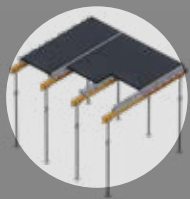


# FORMWORK SOLUTIONS

MODULAR FORMWORK FOR WALLS, SLABS AND COLUMNS



**GEOPANEL**



**GEOSKY**



**GEOPANEL STAR**



**GEOTUB PANEL**



**GEOTUB**



**LIGHT**



**PRACTICAL**



**REUSABLE**

# INDEX



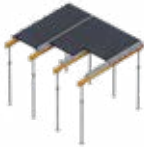
## GEOPANEL.....08

System formwork for walls.



## GEOTUB PANEL.....42

Square and rectangular column formwork.



## GEOSKY.....32

Flat slab formwork.



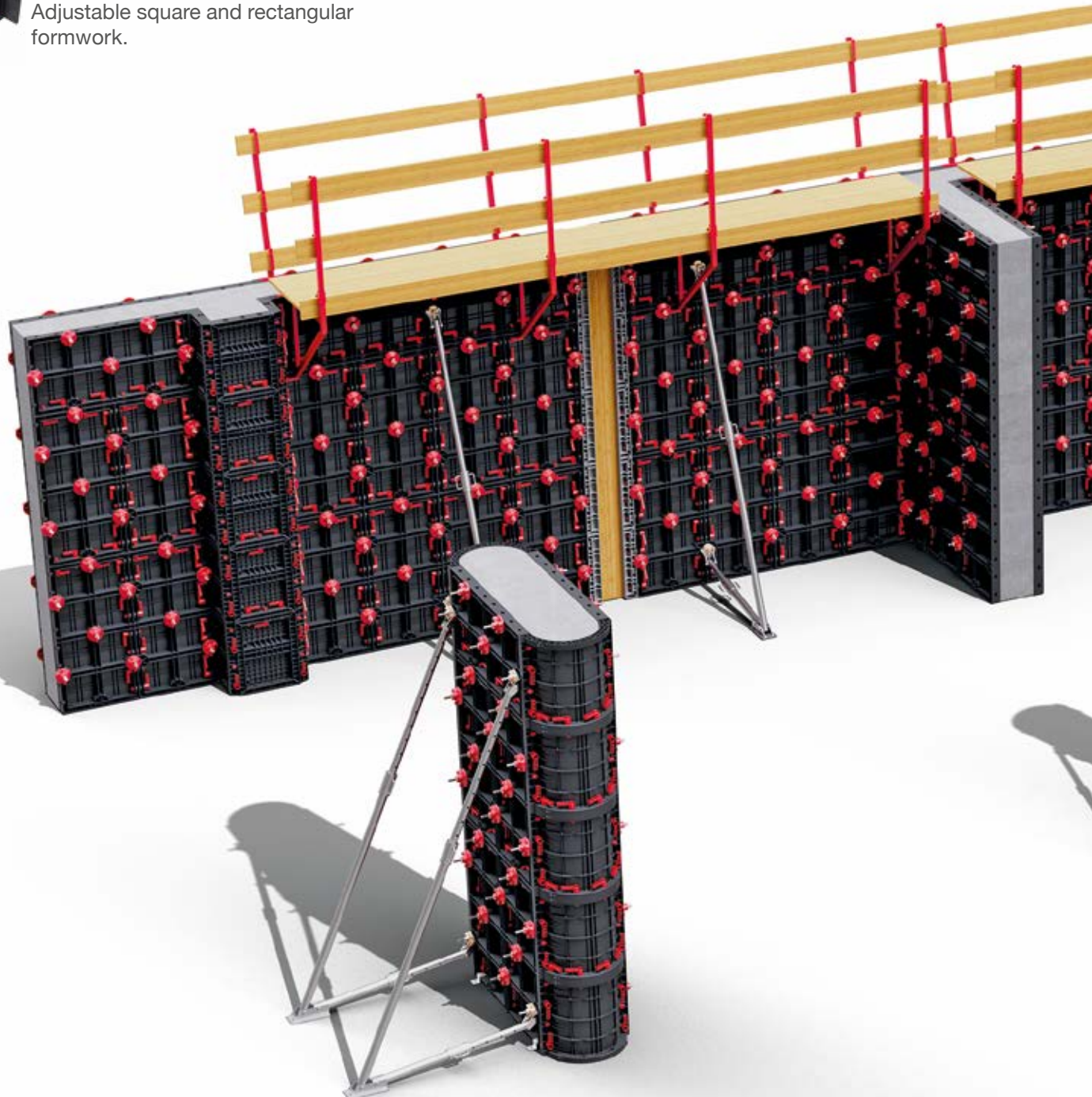
## GEOTUB.....46

Circular column formwork.



## GEOPANEL STAR.....36

Adjustable square and rectangular formwork.



# THE CONCEPT

The **Geoplast universal formwork system** was designed to be **light and simple** for best productivity and ergonomics, reducing the environmental impact of construction s



# LIGHT AND ERGONOMIC



Plastics are extremely versatile materials and are now used in every sector of activity. Choosing the right polymer and skilfully engineering the product will lead to amazing results. Since 2003 Geoplast offers the construction industry all the advantages of ABS formwork.

## LIGHT



User-friendly tools are safer, easier to use and more productive. It is a fact that repeated lifting of heavy equipment causes fatigue and injury.

Geoplast formwork weighs on average 15 kg/m<sup>2</sup> with no single element heavier than 11 kg: this means that the whole system can always be used by hand, in any situation.

Crane operation is not a must anymore, giving the site much greater flexibility without any compromise on health and safety.

## FAST



A well-engineered formwork is simple and fast to use.

Geoplast formwork uses injection moulded ABS in a clever way, doing the job with as few components as possible.

Low weight and simplicity improve the speed of use.

Formwork elements of different shape and size will be easily assembled and used together with limited use of infill timber.

## HANDLING



Low weight and modular design make the storage and logistics of the Geoplast system formwork really simple.

Moisture and water will not affect the panels in any way, dry storage conditions are not necessary.


The low weight of the system means that no crane or truck with crane is necessary to handle the formwork, greatly simplifying logistics.

# SIMPLE AND PRODUCTIVE



Productivity is an important issue wherever concrete is poured. Whenever manual operation is the better option, the light and fast Geoplast formwork greatly improves speed and productivity compared both to metal formwork and traditional timber shuttering.

## STRENGTH


ABS is a very strong polymer, impact and abrasion resistant. Geoplast formwork is  rated up to 80 kN/m<sup>2</sup>, and it is possible to cast elements up to 6 m tall in a single pour.

The excellent temperature stability of ABS is key to the usefulness of the formwork in both hot and cold climates.

The experience of many years has shown that a properly handled Geoplast formwork will be used for well over 100 cycles.

## MODULAR

The elements of the Geoplast system formwork are modular, designed to fit together in a large number of combinations to fit the exact requirements of each construction site.

The panels are precise in size and shape and fully interchangeable, and share  common fastening method to reduce the overall number of elements needed to create the formwork.

## DISMANTLING

Concrete does not stick to the slick surface of ABS, making the Geoplast system formwork very easy to keep clean simply by cleansing with water, without requiring any detergent.

While releasing agents are not strictly required, it is possible to use water-based form oil. Fast cleaning means a fast turn-around of equipment.

Time is the most precious commodity on a construction site: the Geoplast system formwork optimises the concrete production cycle.

# THE PERFORMANCE OF ABS

ABS (Acrylonitrile Butadiene Styrene) is well known for its impact resistance and toughness, and has excellent stability under load. It tolerates a wide range of temperatures and generally has useful characteristics from  $-20$  to  $80^{\circ}\text{C}$ , and particularly impact resistance does not fall off rapidly at lower temperatures.

These properties make ABS the perfect material for the tough environment of construction sites, as proven by the Geoplast professional-grade formwork. Additionally, ABS is known for being hard, glossy and non-porous, providing an excellent surface finish to concrete.

Plastic injection moulding is an ideal process for products where parts need to be strong. Geoplast formwork is produced this way: complex, highly engineered parts where each gram of polymer is designed to contribute to the overall performance of the product. Injection moulding is also very accurate, producing panel after panel of exactly the same size.



Material	Acrylonitrile Butadiene Styrene (ABS)
CAS Number	9003-56-9
Density	1.040–1.080 g/cm <sup>3</sup>
Thermal conductivity (k)	0.1W/m <sup>-1</sup> K <sup>-1</sup>
Linear thermal expansion	0.14 mm/m/°C
Typical tensile strength	45 MPa
Typical flexural modulus	2.1 GPa
Typical notched Izod impact test	200-215 J/m <sup>2</sup>
Typical surface hardness	RR 96
Soluble in water	NO
Corrosion resistance:	Strong acids: GOOD Diluted acids: EXCELLENT Alkalis: EXCELLENT

## SUSTAINABLE

Geoplast formwork is environmentally responsible. Because of its low weight less energy is used during logistics and handling, reducing the amount of CO<sub>2</sub> emissions. Replacing timber shuttering with the Geoplast system formwork means cutting drastically the construction site waste due to wood cutting and trimming.

Geoplast builds tough, long-lasting formwork. At the end of its useful lifetime ABS is 100% recyclable, and can be transformed in new products getting a new lease of life.



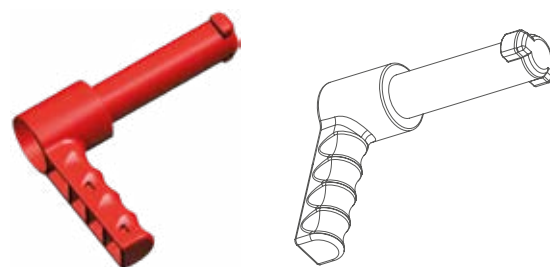
# THE LOCKING HANDLE

## THE UNIVERSAL FIXING ELEMENT FOR ALL GEOPLAST FORMWORKS

Nobody wants to waste time on their job. Geoplast developed its formwork system with a very simple concept in mind: use as few different elements as possible. The use of polymers gave the chance to create an easy, light, yet very strong locking method using one simple, clever shape.

The polymer chosen for the locking handles is a high resistance variant of the PA66 polymer (usually known as "Nylon"), one of the strongest commercially available plastics.

Material	PA66 Polyamide (Nylon)
CAS Number	32131-17-2
Density	1.32 g/cm <sup>3</sup>
Typical yield tensile strength	130 MPa
Typical flexural modulus	7200 MPa
Typical notched Charpy impact test	25 kJ/m <sup>2</sup>
Typical surface hardness	RR 90
Soluble in water	NO
Corrosion resistance	Diluted acids: GOOD Organic solvents: EXCELLENT Alkalis: GOOD



- Firmly locks with a simple 90-degree turn.
- Light, just 0.1 kg.
- Intuitive to use, very little training needed.
- Use safely hand in full safety.
- No hammer needed, reduces the noise on site. Important for operations within cities, especially during night operation.

## IT'S ALL ABOUT GOOD ENGINEERING

A formwork system is only as strong as its locking elements. Each Geoplast locking handle has a final tensile strength of 1.2 tons: this outstanding performance makes the formwork system robust and very reliable.

The locking handles are also designed for implicit safety:

- a simple 90 degree turn in any direction will lock the panels;
- the red colour contrasts with the black panels making visual check of presence and correct locking very simple and straightforward;
- no hammer is needed, reduces risk of injury.

## LOCKING HANDLE IN USE



# GEOPANEL



## WALL FORMWORK SYSTEM



# THE GEOPANEL SYSTEM

The whole idea behind Geopanel is simplicity.

**NO CRANE**

**SELF-LEARNING**

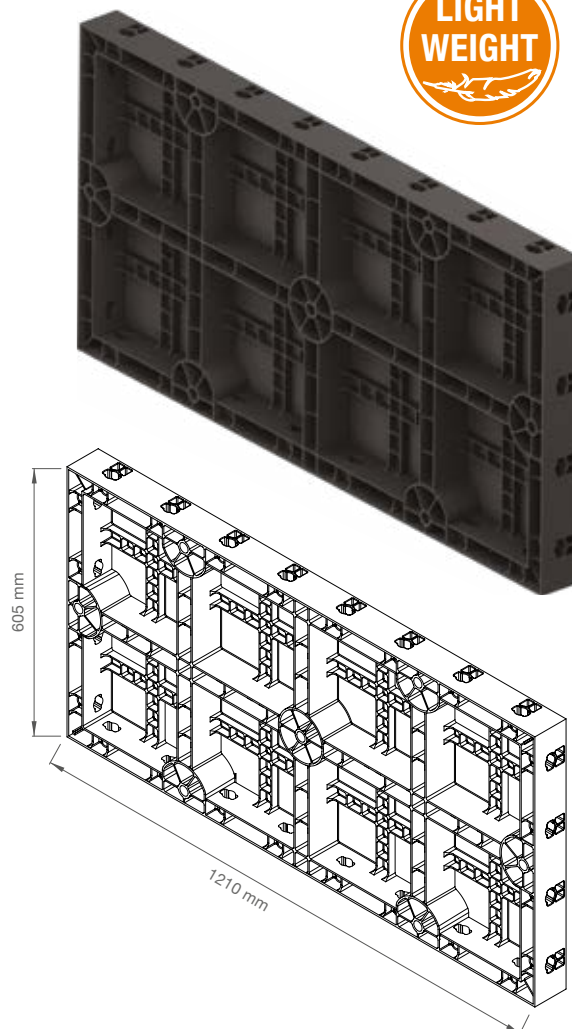
**WIDE RANGE OF APPLICATIONS**

The concept is that one single person should be able to use formwork safely even working by himself and without a crane: that's why no single element of the Geopanel system weighs more than 11 kg.

Geopanel is made to be versatile and it is used for walls, foundations, shafts, shear walls, as well as a roof-slab formwork (in combination with Geosky elements).

The working of a formwork must be simple and intuitive. It literally takes just a few minutes to understand how Geopanel works: even unskilled personnel is able to start using it virtually right away.

The Geopanel 120x60 is at the heart of the main component formwork system where a whole range of components interlock in a vast number of combinations and shapes. Sometimes blueprints and shop drawings are simply not available for the site and the formwork must be simple enough to set up in a logical, easy and effective way. The Geopanel series includes corners, stop-end panels, compensations and accessories which all together make this task simple and straightforward.



Element	Nominal size (m)	Actual size (mm)	Contact Surface (m <sup>2</sup> )	Weight (kg)
<b>GEOPANEL 120X60</b>	1.20 x 0.60	1210 x 605	0.732	10.38
<b>GEOPANEL 40X60</b>	0.40 x 0.60	404 x 605	0.244	3.85
<b>GEOPANEL 35X60</b>	0.35 x 0.60	353 x 605	0.214	3.53
<b>GEOPANEL 30X60</b>	0.30 x 0.60	303 x 605	0.183	2.82
<b>GEOPANEL 25X60</b>	0.25 x 0.60	252 x 605	0.152	2.59
<b>GEOPANEL 20X60</b>	0.20 x 0.60	202 x 605	0.122	2.29
<b>GEOPANEL 15X60</b>	0.15 x 0.60	150 x 605	0.091	2.04
<b>GEOPANEL 5X60</b>	0.05 x 0.60	50 x 605	0.030	0.75
<b>GEOPANEL 4X60</b>	0.04 x 0.60	40 x 605	0.024	0.69
<b>GEOPANEL 3X60</b>	0.03 x 0.60	30 x 605	0.018	0.62
<b>GEOPANEL WP</b>	0.10 x 0.60	100 x 605	0.036	1.31
<b>GEOPANEL CL 20-25-30</b>	0.46 x 0.60	460 x 605	0.182	4.92
<b>GEOPANEL CL-35-40-45</b>	0.61 x 0.60	610 x 605	0.272	6.14
<b>GEOPANEL TWIN ANGLE</b>	0.30 x 0.30 x 0.10	303 x 303 x 100	0.152	3.96
<b>GEOPANEL INTERNAL CORNER</b>	0.30 x 0.10 x 0.60	303 x 100 x 605	0.244	3.86
<b>GEOPANEL EXTERNAL CORNER</b>	0.25 x 0.60	252 x 605	0.152	2.99

# LIMITLESS VERSATILITY

The Geopanel hand-held formwork panels have an almost infinite range of applications, providing best value when cranes or heavy-lifting equipment are not available. Whether renovating an historical building in the congested centre of a capital city, building the new home of a young family, casting the foundations of an industrial estate in a developing country or shuttering shear walls in a high riser, Geopanel is the useful tool that every building company, small or large, will find infinitely useful.

**WALLS, SHEAR WALLS**

**ELEVATOR SHAFTS**

**LINTELS AND RING BEAMS**

**ENCASING WALLS**

**FOUNDATIONS**

**BASEMENTS, SAFE ROOMS / BUNKERS**

**BRIDGE REPAIR**

**PITS AND MANHOLES, TANKS AND IRRIGATION STRUCTURES**

**RENOVATION**

**HEMPCRETE AND RAMMED EARTH BUILDINGS**

**SWIMMING POOLS**

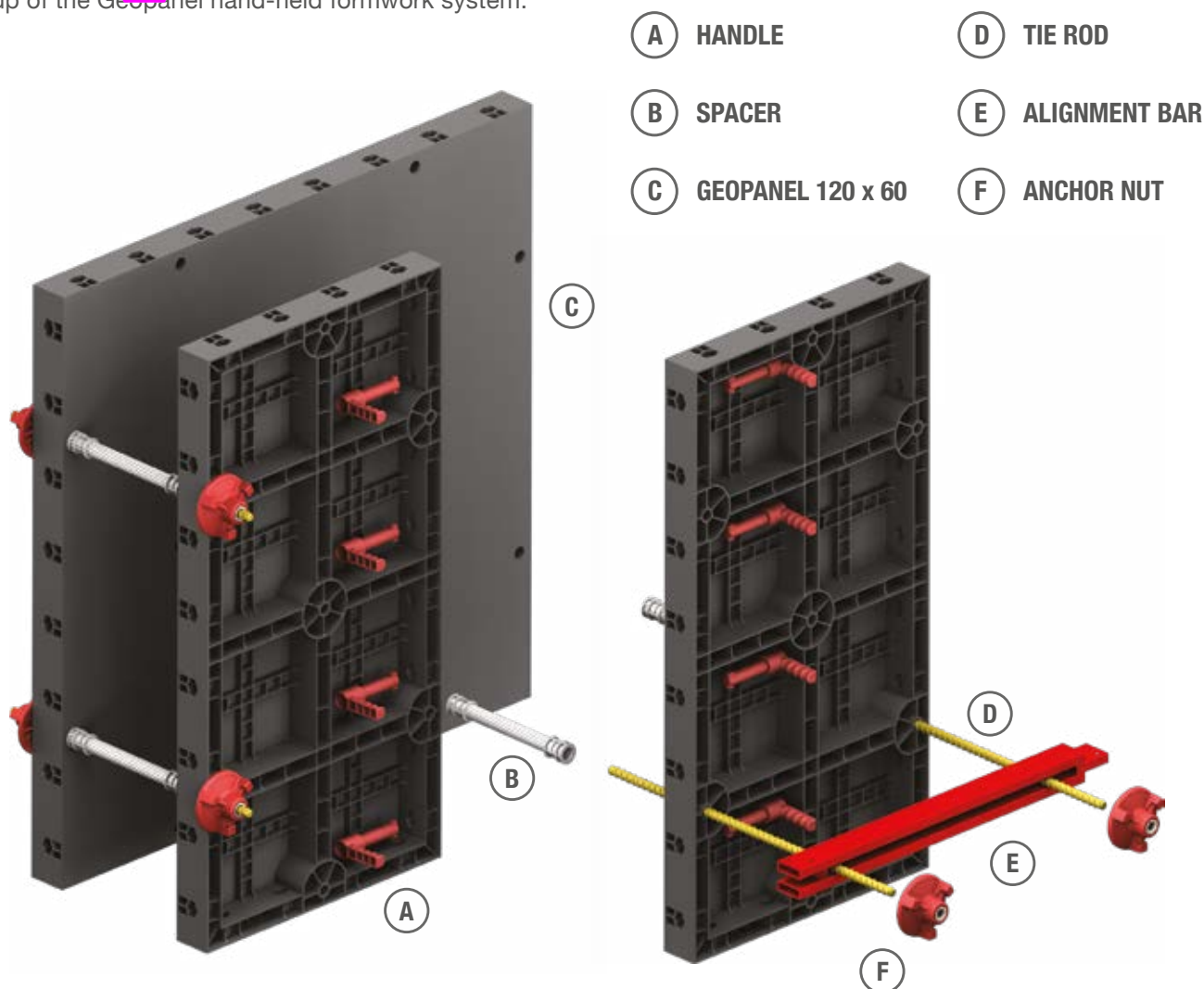
Formwork sections can be pre-assembled on the ground, as well as removed and handled manually without exceeding manual operation weight limits.

The same way, dismantling does not require disassembling the whole formwork but rather is done by fitting it in sections composed by multiple panels, which can be easily shifted by hand.

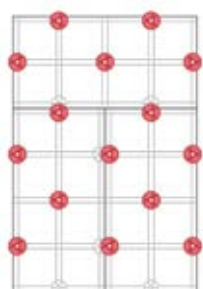


# THE SIMPLE WAY GEOPANEL WORKS

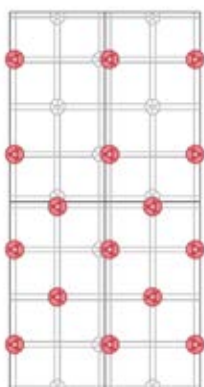
Geopanel elements are connected by the universal locking handle. Opposite panels are connected using market-standard  $\varnothing 15/17$  mm steel tie rods. Also available are lightweight, proprietary high-strength steel+PA66 anchor nuts to complete the set-up of the Geopanel hand-held formwork system.



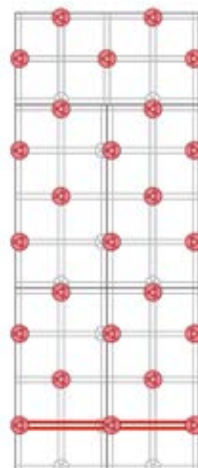
Geopanel 120x60 easily forms walls at 0.6 m increments up to 3.6 m. The other panels in the Geopanel family allow for small and precise height adjustments.



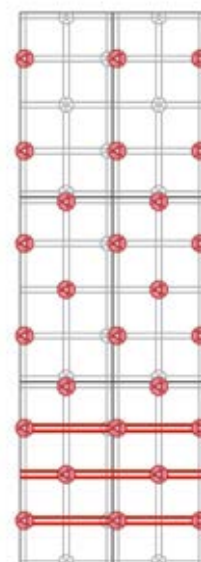
h 1.81 m



h 2.42 m



h 3.02 m



h 3.63 m

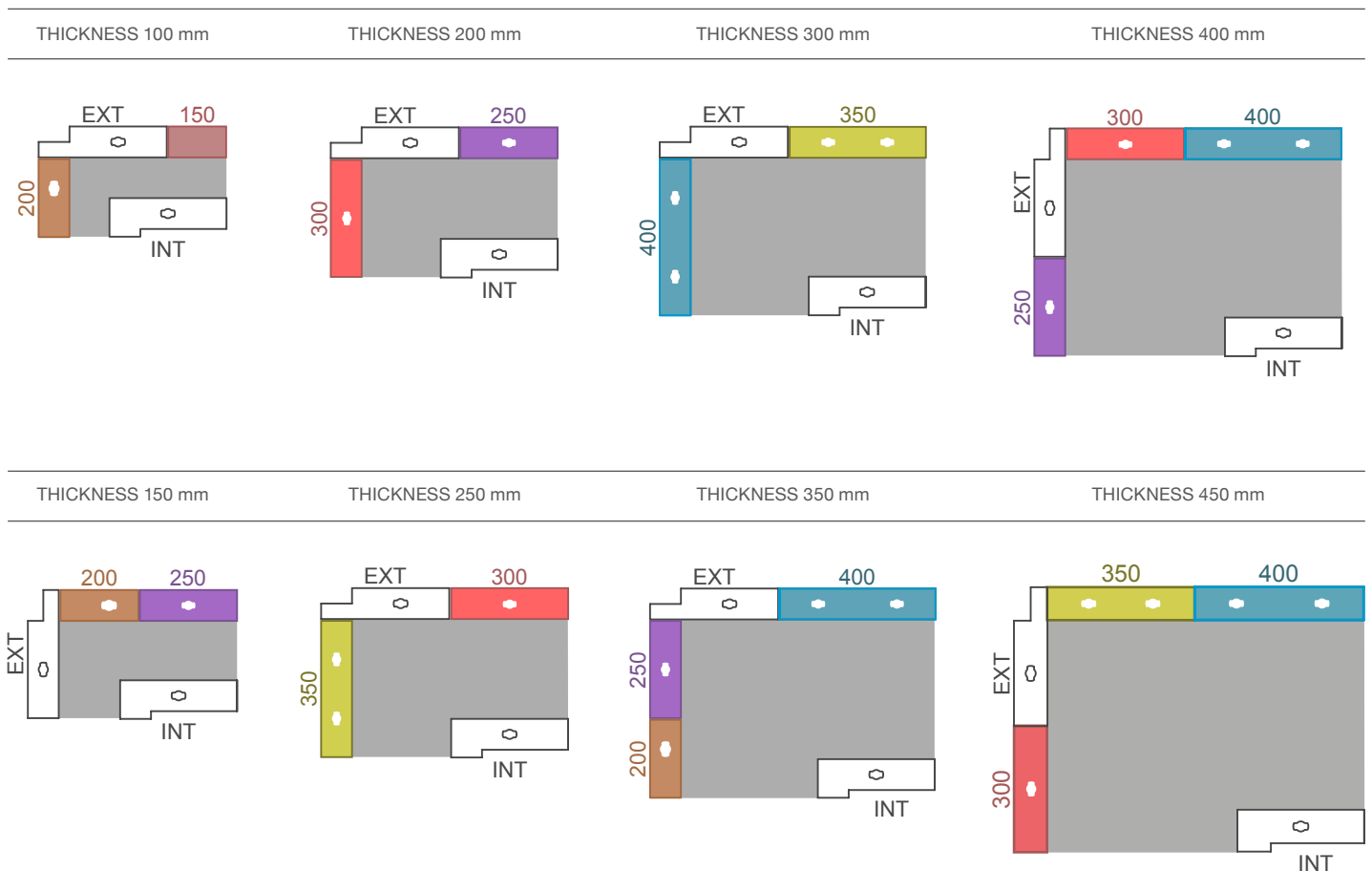
# CORNER CONFIGURATION

Corners are easily formed with Geopanel as the system includes dedicated internal and external corner panels, which work together with different sized small Geopanel elements. The standard Geopanel corner assemblies support forming of walls of thickness of 100 mm and greater, with increments of 50 mm and are available in height increments of 605 mm.

Geopanel 120x60 elements - the standard building block of the formwork system - are always placed opposite one another to form walls and are aligned to allow tie-rods to pass through them.

As the relative position of the internal and external-corner varies with the wall thickness of the wall, different-sized small Geopanel elements are used to fill the gap between the external corner panel and the closest Geopanel 120x60 element.

The Geopanel Technical Manual contains in-depth detail about the composition of corner panel assemblies. Possible combinations of wall sizes are numerous, the quick reference guide in this page is integrated by the technical manual. Geopanel corner formwork uses alignment bars to enhance the precision of the concrete. Detail on the position and amount of alignment bars is shown in the technical manual.



# T-INTERSECTIONS

Forming the intersection of two walls of any thickness is very simple and straightforward with Geopanel.

Two internal corner panels are used to define the intersecting wall, while standard Geopanel elements are used to form the opposite wall surface. The standard Geopanel T-intersection wall formwork assemblies support forming of walls of thickness 100 mm or greater, with increments of 50 mm, and are available in height increments of 605 mm.

The Geopanel Technical Manual contains in-depth detail about the composition of T-intersection panel assemblies. Possible combinations of wall sizes are numerous, the quick reference guide in this page is integrated by the technical manual. Geopanel T-intersection formwork uses alignment bars to enhance the precision of the concrete. Detail on the position and amount of alignment bars is shown in the technical manual.

In some cases corners and T-intersections may be placed close to one another with very little room for alignment bars and require tight compensations. The Geopanel accessories and compensation panels will become particularly useful to solve these cases.



THICKNESS 100 mm	THICKNESS 200 mm	THICKNESS 300 mm	THICKNESS 400 mm
THICKNESS 150 mm	THICKNESS 250 mm	THICKNESS 350 mm	THICKNESS 450 mm

# GEOPANEL COMPENSATION ELEMENTS

The Geopanel Compensation Elements range adds flexibility and precision to the system, and provide the advantages of a formwork contact surface complete. The combination of two consecutive Compensation Elements allows to compensate between 30 mm and 100 mm with increments of 10 mm. Among the possible applications it is possible to form corner kits for sizes that are not multiples of 50 mm. This is useful when the standard brick size falls outside of Geopanel's 50 mm increment matrix.

INSERT



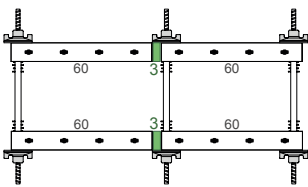
LOCK



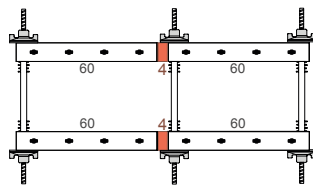
UNLOCK



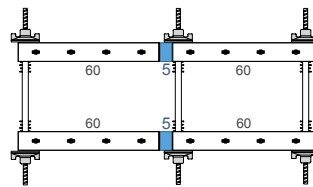
COMPENSATION 30 mm



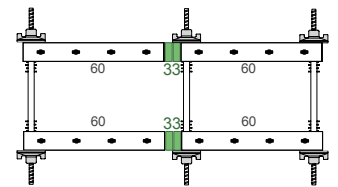
COMPENSATION 40 mm



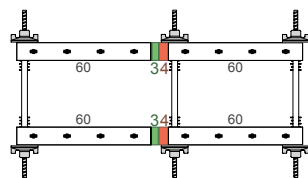
COMPENSATION 50 mm



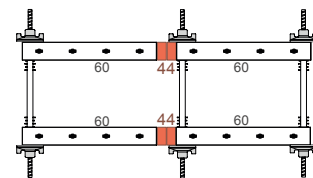
COMPENSATION 60 mm



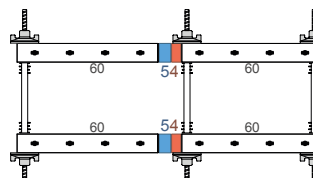
COMPENSATION 70 mm



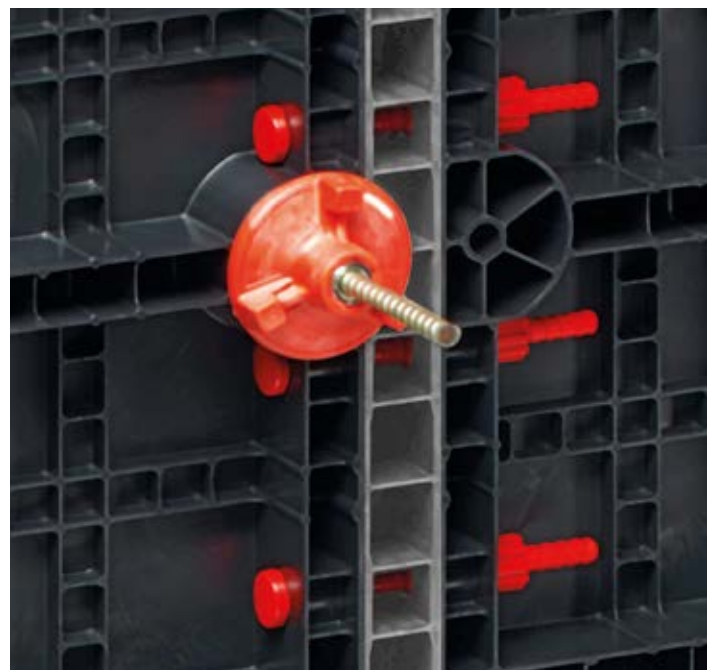
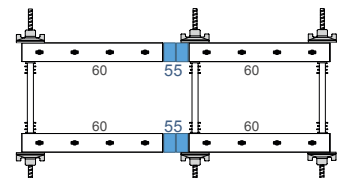
COMPENSATION 80 mm



COMPENSATION 90 mm



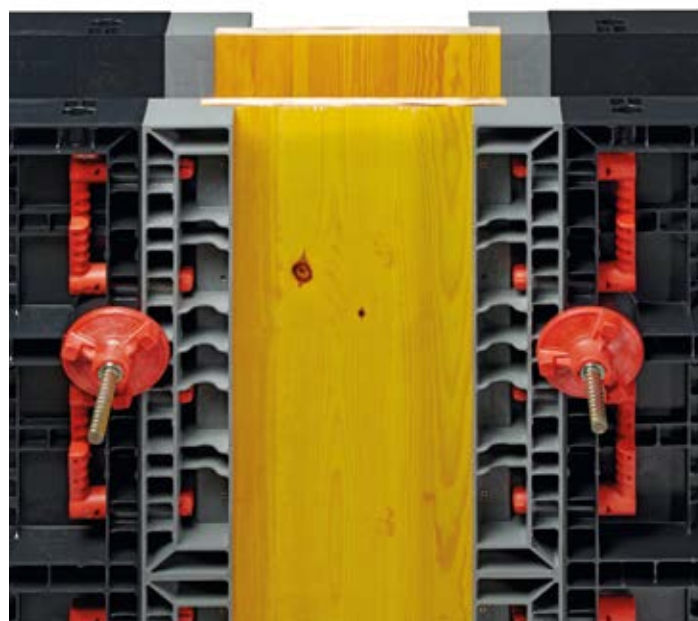
COMPENSATION 100 mm



# GEOPANEL WP INTERFACE WITH WOOD

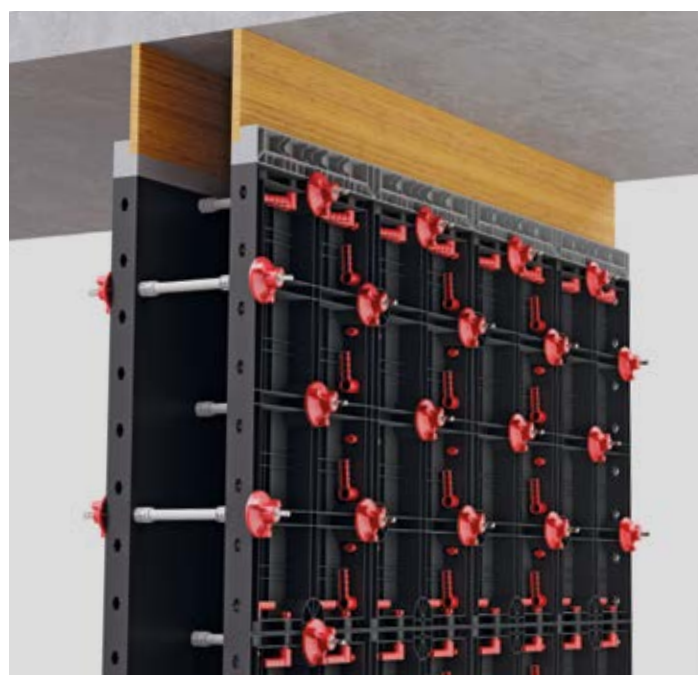
Geopanel is a fully ABS formwork that is also capable of interfacing efficiently with timber shuttering elements. Geopanel WP is an easy, no-headache connection element, available in three sizes designed to connect to 18 mm, 21 mm and 27 mm thickness plywood.

The standard locking handles are used to connect Geopanel WP to other Geopanel formwork elements, while plywood is easily joined to Geopanel WP using wood screws.



## WALLS UNDER EXISTING BEAMS OR SLABS

Geopanel provides an excellent shuttering solution for concrete walls to be poured indoors, under existing beams or slabs. Its flexible set-up and lightweight allow manual operation without the often complex, expensive or potentially dangerous use of lifting machines within confined spaces and no access from above.

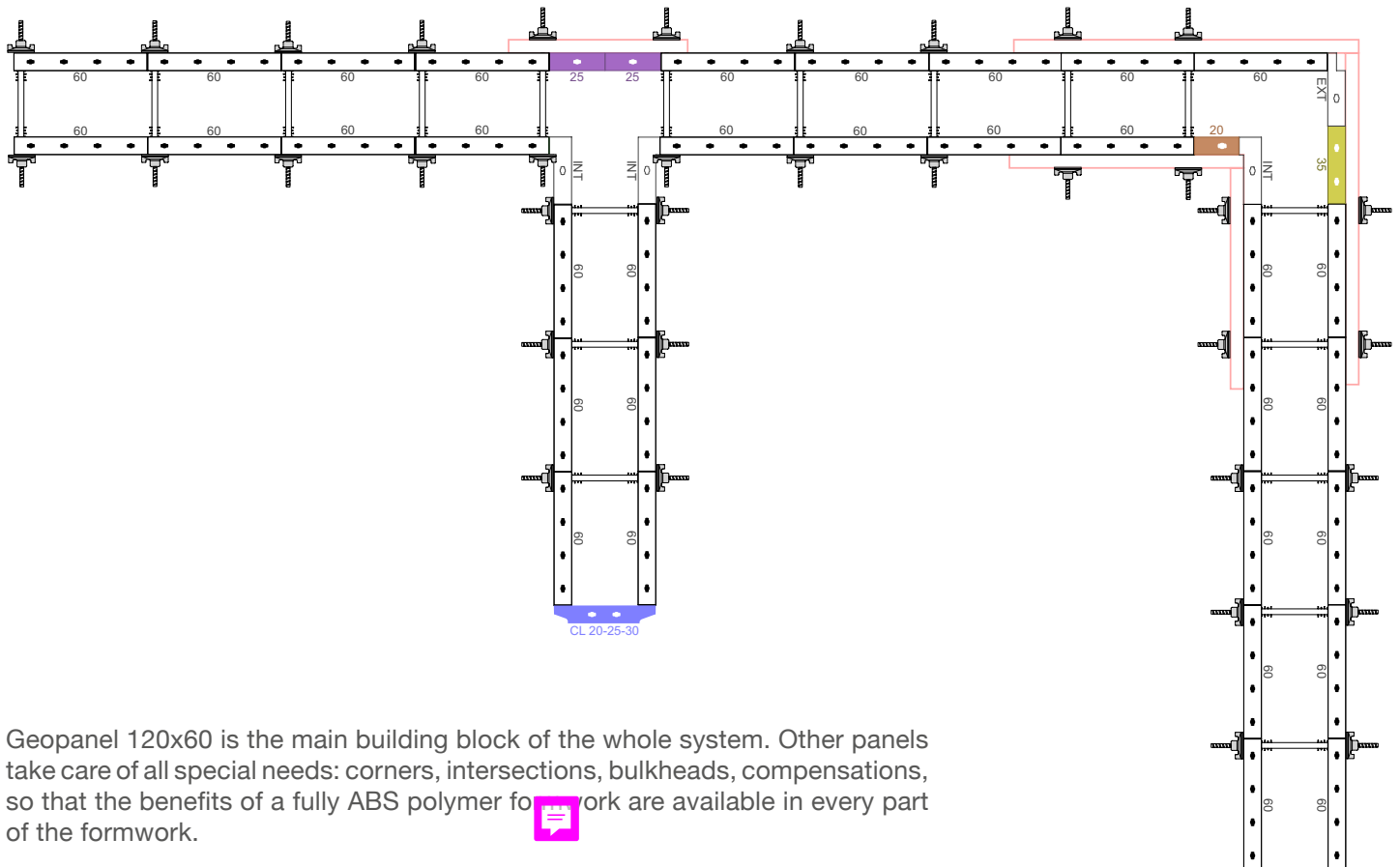


# GEOPANEL WALLS



A wall formwork needs to be versatile and practical, because no wall is the same. Geopanel is a hand-held system formwork allowing a pour height of up to 3.6 m in a single lift.

Geopanel includes corners and fill-in panels that are light, practical and fast to set-up, strip and clean.




Geopanel 120x60 is the main building block of the whole system. Other panels take care of all special needs: corners, intersections, bulkheads, compensations, so that the benefits of a fully ABS polymer formwork are available in every part of the formwork.


# SHEAR WALLS

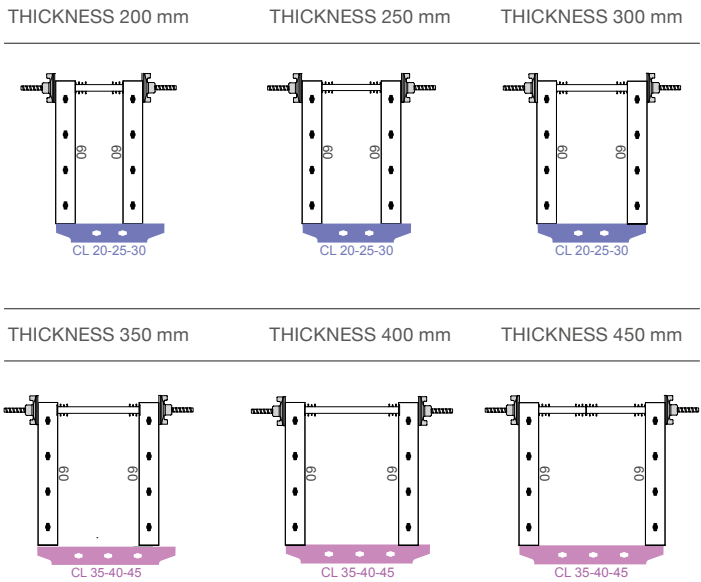


Shear walls are built to counter the effects of the lateral loads such as wind or earthquakes that act on structures. Geopanel makes shear wall forming an easy task: its range of sizes and ease of use add the necessary flexibility to site operations.

Geopanel CL bulkhead panels are particularly useful at the end of walls, or as short-side formwork of shear walls (or long columns) formed with Geopanel. In some cases they are used in combination with Geopanel  corners to form columns protruding from a wall.



The two Geopanel CL elements are adjustable in size to accommodate for wall thickness of 200 to 450 mm, with increments of 50 mm:  
Geopanel CL 20-25-30 for wall thickness 200 to 300 mm.  
Geopanel CL 35-40- for wall thickness 350 to 450 mm.



# ELEVATOR SHAFTS AND STAIRWELLS

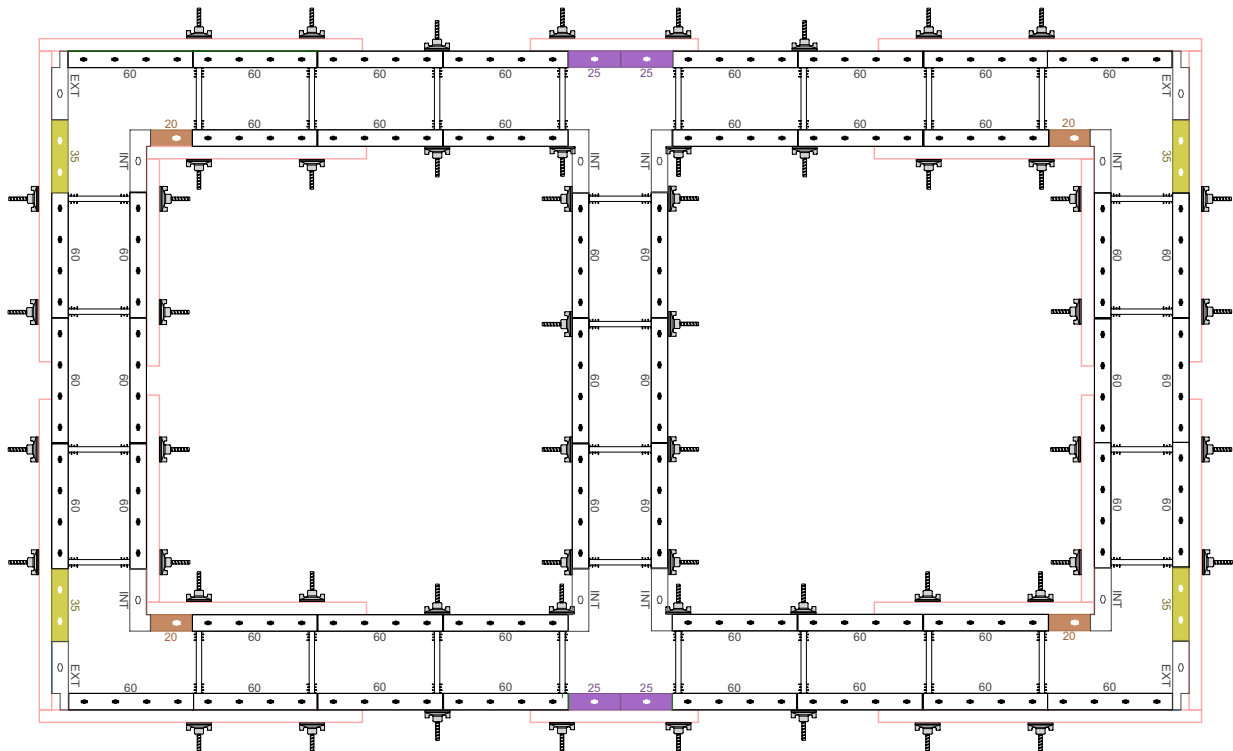
The precise dimensions of concrete achieved with Geopanel are important to make the later installation of the elevator faster and smoother.

The low weight of the panels allow for safe operations, avoiding the risky handling of heavy elements by crane within confined spaces.



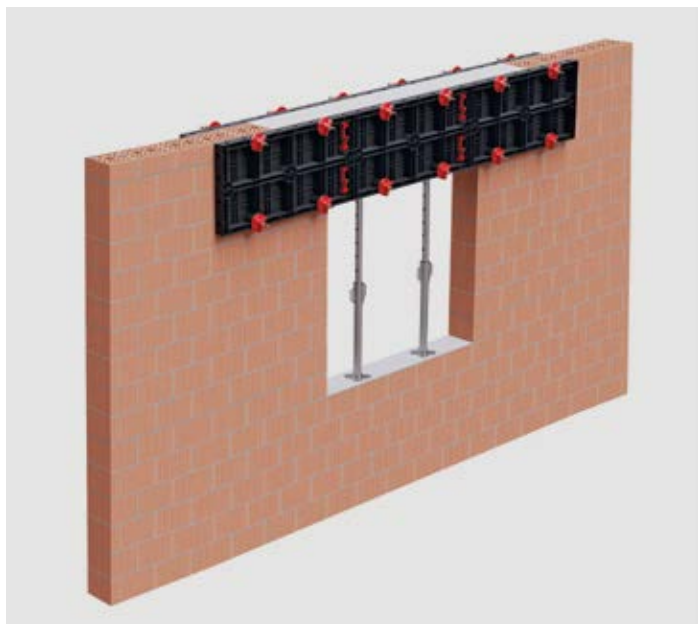
The Geopanel system is ideal for constructing stairwells and elevator shafts. The lightweight design of the panels allows carpenters to easily install and dismantle the formwork, giving them the option to quickly repeat the same process throughout various floors of the building.

The range of panels and accessories included in the system make it easy to form corners and wall intersections without the need of timber fill-in elements.

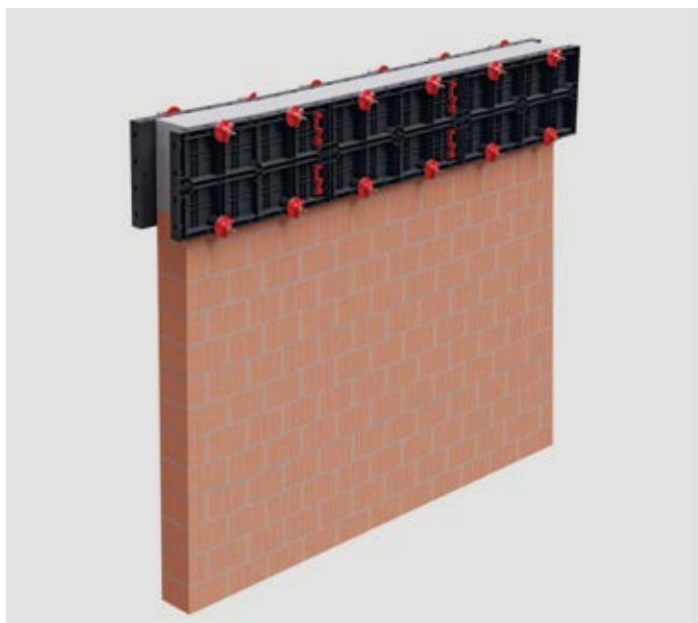


# LINTELS AND RING BEAMS

Geopanel is light and manageable. These features make it ideal to be used inside buildings and in other areas of a construction site that are inaccessible to lifting devices. Smaller job sites without any crane and limited manpower will equally benefit from Geopanel. A small team can work efficiently with Geoplast formwork without compromising either on safety or on the quality of the concrete surface.



Ring-beams and lintels are easy to form with Geopanel, especially when brickwork is concerned. The low weight of the panels makes it easy to handle and fix the formwork to the brickwork, without necessarily having to resort to complex or time-consuming propping methods. The handy size of 1.2 x 0.6 m is ideally suited for smaller concrete objects to be cast in situ such as beam-bearing elements in brickwork.



# WALLS ENCASING EXISTING COLUMNS

Geopanel is an easy formwork to use when working to build walls incorporating or encasing pre-existing columns, may they be concrete or steel.

This is particularly useful for industrial and agricultural buildings, where Geopanel becomes a simple and fast shuttering option.



# DOOR AND WINDOW FRAMES

Door and window frames, box-outs and electrical boxes are placed within a Geopanel formwork using the tie-rods and the reinforcements as reference and anchoring points.

In case an element needs to be fixed to the formwork it can very simply be screwed onto the panels from the outside of the formwork. The flat and smooth surface of Geopanel means that boxes and other elements will be fastened very precisely to the panels. The objects will be perfectly flush with the concrete surface after formwork removal.



# FOUNDATIONS

Geopanel is the perfect formwork for strip footing, tie beams, pile caps and plinths.

During the initial phases of a construction site no crane is available: a hand-held system formwork is really suited to do the job quickly and safely, with no compromise on the quality and precision of the concrete.



Geopanel is very simply a great foundation formwork: whether it's strip footings, pile caps, plinths, Geopanel will be up to the job. As ABS polymer is not affected at all by water, it's simple to set-up a Geopanel formwork even in wet and muddy conditions. The panels will not suffer any damage and will be very easy to keep clean.

A whole series of accessories provide multiple ways to support and prop the panels. Easy interface with timber is also provided for maximum flexibility on site.



# BASEMENT FORMWORK

A lightweight formwork provides evident advantages when producing concrete for basements. Being able to work without a crane is an advantage in every early stage of a project, and basement concrete works are no exception. Basement specialist companies often have no access to the crane, and must work with a truck crane, or by hand: Geopanel can be easily handled in the tight spaces allowed by the excavation, and site safety is thus improved.



## SHELTERS AND BUNKERS

Manual handling and ease of installation make Geopanel suitable for any requirement, whether above or below ground level. Sometimes construction of a safe room must be discreet and no crane may be used. Geopanel is the perfect formwork solution for such cases.



# BRIDGE REPAIR

Bridges are very often built to pass over rough terrain or other obstacles. These conditions mean that bridge maintenance and repair works are often difficult to perform due to limited access. Geopanel is simply ideal for manual shuttering in such conditions: light enough to be handled by one person alone, suitably sized to allow easy handling even when on scaffolding, resulting in increased safety and productivity.



Reinforced concrete bridges are designed to last for a very long service life: during this time, they will inevitably be subject to the corrosion, erosion and vibration due to weather conditions, the environment and sometimes accidents. A good maintenance will keep a bridge functional for a very long time, but the time will come when deeper repair becomes necessary. This operation can be quite complex and challenging and requires good planning, skilled professionals and the right tools in order to achieve good results and according to the relevant standards.

Geopanel provides a simple-to-use solution to the practical formwork challenges of working on scaffolding at great heights. Modular, strong and versatile, it also produces a consistently smooth concrete finish that is better equipped to withstand weathering.

Any type of concrete may be used, although most often self-compacting concrete (SCC) will be chosen: Geopanel allows for a precise forming and will be easy to maintain and keep clean. In fact, it is possible to wash and prepare panels directly on the scaffolds rather than having to bring them back to the ground after each pour, saving a significant amount of handling time.



# PITS AND MANHOLES

The Geopanel Wall plastic panels can be used to create both internal and external formwork for concrete pits, either directly in situ, or pre-cast offsite.

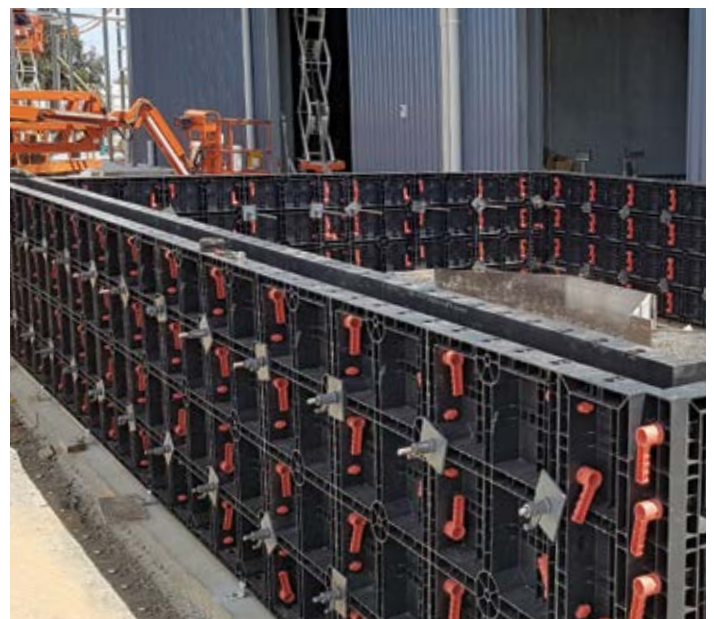
Being modular means you can make various shapes and sizes of pits: stormwater pits, sewage manholes, lift overrun pits, and more.

The Geopanel formwork is light-weight and easy to use, it allows fast set up in a confined space with no cranes or lifting equipment required, and is re-usable in many future projects thanks to its modularity and flexibility.



Concrete jobs in remote areas require agile and flexible logistics. The compact size and low weight of Geopanel remove the complication of having to bring and operate lifting devices to site.

The 1200 x 1000 mm size is very well suited to work in confined spaces and the availability of a number of smaller panels, as well as the WP plastic-timber interface add infinite possibilities to this system formwork.



# TANKS AND IRRIGATION STRUCTURES

Water irrigation projects and irrigation tanks for water treatment and storage are infrastructural projects often situated in rural areas, where logistics can be complicated and often expensive.

The lightness of Geopanel material, its ease of handling and assembly even in challenging situation, make it the ideal solution for water / irrigation control structures, dams, drainage pits, headwalls, culverts, stormwater tanks, and more. The flexibility in use of this modular system and the unlimited combinations it permits in future uses allow for a fast recovery of the investment made.



# RENOVATION WORKS

Nimble in confined spaces, easy to handle, right-sized to fit virtually anywhere, Geopanel is the ideal formwork for renovation jobs, large or small. Geopanel fits any situation thanks to its handy size, uncomplicated logistics and the precise execution it allows. Working with concrete around bricks and blocks with Geopanel is practical and straightforward.



# HEMPCRETE FORMWORK

In-situ cast hempcrete is most conveniently formed using Geopanel formwork as it is modular, lightweight and the panel sizes are ideally suited to this construction material.

In-situ cast Hempcrete is mainly used in conjunction with timber-frame. Wet hempcrete is placed in the formwork in layers of 100 to 150 mm and then compressed by tamping.

Formwork is generally removed after 24 hours, and **the** low weight make them extremely practical as they require limited external support and are very easy to handle without lifting equipment.

As the pressure on the formwork is very low, the Geopanel elements will last indefinitely when used with hempcrete.



## WHAT IS HEMPCRETE

Hempcrete (also known as Hemp-lime **is** a mixture of hemp hurd and lime used as a lightweight, low-carbon construction- and an insulation-material. Hemp is a fast-growing plant, reaching a height of 3–4 m at harvest with no need for pesticides or herbicides after planting. While growing it absorbs CO<sub>2</sub> from the atmosphere, retaining carbon and releasing oxygen. In fact, up to 165 kg of carbon per cubic meter can be stored in hempcrete, making it an extremely sustainable construction material.



Hempcrete is easier to work with than traditional lime mixes, and provide exceptional thermal performance and comfort; it also very effectively manages humidity and moisture in buildings. As it is a very light material it reduces the load to the foundations and is well suited for the construction of buildings in seismic areas.

Hempcrete creates zero waste, as previously mixed material can be added in controlled quantity to new mixes, or otherwise used in landscaping.

Hemp is naturally resistant to pests, so no pesticides and fungicides are used during cultivation. This means that hempcrete does not contain any potentially harmful chemicals that may be released into the house, nor will mould grow in the wall.

# RAMMED EARTH FORMWORK

Rammed earth is an ancient construction material that in recent years has been rediscovered as it is far more sustainable than conventional modern materials. The production method basically consists in filling a formwork with a layer of 100 mm to 250 mm of damp soil mixture (generally subsoil with a clay content between 5% and 15%) compressed by tamping. Once the earth is sufficiently compressed the formwork may be removed. Power tools such as pneumatic tampers reduce the labour time during construction, and Geopanel drastically cuts the forming time compared to traditional timber formwork. The size of Geopanel makes it very easy to increase the height of the formwork incrementally, always maintaining excellent accessibility with the tamper to the earth within.



## WHAT IS RAMMED EARTH

The rammed earth technique is as old as mankind and has many benefits, and it has historically been used in every continent and climate condition: it is simple to manufacture even with unskilled labour, it is relatively inexpensive, non-combustible, thermally massive, strong, and durable. Rammed earth is a very environmentally considerate material as buildings made this way usually use locally available subsoil (conserving the topsoil for agriculture); it also has low embodied energy and generates very little waste.

The high thermal mass of rammed earth is a significant benefit: as it absorbs heat during daytime and releases it during the cooler hours of the night, it moderates daily temperature variations and reduces the need for air conditioning and heating. Unclad rammed earth walls containing clay exposed to an internal space will also effectively regulate humidity in a range between 40% and 60%. Well-cured walls accept nails and screws easily, and can be patched or repaired with the same material used to build them.

Modern engineering applied to rammed earth make it a great material which, reinforced with rebar, wood or bamboo, can resist to earthquakes or heavy storms.



# SWIMMING POOLS

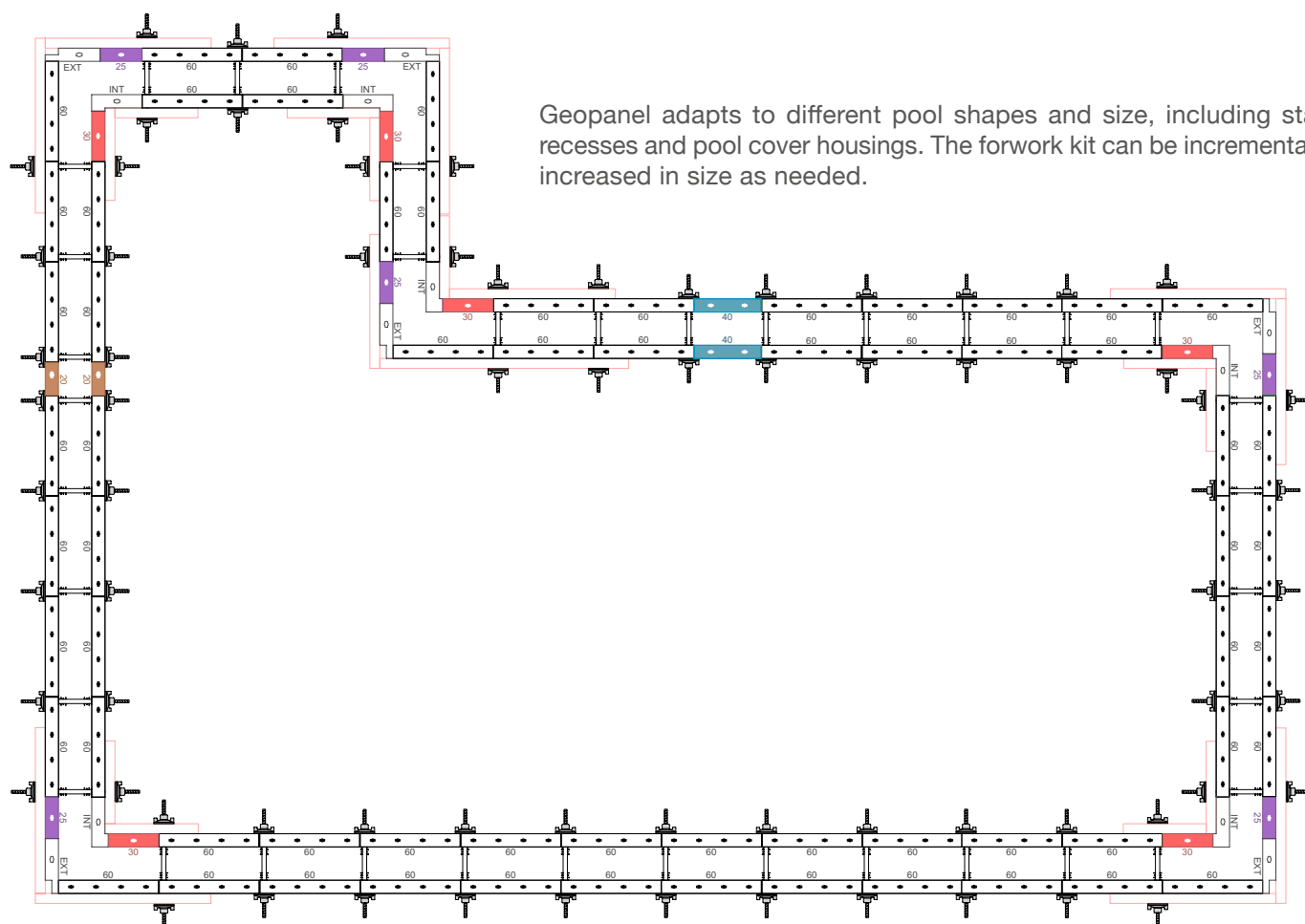
Using the large range of panels and accessories it is possible to create infinite custom variations of size and shape. Geopanel will work perfectly with the complex equipment of the pool. It is also possible to create sloping floors, thus creating diving areas and relax zones.



## THE LOGISTIC ADVANTAGE

Swimming pools are often built when the house is already lived-in and using the available garden surface. Accessibility of the future pool site is not always granted to machines, in the worst case materials and tools need to be carried though the house. A low-weight formwork solution is a great advantage in any case and absolutely essential in the most challenging situations: Geopanel ticks all the boxes.





Geopanel adapts to different pool shapes and size, including stair recesses and pool cover housings. The forwork kit can be incrementally increased in size as needed.

## POOL ACCESSORY INSTALLATION

The Geopanel forms can easily be adapted to hold pool accessories such as lights and skimmers. The precise and smooth finish of the panels means for example that light boxes will always be perfectly flush with the concrete surface. As Geopanel is a system formwork the adapted panels will place accessories in a well defined and consistently precise position, with very little room for error.



# GEOPANEL ART



## PANELS FOR TEXTURED WALLS

This is a reusable and modular high-resistance formwork panel used to create textured reinforced concrete walls. Made of ABS, Geopanel Art is used in combination with Geopanel. The two elements are assembled to create a high-productivity mold for the production of textured concrete. The concrete surface receives the decoration from the panels and the result is a wall ready to be painted or further decorated in order to achieve an even more realistic and creative look. Replicating the stones of a mountain stream, the River Stone panel is pleasantly shaped to obtain a very realistic effect.

Element	Geopanel Art
Dimensions (mm)	1210 x 605 x 28
Size (m)	1.2 x 0.6
Surface (m <sup>2</sup> )	0.732
Weight (kg)	4.25

The Geopanel Art pattern was modelled on real river stones and is absolutely true to the size and feel of the original materials. Well vibrated concrete can be left as-is after removing the formwork for a satisfactory texture. For a fully realistic result the pattern can be painted with natural-looking colours, or for a more daring or artistic look unconventional colour combinations can be chosen. Geopanel Art creates a canvas on which to unleash your creativity.



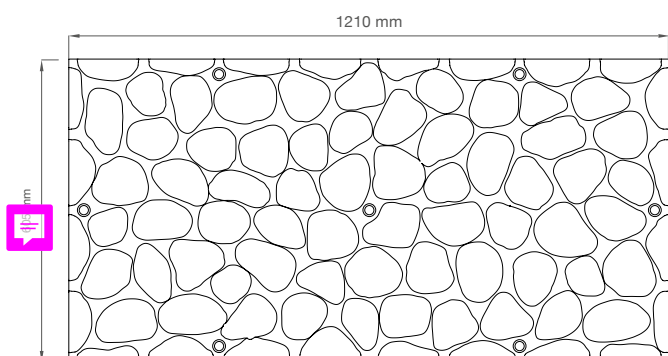
# GEOPANEL ART ADVANTAGES

Simple and easy to use, Geopanel Art helps to save time and money. Results are immediate and no further actions are needed on the decorated wall. It is also light and easy to handle, that's why it offers an excellent benefit-cost ratio.


## IMMEDIATE RESULT


## HIGH QUALITY CONCRETE FINISH

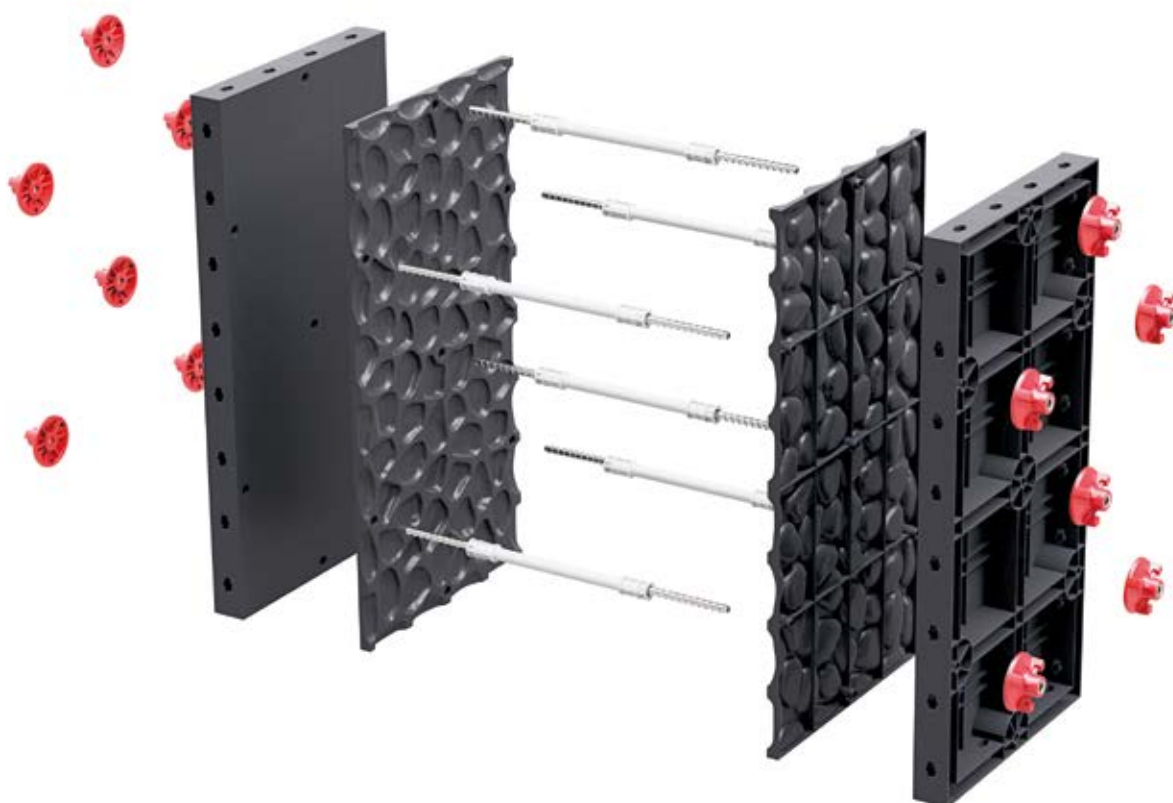
## REUSABLE



## HOW TO ASSEMBLE

Geopanel Art panels are clipped onto the Geopanel 120x60  panels using the tie rods holes as latching points. Standard tie rods and anchor nuts are used to hold them tightly in position.

Plastic spacer sleeves are inserted between the panels and are  after the concrete pour. The panels can be assembled in any combination without interrupting the decorative texture. Geopanel Art is easy to handle and can be simply removed from Geopanel after use, and subsequently cleaned just with water.

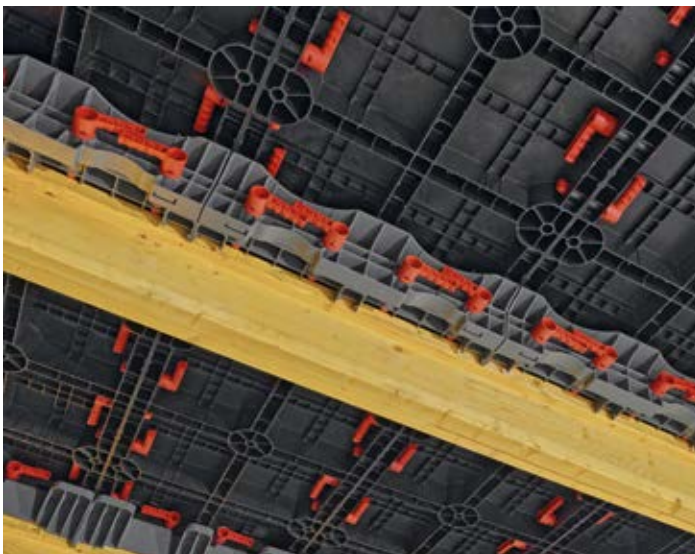


# GEOSKY



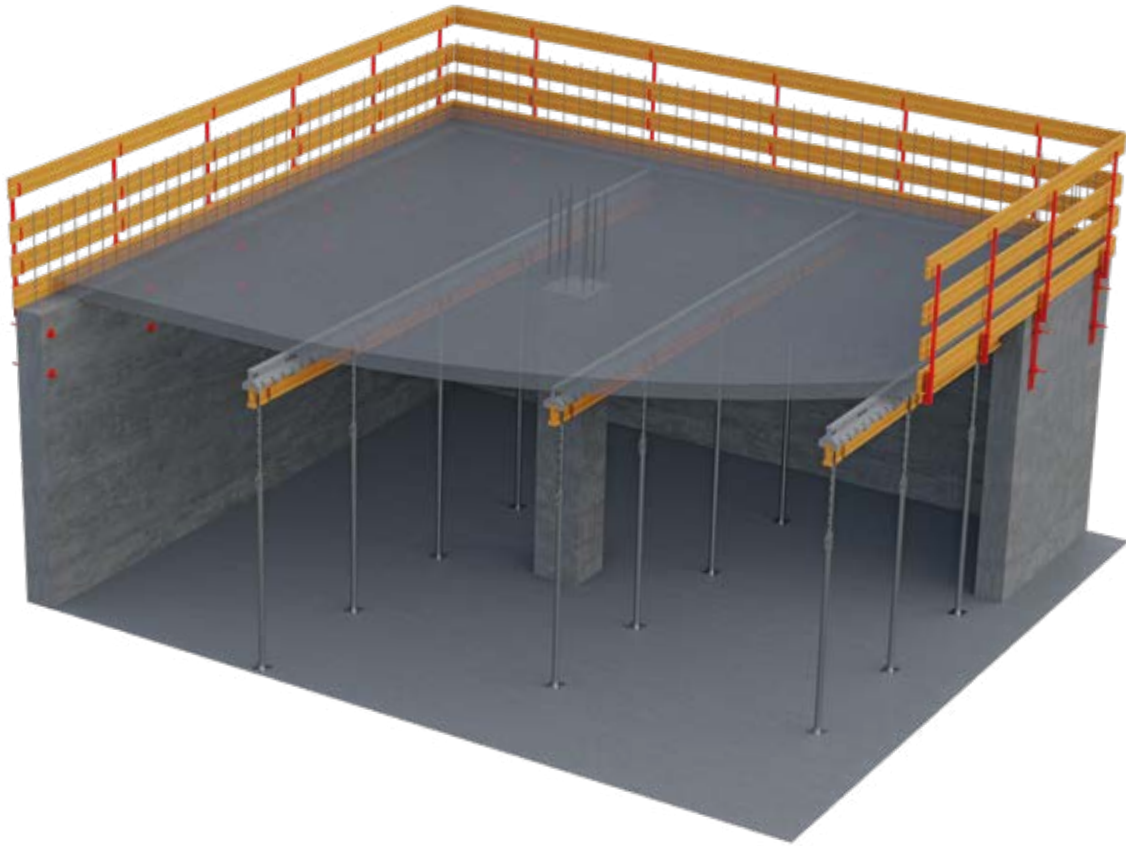
## GEOSKY: GEOPANEL FOR ROOF SLABS

Geosky is a series of accessories which turn Geopanel into an horizontal roof slab formwork system. Various options are available, depending from the priority of the construction site: the “Y+H” option allows for shorter waiting time before partial formwork dismantling, while the “HS” option caters for slower but more investment-sensitive formwork rotation time. After dismantling the Geopanel elements can be used again for another roof slab or for vertical applications such as walls or foundations, making the system even more flexible in its applications.



## EARLY DISMANTLING DUAL-USE LIGHT AND SAFE

Element	Dimensions (mm)	Contact Surface (m²)	Weight (kg)
<b>GEOSKY Y</b>	191 x 605 x 200	0.036	2.67
<b>GEOSKY WEDGE</b>	160 x 605 x 118	-	2.67
<b>GEOSKY H</b>	310 x 605 x 121	-	2.69
<b>GEOSKY HS</b>	130 x 605 x 40	-	0.62
<b>TWIN ANGLE</b>	303 x 303 x 100	0.152	3.96



When the early dismantling (Y+H) option is chosen, Geopanel is supported by alternating Geosky H-Beams and Geosky Y-Beams with two Geosky Wedges attached. The H-Beams and the Wedges form panel-holding ledges. When the Geosky Wedges and H-Beams are removed it is possible to remove the Geopanel elements too, leaving the sole Geosky Y-Beams to support the slab until concrete is fully cured. Geosky HS-Beams work the same way as Geosky H-Beams, but are lighter and have a smaller contact surface. All the Geosky Beam elements rest on standard H-20 timber beams. For further technical details refer to the Geosky user manual.



# PROPPING FOR EARLY DISMANTLING (H+Y)

Slab thickness (mm)

FORMWORK INSTALLATION: PROPPING LAYOUT	≤100	110÷150	160÷200	210÷250	260÷300	310÷400
A - Max distance between the reinforcement Beams [A] (m)	1.24	1.24	1.24	1.24	1.24*	0.635
B - Max distance between the props on Y-Beams [B] (m)	2.00	1.60	1.40	1.30	1.80	1.40
C - Max distance between the props on H-Beams [C] (m)	1.80	1.80	1.80	2.20	1.80	1.60

POST-PROPPING REQUIREMENTS	≤100	110÷150	160÷200	210÷250	260÷300	310÷400
A - Max distance between the support Beams [A] (m)	2.48	2.48	2.48	2.48	2.48	1.24
B - Max distance between the props on Y-Beams [B] (m)	2.00	1.60	1.40	1.30	1.80	1.40
C - Max distance between the props (m)	3.60	3.30	3.30	2.80	3.30	2.80

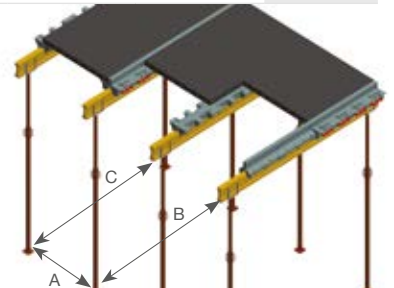
\* insert the crossbar with props spaced 2.2 m

NOTE: Dismantling time at 20÷30°C 7 days for Geosky H-Beams and Geopanel,  
28 days for Geosky Y-Beams.

By temperature >30°C waiting time reduced to 6 days.

- Assumed props type B (EN 1065) extended to 3 m, Q1300 kg.

- Assumed H20 Wooden Beam (EN 13377).



# PROPPING FOR STANDARD DISMANTLING (HS)

Slab thickness (mm)

PROPPING	≤100	110÷150	160÷200	210÷250	260÷300	310÷400
A - Max distance between the reinforcement Beams [A] (m)	0.605	0.605	0.605	0.605	0.605	0.605
B - Max distance between the props on HS-Beams [B] (m)	3.60	3.30	2.70	2.40	2.10	1.70
C - Max distance between propping of intermediate H20 Beams [C] (m)	3.60	3.30	2.70	2.40	2.10	1.70

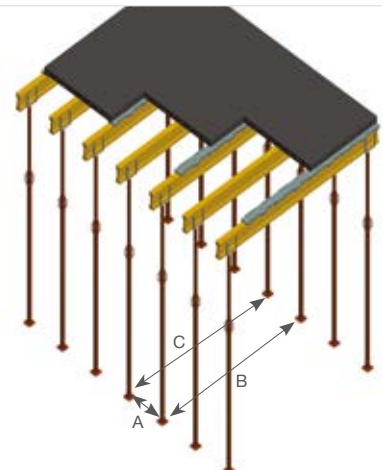
POST - PROPPING	≤100	110÷150	160÷200	210÷250	260÷300	350÷400
Max surface per prop (m²)	5.60	4.60	3.70	3.20	2.80	2.20

NOTE: Dismantling time at 20÷30°C 7 days for Geosky HS-Beams and Geopanel.

By temperature >30°C waiting time reduced to 6 days.

- Assumed props type B (EN 1065) extended to 3 m, Q1300 kg.

- Assumed H20 Wooden Beam (EN 13377).



# COMBINED WALL AND SLAB FORMWORK



In all cases where a single casting of walls and roof slab is desired, the Geopanel TWIN ANGLE panel is used to seamlessly connect the corner of a Geopanel wall formwork to the corner of a Geosky roof slab formwork.

When forming drop-beams various elements come into play, the position of the beam relative to the slab formwork and the beam depth being the principal ones. For greatest flexibility the fine position adjustment of the drop beam formwork is provided by the Geosky Junction Plates. The side and the bottom of the formwork are formed with a combination of Geopanel, Geopanel CL and Geopanel Star elements.



# GEOPANEL STAR



## ADJUSTABLE COLUMN FORMWORK



# THE GEOPANEL STAR

Geopanel Star is a series of adjustable column formwork panels that brings incredible flexibility and quality to construction sites.

Strong but light, as no element is heavier than 11 kg, Geopanel Star formwork can be moved by hand or by crane as best suiting the job schedule.

Column size is adjustable in 100 mm increments, and panels can be combined with other Geopanel Star forms as well as with Geopanel and Geotub parts in a usefully large number of possible combinations.

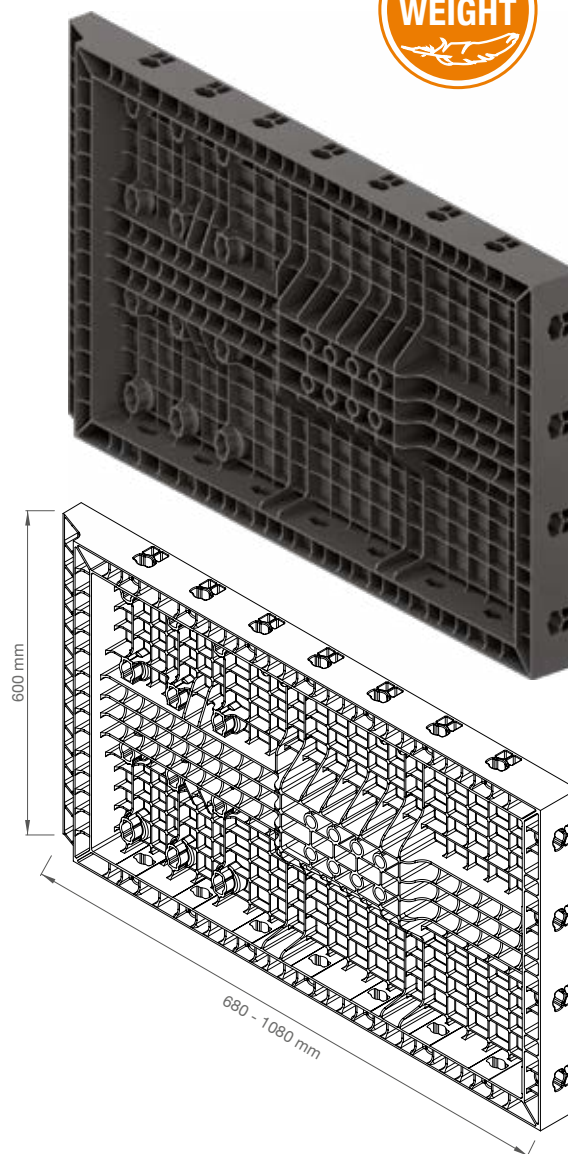
Columns up to 4.2 m can be cast in a single pour.

**POUR COLUMNS UP TO 4.2 M IN A SINGLE LIFT**  
**ADJUST SIZES AT 100 MM INTERVALS**  
**MAX WEIGHT PER ELEMENT LESS THAN 11 KG**

Geopanel Star is composed by three panels, each adjustable by 100 mm increments, which combine to form columns in sizes between 200 mm and 1000 mm.

The combination with Geopanel wall panels further expands the possible combinations from 120 mm to well over 1000 mm.

After concrete setting the formwork is not necessarily completely disassembled: it can much more simply be split in two half-shells which are much faster to handle and prepare for the next pour. Half a Geopanel Star column formwork can weigh less than 80 kg, making handling really simple.



Element	Dimensions (mm)	Sizes (m)	Contact Surface (m <sup>2</sup> )	Weight (kg)
<b>GEOPANEL STAR 20-60</b>	680 x 605 x 80	0.60 x 0.20 / 0.30 / 0.40 / 0.50 / 0.60	0.363	7.03
<b>GEOPANEL STAR 25-65</b>	730 x 605 x 80	0.60 x 0.25 / 0.35 / 0.45 / 0.55 / 0.65	0.393	7.43
<b>GEOPANEL STAR 70-100</b>	1080 x 605 x 80	0.60 x 0.70 / 0.80 / 0.90 / 1.00	0.605	10.42

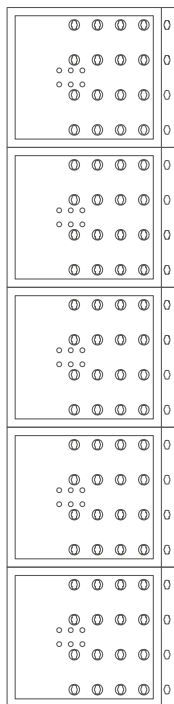
# COMBINATIONS AND ELEVATIONS

COMBINATION SIZES	STAR 12-15/20-60	STAR 25 - 65	STAR 70 - 100
STAR 12-15/20-60	A - B - D	A - B - D	C - E
STAR 25 - 65		A - B - D	C - E
STAR 70 - 100			F

The GEOPLAST STAR panel range is adjustable to a range of column sizes from 120 to 1000 mm. The different panels can be combined with each other in order to obtain the desired size combination.

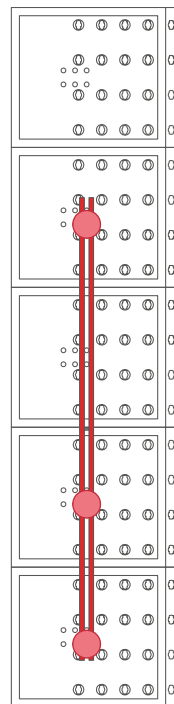
## 1

ELEVATION FOR SIDES EQUAL TO:  
120,150,200,250,300,350,400 mm



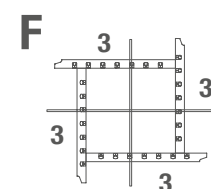
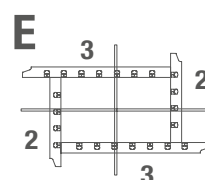
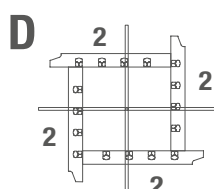
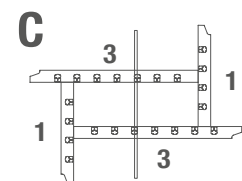
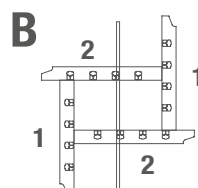
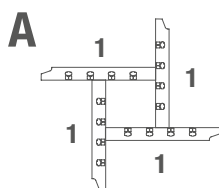
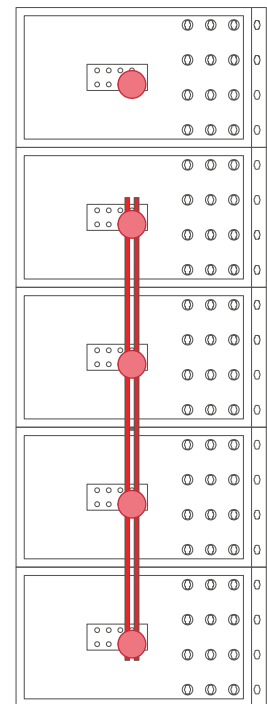
## 2

ELEVATION FOR SIDES EQUAL TO:  
450, 500, 550, 600, 650 mm



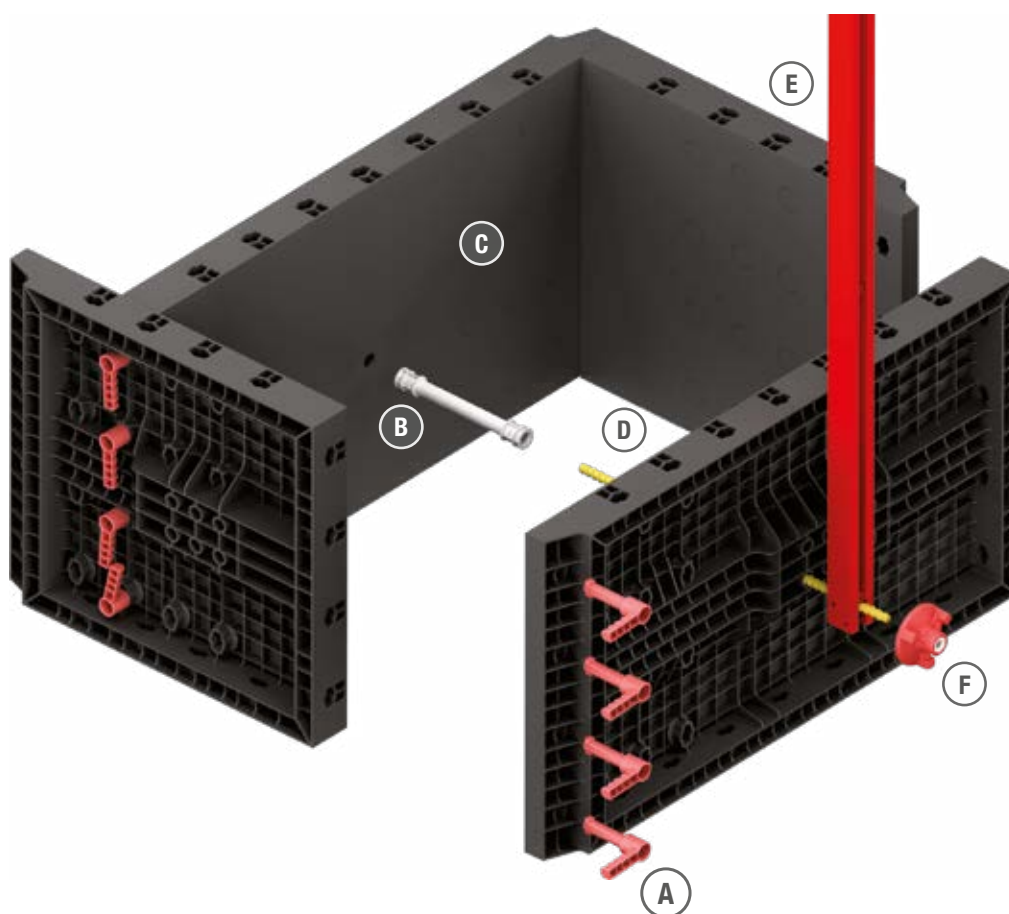
## 3

ELEVATION FOR SIDES EQUAL TO:  
700, 800, 900, 1000 mm

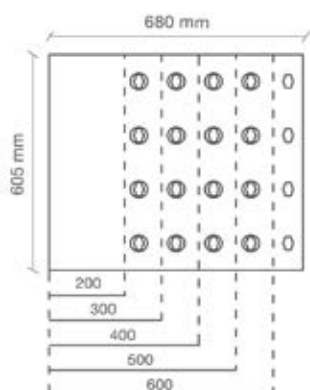


# GEOPANEL STAR INSTALLATION GUIDE

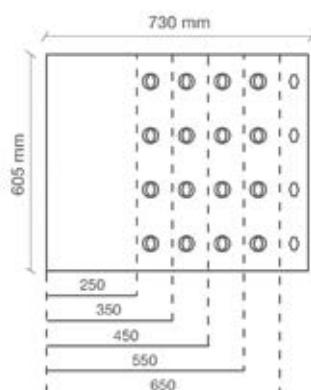
- (A) HANDLE
- (B) SPACER
- (C) GEOPANEL STAR
- (D) TIE ROD
- (E) ALIGNMENT BAR
- (F) ANCHOR NUT



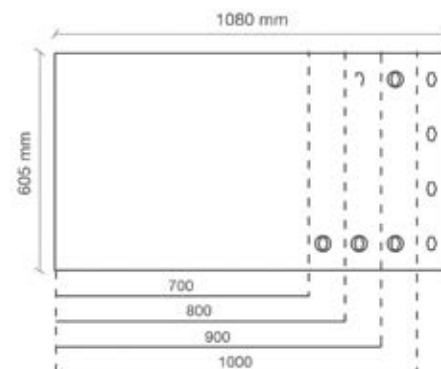
**GEOPANEL STAR  
20/60**



**GEOPANEL STAR  
25/65**

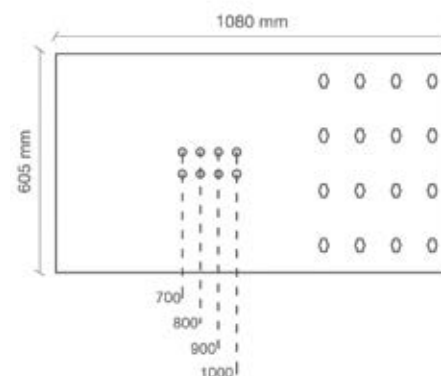
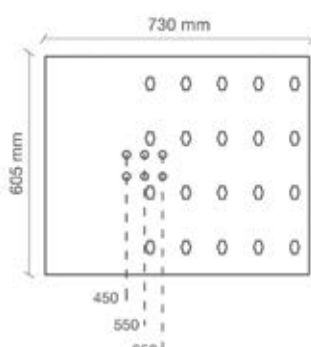
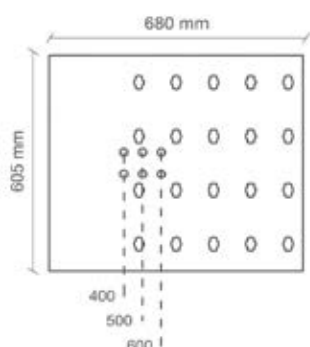


**GEOPANEL STAR  
70/100**



**DIMENSIONS  
COLUMNS  
SIDES**

**HOLES  
TIE RODS**



# COLUMN APPLICATION

Geopanel Star is a high-strength column formwork made of tough ABS polymer.

It can take all the wear and tear of a construction site while simplifying the concrete forming tasks, reducing the crane workload and improving the site logistics.



# FOUNDATION SPECIALIST

The Geopanel Star formwork panels comes into its own when used as a foundation formwork. Its versatility and ease of use make it ideal as footing and plinth-formwork.

As Geopanel Star elements can be combined with Geopanel formwork panels, their usefulness for foundation forming is greatly amplified.



# COMBINATION WITH GEOPANEL

Geopanel Star panels are part of the Geopanel formwork system, and combine with all other Geopanel elements. The combined formwork range expands to sizes below and above those that Geopanel Star panels alone can achieve.



## COLUMNS WIDER THAN 1 METER

When columns of size greater than 1 m need to be formed the combination of Geopanel Star and Geopanel elements is the correct answer.

The flexible combination of all different elements reduces the total amount of formwork required at the construction site, reducing and optimising the necessary investment.

Not needing to have a crane available at all times is a bonus as it permits a faster turnaround of the formwork.

## GEOPANEL 35 X 60

Geopanel 35 x 60 has openings in its face that make a perpendicular connection with Geopanel Star elements possible. This expands the range of possible configurations to columns of 120 mm and 150 mm thickness.

The double use of Geopanel 35x60 makes it a very interesting element to have on site as in a number of situations it can work as an adapter element.



# GEOTUB PANEL



## SQUARE AND RECTANGULAR COLUMN FORMWORK



# GEOTUB PANEL

Geotub Panel is a simple and straightforward column formwork. The panels are optimised for fast forming, each panel dedicated to one single size for maximum simplicity. Geotub Panel was developed following the feedback from customers and targets some very simple requests:

**AS SIMPLE AS POSSIBLE**

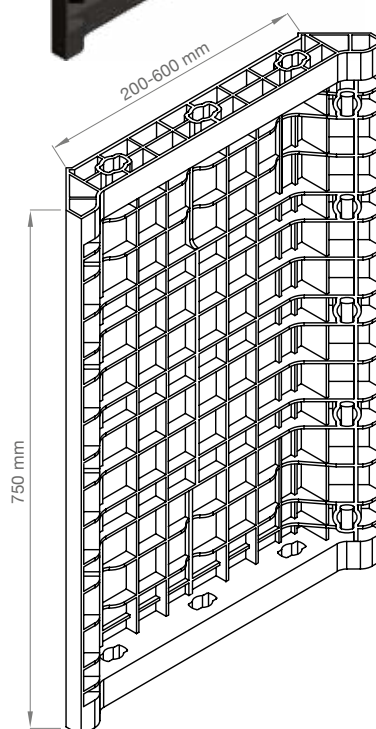
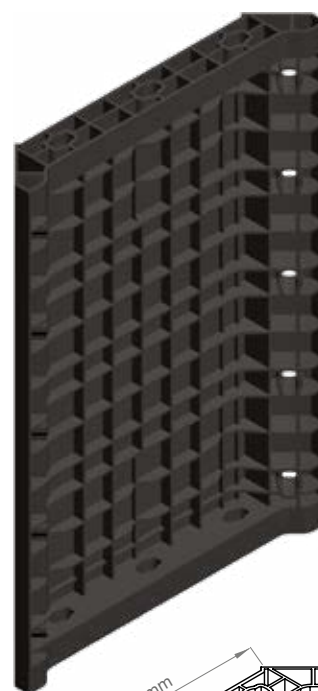
**AS LIGHT AS POSSIBLE**

**AS AFFORDABLE AS POSSIBLE**

The result is a series of panels 750 mm tall which deviate from the 605 mm standard of the rest of Geoplast formwork with the goal of reducing by 25% the number of panels per column. The fact that each panel forms one size only makes it extremely simple to learn to use as there is one only way to set it up.

The maximum panel weight is 7.5 kg making Geotub Panel an extremely agile formwork, suitable for small teams working on sites with limited crane access. The bare essentials approach to this formwork make it the most affordable of the Geoplast range.

Geotub Panel elements feature an integrated chamfer: this design means a simpler set-up of the column formwork and fewer parts to manage on site.



Element	Dimensions (mm)	Contact Surface (m <sup>2</sup> )	Weight (kg)
<b>GEOTUB PANEL 20</b>	200 x H750	0.150	3.05
<b>GEOTUB PANEL 23</b>	230 x H750	0.173	3.36
<b>GEOTUB PANEL 25</b>	250 x H750	0.188	3.41
<b>GEOTUB PANEL 30</b>	300 x H750	0.225	3.81
<b>GEOTUB PANEL 35</b>	350 x H750	0.263	4.58
<b>GEOTUB PANEL 40</b>	400 x H750	0.300	5.18
<b>GEOTUB PANEL 45</b>	450 x H750	0.338	5.83
<b>GEOTUB PANEL 50</b>	500 x H750	0.375	6.23
<b>GEOTUB PANEL 55</b>	550 x H750	0.413	6.79
<b>GEOTUB PANEL 60</b>	600 x H750	0.450	7.02

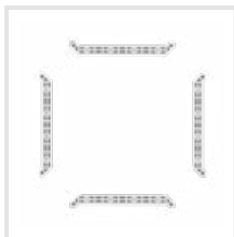
# ALL THE COMBINATIONS

## CUSTOMIZABLE MODULAR SYSTEM

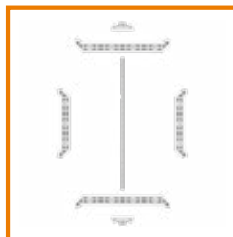
size (mm)	200	230	250	300	350	400	450	500	550	600
200	200 x 200	200 x 230	200 x 250	200 x 300	200 x 350	200 x 400	200 x 450	200 x 500	200 x 550	200 x 600
230		230 x 230	230 x 250	230 x 300	230 x 350	230 x 400	230 x 450	230 x 500	230 x 550	230 x 600
250			250 x 250	250 x 300	250 x 350	250 x 400	250 x 450	250 x 500	250 x 550	250 x 600
300				300 x 300	300 x 350	300 x 400	300 x 450	300 x 500	300 x 550	300 x 600
350					350 x 350	350 x 400	350 x 450	350 x 500	350 x 550	350 x 600
400						400 x 400	400 x 450	400 x 500	400 x 550	400 x 600
450							450 x 450	450 x 500	450 x 550	450 x 600
500								500 x 500	500 x 550	500 x 600
550									550 x 550	550 x 600
600										600 x 600

**55**  
COMBINATIONS

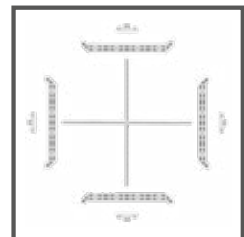
- H 3 meters = 16 GEOTUB PANEL (8+8 with handles)
- H 3 meters = 16 GEOTUB PANEL (8+8 with handles + 6 tie rods of 1 m + 12 anchor nuts)
- H 3 meters = 16 GEOTUB PANEL (8+8 with handles + 12 tie rods of 1 m + 24 anchor nuts)



no ties



ties spanning in one direction



ties in both directions



# COLUMN FORMWORK

Geotub Panel is a self-contained formwork system, the 750 mm panel length optimised for minimal number of elements per column box.

All elements of the Geotub Panel range combine with each other, achieving a large number of size permutations.



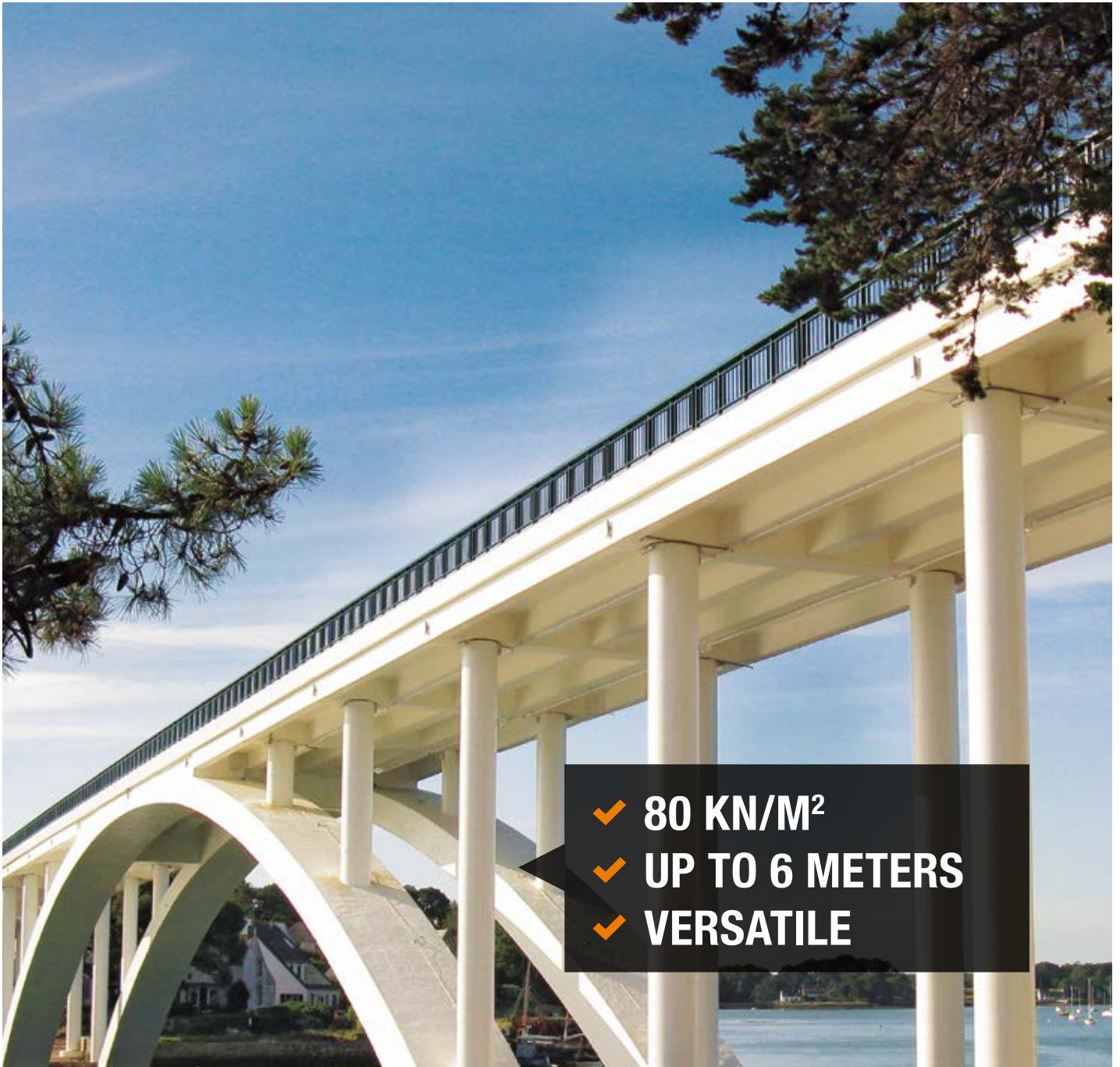
## A MODULAR PANEL SYSTEM

Geotub Panel is a real workhorse, capable of replacing timber or steel-frame formwork on virtually any construction site. Its simple set-up requires minimal training, the low weight renders it totally crane-independent.

Geotub Panel is perfectly suited to sites with multiple columns of the same size, providing a cost-effective investment.



# GEOTUB



## CIRCULAR AND ELLIPTIC COLUMN FORMWORK




# GEOTUB

When the first Geotub formwork was launched in 2003 it was a revolution in the global market. Surprisingly easy to use, featuring impressive performance and durability, Geotub was first in a brand new class of system formwork.

The Geotub formwork elements are engineered for maximum ease of use. Very light, no single element weighing more than 11 kg, Geotub requires no crane during forming and dismantling, Handling and logistics is equally simple.

Specially designed tabs on the outside of the curved panels hold them stacked one on another, so that the forms may be stored neatly both on site and in the material yard.



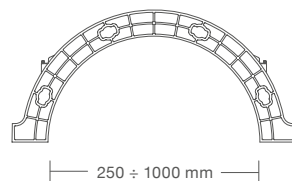
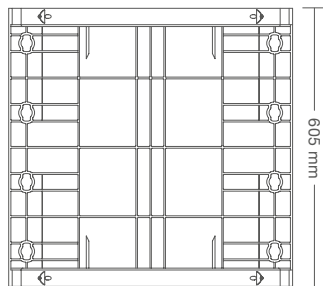
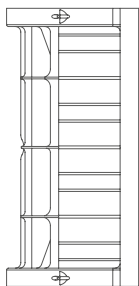
Element	Nominal sizes (mm)	Contact Surface (m <sup>2</sup> )	Weight (kg)
GEOTUB Ø 25	Ø250 H600 	0.237	2.95
GEOTUB Ø 30	Ø300 H600	0.285	3.67
GEOTUB Ø 35	Ø350 H600	0.332	4.09
GEOTUB Ø 40	Ø400 H600	0.380	4.56
GEOTUB Ø 45	Ø450 H600	0.427	4.93
GEOTUB Ø 50	Ø500 H600	0.475	5.54
GEOTUB Ø 60	Ø600 H600	0.570	6.44
GEOTUB Ø 70	Ø700 H600	0.665	7.53
GEOTUB Ø 80	Ø800 H600	0.760	8.64
GEOTUB Ø 90	Ø900 H600	0.855	9.48
GEOTUB Ø 100	Ø1000 H600	0.950	10.43

# GEOTUB POUR HEIGHTS

## GEOTUB CONFIGURATION OF A COLUMN

Geotub was probably one of the greatest formwork innovations launched in the market in year 2003: a circular column formwork that is light, simple to use, durable and available in a wide range of sizes. These features make it even today the reference hand-held reusable circular column formwork on the world market. Available in a wide range of sizes, Geotub is useful in all kinds of sites, from residential to infrastructure building.

	○ Max pour height (mm)	○ No. Elements	○ No. fixing handles per element	○ No. Handles for max height
<b>GEOTUB Ø 25</b>	6050	20	6	120
<b>GEOTUB Ø 30</b>	6050	20	6	120
<b>GEOTUB Ø 35</b>	6050	20	7	140
<b>GEOTUB Ø 40</b>	6050	20	7	140
<b>GEOTUB Ø 45</b>	4840	16	8	128
<b>GEOTUB Ø 50</b>	4840	16	8	128
<b>GEOTUB Ø 60</b>	4840	16	9	144
<b>GEOTUB Ø 70</b>	3630	12	10	120
<b>GEOTUB Ø 60</b>	4840	16	9	144
<b>GEOTUB Ø 90</b>	3630	12	11	132
<b>GEOTUB Ø 100</b>	3630	12	11	132



# CIRCULAR COLUMN FORMWORK

GEOTUB is the first reusable plastic formwork for the construction of round columns. It allows a fast and easy dismantling without using releasing agents. The panels are very light: they can be handled and installed by a single person.



The advantages of Geotub become particularly evident with larger column sizes: light, very easy to manage, durable, impeccable logistics, affordable. Geotub is an authentic all-rounder that makes forming circular columns a really simple task. Striking a column formed with Geotub is literally a five-minute job.

The applications of Geotub are many:

**CIRCULAR COLUMNS AND POSTS**

**ELLIPTIC COLUMNS**

**POST- AND MAST-FOUNDATIONS**

**BRIDGE PILLARS**

**COLUMN REPAIR**

**COLUMN ENLARGEMENT**

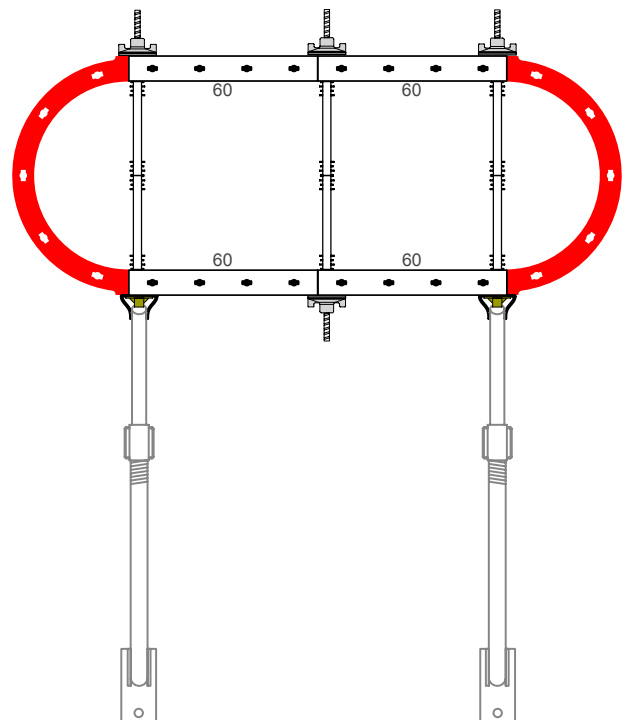


# ELLIPTIC COLUMNS

Most of the Geoplast formwork panels share the same module and different systems are compatible with one another. Geopanel and the Geotub circular column formwork work together very efficiently to produce elliptic columns.

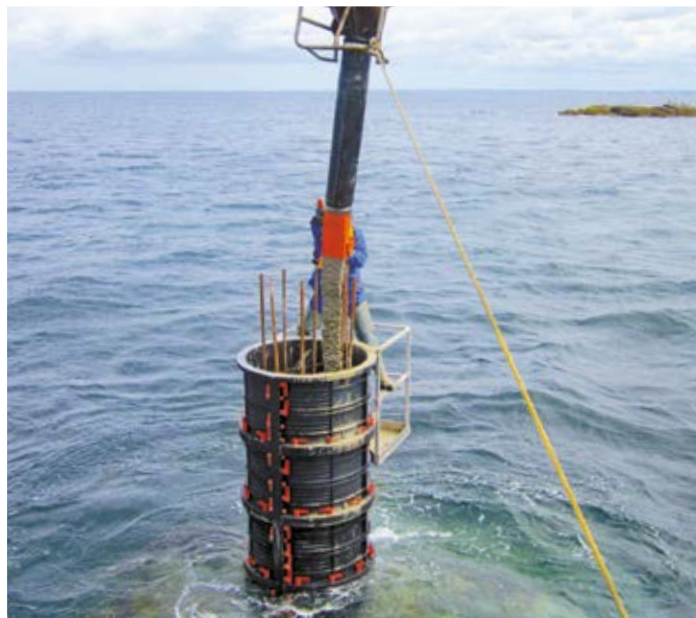


Elliptic columns are particularly useful in underground and multi-storage car parks as they improve visibility and reduce the risk of vehicle damage during manoeuvres. As the Geoplast elliptic column formwork is composed by off-the-shelf components it is very affordable compared to custom-fabricated steel columns, and the single formwork elements will be much more easily used in future applications.



# MARINE SOLUTIONS

As all Geoplast formwork, Geotub is particularly suitable when working in presence of water, which can make working conditions more difficult and complicated. In some cases Geotub is the only possible solution, since it is made of ABS and is not affected by water or chlorides.



# BRIDGE BUILDING

Bridges are built for roads to fly over obstacles, which means that quite often formwork must be deployed on rough or densely built-up terrain. Erecting a tower crane is often impossible, so a light hand-held formwork capable of producing relatively large diameters becomes a very interesting and productive tool.



# ELECTRICAL GRID PYLON FOUNDATIONS

Geotub is particularly suited for the construction of foundations for electricity pylons: this kind of application consists of a series of small construction sites, often in remote or scarcely accessible locations.

The low weight and ease of use make it very simple to handle and transport the Geotub forms from one site to another.



# PRECAST COLUMNS

Geotub is ideal for the off-site mass production of identical columns: strong and durable, it produces a very smooth concrete finish. Additionally, its handy size and weight make it easy to use even within buildings, without any complicated or potentially hazardous logistic process.



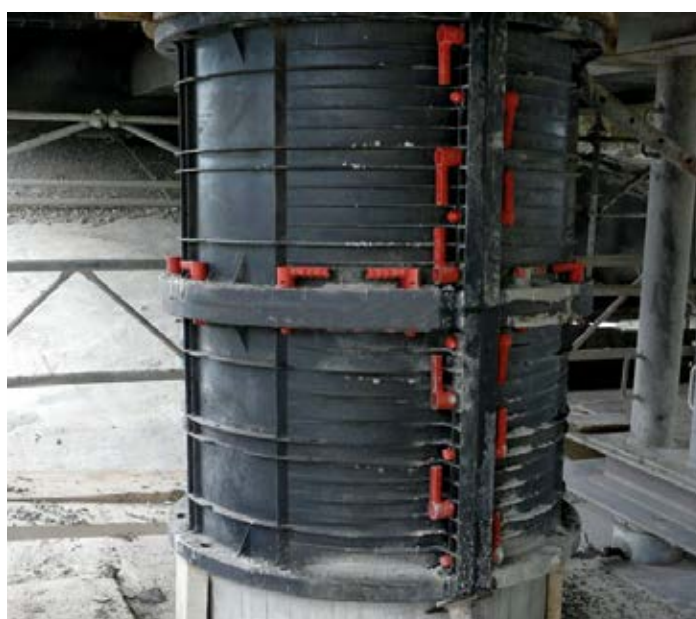
# COLUMN REPAIR AND ENLARGEMENT

The repair or enlargement of existing columns is a relatively frequent event. In such cases forming with Geotub is just as straightforward as the production of new columns as the formwork panels are simply assembled around the object to be coated with new concrete.



There are different reasons for reworking concrete columns, the main ones being concrete and rebar replacement following weathering and aging, accident repair, increase of its structural capability, coating of metal columns to increase fire resistance. Damaged columns may lose their ability to support the axial dead load, live load, and horizontal load. Such events must be avoided at all cost, especially in the case of infrastructures and public buildings.

Very many column repair jobs are constrained by physical obstacles such as the presence of an existing beam or roof slab above the column, or location within a building or in a hostile environment (drops, cliffs, running water...). This makes the use of cranes and heavy lifting equipment difficult, and manual operation will limit the weight and size of formwork that is practical to use. Such situations set drastic limits to the kind of formwork that can be used, often forcing compromises on productivity, surface quality of the concrete, or both. Given its low weight, reliability and practicality of use, Geotub is ideal for column repair and enlargement: it is light, precise, easy to handle and produces an excellent concrete finish.



# ACCESSORIES

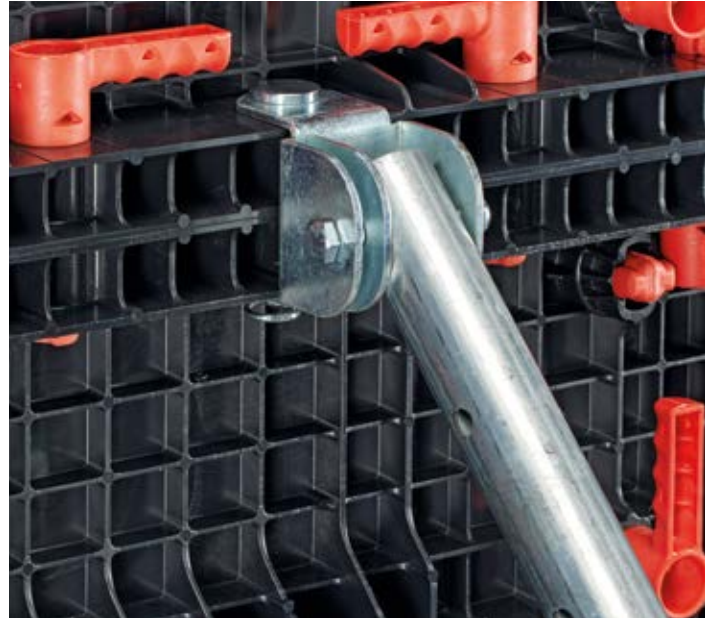
## CONNECTOR PLATE

Bracket used to connect push-pull props to the formwork. It is fastened using the tie rod and a 65mm anchor nut. Always place an alignment bar between the Connector Plate and the formwork for correct load distribution.



## BRACE CONNECTOR

Bracket used to connect push-pull props to the formwork when no tie-rod is available. It is fixed directly to the formwork by replacing a fixing handle with a steel pin  $\varnothing 24$  mm.



## FIXING BRACKET

Z-shaped steel bracket used to hold the formwork to the ground. Pressure tap not included.



## BAR CONNECTOR

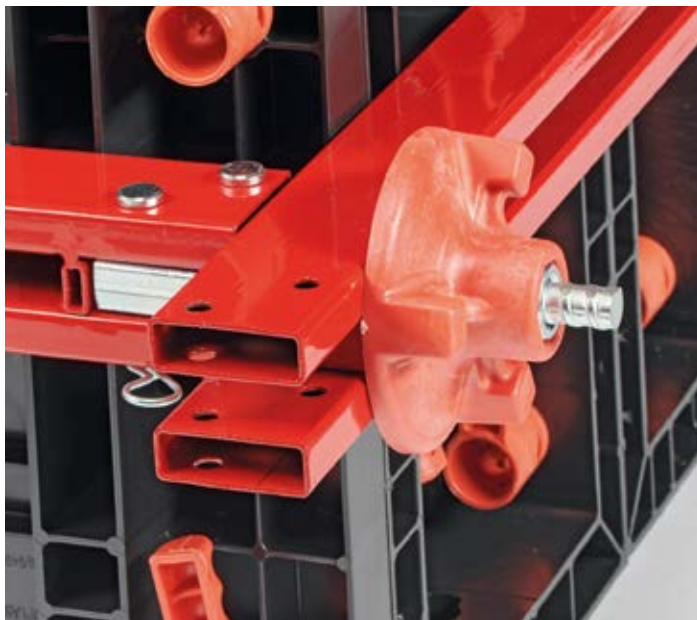
Used to connect female-to-female ends of Geoplast alignment bars. Fastened using four  $\varnothing 10$  mm pins.



# ACCESSORIES

## CORNER BAR STUD

Allows connection between Geoplast alignment bars should their extremities do not meet at the corner of the formwork. An anchor nut and two  $\varnothing 10$  mm pins are used to fasten the alignment bars.



## CORNER BAR ASSEMBLY

For precise corner forming corner bar assemblies are added to internal and external corner formwork. Each assembly is composed by two Alignment Bars and two  $\varnothing 10$  mm Pins. For details refer to the assembly manual.



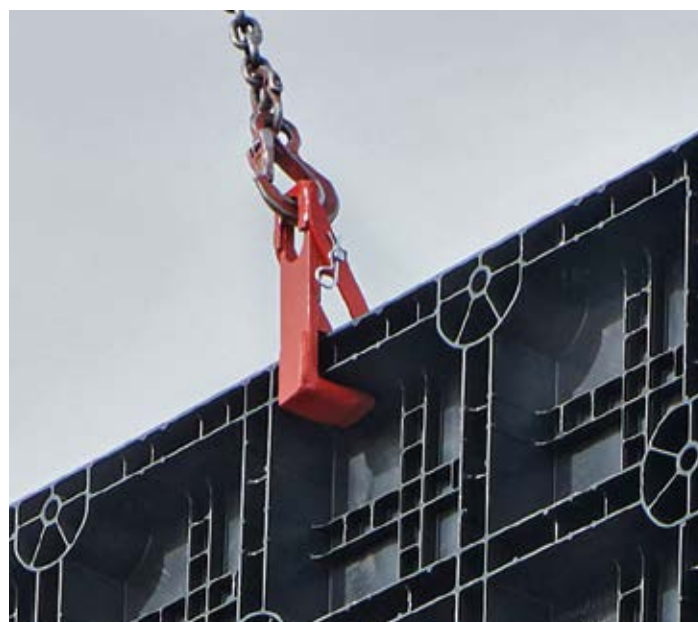
## SHORE-UP CLAMP

Steel bracket used to fasten timber to the formwork, for example for shoring. It is connected directly to the formwork using a  $\varnothing 24$  mm steel pin replacing a fixing handle.



## LIFTING HOOK

Used to crane-lift Geoplast formwork. It features a locking device that will not allow it to open and get unfastened during lifting.



# OPERATION REQUIREMENTS

## CONCRETE CASTING

Geoplast formwork is a professional tool designed complying to international standards. Please follow the rate of rise diagram to establish the pour speed. Only immersion concrete vibrators (pokers) are allowed.

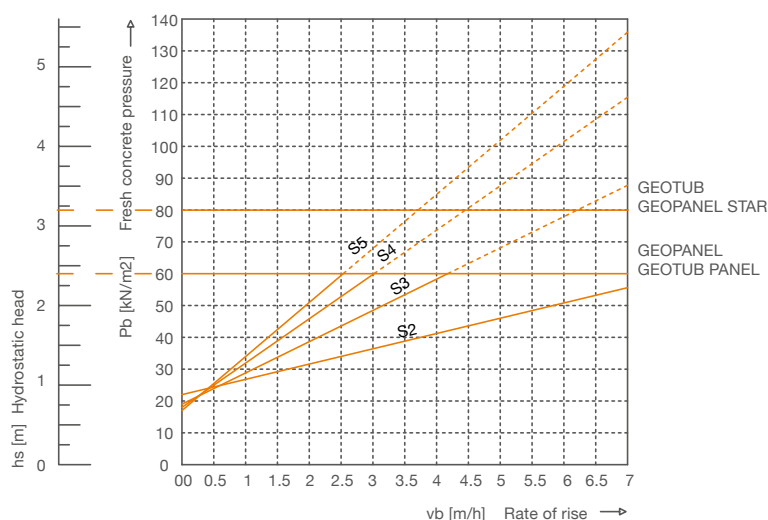
## HANDLING

Geoplast formwork is designed for easy manual handling. Crane handling is nevertheless possible: for such cases use the Geoplast Lifting Hook to lift panel assemblies. In case of single panels always use lifting slings making sure that no panel or element may fall while being lifted.

## RELEASING AGENT

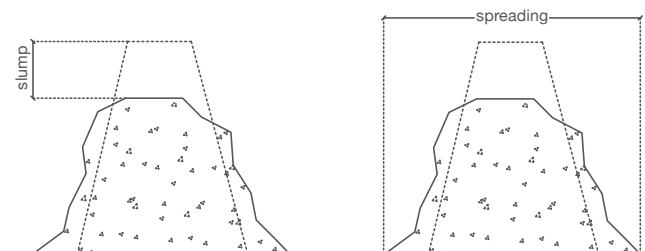
As long as the contact surface of the panels shows no signs of wear, no releasing agent is required. If a releasing agent is used, please make sure that it is approved by the producer for use on ABS.

# RATE OF RISE DIAGRAM



UNI EN 206:2006			DIN 18218	
CONSISTENCY CLASS	CLASSIFICATION	SLUMP	CLASSIFICATION	SPREADING
Wet	S1	10 ÷ 40 mm		
Stiff	S2	50 ÷ 90 mm	F1 (K1)	≤ 340 mm
Plastic	S3	100 ÷ 150 mm	F2 (K2)	350 ÷ 410 mm
Soft	S4	160 ÷ 210 mm	F3 (K3)	420 ÷ 480 mm
Flowing	S5	≥ 220 mm	F4 (flowing)	490 ÷ 550 mm

## ABRAMS CONE



# SAFETY REQUIREMENTS

The operations of positioning, assembling, dismantling, plumbing, handling and cleaning of Geopanel products, as well as the pouring of the concrete, must be carried out by competent and properly trained personal or under supervision of the site manager or a Technician of Geoplast S.p.A., who must ensure that:

- All above mentioned operations are carried out properly,
- Every person working with the formwork is equipped with suitable tools and personal protective equipment to perform all necessary actions in full compliance of the safety standards,
- All panels and the supplied accessories are checked before use, discarding those which should not meet the minimum standard of reliability and safety because of the presence of any breakage and/or deformation,
- The formwork is installed on a perfectly flat surface, so as to work safely and ensure a perfect shoring and plumbing,
- All connection, alignment and plumb accessories of the formwork are properly tightened and secured to the ground before starting the pour.
- ABS formwork is not fireproof: do not place close to hot objects or open flame.

Geoplast S.p.A. disclaims any liability or responsibility arising from improper use of Geopanel formwork. Any assembly of molds and/or use of accessories otherwise described in these guidelines must first be approved by Geoplast S.p.A.

# MAINTENANCE AND STORAGE

## FORMWORK CLEANING

The Geoplast system formwork is exceptionally easy to clean. ABS is a particularly smooth and non-porous material that concrete has trouble sticking to.

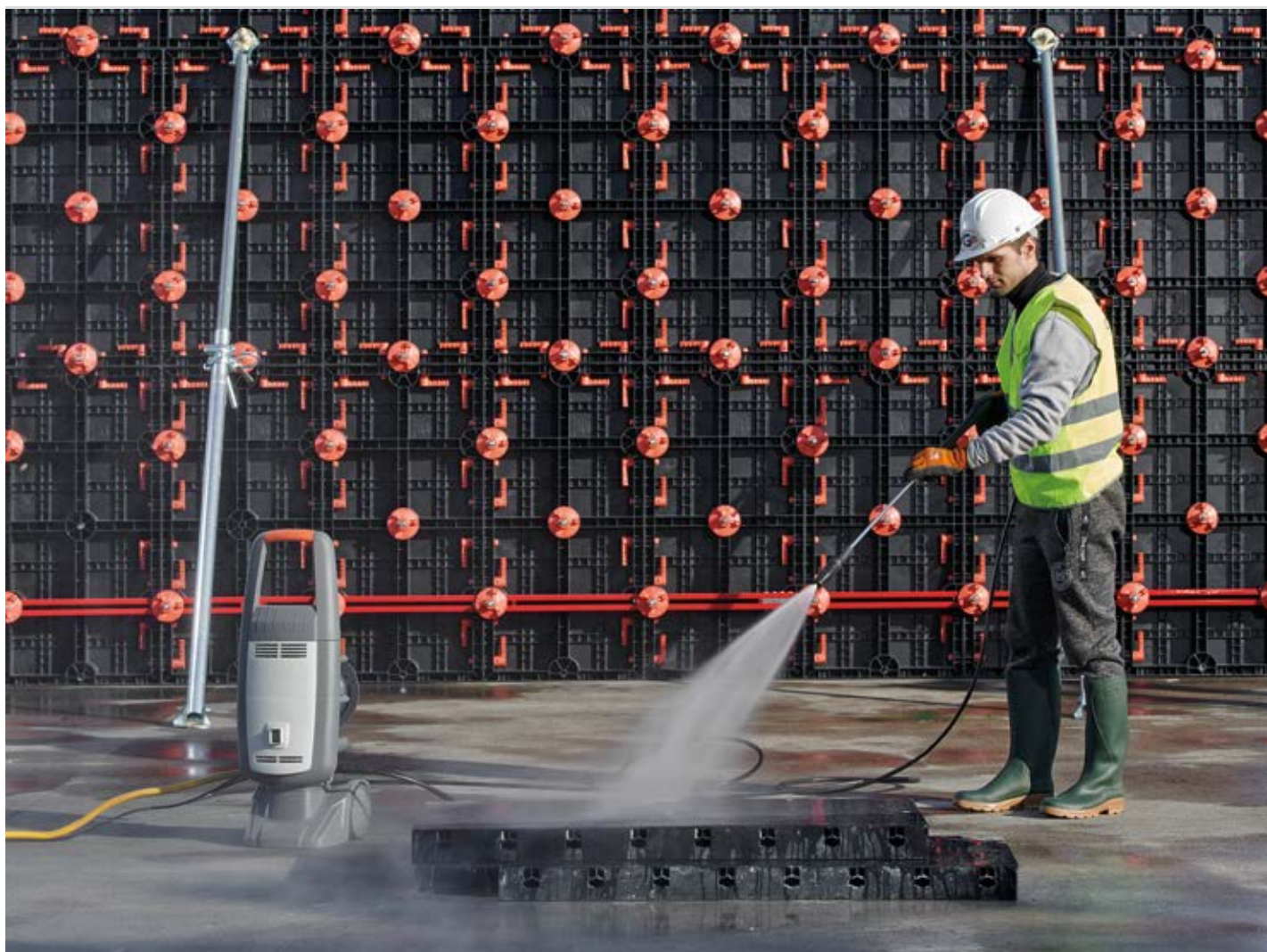
Cleaning is done with just water and no detergents. Industrial jet-washers of up to 1000 bar pressure are commonly used, but Geoplast formwork can also be easily cleaned by hand.

For deep cleaning it is possible to use acid concrete dissolvers approved for use on ABS polymer. Any remaining deposit of concrete should be removed with a plastic scraper or a wire brush.

## STORAGE

In order to facilitate the handling and lifting of the panels and all accessories, store them on pallets or battens to keep them off the ground.

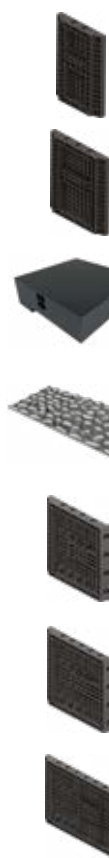
Although the product does not suffer weathering it is preferable to store the panels in a dry place away from direct sunlight.



# GEOPANEL



PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	Nr. pieces per pallet	Nr. handles	Product code
GEOPANEL 12x60	1210 x 605 x 80	ABS	10.38	750 x 1210 x H2580	38	12	EGPPANE0120
GEOPANEL 40x60	404 x 605 x 80	ABS	3.85	770 x 1210 x H2400	104	6	EGPPANE4060
GEOPANEL 35x60	353 x 605 x 80	ABS	3.53	750 x 1210 x H2350	118	6	EGPPANE3560
GEOPANEL 30x60	303 x 605 x 80	ABS	2.82	770 x 1210 x H2400	140	5	EGPPANE3060
GEOPANEL 25x60	252 x 605 x 80	ABS	2.59	770 x 1210 x H2400	166	5	EGPPANE2560
GEOPANEL 20x60	202 x 605 x 80	ABS	2.29	770 x 1210 x H2350	204	5	EGPPANE2060
GEOPANEL 15x60	150 x 605 x 80	ABS	2.04	750 x 1210 x H2400	280	4	EGPPANE1560
GEOPANEL 5x60	50 x 605 x 80	ABS	0.75	750 x 1210 x H2400	840	-	EGPPANE0560
GEOPANEL 4x60	40 x 605 x 80	ABS	0.69	750 x 1210 x H2400	1064	-	EGPPANE0460
GEOPANEL 3x60	30 x 605 x 80	ABS	0.62	750 x 1210 x H2400	1400	-	EGPPANE0360
GEOPANEL internal corner	303 x 605 x 80	ABS	3.86	810 x 1210 x H2400	128	5	EGPANGI0060
GEOPANEL external corner	252 x 605 x 80	ABS	2.99	800 x 1210 x H2300	130	5	EGPANGE0060
GEOPANEL WP - 18	100 x 605 x 80	ABS	1.37	800 x 1200x H2450	450	4	EGPANWP0018
GEOPANEL WP - 21	100 x 605 x 80	ABS	1.33	800 x 1200x H2450	450	4	EGPANWP0021
GEOPANEL WP - 27	100 x 605 x 80	ABS	1.31	800 x 1200x H2450	450	4	EGPANWP0027



PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	Nr. pieces per pallet	Nr. handles	Product code
<b>GEOPANEL CL 20-25-30</b>	460 x 605 x 80	ABS	4.92	750 x 1200 x H2500	91	6	EGPANCL2030
<b>GEOPANEL CL 35-40-45</b>	610 x 605 x 80	ABS	6.14	750 x 1200 x H2550	76	7	EGPANCL3545
<b>TWIN ANGLE</b>	303 x 303 x 100	ABS	3.96	800 x 1200 x 2350	232	3	EGAPANT0060
<b>GEOPANEL ART</b>	1210 x 605 x 28*	ABS	4.25	1200 x 750 x H2020	80	-	EGPAART0120
* +13 mm interlock stud							
<b>GEOPANEL STAR 20-60</b>	680 x 605 x 80	ABS	7.03	750 x 1200 x H2580	64	8	EGPSTAR2060
<b>GEOPANEL STAR 25-65</b>	730 x 605 x 80	ABS	7.43	750 x 1200 x H2580	58	8	EGPSTAR2565
<b>GEOPANEL STAR 70-100</b>	1080 x 605 x 80	ABS	10.42	750 x 1200 x H2580	40	11	EGPSTAR7010

## GEOTUB PANEL



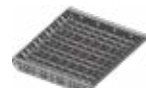
PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	Nr. pieces per pallet	Nr. handles	Product code
<b>GEOTUB PANEL 20</b>	200 x 750 x 80	ABS	3.05	750 x 1200 x H2100	112	6	EGTPANE2075
<b>GEOTUB PANEL 23</b>	230 x 750 x 80	ABS	3.36	750 x 1200 x H2200	114	7	EGTPANE2375
<b>GEOTUB PANEL 25</b>	250 x 750 x 80	ABS	3.41	750 x 1200 x H2030	96	7	EGTPANE2575
<b>GEOTUB PANEL 30</b>	300 x 750 x 80	ABS	3.81	750 x 1200 x H2300	96	7	EGTPANE3075
<b>GEOTUB PANEL 35</b>	350 x 750 x 80	ABS	4.58	750 x 1200 x H2130	80	8	EGTPANE3575
<b>GEOTUB PANEL 40</b>	400 x 750 x 80	ABS	5.18	750 x 1200 x H2300	80	8	EGTPANE4075
<b>GEOTUB PANEL 45</b>	450 x 750 x 80	ABS	5.83	750 x 1220 x H2440	64	8	EGTPANE4575



PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	Nr. pieces per pallet	Nr. handles	Product code
GEOTUB PANEL 50	500 x 750 x 80	ABS	6.23	750 x 1230 x H2100	48	9	EGTPANE5075



GEOTUB PANEL 55	550 x 750 x 80	ABS	6.79	750 x 1350 x H2100	48	9	EGTPANE5575
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GEOTUB PANEL 60	600 x 750 x 80	ABS	7.02	750 x 1450 x 2080	48	9	EGTPANE6075
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## GEOTUB



PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	Nr. pieces per pallet	Nr. handles	Product code
GEOTUB ø25	ø250 H605	ABS	2.95	810 x 1210 x H2200	60	6	EGTTOND2560



GEOTUB ø30	ø300 H605	ABS	3.67	930 x 1210 x H2450	60	6	EGTTOND3060
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GEOTUB ø35	ø350 H605	ABS	4.09	1030 x 1210 x H2260	50	7	EGTTOND3560
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GEOTUB ø40	ø400 H605	ABS	4.56	1140 x 1210 x H1900	40	7	EGTTOND4060
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GEOTUB ø45	ø450 H605	ABS	4.93	1210 x 1230 x H2330	48	8	EGTTOND4560
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GEOTUB ø50	ø500 H605	ABS	5.54	770 x 1210 x H2100	20	8	EGTTOND5060
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GEOTUB ø60	ø600 H605	ABS	6.41	770 x 1210 x H2350	20	9	EGTTOND6060
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GEOTUB ø70	ø700 H605	ABS	7.53	870 x 1210 x H2380	18	10	EGTTOND7060
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GEOTUB ø80	ø800 H605	ABS	8.64	970 x 1210 x H2350	16	10	EGTTOND8060
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GEOTUB ø90	ø900 H605	ABS	9.48	1070 x 1210 x H2530	16	11	EGTTOND9060
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GEOTUB ø100	ø1000 H605	ABS	10.43	1170 x 1210 x H2400	14	11	EGTTOND0100
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# GEOSKY

	PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	Number of pieces per pallet	Number of handles	Product code
	GEOSKY Y BEAM	191 x 605 x 200	ABS	2.67	1000 x 1210 x H2160	140	-	EGSKYTY0060
	GEOSKY WEDGE	160 x 605 x 118	ABS	2.67	750 x 1200 x H1900	204	4	EGSKYCU0060
	GEOSKY H BEAM	310 x 605 x 121	ABS	2.69	1200 x 1240 x H1960	120	-	EGSKYTH0060
	GEOSKY HS BEAM	130 x 605 x 40	ABS	0.62	750 x 1210 x H2280	594	-	EGSKYHS0060

# ACCESSORIES

	PRODUCT	Material	Colour / Finish	Weight per unit (kg)	Product code
	HANDLE	PA66 Nylon	Red ●	0.09	EGAMARO0000
	COMPENSATION ROD	PA66 Nylon	Red ●	0.08	EGAVITE0000
	COMPENSATION NUT	PA66 Nylon	Red ●	0.038	EGAROSC0000
	COMPENSATION WRENCH	PA66 Nylon	Red ●	0.26	EGACHIA0000
	CAP 25	HD PE	Black ●	0.004	EGATADI0000
	CAP 43	ABS	Black ●	0.015	EGATADI0043
	BORDER CAP	ABS	Black ●	0.006	EGATABG0000
Package of 200 pieces (100 pieces left cap and 100 pieces right cap)					
	CONCRETE SHIELD	PP	Red ●	0.13	EGAPBPS0030
	TIE-ROD BRACKET	Steel	Galvanised	0.37	EGABSTI0000
	FIXING BRACKET	Steel	Galvanised	0.28	EGASTAN0000

	PRODUCT	Material	Colour Finish	Weight per unit (kg)	Product code	
	CORNER BAR STUD	Steel	Galvanised	0.42	EGABTAN0000	
	BAR CONNECTOR MM 120	Steel	Galvanised	0.038	EGACOMM0120	
	PIN Ø10	Steel	Galvanised	0.50	EGABPER0000	
	PIN Ø24	Steel	Galvanised	0.38	EGABPER0024	
	SHORE-UP CLAMP	Steel	Galvanised	1.10	EGAMOPU8080	
	LIFTING HOOK	Steel	Painted	1.81	EGANSOL0000	
	BRACE CONNECTOR M 12/50	Steel	Galvanised	0.73	EGASNON1250	
	BRACE CONNECTOR M 66	Steel	Galvanised	0.63	EGASNON0066	
	CONNECTOR PLATE M 49	Steel	Galvanised	1,45	EGAPIST0049	
	CONNECTOR PLATE M 62	Steel	Galvanised	1,50	EGAPIST0062	
	ANCHOR NUT D15 Ø120	PA66 Nylon	Red ●	0,37	EGAROSE0000	
	ANCHOR NUT D15 Ø65	Steel	Galvanised	0,22	EGAROSE1565	
	PRODUCT	Material	Colour Finish	Length (mm)	Weight per unit (kg)	Product code
	DILATATION PLATE	Steel	Painted	200 x 1210	6.00	EGALADT0120
	Pin D24 L60 with R-Clip included					
	Y DILATATION PLATE	Steel	Painted	200 x 60	0.35	EGALADT0060
	JUNCTION PLATE L120	Steel	Painted	1210 x 250	7.25	EGALASC1210
	JUNCTION PLATE L60	Steel	Painted	605 x 250	3,65	EGALASC0605

	PRODUCT	Material	Colour Finish	Dimensions (mm)	Weight per unit (kg)	Product code
	ALIGNMENT BARS F-UN2000	Steel	Painted	2000 x 60 x 60	8.94	EGABFUN2000
	ALIGNMENT BAR UN1500	Steel	Painted	1500 x 60 x 60	6.89	EGABRUN1500
	ALIGNMENT BAR UN1000	Steel	Painted	1000 x 60 x 60	4.79	EGABRUN1000
	ALIGNMENT BAR UN750	Steel	Painted	750 x 60 x 60	3.61	EGABRUN0750
	ALIGNMENT BAR UN500	Steel	Painted	500 x 60 x 60	2.52	EGABRUN0500
	CORNER CHAMFER PROF. 22 X 10	PVC	White ●	22 x 10 x 2000	0.08	EGASMUS2010
	CORNER CHAMFER PROF. 35 X 15	PVC	White ●	32 x 15 x 2000	0.13	EGASMUS3215
	TIE ROD L75	Steel	Galvanised	Ø15 x 750 mm	1.08	EGABARU0075
	TIE ROD L100	Steel	Galvanised	Ø15 x 1000 mm	1.53	EGABARU0100
	TIE ROD L150	Steel	Galvanised	Ø15 x 1500 mm	2.15	EGABARU0150
	TIE ROD L200	Steel	Galvanised	Ø15 x 2000 mm	3.06	EGABARU0200
	SPACERS L15	HD PE	White ●	150 x 25 Ø int.	0.04	EGADIST0015
	SPACERS L20	HD PE	White ●	200 x 25 Ø int.	0.05	EGADIST0020
	SPACERS L25	HD PE	White ●	250 x 25 Ø int.	0.06	EGADIST0025
	SPACERS L30	HD PE	White ●	300 x 25 Ø int.	0.06	EGADIST0030
	SPACERS L35	HD PE	White ●	350 x 25 Ø int.	0.07	EGADIST0035
	SPACERS L40	HD PE	White ●	400 x 25 Ø int.	0.08	EGADIST0040

# REFERENCES

## BERRIGAN IRRIGATION WORKS, AUSTRALIA

One of the gate structures of the Berrigan Main Channel, part of the Murray Irrigation Scheme (NSW, Australia), needed to be rebuilt. As pressure was mounting to complete the job during a limited shut-down period between seasons, a fast, adaptable formwork system was required. The Geopanel system formwork was used to build two U-shaped walls with channel returns and wings to suit the Rubicon gates: using Geopanel meant that the entire structure could be formed and poured in under 5 days.



## CANNING PLANT, EMBAKASI, KENYA

The combination of Geopanel and Geopanel Star formwork enabled the contractor to overcome the main challenge of the project, the creation of in-situ drop beams and columns. The columns were up to 7 meters high. The flexibility of the formwork allowed for savings in terms of forming and concrete cost as well as man-hours.



# REFERENCES

## FISHT OLYMPIC STADIUM, SOCHI, RUSSIA

Fisht Olympic Stadium is located in Sochi Olympic Park. The 40,000 capacity stadium was constructed for the 2014 Winter Olympic games. It served as the venue for their opening and closing ceremonies.

Geoplast Geotub, the reusable plastic formwork for round and oval columns, was used during construction saving a great amount of crane time.



## SAN FRANCISCO, AIRPORT TERMINAL 1 REDEVELOPMENT

Geotub was used for the circular columns of the extension Terminal 1 in San Francisco Airport.

The 46,451 m<sup>2</sup> project for the new Boarding Area B, as well as a new Terminal 1 Center, includes a newly consolidated security checkpoint and baggage handling system.



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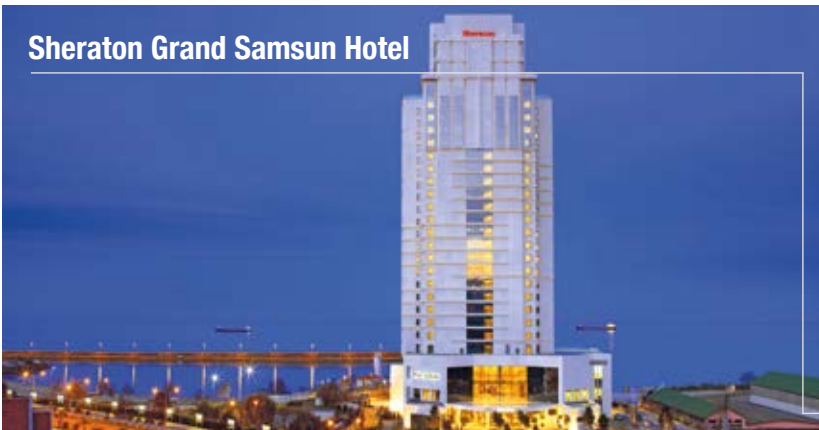
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**Geoplast S.p.A.**

Via Martiri della Libertà, 6/8  
35010 Grantorto (PD) - Italy

Tel +39 049 9490289  
Fax +39 049 9494028

[Geoplast@Geoplastglobal.com](mailto:Geoplast@Geoplastglobal.com)

[GeoplastGlobal.com](http://GeoplastGlobal.com)



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