

DISCOVER THE CONVENIENCE OF PROCESSING PANELTIM® PANELS



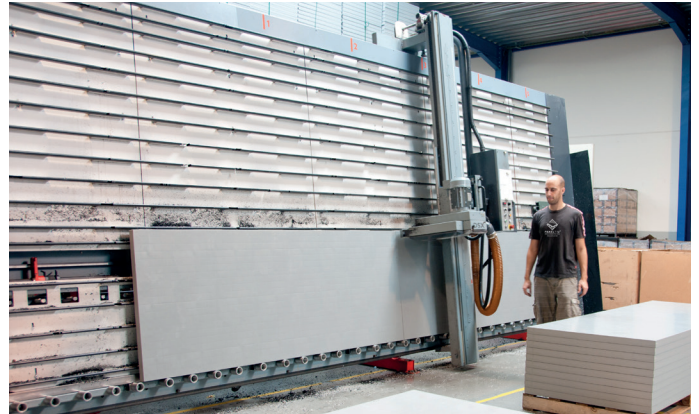
1. MULTIPLE PROCESSING OPTIONS

Paneltim® plastic panels are easy to install and attach. The extensive processing and welding options make simple and quick assembly, installation and customization possible. With Paneltim® creativity has no borders.

FLEXIBLE DIMENSIONS

standard Paneltim® plastic panels can be processed to any desired size via the butt welding technique or by means of hot air welding and/or extrusion welding. The panels are easily processable with traditional actions such as sawing, drilling, screwing,... Allowing you to easily cut them to the length or width that you need.

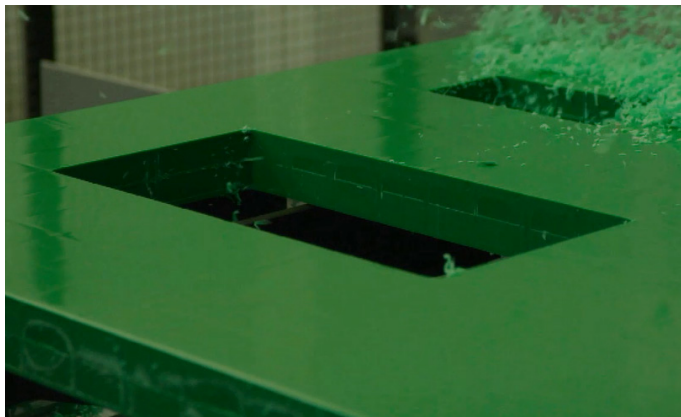
The light weight of the panels facilitates and speeds up the assembly of large pieces into one.



MULTI-PROCESSABLE

Due to the internal cell structure of 50 mm x 50 mm or 100 mm x 50 mm of the panels, you can easily ensure that the outer edges of the panels remain closed, even with customization. If you take the dimensions of the internal cells into account, even openings that are milled into the panels with a CNC machine are closed.

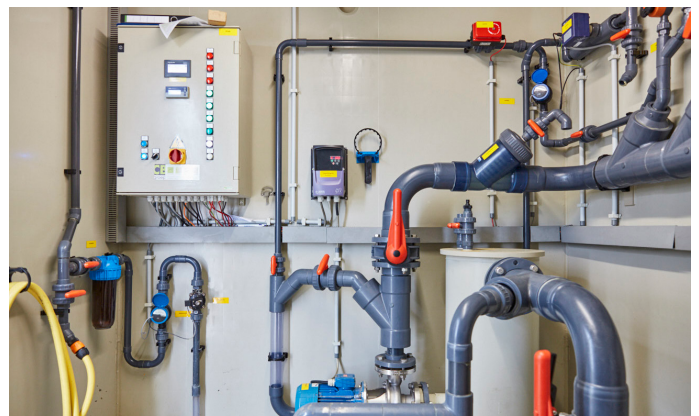
This way your construction not only looks good, you also prevent dirt from settling inside the panels.



COMBINING WITH OTHER MATERIALS

Paneltim® panels made from PP or PE can be welded together with other materials in PP or PE, such as solid panels, pipes, and the like.

It is also possible to attach all kinds of pipes to the panels.



INSTALLATIONS IN SMALL SPACES

The installation of a reservoir or other construction in a limited space can be carried out at the site. This is a major advantage compared to the installation of traditional reservoirs. Waterproof assembly and welding, making connections to existing pipe entrances, etc. - everything can be done on site.



2. QUICK AND EASY WELDING

Paneltim® panels can be processed to all the desired dimensions and shapes by butt welding, hot air welding and/or extrusion welding. The short welding cycle shortens the processing time considerably.



HOT AIR WELDING

Wire welding is a technique where welding wire is used to join plastic panels together. Triangular welding wire is preferably used for hot air welding. The welding wire is guided through a tube that is preheated by hot air. The correct temperature, speed and the right pressure on the weld is essential. This determines the quality of the weld. A thicker weld is not always a stronger or better weld!

EXTRUSION WELDING

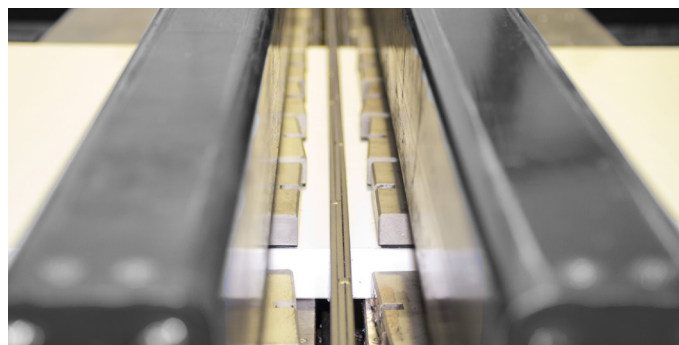
Extrusion welding is a welding process in which the PP or PE welding wire is finely grinded in the welding machine and then heated under pressure to a plastic, deformable mass with which two plastic parts are bonded together. A 'welding shoe' presses the mass against the panels and determines the width of the weld. Through the exerted pressure and the speed with which the weld is applied, the welder determines the thickness of the weld. Here too the following applies: a thicker weld is not always a stronger or better weld! Always use the correct welding shoe and temperature!



BUTT WELDING

With butt welding, two panels are attached to each other by fusing them. The panels are pushed briefly against a hot 'mirror'. This makes the edges a little softer. By then pressing them together, they cool and melt into a whole.

Always weld open sides together. With the large Paneltim® Multipower panels of 2,600 mm x 1,000 mm, the first cell is therefore narrower: 50 mm x 25 mm. This way material loss during welding is minimized.



WELDING SETTINGS

Welding settings generally depend on:

- the type of welding machine
- outside temperature and weather conditions
- combination choice (pressure, time, welding temperature)
- experience of the processor
- material: PP or PE, but also prime, near-to-prime, recy
- type of panel: Multipower or Lightweight, thickness,...

Every welding machine must be set up differently. It is important not to generalize the settings and always to test, refine and validate on your own machine, according to the instructions for use. If necessary, ask the supplier of your welding equipment for advice.

For an optimal result:
always weld in a moisture and dust-free area.

3. RAPID ASSEMBLY WITH PROFILES

Although strong structures are best achieved by welding panels together, Paneltim also offers a limited range of fastening parts, which offer the possibility of quickly making light, yet sturdy and hygienic applications.

Paneltim® PP H and U profiles considerably speed up the creation of (lighter) constructions with Paneltim® panels. The profiles are both strong and durable, easy to process and to clean. With the addition of a UV stabilizer, the profiles are also UV-resistant.

By using PP welding wire you can quickly and easily create virtually seamless transition between PP profiles and PP plastic panels. Thanks to these profiles, creativity with Paneltim® panels really knows no limits.

USES

CONNECTION OF PANELS

Thanks to PP H and U profiles you can quickly connect Paneltim® panels to each other.

FIX PANELS TO FLOORS, WALLS AND CEILINGS

Screw U profiles to floors, walls and ceilings, place the Paneltim® panels in there and weld them to the profile.

OPTIMAL FINISH

You can easily and neatly cover any open cells of a custom-cut Paneltim® panel with a U profile. PP H and U profiles ensure a perfect finish so that, once the profiles are welded to the panels, dirt has no chance to penetrate the panels.

PP H-PROFILE to connect panels



PP U-PROFILE to connect panels and to cover open cells



NOT SUITABLE FOR:

1. APPLICATIONS WITH LIQUIDS
2. WEIGHT BEARING APPLICATIONS

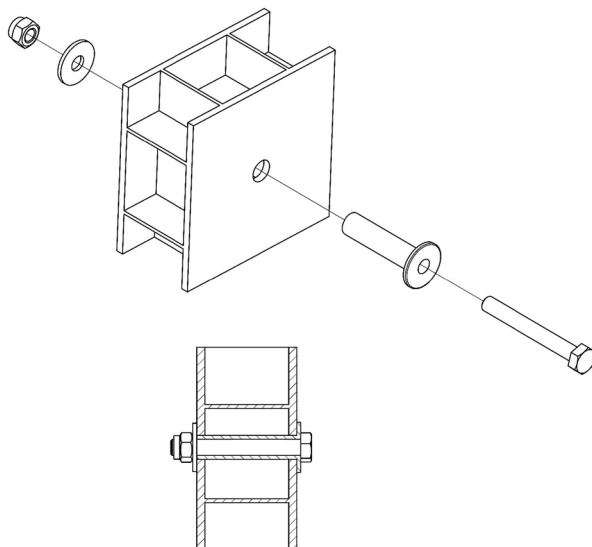
TAKE INTO ACCOUNT POSSIBLE EXPANSION

4. MECHANICAL JOINTS

Joining Paneltim® plastic panels mechanically using bolts requires the use of a bush to prevent compression by the bolt heads. Such compression could cause cracks in the panels or deflections in the vicinity of the bolts.

The exploded view below shows such a bush-and-bolt approach.

When connecting panels to a supporting construction or with incoming and outgoing pipework, always take into account the difference in thermal expansion between the materials.



Bush and bolt



Fixing by plastic welding

5. ORIENTATION OF THE PANELS

Paneltim® Multipower panels have a square internal cell structure of 50 mm x 50 mm. In view of their symmetrical structure, these panels will be equally strong independent of the orientation of the cells.

However, when using Paneltim® Lightweight panels, it makes a difference whether the cells are upright or flat in a construction because their internal cell structure is rectangular (50 mm x 100 mm). In this case, the panels should be oriented with the longer ribs in the direction of the highest load, in order to give maximum support.

For example:

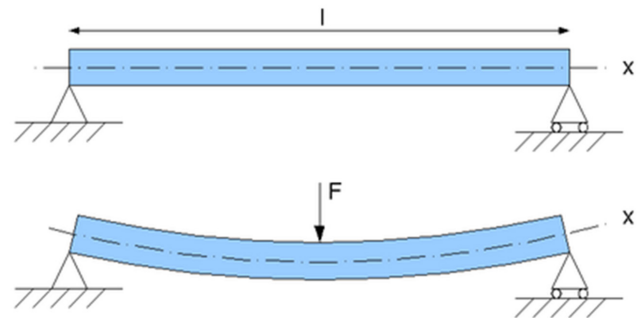
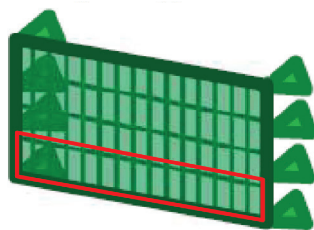
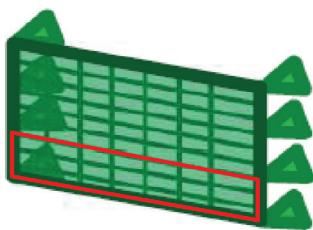
- in case of a flat support with a car driving over
-> long ribs in the driving direction
- in case of a liquid storage tank
-> long ribs vertically, because hydrostatic pressure increases exponentially towards the bottom.

HOWEVER SEE COMMENT BELOW:

Always use 50 mm x 50 mm Paneltim® Multipower panels for containment of liquid.

Flat

Upright



Resistance against load on bending.

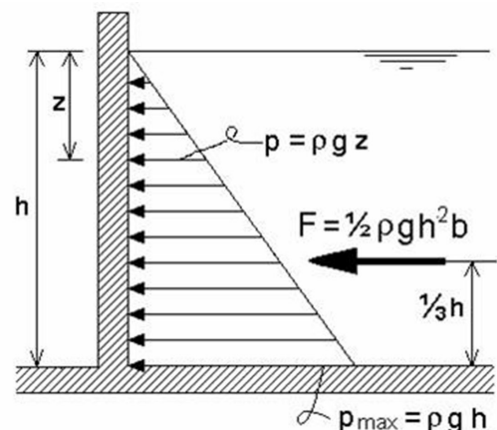
CELL POSITION FOR TANK CONSTRUCTION

**FOR THE CONSTRUCTION OF LIQUID STORAGE TANKS
PANELTIM ALWAYS ADVISES USE OF
PANELTIM® MULTIPOWER PANELS
WITH AN INTERNAL CELL STRUCTURE OF 50 MM X 50 MM.**

Paneltim® Lightweight panels with a 100 mm x 50 mm cell structure are not recommended for liquid storage tanks - 50 mm x 50 mm panels are advised for such applications.

The pressure of the water on the side walls is non-uniform. The pressure gradually increases towards the bottom in relation to the water column above (see schematic representation). The highest pressure is absorbed by the welding between the bottom of the tank and the walls.

Multipower 50 mm x 50 mm panels are advised for liquid storage applications.

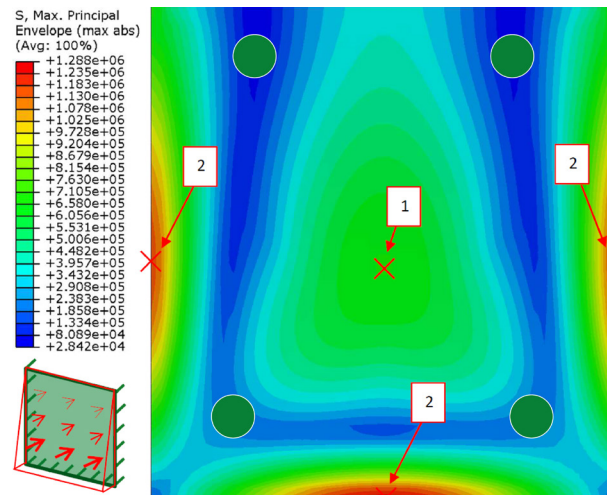


Schematic representation
of the increasing water pressure.

6. POSITIONING OF HOLES

In case of liquid storage tanks, pressure forces of the liquid are absorbed by the walls of the tank. These forces are higher in the welding area between the walls (points 2). Furthermore - again in the case of a filled tank - high stresses occur in the middle of the tank wall, at a height of 40% to 50% of the total height of the tank (point 1).

As a general rule, the green points in the illustration below indicate the most suitable positions for positioning holes. For this particular load case, best results are achieved when holes are positioned in the lower corners of the tank.



Internal tension in the wall of a tank
& ideal hole positioning.



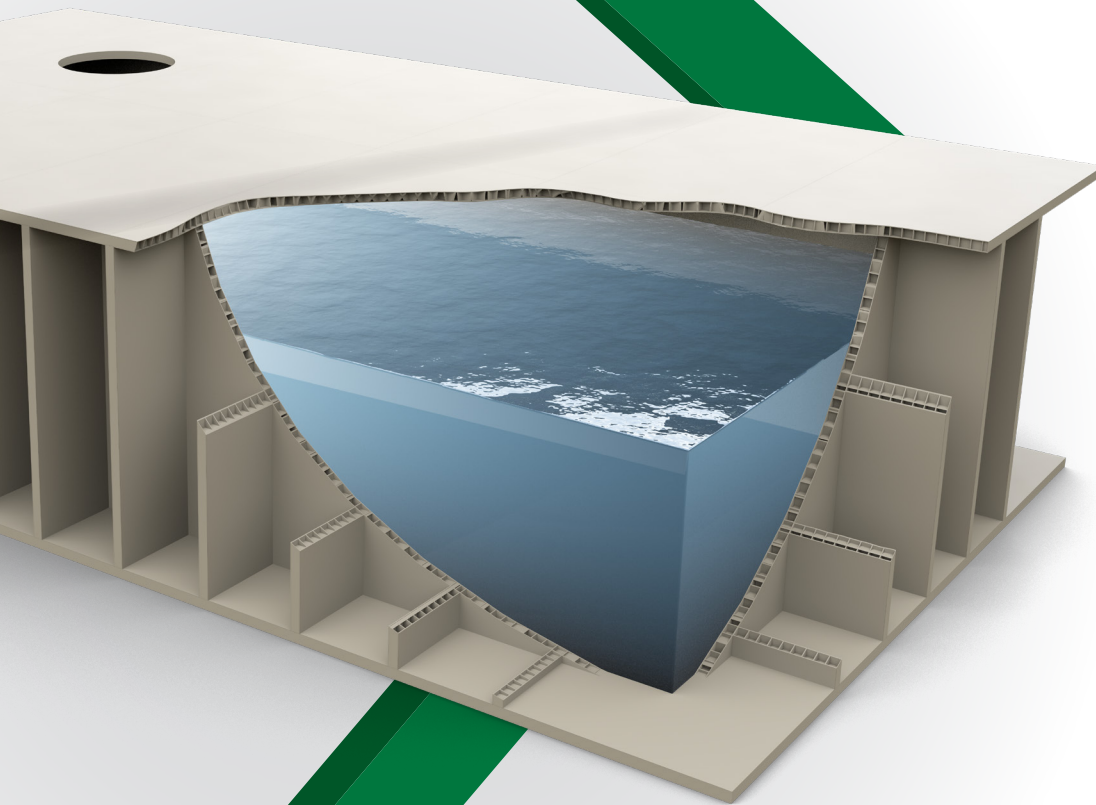
Hole in a large rainwater retention tank - Jenso in Australia

Build your structures QUICKLY and SAFELY

Consult the PTS, a new standard for
calculating structural applications
with double-walled plastic panels.

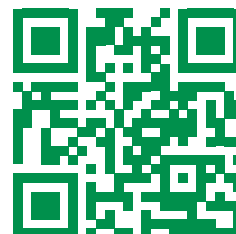


PTS



Register to always have access
to the latest technical information and
the Paneltim Technical Standard:

bit.ly/PTSRegistrationEM



The convenience of Processing Paneltim® Panels 8

Paneltim® Technical Standard

The Paneltim® Technical Standard (PTS) provides all the necessary data to accelerate and improve the design of light and durable thermoplastic panel structures.

The PTS not only provides guidelines for manufacturing and installation, but also with regard to data, calculations and practical examples. The PTS forms a strong, scientific basis for the design, construction and welding of structures made with Paneltim® panels. It provides guidelines for design safety in order to minimize the risk of unexpected malfunctions.

SAFETY FACTORS CHECKLIST



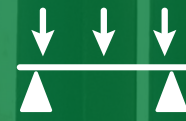
Material



Life cycle



Temperature



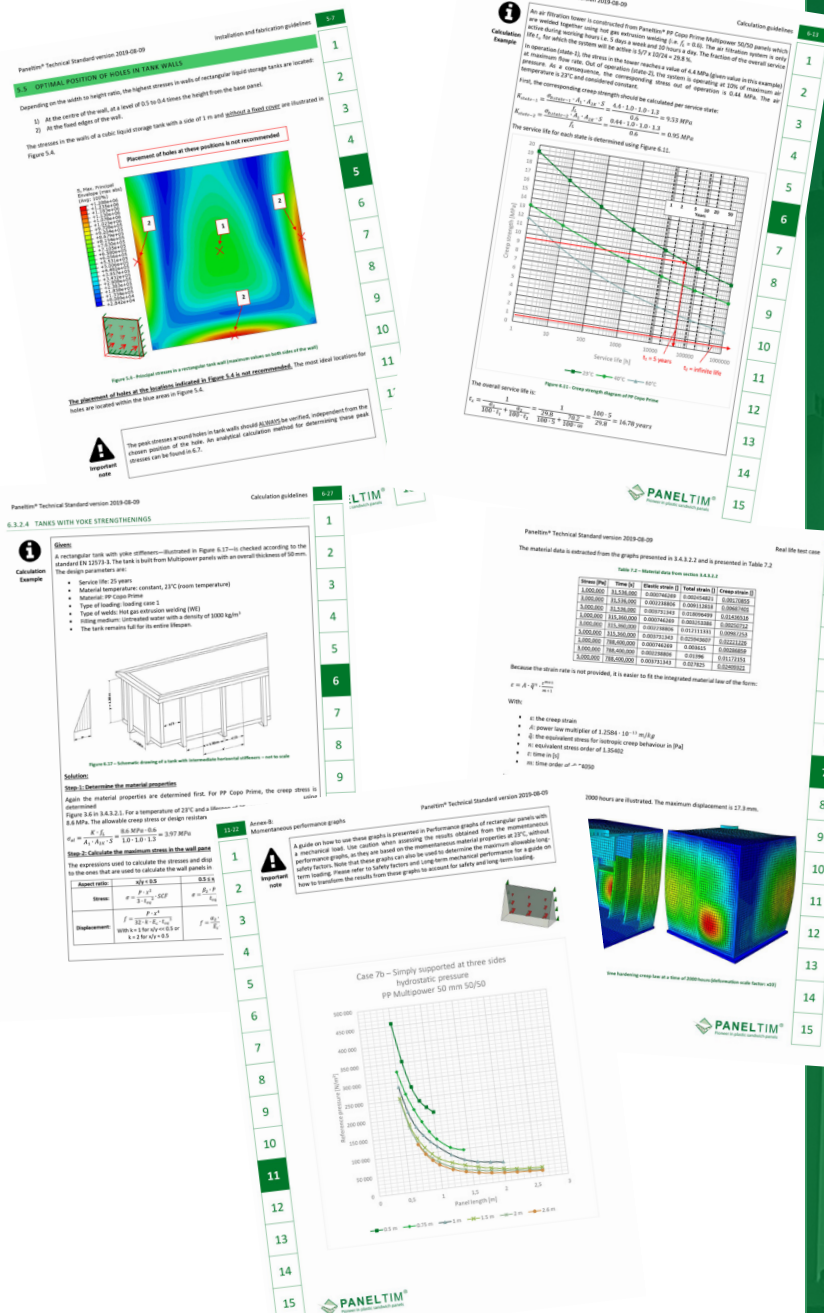
Type of load



Type of weld



Type of fluid



ABOUT PANELTIM

PANELTIM® PANELS PRODUCED BY SPECIALISTS, FOR SPECIALISTS

Paneltim is a Belgian family-owned company that has produced plastic sandwich panels since 1997.

Various techniques are used for the production of the plastic panels, namely: high-pressure injecting (1600, 1850, 3000 and 4000 metric tonne clamping force), mirror welding, cutting and CNC controlled milling.

In the construction sector, the panels are used to build plastic rectangular liquid tanks, filters for liquids, swimming pools, heat exchange units, air scrubbers, odour filters, and numerous other applications.

Polypropylene (PP) and polyethylene (HDPE) hollow panels are lighter and stronger than most other plastic panels. Generally speaking PP and HDPE are resistant to a number of chemicals. Panels made with PP and HDPE can be welded easily. This makes them perfectly suited for constructions that are required to be light, strong and clean.

Our daily challenge is to innovate, in order to optimise the quality of our panels and to seek new product possibilities in partnership with our customers.

Through our global network, we challenge and assist our customers across diverse sectors to explore strong and innovative applications for Paneltim® products.

