ALTRAD

COFFRAGE
& ÉTAIEMENT
LOCATION
VENTE
MONTAGE

FORMWORK PANELS

FORMWORK

INFORMATIONS

This document is intended for all persons working with the Altrad Formwork & Shoring product described and contains information on the installation and use of the system in accordance with the guidelines.

All persons who work with these various products must be fully familiar with the contents of these documents and their safety information. The use of our products is subject to compliance with the laws and regulations, in their current version, in France. The safety instructions and load specifications must be strictly adhered to. This document can also be used as generally applicable installation and operating instructions or as part of site-specific installation and operating instructions.

Altrad Coffrage & Etaiement reserves the right to make changes for the purpose of technical optimisation. Errors, typographical and printing errors excepted.

Edition : 2023/05
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SUMMARY

PRESENTATION

Characteristiques

FORMWORK FACE

Aluminium panel : Plywood thickness 15 mm all birch long grain special construction, 240 g film.
Weight : 21.5kg/m²
Option: Plastic film 1.5 mm
Edge: 100 mm thick profile
3 rods on the height for the modules height 2700 (and 3000)
2 rods on the height for modules height 1350 (and 1500)

ORIGINAL EQUIPMENT

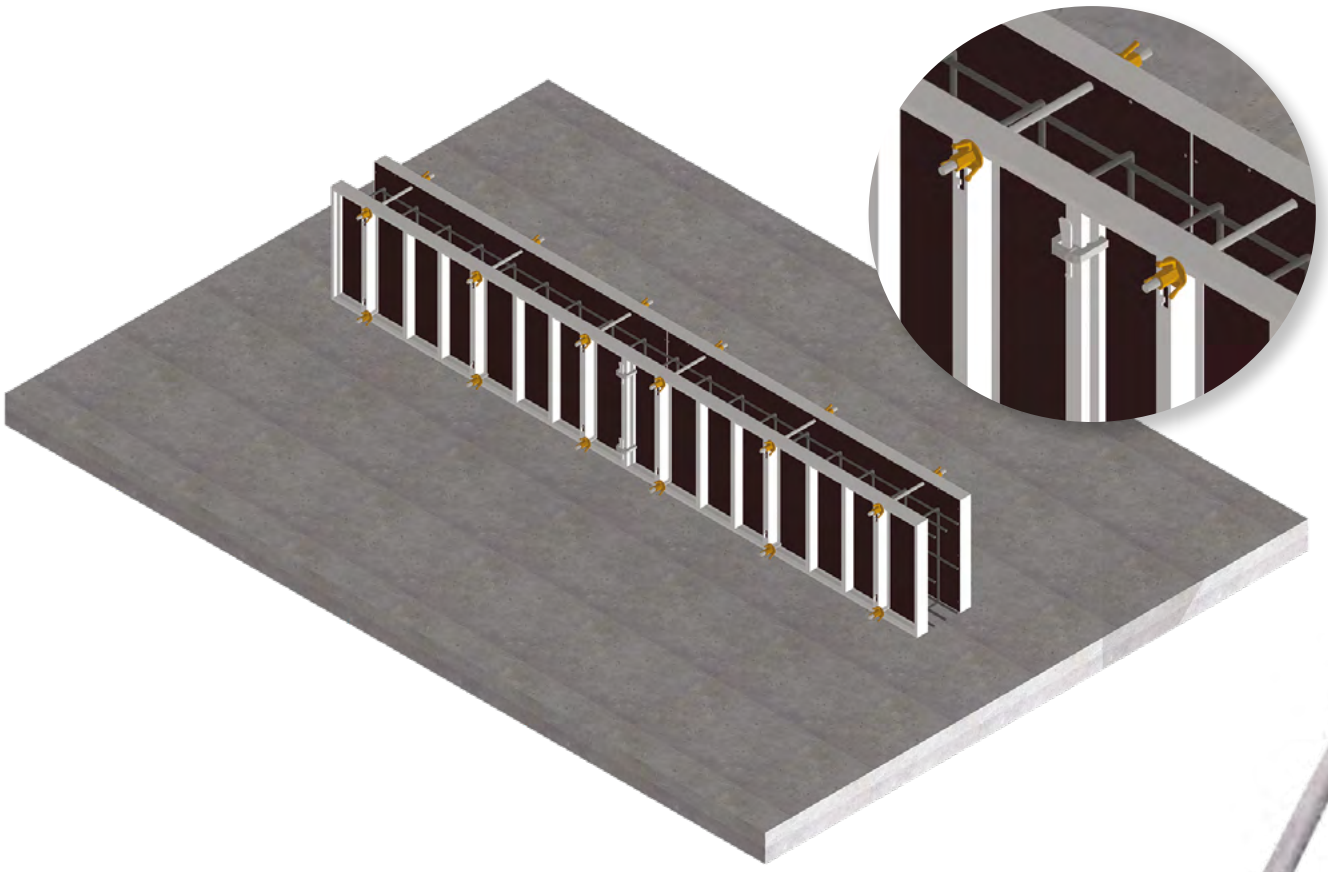
Console de service + potelet garde corps

- Tirant poussant double repliable 170/300 + 80/120
- Accessoires pour about

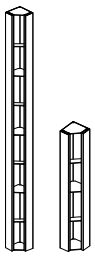
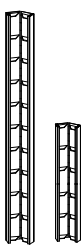
SECURITY

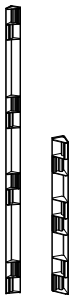
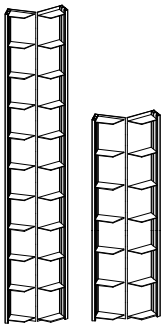
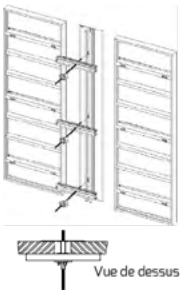
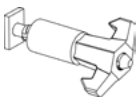
- **Brackets / posts / accessories:** painted
- **Double TP stabiliser:** galvanised
- **Wedge clamp:** galvanised

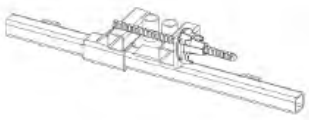
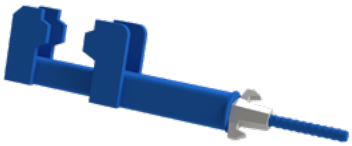
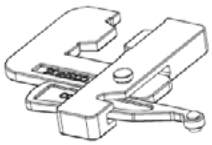
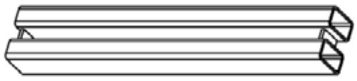
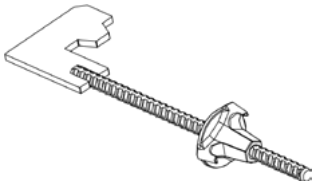
CONCRETE : Permissible concreting pressure 6t/m² (aluminium panels or steel panels)

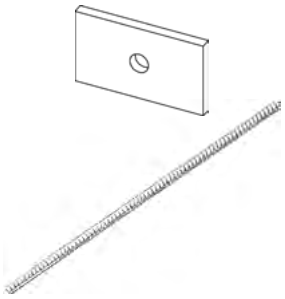
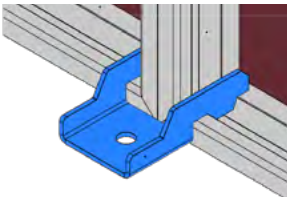


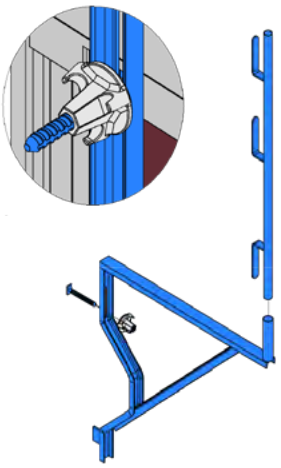
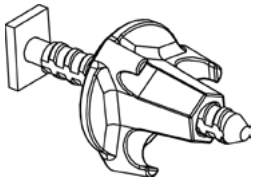
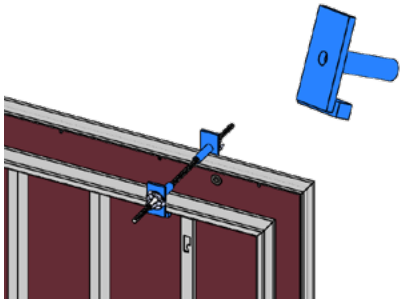
Components

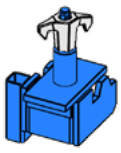
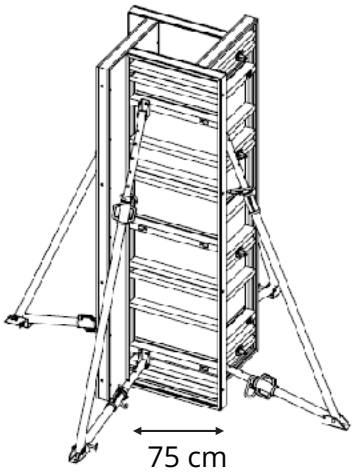
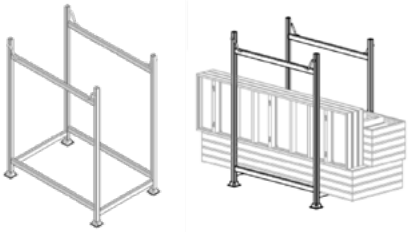
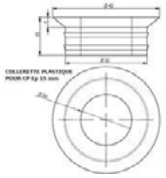
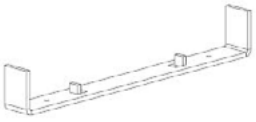
Reference	Weight (Kg)	Characteristiques	Designation	Element
Structure elements				
231-0520	18	H 2700 x 200	ALUMINIUM PANELS (RENTAL & SALES)	
231-0530	22	H2700 x 300		
231-0540	26	H 2700 x 400		
231-0545	29	H 2700 x 450		
231-0560	35	H 2700 x 600		
231-0575	41	H 2700 x 750		
231-0590	50	H 2700 x 900		
231-0575	41	H 2700 x 750		
231-0560	35	H 2700 x 600		
231-0545	29	H 2700 x 450		
231-0540	26	H 2700 x 400		
231-0530	22	H 2700 x 300		
231-0520	18	H 2700 x 200		
231-0790	26	H 1350 x 900		
231-0775	22	H 1350 x 750		
231-0760	19	H 1350 x 600		
231-0745	15	H 1350 x 450		
231-0740	14	H 1350 x 400		
231-0730	12	H 1350 x 300		
231-0720	10	H 1350 x 200		
231-0525A	20	H 2700 x 250	ALUMINIUM PANELS (ONLY FOR SALES)	
231-0535A	24	H 2700 x 350		
231-0550A	35	H 2700 x 500		
231-0599A	58	H 2700 x 1000		
231-0725A	11	H 1350 x 250		
231-0735A	13	H 1350 x 350		
231-0750A	17	H 1350 x 500		
231-0799A	29	H 1350 x 1000		
231-1013	26	200 x 200 x H 1350	INSIDE ANGLE	
231-1027A	49	200 x 200 x H 2700	INSIDE ANGLE	
231-1027B	58	200 x 200 x H 2700	INSIDE CORNER ROD PASSAGE	
231-1113	30	250 x 250 x H 1350	INSIDE ANGLE	
132-1127	58	250 x 250 x H 2700	INSIDE ANGLE	
231-1127	60	250 x 250 x H 2700	INSIDE CORNER ROD PASSAGE	
231-1213	31	175 x H 1350	HINGED INSIDE CORNER	
231-1227	61	175 x H 2700		

Reference	Weight (Kg)	Characteristiques	Designation	Element
231-1413 **231-1427**	18 32	100 x 100 x 1350 100 x 100 x 2700	**OUTSIDE CORNER**	
231-1513 **231-1527**	41 80	257 x 1350 mm 257 x 2700 mm	**HINGED OUTSIDE CORNER**	
231-2013 **231-2027**	20 37	350 x 1350 mm 350 x 2700 mm	**CLOSURE PANEL**	
Stability elements				
112-0120 **112-0170** **112-1290** **119-0010** **231-2830**	8.6 11.3 15.3 1.21 0.70	Bracket For panels 1350 For panels 2700 Fixing (2 unities per stability)	**STABILITY ELEMENTS** TPE 120 TPE 175 TPE 300 DOUBLE PUSH PULL SHOE STOP END WALER FIXING + 3 WINGS NUT REFER TO THE ENGINEERING OFFICE FOR OTHER DIMENSIONS.	 

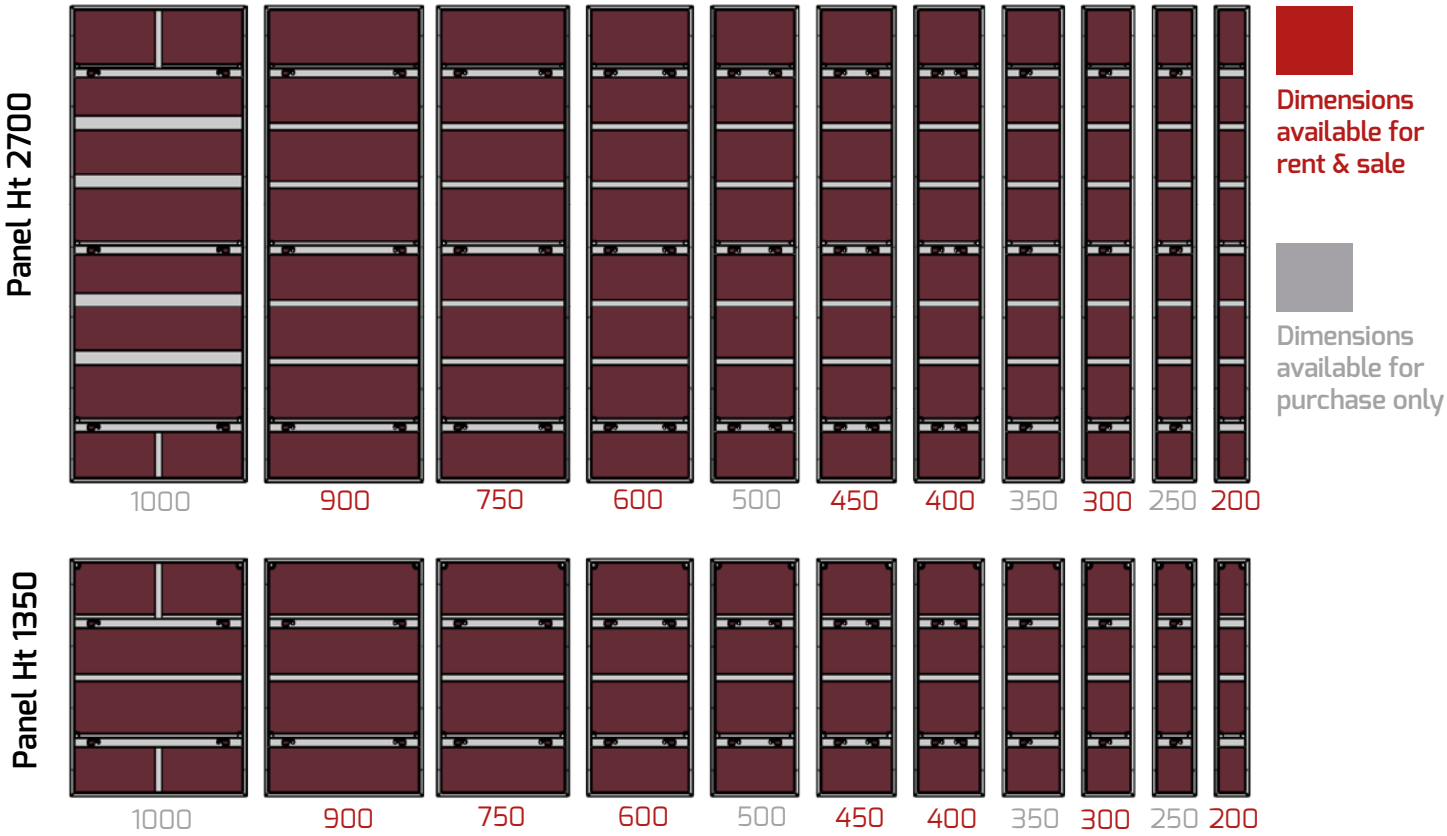
Reference	Weight (Kg)	Characteristiques	Designation	Element
			Accessories	
231-2305A	5	Maximum offset: 85mm	**ADJUSTABLE CLAMP (SHORT)**	
231-2304A	7.50	Reminder: Maximum recommended height of 3m	**ALIGNING CLAMP**	
231-2302	4.70	Max compensation: 110mm without disassembly / 140mm with disassembly	**CORNER CLAMP**	
231-2300	1.5	8 points d'appui	**CLAMP**	
231-2301A	1.9		**CLAMP WITH HORYZONTAL WEDGE** Only for sales	
231-3060 **231-3075** **231-3090** **231-3120** **231-3150** **231-3200**	8 10 13 15 21 28	600 750 900 1200 1500 2000	**WALING**	
231-2840	1.80	Max compensation: 110mm without disassembly / 140mm with disassembly	**STOP END WALER FIXING + 3-WINGS NUT**	

Reference	Weight (Kg)	Characteristiques	Designation	Element
231-2422A	13.6	(To 5 from 50cm)	**ADJUSTABLE STOP END WALING 600+2FIX** Only for sales	
231-4075 **231-4100** **231-4120** **231-4150** **231-4200** **231-4300A** **231-5017**	1.09 1.45 1.74 2.18 2.9 4.35 0.7	75 cm 100 cm 120 cm 150 cm 200 cm 300cm 130x70x10mm	**TIE ROD Ø 17** PLATE FOR Ø 17 TIE ROD	
231-5110B	0.7	Ø 17 with base 70	**3 WINGS NUT**	
231-5115	0.9	Ø 17 with base 110 for support fixation or étrier	**3-WINGS NUT Ø17 P110**	
231-2905	8	steel	**LIFTING HOOK**	
231-8110	0.7	Floor anchor plate	**UPPER SET TIE ROD 15/17**	

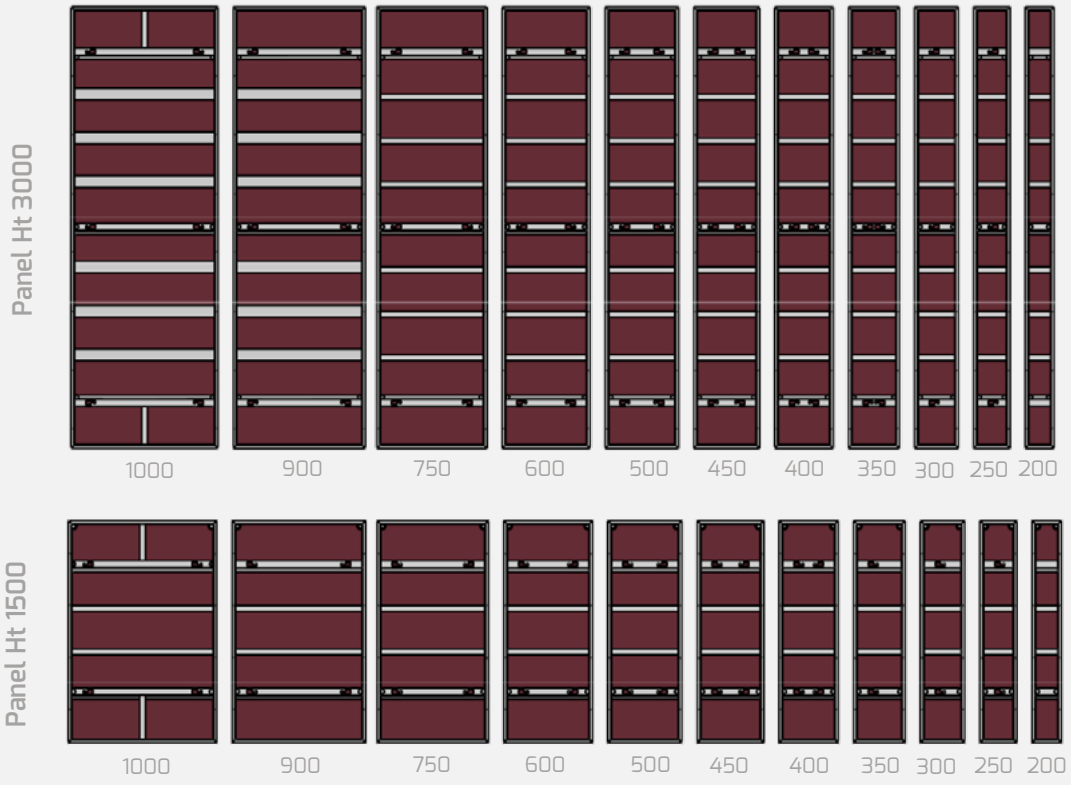
Reference	Weight (Kg)	Characteristiques	Designation	Element
Safety elements				
231-2140 **231-2150** **231-2160**	10.5 3 0.8		**BRACKET** **BRACKET POST** **BRACKET FIX**	
Fixations				
231-2840	0.8		**STOP END WALER FIXING + 3-WINGS NUT**	
231-2830B	0.9		**ALUMINIUM PANEL FIXING**	
Additional elements				
231-8100	1.3	Special floating plate 120x70x10 For passage Upper rod to panel	**UPPER SET TIE ROD 15/17**	

Reference	Weight (Kg)	Characteristiques	Designation	Element
231-2835		Profile mounting for tube support posts and front panel protection tubes SECURITY	**R25 FRONT SAFETY SUPPORT**	
On request Only for sales		Height 3 m - 2.7 m - 1.5 m - 1.35 m 75cm elements pre-drilled every 5cm for use from 10 to 65cm	**ALUMINIUM PANEL UNIVERSAL POLE**	
On request Only for sales	95	Length 1530, width 1020, height 2500 (for 18 panels of 900/2700 or 20 panels of 750/2700) For height 3m - 2,7m	**BASKET**	
231-C015A **231-C015B**	0.20 1.40	**On request** Only for sales	**Ø20 PLASTIC CAP (100PCS)Ø20 PLASTIC CAP (1000PCS)**	
231-C015C	0.50	**On request** Only for sales	**TIE ROD PLASTIC LINING Ø15/20 (50PCS)**	
231-C016A **231-C016B** **231-C016C** **231-C016D** **231-C016E**	22 22 23.25 24.25 42.5	**On request** Only for sales	**15 CM FOUNDATION SPACER (25 PCS)** **16 CM FOUNDATION SPACER (25 PCS)** **18 CM FOUNDATION SPACER (25 PCS)** **20 CM FOUNDATION SPACER (25 PCS)** **25 CM FOUNDATION SPACER (25 PCS)**	

Panels dimensions



Panel sizes 3000 and 1500 are available for sale only.
Please contact your account manager for more informations.

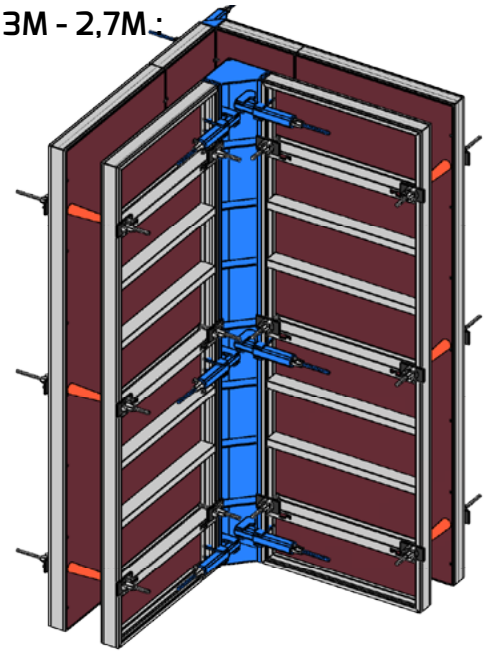


Angles dimension

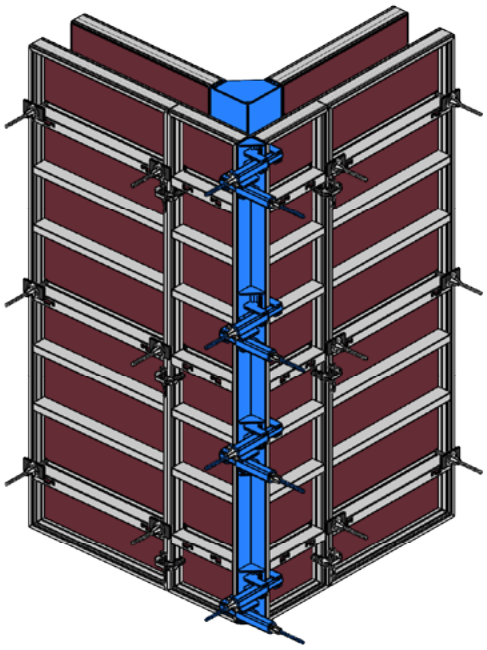
The complete right angle consists of 4 elements:

- 2 x External Aluminium Panels (dimensions to be determined according to the desired thickness of the veil)
- 1 x Inside corner 200/200 or 250/250
- 1 x Outside corner 100/100

HEIGHT 3M - 2,7M :

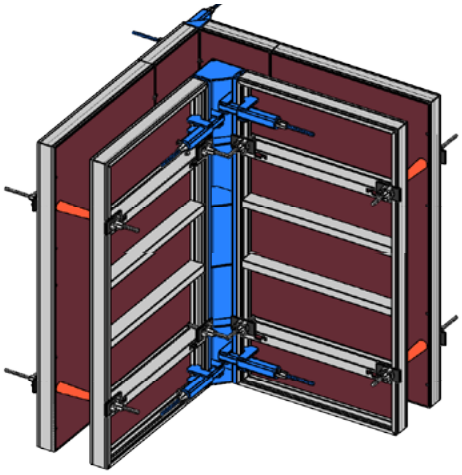


Inside corner 200 x 200
Inside corner 250 x 250
Inside drilled corner 250 x 250

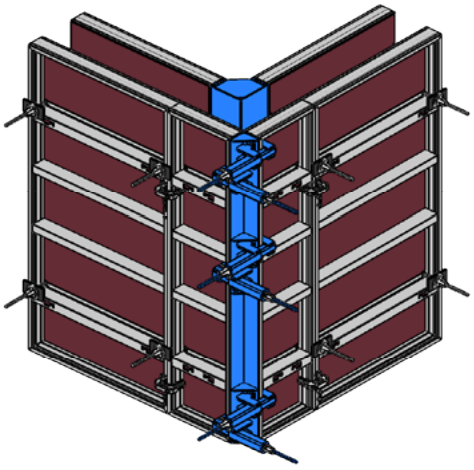


Outside corner 100 x 100

HEIGHT 1.5 - 1,35M :



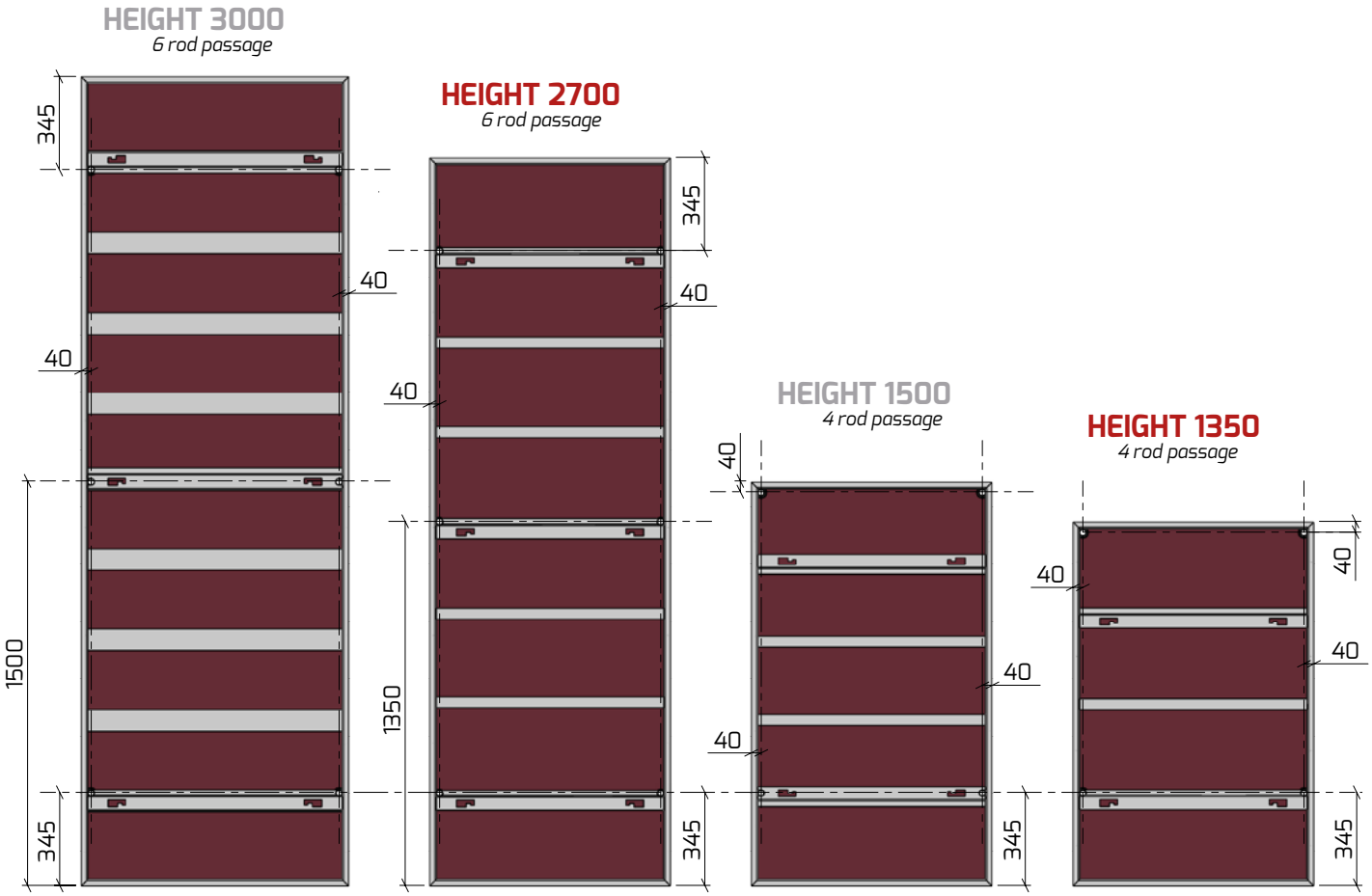
Inside corner 200 x 200
Inside corner 250 x 250
Inside drilled corner 250 x 250



Outside corner 100 x 100

Centre-to-centre dimensions

Rod centre distances :



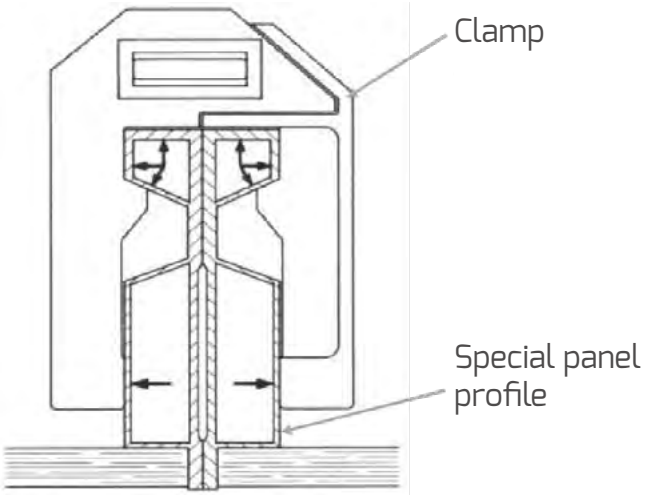
Dimensions available for rent & sale

Dimensions available for purchase only

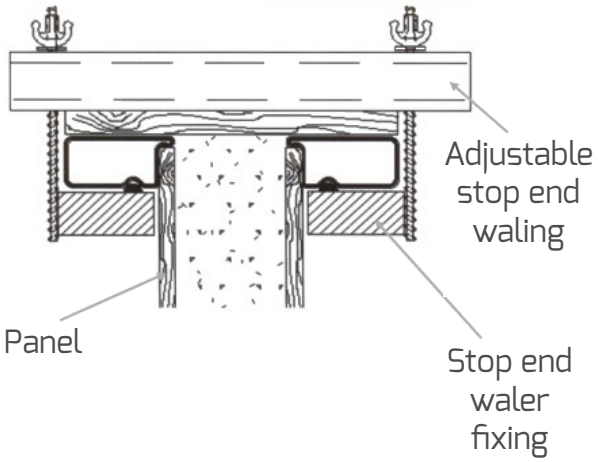
OPERATING MODE

Assembly of accessories

CLAMP POSITIONING AND TIGHTENING



- 8 support points for quality connection and alignment.
- Can be positioned by hand, locked and unlocked with a hammer.



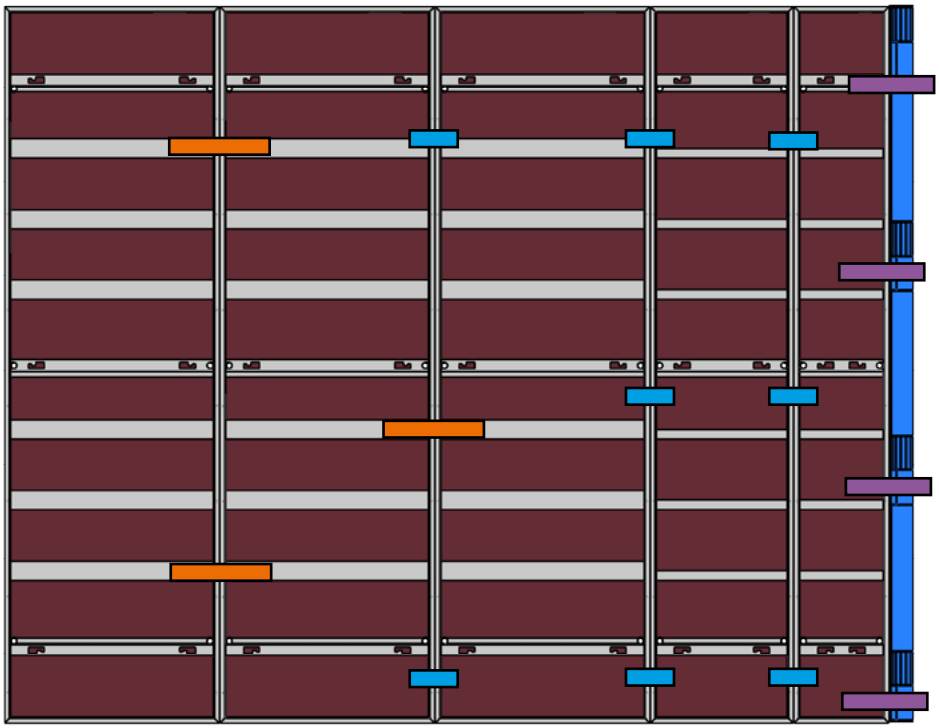
- Ideal for sail closure and bastaing blocking.
- 3 bars on the height for 3m and 2.7m.
- 2 bars on the height for the 1.5 and 1.35m.

We remind you that the connection systems must not be positioned on the welds of the aluminium sleepers.

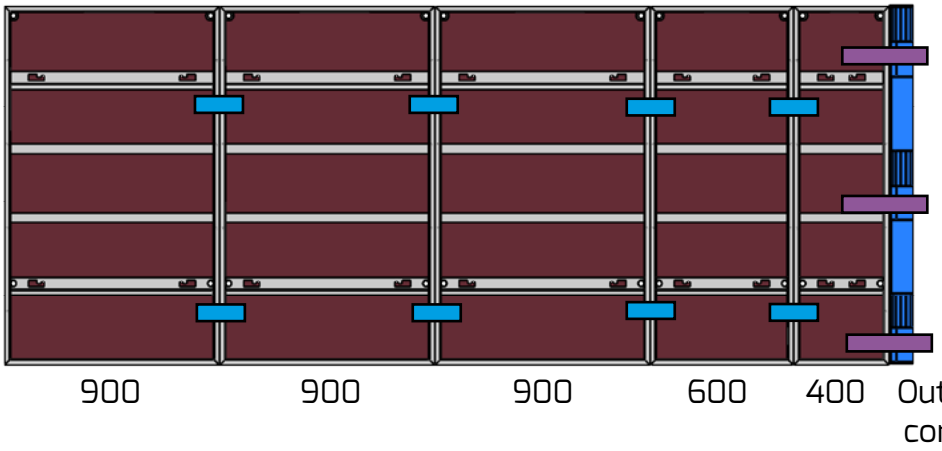
For standard vertical use, it is recommended to use :

- 2 alignment clamps (width 0.9) Ht 2.7m - 3m or
- 1 clamp + 2 wedge clamps (width 0.9) Ht 2.7m - 3m or
- 3 wedge clamps Ht 2,7m - 3m
- 2 wedge clamps Ht 1,5m - 1,35m

Height 3m (also available in 2.7m)



Height 1.5m (also available in 1.35m)



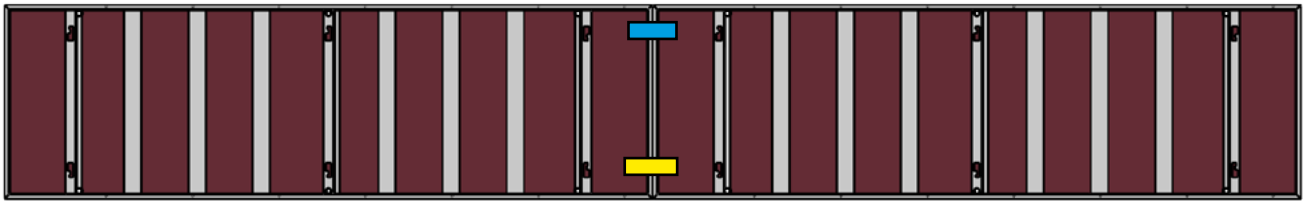
Height	Width 900	Width 750 - 200
300 2700	2 clamps 1 tightening	3 clamps
1500 1350	2 clamps	2 clamps

Clamp
Aligning clamp
Corner clamp

For horizontal use, keyed clamps and horizontal lever clamps should be used on the lower joints.

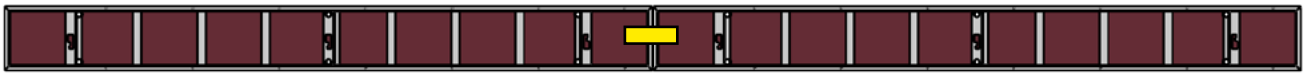
For horizontal use with an angle, it is mandatory to use an internal drilled angle 250/250.

Height 0,9m / 3m

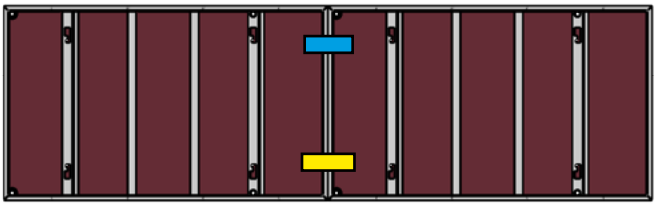


Height 0,4m / 3m

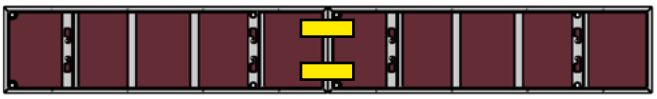
Height 0,3m / 3m



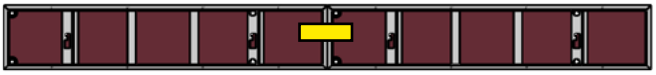
Height 0,9m / 1,5m



Height 0,4m / 1,5m



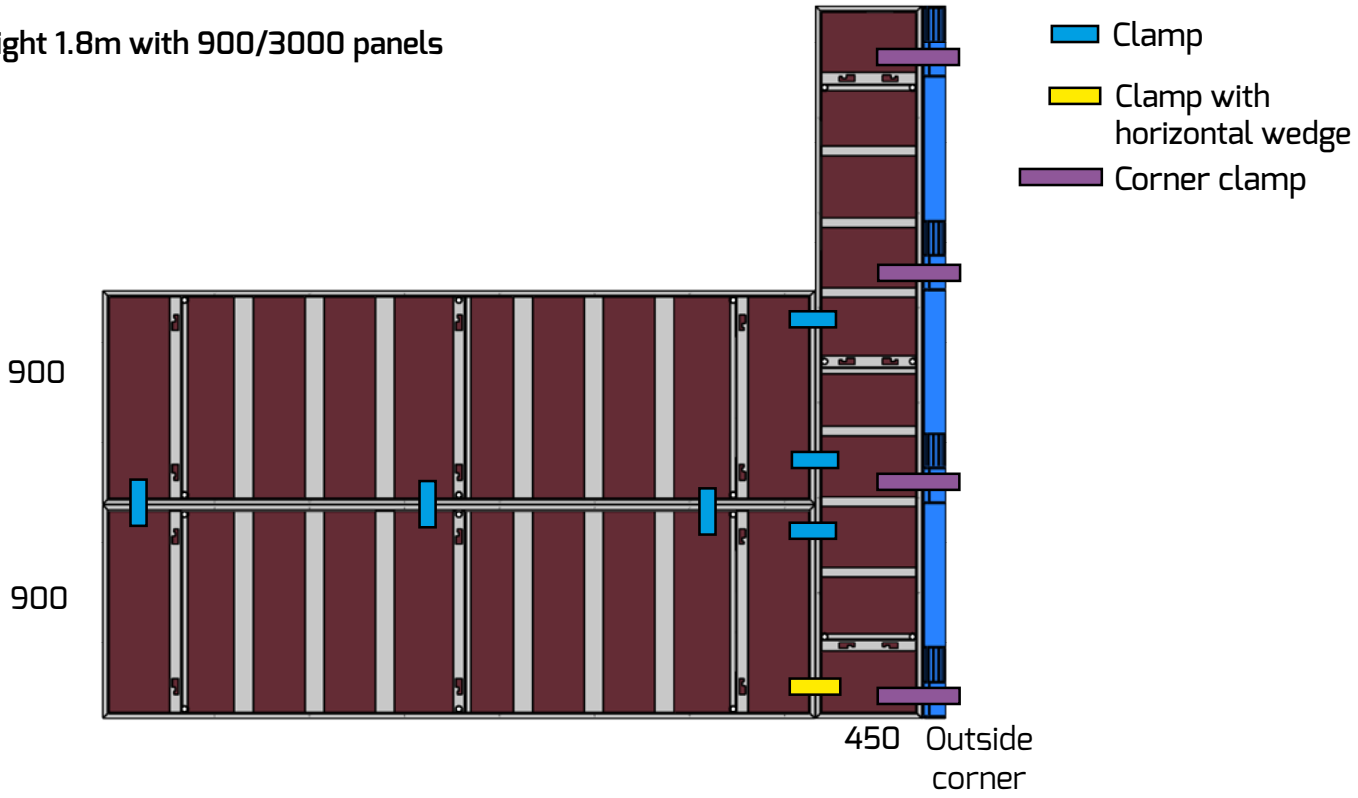
Height 0,3m / 1,5m



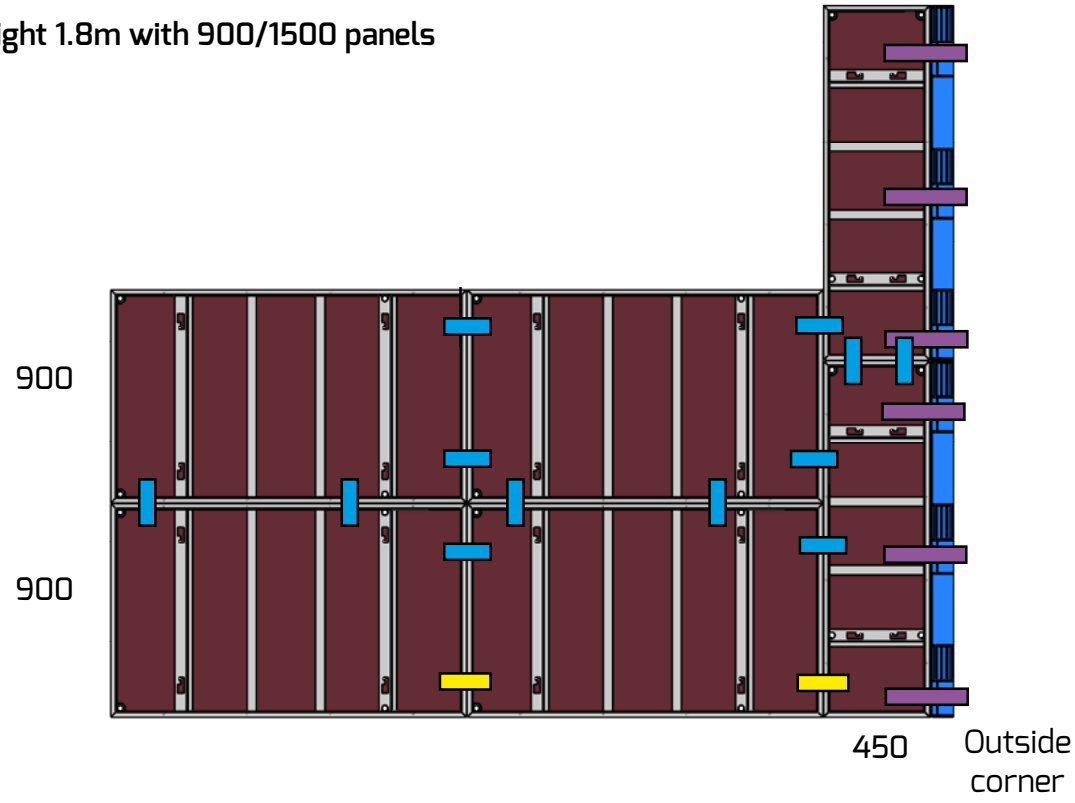
When used horizontally, a maximum height of 3m should not be exceeded with 6T/m² aluminium formwork.
It is also recommended to use horizontal lever locks for the lower joints.

For horizontal use with an angle, it is mandatory to use a 250/250 internal drilled angle. For any specific request, please contact our design office.

Height 1.8m with 900/3000 panels



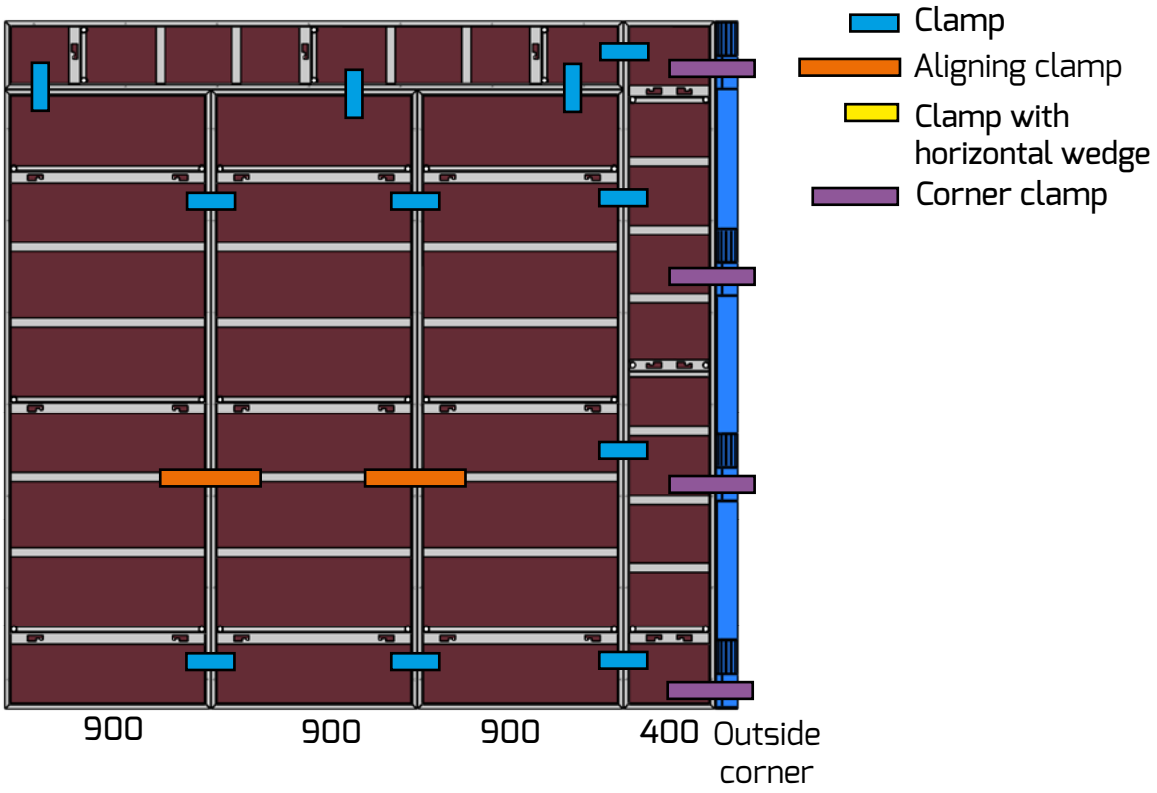
Height 1.8m with 900/1500 panels



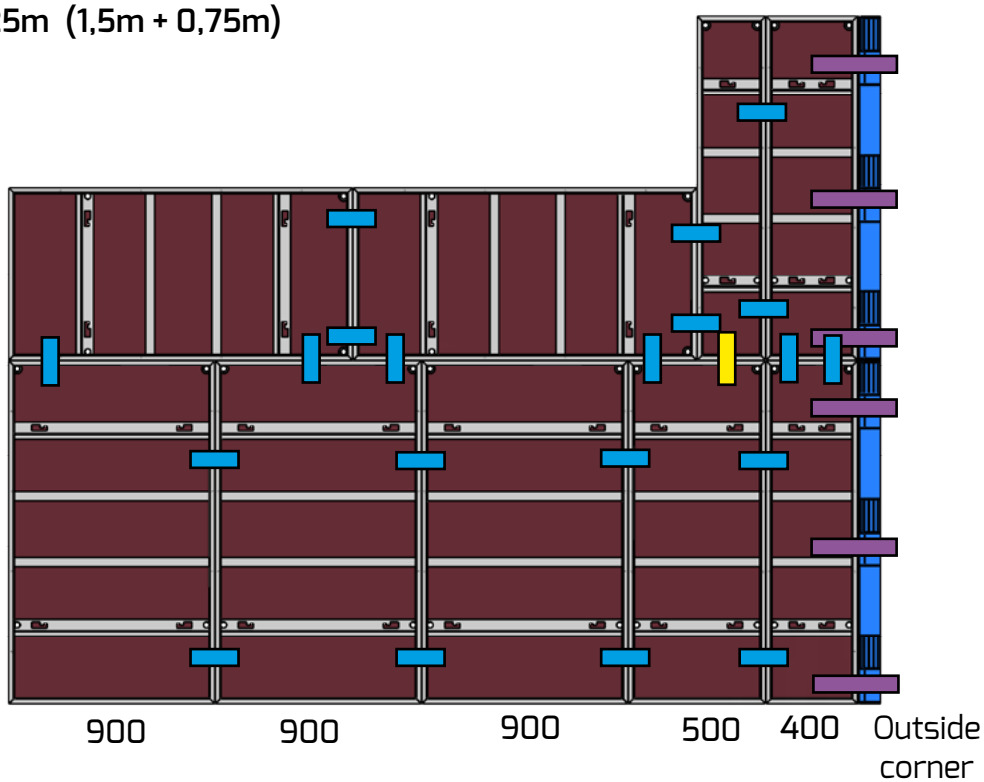
When used in a standing/laying position, a maximum height of 3 m should not be exceeded with 6T/m^2 aluminium formwork.

For any specific request, please contact our design office.

Height 3m (2,7m + 0,3m)



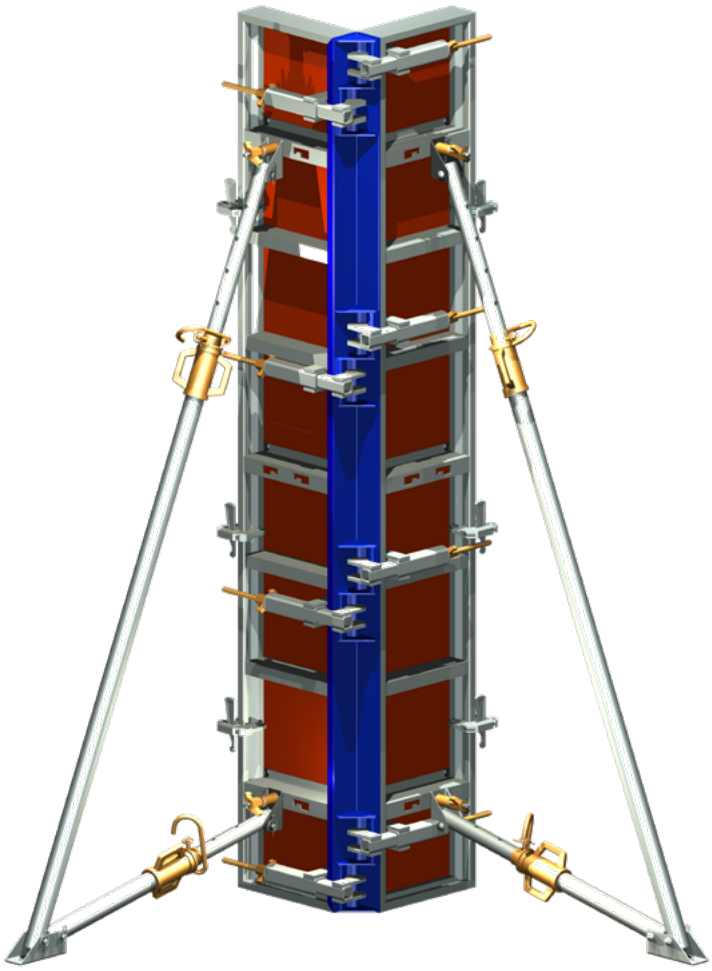
Height 2,25m (1,5m + 0,75m)



POSITIONING OF CORNER CLAMP

To start the installation, it is advisable to begin with the assembly of the external corner. Respect the positioning and the number of corner clamps to form your concrete walls safely.

Hauteur	Outside corner	Inside corner
3000 2700	4 + 4 corner clamp	3 x 3 corner clamp
1500 1350	3 + 3 corner clamp	2 + 2 corner clamp



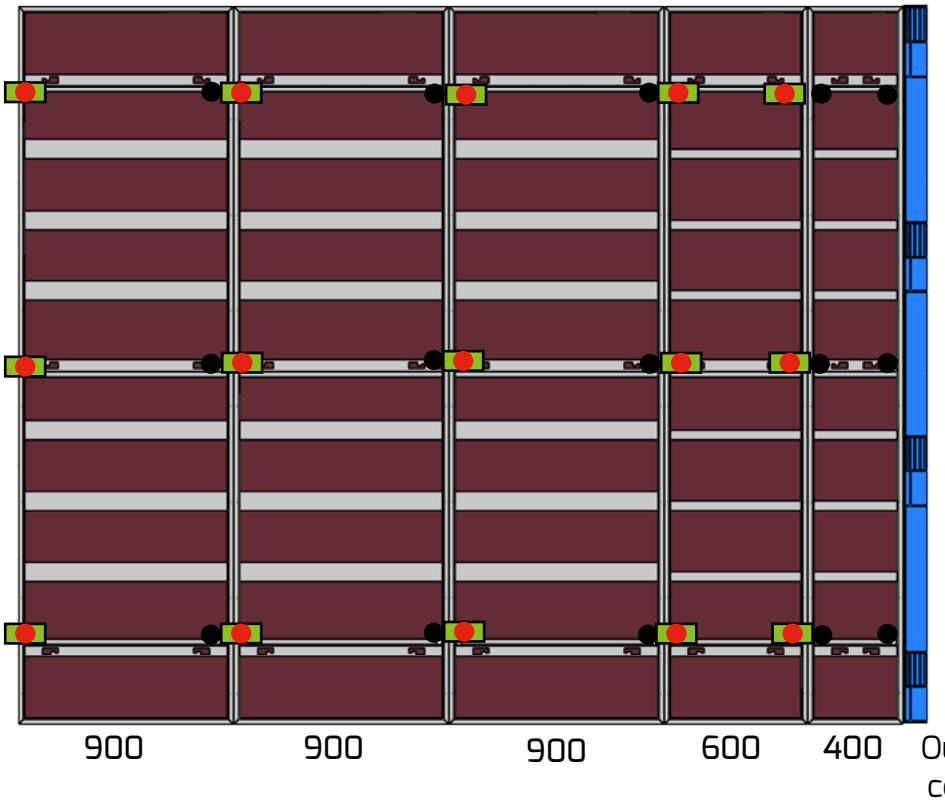
POSITIONING OF ROD CLAMP

In standard vertical use, it is recommended to use :

- **3 sets of rod-plate-nuts on the 2.7m - 3m height**
- **2 sets of rod-plate-nuts on the height 1.5m - 1.35m.**

Ensure that the floating plate is in the correct position to take over the support of the next panel.
For an undrilled corner, place the rod sets before the corner elements,
Then plug the unused rod passages with Ø20 plugs.
To close the walls, place 3 or 2 sets of rods again depending on the height of the formwork. For the unused rod passages, place Ø20 plugs for the aluminium formwork.

Height 3m (also available in 2.7m)

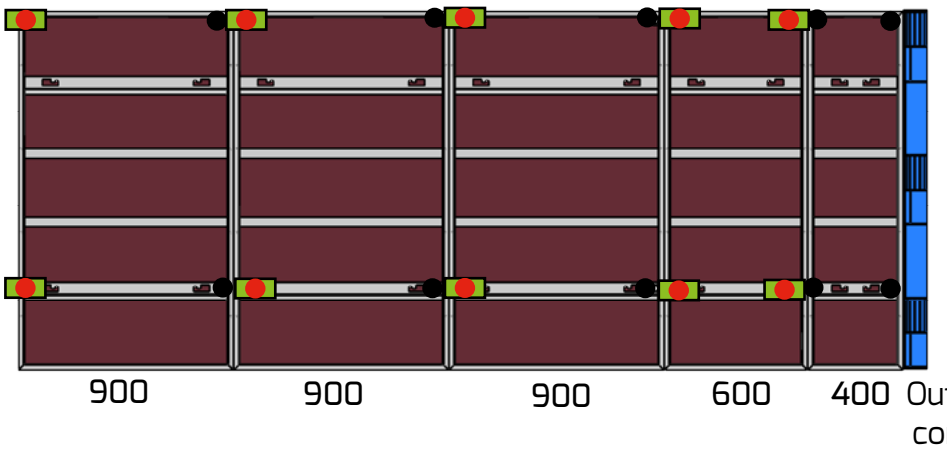


Height	Width 900 - 200
3000 2700	3 clamping rod on the height + 6 clamping rod per corner
1500 1350	2 clamping rod on the height + 4 clamping rod per corner

Rod plate nut assembly

Plug

Height 1.5m (also available in 1.35m)

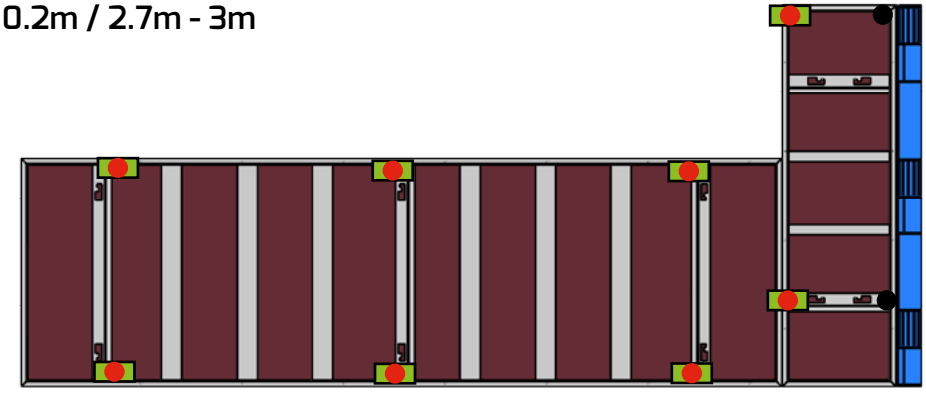


When using a horizontal stringer, it is recommended to use :

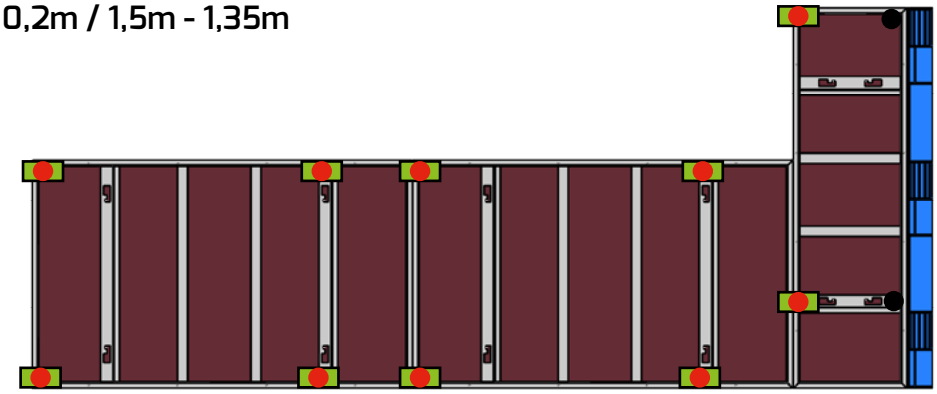
- **6 sets of rod-plate-nuts on the width 2.7m - 3m.**
- **4 sets of rod-plate-nuts on width 1.5m - 1.35m**

For horizontal use with a corner, it is mandatory to use an internal drilled corner 250/250 and the clamping rods in the corner.
Make sure that the floating plate is well positioned to take over the support of the next panel.
For unused rod passages, place Ø20 plugs in the aluminium formwork.

Height 0.9 to 0.2m / 2.7m - 3m



Height 0,9 à 0,2m / 1,5m - 1,35m



Height	Length 3000 - 2700	Length 1500 - 1350
900 - 200	6 clamping rod + 4 per angles	4 clamping rod + 4 per angle

Rod plate nut assembly

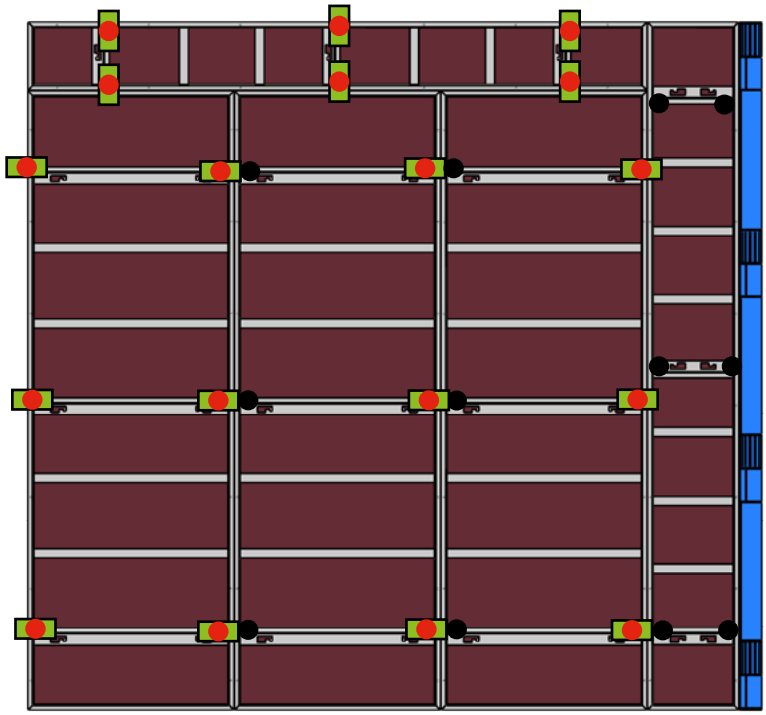
Plug

For stacked use, it is recommended to use :

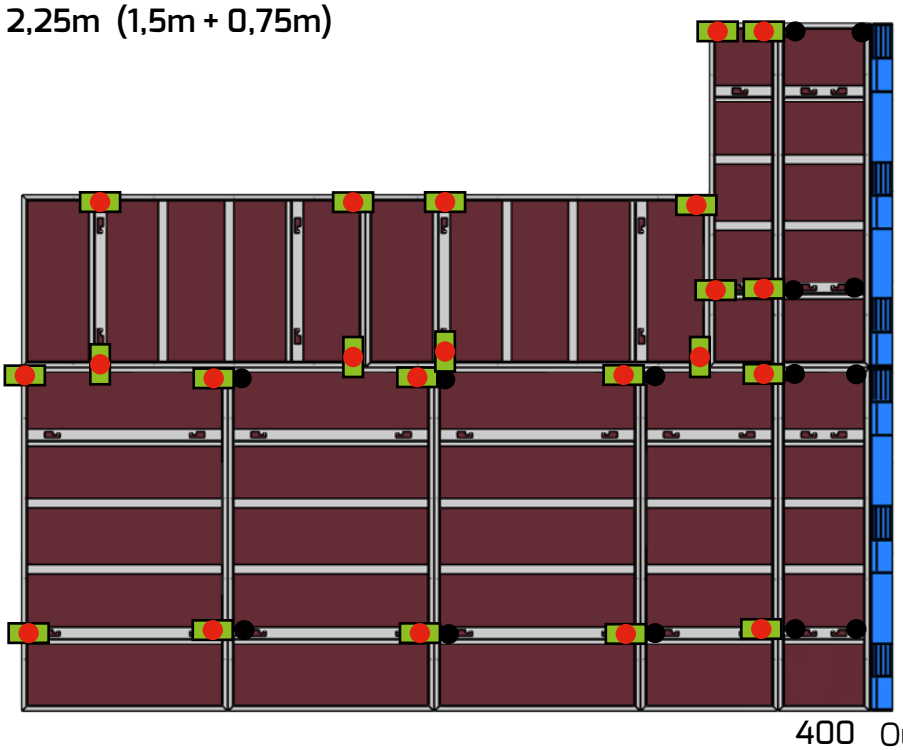
- **No. of standard rod-plate-nut sets over the height**
- **Then, when stacked lying down, 6 sets of rod-plate-nuts on the length 2.7m - 3m**
- **and 4 sets of rod-plate-nuts on the height 1,5m - 1,35m.**

For the unused rod passages, place Ø20 plugs for the aluminium formwork.

Height 3m (2,7m + 0,3m)



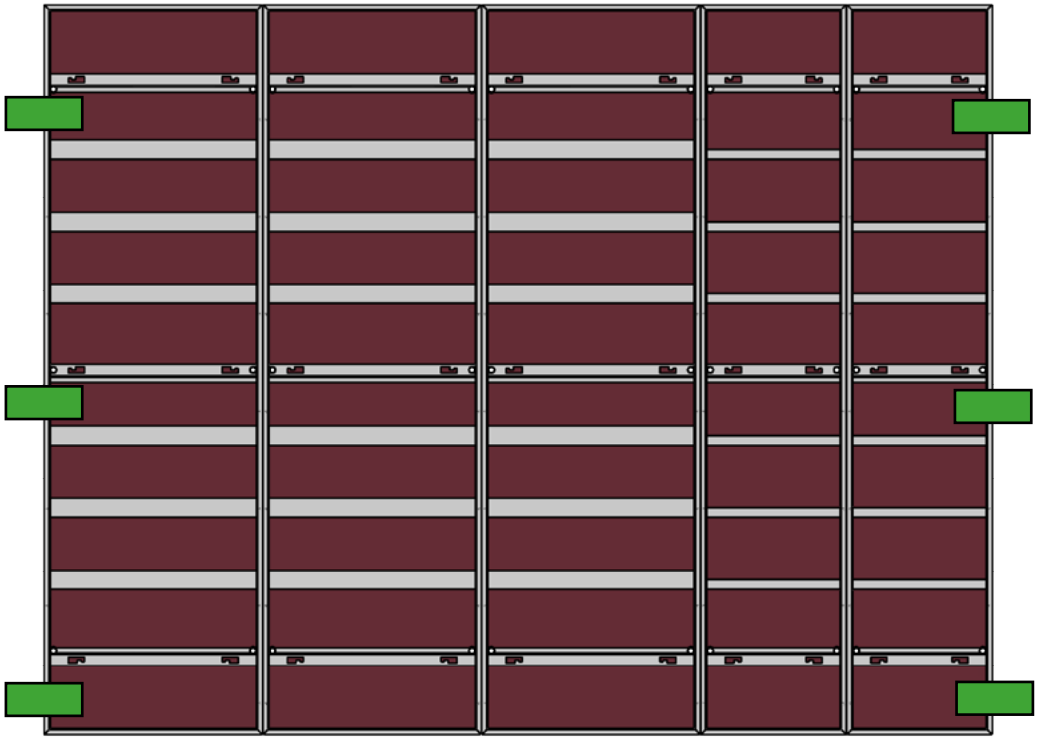
Height 2,25m (1,5m + 0,75m)



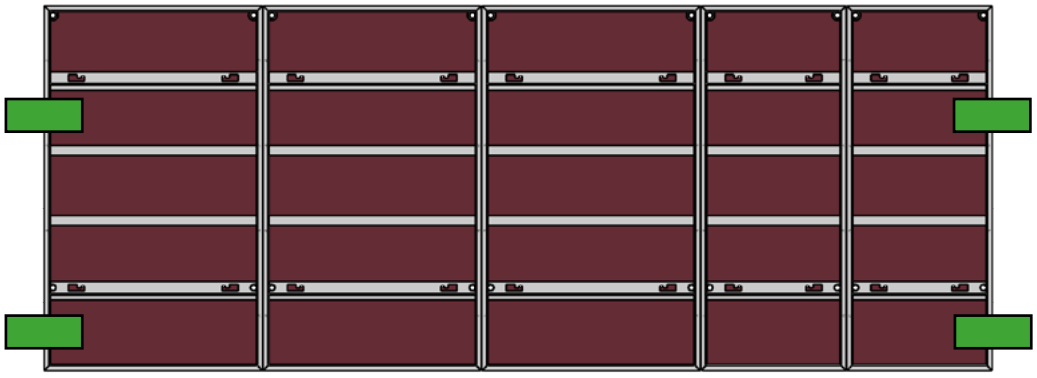
For the closing of the formwork, a minimum of :

- **2 fixed or adjustable end rails per height < 1.5m**
- **3 fixed or adjustable end rails per height between 1.5m and 3m in standard use.**

Height 3m (also available in 2.7m)



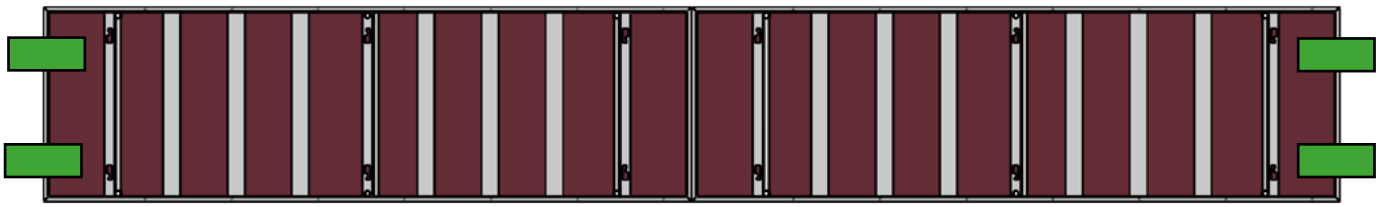
Height 1.5m (also available in 1.35m)



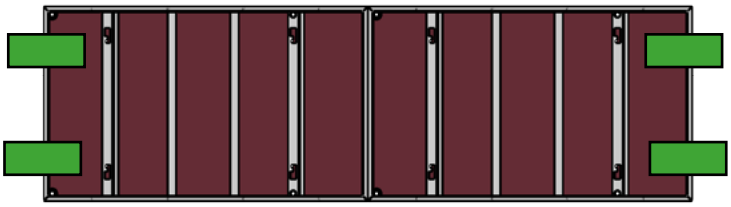
Height	Width 900 - 200
3000 2700	3 stop end waling
1500 1350	2 stop end waling

Adjustable stop end waling

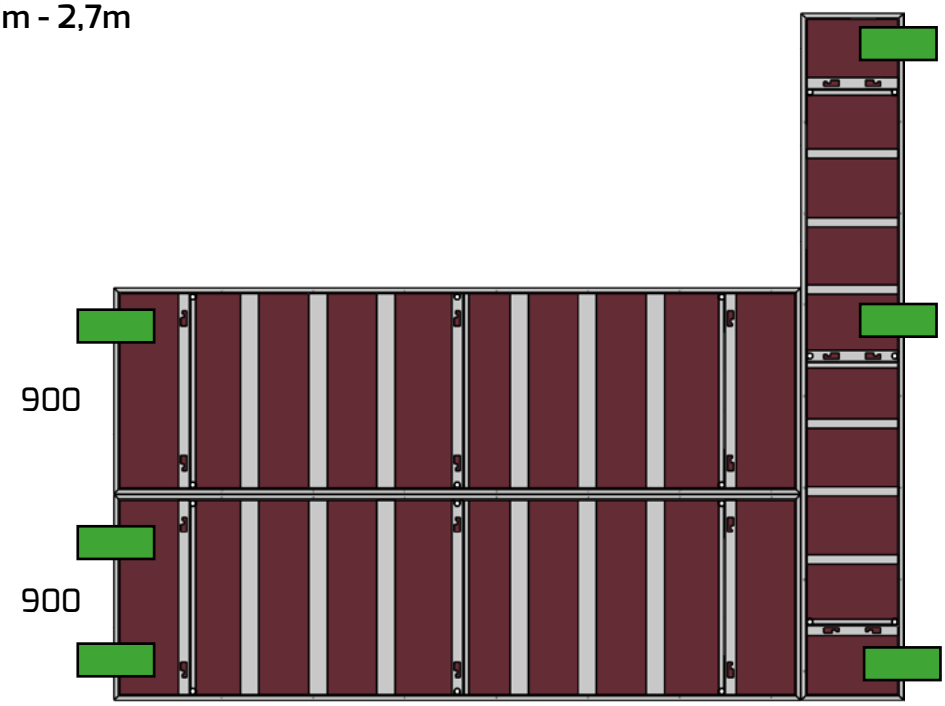
Height 0,9 à 0,2m / 3m



Height 0,9 à 0,2m / 1,5m

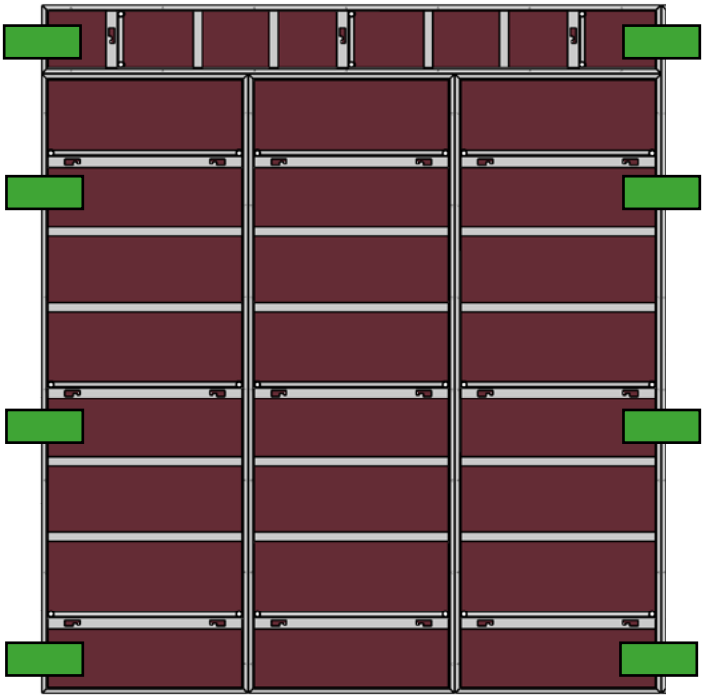


Height >1m - 2,7m

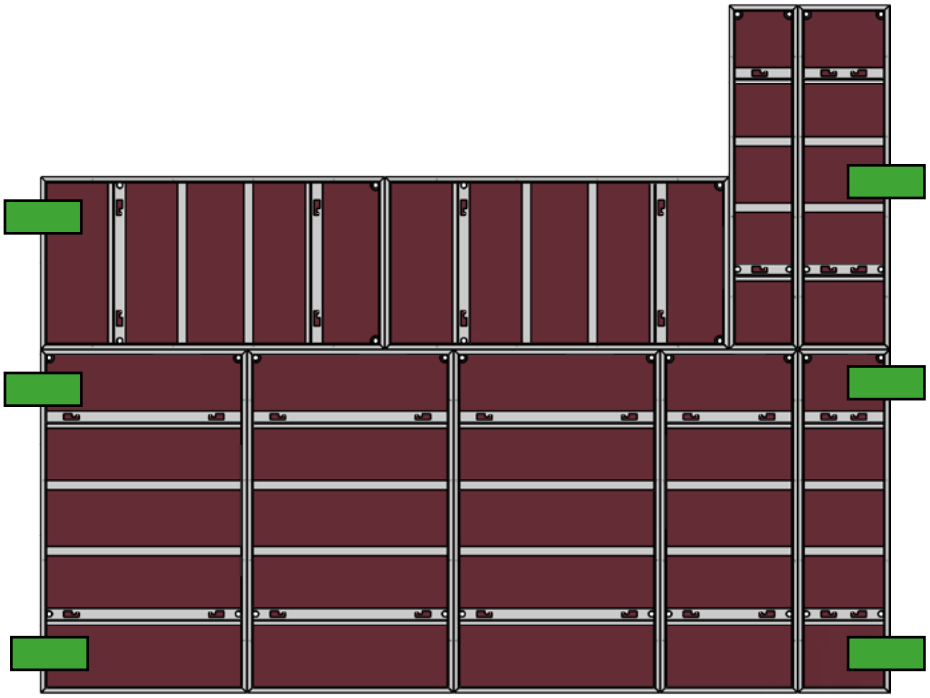


Adjustable stop end waling

Height 3m (2,7m + 0,3m)



Height 2,25m (1,5m + 0,75m)



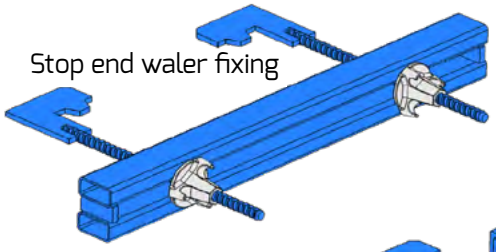
Adjustable stop end waling

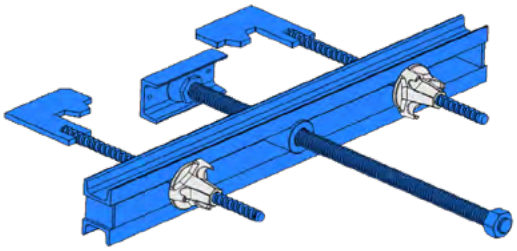
ASSEMBLY OF ADJUSTABLE STOP END WALING

For closing the formwork, it is advisable to use at least :

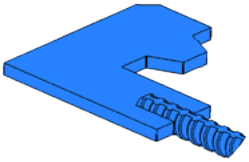
- 2 stop end waling fixing or adjustable per height < 1.5m
- 3 stop end waling fixing or adjustable per height between 1.5m and 3m in standard use.

Height	Width 900 - 200
2700	3 adjustable stop end waling
1350	2 adjustable stop end waling

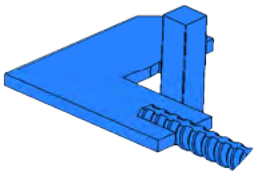




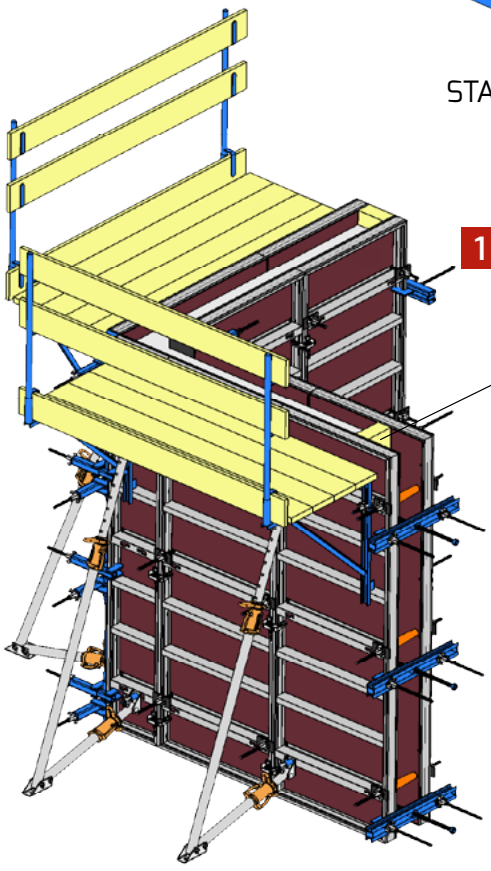
2 types of fixations :



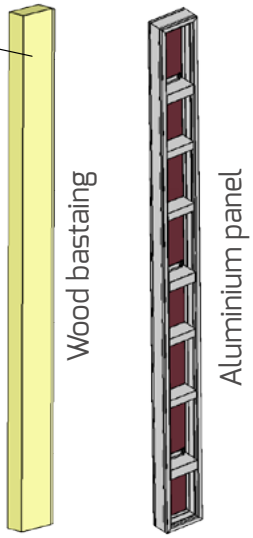
STANDARD fixation



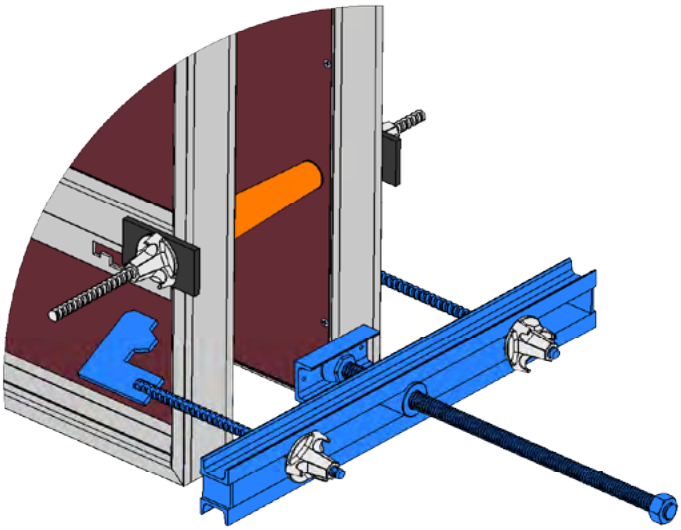
SELF-LOCKING fixation

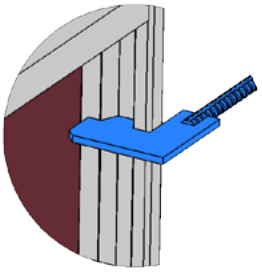


1 Aluminum formwork in place, ready for concrete casting. Use of a bastaing or an aluminum panel as a concrete wall stopper.

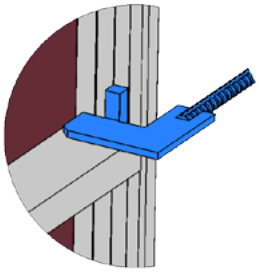


2 Put the end stop waler against the panels. Put the fixation rod in the edge profile and ofil de rive, et tighten the 3 wings nut.



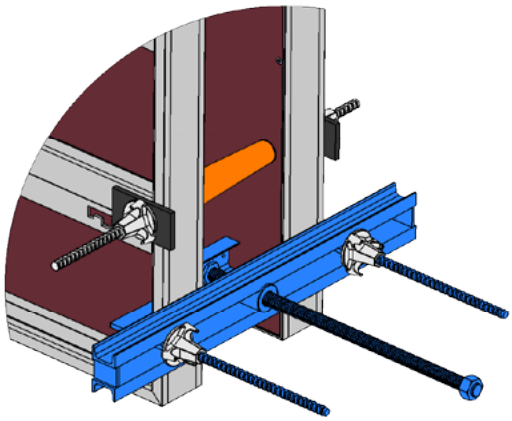


Standard fixation in place in the edge profile



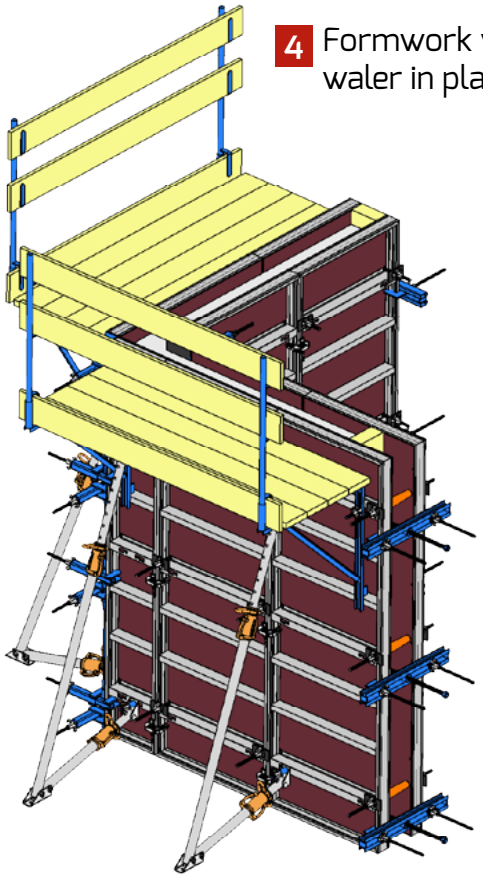
Self-locking fixation Clamps between a sleeper and the edge profile

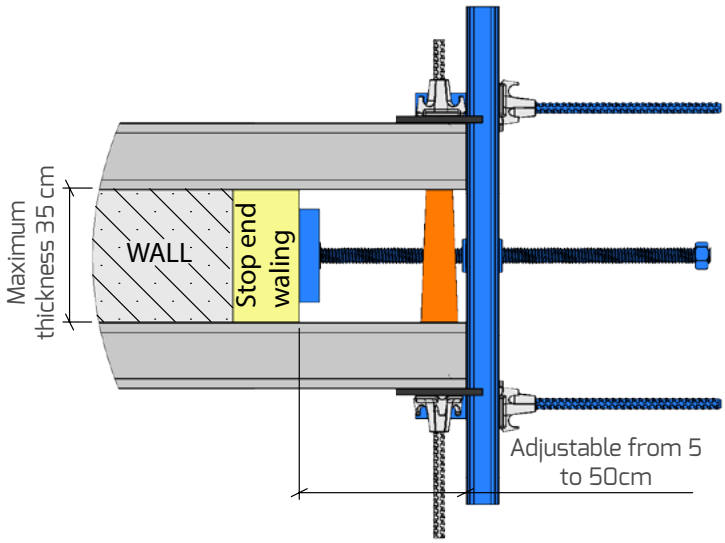
3 On the end stop waler, turn the adjustement nut until it comes into contact with the end bastaing. Repeat the operation for the other adjustable end stop waling (3 fixed or adjustable end stop waler are necessary for the height).



Adjustement nut

4 Formwork with end stop waler in place.

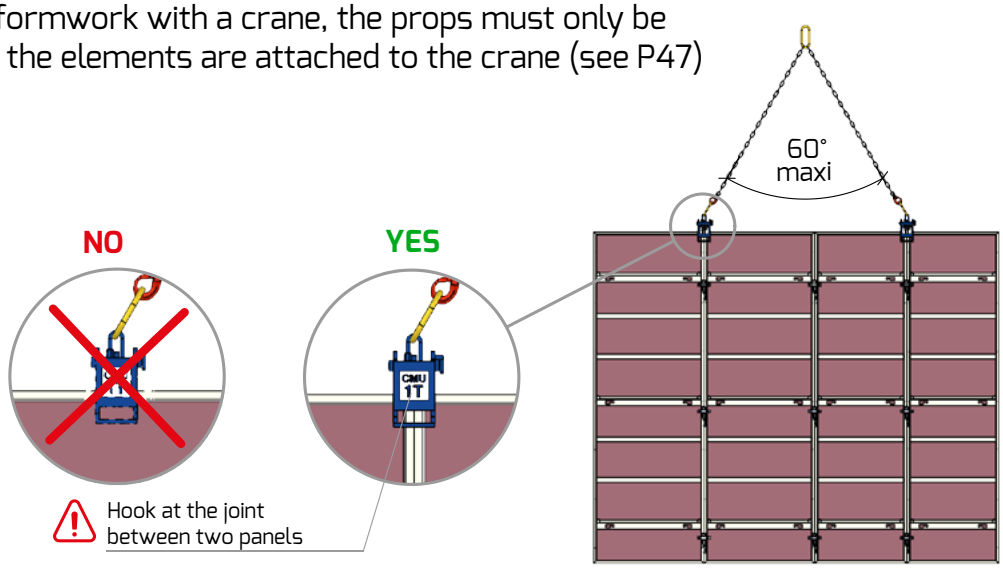


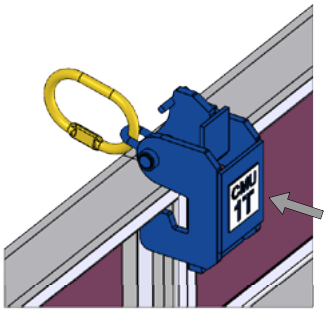


HANDLING: USE OF THE LIFTING HOOK

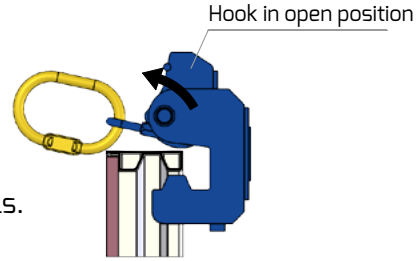
When using the lifting hooks, we recommend that you :

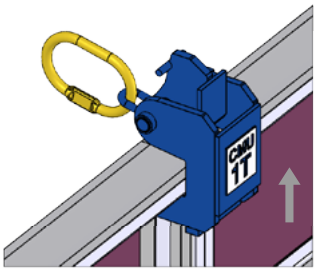
- Maximum sling angle of 60° must be observed
- Use alignment clamps for panels up to 900mm wide
- Lift up to a maximum of 3 linear metres at a time,
- Lifting of one module only: «Attach crane hook to the middle of the front panel».
- When moving formwork with a crane, the props must only be released when the elements are attached to the crane (see P47)



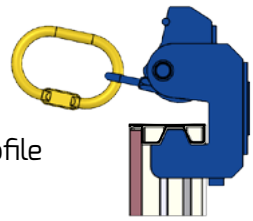


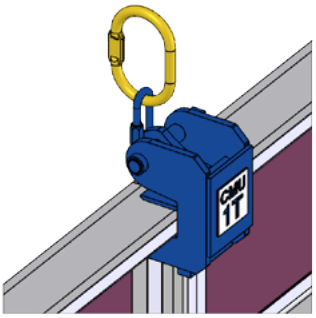
1 Bring the hook crane hook in the open position at the joint between 2 panels.



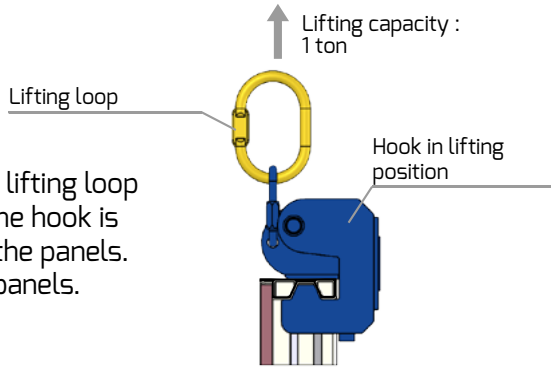


2 Bring the crane hook in contact with the edge profile profile of the panel.





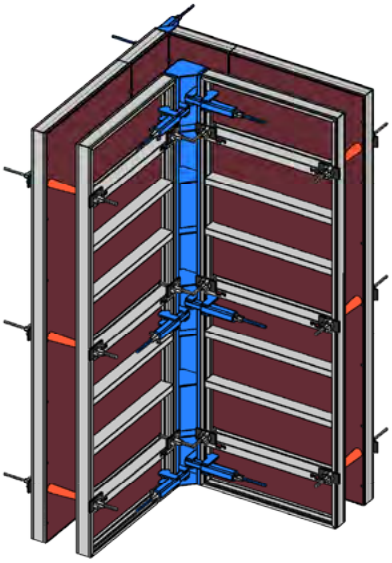
3 By pulling on the lifting loop the lifting loop, the hook is ready for lifting the panels. ready to lift the panels.

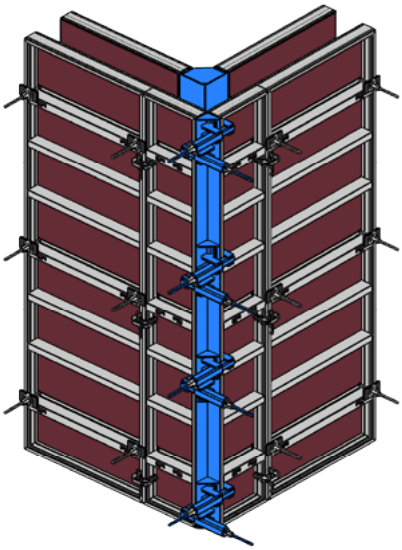


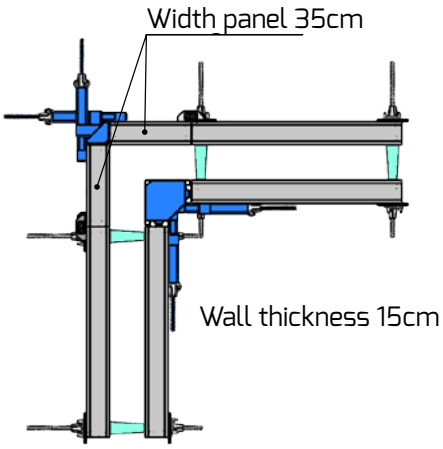
USE OF RIGHT CORNER 20 X20

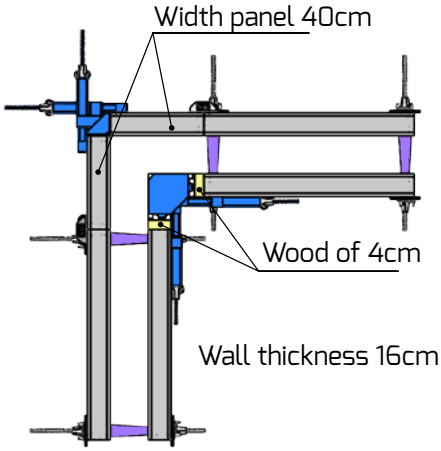
For the realization of right angles with modular panels from 15 to 25 cm thick:

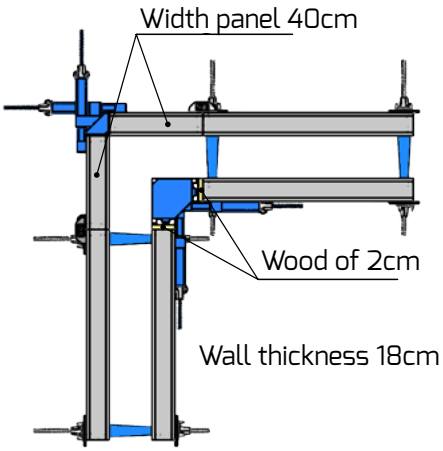
- 1 x **inside corner** 20cm x 20cm
- 1 x **outside corner** 10cm x 10 cm
- 2 x **aluminium panel** 40cm - 45cm - 50cm depending on thickness

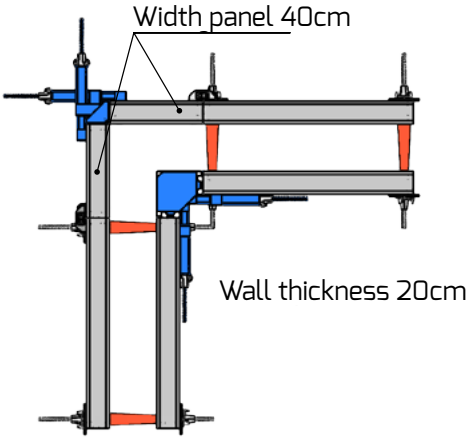


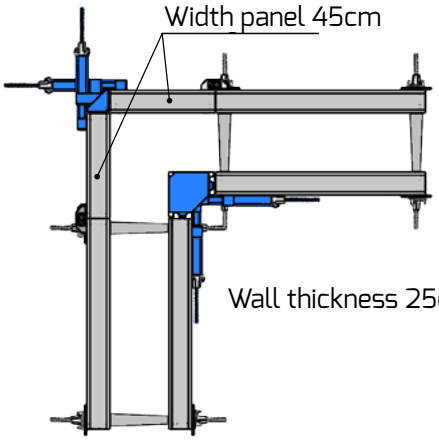








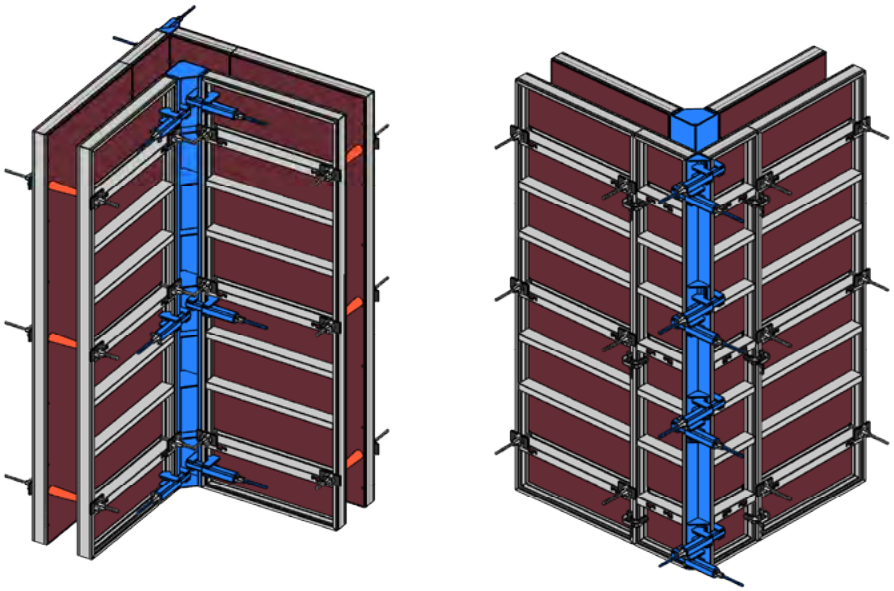


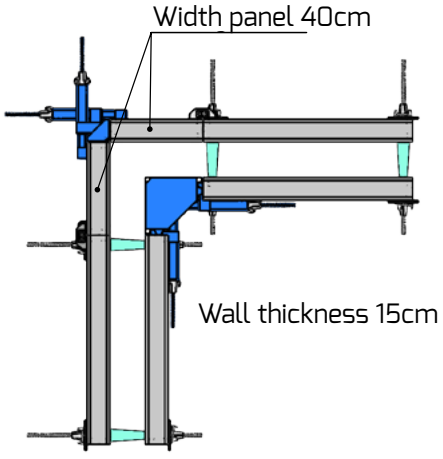


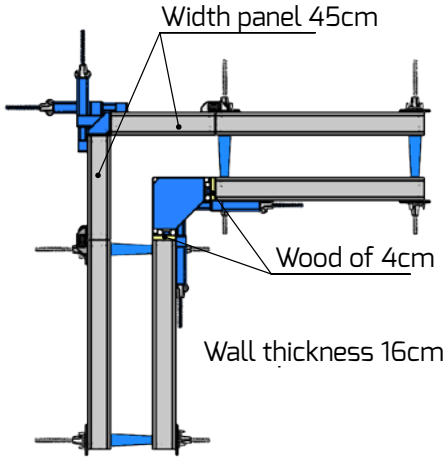
USE OF RIGHT CORNER 25 X25

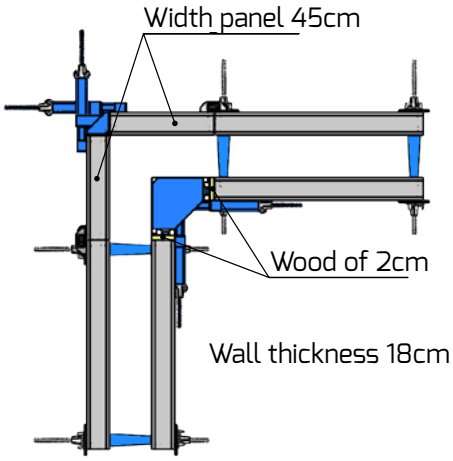
For the realization of right angles with modular panels from 15 to 25 cm thick:

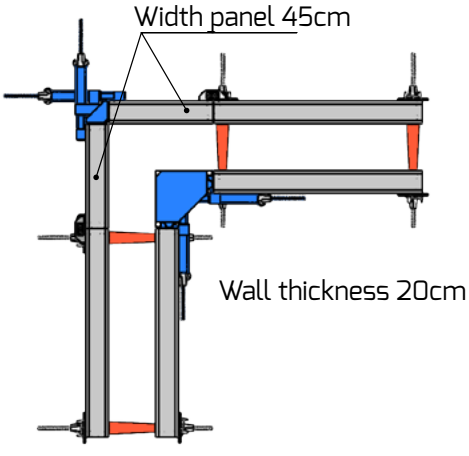
- 1 x **corner inside** 25cm x 25cm - drilled corner option (rods in the inner corner)
- 1 x **outside corner** 10cm x 10 cm
- **2 x aluminium panel** 40cm - 45cm - 50cm depending on thickness

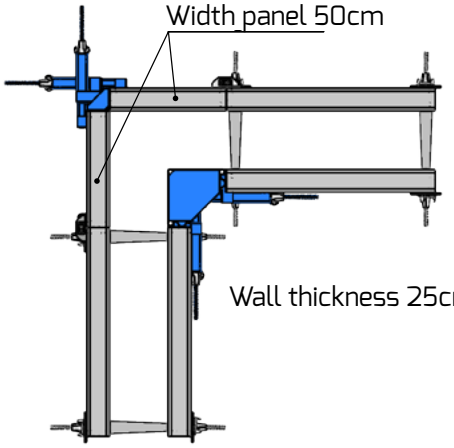








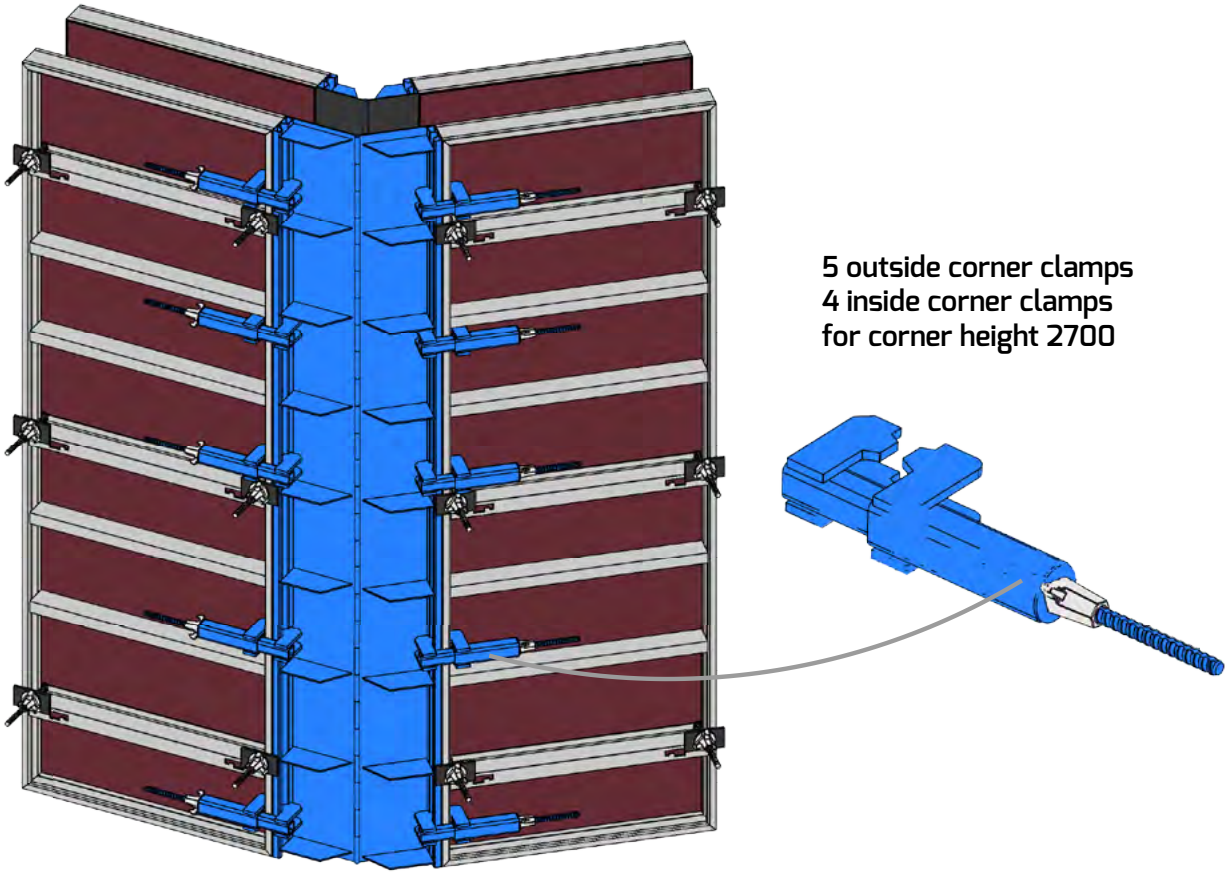




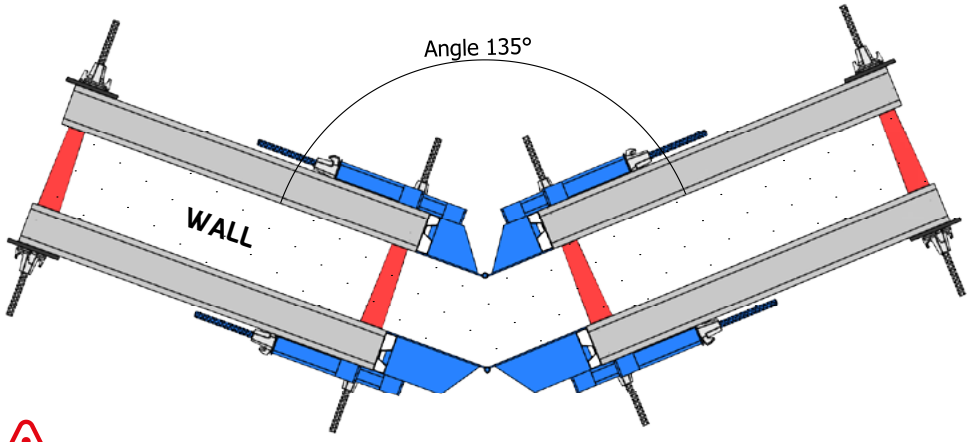
USE OF VARIABLE ANGLES

For use with variable angles designed for standard use at 135°:

- Inside corner 17,5x17,5cm
- Outside corner 25,7x25,7cm



5 outside corner clamps
4 inside corner clamps
for corner height 2700



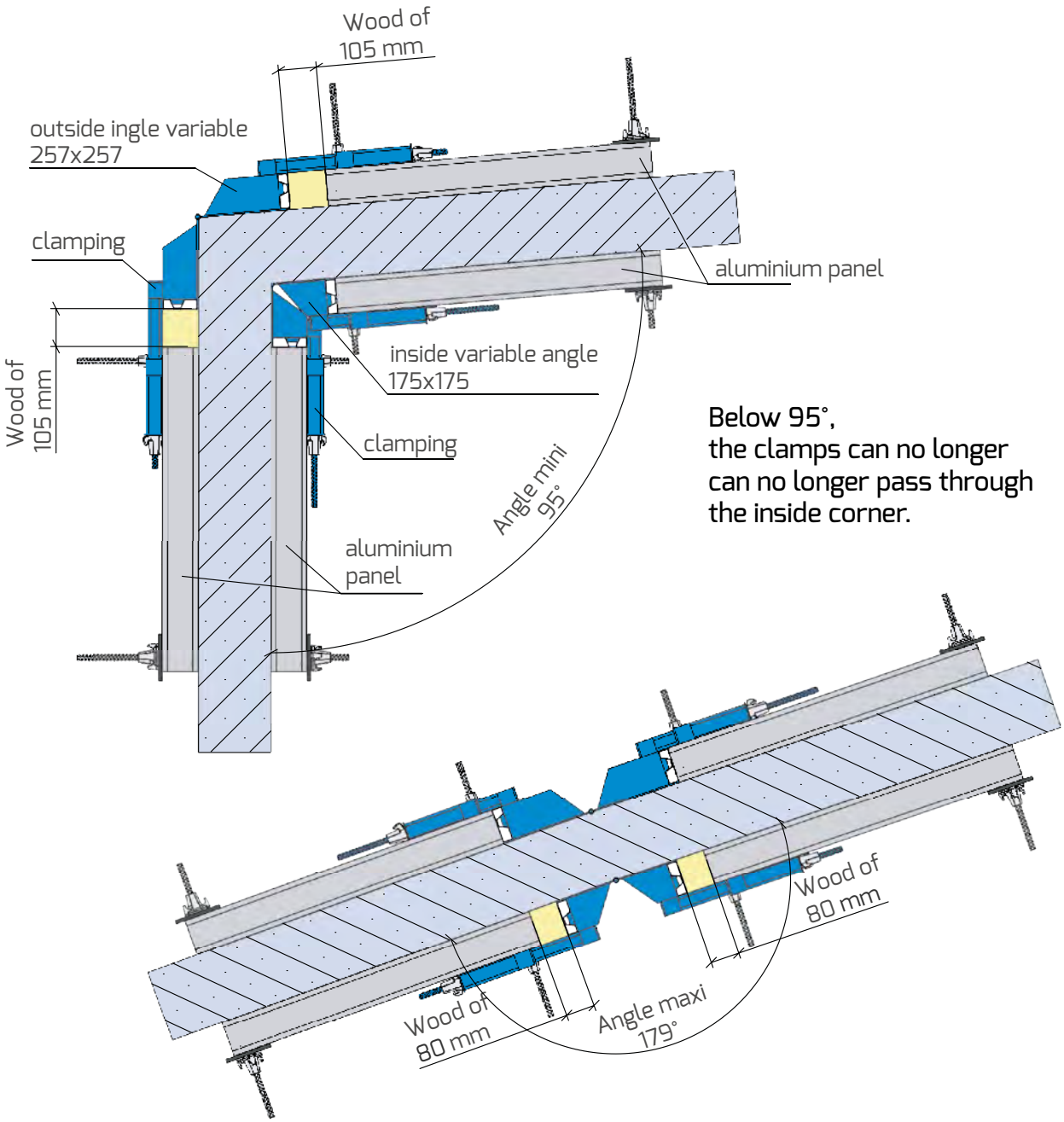
It is imperative to install the rods before the variable angle

135° angle = no wood compensation.

For any angle other than 135°,
please consult us for the calculation of the compensations.

For the use of standard variable angles for special angles :

- **Minimum angle: 95° / Maximum angle:** 179° for a 20 cm thick wall.
- Other possible configurations < 95°, please contact our design office for more information.



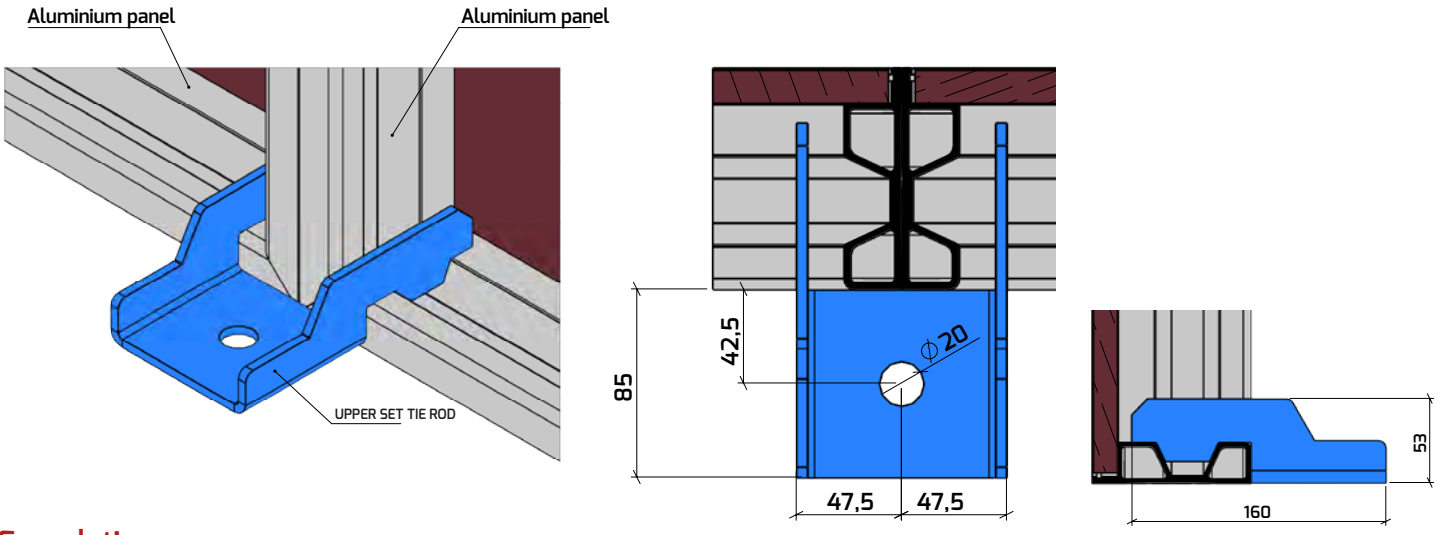
NB :
Other combinations are possible to achieve angles below 95
- invert the inside and outside angles
- insert aluminium panels
- use clamps
- use special clamps

BASE PLATE, FOUNDATION SPACER

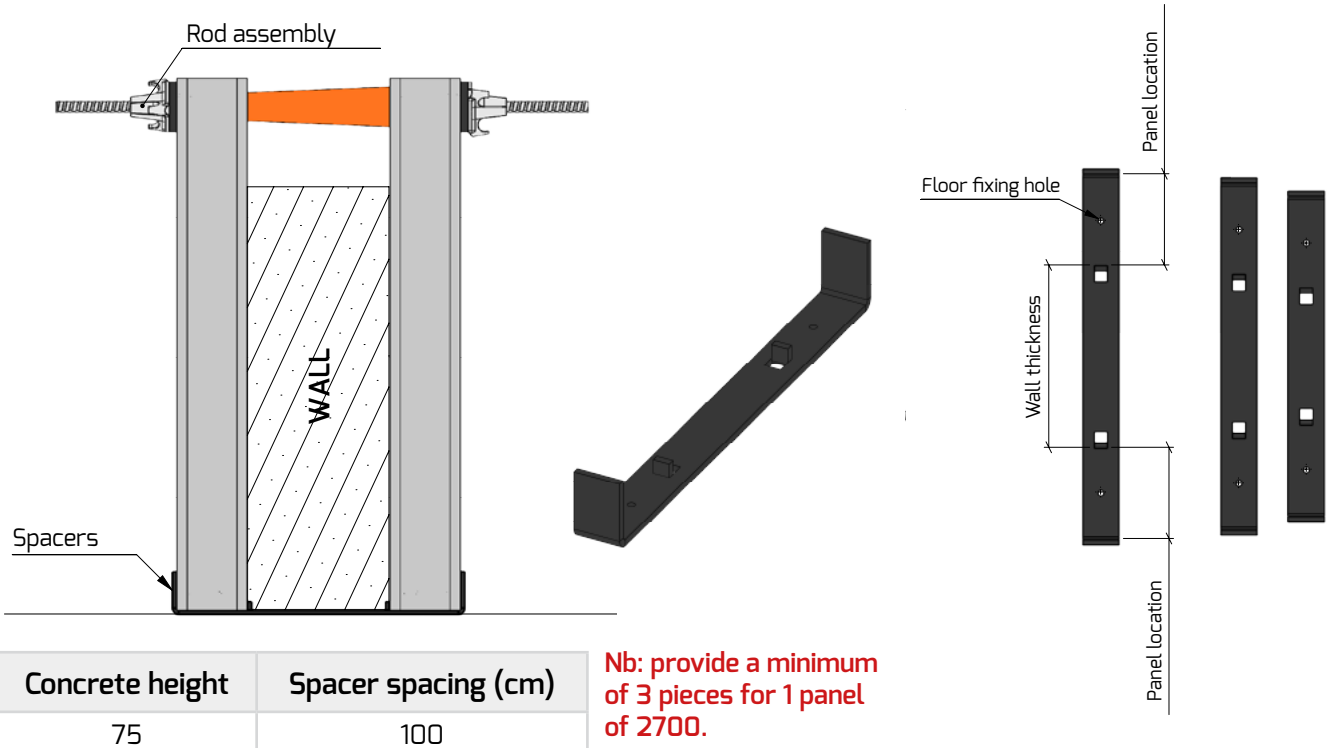
There are several options for the use of sill formwork panels:

- **Special panel 6 rod holes of which 3 standard -** 3 offset at 9mm from the edge (sill only)
- **Special Panel 9 rod holes of which 6 standard -** 3 holes offset at 10mm from the edge (vertical / sill)
- **Floor fixing plate:** 3 plates per size 2700 / 2 plates per size 1500-1350 to be fixed to the floor
- **Foundation spacers:** min. 3 spacers per size 2700 / 2 per size 1500-1350 then according to height.

Floor anchor plate - 100mm aluminium profile



Foundation spacers



Concrete height	Spacer spacing (cm)
75	100
100	75
125	60

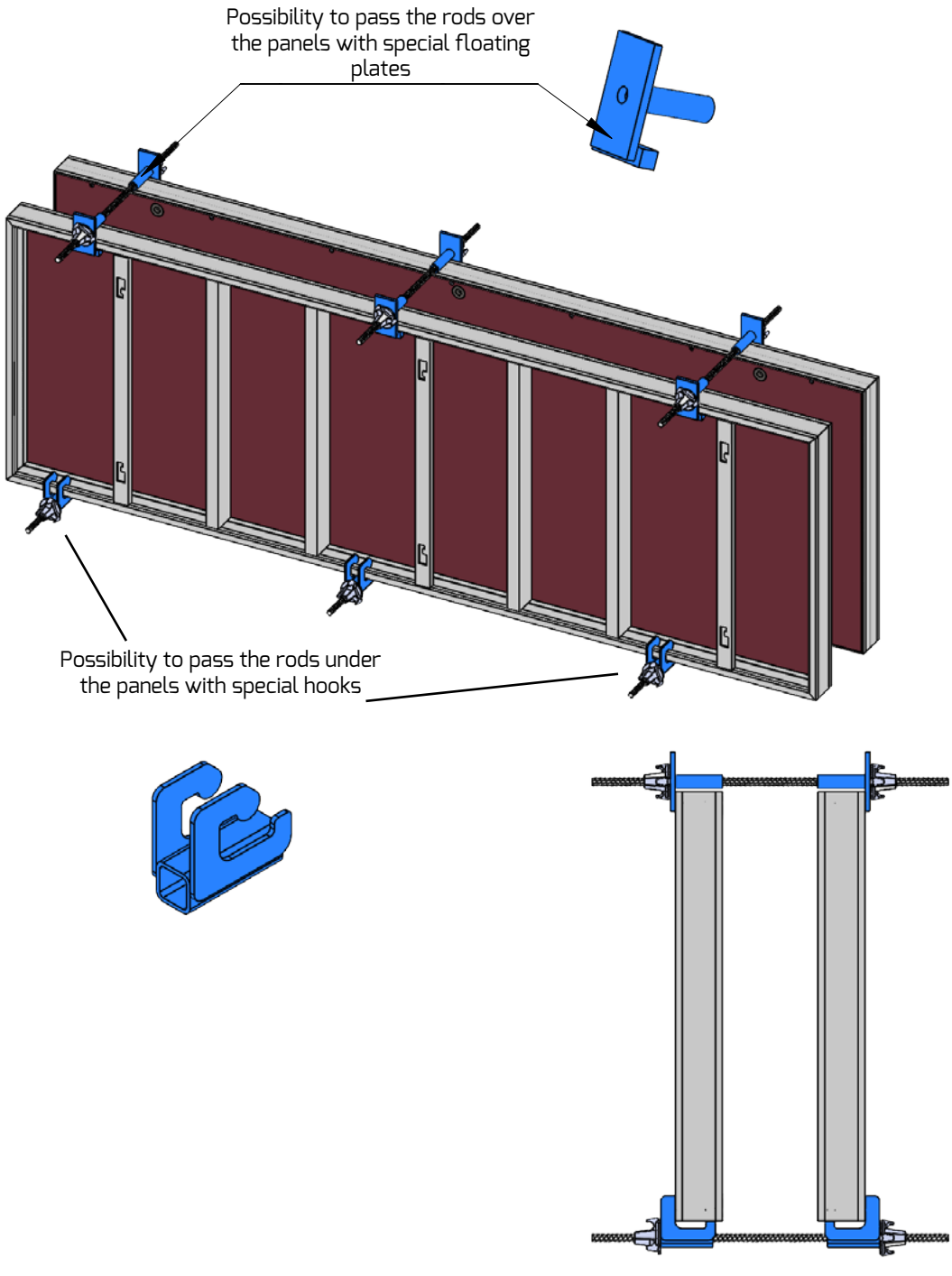
Nb: provide a minimum of 3 pieces for 1 panel of 2700.
ATTENTION: max concrete height 125 cm

UPPER OR LOWER STEM PASSAGE

For the use of the formwork panels as stringers and to save on wall finishing, we offer solutions for upper or lower rod penetrations for the creation of beams.

- **Special floating plate for upper rod runs on the panel**
- **Special hooks for lower rod runs on the panel**

For unused rod runs, place Ø20 plugs for aluminium formwork

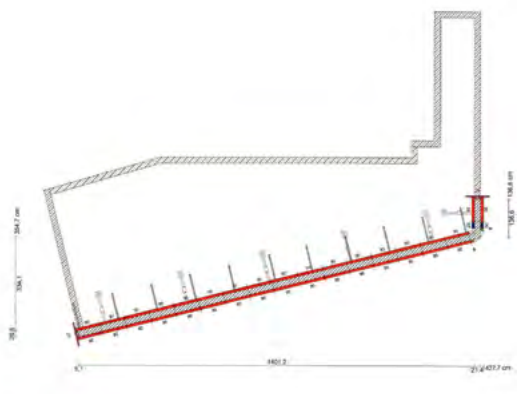


Operating mode

VERIFICATION & POSITIONING

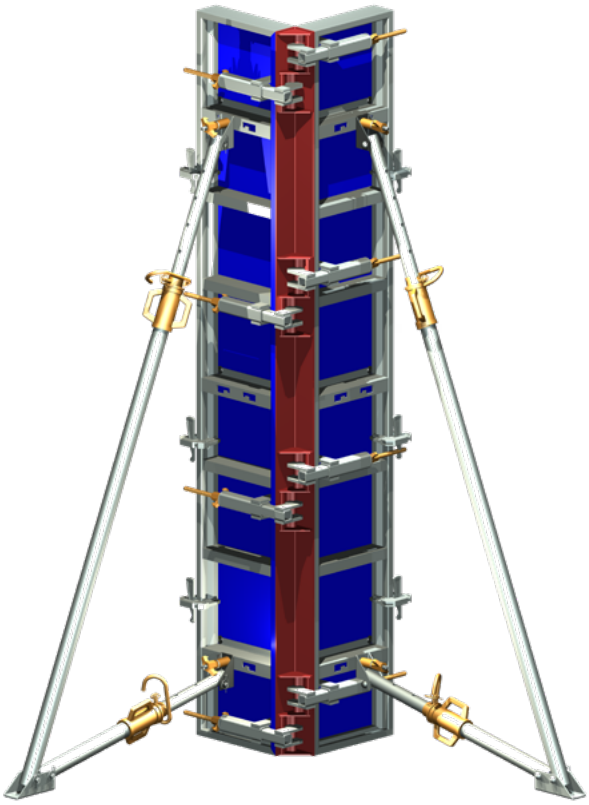
Implementation method for formwork panels 6T/m²

- Carry out your layout and prepare the necessary materials on an accessible and clean slab or platform.
- The walls should be marked out on your foundations with cordex.
- Provide nailing strips every metre to support the panels at the foot.

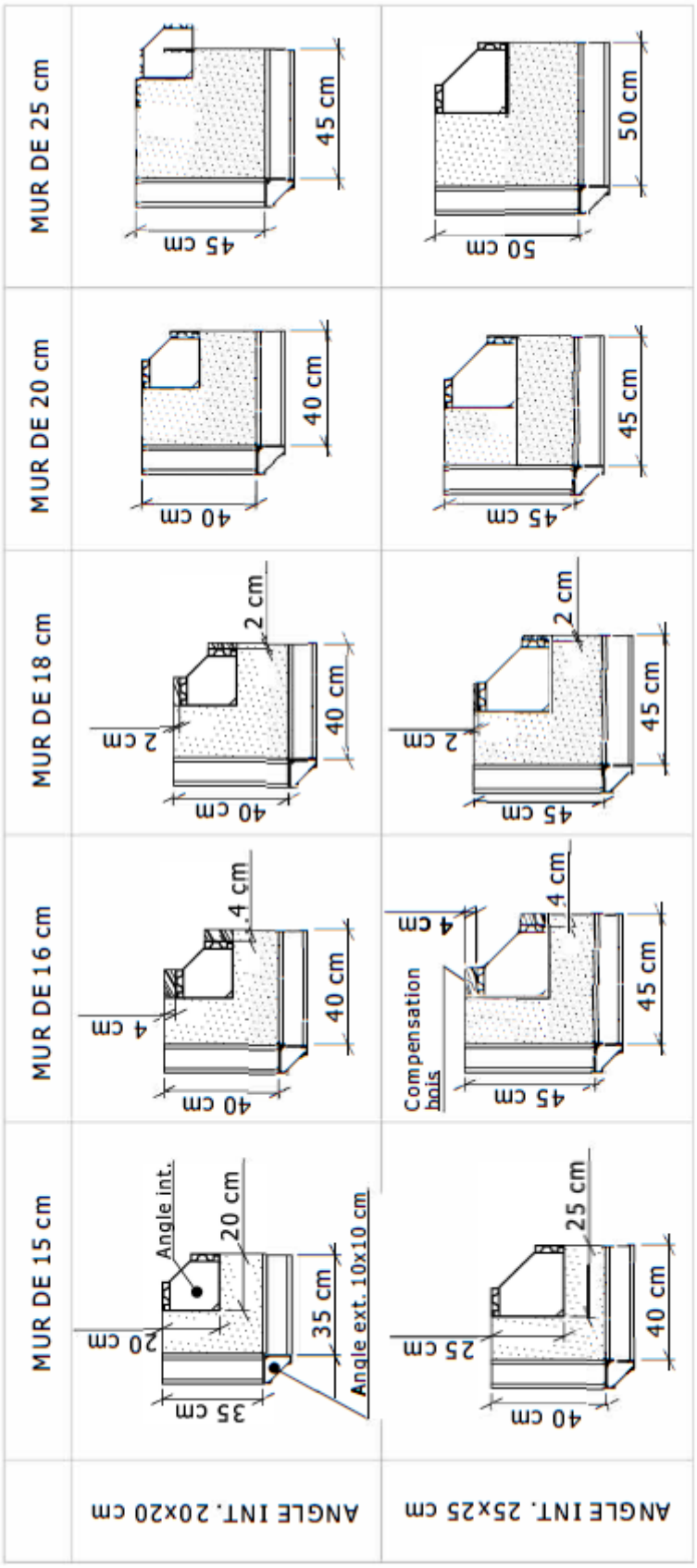


Mounting the panels from the outside corner

1. The panels are mounted from a corner.
2. In this case, mount the outer corner 100x100x2700 and two 400/2700 panels at right angles.
3. Seal each side of the corner with 2 props.
4. Assemble with 4 corner clamps over the height of 2700, i.e. 8 for an external corner (external corner profile provided for this purpose).



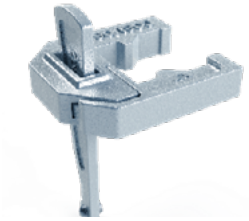
USE OF RIGHT ANGLES



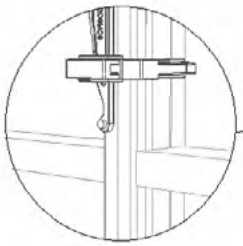
ASSEMBLY OF WEDGE CLAMPS

Then mount the following panels:

- **Height 2700** : Assemble each panel, using 3 wedge clamps per joint (according to plan) or 2 alignment clamps (to be positioned on the 2nd and 6th panel crosspiece).
- **Height 1500** : Assemble each panel, using 2 wedge clamps per joint or 2 alignment clamps.
- Remember that the assembly systems must not be positioned on the welds of the crosspieces.
- Clamp.

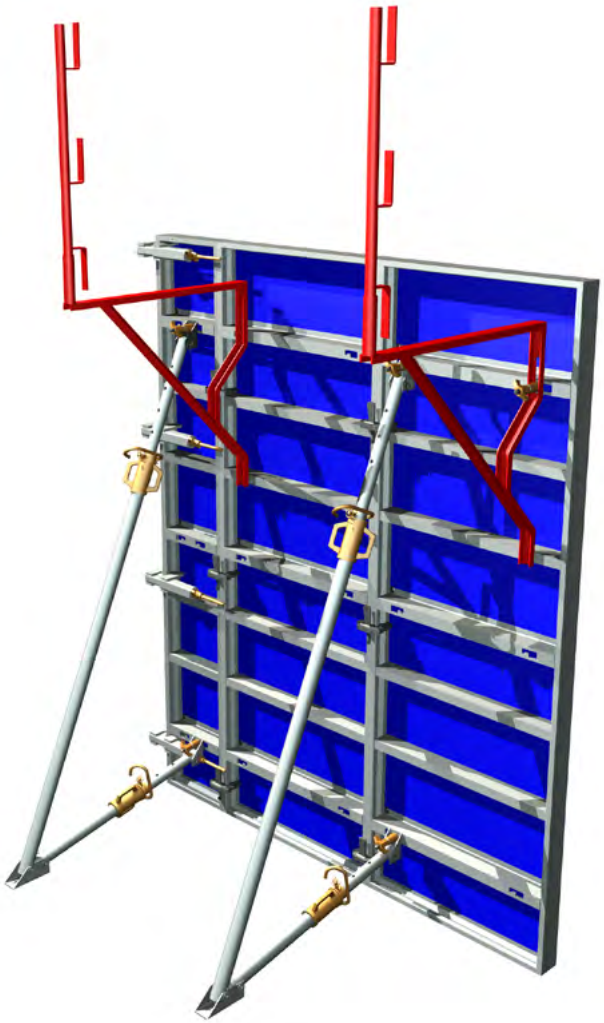


Wedge clamps



Lever clamp horizontal

INSTALLATION OF PROPS AND SERVICE BRACKETS



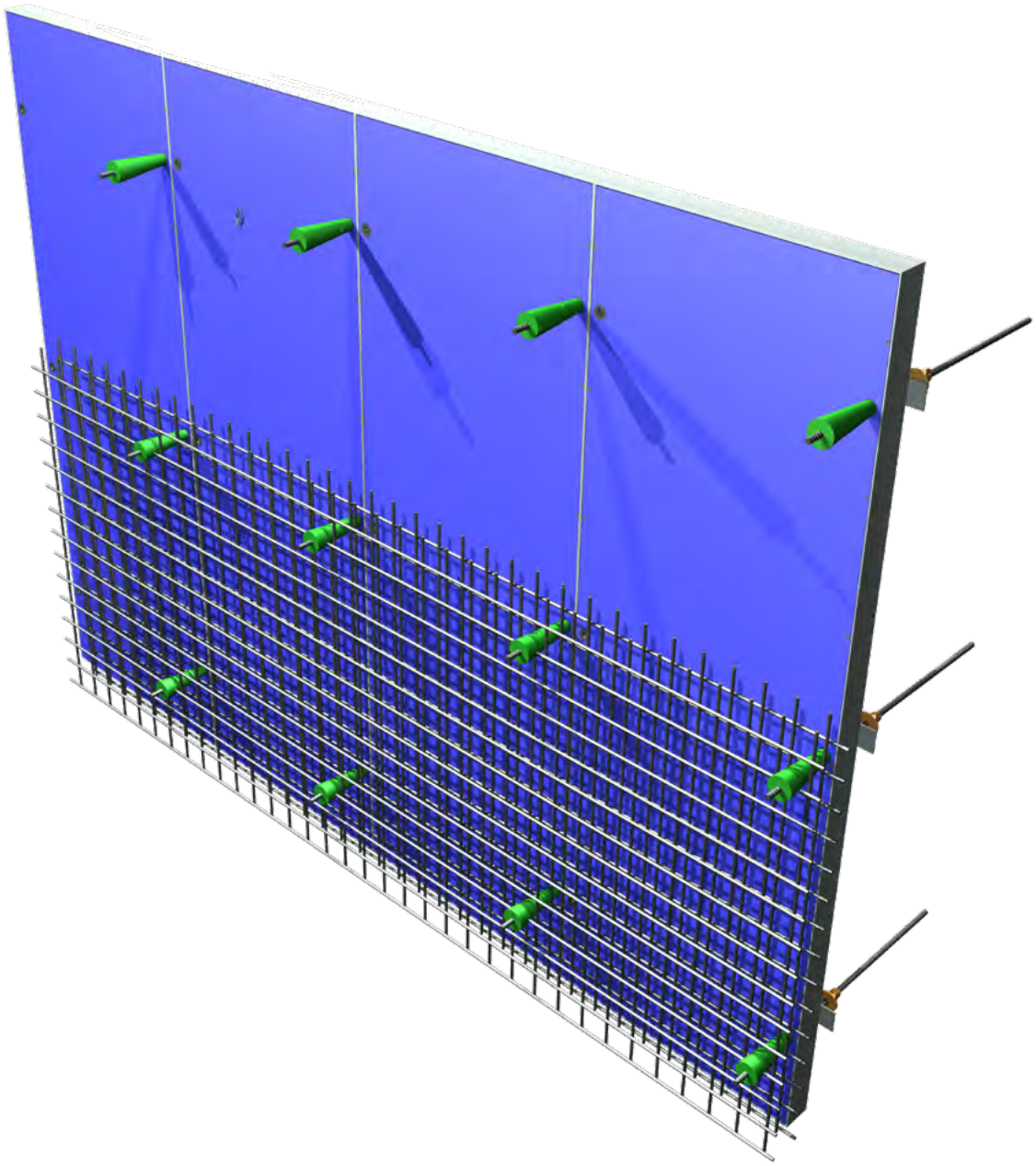
- Provide a double push-pull strut and a service bracket + rear guardrail, every 2 to 3 panels.

Remember: safety is mandatory and an integral part of the work tool.

- Fixing is by flat head bolt in the crossbar slots for the aluminium panels.
- Provide guardrails on the front and 27mm boards, in case of casting over a height of 3m (clamp-slab to be fixed on the upper edge of the panel, facing the brackets).

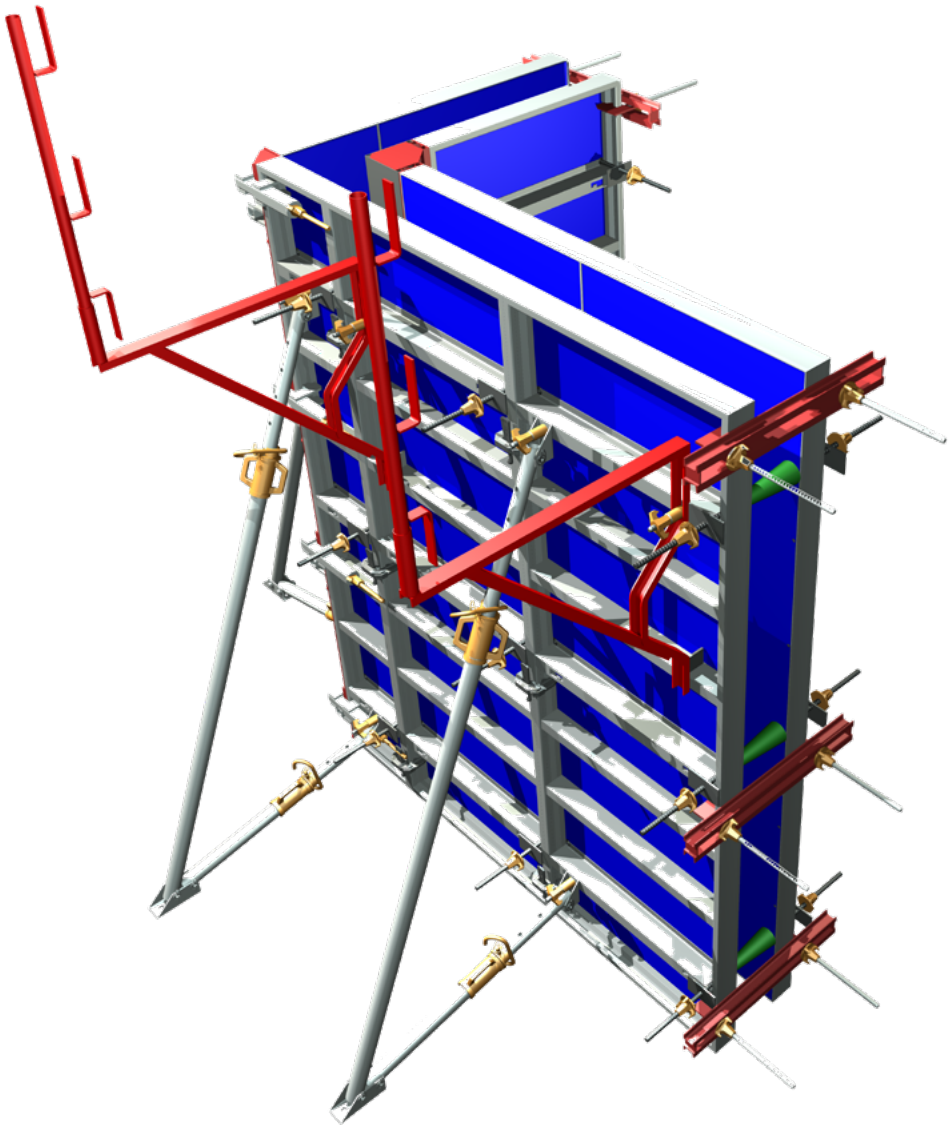
INSTALLATION OF CLAMPING RODS

- Install the clamping rods according to the drawings on page 18-20.
- Seal all unused rod passages with plastic plugs



OILING, CLOSING & END FITTING

- Oil the panels.
- Close the formwork by assembling the inner side, starting from the inner corner 200/200/2700 or 250/250/2700.
- Each inner joint must be opposite the outer joints.



- Close each end of the sail with the strips provided (three on the 2700 height; two on the 1500 height). Available in fixed or adjustable models.

Pouring instructions

CASTING TIMES ACCORDING TO THE STRENGTH OF THE PANELS

Panel ranges with a strength of 6T/m2 :
- 100mm - MANUPORTABLE Formwork (weight: 21.5Kg/m²)

Casting time - Modular panel strength 6T/m² :

Concreting time	Outdoor temperature		
Casting height	5°	10°	15°
2m	0h21min	0h18min	0h15min
2,5m	0h41min	0h35min	0h30min
2,7m	0h51min	0h44min	0h38min
3m	1h02min	0h53min	0h45min

When pouring, make sure that the pressure does not exceed the permissible pressure when pouring the formwork, i.e. for the ALUMINIUM REINFORCED Formwork 6T/m², using pressure sensors.

WARNING !

These data are to be adapted according to the consistency of your concrete and the vibration time.

- **In the event of a specific site configuration or use different from those given in our technical recommendations, we ask the user to consult our design office, which will advise you on the appropriate pouring procedure and safety instructions.**
- **If our technical recommendations are not followed, deformation of the formwork may occur. This will prevent the formwork from returning to its original shape.**

CASTING TIMES ACCORDING TO THE STRENGTH OF THE PANELS

We remind you that the aluminium modular panels have a resistance of 6T/m² (verified by BUREAU VERITAS).
The panels are available in standard heights of 1350, 2700 for hire and 1500, 3000 for sale (see page 10).

Oiling
- Oiling the formwork panels with an additive suitable for the wooden formwork surface (mineral or vegetable).
- The release agent is applied between the concrete and the formwork surface.
- The release agent is essential for the proper removal of the formwork and for the protection of the formwork skin.

In addition, it prevents sticking during concreting and vibration. It is also recommended to oil the peripheral profiles to facilitate their maintenance.

- Before starting an oiling operation, make sure that the formwork skin is clean and dry (in case of rain, remove excess water).

Front panel safety

- For a casting height greater than 3000, we recommend that you use our JALFORM panels or consult us.
- We remind you that the front side safety device is mandatory for any use equal to or greater than a height of 3000. In this case, it is essential to position slab clamps and boards on the upper edge of the panels to protect the front face and to consult our design office.

Pouring speed

- For optimum use of the Manuportable with a strength of 6T/m^2, please refer to the casting time charts above (for standard concrete without admixture or fluidifier).
- For a casting height of more than 3,000 m, we recommend that you use formwork with a minimum concrete pressure resistance of 8T/m^2.
- In the event of a specific site configuration or use different from our technical recommendations, we ask you to consult our design office, which will advise you on the appropriate pouring procedure and safety instructions.

Maintenance

The user is required to clean the panels regularly with a suitable means (scraper, high pressure cleaner, etc.) in order to avoid the passage of laitance.
Before re-use, the panels are cleaned, with particular attention to the maintenance of the formwork face.
For optimal use, proper care and treatment are required:

- Oil the surface of the panels before each use,
- Seal any holes,
- Store the panels away from the weather and sunlight

RECOMMENDATIONS FOR THE USE OF SELF-COMPACTING CONCRETE IN FORMWORK

Self-forming concretes (SFC) are hyper-fluid concretes that are placed, without vibration, under the effect of their own weight and flow characteristics. Self-acting concrete behaves like a liquid and exerts a hydrostatic pressure perpendicular to the formwork faces of the panels used.

- We ask the user to consult our design office, which will indicate the pouring procedure and safety instructions specific to BAP (use of new standardised rods and nuts, doubling of the nuts, compliance with the maximum authorised pouring speed, limited fall of the concrete, control of the pressure of the concrete exerted on the formwork and rods by load cells, etc.).
- In all cases, use new spacer rods passing through the formwork and double the new nuts (Standard EN 10045-1 and NF P 93-350).

WARNING ! The setting time of the BAP is the time necessary from the beginning of the pouring to never exceed the maximum authorised height of fresh concrete (see design office), i.e. a maximum tensile force of 9T on the 17mm diameter through rods. For any specific request, we ask you to consult our design office.

SAFETY & STABILITY

Recommendation

Before casting, check :

- Alignment of the panels.
- No assembly clamps are forgotten.
- The correct positioning of the assembly clamps according to the above procedure.
- The locking of each assembly clamp.
- No rod/plate/nut assemblies or rod/nut assemblies are missed.
- The correct positioning of any rod/plate/nut assembly diam. 70 or rod/nut assembly diam. 110.
- The correct support of each plate or nut at each panel joint.
- The locking of each nut on both sides.
- The correct fixing of the service brackets on the panels.
- The correct positioning of the rear guardrails, by plugging them into the brackets.

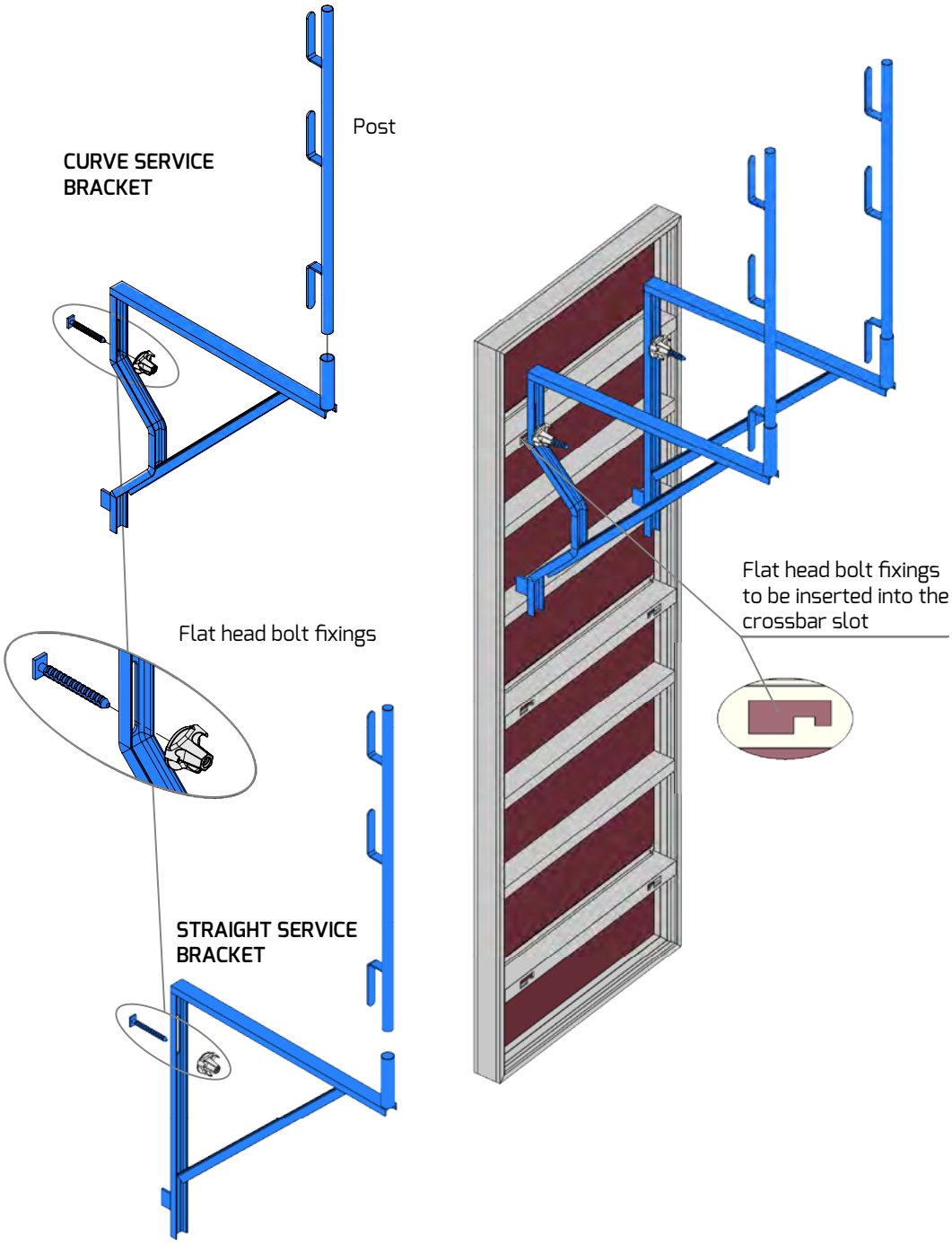
When pouring, observe :

The recommended pouring speed according to the pouring height and outside temperature (see casting time charts above, for standard concrete without admixture or fluidifier).

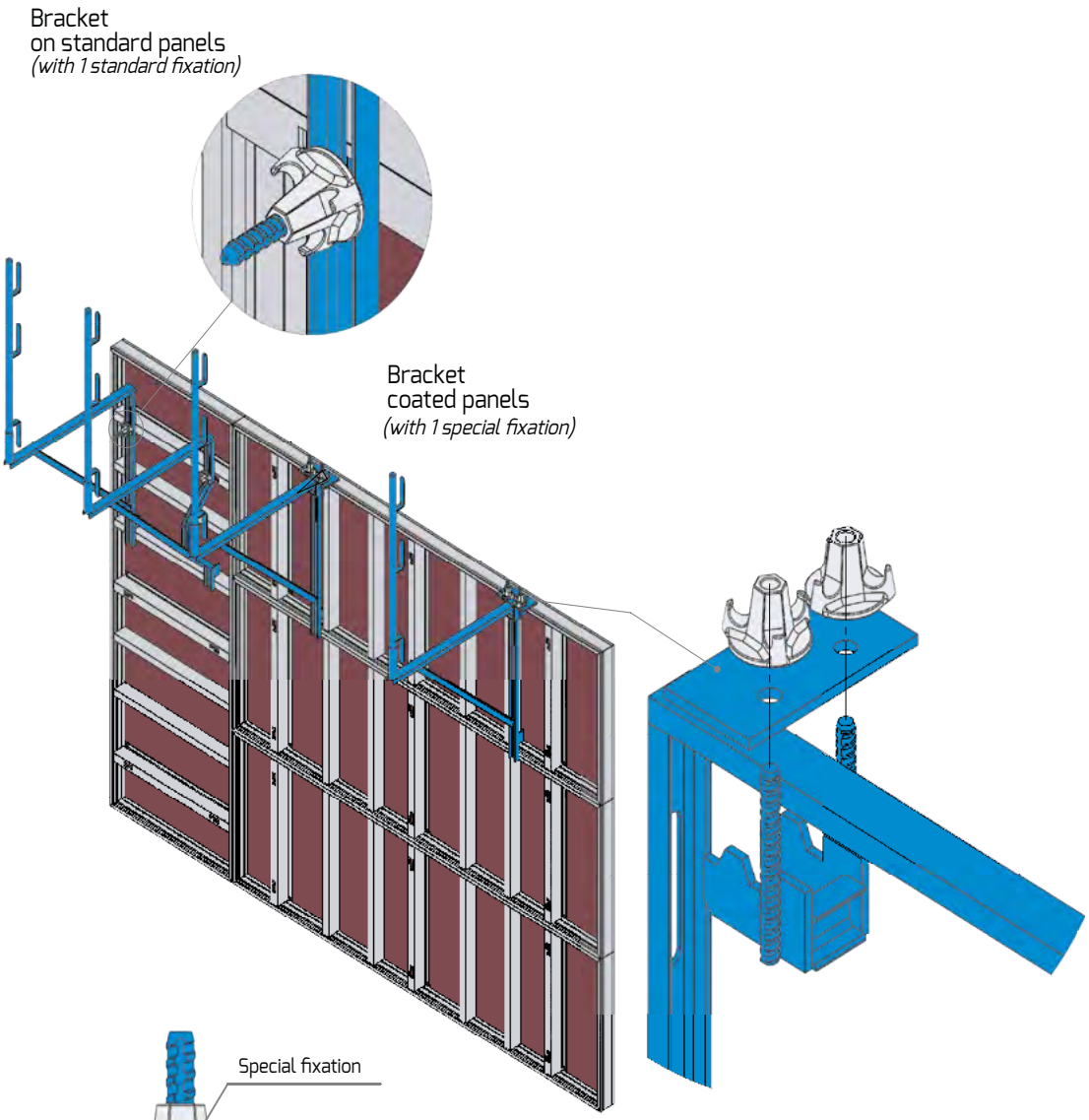
Bracket

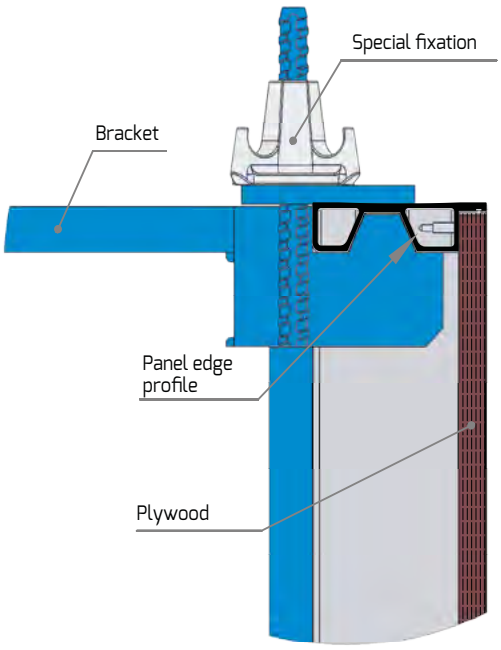
One service console is required for three panels (900 - 750):

- Curved service bracket (when using alignment clamps) or
- Straight service bracket (when using wedge clamps)
- Flat head bolt fixings to be inserted into the crossbar slot
- Rear guardrail post and end cap
- Front guardrail post



Special bracket for service brackets for use with recumbent panels.





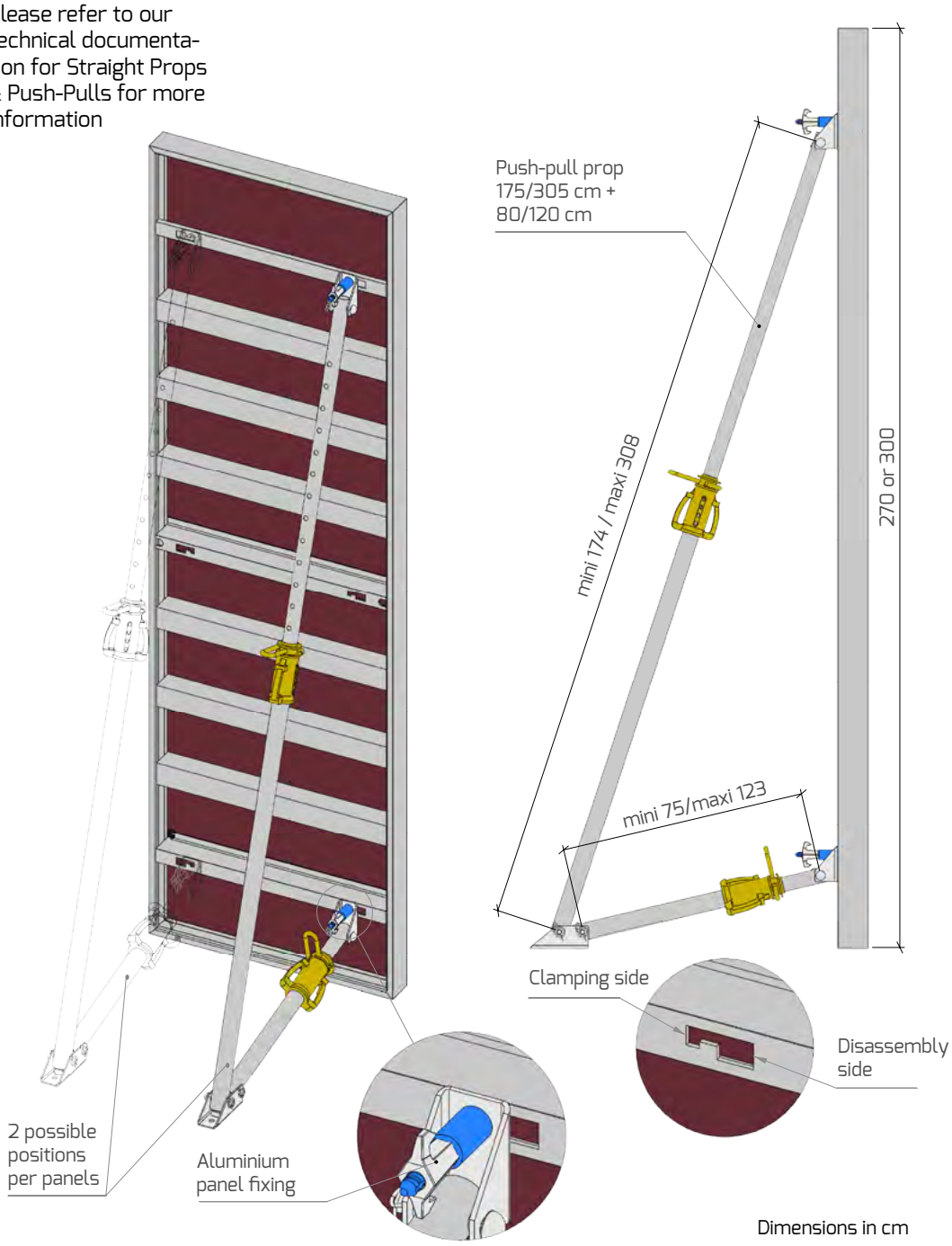
Special fixation :

1 - Remove the 2 nuts and the plate
2 - Pass the bracket over the console
3 - Replace the plate and the 2 nuts
4 - Present the console on the panel, as close as possible to a crossbar, and tighten the two nuts

Stabilizer assembly

To ensure the stability of the Manuportable, it is essential to use the necessary shoring.
For this purpose, we recommend the use of double push-pull props with flat head bolt fastening to be inserted in the notches of the aluminium crossbeams.
The spacing between each outrigger must not exceed three panels.
The anchorage must be correctly dimensioned to take up the forces transmitted to the base plate of the prop. In the case of a freshly poured slab, it is necessary to wait until the concrete has acquired sufficient strength to resist the pull-out or push-out force transmitted by the prop.

Please refer to our technical documentation for Straight Props & Push-Pulls for more information



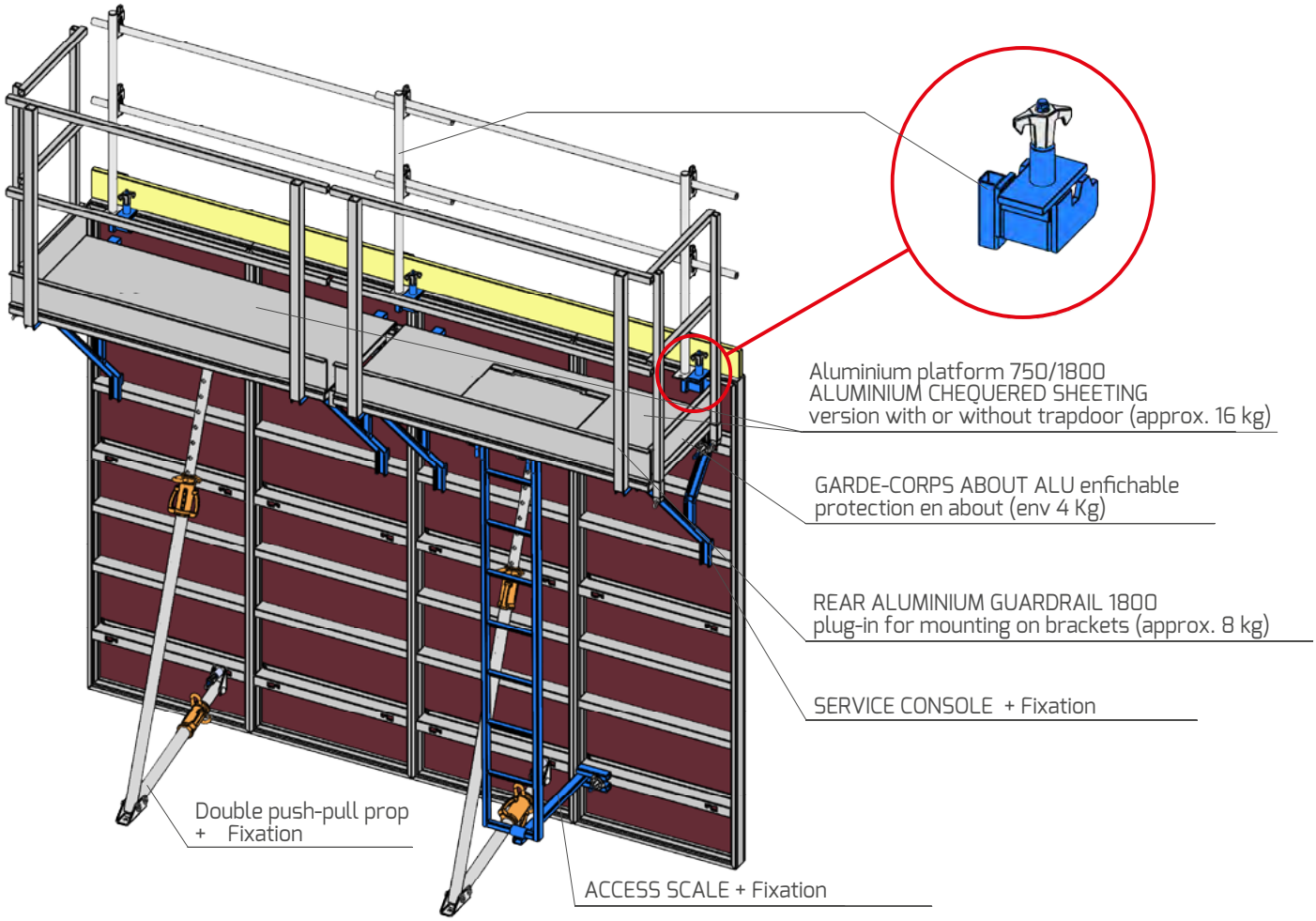
Dimensions in cm

Aluminium working platform

The safety system consists of a decking for 2 panels of width 900 or 3 panels of width 750 :

Slab clamp posts and front guardrail boards
Aluminium chequered decking (750/1800 or 750/2250)
Clamped posts and boards for end railings
Service console + guardrail + fixings
Access ladder + fixings

Only available for sale



ALTRAD
COFFRAGE
& ÉTAIEMENT
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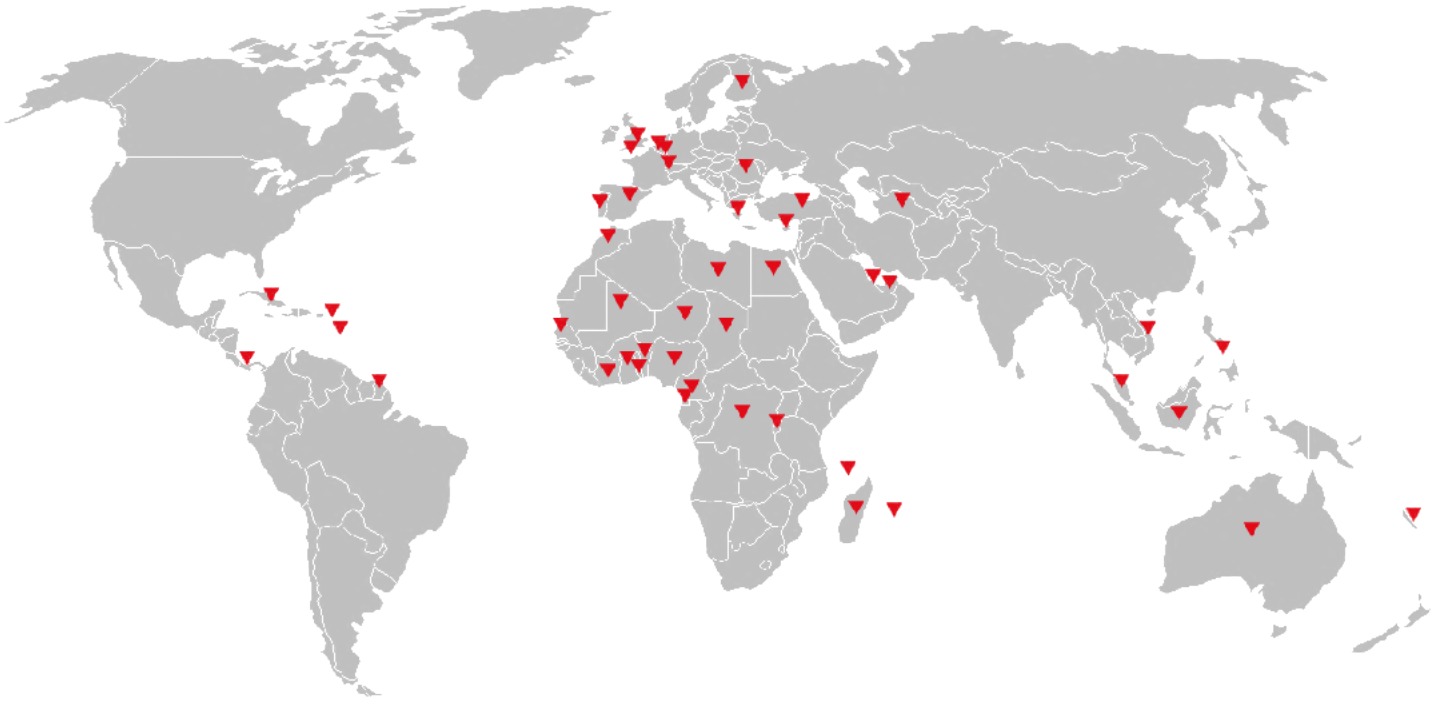
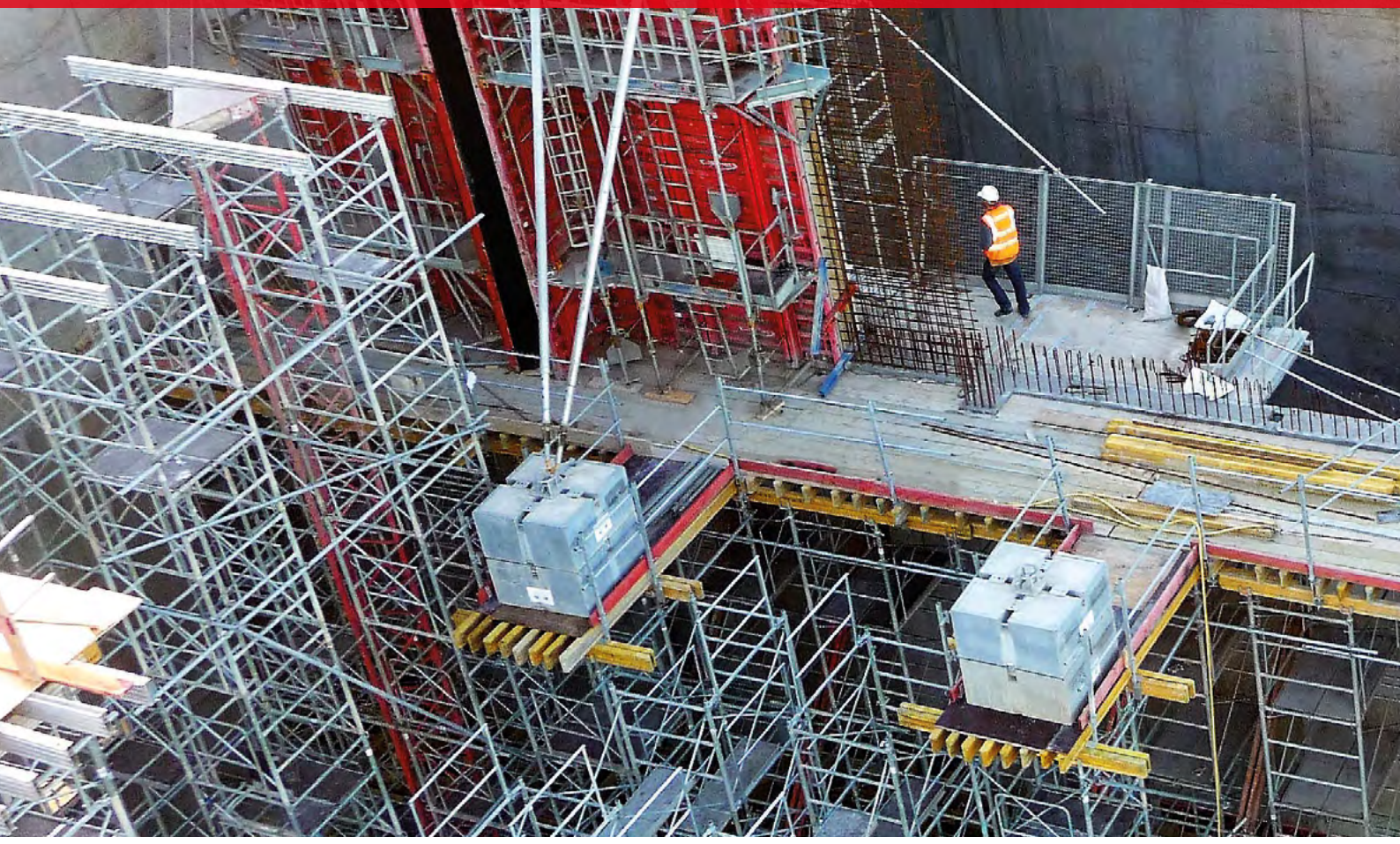


+40 countries

where we have already worked



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