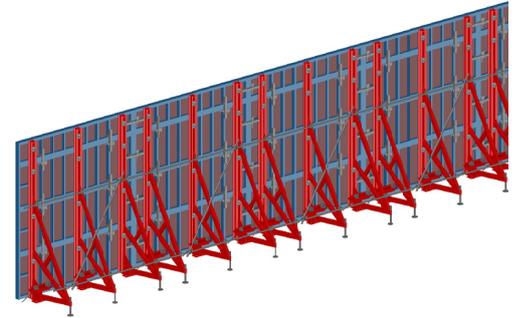


Handbook Light single side wall frame





CONTACTS

Offices and Factory

GPRANDINA SRL

Via Roma, 37

36060 Schiavon (VI) Italy

Tel. +39 0444 665046

Fax. +39 0444 466289

web www.gprandina.it

info@gprandina.it

E-MAIL

Sales office

Technical office

Administration

commerciale@gprandina.it

tecnico@gprandina.it

amministrazione@gprandina.it

HANDBOOK

LIGHT SINGLE SIDE WALL

FRAME

In this handbook are described the actions to take for a correct assembly of the single side wall frame system. GPrandina company invites you to follow carefully all the provisions and requirements listed in the handbook. In case of wrong utilization or wrong setting of its products, the GPrandina disclaims any liability in case of accidents and / or cracks.

The assembly must be carried out by specialized personnel and under the supervision of the site manager and/or a technician in-charge.

The action listed in the present handbook must be executed in a workmanlike following the safety rules for construction sites.

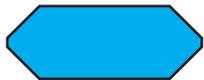
The GPrandina srl Building System wishes you

Good Work

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1.0.0

GENERAL PROVISIONS

GENERAL REQUIREMENTS:

The components must be installed as shown in this section of the manual.

For the safe use of the GP-10 elements, the user must set up an adequate support base for the latter which supports the discharge to the ground of the forces generated by the casting of the concrete.

It is strictly forbidden to use GP-10 systems on low-resistance bases such as wood, gravel, earth, etc.

It is strictly forbidden to make changes, add or subtract details to the GPrandina elements.

GPrandina srl Building System disclaims any responsibility for incorrect use of its construction systems.



GENERAL PROVISIONS

The operations regarding the preparation, the assembly, the moving and the disassembly of the one side wall frame system must be performed by competent staff and under the supervision of the site manager or by a technician of the GPrandina (on customer request) and they have to make sure that:

- The above mentioned operations are executed in a workmanlike following all the rules about safety in the building sites and the instructions written in the drawings given together the supply of the goods;
- All the means for the uplift and for the transport, provided or not by GPrandina, must be suitable for the handling of the equipment;
- All the accessories used have to be checked before their use with the purpose to remove those which are not more reliable for reasons due to breaking, deformation and corrosion;
- The support surface is perfectly plain before to put in implementation the one side wall system;
- All the connection and anchorage accessories are well tightened before the concrete pouring;
- The staff performing the above mentioned operations have suitable tools and, according to the specific risks to which they are exposed, make use of one or more individual protection devices such as: seat belts, work gloves, hard hats, work shoes and high visibility jackets where it is required.

GPRANDINA SRL BUILDING SYSTEM disclaims any liability for improper use of the equipment and / or its incorrect installation and / or differently than described in this manual.

SYMBOLS LEGEND:

In this manual you will find some captions preceded by the following symbols:



Caution
Safety prescription.



Caution
Additional explanations.

 NON SALIRE O SCENDERE DAI PONTEGGI	 NON GETTARE MATERIALI DAI PONTEGGI	 NON PASSARE SOTTO CARICHI SOSPESI
 CASCO DI PROTEZIONE	 CINTURA DI SICUREZZA	 GUANTI DI PROTEZIONE
 CALZATURE DI SICUREZZA	 VIETATO L'INGRESSO A TUTTE LE PERSONE NON AUTORIZZATE	 CONTROLLARE FUNI E CATENE
 ATTENZIONE AI CARICHI SOSPESI	<p>NORME GENERALI PREVENZIONE INFORTUNI</p> <p>OBBLIGHI DEI LAVORATORI</p> <p>1. Il lavoratore deve:</p> <ol style="list-style-type: none"> 1.1. essere informato e formato sui rischi e sui pericoli del lavoro; 1.2. essere informato e formato sui rischi e sui pericoli del lavoro; 1.3. essere informato e formato sui rischi e sui pericoli del lavoro; 1.4. essere informato e formato sui rischi e sui pericoli del lavoro; 1.5. essere informato e formato sui rischi e sui pericoli del lavoro; 1.6. essere informato e formato sui rischi e sui pericoli del lavoro; 1.7. essere informato e formato sui rischi e sui pericoli del lavoro; 1.8. essere informato e formato sui rischi e sui pericoli del lavoro; 1.9. essere informato e formato sui rischi e sui pericoli del lavoro; 1.10. essere informato e formato sui rischi e sui pericoli del lavoro; <p>NORME DI COMPORTAMENTO</p> <ol style="list-style-type: none"> 2.1. Non fumare in presenza di materiali infiammabili o esplosivi; 2.2. Non bere alcolici o droghe durante il lavoro; 2.3. Non usare telefoni cellulari o altri dispositivi elettronici durante il lavoro; 2.4. Non usare il telefono cellulare o altri dispositivi elettronici durante il lavoro; 2.5. Non usare il telefono cellulare o altri dispositivi elettronici durante il lavoro; 2.6. Non usare il telefono cellulare o altri dispositivi elettronici durante il lavoro; 2.7. Non usare il telefono cellulare o altri dispositivi elettronici durante il lavoro; 2.8. Non usare il telefono cellulare o altri dispositivi elettronici durante il lavoro; 2.9. Non usare il telefono cellulare o altri dispositivi elettronici durante il lavoro; 2.10. Non usare il telefono cellulare o altri dispositivi elettronici durante il lavoro; 	 TENSIONE ELETTRICA PERICOLOSA

INSTRUCTIONS FOR PRE-ASSEMBLY

Before mounting, make sure with care that:

- The plywood formwork is clean and without obvious signs of wear;
- The formwork frame has not deformed and that the welds are in good condition (no gaps, cracks, etc.);
- The accessories used are working, and do not present serious discrepancies (clamps, plates, nuts and bolts in general, service console tables, etc. .);
- The systems of lifting and handling equipment are in good condition and fully functional;
- All parts in direct contact with the concrete have been well oiled with appropriate oil to facilitate disarmament and to maintain the integrity of each article;

In order to have detailed explanations on mounting, distances and quantities to be respected, please carefully read and follow the instructions in this manual.

INSTRUCTIONS FOR DISASSEMBLY

Before the total disassembly takes place be sure that:

- Before the formworks are removed the days of maturation indicated by the direction of the work are gone and the concrete is fully cured;
- All the people in the yard are at a minimum distance of safety when lifting of the removed part is executed;
- It is required to lift and fall to the ground, the formworks, the single side wall frames and all related accessories with suitable means for lifting;
- It is strictly forbidden to launch the components (even the smallest) from above to prevent accidents, breakages and / or deformation of the articles.

MAINTENANCE

Routine maintenance should be performed every time you have finished the materials and / or whenever it is deemed necessary: it is recommended to clean all components from the residues of concrete, paying particular attention to the threads and bolts in general.

Once the cleaning is completed it is recommended to lubricate all the elements to protect them from the weather.

The extraordinary maintenance must be carried out by the staff of GPRANDINA at our factory with special equipment.

STORAGE OF THE MATERIAL

The storage of the material at the end of the construction operations must be done, if possible, in a sheltered place; the formworks and the single side wall frames must be put in a raised position on wooden wall, bound and lying in a stable position.

The storage of the material in the building site must be done in a wide area to avoid the creation of any obstruction.

This zone should be placed as close as possible to the area of use.

STRUCTURAL CHARACTERISTICS OF THE ELEMENTS

THE PANEL

The perimeter of the panels is made of the profile "T2096" carbon steel S 275 JO with the following characteristics:

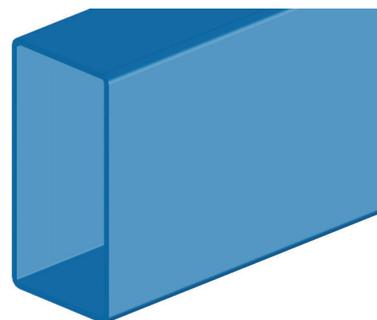
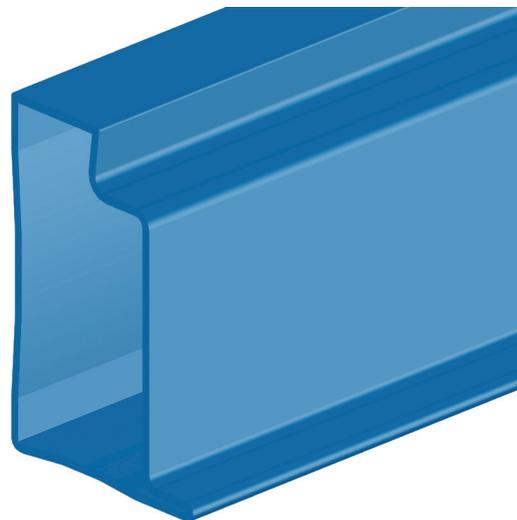
PROFILE "T2096" carbon steel UNI EN 10025-S275JO

THICKNESS=	2,3 mm
A=	7,70 cm ²
Jx=	89,067 cm
Jy=	33,172 cm
Wx=	15,525 cm ³
Wy=	8,587 cm ³
Rx=	3,611 cm
Ry=	2,060 cm

THICKNESS=	1,8 mm
A=	5,574 cm ²
Jx=	70,942 cm
Jy=	26,752 cm
Wx=	12,354 cm ³
Wy=	6,879 cm ³
Rx=	3,631 cm
Ry=	2,082 cm

The metallic crosspieces are all made of tubes with a rectangular section 40x80x2 mm steel UNI EN 10025-S275JO with the following characteristics:

THICKNESS=	2,0 mm
A=	4,46 cm ²
Jx=	36,26 cm
Jy=	12,42 cm
Wx=	9,06 cm ³
Wy=	6,21 cm ³
I=	1,68 cm

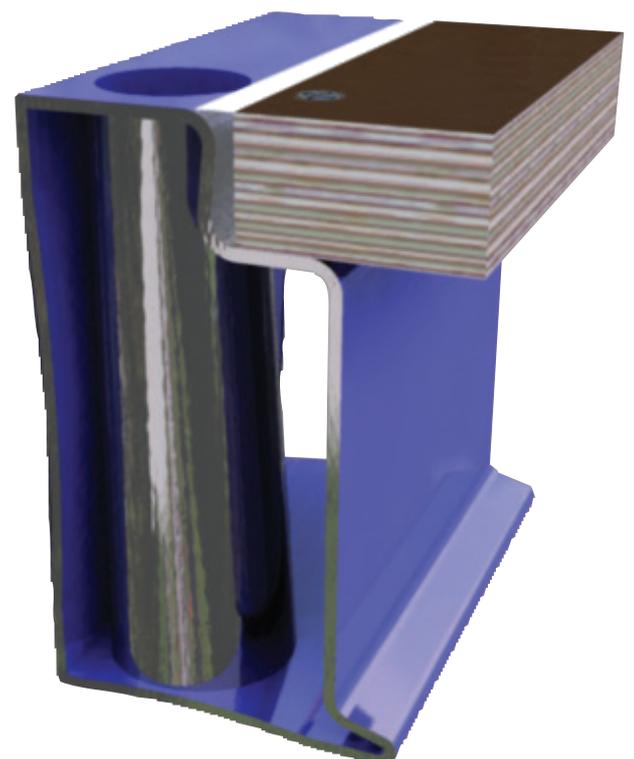


The panel is made of plywood "PLYWOOD" phenolic glued and built exclusively using birch wood and with surfaces coated by a phenolic coating.

FEATURES	RULES	UNITS	VALUE
Thickness	EN 315	mm	18
Layers	-	-	13
Weight	EN 324.1	Kg/m ²	12,08
Classification	Usa esterno		
Resistance	EN 310	Mpa	60 x
Flexion	EN 310	Mpa	55 y
Form	EN 310	Mpa	8700 x
Elasticity	EN 310	Mpa	6300 y
Mass volume	EN 323	Kg/m ³	700
Thermal conduction	UNI 7745	W/mK	0,15
Humidity	EN 322	%	max 15%
Bonding	EN 314	-	Classe 3
Abrasion	UNI 9116	RA	400
Dimensional tolerances	Thickness	mm	min. 17,1 / max 18,1
	Length / Width	mm	± 3
	Orthogonality	mm/m	1,0



In relation to the normal rules our panel offers a guarantee in excess of 20%, since the structure of the formwork was calculated for a triangular maximum allowable pressure equal to 70 KN/m².



STRUCTURAL CHARACTERISTICS OF THE ELEMENTS

GROUND FORMWORK H350

The light ground is made up of a series of commercial profiles with the following characteristics:

UPN STEEL PROFILE 100X50X6 mm S 275 JR

A=	1350,0 mm ²
Jx=	205,0 cm ⁴
Jy=	29,2 cm ⁴
Wx=	41,1 cm ³
Wy=	8,45 cm ³
ix=	3,91 cm
iy=	1,46 cm

RECTANGULAR STEEL PIPE 100X50X4 S 275 JR

A=	1136,0 mm ²
Jx=	144,13 cm ⁴
Jy=	47,37 cm ⁴
Wx=	28,83 cm ³
Wy=	18,95 cm ³
ix=	3,56 cm
iy=	2,04 cm

RECTANGULAR STEEL PIPE 80X40X3 mm S 275 JR

A=	684,0 mm ²
Jx=	55,85 cm ⁴
Jy=	18,43 cm ⁴
Wx=	13,96 cm ³
Wy=	9,21 cm ³
ix=	2,86 cm
iy=	1,64 cm

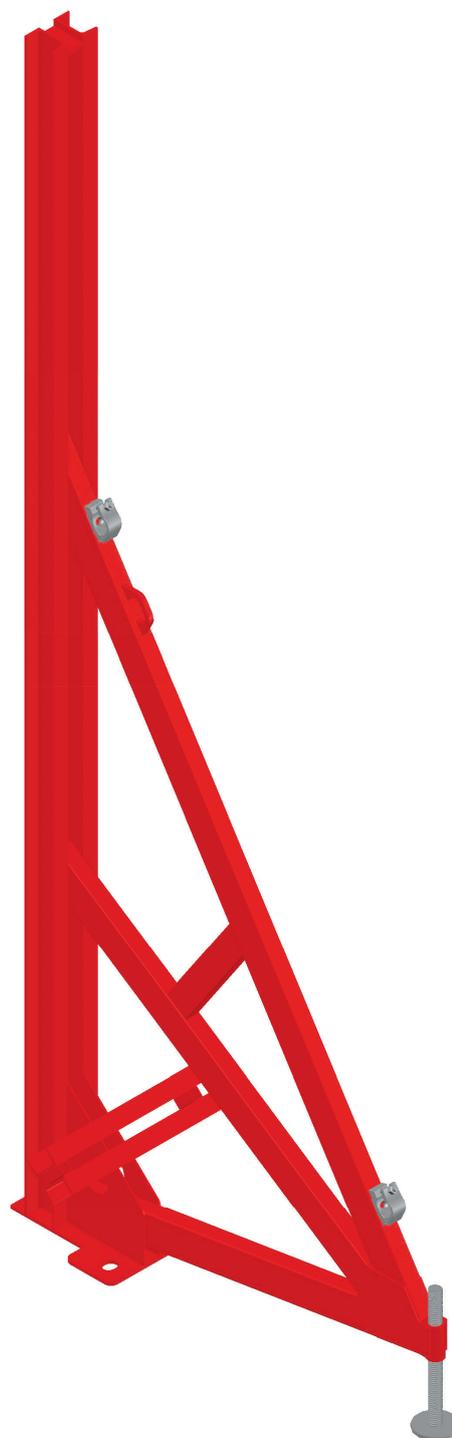
STEEL PLATES S 275 JR

THREADED STEEL BUSH Ø50X100 TpN35 S 355JR+AR

THREADED STEEL BAR TpN35 S 355JR+AR

ITEM: 311001

WEIGHT: 140,0 KG



In relation to the normal rules our light single side wall frame was calculated for a triangular maximum allowable pressure equal to 30 KN.

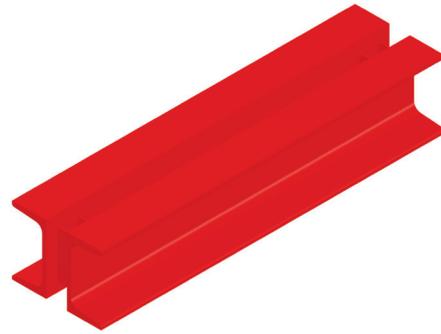
STRUCTURAL CHARACTERISTICS OF THE ELEMENTS

ANCHOR BAR

The anchor bar for the light single side wall frame consists of a set of commercial profiles having the following characteristics:

PROFILE UPN 100X50X5mm in steel S 275 JR

A=	1350,0 mm ²
Jx=	205,0 cm ⁴
Jy=	29,2 cm ⁴
Wx=	41,1 cm ³
Wy=	8,45 cm ³
ix=	3,91 cm
iy=	1,46 cm



SQUARE PIPE 40X40X3 mm in steel S275 JR

A=	285,0 mm ²
J=	3,13 cm ⁴
W=	2,09 cm ³
i=	1,11 cm

ITEM: 391003

WEIGHT: 10,0 KG

STRUCTURAL CHARACTERISTICS OF THE ELEMENTS

SERVICE CONSOLE TABLE

The service console table consists of a series of commercial profiles with the following characteristics:

SQUARE PIPE 40X40X3 mm in steel S275 JR

A=	405,0 mm ²
J=	8,66 cm ⁴
W=	4,30 cm ³
i=	1,52 cm

SQUARE PIPE 30X30X3 mm in steel S275 JR

A=	285,0 mm ²
J=	3,13 cm ⁴
W=	2,09 cm ³
i=	1,11 cm

SQUARE PIPE 50X50X3 mm in steel S275 JR

A=	564,0 mm ²
J=	20,85 cm ⁴
W=	8,34 cm ³
i=	192 cm

PLATES WITH VARIOUS THICKNESS STEEL S 275 JR

PINS Ø20X100 mm in steel S275 JR

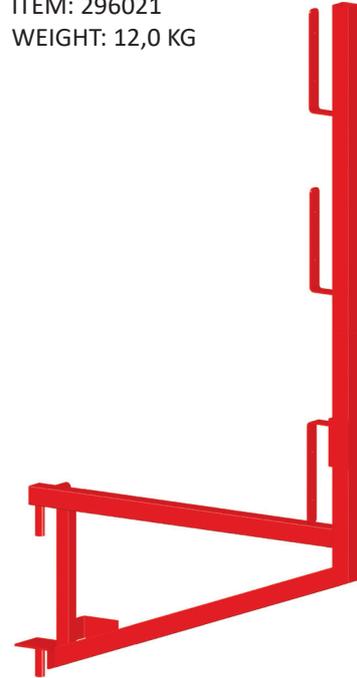
ITEM: 296021

ITEM: 296021-FR

WEIGHT: 12,0 KG

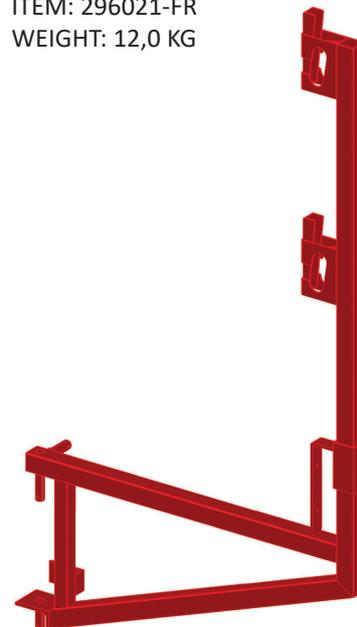
ITEM: 296021

WEIGHT: 12,0 KG



ITEM: 296021-FR

WEIGHT: 12,0 KG



LOADS	
SERVICE	150 Kg/m ²
CONCENTRATES	150 Kg
WIND	20 Kg/m ²
TRUST ON THE PARAPET	50 Kg/m ²
WIND OUT OF SERVICE	80 Kg/m ²



STRUCTURAL CHARACTERISTICS OF THE ELEMENTS

LIFTING HOOK

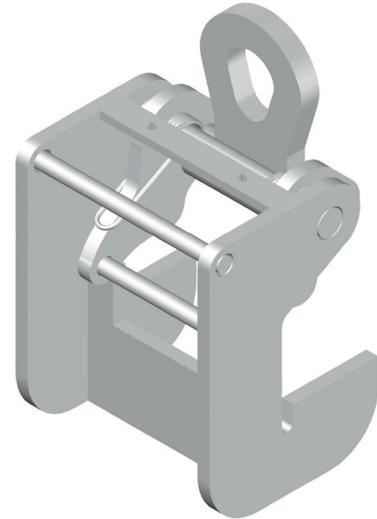
The hook CE – mat. 7417/04 is designed for lifting of building formworks. It can be used only and exclusively with the products GPRANDINA SRL BUILDING SYSTEM.

The grip is carried out on the patented profile “T2096” (see page # 6). Basically the hook consists of a steel structure with a grip profile, a steel rotating hook and by a return spring. The functioning is type clamp. Thanks to the special leverage created by the uplift the charge itself guarantees a safe grip on the profile, the increase of the lifted load corresponds to an increase of the keeping pressure on the profile itself. The function of the spring is to return the hook in rest condition.

For further information please look at the certificate of the lifting hook given with this manual.

MAXIMUM CARRYNG CAPACITY 1140 KG.

ITEM: 291002
WEIGHT: 7,0 KG



CE

The hook CE “CAMPANELLA EN 1677-4°22”, consists of allowed steel.

It is used mainly for the moving of the modular single side wall frame.

Request, if necessary, the certificate to GPRANDINA BUILDING SYSTEM SRL.

MAXIMUM CARRYNG CAPACITY 5300 KG.

ITEM: 31021
WEIGHT: 1,6 KG



CE

STRESSES

The stresses that are applied to the formwork are caused by:

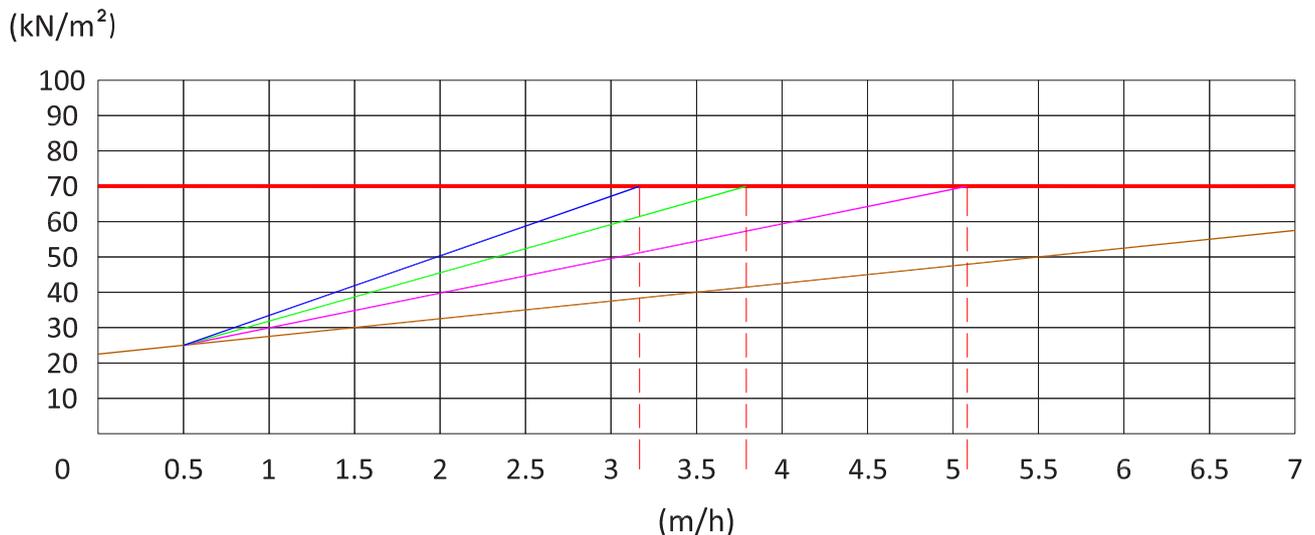
- Fluidity Concrete: percentage of water measured in S-slump;
- Quantity of concrete: the speed with which it is raised the level of the concrete casting inside the formwork;
- Possible use of the vibrator;

NB: The above characteristics are strongly affected by the ambient temperature and also by the casting temperature. The pressure of the wet concrete distributed on the whole surface in accordance with the normal tolerances of flatness, is summarized to the left:

NORME CNR 10027-85	NORME DIN
Calcestruzzo H= 300 cm P°= 0,0 livello superiore Pmax= 57,5 KN/m ² Pb= 57,5 KN/m ²	Calcestruzzo H= 300 cm P°= 0,0 livello superiore Pmax= 70 KN/m ² Pb= 70 KN/m ²
Sovraccarico - passerella Pmax= 150 Kg Mmax= 60 Kgm	Sovraccarico - passerella Pmax= 150 Kg Mmax= 60 Kgm

Not to exceed the safety limits, by which they have been designed and built, the formworks GP-10 with accessories, it is advised to refer to specific and relevant tables and graphs (as shown below) with the most frequent situations of cast concrete.

In the **TABLE 1** are written the elevation values of the concrete pouring (m/h); starting from this value and following the corresponding line until the external temperature indicated at the top, it can be seen the depth where the pouring will reach the maximum pressure on the sides of the formworks. Then it proceeds to check in **TABLE 2** the maximum pressure (KN / m²) of concrete in case it is normal (CLS-N) or vibrate (CLS-V).



- Superfluid concrete
- Fluid concrete
- Plastic concrete
- Wet concrete



WARNING:

GPrandina disclaims any liability for the speed of pouring incorrect.

TABLE 1: It refers to a total heights of the concrete casting equal to 5 ml

V	Hm				
	25°	20°	15°	10°	5°
0,50	1,22	1,34	1,50	1,68	2,02
1,00	1,55	1,70	1,90	2,15	2,55
1,50	1,80	2,00	2,20	2,50	3,00
2,00	2,00	2,20	2,45	2,75	3,30
2,50	2,15	2,40	2,70	3,00	3,60
3,00	2,30	2,55	2,85	3,20	3,90
3,50	2,45	2,70	3,00	3,40	4,10
4,00	2,55	2,85	3,15	3,60	4,30
4,50	2,70	2,95	3,30	3,75	4,50
5,00	2,80	3,10	3,40	3,90	4,70

VV= speed of the concrete raising (m/h)

Hm= depth measured from the free surface of the concrete casting where the pressure is at maximum level.

Pm= maximum pressure exercised by the concrete on the side walls.

TABLE # 2: It refers to the maximum pressures exercised by the regular concrete and by the vibrated concrete at different depths.

Hm (m)	Pm (KN/m ²)		Hm (m)	Pm (KN/m ²)	
	CLS N	CLS V		CLS N	CLS V
1,25	21,50	29,50	2,55	44,00	60,75
1,30	22,50	31,00	2,60	45,00	62,00
1,35	23,25	32,25	2,65	45,76	63,00
1,40	24,00	33,50	2,70	46,50	64,00
1,45	24,75	34,50	2,75	47,25	65,00
1,50	25,75	35,50	2,80	48,00	66,00
1,55	26,75	36,75	2,85	49,00	67,50
1,60	27,50	38,00	2,90	49,75	68,50
1,65	28,50	39,25	2,95	50,75	70,00
1,70	29,25	40,50	3,00	51,25	71,00
1,75	30,25	41,50	3,10	53,00	74,00
1,80	31,00	42,75	3,20	55,00	76,00
1,85	32,00	44,00	3,30	56,75	78,00
1,90	32,75	45,00	3,40	58,00	80,75
1,95	33,50	46,25	3,50	60,00	83,00
2,00	34,00	47,50	3,60	62,00	85,00
2,05	35,00	49,00	3,70	64,00	88,00
2,10	36,00	50,00	3,80	65,50	90,00
2,15	37,00	51,00	3,90	67,00	92,50
2,20	38,00	52,25	4,00	68,75	95,00
2,25	39,00	53,50	4,20	72,00	100,00
2,30	39,75	54,75	4,40	75,50	105,00
2,35	40,50	56,00	4,60	79,00	110,00
2,40	41,25	57,00	4,80	82,00	115,00
2,45	42,25	58,50	5,00	84,50	120,00
2,50	43,00	59,50			



EXAMPLE:

At a maximum speed of the concrete casting of 3,00 m/h and with an environment temperature of 15°, the maximum pressure depth (Hm) corresponds to 2,85 m 8 (see table #1) which itself has a corresponding maximum pressure (Pm) if 49,00 KN/m² in case of normal concrete (CLS-N) and of 67,50 KN/m² in case of vibrated concrete (CLS-V) (see table #2). As the formwork supports a pressure of the wet concrete with a maximum thrust of 70,00 KN/m² (see the certificate structural), it is noted that the example meets the rules about operating in a safety situation.

LEGISLATIVE REFERENCES

Structural calculations are performed with the usual method of building science to the allowable stresses in relation to the following standards:

DPR N° 547 dated 27/04/55;
CNR-UNI 10029/87 steel constructions with high strength;
CNR-UNI 10027/85 steel constructions for provisional works;
CNR-UNI 10012/85 actions on the constructions;
CNR-UNI 10011/85 steel constructions;
DPR N° 164 of 07/01/56;
CIRC. N° 80 of 07/07/86 Ministry of Labour;
CIRC. N° 15 of 19/03/90 Ministry of Labour;
D.M. of 09/01/1996 Technical Norms;
CIRC. N° 65/AA.GG. of 10/04/1997 Instructions for applying technical standards del D.M. del 16/01/1996

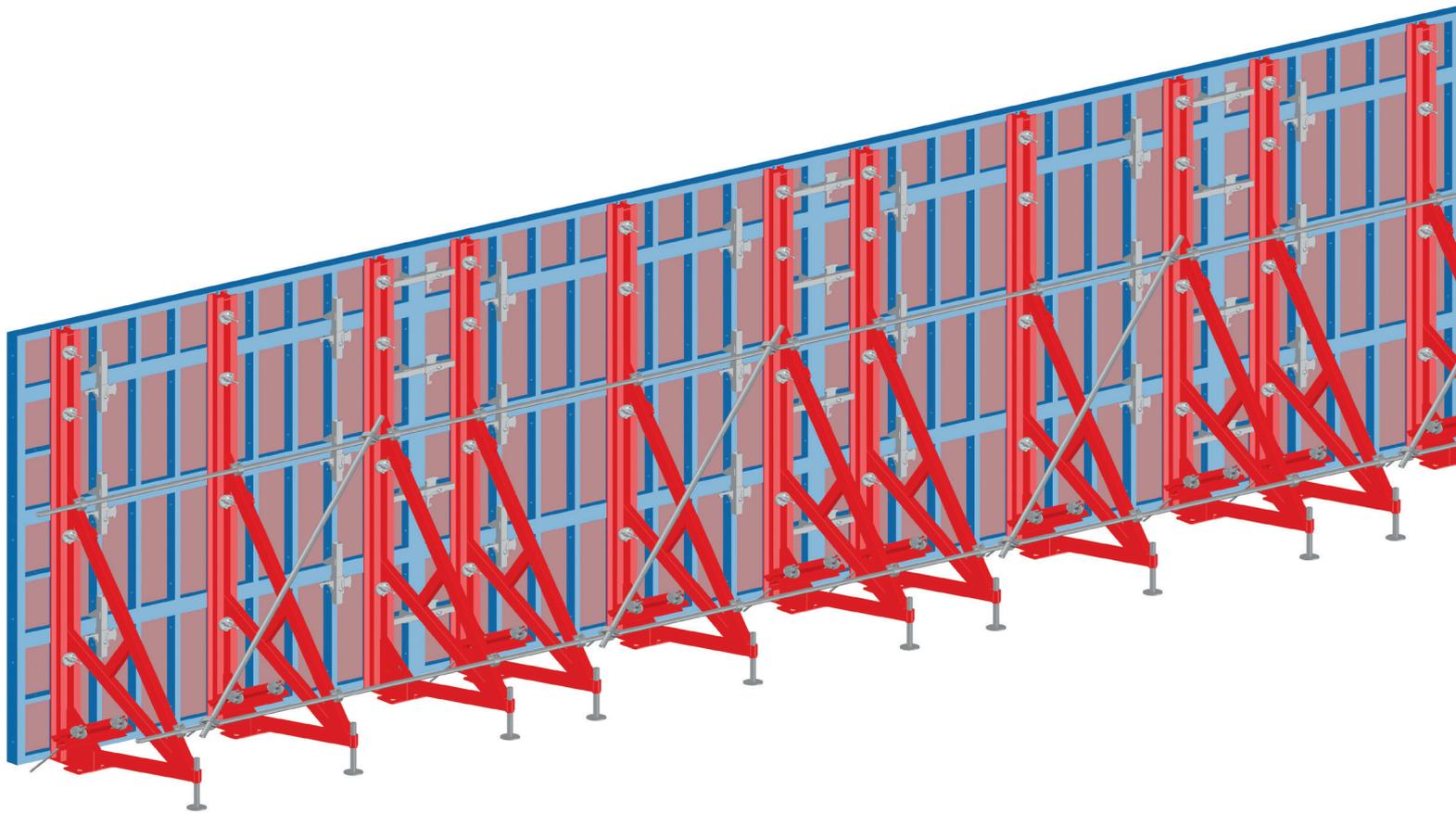
The above mentioned rules are reflected in EU:

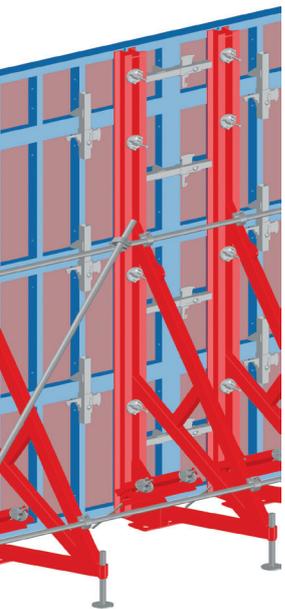
DIN 1050 Requirements for steel construction;
DIN 1055 Official regulations on load assumptions;
DIN 1912 Welding with filler material;
DIN 4100 Rules relating to welding;
DIN 17100 Construction steel, quality requirements;
DIN 4420 Scaffolding;
DIN 4114 Criteria for calculation.

The calculations regarding the single side wall frame are based on the following regulations:

UNI EN 1990-2006 General criteria for structural design;
UNI EN 1993-1-1:2005 Design of structures in steel. Part 1-1: General rules and rules for buildings.
UNI EN 1993-1-8:2005 . Design of structures in steel. Parte 1-8: Design of the links;
DECRETO MINISTERIALE 14/01/2008 – Technical rules for buildings;
PrEN 12811-1 “ Temporary works equipment - Part 1: Scaffolds - Performance requirements and general design;
PrEN 13374 “ Temporary edge protection systems - Product specification, test methods”.

BS 5950-1: 2000 Steel code check





2.0.0

LIGHT SINGLE SIDE WALL FRAME SYSTEM

The light single side wall frame system GPrandina is the most convenient and fastest solution to execute concrete casting against a ground wall to a maximum height of 350 centimeters. Performing this system of shoring it is possible to use the GPrandina formworks of any measure, made in steel or in aluminum.

The used triangles are composed by a system of pipes and beams welded together and they make a solid, but at the same time light and manageable structure.

GENERAL PRESCRIPTIONS:

The components must be installed following the indications as displayed in this manual.

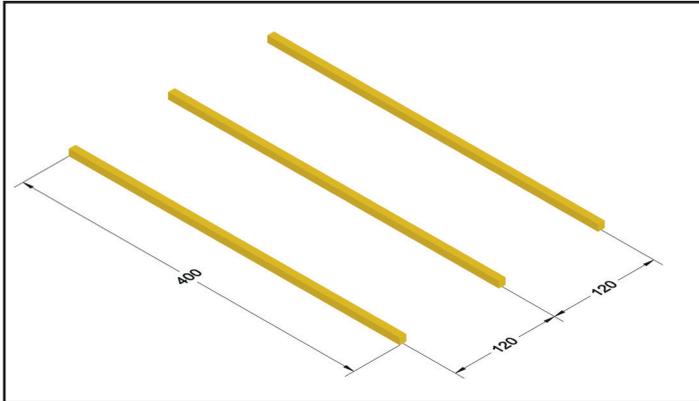
To use in safety situation the products of the GPrandina combined with the light single side wall frames, the operator has to prepare a proper supporting base for those, such as to support the discharge to the ground of the forces generated by the jet of concrete.

It is strictly forbidden the use of the single side wall frames on bases with few resistance such as wood, gravel, ground, etc.

It is strictly forbidden to make any changes, additions or subtractions of details to GPrandian products.

GPrandina disclaims any liability for a wrong use of its building systems.

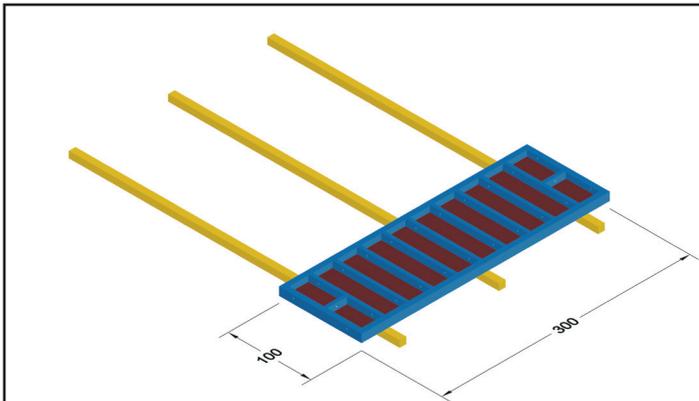
HORIZONTAL INSTALLATION INSTRUCTIONS



STEP 1:

To begin the assembly of 3 linear meters of a single side wall frames, place on a flat surface, three wooden beams or wooden wallcovering at a distance of about 120 cm. It will create a work plan where put the formworks GP-10 without ruining the frame and the plywood.

(Items not supplied by GPrandina srl, material born by the user).



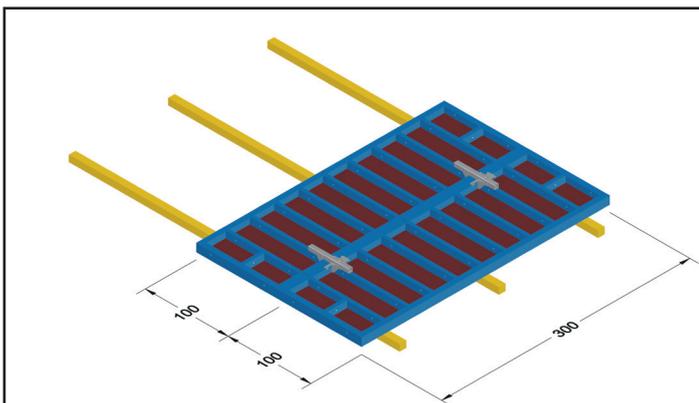
STEP 2:

Above the wooden beams or the wooden wall covering put the first panel GP-10 300x100, taking care to position the face in contact with the concrete downwards, so as to be able to install the clamps and the single side wall frames.

USED MATERIAL:

221104 PANEL GP-10 300x100

PCS. 1



STEP 3:

Place next to the panel GP-10 300x100, previously prepared, another panel GP-10 300x100 and merge the two by alignment clamp and / or adjustable clamp. 🛠️

USED MATERIAL:

221104 PANNELLO GP-10 300x100

PCS. 2

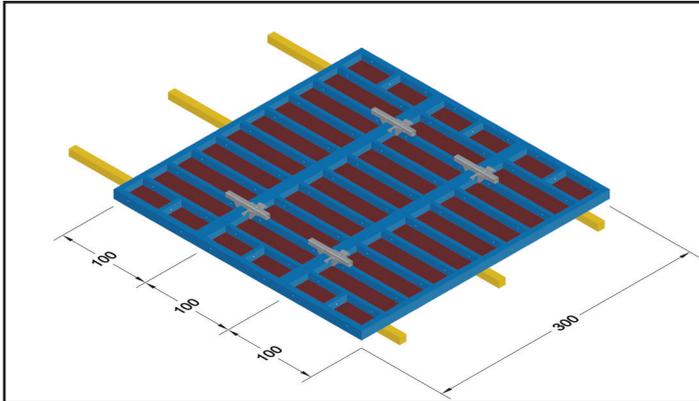
291012 ALIGNEMENT CLAMP

PCS. 2



STEP 3 – ALIGNEMENT CLAMP:

Place the alignment clamp reverse on the second reinforcement transverse of two adjacent panels and tighten the wedge with a hammer.

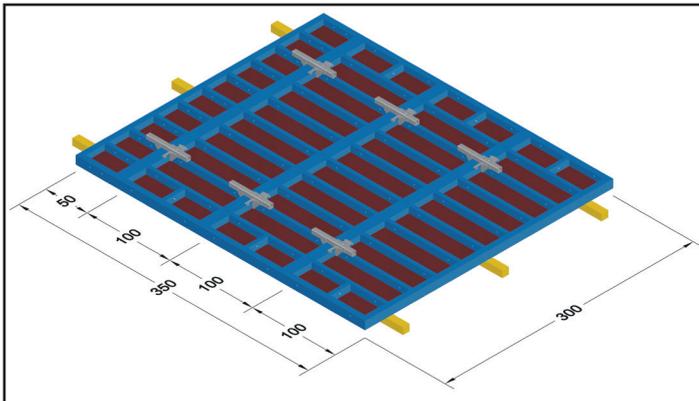


STEP 4:

Repete step 3.

USED MATERIAL:

221104	PANEL GP-10 300x100	PCS. 3
291012	ALIGNEMENT CLAMP	PCS. 4



STEP 5:

Repeat step 4 by placing a 300x50 panel GP-10 to reach the maximum height allowed.

USED MATERIAL:

221104	PANEL GP-10 300x100	PCS. 3
221114	PANEL GP-10 300x50	PCS. 1
291012	ALIGNEMENT CLAMP	PCS. 6



WARNING:

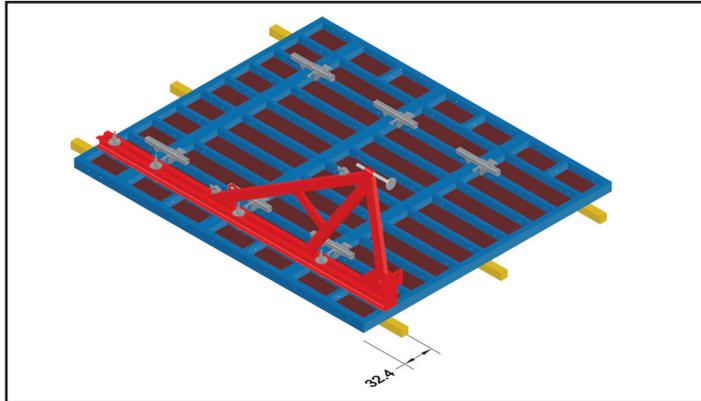
It is recommended:

- to use original articles GPrandina in combination between them;
- not to use items of various brands for the combination of elements;

The GPrandina Ltd. shall not be liable in the event of malfunction if you do not comply with the above recommendations.

Otherwise contact our technical department to evaluate the combination of products GPrandina with other brands.

HORIZONTAL INSTALLATION INSTRUCTIONS



STEP 6:

Place the first single side wall frame at the height of the first transverse reinforcement observing the dimension of 32.4 cm from the edge of the panel to the center of the frame. Make sure that the foot plate comes into contact with the profile of the panel.

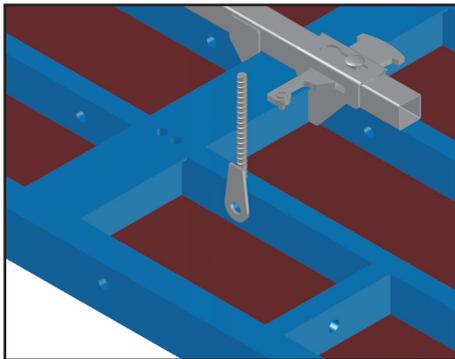
Connect the single side wall frame Panel GP-10 by the linker single side wall frame/panel.  Apply a linker on each panel in such a manner to ensure each formwork to the frame.

USED MATERIAL:

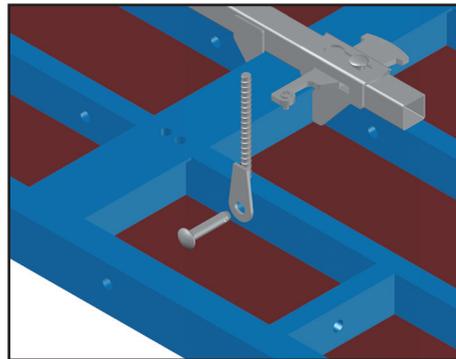
221104	PANEL GP-10 300x100	PCS. 3
221114	PANEL GP-10 300x50	PCS. 1
291012	ALIGNEMENT CLAMP	PCS. 6
311001	SINGLE SIDE WALL FRAME H350	PCS. 1
391002	LINKER SINGLE SIDE WALL FRAME/PANEL	PCS. 4



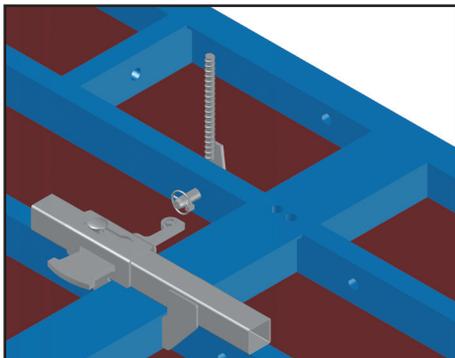
A



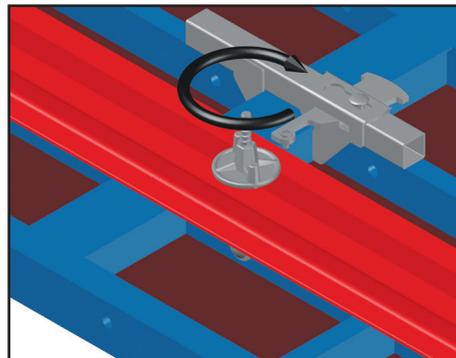
B



C

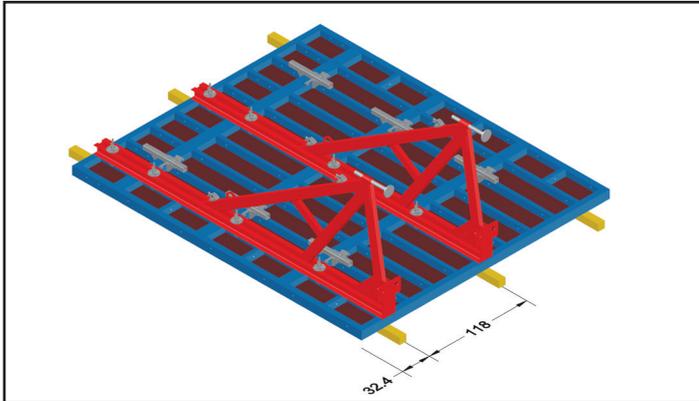


D



LINKER SINGLE SIDE WALL FRAME/PANEL

- A:** Place the linker in the vicinity of the hole in the reinforcement transverse;
B: insert the plug L. 90 mm supplied with the linker;
C: insert the safety pin into the hole on the plug L.90 mm;
D: secure by means of a nut plate DW15 the panel, the linker and the single side wall frame.



STEP 7:

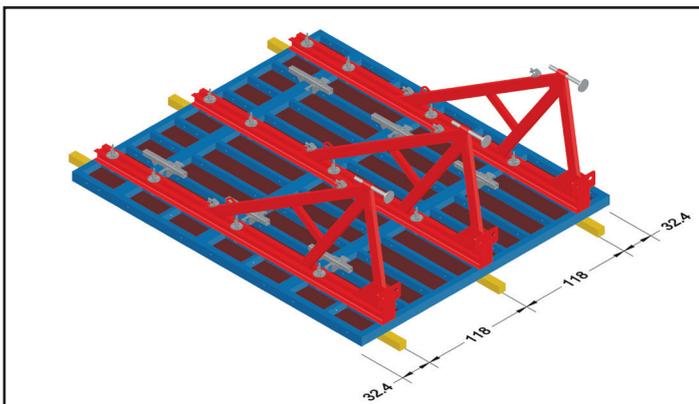
Place the second single side wall frame in the center of the panel in such a way as to respect the interaxial distance equal to 118 cm from frame to frame.

Connect the single side wall frame to the Panel GP-10 by means of the linker single side wall frame/panel.

Apply a linker to each panel in such a manner as to ensure each formwork to the frame.

USED MATERIAL:

221104	PANEL GP-10 300x100	PCS. 3
221114	PANEL GP-10 300x50	PCS. 1
291012	ALIGNEMENT CLAMP	PCS. 6
311001	SINGLE SIDE WALL FRAME H350	PCS. 2
391002	LINKER SINGLE SIDE WALL FRAME/PANEL	PCS. 8



STEP 8:

Place the third single side wall frame mirror image to the first frame.

Connect the single side wall frame to the Panel GP-10 by means of the linker single side wall frame/panel.

Apply a linker to each panel in such a manner as to ensure each formwork to the frame.

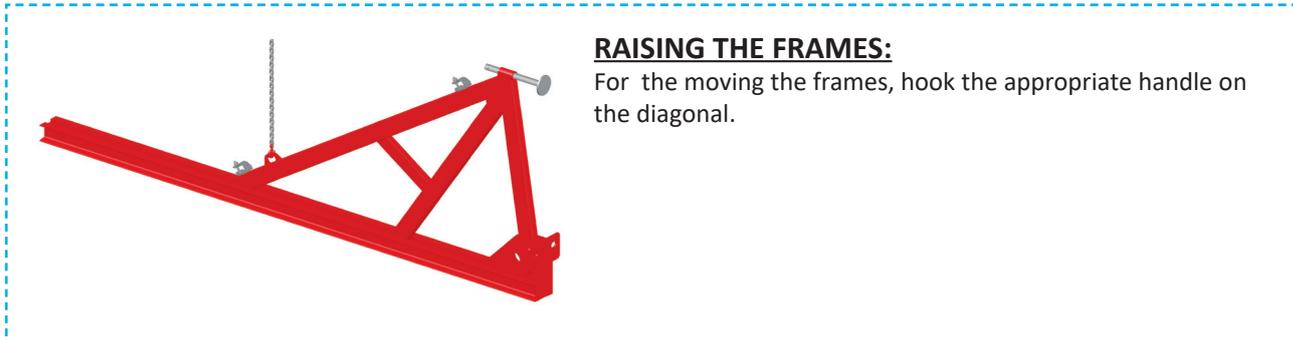
USED MATERIAL:

221104	PANEL GP-10 300x100	PCS. 3
221114	PANEL GP-10 300x50	PCS. 1
291012	ALIGNEMENT CLAMP	PCS. 6
311001	SINGLE SIDE WALL FRAME H350	PCS. 3
391002	LINKER SINGLE SIDE WALL FRAME/PANEL	PCS. 12



WARNING:

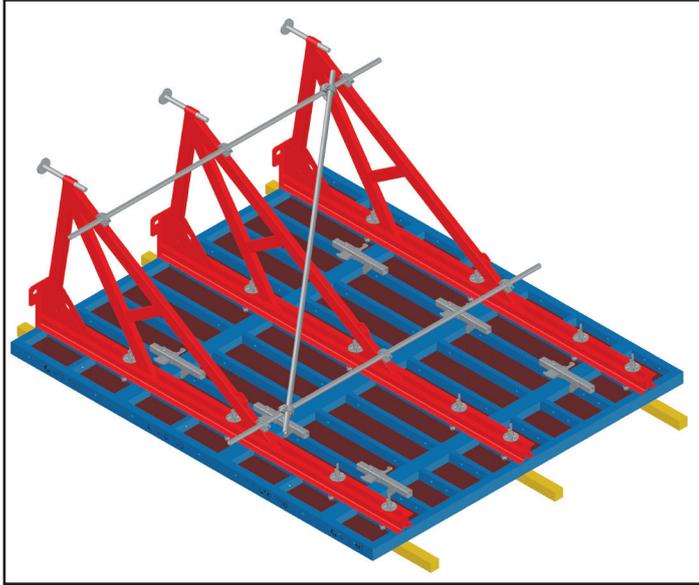
Check the perfection of the tightness of all nut plates DW-15, check that each plug L. 90 mm is ensured with the safety pin.



RAISING THE FRAMES:

For the moving the frames, hook the appropriate handle on the diagonal.

HORIZONTAL INSTALLATION INSTRUCTIONS



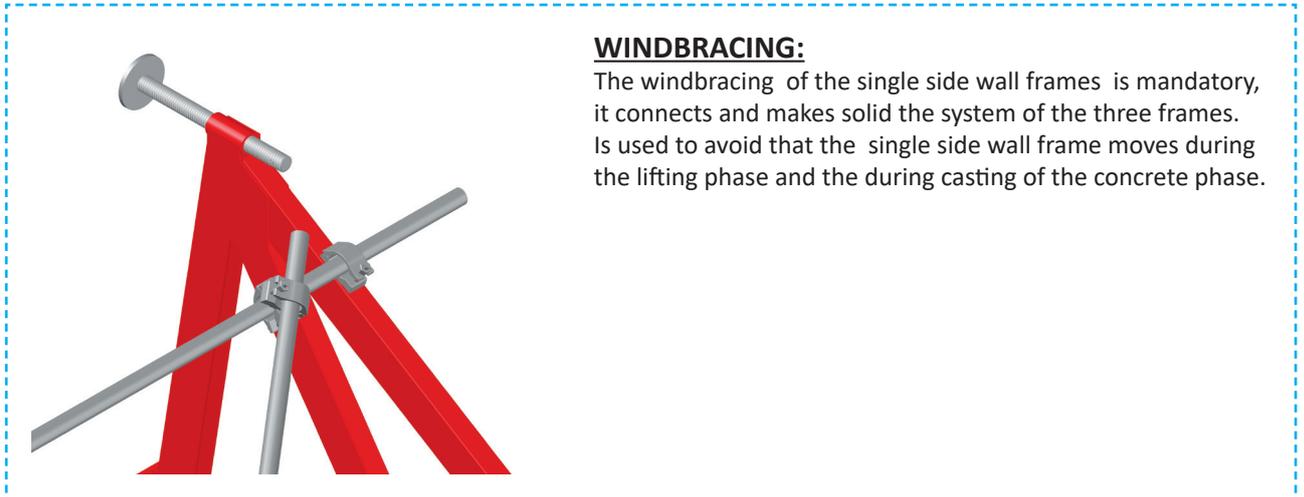
STEP 9:

In the appropriate joints, welded to the single side wall frame, place two horizontal pipes \varnothing 48x3 mm L.3000; tighten the bolt of the coupling with 22 mm hex wrench.

Once positioned the two horizontal tubes, connect them by means of diagonal tube \varnothing 48x3 mm L.3000 connected together by two articulated joints.

USED MATERIAL:

221104	PANEL GP-10 300x100	PCS. 3
221114	PANEL GP-10 300x50	PCS. 1
291012	ALIGNEMENT CLAMP	PCS. 6
311001	SINGLE SIDE WALL FRAME H350	PCS. 3
391002	LINKER SINGLE SIDE WALL FRAME/PANEL	PCS. 12
310100	PIPE \varnothing 48X3 L.3000	PCS. 3
310104	SWIVEL JOINT	PCS. 2



WINDBRACING:

The windbracing of the single side wall frames is mandatory, it connects and makes solid the system of the three frames. Is used to avoid that the single side wall frame moves during the lifting phase and the during casting of the concrete phase.

LIFT

LIFT:

To raise the total of 3 ml of wall using the single side wall frames you can take two different solutions:

- Using the lifting hook GP-10;
- Using the appropriate handles welded on the single side wall frames.



WARNING:

Before lifting the whole thoroughly check all lifting devices used; if something is cracked and / or warped, replace that part with an intact one.

CRANE HOOK:

ART. 291002

PCS. 2

Total weight:

kg. 1.088,80

Install two lifting hooks, supplied, on the profile of the edge of the formwork GP-10.

Hook the two chains on the two hooks positioned above.

The amplitude of the angle formed by the two chains for lifting should not exceed 60°.

HANDLES

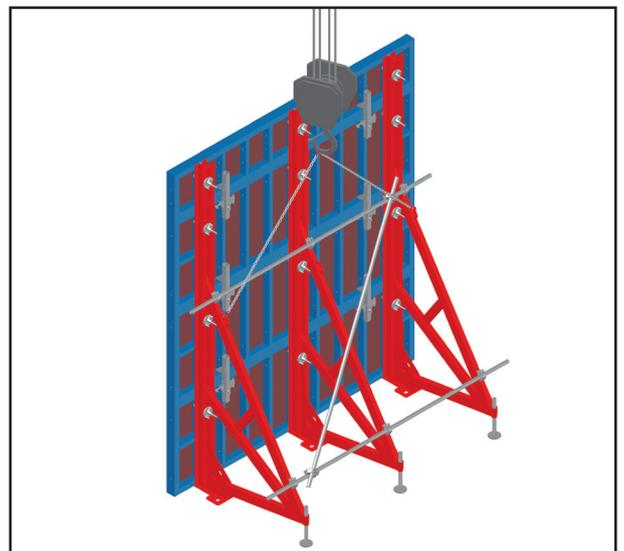
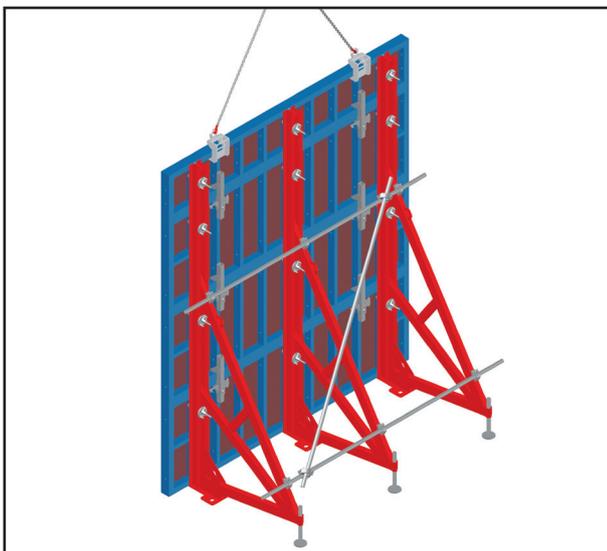
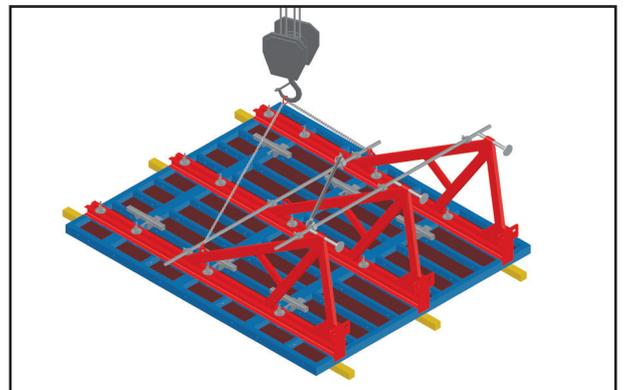
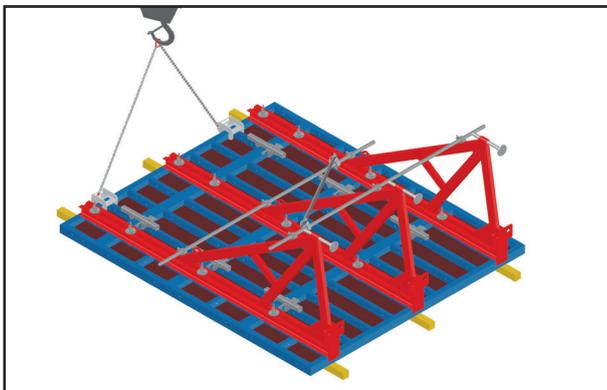
Total weight:

kg. 1.088,80

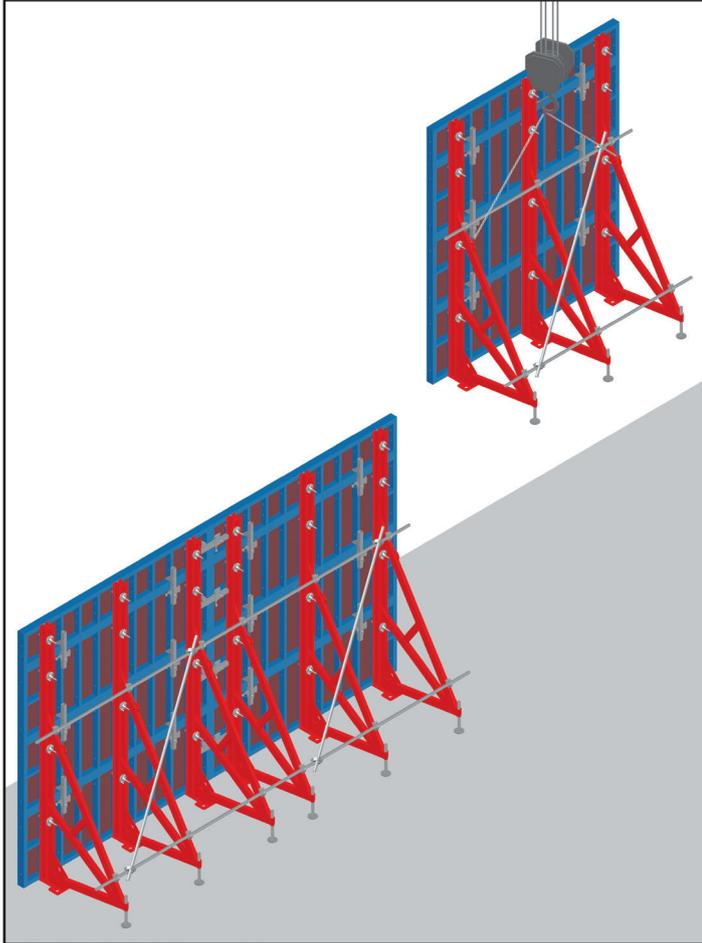
Hook the two chains on the handles welded on the single side wall frames.

For proper elevation place the chains on the frames located at the end of the formwork.

The amplitude of the angle formed by the two chains for lifting should not exceed 60°.



POSITIONING



STEP 10:

The user before placing the formwork must prepare the iron cage in the right position.

Trace the future concrete wall on the base.

Place the total of 3 running meters of panels – single side wall frames along the line drawn on the base, it is recommended to respect the line drawn so as to avoid having to move the formworks once the entire wall is assembled.

The union of the total of 3 ml of panels – single side wall frames is done by the alignment clamp and / or plug L. 140 mm with a wedge. 

USED MATERIAL:

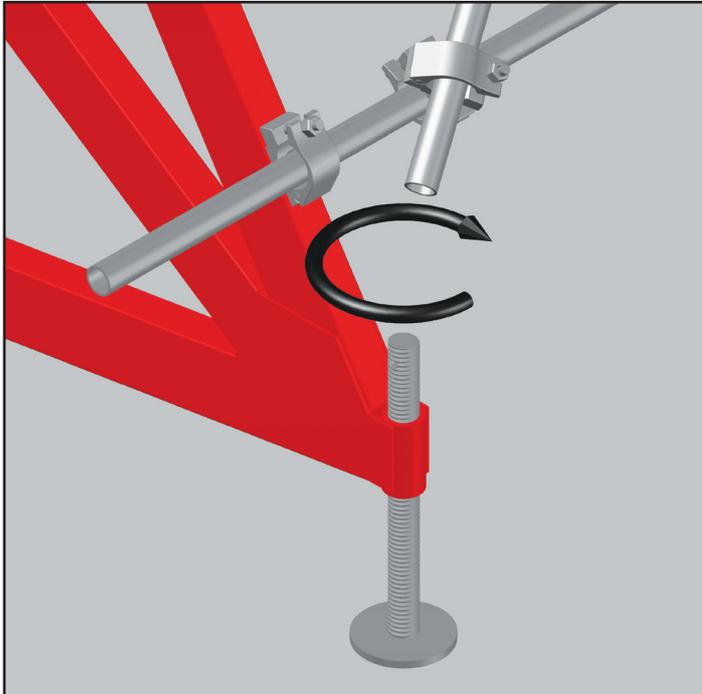
291012 ALIGNEMENT CLAMP

PCS. 4



STEP 10 – ALIGNMENT CLAMP:

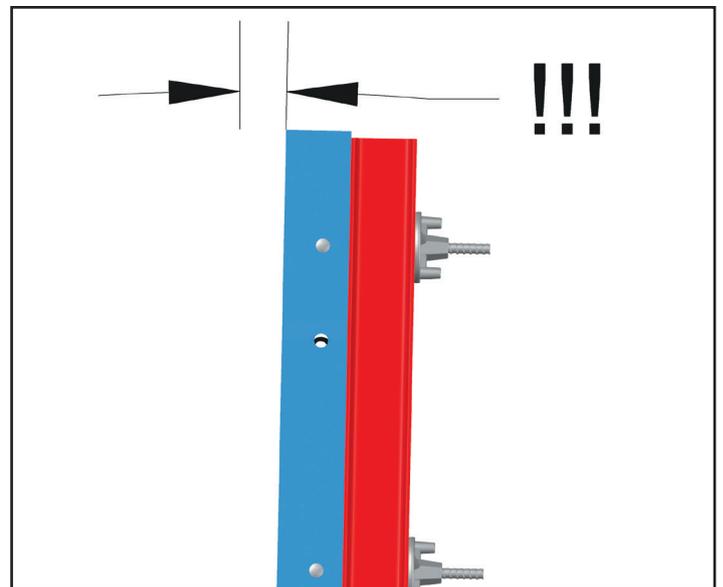
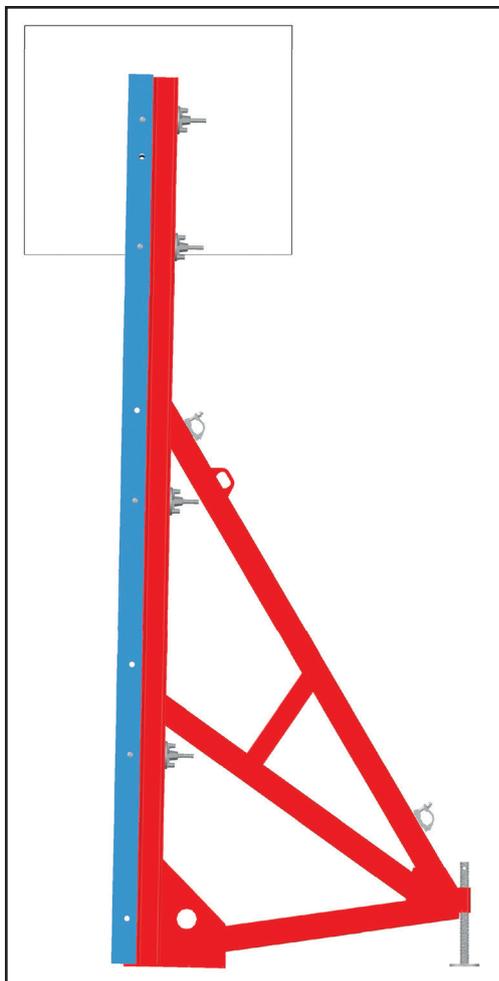
Place the grip alignment clamp at the center of the heads of the panel.



STEP 11:

To adjust the verticality of the total of 3 running meters, work on the threaded pin.

Enter a classic rod \varnothing 10 mm into the hole located in the threaded bar, turn it clockwise or counterclockwise as needed.

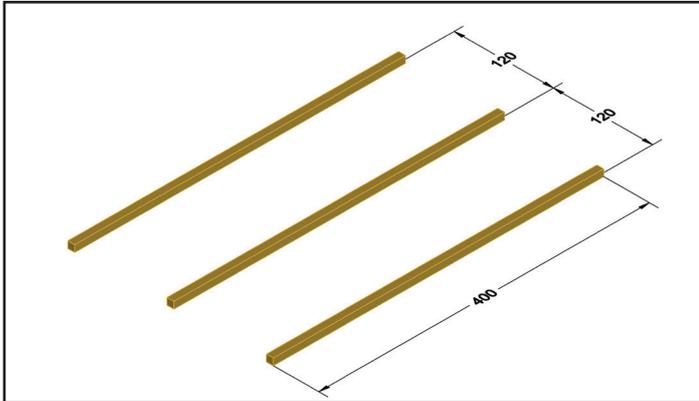


WARNING:

Make adjustments before fully secure the frames to the base.

Adjust the vertical position before starting with the casting of concrete.

VERTICAL INSTALLATION INSTRUCTIONS

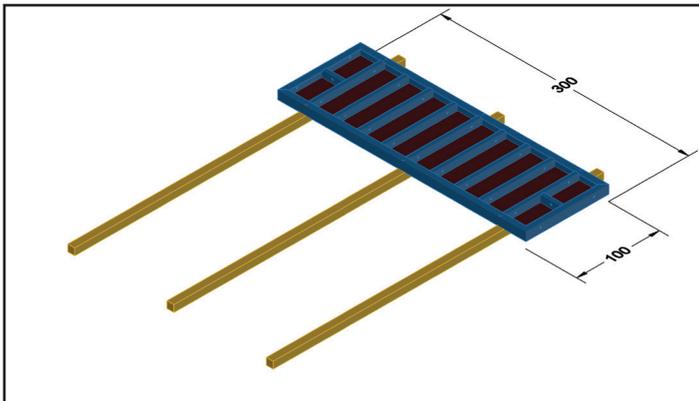


STEP 1:

To start the assembly of 3 linear meters of wall against the ground, place on a flat surface, three wooden or wall beams at a distance of about 120 cm.

You will come to create a worktop where to place the GP-10 formworks without damaging the frame and the multilayer.

(Elements not supplied by GPrandina srl, material borne by the user).



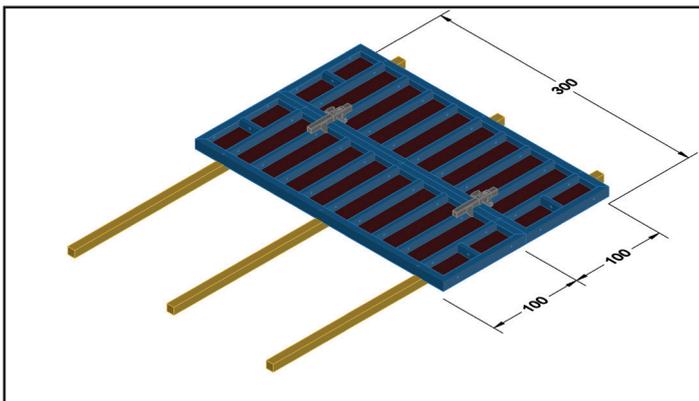
STEP 2:

Place the first GP-10 300x100 Panel on the wooden or wall beams, taking care to position the face in contact with the concrete downwards, so as to be able to install the clamps and the ground retaining frames.

USED MATERIAL:

PANEL GP-10 300x100

PCS. 1



STEP 3:

Position another GP-10 300x100 Panel next to the previously prepared GP-10 Panel 300x100 and join the two using an alignment clamp or plug and nut. 🛠️

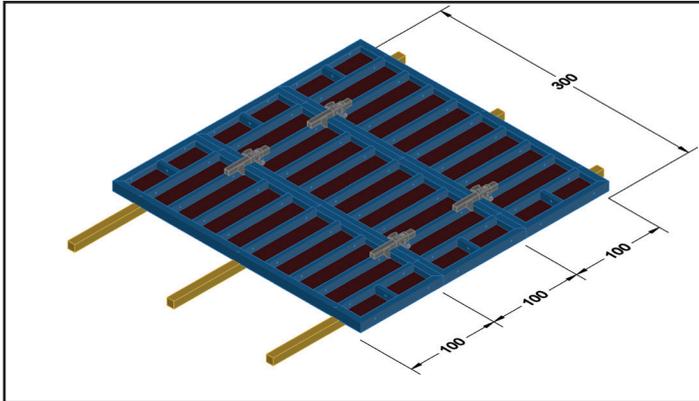
USED MATERIAL:

221104 PANEL GP-10 300x100

PCS. 2

291012 ALIGNEMENT CLAMP

PCS. 2



STEP 4:

Repeat step 3.

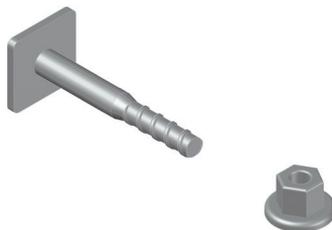
USED MATERIAL:

221104	PANEL GP-10 300x100	PCS. 3
291012	ALIGNEMENT CLAMP	PCS. 4
291186	LONG FIX PIN L.140 MM	PCS. 8
291211	NUT FOR PIN	PCS. 8



ALIGNEMENT CLAMP:

Place the alignment clamp in the center of the panel heads.



LONG FIX PIN AND NUT FOR PIN:

Insert the L. 140 mm plug in the appropriate hole in the profile and fix with the appropriate nut.



CAUTION:

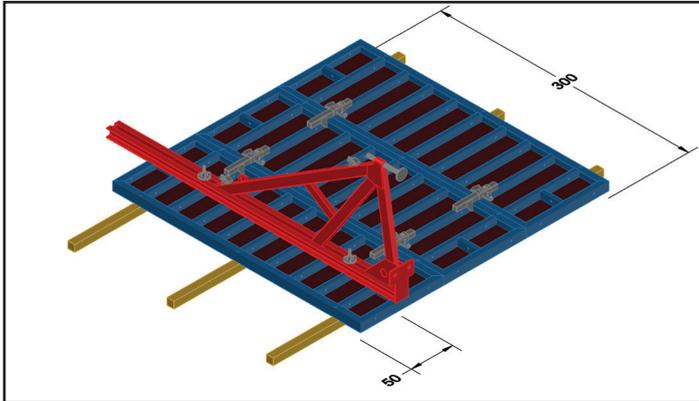
It is recommended:

- to use original GPrandina articles in combination with each other;
- not to use items of various brands for the combination of the elements;

GPrandina srl will not respond in the event of malfunctions if the aforementioned recommendations are not respected.

If not, contact our technical department to evaluate the combination of GPrandina products with other brands.

VERTICAL INSTALLATION INSTRUCTIONS



STEP 5:

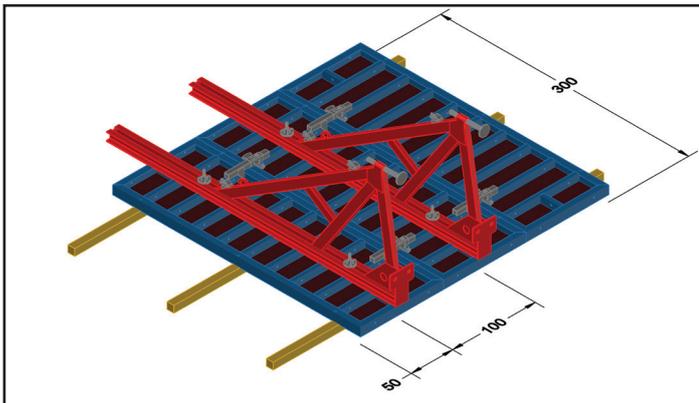
Position the first frame in the center of the panel.

Connect the ground support frame to the GP-10 panel by means of the ground-panel linker.

Apply two connectors to fix the frame to the formwork. 

USED MATERIAL:

221104	PANEL GP-10 300x100	PCS. 3
291012	ALIGNEMENT CLAMP	PCS. 4
311001	GROUND FORMWORK H350	PCS. 1
391002	CONNECTING CLAMP GROUND FORMWORK / PANEL	PCS. 2



STEP 6:

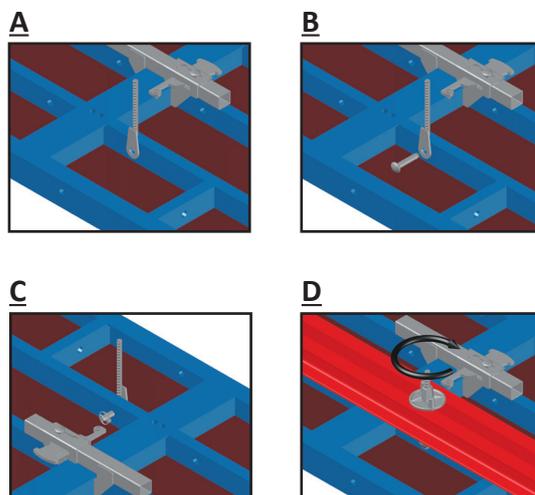
Position the second frame in the center of the panel.

Connect the ground support frame to the GP-10 panel by means of the ground-panel linker.

Apply two connectors to fix the frame to the formwork.

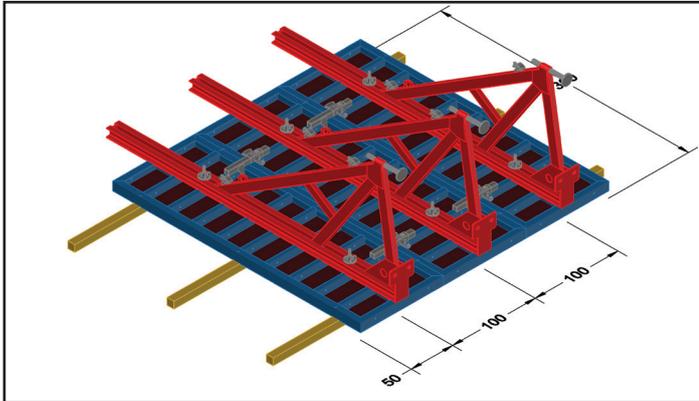
USED MATERIAL:

221104	PANEL GP-10 300x100	PCS. 3
291012	ALIGNEMENT CLAMP	PCS. 4
311001	GROUND FORMWORK H350	PCS. 2
391002	CONNECTING CLAMP GROUND FORMWORK / PANEL	PCS. 4



CONNECTING CLAMP GROUND FORMWORK / PANEL

- A:** position the link near the hole on the reinforcement beam;
- B:** insert the 90 mm L plug into the connector;
- C:** insert the safety cotter pin in the special hole on the L.90 mm plug;
- D:** secure the panel, the linker and the ground retainer using the DW15 nut plate.



STEP 7:

Position the third frame at the center of the panel.

Connect the ground support frame to the GP-10 Panel by means of the vertical ground connection-panel.

Apply two connectors to fix the frame to the formworks.

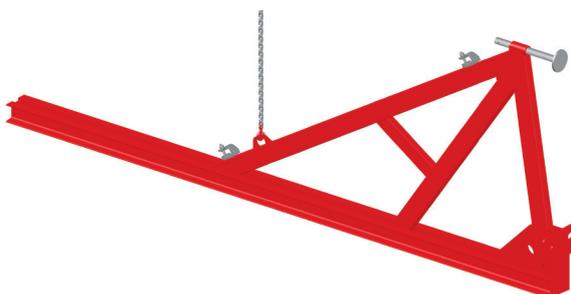
MATERIALE UTILIZZATO:

221104	PANEL GP-10 300x100	PCS. 3
291012	ALIGNEMENT CLAMP	PCS. 4
311001	GROUND FORMWORK H350	PCS. 3
391002	CONNECTING CLAMP GROUND FORMWORK / PANEL	PCS. 6



CAUTION:

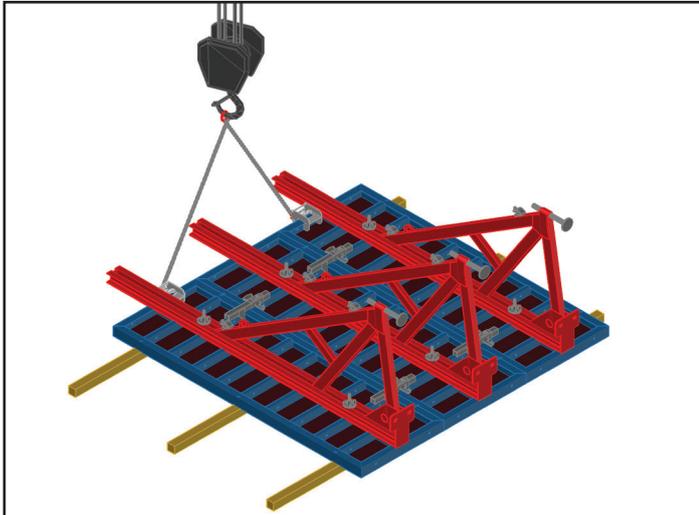
Check the perfect tightness of all the DW-15 nut plate, check that each L. 90 mm plug is secured with the safety cotter pin.



FRAMES LIFTING

To move the frames, hook onto the handle on the diagonal

LIFT



LIFT:

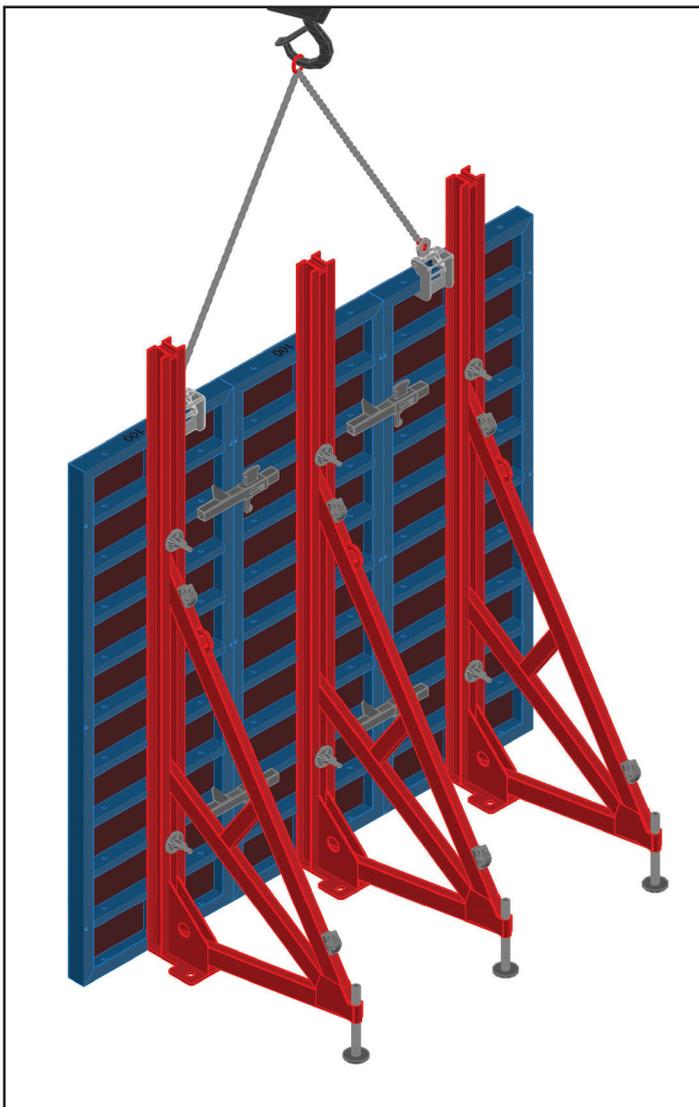
To lift the 3 ml assembly, use the following system:

- Crane hook GP-10;



CAUTION:

Before lifting the assembly, carefully check all the lifting devices used; if there are cracks and / or deformations, replace the piece with an intact one.



CRANE HOOK

ITEM 291002

PCS. 2

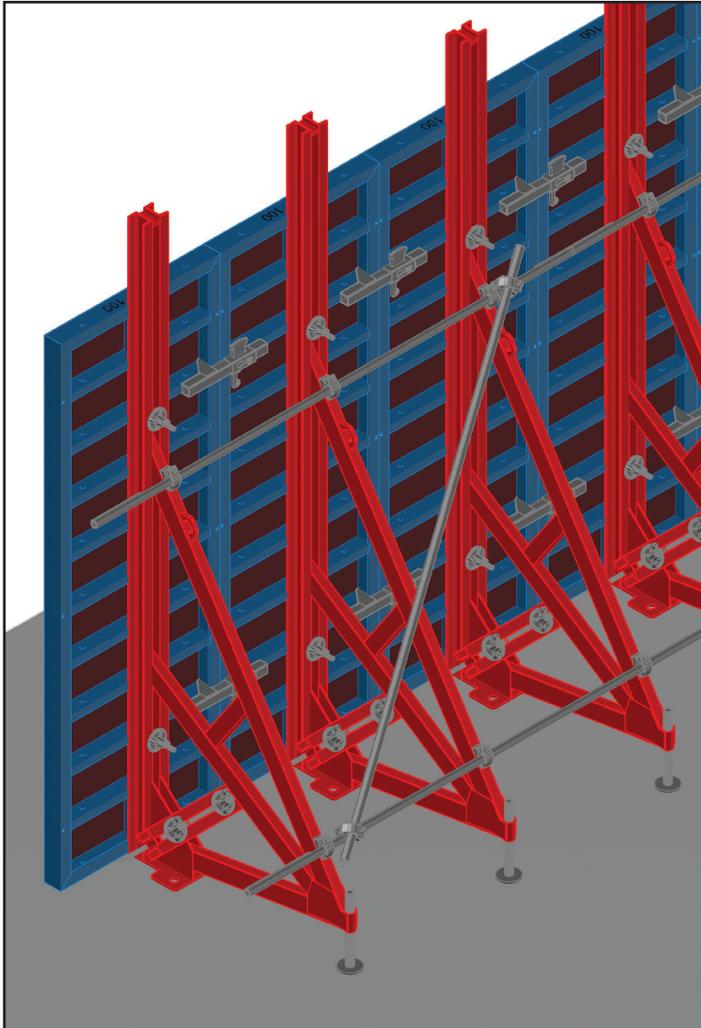
Total weight:

kg. 1.088,80

Install two lifting hooks, supplied, on the edge profile of the GP-10 formwork.

Hook the two chains on the two hooks previously positioned.

The width of the angle formed by the two chains for lifting must not exceed 60 °.



STEP 8:

Use the supplied tubes to brace the frames against the ground. This will make the system stiff.

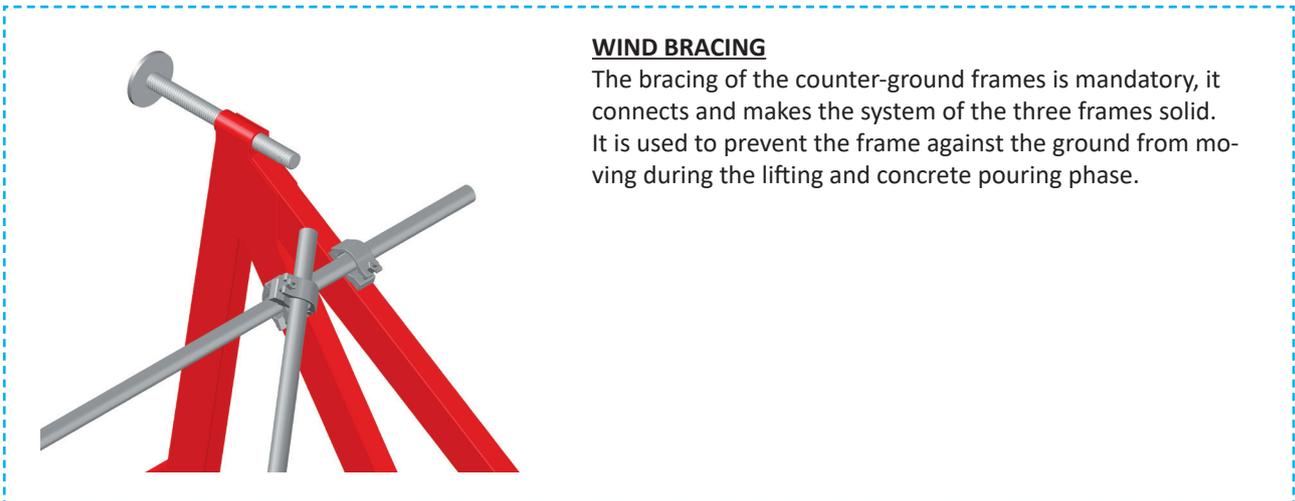
USED MATERIAL:

316100 PIPE Ø 48X3 L.3000

PCS. 3

316104 SWIVEL JOINT

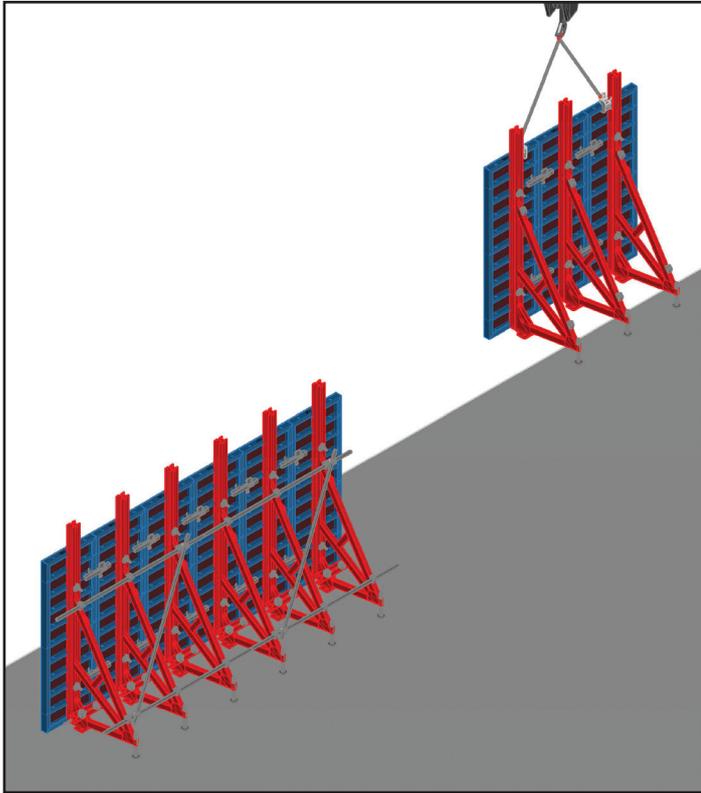
PCS. 2



WIND BRACING

The bracing of the counter-ground frames is mandatory, it connects and makes the system of the three frames solid. It is used to prevent the frame against the ground from moving during the lifting and concrete pouring phase.

POSITIONING



FASE 9:

The user must position the iron cage in the right position before placing the formworks.

Trace the future concrete wall on the floor.

Position the assembly of 3 ml of panels - against the ground following the line drawn on the floor, it is recommended to respect the line drawn so as to avoid having to move the formworks once the entire wall has been mounted.

The union of the various complexes of 3 ml of panels - against the ground is achieved by means of the alignment clamp. 

USED MATERIAL:

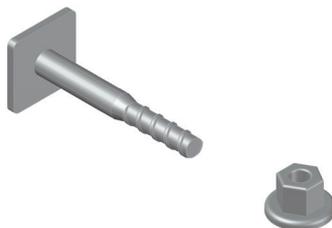
291012 ALIGNEMENT CLAMP

PCS. 2



ALIGNEMENT CLAMP:

Place the alignment clamp in the center of the panel heads.



LONG FIX PIN L.140 MM AND NUT FOR PIN:

Insert the L. 140 mm plug in the appropriate hole in the profile and fix with the appropriate nut.

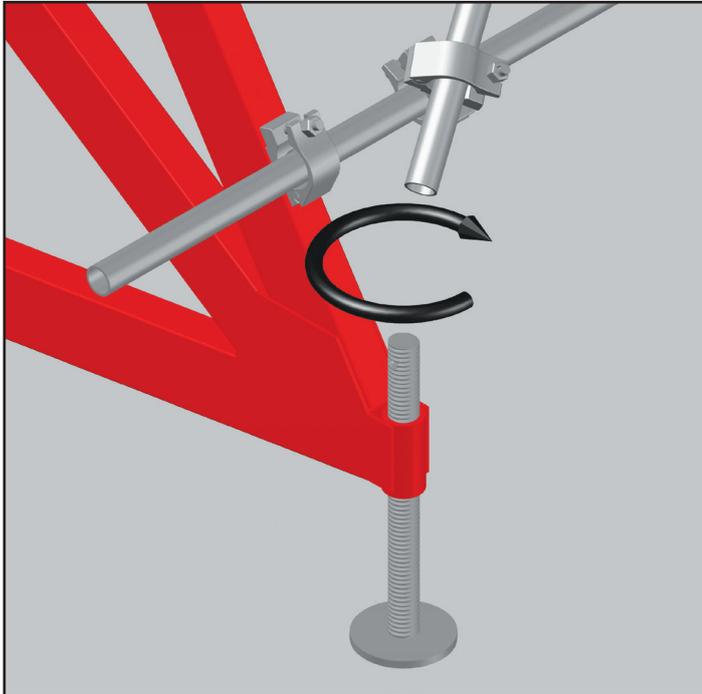


CAUTION:

Maximum jet height allowed with vertical panels = 300 cm.

GPrandina srl declines all responsibility for improper use of the vertical ground system.

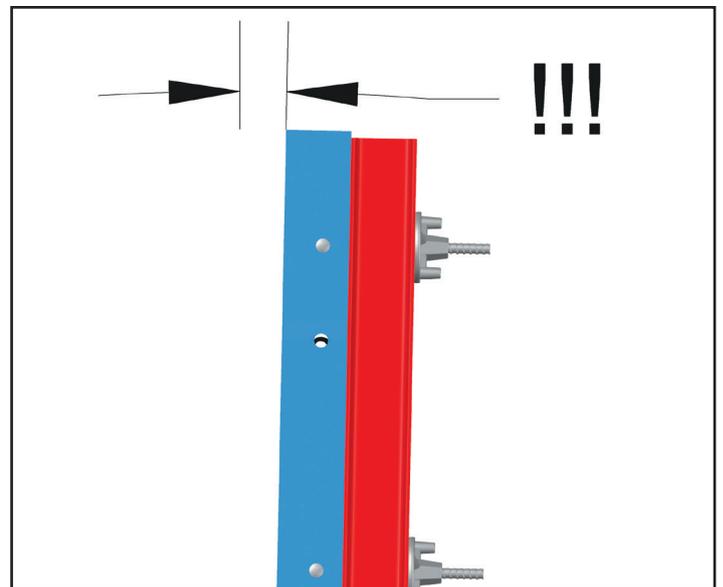
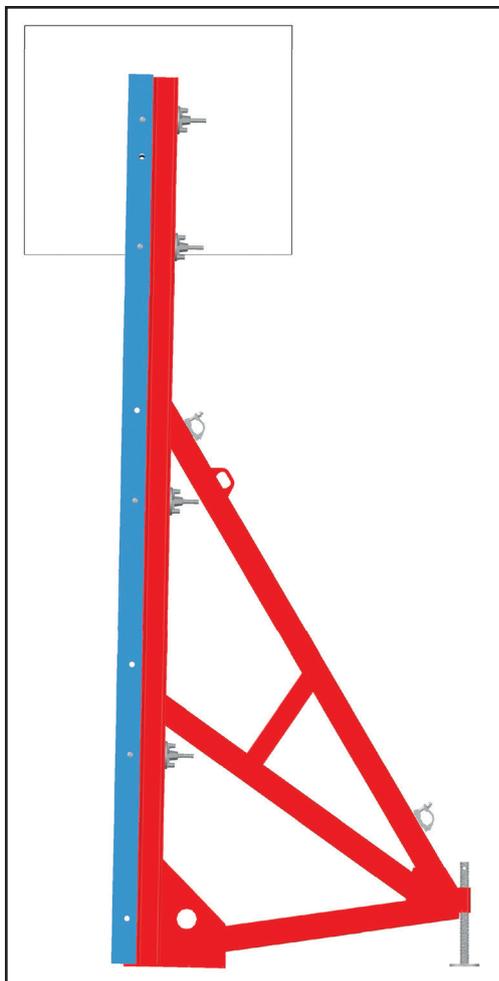
It is recommended to follow all the instructions for mounting and setting up the system.



FASE 10:

To adjust the verticality of the 3 ml assembly, work on the threaded foot.

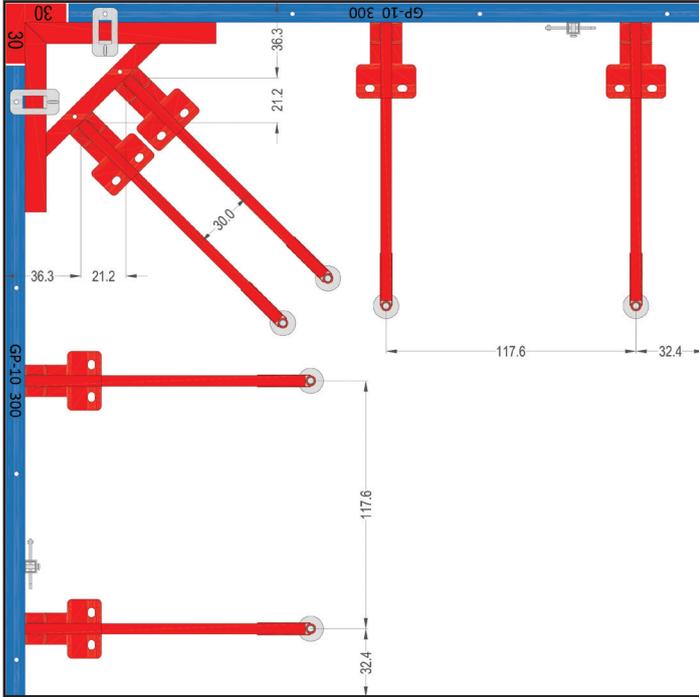
Insert a classic \varnothing 10 mm rod in the special hole in the threaded bar, turn clockwise or counterclockwise according to need.



CAUTION:

Make the adjustment before completely fixing the frames to the floor.
Adjust the verticality before starting with the cement casting.

INTERIOR ANGLE COMPOSITION 90 °



STEP:

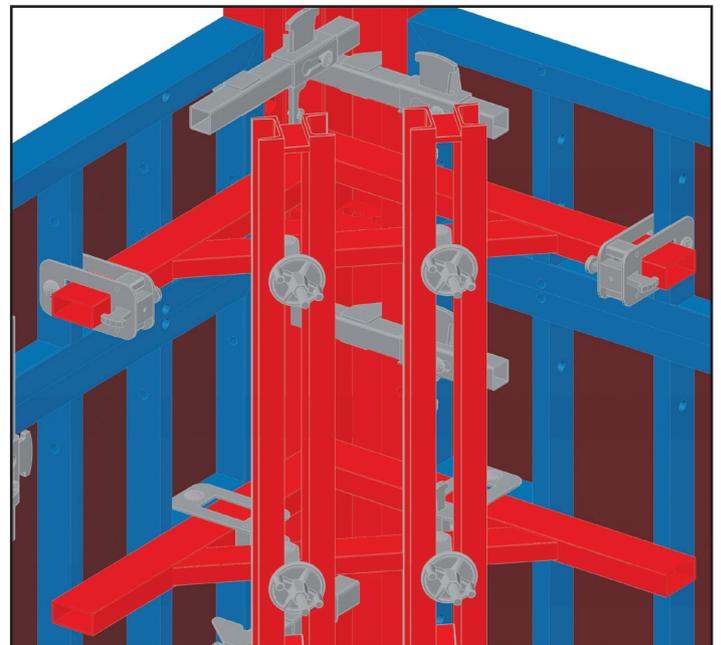
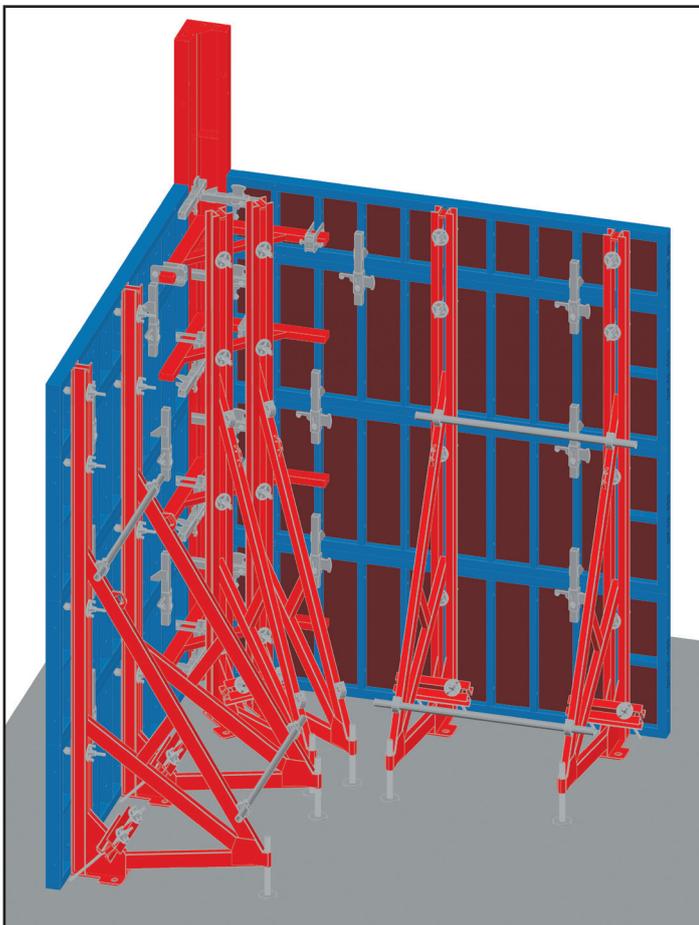
To compose a 90 ° angle with the light earth retaining system, use the internal corner fitted with the corner retaining bracket. First of all, place the internal 30x30 angle in the previously traced position, to the latter connect N ° 3 panels with N ° 2 light retaining frame using the alignment clamp. Repeat the same operation on the other side.

Now connect the corner retaining bracket to the panels by means of the alignment bracket. 

Finally connect to the corner retainer for the counter-ground N ° 2 light retaining frame by means of the ground connections.

USED MATERIAL:

221104	PANEL GP-10 300x100	PCS. 6
221114	PANEL GP-10 300x50	PCS. 2
222111	INTERNAL CORNER 30X30 H300	PCS. 1
222211	INTERNAL CORNER 30X30 H150	PCS. 1
291012	ALIGNEMENT CLAMP	PCS. 20
291142	ALIGNEMENT BRACKET	PCS. 8
311001	GROUND FORMWORK H350	PCS. 6
391002	CONNECTING CLAMP GROUND FORMWORK / PANEL	PCS. 24



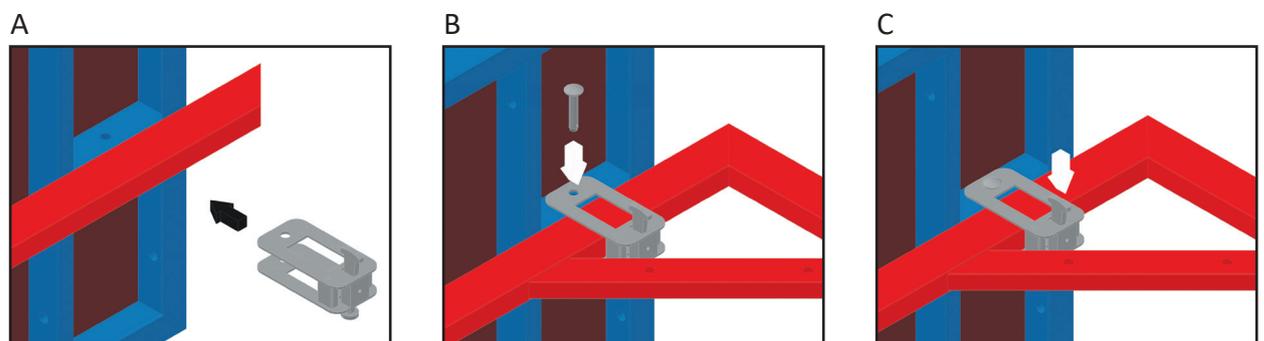
CAUTION:

If possible, avoid forming internal corners in the walls against the ground.
Maximum height allowed H. 350.0 cm.



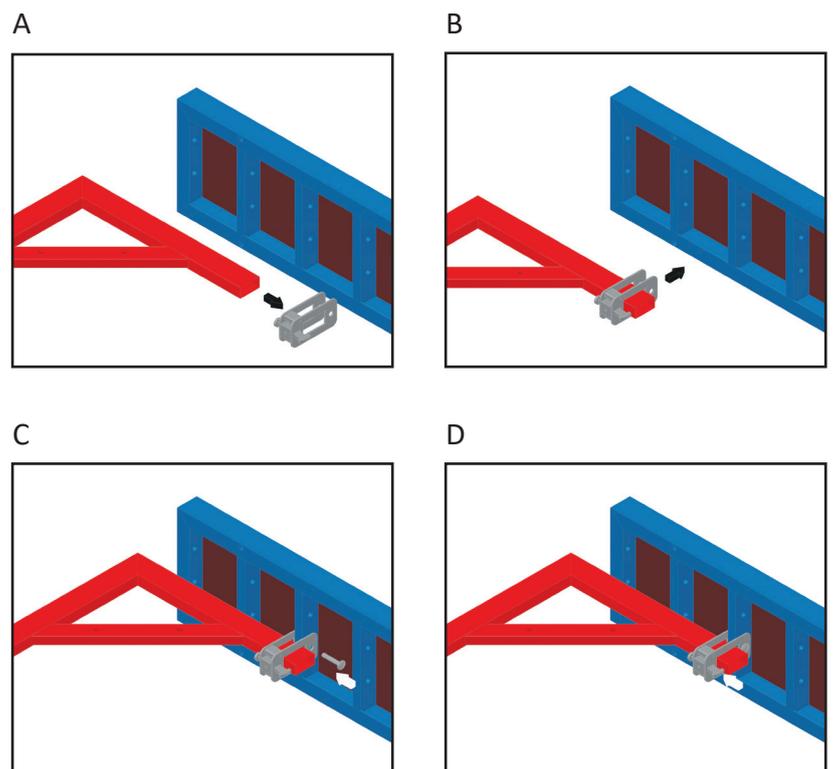
HORIZONTAL ALIGNMENT BRACKET INSTALLATION

To install the alignment bracket with the horizontal panels, follow the steps below:



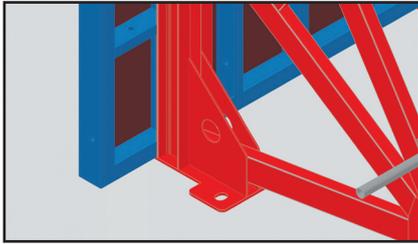
VERTICAL ALIGNMENT BRACKET INSTALLATION

To install the alignment bracket with the horizontal panels, follow the steps below:

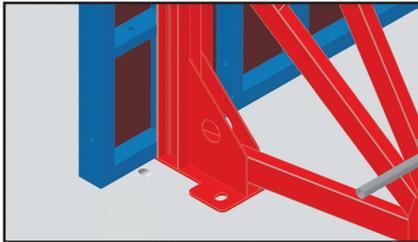


ANCHORAGE WITH EXPANSION INSERT

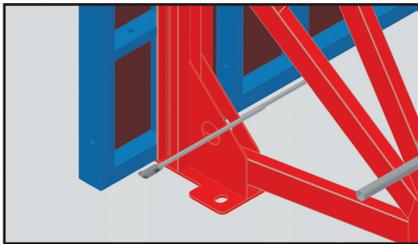
A



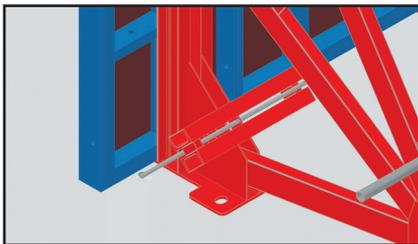
B



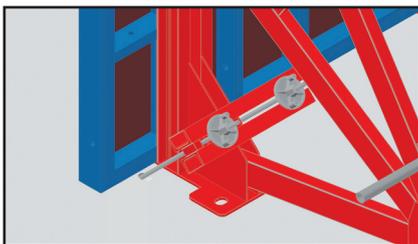
C



D



E



STEP:

After placing the formworks with its three single side wall frames, make 2 holes in each single side wall frame observing the measurements shown in the drawings.

The hole must have a minimum diameter of 36 mm. 

Then screw the dowel to the DW rod and insert everything into the hole previously prepared.

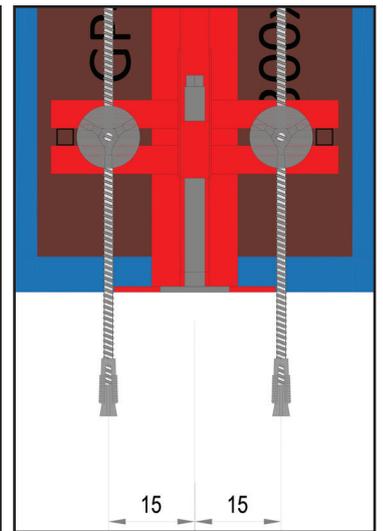
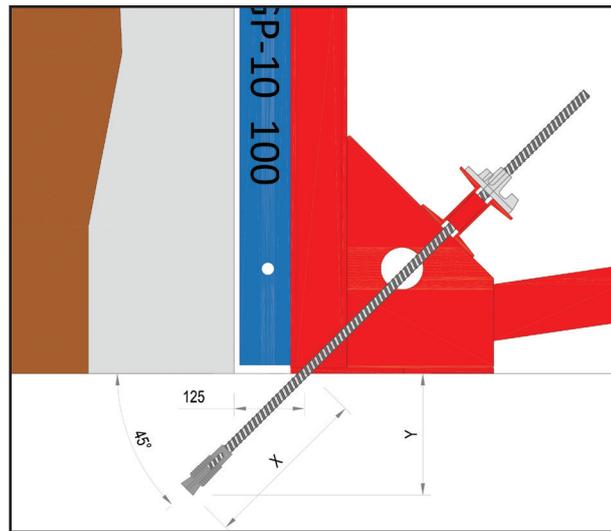
Finally, apply the anchor bar and tighten the nut plates.

It is recommended to do this for every single side wall frame forming the formworks structure.

Install a minimum of 2 dowels in every single side wall frame.

USED MATERIAL:

311003	Anchor bar CM.50	PCS. 1
811004	Tie rod DW15 cm. 100	PCS. 2
811051	Nut plate DW15	PCS. 2
821001	Dowel for CLS DW15	PCS. 2



WARNING:

The X and Y dimensions vary according to the precision of the operator and the characteristics of the cement.

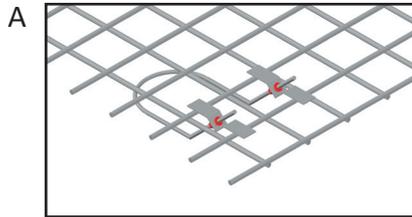
It is recommended to wait for the full maturation of the base before making vertical jets.



DRILL BIT:

Use a bit \varnothing 36/38 mm for making the hole where you insert the anchors. Drill bit born by the user.

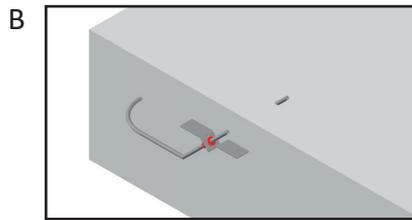
ANCHORAGE BY NOOSE DROWNED



STEP:

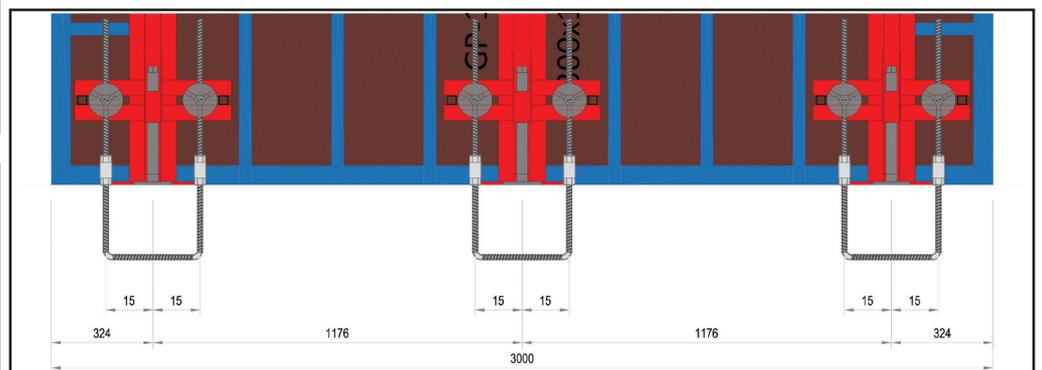
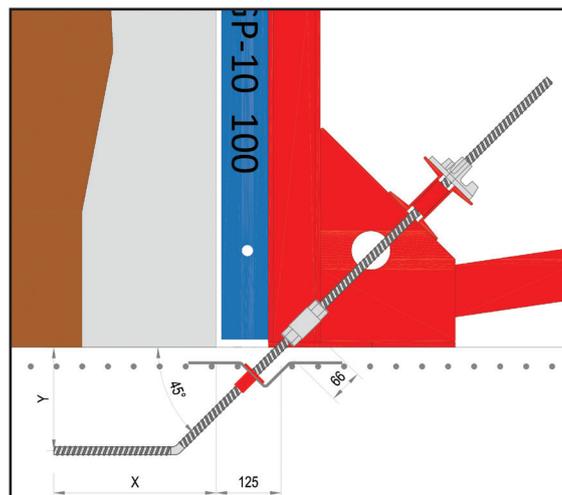
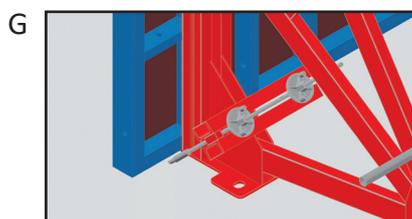
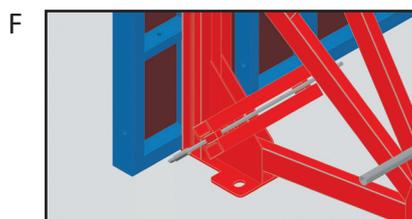
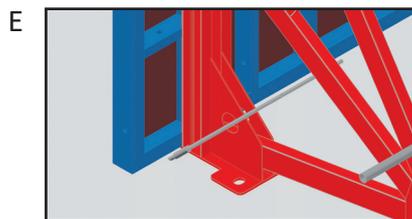
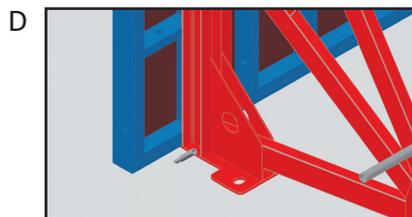
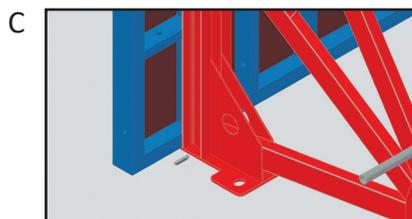
Before you cast the foundation slab, ensure to anchors loop to the armature in iron, respecting the dimensions as per drawing. Once in place all anchors loop proceed with the cast of the base; after the days of maturation are gone, place all the set of the panels and the single side wall frames trying to get as close as possible to the anchorages centering the axis of the frame with the two ends of the anchor protruding from the base.

After this screw # 2 hoses L.90 mm to the anchor, then tighten the bars DW15 75 cm to the sleeves, place the anchor bar 50 cm and tighten the nut plates.



USED MATERIAL:

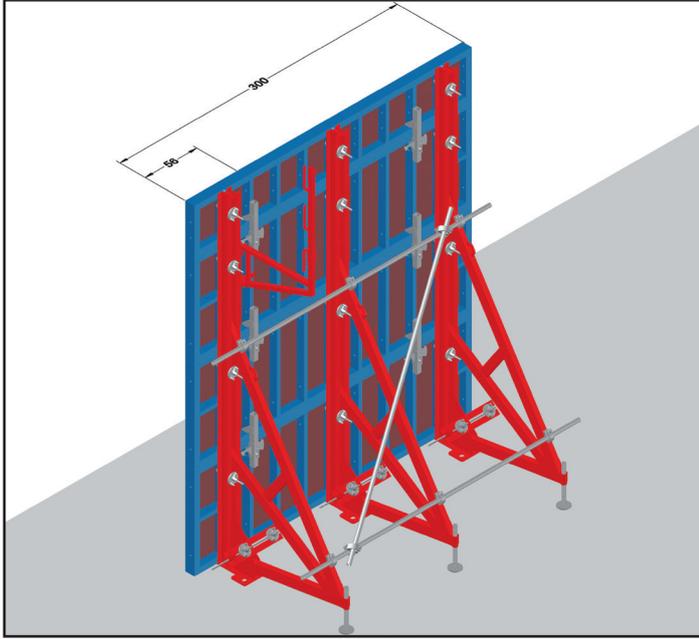
311003 Anchor bar CM.50	PCS. 3
811003 Tie rod DW15 cm. 75	PCS. 6
811051 Nut plate DW15	PCS. 6
811055 Exagonal nut DW15 mm.90	PCS. 3
821001 Loop anchor DW15	PCS. 6
821012 V bracket DW15	PCS. 6



WARNING:

The X and Y dimensions vary according to the precision of the operator and the characteristics of the cement. It is recommended to wait for the full maturation of the base before making vertical jets.

HORIZONTAL SERVICE CONSOLE TABLE



STEP 1:

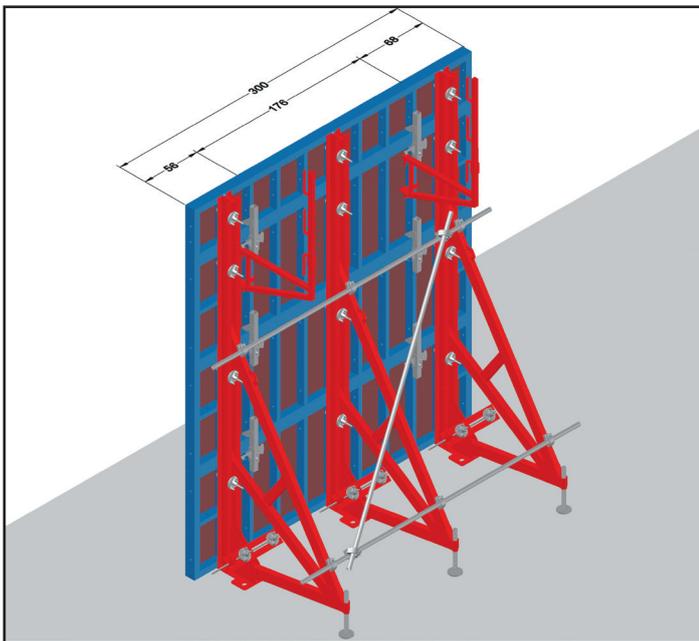
After placing the formwork with its three single side wall frames and after anchoring everything to the foundation, install the service console table. They will go to create a work plane suitable and safe to carry out the concrete casting.

The first service console table should be installed at the second reinforcement transverse in the third panel (see figure at right).

For the correct installation of the service console table follow the instructions on p. 41. 

USED MATERIAL:

296021 Service console table	PCS. 1
256024 Safety cotter pin	PCS. 1



STEP 2:

The second service console table should be installed at the second transverse reinforcement in the third panel (see figure at right), specularly to that previously assembled.

For the correct installation of the service console table follow the instructions on p. 41. 

USED MATERIAL:

296021 Service console table	PCS. 2
256024 Safety cotter pin	PCS. 2



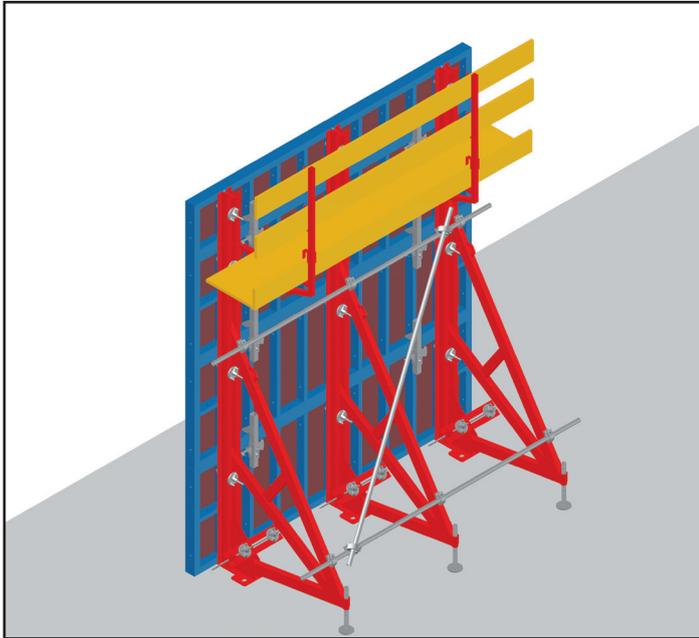
WARNING:

Before installing and before using the service console table is recommended to carefully check the integrity of each and every detail of the same.

If any cracks, deformation or lack of details were present, replace the service console table with a new one intact and fully functional.

It is strictly required for the user to install the console service table as shown in this manual, improper use can cause accidents and damage to property and / or people.

The GPrandina srl declines all responsibility for improper use of the service console table.



STEP 3:

After mounting the console tables, position the wooden floor.
Position No. 3 wooden parapets.



WARNING:

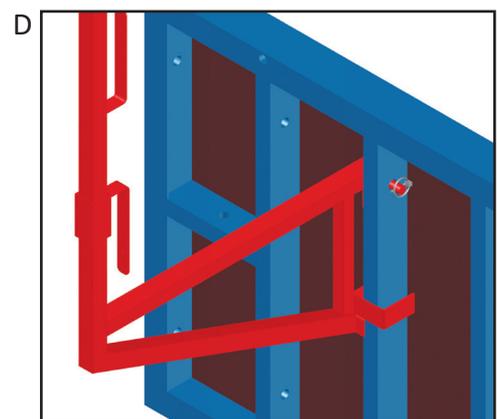
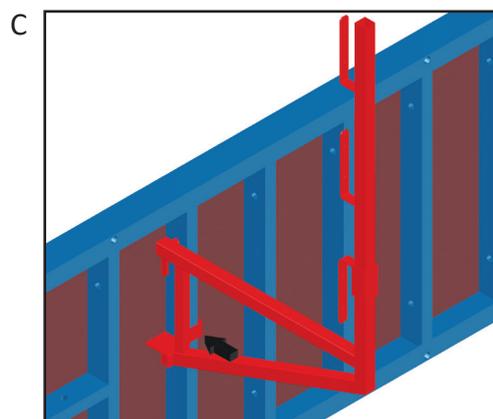
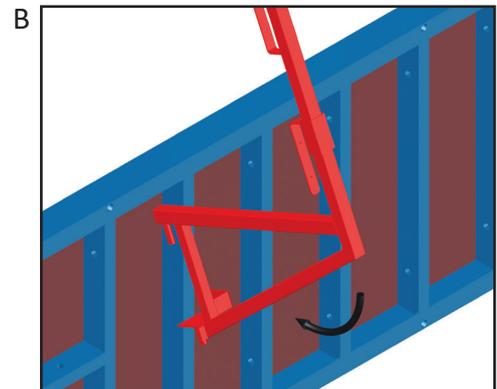
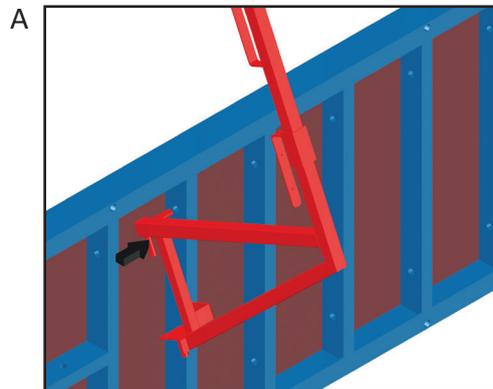
It is recommended to check the condition and texture of the wood.
Use a thickness of timber appropriate to the scope of the shelf.

Scope of the shelf = 150 Kg/m²



ASSEMBLY THE SERVICE CONSOLE TABLES:

Follow these simple steps to install the service console table:



HORIZONTAL PARAPET COLUMN AND PARAPET SIDE

STEP 1:

After the installation of the service console table and wooden floor, place the parapet column with the relative parapet rails at the beginning and the end of the platform created by the shelves.

For correct installation of the parapet column and parapet rails follow the instructions on p. 43. 

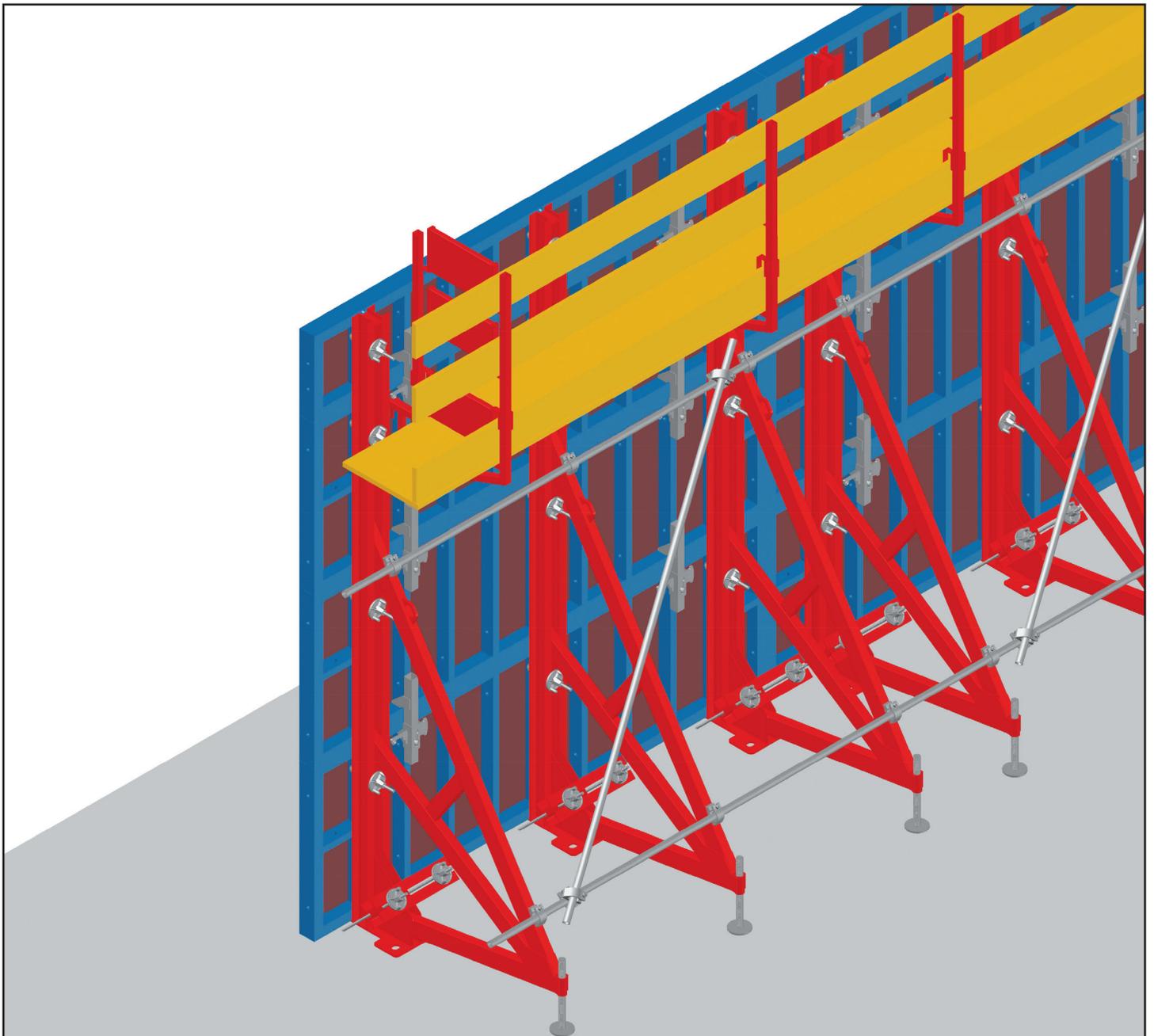
USED MATERIAL:

296022 Parapet column

PCS. 1

296023 Parapet rails

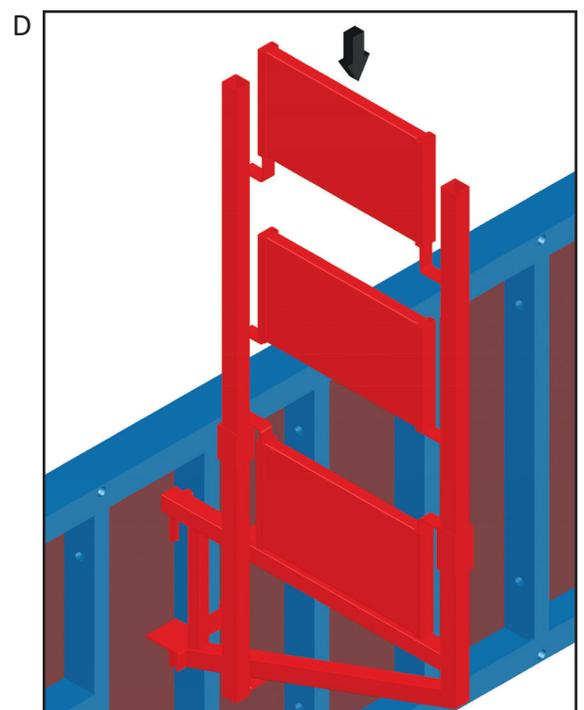
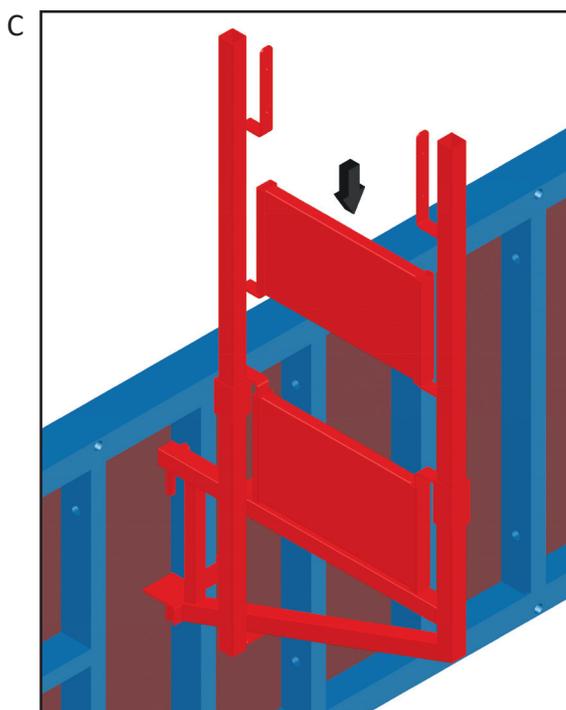
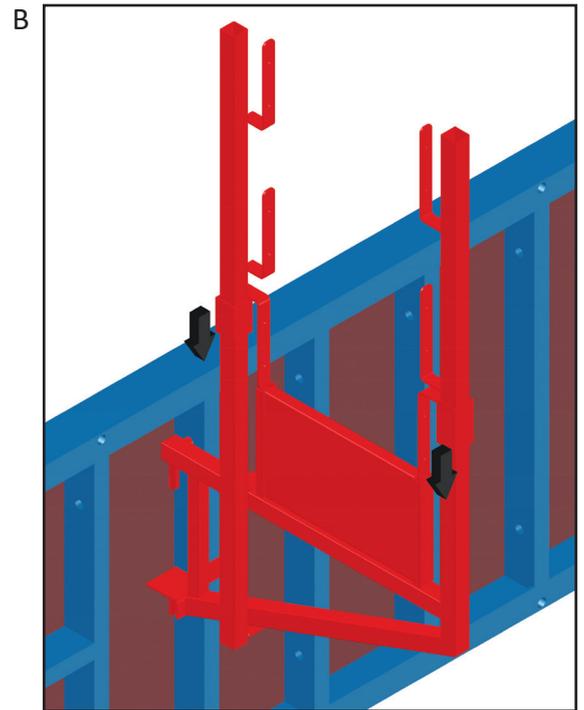
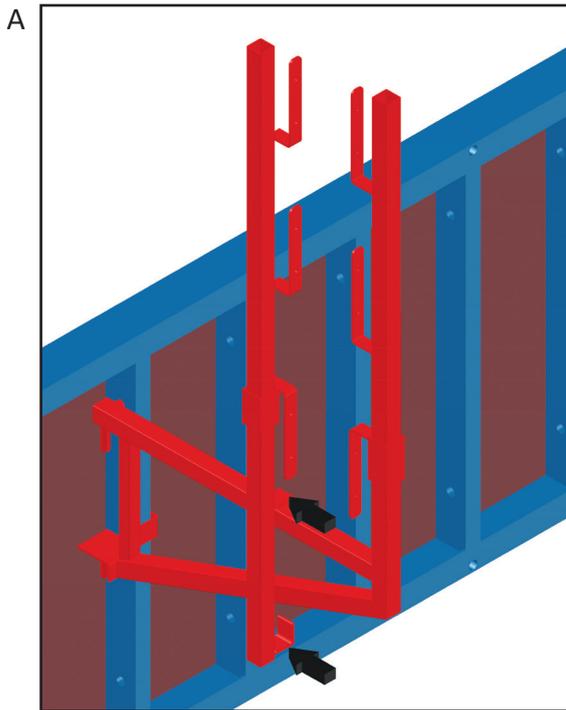
PCS. 3



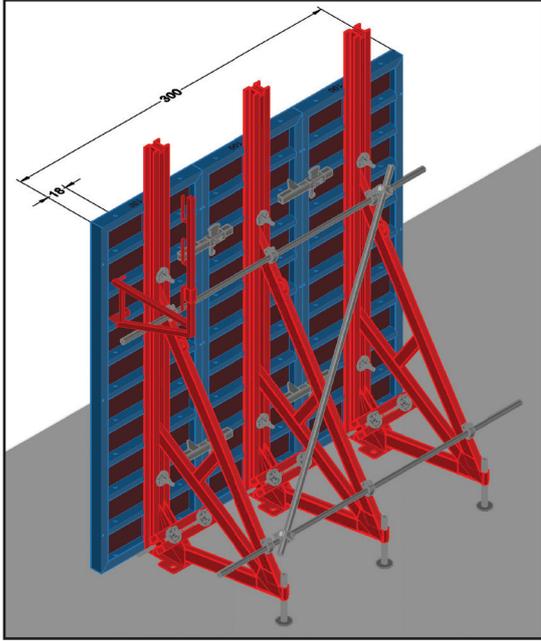


INSTALLATION OF THE PARAPET:

Follow these simple steps to install the shelf service:



VERTICAL SERVICE CONSOLE TABLE



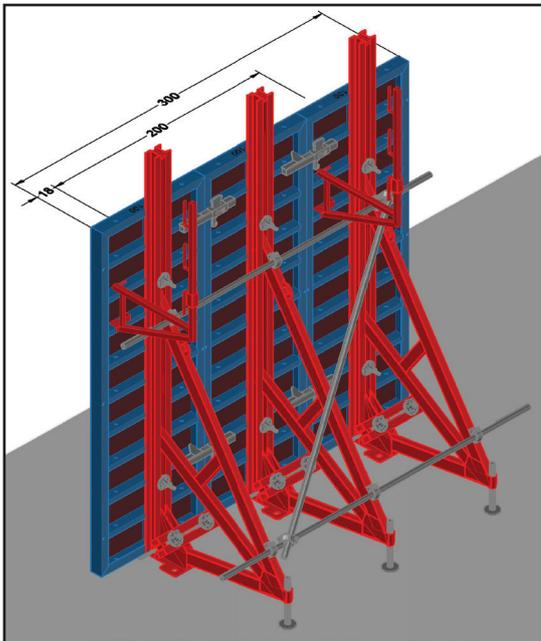
STEP 1:

After placing the formwork with its three single side wall frames and after anchoring everything to the foundation, install the service console table. They will go to create a work plane suitable and safe to carry out the concrete casting. The first service console table should be installed at the second reinforcement transverse in the third panel (see figure at right). 

For the correct installation of the service console table follow the instructions on p. 45.

USED MATERIAL:

296021 Service console table	PCS. 1
256024 Safety cotter pin	PCS. 1



STEP 2:

The second service console table should be installed at the second transverse reinforcement in the third panel (see figure at right), specularly to that previously assembled.

For the correct installation of the service console table follow the instructions on p. 45. 

USED MATERIAL:

296021 Service console table	PCS. 2
256024 Safety cotter pin	PCS. 2



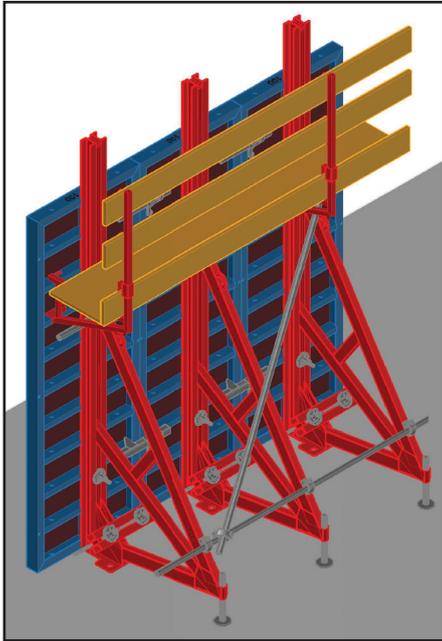
WARNING:

Before installing and before using the service console table is recommended to carefully check the integrity of each and every detail of the same.

If any cracks, deformation or lack of details were present, replace the service console table with a new one intact and fully functional.

It is strictly required for the user to install the console service table as shown in this manual, improper use can cause accidents and damage to property and / or people.

The GPrandina srl declines all responsibility for improper use of the service console table.



STEP 3:

After mounting the console tables, position the wooden floor.
Position No. 3 wooden parapets.



WARNING:

It is recommended to check the condition and texture of the wood.
Use a thickness of timber appropriate to the scope of the shelf.

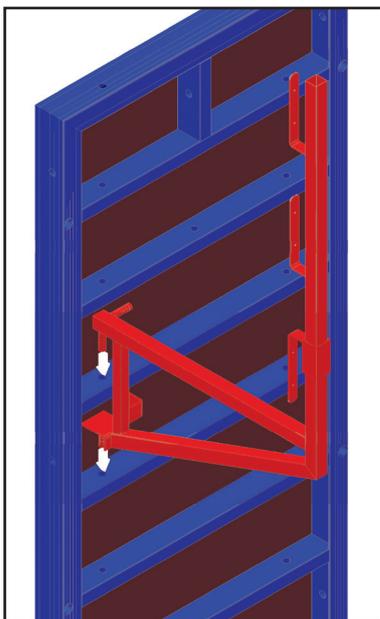
Scope of the shelf = 150 Kg/m²



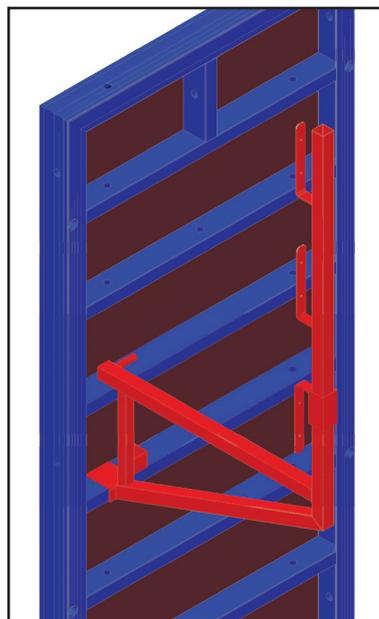
ASSEMBLY THE SERVICE CONSOLE TABLES:

Follow these simple steps to install the service console table:

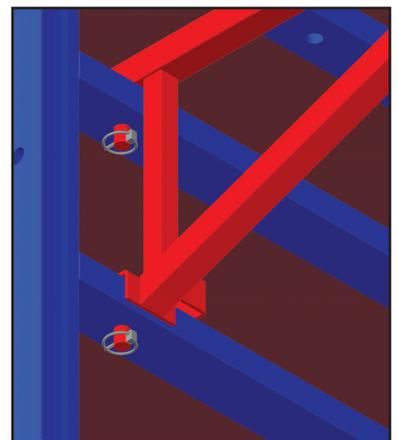
A



B



C



VERTICAL PARAPET COLUMN AND PARAPET SIDE

STEP 1:

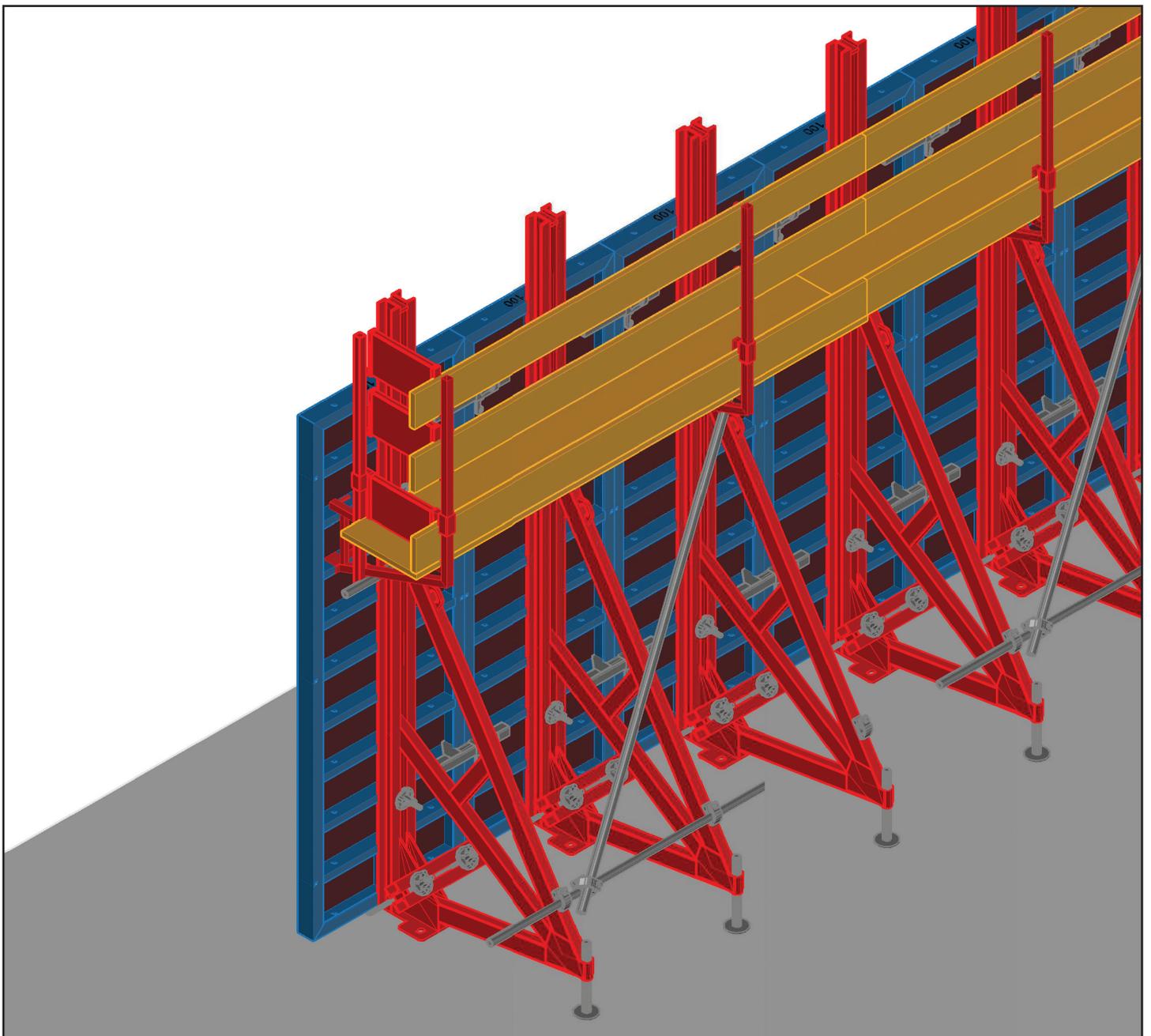
After the installation of the service console table and wooden floor, place the parapet column with the relative parapet rails at the beginning and the end of the platform created by the shelves,.

For correct installation of the parapet column and parapet rails follow the instructions on p. 47. 

USED MATERIAL:

296022 Parapet column
296023 Parapet rails

PCS. 1
PCS. 3

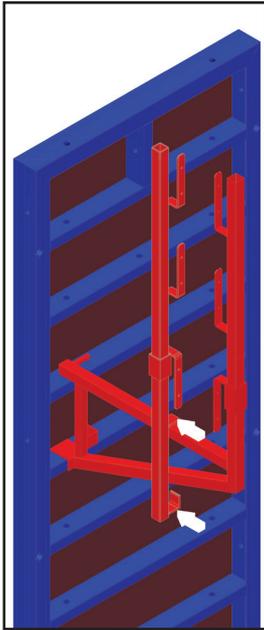




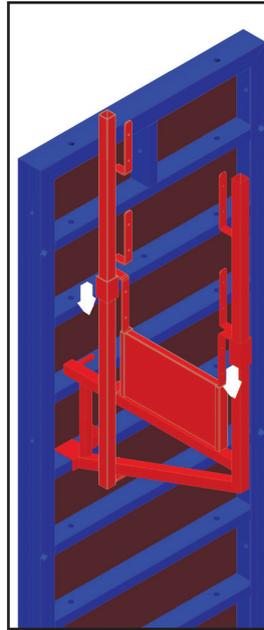
INSTALLATION OF THE PARAPET:

Follow these simple steps to install the shelf service:

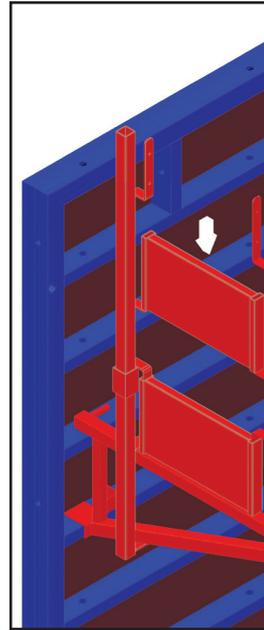
A



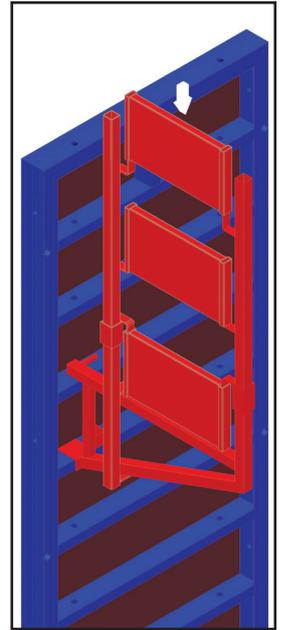
B



C



D





3.0.0

STORAGE

GENERAL REQUIREMENTS:

The components must be installed as shown in this section of the manual.

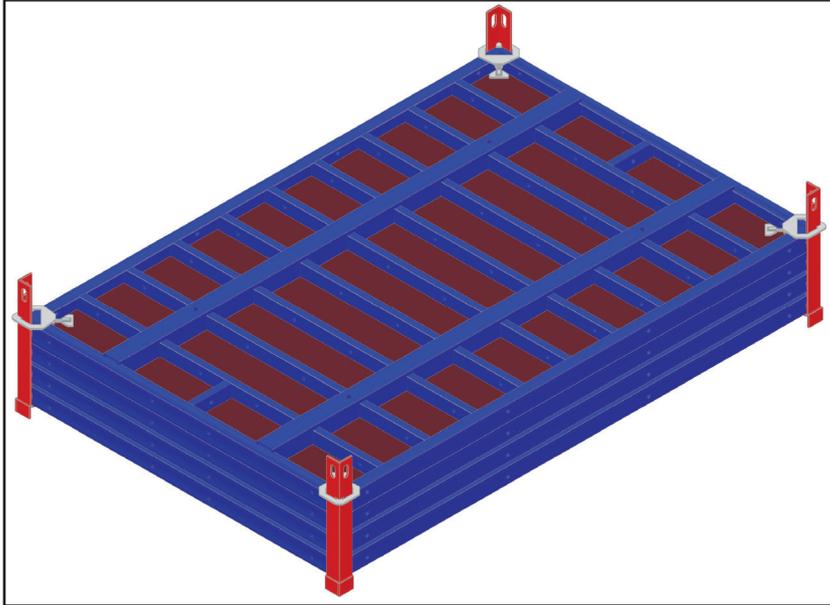
For the safe use of the GP-10 elements, the user must set up an adequate support base for the latter which supports the discharge to the ground of the forces generated by the casting of the concrete.

It is strictly forbidden to use GP-10 systems on low-resistance bases such as wood, gravel, earth, etc.

It is strictly forbidden to make changes, add or subtract details to the GPrandina elements.

GPrandina srl Building System disclaims any responsibility for incorrect use of its construction systems.

STORAGE CONTAINERS FOR PANELS 200



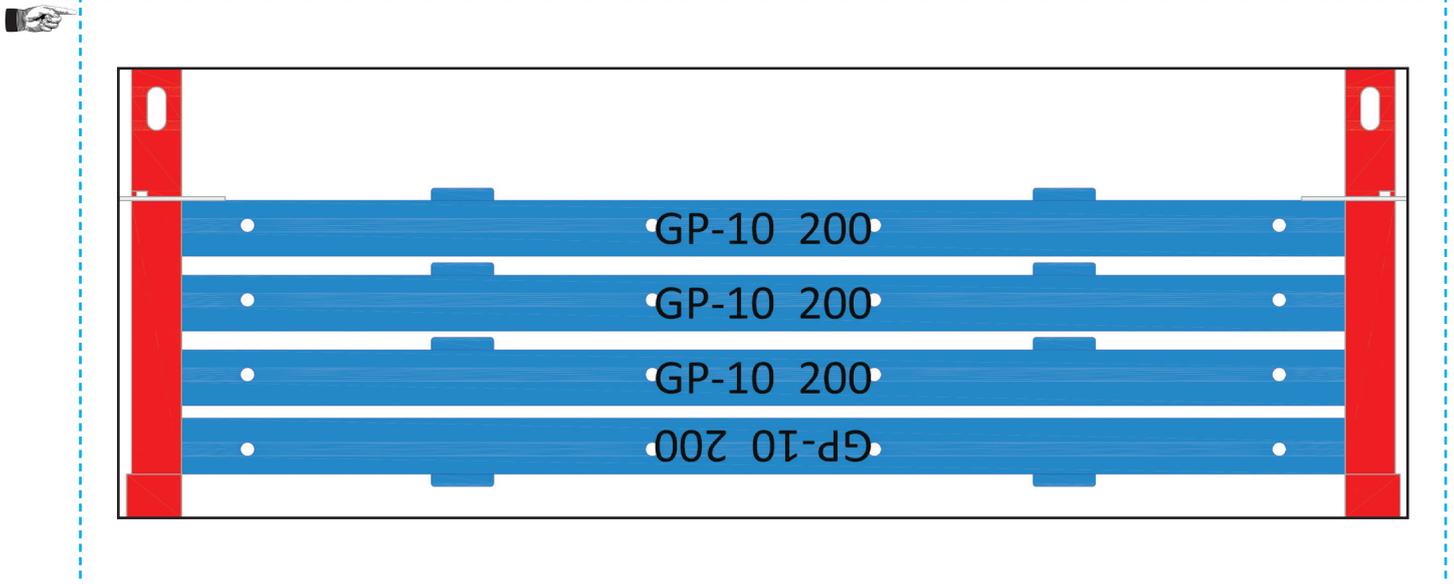
DESCRIPTION:

Thanks to the container for panels, panels of the same size or different sizes can be packed. This accessory guarantees the safe handling of panels on site, in storage and during transport.

N.B.: follow the examples at the bottom of the page for the correct use of the panel transport upright.

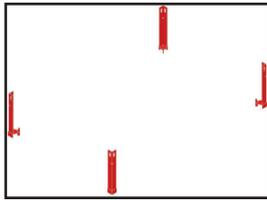
USED MATERIAL:

296051 Panels transport ring up 200 Pcs. 01

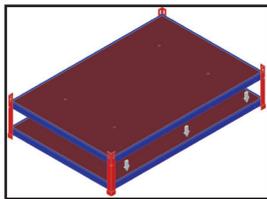


ATTENTION:

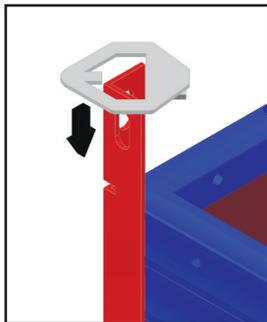
BEFORE USING THE TRANSPORTATION PANELS, CHECK THE STATUS OF THE COMPONENTS.



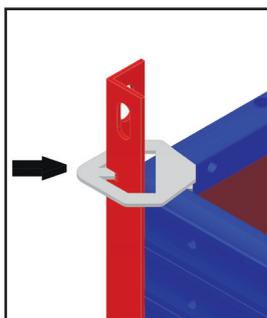
STEP 1:
Prepare n. 4 legs equivalent to the panel to be loaded.



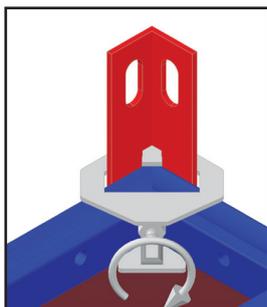
STEP 2:
Place the panels with the multilayer upwards.



STEP 3:
After placing n. 4/7/10 panels mount the bracket as shown in the adjacent figure.



STEP 4:
Insert the pin of the bracket inside the slit in the leg.

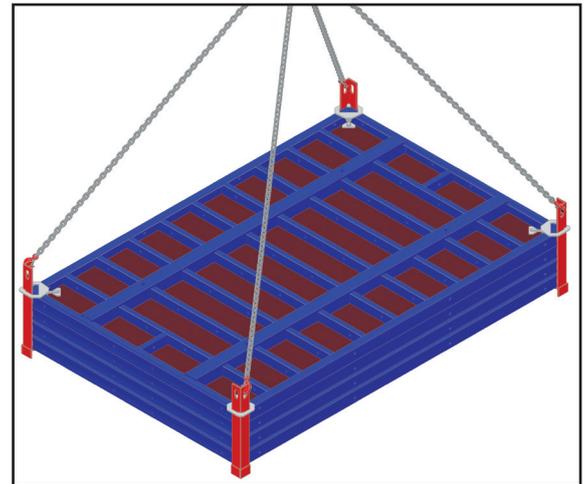


STEP 5:
Fix the bracket + leg assembly with the safety screw.

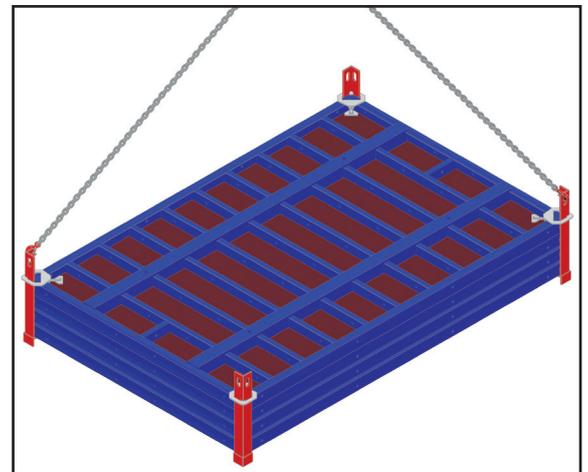


LIFTING:

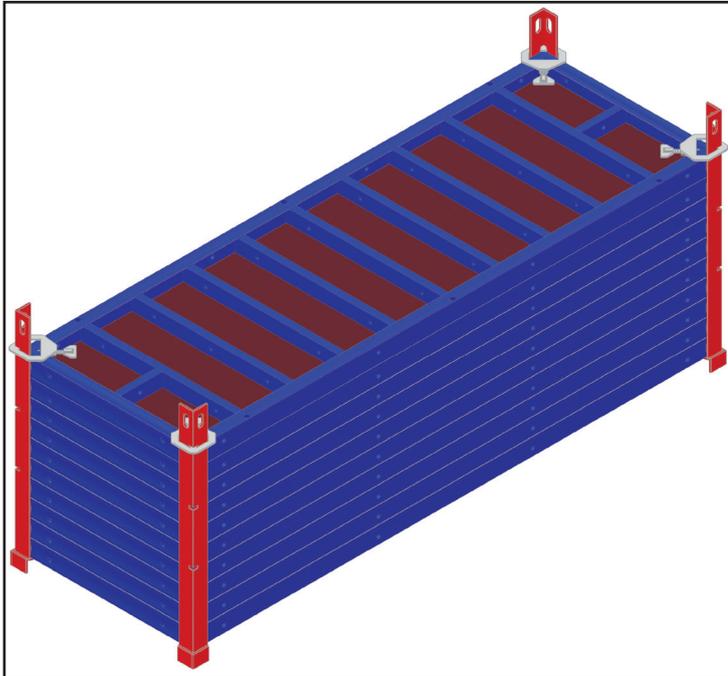
Lifting type "A": n. 4 chains.



Lifting type "B": n. 2 chains.



STORAGE CONTAINERS FOR PANELS



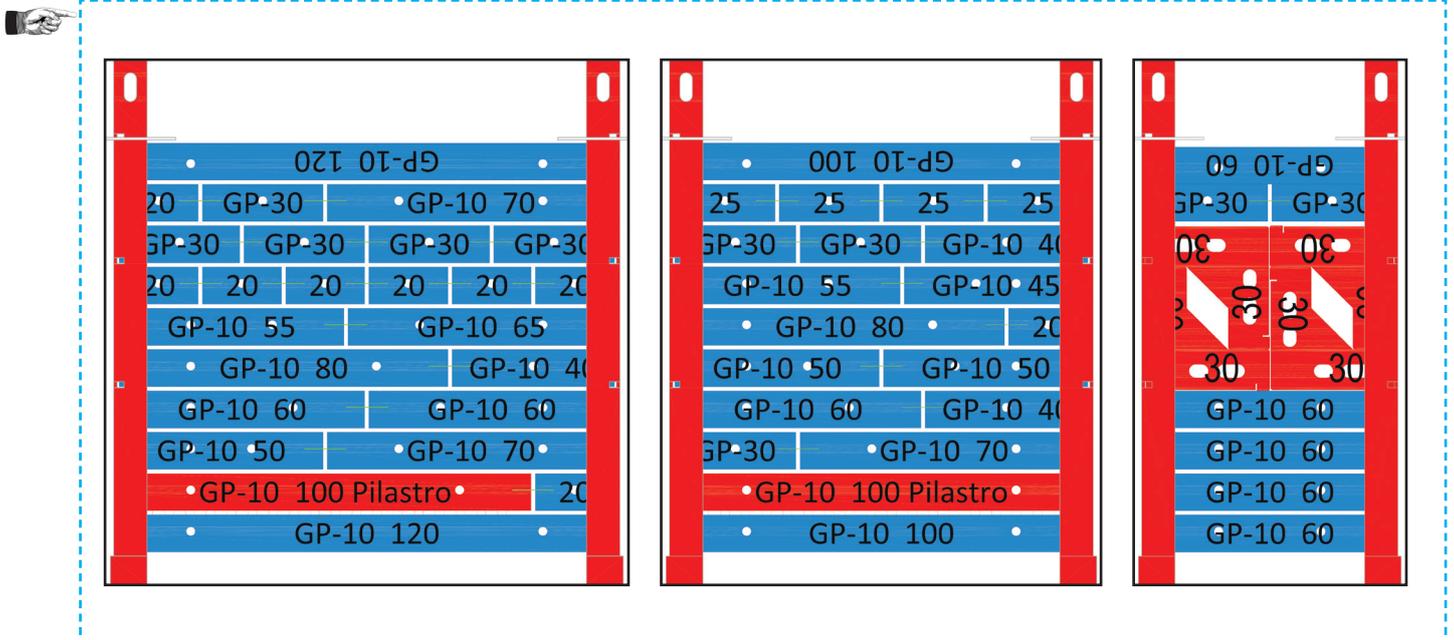
DESCRIPTION:

Thanks to the container for panels, panels of the same size or different sizes can be packed. This accessory guarantees the safe handling of panels on site, in storage and during transport.

N.B.: follow the examples at the bottom of the page for the correct use of the panel transport upright.

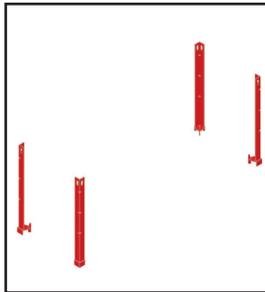
USED MATERIAL:

296052 Panels transport ring up Pcs. 01

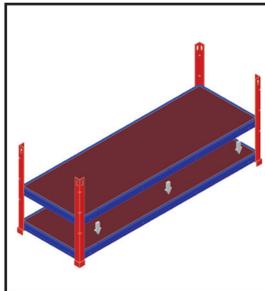


ATTENTION:

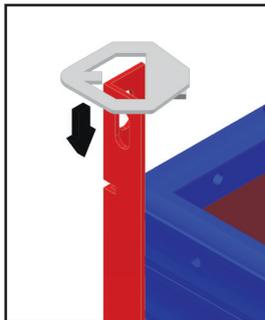
BEFORE USING THE TRANSPORTATION PANELS, CHECK THE STATUS OF THE COMPONENTS.



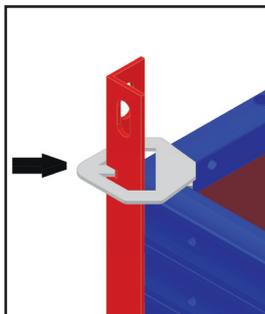
STEP 1:
Prepare n. 4 legs equivalent to the panel to be loaded.



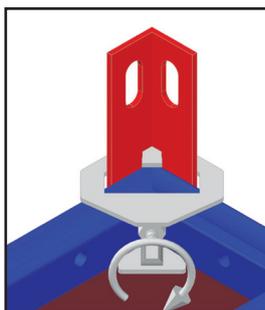
STEP 2:
Place the panels with the multilayer upwards.



STEP 3:
After placing n. 4/7/10 panels mount the bracket as shown in the adjacent figure.



STEP 4:
Insert the pin of the bracket inside the slit in the leg.

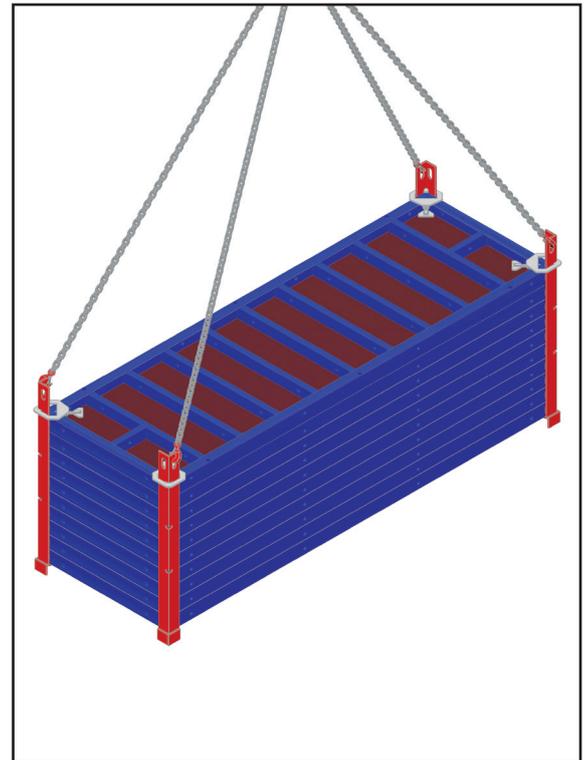


STEP 5:
Fix the bracket + leg assembly with the safety screw.

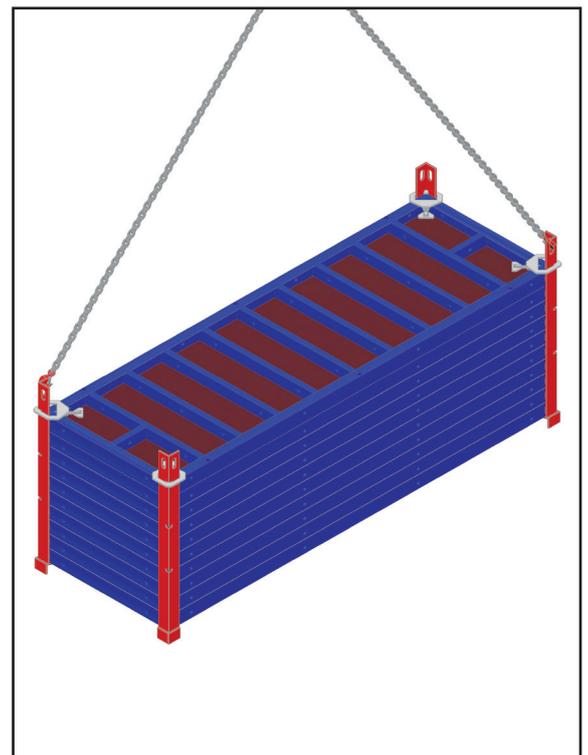


LIFTING:

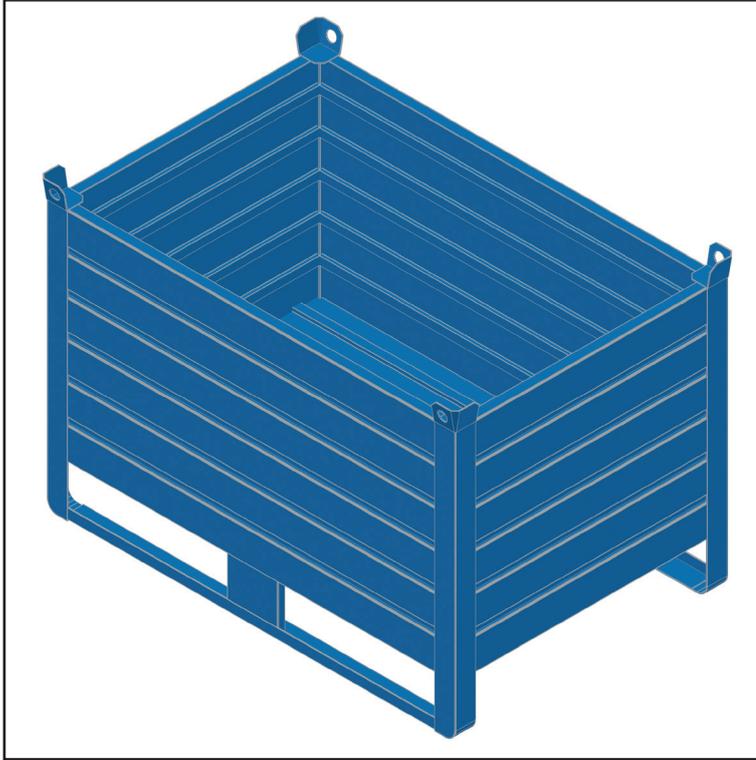
Lifting type "A": n. 4 chains.



Lifting type "B": n. 2 chains.



STORAGE CONTAINERS FOR ACCESSORIES



DESCRIPTION:

Thanks to the accessory container, all the accessories needed to mount the formworks can be stored: clamps, DW bars, nut plates, etc.

N.B.: The containers for accessories can be stacked.

USED MATERIAL:

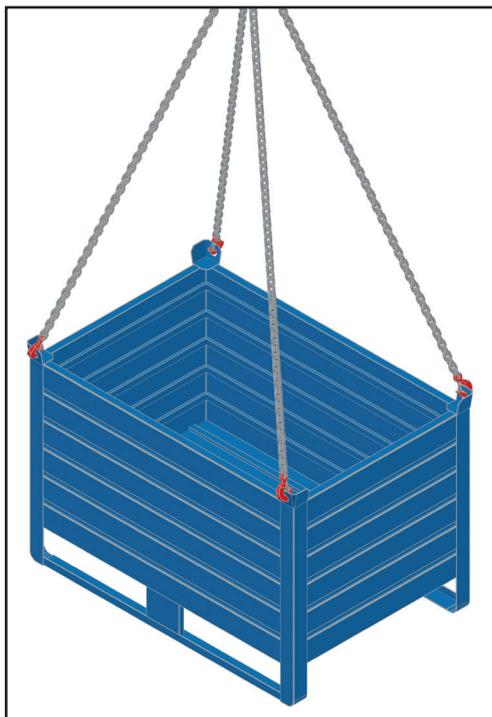
296053 Fitting box 120x80

Pcs. 01

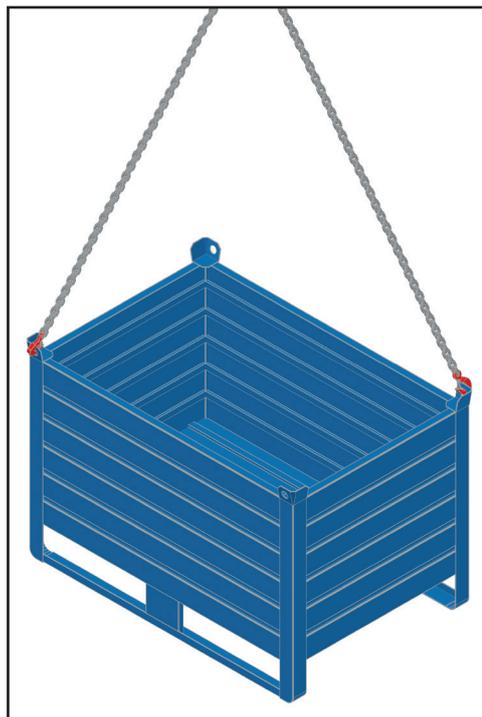


LIFTING:

Lifting type "A": n. 4 chains.

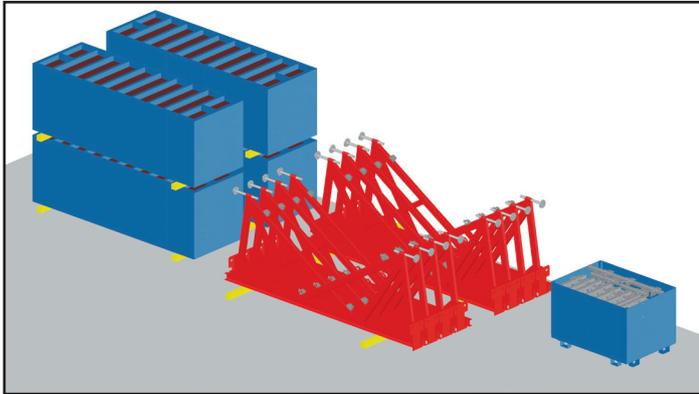


Lifting type "B": n. 2 chains.



**MAX LOAD:
1000 KG**

TRANSPORT AND STORAGE



STORAGE:

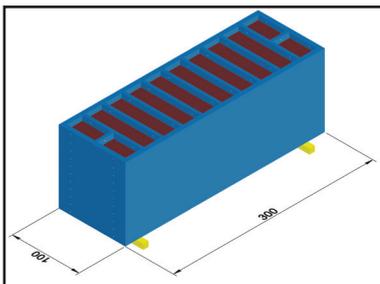
Once the panels and the ground retaining frames have been stacked in an orderly manner, place the material in an area used for storing the goods, which does not entail traffic and work on the construction site.

If you do not have the original GPrandina containers, place murals or wooden beams where to place the packs of the panels and frames.

It is advisable to create the packages in this way:

- Nr. 10 GP-10 panels 300X100 Weight approx. 1100.0 Kg
- Nr. 8 Light weight ground frames Weight approx. 1120.0 Kg

It is recommended to strap and / or tie the frames to the ground and the panels (if GPrandina containers are not available).



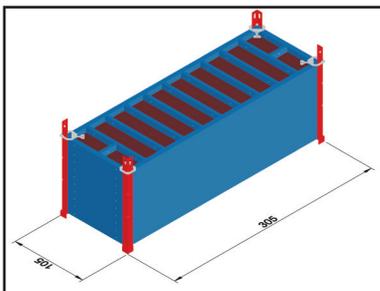
PANELS STORAGE:

Create a pack of 10 GP-10 300x100 panels.

If you have many panel sizes on site, try to combine the various measures so that their sum always gives 100 cm in width; in this way the stacking is easy and fast.

It is recommended to tie with steel or plastic spindles or straps.

If you have the GPrandina special container for panels, use the latter and fix the safety brackets securely.

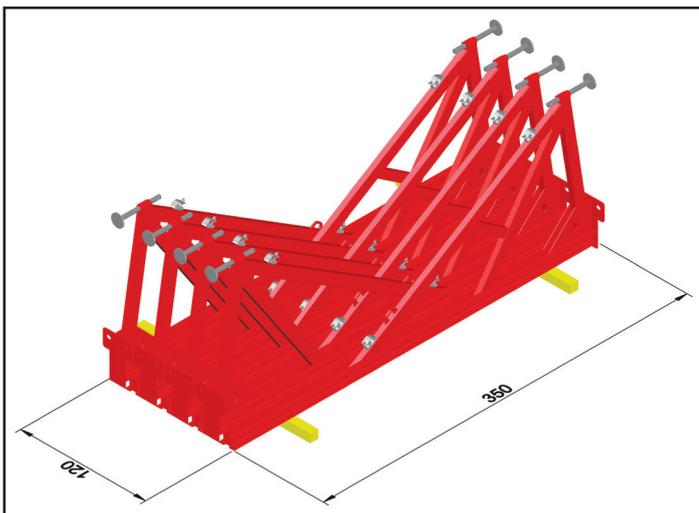


CAUTION:

It is recommended not to overlap more than 3 packs of 10 panels.

If using GPrandina containers, before lifting, make sure that the safety screw is properly secured.

Do not use GPrandina containers to stack panels of other brands.



STORAGE OF GROUND FRAMES:

Create a pack of N ° 8 frames in counter-ground positioning them as shown in the image to the side.

It is recommended to tie with steel cables or straps.

To facilitate moving with forklifts, etc., place n ° 2 murals or wooden beams.



CAUTION:

It is recommended not to overlap packs of counter-ground frames.



4.0.0

MAINTENANCE AND CLEANING

GENERAL PROVISION:

The components must be installed as shown in this section of the manual.

For the safe use of the GP-10 elements, the user must provide an adequate support base for the latter which supports the ground discharge of the forces generated by the concrete casting.

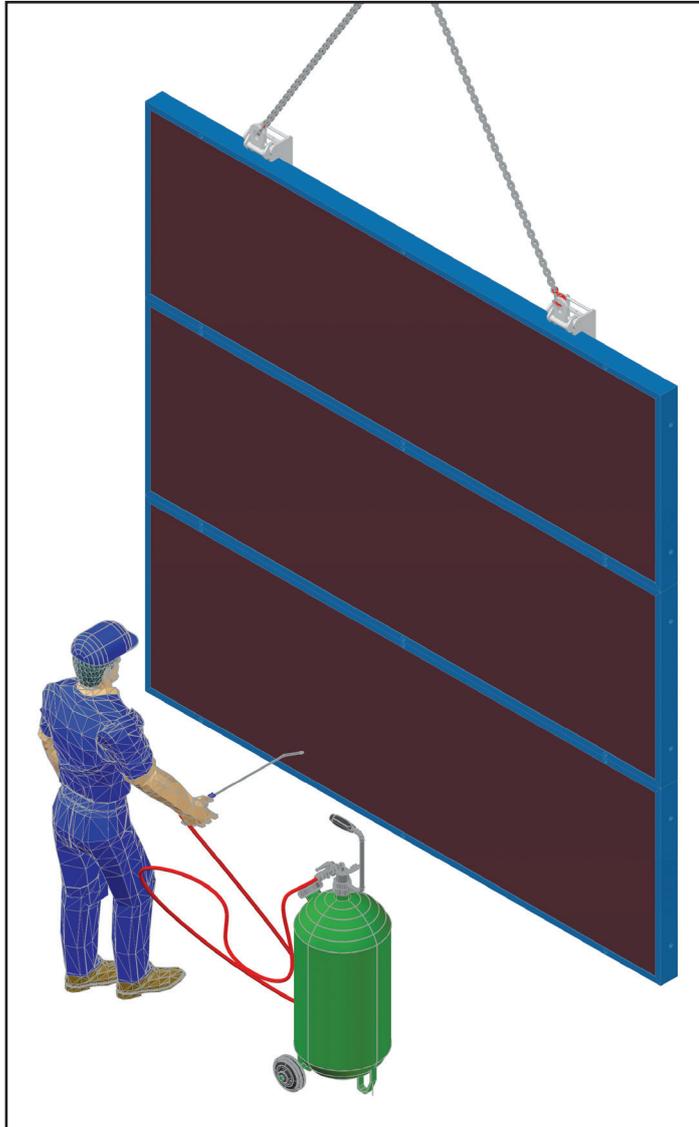
It is strictly forbidden to use the GP-10 systems on poorly resistant bases such as wood, gravel, earth, etc.

It is strictly forbidden to make changes, add or subtract details to the GPrandina elements.

Gprandina srl Building System declines all responsibility for incorrect use of its building systems.



MAINTENANCE AND CLEANING



DESCRIPTION:

Before each casting and before storing the formworks, apply a thin layer of oil to dismount on the multilayer and on the metal frame.

This oil prevents and facilitates the dismantling of formworks. We recommend applying the oil with a spray pump.

USED MATERIAL:

880121 Disarming oil

Pcs. 01



ATTENZIONE:

USE EXCLUSIVELY PRODUCTS SUITABLE FOR FORMWORKS.

IT IS FORBIDDEN THE USE OF PRODUCTS NOT SUITABLE FOR FORMWORKS: THESE COULD DAMAGE THE MULTILAYER AND METAL FRAME.

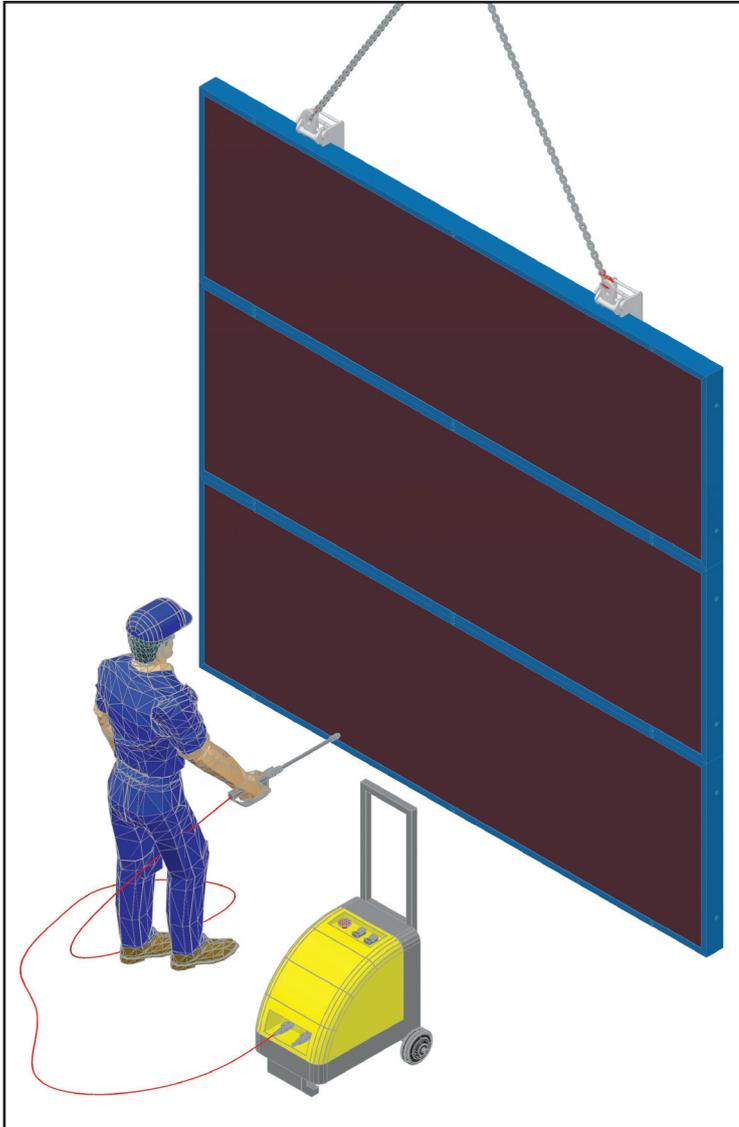


DISARMING OIL:



ATTENTION:

- DISARMO OIL CONTAINS HARMFUL SUBSTANCES FOR THE ENVIRONMENT;
- DO NOT DISPUTE IN THE ENVIRONMENT;
- USE IN WELL-VENTILED AREAS;
- DO NOT INHALE AND / OR SWALLOW.

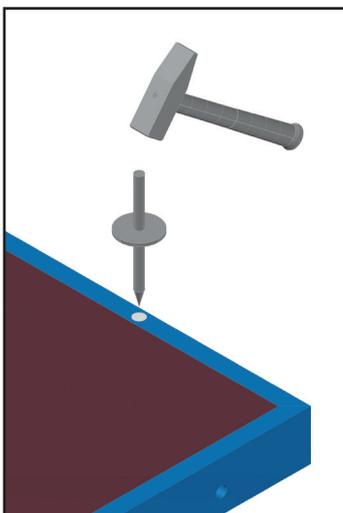


DESCRIPTION:

The special coating of the formworks and the multilayer allows cleaning with the use of high-performance washers.

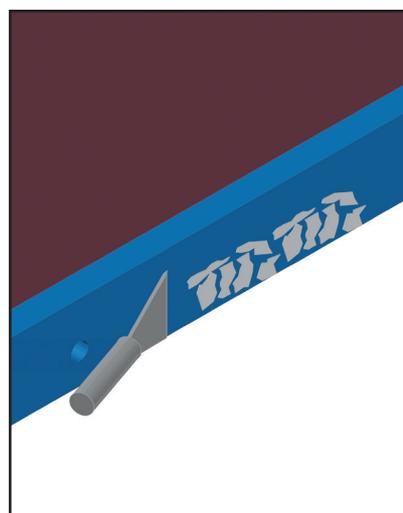
It is recommended to observe the following requirements:

- Performance from 200 bar to a maximum of 300 bar.
- Pay attention to the distance and the speed of the jet;
- The higher the pressure, the greater the distance to maintain;
- Pay close attention to the silicone joint;
- Excessive pressure can damage the silicone joint:
- Do not dwell too long in the same place.



CLEANING:

To clean the holes in the bar passage, position the formwork with the multilayer facing upwards. Using a hammer and a chisel, apply pressure to cement. Thanks to the conical bush, the cement will come out without problems.



CLEANING:

To clean the edge profiles of the formworks, use a spatula eliminating the cement slag.



5.0.0

DAMAGE ON PLYWOOD

GENERAL PROVISION:

The components must be installed as shown in this section of the manual.

For the safe use of the GP-10 elements, the user must provide an adequate support base for the latter which supports the ground discharge of the forces generated by the concrete casting.

It is strictly forbidden to use the GP-10 systems on poorly resistant bases such as wood, gravel, earth, etc.

It is strictly forbidden to make changes, add or subtract details to the GPrandina elements.

Gprandina srl Building System declines all responsibility for incorrect use of its building systems.



DAMAGE ON PLYWOOD - RIPPLING



ATTENTION:

THE DAMAGES BELOW ARE NOT COVERED BY GUARANTEE BY GPRANDINA SRL BUILDING SYSTEMS.



DESCRIPTION:

The micro-waves formed on the plywood panel is caused by the penetration of moisture into the panel itself.

It can occur more easily in the edges of the perimeter, in the fixing screw holes or in any other place where the multilayer is not protected by the phenolic film.

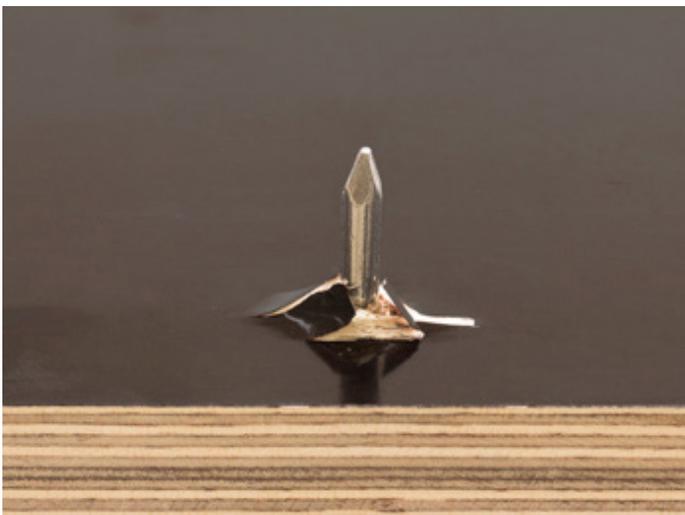
The ripple should disappear when moisture penetrates evenly through the holes, usually after 6 to 8 times.

DAMAGE ON PLYWOOD - VARIOUS DRILLING (NAILS, SCREWS, ETC.):



ATTENTION:

THE DAMAGES BELOW ARE NOT COVERED BY GUARANTEE BY GPRANDINA SRL BUILDING SYSTEMS.



DESCRIPTION:

The GP-10 frame formwork multilayer may have these defects due to pinholes caused by the fixation / extraction of nails, screws or drill holes made with the drill which causes the crumbling of the phenolic film of different sizes, compromising the quality of the surfaces and a greater penetration of moisture in the multilayer.



DAMAGE ON PLYWOOD - VIBRATOR



ATTENTION:

THE DAMAGES BELOW ARE NOT COVERED BY GUARANTEE BY GPRANDINA SRL BUILDING SYSTEMS.



DESCRIPTION:

This damage is caused by the vibrator needle, which coming into contact too long with the phenolic protective film, causes uneven abrasion, circular or in length which, by removing the phenolic film, causes the wear of the multilayer a few millimeters deep.





6.0.0 ARTICLES

GENERAL PROVISION:

The components must be installed as shown in this section of the manual.

For the safe use of the GP-10 elements, the user must provide an adequate support base for the latter which supports the ground discharge of the forces generated by the concrete casting.

It is strictly forbidden to use the GP-10 systems on poorly resistant bases such as wood, gravel, earth, etc.

It is strictly forbidden to make changes, add or subtract details to the GPrandina elements.

Gprandina srl Building System declines all responsibility for incorrect use of its building systems.



ARTICLES

PANEL RANGE H300 STEEL:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221100	Panel GP-10 300x200	345,00	6,00
221102	Panel GP-10 300x120	148,00	3,60
221104	Panel GP-10 300x100	110,00	3,00
221106	Panel GP-10 300x90	102,00	2,70
221108	Panel GP-10 300x80	90,00	2,40
221109	Panel GP-10 300x75	86,00	2,25
221110	Panel GP-10 300x70	78,20	2,10
221111	Panel GP-10 300x65	76,00	1,95
221112	Panel GP-10 300x60	72,00	1,80
221113	Panel GP-10 300x55	68,00	1,65
221114	Panel GP-10 300x50	64,10	1,50
221115	Panel GP-10 300x45	60,20	1,35
221116	Panel GP-10 300x40	56,00	1,20
221118	Panel GP-10 300x30	44,00	0,90
221119	Panel GP-10 300x25	41,00	0,75
221120	Panel GP-10 300x20	37,90	0,60
221154	Panel GP-10 300x100 Pillar	113,00	3,00
221154F-3T	Panel GP-10 300x100 Pillar Foretad 3T	113,00	3,00
221154F-5T	Panel GP-10 300x100 Pillar Foretad 5T	113,00	3,00
221160	Panel GP-10 300x75 Pillar	92,00	2,25
221160F-3T	Panel GP-10 300x75 Pillar Foretad 3T	92,00	2,25
221160F-5T	Panel GP-10 300x75 Pillar Foretad 5T	92,00	2,25

PANEL RANGE H300 ALLUMINIUM:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221100A	Panel GP-10 AL 300x200	169,00	6,00
221104A	Panel GP-10 AL 300x100	72,00	3,00
221106A	Panel GP-10 AL 300x90	66,00	2,70
221108A	Panel GP-10 AL 300x80	60,00	2,40
221109A	Panel GP-10 AL 300x75	57,00	2,25
221110A	Panel GP-10 AL 300x70	54,00	2,10
221111A	Panel GP-10 AL 300x65	50,50	1,95
221112A	Panel GP-10 AL 300x60	47,50	1,80
221113A	Panel GP-10 AL 300x55	44,50	1,65
221114A	Panel GP-10 AL 300x50	41,50	1,50
221115A	Panel GP-10 AL 300x45	38,50	1,35
221116A	Panel GP-10 AL 300x40	36,00	1,20
221118A	Panel GP-10 AL 300x30	27,50	0,90
221119A	Panel GP-10 AL 300x25	25,50	0,75
221120A	Panel GP-10 AL 300x20	23,00	0,60
221154A	Panel GP-10 AL 300x100 Pillar	71,50	3,00
221154FA-3T	Panel GP-10 AL 300x100 Pillar Foretad 3T	71,50	3,00
221154FA-5T	Panel GP-10 AL 300x100 Pillar Foretad 5T	71,50	3,00
221160A	Panel GP-10 AL 300x75 Pillar	56,50	2,25
221160FA-3T	Panel GP-10 AL 300x75 Pillar Foretad 3T	56,50	2,25
221160FA-5T	Panel GP-10 AL 300x75 Pillar Foretad 5T	56,50	2,25

PANEL RANGE H150 STEEL:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221202	Panel GP-10 150x120	75,00	1,80
221204	Panel GP-10 150x100	58,00	1,50
221206	Panel GP-10 150x90	52,40	1,35
221208	Panel GP-10 150x80	47,50	1,20
221209	Panel GP-10 150x75	45,50	1,13
221210	Panel GP-10 150x70	43,10	1,05
221211	Panel GP-10 150x65	40,10	0,98
221212	Panel GP-10 150x60	38,00	0,90
221213	Panel GP-10 150x55	35,90	0,83
221214	Panel GP-10 150x50	33,80	0,75
221215	Panel GP-10 150x45	31,70	0,68
221216	Panel GP-10 150x40	29,50	0,60
221218	Panel GP-10 150x30	25,30	0,45
221219	Panel GP-10 150x25	23,10	0,38
221220	Panel GP-10 150x20	21,00	0,30
221254	Panel GP-10 150x100 Pillar	59,00	1,50
221254F	Panel GP-10 150x100 Pillar Foretad	59,00	1,50
221260	Panel GP-10 150x75 Pillar	46,10	1,13
221260F	Panel GP-10 150x75 Pillar Foretad	46,10	1,13

PANNELLI SERIE H150 ALLUMINIO:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221204A	Panel GP-10 AL 150x100	38,20	1,50
221206A	Panel GP-10 AL 150x90	34,50	1,35
221208A	Panel GP-10 AL 150x80	31,50	1,20
221209A	Panel GP-10 AL 150x75	30,00	1,13
221210A	Panel GP-10 AL 150x70	28,30	1,05
221211A	Panel GP-10 AL 150x65	26,30	0,98
221212A	Panel GP-10 AL 150x60	24,80	0,90
221213A	Panel GP-10 AL 150x55	23,30	0,83
221214A	Panel GP-10 AL 150x50	21,70	0,75
221215A	Panel GP-10 AL 150x45	20,10	0,68
221216A	Panel GP-10 AL 150x40	18,70	0,60
221218A	Panel GP-10 AL 150x30	14,50	0,45
221219A	Panel GP-10 AL 150x25	13,20	0,38
221220A	Panel GP-10 AL 150x20	12,00	0,30
221254A	Panel GP-10 AL 150x100 Pillar	38,00	1,50
221254FA	Panel GP-10 AL 150x100 Pillar Foretad	38,00	1,50
221260A	Panel GP-10 AL 150x75 Pillar	28,80	1,13
221260FA	Panel GP-10 AL 150x75 Pillar Foretad	28,80	1,13

PANEL RANGE H270 STEEL:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221300	Panel GP-10 270x200	311,00	5,40
221302	Panel GP-10 270x120	133,00	3,24
221304	Panel GP-10 270x100	100,30	2,70
221306	Panel GP-10 270x90	96,50	2,43
221308	Panel GP-10 270x80	82,20	2,16
221309	Panel GP-10 270x75	79,00	2,03
221310	Panel GP-10 270x70	75,00	1,89
221311	Panel GP-10 270x65	69,00	1,76
221312	Panel GP-10 270x60	65,10	1,62
221313	Panel GP-10 270x55	61,50	1,49
221314	Panel GP-10 270x50	58,00	1,35
221315	Panel GP-10 270x45	54,50	1,22
221316	Panel GP-10 270x40	51,00	1,08
221318	Panel GP-10 270x30	39,20	0,81
221319	Panel GP-10 270x25	37,00	0,68
221320	Panel GP-10 270x20	34,20	0,54
221354	Panel GP-10 270x100 Pillar	103,30	2,70
221354F	Panel GP-10 270x100 Pillar Foretad	103,30	2,70
221356	Panel GP-10 270x90 Pillar	95,40	2,43
221356F	Panel GP-10 270x90 Pillar Foretad	95,40	2,43
221360F	Panel GP-10 270x75 Pillar	84,00	2,03
221360F	Panel GP-10 270x75 Pillar Foretad	84,00	2,03



PANEL RANGE H270 ALUMINIUM:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221300A	Panel GP-10 AL 270x200	152,00	5,40
221304A	Panel GP-10 AL 270x100	66,00	2,70
221306A	Panel GP-10 AL 270x90	60,50	2,43
221308A	Panel GP-10 AL 270x80	54,50	2,16
221309A	Panel GP-10 AL 270x75	51,70	2,03
221310A	Panel GP-10 AL 270x70	49,00	1,89
221311A	Panel GP-10 AL 270x65	45,50	1,76
221312A	Panel GP-10 AL 270x60	43,00	1,62
221313A	Panel GP-10 AL 270x55	40,30	1,49
221314A	Panel GP-10 AL 270x50	37,50	1,35
221315A	Panel GP-10 AL 270x45	35,00	1,22
221316A	Panel GP-10 AL 270x40	32,30	1,08
221318A	Panel GP-10 AL 270x30	24,70	0,81
221319A	Panel GP-10 AL 270x25	22,70	0,68
221320A	Panel GP-10 AL 270x20	20,50	0,54
221354A	Panel GP-10 AL 270x100 Pillar	65,50	2,70
221354AF	Panel GP-10 AL 270x100 Pillar Foretad	65,50	2,70
221356A	Panel GP-10 AL 270x90 Pillar	60,00	2,43
221356AF	Panel GP-10 AL 270x90 Pillar Foretad	60,00	2,43
221360AF	Panel GP-10 AL 270x75 Pillar	51,20	2,03
221360AF	Panel GP-10 AL 270x75 Pillar Foretad	51,20	2,03



PANEL RANGE H135 STEEL:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221402	Panel GP-10 135x120	62,70	1,62
221404	Panel GP-10 135x100	49,20	1,35
221406	Panel GP-10 135x90	45,60	1,22
221408	Panel GP-10 135x80	42,00	1,08
221409	Panel GP-10 135x75	40,00	1,01
221410	Panel GP-10 135x70	37,30	0,95
221411	Panel GP-10 135x65	35,50	0,88
221412	Panel GP-10 135x60	33,60	0,81
221413	Panel GP-10 135x55	31,80	0,74
221414	Panel GP-10 135x50	30,00	0,68
221415	Panel GP-10 135x45	28,30	0,61
221416	Panel GP-10 135x40	26,30	0,54
221418	Panel GP-10 135x30	21,00	0,41
221419	Panel GP-10 135x25	19,60	0,34
221420	Panel GP-10 135x20	18,10	0,27
221454	Panel GP-10 135x100 Pillar	50,60	1,35
221454F	Panel GP-10 135x100 Pillar Foretad	50,60	1,35
221456	Panel GP-10 135x90 Pillar	46,70	1,22
221456F	Panel GP-10 135x90 Pillar Foretad	46,70	1,22
221460F	Panel GP-10 135x75 Pillar	41,00	1,01
221460F	Panel GP-10 135x75 Pillar Foretad	41,00	1,01



PANEL RANGE H135 ALUMINIUM:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221404A	Panel GP-10 AL 135x100	33,30	1,35
221406A	Panel GP-10 AL 135x90	30,50	1,22
221408A	Panel GP-10 AL 135x80	28,00	1,08
221409A	Panel GP-10 AL 135x75	26,50	1,01
221410A	Panel GP-10 AL 135x70	25,00	0,95
221411A	Panel GP-10 AL 135x65	23,30	0,88
221412A	Panel GP-10 AL 135x60	22,00	0,81
221413A	Panel GP-10 AL 135x55	20,50	0,74
221414A	Panel GP-10 AL 135x50	19,30	0,68
221415A	Panel GP-10 AL 135x45	18,00	0,61
221416A	Panel GP-10 AL 135x40	16,50	0,54
221418A	Panel GP-10 AL 135x30	13,20	0,41
221419A	Panel GP-10 AL 135x25	12,00	0,34
221420A	Panel GP-10 AL 135x20	11,00	0,27
221454A	Panel GP-10 AL 135x100 Pillar	33,00	1,35
221454AF	Panel GP-10 AL 135x100 Pillar Foretad	33,00	1,35
221456A	Panel GP-10 AL 135x90 Pillar	30,20	1,22
221456AF	Panel GP-10 AL 135x90 Pillar Foretad	30,20	1,22
221460AF	Panel GP-10 AL 135x75 Pillar	26,20	1,01
221460AF	Panel GP-10 AL 135x75 Pillar Foretad	26,20	1,01



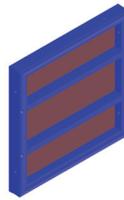
ARTICLES

PANEL RANGE H330STEEL:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221500	Panel GP-10 330x200	379,00	6,60
221502	Panel GP-10 330x120	160,00	3,96
221504	Panel GP-10 330x100	129,00	3,30
221506	Panel GP-10 330x90	111,00	2,97
221508	Panel GP-10 330x80	98,10	2,64
221509	Panel GP-10 330x75	93,70	2,48
221510	Panel GP-10 330x70	89,40	2,31
221511	Panel GP-10 330x65	83,20	2,15
221512	Panel GP-10 330x60	79,00	1,98
221513	Panel GP-10 330x55	74,50	1,82
221514	Panel GP-10 330x50	70,20	1,65
221515	Panel GP-10 330x45	65,90	1,49
221516	Panel GP-10 330x40	61,30	1,32
221518	Panel GP-10 330x30	48,00	0,99
221519	Panel GP-10 330x25	44,90	0,83
221520	Panel GP-10 330x20	41,70	0,66
221554	Panel GP-10 330x100 Pillar	124,50	3,30
221554F	Panel GP-10 330x100 Pillar Forated	124,50	3,30
221560	Panel GP-10 330x75 Pillar	100,00	2,48
221560F	Panel GP-10 330x75 Pillar Forated	100,00	2,48

PANEL RANGE H100 STEEL:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221704	Panel GP-10 100x100	37,50	1,00
221706	Panel GP-10 100x90	34,70	0,90
221708	Panel GP-10 100x80	31,80	0,80
221709	Panel GP-10 100x75	30,40	0,75
221710	Panel GP-10 100x70	29,00	0,70
221711	Panel GP-10 100x65	27,50	0,65
221712	Panel GP-10 100x60	26,10	0,60
221713	Panel GP-10 100x55	24,70	0,55
221714	Panel GP-10 100x50	23,20	0,50
221715	Panel GP-10 100x45	21,80	0,45
221716	Panel GP-10 100x40	20,40	0,40
221718	Panel GP-10 100x30	17,50	0,30
221719	Panel GP-10 100x25	16,10	0,25
221720	Panel GP-10 100x20	14,70	0,20
221754	Panel GP-10 100x100 Pillar	38,90	1,00
221754F	Panel GP-10 100x100 Pillar Forated	38,90	1,00
221760	Panel GP-10 100x75 Pillar	31,30	0,75
221760F	Panel GP-10 100x75 Pillar Forated	31,30	0,75

PANEL RANGE H165 STEEL:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221602	Panel GP-10 165x120	86,50	1,98
221604	Panel GP-10 165x100	66,20	1,65
221606	Panel GP-10 165x90	54,50	1,49
221608	Panel GP-10 165x80	50,20	1,32
221609	Panel GP-10 165x75	48,00	1,24
221610	Panel GP-10 165x70	45,80	1,16
221611	Panel GP-10 165x65	42,60	1,07
221612	Panel GP-10 165x60	40,40	0,99
221613	Panel GP-10 165x55	38,20	0,91
221614	Panel GP-10 165x50	36,00	0,83
221615	Panel GP-10 165x45	33,80	0,74
221616	Panel GP-10 165x40	31,60	0,66
221618	Panel GP-10 165x30	24,80	0,50
221619	Panel GP-10 165x25	23,20	0,41
221620	Panel GP-10 165x20	21,50	0,33
221654	Panel GP-10 165x100 Pillar	63,00	1,65
221654F	Panel GP-10 165x100 Pillar Forated	63,00	1,65
221660	Panel GP-10 165x75 Pillar	49,00	1,24
221660F	Panel GP-10 165x75 Pillar Forated	49,00	1,24

PANEL RANGE H100 ALUMINUM:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
221704A	Panel GP-10 AL 100x100	25,00	1,00
221706A	Panel GP-10 AL 100x90	23,00	0,90
221708A	Panel GP-10 AL 100x80	21,00	0,80
221709A	Panel GP-10 AL 100x75	20,00	0,75
221710A	Panel GP-10 AL 100x70	19,00	0,70
221711A	Panel GP-10 AL 100x65	18,00	0,65
221712A	Panel GP-10 AL 100x60	16,80	0,60
221713A	Panel GP-10 AL 100x55	15,80	0,55
221714A	Panel GP-10 AL 100x50	14,80	0,50
221715A	Panel GP-10 AL 100x45	13,70	0,45
221716A	Panel GP-10 AL 100x40	12,70	0,40
221718A	Panel GP-10 AL 100x30	10,00	0,30
221719A	Panel GP-10 AL 100x25	9,00	0,25
221720A	Panel GP-10 AL 100x20	8,20	0,20
221754A	Panel GP-10 AL 100x100 Pillar	24,50	1,00
221754AF	Panel GP-10 AL 100x100 Pillar Forated	24,50	1,00
221760A	Panel GP-10 AL 100x75 Pillar	19,50	0,75
221760AF	Panel GP-10 AL 100x75 Pillar Forated	19,50	0,75

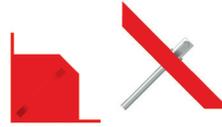
EXTERNAL CORNER STEEL:



PAINTED / GALVANIZED

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
222101	External corner 10x10 H300	27,40	
222201	External corner 10x10 H150	13,70	
222301	External corner 10x10 H270	24,50	
222401	External corner 10x10 H135	12,30	
222501	External corner 10x10 H330	30,10	
222601	External corner 10x10 H165	15,00	
222701	External corner 10x10 H100	9,10	

CONICAL CORNER FOR DRUM STEEL:



PAINTED / GALVANIZED

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
223000	Conical corner for drum H150	26,00	0,40

INTERNAL CORNER STEEL:



PAINTED / GALVANIZED

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
222111	Internal corner 30x30 H300	84,00	1,80
222211	Internal corner 30x30 H150	43,20	0,90
222311	Internal corner 30x30 H270	75,30	1,62
222411	Internal corner 30x30 H135	39,40	0,81
222511	Internal corner 30x30 H330	91,30	1,98
222611	Internal corner 30x30 H165	47,00	0,99
222711	Internal corner 30x30 H100	25,00	0,60

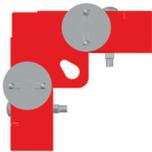
FILLER PROFILE 10 STEEL:



PAINTED / GALVANIZED

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
223101	Filler profile 10 H300	19,70	0,30
223201	Filler profile 10 H150	10,40	0,15
223301	Filler profile 10 H270	17,90	0,27
223401	Filler profile 10 H135	9,50	0,14
223501	Filler profile 10 H330	21,60	0,33
223601	Filler profile 10 H165	11,40	0,17
223701	Filler profile 10 H100	7,30	0,10

STRIKING CORNER STEEL:



PAINTED / GALVANIZED

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
222121	Striking corner 30x30 H300	115,00	1,80
222221	Striking corner 30x30 H150	61,00	0,90
222321	Striking corner 30x30 H270	110,00	1,62
222421	Striking corner 30x30 H135	54,50	0,81
222521	Striking corner 30x30 H330	133,00	1,98
222621	Striking corner 30x30 H165	66,50	0,99
222721	Striking corner 30x30 H100	40,20	0,60

FILLER PROFILE 5 STEEL:



PAINTED / GALVANIZED

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
223111	Filler profile 5 H300	15,00	0,15
223211	Filler profile 5 H150	8,00	0,08
223311	Filler profile 5 H270	13,80	0,14
223411	Filler profile 5 H135	7,20	0,07
223511	Filler profile 5 H330	16,50	0,17
223611	Filler profile 5 H165	8,70	0,09
223711	Filler profile 5 H100	5,60	0,05

EXTERNAL HINGE CORNER STEEL:



PAINTED / GALVANIZED

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
222131	External hinge corner 10x10 H300	52,00	0,60
222231	External hinge corner 10x10 H150	27,30	0,30
222331	External hinge corner 10x10 H270	49,00	0,54
222431	External hinge corner 10x10 H135	24,60	0,27
222531	External hinge corner 10x10 H330	60,00	0,66
222631	External hinge corner 10x10 H165	30,00	0,33
222731	External hinge corner 10x10 H100	18,20	0,20

STRIKING FILLER PLATE 5 STEEL:



PAINTED / GALVANIZED

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
223131	Striking filler plate 5 H300	17,80	0,15
223231	Striking filler plate 5 H150	9,80	0,08
223331	Striking filler plate 5 H270	16,50	0,14
223431	Striking filler plate 5 H135	9,00	0,07
223531	Striking filler plate 5 H330	19,40	0,17
223631	Striking filler plate 5 H165	10,60	0,09
223731	Striking filler plate 5 H100	7,20	0,05

INTERNAL HINGE CORNER STEEL:



PAINTED / GALVANIZED

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
222141	Internal hinge corner 30x30 H300	80,00	1,80
222241	Internal hinge corner 30x30 H150	42,00	0,90
222341	Internal hinge corner 30x30 H270	75,60	1,62
222441	Internal hinge corner 30x30 H135	37,80	0,81
222541	Internal hinge corner 30x30 H330	92,40	1,98
222641	Internal hinge corner 30x30 H165	46,20	0,99
222741	Internal hinge corner 30x30 H100	28,00	0,60

FILLER PLATE 30 STEEL:



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ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
223151	Filler plate 30 H300	50,50	0,90
223251	Filler plate 30 H150	33,00	0,45
223351	Filler plate 30 H270	47,50	0,81
223451	Filler plate 30 H135	31,20	0,41
223551	Filler plate 30 H330	54,00	0,99
223651	Filler plate 30 H165	34,80	0,50
223751	Filler plate 30 H100	27,20	0,30

ARTICLES

STOP END FOR ELECTROWELDED STEEL:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
224103	Stop end L40 H300	36,00	
224104	Stop end L30 H300	30,00	
224105	Stop end L25 H300	26,70	
224106	Stop end L20 H300	23,50	
224203	Stop end L40 H150	19,00	
224204	Stop end L30 H150	15,80	
224205	Stop end L25 H150	14,00	
224206	Stop end L20 H150	12,40	
224303	Stop end L40 H270	32,50	
224304	Stop end L30 H270	27,00	
224305	Stop end L25 H270	24,10	
224306	Stop end L20 H270	21,20	
224403	Stop end L40 H135	17,10	
224404	Stop end L30 H135	14,30	
224405	Stop end L25 H135	12,60	
224406	Stop end L20 H135	11,20	
224503	Stop end L40 H330	39,60	
224504	Stop end L30 H330	33,00	
224505	Stop end L25 H330	29,40	
224506	Stop end L20 H330	25,90	
224603	Stop end L40 H165	21,00	
224604	Stop end L30 H165	17,40	
224605	Stop end L25 H165	15,40	
224606	Stop end L20 H165	13,70	
224703	Stop end L40 H100	12,00	
224704	Stop end L30 H100	10,00	
224705	Stop end L25 H100	9,00	
224706	Stop end L20 H100	8,00	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
391002	Connecting clamp ground formwork / panel	1,20	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
391003	Anchoring beam cm.50	9,40	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
316021	Crane hook	1,60	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
316100	Galvanized pipe Ø48X3 L.3000	10,05	
316102	Galvanized pipe Ø48X3 L.150	5,03	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
316104	Swivel joint	1,40	
316106	Simple joint	0,70	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
316108	Bracket angle 90°	35,00	



GROUND FORMWORK LIGHT SYSTEM:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
311001	Ground formwork H350	140,00	



STEEL CONNECTION ACCESSORIES:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
291002	Crane hook GP-10	7,00	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
291012	Alignment clamp GP-10	4,50	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
291022	Variable clamp GP-10	5,50	
291032	Long Variable clamp GP-10	6,50	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
291042	Adjustable clamp for external corner GP-10	6,50	





ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291052	Clamp for internal corner GP-10	6,80	

PAINTED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291102	Tie clamp complete GP-10	2,80	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291112	Square for pillar GP-10	9,00	

PAINTED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291122	Connecting square for pillar GP-10	4,00	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291142	Alignment bracket GP-10	2,80	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291143	Align pipe CM.100 GP-10	5,00	

PAINTED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291152	Extension bracket CM.50 GP-10	12,50	

PAINTED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291162	Hinge stiffing pipe	16,00	

PAINTED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291172	External clamp for plinth	5,50	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291183	Small fix pin L.90MM	0,20	

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291186	Long fix pin L.140MM	0,50	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291191	Adjustable pin	0,70	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291201	Rondelle	0,10	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291211	Nut for pin Ø17	0,10	

GALVANIZED

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
291212	Nut for pin Ø19	0,11	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
252921	Exagonal key	1,20	

GALVANIZED

STEEL ANCHORING ACCESSORIES:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
811001	Tie rod DW15 - CM.25	0,40	
811002	Tie rod DW15 - CM.50	0,70	
811003	Tie rod DW15 - CM.75	1,10	
811004	Tie rod DW15 - CM.100	1,40	
811005	Tie rod DW15 - CM.120	1,70	
811006	Tie rod DW15 - CM.150	2,10	
811007	Tie rod DW15 - CM.200	2,80	
811008	Tie rod DW15 - CM.250	3,50	
811009	Tie rod DW15 - CM.300	4,20	
811010	Tie rod DW15 - CM.400	5,60	
811011	Tie rod DW15 - CM.500	7,00	
811012	Tie rod DW15 - CM.600	8,40	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
811051	Wing nut DW15	0,90	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
811052	Anchor plate DW15	1,30	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
811053	Wing nut DW15	0,40	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
811054	Nut with welded washer DW15	0,30	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
811055	Manchon hexagonal DW15 90 MM	0,30	

ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
811056	Manchon hexagonal DW15 140 MM	0,80	

GALVANIZED

ARTICLES



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ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
811101	Joint plate 50	7,00	
811102	Joint plate 80	12,00	
811103	Joint plate 100	15,00	
811105	Joint plate 150	22,50	
811106	Joint plate 200	30,00	
811108	Joint plate 250	37,50	
811109	Joint plate 300	45,00	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
811111	Base plate 220x120x8	1,50	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
811112	Base plate 100x100x8	0,70	

GALVANIZED

STEEL SAFETY ACCESSORIES:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
296000	Regolable push pull prop 200-360 single complete	13,00	
296001	Regolable push pull prop 250-450 single complete	15,00	
296004	Regolable push pull prop 180-320 double complete	33,00	
296006	Regolable push pull prop 250-450 double complete	35,00	
296011	Regolable push pull prop 400-600 double complete	52,00	
296012	Regolable push pull prop 700-900 single complete	90,00	

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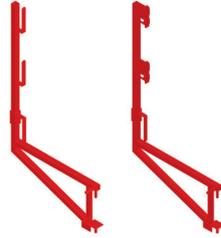
ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
296018	Frontal parapet column	6,50	
296018-FR	Frontal parapet column	7,00	

PAINTED / GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
296019	Bracket frontal parapet column	3,50	

PAINTED / GALVANIZED



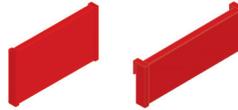
ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
296021	Console service table	12,00	
296021-FR	Console service table	12,50	

PAINTED / GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
296022	Parapet column	6,20	
296022-FR	Parapet column	7,00	

PAINTED / GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
296023	Parapet side	3,00	
296023-FR	Parapet side	3,20	

PAINTED / GALVANIZED



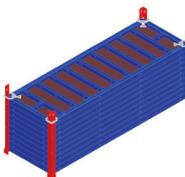
ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
296030	Platform 200X33	12,00	
296040	Platform with hatch 200X61	26,00	
296050	Ladder	6,00	

PAINTED / GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
296024	Split pin	0,01	

GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
296051	Panels transport ring up 200	31,00	
296052	Panels transport ring up	42,00	

PAINTED / GALVANIZED



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m ²)
296053	Fitting box 120x80	60,00	

PAINTED / GALVANIZED

MATERIAL TO LOSE:



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
821001	Cis DW15 Plug	0,30	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
880121	Disarming oil - 25 LT.	27,00	
880122	Barrel of disarming oil - 220 LT.	230,00	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
821021	Waterstop DW15 pig-iron	0,50	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
880126	Pompa 25 LT. inox stantuffo	10,00	
880127	Pompa 25 LT. PVC stantuffo	10,00	
880128	Pompa 25 LT. a pressione acciaio	13,00	
880129	Pompa 25 LT. a pressione inox	13,00	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
821022	Waterstop DW15 plate	0,70	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
880131	Rigid PVC pipe D=22 MM - 50 MT.	7,50	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
880132	PVC washer D=22 MM - 1000 pz.	5,00	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
880133-20	Plug PVC D=20 MM - 1000 pz.	5,00	
880133-22	Plug PVC D=22 MM - 1000 pz.	5,00	
880133-P	Plug PVC PILASTRO - 1000 pz.	5,00	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
880134	Plug PVC D=22 MM - 2000 pz. hermetic	5,00	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
880135	Protection poppet D=16 MM - 1000 pz.	5,00	

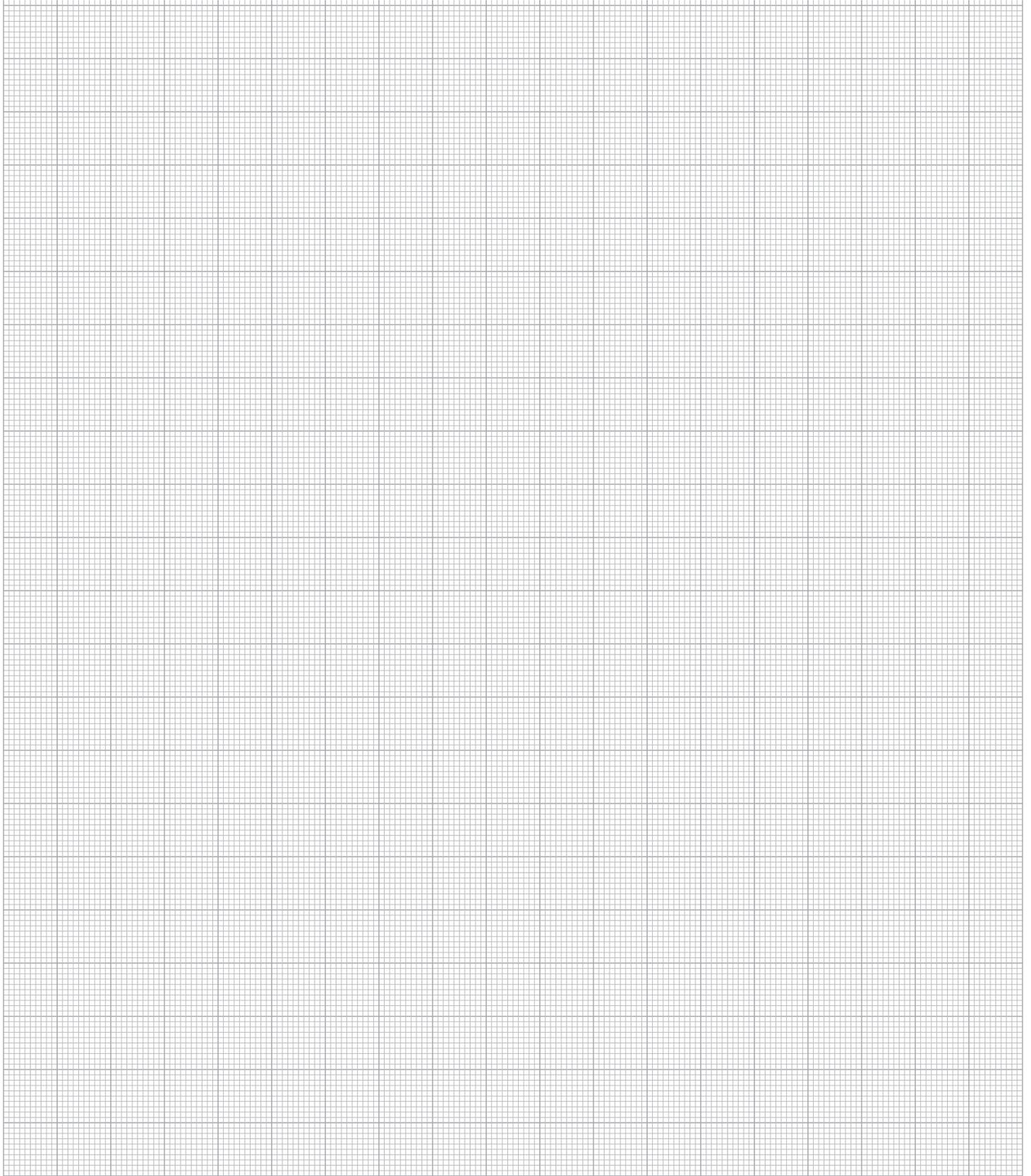


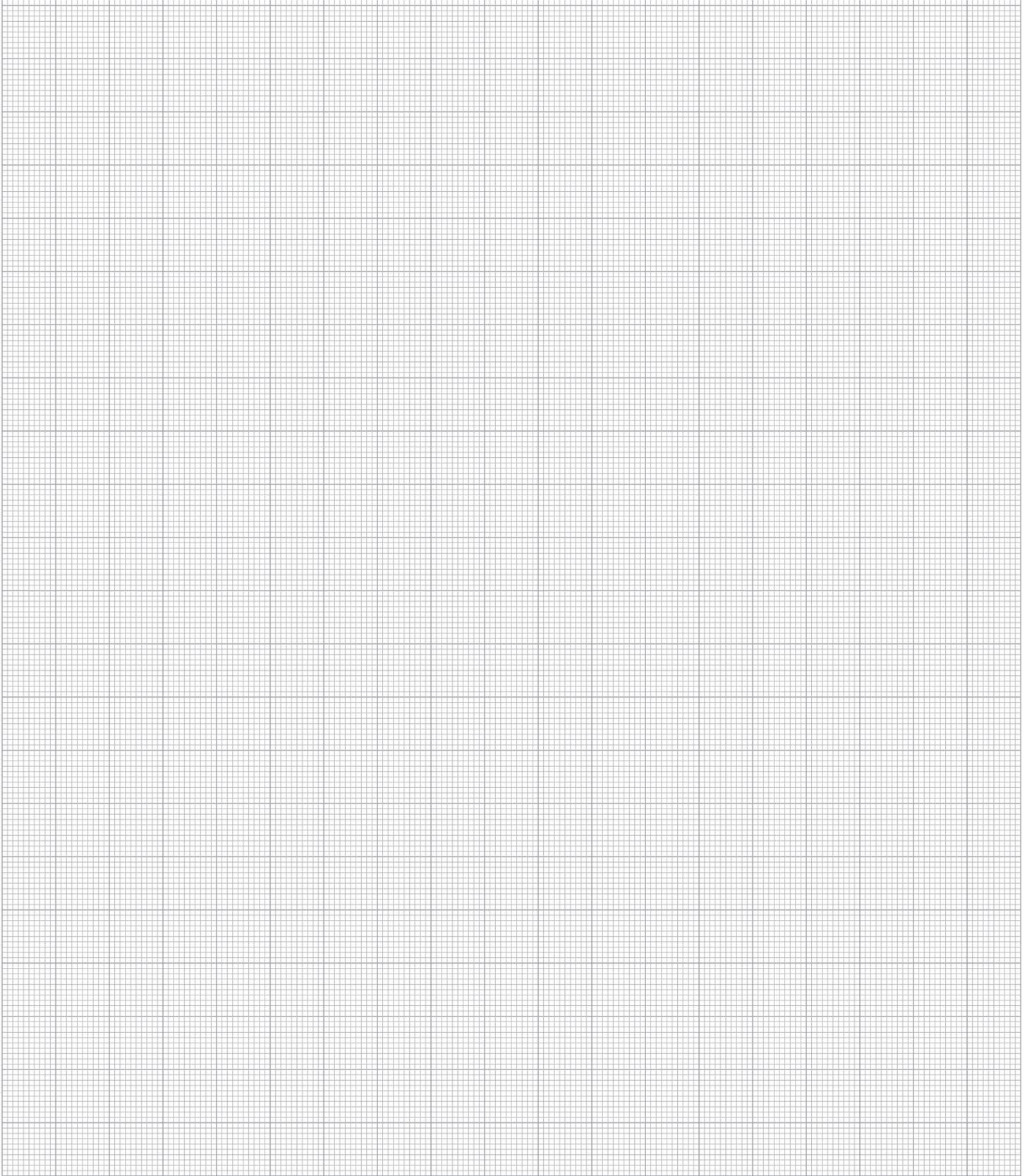
ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
880136	Adapter pvc pipe - waterstop - 1000 pz.	5,00	



ARTICLE	DESCRIPTION	WEIGHT(kg)	(m²)
880151	PVC spacer compl. 15cm - 50 pz.	5,00	
880152	PVC spacer compl. 20cm - 50 pz.	5,50	
880153	PVC spacer compl. 25cm - 50 pz.	6,00	
880154	PVC spacer compl. 30cm - 50 pz.	6,50	
880155	PVC spacer compl. 35cm - 50 pz.	7,00	
880156	PVC spacer compl. 40cm - 50 pz.	7,50	
880157	PVC spacer compl. 50cm - 50 pz.	8,00	

NOTES





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How to reach us



GPrandina Srl Building System

via Roma, 37 - 36060 Schiavon (VI) Italy Tel +39 0444 665046 Fax +39 0444466289

www.gprandina.it - info@gprandina.it



GPrandina Srl Building System
via Roma, 37 - 36060 Schiavon (VI) Italy Tel +39 0444 665046 Fax +39 0444466289
www.gprandina.it - info@gprandina.it