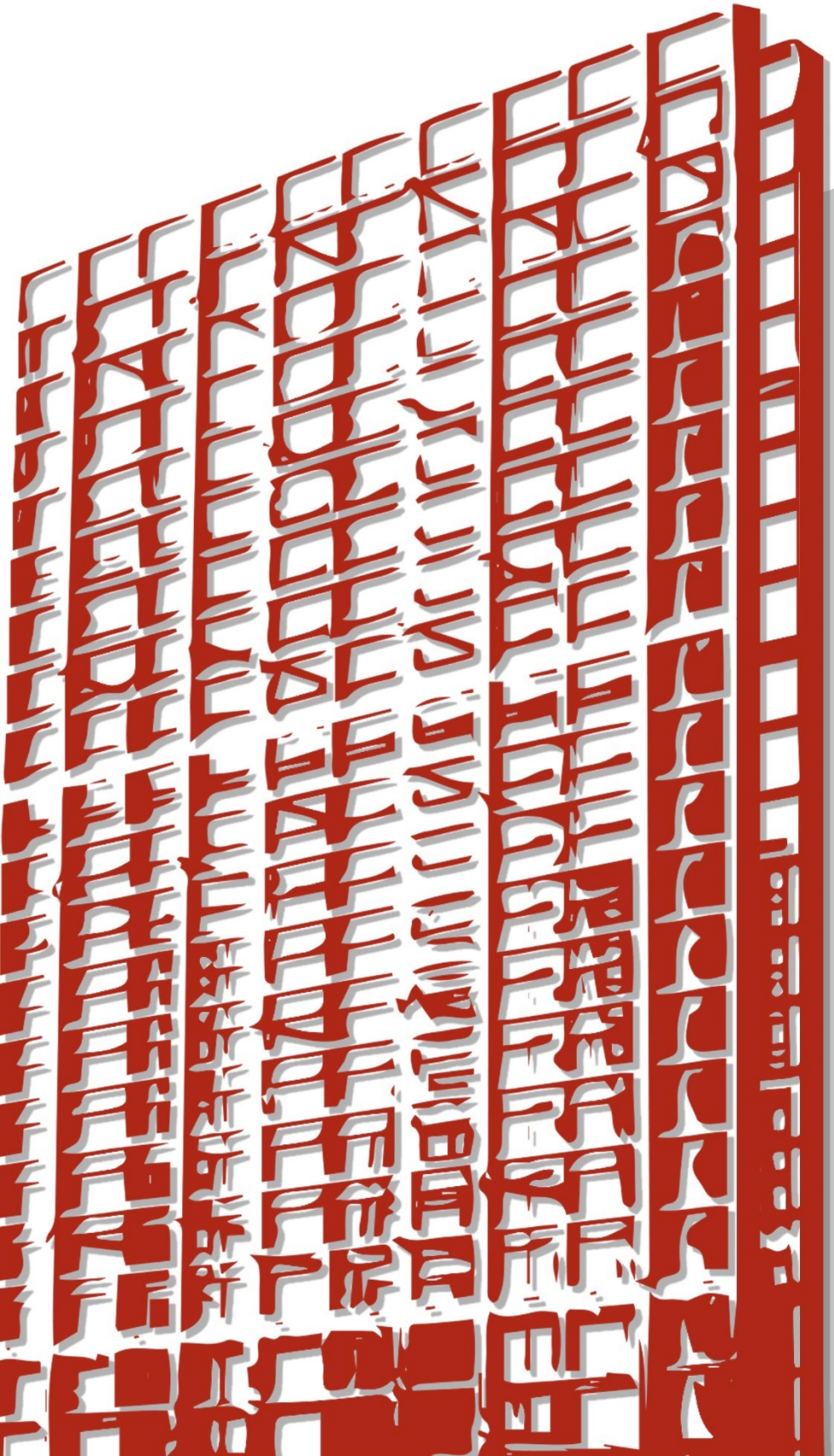
FARESIN FORMWORK

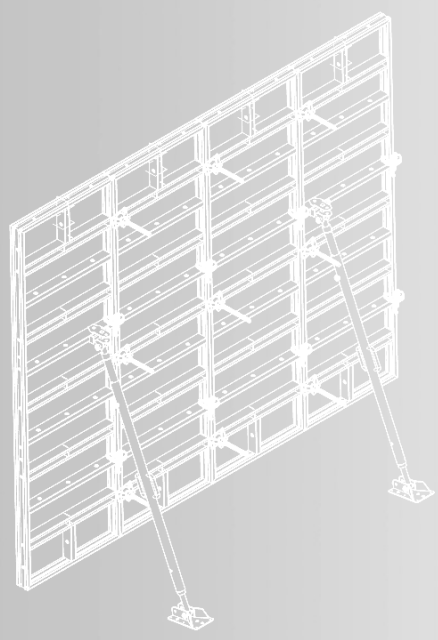
TOGETHER WE BUILD THE WORLD

INSTRUCTIONS FOR ASSEMBLY AND USE

MODUL S100

ID NO: 01.01





PLEASE READ THIS MANUAL CAREFULLY BEFORE USING THE PRODUCTS PROVIDED.

V.05.25

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GENERAL

FARESIN FORMWORK S.p.A. UNIPERSONALE (hereinafter referred to as "**FARESIN FORMWORK**") is constantly committed to guaranteeing the maximum quality of its products by providing satisfying assistance service to its customers. Continuous product improvement is a company policy goal and is also pursued through customer collaboration. For any specific information not contained herein, and to receive assistance, it is always possible to contact the company's technical service, which is available to respond accordingly to the most diverse needs.

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FARESIN FORMWORK guarantees its products only if they are used in accordance with the methods described herein. If a product is not compliant with the information provided in the manual, it is necessary to notify the company's Technical Service promptly, providing all required information.

⚠ This manual only illustrates the hazards caused by the use of the MODUL S100 in standard predefined conditions, without entering into the areas of specific construction site conditions and/or interferences with other works executed simultaneously with the use of this system and/or equipment used for its execution and use. Therefore, interferences with other works and situations of use, that can expose the operators to specific risks or that can in any way reduce the performance of the MODUL S100, will need an accurate analysis within the scope of the specific construction site.

Faresin Formwork supplies, on customer's request, services which include erection, verification and dimensioning of the floor deck for specific applications.

This user's manual is subject to constant updating and review without prior notice; the user must ensure that he is in possession of the most up to date version before beginning to use the* MODUL S 100 *system.

DEFINITION

- ***Operating cycle***: the cycle comprising an erection phase followed by dismantling and handling.

- ***Standard conditions for use***: conditions in which the MODUL S100 system is correctly erected by trained personnel, suitably braced against accidental horizontal actions, erected on a flat concrete surface free from sagging. These are the conditions considered in this manual for the definition of the load-bearing capacity of the MODUL S100 system.

- ***P.P.E*** : personal protective equipment

- ***Use***: application phase that begins with a correct erection.

- ***Installation***: phase for erecting the support comprising high capacity steel and/or aluminium props, starting with the single elements and their accessories.

- ***Erection***: sequenced assembly of all the elements required to correctly erect the scaffold deck.

- ***Dismantling:*** ordered removal of the individual elements utilized

In this manual information is highlighted as explained below:

Mandatory instructions that must be implemented in order to ensure correct use of the products and to avoid potentially dangerous situations are printed in bold italic font.

 This symbol indicates PAY SPECIAL ATTENTION to the instructions to ensure correct use of the products.

PRESENTATION OF THE PRODUCT

Compared to traditional timber formworks Faresin Formwork's metal-timber modular formworks will make your work simpler and above all reduce construction site costs.

You obtain the shape of the wall to be constructed by joining formworks of various dimensions to each other, both horizontally and vertically.

The formworks consist of a modular frame made of steel or lightweight aluminium alloy laminated with a layer of Finnish birch plywood which is protected by a thermosetting phenolic resin or a layer of thermoplastic pvc material.

the formworks, joined together with the special accessories supplied by Faresin Formwork, provide a perfect seal for the concrete during the pour up to the following maximum pressures:

Frame material	Allowable pour pressure
Steel	**80 kN/m^2**
Aluminium light alloy	**60 kN/m^2**

This formwork structure results in a perfectly smooth surface that does not require further finishing treatments.

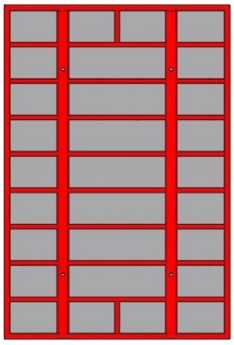
MODUL S100 products are available in a range of sizes:

1. Panel height H3000 mm
2. Panel height H1500 mm
3. Panel height H2700 mm
4. Panel height H1350 mm

These dimensions are available in either the steel or lightweight aluminium alloy version with timber mantle protected by a thermosetting phenolic resin or a PVC coating.

On request Faresin Formwork can supply dedicated and bespoke elements.

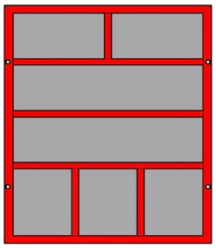
FORMWORKS S100 HEIGHT 3000mm (STEEL)



DESCRIPTION	CODE	SUR. mq	WEIGHT kg
3000X2000X100	300200F4B	6,00	350,00
3000X1200X100	300120F	3,60	140,00
3000x1000x100	300100F	3,00	106,00
3000x1000x100	*7161946	3,00	125,00
3000X900X100	300090F	2,70	98,00
3000X800X100	300080F	2,40	87,00
3000x750x100	300075F	2,25	81,00
3000X700X100	300070F	2,10	74,00
3000X650X100	*300065F	1,95	70,00
3000X600X100	300060F	1,80	67,00
3000X550X100	300055F	1,65	62,00
3000X500X100	300050F	1,50	59,00
3000X450X100	300045F	1,35	53,00
3000X400X100	300040F	1,20	50,00
3000X300X100	300030F	0,90	40,00
3000X250X100	300025F	0,75	37,00
3000X200X100	300020F	0,60	32,00

* MATERIAL AVAILABLE ON REQUEST

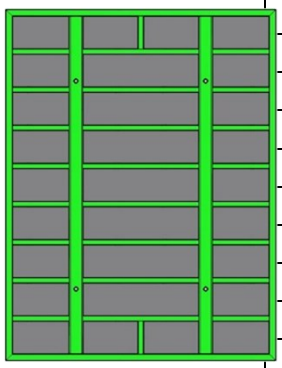
FORMWORKS S100 HEIGHT 1500mm (STEEL)



DESCRIPTION	CODE	SUR. mq	WEIGHT kg
1500X1200X100	150120F	1,80	68,00
1500 X 1000X100	150100F	1,50	60,00
1500 X 900X100	150090F	1,35	52,00
1500 X 800X100	150080F	1,20	42,50
1500 X 750 X 100	150075F	1,125	40,50
1500 X 700X100	150070F	1,05	38,50
1500 X 600X100	150060F	0,90	37,00
1500 X 550X100	150055F	0,825	34,00
1500 X 500X100	150050F	0,75	31,00
1500 X 450X100	150045F	0,675	29,00
1500 X 400X100	150040F	0,60	26,00
1500 X 300X100	150030F	0,45	21,00
1500 X 250X100	150025F	0,375	19,30
1500 X 200X100	150020F	0,30	18,00
2000X1000X100	*200100F	2,00	80,00
1000X1000X100	*100100F	1,00	45,00

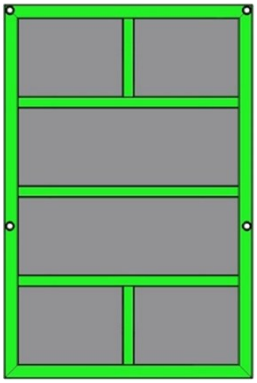
* MATERIAL AVAILABLE ON REQUEST

FORMWORKS S100 HEIGHT 2700mm (STEEL)



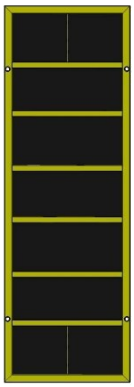
DESCRIPTION	CODE	SUR. mq	WEIGHT kg
2700X2000X100	270200F	5,40	335,00
2700X900X100	270090F	2,43	93,00
2700X700X100	270070F	1,89	75,00
2700X600X100	270060F	1,62	67,00
2700X550X100	270055F	1,48	63,00
2700X500X100	270050F	1,35	60,00
2700X450X100	270045F	1,21	57,00
2700X400X100	270040F	1,08	52,00
2700X300X100	270030F	0,81	43,00
2700X250X100	270025F	0,67	39,00
27000X200X100	270020F	0,54	36,00

FORMWORKS S100 HEIGHT 1350mm (STEEL)



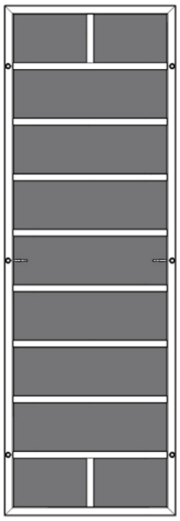
DESCRIPTION	CODE	SUR. mq	WEIGHT kg
1350X900X100	135090F	1,22	46,00
1350X700X100	135070F	0,95	40,00
1350X600X100	135060F	0,81	34,00
1350X550X100	135055F	0,74	28,00
1350X500X100	135050F	0,67	26,00
1350X450X100	135045F	0,61	24,00
1350X400X100	135040F	0,54	23,00
1350X300X100	135030F	0,40	22,00
1350X250X100	135025F	0,34	19,00
1350X200X100	135020F	0,27	17,00

FORMWORKS S100 HEIGHT 2400mm (STEEL)

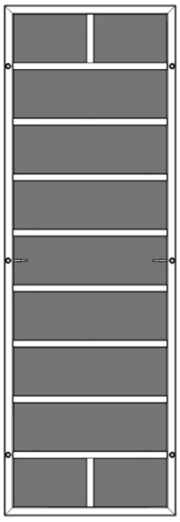


DESCRIPTION	CODE	SUP. mq	WEIGHT kg
2400X1200X100	240120F	2,88	97,00
2400X1000X100	240100F	2,40	87,80
2400X800X100	240080F	1,92	73,40
2400X700X100	240070F	1,68	59,40
2400X600X100	240060F	1,44	51,80
2400X500X100	240050F	1,20	45,90
2400X400X100	240040F	0,96	39,90
2400X300X100	240030F	0,72	34,10
2400X200X100	240020F	0,48	28,50

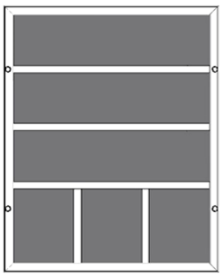
FORMWORKS S100 HEIGHT 3000 mm (ALUMINIUM)

	DESCRIPTION	CODE	SUR. mq	WEIGHT kg
	3000X1000X100	300100A	3,00	77,75
	3000X750X100	300075AL	2,25	55,00
	3000X700X100	300070AL	2,10	50,50
	3000X600X100	300060AL	1,80	46,14
	3000X550X100	300055AL	1,65	43,44
	3000X500X100	300050AL	1,50	40,80
	3000X450X100	300045AL	1,35	38,04
	3000X400X100	300040AL	1,20	35,34
	3000X300X100	300030AL	0,90	30,50

FORMWORKS S100 HEIGHT 2700mm (ALUMINIUM)

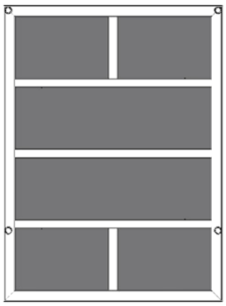
	DESCRIPTION	CODE	SUR. mq	WEIGHT kg
	2700X1000X100	270100A	2,70	72,31
	2700X900X100	270090AL	2,43	57,09
	2700X700X100	270070AL	1,89	47,43
	2700X600X100	270060AL	1,62	42,41
	2700X550X100	270055AL	1,485	39,90
	2700X500X100	270050AL	1,35	37,38
	2700X450X100	270045AL	1,215	34.87
	2700X400X100	270040AL	1,08	32,36
	2700X300X100	270030AL	0,81	27,91

FORMWORKS S100 HEIGHT 1500mm (ALUMINIUM)



DESCRIPTION	CODE	SUR. mq	WEIGHT kg
1500X1000X100	150100A	1,50	39,36
1500X750X100	150075AL	1,125	28,61
1500X700X100	150070AL	1,05	27,21
1500X600X100	150060AL	0,90	24,41
1500X550X100	150055AL	0,825	23,01
1500X500X100	150050AL	0,75	21,61
1500X450X100	150045AL	0,675	19,60
1500X400X100	150040AL	0,60	18,20
1500X300X100	150030AL	0,45	15,61

FORMWORKS S100 HEIGHT 1350mm (ALUMINIUM)



DESCRIPTION	CODE	SUR. mq	WEIGHT kg
1350X1000X100	135100A	1,35	37,18
1350X900X100	135090AL	1,215	30,18
1350X700X100	135070AL	0,945	24,55
1350X600X100	135060AL	0,81	21,94
1350X550X100	135055AL	0,742	20,63
1350X500X100	135050AL	0,675	19,32
1350X450X100	135045AL	0,61	18,02
1350X400X100	135040AL	0,54	16,71
1350X300X100	135030AL	0,405	14,31

ACCESSORIES

PRODUCT	DESCRIPTION	CODE	SUP. mq	WEIGHT kg
	PROFILE FOR INCLINED WALL 3000X100X100	8168026	0,30	24,00
	PROFILE FOR INCLINED WALL 1500X100X100	8168032	0,15	12,10
	PROFILE FOR INCLINED WALL 2700X100X100	8168346	0,27	21,50
	PROFILE FOR INCLINED WALL 1350X100X100	8168347	0,135	10,80
	PROFILE FOR INCLINED WALL 2400X100X100	7161802	0,24	19,50

PRODUCT	DESCRIPTION	CODE	SUP. mq	WEIGHT kg
	DRILLED PIPE FOR PINS/BARS 3000X50X100	8168228	0,15	14,30
	DRILLED PIPE FOR PINS/BARS 1500X50X100	8168071	0,075	7,50
	DRILLED PIPE FOR PINS/BARS 2700X50X100	8168348	0,135	12,90
	DRILLED PIPE FOR PINS/BARS 1350X50X100	8168349	0,067	6,80
	DRILLED PIPE FOR PINS/BARS 2400X50X100	7161801	0,12	11,40

PRODUCT	DESCRIPTION	CODE	SUP. mq	WEIGHT kg
	PROFILE FOR PLINTH BASES 3000X100X100	8168307	0,30	24,50
	PROFILE FOR PLINTH BASES 1500X100X100	8168308	0,15	12.40
	PROFILE FOR PLINTH BASES 2700X100X100	8168461	0,27	22,00
	PROFILE FOR PLINTH BASES 1350X100X100	8168462	0,135	11,20

PRODUCT	DESCRIPTION	CODE	SUP. mq	WEIGHT kg
	STRIPPING BLOCK 3000X100X100	300010F	0,30	30,20
	STRIPPING BLOCK 1500X100X100	150010F	0,15	15,30
	STRIPPING BLOCK 2700X100X100	270010F	0,27	26,60
	STRIPPING BLOCK 1350X100X100	135010F	0,135	14,00

PRODUCT	DESCRIPTION	CODE	SUP. mq	WEIGHT kg
	JOLLY PANEL 3000X300X100	300030FJ	1,20	63,00
	JOLLY PANEL 1500X300X100	150030FJ	0,60	33,00
	JOLLY PANEL 2700X300X100	270030FJ	1,08	57,00
	JOLLY PANEL 1350X300X100	135030FJ	0,54	31,00
	JOLLY PANEL 2400X300X100	240030FJ	0,96	50,00

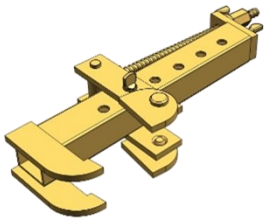
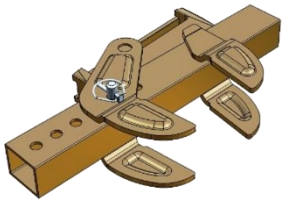
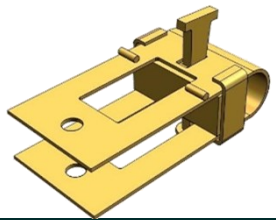
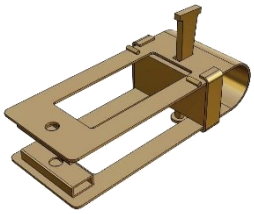
PRODUCT	DESCRIPTION	CODE	SUP. mq	WEIGHT kg
	EXTERNAL HINGE FOR CORNERS L=3000 P=100	8168015	0,30	54,00
	EXTERNAL HINGE FOR CORNERS L=1500 P=100	8168016	0,30	28,00
	EXTERNAL HINGE FOR CORNERS L=2700 P=100	8168351	0,54	49,00
	EXTERNAL HINGE FOR CORNES L=2400 P=100	8169139	0,48	45,00
	EXTERNAL HINGE FOR CORNERS L=1350 P=100	8168439	0,27	25,00

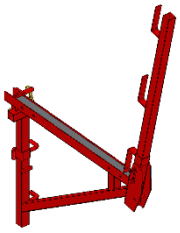
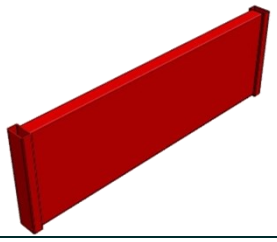
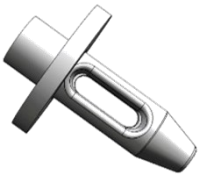
PRODUCT	DESCRIPTION	CODE	SUP. mq	WEIGHT kg
	INTERNAL HINGE FOR CORNERS 3000X280X280	8168013	1,68	85,00
	INTERNAL HINGE FOR CORNERS 1500X280X280	8168014	0,68	44,00
	INTERNAL HINGE FOR CORNERS 2700X280X280	8168350	1,51	79,00
	INTERNAL HINGE FOR CORNERS 1350X280X280	8168438	0,756	32,00

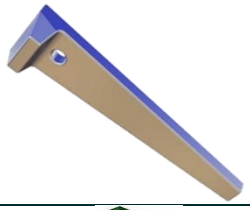
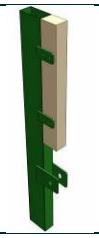
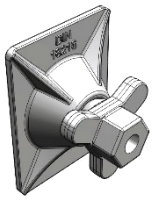
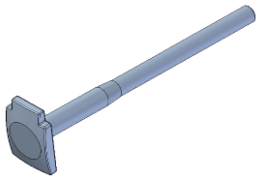
PRODUCT	DESCRIPTION	CODE	SUP. mq	WEIGHT kg
	BICONICAL ELEMENT 4500X250X250	7160494	2,25	158,00
	BICONICAL ELEMENT 3000X250X250	8168110	1,50	105,00
	BICONICAL ELEMENT 1500X250X250	8169008	0,75	60,00
	BICONICAL ELEMENT 2700X250X250	8168352	1,35	96,00

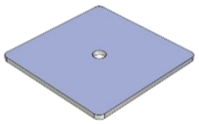
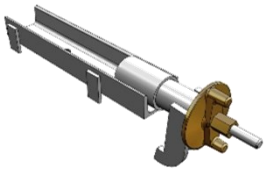
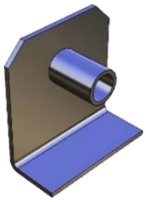
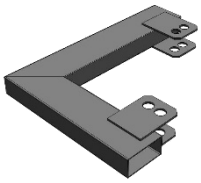
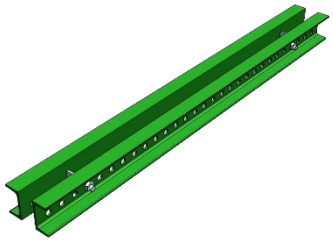
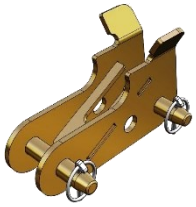
PRODUCT	DESCRIPTION	CODE	SUP. mq	WEIGHT kg
	FIXED TAPER INTERNAL CORNER 1500X250X250	8168096	0,75	30,00
	FIXED TAPER INTERNAL CORNER 135X250X250	8168442	0,67	28,00

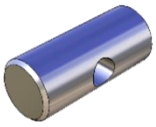
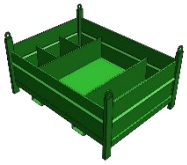
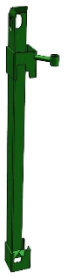
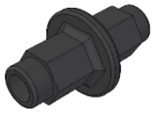
PRODUCT	DESCRIPTION	CODE	SUP. mq	WEIGHT kg
	DRILLED CORNER ELEMENT A100 L=3000	8168141	-	37,00
	DRILLED CORNER ELEMENT A100 L=2700	8168353	-	18,50
	DRILLED CORNER ELEMENT A100 L=1500	8168142	-	20,00
	DRILLED CORNER ELEMENT A100 L=1350	8168440	-	17,00

IMAGE	DESCRIPTION	CODE	WEIGHT Kg.
	UNIVERSAL CLAMP	8168010	7,54
	ALIGNER CLAMP M2	8169066	4,52
	GALVANIZED ALIGNER BRACKET	8168027	3,70
	ALIGNER BRACKET	8168550	5,40
	PLATE WITH MISALIGNED NUT	8168069	0,8
	FORMWORK BEARING BRACKET	8168978	12,00
	SERVICE BRACKET S3	8169067	12,30

	**SERVICE BRACKET 2021**	**9169277**	**13,50**
	**CLOSING UPRIGHT FOR BRACKET**	**8168778**	**5,86**
	**FOOT STOP PLATE AND HANDRAIL**	**8168779**	**3,20**
	**ALIGNER PIPE WITHOUT HOLES 100X50X1500**	**8168542**	**13,60**
	**ALIGNER PIPE WITHOUT HOLES 100X50X800**	**8168306**	**7,40**
	**SHORT PIN SPECIAL**	**8168183**	**0,20**
	**SHORT PIN L=90**	**8168021**	**0,28**

	**MEDIUM PIN L=135**	**8168022**	**0,30**
	**ADJUSTABLE PIN**	**8168184**	**0,78**
	**WEDGE FOR PIN**	**8168024**	**0,16**
	**FORMWORK EXTENSION BRACKET**	**8168468**	**12,00**
	**NUT PLATE DIW D 15 mm**	**9168018**	**0,92**
	**REVOLVING NUT PLATE DIW**	**9168017**	**1,80**
	**LOCKING PIN**	**300075FP/6**	**0,90**
	**STIFFENING PIPE**	**8168157**	**15,00**

	**LIFTING HOOK FOR PANELS A100**	**8168012**	**6,50**
	**STOP PLATE 200x200x8**	**8168044**	**2,60**
	**SLIDING PANEL STIRRUP**	**8168236**	**7,00**
	**BAR OVER PANEL BRACKET**	**8168098**	**0,80**
	**FIXED CORNER ELEMENT FOR COLUMN**	**8168088**	**3,40**
	**GIRDER WITH HOLES 1000**	**8168969/C**	**21,50**
	GIRDER WITH HOLES 1500	**8168970/C**	**31,50**
	GIRDER WITH HOLES 2000	**8168971/C**	**41,50**
	**BAR COUPLING BRACKET DWG**	**8168972/C**	**2,30**

	**GIRDER FASTENING BRACKET**	**8168976/C**	**2,30**
	**UNIVERSAL PLATE**	**8196013**	**11,00**
	**WING NUT**	**8168370**	**0,50**
	**STOP PIN FOR WING NUT**	**8168973**	**1,00**
	**PANEL BOX**	**8168202**	**121,00**
	**BOX FOR ACCESSORIES**	**8168203**	**148,00**
	**CORNER ELEMENT FOR PANEL BOX**	**8168608**	**10,00**
	**TAPER PLUG FOR PVC PIPE**	**9168459**	**0,02**
	**WATERSTOP COUPLING DIW 15**	**8169175**	**0,55**
	**STEEL PANEL PLUG**	**8168079**	**0,01**
	**ALUMINIUM PANEL PLUG**	**8168078**	**0,01**

	**THREADED BAR 250mm D15 mm**	**9160250**	**0,54**
	THREADED BAR 750mm D15 mm	**9160750**	**1,60**
	THREADED BAR 1000mm D15 mm	**9161000**	**2,16**
	THREADED BAR 1500mm D15 mm	**9161500**	**3,24**
	THREADED BAR 2000mm D15 mm	**9162000**	**4,32**
	THREADED BAR 2500mm D15 mm	**9162500**	**5,20**
	THREADED BAR 3000mm D15 mm	**9163000**	**6,48**
	THREADED BAR 4000mm D15 mm	**9164000**	**8,64**
	THREADED BAR 6000mm D15 mm	**9166000**	**12,96**

	**THREADED BAR 250mm D20 mm**	**9200250**	**0,65**
	THREADED BAR 750mm D20 mm	**9200750**	**1,95**
	THREADED BAR 1000mm D20 mm	**9201000**	**2,60**
	THREADED BAR 1500mm D20 mm	**9201500**	**3,80**
	THREADED BAR 2000mm D20 mm	**9202000**	**5,60**
	THREADED BAR 2500mm D20 mm	**9202500**	**6,50**
	THREADED BAR 3000mm D20 mm	**9203000**	**7,80**
	THREADED BAR 4000mm D20 mm	**9204000**	**10,40**
	THREADED BAR 6000mm D20 mm	**9206000**	**15,60**

INSTALLATION AND USE

GENERAL GUIDELINES

Notwithstanding the legislative provisions on this matter that are in force at the time the MODUL S100 system is being used, users must comply with the instructions set out below.

All operations involving installation and use of the system must be carried out only by suitably trained and instructed personnel. Specifically, all the operations must be carried out in compliance with the following general principles:

1. perfectly and in safe conditions, observing all the general instructions laid down in current legislation and integrated by this user's manual and any specific instructions provided for particular on-site use;
2. all the lifting/transportation equipment and load securing parts must be suitable for handling and positioning the elements and for their assembly; all the lifting equipment must bear the CE marking.
3. all the elements and equipment used must be inspected before use in order to eliminate any that, for whatever reason, do not appear reliable.
4. the erectors and users of the elements must be provided with suitable equipment, and wear suitable personal protective equipment according to the hazards to which they are exposed (P.P.E.).
5. if the erection is complex enough to require an erection drawing, the latter must be prepared, or requested, for the specific use and must be strictly adhered to with each structure positioned exactly in accordance with the measurements indicated in the drawings.
6. The stripping of the panels must be carried out after the concrete has reached a compression that is capable of statically sustaining its own weight and the weight applied temporarily by the shuttering structures.
7. The concrete pour speed and methods must comply with standard UNI EN 18202.

The handling and erection operations must be carried out according to the operating sequence contained in this user's manual.

Handling of parts and using the MODUL S100 system could expose operators to an injury and/or contusion hazard caused by incorrect manoeuvres, falling from heights or overturning.

As well as the hazards produced by using the system users must consider all the risks involved in the construction site where the products are used.

⚠ Hazards produced by particular or specific conditions on the construction site where the MODUL S100 system is being used are not considered below and, in compliance with current Italian legislation, they must be analysed during the preparation of the General Safety Plan and in the Safety Operational Plans concerning each separate construction work.

TRANSPORT AND STORAGE OF THE ELEMENTS

Take note of the following guidelines for handling the formworks:

- Use suitable transportation and handling equipment that complies with regulatory requirements.
- Use suitable fastenings to secure the various elements to the transportation vehicle.
- The accessories must be stored in their respective containers until they are assembled on the panels, then returned to the same containers after they have been removed from the formwork.
- Ground abrasion damages the timber mantle of the formworks and consequently reduces the quality of the finished wall.
- Dents on the frame resulting from falls or strong knocks could make it impossible to assemble them and, in this way, affect the configuration of the desired wall.

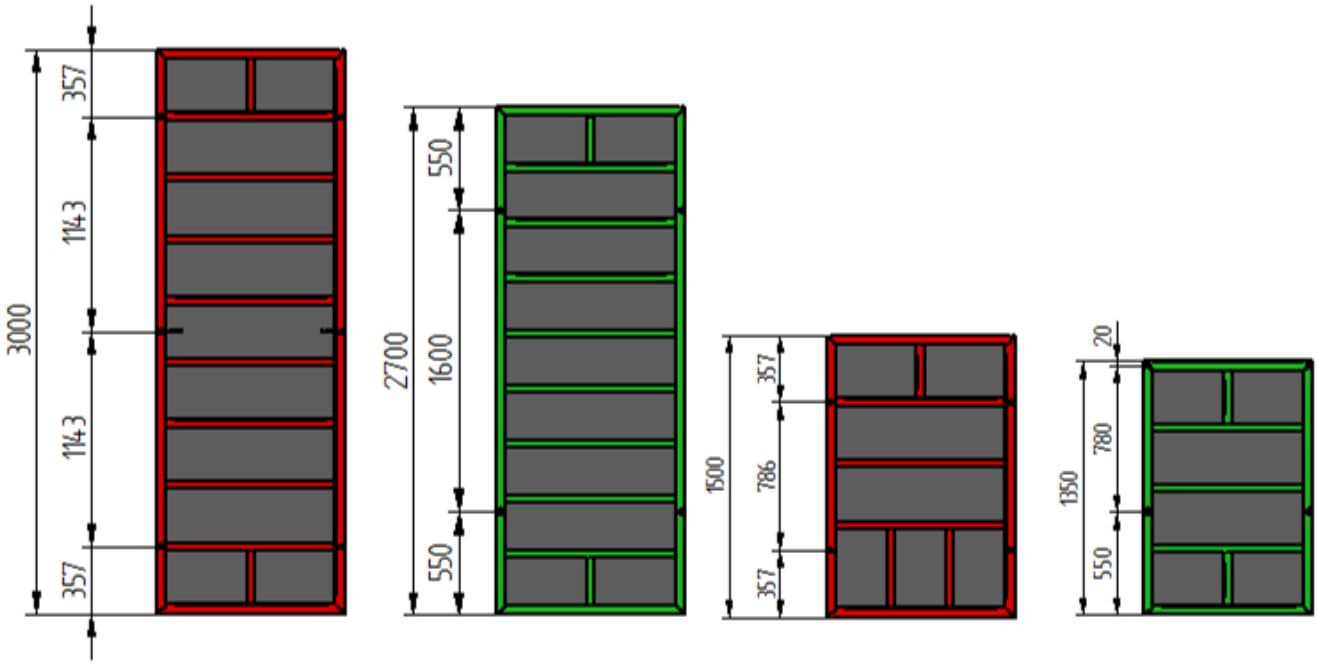
⚠ Elements that are not adequately secured could fall during transit.

Use suitable cranes/winches to move the elements; never move the MODUL S100 system once it has been placed in position.

Deposit all the elements on the construction site in the special location provided for the purpose. Identify the deposit location in order to avoid interfering with other works in progress.

Delimit the storage area with an enclosure that will not permit accidental access; the elements must be clearly visible. Signpost the storage area.
Store the elements in the containers produced by FARESIN FORMWORK S.p.A.

VERTICAL POSITION OF THE HOLES FOR THE THREADED BARS



ERECTION

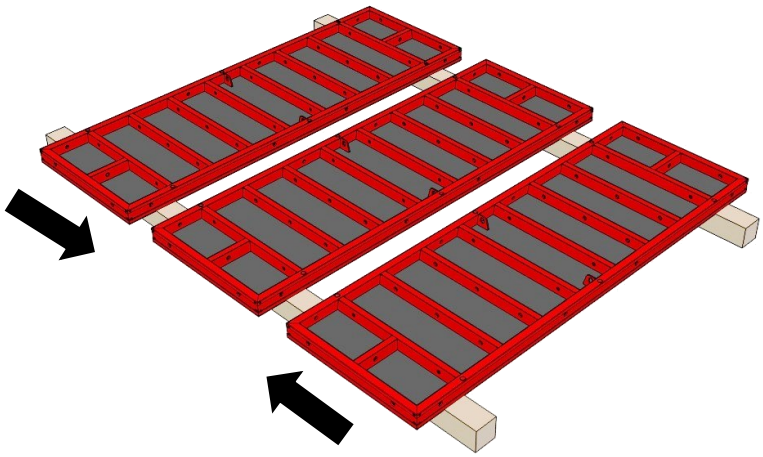
Before erecting the MODUL S100 system verify the following conditions:

1. ***Flatness of the surface***: the formwork bearing surface must be flat and without any irregularities such as bumps and dips.
2. ***Resistance of the bearing surface suitable for the transmitted loads***: particularly for loads transmitted by the plumb rods, and therefore to their fastening, and for the formworks.
3. **The alignment of the formworks**: during erection the alignment must be executed through the points fixed to the floor, having a resistance to the side thrust of the panels during the settling phase.
4. **All formworks walls** after assembly must be placed vertically in position, therefore check the capacity of the lifting equipment beforehand in order to size the weight of the portions to be lifted.
5. **The profile of the panels** must be the same thickness.
6. Special accessories constructed specifically by Faresin Formwork must be used for all panel assemblies and in all conditions of use.

⚠ **Faresin Formwork declines all liability for damages to people and/or objects arising from the use of accessories other than the prescribed ones.**

ERECTION SEQUENCE

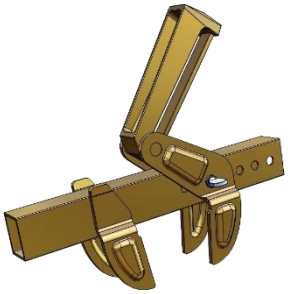
Prepare planking, consisting of two parallel rows of timber beams and having a larger development compared to the sections of the walls to be erected, on a horizontal plane and perfectly level, then place the formwork elements crosswise to form a well-defined wall with the timber mantle facing the ground.

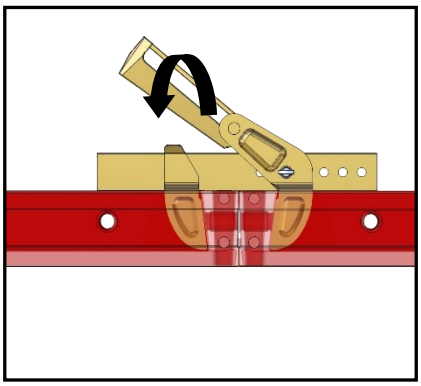


To avoid damaging the plywood panel **do not join the panels directly on the ground!**

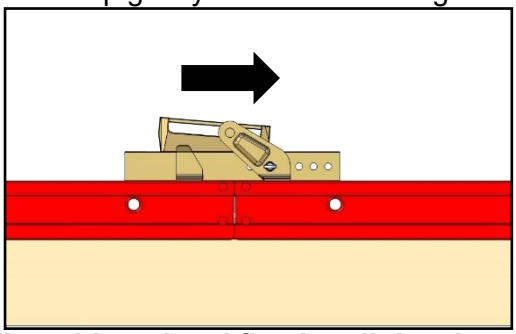
1st CASE

Join the formworks together using the aligner clamps. Open the aligner clamp and adjust the position of the holes according to the required clamping size. Clamp the two previously joined panels and close the wedge.



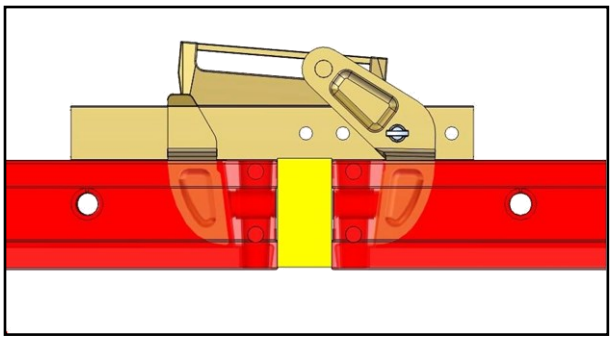


To fix the clamp gently hammer the wedge until it locks.



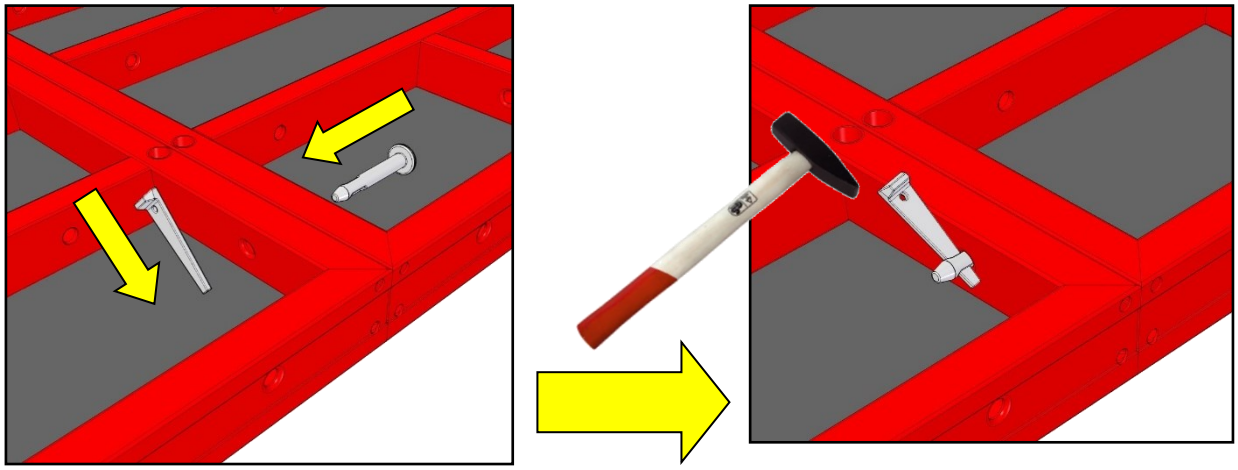
The clamps must be well-positioned and fixed until the elements are completely locked

The aligner clamp can also be used with 2.5 to 10 cm fillers.



2nd CASE

Join the formworks together using the medium pins and wedges.



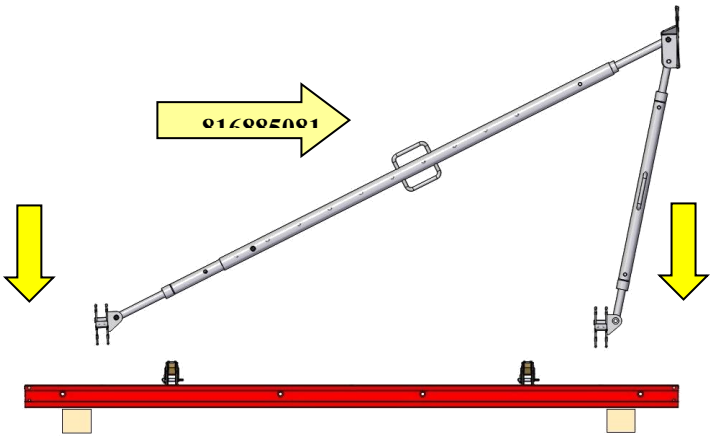
Once the pin is inserted in the hole, insert the wedge and hammer it into position.

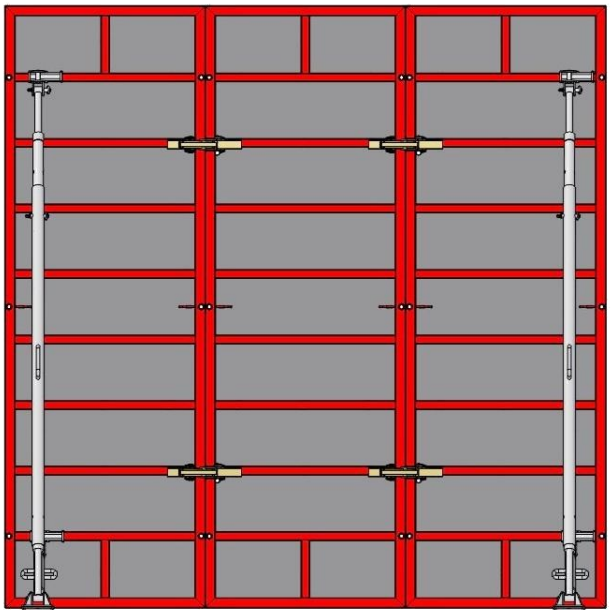
The 3000x1000 panels must be joined with a minimum of 2 aligner clamps or with 4 medium pins and wedges.

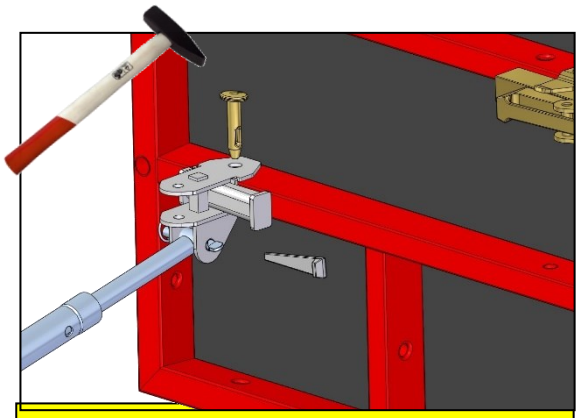
The 3000x2000 panels must be joined with a minimum of 3 aligner clamps or with 4 medium pins and wedges

MOUNTING THE PLUMBING RODS

While the formworks are resting on the planking, install the plumbing rods that are necessary for the wall, by means of their special connecting brackets. The purpose of the plumbing rods is to counteract the wind thrust.



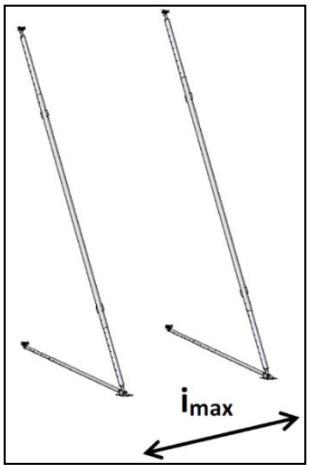


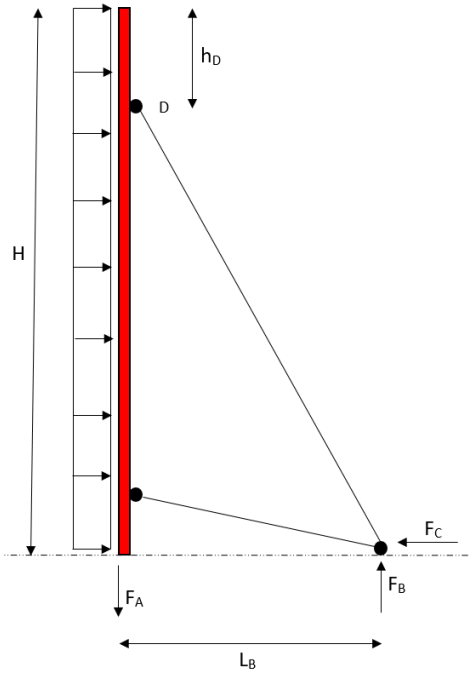


FIX THE PLUMBING ROD BY INSERTING THE SHORT PIN WITH ITS WEDGE IN THE HOLE.

MONTAGGIO PIOMBATORI

Mentre i casseri sono appoggiati al tavolato, si installano su di esso i piombatori necessari alla parete, tramite le loro apposite staffe di collegamento. I piombatori hanno lo scopo di contrastare la spinta del vento.

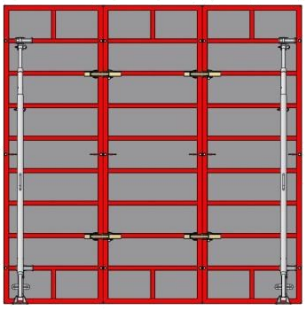


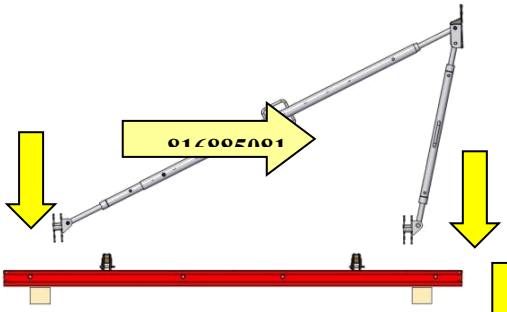


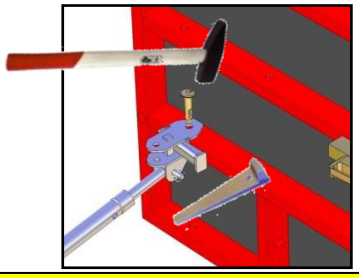
PLUMBING PROPS CAPACITIES

Wind load (KN/m2)	0,5						0,8
Formwork height H (m)	3	4	5	6	7	8	9
Spacing IMAX (m)	3,80	2,80	2,30	1,90	1,50	4,50	4,50
Linear load (KN/m)	0,75	0,75	0,75	0,75	0,75	2,25	3,60
Base plate distance LB	1,20	1,60	2,00	2,40	2,90	3,50	4,50
Distance from top HD	1,00	1,00	1,50	1,80	2,00	2,00	1,50
Reaction at base FA (KN)	11,30	10,50	10,80	10,70	6,34	20,57	30,00
Reaction at base FB (KN)	11,30	10,50	10,80	10,70	6,34	20,57	30,00
Reaction at base FC (KN)	9,00	8,40	8,70	8,60	5,25	18,00	32,40
Plumbing rod type	Plumbing rod 250-450						
		Plumbing rod 400-650					
				Plumbing rod 600-900			

For wind pression below the specified one, the spacings can be increased.



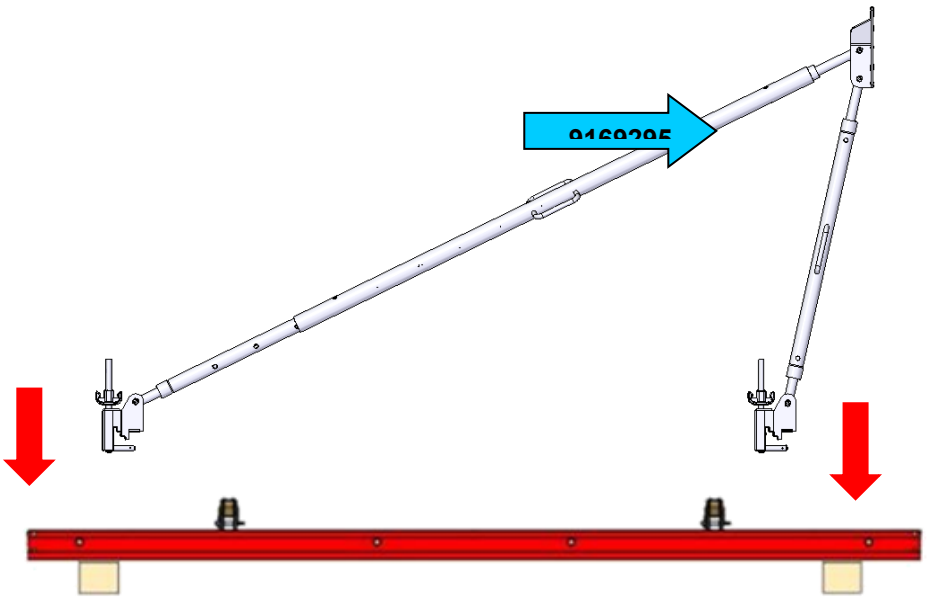


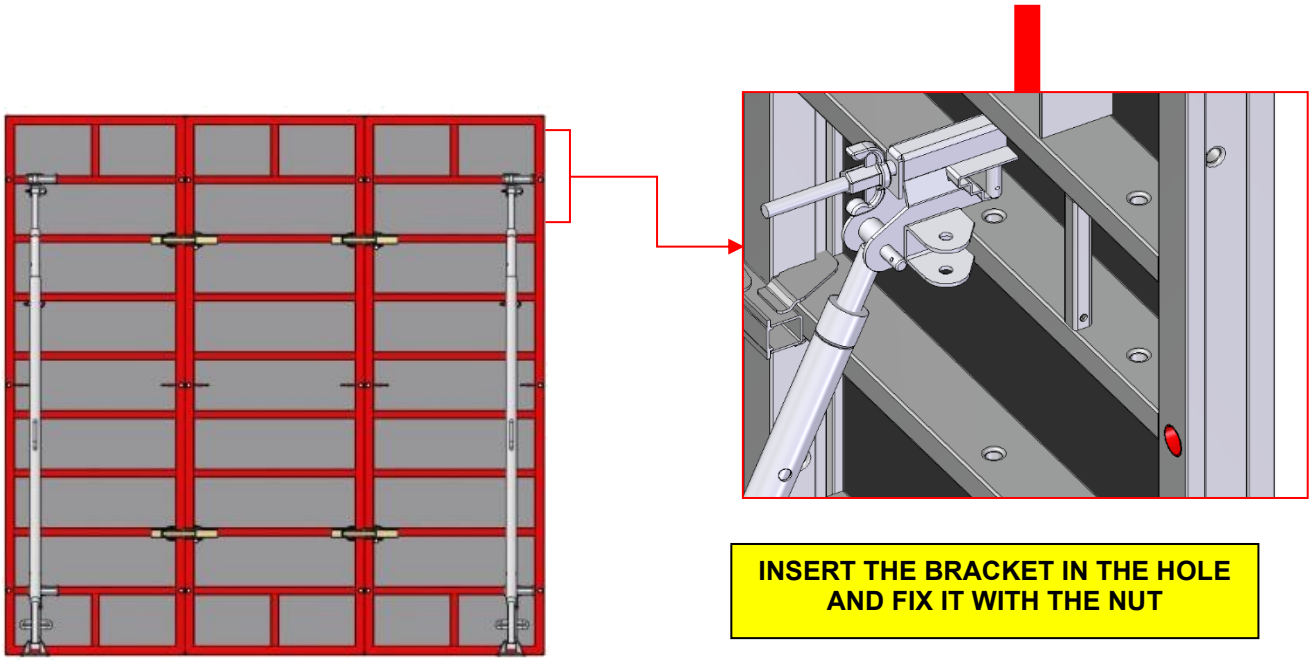


FIX THE PLUMBER USING THE PIN AND WEDGE INSERTED IN THE FRAME HOLES

POSITIONING THE PLUMBERS WITH NUT FIXING MECANISM

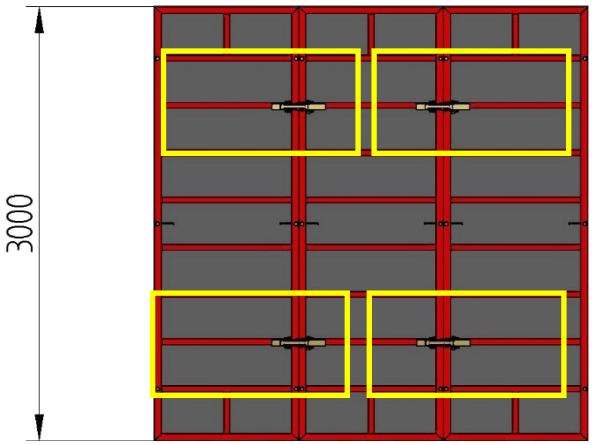
The purpose of these plumbers is the same as the previous ones (to stabilize against wind pressure). Install the necessary plumbers to the wall using the connecting brackets. In this case, the connecting bracket does not need pins and wedges, but is fixed and secured by tightening the nut.

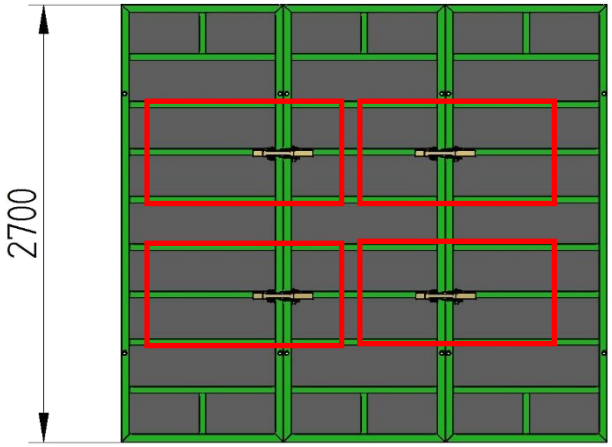


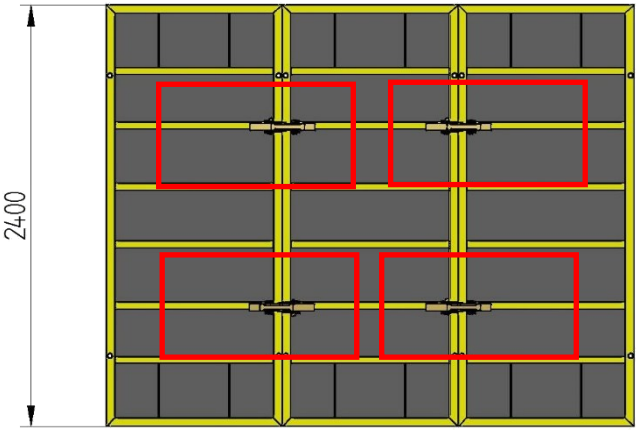


INSERT THE BRACKET IN THE HOLE AND FIX IT WITH THE NUT

POSITION ALIGNER CLAMP

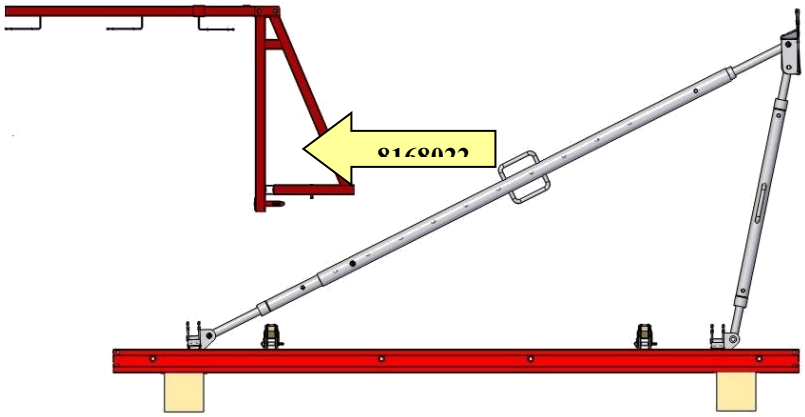


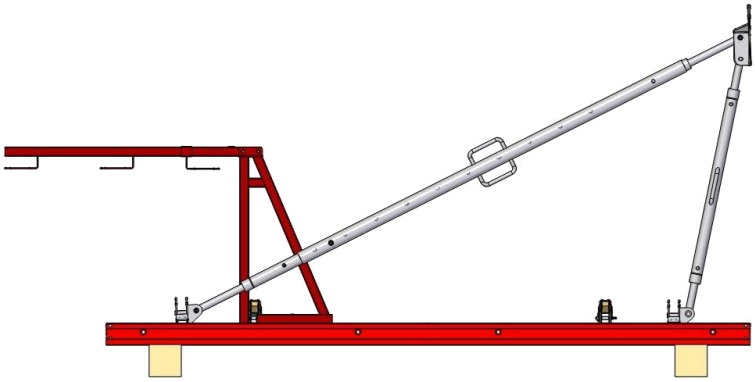




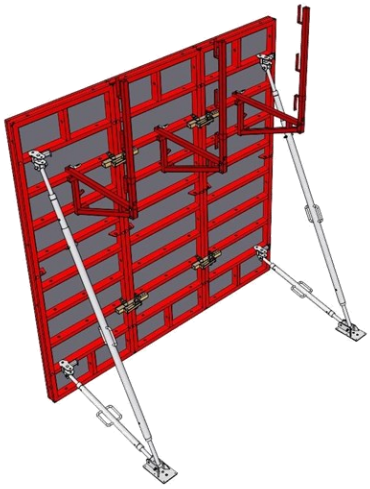
ERECTING THE SERVICE BRACKETS

Still in this position, mount the service brackets to the assembled wall resting on the planking, using their specific pins and wedges.





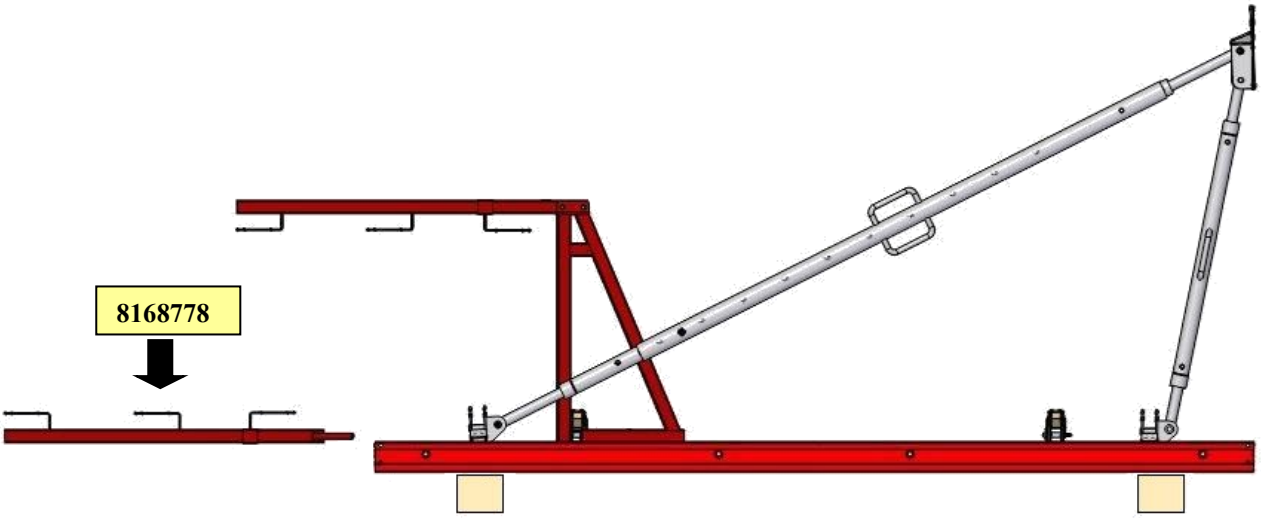
THE SERVICE BRACKET CAN BE MOUNTED TO VERTICAL AND HORIZONTAL PANELS.

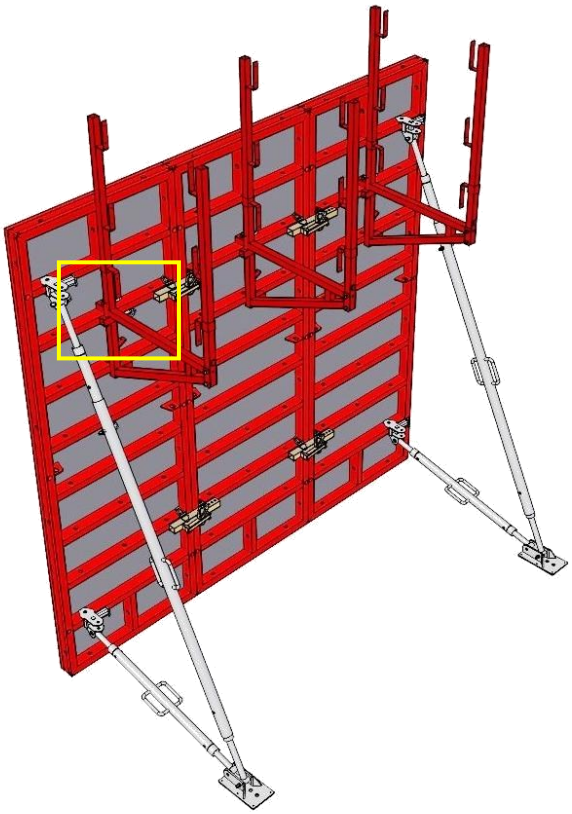


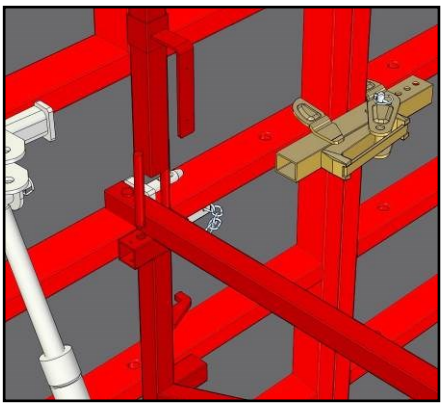
THE DISTANCE BETWEEN ONE SERVICE BRACKET AND THE NEXT MUST NOT EXCEED 2 M. MOREOVER THE DISTANCE BETWEEN THE EDGE OF THE FORMWORK AND THE PLATFORM OF THE BRACKET MUST BE MORE THAN 1 m.

MOUNTING THE UPRIGHT

If the distance between the formwork edge and the platform of the service bracket is less than 1 m, we recommend using a special upright to prevent the operator from falling frontwards.



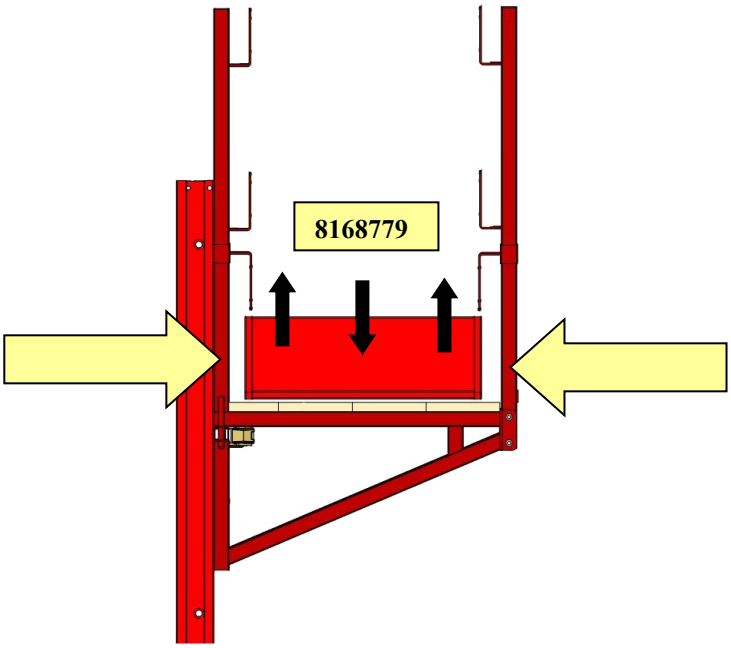




INSERT THE SPECIAL UPRIGHT IN THE HOLES PROVIDED IN THE SERVICE BRACKET AND LOCK IN POSITION WITH THEIR BOLTS.

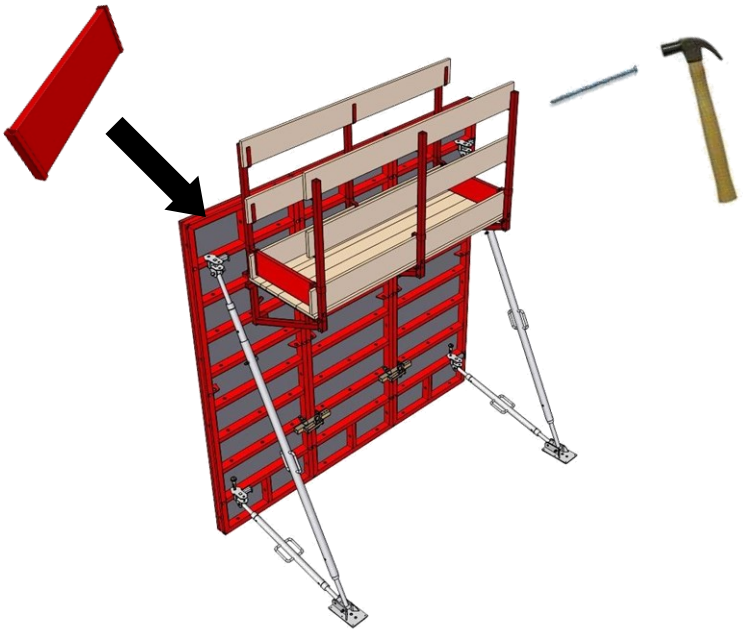
MOUNTING THE FOOT STOP PLATE

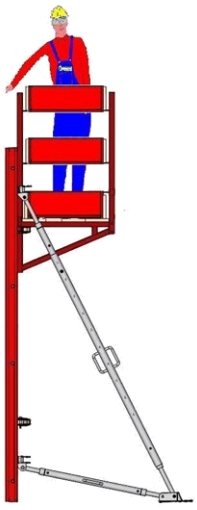
After having nailed the planks of the bracket platform, insert the foot stop plate in the end of the scaffolding.



Lift the stirrup of the upright and the bracket and insert the foot stop plate between the upright and the service bracket at the end of the walkway.

Complete the fixing of the planks and add the foot stop plates.

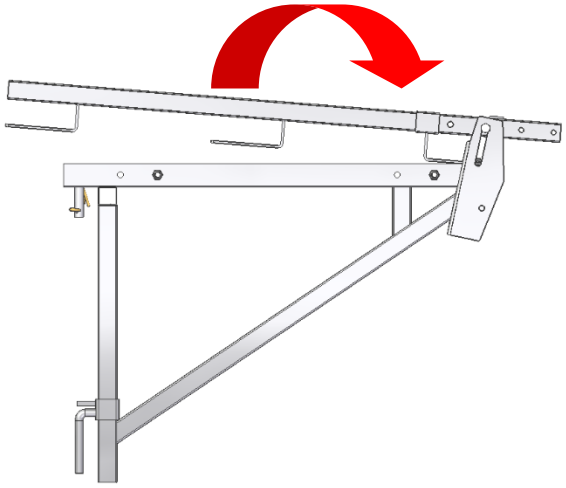


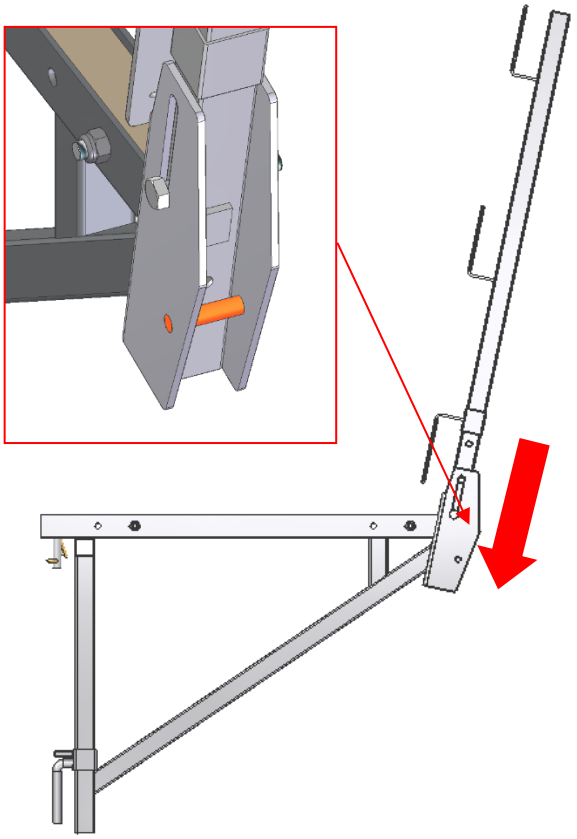


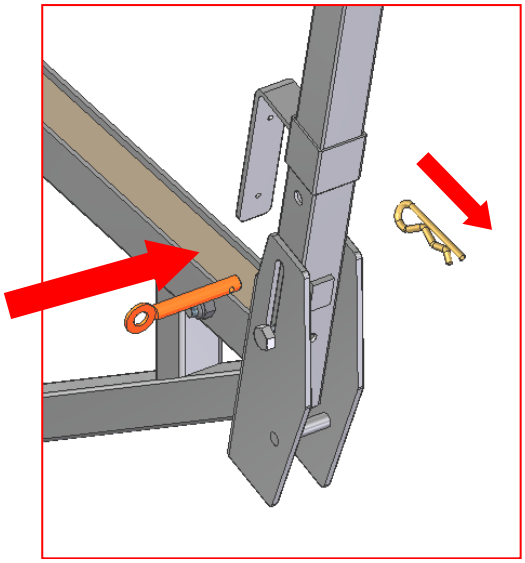
If the operator follows these mounting instructions he will be working in complete safety.

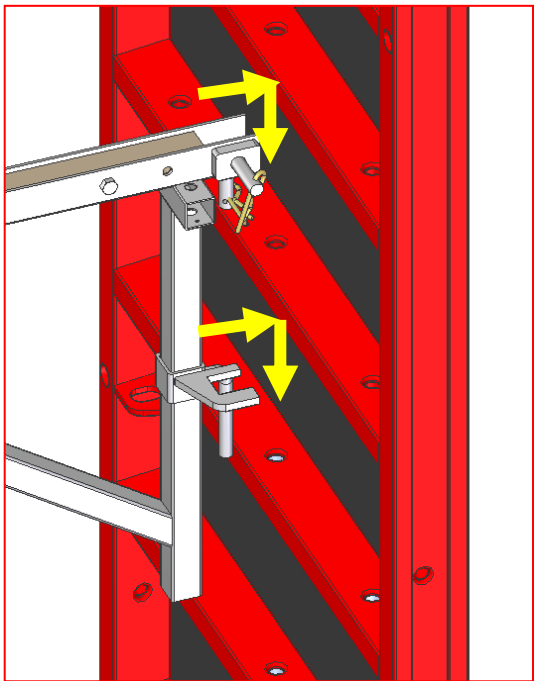
POSITIONING THE SERVICE BRACKET 2021

Follow the steps as shown in the pictures below: Open the bracket from its folded position making sure it is locked by the anti-lifting pin (in orange). Then insert the safety pin with its spring lock.

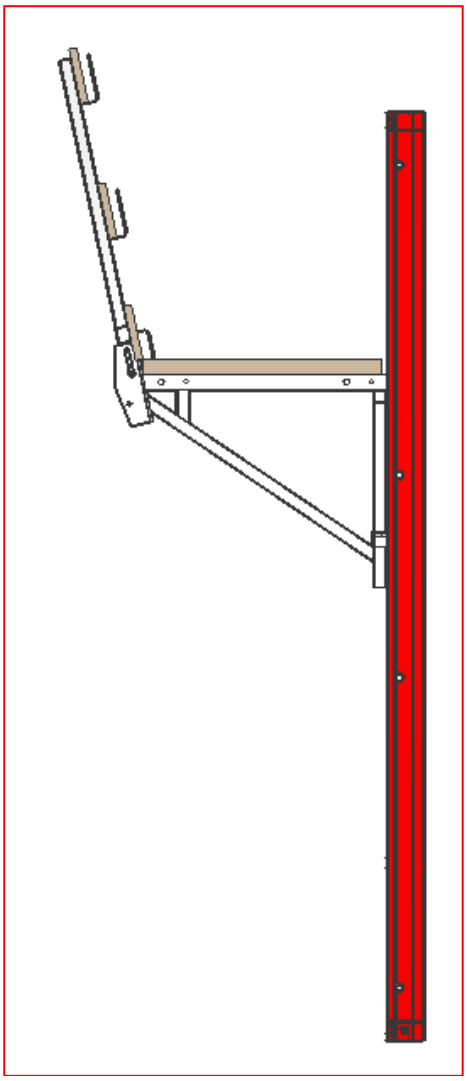


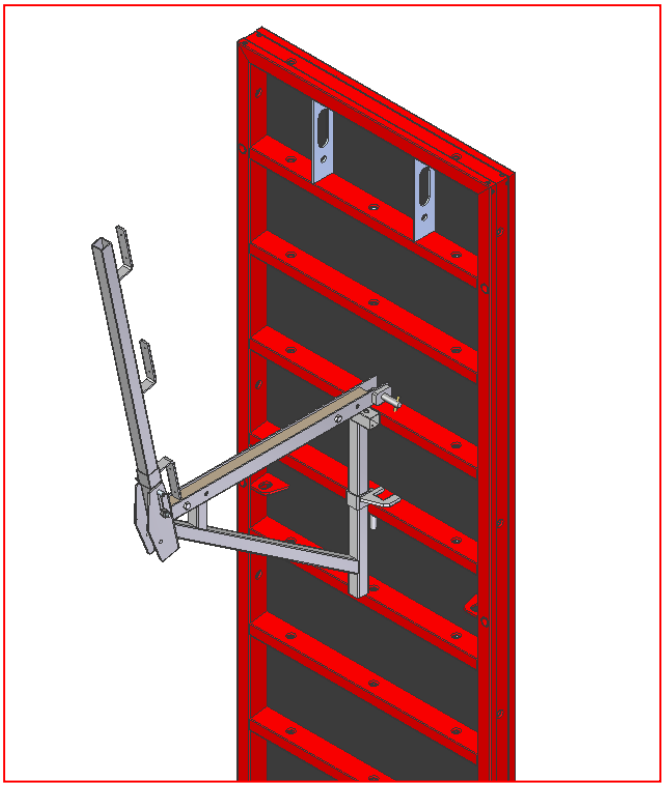


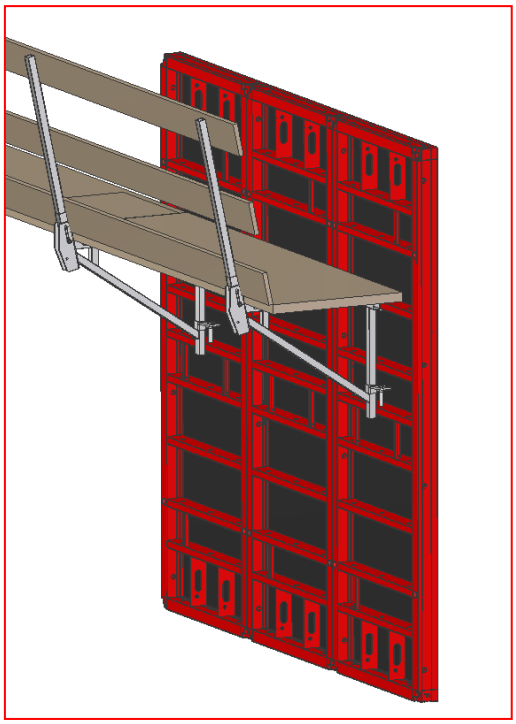




Attach the bracket to the panel by inserting the retaining rounds into the panel sockets as shown above. (The instructions given on the previous page apply).

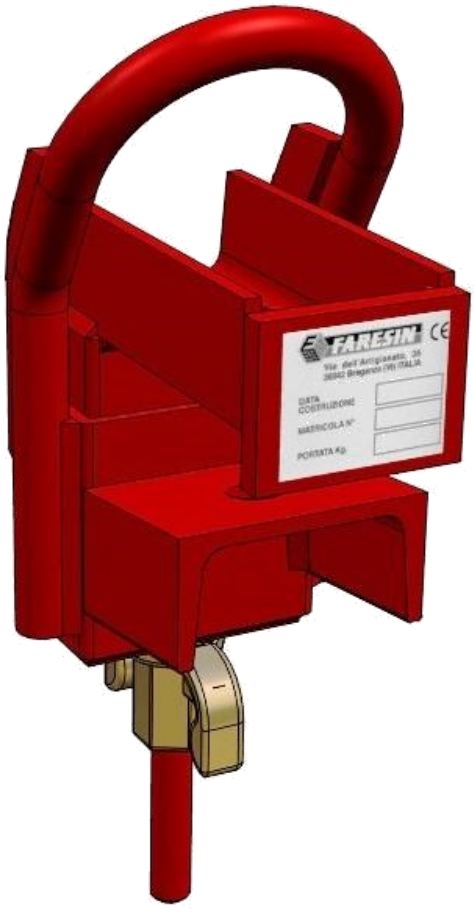






LIFTING HOOK

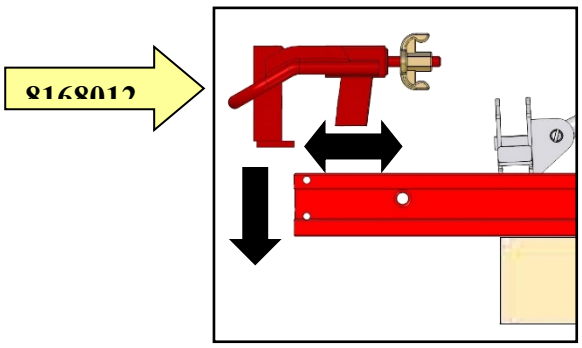
The lifting hook has a load lifting capacity up to 550 Kg . Use two or more hooks to move the panel assemblies.

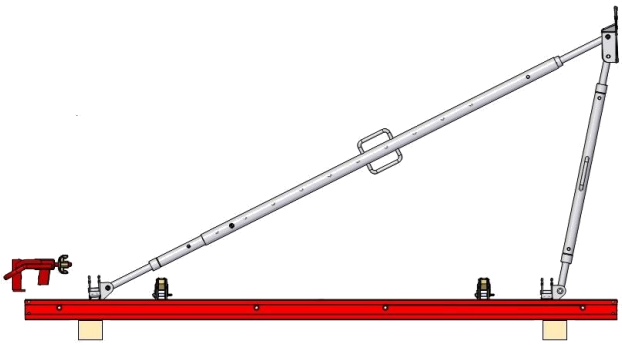


A PLATE BEARING ALL THE INFORMATION REQUIRED FOR ITS USE IS AFFIXED TO THE LIFTING HOOK.

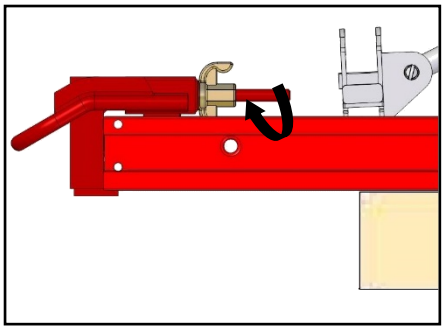
INSTALLATION OF THE LIFTING HOOK

Make sure you are using lifting hooks that are suitable for the profile of the formwork, in this case A100, and that you do not exceed the specific capacity for each separate hook.



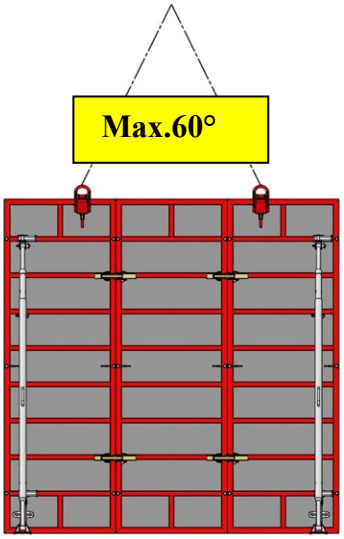


Any time that the hook is used, it must be locked firmly in place by means of the wing nut.



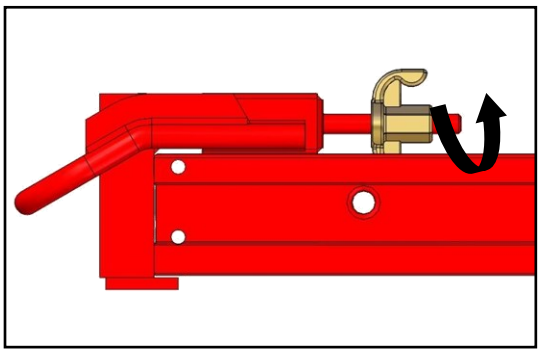
Avoid knocking the threaded bar.

The lifting hooks must be positioned at such a distance that the connecting ropes form an angle of max 60°.

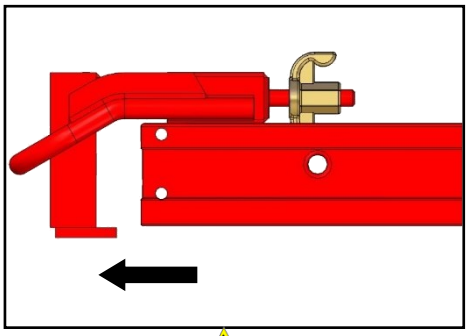


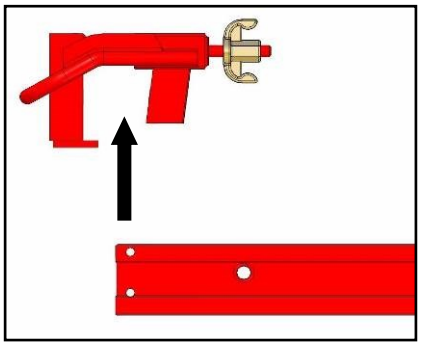
REMOVING THE LIFTING HOOK

Loosen the wing nut.



Slide the mobile part of the hook till the hook slides off the panel profile.



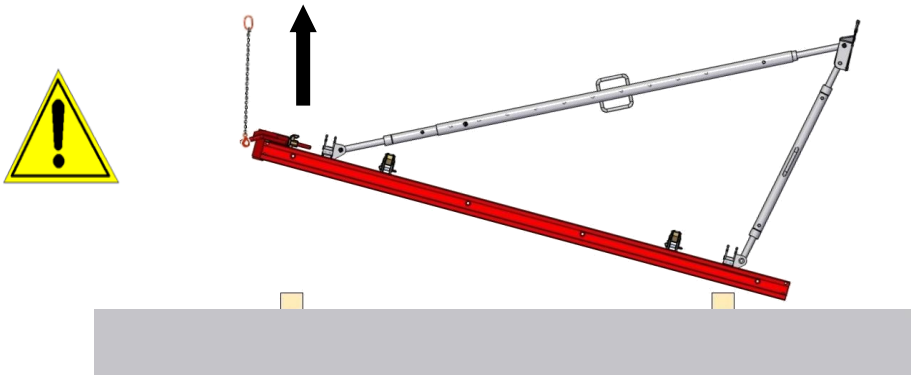


Avoid knocking the threaded bar.

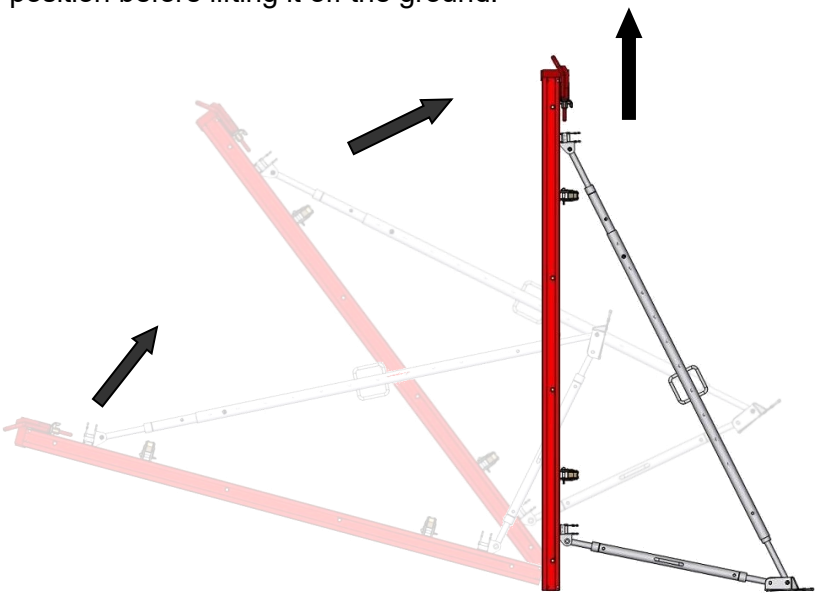
LIFTING AND HANDLING

Use adequate lifting equipment to raise the previously assembled wall and move it to the required place of use.

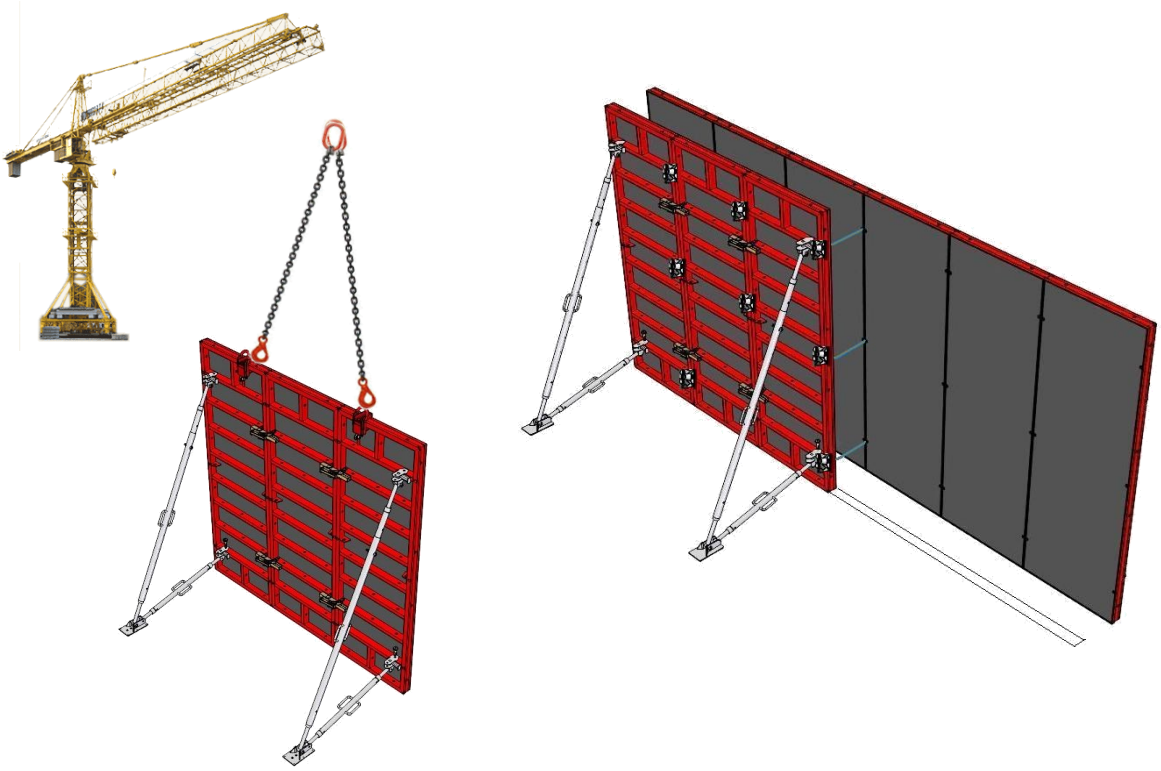
NEVER STAND UNDER SUSPENDED LOADS



To avoid damaging the plywood and scratching the frame we recommend using a crane to raise it to a vertical position before lifting it off the ground.



Adopt all the necessary precautions when handling the formwork sections to deal with any movement caused by the action of the wind.

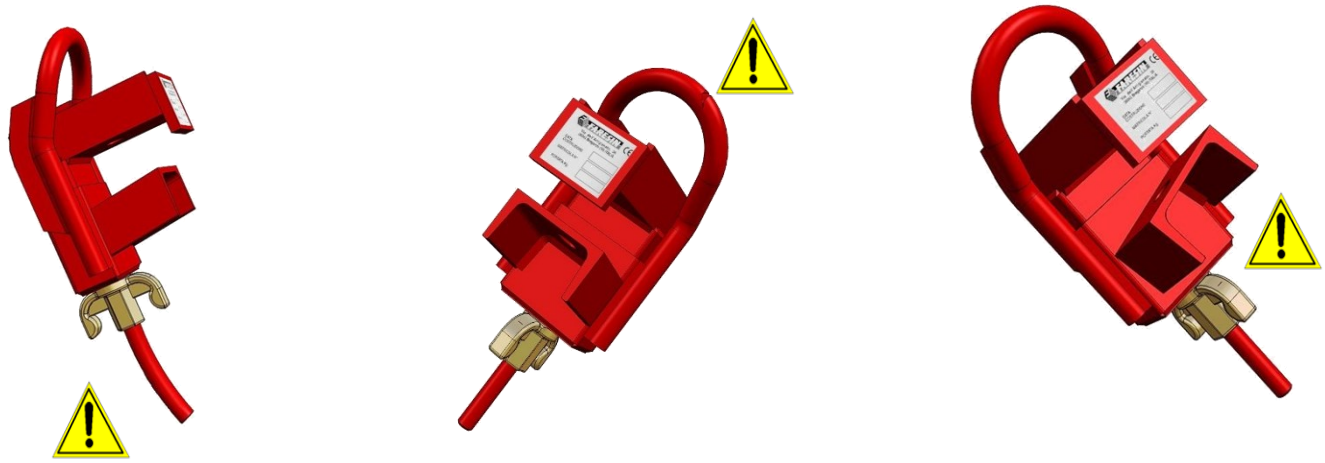


When handling the material never stand under the suspended structure 1

When placing the formworks vertically make them stable to avoid accidental falls, also taking into consideration the horizontal force exerted by the wind or sudden atmospheric conditions.

CONTROL OF THE LIFTING HOOK

After each application check the hook for damage or deformation caused by impact that may have occurred during use. Carefully check that all the weld points are intact.

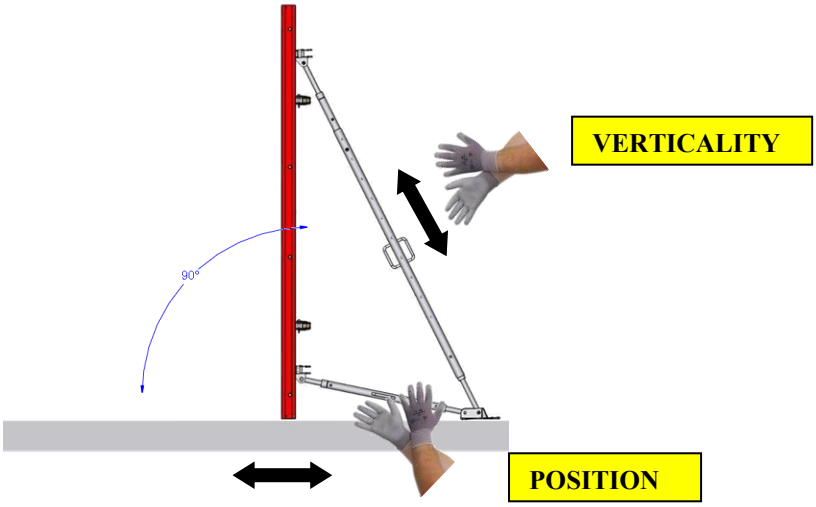


MAINTENANCE OF THE LIFTING HOOK

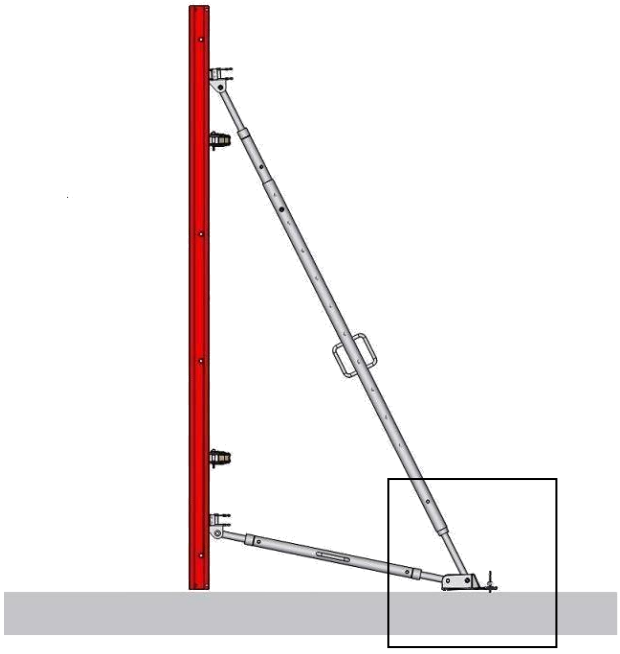
Apart from a visual check of the structure, as described above, the sliding parts of the hook and the threaded bar also require continuous lubrication.

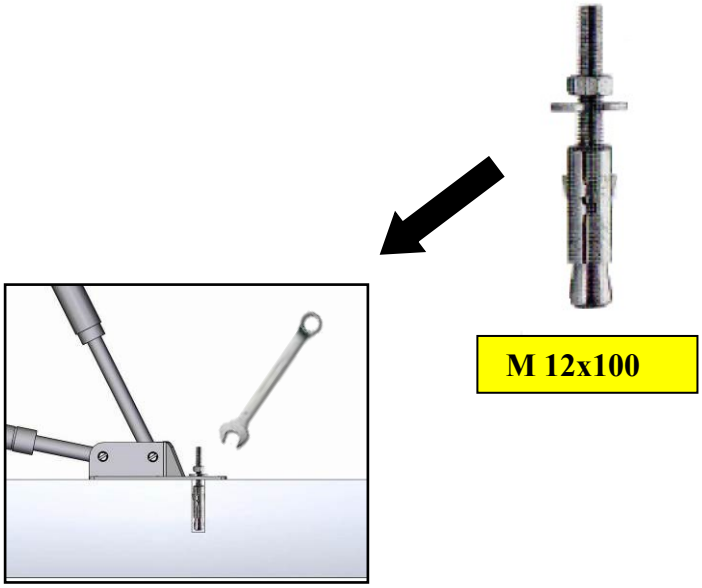
FIXING TO THE GROUND

Adjust the position and verticality of the wall by means of the ring nut.

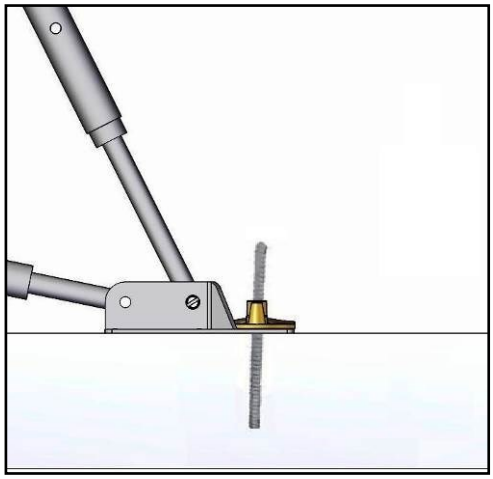


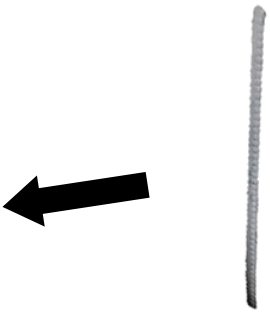
The plumbing rod keeps the wall rigid if there are any opposing forces, generally atmospheric. To guarantee the same rigidity, even in situations where the forces do not apply action opposed to the plumbing rod system, we recommend fixing the plumbing rod bearing plate to the ground with anchors.





Fix with bar and nut plate DIW





BAR DIW

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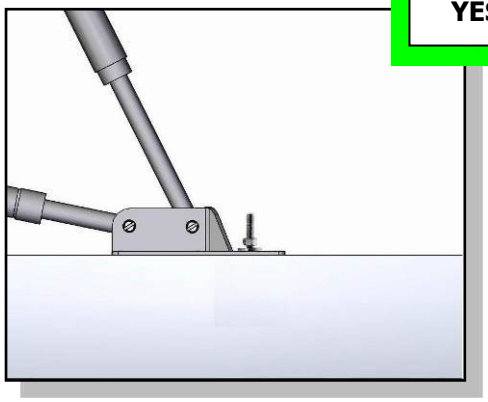
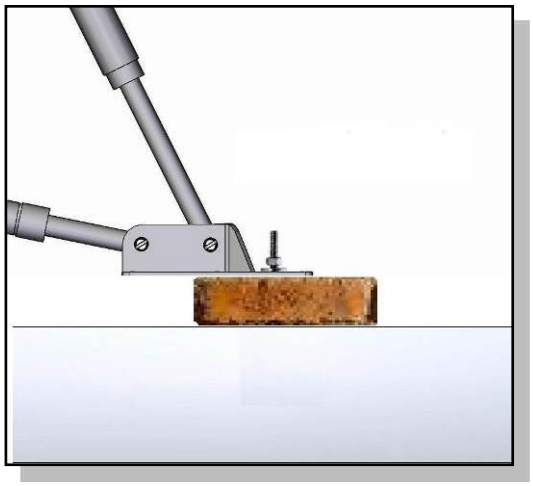
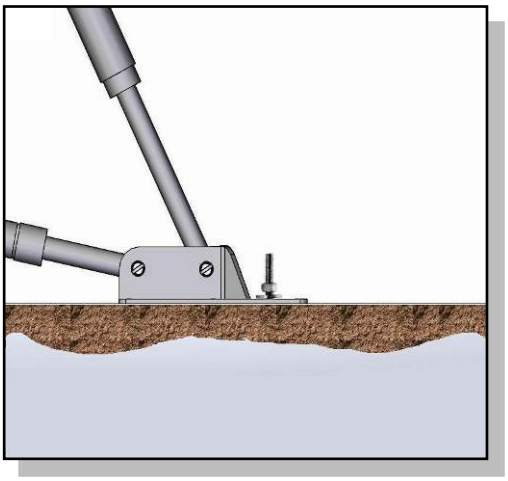
Make sure that the base plate rests securely on a solid surface.

YES



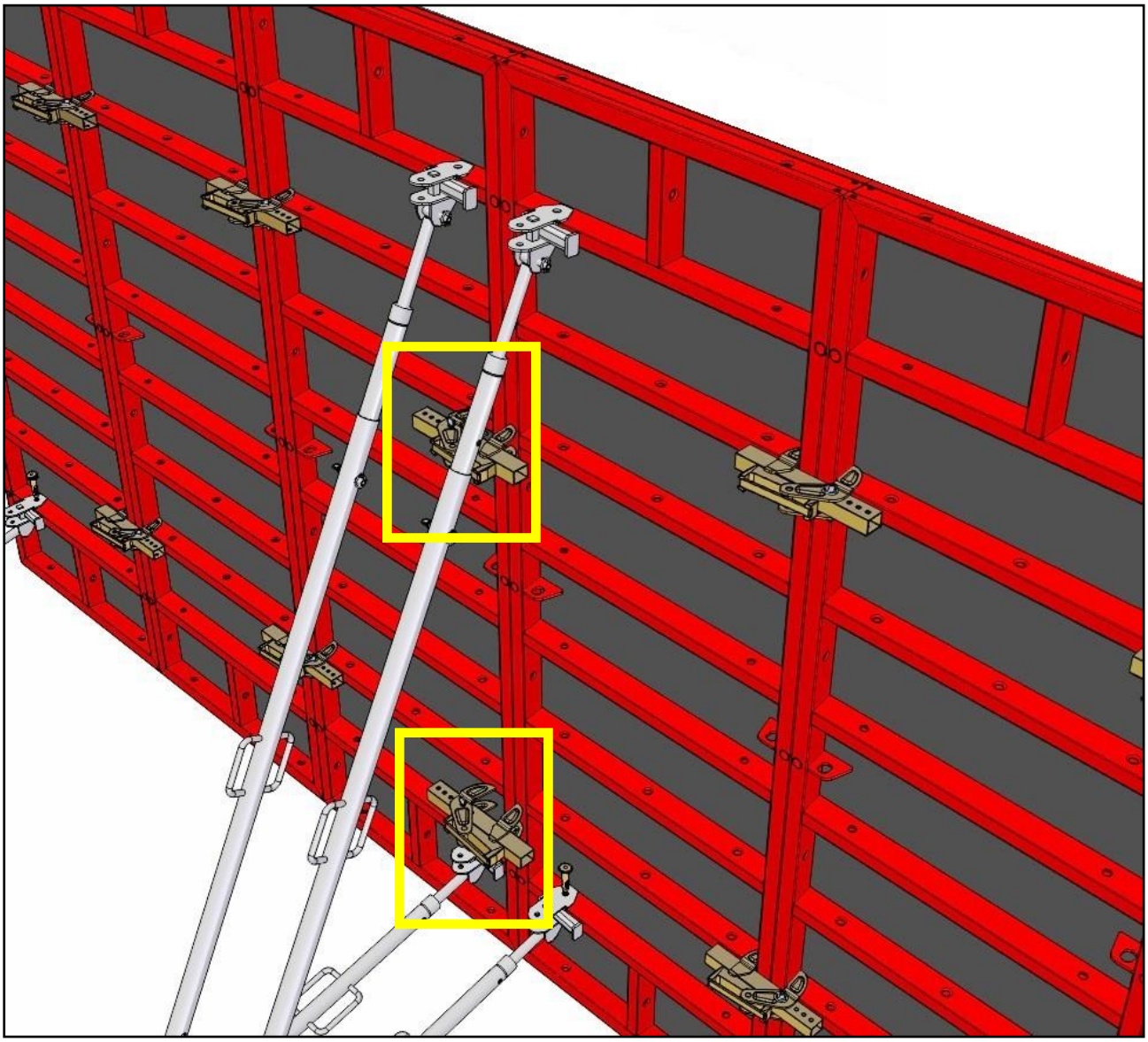


NO



CONNECTING THE WALLS

Fix the various blocks of wall along the marked position with aligner clamps and pins and wedges if necessary.



JOINING THE FORMWORKS AND POUR

STRIPPER OIL

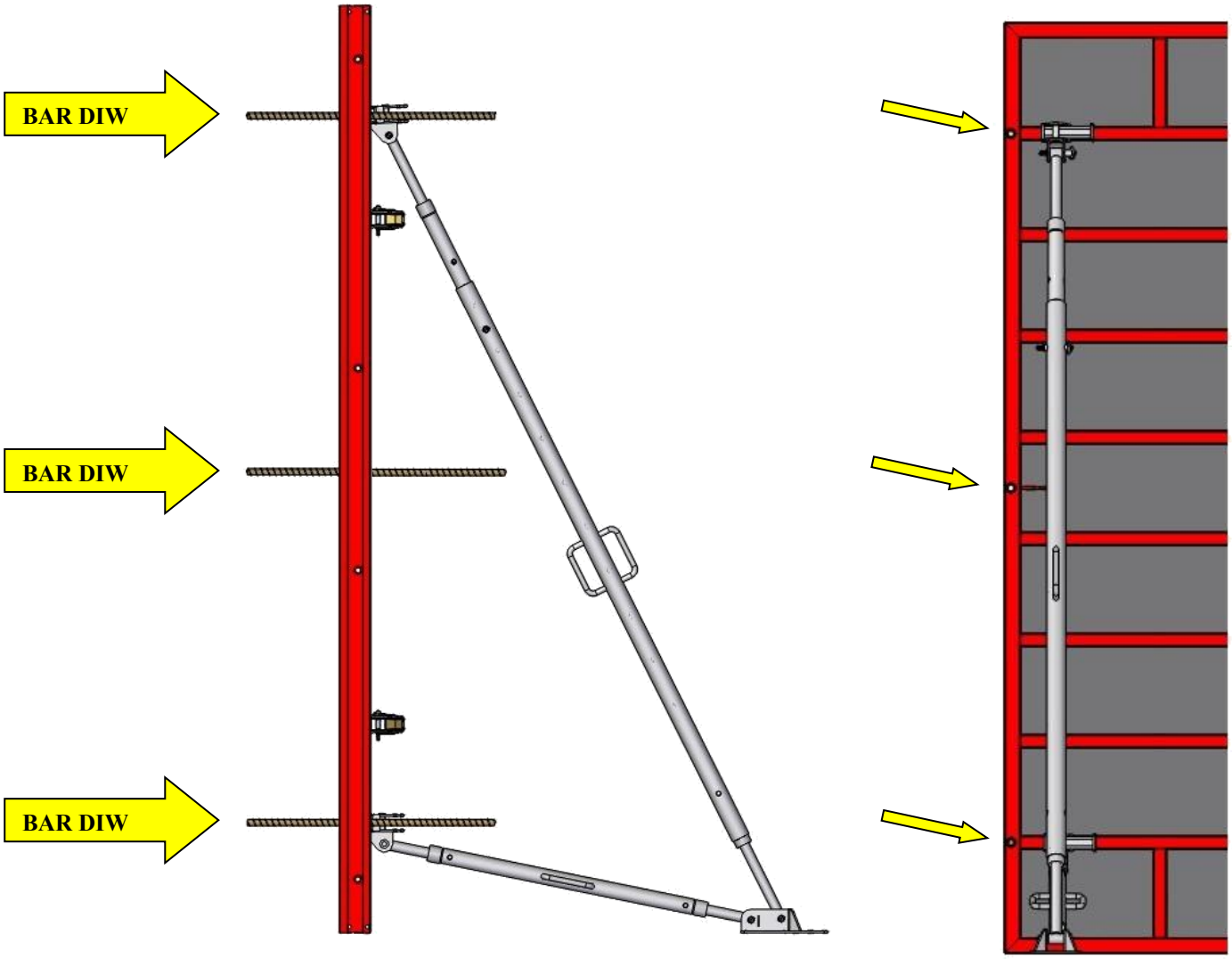
Apply a uniform film of stripper oil over the entire surface with the sprayer (code no. 8168102-8168103).

Do not mix the stripper oil with any other liquid.

⚠ **Use of the chemical stripper oil provided by Faresin Formwork (code no. 8168104-8168204), in the MODUL S100 formworks, is mandatory to guarantee maintenance of the plywood finish and cleanliness of the steel elements.**

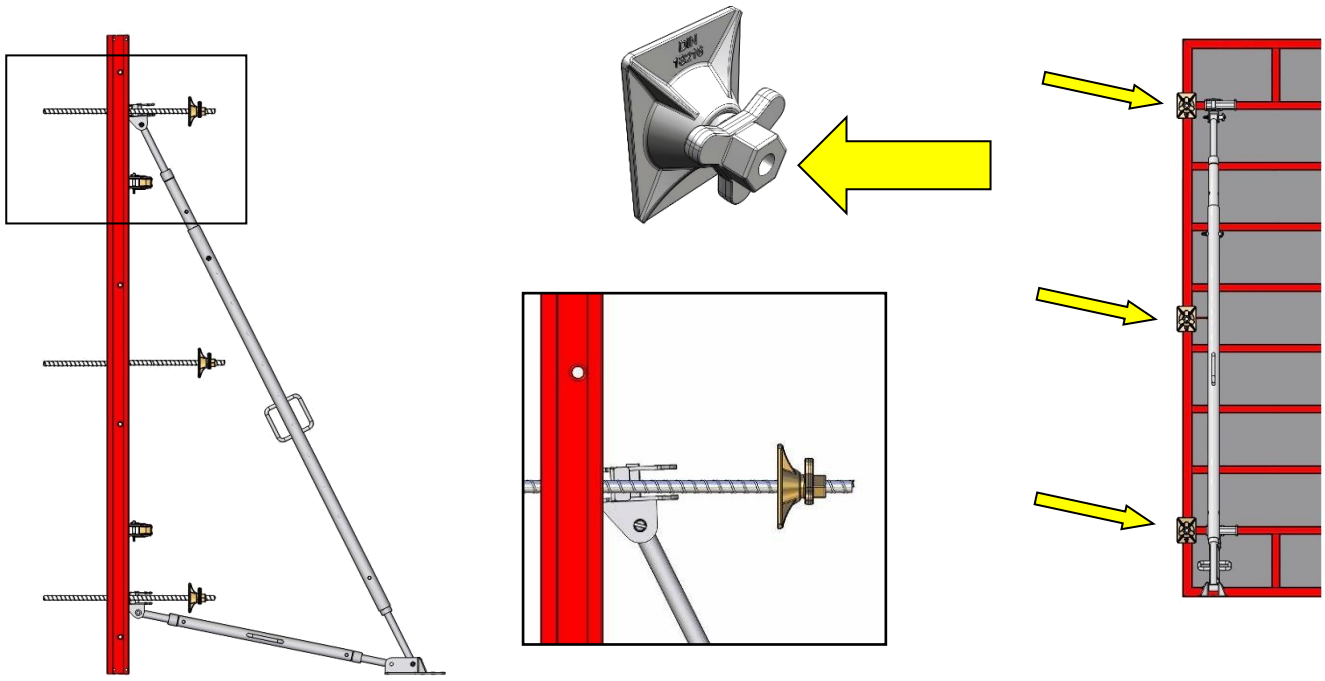
TIE RODS

Once the first wall is assembled insert the tie rods in the bar holes on the panels, following an alternating order of vertical columns (excluding panels 300x200).

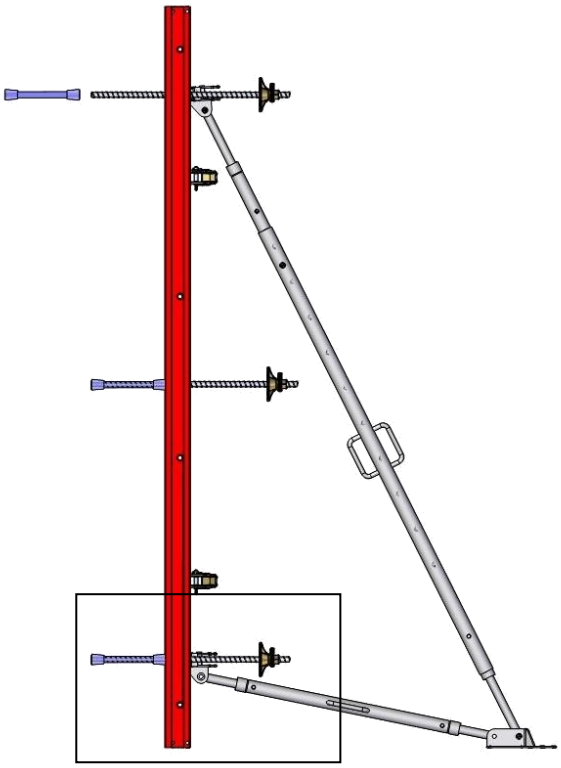


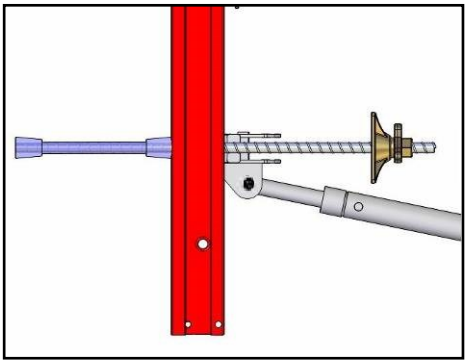
Screw down the nut plate on the side of the panel.

Moreover, we recommend sealing the unused bar holes with plugs to prevent them clogging during the pour.



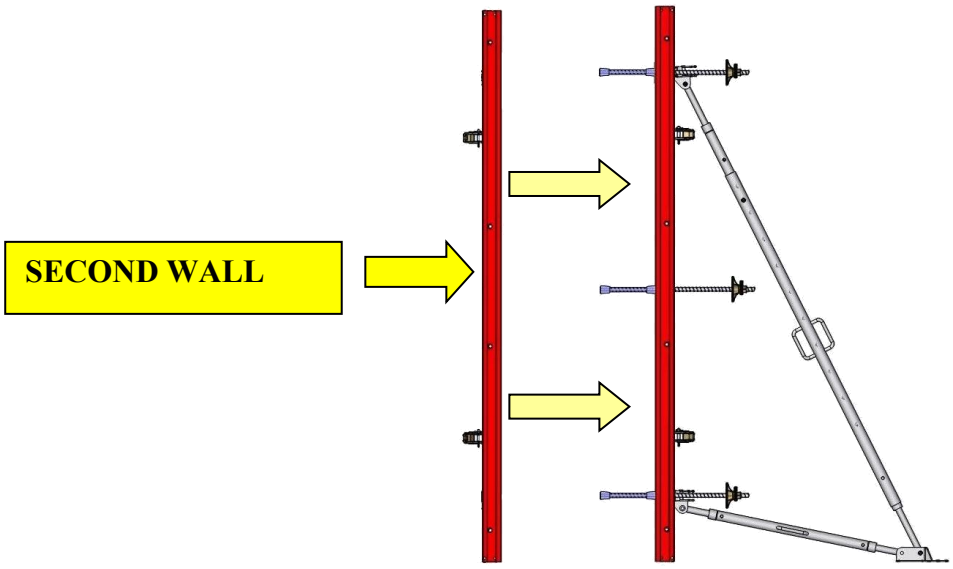
Insert the plastic spacers in the tie rods.





TO PREVENT THE BAR DIW FROM UNTHREADING DURING THE ASSEMBLY OF THE SECOND WALL WE RECOMMEND INSERTING IT TO THE POINT WHERE IT IS FLUSH WITH THE SPACER.

Assembly the second formwork wall as described above and apply a layer of stripper oil on the wall before placing it in position.



BAR HOLE PLUG

Plug all the unused bar holes to prevent the concrete from entering them during the pour.

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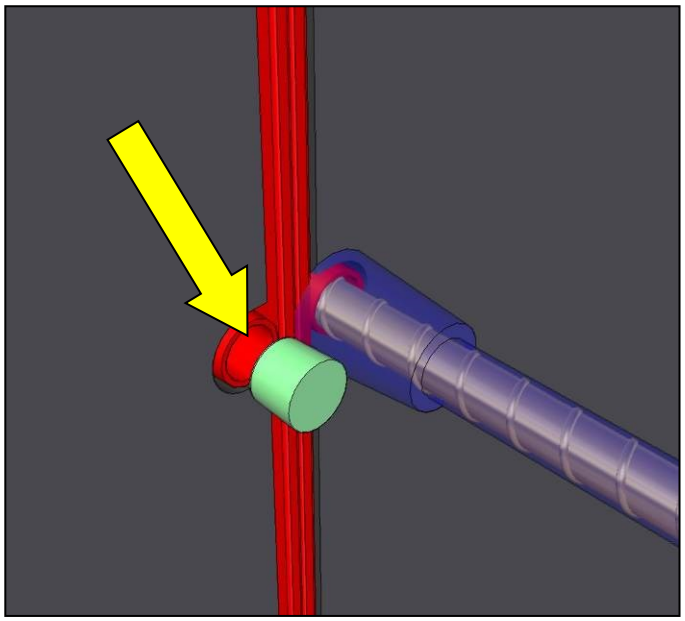
Ø 25-23

PLUG FOR STEEL PANELS.



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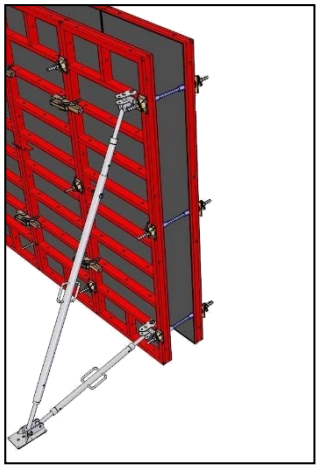
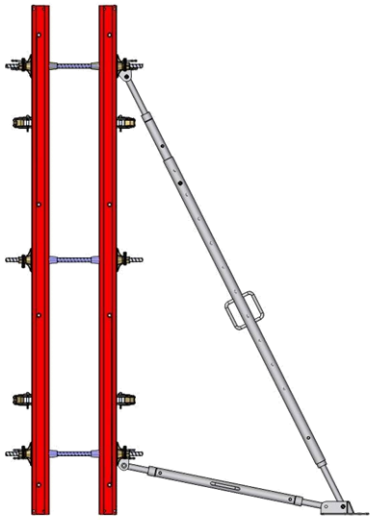
Ø 24-21

PLUG FOR ALUMINIUM PANELS .

JOINING THE FORMWORKS

Push the tie rods until they protrude from the second wall, insert the nut plates and tighten the two walls together until they are touching.

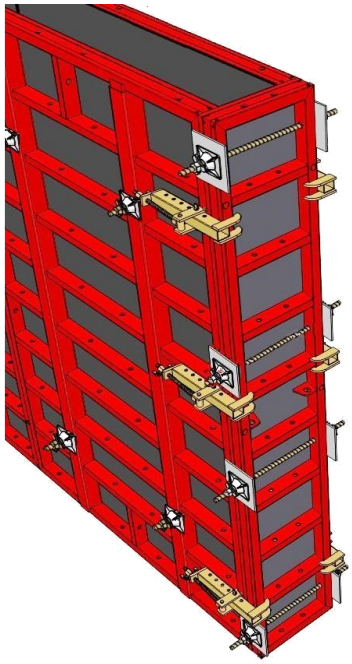




CLOSING THE ENDS

The last operation to perform before the first pour is closing the ends. This operation must be carried out with particular care as if the ends are not closed correctly they could collapse under the enormous pressure exerted by the concrete. This could result in damage to the material and at worst injury to persons.

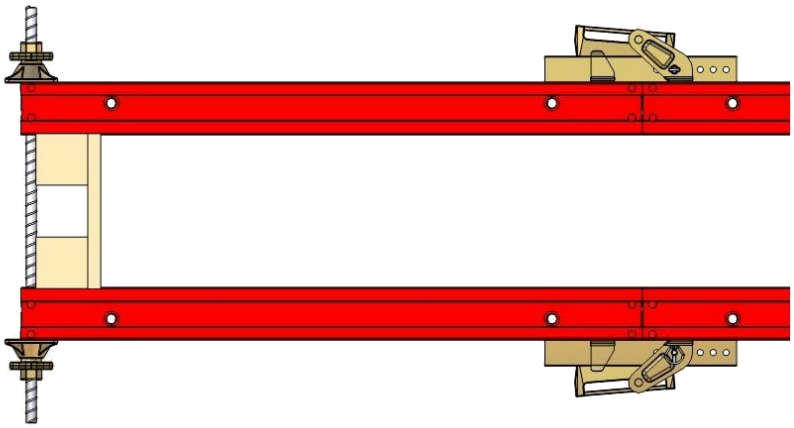
To close the wall ends you can use either the panels of the MODUL S100 series or miscellaneous timber found around the construction site.



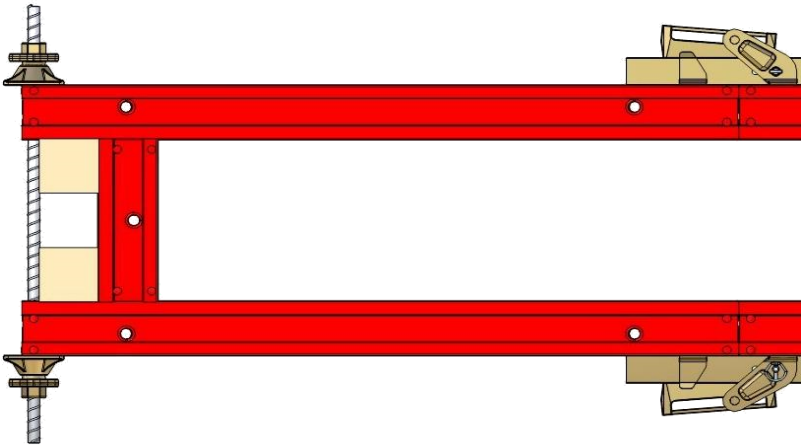
- **MAKE SURE THAT THE MATERIAL IS STABLE.**
- **USE ALL THE AVAILABLE BAR HOLES.**
- **USE THE STOP PLATES WITH THEIR RESPECTIVE SWIVEL NUT PLATE.**
- **USE THE APPROPRIATE NUMBER OF UNIVERSAL AND/OR ALIGNER CLAMPS BASED ON THE HEIGHT OF THE WALL.**

Some examples follow:

CLOSING A WALL 300 WITH TIMBER

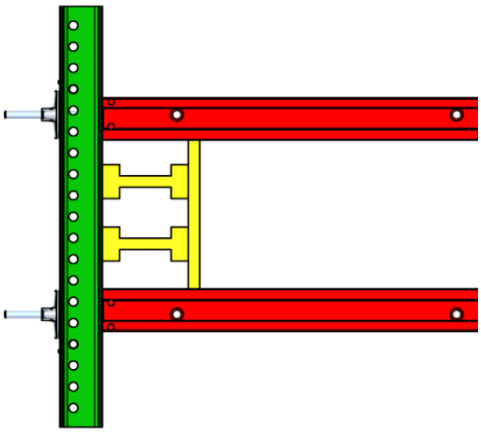


CLOSING A WALL 300 WITH A MODUL S100 PANEL 300

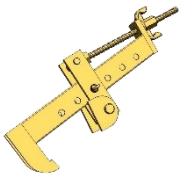


N.B ALWAYS ADD THE THREADED BARS TO THE END OF THE WALL ENDS

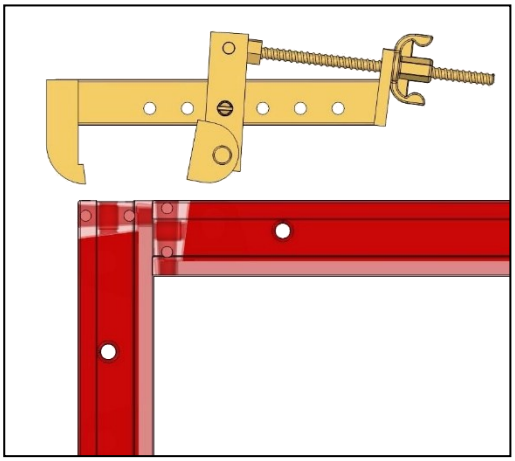
CLOSING A WALL 300 WITH STEEL GIRDER WITH HOLES ASSEMBLY AND TIMBER BEAMS

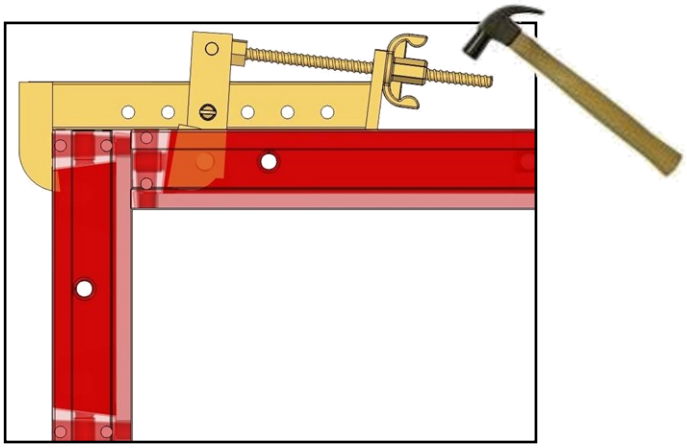


UNIVERSAL CLAMP

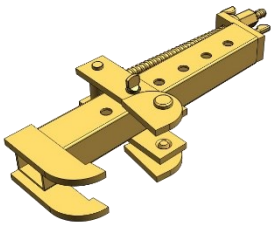


Open the universal clamp and adjust the position of the holes according to the required clamping size. Clamp the two previously joined panels that form a 90° angle. Lock the universal clamp by adjusting the wing nut.





CLOSING A WALL 3000 WITH MODUL S100 PANEL 500 +UNIVERSAL CLAMP+STOP PLATE



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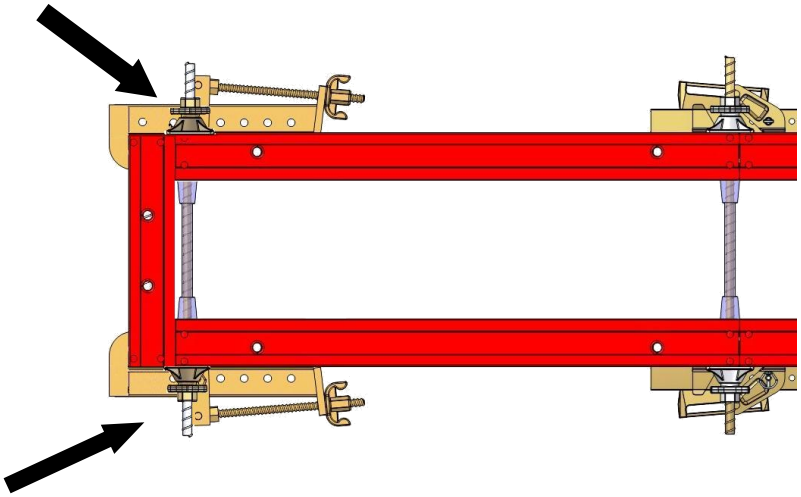
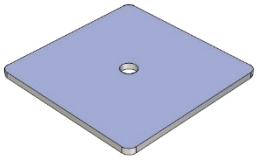


N.B ALWAYS ADD THE THREADED BAR TO THE END OF THE WALL ENDS

CLOSING A WALL 3000 WITH MODUL S100 PANEL 500+UNIVERSAL CLAMP+STOP PLATE

PANEL 3000X2000



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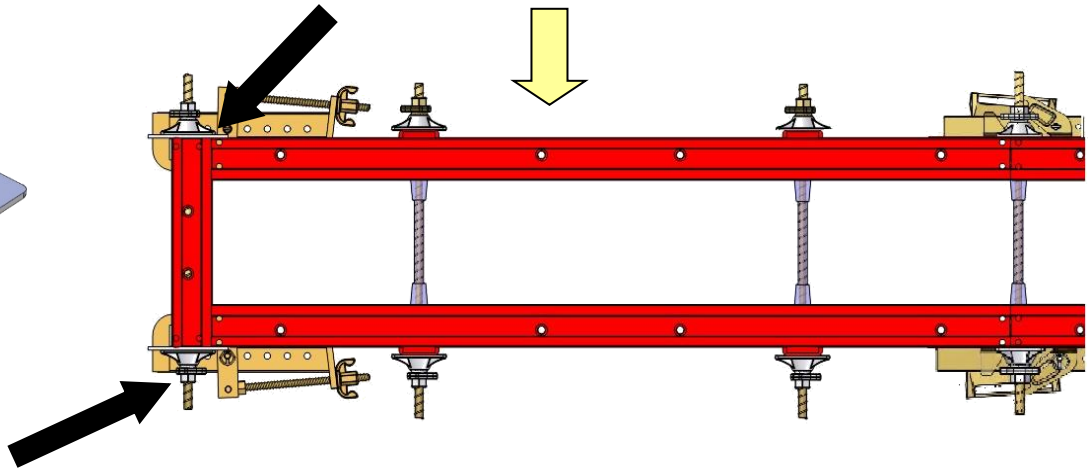
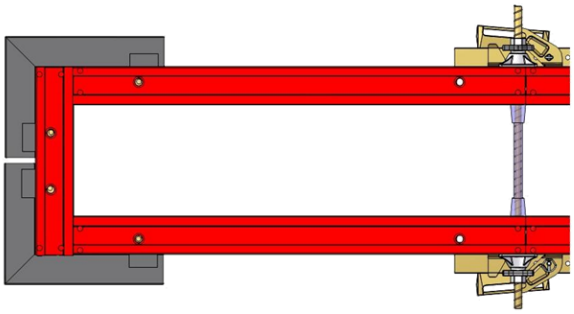
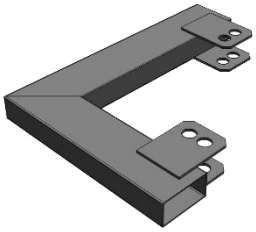


N.B ALWAYS ADD THE THREADED BAR TO THE END OF THE TESTATE

CLOSING A WALL 300 WITH FIXED CORNER ELEMENT





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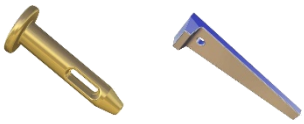
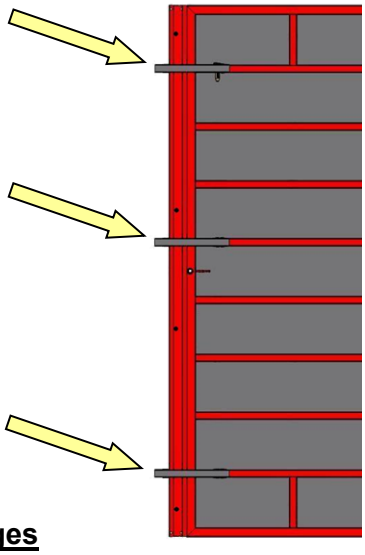


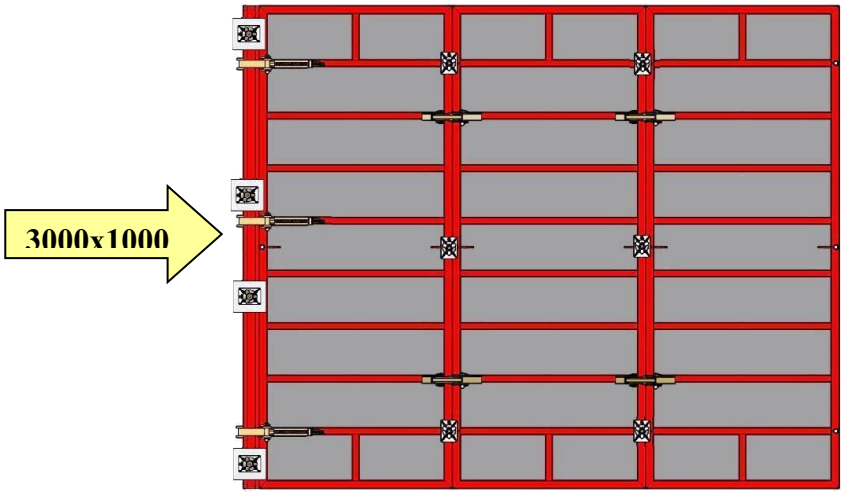
FOR HEIGHTS OF 3 m USE A MINIMUM OF 3 CORNERS



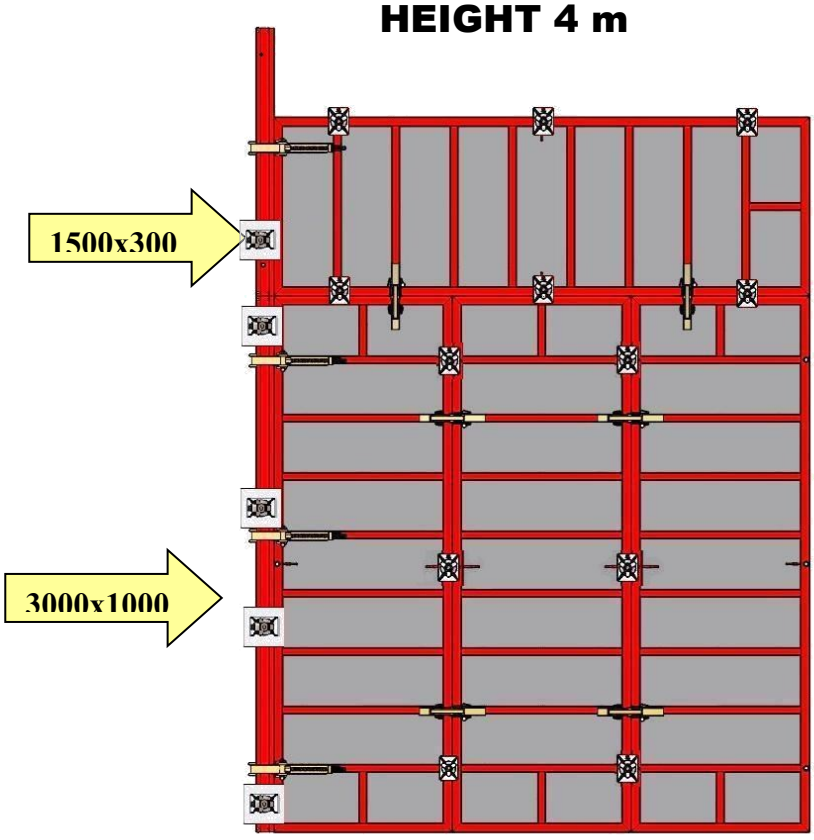
Fasten the fixed corners with the medium pins and wedges

HEIGHT CONFIGURATIONS

HEIGHT 3 m



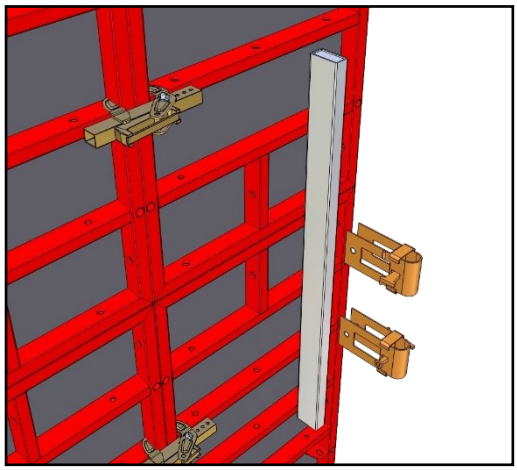
HEIGHT 4 m



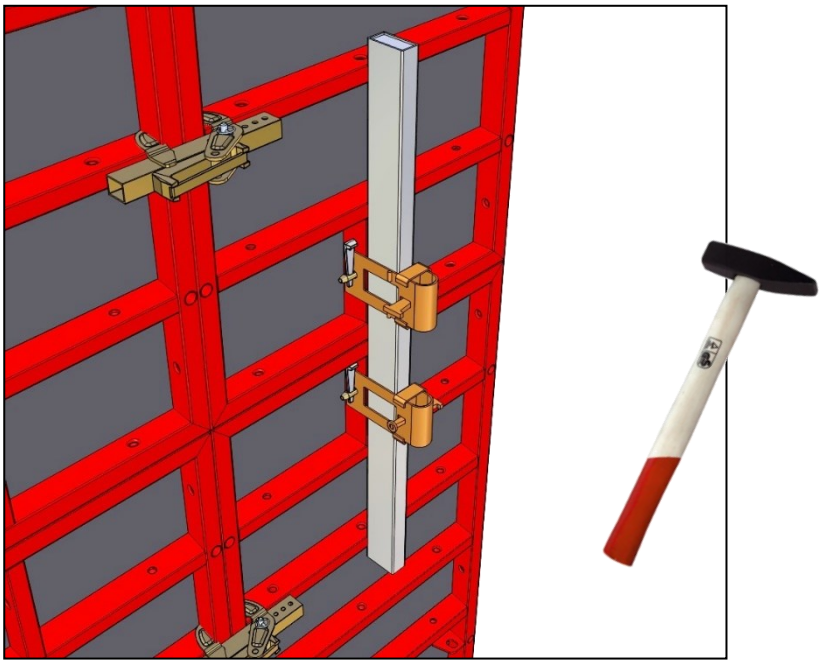
For heights above 4 m and for large walls we recommend using the aligner pipe

MOUNTING THE ALIGNER PIPE

Place the aligner pipe in the wall joint and prepare the alignment brackets.

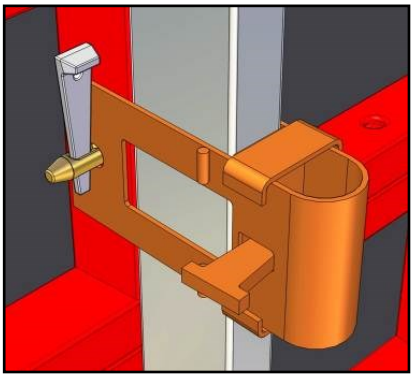


Insert the short pin and wedge and fix the whole assembly by lightly hammering the wedge in the alignment bracket.

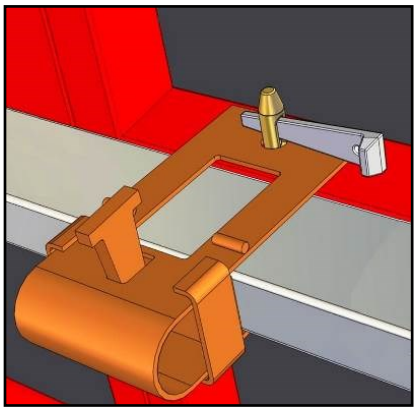


THE ALIGNER PIPE IS USED FOR MOVING WALLS THAT ARE MORE THAN 4 m IN HEIGHT.

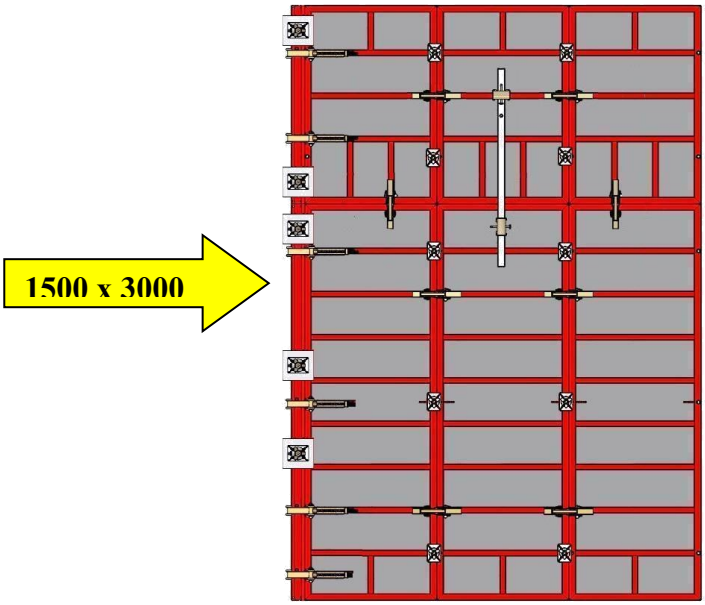
VERTICAL POSITION



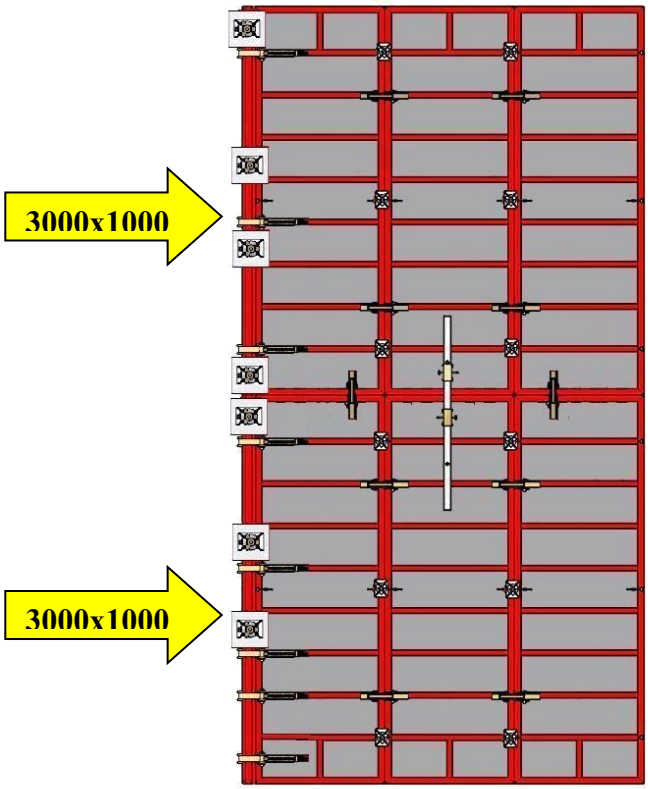
HORIZONTAL POSITION



HEIGHT 4.50 m



HEIGHT 6.00 m



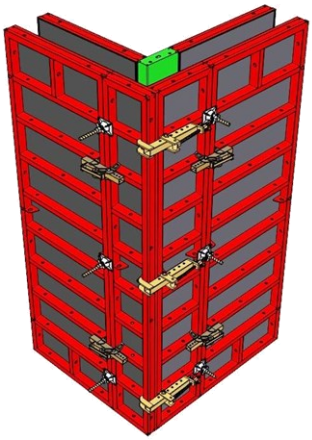
EXAMPLES OF HOW TO USE MODUL S100

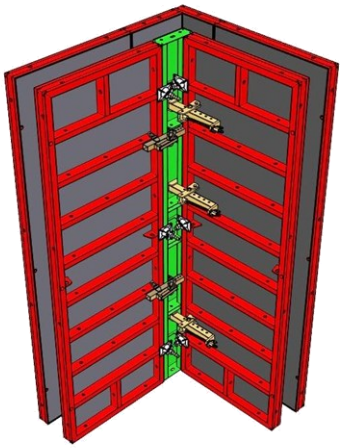
FORMWORKS FOR RIGHT ANGLE WALLS

To construct a right-angle wall a particular accessory is required, the jolly panel that shutters the internal vertex of the corner.

Insert the jolly panel in the internal wall of the corner to be constructed, between the two panels that are at right angles to each other. The following diagrams illustrate how this accessory can be installed on either of the panels that meet at the vertex of the corner.

The outside surface of the corner is made with panels having measurements that depend on the thickness of the wall. They are closed at the vertex of the corner with universal clamps, the number and position of which depend on the pour height.

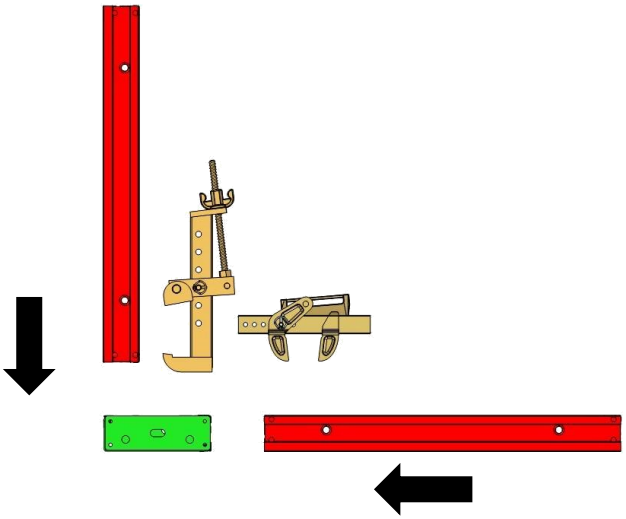


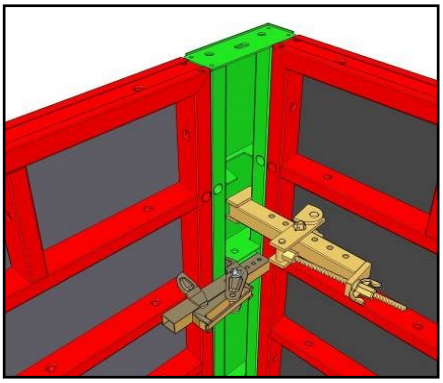


ERECTING A 90°CORNER

STEP 1

Start with the internal wall, that is with the jolly panel. Form the first 90° corner using the universal and aligner clamps in the correct positions.



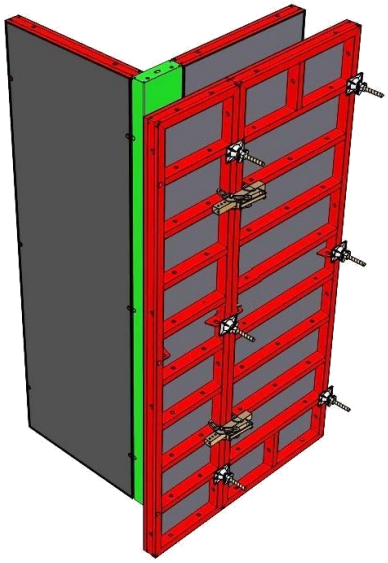


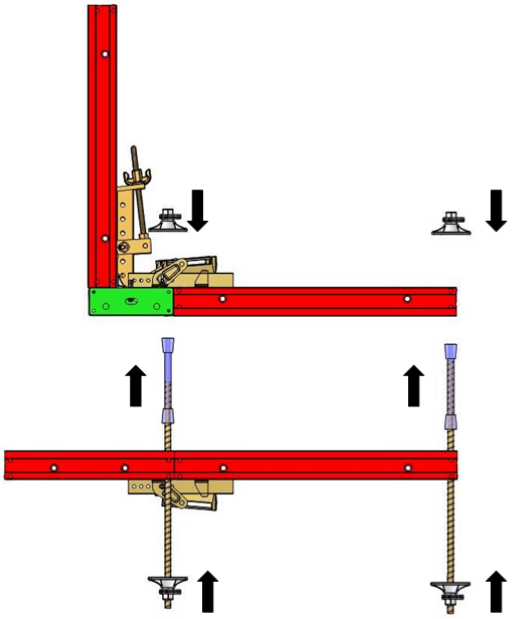
APPLY THE UNIVERSAL AND ALIGNER CLAMPS AS ILLUSTRATED IN THE FIGURE

STEP 2

Position a set of panels for the external wall and insert the spacer between the two walls.

Insert the threaded bar and fix it using the nut plate.

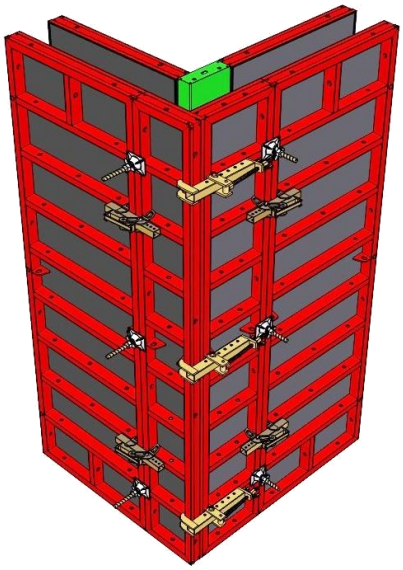


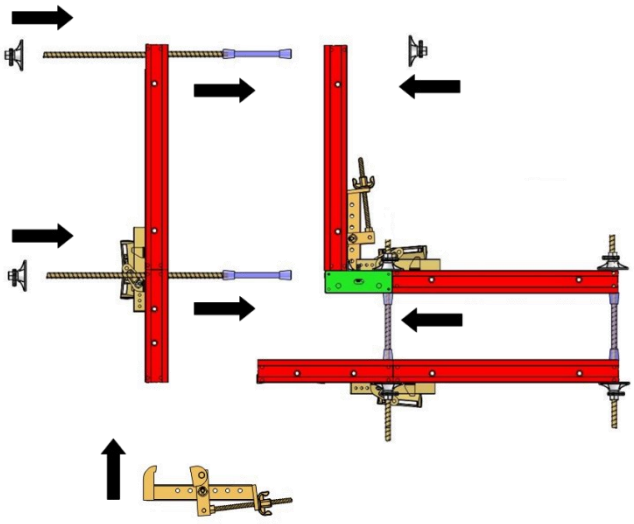


STEP 3

Position the last set of panels for the external wall and insert the spacer between the two walls.

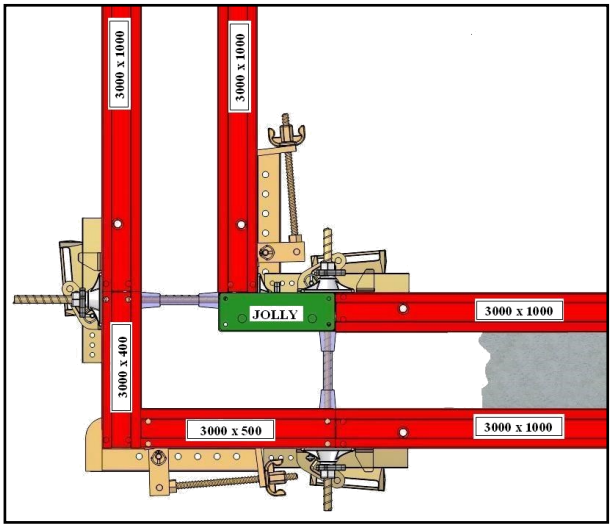
Insert the threaded bar and fix the walls with the nut plate and universal clamps.



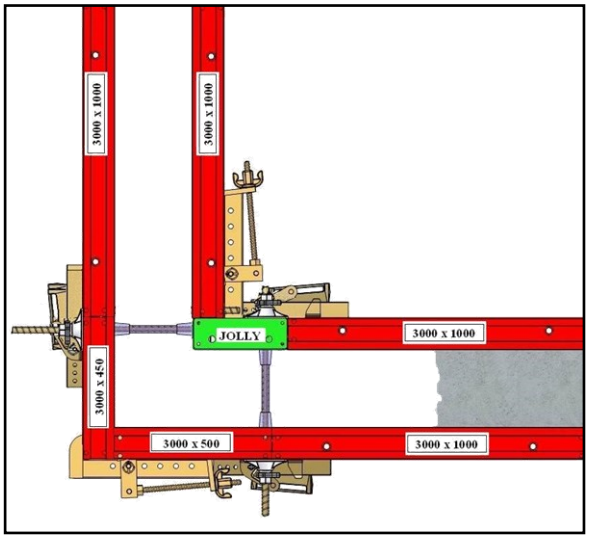


WALL THICKNESS

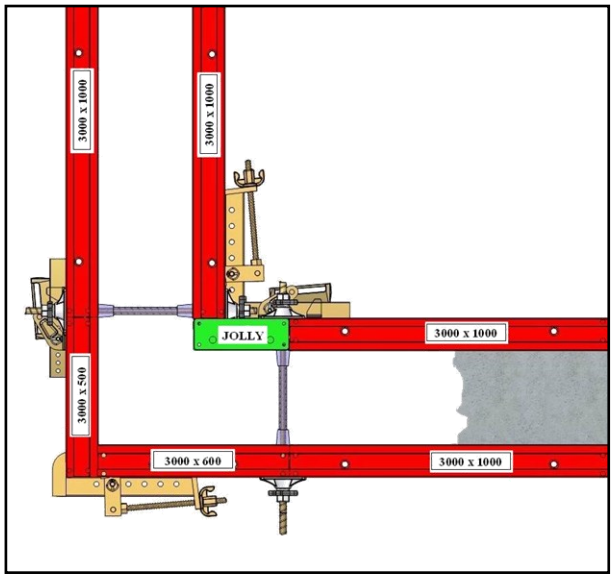
WALL THICKNESS 200



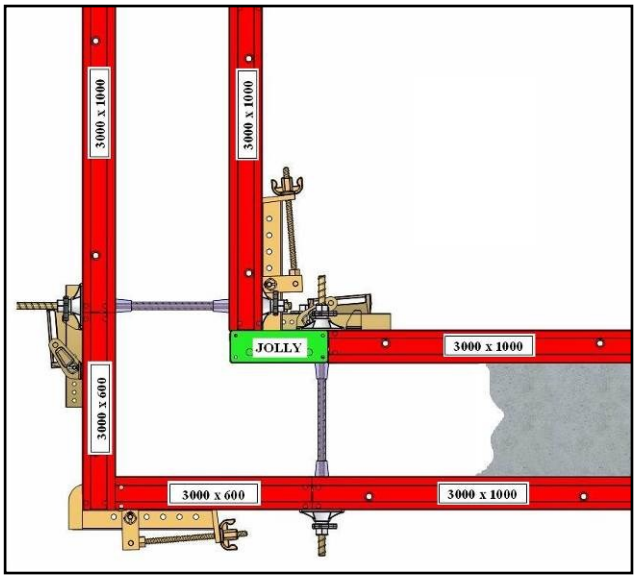
WALL THICKNESS 250



WALL THICKNESS 300

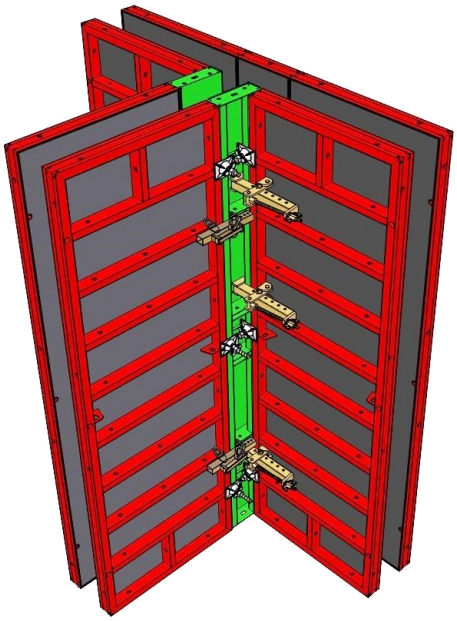


WALL THICKNESS 350



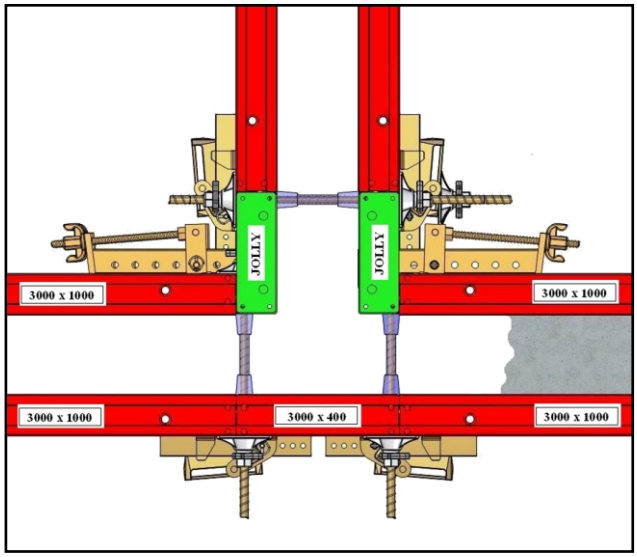
FORMWORKS FOR T-SHAPED WALLS

A T-shaped wall consists of the outside surfaces of two right-angle walls combined with one side of a linear wall. Two jolly panels are required, placed parallel on the same wall.

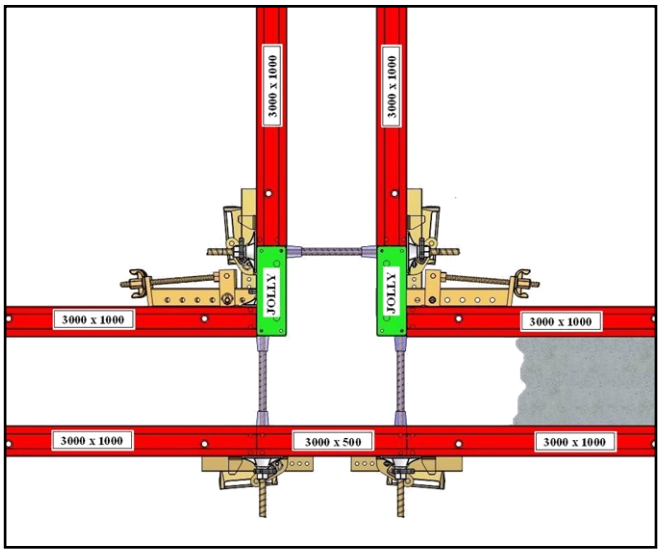


FOR THE T-SHAPED WALL ERECTION SEQUENCE SEE THE SEQUENCE DESCRIBED ABOVE FOR ERECTING THE 90° CORNERS.

WALL THICKNESS 200



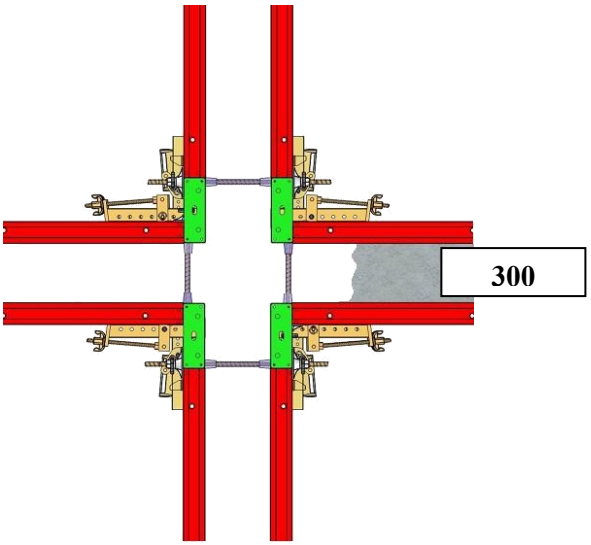
WALL THICKNESS 300

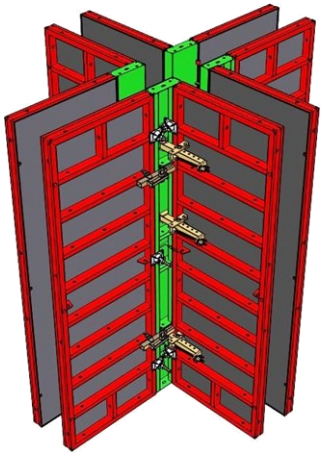


FORMWORKS FOR CROSS WALLS

As can be seen from the illustration a formwork for cross walls consists of the outside surfaces of 4 right-angle walls placed symmetrically in the two directions.

Four jolly panels are required, placed parallel and all in the same direction.

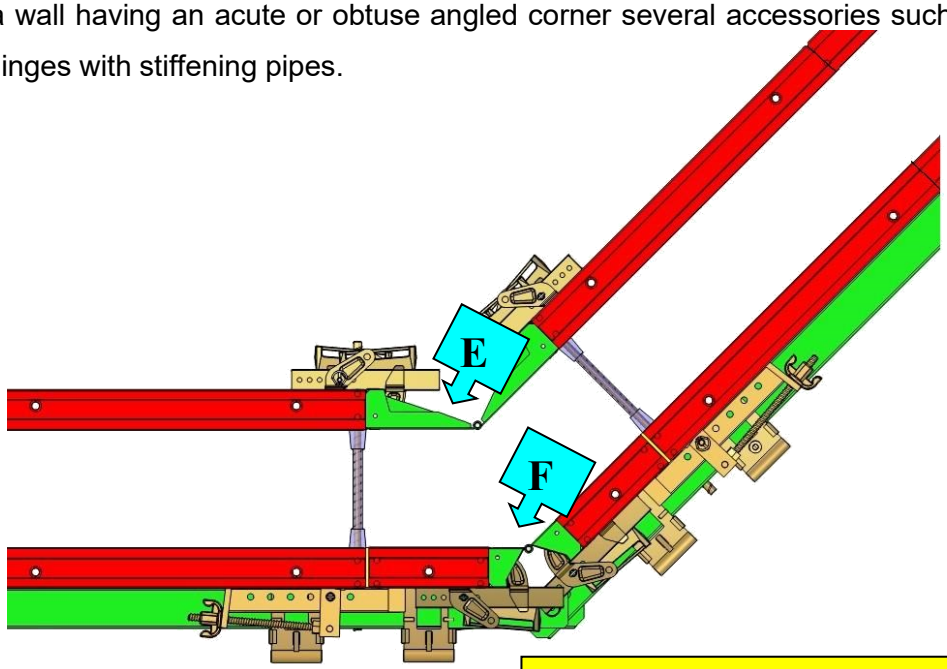


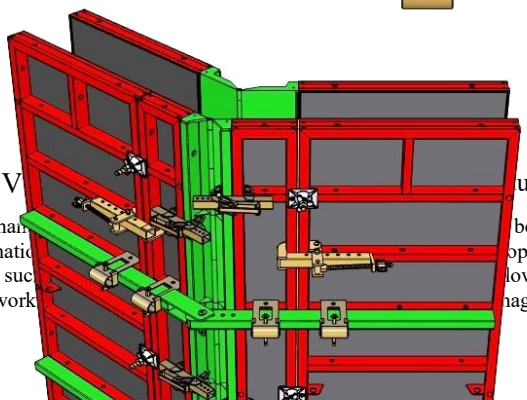


FOR THE CROSS-WALL ERECTION SEQUENCE SEE THE SEQUENCE DESCRIBED ABOVE FOR ERECTING THE 90 CORNERS.

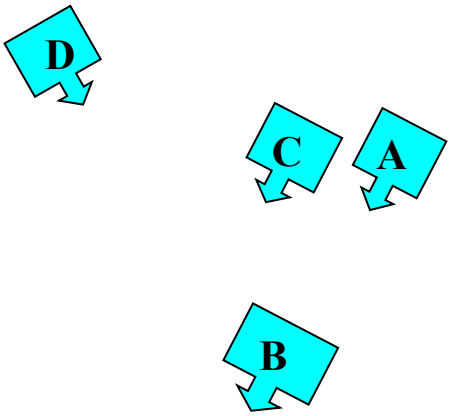
FORMWORKS FOR ACUTE/OBTUSE ANGLED CORNERS

To construct a wall having an acute or obtuse angled corner several accessories such as internal and external hinges with stiffening pipes.





FOR THE ERECTION SEQUENCE FOR ACUTE OR OBTUSE ANGLED CORNERS SEE THE SEQUENCE DESCRIBED ABOVE FOR ERECTING THE 90 CORNERS.



A = HINGE STIFFENING PIPE.

B = UNIVERSAL CLAMP

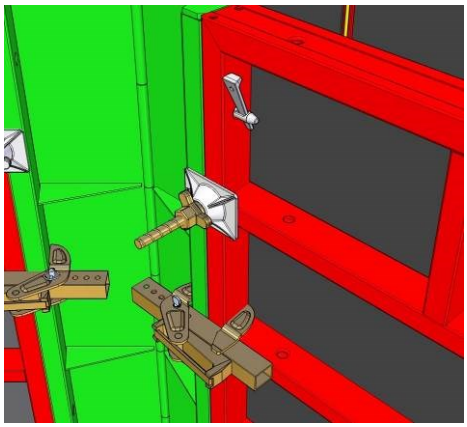
C =ALIGNER BRACKET.

D = ALIGNER CLAMP M2.

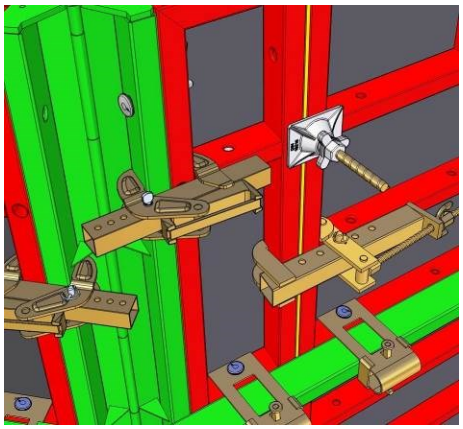
E = INTERNAL HINGE FOR CORNERS

F = EXTERNAL HINGE FOR CORNERS

The hinges: internal and external are mounted to form the angle in the following way:



THE INTERNAL HINGE CAN BE JOINED TO THE PANELS WITH 2 ALIGNER CLAMPS OR 4 MEDIUM PINS AND WEDGES

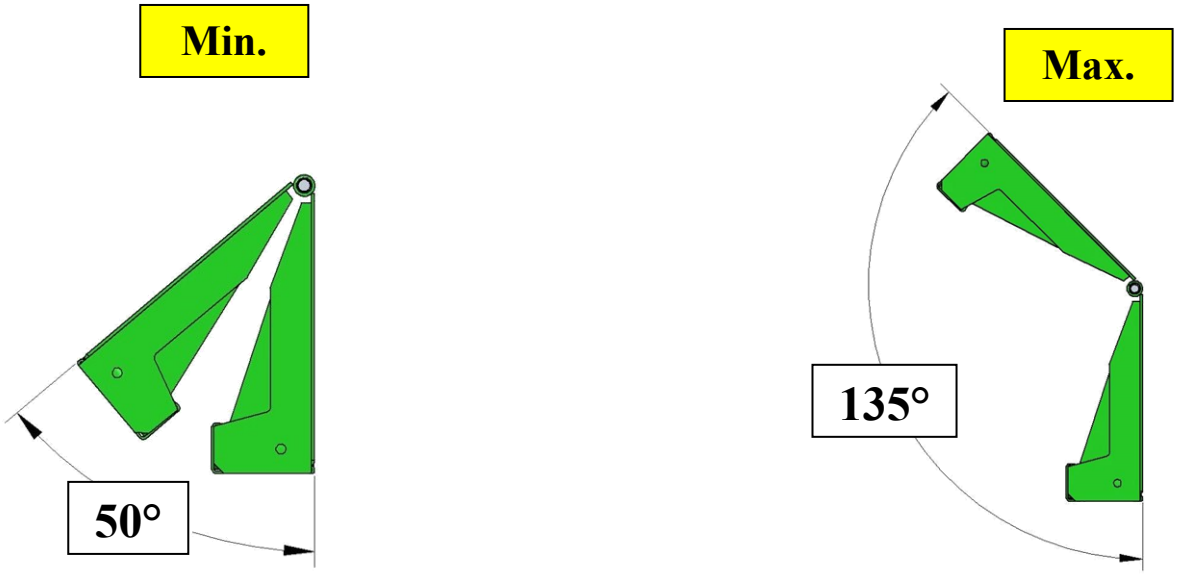


THE EXTERNAL HINGE CAN BE JOINED TO THE PANELS WITH 2 UNIVERSAL CLAMPS OR 4 ADJUSTABLE PINS AND WEDGES

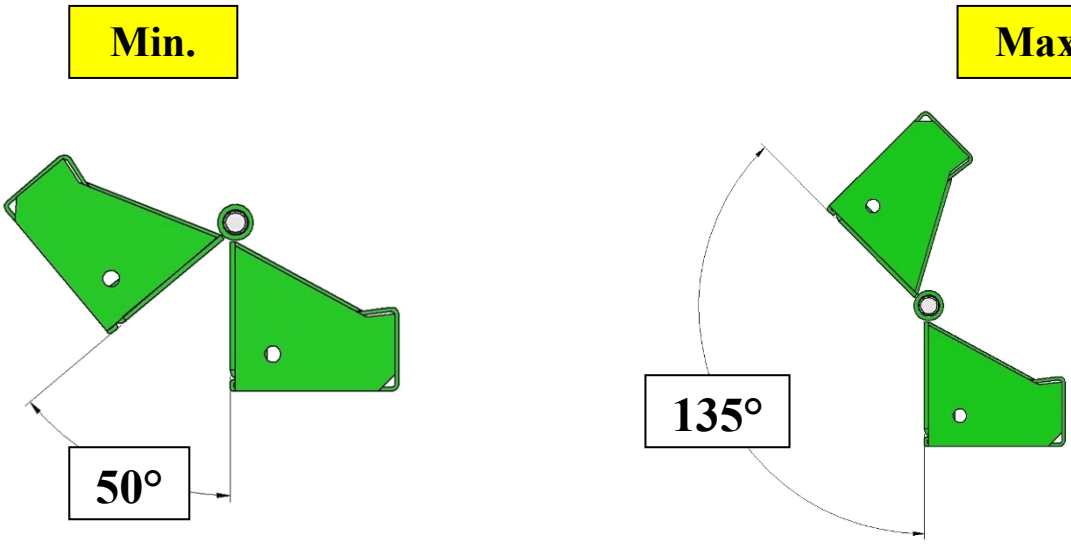
DEPENDING ON THE ANGLE SIZE OF THE CORNER IT MAY BE NECESSARY TO INSERT TIMBER FILLERS OF A SUITABLE SIZE BETWEEN THE OUTSIDE SURFACE PANELS AND THE INTERNAL HINGE.

FEASIBLE CORNER SIZES FOR INTERNAL/EXTERNAL HINGES

INTERNAL HINGE FOR CORNERS



EXTERNAL HINGE FOR CORNERS

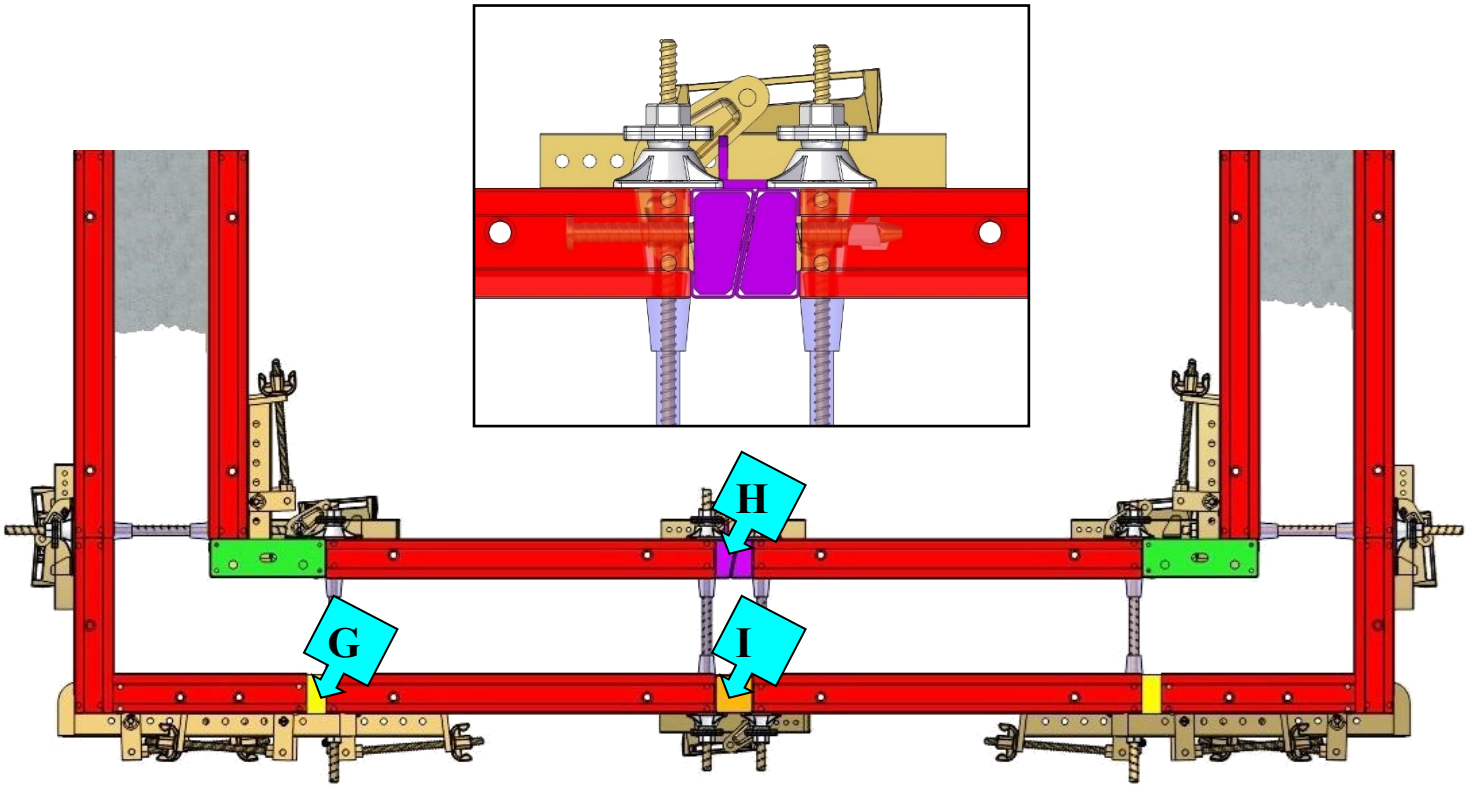


For corners greater than 135° provide adequate reinforcement shoring on the internal hinge.

FORMWORKS FOR U-SHAPED WALLS

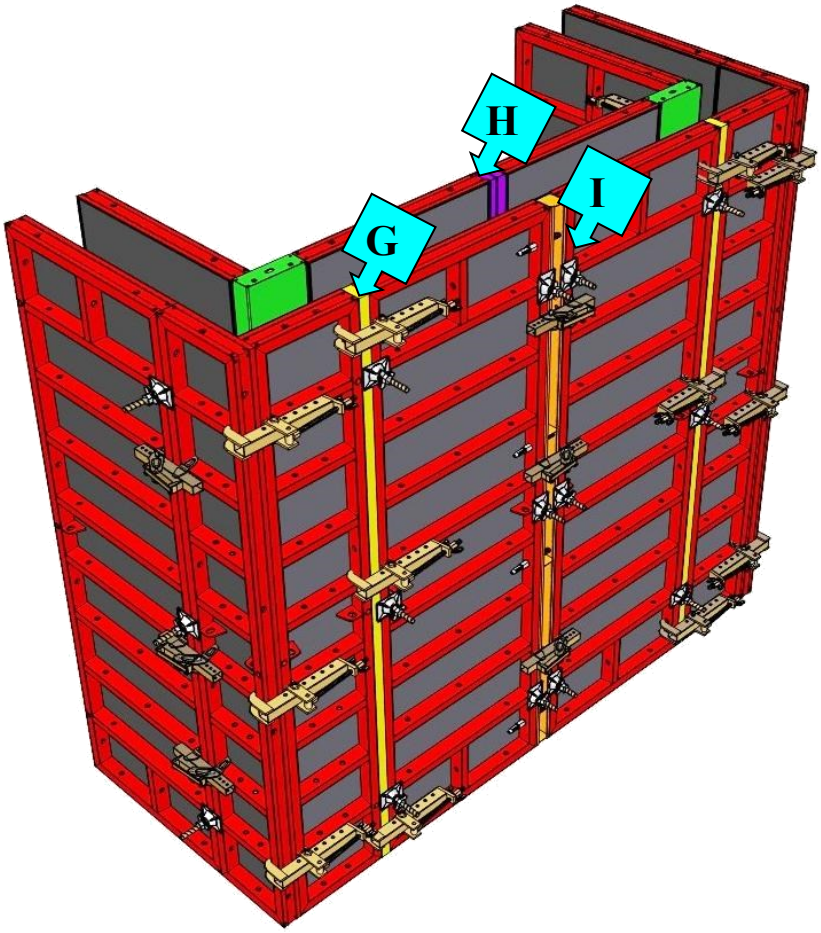
The formwork for U-shaped walls consists of any formwork for linear walls having two right angles (90°).

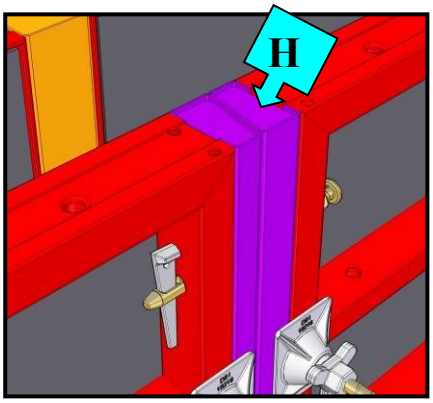
The peculiarity of these formworks is the side between the corners, as up to 6 lm it is extremely difficult to open the formwork. To avoid this problem, insert a special accessory, the stripping block, on the inside of the U to facilitate dismantling of the inside part of the formwork.



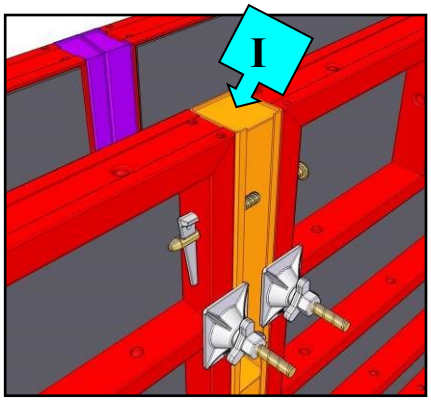
G	DRILLED PIPE FOR PINS/BARS 50X100 L=3000	8168228
H	STRIPPING BLOCK 3000X100X100	300010F
I	PROFILE FOR INCLINED WALL 100X100 L=3000	8168026

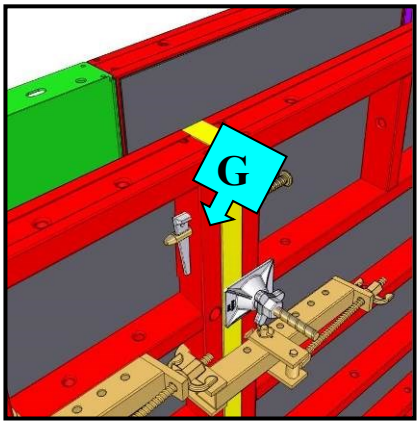
The stripping block is recommended for use with walls shorter than or equal to 6 metres in order to facilitate its dismantling.





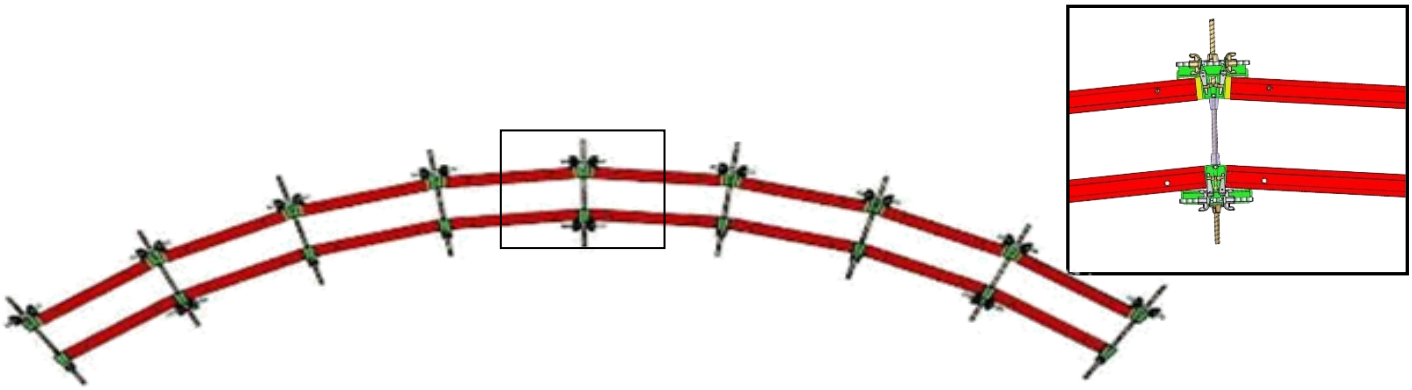
LOCK WITH ADJUSTABLE PINS AND WEDGES OR WITH A UNIVERSAL CLAMP.

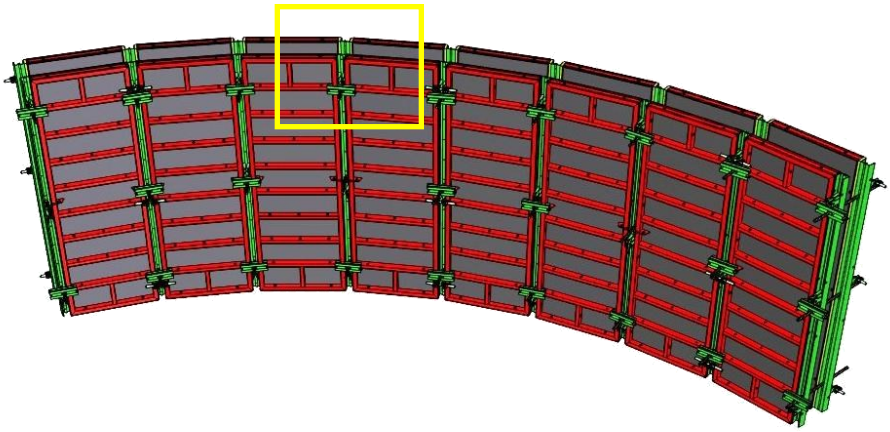


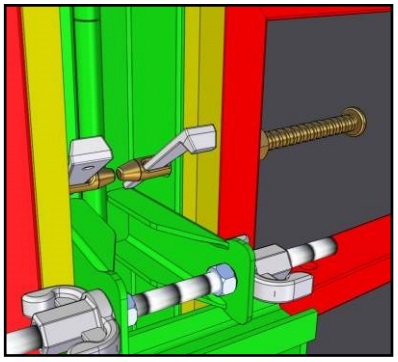


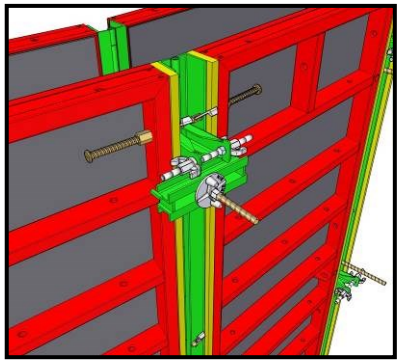
FORMWORKS FOR CIRCULAR WALLS (panels + hinges)

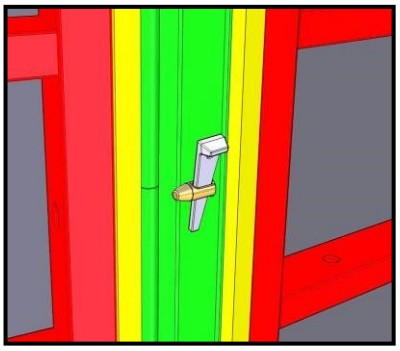
This type of formwork is created using a special accessory, the hinge for circular tanks. This accessory is adjustable and its function is to connect two panels with a precise angulation between them.





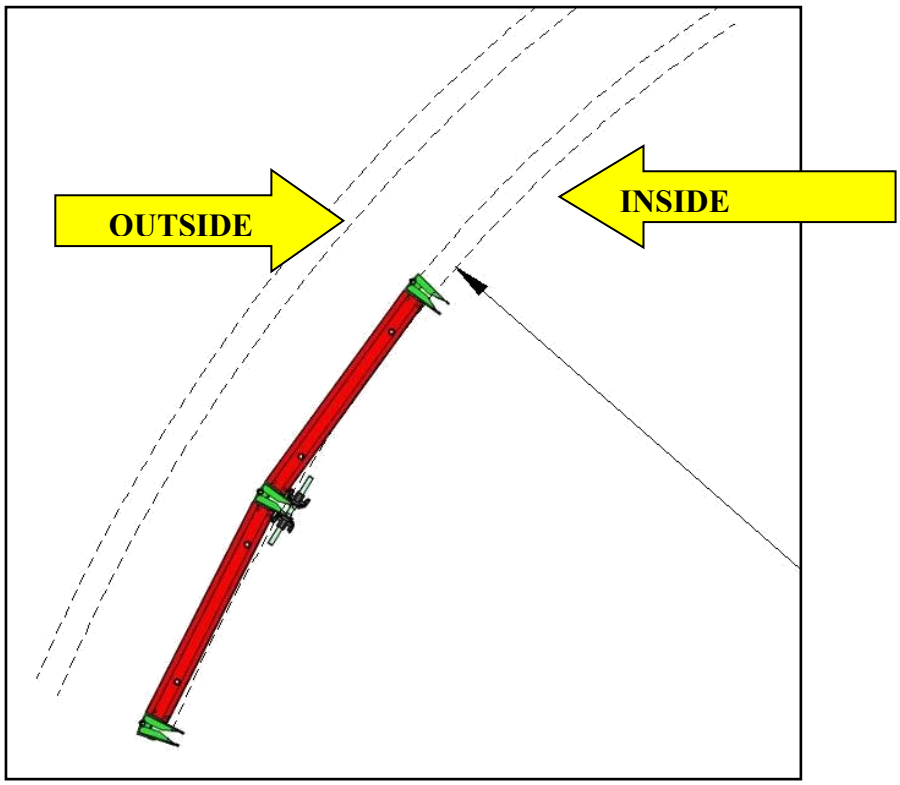






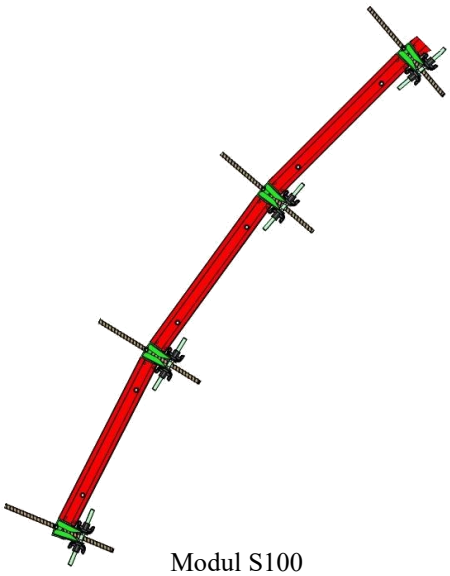
Fix the external hinge with an adjustable pin and the internal hinge with a short pin + pin

Begin arranging the panels form the inside surface following the measurements provided in the drawings.

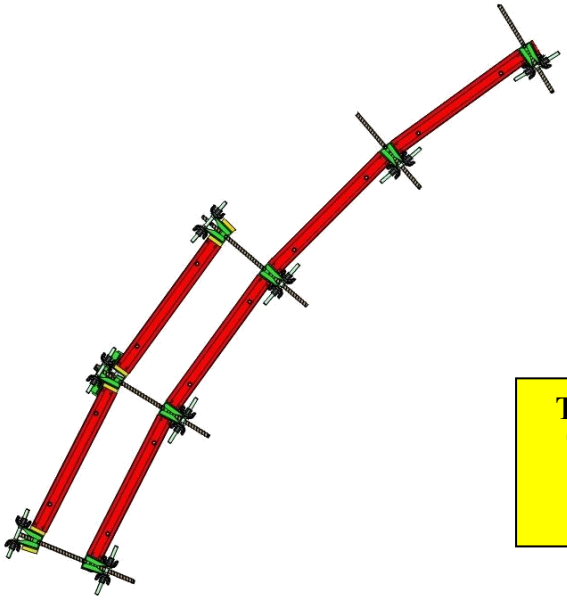


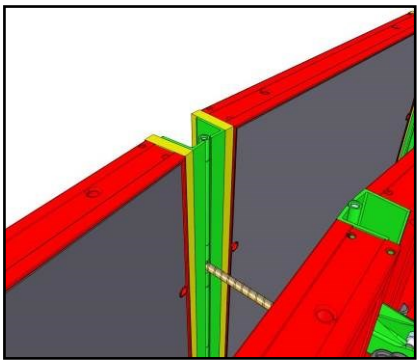
As you proceed with the erection of the internal wall fix the assembly correctly with the special equipment described above.

Once the internal wall is completed insert the threaded bars and the revolving nut plates.



Proceed with the erection of the external wall by firstly positioning the external hinge and compensating it with the timber filler then placing the panels side by side.





THE TIMBER BEAM MUST ALWAYS FILL THE SPACE BETWEEN THE PANEL AND THE HINGE OF THE OUTER WALL.

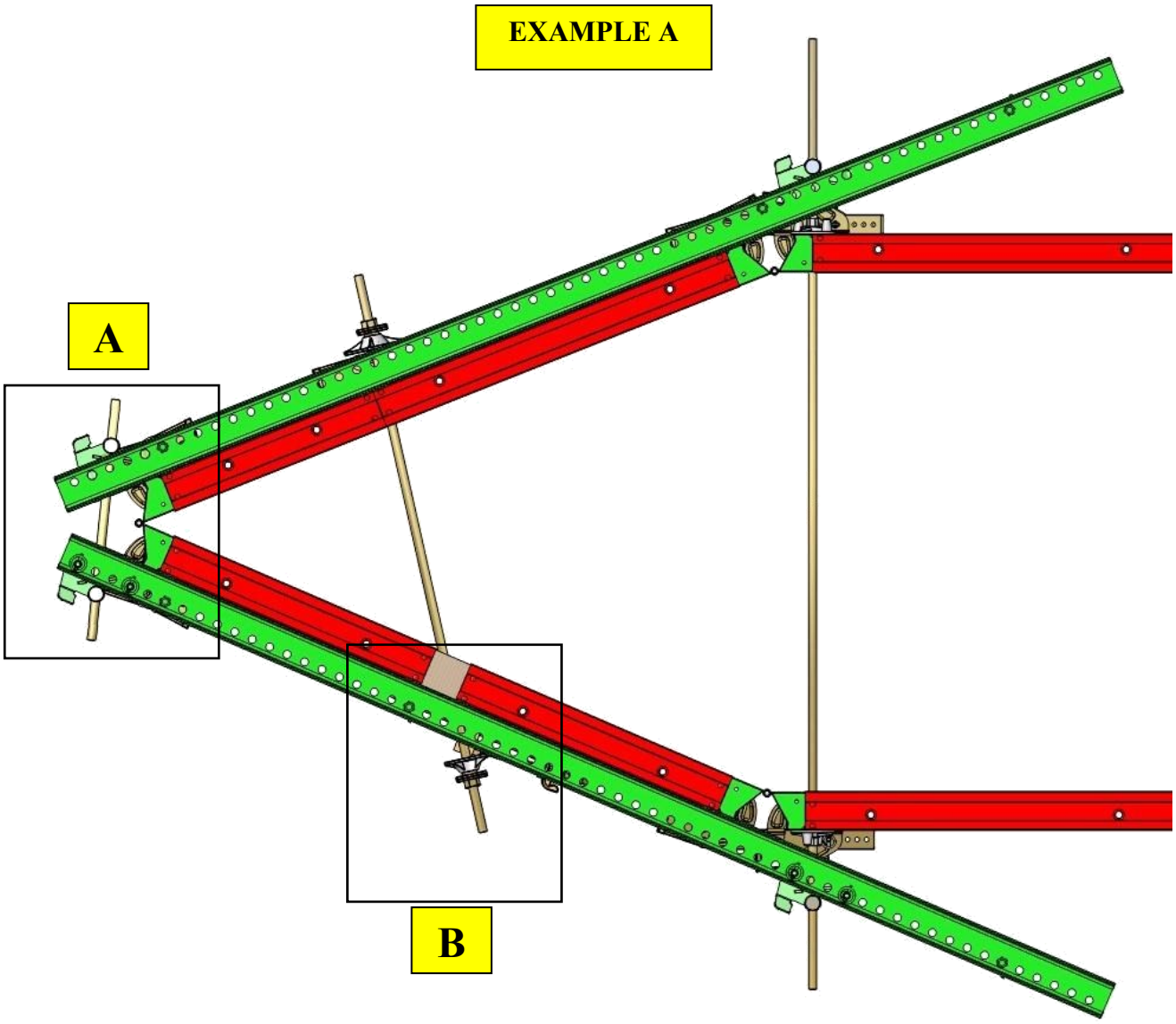
The table below gives the minimum internal diameters that can be obtained using specific panel sizes.

PANELS (m)	MINIMUM INTERNAL DIAMETER (m)
1.0	9.0
0.9	8.2
0.8	7.4
0.75	7.0
0.7	6.5
0.65	6.2
0.6	5.5
0.55	5.3
0.5	5.0
MAX. ANGLE BETWEEN THE PANELS 14°	

IN SOME CASES, ASSEMBLY OF THE INTERNAL DIAMETER REQUIRES THE USE OF SEVERAL FILLERS

USE OF THE DOUBLE GIRDER WITH HOLES

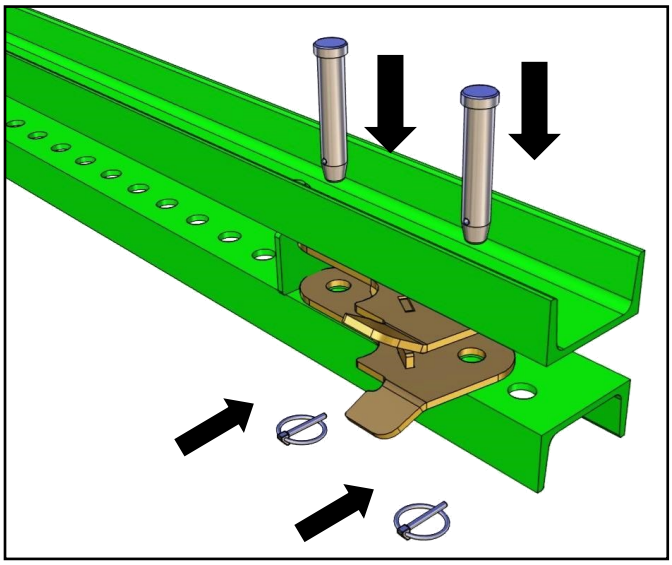
The girder with holes combined with the bar coupling bracket, girder fastening bracket assembly, universal plate, wing nut, stop pin for wing nut and bar, create stable, safe angles other than 90°. They can be used to fix formworks with different methods than the standard applications.



The girder with holes must connect at least two panels, including at least one bar hole.

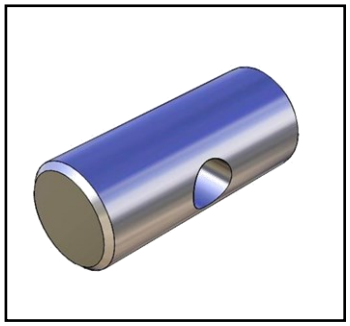
Use a minimum of two girders with holes for heights of 3 m.

MOUNTING THE BAR COUPLING BRACKET



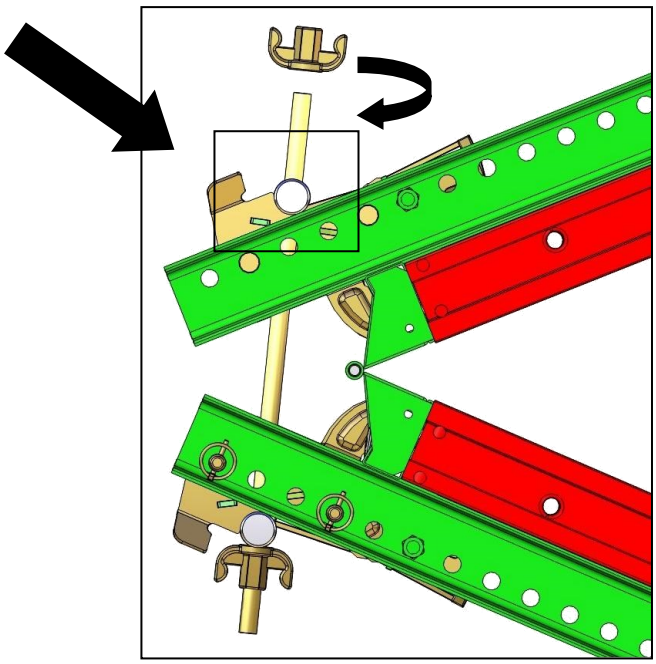
Position the bar coupling bracket on the sequence of holes on the drilled girder and insert the pins and bolts to lock it.

FIXING THE CORNER



8168973

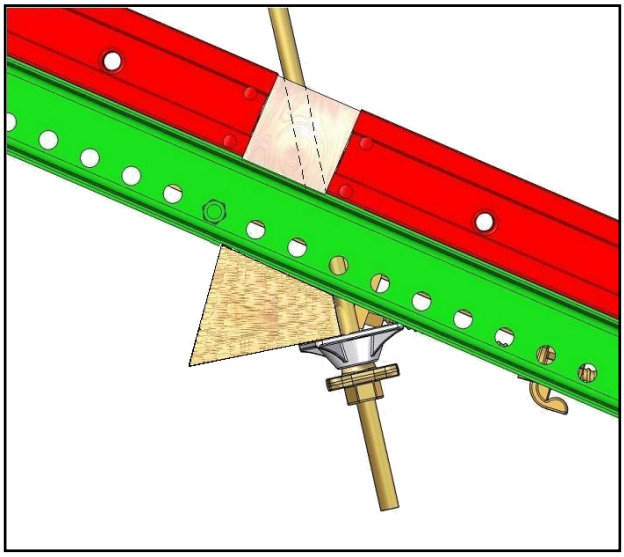
STOP PIN



Insert the threaded bar between the two bar coupling brackets, insert the stop pin and position it correctly then fix the assembly with the wing nut.

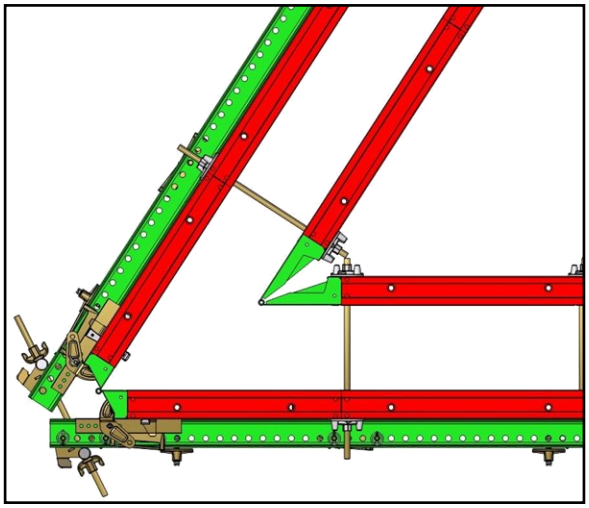
BAR HOLE ON FILLER

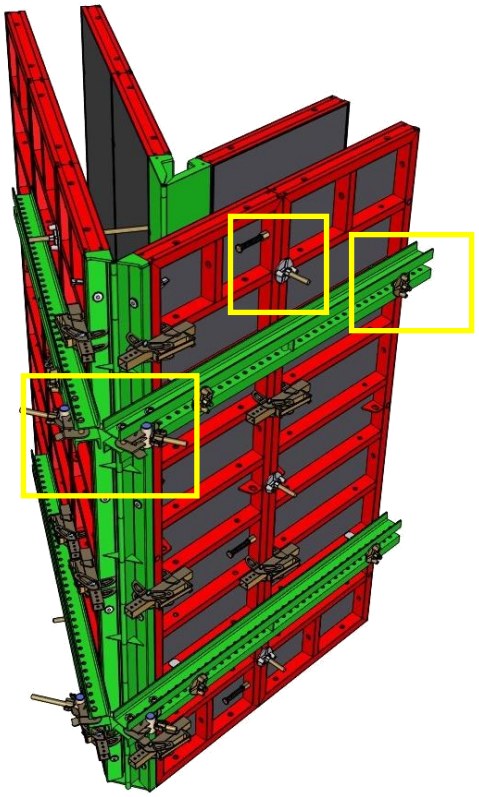
IF NECESSARY , TO IMPROVE THE SWIVEL PLATE SUPPORT, INSERT A TIMBER WEDGE BETWEEN THE PLATE AND THE SUPPORT.

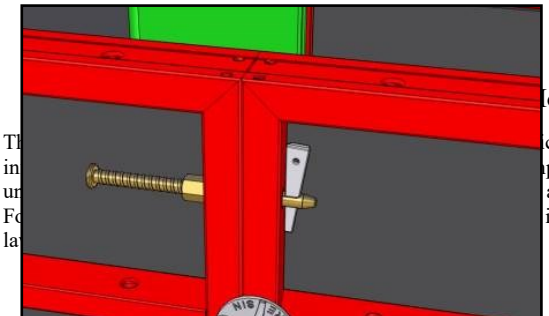


In some cases, the bar holes will not coincide; in these cases, it is advisable to add a timber filler which must have a hole in it to permit the passage of the threaded bar.

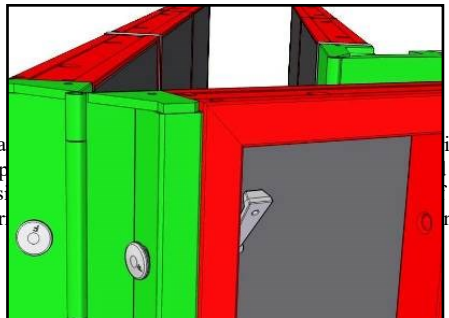
EXAMPLE B







odul S100



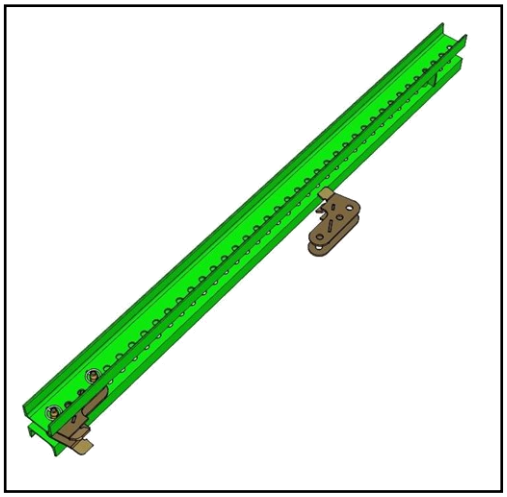
JOIN THE TWO PANELS WITH ADJUSTABLE PINS + WEDGE OR WITH AN ALIGNER CLAMP.

FIX THE EXTERNAL HINGE WITH THE PANEL WITH AN ALIGNER CLAMP OR MEDIUM PIN + WEDGE.

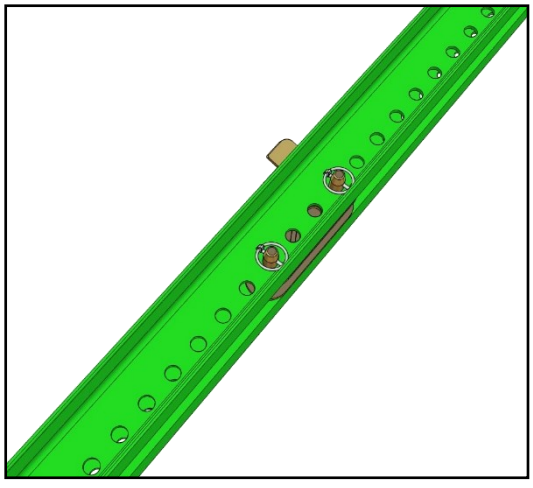
MOUNT THE BAR COUPLING BRACKET AS AN ANTISLIDE STOP

The bar coupling bracket can be used as an antislide system for the girders on the panels and the unit formed in this way can replace the stiffening pipe system in out-of-square corners in order to obtain a more rigid system.

We recommend using this system for pours with heights over 3m.



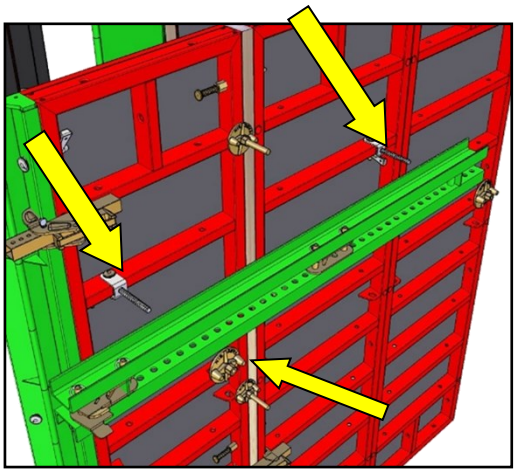
INSERT THE BRACKET IN THE GIRDER WITH THE PIN BEARING ELEMENT FACING TOWARDS THE INSIDE OF THE POUR.



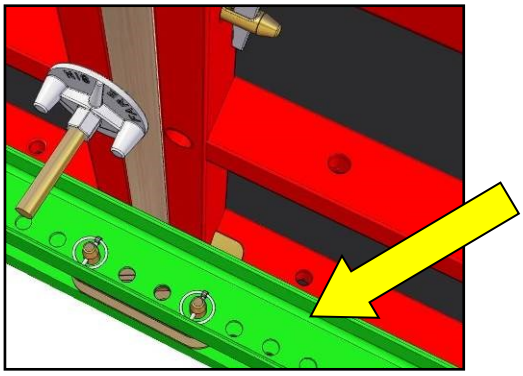
LOCK THE BRACKET WITH THE PIN AND BOLT

Mount the bar coupling bracket at the point where the two panels are joined, with the wings opposite to the one previously mounted.

Insert the girder with holes on the threaded bar of the fastening bracket, slide the girder along until the bar coupling bracket is in abutment against the profile of the panel and lock it with the nut plate.

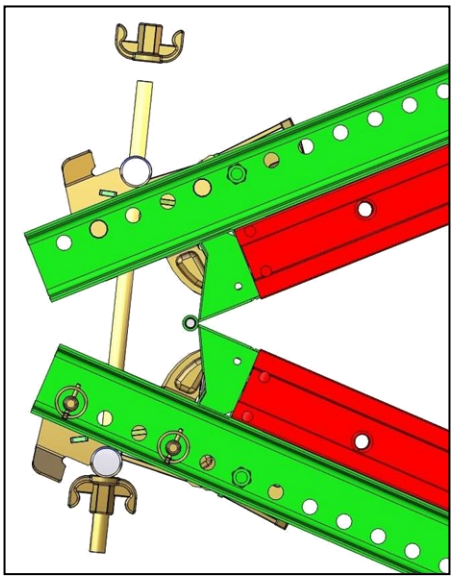


FIX THE DOUBLE GIRDER WITH AT LEAST TWO GIRDER FASTENING BRACKETS PER PANEL.



MAKE SURE THAT THE BRACKET IS IN ABUTMENT AGAINST A PROFILE.

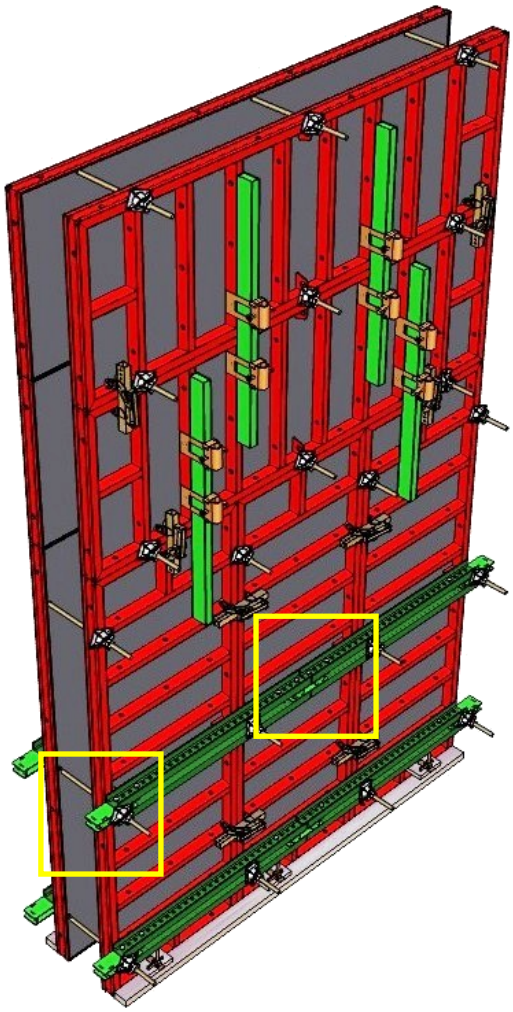
Once all the girder has been fixed, anchor the wall that forms the corner as illustrated in the figure and as described above.

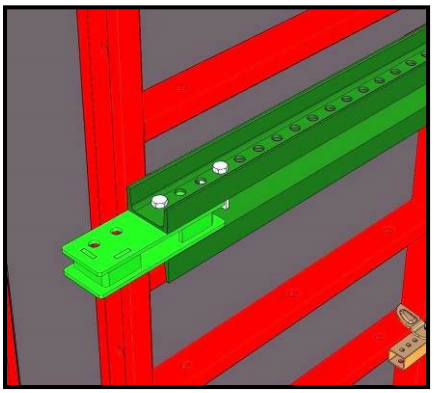


EXAMPLE C

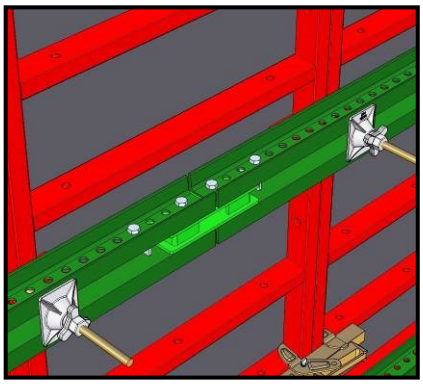
USE OF THE GIRDER WITH HOLES ASSEMBLY AS REINFORCEMENT FOR HIGH PRESSURE POURS (PRESSURES EXCEEDING 80 kN)

DIAGRAM FOR POURING S.C.C.

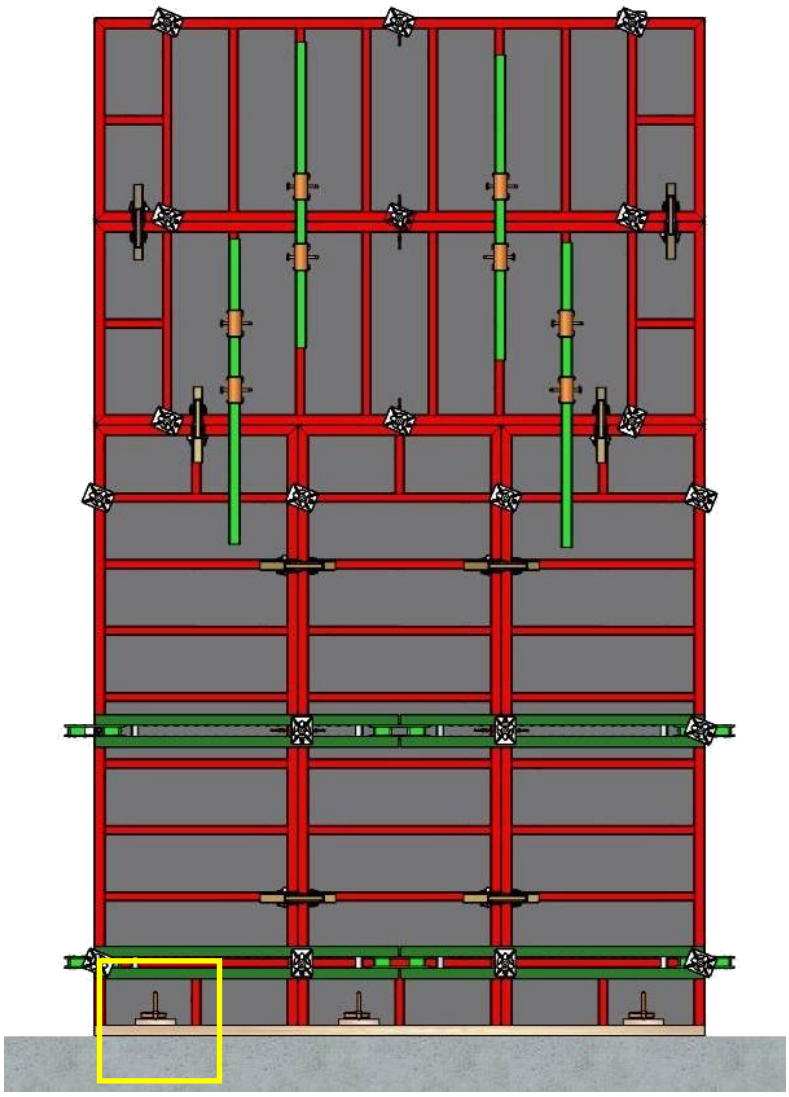


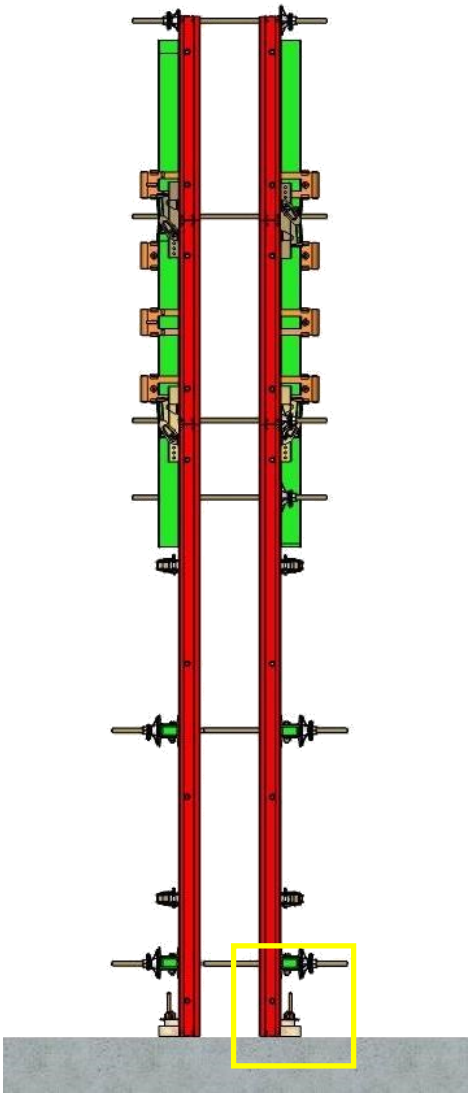


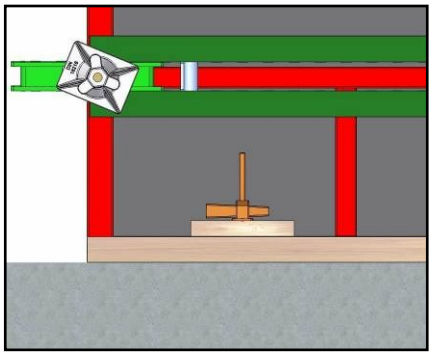
THE COUPLING ELEMENT ALLOWS YOU TO JOIN SEVERAL GIRDERS WITH HOLES WITH SCREWS AND BOLTS

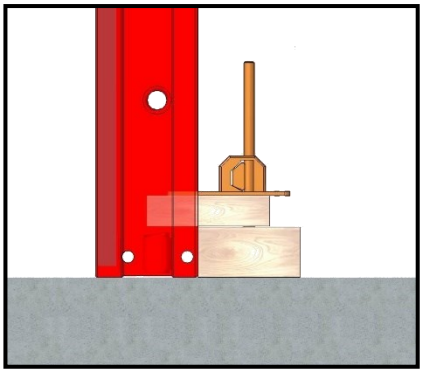


Erection of a wall H= 5 m





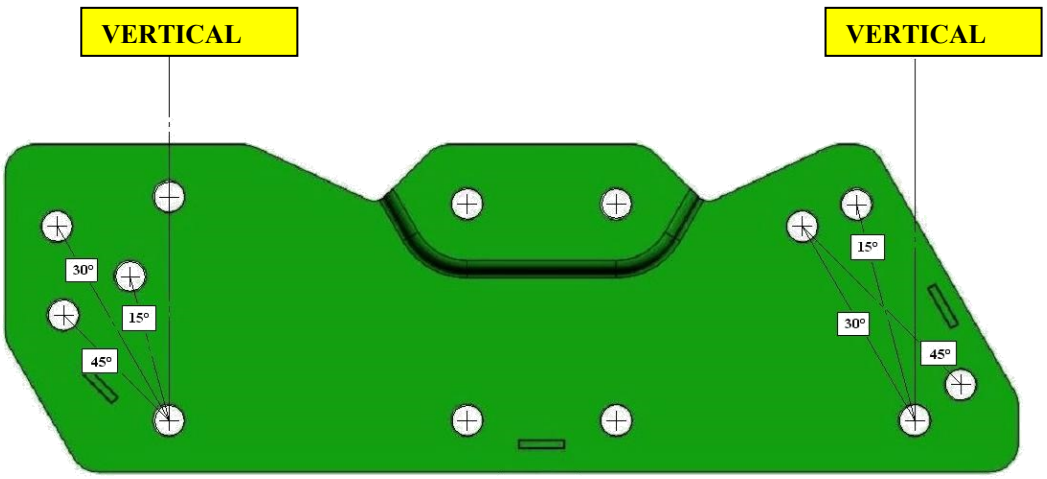




Anchor the panels to the ground with the use of planks and rod iron plus Tempo clamp, normal construction site equipment.

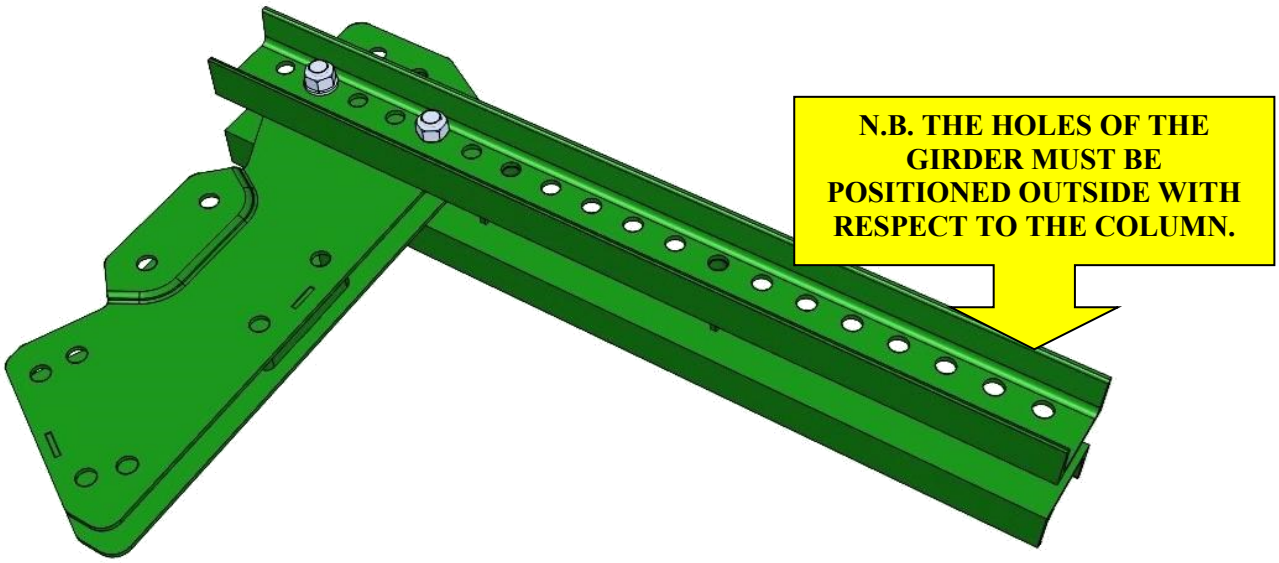
ERECTING A COLUMN WITH DOUBLE GIRDERS.

Locate the holes on the universal plate to be used to make an angle of 90° between the available configurations.

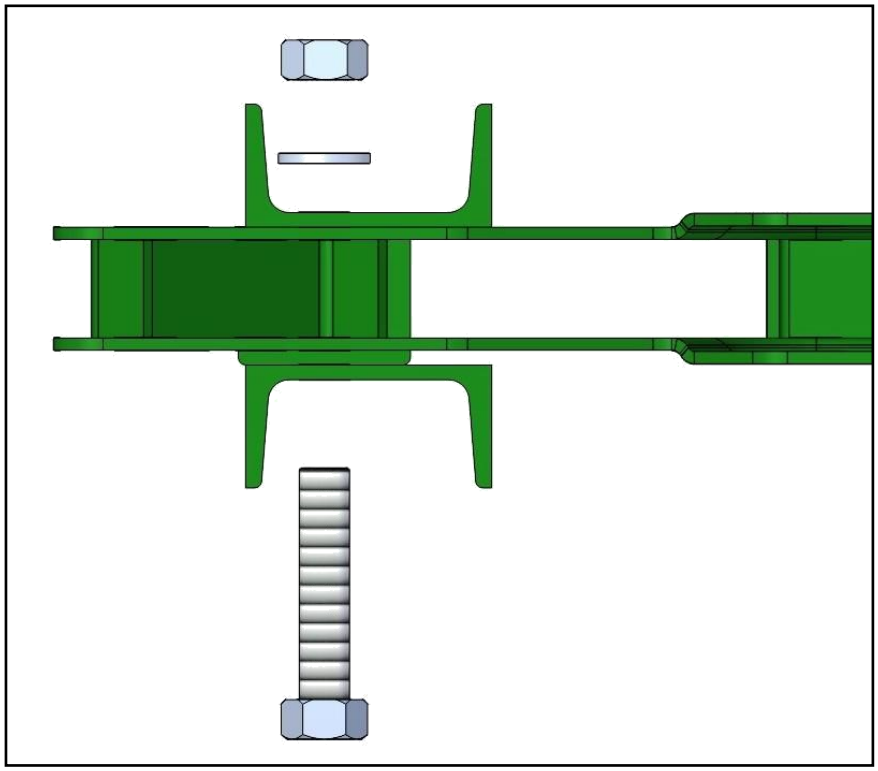


Angles of inclination with respect to the vertical

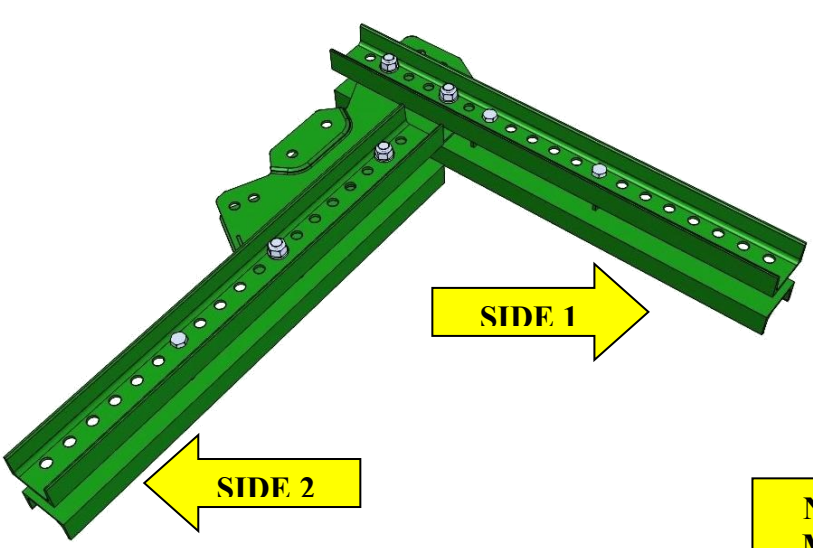
Mount the 1st girder with holes on the universal plate to make the 1st side of the square, taking care to position the holes facing outwards from the columns and fix with screws M20x100.

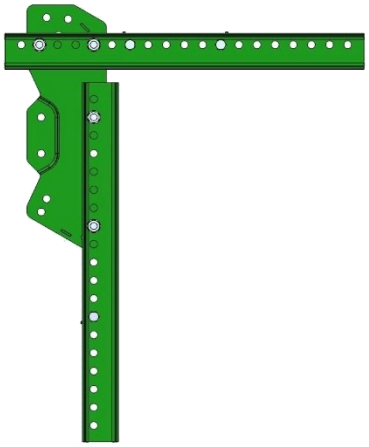


FIX WITH BOLTS M20 X 100 AND WASHER AND NUT



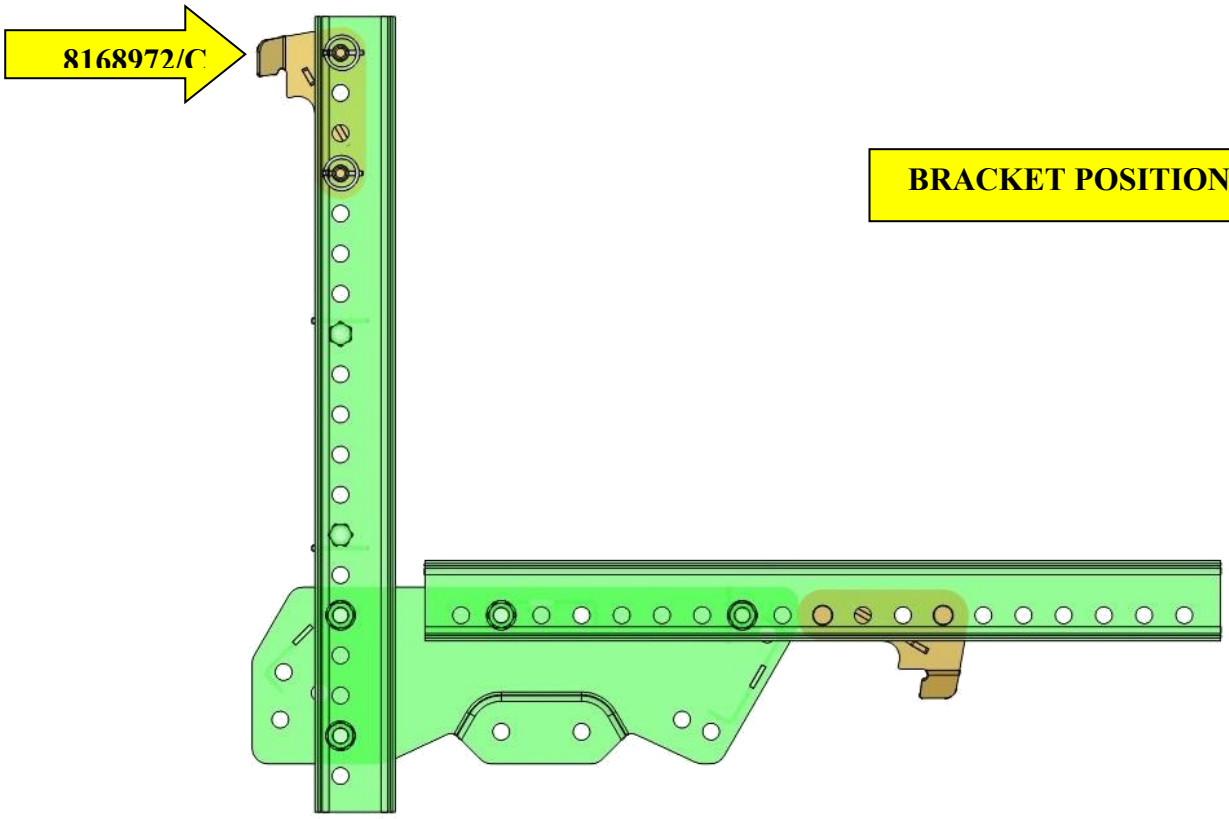
Mount the 2nd girder with holes on the universal plate to make the 2nd side of the square (longitudinal with respect to the plate), taking care to position the holes facing outwards. Fix the assembly with screws M20x100+washer+nut.



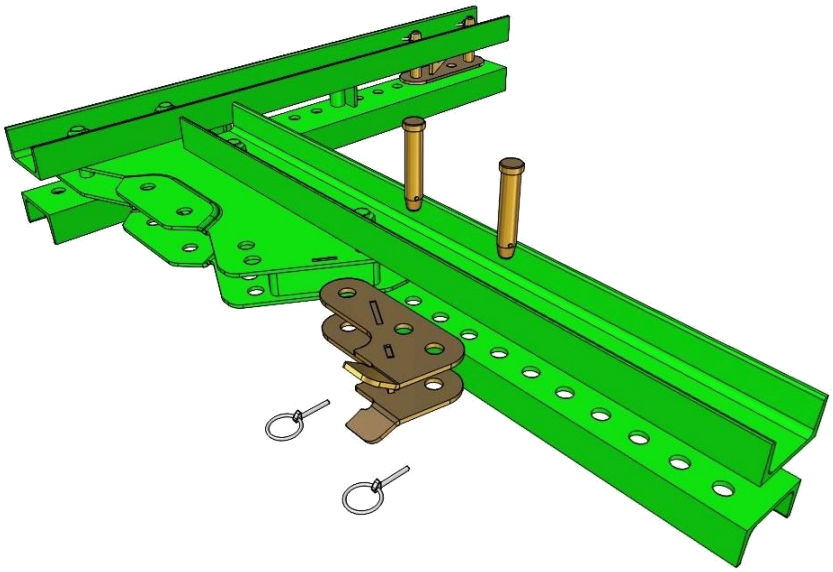


N.B. THE MOUNTING OPERATIONS MUST BE CARRIED OUT IN SUCH A WAY AS TO OBTAIN AND ANGLE OF 90° BETWEEN THE GIRDERS.

Mount the bar coupling bracket to the ends of the square in the position required for the dimensions of the columns.

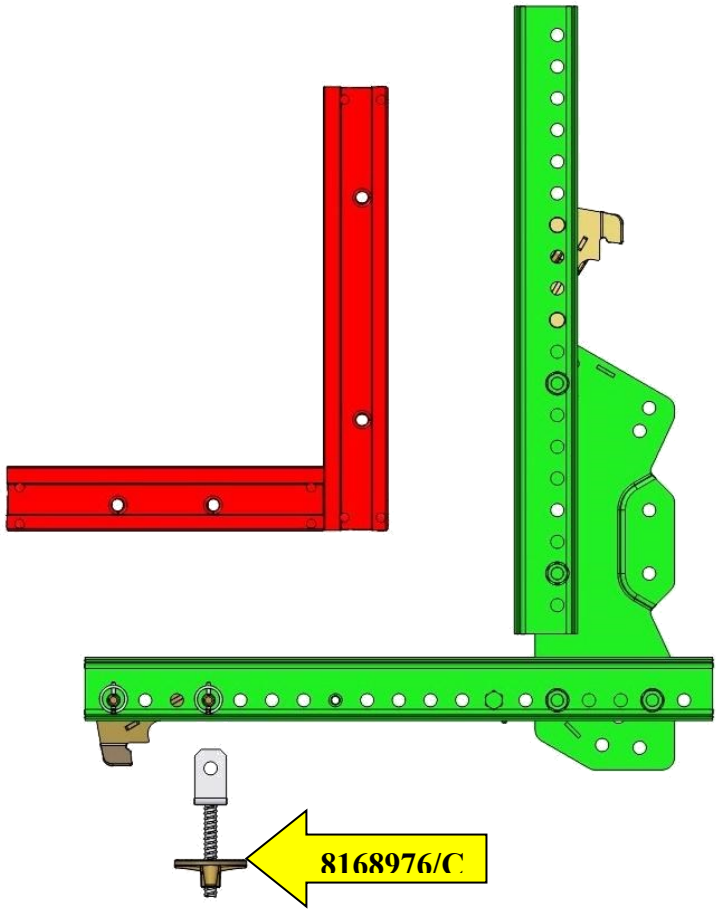


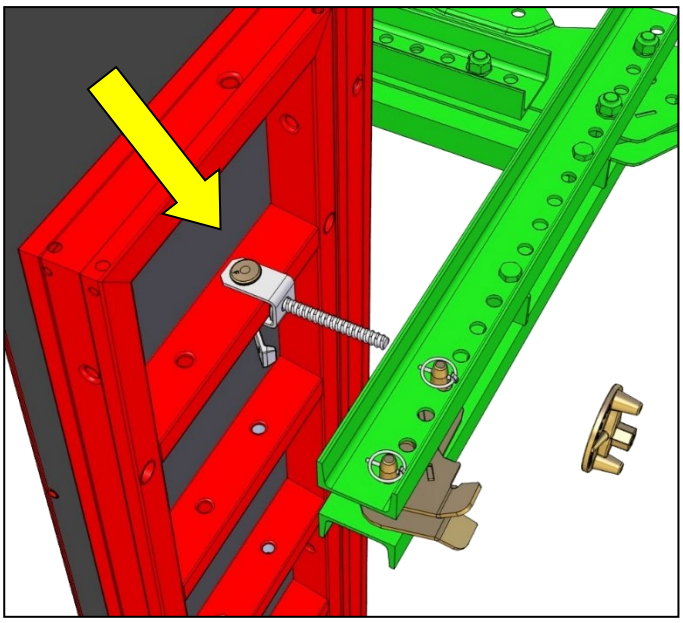
BRACKET POSITION.



MOUNT THE BAR COUPING BRACKET AS INDICATED IN THE FIGURE AND FIX WITH PINS AND BOLTS.

Erect the first half of the column.

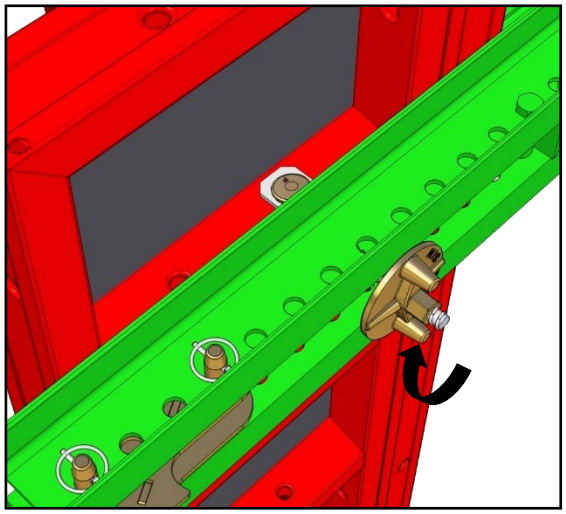




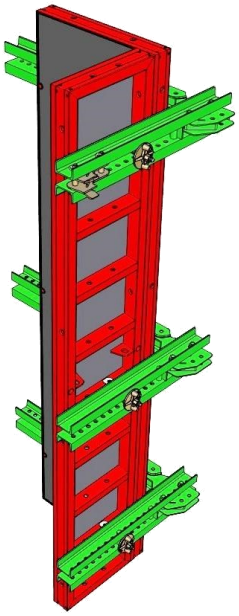
FIX THE BRACKET ON THE CROSS MEMBER OF THE PANEL WITH SHORT PIN + WEDGE.

FIX THE GIRDER BY INSERTING IT BETWEEN THE THREADED BAR OF THE BRACKET AND THE NUT PLATE.

N.B. We recommend using at least two fastening bracket for each girder.



LOCK THE ASSEMBLY TOGETHER WITH A NUT PLATE.

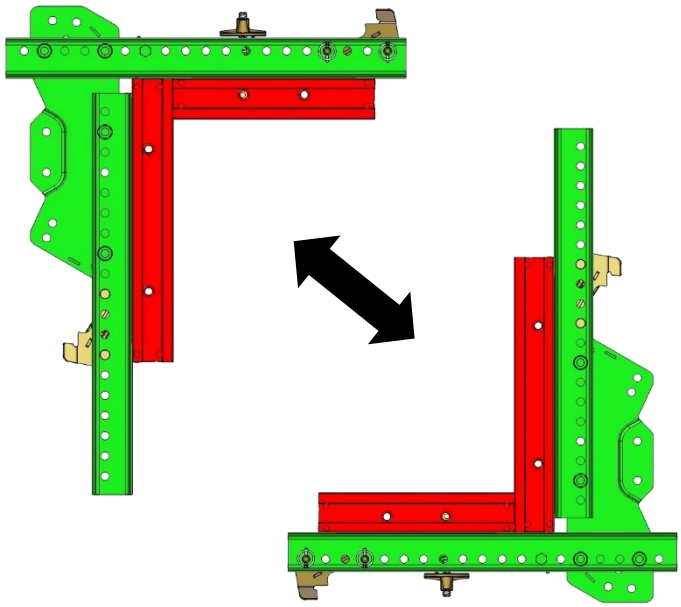


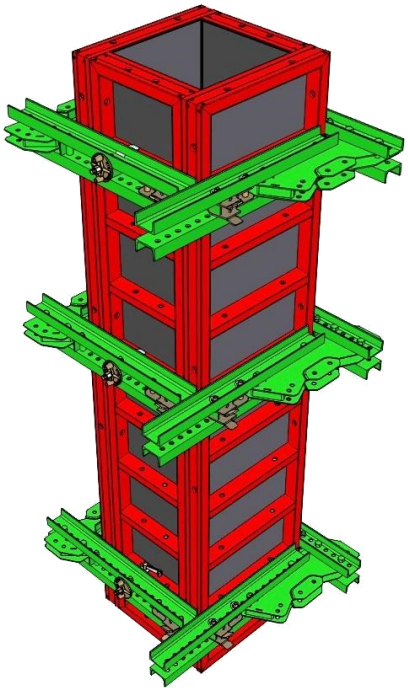
USE A MINIMUM OF 3 CORNERS PER GIRDER ON A HEIGHT OF 3 m.

Complete the two ‘L’ parts.

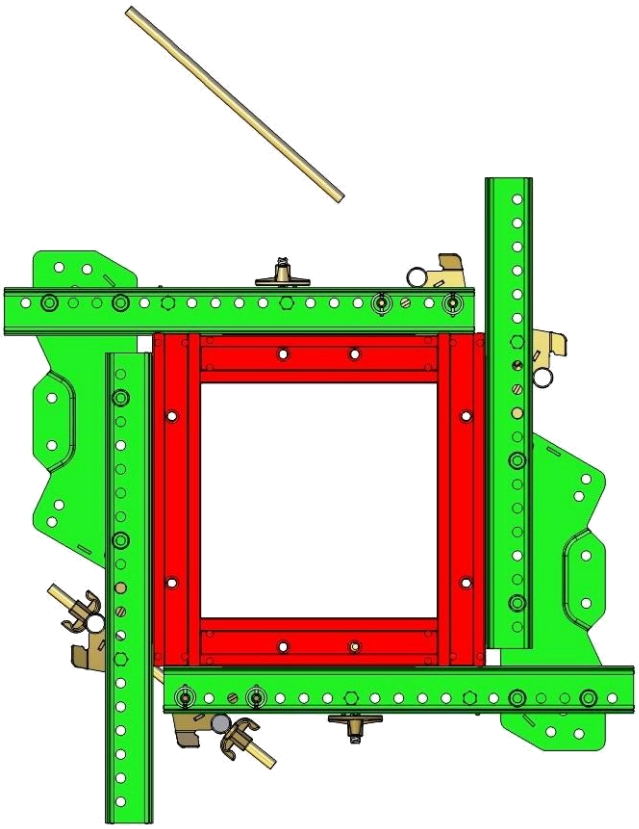
Execute the plumbing and treat the pour surface with stripper oil.

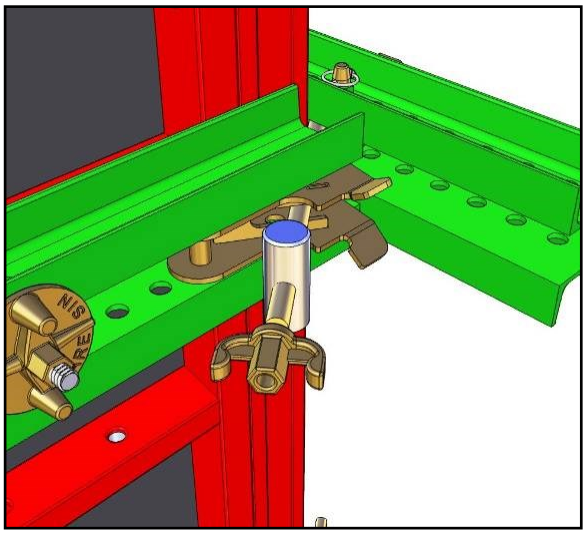
Join the two previously assembled half structures.



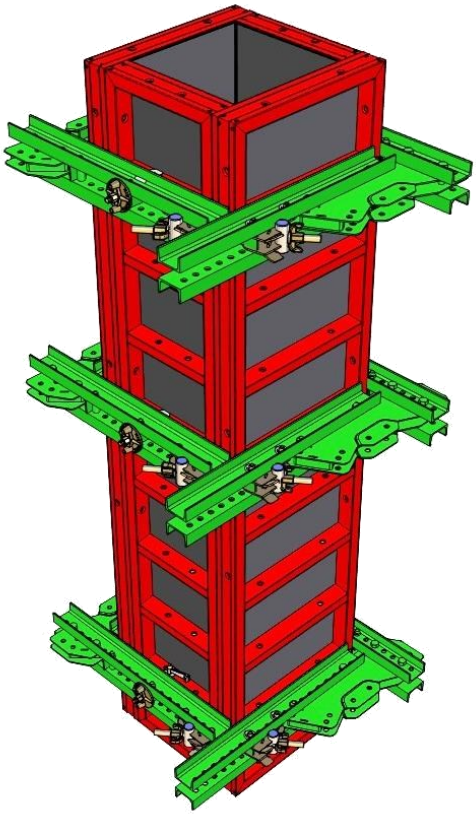


Fasten the two semi-columns to form a single column.





INSERT THE THREADED BAR IN THE STOP PIN AND PLACE IT IN ABUTMENT AGAINST THE BAR COUPLING BRACKET.

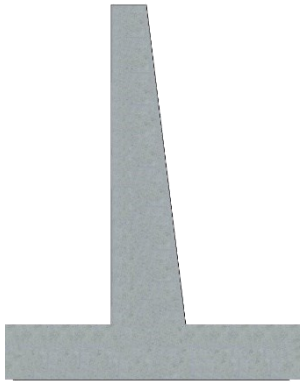


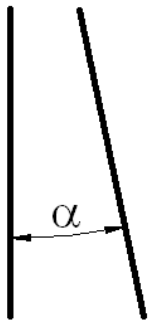
LOCK THE ASSEMBLY TOGETHER WITH A WING NUT.

FORMWORKS FOR WALLS WITH INCLINED SURFACES

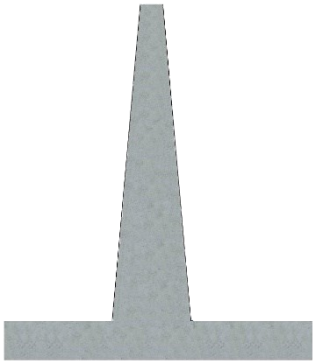
A wall with an inclined surface (inclined wall) is any wall that has one or both sides inclined with respect to the vertical.

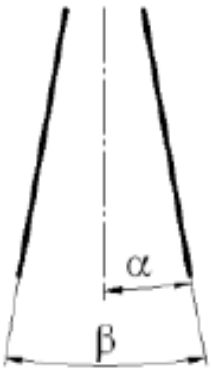
CASE 1



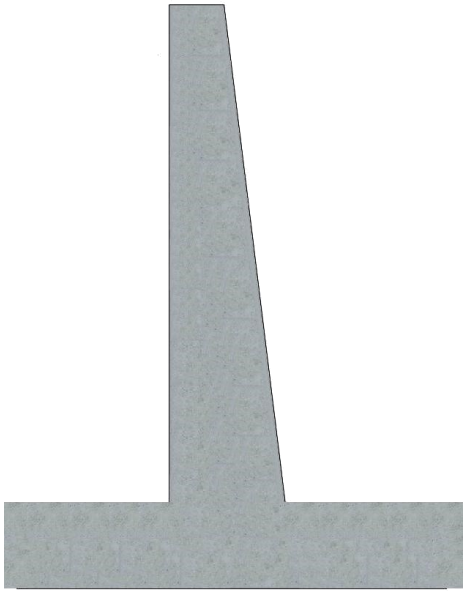
		MAX ANGLE α	INCLINATION
	PANELS	4°	7%
	PANELS + PROFILE FOR INCLINED WALL	10°	17%

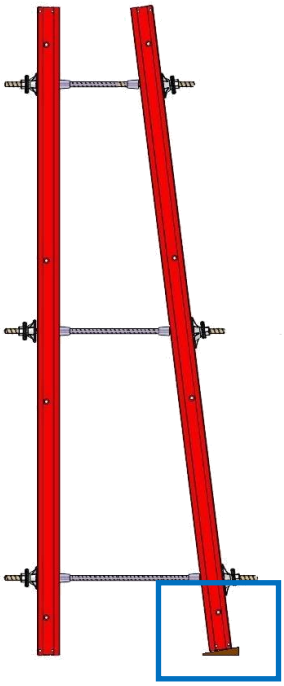
CASE 2

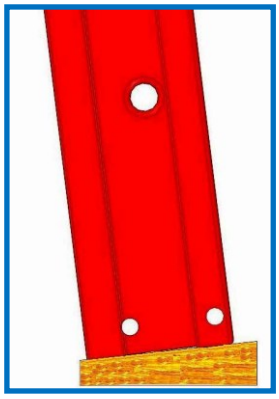


		MAX ANGLE β	INCLINATION
	PANELS	8°	14%
	PANELS + PROFILE FOR INCLINED WALL	20°	36%

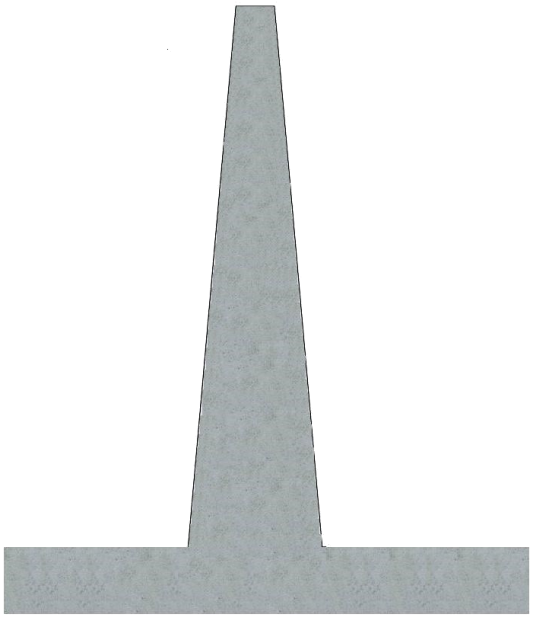
1 INCLINED SIDE

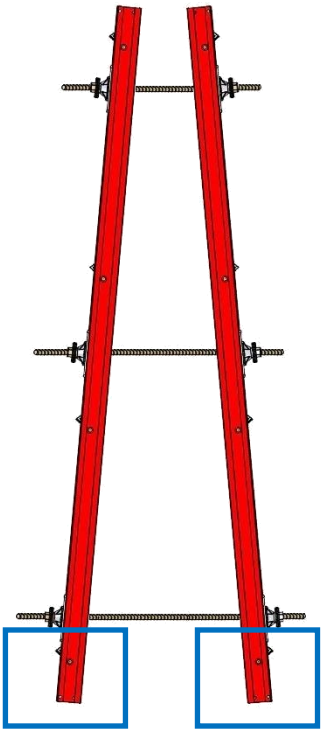


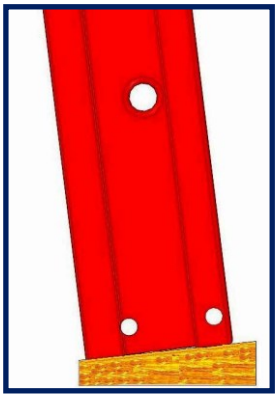




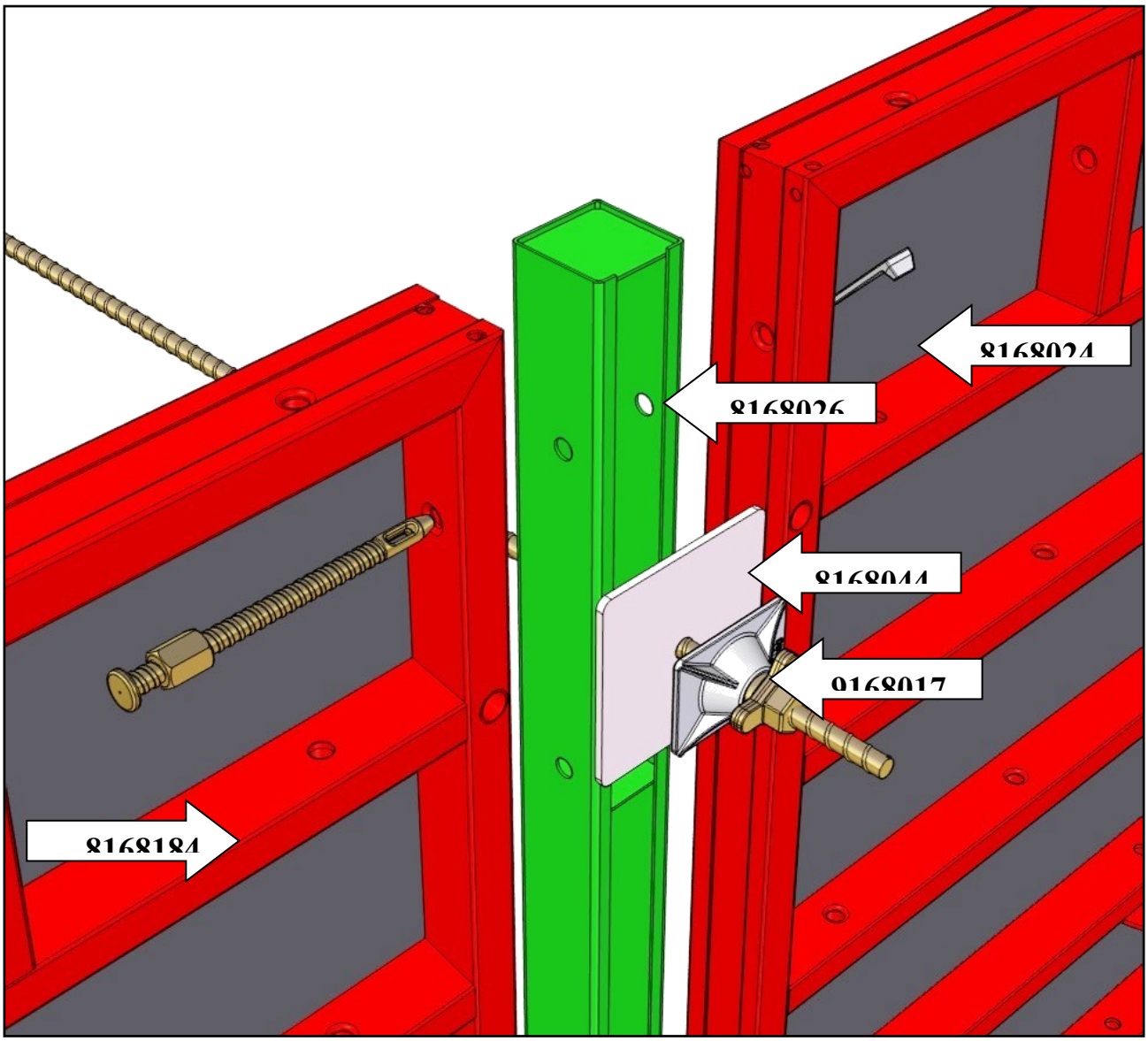
2 INCLINED SIDES







Fasten the inclined wall profile with the adjustable pin and wedge.

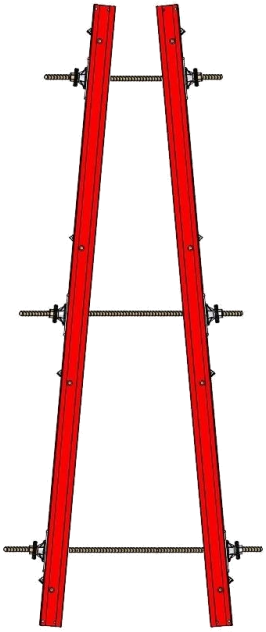


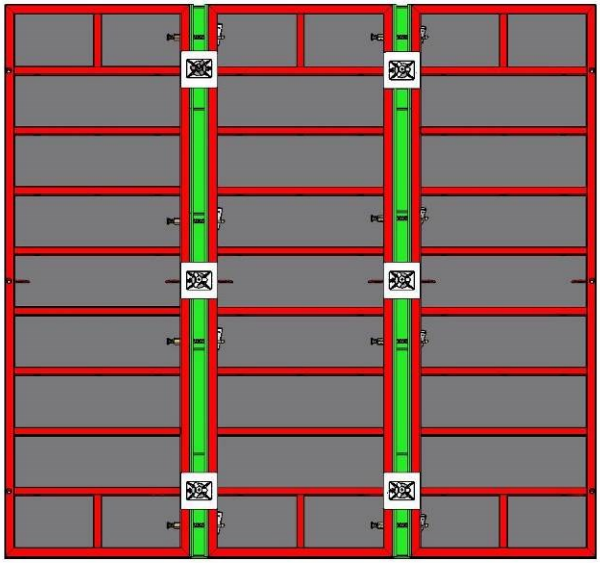
N.B ANCHOR BOTH SIDES OF THE FORMWORK FIRMLY TO THE GROUND

Close the ends using the methods described above.

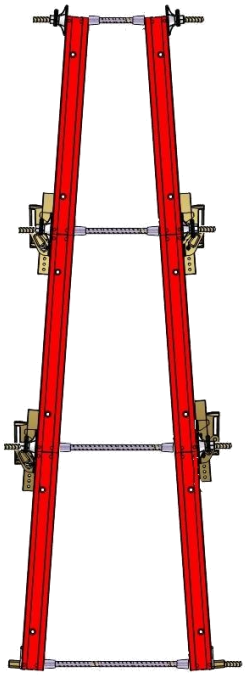
INCLINED SIDES WITH VERTICAL AND HORIZONTAL PANELS

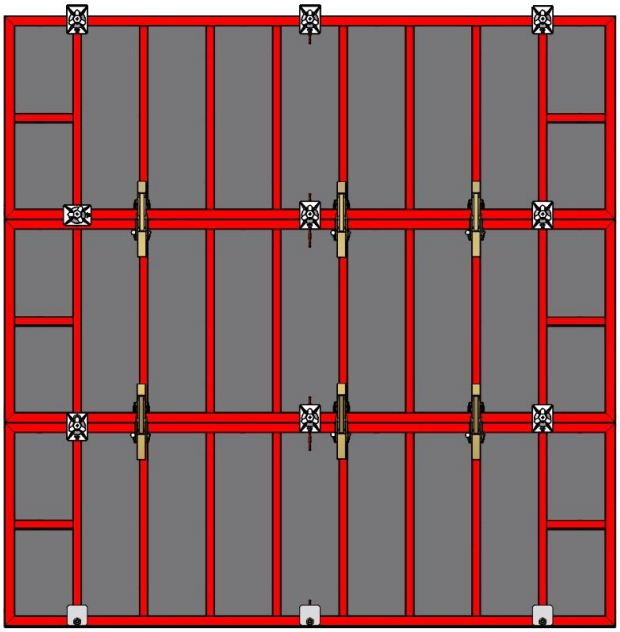
VERTICAL PANELLING WITH PROFILE





HORIZONTAL PANELLING WITHOUT PROFILE

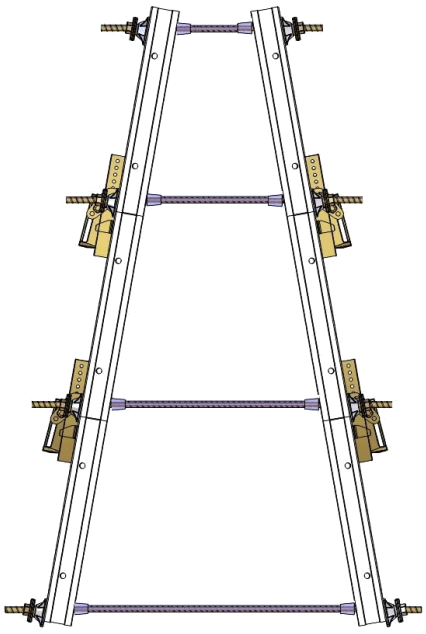


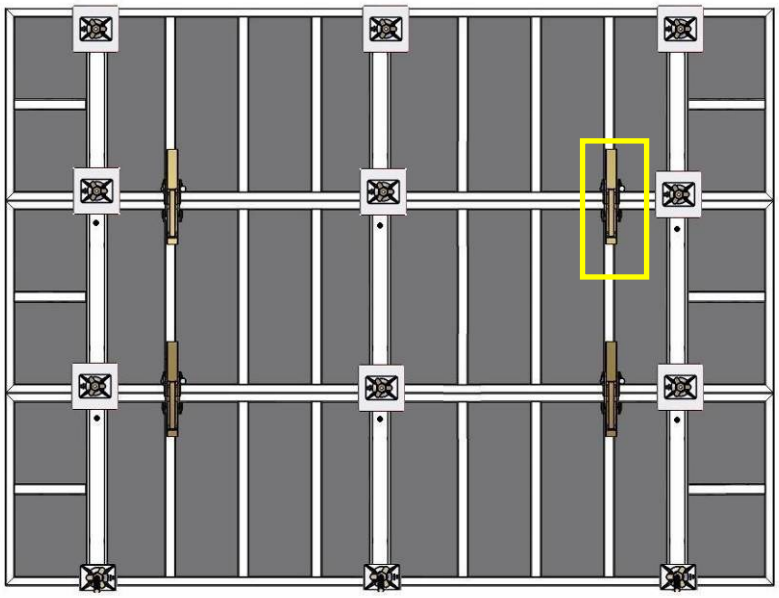


WALL WITH INCLINED SIDES WITH PANELS FOR ROADWORKS

HORIZONTAL PANELLING

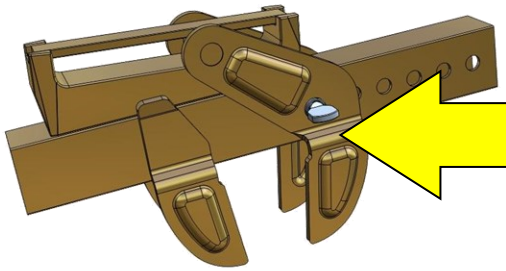
The roadworks panels are fastened with aligner clamps and they are used to construct walls with inclined sides without the need for any other accessories.





10° inclination of both walls with respect to the vertical

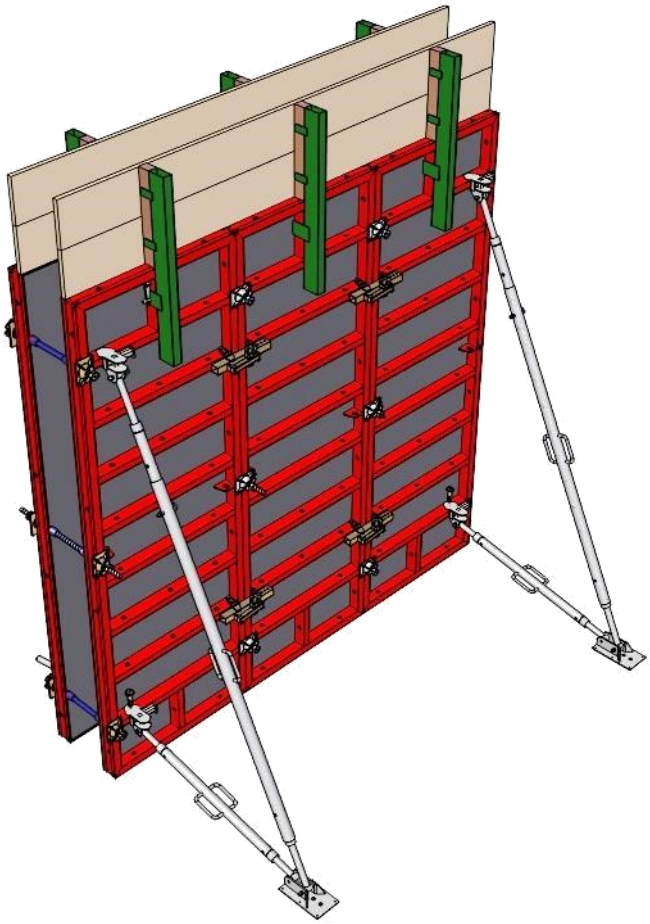
OBTAINABLE ANGLES between 0° and 28° (25%)

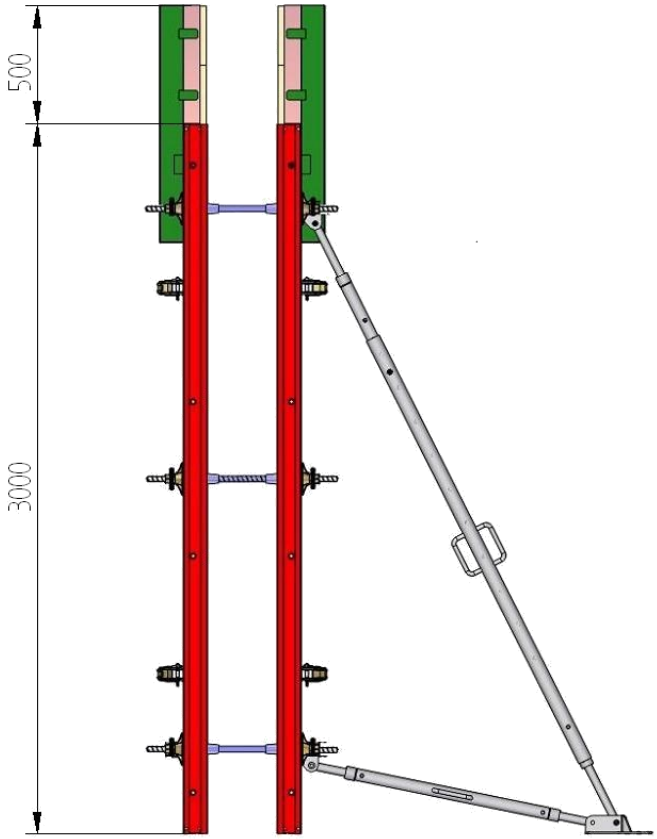


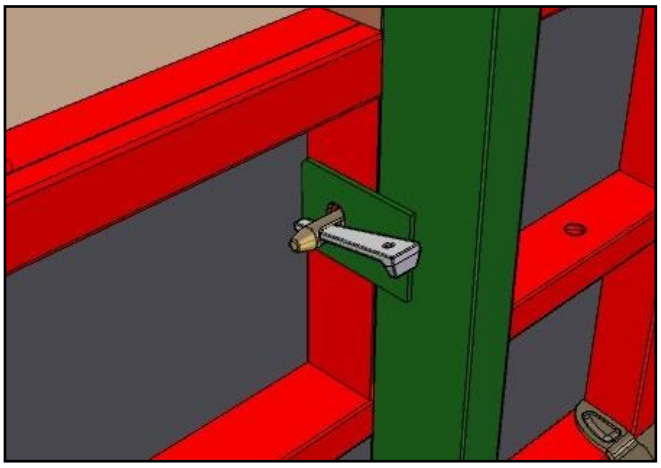
POSITION THE WEDGE BRACKET IN THE FIRST HOLE AS ILLUSTRATED

FORMWORK EXTENSION BRACKET
(VERTICAL PANELS)

Made of green painted steel, with timber element, it is used to extend the pour height by 500 mm using 27 mm thick timber planks.

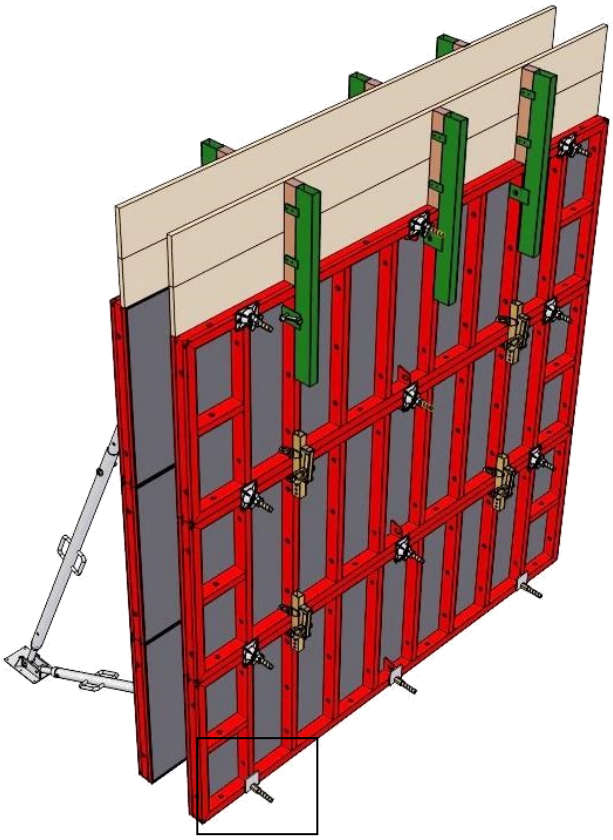


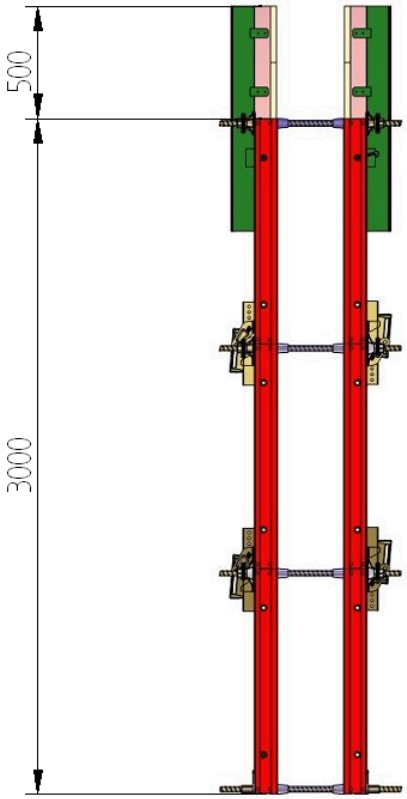


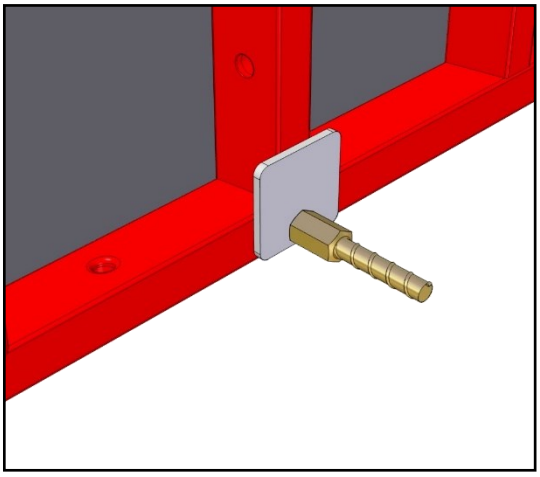


Fasten the extension bracket with short pin and wedge.

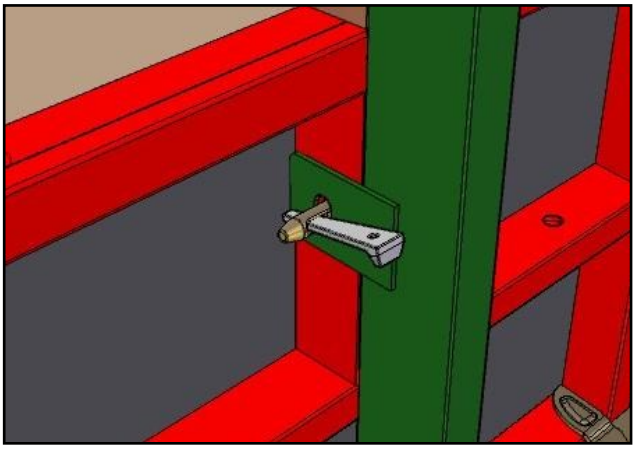
FORMWORK EXTENSION BRACKET
(HORIZONTAL PANELS)







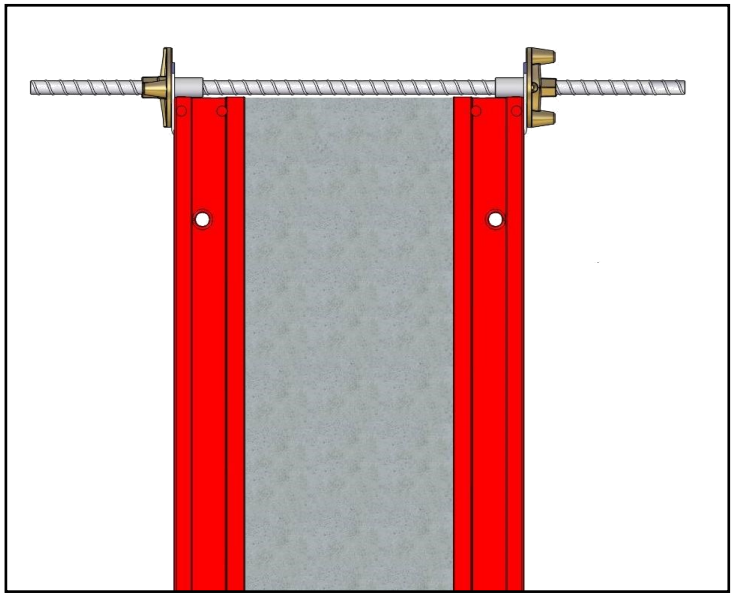
In the lower part replace the plate with swivel nut with a plate with misaligned nut.

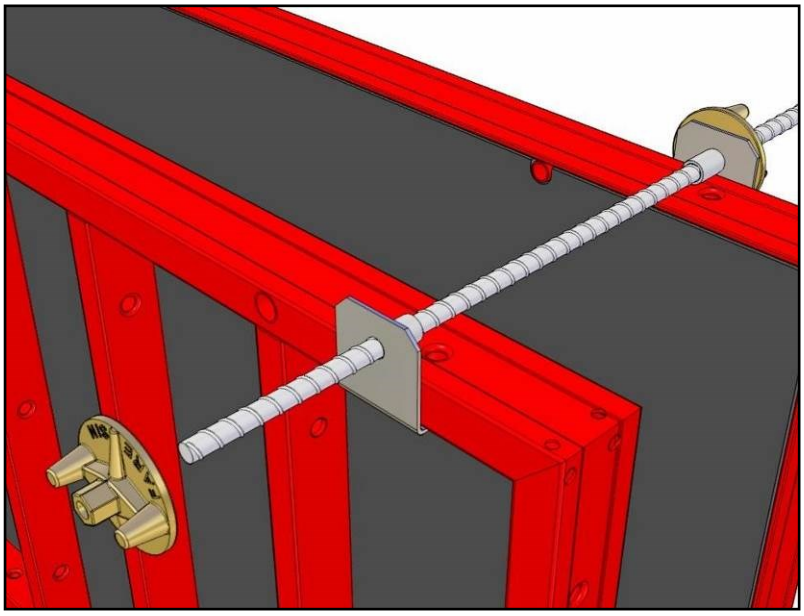


Fasten the extension bracket with short pin and wedge.

BAR BRACKET
(ON TOP OF THE PANELS)

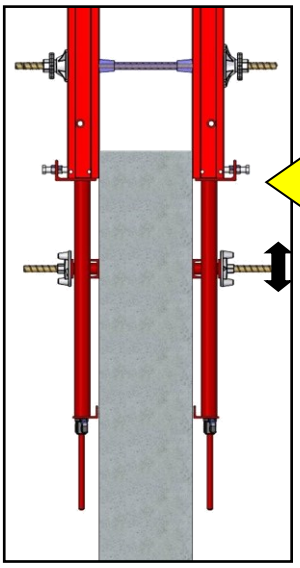
If the pour height is flush with the panel, we recommend using a particular bracket that allows you to apply the threaded bar outside the pour to avoid the visual impact of the presence of the spacer.



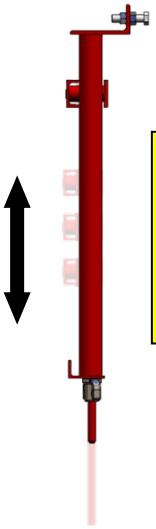


FORMWORK BEARING BRACKET

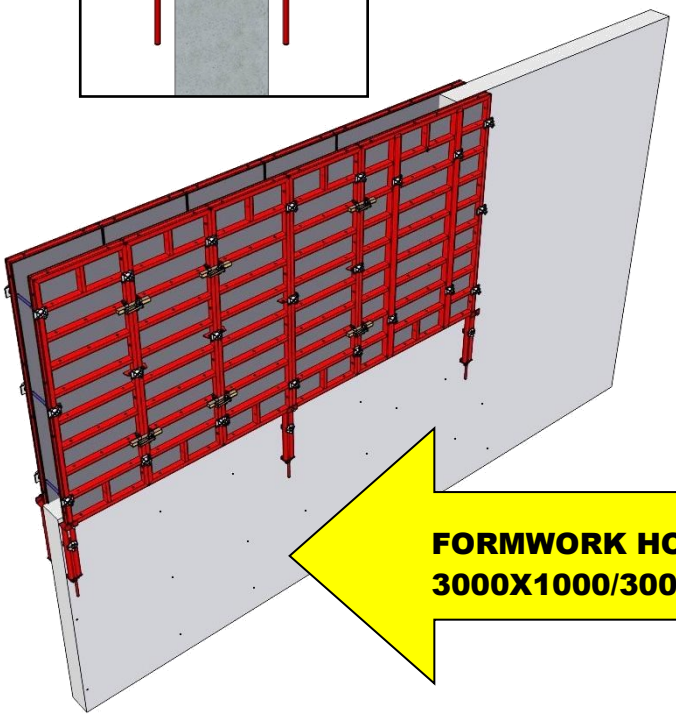
Height adjustable steel bracket, used to support formworks for elevation castings, fixed to the wall by means of a threaded bar and nut plate. They are calculated to support the weight of a wall of formworks, accessories and a part of the thrust created by wind force.



Place the panels 5-10 cm below the previous pour.



HEIGHT ADJUSTMENT OF THE FORMWORK BEARING BRACKET



FORMWORK HOLE SIZES 3000X1000/3000X2000

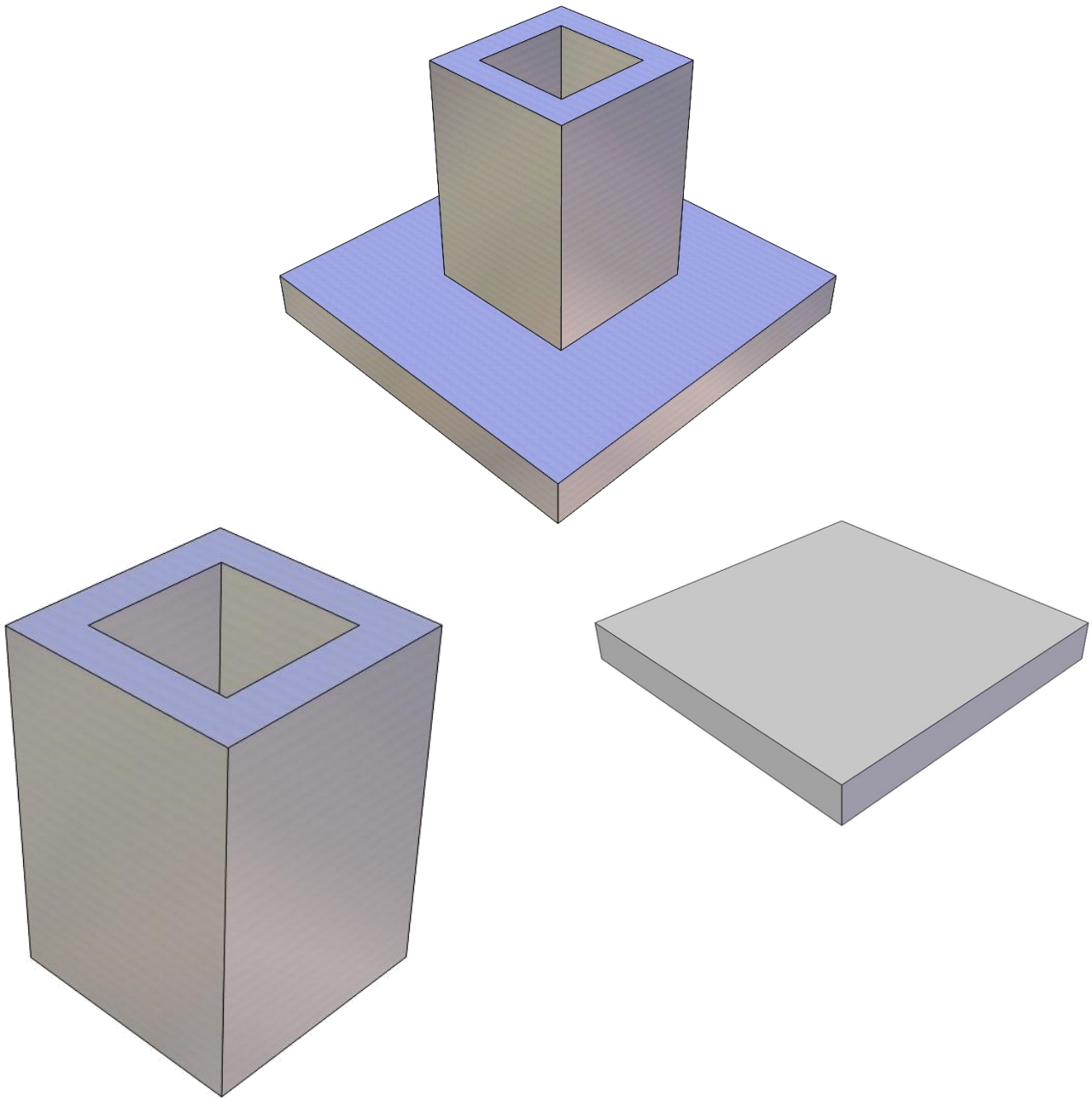
THE PANELS SUPPORTED BY THE FORMWORK BEARING BRACKET MUST BE MADE STABLE WITH PLUMBING RODS.

The formwork bearing brackets are calculated to support the following:

- Wall consisting of formworks and accessories having height max 6m and width max 2m.
- Wind thrust up to 90 Km/h.
- Permissible weight on each bracket of 8 kN.

CONFIGURATIONS FOR BASES, PLINTHS AND PITS

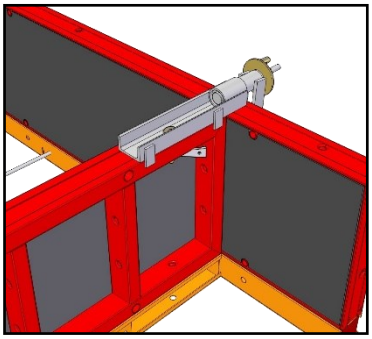
FARESIN equipment, their traditional steel formworks and accessories, can be used to create bases for plinths exactly to the customer's requirements. Bases having the desired measurements can be constructed using the sliding panel stirrup and the base profile. Cores for plinths, pits and similar constructions are realised with a fixed taper internal corner and plate fillers.

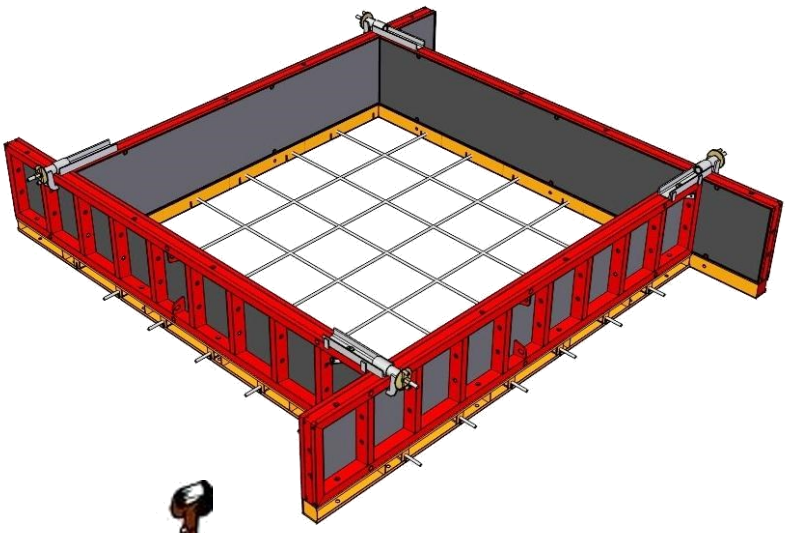


EXAMPLE OF THE CONSTRUCTION OF A PLINTH BASE

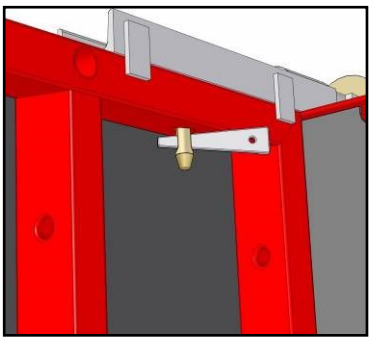
Erect the base structure (using panels, profile for plinth bases and sliding panel stirrups) and the special iron mesh.

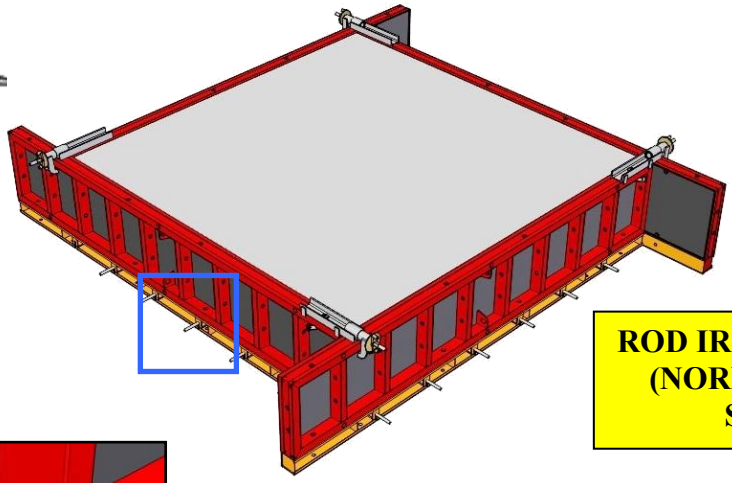
SLIDING PANEL STIRRUP



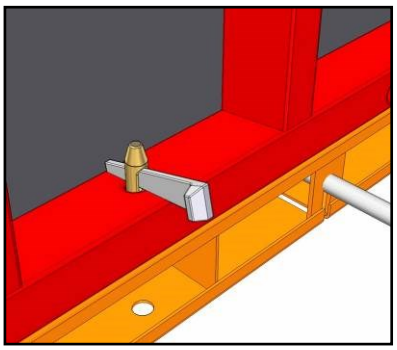


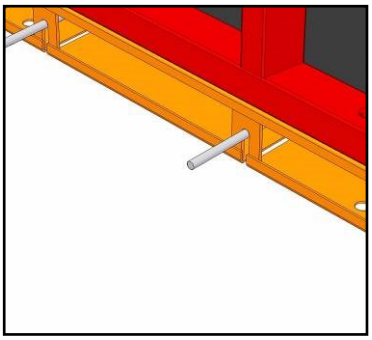
FASTEN THE BRACKET WITH SHORT PIN AND WEDGE.





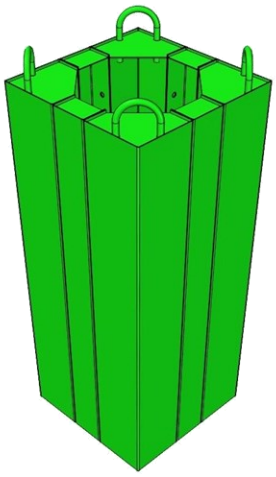
ROD IRON AND TEMPO CLAMP (NORMAL CONSTRUCTION SITE MATERIAL).

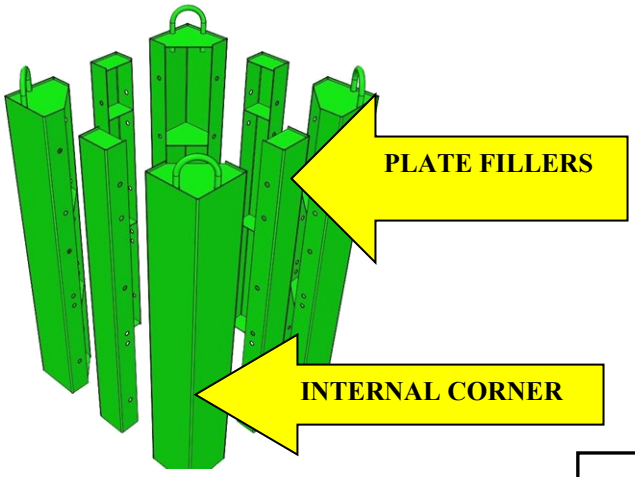


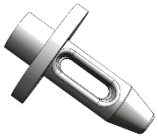


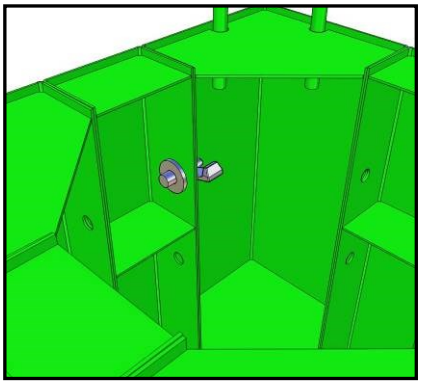
ERECTION OF UPPER INTERNAL UNIT.

Fasten the internal corner and the sheet filler with a special short pin and wedge.





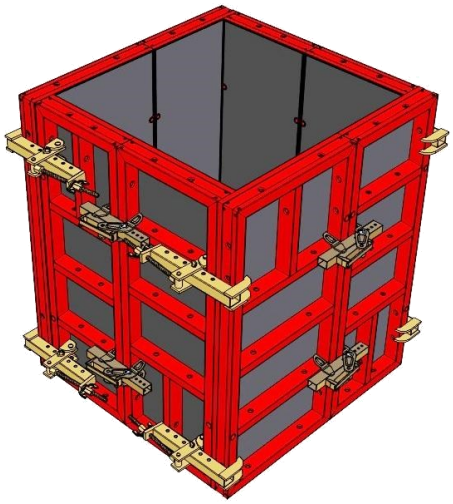




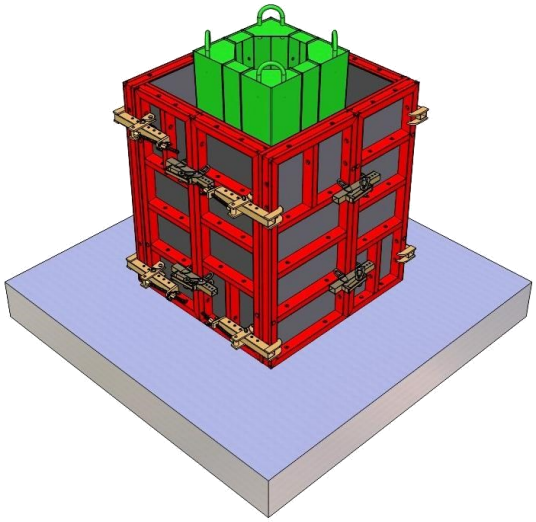
ERECTION OF UPPER EXTERNAL UNIT

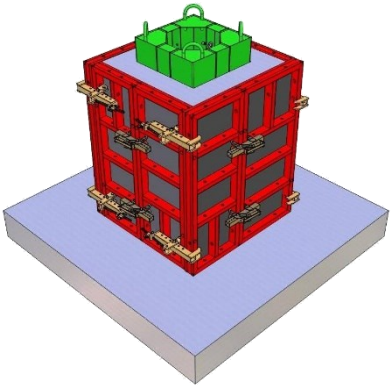
CASE 1

Assemble the external structure with panels, aligner clamps and universal clamps.



Transport the internal and external structure, as described above, and place on top of the concrete base that has just been constructed.



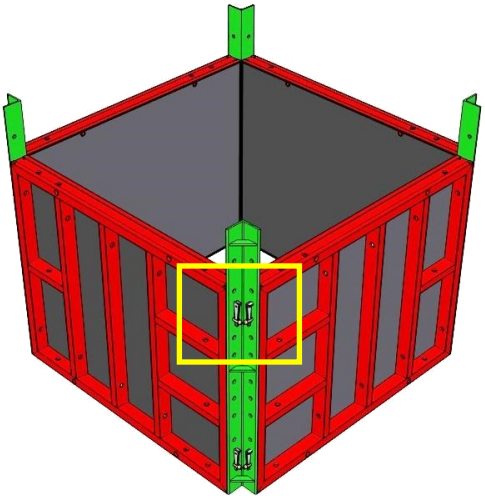


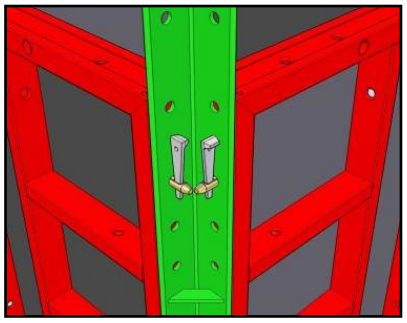
ERECTION OF UPPER EXTERNAL UNIT

CASE 2

Assembly the external structure with panels and fixed corners.

FIXED CORNER 8168142



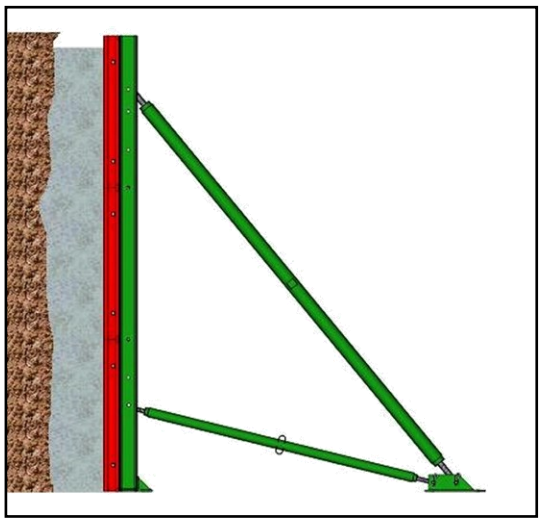


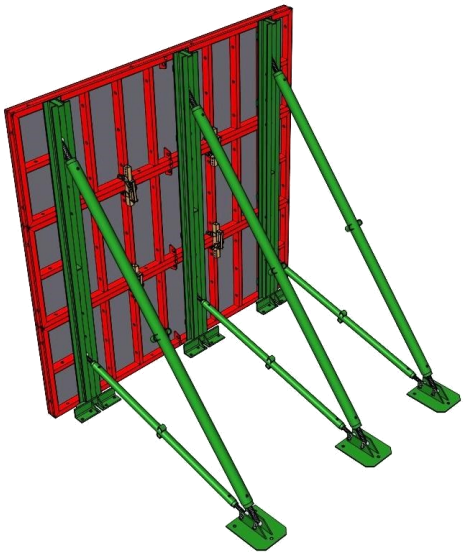
FASTEN THE PANELS AND FIXED CORNERS WITH AN ADJUSTALE SHORT PIN (8168390) AND WEDGE.

FORMWORKS FOR ONE SIDE WALLS

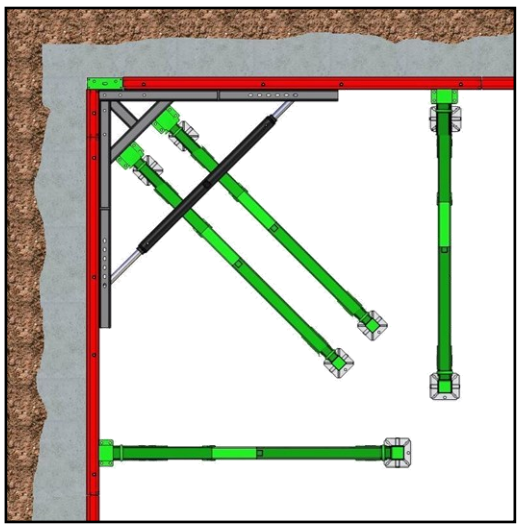
A one side wall is defined as a wall having formworks on one side only, and ground on the other side. To execute these walls, you need panels and either the light one side wall system or the triangular thrust square system.

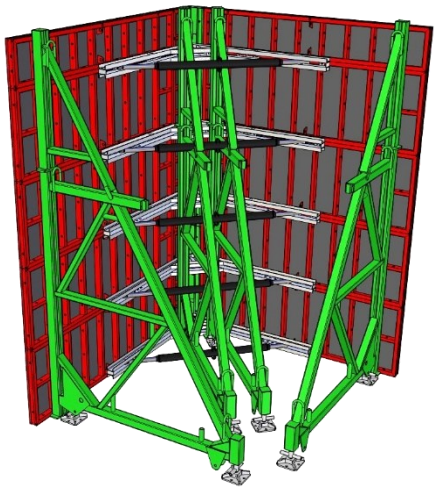
LIGHT ONE SIDE WALL SYSTEM (MANUAL 04.03)





ONE SIDE WALL SYSTEM WITH THRUST TRIANGLE (MANUAL 04.01)





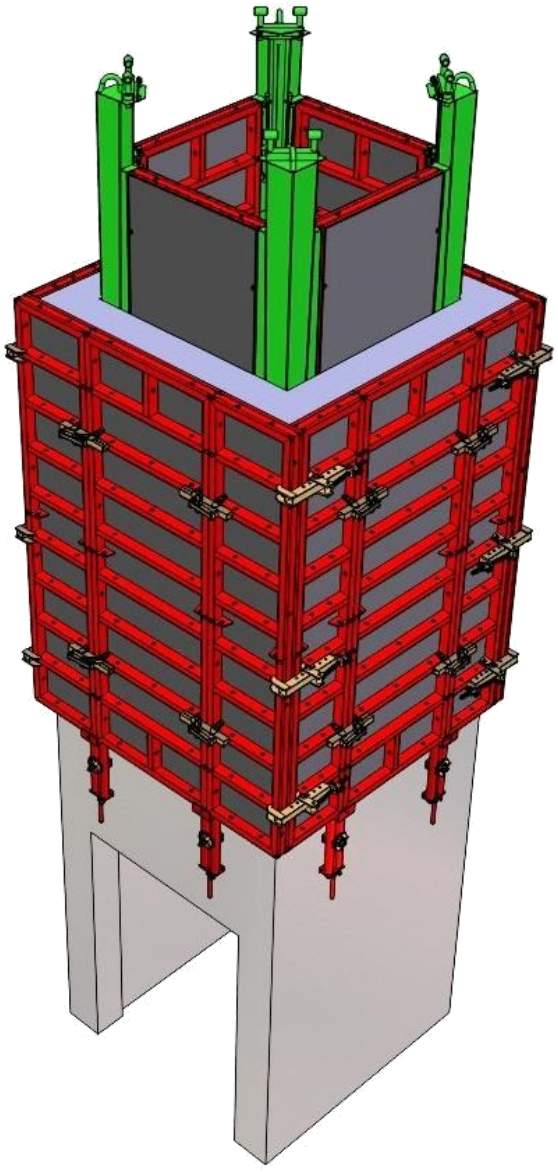
ELEVATOR HOUSING

The elevator housing system consists of MODUL formworks with both 100/120 sections and 4 biconical blocks positioned in the internal corners.

Formworks joined together using traditional methods are used for the external part: clamps or pins with wedge, whereas the universal clamp is used for the corner.

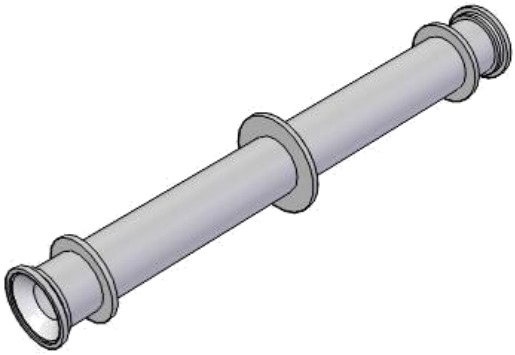
For the next pour simply shift the biconical blocks placed in the corners to facilitate stripping and the next use.

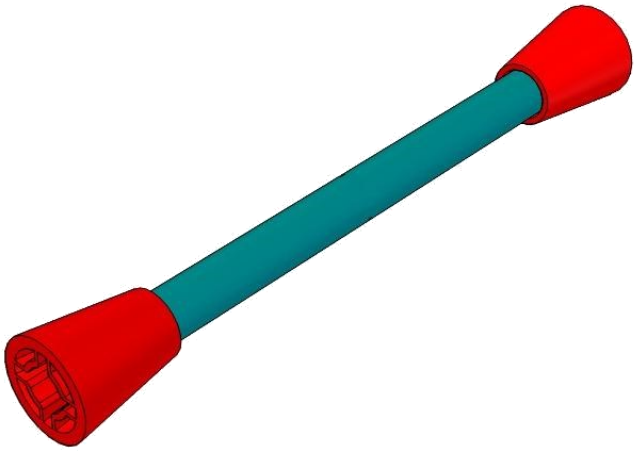
The top pour is made using the formwork bearing brackets mounted on the previously used bar passage hole.



FOR THE ERECTION PROCEDURE WE RECOMMEND YOU CONSULT THE ELEVATOR HOUSING MANUAL.

SPACER



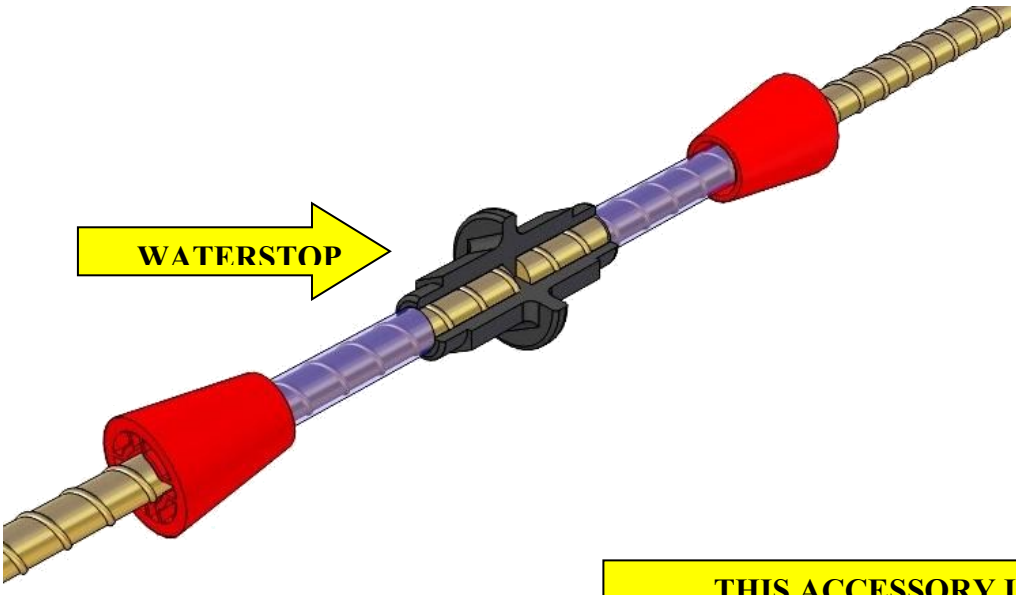


The spacer is simply a PVC pipe that is placed between the two walls to permit removal of the threaded bar during the stripping phase.

The sizes provided are 200-250-300-350-400-500 cm.

For different sizes simply join 1 m long PVC pipes together with a taper plug.

SPACER WITH WATERSTOP FOR WATERTIGHT TANKS

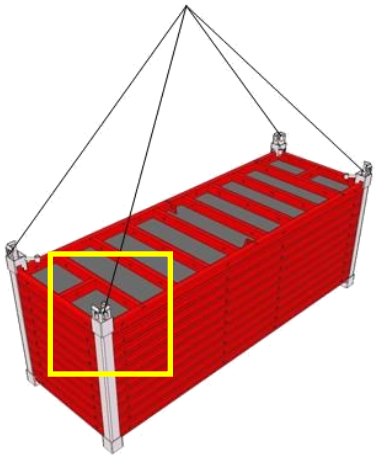


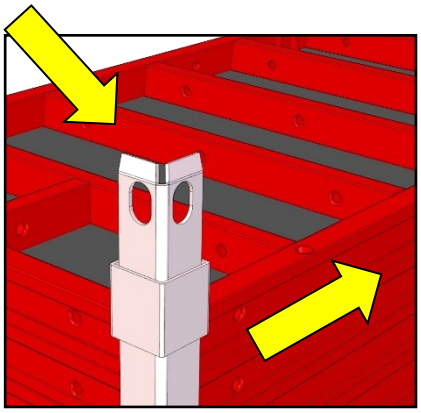
THIS ACCESSORY IS USED WHEN CONSTRUCTING A WATERTIGHT WALL. (E.G. TANKS OR POOLS)

CORNER ELEMENT FOR BOX

The system consists of 4 corner elements that join together for transporting the panels. Each corner has a profile centring system and a locking system.

Moreover, the system is stackable, that is, several containers can be stacked on top of each other.





THE LIFTING ROPES OR CHAINS MUST NOT EXCEED A 60° ANGLE.

TO LIFT THE CONTAINER, INSERT THE HOOKS IN THE HOLE FACING THE LONGITUDINAL DIRECTION AS ILLUSTRATED.

Each group of 4 corner elements is designed to transport the following types and specified number of panels.

TYPE OF PANEL	N° OF ELEMENTS
PANEL 300100F	10
PANEL 300100°	10
PANEL 30010012F	8
PANEL 30010012°	8
PANEL 300200F4B	5
PANEL 30020012F	4
PANELS FOR ROAD WORKS	10
PANELS FOR POKER COLUMN	10
PANELS FOR ALUMINIUM COLUMN	10

The container must only be used when all four corner elements are present and correctly locked.

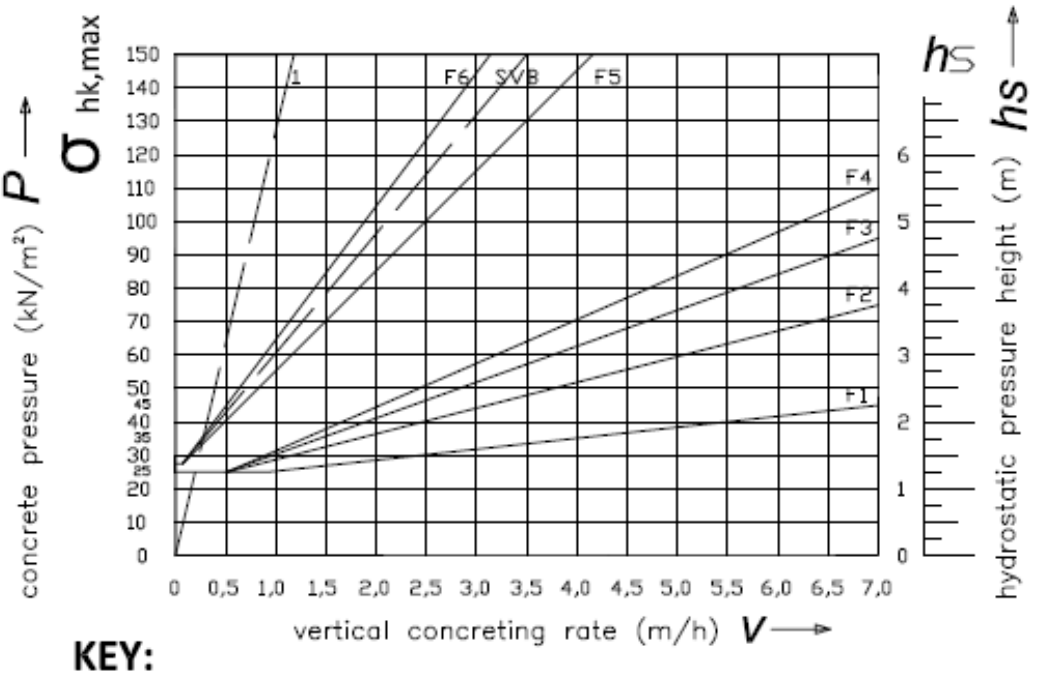
HANDLING MATERIAL ON THE CONSTRUCTION SITE

We recommend carrying out material loading and unloading operations and any other moving operation with the utmost care to prevent panels and/or accessories from falling out of the containers. Check the slinging arrangement of the panels before loading or unloading to ensure they will not slip or fall.

CONCRETE CASTING

Now you can proceed with the concrete casting, compacting it inside the formworks. The actions executed by the concrete on the formwork depends on the concrete rise speed rate. The pressure of the fresh concrete, in relation to its consistency and pour speed, can be determined in accordance with DIN 18218:2010-01 from the following chart.

DIAGRAMS TO DETERMINE THE MAXIMUM VALUE OF LATERAL FRESH CONCRETE PRESSURE
Pressure based on DIN18218:2010-01



KEY:

1= hydrostatic up to te
SVB= german abbreviation for SCC
t_e = 5h
y_c = 25 kN/m³
maximum value of fresh concrete pressure σhk, max in kN/m²
placing rate *v* in m/h
hydrostatic pressure head *hs* in m

Concrete pressure depends on several technical aspects. It is in charge of the user to verify the compliance between concrete pressure and formwork.

It is the responsibility of each operator on the building site to evaluate every single situation, if necessary by referring to the documentation provided by the manufacturer or asking him for

assistance to guarantee that the maximum pressures in the elements do not exceed those indicated in this manual.

Pls. remember that the vibration action must be executed only to the concrete, and that the vibrator needle must absolutely not come in contact with the formwork.

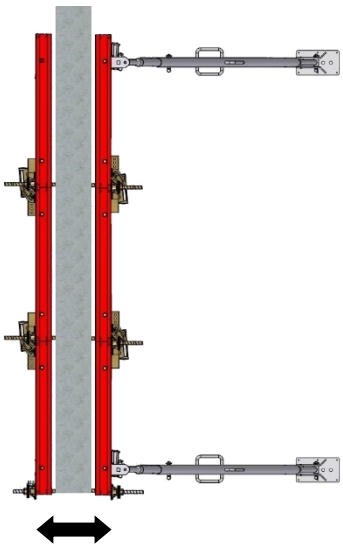
The elevation casting inside the formworks must be made successive uniform layers along the entire length of the formwork.

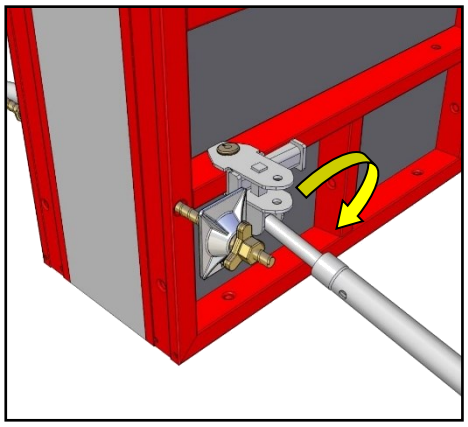
STRIPPING

⚠ **Stripping operations can only be executed after the concrete has reached sufficient compressive strength to support its own weight and that of any temporary structures tied to it, and in any case in accordance with the prescriptions set out in the project documents.**

LOOSENING

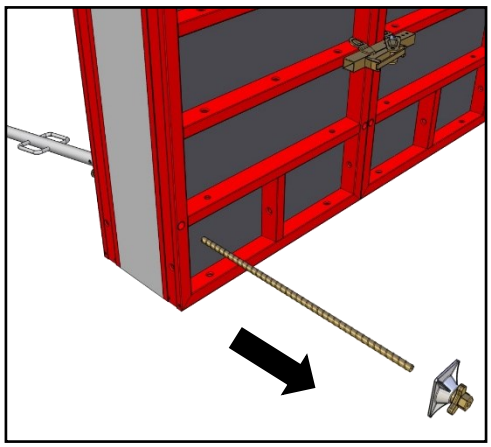
Loosen the nut plates of the entire sector that was filled with concrete, to allow the formwork to detach slightly from the consolidated concrete.





REMOVAL OF THE TIE RODS

Remove all the plates and ties from the bar holes except for one or two (depending on the size of the sector) for each wall sector to be removed.



Before extracting the threaded bars always make sure that all the formwork sections are fixed to the walls or to the plumbing rods or to the lifting hooks to ensure that there is no possibility of them falling accidentally and thereby being a safety hazard for workers.

OPENING THE FORMWORK

SECOND WALL

Begin the stripping process by removing the second wall, clean it and place it vertically in the storage areas provided on the construction site to safeguard worker safety. Otherwise remove the first wall and secure the second to the wall with tie rods and plates (if there are several shuttering sections for each face), clean it and place it in position in another part of the wall to be constructed, and so on until a whole facade is completed. If the wall section is not suitable for the new use, changes to its elements must be made exclusively on the surface provided for the assembly.

FIRST WALL

Proceed in the same way as described above: dismantle the first wall, or use the second wall after removing it from the concrete walls and from the adjacent section - but only after it has been attached to the crane with lifting hooks - then place it in position in another section of wall to be constructed, and so on until the second facade has been completed.

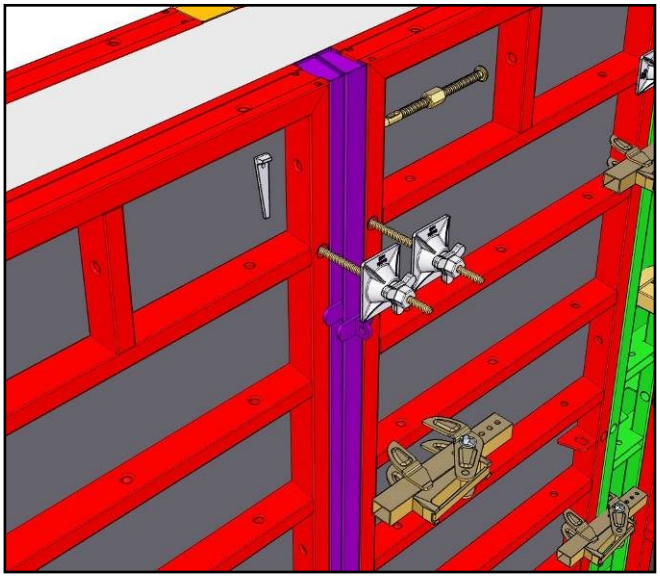
CLEANING

Each time before using or assembling a formwork thoroughly clean both the timber and the steel parts, particularly the edges of the panels as they are the panel joining points.

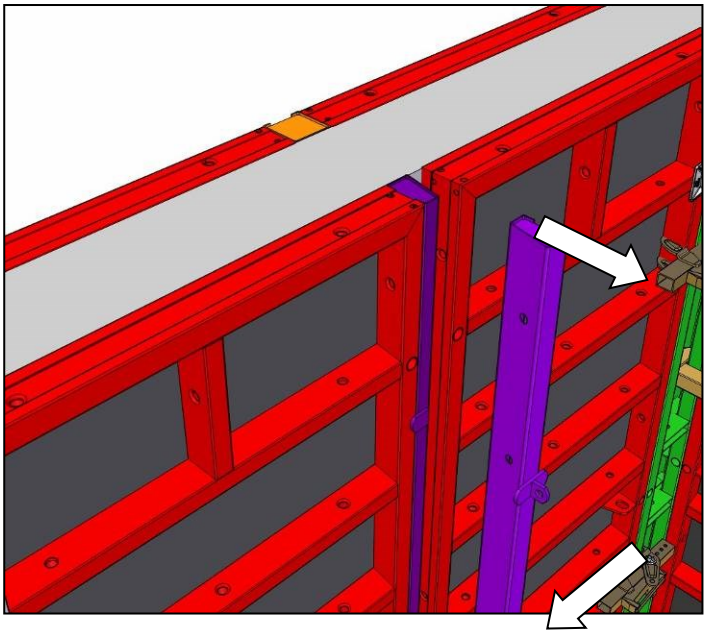
When the works are finished, before placing the material in storage, apply a uniform film of stripping oil to preserve the wood mantle over time.

STRIPPING A U-SHAPED WALL

Begin stripping a U-shaped wall by dismantling the stripping block that is normally placed in the internal wall.



REMOVE ALL THE LOCKING ACCESSORIES (ALIGNER CLAMP, NUT PLATE, ADJUSTABLE PIN AND WEDGE) FROM THE STRIPPING BLOCK.



SLIDE OUT THE FIRST HALF OF THE STRIPPING BLOCK BY PULLING ON THE EYELETS.

CONTINUE TO DISMANTLE THE ENTIRE WALL

MAINTENANCE

INSPECTION INSTRUCTIONS

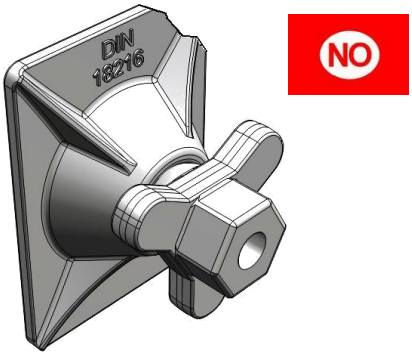
ONLY FAULT-FREE MATERIALS MAY BE USED ON BUILDING SITE.

Every components and accessories of system Modul S120 must be checked regularly during their entire period of use. Inspections are grouped into checks to be carried out before every work cycle and routine inspections.

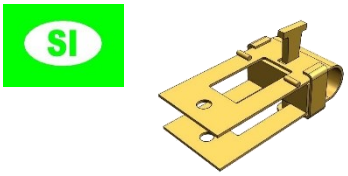
Checks before every work cycle:

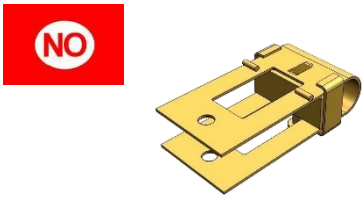
Before assembling system, ensure the following:

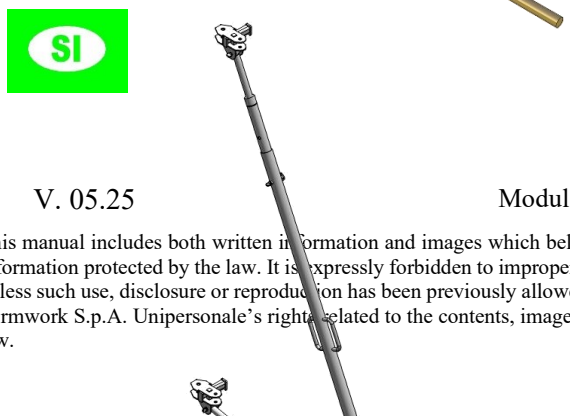
- All elements are in good conditions without any damage caused by knocks, bends, abrasions , corrosions, excessively hard work conditions, etc;

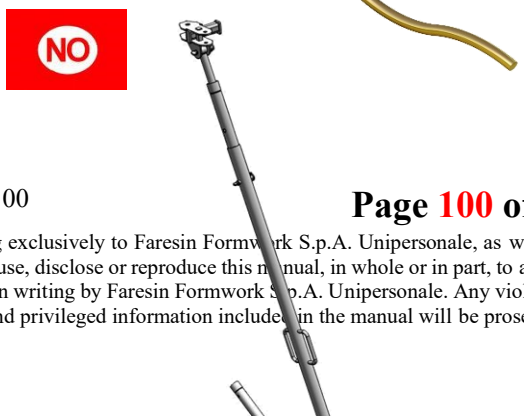


- All elements are complete with all their accessories, nuts and bolts and anything else required, that they are the correct type and there is an adequate number to ensure the correct assembly and use of the system Modul S120.









Inspections before every work cycle must be carried out by the SITE MANAGER or by an adequately skilled and expert person appointed by the site manager before the elements are used.
The inspections before every work cycle and the inspection to ensure every element has been installed correctly, must be entered in the "work logbook". The inspections must have a positive result before the devices can be used.

Routine inspections:
At least once a year, inspections must be carried out to ensure the following:

- All elements are in good conditions, without any damage or deformed due to knocks, bends, abrasions, corrosions, excessively hard work conditions etc...;
- All elements are complete with all their accessories, nuts and bolts and anything else required, that they are the correct type and there is an adequate number to ensure the correct assembly and use of the system Modul S120;
- The anti-corrosion proofing is in good condition and able to guarantee the lifetime of the elements;
- The connections are efficient and functional for their use.

The routine inspections must be carried out the OWNER or by an appropriately skilled and expert person appointed by the owner. Once the inspection has been carried out, a report must be drawn up and enclosed with the documentation accompanying the products.
IF ANY FAULTY OR DAMAGED ELEMENTS IS FOUND, IT MUST BE RETURNED TO THE PRODUCER IMMEDIATELY.

INSPECTION PROCEDURE

The inspection procedure includes at least a visual inspection of all elements and a functional running test. A more in-depth checkup can be carried out at the inspector's discretion. A more in-depth inspection must be carried out if there is any hint of an anomaly.
The inspection must include at least the following:

Visual check:

- The presence of all parts for correct assembly, including all accessories required for connections (bolts, pins, nails, etc...);
- The presence of any deformations, abrasions, misalignments, twisting or any other defects;
- Wear and corrosion, especially on threaded elements;
- Dimensional inspection of the elements;
- The presence of cracks on welds or elements.

Functional running test:

- Efficiency of connecting devices;
- Ease of movement of moving parts (couplings, connections, etc...).

The tests must be recorded in a register with the following data: date, place, type and number of elements checked, deformities found, eliminated elements, name and position of the inspector.

GENERAL SAFETY REGULATIONS

To guarantee an adequate degree of safety during the use of the products, bear in mind that common safety protections have the priority over individual safety.

Personal protection equipment (PPE) is an integral part of (and do not replace) temporary works and work regulations and instructions.
As regards the information below, it is understood that all equipment used during the work processes must comply with the standards in effect.

⚠ **Promptly remove from the construction site any elements or accessories which are obviously faulty (damaged, bent, cracked, etc.) to prevent them from being used.**

THE USE OF PERSONAL PROTECTION EQUIPMENT (P.P.E.)

Wear safety gloves to protect your hands, wear safety footwear, suitable work garments, wear a safety helmet and suitable safety equipment to protect yourself from falls from a height during every handling, assembly and use procedure involving formworks MODUL S120.

Handling, assembly and disassembly of the system Modul S120 involve the risk of knocks against heavy and blunt objects. Therefore, these procedures must be carried out by personnel equipped with suitable personal protection equipment such as gloves, a safety helmet and safety footwear.

Protect yourself from falls from heights by wearing a safety belt fastened to points able to guarantee enough support during any work procedures carried out at a height and especially when assembling or disassembling the system.

When pouring concrete wear suitable garments, safety footwear, goggles, gloves and whatever else is provided for in the safety plan.

⚠ Comply strictly with the instructions contained in this manual when using all elements of system Modul S120. The elements manufactured by Faresin Formwork are used in construction sites governed by specific safety standards and regulations.

As regards anything not specifically mentioned in this manual, refer to the most recent safety standards in effect in each country.

STANDARD REFERENCES

As regards anything not specifically mentioned in this manual, refer to the most recent safety standards in effect in each country.

Deutsche Norm DIN 18202: 2013-04
“TOLERANZEN IN HOCHBAU – BAUWERKE” (TOLERANCES IN BUILDING CONSTRUCTION)

Deutsche Norm DIN 18218: 2010-01
“PRESSURE OF FRESH CONCRETE ON VERTICAL FORMWORK”

Euro Codice 3 (UNI_ENV 1993-1-1) ed. 1994
“Eurocode 3 - Design of steel structures - General rules and rules for buildings.”

UNI_ENV 1995-1-1
“Eurocode 5 - Design of steel structures. Part 1-1: General rules and rules for buildings.”

EN 338
“Structural Timber – Strength classes.”

PrEN 13374
"Temporary edge protection systems - Product specification, test methods"

PrEN 12811-1
"Temporary works equipment -Part 1 : Scaffolds - Performance requirements and general design"

D.M. 16.01.1996
“Criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi"

Circ.M.LL.PP. 04.07.1996
“Istruzioni per l'applicazione delle norme tecniche relative ai criteri generali”

The main Italian standards regarding safety in construction sites are the following:

Ministry of Infrastructure and Transport - D.M. 14-01-2008
“Nuove norme tecniche per le costruzioni”

Italian Presidential Decree 164/56
“STANDARDS FOR THE PREVENTION OF ACCIDENTS IN THE WORKPLACE IN BUILDINGS"

Italian Decree law 494/96 – 528/99
“IMPLEMENTATION OF DIRECTIVE 92/57/EEC REGARDING THE MINIMUM SAFETY AND HEALTH REQUIREMENTS ON TEMPORARY OR MOBILE CONSTRUCTION SITES"

Italian Decree Law 626/94
“IMPLEMENTATION OF DIRECTIVES 89/391/EEC, 89/654/EEC, 89/655/EEC, 89/656/EEC, 90/269/EEC, 90/394/EEC REGARDING THE IMPROVEMENT OF HEALTH AND SAFETY OF WORKERS IN THE WORKPLACE” and subsequent integrations and modifications.

Italian Decree Law 8 July 2003, n. 235
"IMPLEMENTATION OF DIRECTIVE 2001/45/EC REGARDING THE MINIMUM HEALTH AND SAFETY REQUIREMENTS FOR THE USE OF WORK EQUIPMENT BY WORKERS"

Italian Decree Law 81/08
"UNIC TEXT FOR SAFETY AND HEALTH"

These standards include general indications and regulations, which must also be applied when using FARESIN FORMWORK products.
This manual integrates the standards and regulations that must be applied autonomously.

⚠ **We would like to point out that pursuant to Italian Presidential Decree 164/56, temporary reinforcements for large-scale works must be carried out on the basis of a plan drawn up by an engineer or architect and which must include the relative stability calculations. Before installing reinforcements or ribs it is also compulsory to ensure that the ground or structures they will stand on are strong enough to support them to prevent any yielding.**

⚠ **Faresin Formwork disclaims all responsibility to things or people due to an improper use of the supplied products and due to any kind of different use of them from what indicated inside this manual.**

May 2025

TOGETHER WE BUILD THE WORLD

GET IN TOUCH

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