

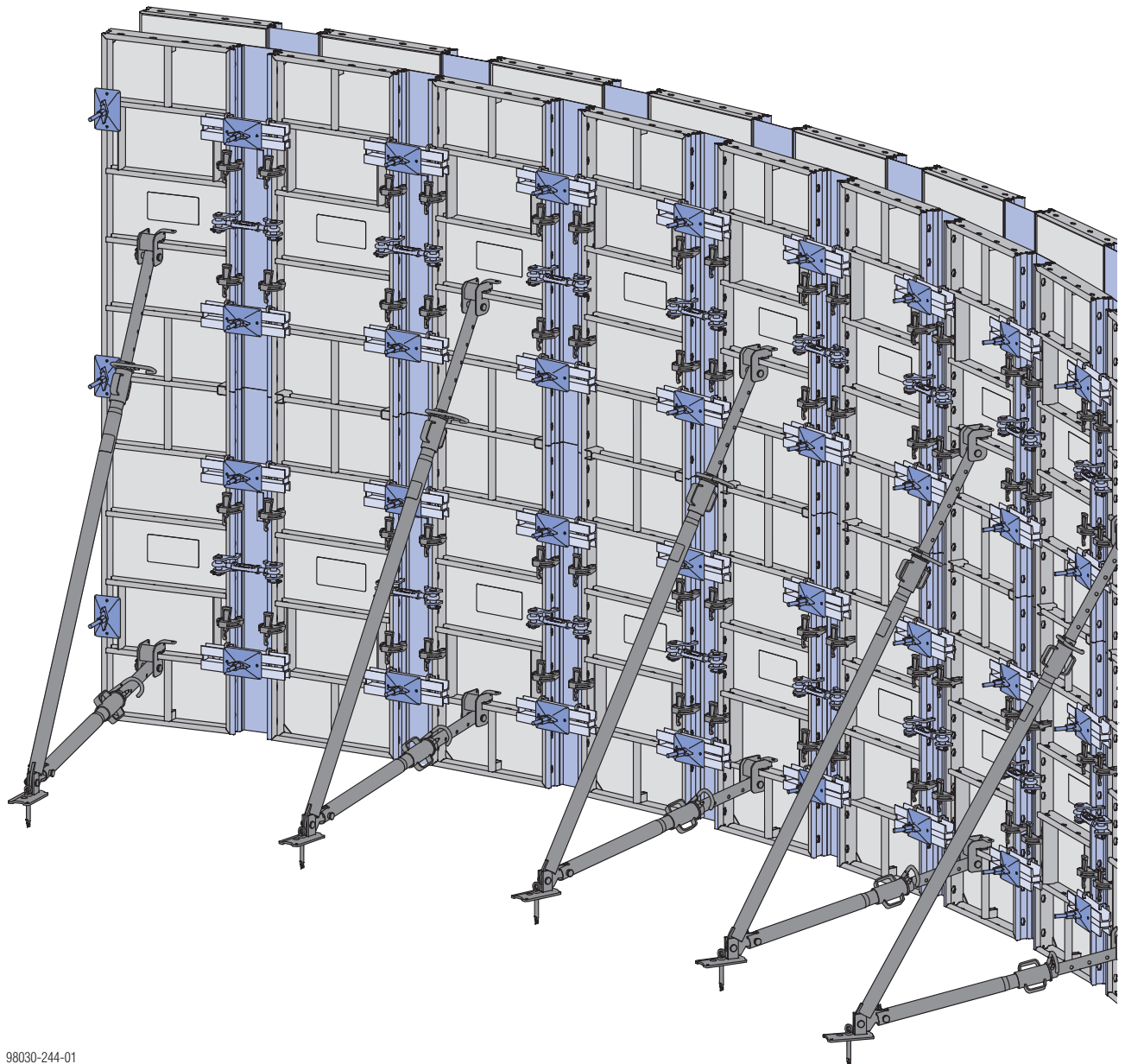
The Formwork Experts.

Circular formwork Frami Xlife

Framed formwork Frami Xlife

User Information

Instructions for assembly and use (Method statement)



98030-244-01

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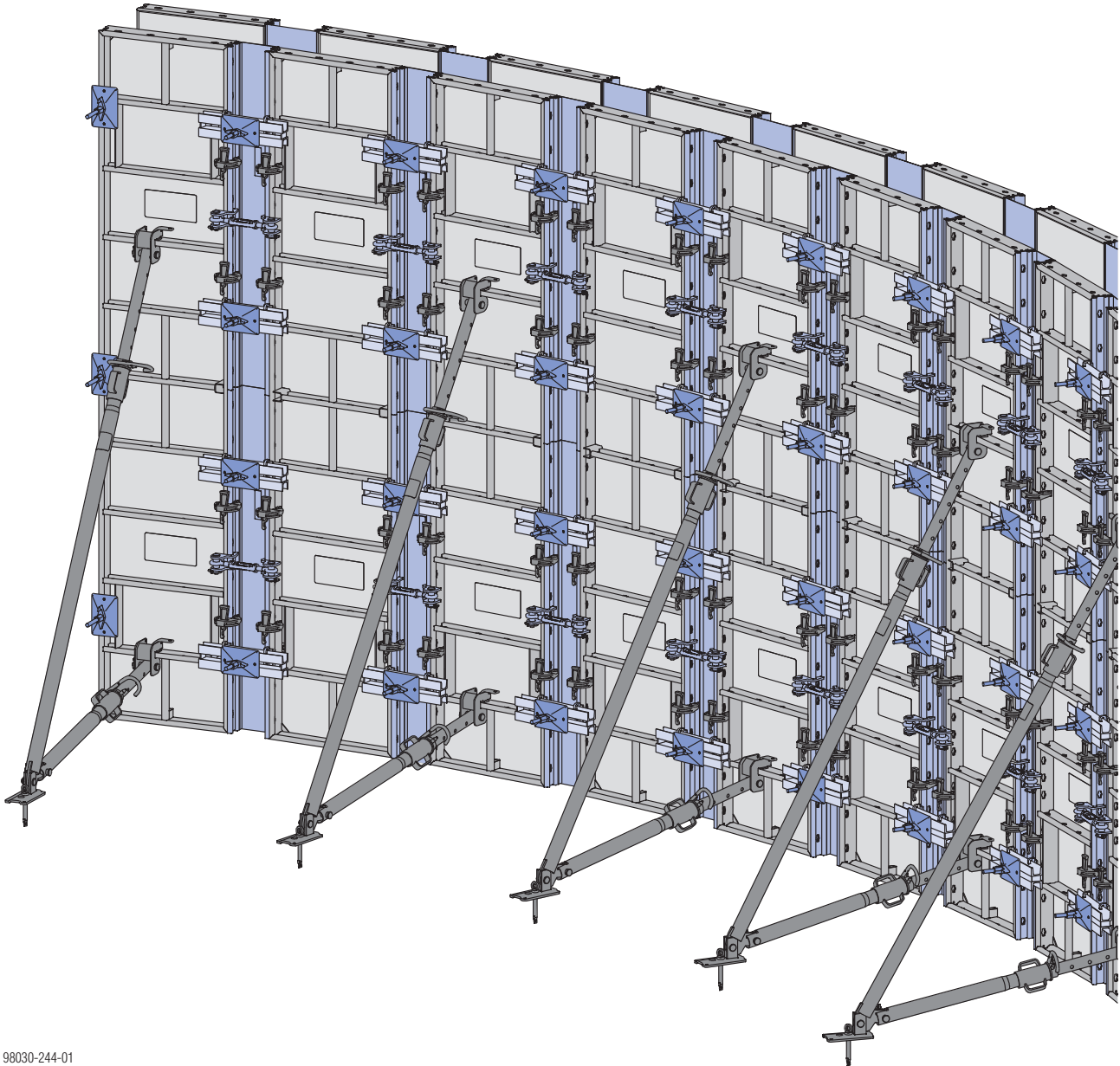
System description

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

With the Frami circular forming plates and the panels of the Frami Xlife framed formwork, "circular" (i.e. polygonal) structures can be formed.

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

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



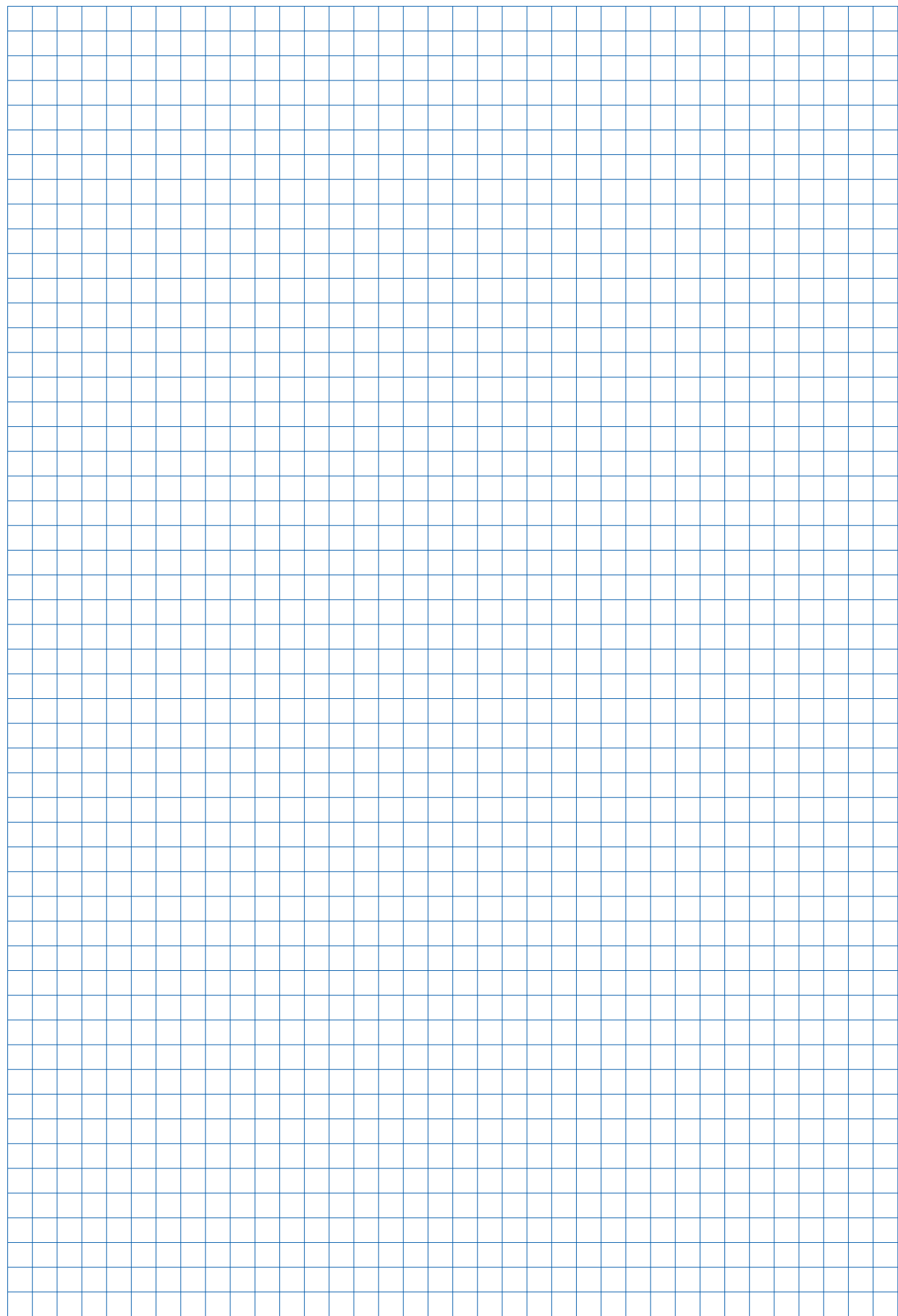
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Shown here on Frami Xlife panels 3.00m.



NOTICE

This document is only valid in conjunction with the following underlying document(s):
'Framed formwork Frami Xlife' or 'Frami Xlife / Frami eco' User Information booklet!



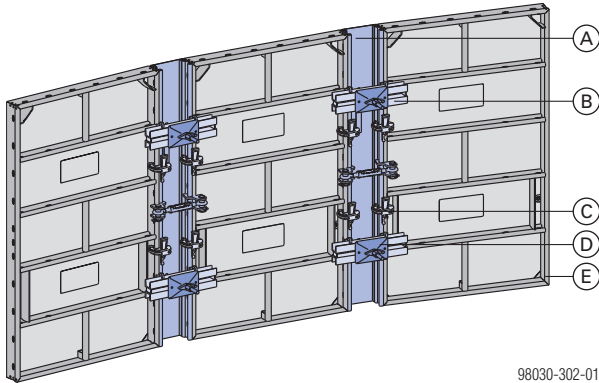
Design of the circular formwork

By combining the Frami circular forming plates with the Frami Xlife panels, round structures – of any radius – can be formed.

Note:

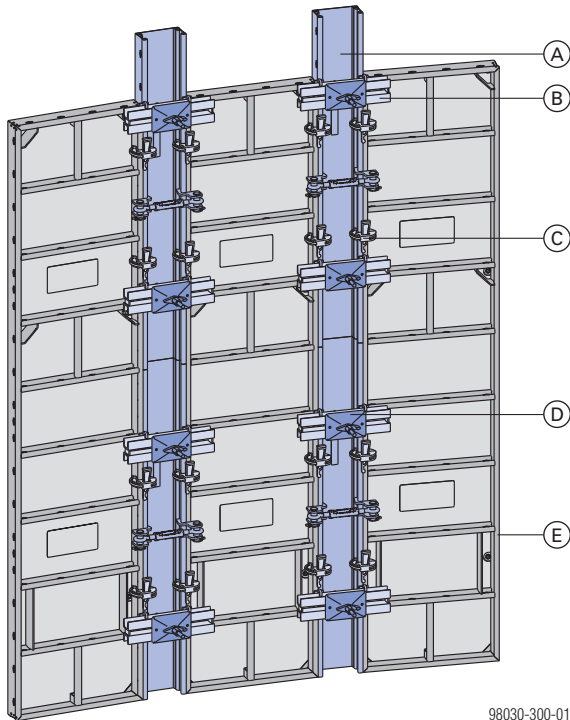
Minimum inside radius: 1.80 m

In the same way as with the wall formwork, all that is needed to connect the Frami circular forming plates to the Frami Xlife panels is the **Frami clamp** – and a blow of the hammer.



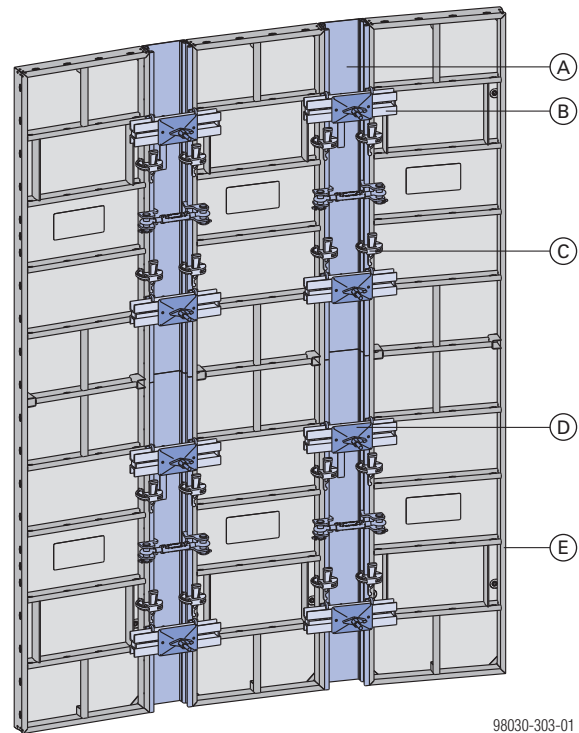
98030-302-01

Shown here on Frami Xlife panels 1.50m.



98030-300-01

Shown here on Frami Xlife panels 2.70m.

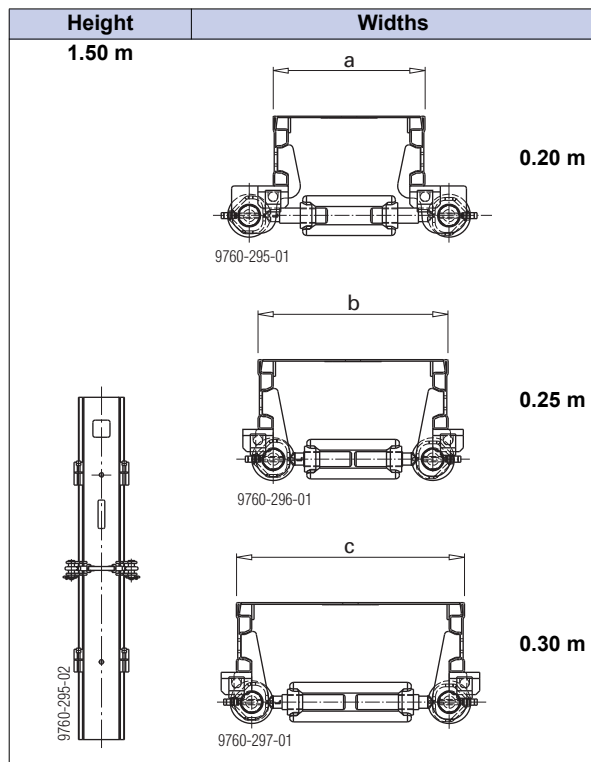


98030-303-01

Shown here on Frami Xlife panels 3.00m.

- A** Frami circular forming plate
- B** Frami anchor waling 0.40m
- C** Frami clamp
- D** Angle anchor plate 12/18 with Wing nut 15.0
- E** Frami Xlife panel

Frami circular forming plates

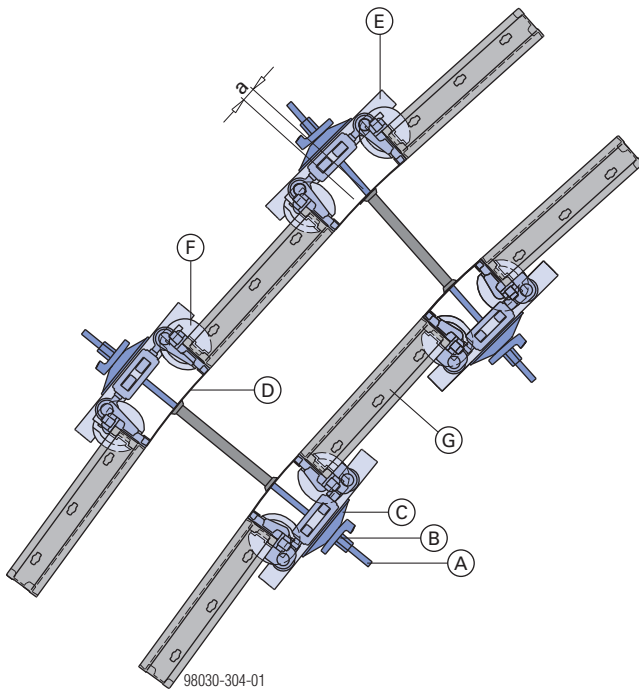


a ... 20 cm, b ... 25 cm, c ... 30 cm

Using the different widths of circular forming plate:

- **0.20 m**
 - Inside circular forming plate
 - Outside circular forming plate (for length adjustment)
- **0.25 m**
 - Outside circular forming plate
- **0.30 m**
 - Outside circular forming plate

Tying the circular forming plates



a ... maximum tie-rod displacement = ± 2.5 cm

- A** Tie-rod 15.0mm
- B** Wing nut 15.0
- C** Angle anchor plate 12/18
- D** Frami circular forming plate
- E** Frami anchor waling 0.40m
- F** Frami clamp
- G** Frami Xlife panel

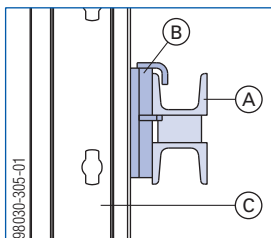
Note:

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



When adjusting the Frami circular forming plates, ensure that the top and bottom turn-buckle are turned uniformly!

Close-up view showing how the Frami anchor waling 0.40m is fastened:



- A** Frami anchor waling 0.40m
- B** Support and retainer for Frami anchor waling 0.40m
- C** Frami circular forming plate

Closing the full-circle formwork

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



NOTICE

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

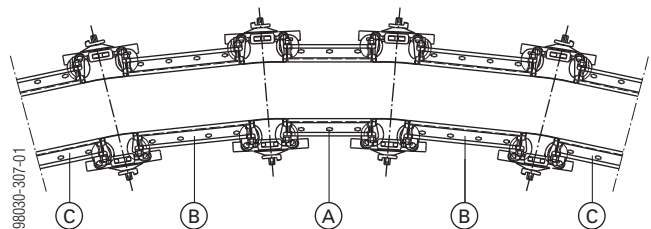
- To keep the load transferred via the Frami anchor waling 0.40m as uniform as possible, adjacent panels may not have bigger width differences than those of the standard incremental width grid.
- This also applies to transition zones to straight walls, and to stop-ends.



NOTICE

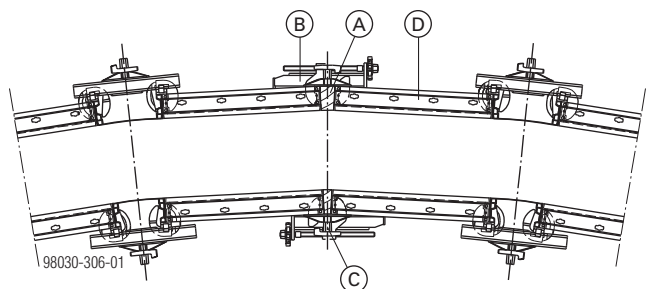
With circular formwork, it is particularly important to ensure uniform pouring.

Closure with Frami Xlife panel



- A** Frami Xlife panel e.g. 0.45m
- B** Frami Xlife panel e.g. 0.60m
- C** Frami Xlife panel e.g. 0.75m

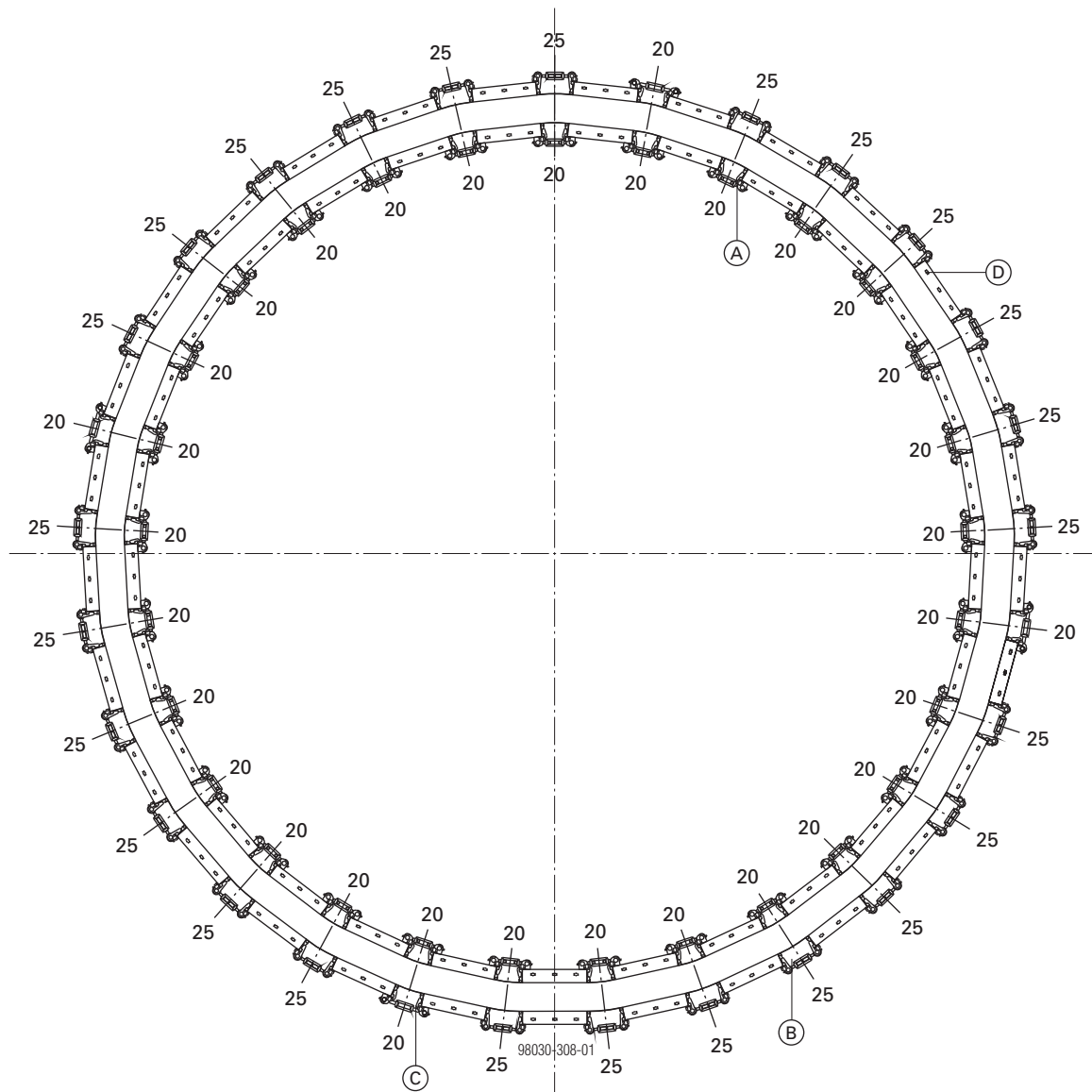
Closures with wedged timbers



- A** Wedged timber
- B** Frami adjustable clamp
- C** Angle anchor plate 12/18 + Wing nut 15.0
- D** Frami Xlife panel

Example of formwork

- Type of structure: Circular tank
- Inside radius of structure: 3.00 m
- Wall thickness: 0.20 m



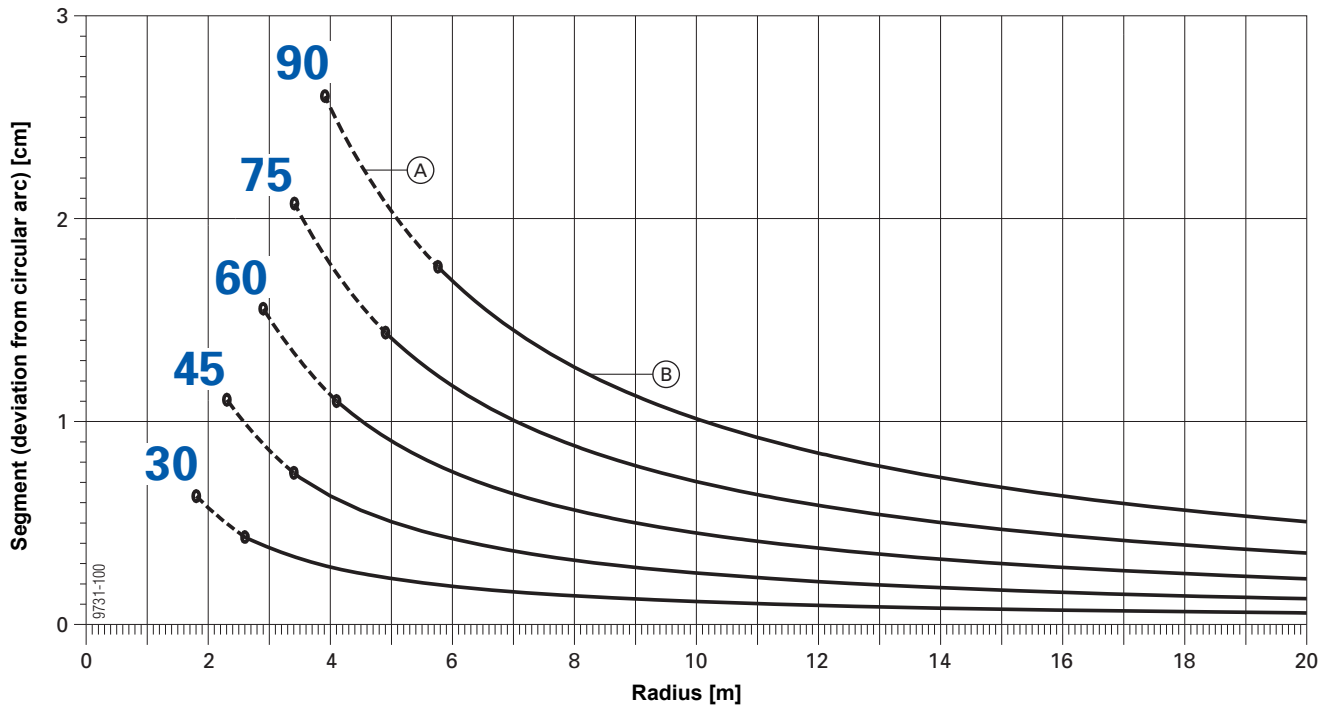
Simplified representation, without details of form ties or panel struts.

- A** Frami circular forming plate 0.20m (for the inside formwork)
- B** Frami circular forming plate 0.25m (for the outside formwork)
- C** Frami circular forming plate 0.20m (for length adjustment; distribute these evenly around circumference)
- D** Frami Xlife panel 0.45m (**Note:** same-sized panels are always used both inside and out.)

Determining the max. panel width

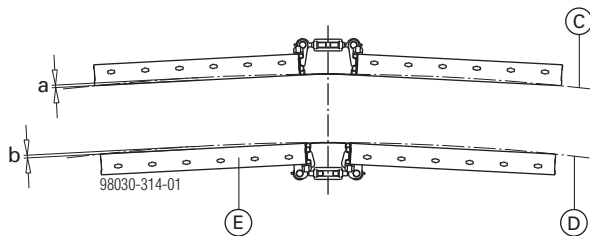
Radius segment diagram for the various widths of panel

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



A Minimum wall thickness = 20 cm

B Minimum wall thickness = 15 cm



a ... Outside segment dimension

b ... Inside segment dimension

C Ideal circular arc (outside radius)

D Ideal circular arc (inside radius)

E Frami Xlife panel

Example:

- Radius: 6.0 m
 - Permitted deviation from circular arc: 1.0 cm
- => Max. panel width: **60 cm**

Determining the best distribution of the panels

Example

Key data of structure:

Inside radius [cm]:	580
Outside radius [cm]:	600
Permitted deviation from circular arc [cm]:	1.0
Length of concreting section [cm]:	911 (1/4 of the inside circumference)

Width of panel:

Determine the max. panel width in the radius segment diagram, with reference to the radius of the structure and the permitted deviation from the circular arc.	Panel width = 60 cm
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Width of circular forming plates for inside formwork:

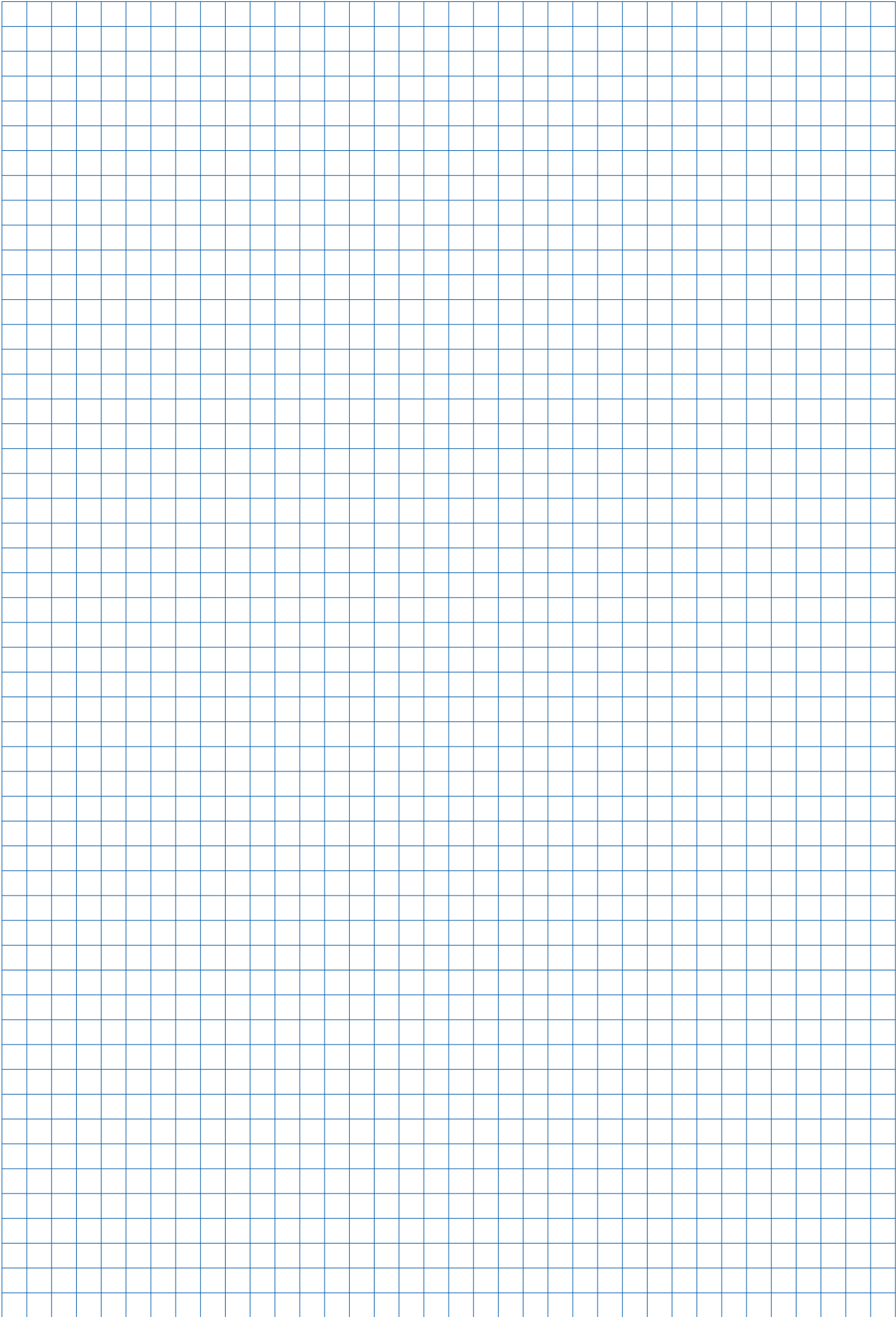
As a general rule, use the Circular forming plate 0.20m with the inside formwork.	Width of circular forming plate = 20 cm
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Number of circular forming plates and panels for inside formwork:

$(\text{Length of concreting section} - \text{panel width}) \div (\text{Panel width} + 20) = \dots$	$(911 - 60) \div (60 + 20) = 10.64$
Number of circular forming plates = Rounded-up result	Number of circular forming plates = 11
Number of panels = Number of circular forming plates + 1	Number of panels = 12

Widths of circular forming plates, and numbers needed for outside formwork:

$(\text{Outside radius} \div \text{inside radius}) \cdot (\text{Panel width} + 20) - \text{Panel width} = \dots$	$(600 \div 580) \cdot (60 + 20) - 60 = 22.76 \text{ cm}$
Select the next smaller Circular forming plate to be the "Type A" Circular forming plate.	Width of "Type A" Circular forming plate = 20 cm
Calculate the difference.	Difference = $(22.76 \text{ cm} - 20 \text{ cm}) = 2.76 \text{ cm}$
Number of Circular forming plates $\cdot (1 - (\text{Difference} \div 5)) = \dots$	$11 \cdot (1 - (2.76 \div 5)) = 4.93$
Number of "Type A" Circular forming plates = Rounded-up result	Number of "Type A" Circular forming plates = 5
Number of "Type B" Circular forming plates = Number of Circular forming plates - number of "Type A" Circular forming plates = ...	Number of "Type B" Circular forming plates = $11 - 5 = 6$
Select the next larger Circular forming plate to be the "Type B" Circular forming plate.	Width of "Type B" Circular forming plate = 25 cm



Erecting and plumbing / Pouring platform / Resetting

Erecting and plumbing

Panel struts ensure that the formwork remains stable against wind loads, and make it easier to plumb and align the formwork.



NOTICE

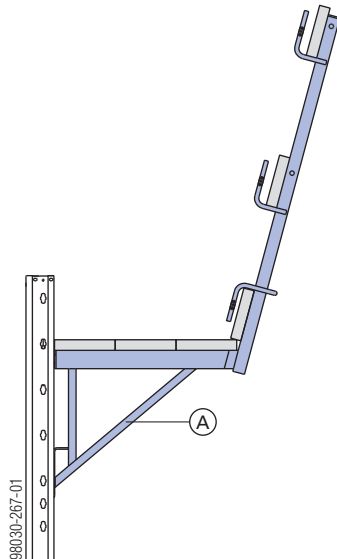
The formwork panels must be held stable in **every** phase of the construction work!
Please observe all applicable safety regulations!



For more information, please refer to the 'Framed formwork Frami Xlife' or 'Frami Xlife / Frami eco' User Information booklets.

Pouring platform

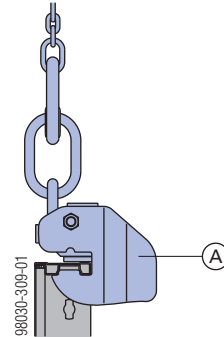
The **Frami brackets 60 (A)** can be used to make a universal pouring platform.



For more information, please refer to the 'Framed formwork Frami Xlife' or 'Frami Xlife / Frami eco' User Information booklets.

Repositioning

Thanks to the spindle-lock, the formwork can be reset using the **Frami lifting hook (A)** even when assembled in a curved configuration.



NOTICE

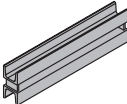
- The maximum size of the unit for resetting will depend - among other things - on the radius that has been set.
- When resetting large gang-forms, ensure that these are sufficiently stiffened.
- Prevent oblique pull, by using long transfer cables (spread-angle β : max. 30°).
- Check that the slip-out guard of the Frami lifting hook has engaged!



Follow the directions in the Operating Instructions!



For more information, please refer to the 'Framed formwork Frami Xlife' or 'Frami Xlife / Frami eco' User Information booklets.

	[kg]	Article n°		[kg]	Article n°
Frami circular forming plate 0.20x1.50m	21.5	588486000			
Frami circular forming plate 0.25x1.50m	22.5	588487000			
Frami circular forming plate 0.30x1.50m	23.5	588488000			
Frami-Bogenblech					
			Powder-coated blue		
Frami anchor waling 0.40m	4.4	588489000			
Frami-Ankerriegel 0,40m					
			Painted blue		

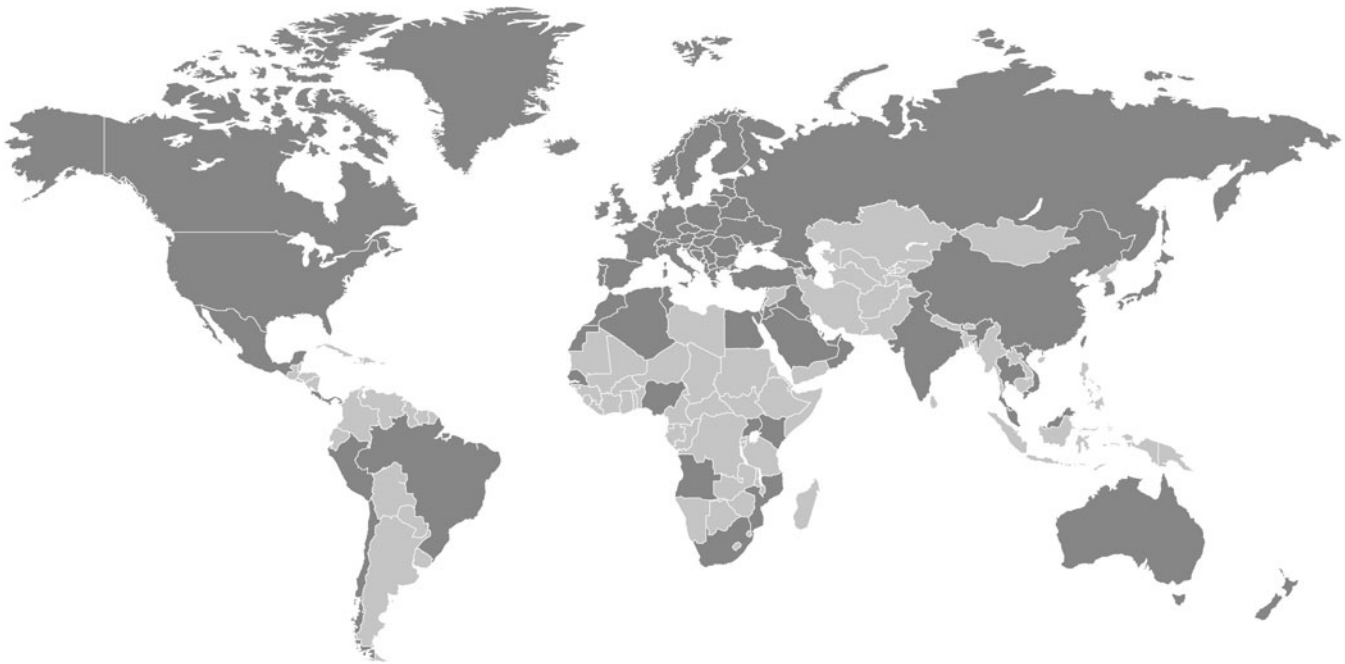
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With more than 160 sales and logistics facilities in over 70 countries, the Doka Group has a highly efficient distribution network which ensures that equipment and

technical support are provided swiftly and professionally.

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