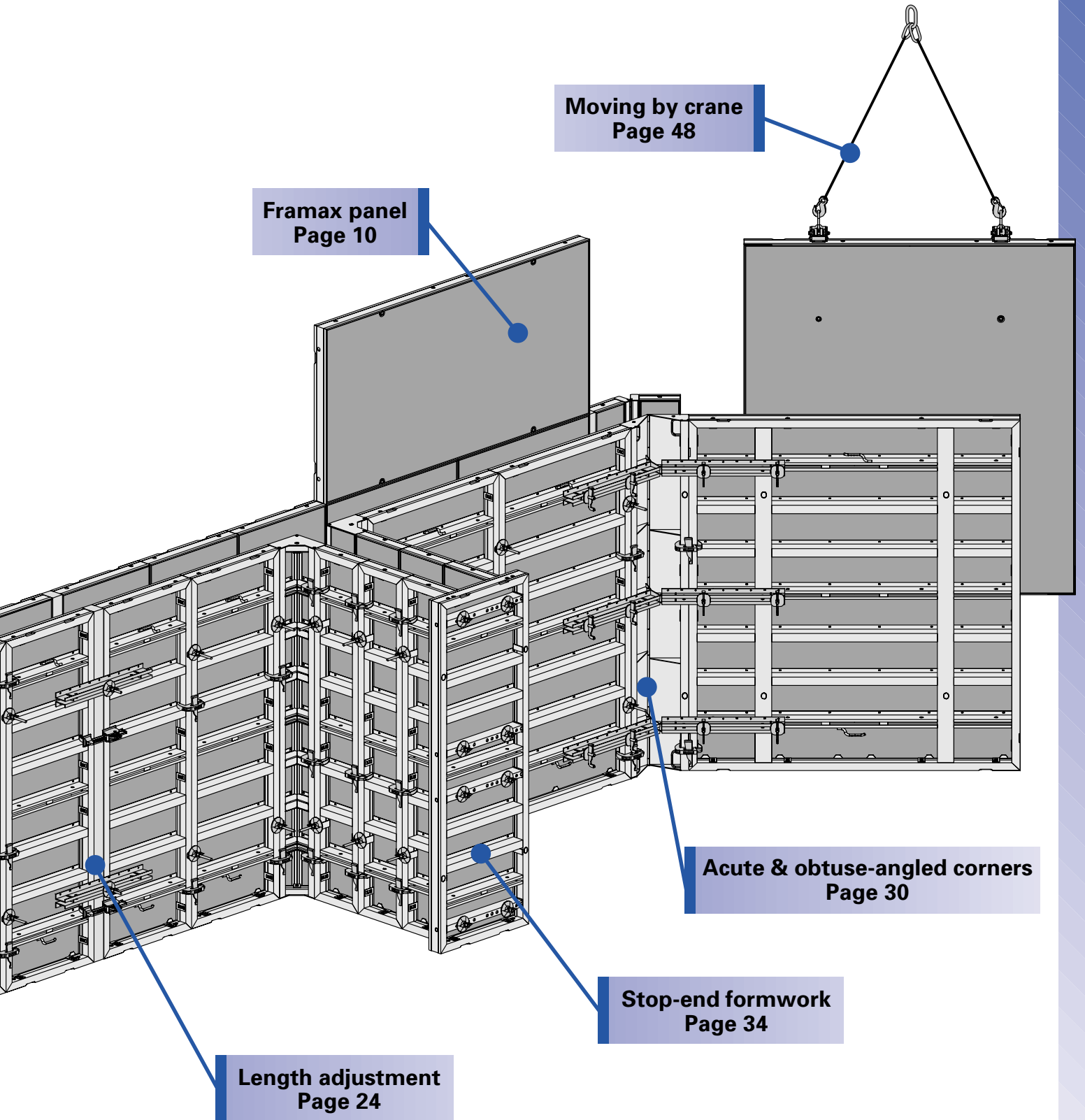
Any fitting-gaps left between the Framax panels are very easy to close. The system gives you a choice between several different options so that you can always get the best possible **length adjustment** in each case.

Framax also takes **corners, stop-end formwork** and **wall junctions** happily in its stride. Here too, it gives you perfect, cost-saving solutions.

Matching safety and working accessories such as plumbing accessories, working platforms and moving accessories make work with Framax even quicker and easier.



*) see page 10 and 22



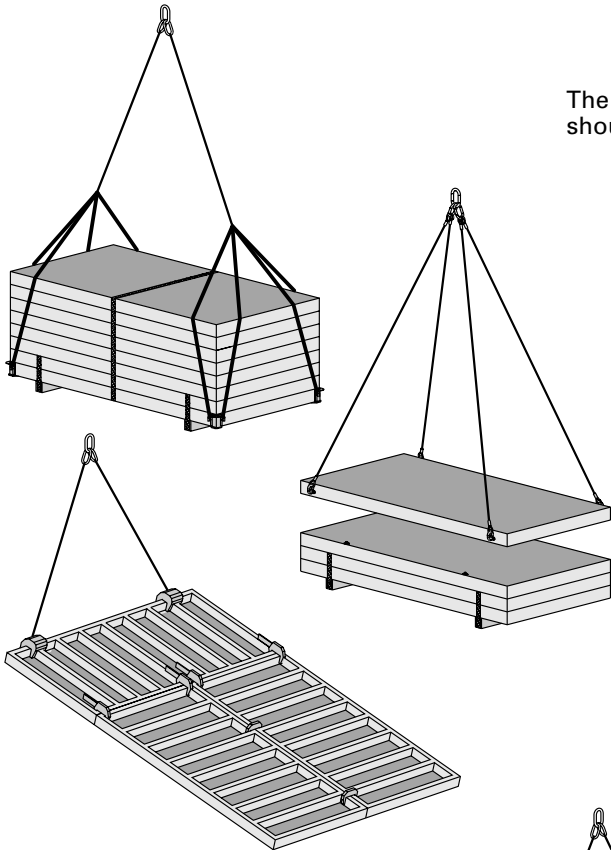


How to handle Framax correctly

The sequence shown here is based on a straight wall. However, you should always start to form from the corner outwards.

Transporting / handling the panels:

- For offloading panels from a truck a stack at a time, or for hoisting entire stacks, use the "Framax transport gear". See p.50 for detailed instructions.
- For lifting one panel at a time, use the "Framax lifting chain". See p.51 for detailed instructions.
- Large multi-panel elements can be pre-assembled "flat on their backs" on a level screed floor. See p.14 for detailed instructions on how to attach the interpanel connectors.
- Attach the crane-hoisting tackle to the Framax lifting hook. For detailed instructions, see p.48 and the Operating Manual for the Framax lifting hook.

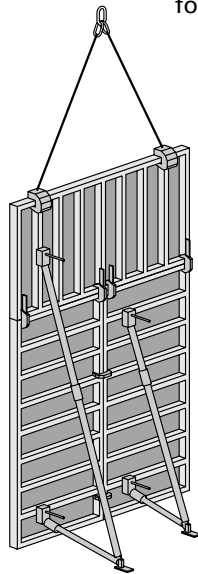


Formwork erection:

- Spray the ply with release agent, (p.76).
- Lift the multi-panel form by crane and move it to where it is needed.
- Clamp the panel struts to the multi-panel form once the form is placed in situ, but still securely held by crane.
- Fix the panel struts to the ground, (see p.38). This stabilises the multi-panel form against wind forces and releases the crane for other work.

The multi-panel form can now be plumbed, with no need for the crane.

- Continue lining up the panel assemblies in this way and link together, (p.14).
- Fix the pouring platforms, fitting sideguards where necessary, (p.40).



! For plumbing the panels, never use a sledge hammer! Use only proper plumbing tools!

Max. hoisting weight:

10.0 kN / Framax lifting hook (corresponds to approx. 30 m² formwork area for 2 hooks)

Erecting the opposite formwork:

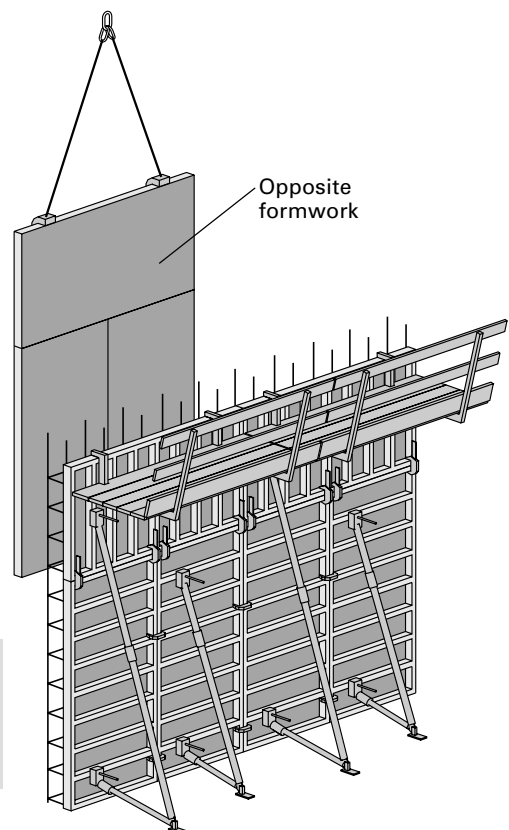
Once the reinforcement has been placed, the formwork can be closed.

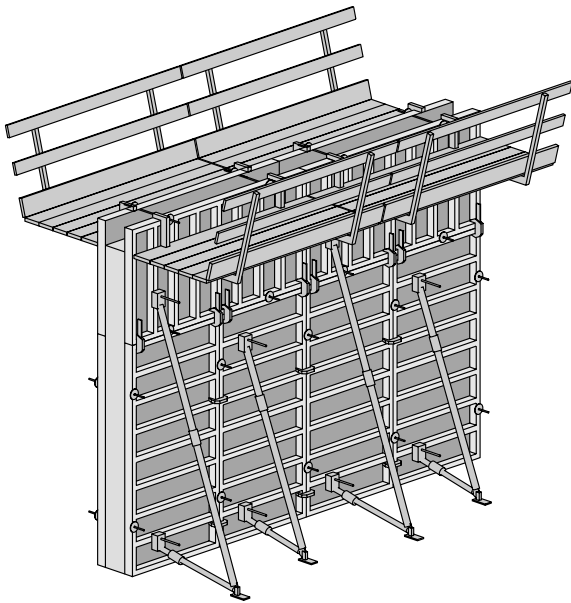
- Spray the multi-panel forms of the opposite formwork with release agent and move them by crane to where they are needed.
- Fit the form-ties, (p. 22).

! Before disconnecting from the crane:

If there are no panel struts on the opposite formwork, do not disconnect the form from the crane until a sufficient number of formwork ties have been installed to stabilize the complete formwork assembly.

- Fit the remaining form-ties.



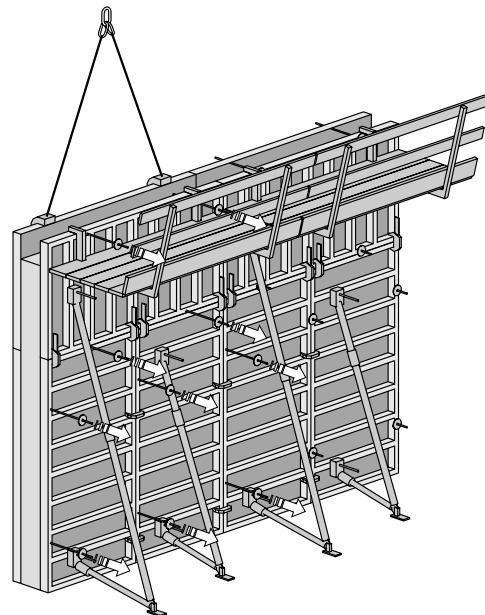


Pouring:

- Pour the concrete.
 - ☞ Do not exceed the maximum permissible rate of placing.
 - ☞ See also the section headed "Concrete pressure on perpendicular formwork to DIN 18218" in the Doka Calculation Guide.
 - ☞ Max. concrete pressure: 80 kN/m² (see page 10 and 22)
- Make only moderate use of vibrators, carefully co-ordinating the times and locations of vibrator use.
 - ☞ Concrete compaction by vibration must comply with DIN 4235 Part 2.

Tip

Immediately after concreting, clean the rear wall of the formwork with water (p. 76).



Striking and moving formwork to next location:

- ☞ Observe all minimum striking times.
- Remove any loose items from the formwork and platforms.

⚠ First attach the opposite-formwork unit to the crane (see illustration), and only then take out the form-ties and undo the interpanel connectors to the adjacent elements.

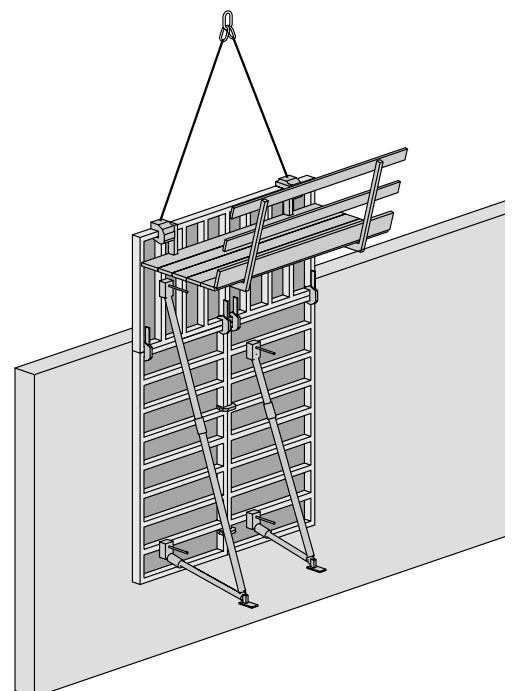
Tip

In order to speed up operations when moving by crane, most of the form-ties can be taken out in advance.

⚠ There must be at least as many form-ties left in place as are needed to prevent the opposite formwork from falling over.

⚠ When striking the formwork, do not use the crane to pull it off the freshly hardened wall. Use timber wedges and careful leverage.

- Hoist the multi-panel form and either place it into temporary storage or lift it to its next location.
- Clean residual concrete off the ply (p. 76).
- When lifting a multi-panel form complete with panel struts and working platform: First suspend the form (with its panel struts and working platform still attached) from the crane, as shown in the picture. Now - and not before - you can undo the ground anchor points of the panel struts.





The Framax panels in detail

High load-bearing capacity

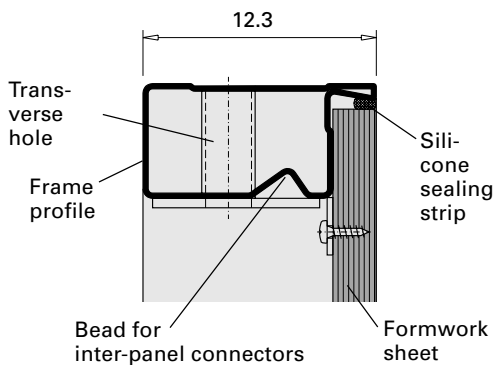
60 kN/m²

Concrete pressure acting on whole area to DIN 18218 where surface planeness tolerances to DIN 18202 Table 3 Line 7 are complied with.

80 kN/m²

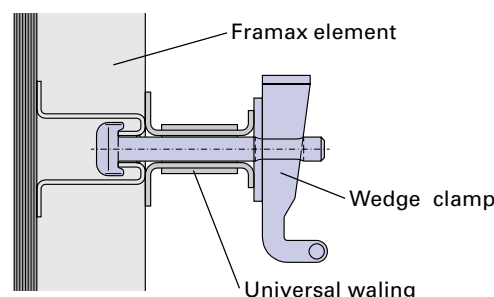
Concrete pressure acting on whole area to DIN 18218 where surface planeness tolerances to DIN 18202 Table 3 Line 6 are complied with.
(Use form-tie system 20.0)

Stable, galvanised and powder-coated steel frames



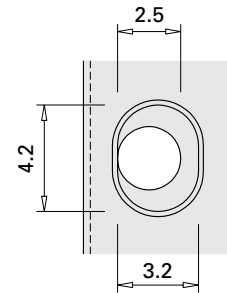
- Torsion-proof, dimensionally stable hollow profiles - 12 cm structural depth
- Strong transverse profiles
- Powder coated, so easy to clean
- Edges are easy to clean - so panels always abut tightly
- All-round bead for fastening the inter-panel connectors at any point required
- Hot-dip galvanised for long life
- Edges of plywood sheet are protected by frame profile

Accessories are easy to fasten, in the integrated waling system



See the GSV test report for more information.

Tie-rods are very easy to thread in



- - through the large, conical form-tie sleeves
- 20.0 mm tie-rods can also be used (up to 80 kN/m²)
- Only 2 form-ties are needed for every 2.70 m of panel height

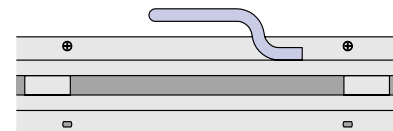
Transverse holes

- for flexible fixing of corners and less usual types of joint.

Clean concrete surfaces

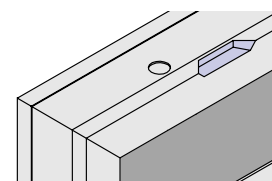
- 21 mm thick plywood sheet
- Screwed-on from the rear, so no screw marks
- Sheets are quick and easy to change

Handles



- to facilitate work on the formwork

Handy plumbing recess (insertion point for the plumbing tools)

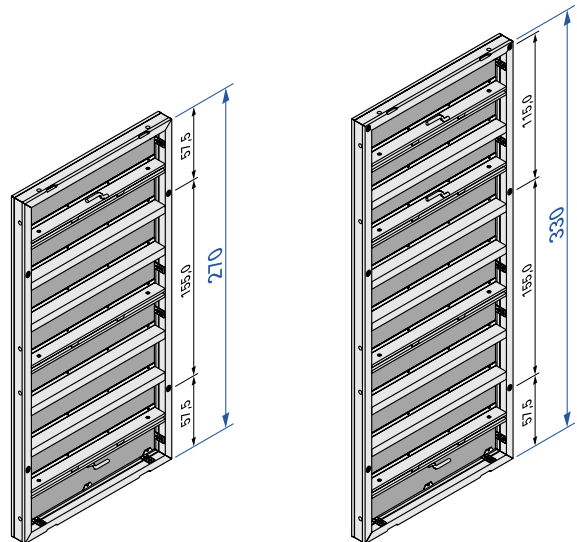
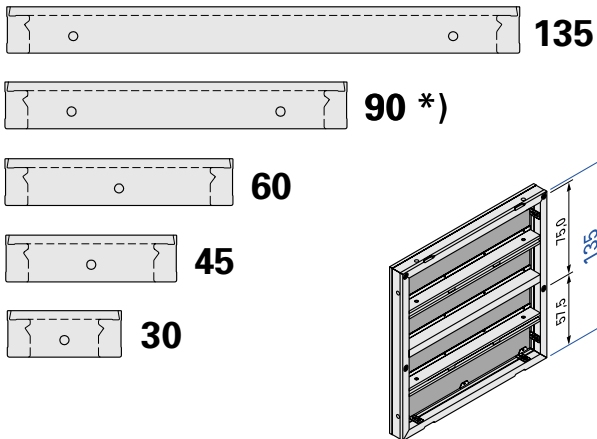


Dimensions in cm

The logical system grid

Framax panels

Panel widths (cm):



Logical panel grid in 15 cm steps.

The heights and widths of the Framax panels together result in a logical, advantageous "grid" which makes this formwork particularly flexible and economical.

Only 5 widths &

3 heights of panel, and

1 extra-large panel

- are all you need to cover any plan. The height and width adjustments are made in 15 cm steps.

In Austria, a 55 cm wide panel is also available (for corners without make-up, on 25 cm thick walls).

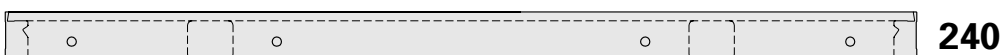
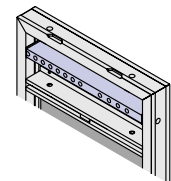
Only 2 form-ties in the height.

For concreting-heights of up to 3.15 m where the 3.30 m high Framax panels are used, only 2 form-ties are needed.

*) The **90 cm wide panel** is also available as a **Framax universal panel** with heights of 90, 135, 270 and 330 cm.

The special hole pattern makes these panels particularly suitable for efficient forming of:

- outside corners
- wall connections
- stop-ends
- columns

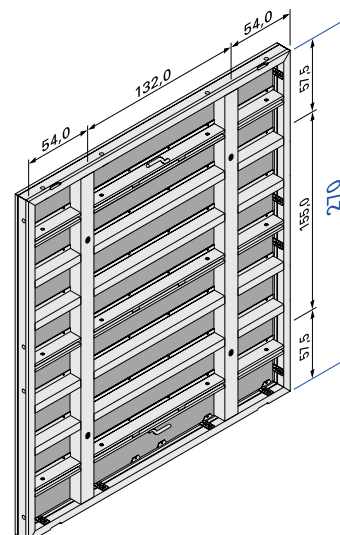
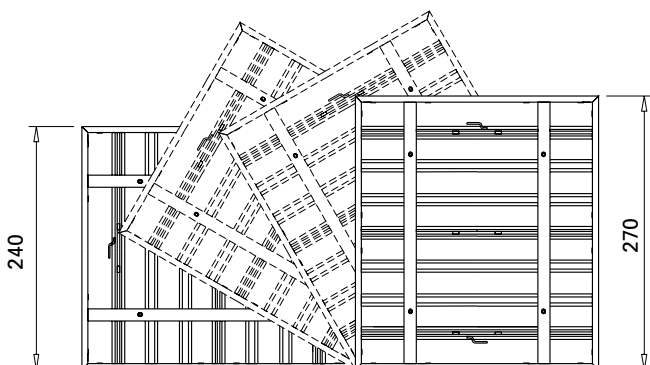


Framax extra-large panel for large-area formwork units.

Integrates two heights and two widths :

When upright - height 2.70 m, width 2.40 m

When on side - height 2.40 m, width 2.70 m

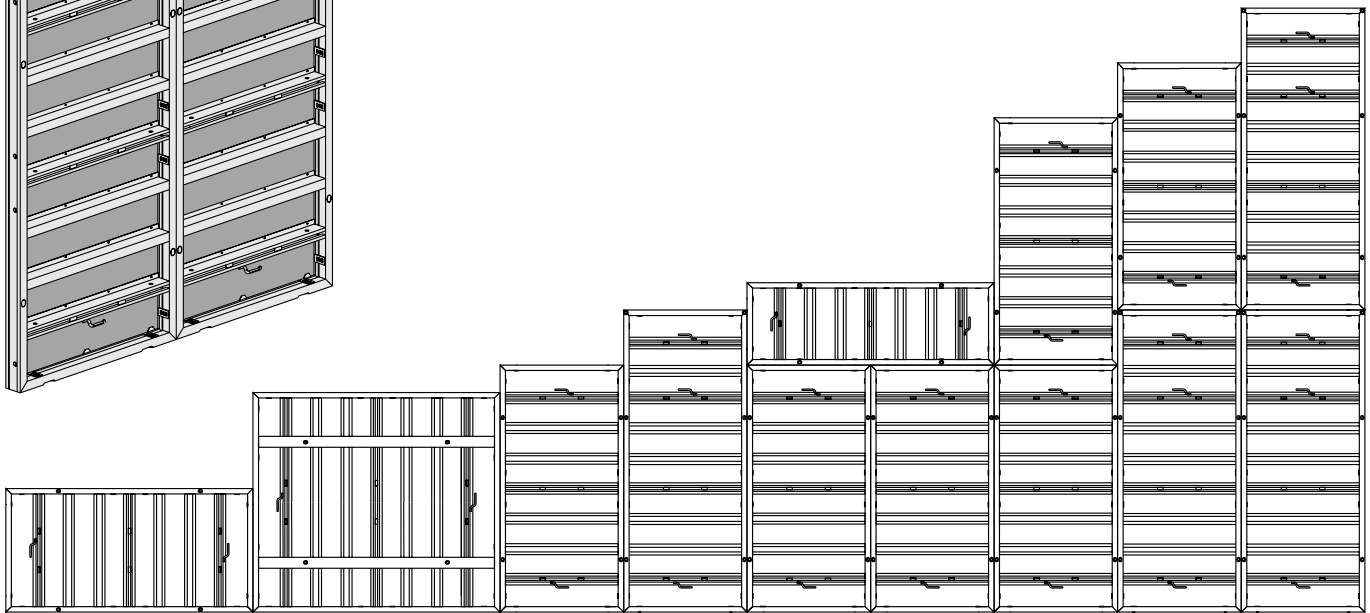
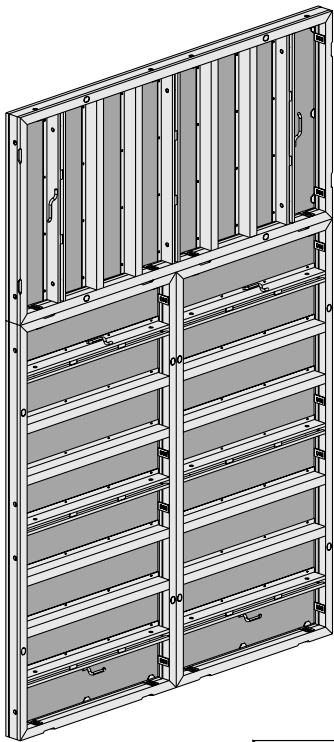


See p.21 for typical applicational examples.



Framax means easy adaptability

Framax's perfect panel grid gives you innumerable combinations, in both width and height. You can use the panels either **upright** or **side-ways**, and the **15 cm grid** gives you optimum adaptability of the formwork to the dimensions of the structure, at all times.

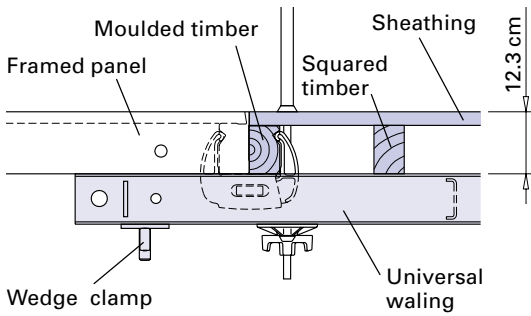


Schematic representation

Just carry on forming with timber!

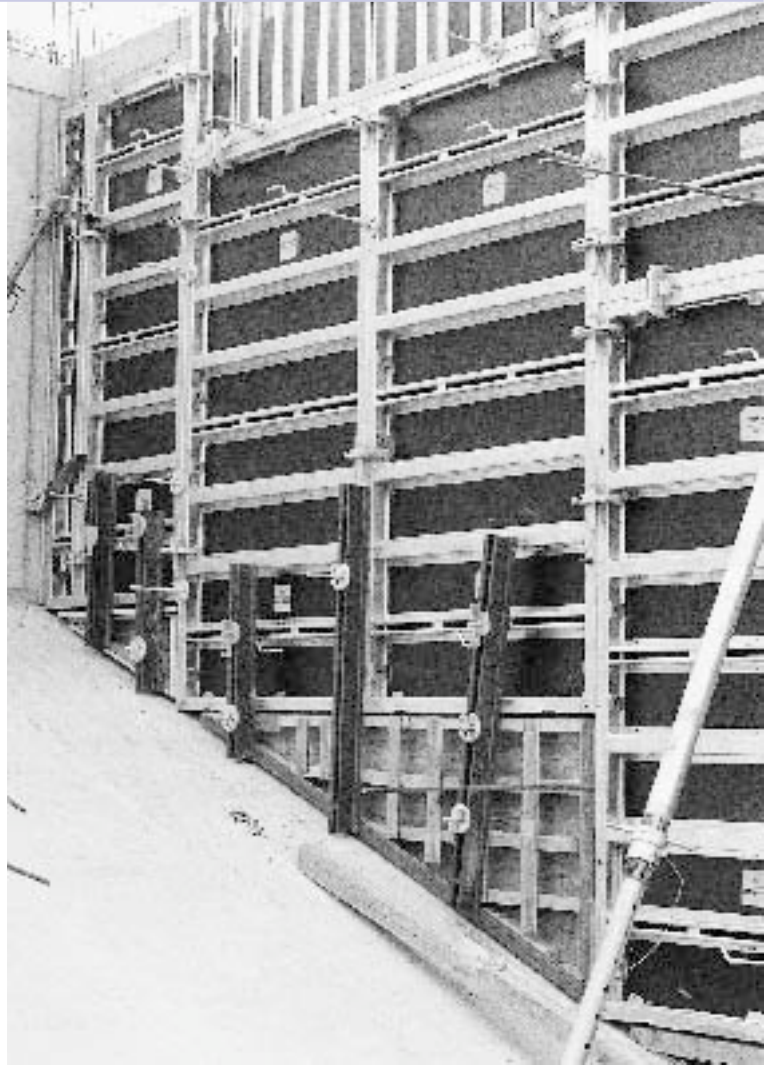
Framax formwork gives you easy connections when you need to "make-up" with in-situ timber formwork.

Between them, the universal waling, the wedge clamp and the integrated bolt system make it easy for you to join Framax panels to squared timbers and ply sheets.



Nail-holes in the universal waling make it easy to attach squared timbers.

Site:
Wildon sewage works



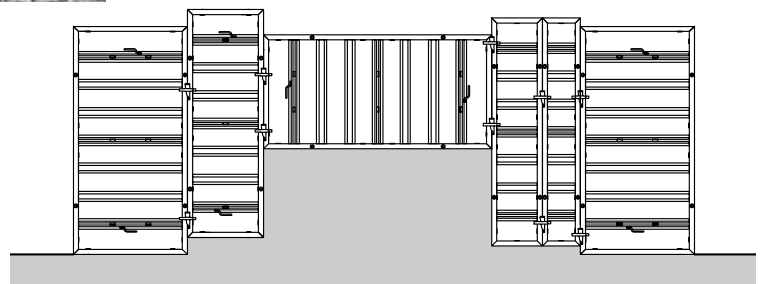
Stepless height offset

The fixing bead around the inside of the Framax profiles enables the connectors to be fastened anywhere on the frame. This allows any adjacent panels to be **steplessly staggered** in height, i.e. without being confined to any fixed grid.

This means that the formwork can easily be accommodated to e.g. steps, slopes and uneven floors, at no extra cost in terms of time.



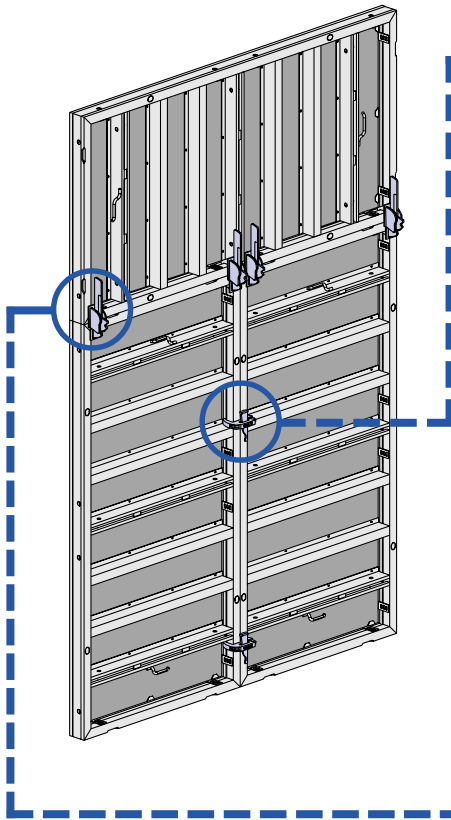
Site:
Ziegelwerk Eisenfelden



Schematic representation

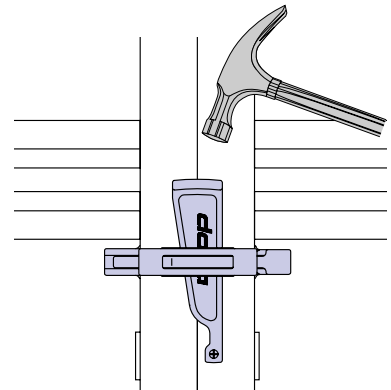
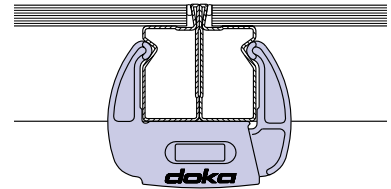
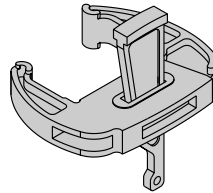


Inter-panel connections



Simple inter-panel connections

with the Framax quick acting clamp RU



Technical data:

when used with
(steel) Framax

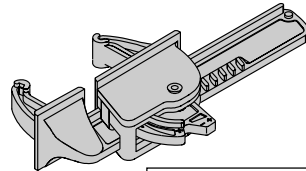
Max. tensile force: 15.0 kN
Max. shear force: 6.0 kN
Max. moment: 0.5 kNm

when combined
with Alu-Framax

Max. tensile force: 15.0 kN
Max. shear force: 4.0 kN
Max. moment: 0.25 kNm

Self-aligning inter-panel connections and make-up

with the Framax multi function clamp



Particularly in the case of stacking joints, the fact that the clamp bears directly on the profiles means that there is no need for any extra bracing of the panels with universal walings.

Technical data:

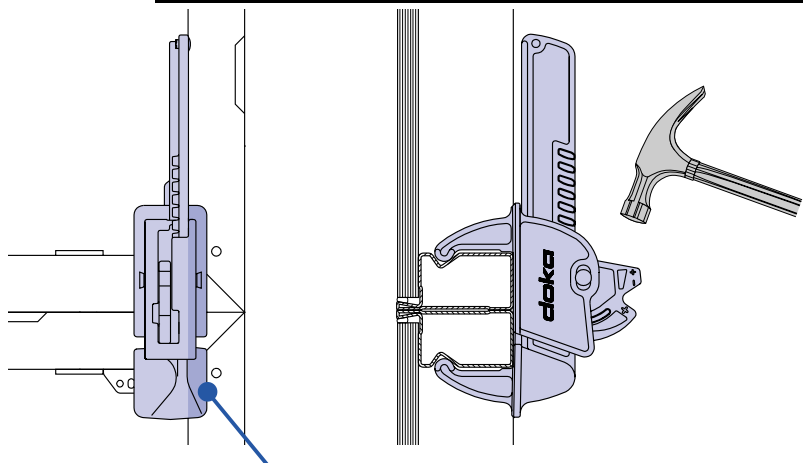
when used with
(steel) Framax

Max. tensile force: 15.0 kN
Max. shear force: 9.0 kN
Max. moment: 0.9 kNm

when combined
with Alu-Framax

Max. tensile force: 15.0 kN
Max. shear force: 9.0 kN
Max. moment: 0.45 kNm

Values apply only when mounted on profile (see illustration).



Contact surface on the profile!

Upright panels

Panel height	Number of clamps
1.35 m	2
2.70 m	2
3.30 m	3

Sideways panels

Panel width	Number of clamps
0.30 m	1
0.45 m	1
0.60 m	2
0.90 m	2
1.35 m	2



Extra inter-panel connections for outside corners and stop-end formwork (enhanced tensile loads) see Page 29.

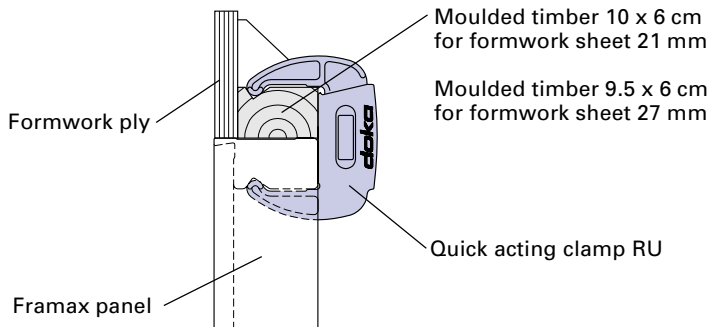
The Framax quick acting clamp RU and Framax multi function clamp

- create fast, self-aligning and tension-proof joints
- have no loose parts
- are hard-wearing for site use
- the only tool needed is a hammer

The bead running around the inside of the outside frame profile means that the clamp can be fastened at any point desired. This allows adjacent panels to be **staggered** in height.

More functions of the Framax quick acting clamp RU

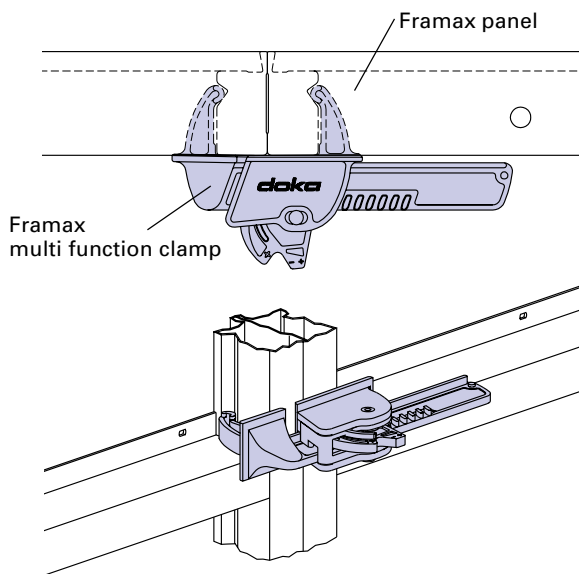
Vertical stacking with moulded timber



See p.17 for the positions of the Framax quick acting clamps RU and multi function clamps that are needed when stacking.

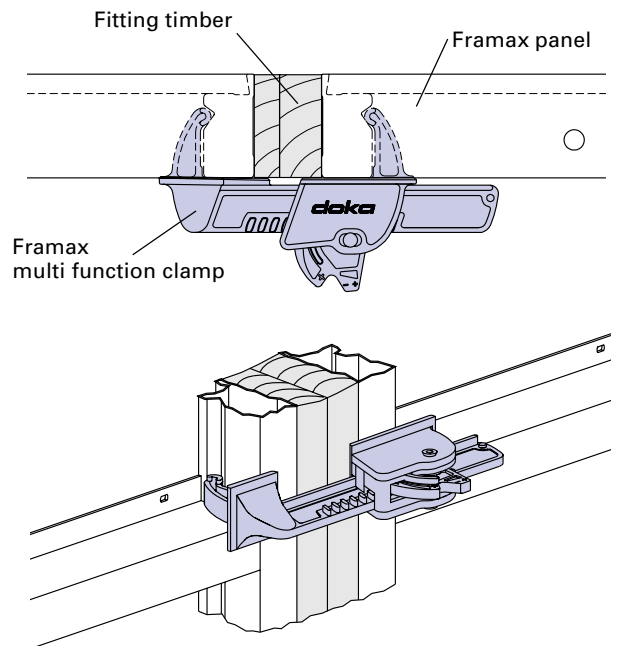
More functions of the Framax multi function clamp

Inter-panel joints



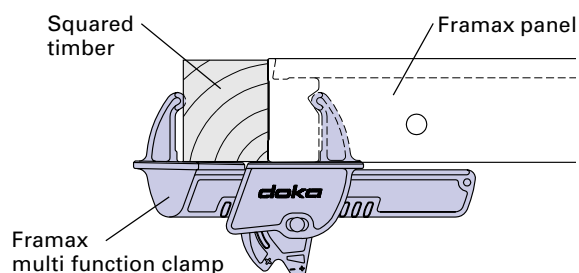
Joining the panels using the Framax multi function clamp provides additional bracing of the multi-panel form (as the clamp bears directly onto the profile).

Make up to 15 cm

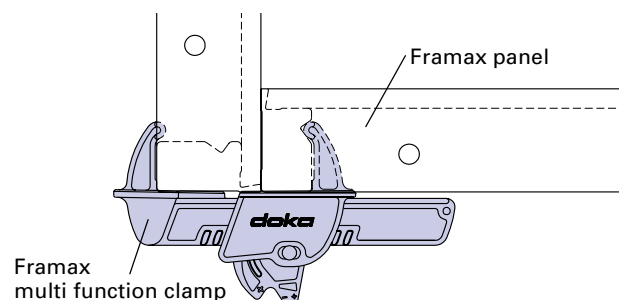


See p. 24 for more information.

Squared-timber joints up to 20 cm



Corner joints on foundations

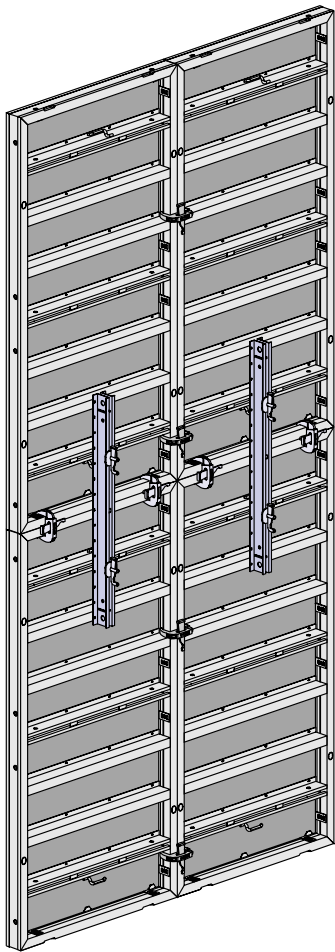




Framax universal walings

Using additional universal walings gives multi-panel forms better rigidity, especially in **higher stacking configurations**. This makes it possible to pick up and set down large multi-panel assemblies by crane without any problems. The additional universal walings are also useful for transferring the loads from e.g. pouring platforms.

On closures, the universal walings bring multi-panel forms firmly into alignment and transfer the form-tie forces to the Framax panels.



Framax universal waling:

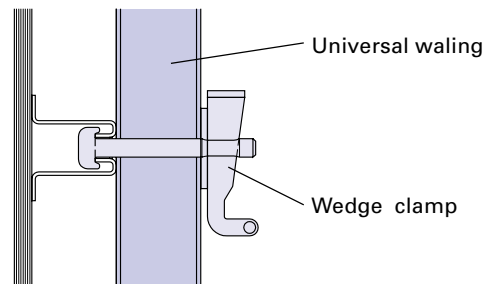
Max. moment (for vertical stacking): 5.0 kNm

Due to the max. tensile load of 14 kN in the waling profile, even stiffer components such as steel walings WS 10 Top 50 are also subject to:
Max. moment 5.0 kNm

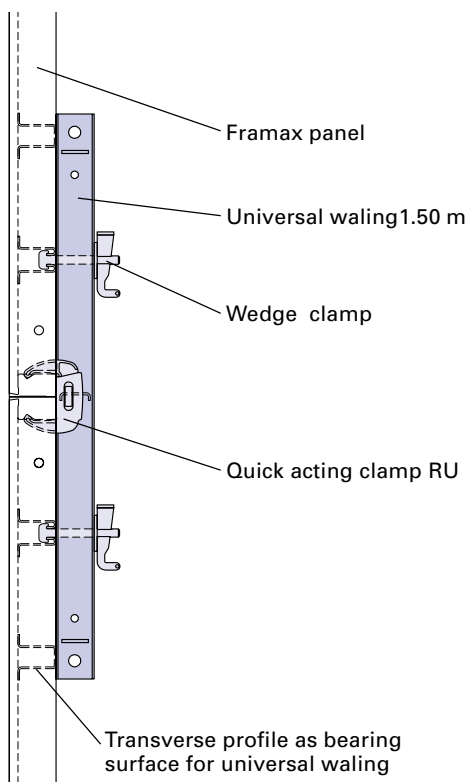
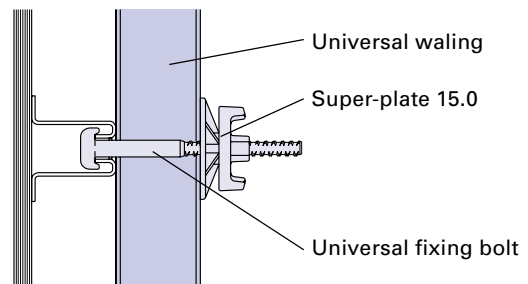
The integrated bolt system in the Framax framed panels makes it easy to attach the universal walings.

Fastening the universal waling

with the Framax wedge clamp:



with the Framax universal fixing bolt and super-plate:



It is also possible to use a steel waling WS 10 Top 50 instead of the universal waling.

Rules for vertical stacking

Framax multi function clamp

Framax quick acting clamp RU

up to 8.10 m

Formwork heights up to 8.10 m:

On each inter-panel joint, 1 universal waling and 2 multi function clamps are attached for each panel (max. 1.35 m).

Exception:

An uppermost sideways-placed panel is connected to the panels below it using only 1 universal waling.

Formwork heights up to 8.10 m:

On each inter-panel joint, 1 universal waling and 2 quick acting clamps RU are attached for each panel (max. 1.35 m).

Exception:

An uppermost sideways-placed panel with a width of up to 0.90 m only needs 1 universal waling per 2.70 m.

up to 5.40 m

Formwork heights up to 5.40 m:

On each inter-panel joint, 1 universal waling and 2 multi function clamps are attached for each panel (max. 1.35 m).

Exception:

An uppermost sideways-placed panel does not need any universal waling.
All other sideways-placed panels only need 1 universal waling.

Formwork heights up to 5.40 m:

On each inter-panel joint, 1 universal waling and 2 quick acting clamps RU are attached for each panel (max. 1.35 m).

Exception:

An uppermost sideways-placed panel with a width of up to 0.60 m does not need any universal waling.
An uppermost sideways-placed panel with a width of over 0.60 m only needs 1 universal waling.

up to 4.05 m

Formwork heights up to 4.05 m:

On each inter-panel joint, 2 multi function clamps are attached for each panel (max. 1.35 m).

below 3.75 m

Formwork heights below 3.75 m:

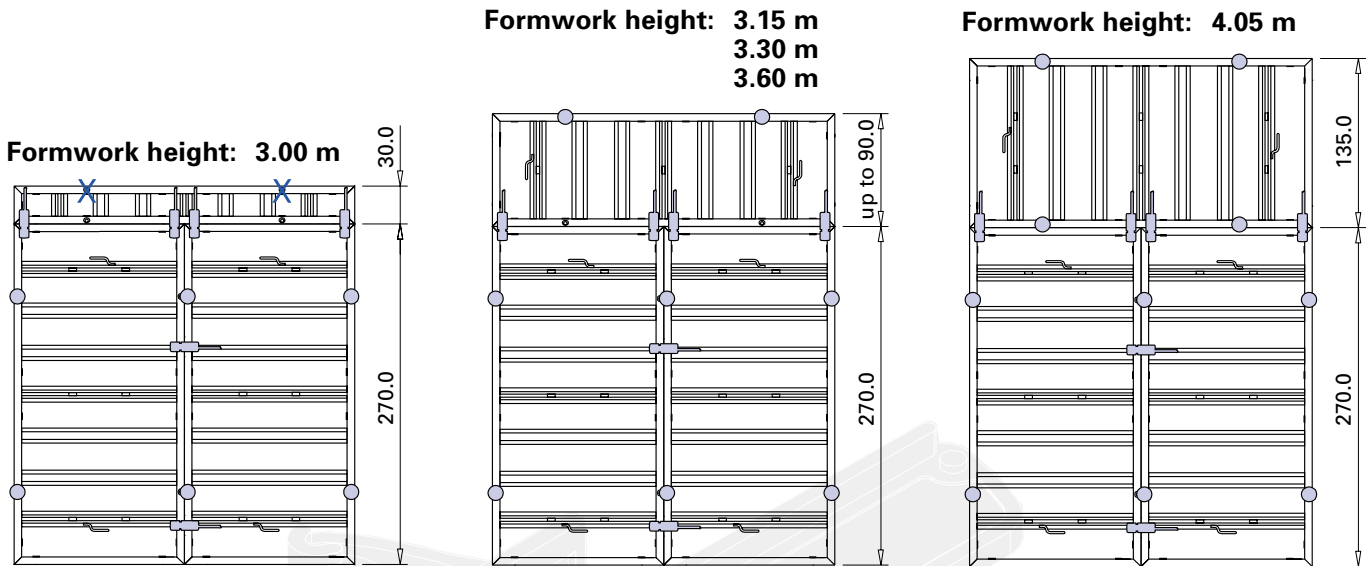
On each inter-panel joint, 2 quick acting clamps RU are attached for each panel (max. 1.35 m).



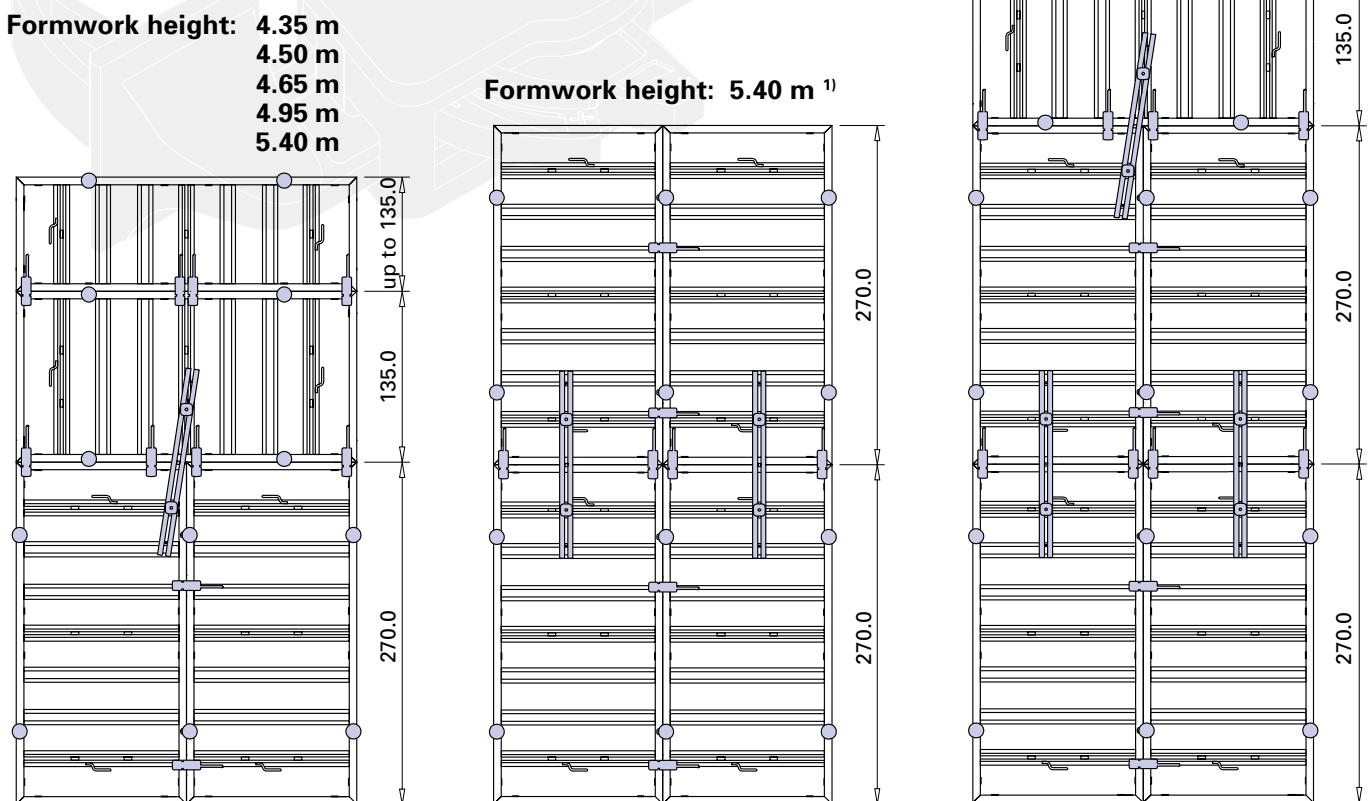
Rules for vertical stacking

... with Framax panel 2.70m ...

... and Framax multi function clamp



X . . . Where pouring platforms are to be used, also fit form-ties at the top edge of the formwork.



¹⁾ Universal walings are recommended for greater rigidity.

Dimensions in cm

Framax multi function clamp:

Max. tensile force: 15.0 kN
 Max. shear force: 9.0 kN
 Max. moment: 0.9 kNm

Values apply only when clamp is mounted directly on profile (see p.14)

Framax quick acting clamp RU:

Max. tensile force: 15.0 kN
 Max. shear force: 6.0 kN
 Max. moment: 0.5 kNm

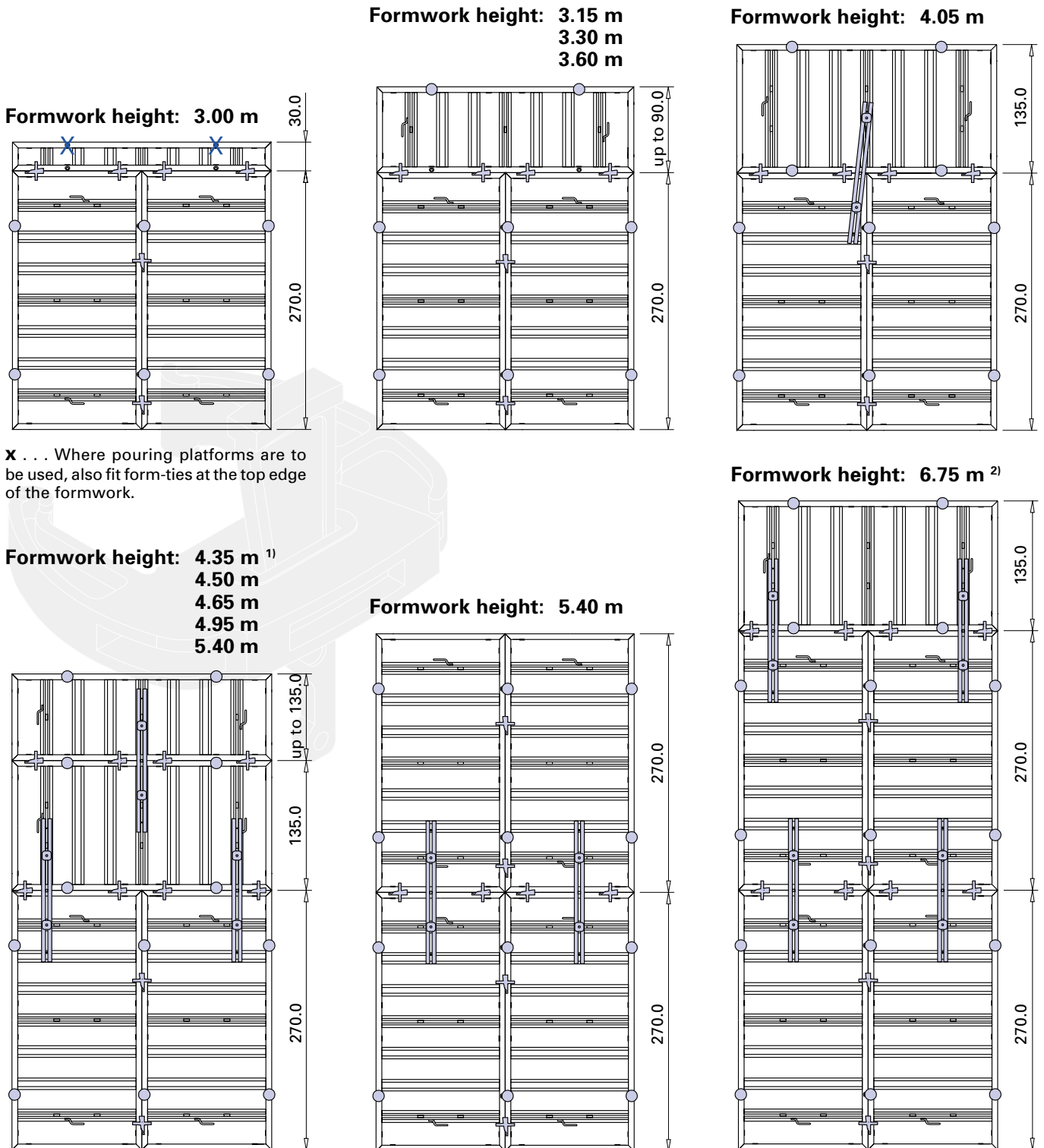
Framax universal waling:

Max. moment (for vertical stacking): 5.0 kNm

Due to the max. tensile load of 14 kN in the waling profile, even stiffer components such as steel walings WS 10 Top 50 are also subject to: Max. moment 5.0 kNm

... with Framax panel 2.70m ...

... and Framax quick acting clamp RU



x . . . Where pouring platforms are to be used, also fit form-ties at the top edge of the formwork.

¹⁾ An uppermost sideways-placed panel with a width of up to 0.60 m does not need any universal waling.

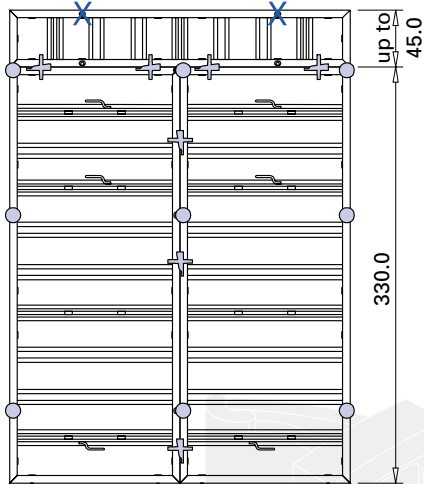
²⁾ An uppermost sideways-placed panel with a width of up to 0.90 m only needs one universal waling.



... with Framax panel 3.30m ...

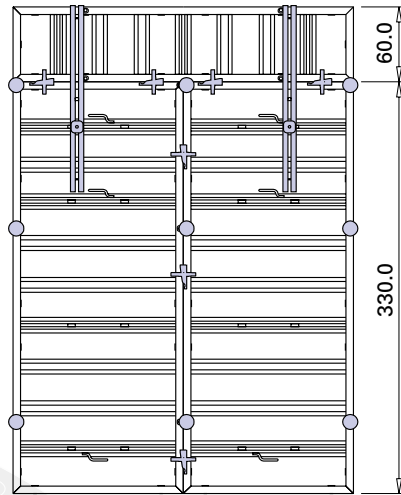
... and Framax quick acting clamp RU

Formwork height: 3.60 m
3.75 m



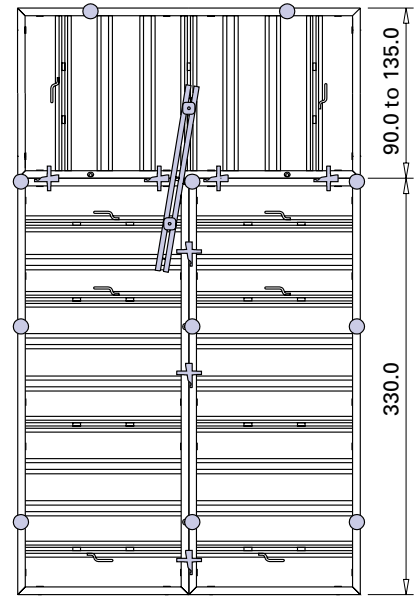
X . . . Where pouring platforms are to be used, also fit form-ties at the top edge of the formwork.

Formwork height: 3.90 m ¹⁾

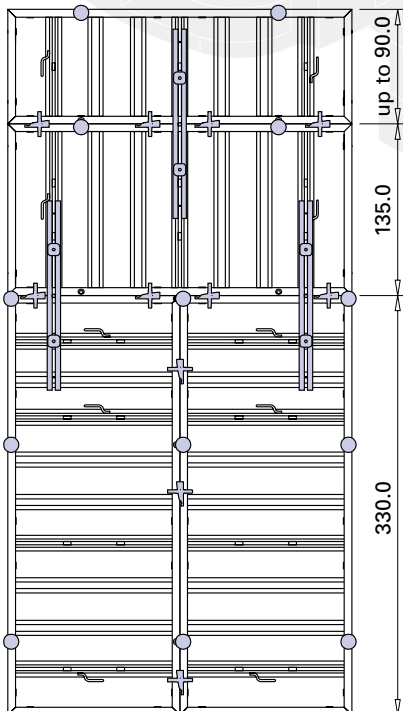


¹⁾ Where form-ties are fitted at the top edge of the formwork, no universal walings are needed.

Formwork height: 4.20 m
4.65 m

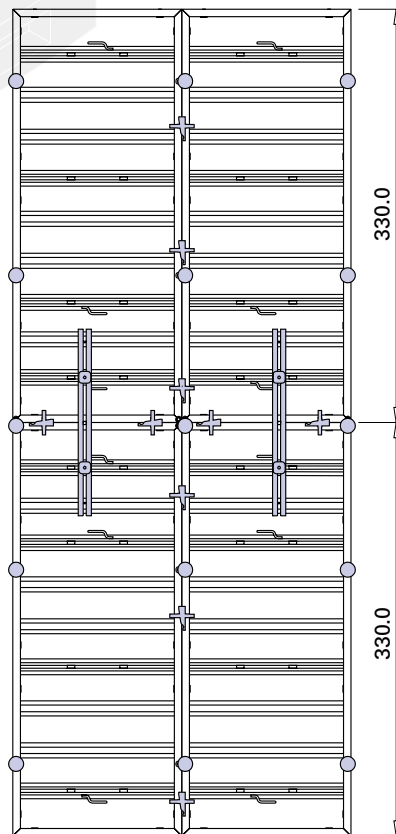


Formwork height: 4.95 m ²⁾
5.10 m
5.25 m
5.55 m



²⁾ An uppermost sideways-placed panel with a width of up to 0.60 m does not need any universal waling.

Formwork height: 6.60 m



Positions of the inter-connecting and form-tie components and accessories needed for:

- Lifting and lowering
- Crane-hoisting
- Pouring
- Platform loads

Tie rod + super plate



Framax quick acting clamp RU



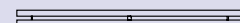
Framax multi function clamp



Framax wedge clamp



Framax universal waling



Framax multi function clamp:

Max. tensile force: 15.0 kN
 Max. shear force: 9.0 kN
 Max. moment: 0.9 kNm

Values apply only when clamp is mounted directly on profile (see p.14)

Framax quick acting clamp RU:

Max. tensile force: 15.0 kN
 Max. shear force: 6.0 kN
 Max. moment: 0.5 kNm

Framax universal waling:

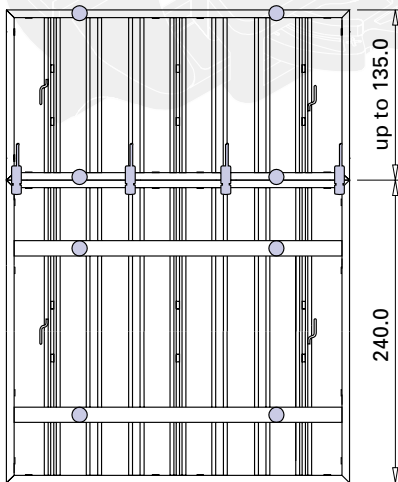
Max. moment (for vertical stacking): 5.0 kNm

Due to the max. tensile load of 14 kN in the waling profile, even stiffer components such as steel walings WS 10 Top 50 are also subject to: Max. moment 5.0 kNm

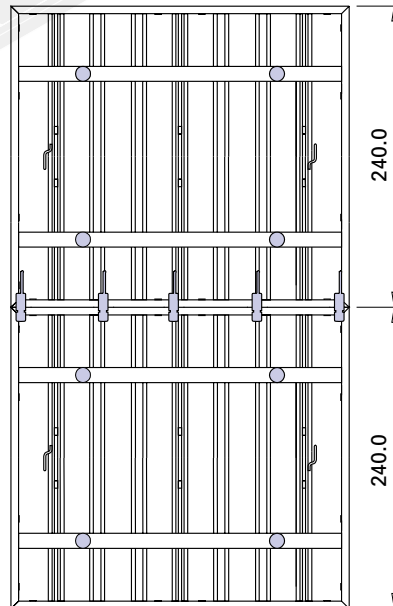
... with Framax panel 2.40 x 2.70m ...

... and Framax multi function clamp

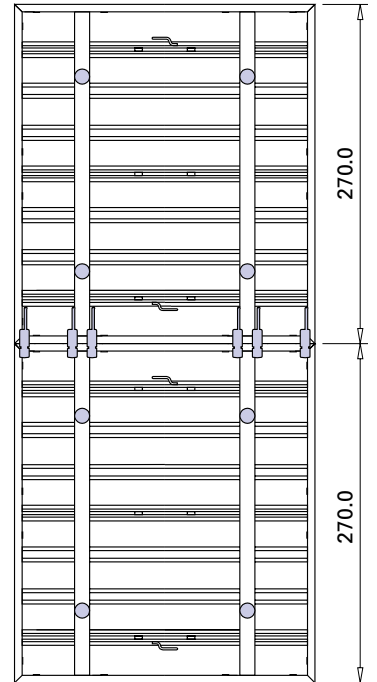
Formwork height: 2.70 m¹⁾
 2.85 m¹⁾
 3.00 m¹⁾
 3.30 m¹⁾
 3.75 m



Formwork height: 4.80 m



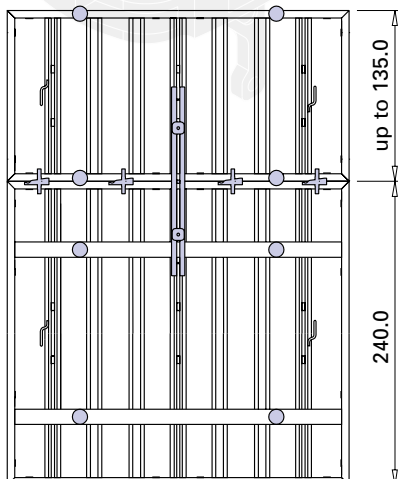
Formwork height: 5.40 m



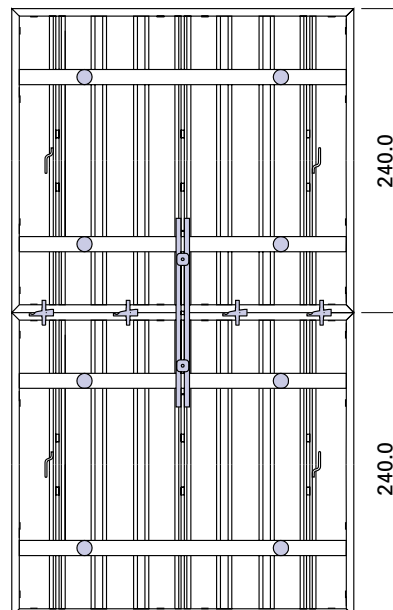
¹⁾ An uppermost sideways-placed panel with a width of up to 0.90 m does not need any form-ties at the panel join.

... and Framax quick acting clamp RU

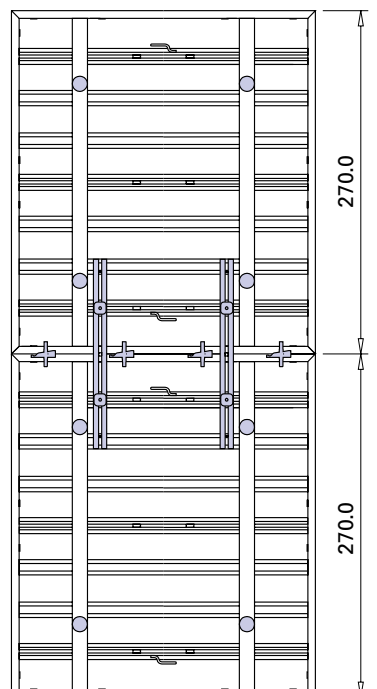
Formwork height: 2.70 m²⁾
 2.85 m²⁾
 3.00 m²⁾
 3.30 m²⁾
 3.75 m



Formwork height: 4.80 m



Formwork height: 5.40 m

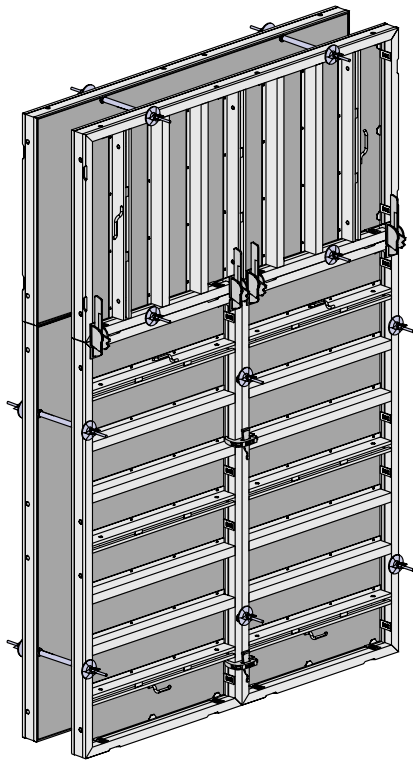


²⁾ An uppermost sideways-placed panel with a width of up to 0.90 m does not need a universal waling or form-ties at the panel join.

Dimensions in cm

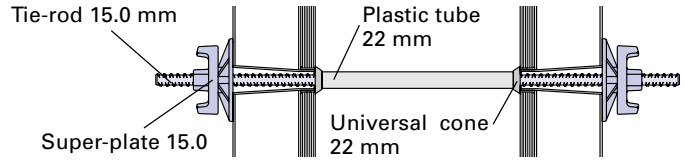


Form-tie system

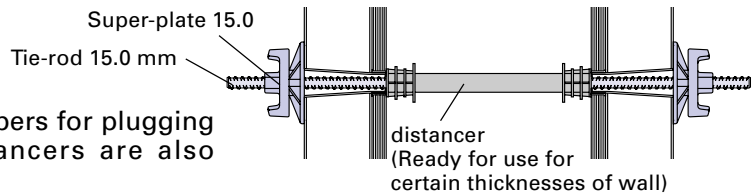


The Doka form-tie system . . .

. . . 15.0



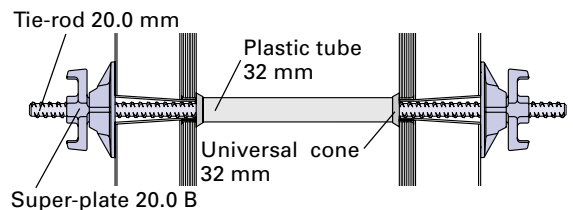
As an alternative to the plastic tube with universal cone, there is also the **complete form-tie sheathing tube**.



The stoppers for plugging the distancers are also included.

. . . 20.0

For high formwork pressures of up to 80 kN/m², use the **form-tie system 20.0**.



Placing form-ties in the frame profile

The rule here is:
Fix a form-tie in every form-tie sleeve that is not covered over by a super-plate. Exceptions: see "Closures" (p.24) and "Rules for vertical stacking" (p.17).

Tie-rod 15.0 mm:
Max. load with safety factor 1.6: 120 kN
Max. load to DIN 18216: 90 kN



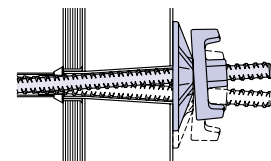
Only use approved tie-rods.
Never weld or heat tie-rods
- risk of fracture!

Tie-rod 20.0 mm:
Max. load with safety factor 1.6: 220 kN
Max. load to DIN 18216: 150 kN

Doka of course also offers economical solutions for making water-tight form-tie points.

Inclined and height-mismatched positioning with the form-tie system 15.0

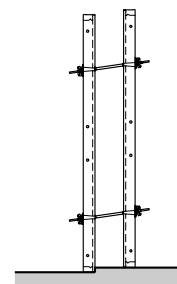
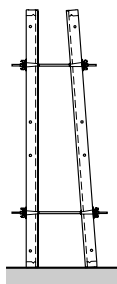
Thanks to their large, conical form-tie sleeves, the Framax panels can be inclined on one or both sides, and/or height-mismatched. The 15.0 super-plate happily copes with all these situations.



Conical on 1 side
max. 4°

Conical on both sides
max. 2 x 4.5°

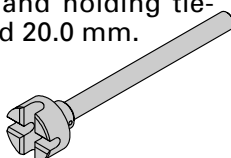
Height mismatch
max. 1.0 cm per
10 cm wall thickness



Always fix in the bigger (wider) of the two panels.

Tip

Spanner for tie-rod 15.0/20.0
For turning and holding tie-rods 15.0 and 20.0 mm.

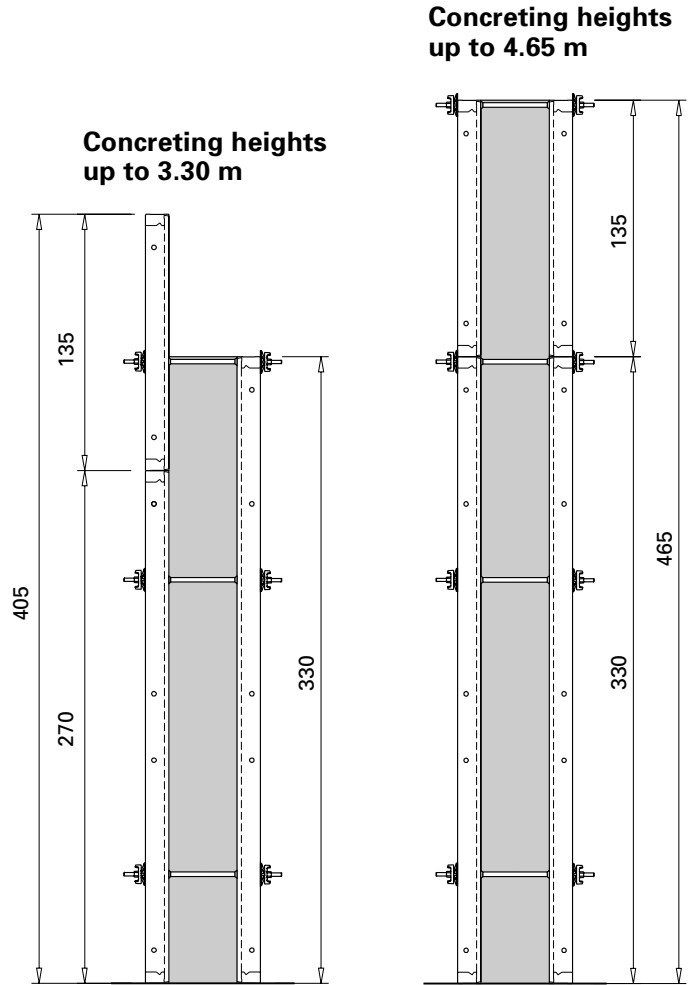
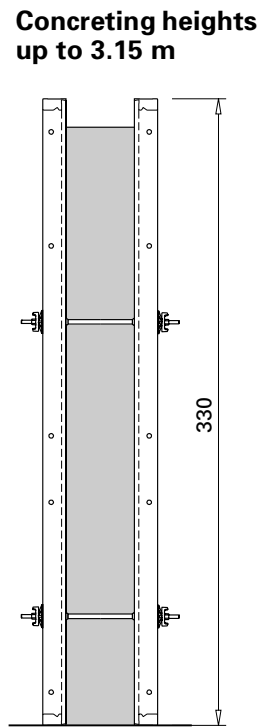
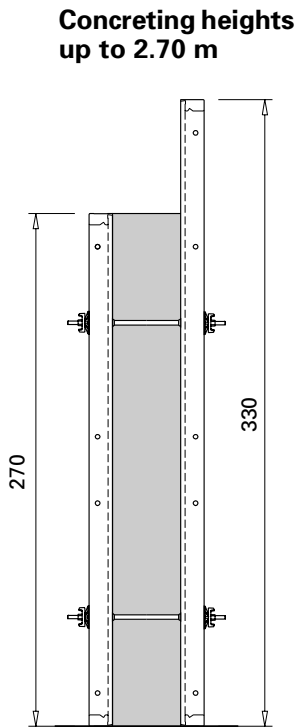


N.B.:

Secure all inclined panels against uplift.
Inclined and mismatched positioning are not possible with panels that have been placed on their sides.

The form-tie system in conjunction with the Framax panels 3.30 m

- Wall heights up to 3.30 m without stacking
- Up to concreting heights of 3.15 m, only 2 form ties are needed (0.47 ties per m²)
- Stacking configurations: Sideways with all 2.70 m panels, or upright with all 3 heights of panel



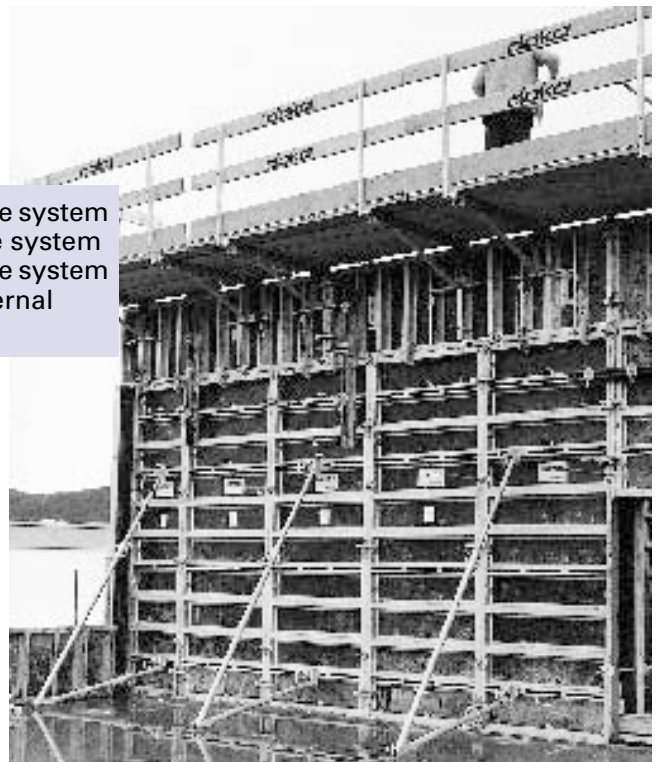
The positions of the tie-holes on the Framax panels 3.30 m match those on the 2.70 m and 1.35 m high panels, so that combinations of inside and outside formwork with these 3 panel heights are possible.

1.35m Framax panels	☞ asymmetrical form-tie system
2.70m Framax panels	☞ symmetrical form-tie system
3.30m Framax panels	☞ asymmetrical form-tie system
2.40 x 2.70m Framax panel	☞ symmetrical and internal form-tie system

☞ **Universal plug R 20/25** for sealing off the unused form-tie sleeves in the frame profile.



☞ **Plug 22 mm** for sealing off the plastic tube 22 mm left in the concrete.



Site:
Multring administrative building, Weinheim

Dimensions in cm



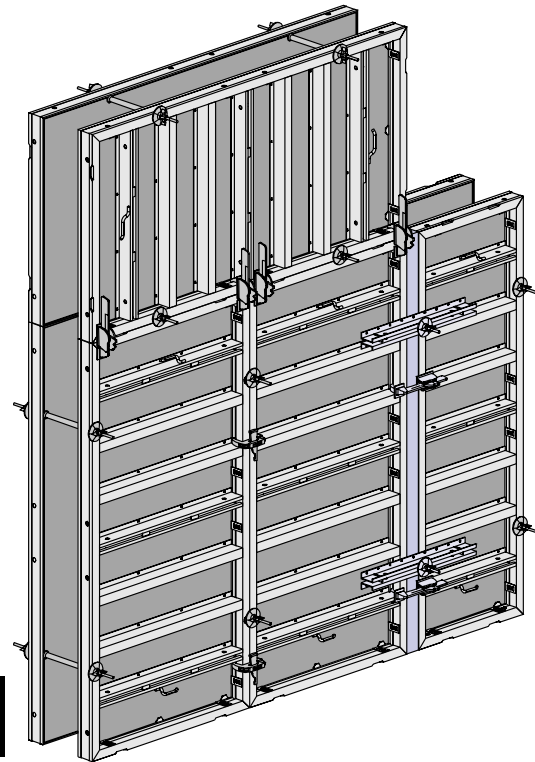
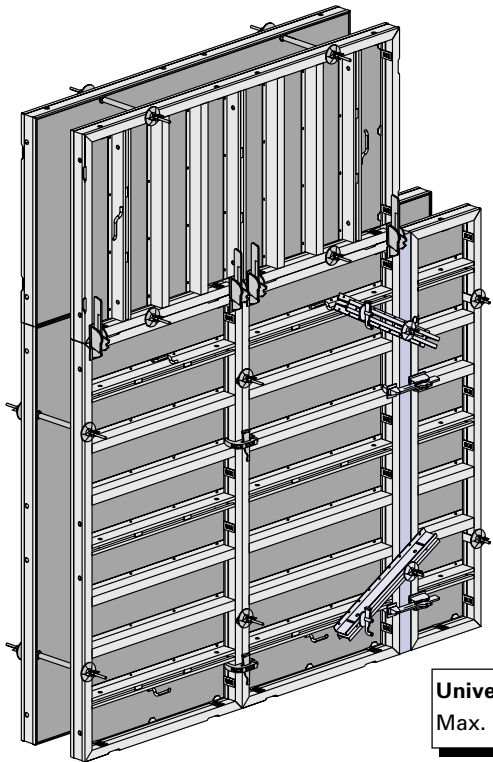
Length adjustment using closures

Closures: 0-15 cm

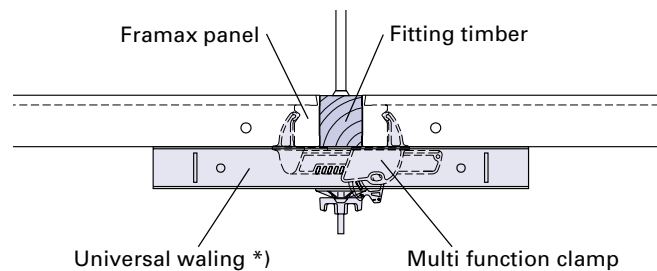
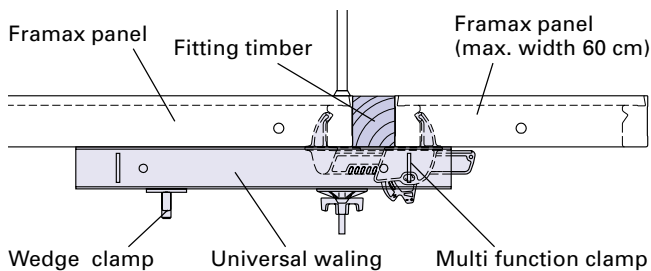
with fitting timber and Framax multi function clamp

Ties through frame

Ties through fitting timber



Universal waling:
Max. moment: 5.2 kNm

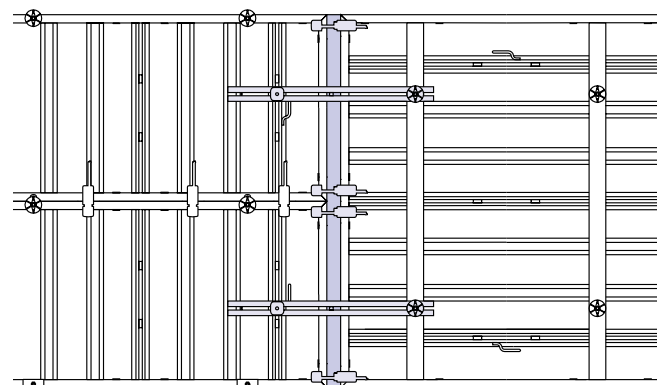
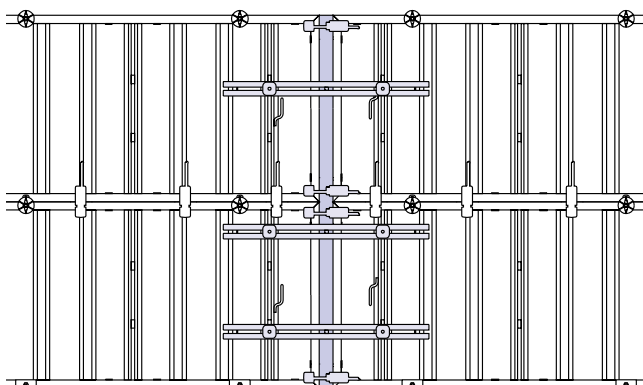


By combining the fitting-timber widths of 2, 3, 5, and 10 cm in various ways, the closures can be made in a 1 cm grid.

*) Up to a closure width of 5 cm, no Universal walings are needed.

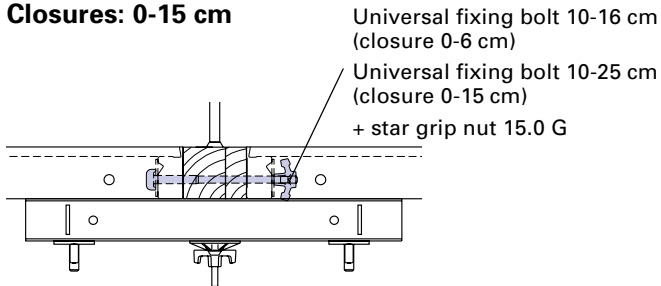
Closure in sideways-placed Framax panels

Closure in Framax panel 2.40 x 2.70 m



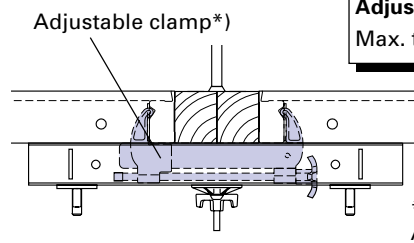
with fitting timber and universal fixing bolt / adjustable clamp

Closures: 0-15 cm



3 universal fixing bolts are needed for every 2.70 m of panel height.

Closures: 0-20 cm



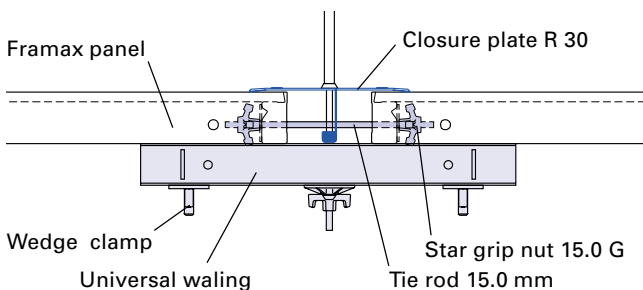
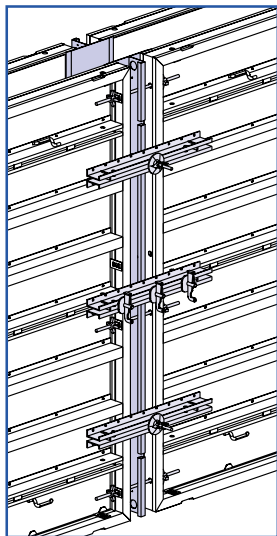
Adjustable clamp:
Max. tensile force: 10.0 kN


*) Only on sale in Austria!

Fit the adjustable clamp in the same position as the multi function clamp.

Closures: 4-30 cm

with closure plate R 30

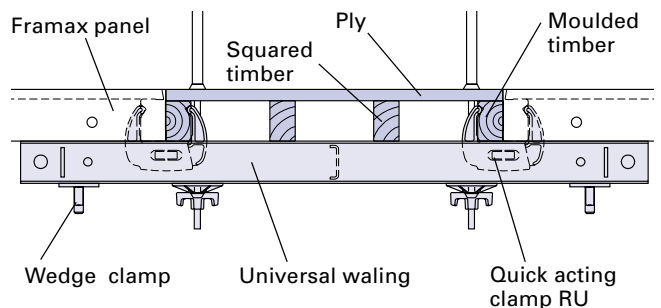
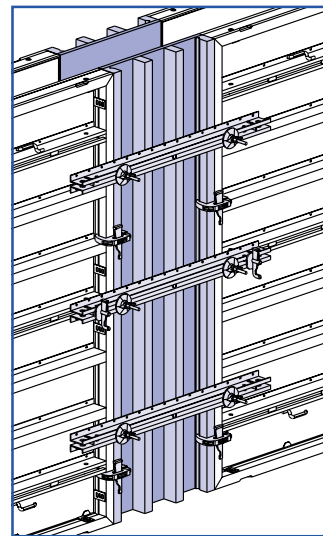


 **Plugs R25** - for sealing the unused form-tie holes in the Framax closure plates.



Closures: 0-80 cm

with moulded timber, f.w.sheet



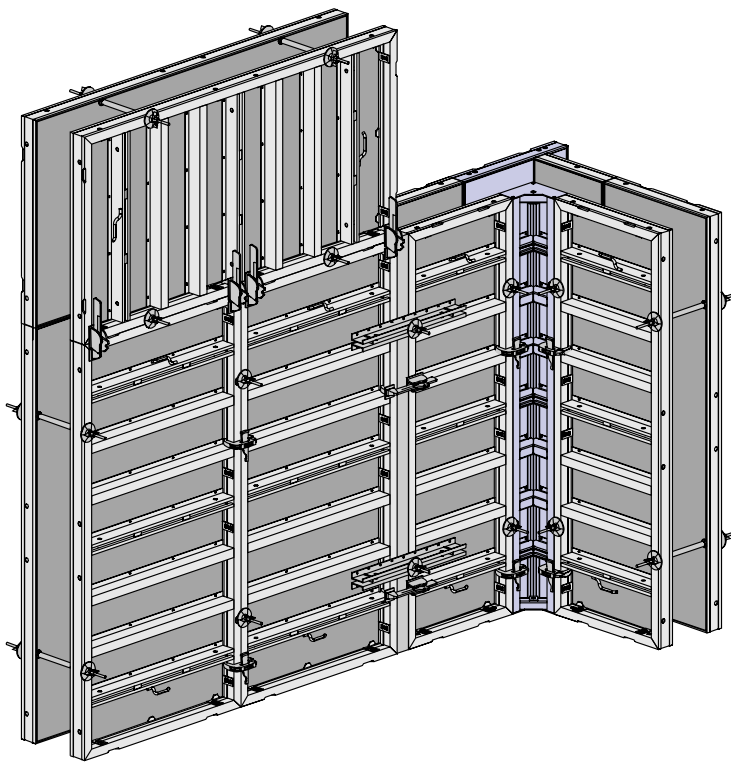
Closure range:

Universal waling 0.90 m: 0-30 cm
Universal waling 1.50 m: 0-80 cm

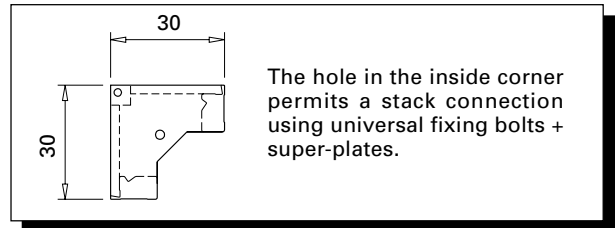
Closure widths <30 cm: fix 1 form-tie through the closure in the top and bottom universal waling.
Closure widths >30 cm: fix 2 form-ties in each of the 3 universal walings (per 2.7 m formwork height).
A tension anchor can be made using a tie-rod and star-grip nut.



Right-angled corners



The corner solutions are based on the strong, torsion-proof **Framax inside corner**.



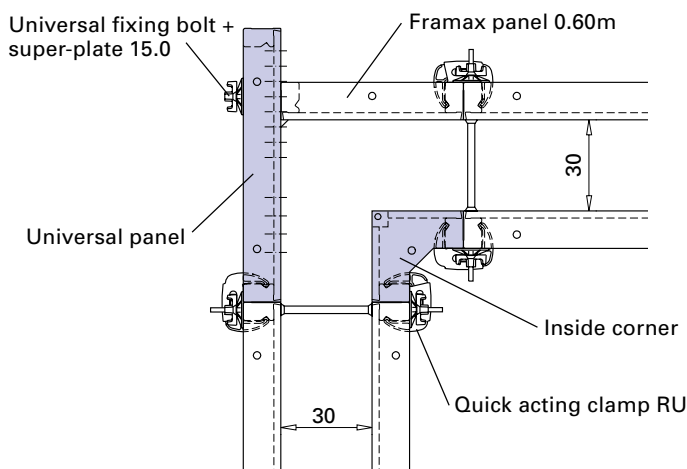
There are **2 ways** of forming right-angled **outside** corners:

- with Framax universal panels
- with Framax outside corners

with Framax universal panel

Various different wall-thickness grids (5 and 6 cm) are provided by inverting the universal panel.

N.B.: Due to its unsymmetrical design, the universal panel 3.30 m cannot be inverted. This means that wall thicknesses are only available in a 5 cm grid when this panel is used.

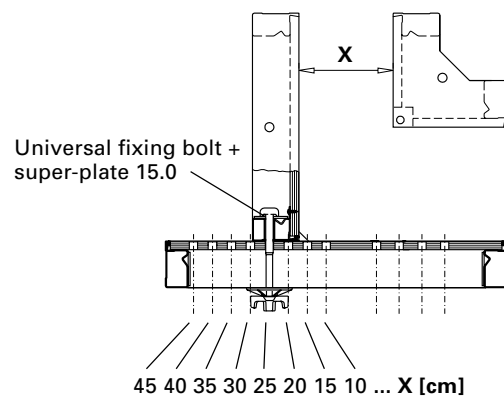


Required **numbers of universal fixing bolts + super-plates 15.0:**

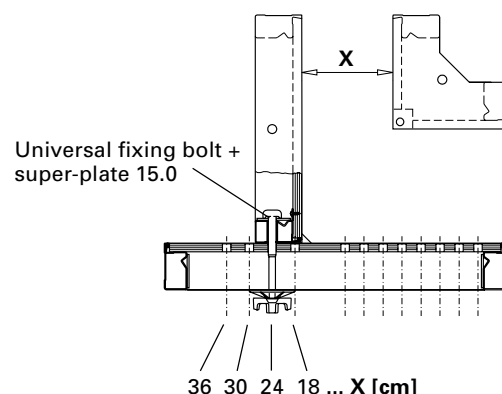
- Universal panel 0.90 x 0.90 m - 2 of each
- Universal panel 0.90 x 1.35 m - 2 of each
- Universal panel 0.90 x 2.70 m - 4 of each
- Universal panel 0.90 x 3.30 m - 5 of each

Dimensions in cm

Attainable wall thicknesses in 5 cm grid



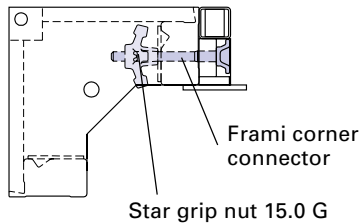
Attainable wall thicknesses in 6 cm grid



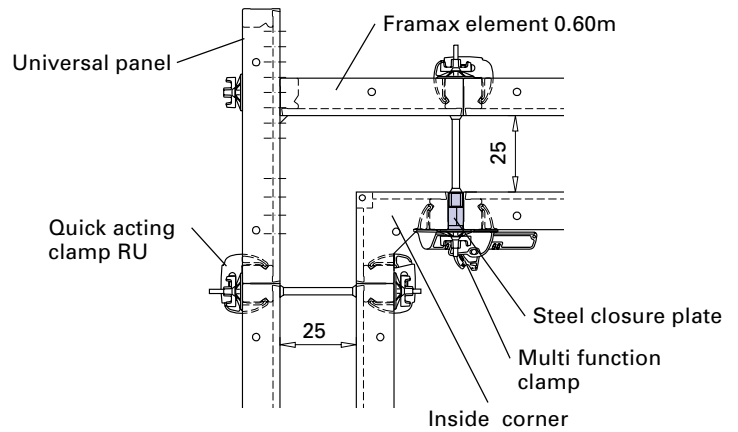
Steel closure plates

Used mainly in corner situations, steel closure plates feature high stability and long service life.

The plates can be screwed to the end face of the Framax panels / inside corners using 2 Frami corner connectors (art. n° 58 8446) and 2 star grip nuts.

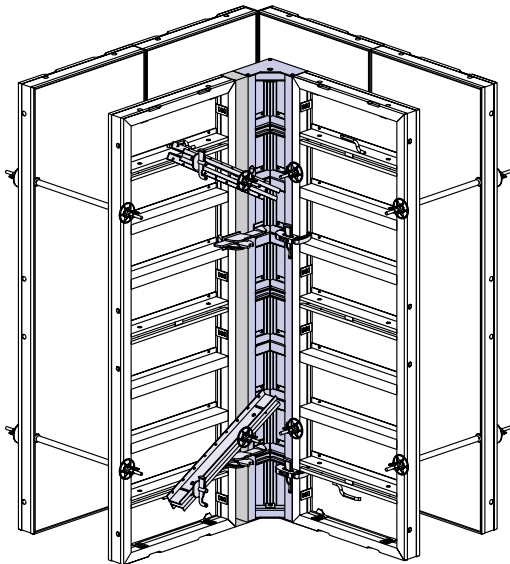


When the steel closure plates are used, no universal walings are needed.

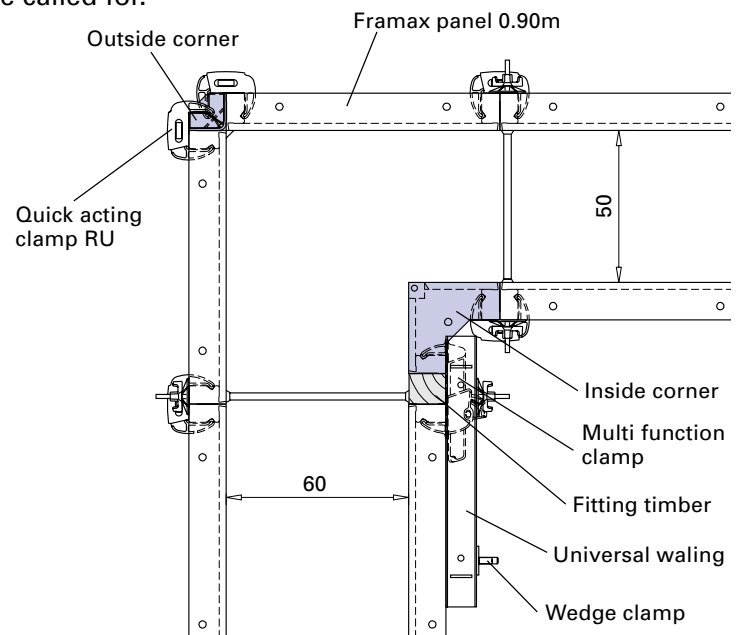


Steel closure plate 5 cm, e.g. wall thickness 25 and 35 cm
Steel closure plate 6 cm, e.g. wall thickness 24 and 36 cm

with Framax outside corner



The Framax outside corner is an easy way of forming corners in narrow trench situations or where large wall thicknesses are called for.



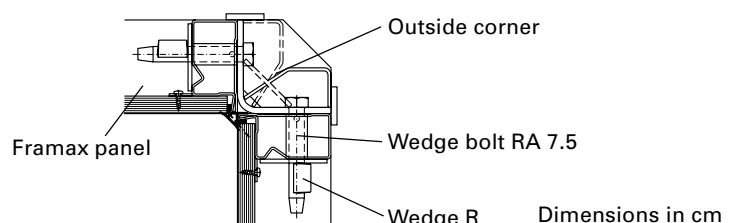
Tip

When there is a closure on both sides of the inside corner, bracing can be achieved economically with the universal corner waling.

N° of quick acting clamps RU required for concrete pressures of up to 60 kN/m² and wall thicknesses of up to 60 cm:
Outside corner 1.35 m - 4 clamps
Outside corner 2.70 m - 8 clamps
Outside corner 3.30 m - 10 clamps



For concrete pressures of **over 60 kN/m²** and **wall thicknesses of over 40 cm**, the **wedge bolt and wedge** must be used instead of the quick acting clamp.

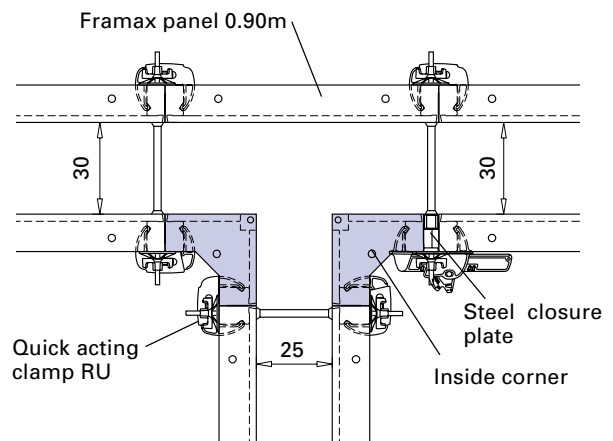
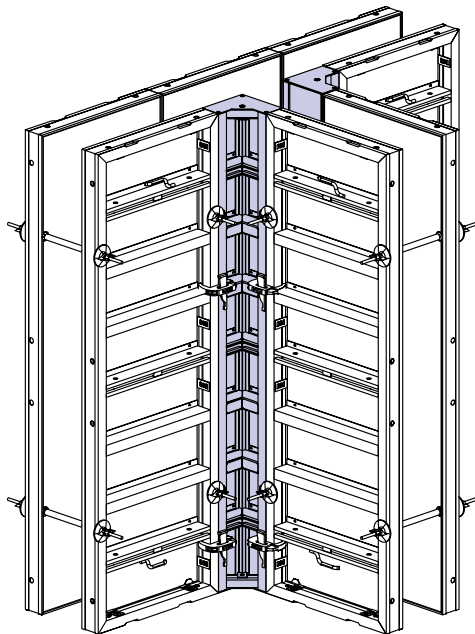


Extra inter-panel joints for outside corners (enhanced tensile loads) see Page 29.



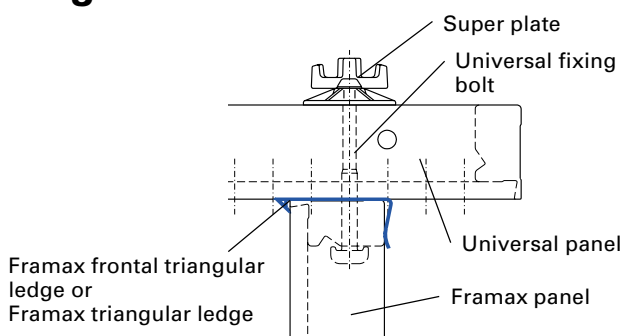
Right-angled corners

Example: T-junction



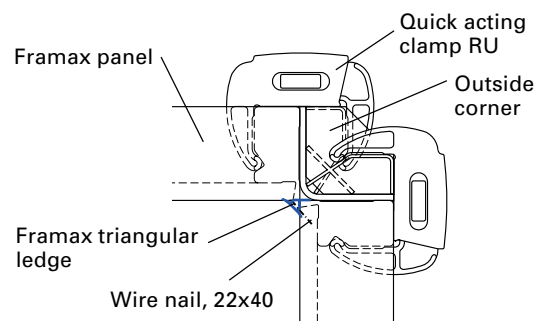
Edges

with Framax frontal triangular ledge



The frontal triangular ledge can be pushed over the end face of the panel (no nails needed). For forming outside corners, it is used with the universal panel (integrated slot grid for universal fixing bolts). Edges can also, of course, be formed using the triangular ledge.

with Framax triangular ledge



Where outside corners are formed using the Framax outside corner, the quick acting clamps used for the interconnection mean that the Framax triangular ledge has to be used.

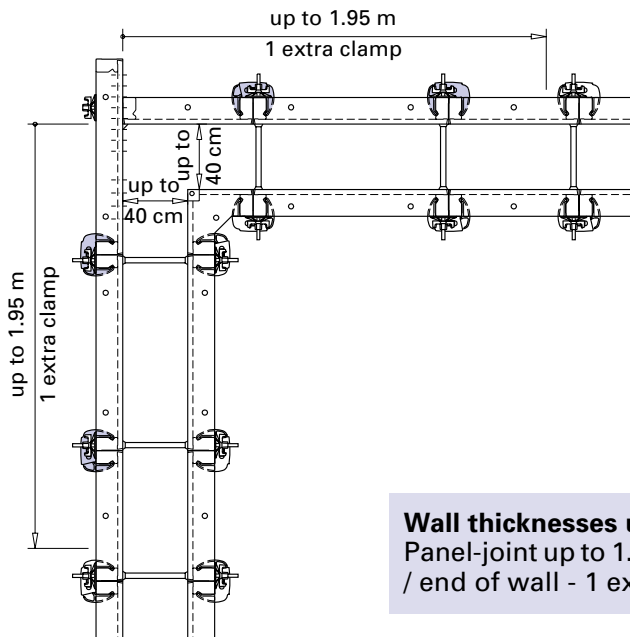
Dimensions in cm

Inter-panel connections for increased tensile loads

As a rule, only **2 clamps** are needed **per 2.70 m** and **3 clamps per 3.30 m formwork height** as a tension link between the panels.

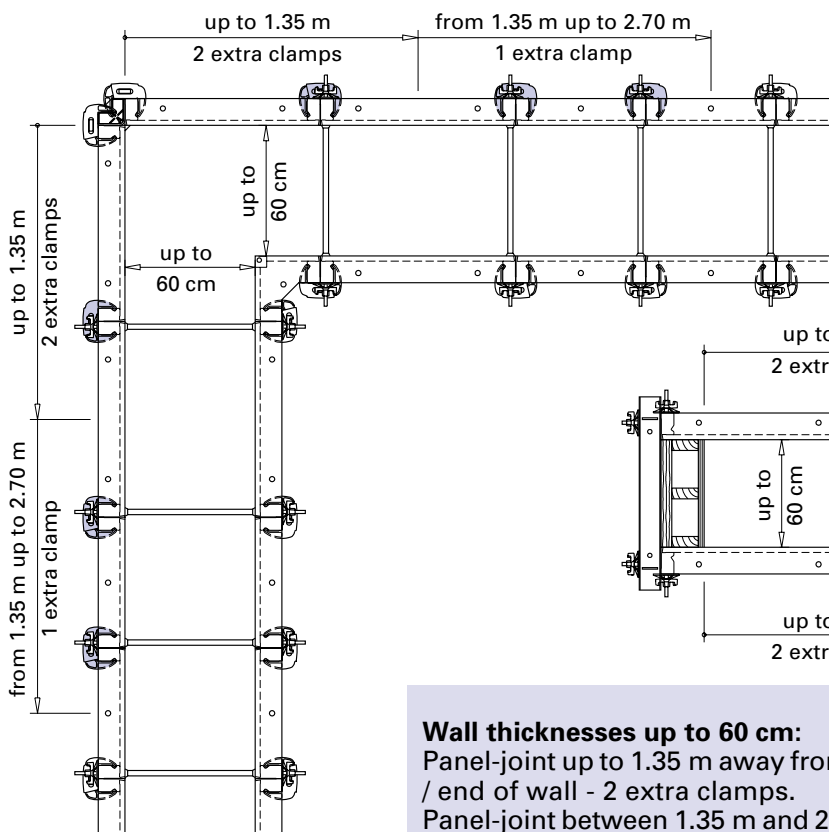
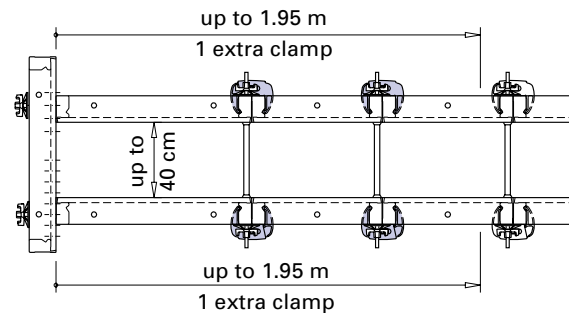
However, where **increased tensile loads** are encountered, especially in outside corner and stop-end configurations, **extra inter-panel joints** are needed.

At outside corners



Wall thicknesses up to 40 cm:
Panel-joint up to 1.95 m away from outside corner / end of wall - 1 extra clamp.

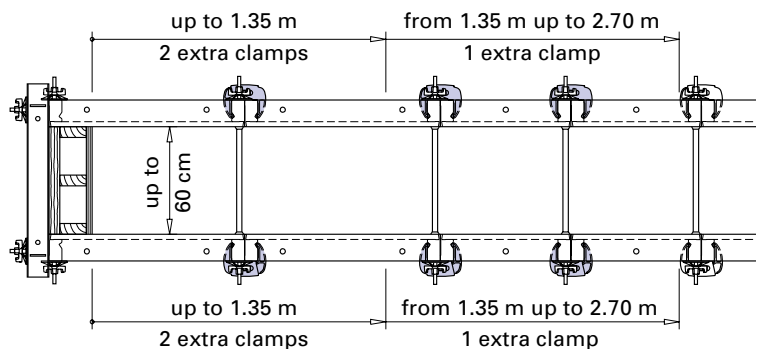
At stop-ends



Wall thicknesses up to 60 cm:
Panel-joint up to 1.35 m away from outside corner / end of wall - 2 extra clamps.
Panel-joint between 1.35 m and 2.70 m away from outside corner / end of wall - 1 extra clamp.

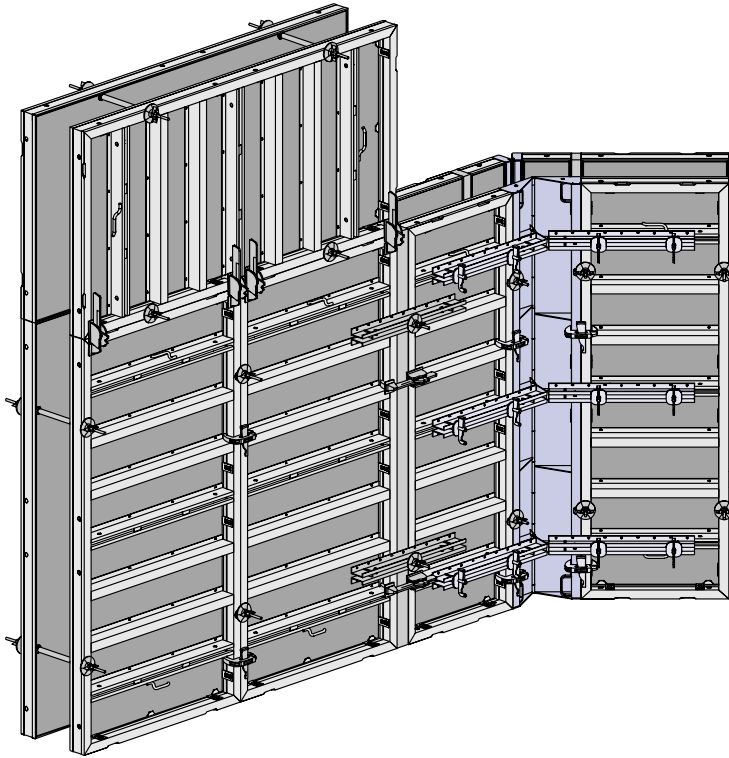


In the case of concrete pressures of over 60 kN/m^2 and wall thicknesses of over 40 cm, wedge bolts and wedges must be used on the outside corner instead of the quick acting clamp (see p.27).

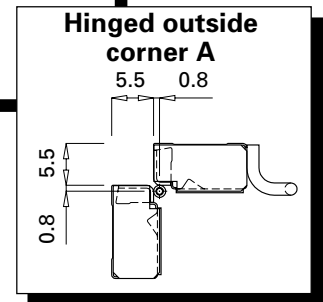
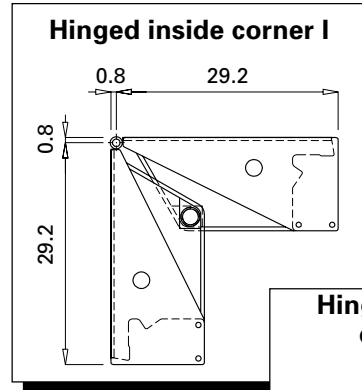




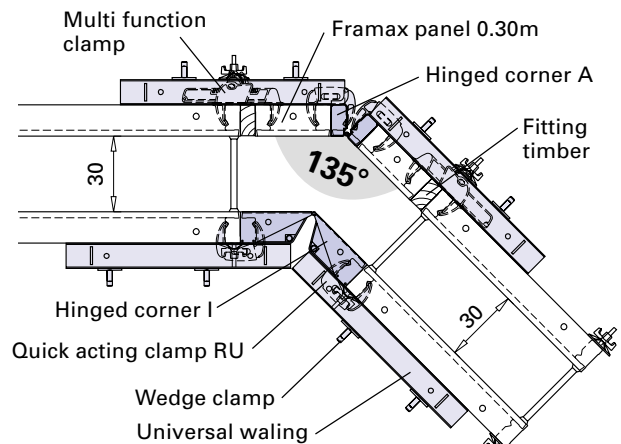
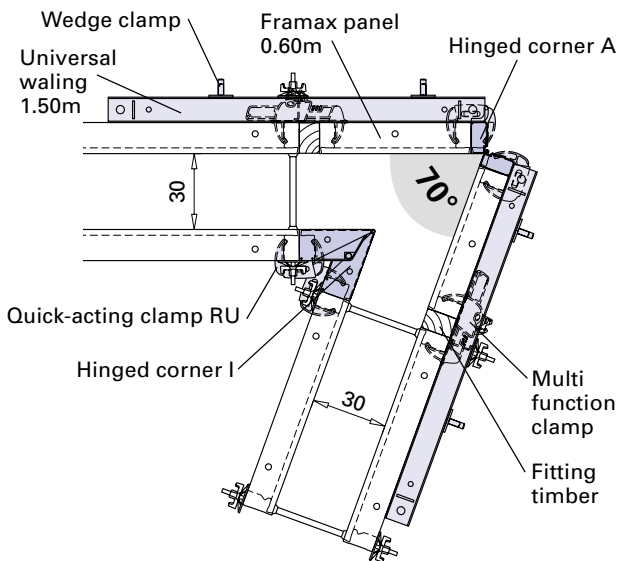
Acute and obtuse-angled corners



Framax has the perfect solution ready for acute and obtuse-angled corners - the Framax hinged corners.



70°(60°)-135° angles, with hinged corners I + A



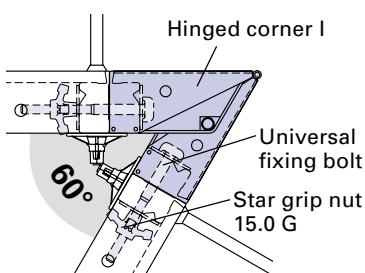
Max. width of panel next to hinged corner A:

60 kN/m² concrete pressure - 90 cm

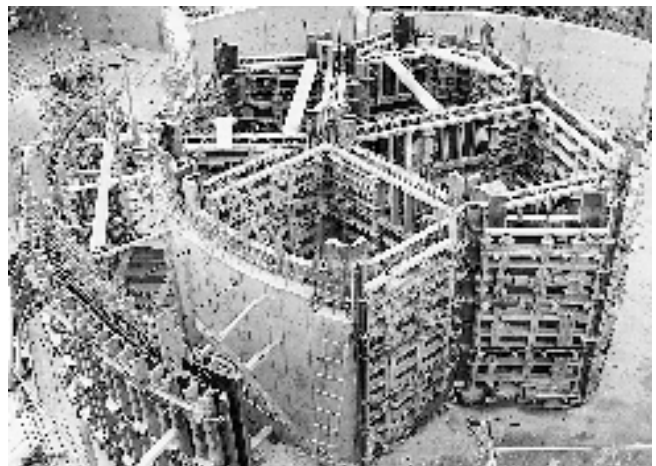
80 kN/m² concrete pressure - 60 cm

(Closure zones of up to 15 cm are allowed)

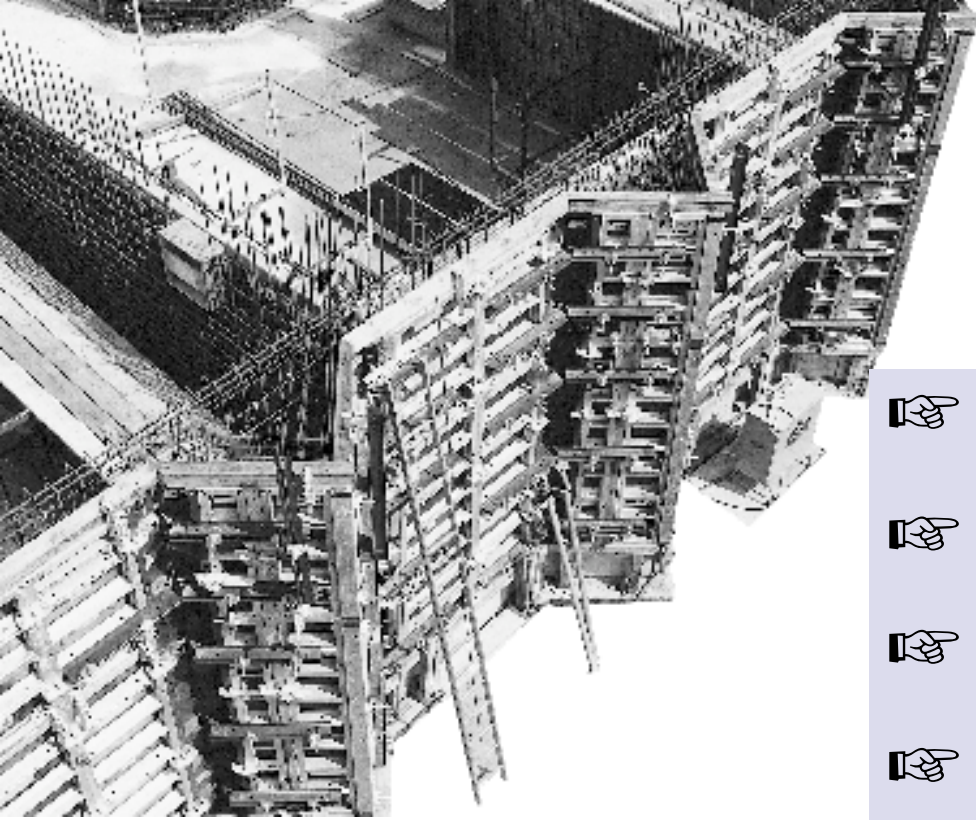
Where **universal fixing bolts** are used instead of the quick-acting clamp RU in the inside corner, an angle of **60°** is also possible.



Dimensions in cm







Site:
Annaberg District Hospital, Buchholz



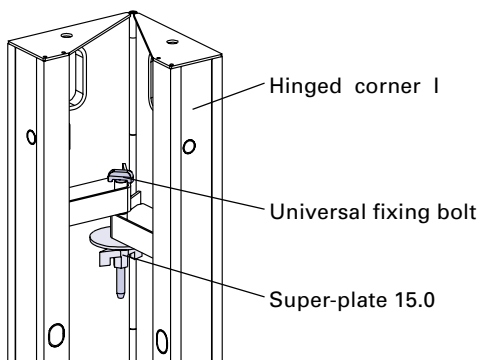
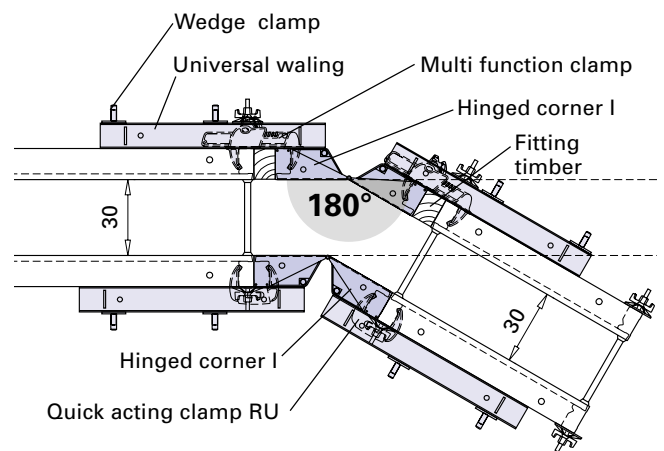
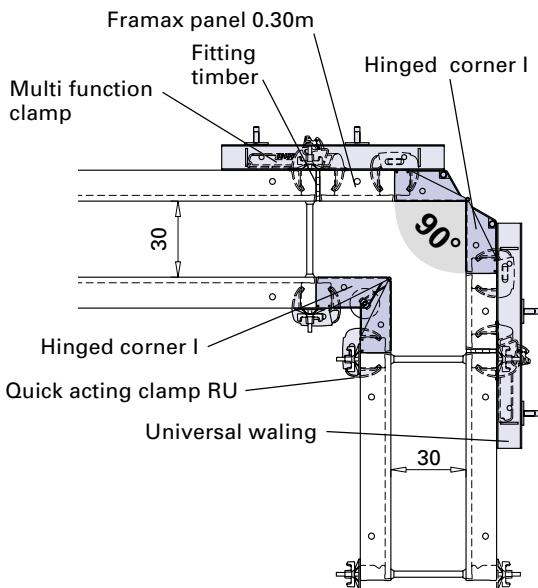
Site:
Hansa Hotel, Hamburg

Longitudinal connection of the hinged outside corner:

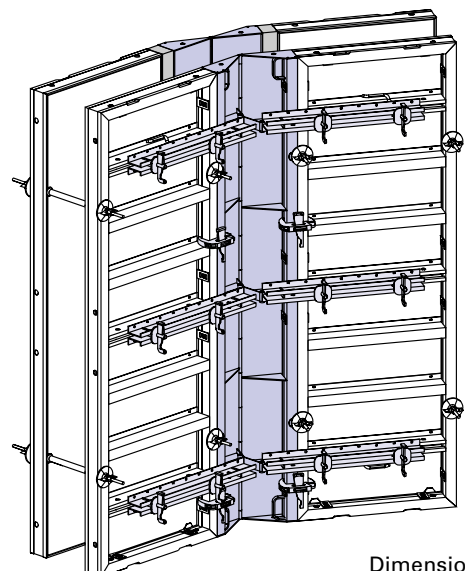
Panel height	Number of clamps
1.35 m	4
2.70 m	8
3.30 m	10

-  From angles of 120° and upwards, universal walings must be used on the inside corner in every waling-profile level.
-  On outside corners, universal walings should generally be positioned at every waling-profile level.
-  Where there are closures, provide extra universal walings as shown on p. 24.
-  Extra inter-panel joints for outside corners (enhanced tensile loads) see Page 29.

90°-180° angles, with hinged inside corners I only



The hinged corner I can be fixed at a 90° angle using a universal fixing bolt and super-plate 15.0.



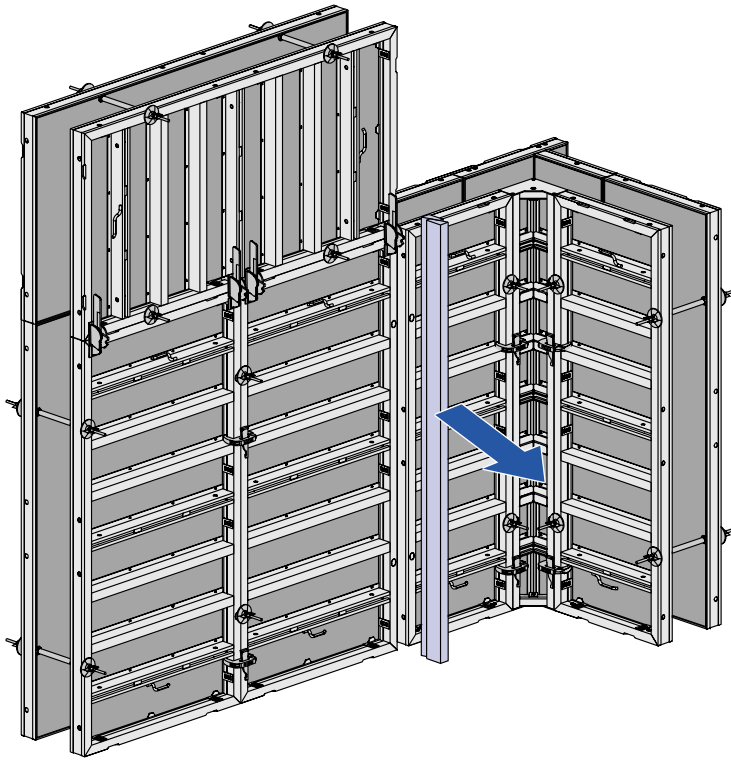
Dimensions in cm



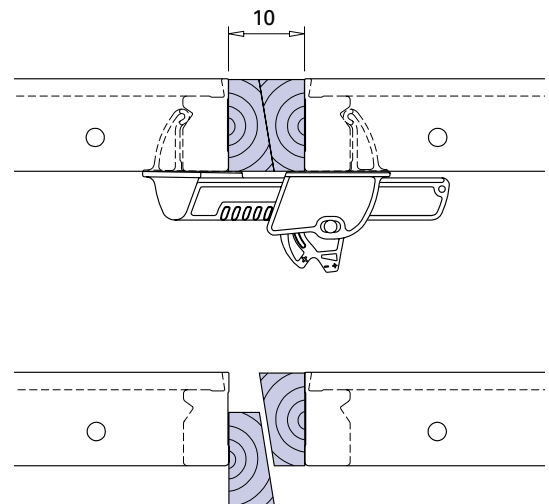
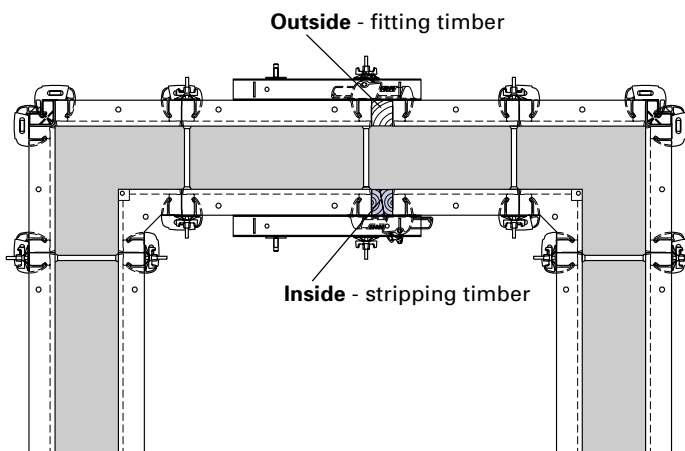
Formwork-stripping features and accessories

The stripping timber or formwork-stripping element makes quick work of striking inside formwork in narrow cross-sections such as lift-shafts or stair-wells.

Stripping timber



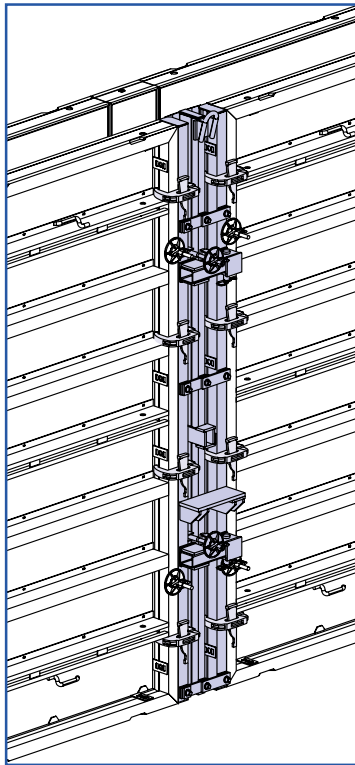
Stripping timber for narrow cross-sections: The diagonally cut fitting timber makes it easy to strike the formwork in e.g. shafts or stairwells.



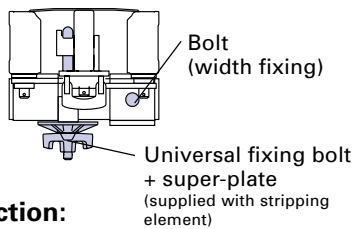
The Framax stripping timbers are available in lengths of 2.85 m and 3.45 m. These are each 15 cm longer than the respective Framax panels, which makes them easier to remove.

Dimensions in cm

Stripping element 2.70 m



Top view of stripping element:



Formwork erection:

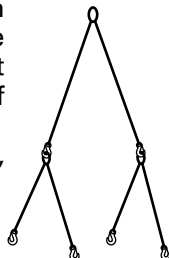
- Arrange stripping elements symmetrically in the shaft - means that inside formwork can be lifted out evenly
- Link to adjacent panels using 4 quick acting clamps RU on each side
- Fix the width (30 cm) using bolts
- Press down the cover plate using a universal fixing bolt and a super-plate

Striking:

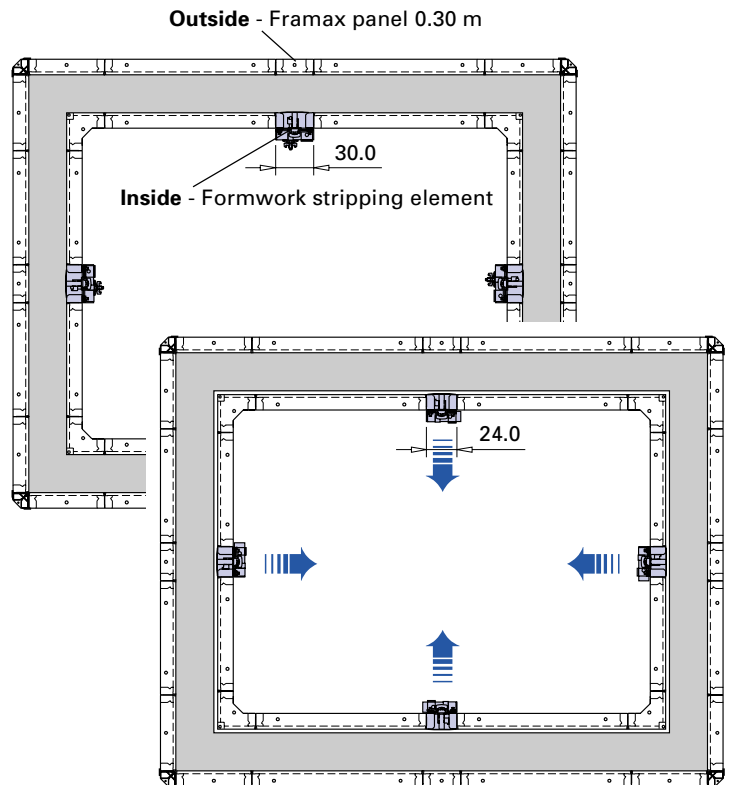
- Remove the univ. fixing bolt and super-plate
- Remove the bolts for the width-fixing
- Attach a lifting chain to the stripping element and pre-tension it with the crane
- Using a winch or jack, detach the formwork (in small steps, all the way round) and draw it together completely
- Hoist out the inside formwork in one single piece

Use a long-enough lifting chain or 3 double chains (see illustration) in order to prevent any oblique pull (dep. on size of shaft).

If there is too much oblique pull, the panels must be braced.



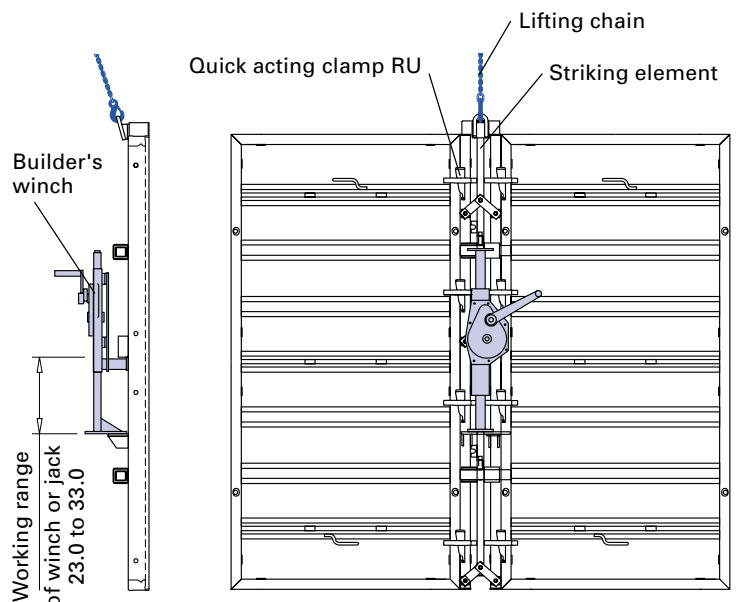
Shaft formwork with formwork-stripping element:
With the aid of this special piece, the entire shaft formwork can be moved in one unit.



To strike the inside formwork from the concrete quickly, use a standard **builder's winch** (carrying force min. 20 kN).

Alternatively:

Hydraulic jack with carrying force of min. 20 kN



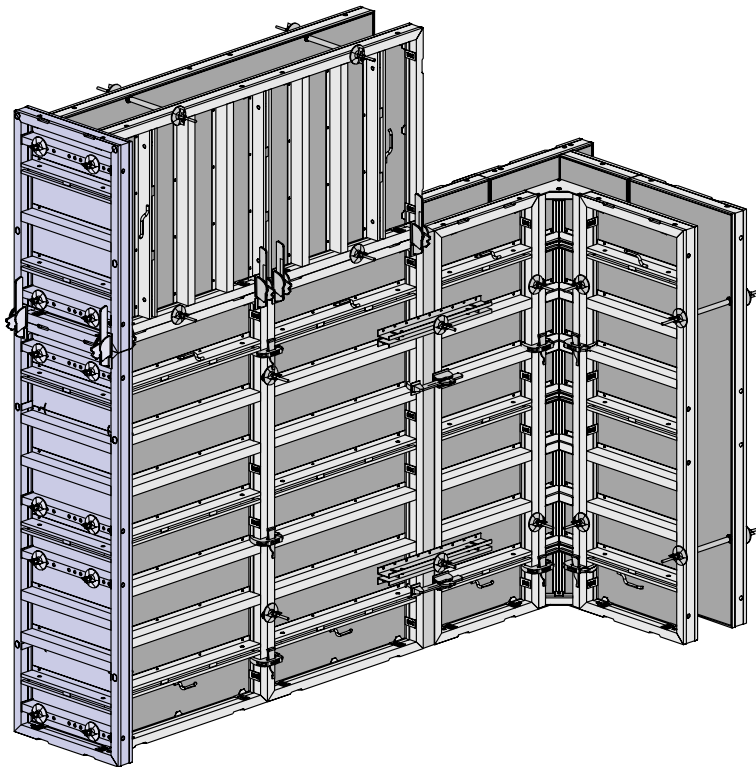
Dimensions in cm



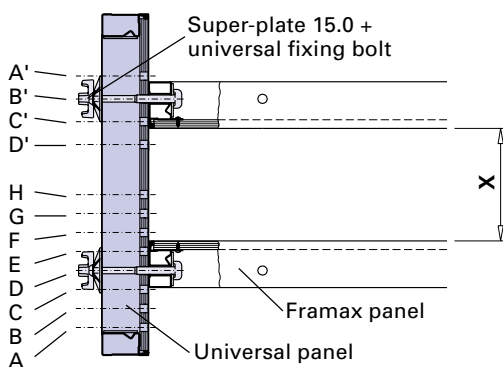
Stop-end formwork

Framax is a complete formwork system. As such, it also offers practical solutions for e.g. the stop-end formwork.

with the Framax universal panel



Universal panels 0.90 m - 1.35 m - 2.70 m



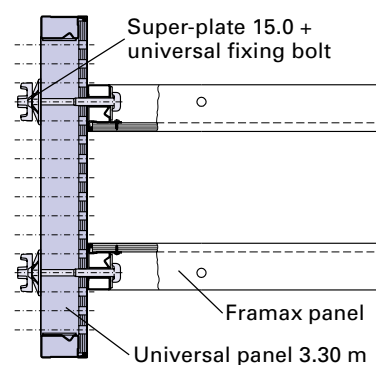
Combination	Wall thicken. X
A' with H to A	16 to 51 cm
B' with H to A	10 to 45 cm
C' with H to A	4 to 39 cm
D' with G to A	3 to 33 cm

in 5 cm grid

Required **number of universal fixing bolts + super-plates 15.0:**

- Universal panel 0.90 x 0.90 m - 4
- Universal panel 0.90 x 1.35 m - 4
- Universal panel 0.90 x 2.70 m - 8

Universal panel 3.30 m

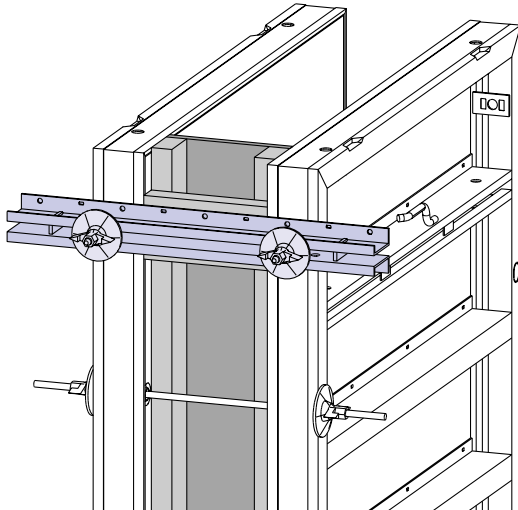


N.B.: The universal panel 3.30 m has a continuous 5cm hole-grid for wall thicknesses of up to 60 cm.

Required **number of universal fixing bolts + super-plates 15.0:**

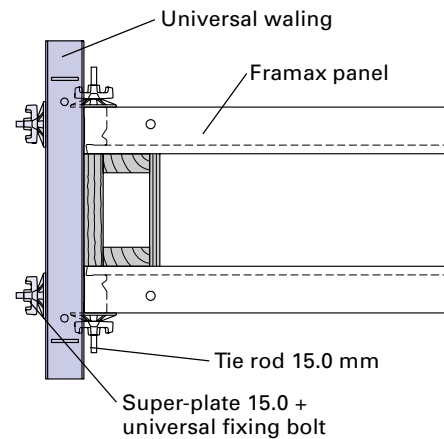
- Universal panel 0.90 x 3.30 m - 10

with Framax universal fixing bolt and universal waling



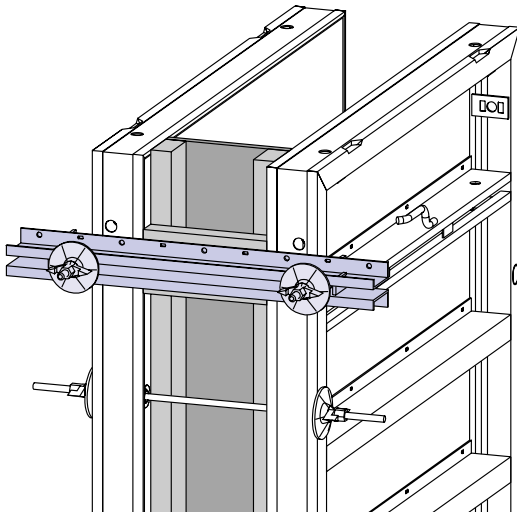
Universal waling:
Maximum moment: 5.2 kNm

Universal fixing bolt:
Max. tensile force in the sleeve: 25.0 kN



The universal walings are mounted using universal fixing bolts and super-plates placed via the transverse holes in the Framax panels. In this way, you can form stop-ends continuously across any thickness of wall.

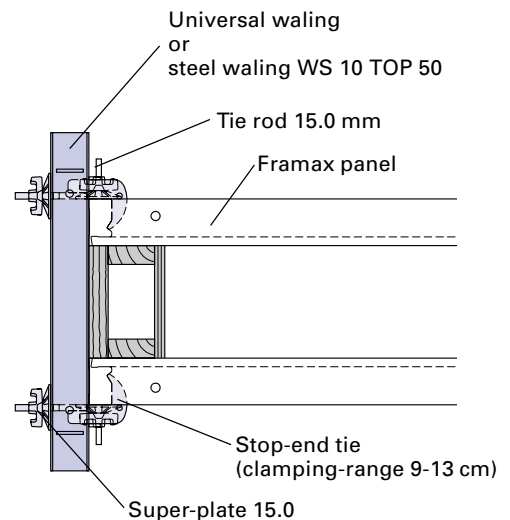
with Framax stop-end tie and Framax universal waling



Stop-end tie:
Maximum tensile force: 15.0 kN

Universal waling:
Maximum moment: 5.2 kNm

Steel waling WS 10 TOP 50:
Maximum moment: 11.5 kNm



The universal walings or steel walings are fastened with Framax stop-end ties and super-plates.

Concrete pressure	60 kN/m²
Panel height:	2.70 m
Wall thickness	Stop-end tie
up to 40 cm	2
up to 50 cm	3
up to 60 cm	4

Concrete pressure	80 kN/m²
Panel height:	2.70 m
Wall thickness	Stop-end tie
up to 30 cm	2
up to 35 cm	3
up to 45 cm	4
up to 60 cm	5

Sideways panels	Wall thickness
up to 0.45 m	up to 60 cm → 1 stop-end tie
over 0.45 m	up to 60 cm → 2 stop-end ties



Extra inter-panel joints for stop-ends (enhanced tensile loads) see Page 29.

In order to ensure uniform load transfer, the stop-end ties should be fitted in the middle (between 2 transverse profiles) wherever possible. The stop-end tie thus enables you to form stop-ends continuously, even across large thicknesses of wall.

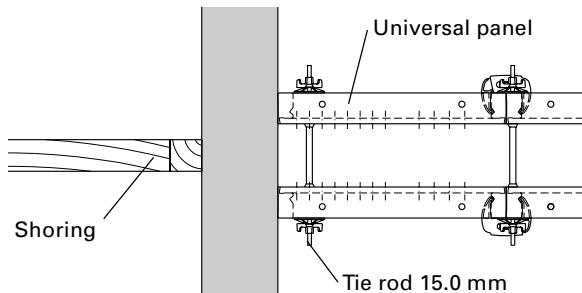


Wall junctions, offsets and steps

Connecting to existing walls

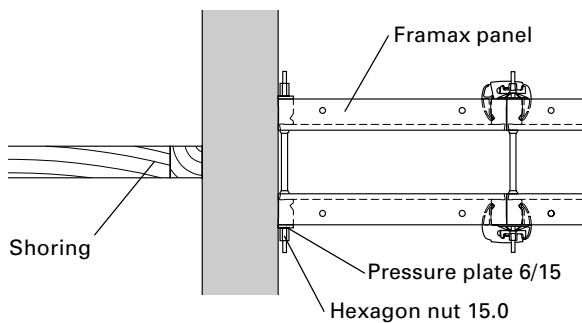
Right-angled connections

e.g. with Framax universal panel

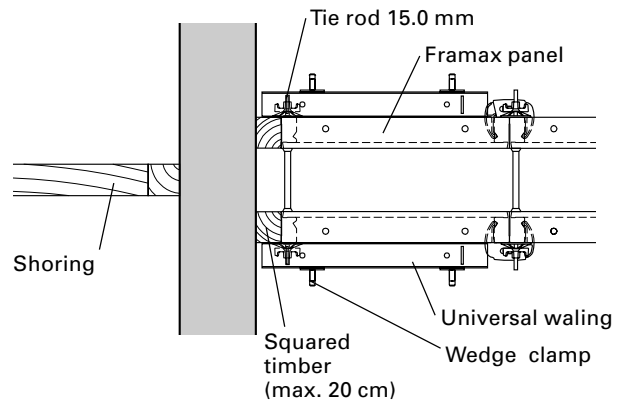


Where the **Framax universal panel 2.70 m** is used and the ties are placed through the hole-profile, **3 form-ties** are needed.

e.g. with Framax panel and pressure plate 6/15



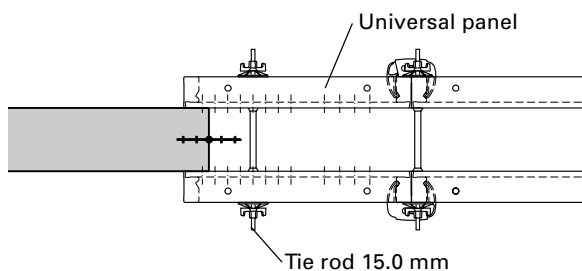
e.g. with Framax panel and squared timber



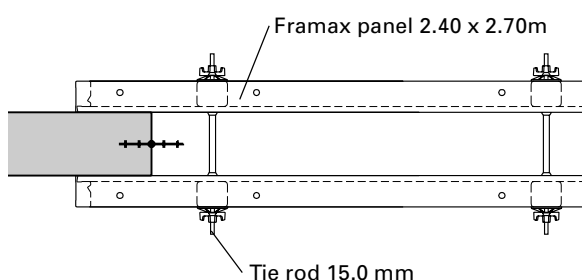
Squared timbers of up to 5 cm wide can be used without a universal waling.

In-line connection

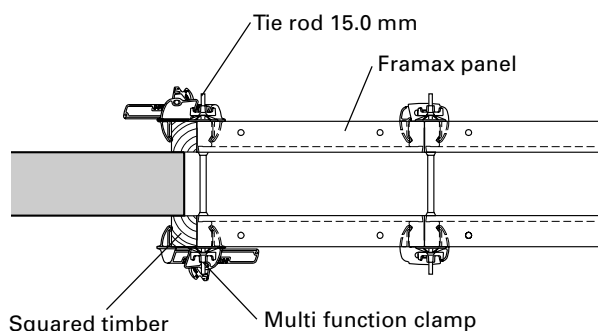
e.g. with Framax universal panel



e.g. with Framax panel 2.40 x 2.70m



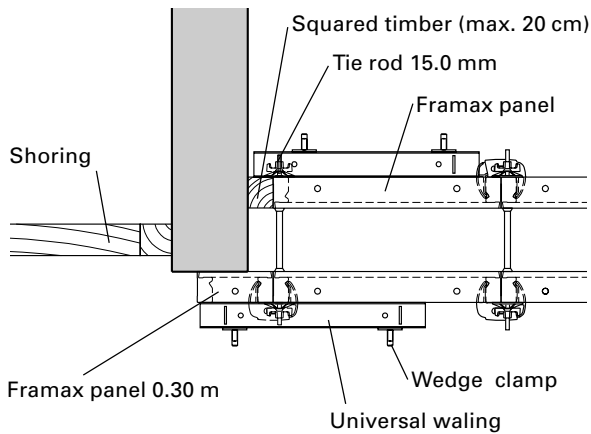
e.g. with Framax panel and squared timber



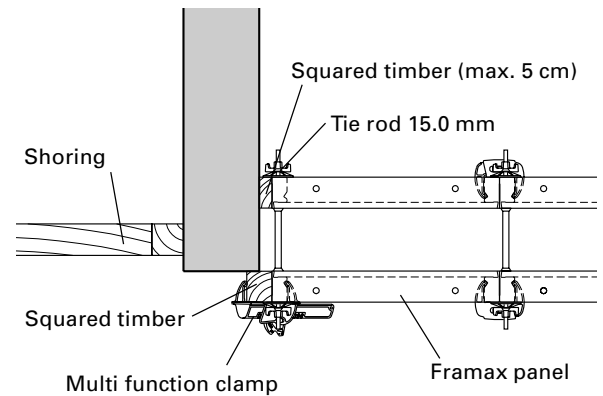
Where the **Framax universal panel 2.70 m** is used and the ties are placed through the hole-profile, **3 form-ties** are needed.

Corner connection

with scope for closure



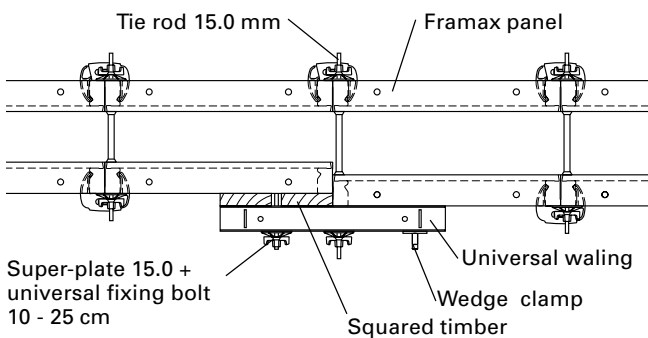
with no scope for closure



Squared timbers of up to 5 cm wide can be used without a universal waling.

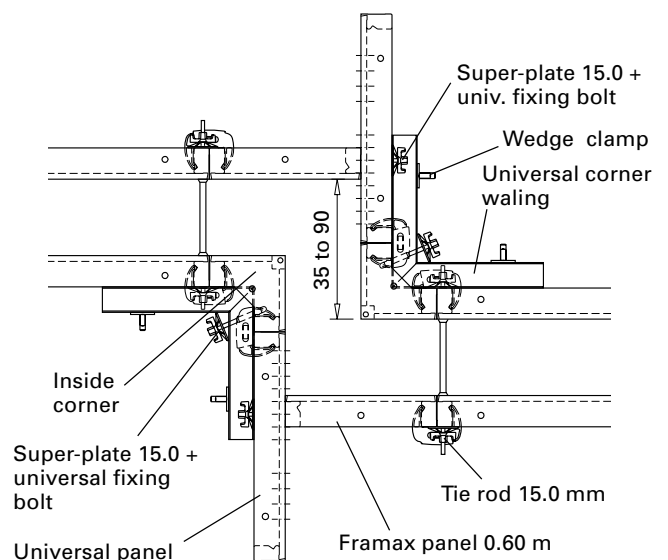
Wall offsets

e.g. one-sided wall offset up to max. 12 cm



Where the sections of wall are short (high longitudinal tension), shoring is necessary.

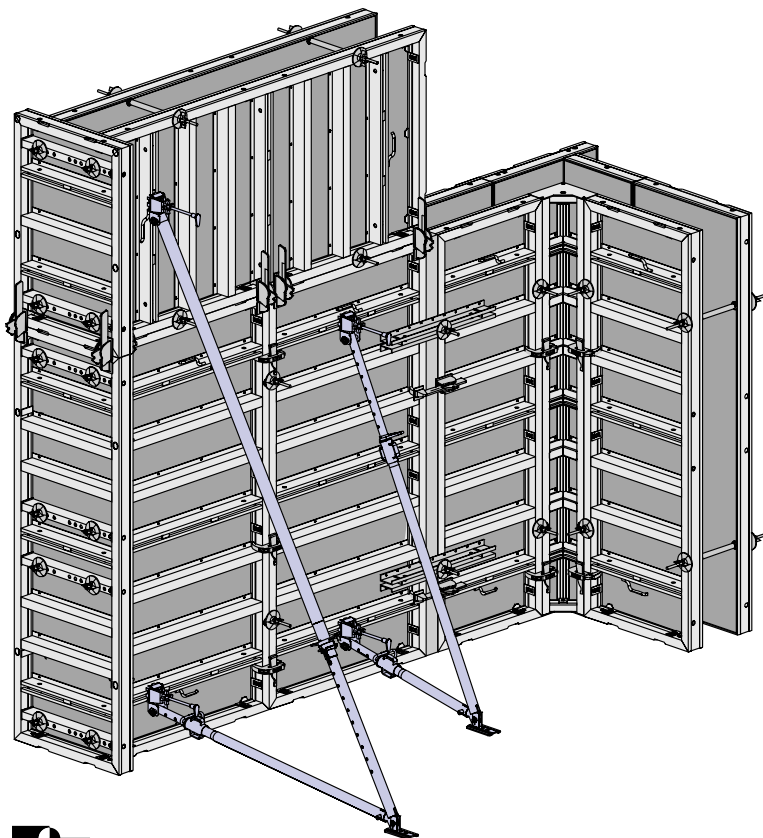
Wall steps



Dimensions in cm



Plumbing accessories



Panel struts and adjustable plumbing struts

ensure that the panels remain stable in the upright, and make it easier to plumb the formwork.

For your safety:

The Framax panels must be stable in **every** phase of the construction work. Please observe the applicable safety regulations.

For more information (wind loads, etc.) see the section headed "Vertical and horizontal loads" in the Doka Calculation Guide.

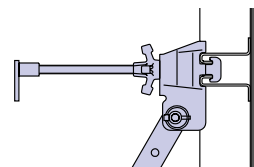
Tip

It is also possible to use the **Adjusting strut Eurex 60 550** instead of the adjustable plumbing strut. The advantage of this aluminium adjusting strut is its low weight.



Please follow the instructions given in the "User Information for Doka Eurex 60 550".

Connection in the waling profile:



N° of struts on 2.70 m wide multi-panel element

Formwork height [m]	Panel strut		Adj.plumbing struts
	340	540	
3.30	1		
4.80		1	
5.40	1	1	
6.00	1	2	
6.75	2	2	
7.95	1		1
8.10	1	2	1

Max. anchoring load: 13.5 kN

Example:

For a formwork height of 8.10 m, the following are needed per 5.40 m formwork length:

- 2 panel struts 340
- 4 panel struts 540
- 2 adjustable plumbing struts

Values apply up to a structure height of 20 m. The maximum prop load must be determined separately for:

- structure heights of over 20 m
- formwork higher than 8.10m
- other influence widths



Caution:

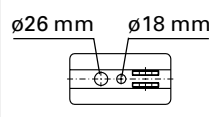
Anchor panel struts and adjustable panel struts in a tension and pressure-proof manner!

For a max. anchoring load of 13.5 kN:

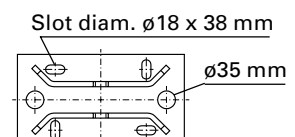
e.g. Hilti HST M16 - in uncracked concrete B30
or Hilti HST M24 - in cracked concrete B30

Observe all manufacturer's installation instructions.

Holes in footplate of panel strut:



Holes in footplate of adjustable plumbing strut:



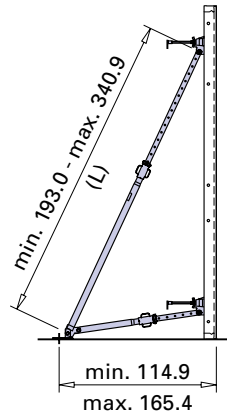
Anchor x 2!

Panel struts

- adjustable in 8 cm grid
- fine adjustment by screw-thread
- no loose parts - even insert-tube is retained
- also suitable for timber-beam formwork, with no need for modification

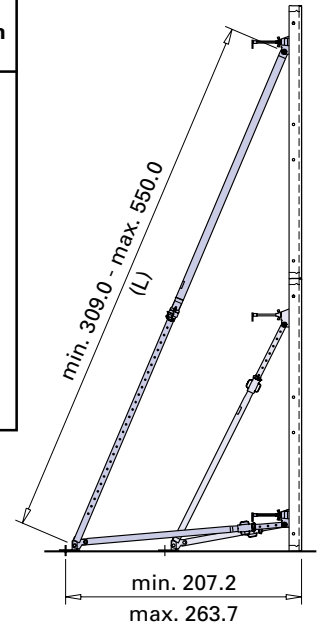
Panel strut 340

Length extended L [m]	Maximum load	
	Pressure [kN]	Tension [kN]
2.00	22.0	15.0
2.20	21.0	
2.40	17.5	
2.60	14.5	
2.80	12.5	
3.00	11.0	
3.20	9.5	
3.40	8.0	



Panel strut 540

Length extended L [m]	Maximum load	
	Pressure [kN]	Tension [kN]
3.20	30.0	30.0
3.40	30.0	
3.60	30.0	
3.80	25.5	
4.00	21.5	
4.20	19.0	
4.40	16.5	
4.60	15.0	
4.80	13.5	
5.00	12.0	
5.20	11.0	
5.40	10.0	
5.50	9.5	

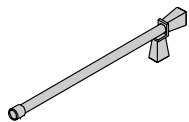


Adjustable plumbing strut

The adjustable plumbing strut consists of:

- Item 1** Spindle head
- Item 2** Spindle element without hinged end-plate
- Item 3** Intermediate piece 2.40 m
- Item 4** Intermediate piece 3.70 m
- Item 5** Spindle element with hinged end-plate

(See table below for required numbers and types of intermediate pieces)

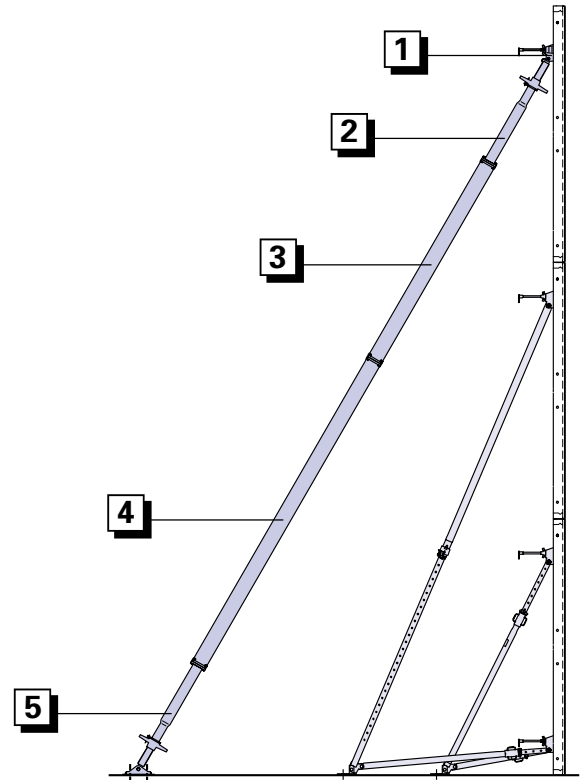


Spindle wrench:

The easy way to turn the spindle nuts of the adjustable plumbing strut.

A good rule of thumb here is:

The length of the adjustable plumbing strut should be the same as the height of the formwork to be supported.



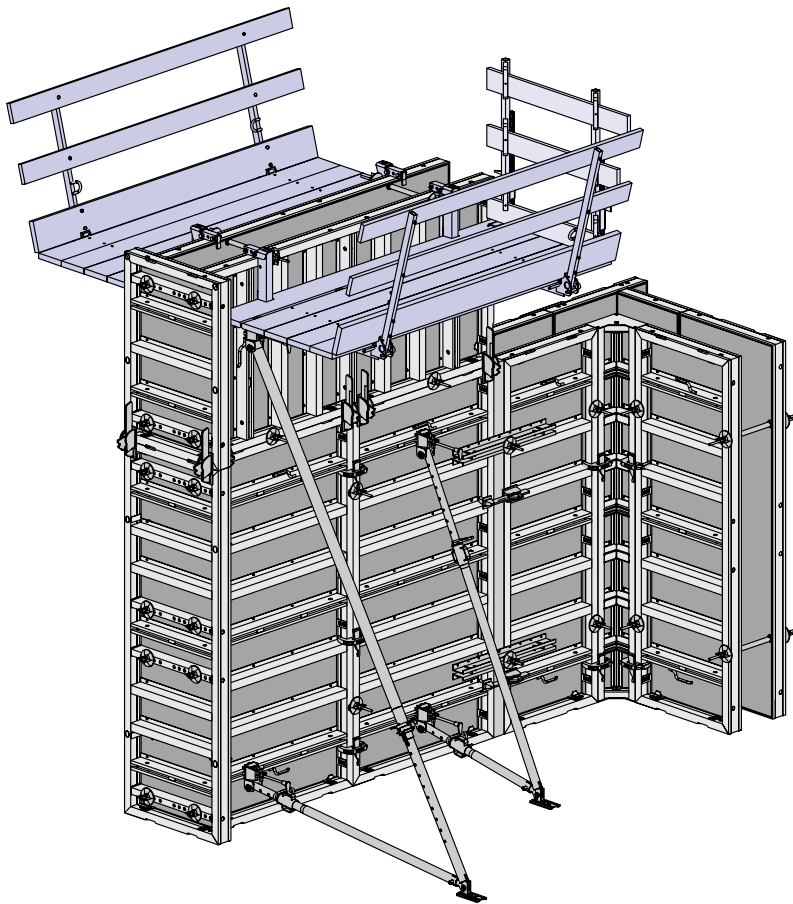
Type	Length L [m]		Max. axial load [kN] under pressure			Spindle element with hinged end-plate	Intern. pieces		Spindle element without hinged end-plate	Spindle head	Hexagon bolts M16 x 60 8.8 Mu M16 8 spring washer A16	Weight [kg]
	min. L	half L	max. L	short 2.40	long 3.70							
1	6.0	-7.4	40.0	40.0	27.8	1	-	1	1	1	8	153.9
2	7.1	-8.5	40.0	38.2	24.3	1	2	-	1	1	12	183.7
3	8.4	-9.8	40.0	35.6	21.7	1	1	1	1	1	12	209.1
4	9.7	-11.1	40.0	31.7	19.0	1	-	2	1	1	12	234.5
5	10.8	-12.2	40.0	27.8	16.1	1	2	1	1	1	16	264.3
6	12.1	-13.5	34.2	24.1	13.4	1	1	2	1	1	16	289.7
7	13.4	-14.8	27.1	21.5	12.2	1	-	3	1	1	20	315.7
8	14.5	-15.9	20.8	17.5	9.5	1	2	2	1	1	20	344.9

Dimensions in cm
Max. axial load under tension=40kN

included in scope of supply



Pouring platforms



Safety during concreting operations

Wide working scaffolds not only make the work faster, but also safer. Depending on the situation, they can take the form of:

- **Ready-assembled platforms**
 - Framax pouring platform U or
 - Framax pouring platform O 1.25/2.70m
- or
- **Single brackets**
 - Framax bracket 90



Preconditions of use:

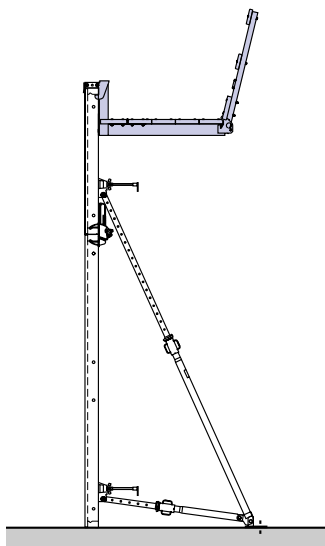
- Only suspend concreting platforms from formwork constructions that are sufficiently stable to ensure safe transfer of the loads to be expected.
- When "parked" or placed in intermediate storage in a standing position, they must also be shored against wind loading.
- Ensure that the formwork superstructure has sufficient rigidity.

Ready-assembled platforms

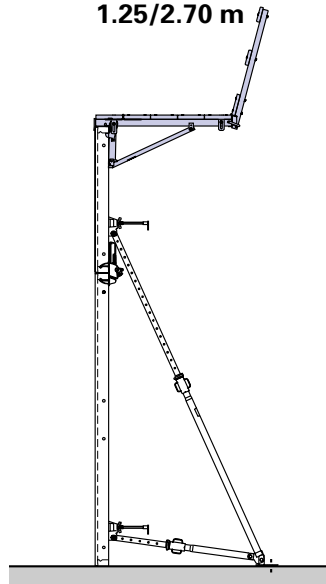
can be quickly made ready for use, and make concreting both easy and safe.

- completely pre-assembled
- lock into place automatically
- can be moved mounted on formwork

Framax pouring platform U 1.25/2.70 m **Framax pouring platform O** 1.25/2.70 m

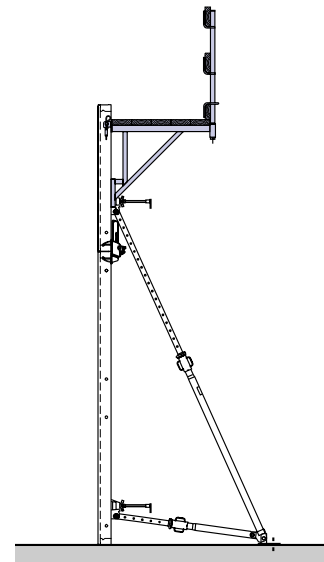


see p.42



see p.44

Framax bracket 90



see p.46

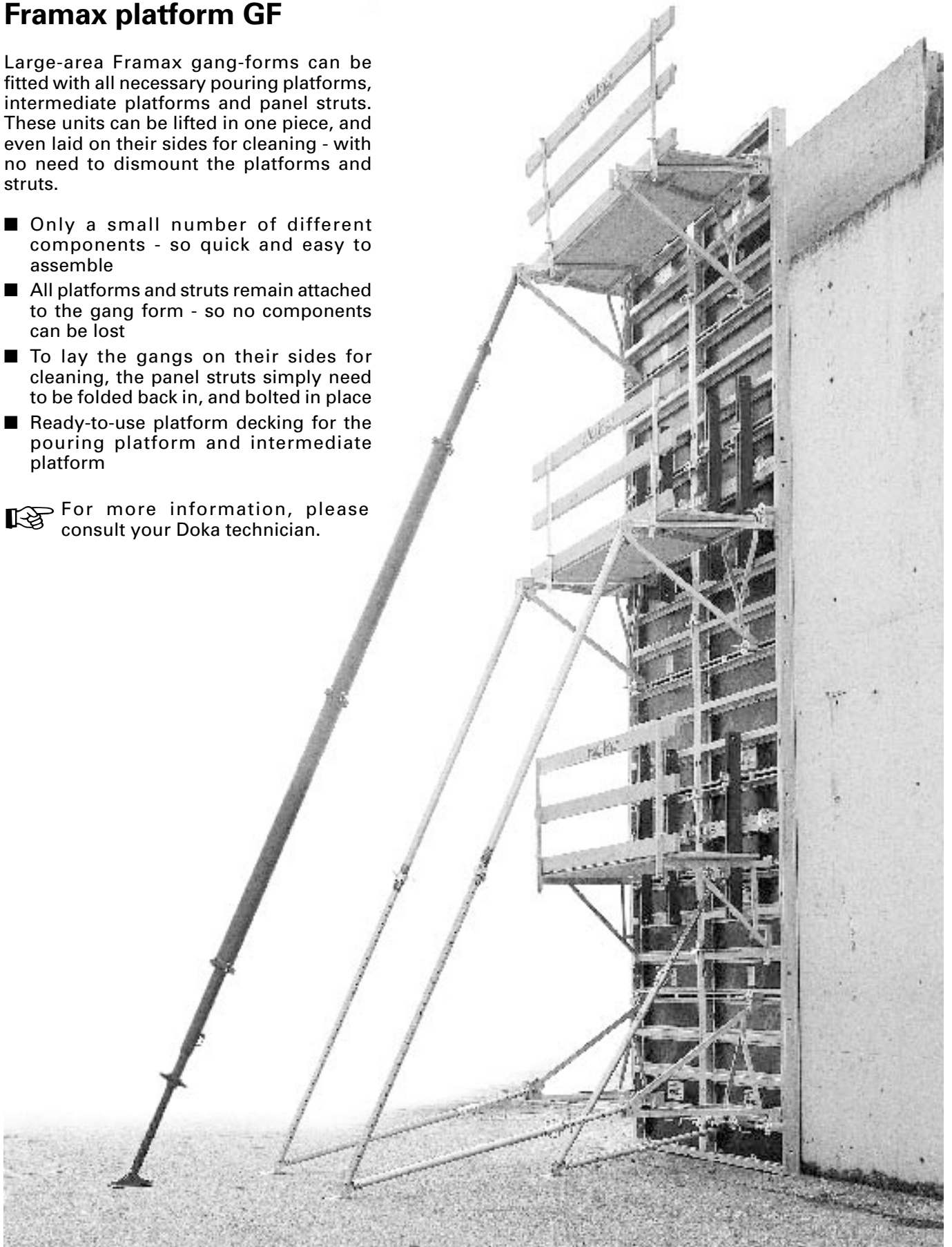
Framax platform GF

Large-area Framax gang-forms can be fitted with all necessary pouring platforms, intermediate platforms and panel struts. These units can be lifted in one piece, and even laid on their sides for cleaning - with no need to dismantle the platforms and struts.

- Only a small number of different components - so quick and easy to assemble
- All platforms and struts remain attached to the gang form - so no components can be lost
- To lay the gangs on their sides for cleaning, the panel struts simply need to be folded back in, and bolted in place
- Ready-to-use platform decking for the pouring platform and intermediate platform



For more information, please consult your Doka technician.

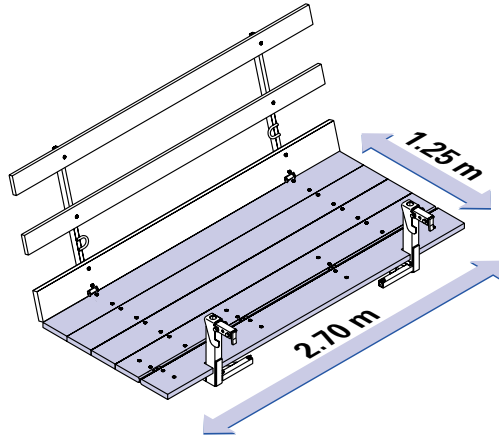




Framax pouring platform U 1.25/2.70 m . . .

Saves space during storage and transport

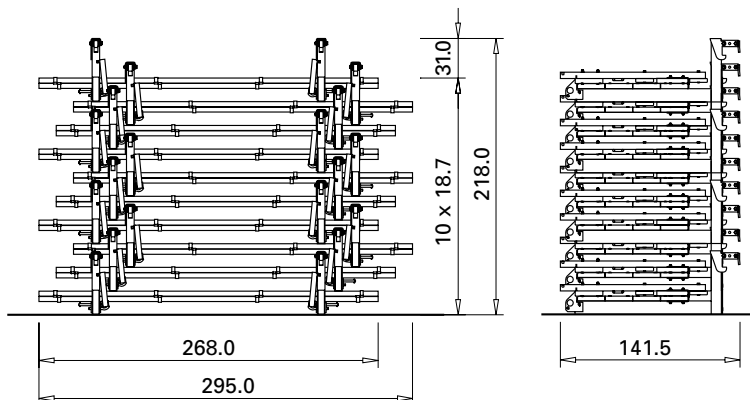
The platform with a generous area to work on . . .



Maximum load: 150 kg/m²
Scaffold Category 2 to DIN
4420 Part 1, Dec. 1990 edition.

. . . and not much volume to transport

Stack of 10 Framax pouring platforms U

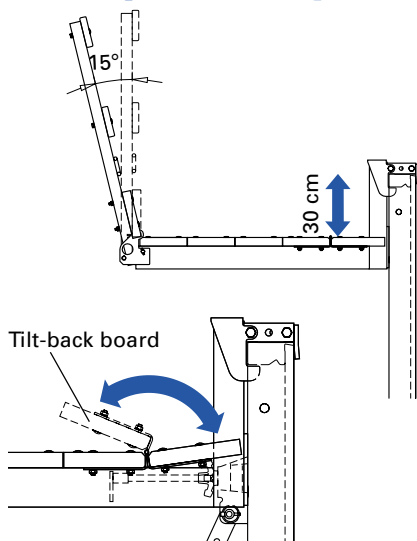


Transport position:



Single bracket, folded together

The quick way to ensure safety when pouring



Dimensions in cm

Clear, uncluttered work-space on platform

- Makes for safe working on the platform

Lower-level platform floor

- Means that the formwork makes a boundary at the front edge of the platform.
- Easier to use vibrators and to scoop off surplus concrete.

Firm, safe latching of the handrails

- In two positions, vertical and inclined by 15°.

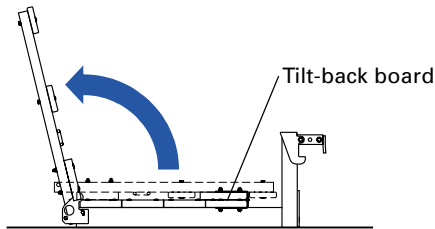
Tilt-back board:

- The front deck-board can be tilted back so that panel struts can be attached to the Framax panel.
- Lets you get at form-ties at the top of the formwork, and makes room for any projecting universal walings.

... quick to get from the stack and onto the formwork

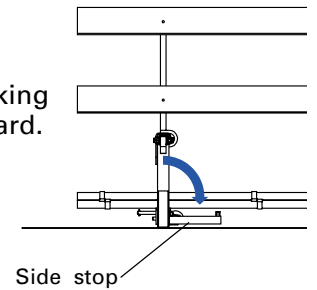
The Framax pouring platform U is ready for work right away

- 1 Tilt up the handrails and latch them in place:**



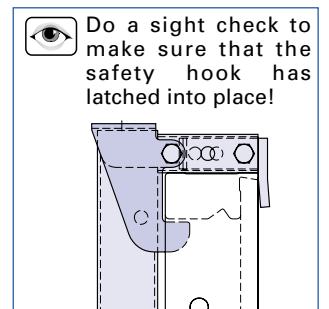
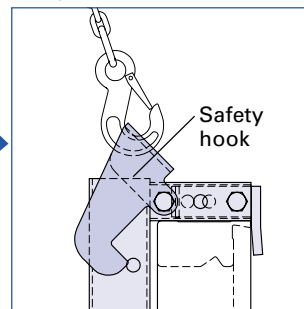
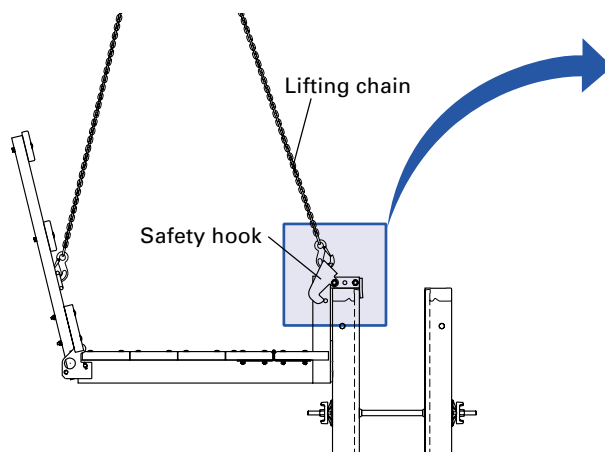
- 2 Put both side stops into position:**

Then close the decking with the tilt-back board.



- 3 Moving and suspending (automatic locking):**

When the pouring platform U is raised by the lifting chain on the safety hook, the platform is automatically unlocked.



⚠ Moving the formwork with the platform still mounted:

Secure the platform so that it cannot slip to either side. It is NOT allowed to place the formwork on its side while the Framax pouring platform U is still mounted!



In vertical stacking configurations with sideways-placed panels, these must also be tied at the top edge when used with Framax pouring platforms!

For length adjustments, it may be necessary to place deck-boards as a bridge (max. 50 cm) between two platforms. Minimum board overlap: 25 cm.

Tip

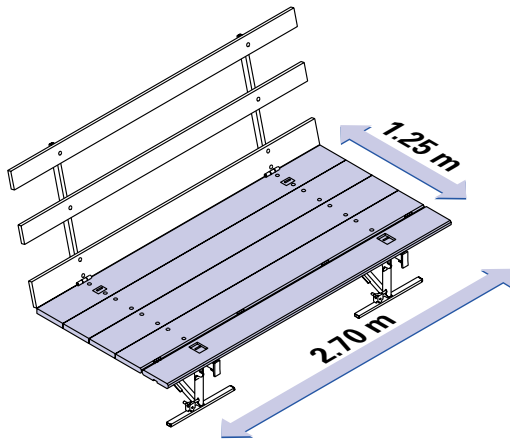
With the "FF 20 Adapter" (art.n° 58 8381) the Framax pouring platform U can be used on the Doka timber-beam formwork FF20 as well.



Framax pouring platform O 1.25/2.70 m . . .

Saves space during storage and transport

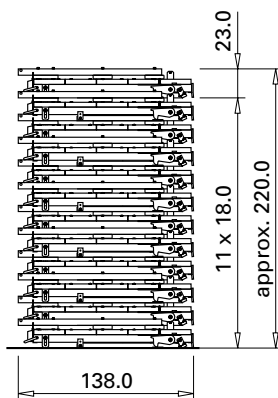
The platform with a generous area to work on . . .



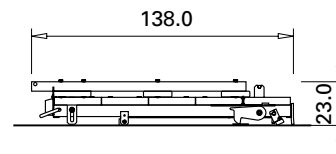
Maximum load: 150 kg/m²
Scaffold Category 2 to DIN
4420 Part 1, Dec. 1990 edition.

. . . and not much volume to transport

Stack of 12 Framax pouring platforms O

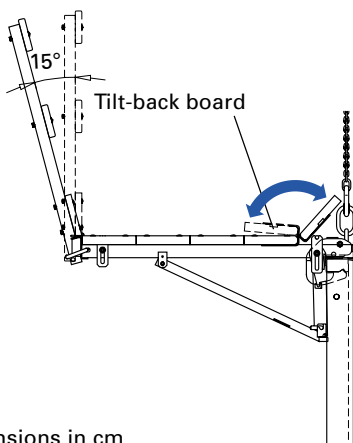


Transport position:



Single bracket, folded together

The quick way to ensure safety when pouring



Dimensions in cm

Clear, uncluttered work-space on platform:

- Makes for safe working on the platform.

Firm, safe latching of the handrails:

- In two positions, vertical and inclined by 15°.

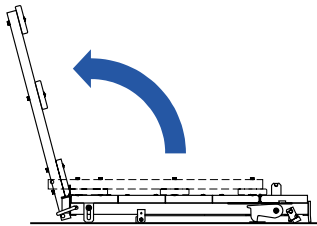
Tilt-back board:

- By tilting the front deck-board out of the way, Framax lifting hooks can be attached to the Framax panel, making it possible to move the formwork and the platform in one piece.
- Lets you get at form-ties at the top of the formwork, and makes room for any projecting universal walings.
- Protects the formwork from concrete spatter.

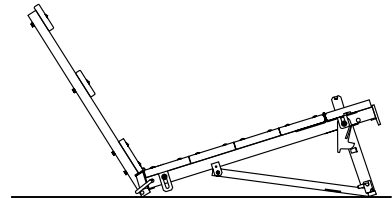
... quick to get from the stack and onto the formwork

The Framax pouring platform O is ready for work right away

1 Tilt up the handrails:



2 Unfold and latch:



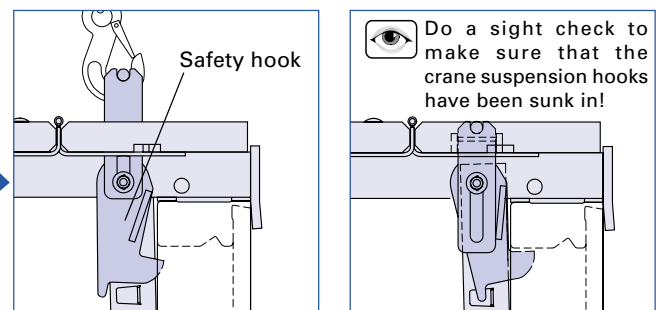
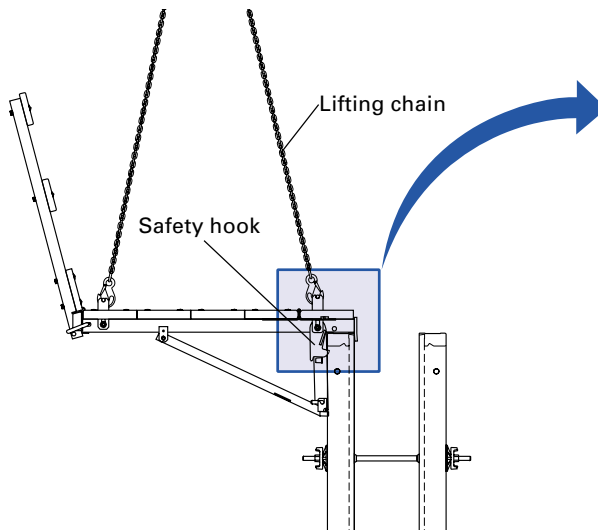
The Framax pouring platform O is ready for use as soon as the 2 captive bolts are latched in place.

3 Moving and suspending (automatic locking):

The pouring platform is moved with a lifting chain (e.g. Doka combi lifting chain 3.20 m).

- Suspend the platform on the top edge of the Framax formwork,
- take off the lifting chain - **make sure that the crane suspension hooks have been sunk in** (automatic protection against accidental lift-out of platform).

When the pouring platform O is raised by the lifting chain on the crane suspension hook, the platform is automatically unlocked.



⚠ Moving the formwork with the platform still mounted:

Secure the platform so that it cannot slip to either side. It is NOT allowed to place the formwork on its side while the Framax pouring platform O is still mounted!



In vertical stacking configurations with sideways-placed panels, these must also be tied at the top edge when used with Framax pouring platforms!

For length adjustments, it may be necessary to place deck-boards as a bridge (max. 50 cm) between two platforms. Minimum board overlap: 25 cm.

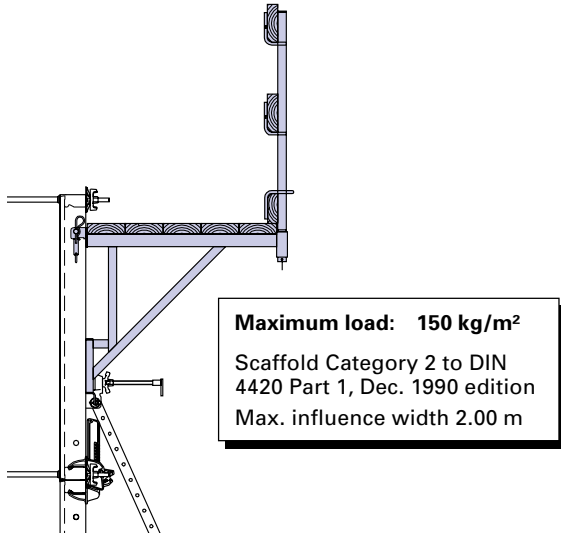
Tip

With the "FF 20 Adapter" (art.n° 58 8381) the Framax pouring platform O can be used on the Doka timber-beam formworks Top 50 and FF20 as well.



Pouring platform with single brackets

The Framax bracket 90



is a "use anywhere" bracket for making pouring platforms (platform width 90 cm).

Deck and guardrail boards:

Per 1 metre length of platform, 0.9 m² of floor decking and 0.6 m² of guardrail boards are needed (in situ).

Board thicknesses for effective spans up to 2.50 m:

- Guardrail boards min. 20/3 cm
- Floor decking boards min. 20/5 cm

Fastening the floor decking:

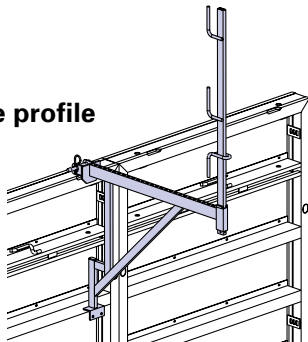
with 5 square bolts M 10x120 per bracket (not included in the scope of supply).

N.B.:

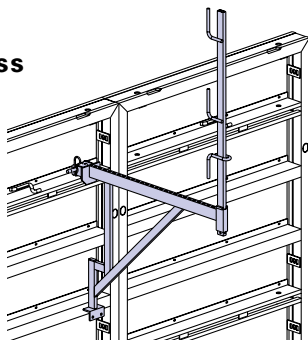
Please observe all applicable safety regulations.

Can be suspended:

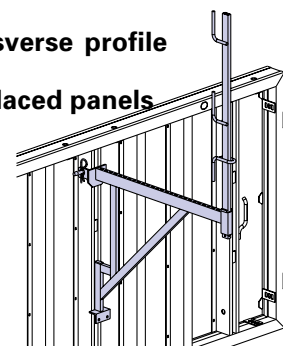
in the frame profile



in the cross profile

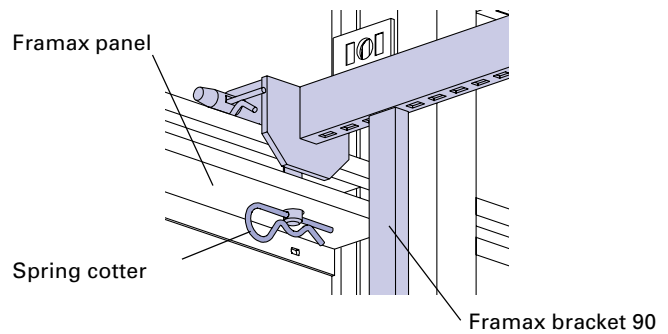


in the transverse profile on sideways-placed panels

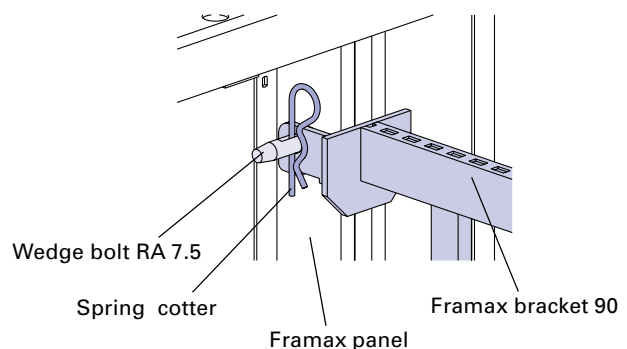


Lift-out guard

in the frame profile / transverse profile



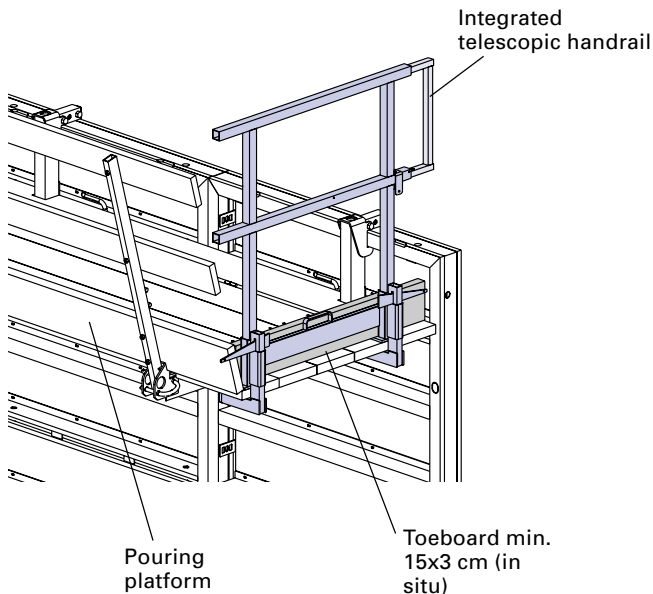
in the transverse profile on sideways-placed panels



Sideguards on exposed platform-ends

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

with side handrail clamping unit T

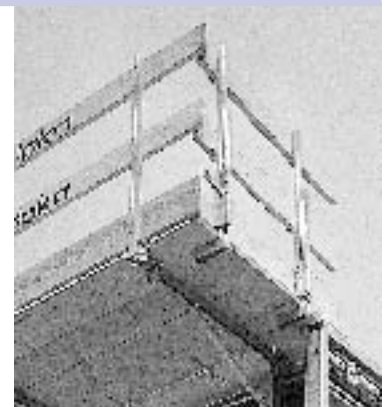
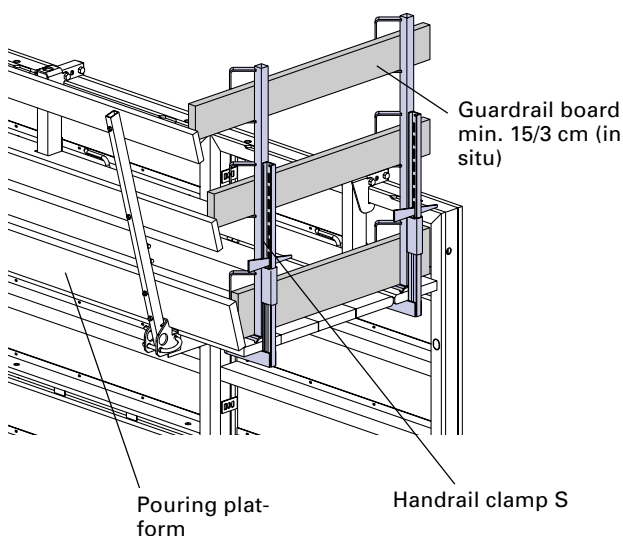


The sideguard consists of:

- 1 side handrail clamping unit T
- 1 toeboard min. 15x3 cm (in situ)

- Tightly wedge the clamping component to the platform decking (clamping range 4 to 6 cm)
- Slot in the railing
- Extend the telescopic railing to the desired length and secure it
- Insert toeboard

with handrail clamp S



The sideguard consists of:

- 2 handrail clamps S
- 3 guardrail boards min. 15/3 cm (in situ)

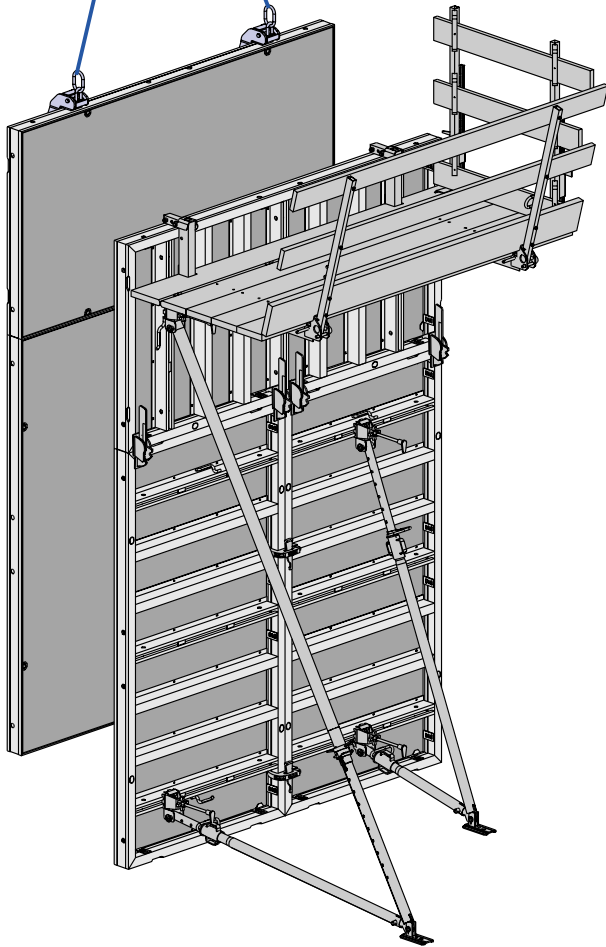
- Fasten the Handrail clamps tightly to the floor decking (clamping range 2 to 43 cm).
- Secure the guardrail boards to the loops on the handrail clamp with one 28x65 nail per loop.



Please follow the instructions in the "Assembly and utilisation instruction booklet for Doka handrail clamp S".



Moving by crane



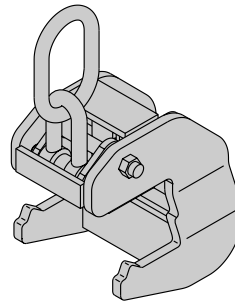
with the Framax lifting hook

With the **Framax lifting hook** and the **Doka combi lifting chain 3.20 m**, even large gang-forms can safely be moved by crane.

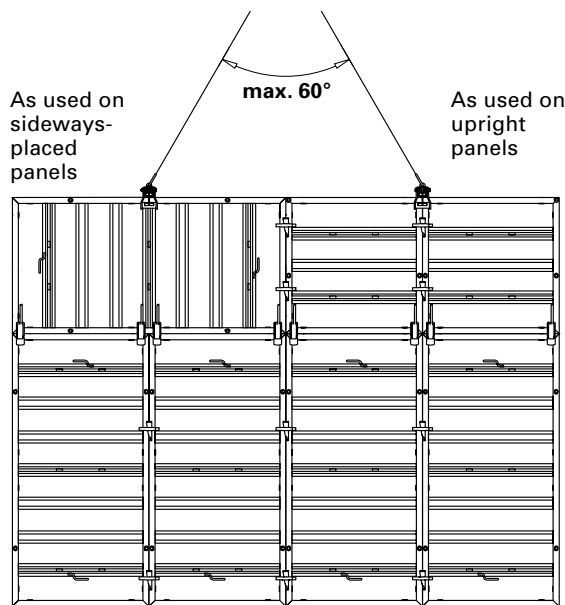
The lifting hook locks automatically after being hung into place.

Max. hoisting weight:

10.0 kN / Framax lifting hook (corresponds to approx. 30 m² formwork area for 2 hooks)



CE



As used on sideways-placed panels

max. 60°

As used on upright panels

- Always position the Framax lifting hook over the inter-panel join, to prevent it from sliding from side to side.

Exception: On sideways-placed panels, the lifting hook must be placed over a transverse profile.

- Suspend the multi-panel element symmetrically (centre-of-gravity position).
- Max. spread angle of lifting tackle: 60°.

Before moving:

- Remove any loose items from the formwork and platforms.



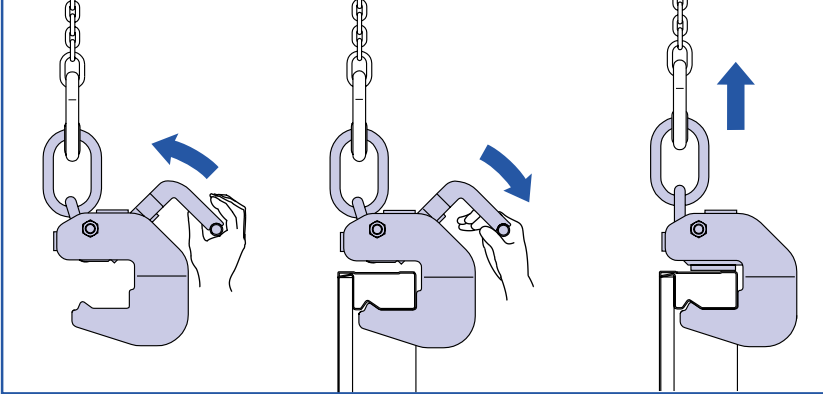
The Framax lifting hook may **ONLY** be used for moving Framax and Alu-Framax panels and multi-panel elements. It is **STRICTLY FORBIDDEN** to move other manufacturers' panels with it, and to use it for any other purpose!

- Before each use, check the lifting hook for any damage or visible deformation (over-elongation).
- The lifting hook may not be used on damaged (dented) profiles.
- Never pull the formwork away from the concrete with the lifting hook! (Crane overload)!
- Have the lifting hook inspected by an expert once a year.
- Repairs may only be carried out by the manufacturer!



Please follow the directions in the instruction manual!

Handling



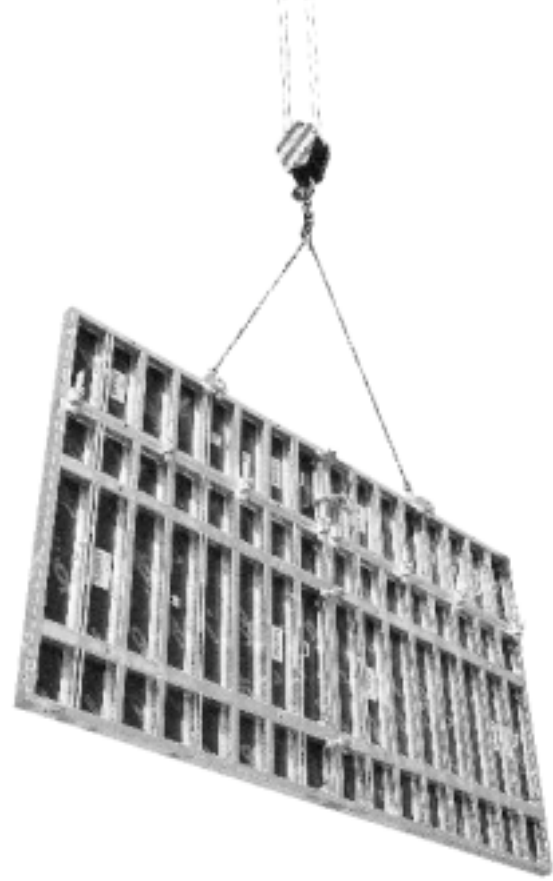
● Lift the handle (locking lever) as far as it will go.

● Push the lifting hook onto the frame profile as far as the rear stop and close the handle (spring-loaded).

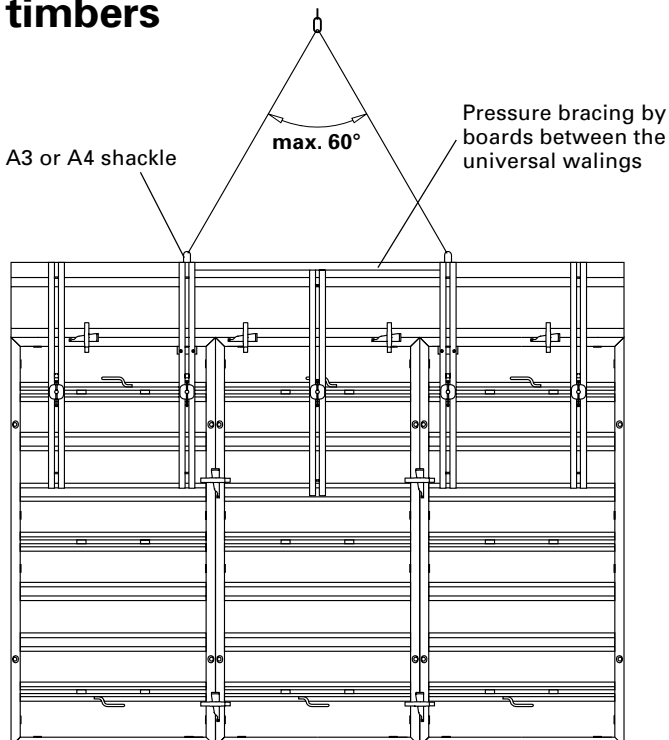
When the panels are lifted by the crane, a load-dependent locking mechanism is activated.



Do a sight-check to make sure that there is a secure form-fit between the lifting hook and the frame profile!
Handle must be closed!

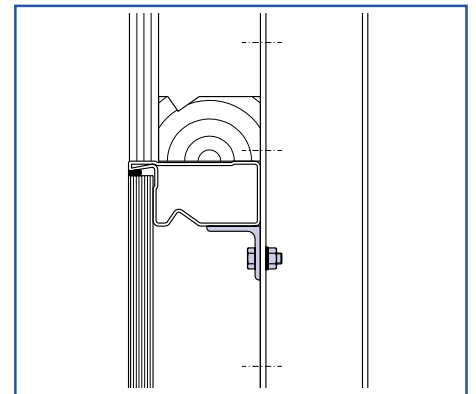


Where panels are stacked using universal walings and moulded timbers



Safety angles are only needed on the universal waling to which the crane is attached.

Detail of safety angle:



Max. tension load on universal waling with safety angle: 10.0 kN

Dimensions in cm



Transporting, stacking and storing

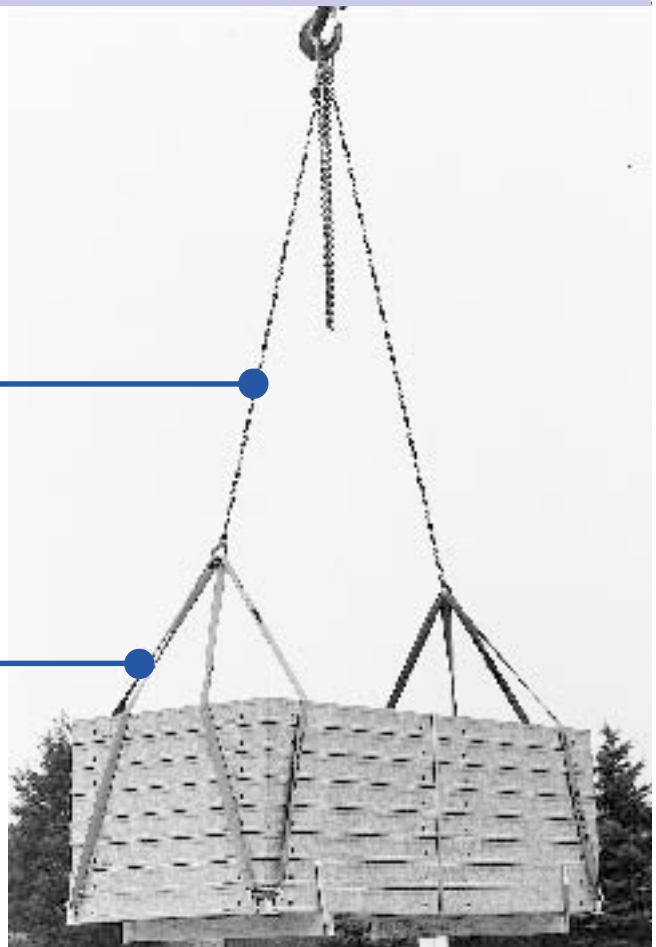
Framax transport gear

For safe crane transport of Framax panel stacks at building sites, builder's yards etc.

Chain gear or
Doka combi lifting chain 3.20 m

Framax transport gear
(consisting of 4 round slings)

Maximum total load: 20 kN / 4 round slings



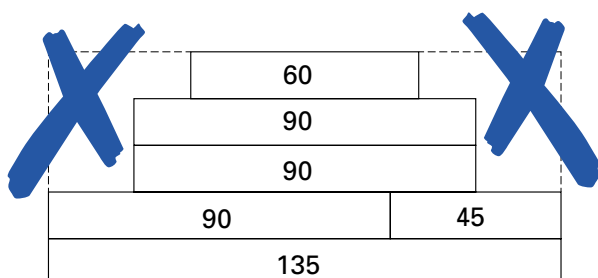
The four round slings of the transport gear hold the stack together on all four sides, in such a way that it is impossible for individual panels to slip out.

Instructions:

The stacks must always be of panels of equal width. The top layers may also consist of "half-width" panels. The important thing here is that every panel must be held by at least two round slings and that no "gaps" may be left open between panels.

Max. stacking height: 8 panels (incl. sleepers)

It is forbidden to transport stacks where the edges of the panels are not all in alignment!



The bottom layer of the stack may only consist of one panel.

Advantages:

- Spring-loaded slinging hooks reach from underneath into the beads of the panel frame and prevent the transport gear accidentally detaching itself when the cable tension slackens.
- The automatic length compensation feature of the Framax transport gear ensures that the load is distributed evenly.
- The Framax transport gear can easily be suspended and detached by just one person working on their own.



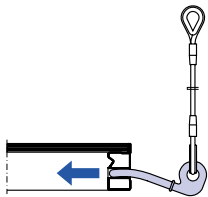
Please follow the directions in the instruction manual!

Framax lifting chain 3.20 m

The Doka Framax lifting chain is ideal for stacking and separating Framax panels at near-ground level.

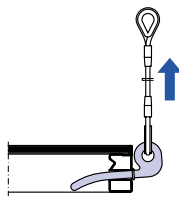
Maximum total load: 20 kN

Fitting the transport bolt:

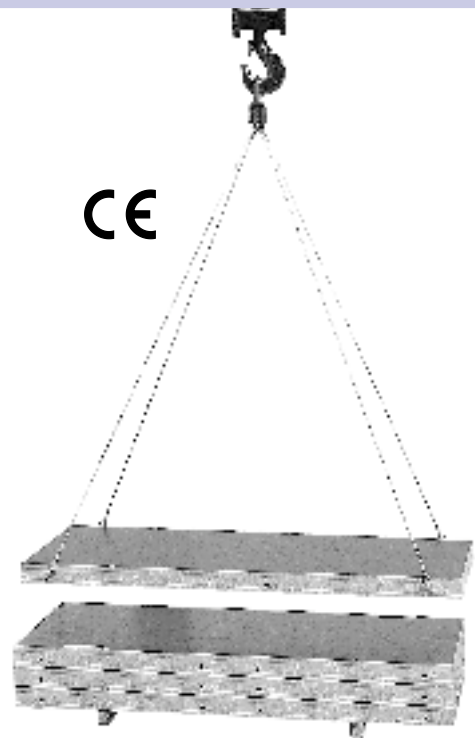


- Push the transport bolts, as far as they will go, into the outside transverse holes of the panel.

Transport bolt secured under load:



- The transport bolt secures itself as soon as it is put under load.



Please follow the directions in the instruction manual!

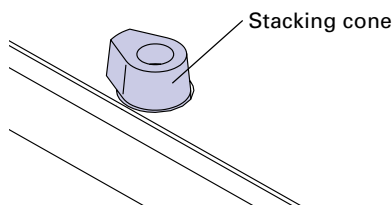


Caution!

The stacking tapes are under high tension and may spring away suddenly when cut!

Bundling the Framax panels

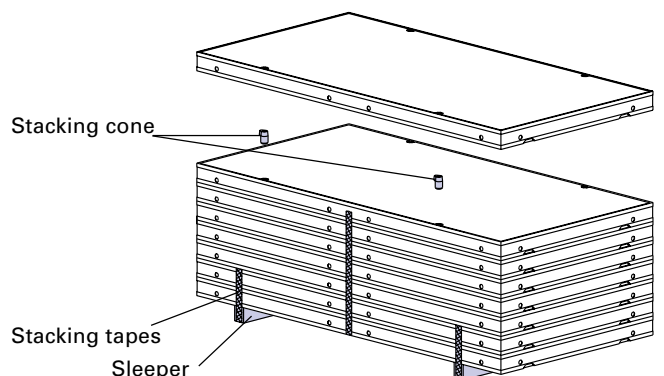
The smooth, powder-coated surfaces of the Framax units reduce sticking friction. For this reason, always secure the Framax panels against slippage whenever they are transported.



Safety instruction:

It is strictly forbidden to move panel stacks without stacking cones (2 cones per stacking layer)!

- Sleepers, approx. 8.0 cm x 10.0 cm (W x H)
- For bundling, insert **stacking cones** as shown in the illustration. This protects the sheathing from damage as well.
- Stack a max. of 8 panels on top of one another (results in a stack height, incl. sleepers, of approx. 110 cm).
- Strap the sleepers and panel-stack together tightly with the stacking tapes (see illustration).



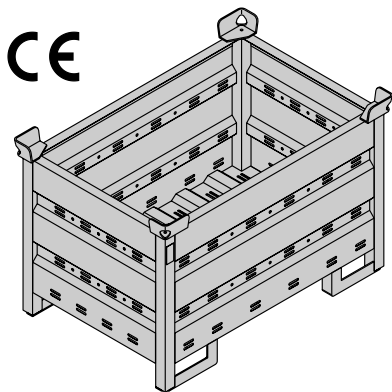


Transporting, stacking and storing

Use the advantages of Doka multi-trip packaging on the building site.

Doka offers tried-and-tested help when it comes to transporting and handling formwork equipment, by delivering it in multi-trip packaging. Any packaging items that are no longer needed can simply be returned to your nearest Doka branch.

Doka multi-trip transport box 1200 x 800



CE

Maximum load: 15.0 kN

The ideal container for all small components - durable - stackable - can be safely moved by crane

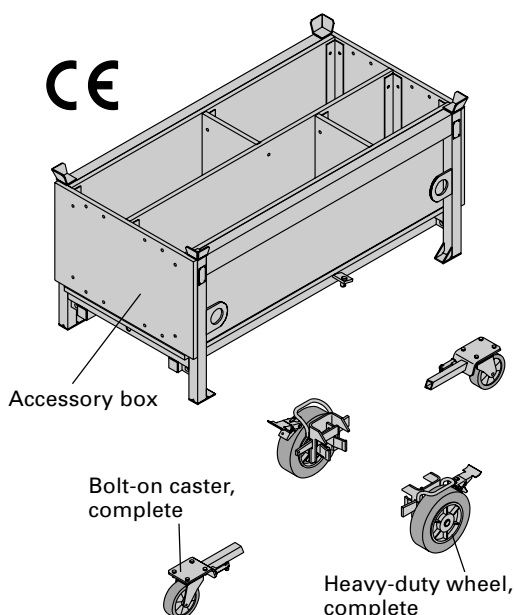
The multi-trip transport box is used for delivering e.g.:

- Quick acting clamps RU
- Multi function clamps
- Universal walings 90
- Wedge clamps
- Stop-end ties
- Universal fixing bolts
- Lifting hooks



Please follow the directions in the instruction manual!

Doka accessory box



CE

Maximum load: 10.0 kN

Practical packaging unit for storage and transport - stackable - can be safely moved by crane

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

The quick-fit bolt-on caster set (with rapid-acting couplings) turns the accessory box into a fast and manoeuvrable transport trolley. Its width of only 86 cm means that it can easily negotiate all doorways.

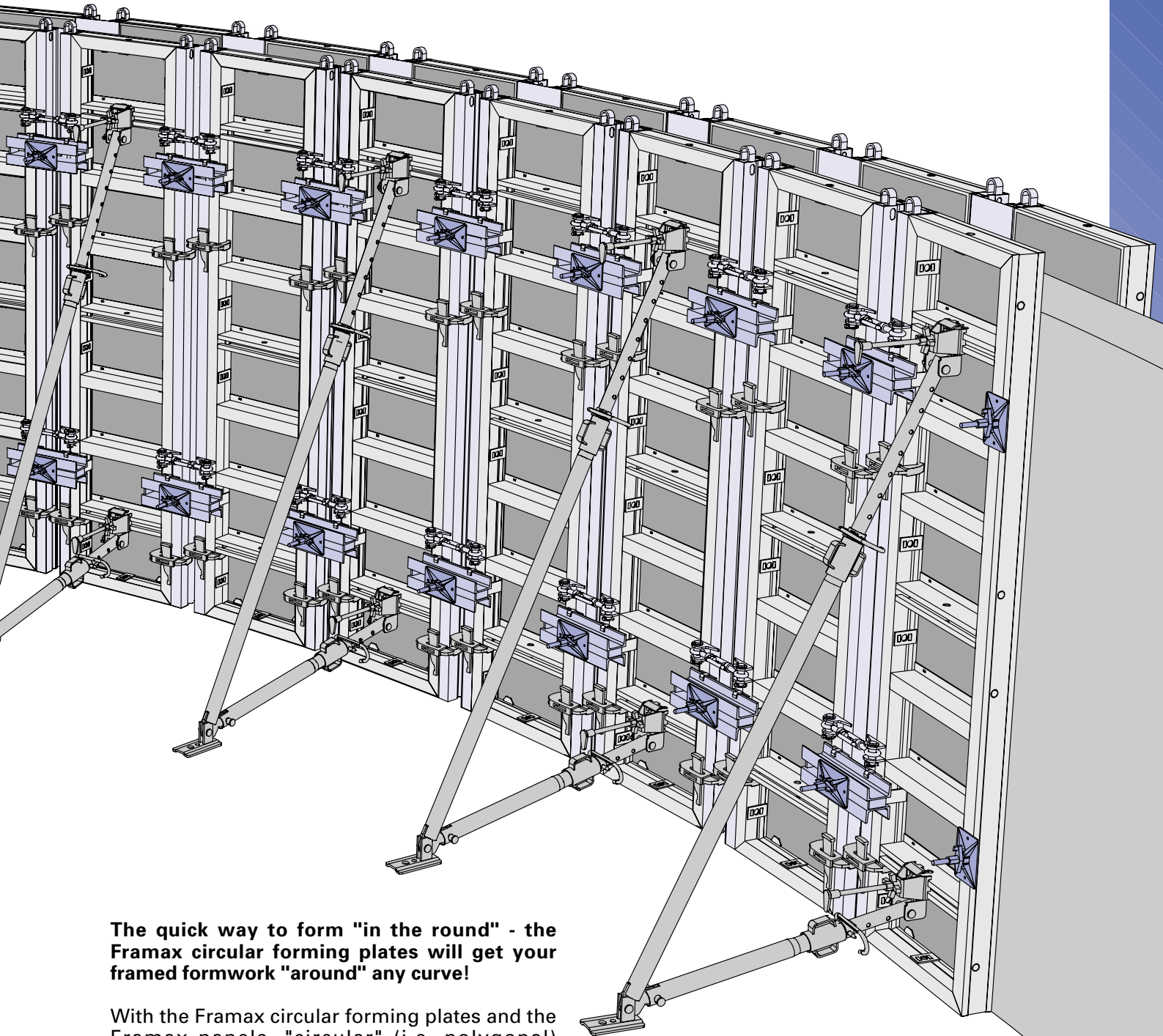
The bolt-on caster set consists of:

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



Please follow the directions in the instruction manual!

Circular formwork using Framax circular forming plates



The quick way to form "in the round" - the Framax circular forming plates will get your framed formwork "around" any curve!

With the Framax circular forming plates and the Framax panels, "circular" (i.e. polygonal) structures can be formed.

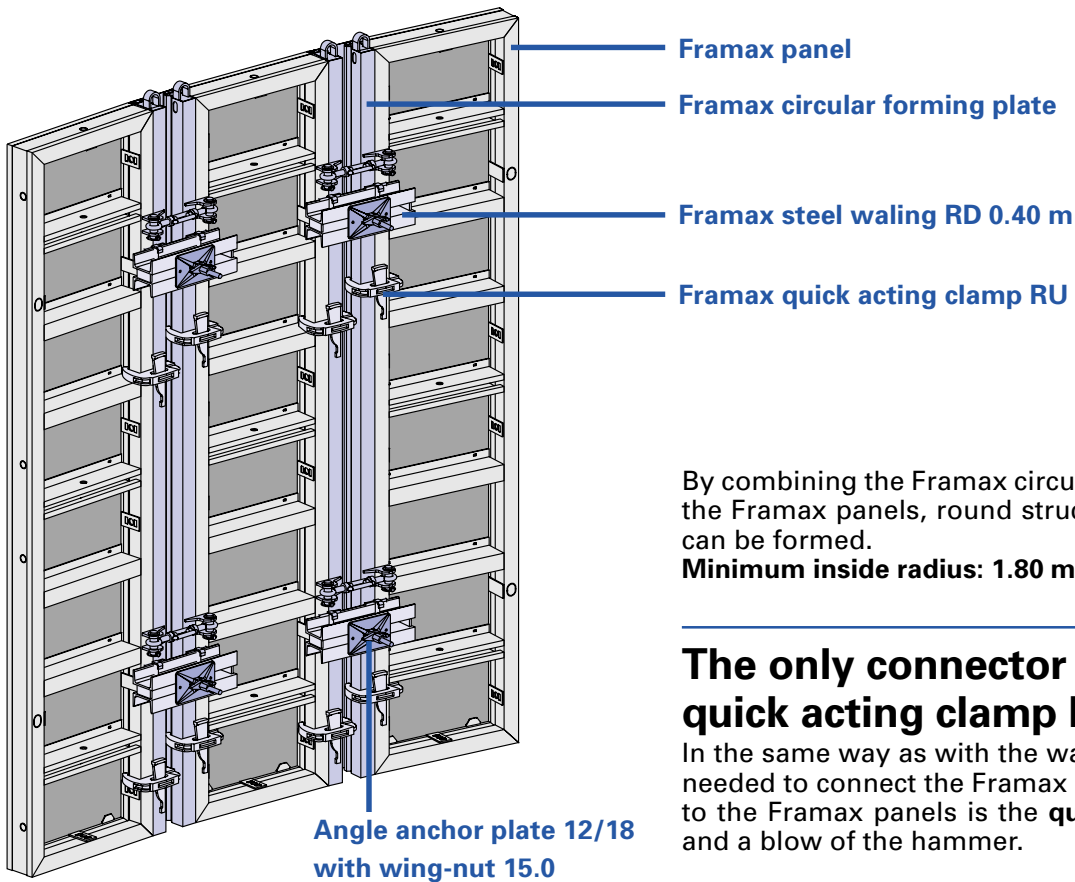
A particularly cost-cutting factor in practice is the fact that you can use your existing Framax panels and all accessories such as panel struts and working platforms from the Framax range.

This makes circular forming of curved concrete structures with Framax circular forming plates **universal, economical and fast.**

Max. concrete pressure: 50 kN/m²



Design of Framax circular formwork



By combining the Framax circular forming plates with the Framax panels, round structures - of any radius - can be formed.

Minimum inside radius: 1.80 m

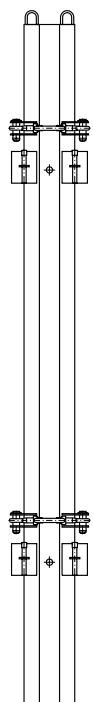
The only connector needed is the quick acting clamp RU

In the same way as with the wall formwork, all that is needed to connect the Framax circular forming plates to the Framax panels is the **quick acting clamp RU** - and a blow of the hammer.

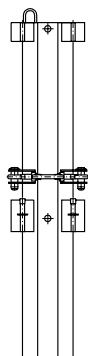
Heights

of the Framax circular forming plates

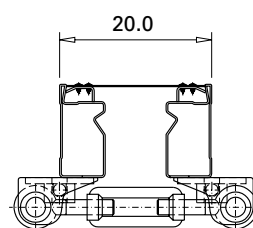
2.70 m



1.35 m

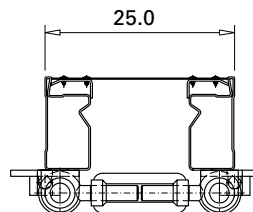


Widths



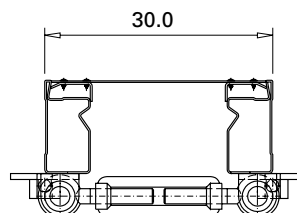
0.20 m

Inside circular forming plate
or
Outside circular forming plate
(for length adjustment)



0.25 m

Outside circular forming plate



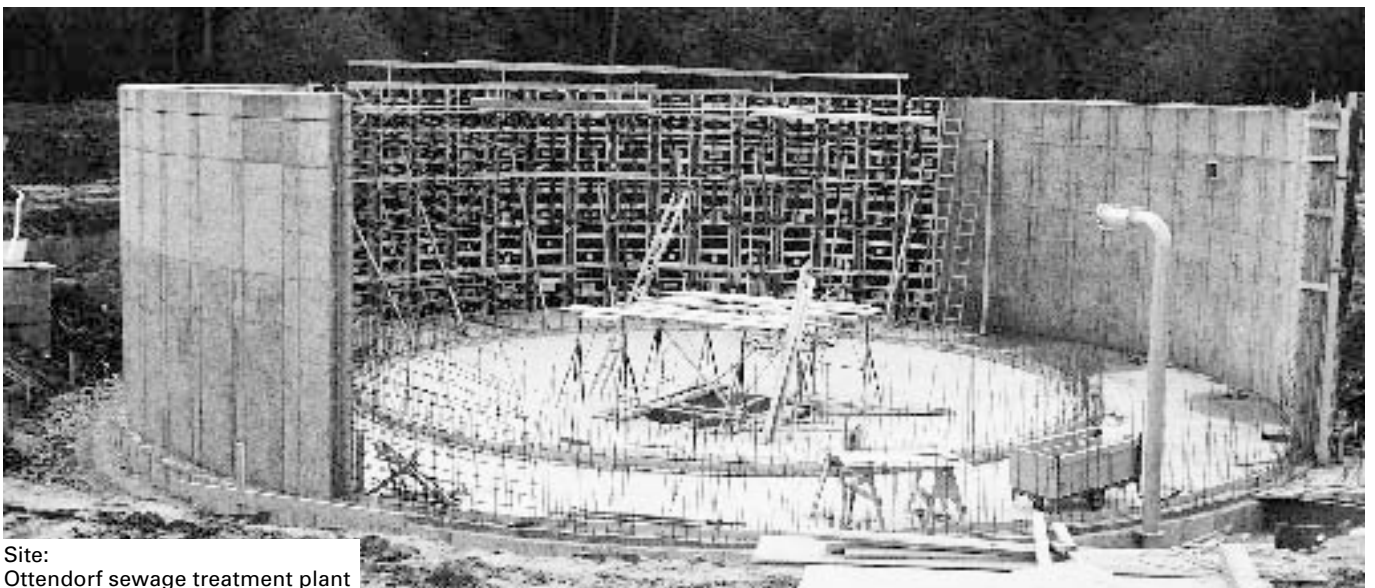
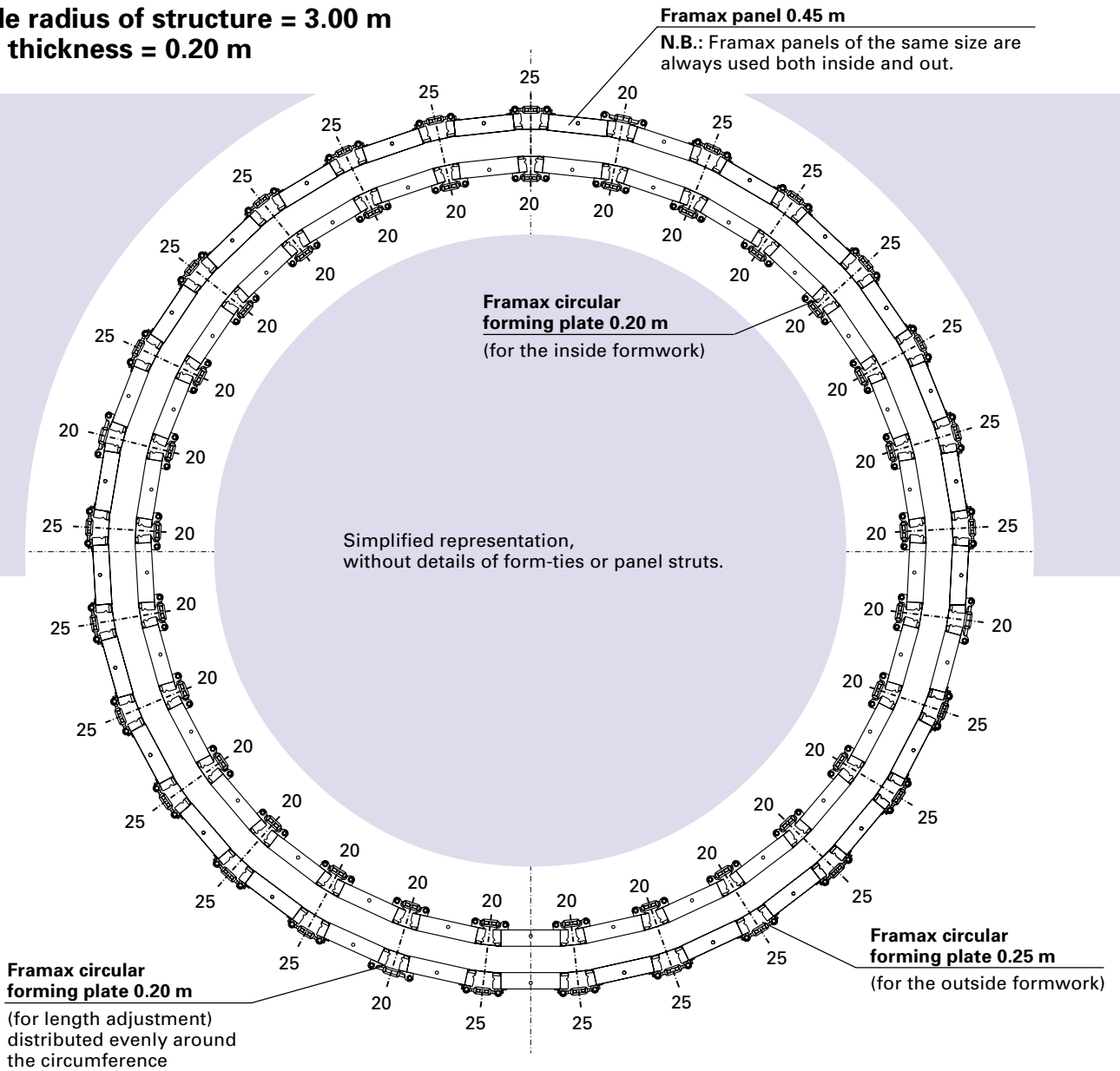
0.30 m

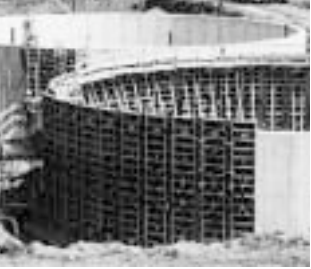
Outside circular forming plate

Dimensions in cm

Example of formwork for a circular tank

Inside radius of structure = 3.00 m
Wall thickness = 0.20 m



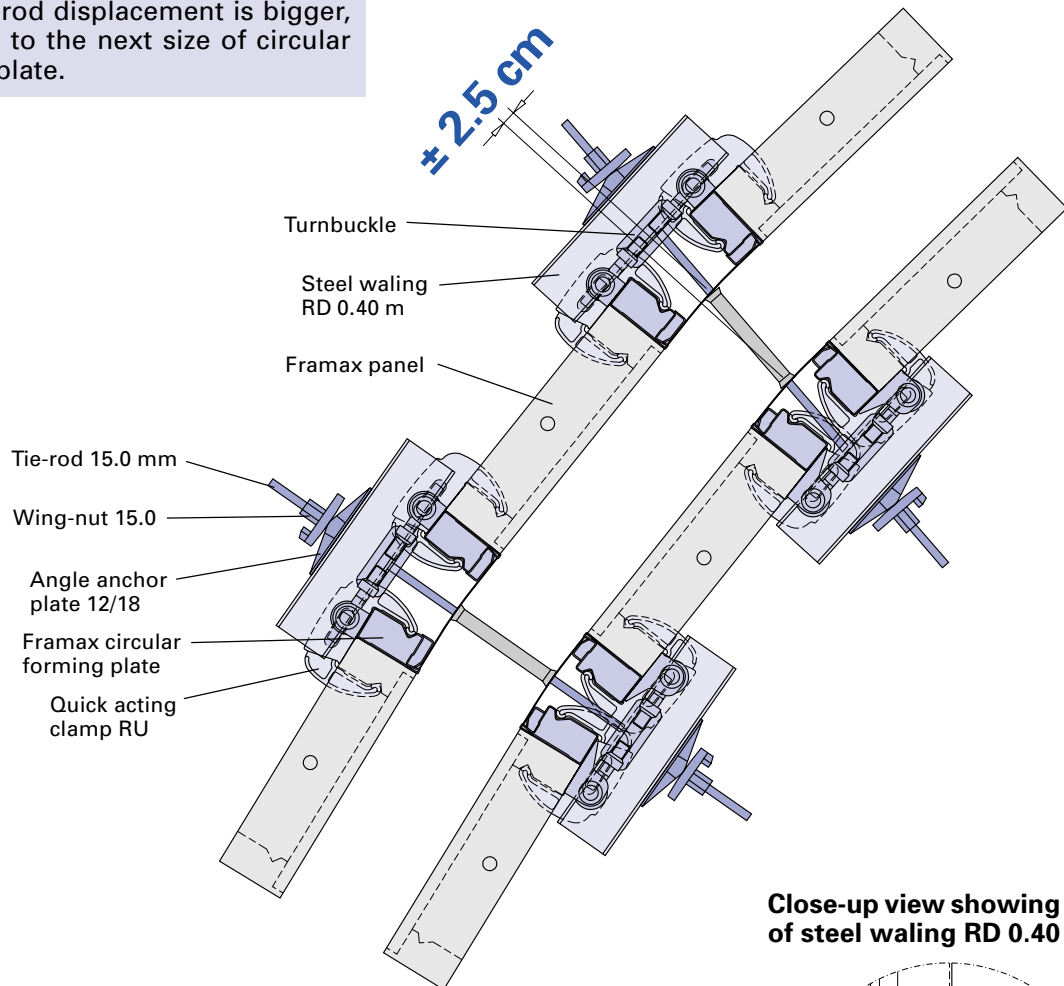


Tying Framax circular forming plates

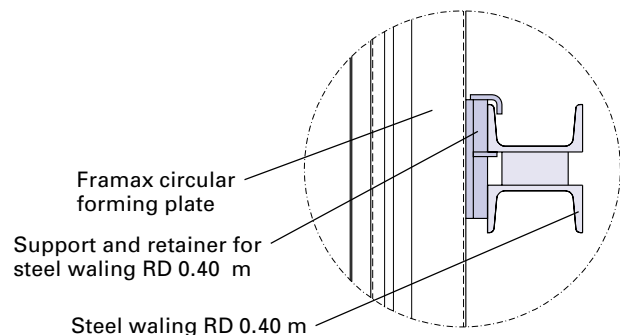
Maximum tie-rod displacement:



If the tie-rod displacement is bigger, move up to the next size of circular forming plate.



Close-up view showing fixing of steel waling RD 0.40 m:



Tip

If 2 Framax circular forming plates 1.35 m are used above one another, 4 ties would be needed. However, if the top one is positioned upside down, only 3 ties are needed.

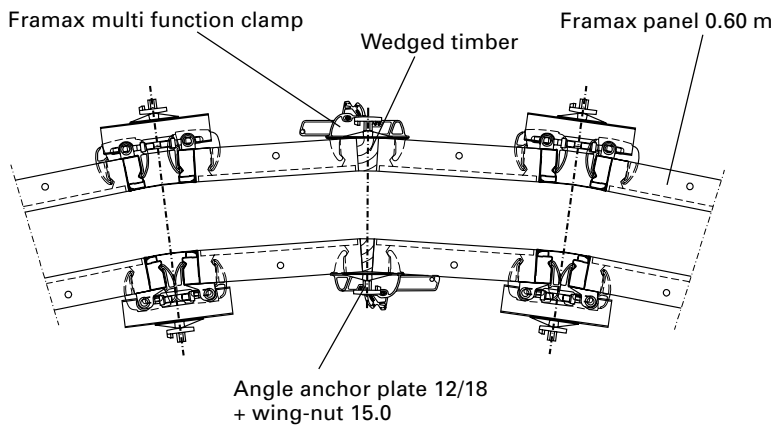
Tip

When adjusting the Framax circular forming plates, ensure that the top and bottom turnbuckle are turned uniformly!

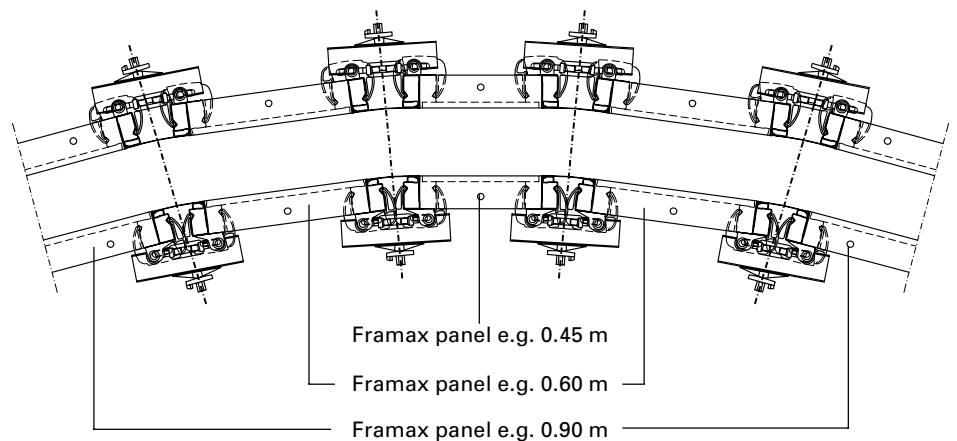
Closing the full-circle formwork

The remaining areas for closing a full circle can be formed in a number of different ways.

Closure with wedged timbers



Closure with Framax framed panel



Around the perimeter, use panels of equal width wherever possible.

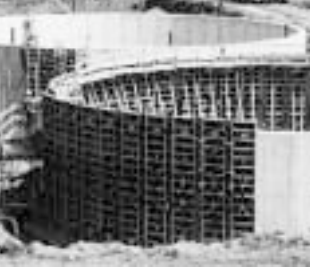
In order for the load transferred via the steel waling RD 0.40 m to be as uniform as possible, adjacent panels may not have bigger width differences than those of the standard width grid.

Any imbalances necessitate additional shoring.

The same is also particularly true of transition zones to straight walls, and of stop-ends.

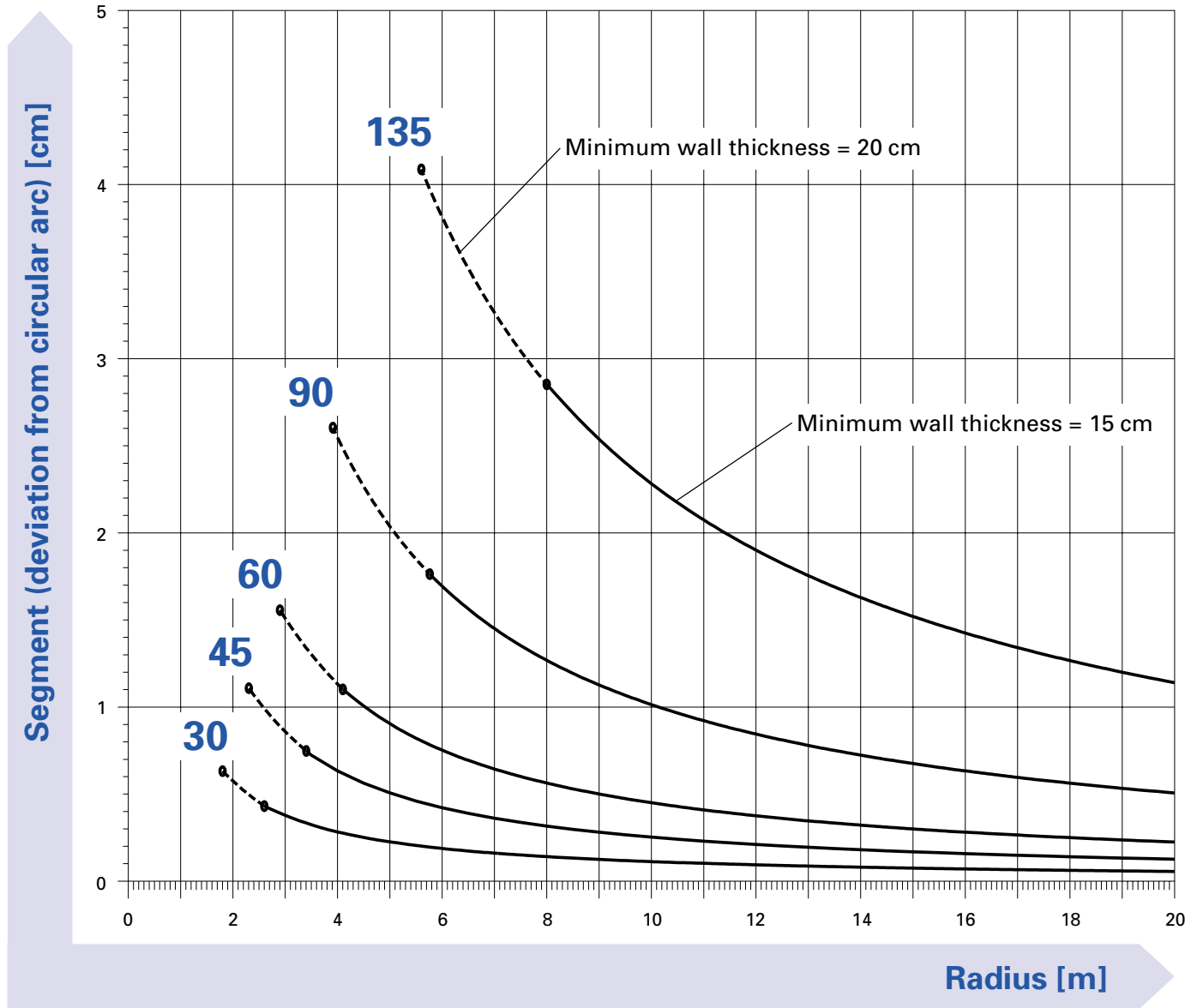


Careful, correct shoring and pouring is particularly important when working with circular formwork.



Radius segment diagram

For the various widths of panel



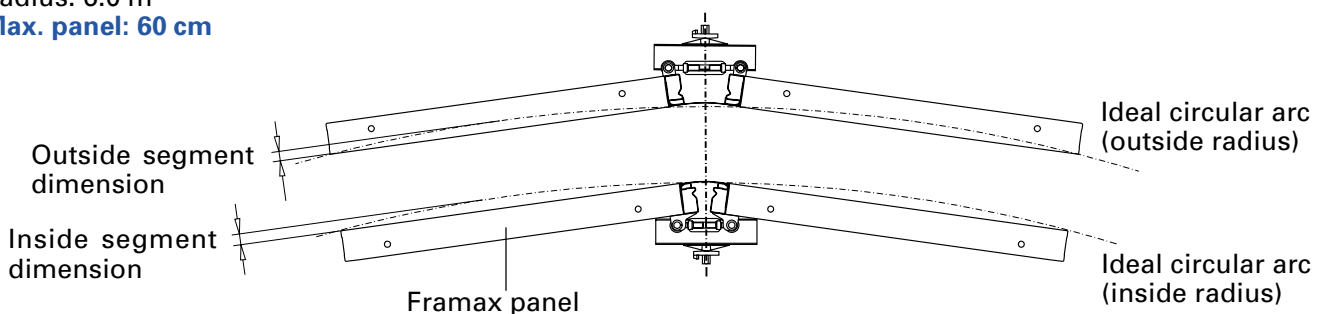
The radius segment diagram is for determining the max. panel width as a function of the radius and of the permitted deviations from the circular arc.

Example:














Max. deviation from circular arc: 1.0 cm

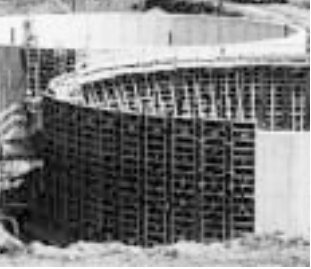
Radius: 6.0 m

Max. panel: 60 cm



Guide to determining the best distribution of the panels

		Example
1	Key data of structure: <ul style="list-style-type: none">  Inside radius [cm]  Outside radius [cm]  Length of concreting section [cm] 	580 cm 600 cm 911 cm (1/4 of inside perimeter)
2	Selection of panel width [cm] <ul style="list-style-type: none">  With reference to the permitted segment-dimension in the radius-segment diagram 	Panel width selected = 60 cm
3	For the inside formwork <ul style="list-style-type: none">  the Framax circular forming plate 0.20 m is normally used 	Width of circular forming plate = 20 cm
4	Determining the number of panels <ul style="list-style-type: none">  $\frac{(\text{Length of concreting section} - \text{panel width})}{(\text{Panel width} + 20)} = \dots\dots\dots$  The result (rounded up) is the number of Framax circular forming plates needed for one side of the formwork. The number of panels is 1 more. 	$\frac{(911 - 60)}{(60 + 20)} = 10.64$ 11 Circular forming plates 12 panels
5	Determining the distribution of Framax circular forming plates for the outside formwork <ul style="list-style-type: none">  $\frac{\text{Outside radius}}{\text{Inside radius}} \times (\text{panel width} + 20) - \text{panel width} = \dots\dots\dots$  The next-smaller Framax circular forming plate is selected (referred to as Framax circular forming plate "Type A").  By inserting the difference in the formula below, we obtain the number of circular forming plates of "Type A".  N° of circ.f. plates selected $\times (1 - \frac{\text{Difference}}{5}) = n^\circ$ of "Type A"  Subtracting the number of "Type A's" from the selected number of circular forming plates gives you the number of "Type B" circular forming plates.  The next-larger circular forming plate is selected (referred to as "Type B"). 	$\frac{600}{580} \times (60 + 20) - 60 = 22.76 \text{ cm}$ Circ.f'ming plate "Type A" = 20 cm Difference = 2.76 cm $11 \times (1 - \frac{2.76}{5}) = 4.93$ 5 "Type A" circular f'ming plates 11 - 5 = 6 "Type B" circular f'ming plates Circular forming plate "Type B" = 25 cm

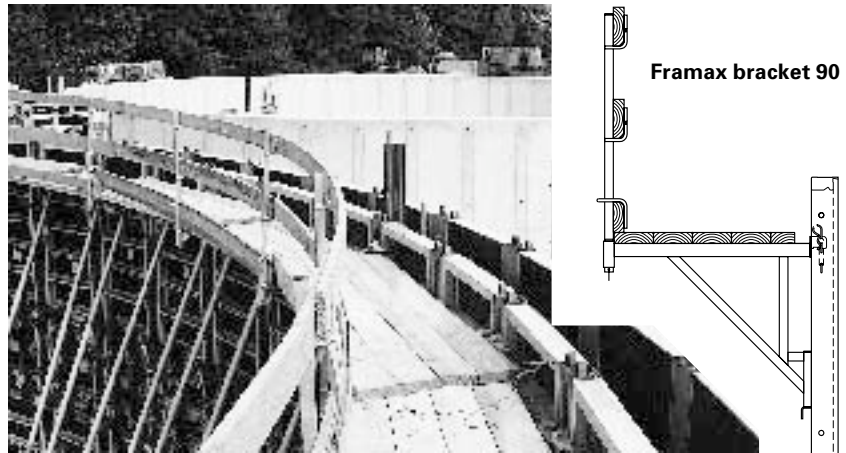


Pouring platform / Moving / Erecting and plumbing

Pouring platform with Framax bracket 90

The **Framax brackets 90** can be used to make a universal pouring platform.

Please see p.46 for more information.



Moving circular formwork with the Framax lifting hook

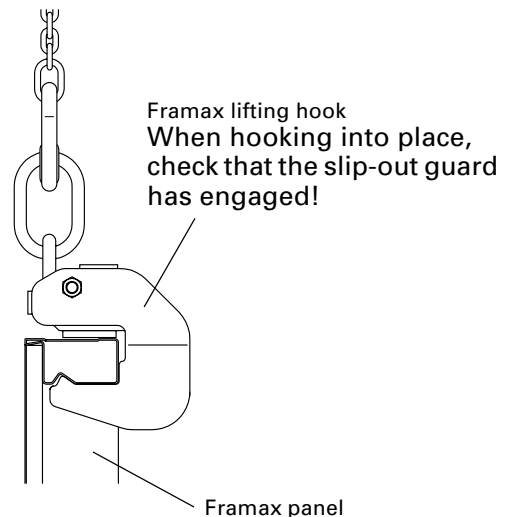
Thanks to the spindle-lock, the formwork can be moved with the **Framax lifting hook** even when assembled in a curved configuration.

N.B.:

The maximum size of the unit to be moved will depend - among other things - on the radius that has been set. When moving larger multi-panel units, ensure that these are sufficiently braced.

Prevent oblique pull, by using long transfer cables (spreading angle of lifting tackle: max. 60°).

For more information on the Framax lifting-hook, please see p.48.



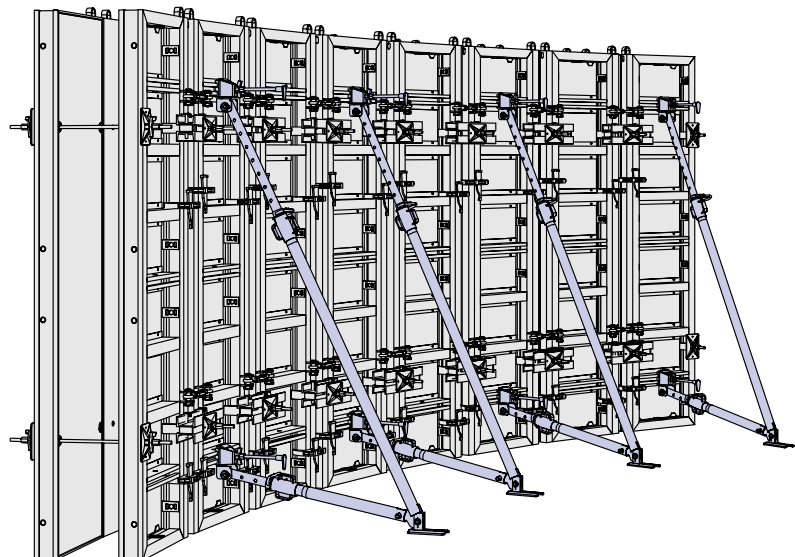
Please follow the directions in the Instruction Manual!

Erecting and plumbing

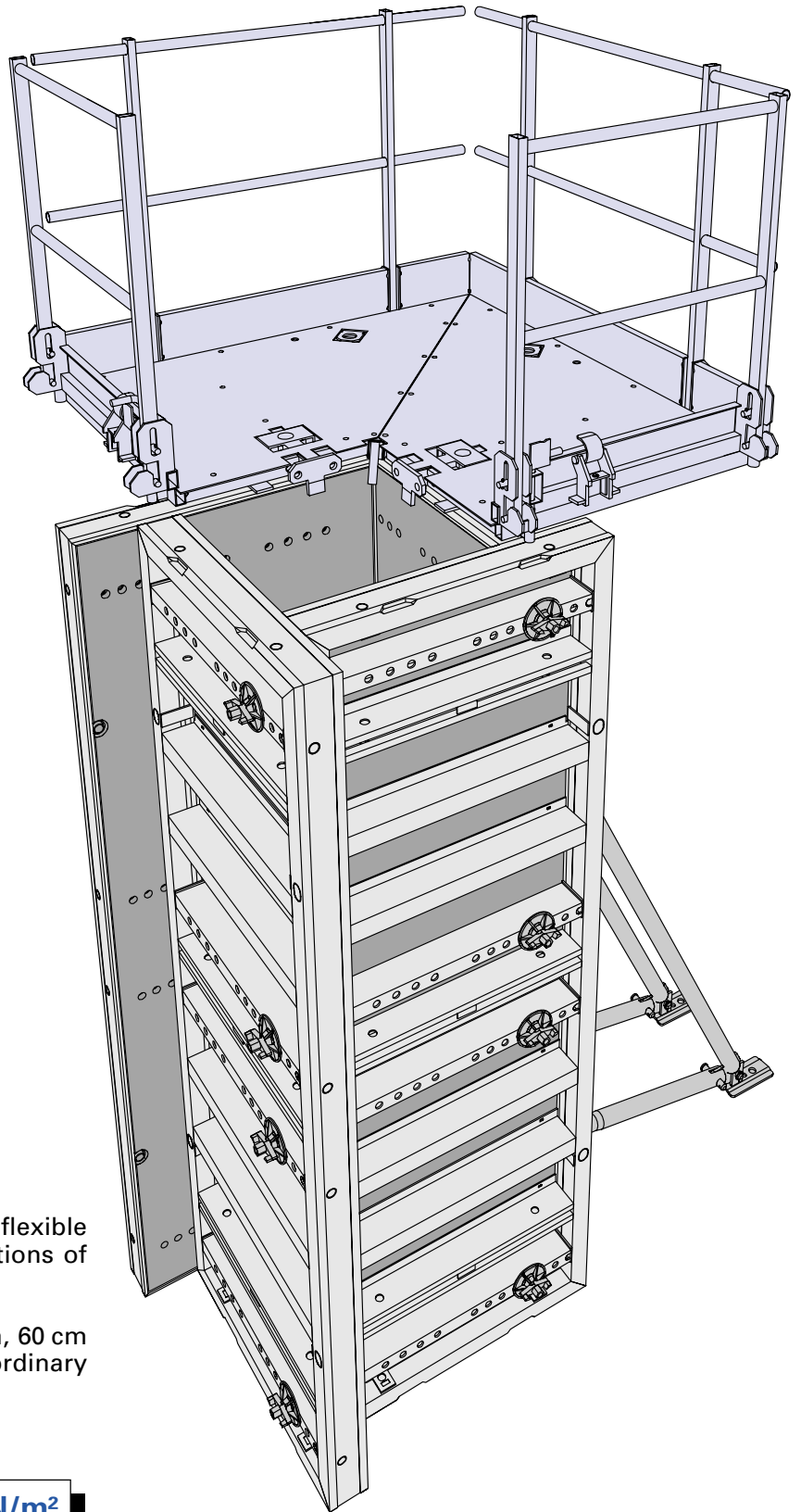
with panel struts 340 and 540

Panel struts give the panels stability and make it easier to plumb the circular formwork. Also, make sure panels are shored so as to be stable against wind loading when they are temporarily "parked" in a standing position.

Please see p.38 for more information on panel struts.



Column formwork



The **Framax universal panels** permit flexible accommodation to column cross-sections of up to 75 cm x 75 cm in a **5 cm grid**.

However, dimensions of 30 cm, 45 cm, 60 cm and 90 cm can also be formed using ordinary **Framax panels and outside corners**.

Max. concrete pressure: 90 kN/m²

Design of column formwork

with Framax universal panel

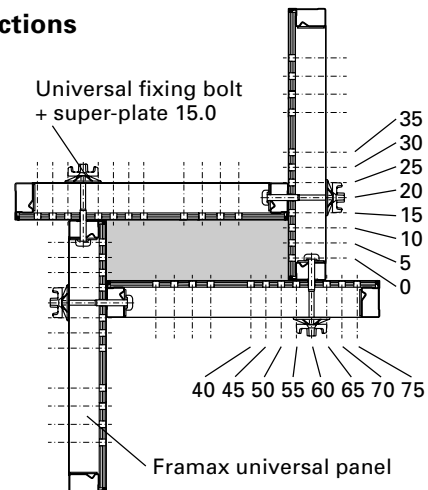
The practical 5 cm hole grid is ideal for forming columns.

Cross-sections of up to 75 x 75 cm.

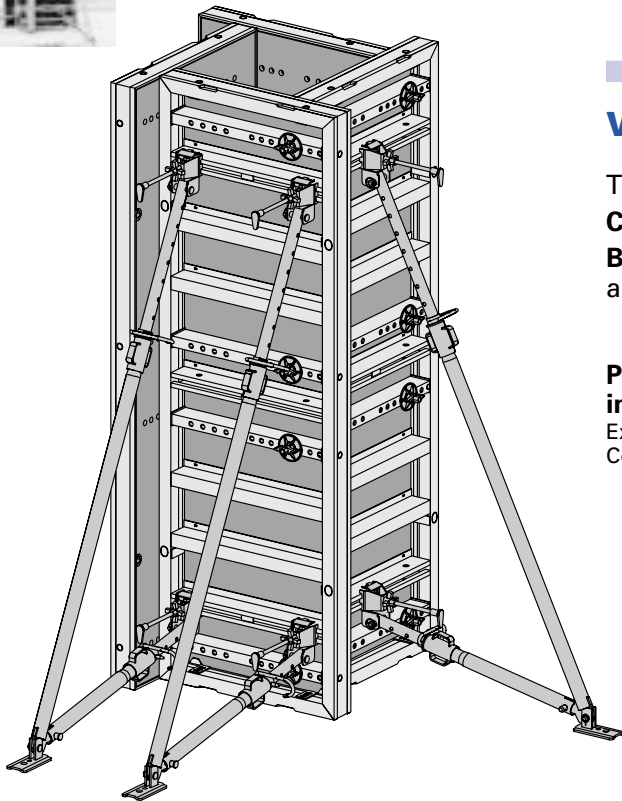
By combining panels with heights of 3.30 m, 2.70 m, 1.35 m and 0.90 m, a height grid of 45 cm is possible.

Possible cross-sections in 5 cm grid

Example:
Column 20 x 60 cm



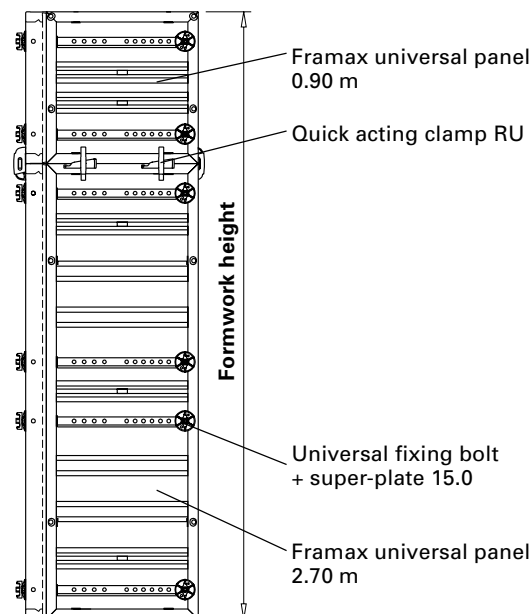
Framax plug R 24.5 for sealing off the unused holes in the ply of the universal panel.



The arrangement of the panel struts shown above is best for achieving exact plumbing of the column formwork.

Material schedule for columns with universal panels

Example with universal panel



with universal panel 2.70 m

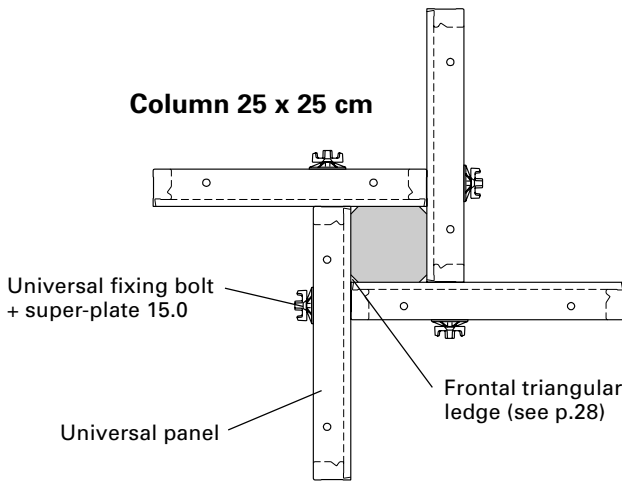
Table gives number of items needed

Formwork height [m]	Framax universal panels			Quick acting clampRU	Framax universal fixing bolt	Super-plate 15.0
	2.70 m	1.35 m	0.90 m			
0.90 m			4		8	8
1.35 m		4			8	8
1.80 m			8	8	16	16
2.25 m		4	4	8	16	16
2.70 m	4				16	16
3.15 m		4	8	16	24	24
3.60 m	4		4	8	24	24
4.05 m	4	4		8	24	24
4.50 m	4		8	16	32	32
4.95 m	4	4	4	16	32	32
5.40 m	8			8	32	32

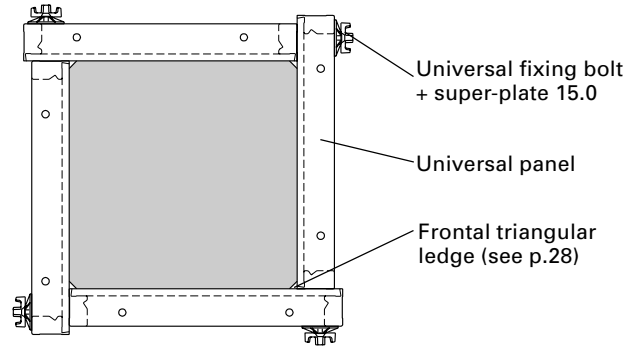
with universal panel 3.30 m

Table gives number of items needed

Formwork height [m]	Framax universal panels				Quick acting clampRU	Framax universal fixing bolt	Super-plate 15.0
	3.30m	2.70m	1.35m	0.90m			
3.30 m	4					20	20
4.20 m	4			4	8	28	28
4.65 m	4		4		8	28	28
6.00 m	4	4			8	36	36
6.60 m	8				8	40	40



Column 75 x 75 cm

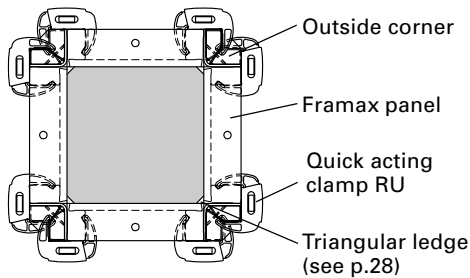


with Framax outside corners and Framax panels

Cross-sections of 30 cm, 45 cm, 60 cm and 90 cm can also be formed using **Framax panels and outside corners**.

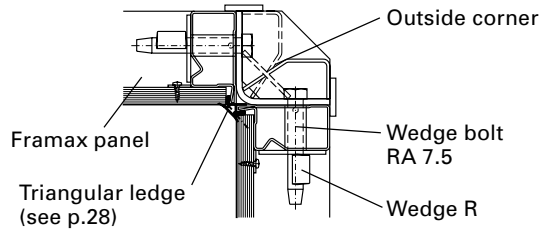


For columns with 90cm cross-sections, **wedge-bolts** and **wedges** must be used instead of the quick acting clamps.



Detail:

Outside corner with wedge-bolt connection



Material schedule for columns with outside corners and framed panels

Example with outside corner 2.70 m and Framax panel 0.45 x 2.70 m

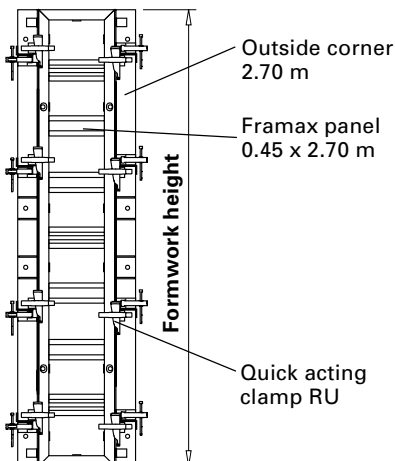


Table gives number of items needed

Panel height [m]	Framax panels			Framax outside corners			Quick acting clamps RU or wedge bolts with wedge
	3.30m	2.70m	1.35m	3.30m	2.70m	1.35m	
1.35			4			4	16
2.70		4			4		32
3.30	4			4			40

Framax panel 0.30 to 0.60 m → quick acting clamp RU

Framax panel 0.90 m → wedge bolt with wedge



Doka column-formwork platform 150/90 cm ...

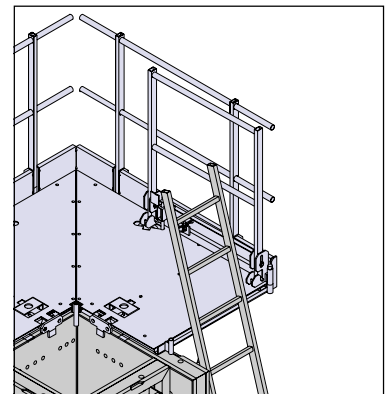
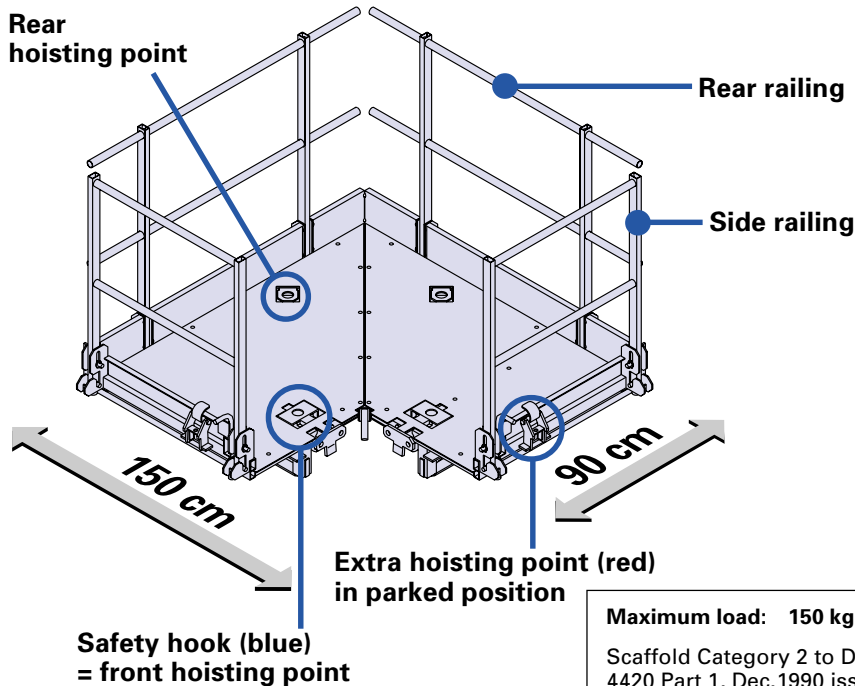
The Doka column-formwork platform 150/90 cm

is a pre-assembled, ready-to-use platform that ensures convenient and safe working on column formworks. It can be used with:

- Framax universal panels
- Alu universal panels
- Doka column formwork Alu (using the "Platform adapter for column formwork Alu")

The **flat, uncluttered platform workspace**, with no protruding parts, makes for safe working at any height. Quick and easy to lift by crane, thanks to hoisting points recessed in the deck-boards.

The platform with a generous area to work on ...



The **side railings** can also be **swung open & shut**, making it easier to climb onto the platform. Both side railings can be locked in either the open or shut position.

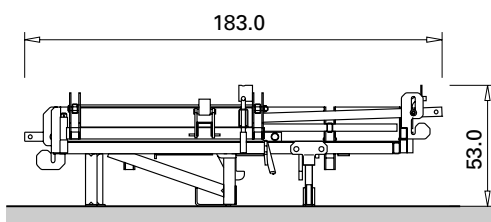
Maximum load: 150 kg/m²

Scaffold Category 2 to DIN 4420 Part 1, Dec.1990 issue.

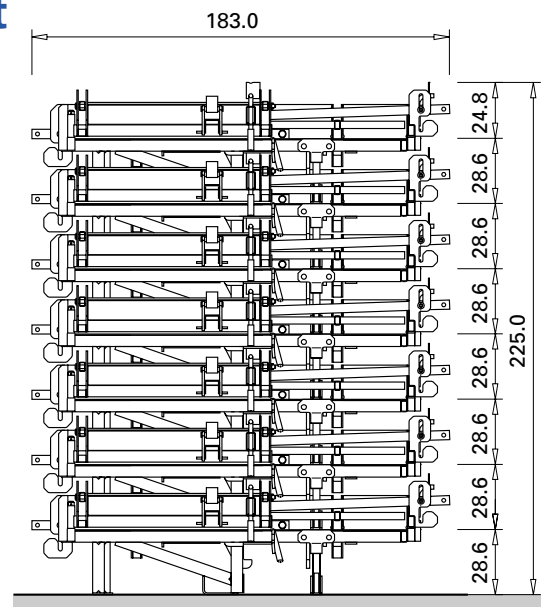
... and not much volume to transport

The Doka column-formwork platforms are pre-assembled and are easy to transport and store in the folded-down position - it is not possible for them to slide sideways.

In this way, they only use a minimum of storage and transport capacity.



Single folded-down platform

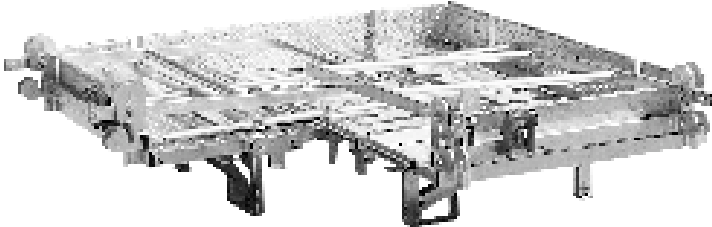


Stack of 7 column-formwork platforms

Dimensions in cm

... quick to get from the stack and onto the formwork

The Doka column-formwork platform 150/90 cm is ready for work right away

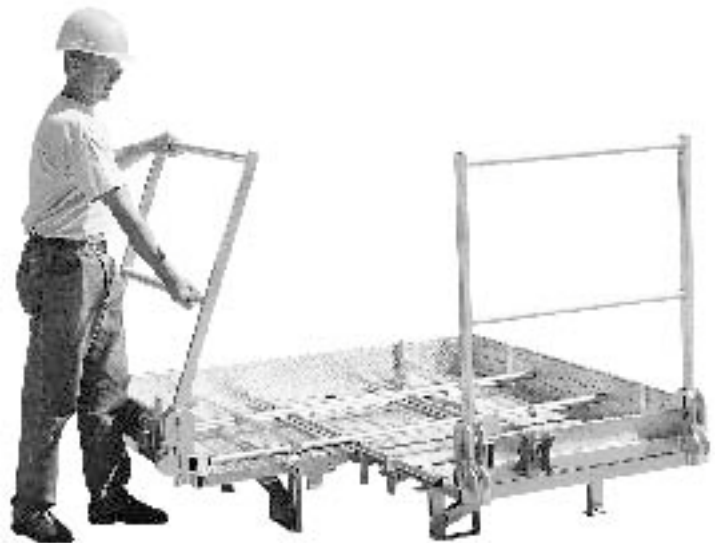


Transport position

The Doka column-formwork platform is supplied to your site pre-assembled. All you need do is tip up the railings - and the platform is ready for use right away.

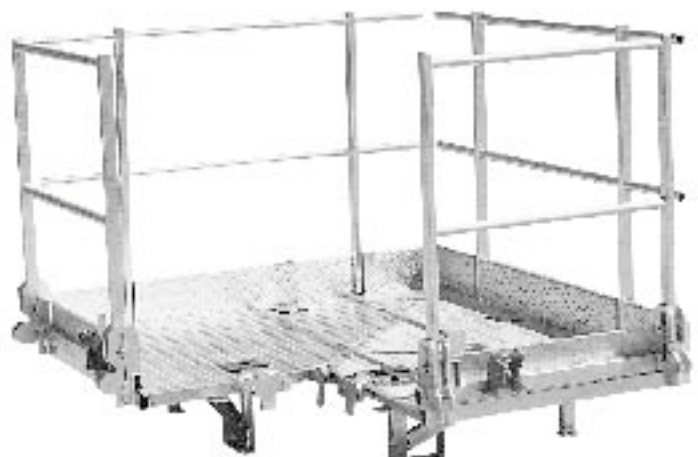
Tip up the side railings

The railings are locked in place automatically.



Tip up the rear railings

The railings are locked in place automatically.



The column-formwork platform is now ready for use

When folding the platform back down:
- first fold down the rear railings,
- then the side railings.



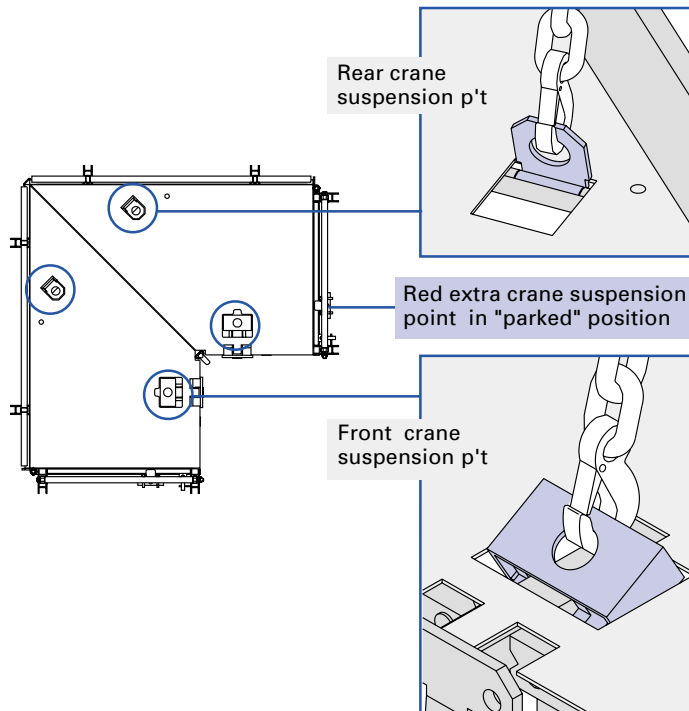
Using with Framax and Alu-Framax

Where column formwork has been assembled from universal panels, the Doka column-formwork platform 150/90 cm can be used to make an ideal pouring platform, independently of the cross-section of the column:
 from 25 x 25 cm to 75 x 75 cm with Framax; from 25 x 25 cm to 60 x 60 cm with Alu-Framax.

Moving the platform from formwork to formwork

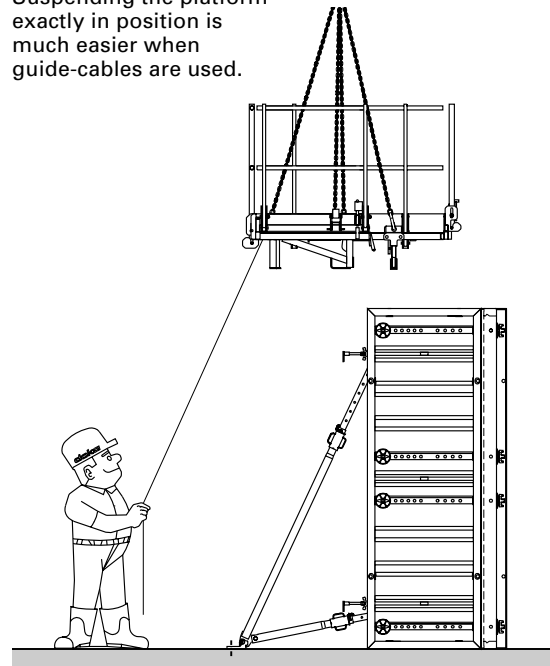
Because the platform can be craned so quickly, it can "migrate" from one column formwork to the next during concreting. This means that one platform is sufficient to serve several columns.

Crane hoisting points

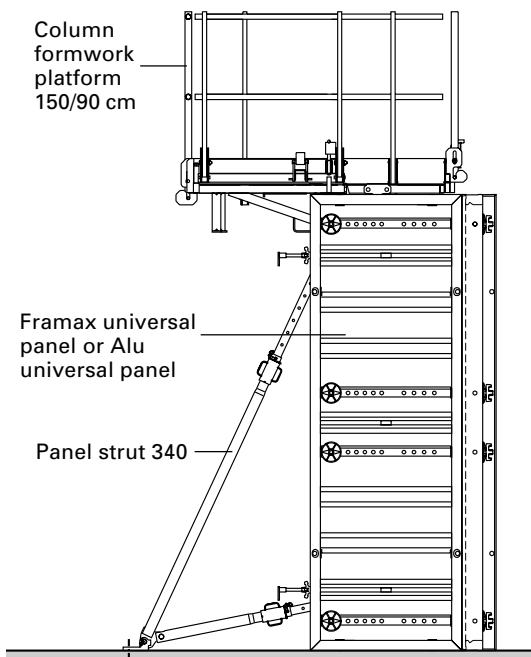


Suspend using guide-cable

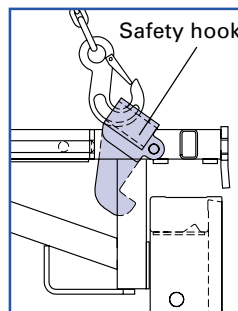
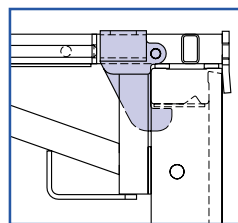
Suspending the platform exactly in position is much easier when guide-cables are used.



Only one column-formwork platform may be used per column.



Automatic lift-out guard



- After the column-formwork platform has been suspended from the formwork:
 Detach the lifting chain. The safety hook drops down into its starting position and automatically secures the platform against being accidentally lifted out.
- When the platform is lifted, the lifting chain acts on the safety hook and the platform is automatically unlocked.

Moving the formwork and the platform in one piece

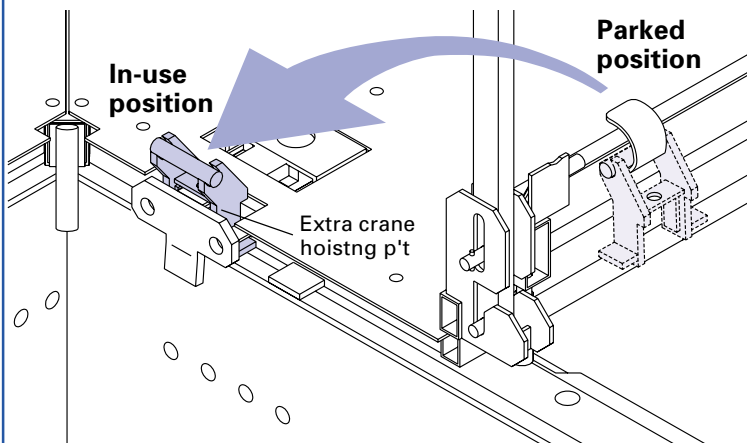
To save crane time, the **Doka column-formwork platform** can also be moved in one piece together with the formwork.

Suspending the platform from the formwork

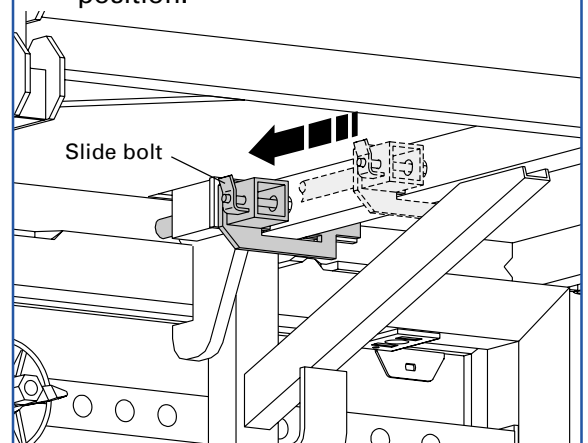
This is done in the same way as described on p.66

Locking the platform ready for being moved with the formwork

- 1 Move the **extra crane hoisting point** from the **parked position** to the **"in-use" position**. Right position = inclined forward towards formwork.

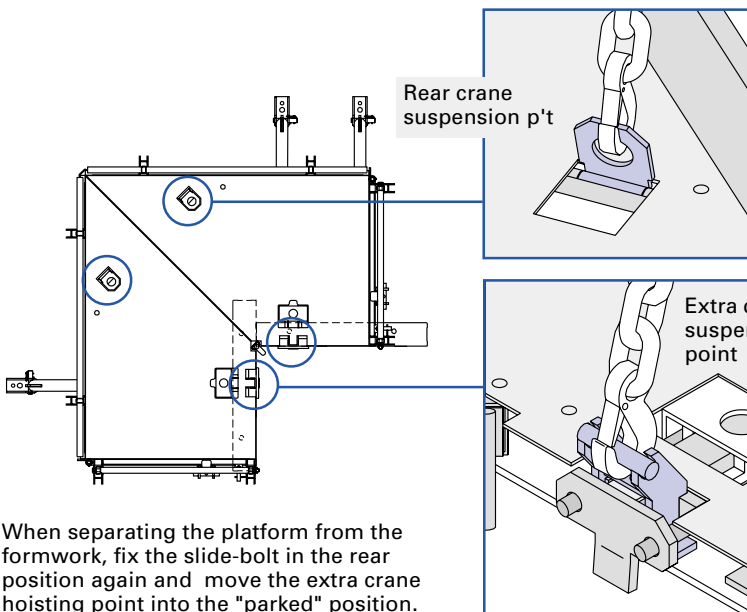


- 2 Fix the extra crane hoisting point with the **slide bolt** on the underside of the platform (use ladder). Make sure that the slide bolt latches in in the frontmost position.



Crane hoisting point

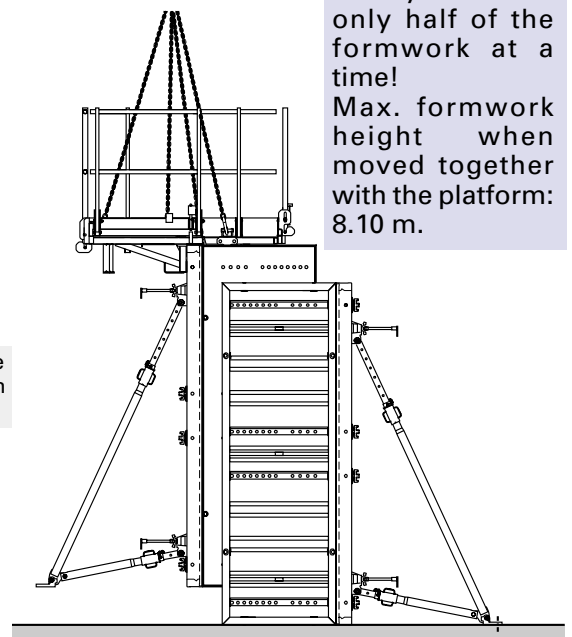
When the formwork and platform are to be moved in one piece, the extra crane suspension point must be used.



When separating the platform from the formwork, fix the slide-bolt in the rear position again and move the extra crane hoisting point into the "parked" position.

Warning!

Always move only half of the formwork at a time!
Max. formwork height when moved together with the platform: 8.10 m.



Only one column-formwork platform may be used per column.

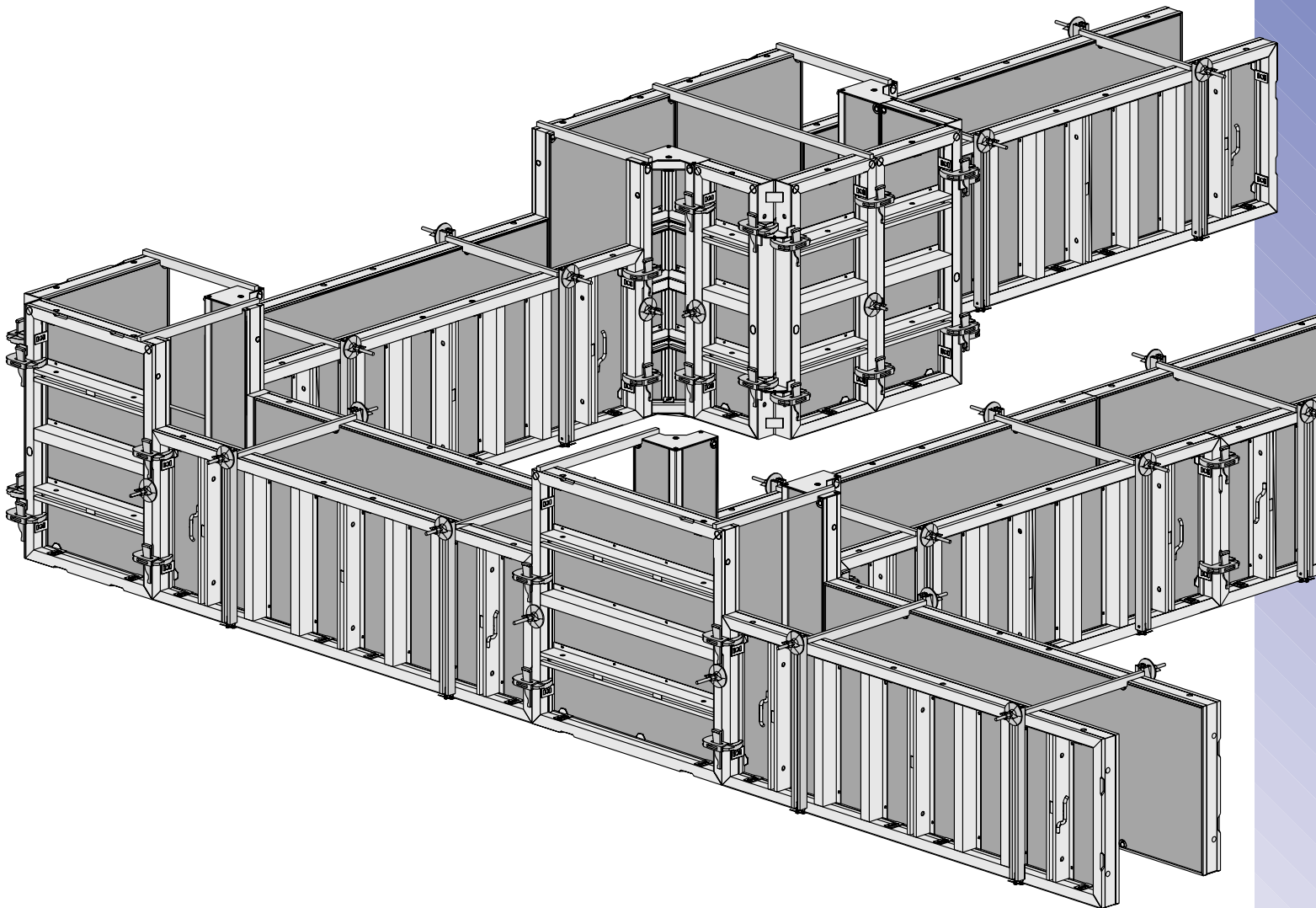
Foundation formwork

The Framax panels can also be used for foundations.

This is particularly advantageous where it is intended to continue forming (i.e. the walls) using the same panels.

Foundations can be quickly formed with all Framax panels, with the panels either upright or on their sides.

The quick acting clamp and a blow with the hammer are all it takes to join the panels. Length closures and corners are solved just as simply as in the normal wall. Practical accessories such as the foundation clamp and anchoring bracket make the work very much easier.





Foundation formwork configurations

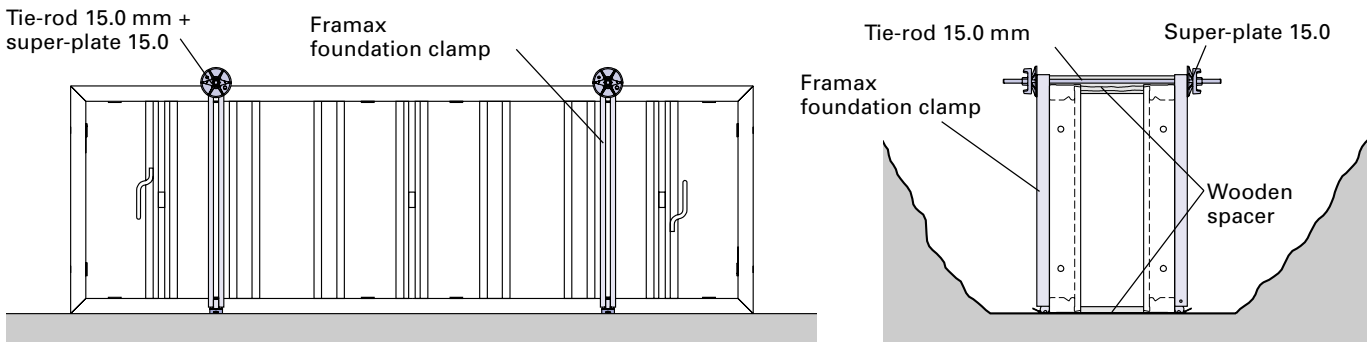
Sideways-placed panels

Form-ties: at top → with tie-rod 15.0 and super-plate 15.0
 at bottom → with Framax foundation clamp and Doka perforated tape

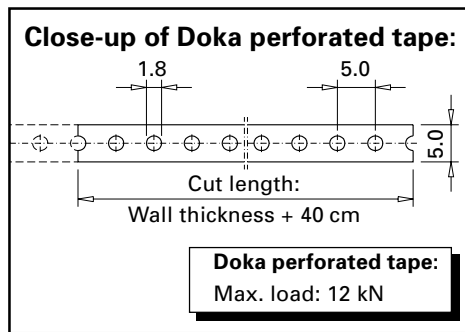
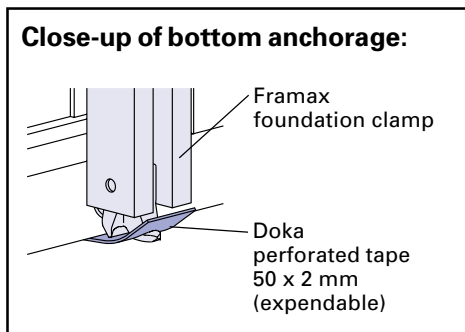
In this way, all widths of wall can be formed, within a 5 cm incremental grid.

Pouring heights up to 0.90 m

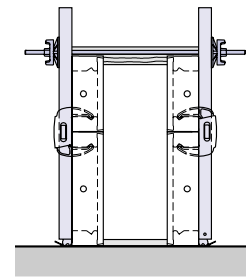
With the Framax foundation clamp, panels of up to 0.90 m in width can be tied above the concrete.



👉 **2 Framax foundation clamps** are needed for each panel.

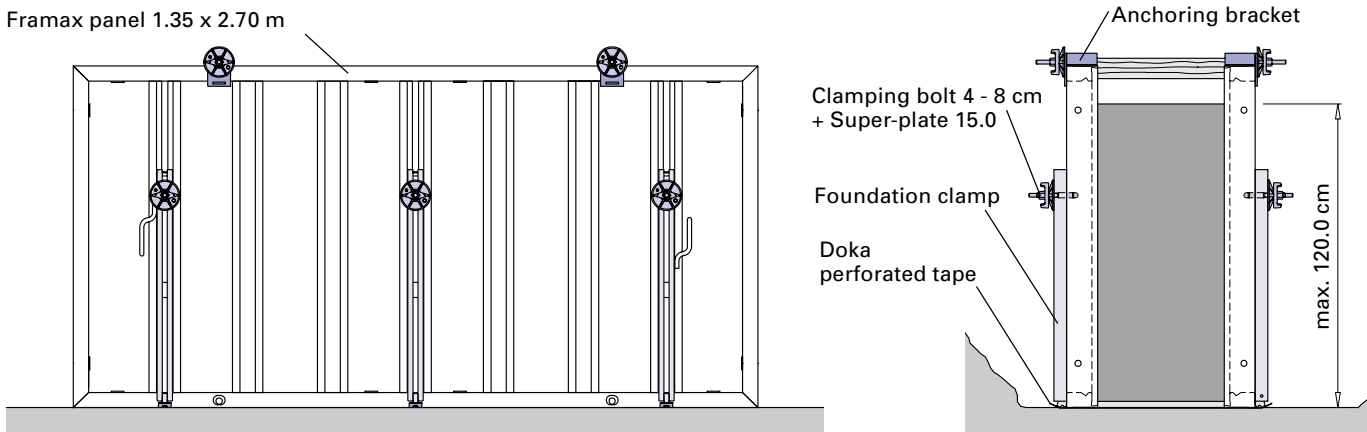


E.g.:
 Framax panel 0.45 m
 + Framax panel 0.30 m



Max. pouring height 1.20 m

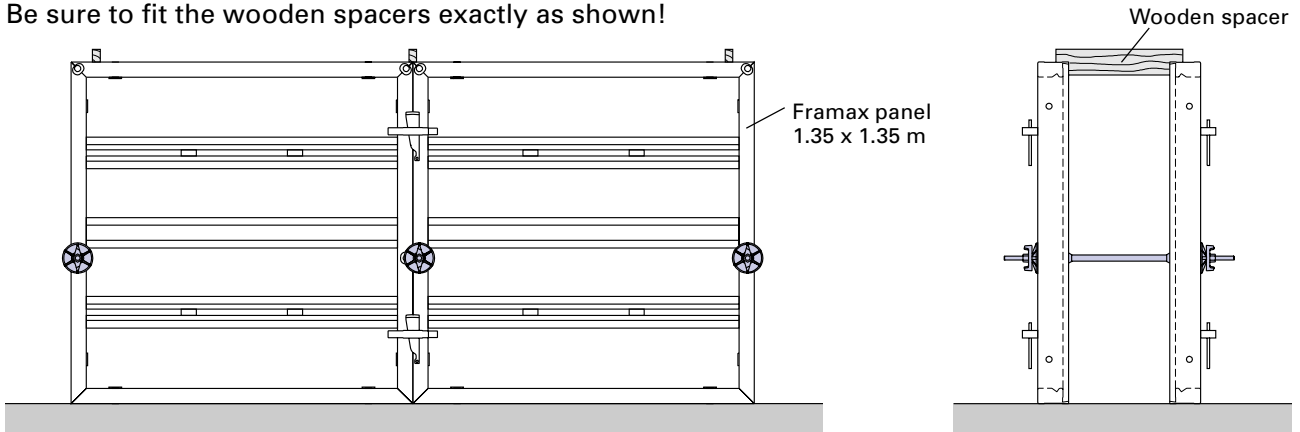
The Framax foundation clamps are fixed in the integral waling profiles of the Framax panels 1.35 x 2.70 m using the **Framax clamping bolt 4 - 8 cm**.
 At the top, the panels are tied using the **Framax anchoring bracket**.



👉 Length of panel 2.70 m → **3 Framax foundation clamps + 2 anchoring brackets**
 Length of panel 3.30 m → **4 Framax foundation clamps + 2 anchoring brackets**

Upright half-panels

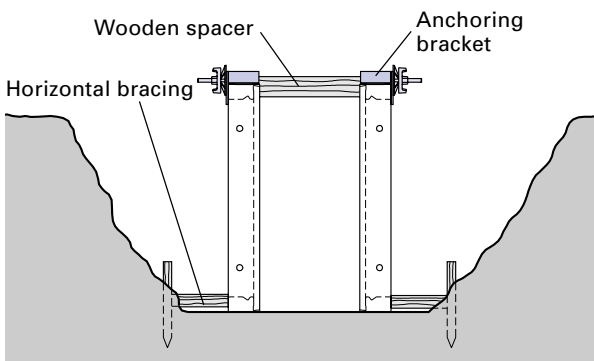
In the example below, one form-tie is sufficient for the height shown. Be sure to fit the wooden spacers exactly as shown!




Sideways-placed panels in confined excavation trenches

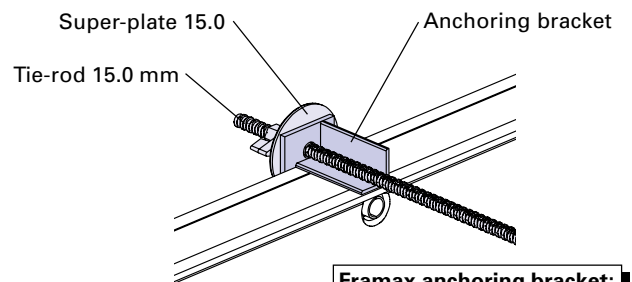
In very narrow trenches, the bottom tie can be replaced by horizontal bracing. The use of the **Framax anchoring bracket** for the **top tie** has the following effects:

- Form-tie is above the panel - no form-tie holes - no sleeve-tubes
- Tie-rods cannot be knocked off; anchor-plates cannot slide out of position
- Form-tie spacings are freely selectable



 **2 Framax anchoring brackets** are needed for each panel.

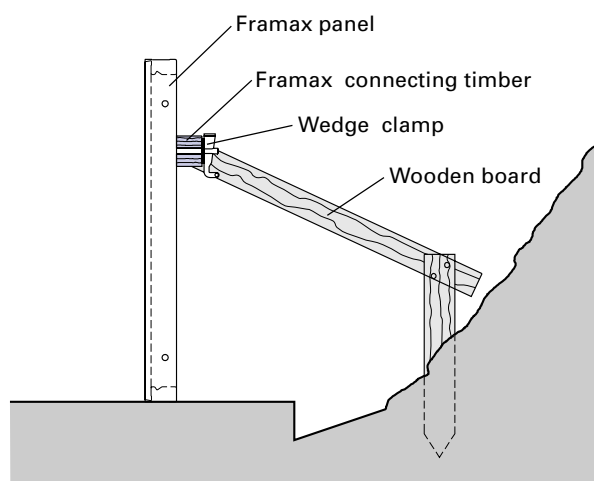
Close-up of Framax anchoring bracket:



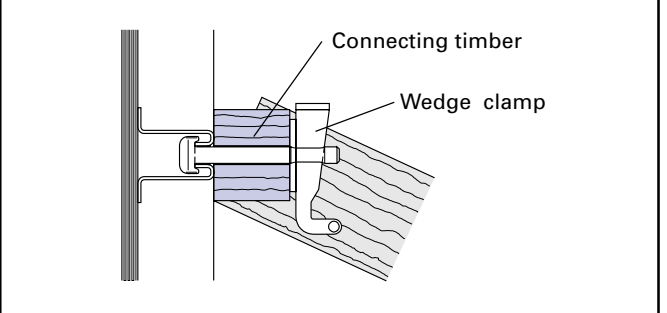
Framax anchoring bracket:
Max. load: 15 kN

Shoring the panel

With the aid of a Framax connecting timber and an in-situ wooden board, you can shore the panels so that they stand firmly.



Close-up of Framax connecting timber:

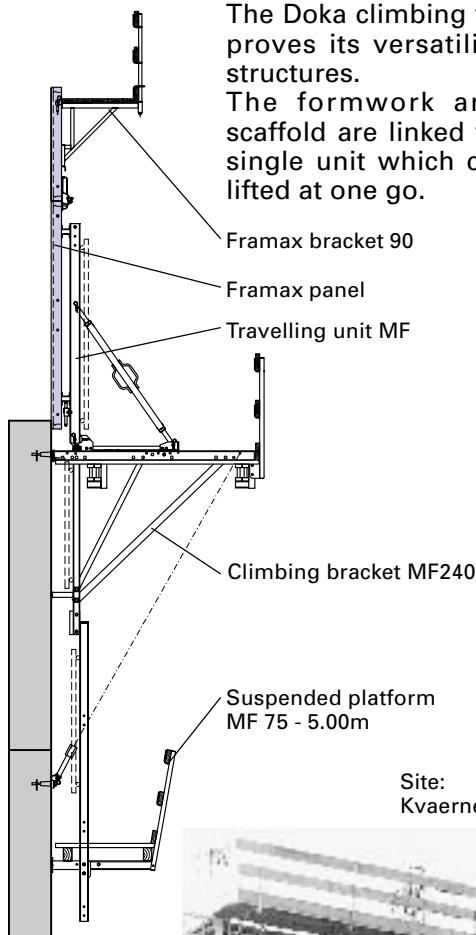


Framax in conjunction with climbing formwork . . .

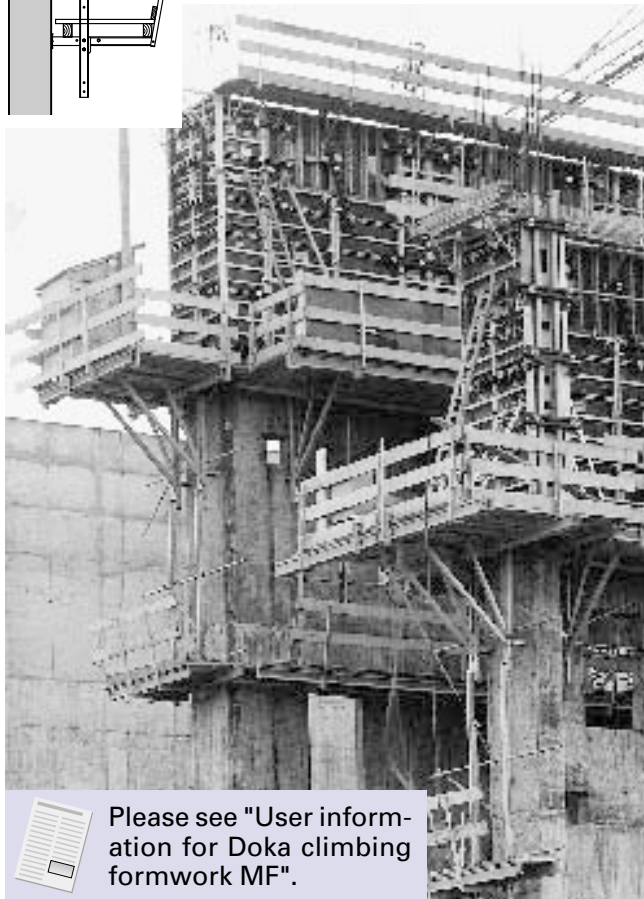
Doka climbing formwork MF

The Doka climbing formwork MF proves its versatility on all tall structures.

The formwork and climbing scaffold are linked together as a single unit which can be crane-lifted at one go.

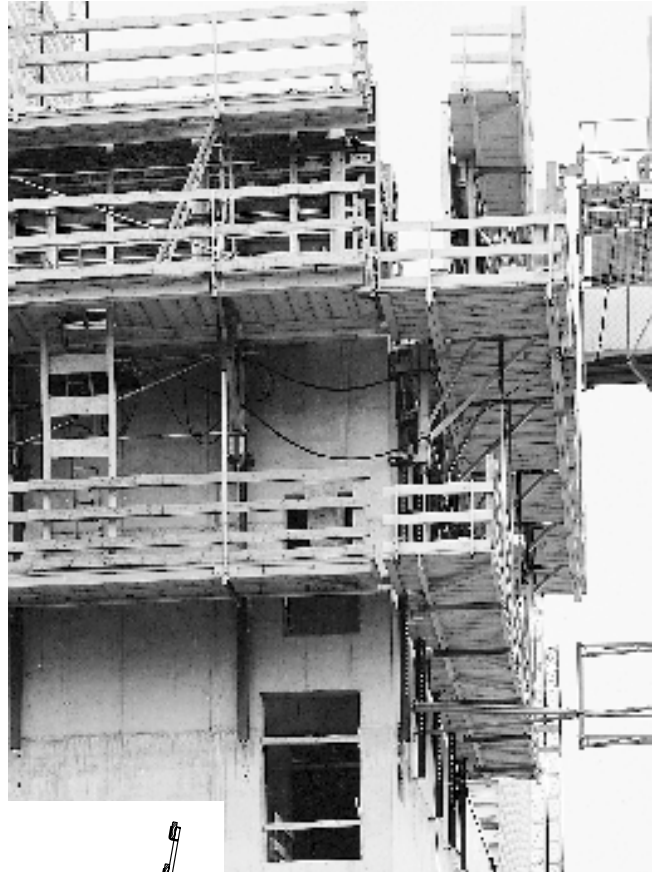


Site:
Kvaerner Yards, Rostock

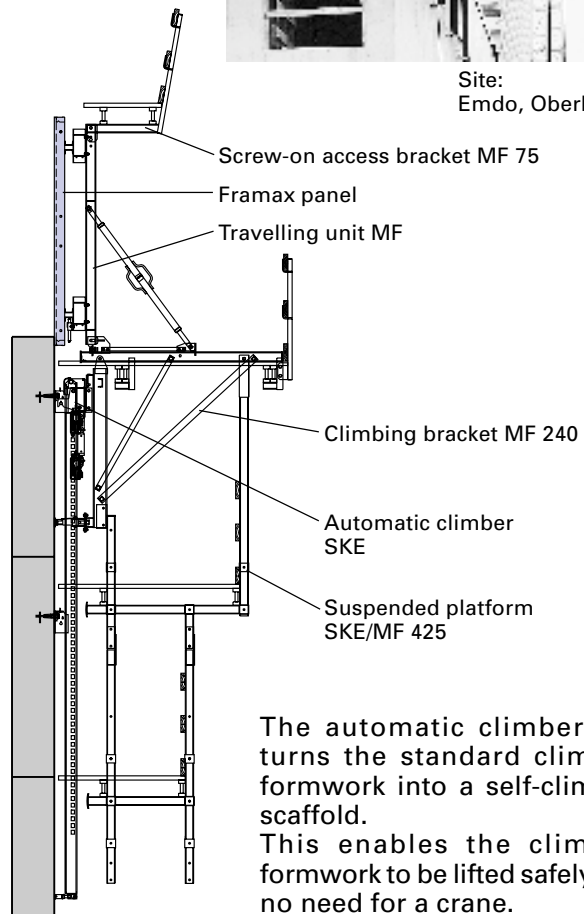


Please see "User information for Doka climbing formwork MF".

Doka automatic climber SKE



Site:
Emdo, Oberhausen

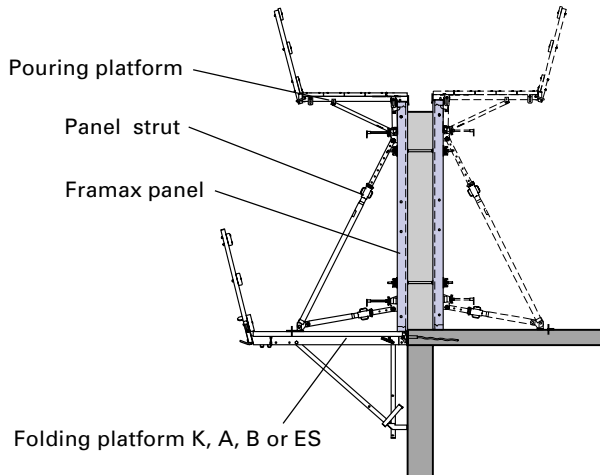


The automatic climber SKE turns the standard climbing formwork into a self-climbing scaffold.

This enables the climbing formwork to be lifted safely with no need for a crane.

... folding platforms and supporting construction frames

Doka folding platforms



The high load capability of these platforms means that the formwork can safely be stood on the folding platforms.

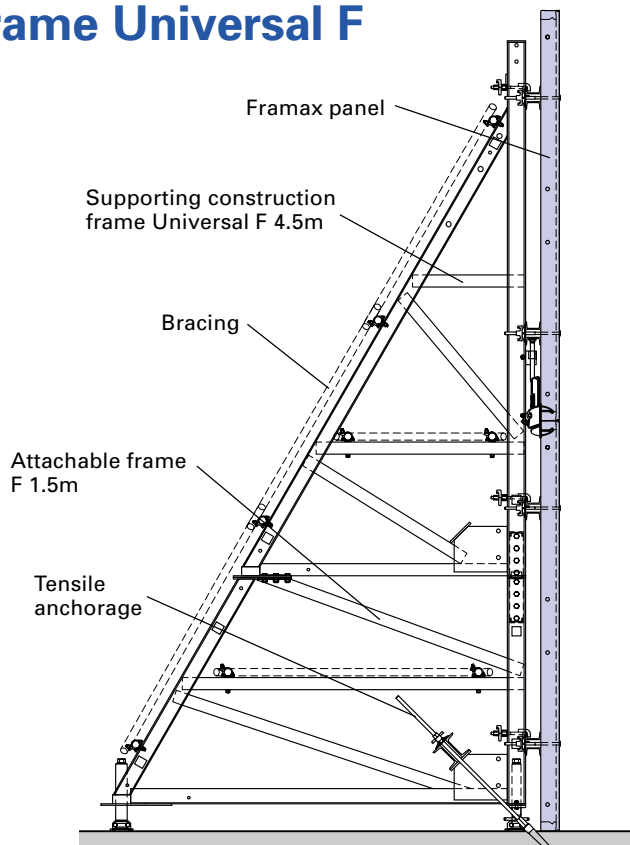
Adding a small number of standard parts turns your working platform into a climbing formwork unit with which you can move the formwork and the platform in one single operation.

This makes work at great heights particularly fast and economical.



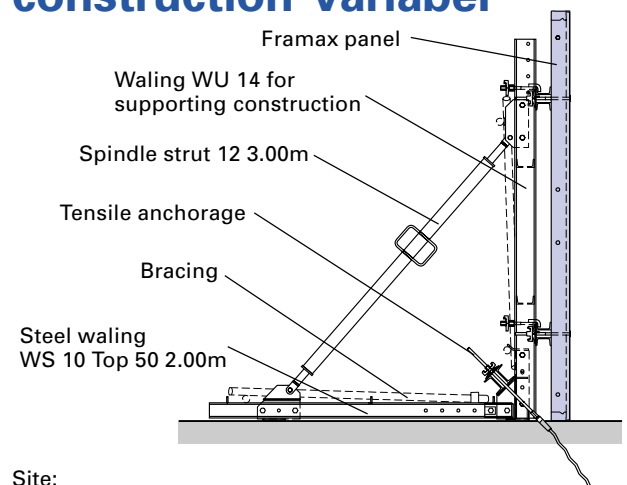
Please see "Erection and utilisation instructions for Doka folding platforms" or "User information for Doka climbing formwork K".

Doka supporting construction frame Universal F

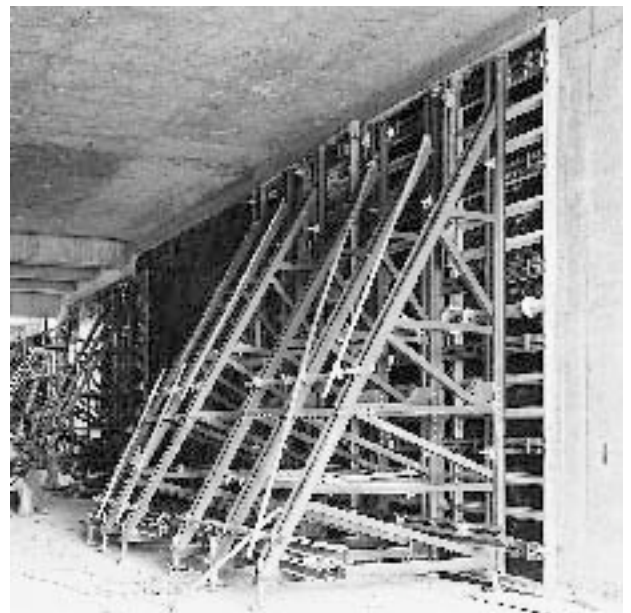


The supporting construction frame Universal F and supporting construction Variabel enable the sturdy Framax panels to be used as single-sided wall formwork.

Doka supporting construction Variabel



Site:
U6 - 9 underground railway, Vienna



Please see the "User information for Doka supporting construction Variabel and supporting construction frame Universal F".

Alu-Framax and Framax can be combined in any way

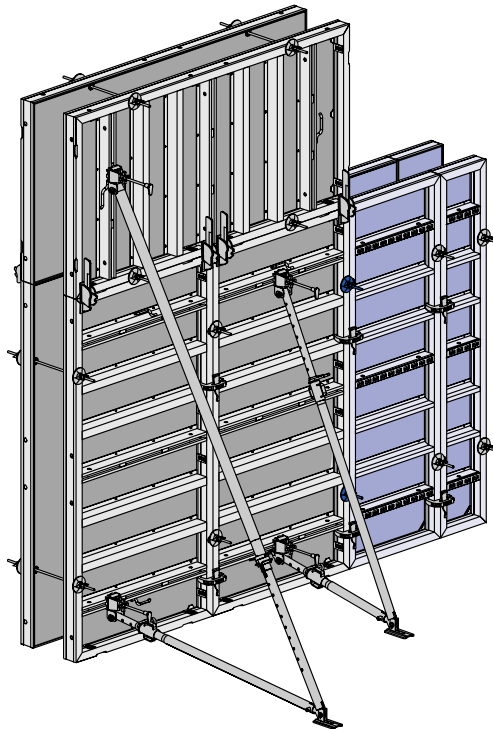
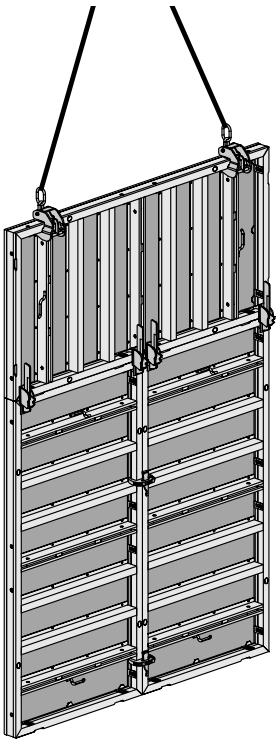
Framax and Alu-Framax can be **combined in any way desired**.

The **low weight** of Alu-Framax makes it ideal for forming small areas and peripheral zones by hand, quickly and **independently of the crane**.

This makes it possible to divide up the work into areas for crane-handled and man-handled forms, facilitating scheduling and the work sequence on the site.

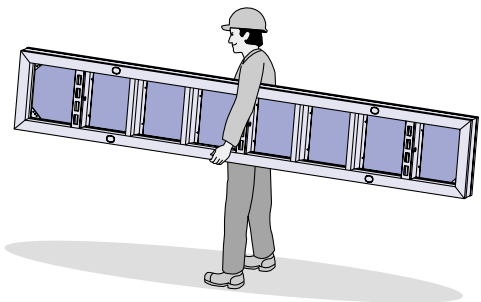
Framax

large areas - by crane



Alu-Framax

by hand



When you place a Framax panel next to an Alu-Framax panel, always place the formtie in the **Framax** panel!

Tipos-Doka helps you to form even more efficiently

Tipos has been developed to assist you in planning the use of your Doka formwork. For wall formwork, floor formwork and platforms, it puts the same tools into your hands that we at Doka use ourselves for formwork planning.

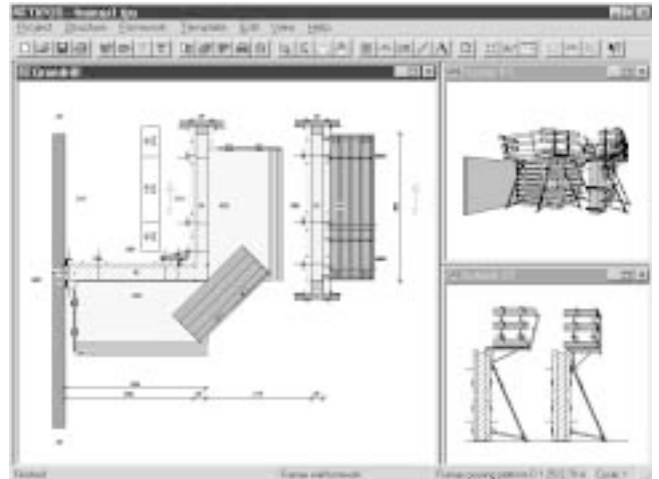


Easy to use, fast and accurate results

The easy-to-use interface makes for very fast working. From when you input your layout (with the "Schal-Igel"® on-screen assistant), all the way through to when you manually put the finishing touches to the formwork solution the program gives you. All this saves time - yours.

The program contains a large number of templates from formwork practice, so you can be sure of always getting the optimum technical and economical solution to your formwork task. This makes for greater operational reliability, and cuts costs.

You can get to work right away with the piece-lists, plans, views, sections and perspective drawings that the program gives you. Operational reliability is also enhanced by the high level of detail of the plans.



Drawings of formwork and platforms really can be this detailed! Both for the layout and for spatial representations, Tipos-Doka sets an impressive new standard of visual presentation.

Among other things, Tipos-Doka plans the following with Framax:

- distribution of the Framax panels
- any vertical stacking that is required
- closures and accessories
- pouring platforms, guardrails etc.

Always the right quantities of formwork and accessories

Article n°	Description	Unit price	Units used Site	Depo	Supp	Man. added	Order
580130000	panel 1.25 x 2.75 m	0.00	0	0	6	0	6
580132000	panel 0.90 x 2.75 m	0.00	0	0	2	0	2
580104000	panel 0.60 x 2.75 m	0.00	0	0	11	0	11
580130000	panel 0.30 x 2.75 m	0.00	0	0	2	0	2
580122000	universal panel 0.30 x 2.75 m	0.00	0	0	1	0	1
580130000	insole corner 2.75 m	0.00	0	0	1	0	1
580150000	universal walng 0.90 m	0.00	0	0	11	0	11
580152000	wedge clamp	0.00	0	0	2	0	2
580152400	quick acting clamp FRZ	0.00	0	0	49	0	49
580158000	adjustable clamp	0.00	0	0	2	0	2
580158000	universal limg bolt 10 - 16 cm	0.00	0	0	22	0	22
581966000	super plate 15.0	0.00	0	0	74	0	74
176024000	Wing timber 5 x 12 cm 2.75 m	0.00	0	0	3	0	3
FR3A1552-T	Wing by site	0.00	0	0	3	0	3
581823000	tie rod 15.6 mm 1.00 m galv.	0.00	0	0	26	0	26
580245000	panel strut 240	0.00	0	0	6	0	6
580250000	padding platform 0 1.25/2.75 m	0.00	0	0	2	0	2
580151000	brackel 30	0.00	0	0	4	0	4
580470000	handrail clamp 5	0.00	0	0	10	0	10
195311005	plank 2.50 m by site	0.00	0	0	7	0	7
195311006	plank 2.00 m by site	0.00	0	0	7	0	7
195311008	plank 1.25 m by site	0.00	0	0	2	0	2
195311009	plank 1.00 m by site	0.00	0	0	17	0	17

You can import the automatically generated piece-lists into many other programs for further processing.

Formwork components and accessories that have to be organised at short notice, or replaced by improvisation, are the ones that cost the most. This is why Tipos-Doka offers complete piece-lists that leave no room for improvisation. Planning with Tipos-Doka eliminates costs before they have a chance to even arise. And your depot can make the best possible use of its stocks.

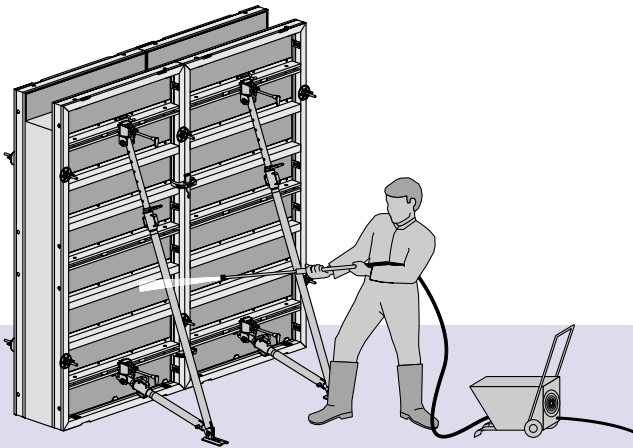


Cleaning and care of your Framax frame formwork

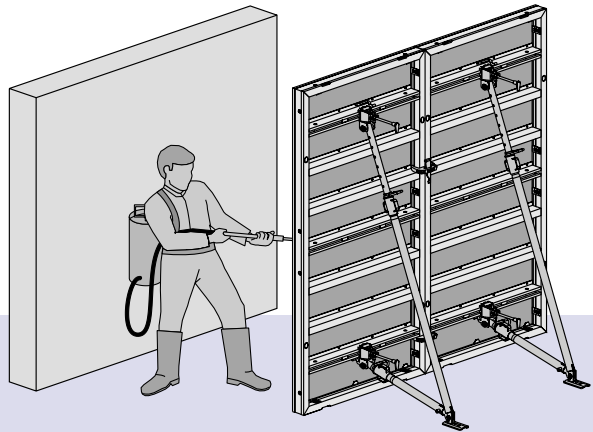
The galvanised steel frame is also **powder-coated**. This makes the frames very much easier to clean.

In order to keep formwork cleaning costs as low as possible, please observe the following points:

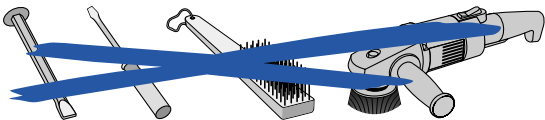
- After pouring: Immediately remove any blobs of concrete from the back of the panel, using **water** (without any added sand).



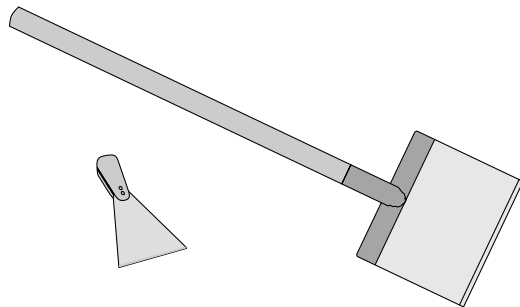
- Immediately after the formwork is struck, and before every pouring operation: Apply a thin film of **release agent** to the ply and the end faces of the formwork!



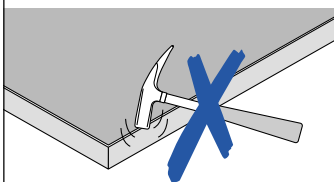
Do not use any pointed or sharp objects, wire brushes, rotating grinding discs or pan scourers.



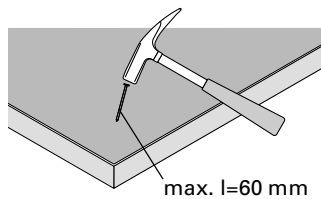
For removing any concrete remnants, we recommend using a spatula or concrete scraper.



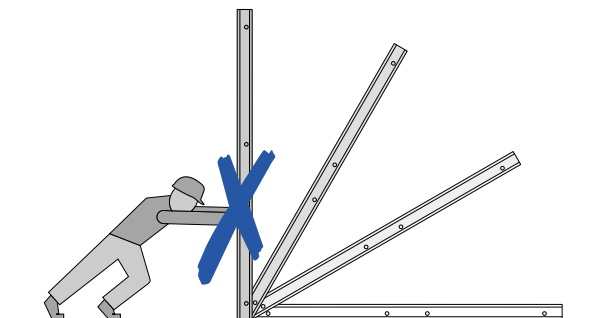
More instructions:



No hammer-blows to the frame profiles



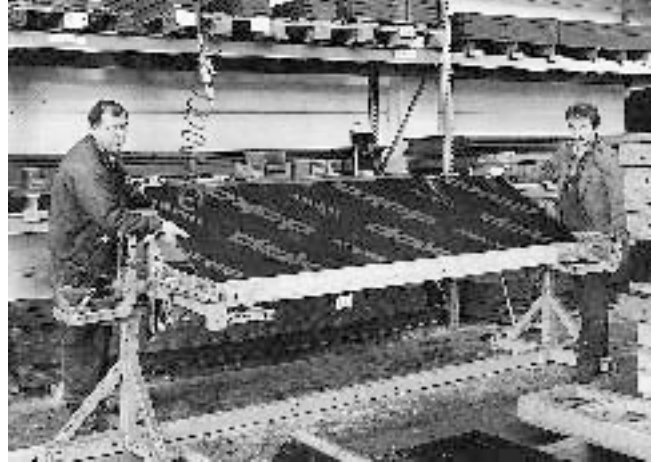
Do not use nails on the formwork that are longer than 60 mm



Never push over panels or allow them to fall.

Doka Reconditioning Service

So that your formwork is in "top form" for its next assignment



Inspecting, cleaning and maintaining your Framax formwork - all tasks that the Doka Reconditioning Service will be pleased to take off your hands. Its highly qualified staff and special equipment will quickly get your formwork back in top form - quickly and economically.

The advantage for you: You always have formwork that is **ready for use**, and also extend the service life of your equipment.

What's more: It is only with well-maintained formwork that you will achieve the desired quality of concrete surface.

In our modern plants, your formwork will be **carefully cleaned** using energy-saving and environmentally sound technology.

The panels are then inspected for damage and dimensional accuracy, and overhauled where necessary. Any damaged form-facing is repaired, or - if necessary - replaced.

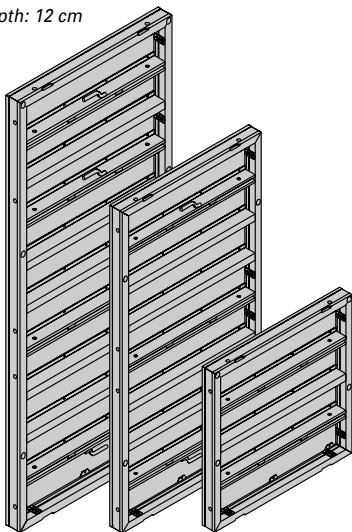


Framax panels

Panneaux Framax
Framax-Rahmenelemente

Galvanised and powder-coated

Overall depth: 12 cm



Panel size	Weight (kg)	Article n°
Framax panel 1.35 x 2.70 m	201.2	588100
Framax panel 0.90 x 2.70 m	116.8	588102
Framax panel 0.60 x 2.70 m	88.5	588104
Framax panel 0.55 x 2.70 m *	86.4	588105
Framax panel 0.45 x 2.70 m	74.0	588106
Framax panel 0.30 x 2.70 m	60.0	588108
Framax panel 1.35 x 1.35 m	101.5	588110
Framax panel 0.90 x 1.35 m	64.8	588112
Framax panel 0.60 x 1.35 m	47.1	588114
Framax panel 0.55 x 1.35 m *	46.6	588115
Framax panel 0.45 x 1.35 m	39.3	588116
Framax panel 0.30 x 1.35 m	31.1	588118
Framax panel 1.35 x 3.30 m	251.5	588221
Framax panel 0.90 x 3.30 m	156.0	588222
Framax panel 0.60 x 3.30 m	112.8	588223
Framax panel 0.45 x 3.30 m	95.4	588224
Framax panel 0.30 x 3.30 m	76.9	588225

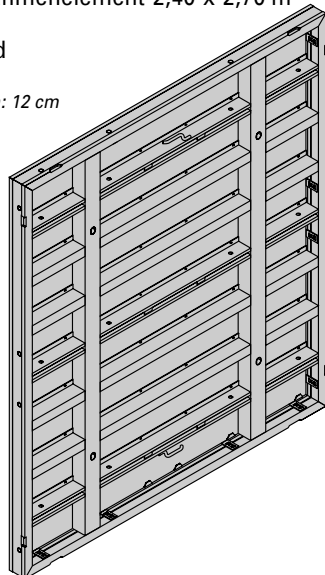
* Only on sale in Austria!

Framax panel 2.40 x 2.70 m

Panneau Framax 2,40 x 2,70 m
Framax-Rahmenelement 2,40 x 2,70 m

Galvanised

Overall depth: 12 cm



Weight
kg

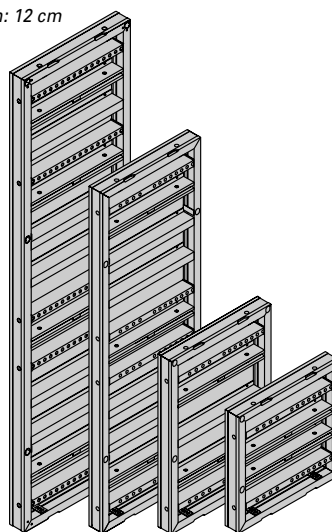
Article
n°

Framax universal panels

Panneaux universels Framax
Framax-Universalelemente

Galvanised and powder-coated

Overall depth: 12 cm



Panel size	Weight (kg)	Article n°
Framax universal panel 0.90 x 2.70 m	141.0	588122
Framax universal panel 0.90 x 1.35 m	76.2	588124
Framax universal panel 0.90 x 0.90 m	60.5	588120
Framax universal panel 0.90 x 3.30 m	179.5	588228

Framax special panels

Panneaux Framax spéciaux
Framax-Sonderelemente

On enquiry!

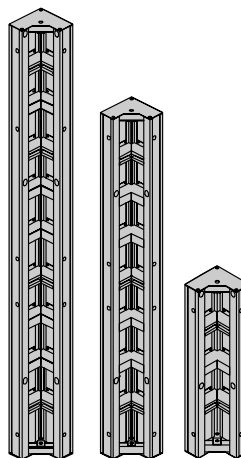
Available in widths of: 0.30 to 1.35 m
Available in heights of: 1.35 and 2.70 m

Framax inside corners

Angles intérieurs Framax
Framax-Innenecken

Galvanised and powder-coated

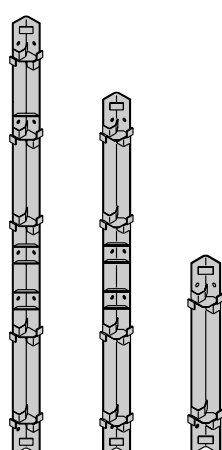
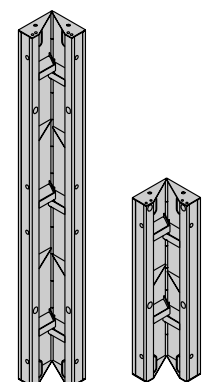
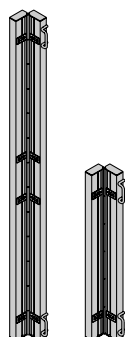
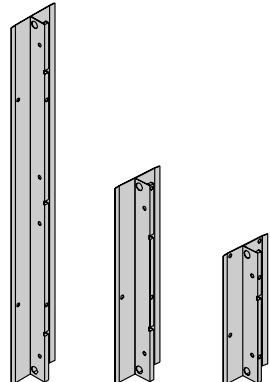
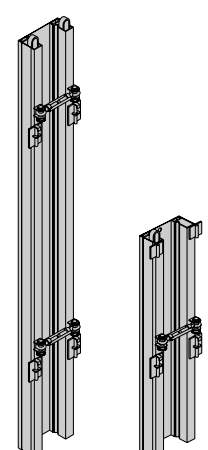
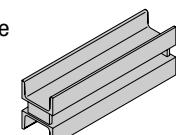
Edge-to-corner dimension: 30 cm

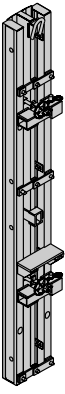
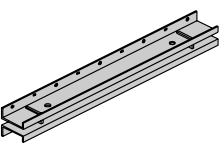
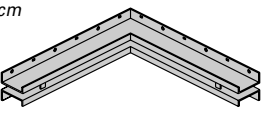
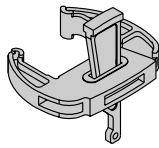
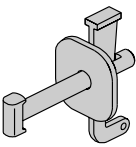
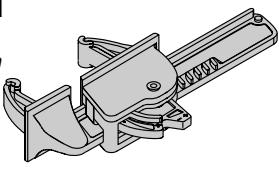
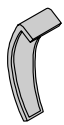
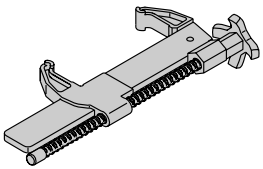
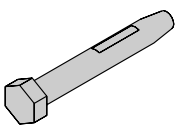
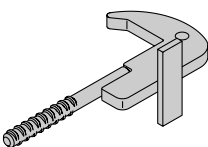
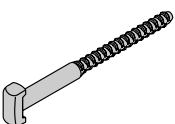


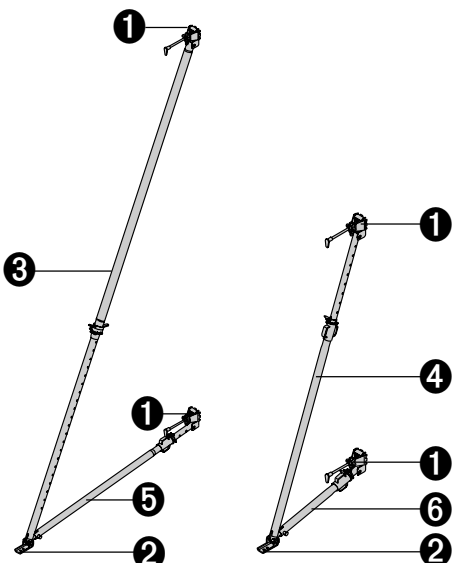
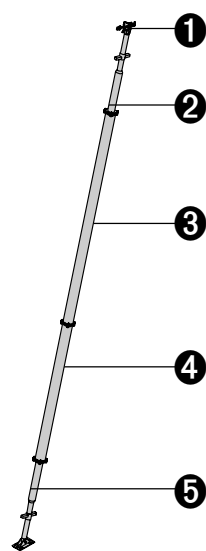
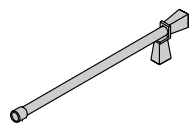
Corner size	Weight (kg)	Article n°
Framax inside corner 2.70 m	91.2	588130
Framax inside corner 1.35 m	49.7	588132
Framax inside corner 0.90 m	115.5	588229

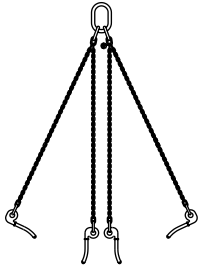
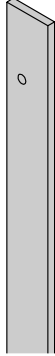
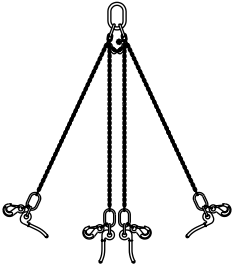
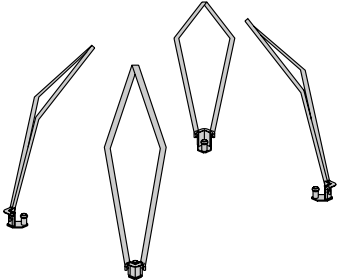

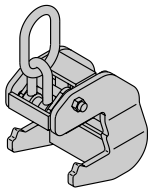
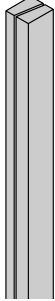

Weight
kg

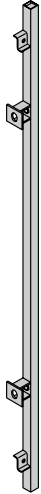
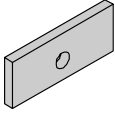
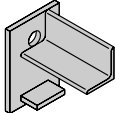


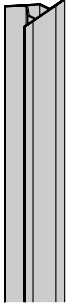
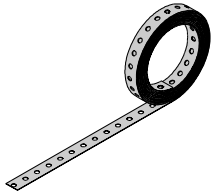
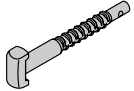
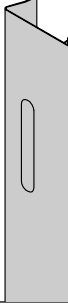

Article
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
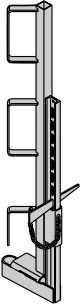

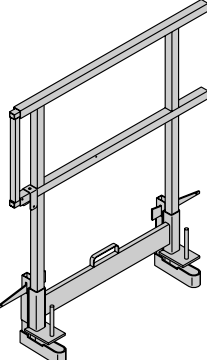

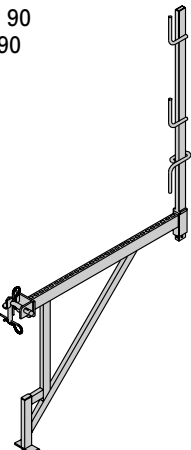
	Weight kg	Article n°		Weight kg	Article n°
<p>Framax outside corners Angles extérieurs Framax Framax-Außenecken</p> <p>Galvanised</p> <p>Edge-to-corner dimension: 15 cm</p> 					
<p>Framax outside corner 2.70 m</p> <p>Framax outside corner 1.35 m</p> <p>Framax outside corner 3.30 m</p>	47.0	588126			
	23.5	588128			
	58.0	588227			
<p>Framax hinged inside corners I Angles charnières Framax I Framax-Scharnierecken I</p> <p>Powder-coated, blue</p> <p>Edge-to-corner dimension: 30 cm</p> 					
<p>Framax hinged inside corner I 2.70 m</p> <p>Framax hinged inside corner I 1.35 m</p>	102.3	588136			
	55.4	588137			
<p>Framax hinged outside corners A Angles charnières A Framax Framax-Scharnierecken A</p> <p>Powder-coated, blue</p> <p>Edge-to-corner dimension: 18 cm</p> 					
<p>Framax hinged outside corner A 2.70 m</p> <p>Framax hinged outside corner A 1.35 m</p>	52.8	588134			
	27.4	588135			
<p>Framax closure plates R 30 Tôles de compensation Framax R 30 Framax-Ausgleichsbleche R 30</p> <p>Powder-coated, blue</p> <p>Width: 38 cm</p> 					
<p>Framax closure plate R 30/2.70 m</p> <p>Framax closure plate R 30/1.35 m</p> <p>Framax closure plate R 30/0.90 m</p>	43.0	588140			
	21.4	588142			
	14.4	588144			
<p>Framax circular forming plates Tôles de courbure Framax Framax-Bogenbleche</p> <p>Galvanised and powder-coated</p> 					
<p>Framax circular forming plate 0.20 x 2.70 m</p> <p>Framax circular forming plate 0.25 x 2.70 m</p> <p>Framax circular forming plate 0.30 x 2.70 m</p>	56.5	588235			
	63.5	588236			
	67.4	588237			
<p>Framax circular forming plate 0.20 x 1.35 m</p> <p>Framax circular forming plate 0.25 x 1.35 m</p> <p>Framax circular forming plate 0.30 x 1.35 m</p>	30.3	588238			
	32.3	588239			
	34.8	588240			
<p>Framax steel waling RD 0.40 m Filière Framax RD 0,40 m Framax-Stahlwandriegel RD 0,40 m</p> <p>Painted blue</p> 	8.7	588189			

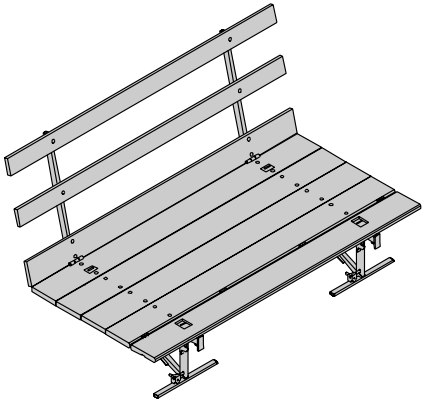
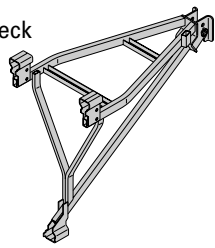
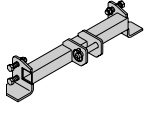
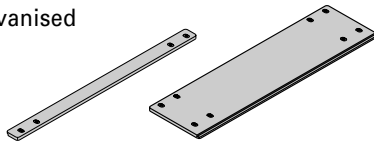
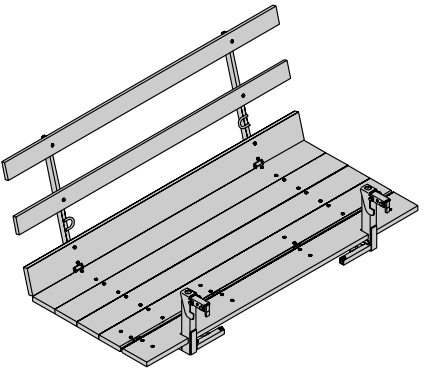
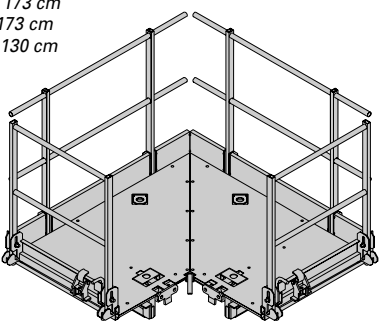
	Weight kg	Article n°		Weight kg	Article n°
<p>Framax formwork stripping element 2.70 m Elément Framax de décoffrage 2,70 m Framax-Ausschalelement 2,70 m</p> <p>Painted blue</p> <p>Width: 30 cm</p> 	130.3	588145	<p>Framax universal walings Rails de blocage Framax Framax-Klemmschienen</p> <p>Painted blue</p> 		
			<p>Framax universal waling 0.90 m Framax universal waling 1.50 m</p>	10.3 16.8	588150 588148
			<p>Framax universal corner waling Rail de blocage d'angle Framax Framax-Eckklemmschiene</p> <p>Painted blue</p> <p>Leg length: 60 cm</p> 	12.8	588151
<p>Framax quick acting clamp RU Serrage rapide Framax RU Framax-Schnellspanner RU</p> <p>Galvanised</p> <p>Length: 20 cm</p> 	3.3	588153	<p>Framax wedge clamp Pince de serrage Framax Framax-Spannklemme</p> <p>Galvanised</p> <p>Length: 21 cm</p> 	1.6	588152
<p>Framax multi function clamp Tendeur rapide universel Framax Framax-Uni-Spanner</p> <p>Galvanised</p> <p>Length: 40 cm</p> 	5.2	588169	<p>Framax wedge R Clavette de serrage Framax R Framax-Spannkeil R</p> <p>Galvanised</p> <p>Height: 11 cm</p> 	0.20	588155
<p>Framax adjustable clamp * Tendeur de compensation Framax Framax-Ausgleichsspanner</p> <p>Galvanised</p> <p>Length: 48 cm</p> 	5.3	588168	<p>Packed in units of 120</p> <p>Framax wedge bolt RA 7.5 Broche à clavette Framax RA 7,5 Framax-Keilbolzen RA 7,5</p> <p>Galvanised</p> <p>Length: 15 cm</p> 	0.34	588159
<p>Safety instruction: Never weld or heat tie-rods - risk of fracture!</p> <p>* Only on sale in Austria!</p>			<p>Packed in units of 100</p> <p>Framax stop-end tie Ancrage d'about Framax Framax-Stirnanker</p> <p>Galvanised</p> <p>Length: 29 cm</p> 	1.5	588143
<p>Framax universal fixing bolts Boulons d'assemblage universel Framax Framax-Universalverbinder</p> <p>Galvanised</p> 			<p>Max. load: 15 kN</p>		
<p>Framax universal fixing bolt 10 - 16 cm</p> <p>Length: 26 cm</p>	0.60	588158			
<p>Framax universal fixing bolt 10 - 25 cm</p> <p>Length: 36 cm</p>	0.80	583002			
<p>Packed in units of 60 (10 - 16 cm)</p>					

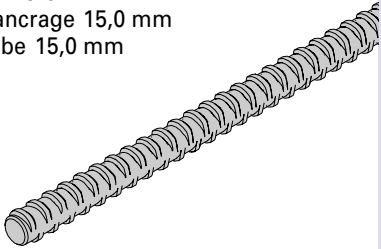
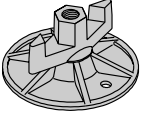
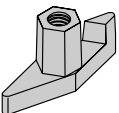


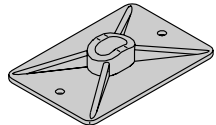
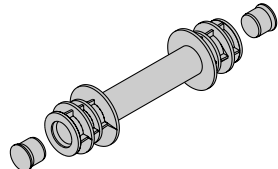
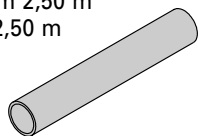
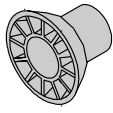

	Weight kg	Article n°		Weight kg	Article n°
<p>Panel struts Etauçons de banche Elementstützen</p> <p>Galvanised</p>  <p>Panel strut 340 consisting of:</p> <ul style="list-style-type: none"> ❶ Strut head (x 2) 3.5 588244 ❷ Strut shoe 2.1 588245 ❸ Adjusting prop 340 14.2 588247 <i>Length: min. 193 cm, max. 341 cm</i> ❹ Adjusting strut 120 7.2 588248 <i>Length: min. 80 cm, max. 130 cm</i> <p>Panel strut 540 consisting of:</p> <ul style="list-style-type: none"> ❶ Strut head (x 2) 3.5 588244 ❷ Strut shoe 2.1 588245 ❸ Adjusting prop 540 29.6 588250 <i>Length: min. 309 cm, max. 550 cm</i> ❹ Adjusting strut 220 10.6 588251 <i>Length: min. 171 cm, max. 227 cm</i> <p>N.B.: Please observe all applicable safety regulations.</p> <p>How delivered: Collapsed</p>	30.5	588246	<p>Adjustable plumbing strut Etauçon grande hauteur Einrichtstrebe</p> <p>Painted blue</p>  <p>consisting of:</p> <ul style="list-style-type: none"> ❶ Spindle head (galvanised) 3.6 584322 ❷ Spindle element without hinged end-plate 30.6 584316 ❸ Intermediate tube 3.70 m 80.0 584318 ❹ Intermediate tube 2.40 m 54.6 584317 ❺ Spindle element with hinged end-plate 38.4 584315 <p>N.B.: Please observe all applicable safety regulations.</p> <p>How delivered: Separate parts</p>	3.2	584319
<p>Spindle wrench Clé étauçon GH Spindelschlüssel</p> <p>Painted blue</p> <p><i>Length: 96 cm</i></p> 					

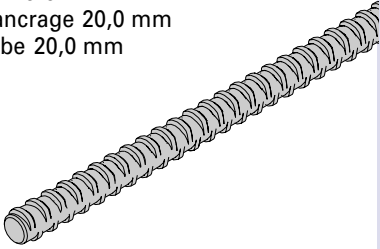
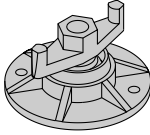

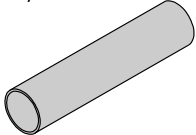
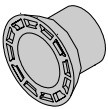
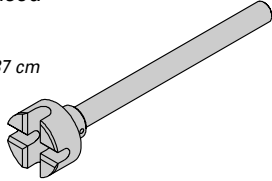
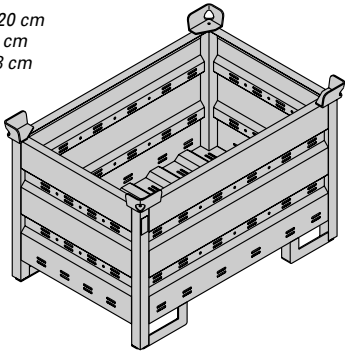
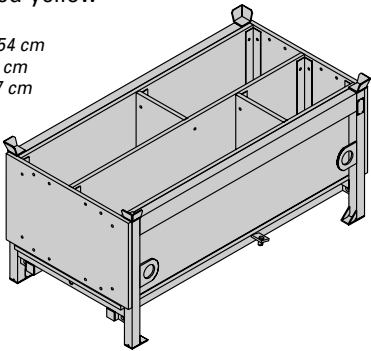
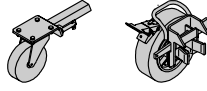
	Weight kg	Article n°		Weight kg	Article n°
<p>Framax lifting chain 3.20 m Elingue 4 brins 3,20 m Framax Framax-Vierergehänge 3,20 m</p>  <p>Max. load: 20 kN</p>	17.0	588230	<p>Framax fitting timbers Fourrures en bois Framax Framax-Paßhölzer</p> <p>Varnished yellow</p> 		
<p>Doka combi lifting chain 3.20 m Ensemble universel de levage 3,20 m Doka Doka-Kombigehänge 3,20 m</p> <p>Dacromet-coated</p>  <p>Max. load: 20 kN Note: Follow the Operating Instructions!</p>	19.4	588133	<p>Framax fitting timber 2 x 12 cm 2.70 m 3.1 176020 Framax fitting timber 3 x 12 cm 2.70 m 4.7 176022 Framax fitting timber 5 x 12 cm 2.70 m 7.8 176024 Framax fitting timber 10 x 12 cm 2.70 m 15.5 176026</p> <p>Framax fitting timber 2 x 12 cm 3.30 m 3.8 176021 Framax fitting timber 3 x 12 cm 3.30 m 5.7 176023 Framax fitting timber 5 x 12 cm 3.30 m 9.5 176025 Framax fitting timber 10 x 12 cm 3.30 m 19.0 176027</p>		
<p>Framax transport gear Sangle de transport Framax Framax-Transportgehänge</p> <p>Yellow, galvanised</p>  <p>Max. load: With 4 slinging angles, 20 kN</p>	13.3	588232	<p>Framax moulded timbers Liteaux profilés Framax Framax-Profilhölzer</p> <p>Varnished yellow</p>  <p>Framax moulded timber 9.5 x 6 cm 2.70 m 7.6 176012 Framax moulded timber 10 x 6 cm 2.70 m 8.0 176010 Framax moulded timber 9.5 x 6 cm 3.30 m 9.3 176013 Framax moulded timber 10 x 6 cm 3.30 m 9.8 176011</p>		
<p>Framax lifting hook Crochet de levage Framax Framax-Umsetzbügel</p> <p>Galvanised</p> <p>Width: 16 cm Height: 27 cm</p>  <p>Max. load: 10 kN</p>	10.5	588149	<p>Framax formwork stripping timbers Bois biseauté pour décoffrage Framax Framax-Ausschalhölzer</p> <p>Varnished yellow</p> 		
<p>Framax safety angle Cornière de sécurité Framax Framax-Sicherungswinkel</p> <p>Painted blue</p> <p>Length: 13 cm</p> 	0.56	588147	<p>Framax fwk.stripping tim.10x12 cm 2.85 m 16.4 176008 Framax fwk.stripping tim.10x12 cm 3.45 m 19.9 176014</p>		

	Weight kg	Article n°		Weight kg	Article n°
Framax steel closure plates Pièces de compensation Framax Framax-Stahlausgleich Powder-coated, blue 			Framax pressure plate 6/15 Plaque d'appui Framax 6/15 Framax-Druckplatte 6/15 Galvanised <i>Length: 15 cm</i> <i>Height: 6 cm</i> 	0.80	588183
			Framax anchoring bracket Equerre d'ancrage Framax Framax-Ankerhaltewinkel Painted blue <i>Width: 9 cm</i> <i>Height: 13 cm</i> 	1.4	588188
			Framax foundation clamp 0.90 m Serrage pour fondation Framax 0,90 m Framax-Fundamentspanner 0,90 m Galvanised <i>Height: 94 cm</i> 	4.9	588141
Framax steel closure plate 5 cm/2.70 m 14.0 588273 Framax steel closure plate 5 cm/1.35 m 7.9 588272 Framax steel closure plate 5 cm/3.30 m 17.2 588274 Framax steel closure plate 6 cm/2.70 m 16.0 588277 Framax steel closure plate 6 cm/1.35 m 9.2 588276 Framax steel closure plate 6 cm/3.30 m 20.0 588278					
Framax connecting timber Fixation pour buton bois Framax Framax-Anklemmholz Varnished yellow <i>Width: 10 cm</i> 	0.70	176030			
Framax triangular ledge 2.70 m Liteau triangulaire Framax 2,70 m Framax-Dreikantleiste 2,70 m 	0.38	588170	Doka perforated tape 50 x 2.0 mm, 25 m Bande perforée Doka 50 x 2,0 mm, 25 ml Doka-Lochband 50 x 2,0 mm, 25 lfm 	17.5 /roll	588206
			Framax clamping bolt 4 - 8 cm Boulon d'assemblage Framax 4 - 8 cm Framax-Klemmschraube 4 - 8 cm Galvanised <i>Length: 19 cm</i> 	0.41	588107
Framax frontal triangular ledge 2.70 m Liteau triangulaire frontal Framax 2,70 m Framax-Stirndreikantleiste 2,70 m Grey 	1.9	588129	Universal plug R 20/25 Bouchon de fermeture universel R 20/25 Kombi-Ankerstopfen R 20/25 Colourless <i>ø 3 cm</i> 	0.003	588180
			Packed in units of 100		

	Weight kg	Article n°		Weight kg	Article n°
<p>Framax plug R 24.5 Bouchon de fermeture Framax R 24,5 Framax-Abdeckstopfen R 24,5</p> <p>Dark brown</p>  <p>ø 2 cm</p> <p>Packed in units of 100</p>	0.003	588181	<p>Handrail clamp S Montant de garde-corps à pince 110 Schutzgeländerzwinge S</p> <p>Galvanised</p> <p>Height: min. 123 cm, max. 171 cm</p> 	11.4	580470
<p>Plug R 25 for closure plate Bouchon pièce compensation R 25 Ausgleichsblechstopfen R 25</p> <p>Black</p>  <p>ø 3 cm</p>	0.003	588187	<p>Side handrail clamping unit T Unité de garde-corps lateral T Seitenschutzgeländer T</p> <p>Galvanised</p> <p>Length: min. 115 cm max. 175 cm</p> <p>Height: 112 cm</p> 	29.1	580488
<p>Framax stacking cone Cône de transport Framax Framax-Stapelkonus</p> <p>Blue</p>  <p>ø 2 cm</p> <p>Safety instruction: It is strictly forbidden to move stacks of panels without any safeguard (e.g. stacking cones) to prevent slippage!</p> <p>Packed in units of 500</p>	0.02	588234	<p>Framax bracket 90 Console Framax 90 Framaxkonsole 90</p> <p>Galvanised</p> <p>Length: 103 cm Height: 190 cm</p>  <p>N.B.: Please observe all applicable safety regulations. Bracket must be secured against lift-out. Given a max. load of 150 kg/m², the brackets must be used with a max. influence width of 2.00 m.</p> <p>How delivered: Guardrails included</p>	12.5	588167

	Weight kg	Article n°		Weight kg	Article n°
<p>Framax pouring platform O 1.25/2.70 m Passerelle de bétonnage Framax O 1,25/2,70 m Framax-Betonierbühne O 1,25/2,70 m</p> <p>Steel parts galvanised, timber parts varnished yellow</p>  <p>Max. load: 150 kg/m² How delivered: Collapsed</p>	117.0	588360	<p>Framax triangular brace Fermette Framax Framax-Abstützdreieck</p> <p>Galvanised</p> <p><i>Length: 119 cm</i> <i>Width: 62 cm</i> <i>Height: 106 cm</i></p> 	26.2	588290
			<p>Adapting piece for Framax triangular brace Adaptateur pour fermette Framax Framax-Adapter für Abstützdreieck</p> <p>Galvanised</p> <p><i>Length: 64 cm</i></p> 	6.5	588291
			<p>Plankings for Framax bracket Platela ges deconsole Framax Framax-Konsolenbeläge</p> <p>Galvanised</p> 		
<p>Framax pouring platform U 1.25/2.70 m Passerelle de bétonnage U Framax 1,25/2,70 m Framax-Betonierbühne U 1,25/2,70 m</p> <p>Steel parts galvanised, timber parts varnished yellow</p>  <p>Max. load: 150 kg/m² How delivered: Collapsed</p>	124.0	588377	<p>Planking for Framax bracket 0.75/2.70 m Planking for Framax bracket 0.17/2.70 m</p> <p>36.3 8.0</p> <p>588292 588293</p>		
			<p>Doka column formwork platform 150/90 cm Passerelle Doka 150/90 cm pour coffrage-poteau Doka-Stützenbühne 150/90 cm</p> <p>Galvanised</p> <p><i>Length: 173 cm</i> <i>Width: 173 cm</i> <i>Height: 130 cm</i></p>  <p>Max. load: 150 kg/m² How delivered: Collapsed</p>	211.8	588382

	Weight kg	Article n°		Weight kg	Article n°
<p>Tie rods 15.0 mm Tiges d'ancrage 15,0 mm Ankerstäbe 15,0 mm</p> 		<p>tested DIN 18216</p>			
<p>Tie rod 15.0 mm, galvanised Tie rod 15.0 mm, untreated</p> <p>Max. load with safety factor of 1.6: 120 kN Max. load to DIN 18216: 90 kN Breaking load: 195 kN</p> <p>Safety instruction: Never weld or heat tie-rods - risk of fracture!</p>	1.4 1.4 /m	581824 581873			
<p>Super plate 15.0 Plaque super 15,0 Superplatte 15,0</p>  <p>Galvanised</p> <p>ø 12 cm Height: 6 cm Width-across: 27 mm</p> <p>Max. load with safety factor of 1.6: 120 kN Max. load to DIN 18216: 90 kN Breaking load: >rod breaking load (>195 kN)</p> <p>Packed in units of 20</p>	0.91	581966	<p>tested DIN 18216</p>		
<p>Wing nut 15.0 Ecrou papillon 15,0 Flügelmutter 15,0</p>  <p>Galvanised</p> <p>Length: 10 cm Height: 5 cm Width-across: 27 mm</p> <p>Max. load with safety factor of 1.6: 120 kN Max. load to DIN 18216: 90 kN Breaking load: >rod breaking load (>195 kN)</p> <p>Packed in units of 80</p>	0.31	581961	<p>tested DIN 18216</p>		
<p>Hexagon nut 15.0 Ecrou hexagonal 15,0 Sechskantmutter 15,0</p>  <p>Galvanised</p> <p>Length: 5 cm Width-across: 30 mm</p> <p>Max. load with safety factor of 1.6: 120 kN Max. load to DIN 18216: 90 kN Breaking load: >rod breaking load (>195 kN)</p> <p>Packed in units of 150</p>	0.23	581964	<p>tested DIN 18216</p>		
<p>Star grip nut 15.0 G Ecrou étoilé 15,0 G Sternmutter 15,0 G</p>  <p>Galvanised</p> <p>Width: 10 cm Height: 5 cm Width-across: 30 mm</p> <p>Packed in units of 40</p>	0.47	587544			
<p>Angle anchor plate 12/18 Plaque pour ancrage oblique 12/18 Winkelplatte 12/18</p>  <p>Galvanised</p> <p>Mounted on steel: Max. load with safety factor of 1.6: 120 kN Max. load to DIN 18216: 90 kN</p> <p>Mounted on timber: Max. load to DIN 18216: 30 kN</p> <p>Packed in units of 20</p>	1.3	581934	<p>tested DIN 18216</p>		
<p>Distancer Fourreau écarteur Distanzhalter</p>  <p>Grey</p>					
<p>Distancer 20 cm Distancer 24 cm Distancer 25 cm Distancer 30 cm Distancer 36 cm</p> <p>Packed in units of 50</p> <p>N.B.: Observe the fitting instructions!</p>	0.05 0.08 0.09 0.10 0.12	581907 581898 581908 581909 581899			
<p>Plastic tube 22 mm 2.50 m Tube synthétique 22 mm 2,50 m Kunststoffrohr 22 mm 2,50 m</p>  <p>ø 3 cm</p>	0.45	581951			
<p>Universal cone 22 mm Cône universel 22 mm Universalkonus 22 mm</p>  <p>ø 4 cm</p> <p>Packed in units of 500</p>	0.005	581995			
<p>Plug 22 mm Bouchon de fermeture 22 mm Verschlussstopfen 22 mm</p>  <p>Grey</p> <p>ø 2 cm</p> <p>Packed in units of 1000</p>	0.003	581953			

	Weight kg	Article n°		Weight kg	Article n°
Tie rods 20.0 mm Tiges d'ancrage 20,0 mm Ankerstäbe 20,0 mm 					
Tie rod 20.0 mm, galvanised Tie rod 20.0 mm, untreated	2.5 2.5 /m	581410 581403			
Max. load with safety factor of 1.6: 220 kN Max. load to DIN 18216: 150 kN Breaking load: 354 kN Safety instruction: Never weld or heat tie-rods - risk of fracture!					
Super plate 20.0 B Plaque super 20,0 B Superplatte 20,0 B Galvanised ø 14 cm Height: 7 cm Width-across: 34 mm 	2.0	581424			
Max. load with safety factor of 1.6: 220 kN Max. load to DIN 18216: 150 kN Breaking load: >rod breaking load (>354 kN) Packed in units of 10					
Hexagon nut 20.0 Ecrou hexagonal 20,0 Sechskantmutter 20,0 Galvanised Length: 7 cm Width-across: 41 mm 	0.60	581420			
Max. load with safety factor of 1.6: 220 kN Max. load to DIN 18216: 150 kN Breaking load: >rod breaking load (>354 kN) Packed in units of 50					
Plastic tube 32 mm 2.00 m Tube synthétique 32 mm 2,00 m Kunststoffrohr 32 mm 2,00 m ø 4 cm 	0.62	581460			
Universal cone 32 mm Cône universel 32 mm Universalkonus 32 mm Black ø 5 cm 	0.008	581461			
Spanner for tie rod 15.0/20.0 Clé pour tige d'ancrage 15,0/20,0 Ankerstabschlüssel 15,0/20,0 Galvanised ø 8 cm Length: 37 cm 				1.9	580594
Doka multi-trip transport box 1200 x 800 Bac de transport réutilisable Doka 1200 x 800 Doka-Mehrwegcontainer 1200 x 800 Galvanised Length: 120 cm Width: 80 cm Height: 78 cm 				75.0	583011
Max. load: 15 kN					
Doka accessory box Bac de rangement Doka Doka-Kleinteilebox Steel parts galvanised, timber parts varnished yellow Length: 154 cm Width: 83 cm Height: 77 cm 				106.4	583010
Max. load: 10 kN					
Bolt-on castor set Jeu de roues orientables Anklemm-Radsatz Painted blue consisting of: 2 x bolt-on casters, complete Overall depth: 23 cm 2 x heavy-duty wheels, complete Overall depth: 32 cm 				33.5	586154
Max. load: 11 kN					

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