



# GEOPANEL STAR



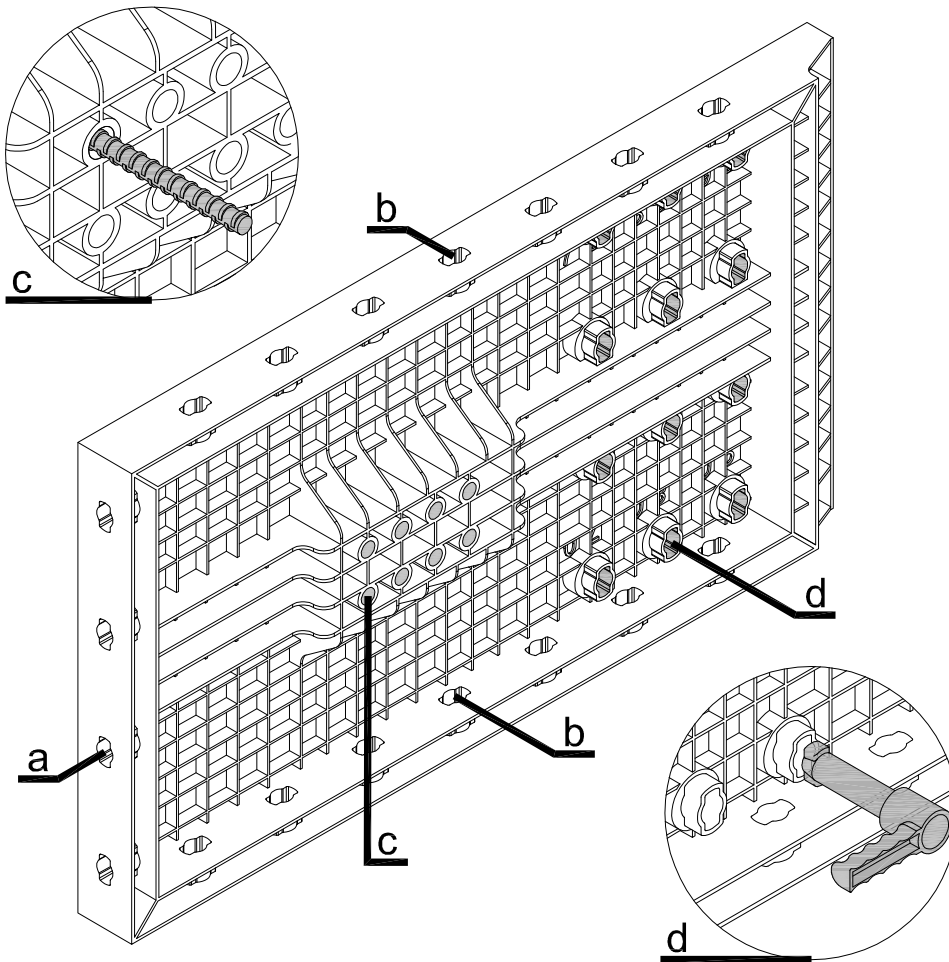
**MANUALE TECNICO**   
**TECHNICAL MANUAL** 

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MANIGLIA	HANDLE	TAPPO Ø25mm	CAP Ø25mm	TAPPO Ø43mm	CAP Ø43mm	ROSETTA	ANCHOR NUT	BARRA RULLATA	TIE ROD	DISTANZIATORE	SPACER		
SMUSSO PER ANGOLI	CHAMFER EDGE PROFILE	SNODO STABILIZZATORE	BRACE CONNECTOR	PIASTRA STABILIZZATRICE	CONNECTOR PLATE	PERNO Ø10 CON COPIGLIA	PIN Ø10 WITH R-CLIP	STAFFA D'ANCORAGGIO	FIXING BRACKET				
BARRA ALLINEATRICE FUN2000				ALIGNEMENT BAR FUN2000				GANCIO DI SOLLEVAMENTO LIFTING HOOK		CATENA CHAIN		PUNTELLO TIRA / SPINGI PUSH / PULL PROP	

	<b>GOPANEL STAR 20/60</b>	<b>GOPANEL STAR 25/65</b>	<b>GOPANEL STAR 70/100</b>	
DIMENSIONI UTILI LATI PILASTRI				COLUMNS SIZE (cm)
FORI BARRE RULLATE	<b>GOPANEL STAR 20/60</b>	<b>GOPANEL STAR 25/65</b>	<b>GOPANEL STAR 70/100</b>	TIE RODS HOLES (cm)

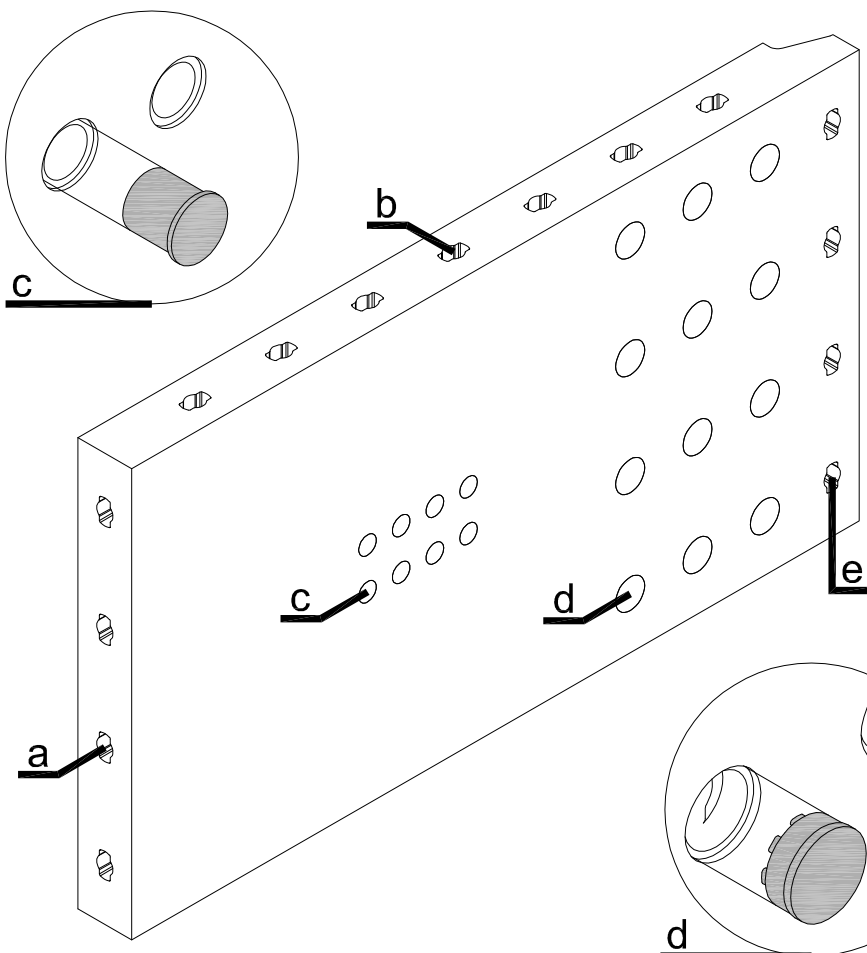


VISTA ESTERNA PANNELLO

- a - fori laterali per maniglie
- b - fori superiori per maniglie
- c - fori per barre rullate
- d - fori trasversali per maniglie

PANEL - OUTER SIDE VIEW

- a - side holes for panels
- b - upper holes for handles
- c - holes for tie-rods
- d - handle holes for orthogonal connection



VISTA INTERNA PANNELLO

- a - fori laterali per maniglie
- b - fori superiori per maniglie
- c - tappi Ø 25 per fori barre rullate
- d - tappi Ø 45 per fori maniglie
- e - fori trasversali per maniglie

PANEL - INNER SIDE VIEW

- a - side holes for handles
- b - upper holes for handles
- c - Ø 25 mm cap holes for tie-rods
- d - Ø 45 mm cap for handle holes
- e - handle holes for orthogonal connection

*GUIDA ALLA CONSULTAZIONE:*

- FASE 1: CONSULTARE LA TABELLA -A-  
date le misure dei lati, individuare la tipologia di pilastro da realizzare (tipo A-B-C-D-E-F).
- FASE 2: CONSULTARE LA TABELLA -B-  
data la tipologia di pilastro da realizzare, individuare i prospetti nella planimetria (tipo P1-P2-P3).
- FASE 3: CONSULTARE LA TABELLA -C-  
dati i prospetti, individuare la posizione delle barre allineatrici e delle rosette per singolo prospetto.

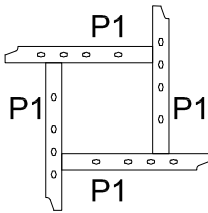
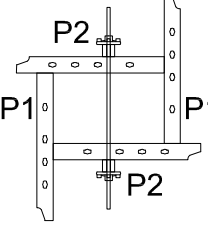
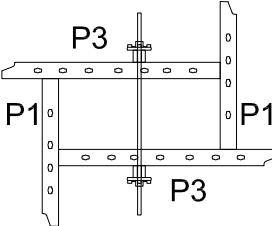
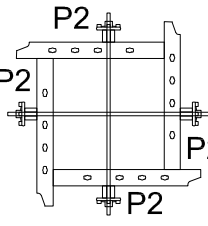
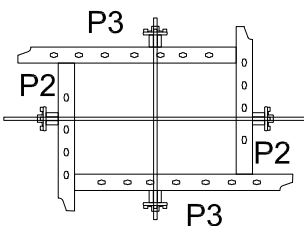
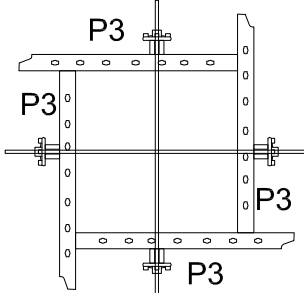
*HOW TO READ THE CHARTS:*

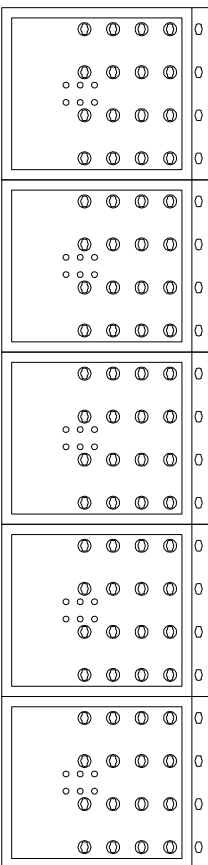
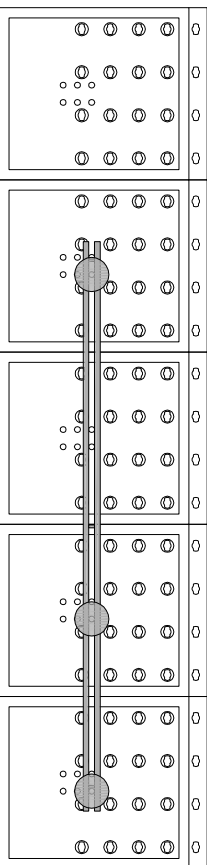
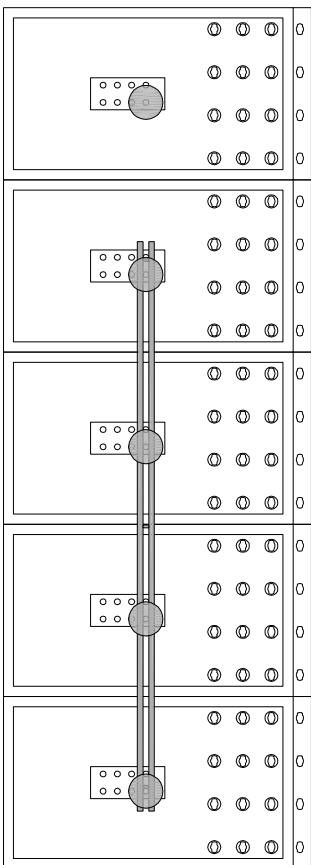
- STEP 1: REF. CHART -A-  
given the column size, find the applicable configuration (types A-B-C-D-E-F).
- STEP 2: REF. CHART -B-  
based on the column to be formed, search for the type combination applicable (types P1-P2-P3).
- STEP 3: REF. CHART -C-  
given the side type, check the position of the alignment bars and anchor nut for each side (types 1-2-3).

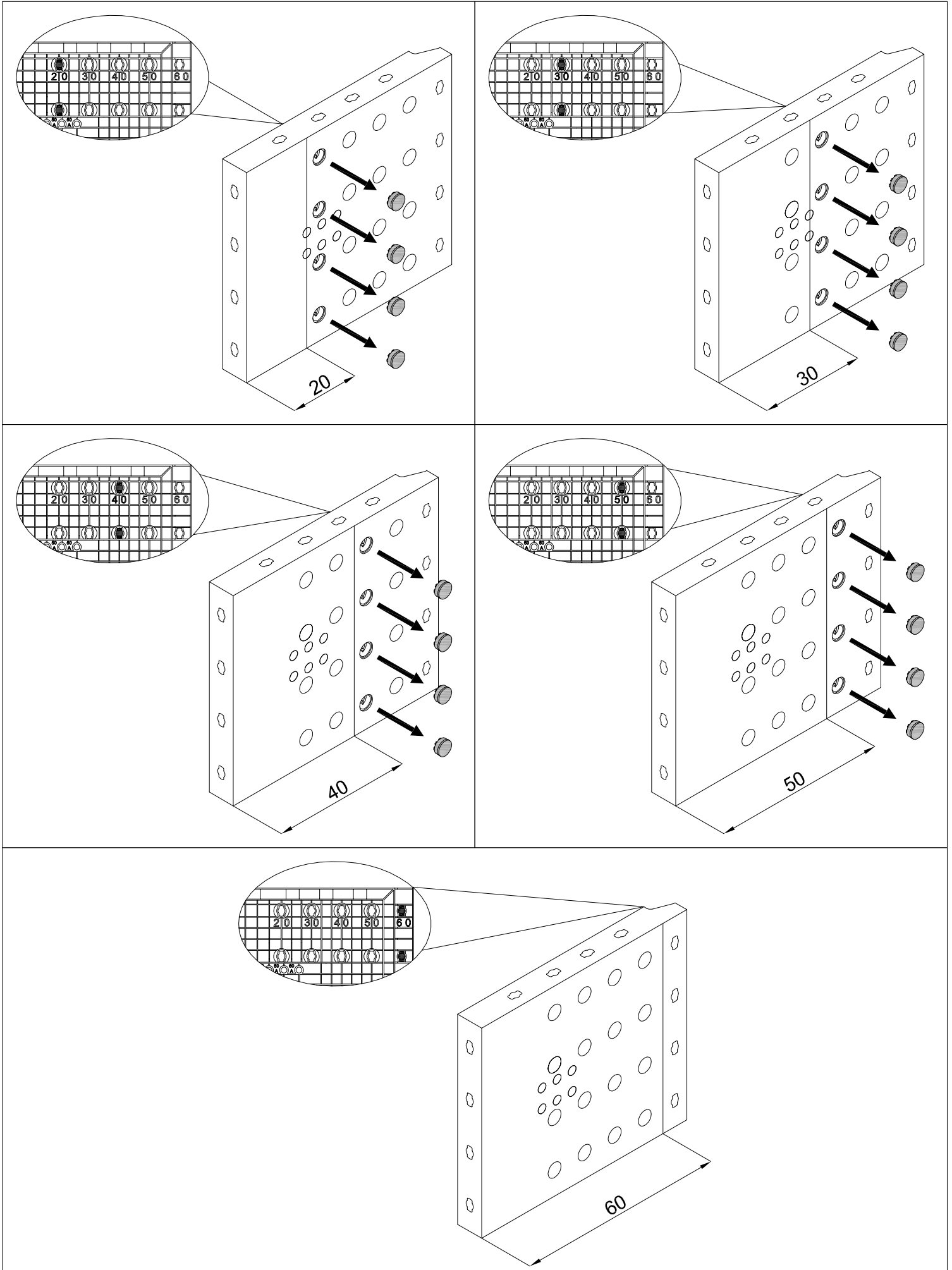
TABELLA A

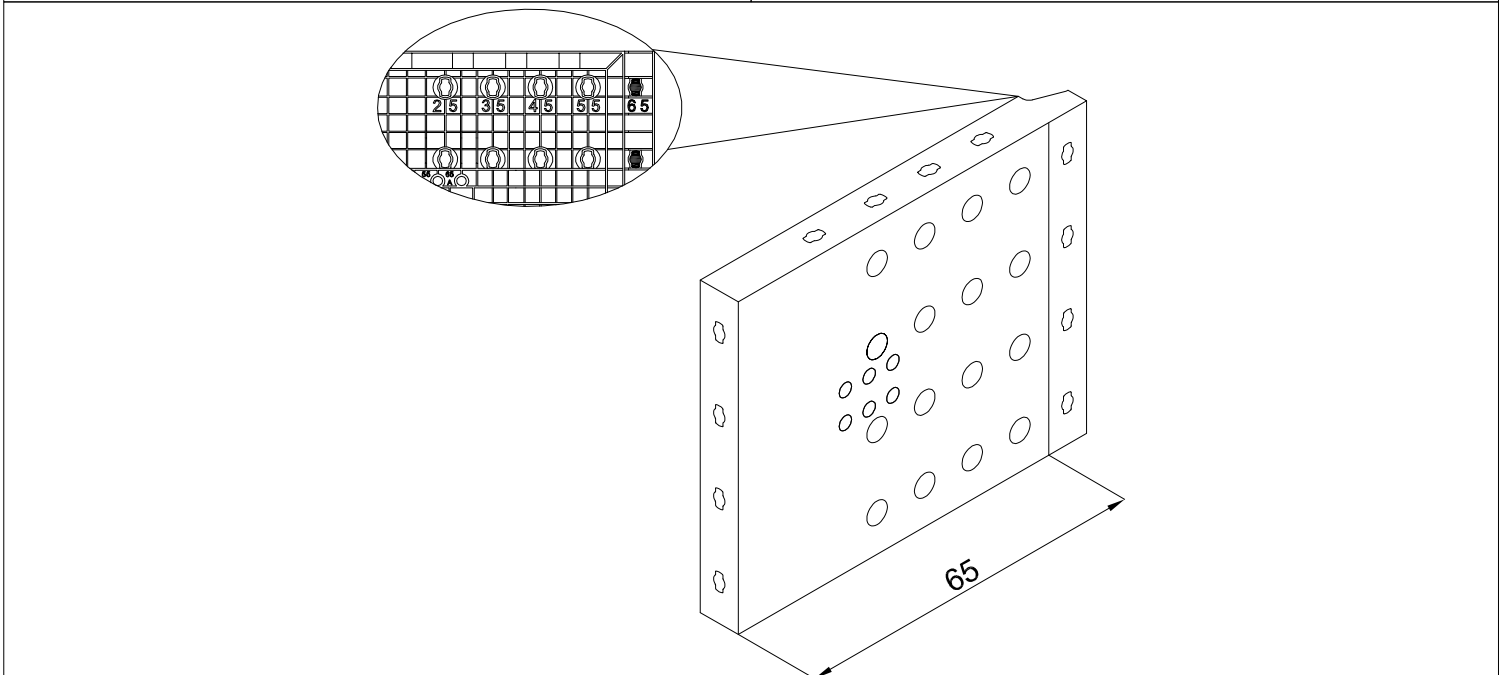
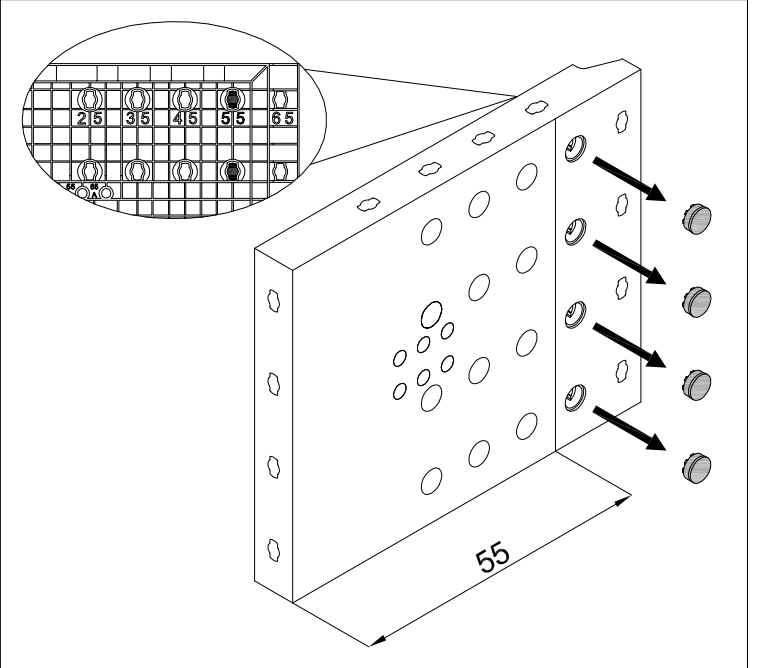
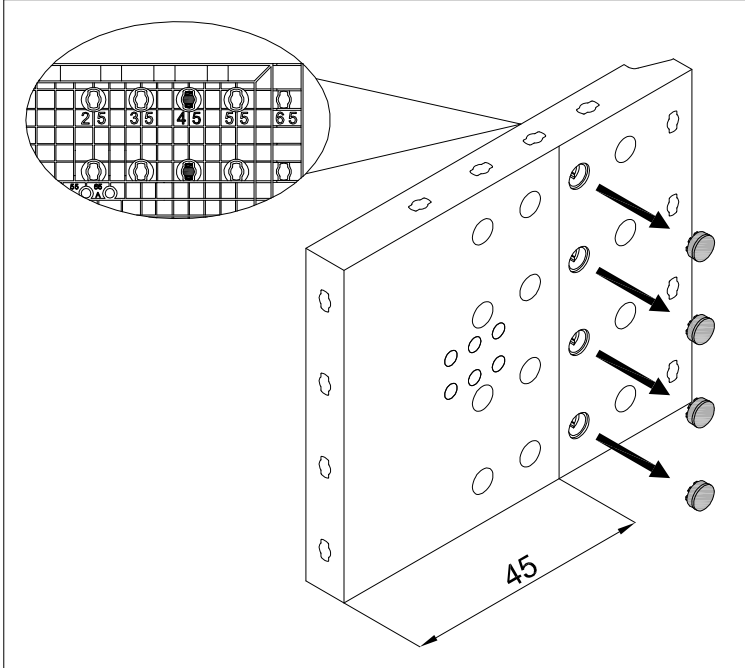
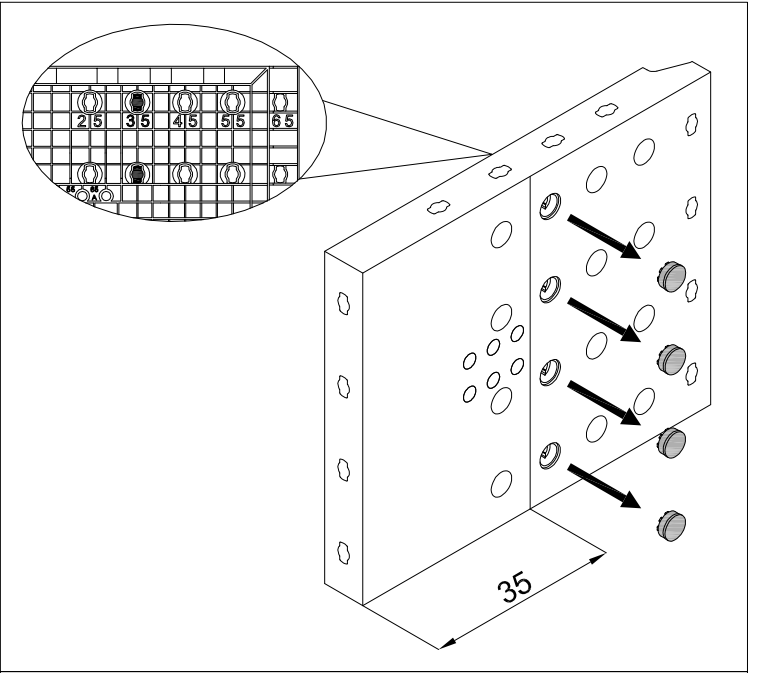
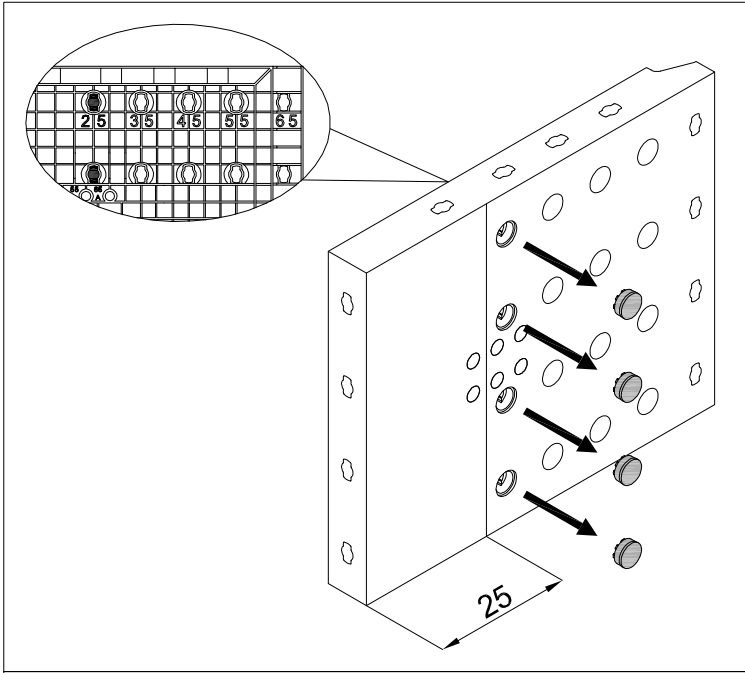
CHART A

cm	20	25	30	35	40	45	50	55	60	65	70	80	90	100	cm
20	A	A	A	A	A	B	B	B	B	B	C	C	C	C	20
25		A	A	A	A	B	B	B	B	B	C	C	C	C	25
30			A	A	A	B	B	B	B	B	C	C	C	C	30
35				A	A	B	B	B	B	B	C	C	C	C	35
40					A	B	B	B	B	B	C	C	C	C	40
45						D	D	D	D	D	E	E	E	E	45
50							D	D	D	D	E	E	E	E	50
55								D	D	D	E	E	E	E	55
60									D	D	E	E	E	E	60
65										D	E	E	E	E	65
70											F	F	F	F	70
80												F	F	F	80
90													F	F	90
100														F	100
cm	20	25	30	35	40	45	50	55	60	65	70	80	90	100	cm

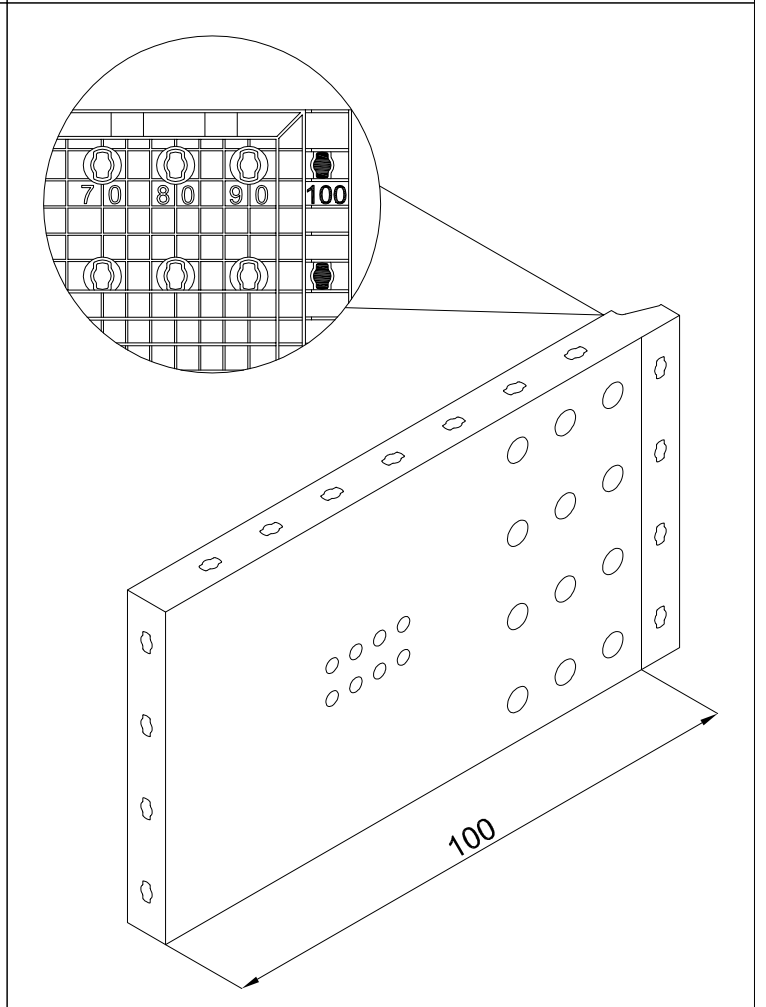
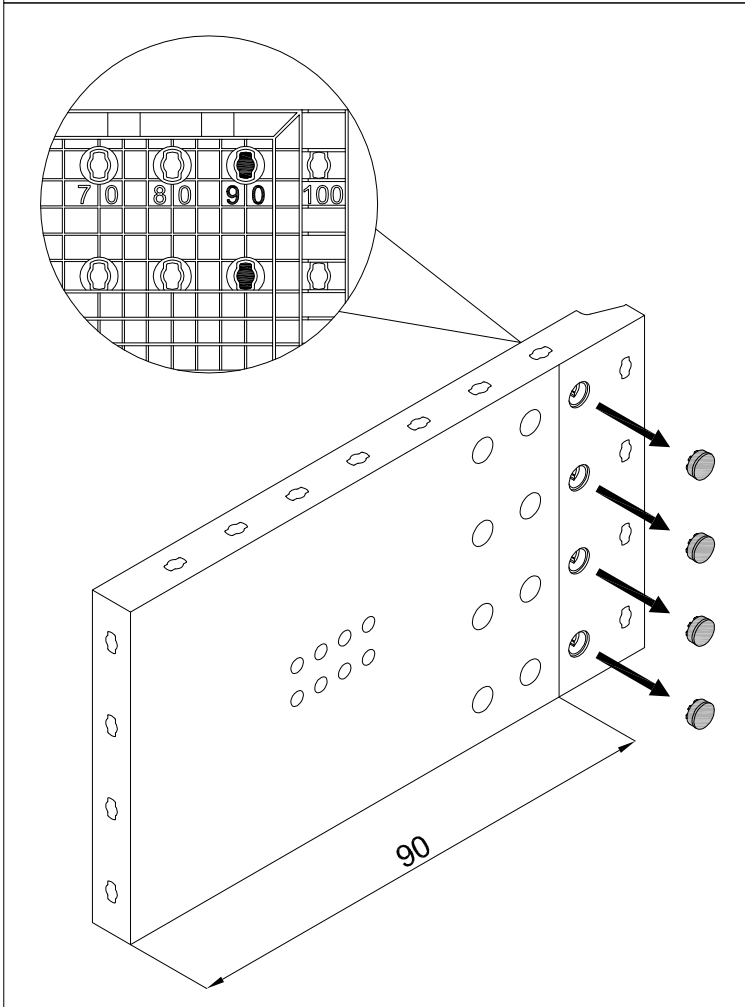
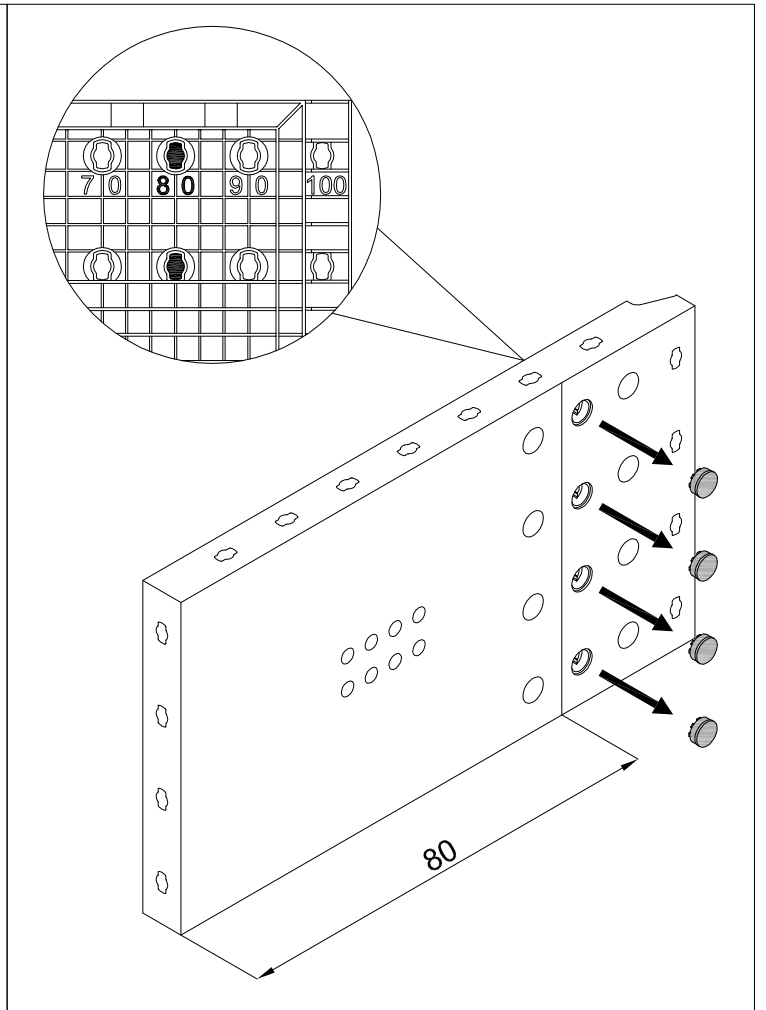
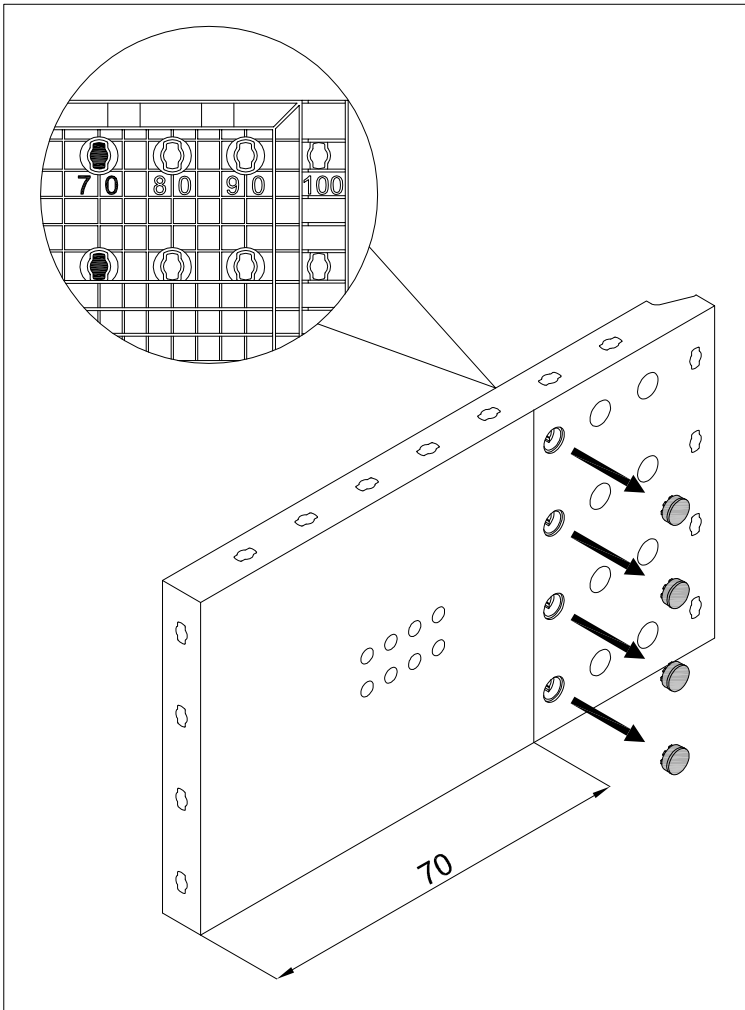
<p>PILASTRO TIPO <b>A</b> COLUMN TYPE</p> 	<p>PILASTRO TIPO <b>B</b> COLUMN TYPE</p> 
<p>PILASTRO TIPO <b>C</b> COLUMN TYPE</p> 	<p>PILASTRO TIPO <b>D</b> COLUMN TYPE</p> 
<p>PILASTRO TIPO <b>E</b> COLUMN TYPE</p> 	<p>PILASTRO TIPO <b>F</b> COLUMN TYPE</p> 

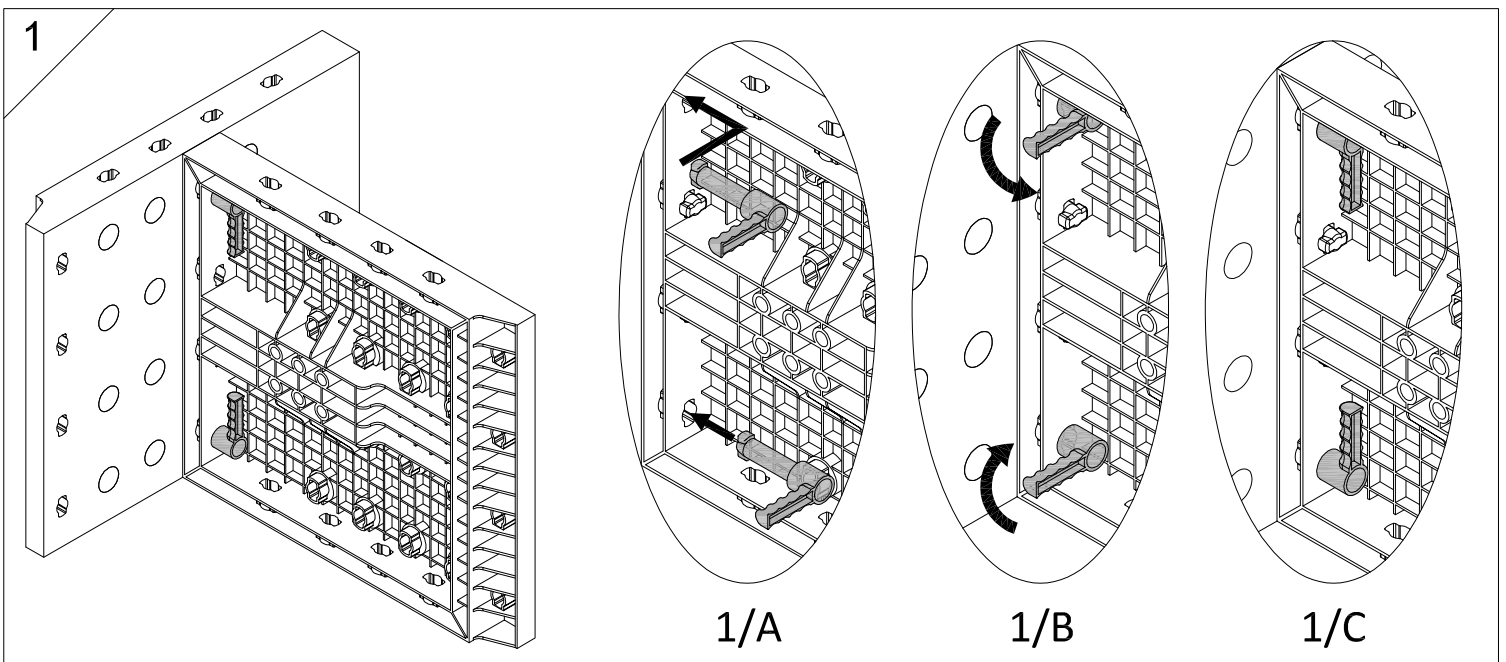
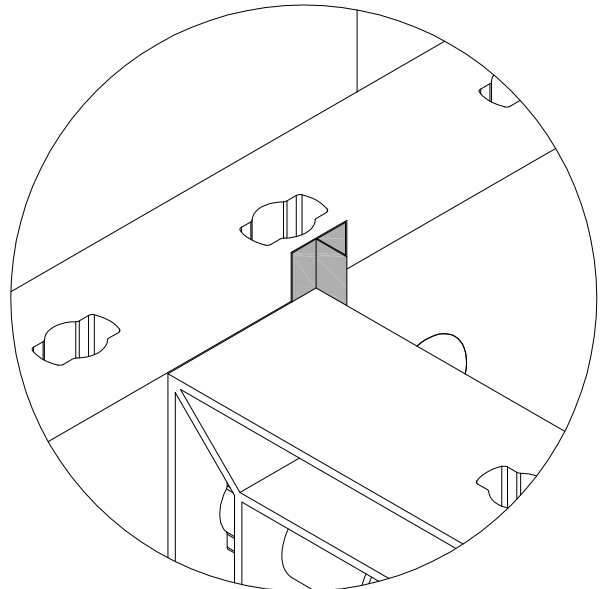
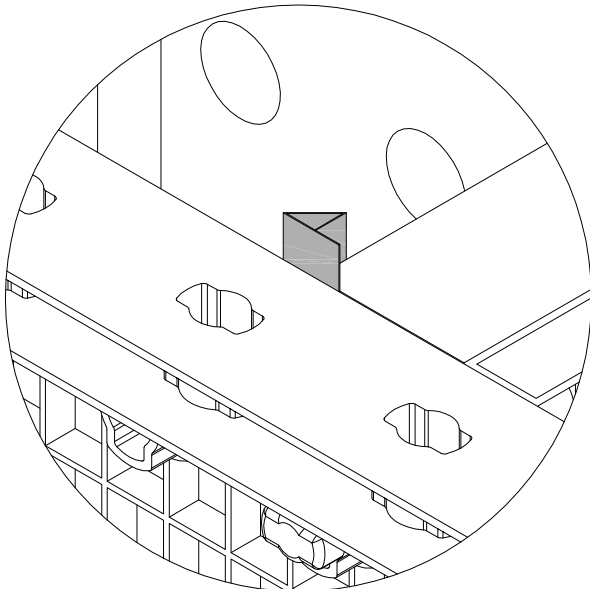
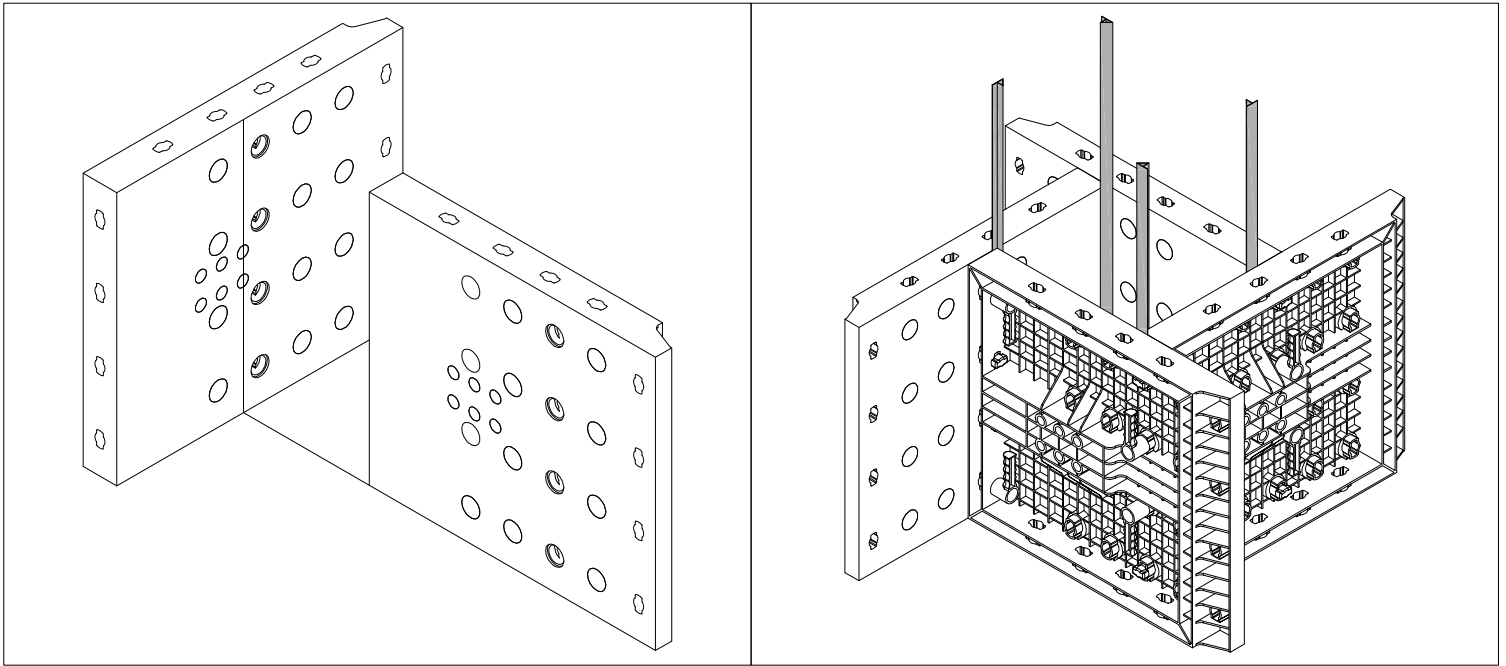
PROSPETTO P1	PROSPETTO P2	PROSPETTO P3
		
SIDE TYPE P1	SIDE TYPE P2	SIDE TYPE P3



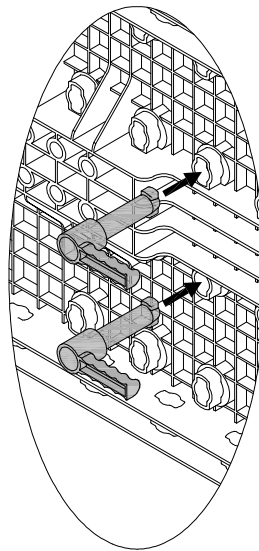
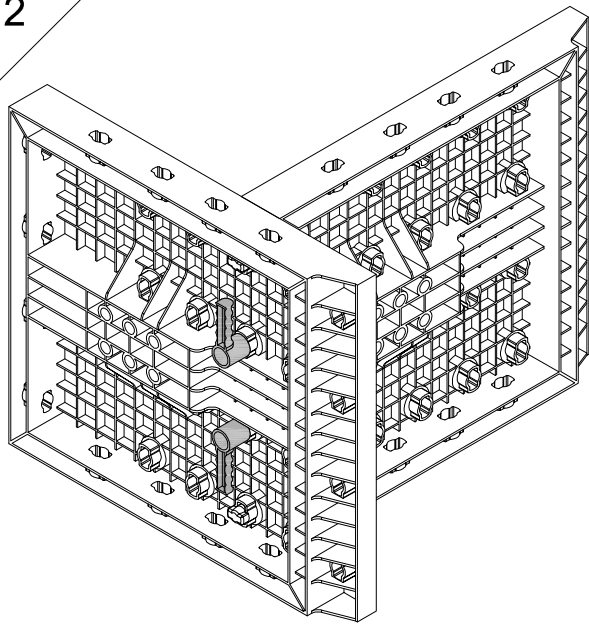




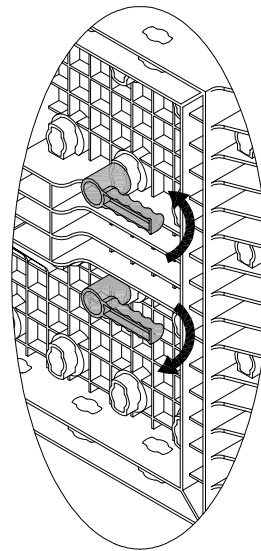




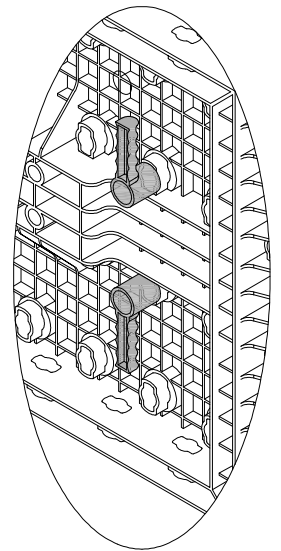
2



2/A



2/B

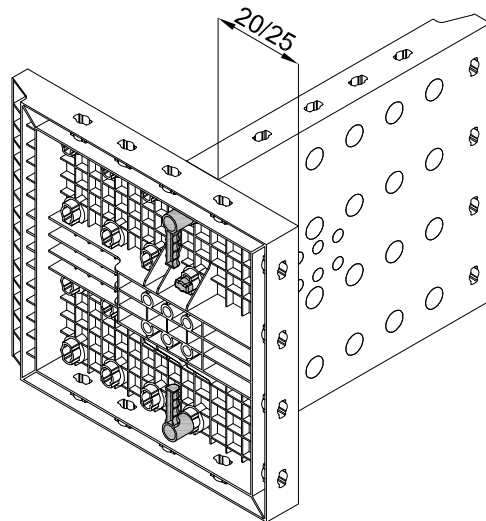


2/C

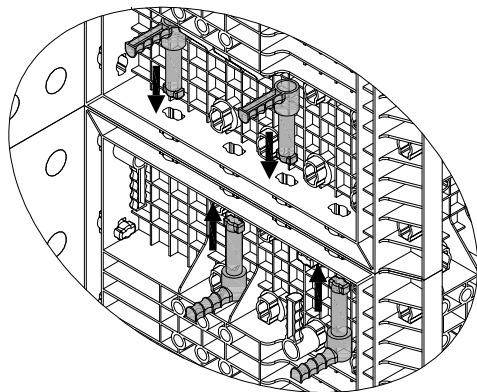
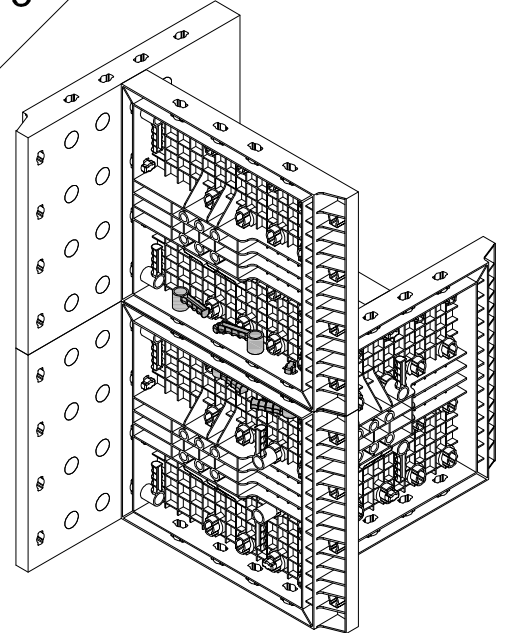


POSIZIONE MANIGLIE:  
SOLO PER LATI  
DA 20-25 cm

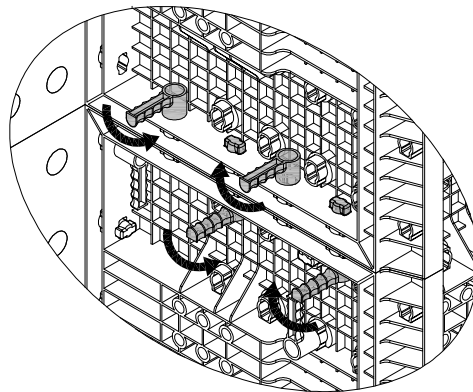
HANDLE POSITION:  
APPLIES ONLY TO  
20-25 cm WIDTH



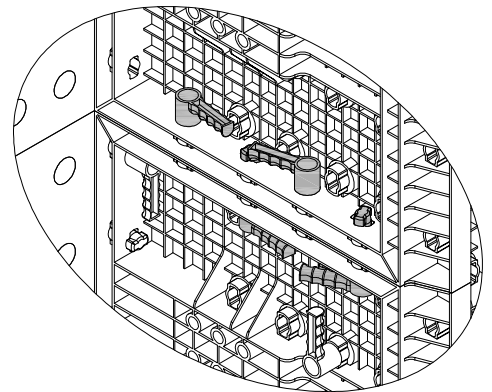
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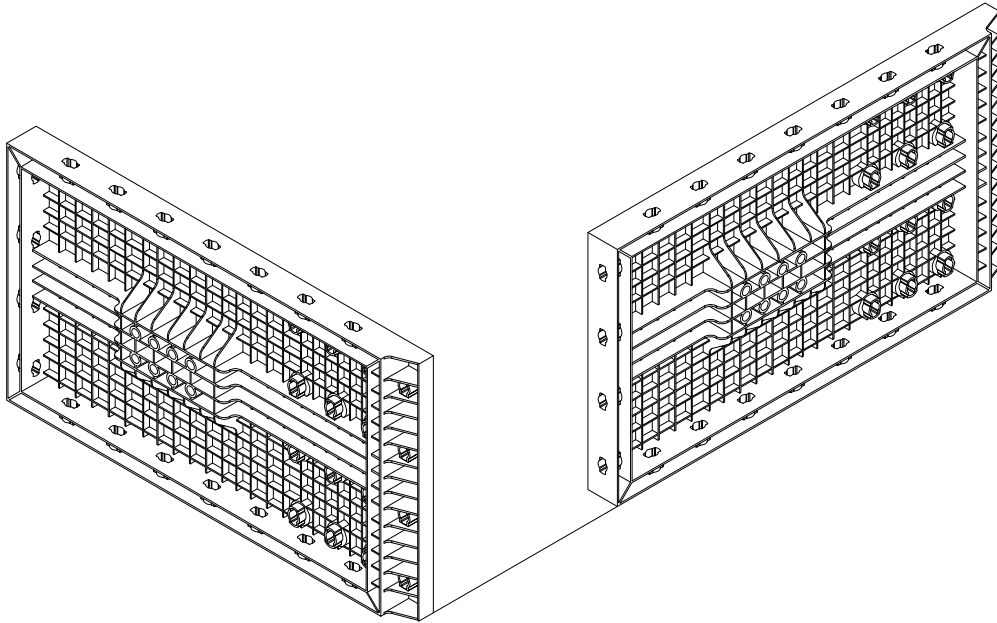
3/A



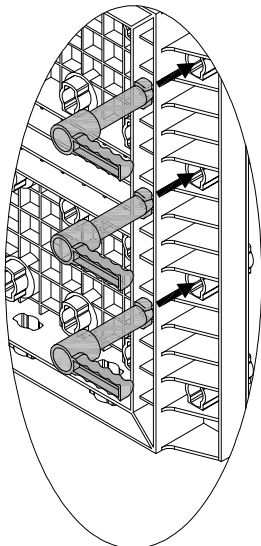
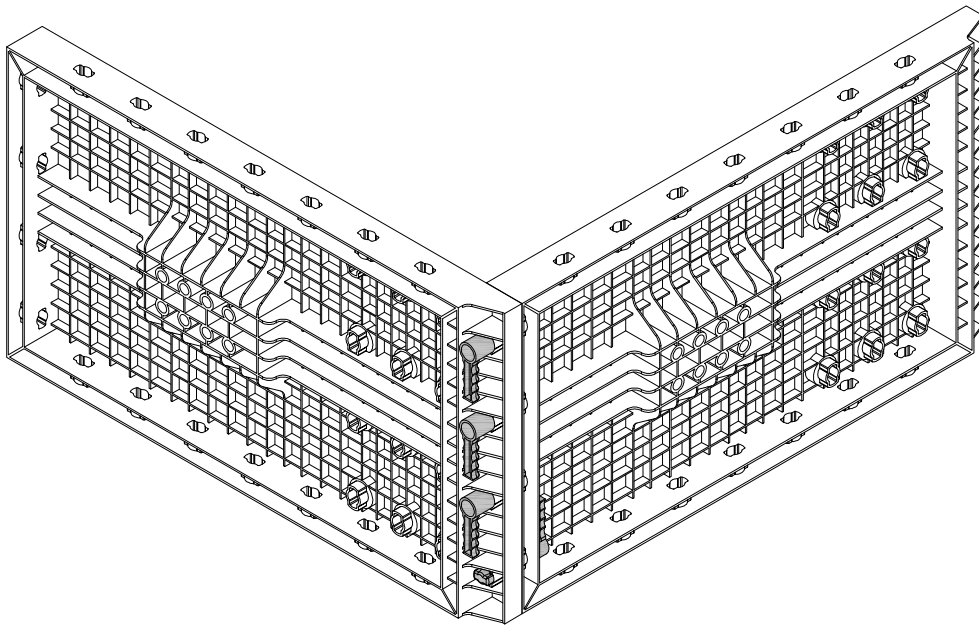
3/B



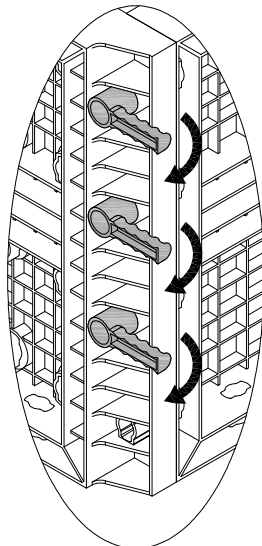
3/C



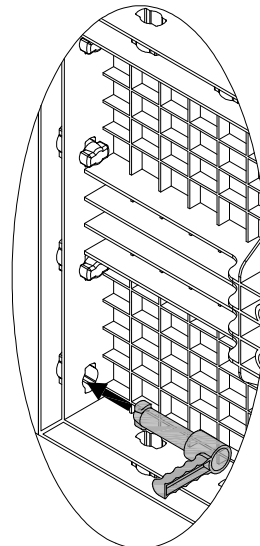
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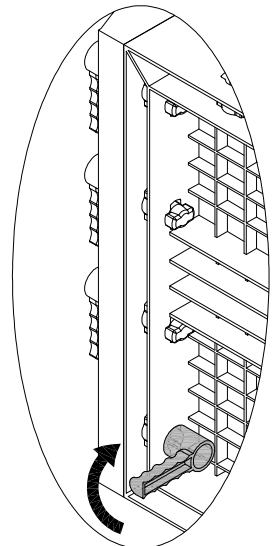
4/A



4/B

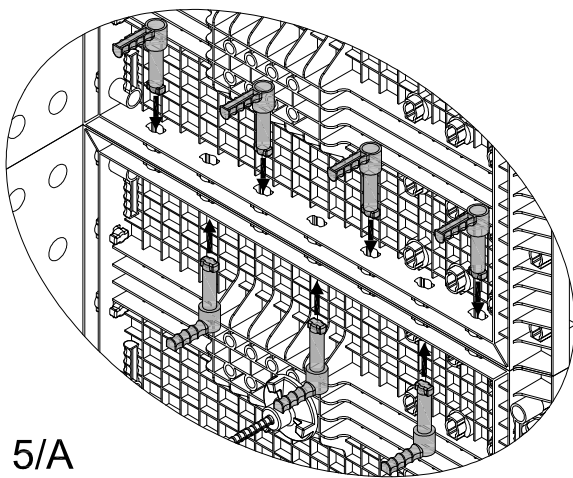
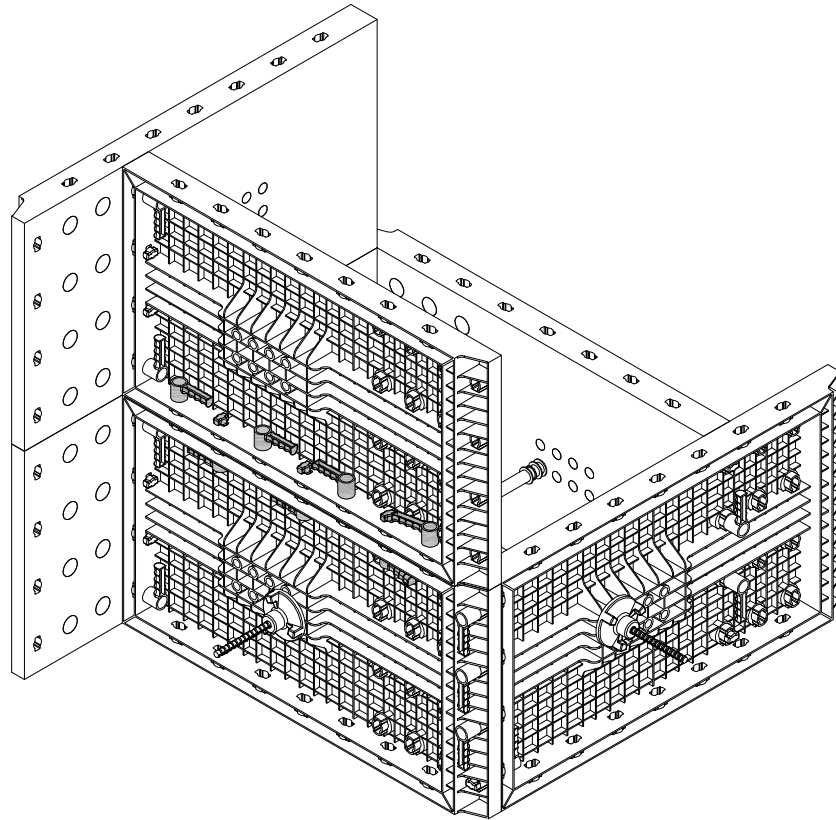


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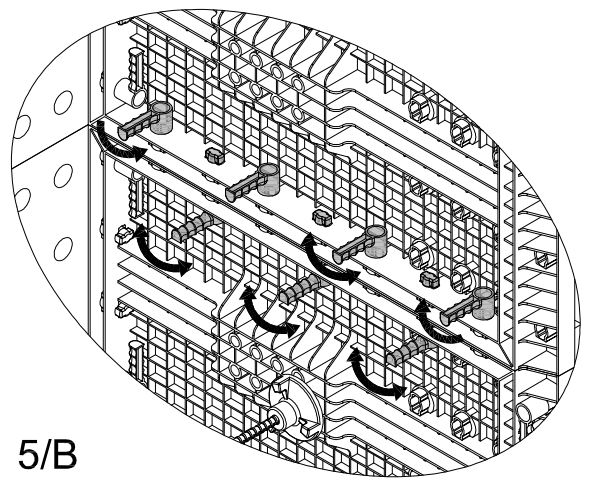


4/D

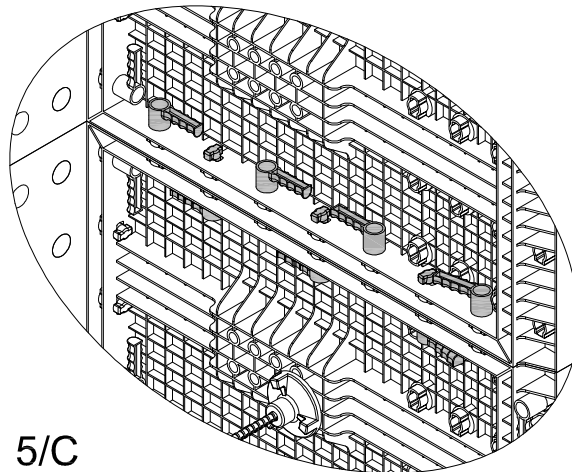
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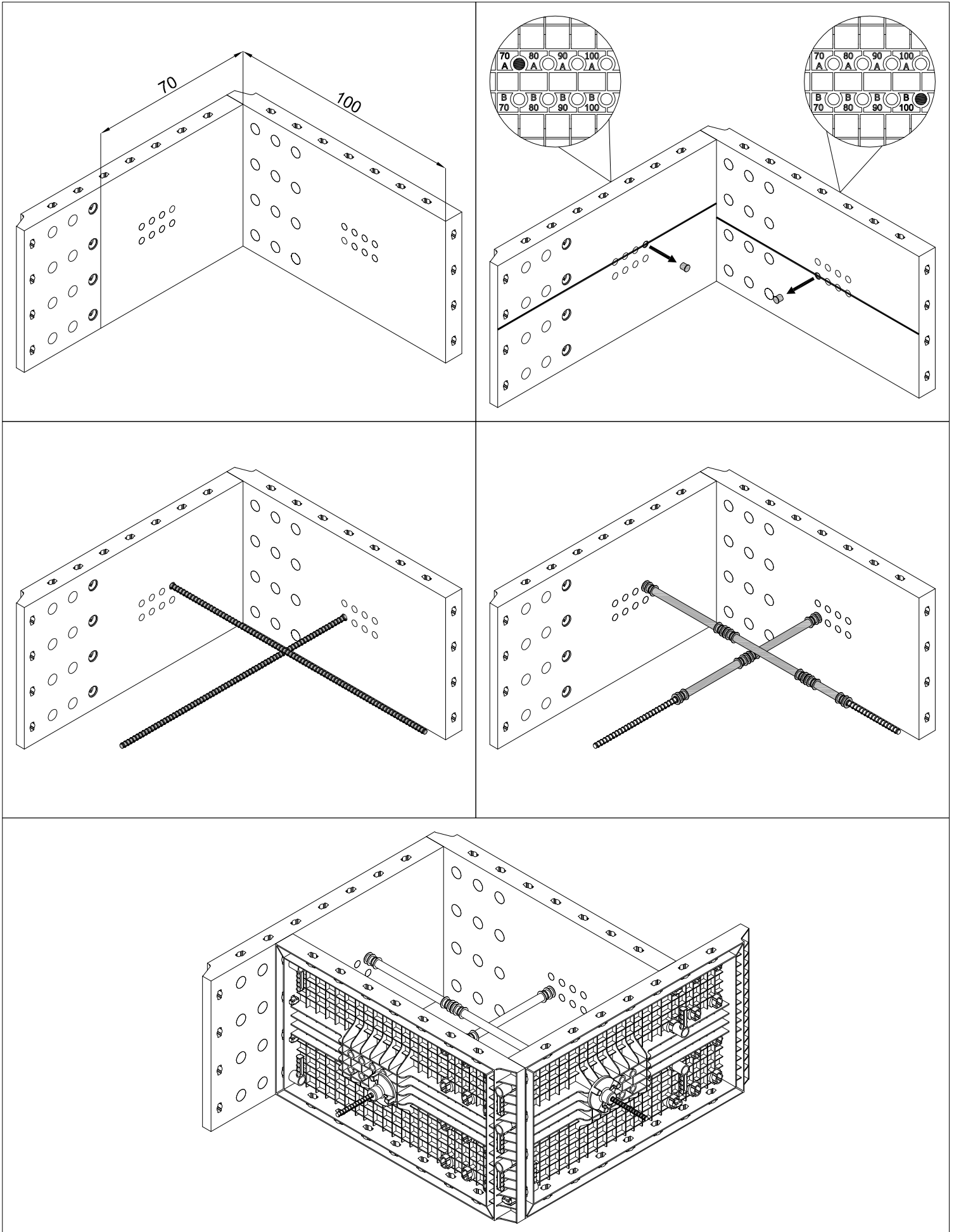
5/A

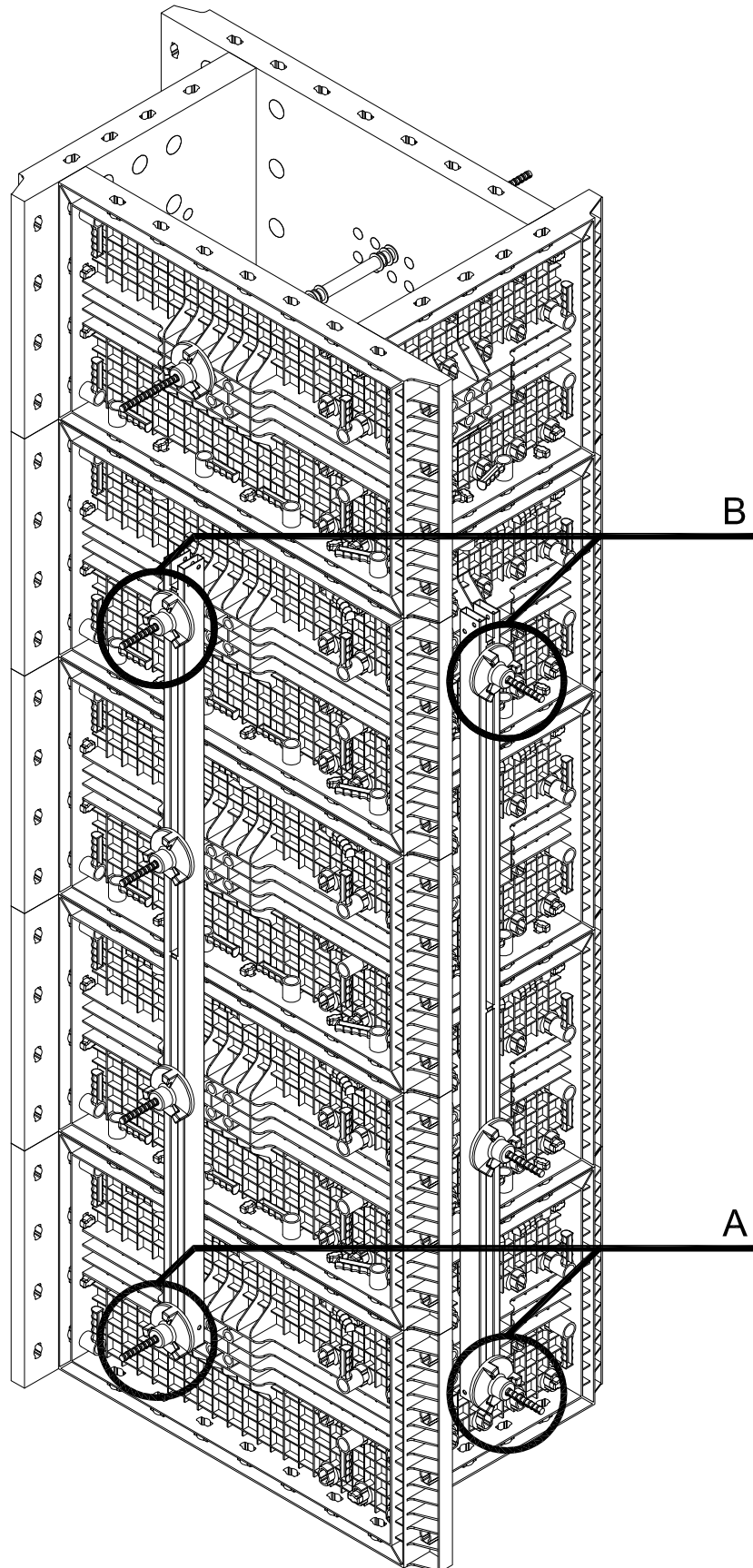


5/B



5/C



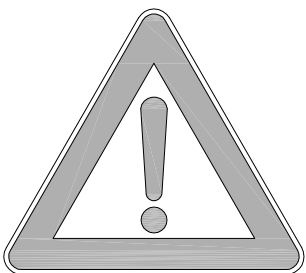


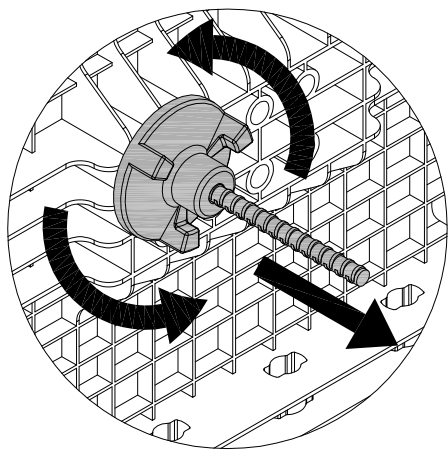
**AVVISO DI SICUREZZA**

DURANTE L'ASSEMBLAGGIO DEI PANNELLI E DEI TIRANTI, FISSARE TUTTE LE ROSETTE. UNA VOLTA COMPLETATO IL MONTAGGIO DELLA COLONNA, RIMUOVERE LE ROSETTE, INSERIRE LE BARRE ALLINEATRICI E RIPOSIZIONARE LE ROSETTE COME DA SCHEMA.

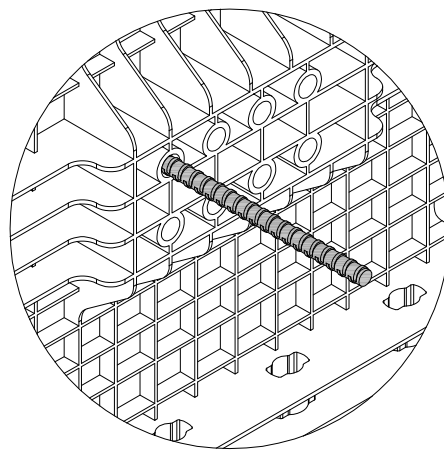
**SAFETY NOTICE**

DURING FORMWORK ASSEMBLY INSERT ALL TIES AND ANCHOR NUTS. ONCE THE FORMWORK HAS BEEN ERECTED, REMOVE THE ANCHOR NUTS, INSERT THE ALIGNMENT BARS FIT BACK AND TIGHTEN THE ANCHOR NUTS AS PER INSTRUCTIONS.

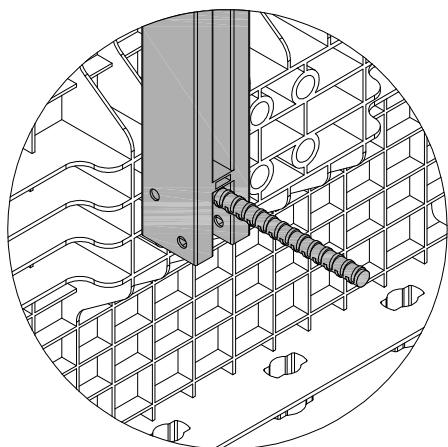




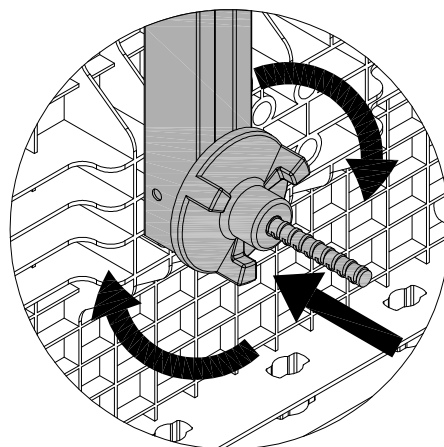
A/1



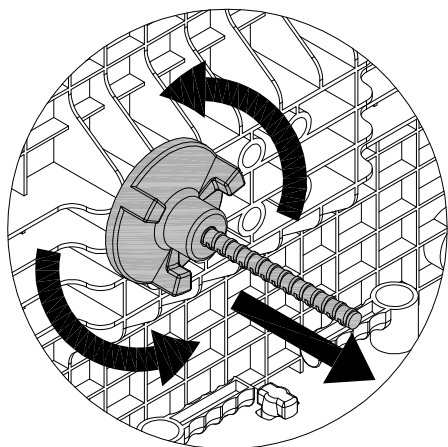
A/2



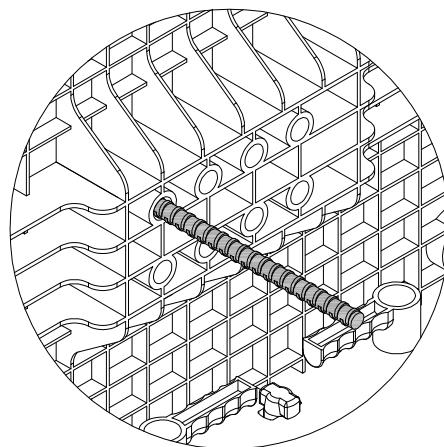
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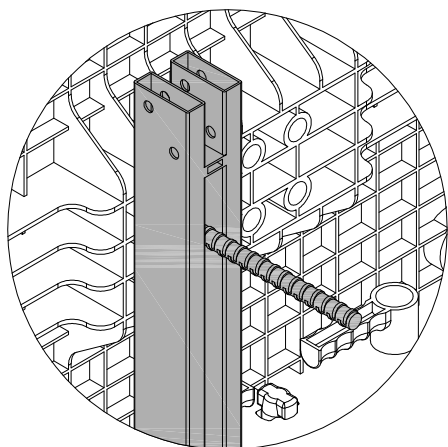
A/4



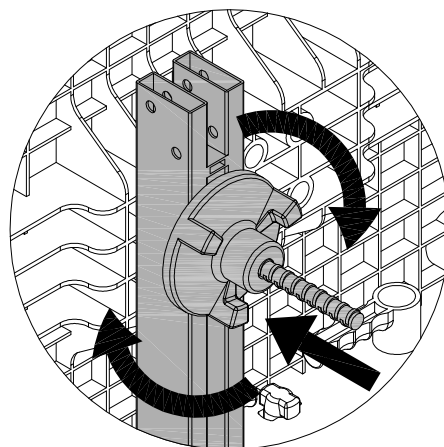
B/1



B/2

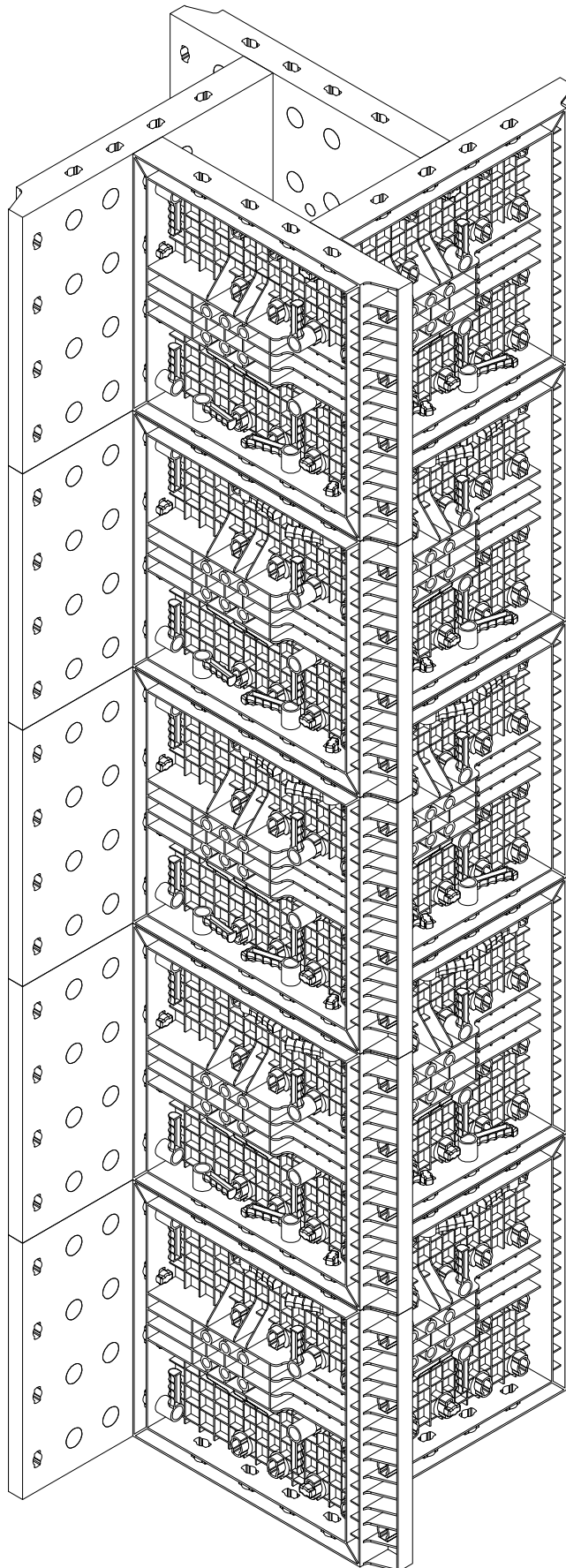
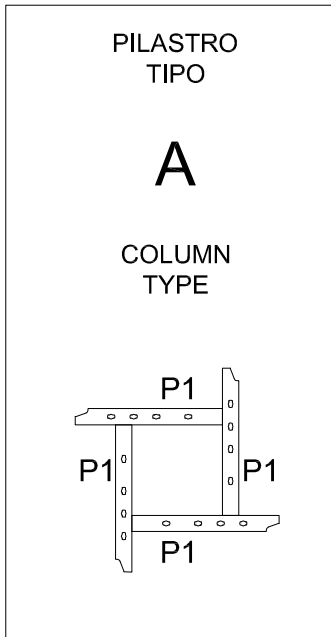


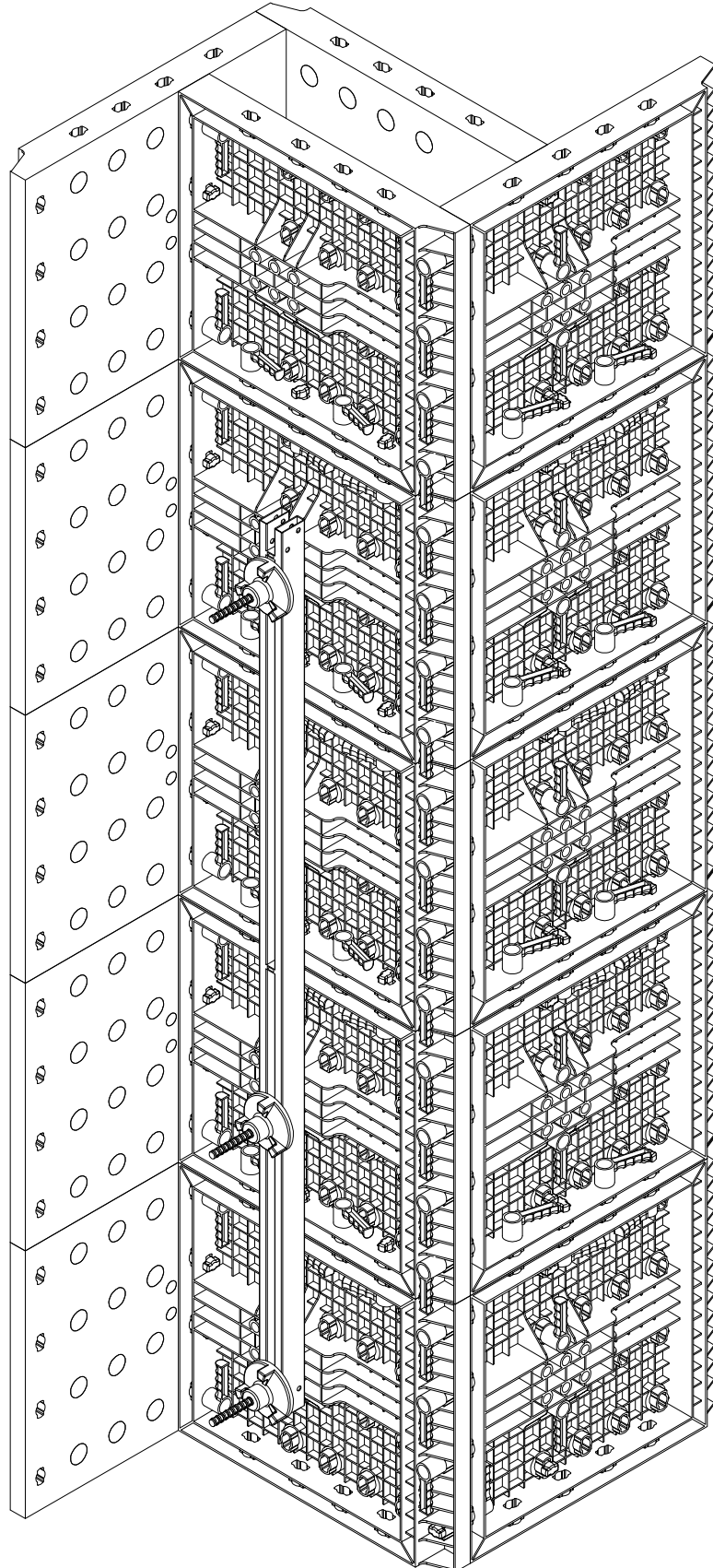
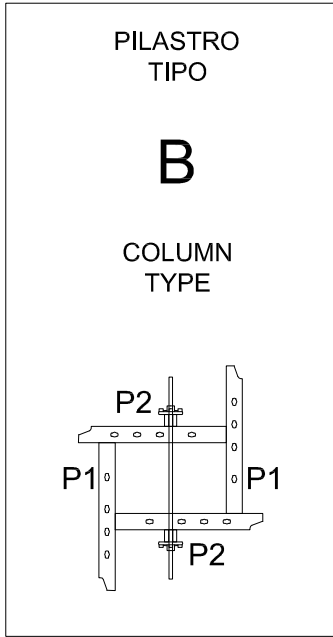
B/3

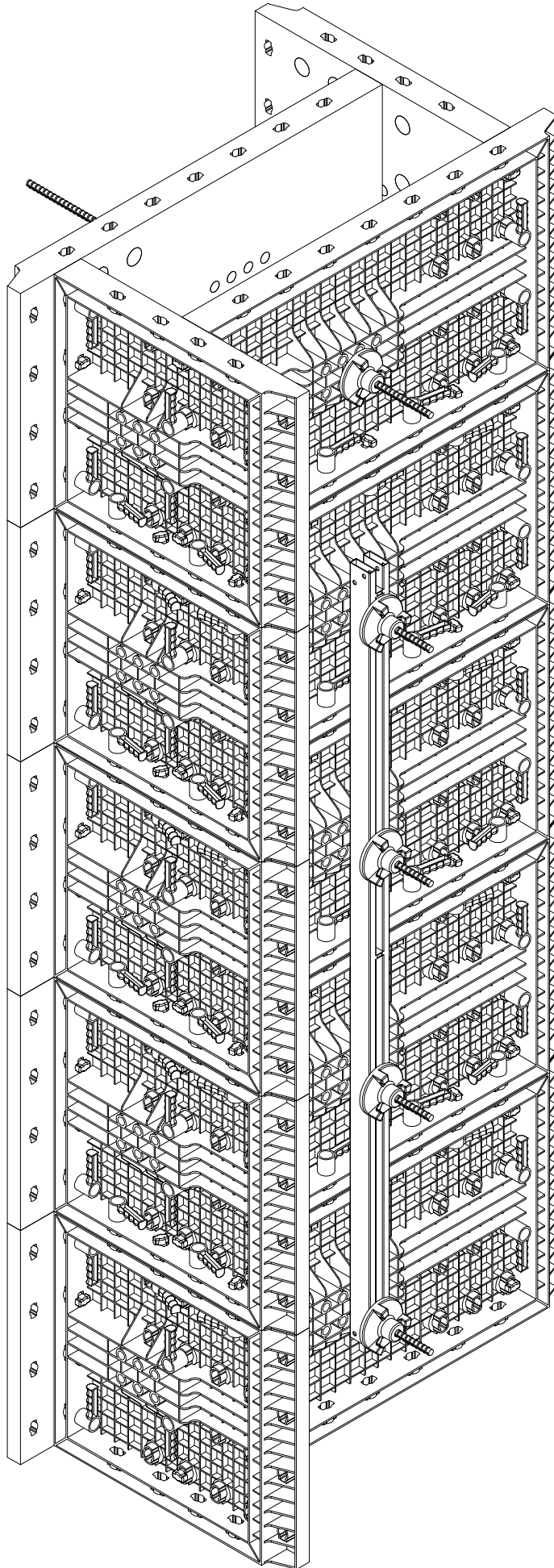
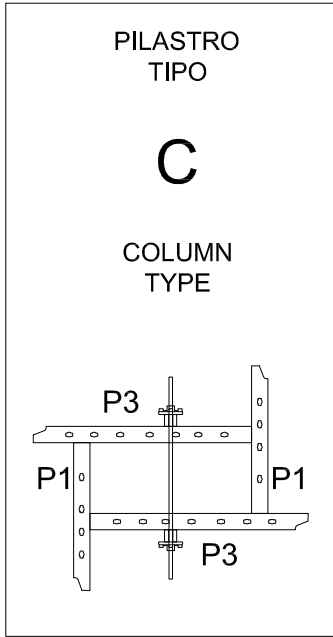


B/4





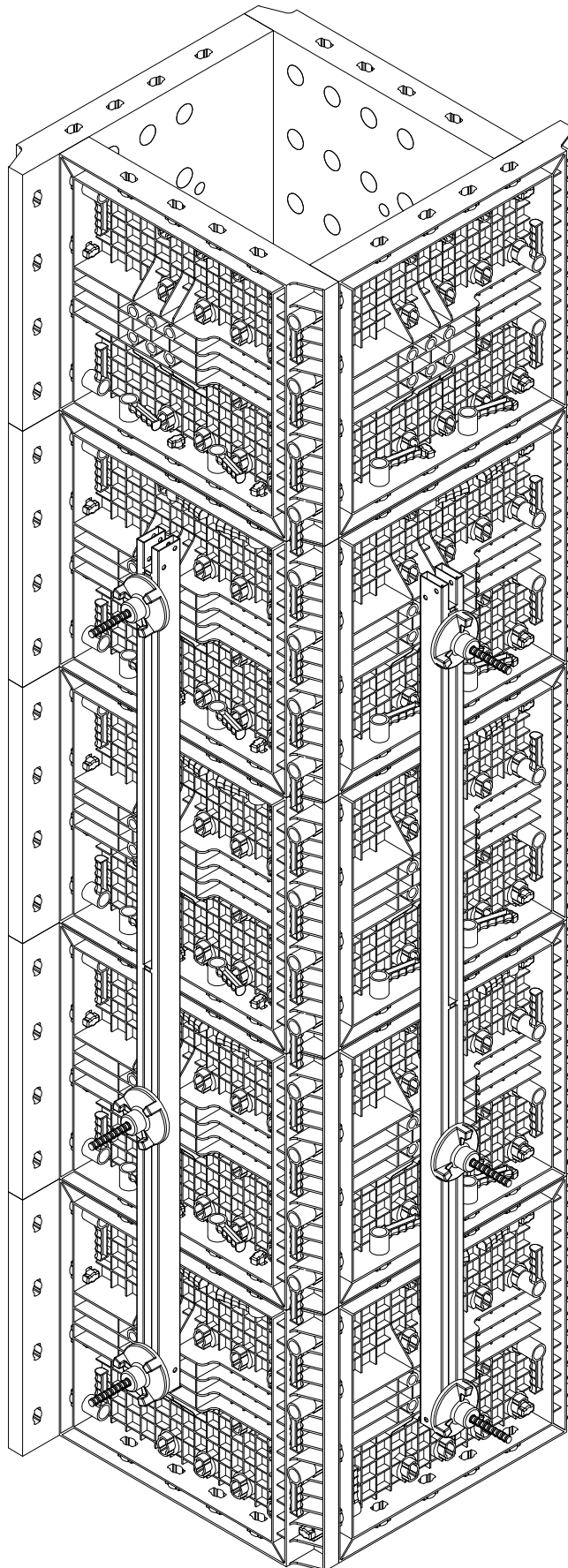
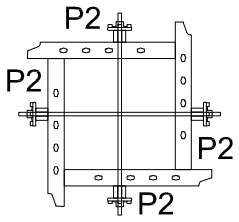


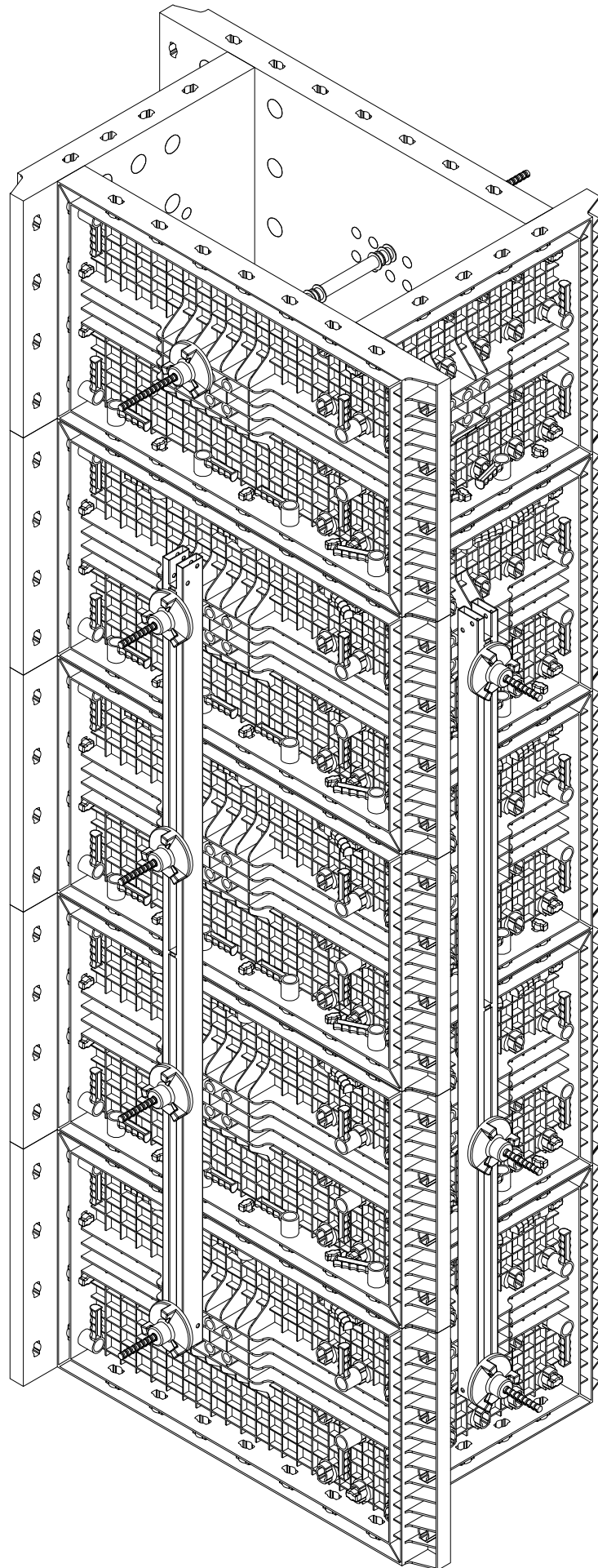
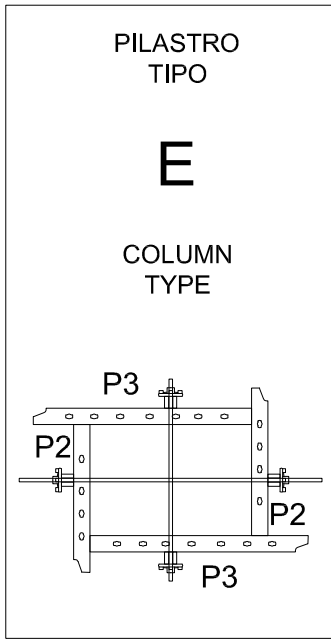


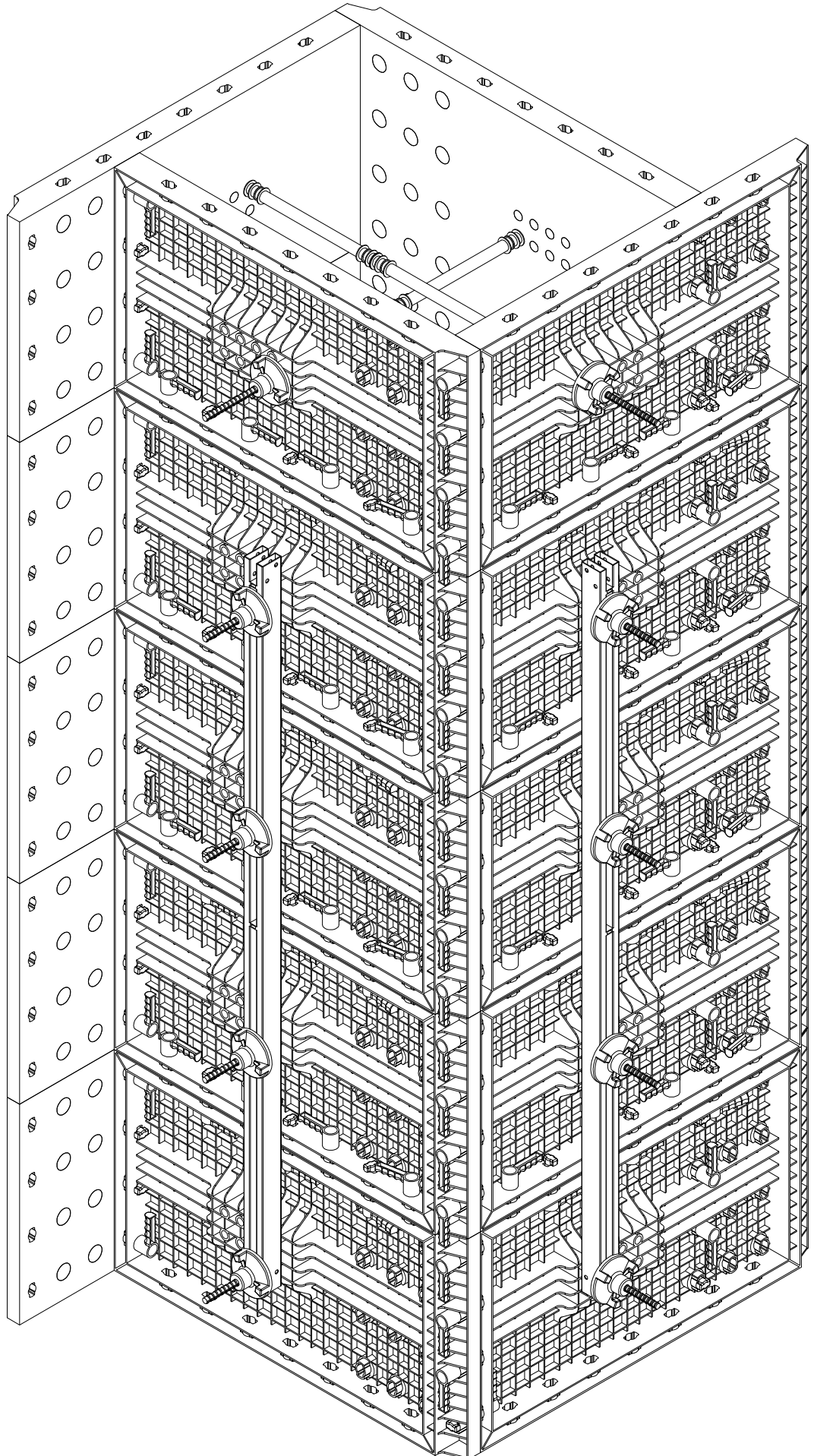
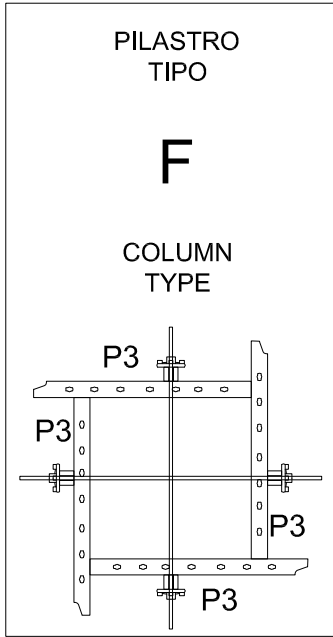
PILASTRO  
TIPO

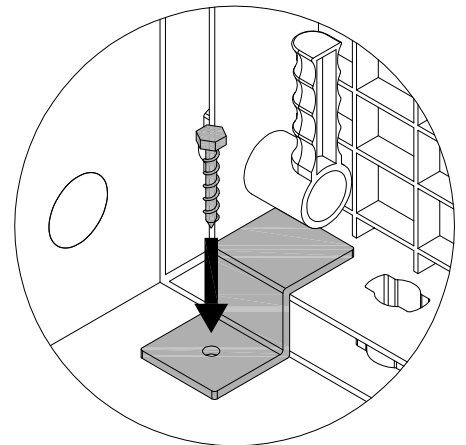
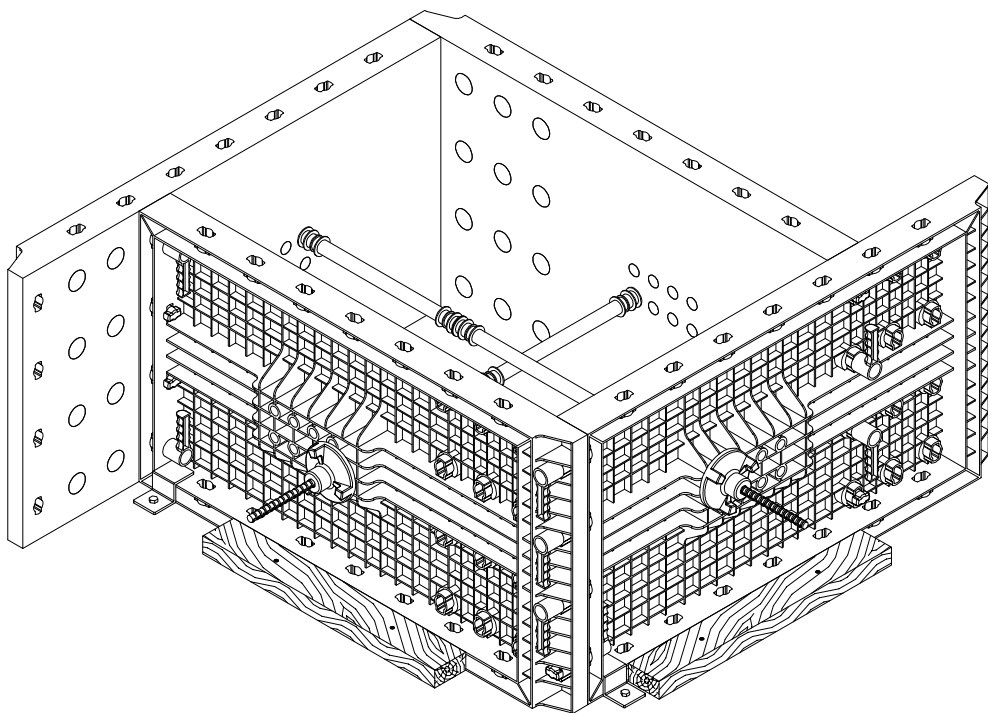
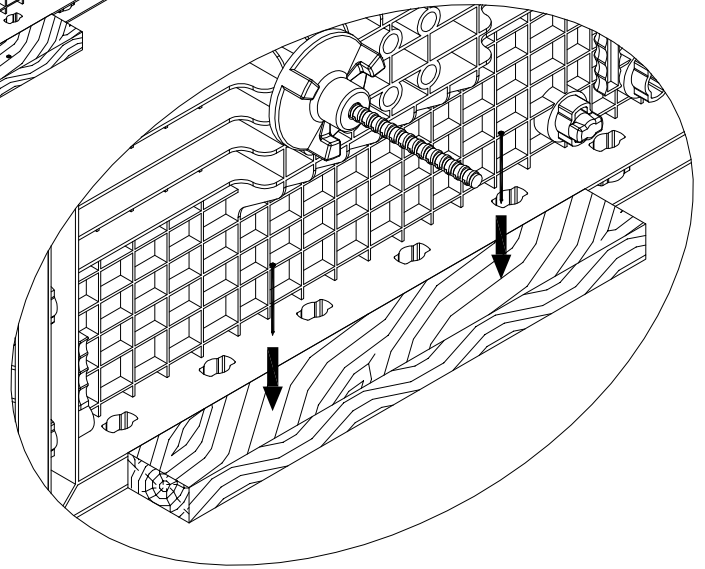
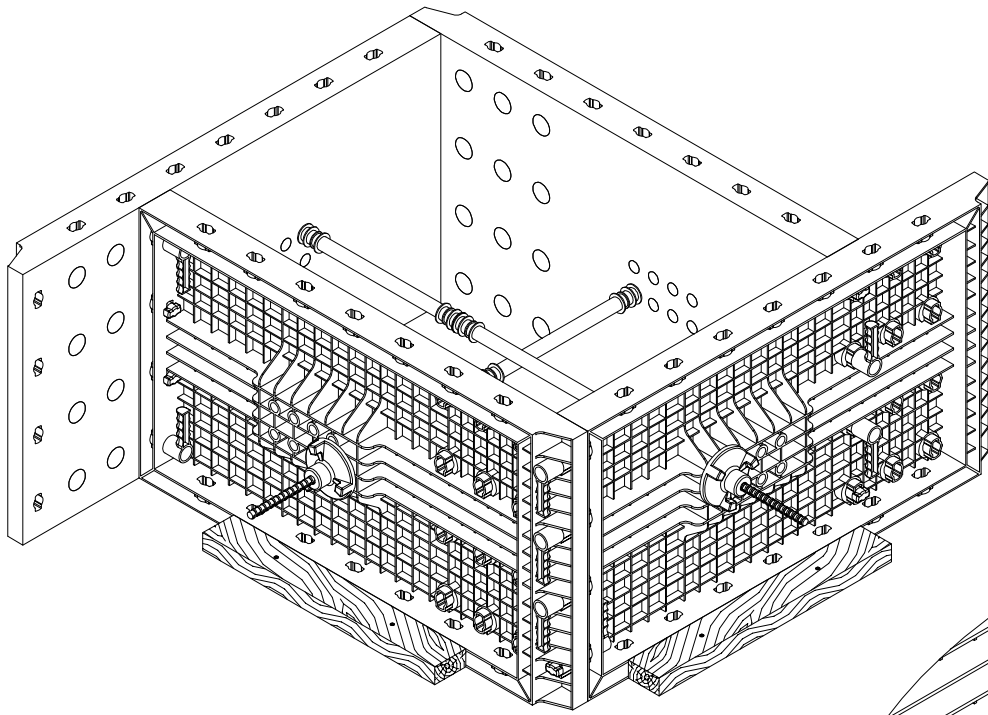
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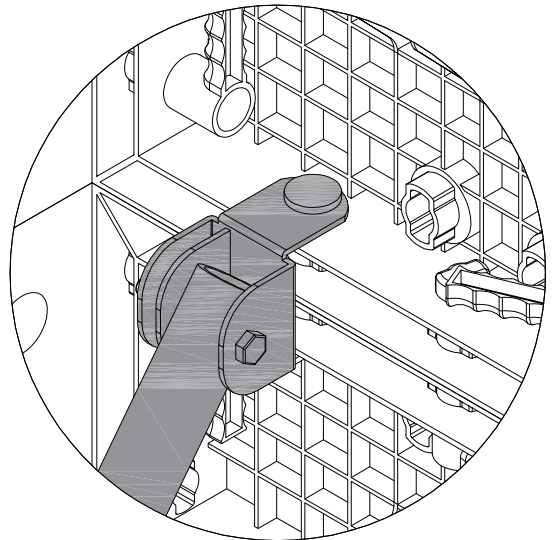
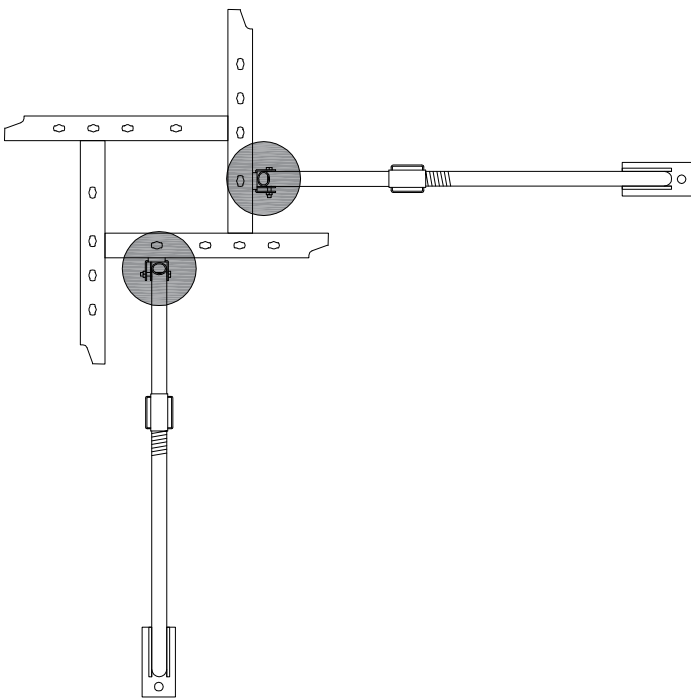
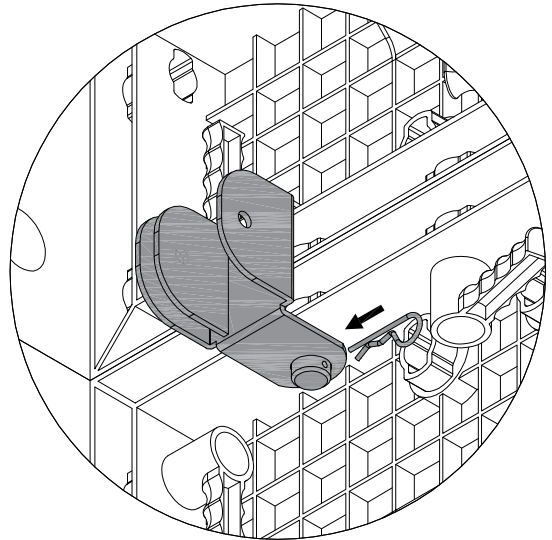
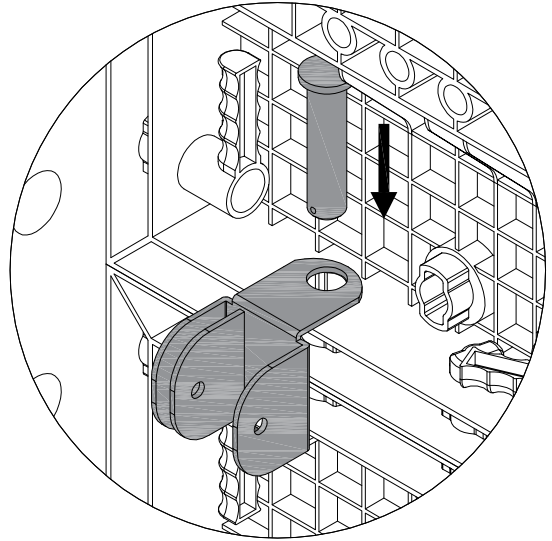
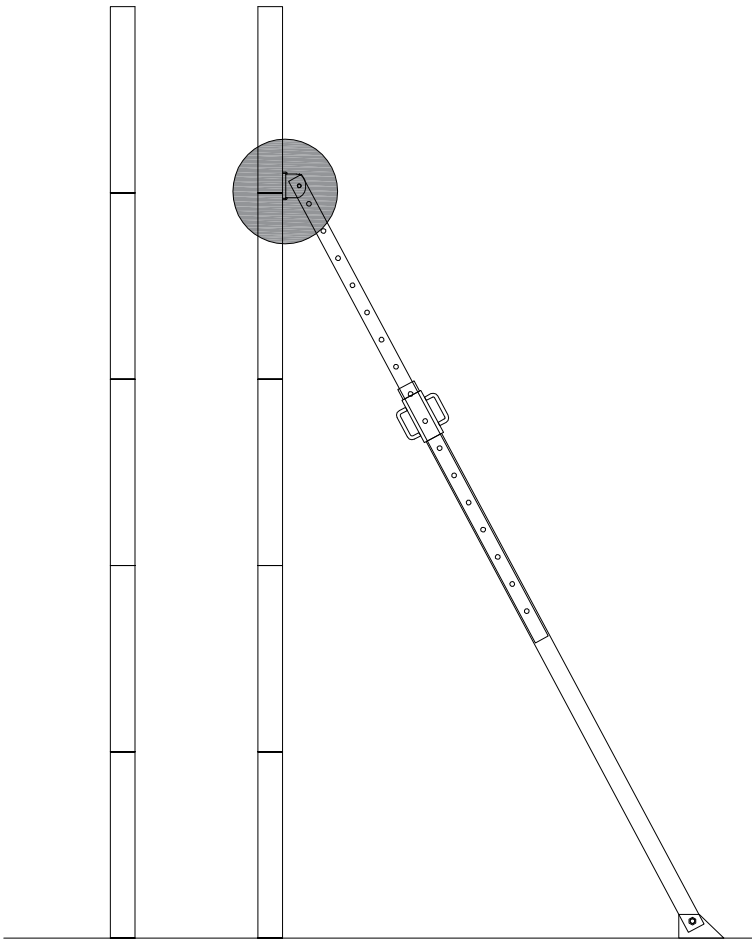
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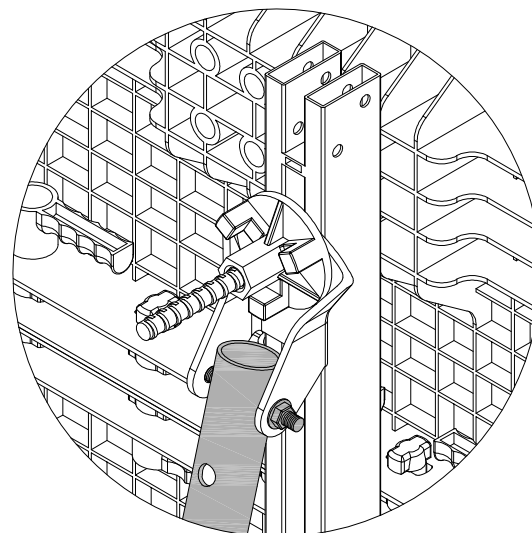
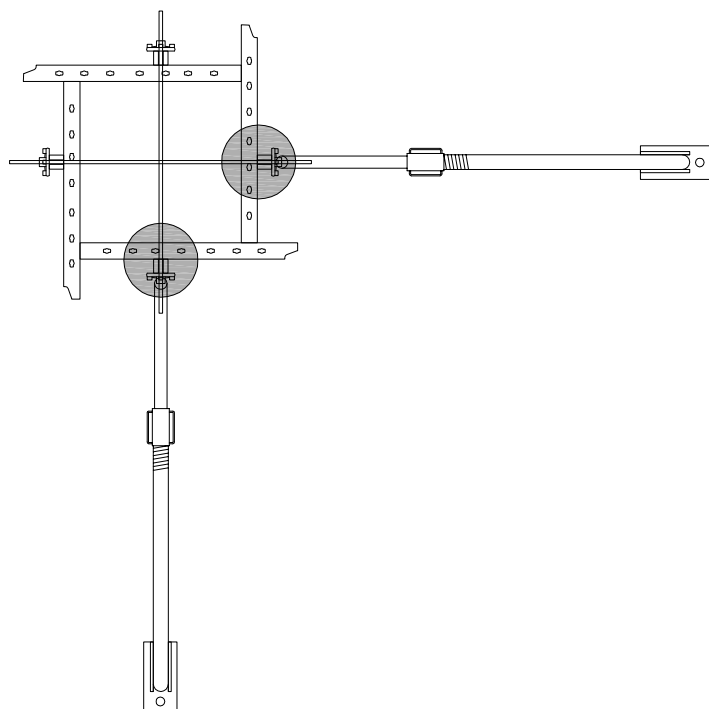
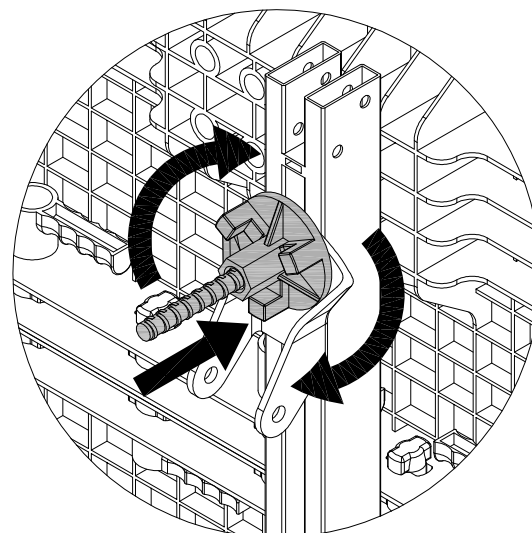
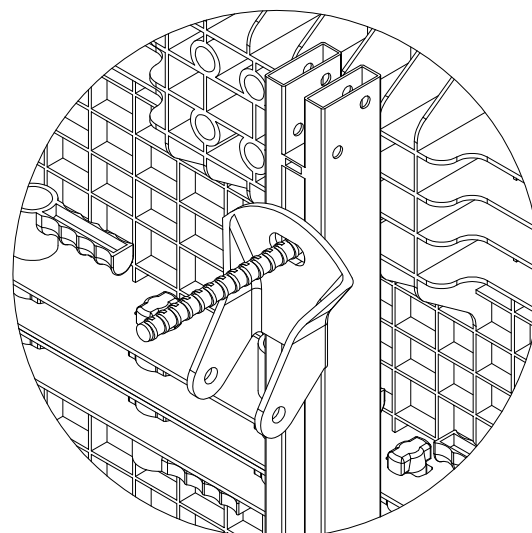
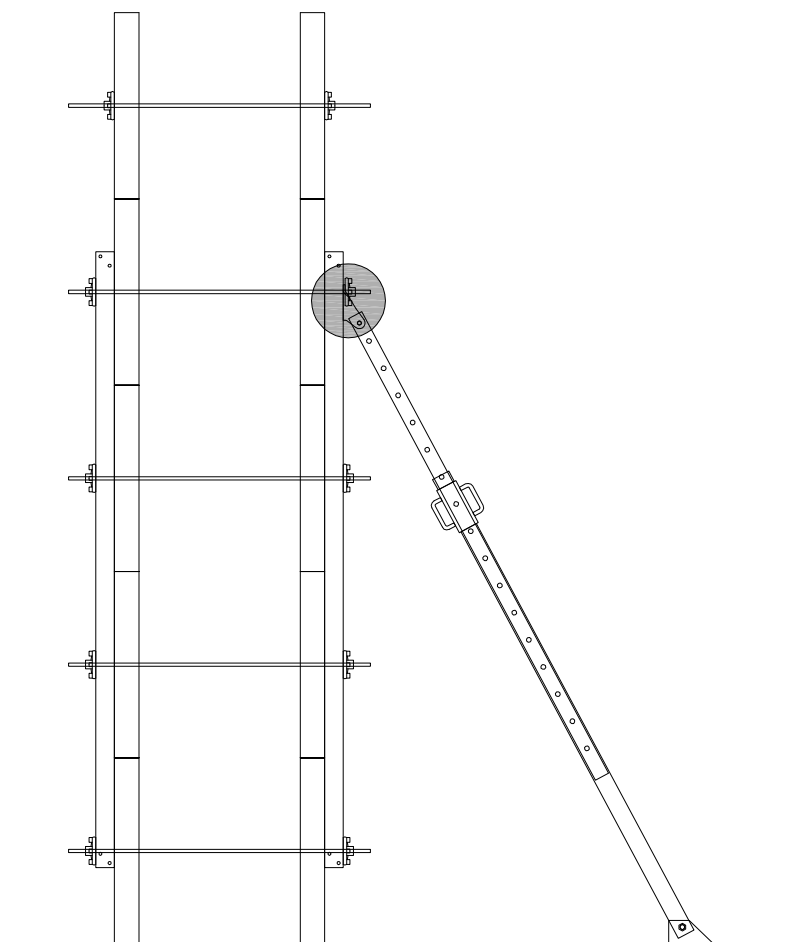


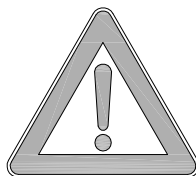
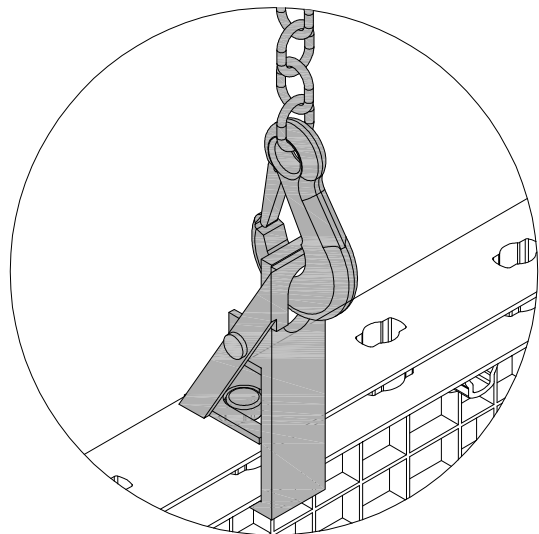
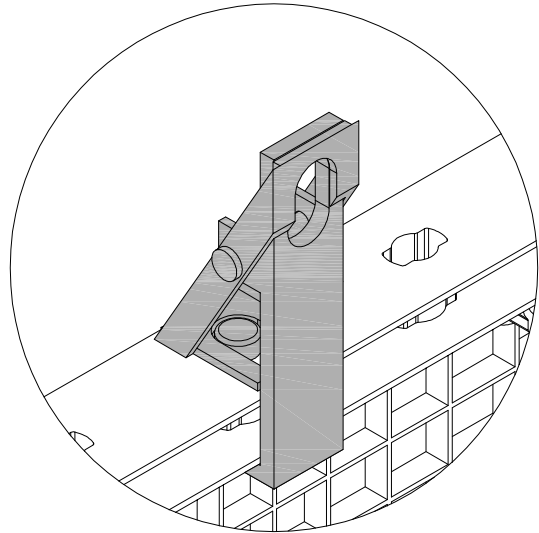
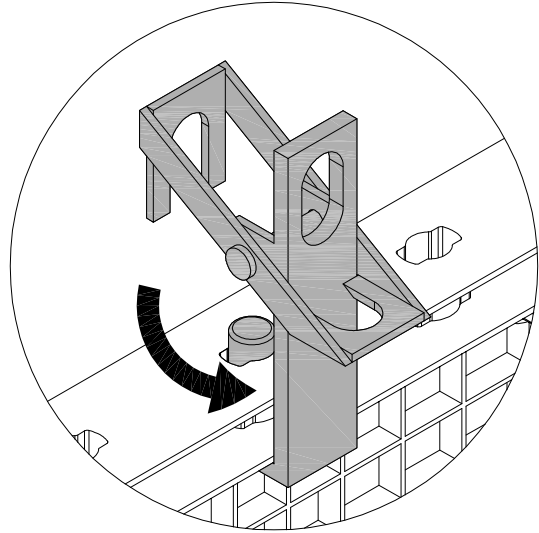
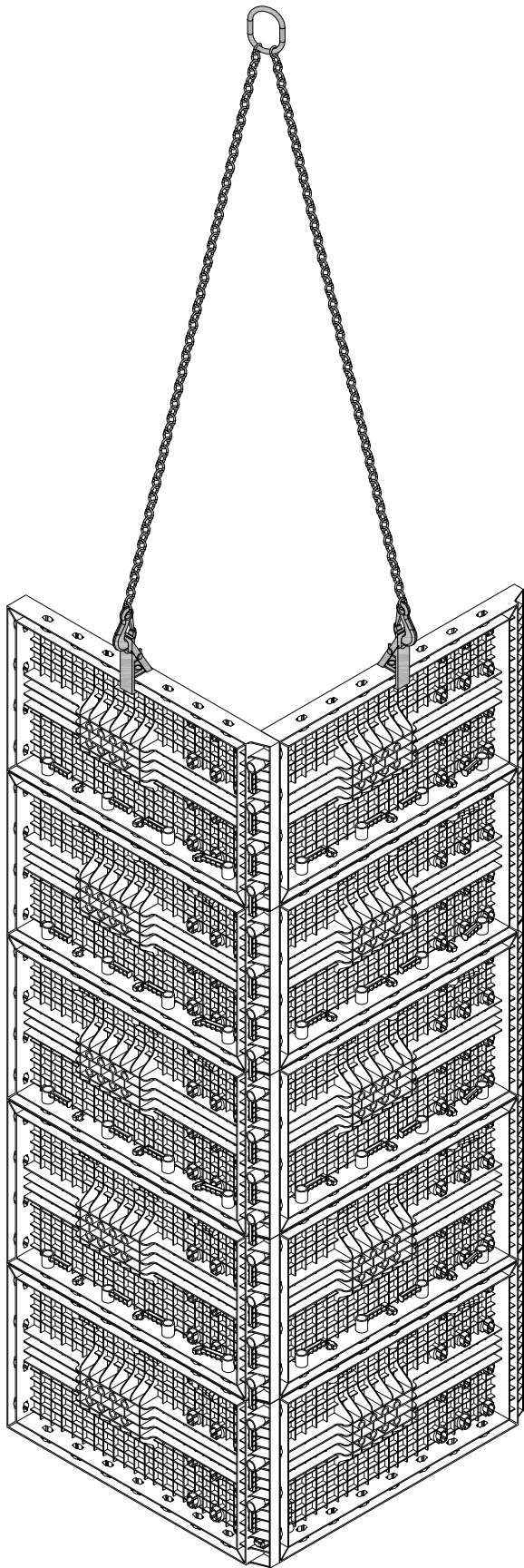






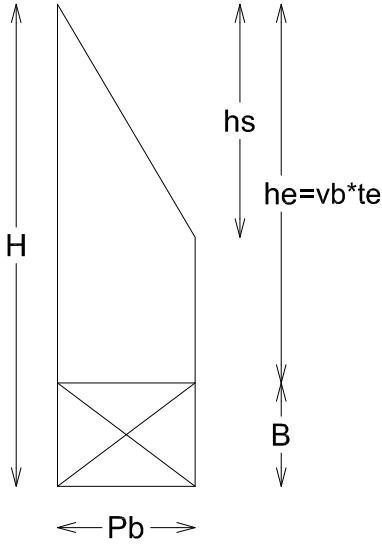




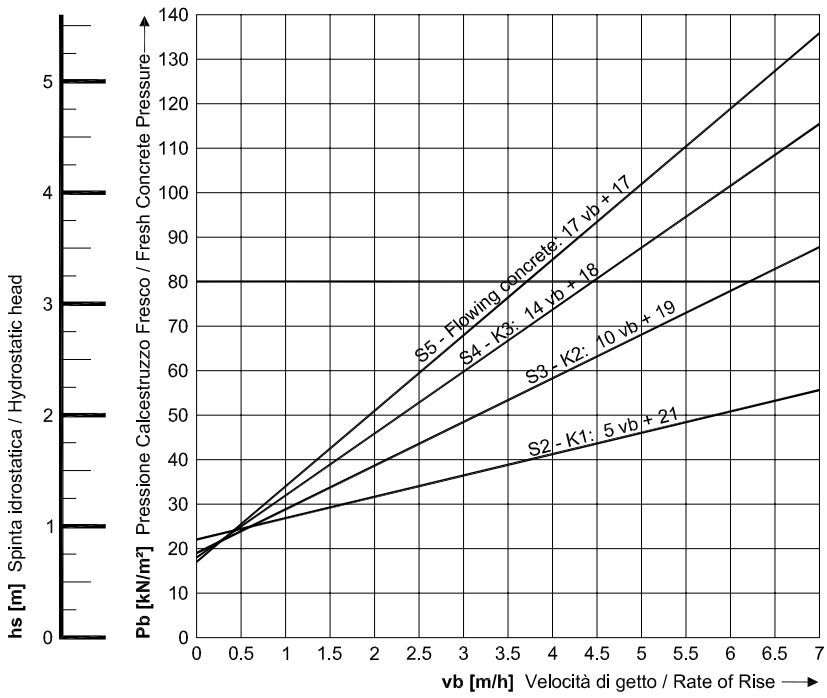


PESO MASSIMO PER OGNI GANCIO DI SOLLEVAMENTO: 1kN (102 Kg)

MAXIMUM WEIGHT PER LIFTING HOOK: 1kN (102 Kg)



$H$  = altezza totale del getto  
 $h_s$  = altezza pressione idrostatica, ossia profondità massima della pressione del calcestruzzo fresco  $P_b$   
 $h_e$  = altezza di getto  
 $v_b$  = velocità di getto  
 $t_e$  = tempo (ore) dal momento della miscelazione fino al getto completato  
 $B$  = calcestruzzo solidificato  
 $P_b$  = massimo valore orizzontale della pressione del calcestruzzo fresco sul cassero  
  
 $H$  = total height of the pour  
 $h_s$  = height of hydrostatic pressure, i.e. maximum depth of fresh concrete pressure  $P_b$   
 $h_e$  = pour height  
 $v_b$  = pour speed  
 $t_e$  = time (hours) from the time of mixing until pour completed  
 $B$  = set concrete  
 $P_b$  = maximum horizontal value of the fresh concrete pressure on formwork



**SPINTA MASSIMA DEL CALCESTRUZZO FRESCO SOPPORTATA DEL CASSERO: 80kN**

**Assunzioni:**

- Peso specifico calcestruzzo compattato: 25 kN/m<sup>3</sup>
- Tempo di presa massimo: 5h
- Temperatura calcestruzzo al momento del getto: +15°C
- Compattazione con vibratori ad immersione

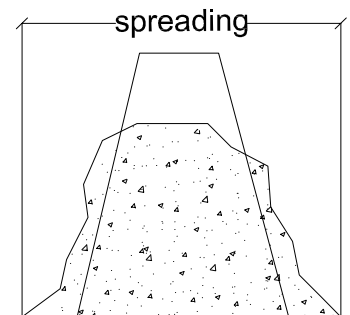
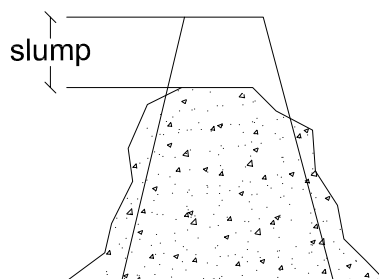
**MAXIMUM RESISTANCE OF THE FORMWORK TO THE PRESSURE OF FRESH CONCRETE: 80kN**

**Assumptions:**

- Specific weight of fresh concrete: 25 kN/m<sup>3</sup>
- Concrete set time: 5h
- Concrete temperature at placement: +15°C
- Concrete compacting with immersion vibrator

CLASSE DI CONSISTENZA	CONSISTENCY CLASS	UNI EN 206:2006		DIN 18218	
		CLASSIFICAZIONE CLASSIFICATION	SLUMP	CLASSIFICAZIONE CLASSIFICATION	SPREADING
umida	wet	S1	10 ÷ 40 mm		
plastica	stiff	S2	50 ÷ 90 mm	F1 (K1)	≤ 34 cm
semifluida	plastic	S3	100 ÷ 150 mm	F2 (K2)	35 ÷ 41 cm
fluida	soft	S4	160 ÷ 210 mm	F3 (K3)	42 ÷ 48 cm
superfluida	flowing	S5	≥ 220 mm	F4 (flowing)	49 ÷ 55 cm

CONO DI ABRAMS  
ABRAMS CONE



Utilizzando agenti ritardanti la pressione del calcestruzzo deve essere modificata attraverso i seguenti coefficienti.

NOTE: secondo normative UNI EN 206:2006 e UNI 11104:2004

Use of retarding agent modify the concrete pressure through these coefficients.

NOTE: according to UNI EN 206:2006 and UNI 11104:2004

CLASSE DI CONSISTENZA	CONSISTENCY CLASS	CLASSIFICAZIONE / CLASSIFICATION		TEMPO DI PRESA / SET TIME					
		UNI EN 206:2006	DIN 18218	5h	6h	7h	8h	9h	10h
plastica	stiff	S2	F1 (K1)	1.15	1.21	1.27	1.33	1.39	1.45
semifluida	plastic	S3	F2 (K2)	1.25	1.36	1.47	1.58	1.69	1.80
fluida	soft	S4	F3 (K3)	1.40	1.55	1.70	1.85	2.00	2.15

ESEMPIO:

Dovendo eseguire un getto di un pilastro con un calcestruzzo classe S4 ad una velocità di getto vb di 4 m/h, si avrà una spinta idrostatica Pb pari a 75 kN/m<sup>2</sup> ad una profondità hs di 3.0 m (TAB A).

Poichè i casseri sopportano una spinta massima di 80 kN/m<sup>2</sup>, l'esempio sopra riportato soddisfa pienamente le prescrizioni di sicurezza.

Se dovessimo aggiungere un agente ritardante al calcestruzzo S4 all'esempio di cui sopra, ed avendo un tempo di presa pari a 6h, il nuovo calcolo della spinta sarà:

Nuovo valore Pb = 75 kN/m<sup>2</sup> \* 1.55 = 116.25 kN/m<sup>2</sup> (TAB B).

In questo caso la spinta massima sarà superiore a 80kN/m<sup>2</sup> e quindi sarà necessario ridurre la velocità di getto.

EXAMPLE:

In order to pour a column with concrete consistency class S4 at a vb pour speed of 4 m/h, the Pb hydrostatic pressure will be 75 kN/m<sup>2</sup> at a hs depth of 3.0 m (TAB. A).

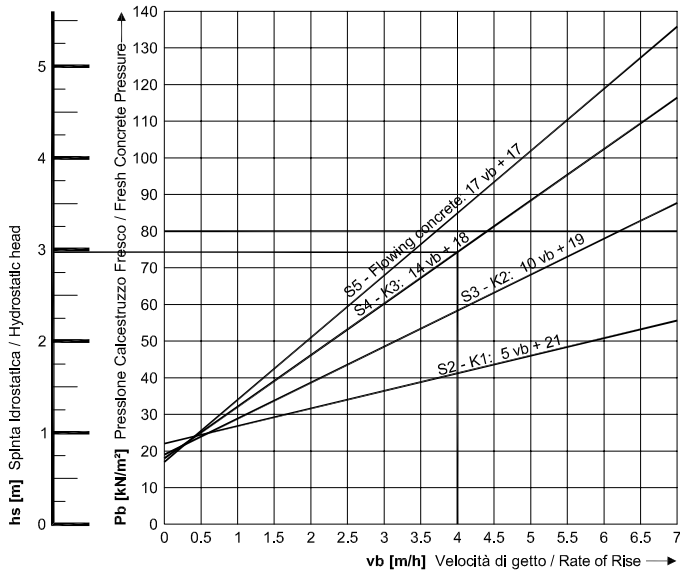
As the formwork accepts a maximum pressure of 80 kN/m<sup>2</sup>, the above example fully satisfies the safety requirements.

Should a retardant admixture be added to the above class S4 concrete, increasing the setting time of the concrete to 6h, the new calculated value is:

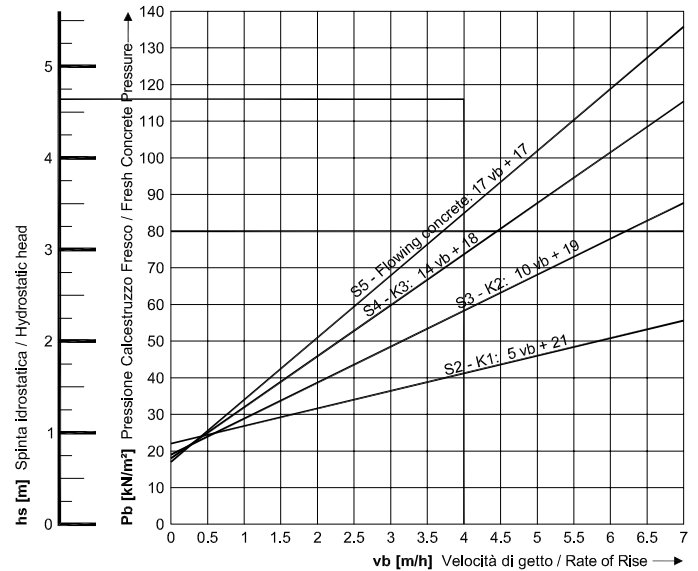
Pb = 75 kN/m<sup>2</sup> \* 1.55 = 116.25 kN/m<sup>2</sup> (TAB B).

In this case the maximum pressure is greater than 80kN/m<sup>2</sup> thus it will be necessary to reduce the pour speed vb.

TAB A



TAB B



**AVVISO DI SICUREZZA**  
 LE INDICAZIONI RIPORTATE IN QUESTO MANUALE SONO APPLICABILI A CASSERI PER COLONNE NON SUPERIORI AI 3 METRI.  
 PER ALTEZZE SUPERIORI AI 3 METRI CONTATTARE L'UFFICIO TECNICO GEOPLAST.

**SAFETY NOTICE**  
 THE INFORMATION CONTAINED IN THIS MANUAL APPLIES TO COLUMN FORMWORK OF TOTAL HEIGHT NOT EXCEEDING 3 METRES.  
 IN THE CASE OF FORMWORK HIGHER THAN 3 METRES PLEASE CONTACT THE TECHNICAL DEPT. OF GEOPLAST.

POUR

Only immersion type concrete vibrators are approved for use. The ABS formwork is not fireproof, do not place close to free flame or hot objects.

HANDLING

Use the lifting clamp to transport the formwork with a crane. Before lifting make sure the load is symmetrical and that the leg lengths are equal. Follow the diagram on p. 25 for the correct use of the lifting clamp.

ABS FORMWORK CLEANING

ABS is a particularly smooth and non-porous material on which concrete has difficulty adhering.

After each use, clean the formwork jet-washers, preferably using a high-pressure cleaner with a maximum pressure of 1.000 bar max. We recommend removing any concrete build-up with the help of plastic scrapers or brushes.

In the case of old concrete residues or encrustations that are particularly difficult to remove, we recommend cleaning with suitable concrete remover products based on vegetal oils.

The application of products containing alcohol or polycyclic aromatic hydrocarbons (PAH), such as benzene, is not permitted.

APPLICATION OF RELEASE AGENTS

As long as the contact surface of ABS formwork shows no signs of wear, no release agent is required prior to pouring.

Only release agents based on vegetal oils may be used, i.e. these must not contain (even in minute concentrations) polycyclic aromatic hydrocarbons (PAH), such as benzene.

***ABS formwork may only be treated with vegetable oil-based products.***

STORAGE

Store formwork in a dry place, away from heat sources and out of direct sunlight.

GETTO

Sono ammessi solamente sistemi di vibrazione ad immersione. Il cassero un ABS non è ignifugo, non porre a contatto diretto con corpi incandescenti o a fiamma libera.

MOVIMENTAZIONE

Utilizzare il gancio per Geopanel per sollevare i pannelli con gru e, prima della movimentazione, assicurarsi che le funi di sollevamento abbiano un uniforme tiraggio. Seguire lo schema di pag. 44 per il corretto utilizzo del gancio.

PULIZIA DEI PRODOTTI IN ABS

L'ABS è un materiale particolarmente liscio e non poroso sul quale il calcestruzzo ha difficoltà ad aderire.

Al termine di ogni utilizzo pulire i casseri con getti di acqua, preferibilmente utilizzando un'idropulitrice con pressione massima di 1.000 bar. Si consiglia di rimuovere eventuali incrostazioni del calcestruzzo con l'ausilio di spatole o spazzole in plastica.

In caso di vecchi residui di calcestruzzo o incrostazioni particolarmente difficili da rimuovere, si consiglia l'intervento di pulizia tramite prodotti decapanti a base oli vegetali.

Non è consentita l'applicazione di prodotti contenenti alcool o idrocarburi policiclici aromatici (IPA), come ad esempio benzene.

APPLICAZIONE DI PRODOTTI DISTACCANTI

Finché la superficie di contatto dei prodotti in ABS non mostra segni di usura, non è necessario alcun agente distaccante prima del getto.

È permesso l'utilizzo di prodotti distaccanti solo a base di oli vegetali, quindi questi non devono contenere (nemmeno in minime concentrazioni) idrocarburi policiclici aromatici (IPA), come ad esempio benzene.

***I casseri in ABS possono essere trattati solo con prodotti a base di oli vegetali.***

STOCCAGGIO

Stoccare i prodotti in ABS in luoghi asciutti, distanti da fonti di calore e al riparo dalla luce diretta del sole.

The operations of placing, assembly, disassembly, plumb, handling and cleaning of the Geopanel product, as well as the pouring of the concrete must be carried out by qualified and properly trained personnel, or under the supervision of the Site Manager or an Engineer of Geoplast SpA, who must ensure that:

- all the above operations are carried out in a workmanlike manner,
- every person working with the formwork is equipped with suitable tools and personal protective equipment to perform all necessary actions in compliance with the safety standards,
- all panels and the supplied accessories are checked before use, and that any part that does not meet the minimum standards of reliability and safety due to deformation or breakage is discarded,
- the formwork is installed on a perfectly flat surface, so as to work in maximum safety conditions and guarantee perfect propping and plumb,
- all connection, alignment and plumb accessories of the formwork are tight and fixed to the ground before beginning the pour.

Geoplast SpA disclaims any liability arising from improper use of the formwork Geopanel. Any assembly of formwork and/or use of accessories otherwise described in this manual must first be approved by Geoplast SpA.

Le operazioni di posizionamento, montaggio, smontaggio, messa a piombo, movimentazione e pulizia del prodotto Geopanel, nonché del getto del calcestruzzo, devono essere effettuate da personale competente e debitamente istruito o comunque sotto il controllo del responsabile di cantiere oppure di un tecnico Geoplast SpA, i quali devono assicurarsi che:

- tutte le operazioni sopra elencate vengano svolte a regola d'arte,
- gli addetti alle operazioni sopra elencate siano muniti di idonea strumentazione e di dispositivi di protezione individuale per poter effettuare tutte le azioni nel pieno rispetto delle norme di sicurezza,
- tutti i pannelli e gli accessori in dotazione vengano controllati prima del loro utilizzo, in modo tale da poter eliminare quelli che non abbiano sufficiente garanzia di affidabilità a causa di eventuali presenze di rotture e/o deformazioni,
- il piano di appoggio dei casseri sia perfettamente piano, in modo da poter operare in massima sicurezza e garantire la perfetta puntellazione e piombatura dei pilastri,
- tutti gli accessori di collegamento, di allineamento e di piombatura dei casseri, siano ben serrati e fissati al suolo prima di iniziare le operazioni di getto.

Geoplast SpA declina ogni responsabilità derivante da un uso improprio dei casseri Geopanel. Eventuali assemblaggi dei casseri e/o uso di accessori diversamente illustrati in questo manuale, devono essere prima approvati da Geoplast SpA.



**GEOPLAST S.p.A.**

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