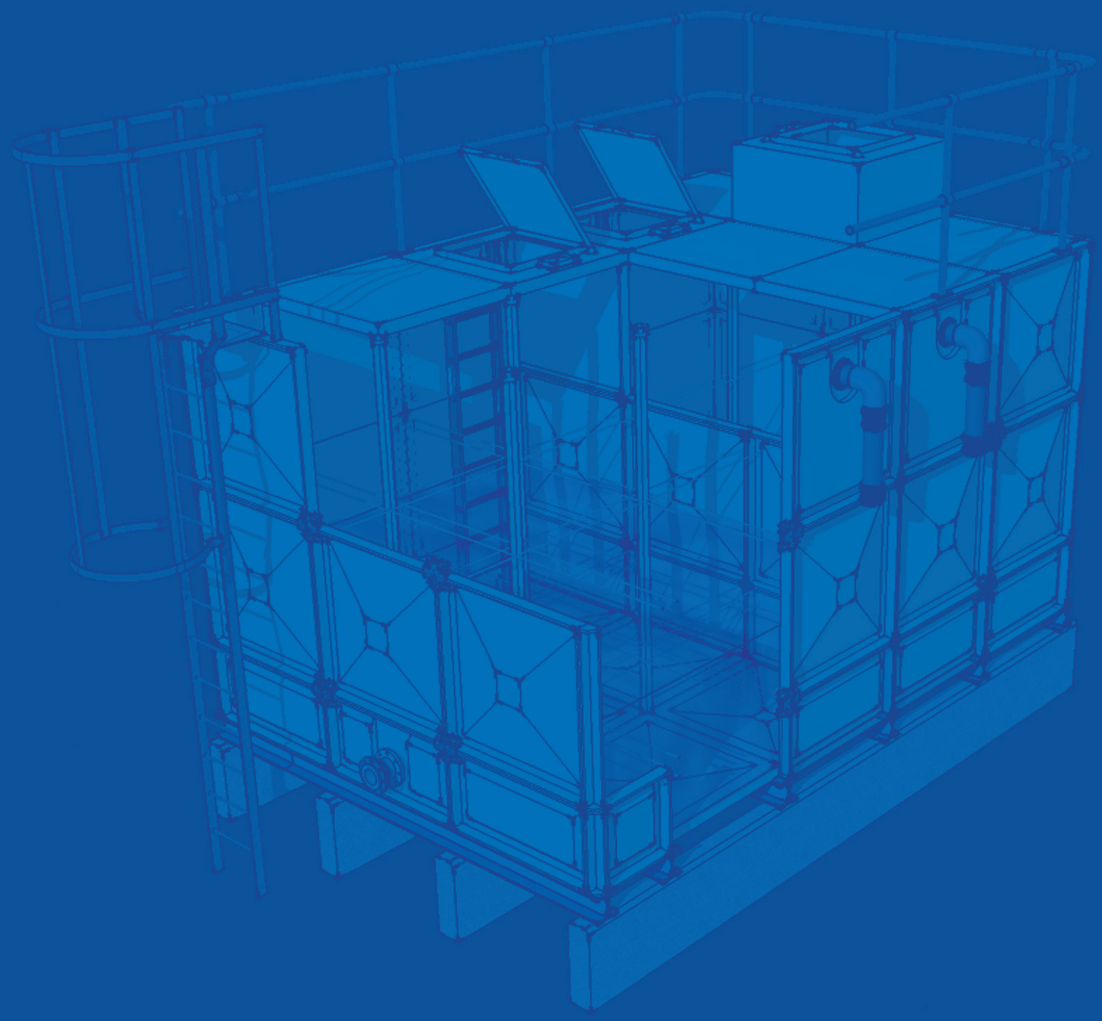

# PRODUCTS BROCHURE

NICHOLSON PLASTICS LTD

*Nicholson Plastics Ltd is a leading manufacturer of water storage tanks since 1968, with a proven track record to supply One piece tanks, Sectional tanks, Custom designed tanks and Bespoke dimensioned water tanks.*

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# INTRODUCTION

Nicholson Plastics Ltd is one of the key manufacturers of cold water storage tanks throughout the UK. The company began its operation in Lanark in 1968, when it was founded as a family business. By 1972 the company moved into a larger production premises in Kirkfieldbank, manufacturing one piece GRP water storage tanks. Through commitment and a hard work ethic, Nicholson Plastics expanded their operations network in 1975 by strategically developing a sales and logistics presence in Croydon to service South London & due to the successful expansion Nicholson Plastics sales thrived, and could now competitively sell their products and services throughout the United Kingdom. Nicholson Plastics quickly increased their market share and were one of the companies that pioneered the use of GRP in the production of sectional tank panels.

*Manufacturing GRP tanks since 1968*

Originally these panels were made by hand from liquid resins reinforced by glassfibre matting and for many years Nicholsons manufactured large numbers of sectional panels by this method, installing these modern GRP sectional tanks all over the UK.

In more recent times as part of a group of international companies Nicholson Plastics has adopted the widely specified Hot Press sectional panel while still retaining the facility to produce hand lay product at its Kirkfieldbank factory. This diversity of production technology and almost 50 years experience serving the UK's water storage needs puts Nicholson Plastics in the strong market position it enjoys today.

*Nicholson Plastics, Lanark*

# GUIDELINES FOR SELECTING OPTIMUM STORAGE SOLUTION

### Size or capacity

One piece tanks are suitable if there are no access restrictions. Choose from our large range of standard tanks or request a design which can be manufactured to your specific dimensions.

If minor access restrictions apply then a two part tank may be ideal for your situation.

If access is even more restricted, for example by stairways and corridors, then a simplified type of sectional tank called a KD may be the best solution.
Storage requirements over 30,000 litres are likely to be best served by a sectional tank. The vast majority of sectional tanks are constructed from hot pressed standard panels from either the metric or imperial ranges although special handlay tank panels are available for extremely restricted spaces.

### Height restrictions

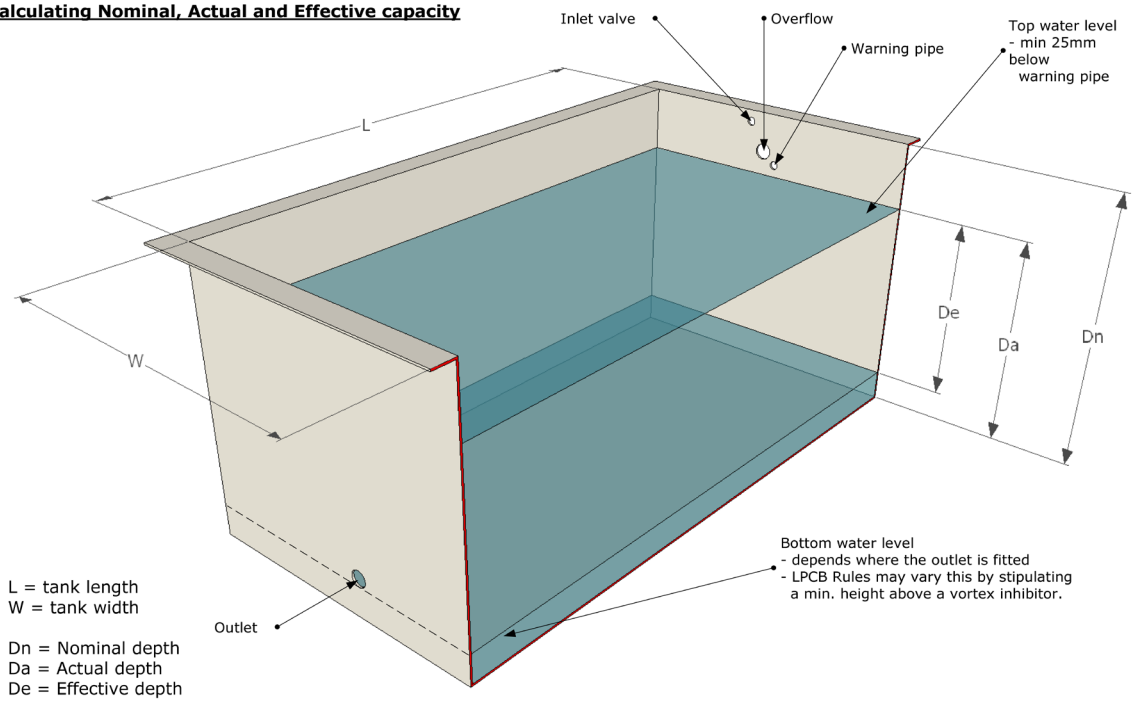
An internally flanged base sits flat on a single plinth or low array of closely spaced supports. An externally flanged base sits up on an array of supports allowing outlets and drains to be mounted on the tank base.

### Space around the tank

Externally bolted sides need 500mm minimum for access. However if space is restricted a hot press tank can still be used provided it is not necessary to have the tank against a wall or walls. This tank is referred to as an Internally Flanged (I.F.) tank, as most of the joint flanges are internal.

Finally if a tank is to be built tight to walls then the hand lay spacesaver (True T.I.F.) tanks must be selected.

**Calculating Nominal, Actual and Effective capacity**




Multiply L x W x Dn,Da or De to get **nominal**, **actual** or **effective** capacity.

*Optimum storage solution*

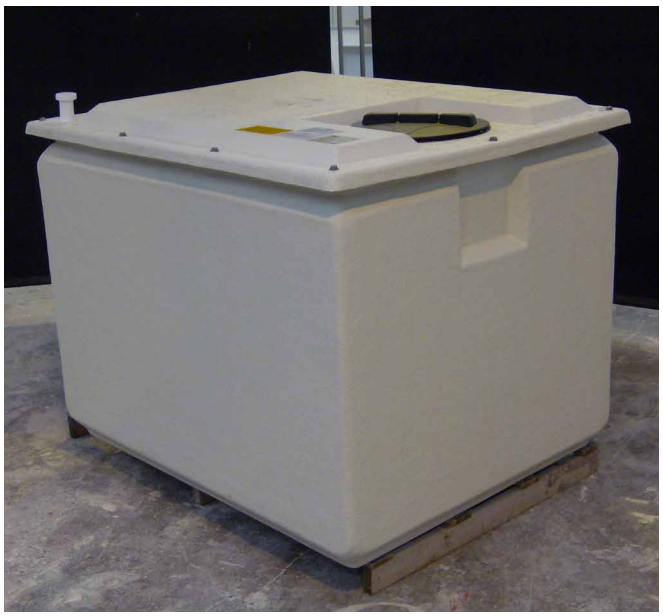
If you have any queries please contact our sales team at **sales@nicholsonplastics.co.uk**

# ONE PIECE STORAGE TANKS

One piece GRP tanks are rigid one piece mouldings in corrosion resistant glass fibre reinforced plastic and are designed specifically to stringent BS EN 13280:2001 requirements for the storage of potable and non potable water. Tanks may also be considered for the storage of other liquids such as sewage, foul water and diluted chemicals*.

Nicholson Plastics manufacture an extensive range of one piece tanks from 43 to 24,000 litres which are suitable for internal or external installation and offer the following advantages:

- Standard tanks in stock - fast delivery service nationwide.
- Easily installed.
- Cost effective storage solution even for temporary use.



*NP500 One Piece Tank*

One Piece tanks must be mounted on a flat level foundation and the base must be fully supported.

* Conditions apply. Please discuss with our technical team.

## One Piece Storage Tanks-Capacity Chart

| Model | Litres (nominal) | Length External (mm) | Width External (mm) | Height External (mm) |
|---|---|---|---|---|
| NP10 | 43 | 532 | 380 | 385 |
| NP15 | 70 | 532 | 380 | 537 |
| NP30/2 | 140 | 761 | 608 | 461 |
| NP40/1 | 180 | 761 | 583 | 588 |
| NP50/1 | 230 | 812 | 634 | 639 |
| NP70/2 | 320 | 888 | 786 | 664 |
| NP70/5 | 320 | 1599 | 532 | 537 |
| NP80 | 360 | 989 | 685 | 740 |
| NP100/1 | 460 | 1040 | 761 | 766 |
| NP100/2 | 460 | 1294 | 685 | 690 |
| NP125 | 570 | 1040 | 837 | 867 |
| NP150 | 680 | 1167 | 939 | 817 |
| NP200 | 970 | 1243 | 964 | 969 |
| NP220 | 1000 | 1141 | 1141 | 1071 |
| NP250 | 1140 | 1674 | 1064 | 893 |
| NP300 | 1370 | 1979 | 1064 | 893 |
| NP350 | 1590 | 1674 | 1293 | 994 |
| NP400 | 1820 | 1369 | 1369 | 1299 |
| NP440 | 2000 | 2150 | 1150 | 1080 |
| NP500 | 2280 | 1674 | 1369 | 1289 |
| NP600 | 2730 | 1979 | 1369 | 1299 |
| NP700 | 3190 | 2284 | 1369 | 1299 |
| NP800 | 3640 | 2588 | 1369 | 1299 |
| NP1000 | 4550 | 2633 | 1674 | 1299 |
| NP1250 | 5690 | 3198 | 1674 | 1299 |
| NP880/1 | 4000 | 2150 | 2150 | 1080 |
| NP1320/1 | 6000 | 3150 | 2150 | 1080 |
| NP1760/1 | 8000 | 4150 | 2150 | 1080 |
| NP2200/1 | 10000 | 5150 | 2150 | 1080 |
| NP2640/1 | 12000 | 6150 | 2150 | 1080 |
| NP1320/1.5 | 6000 | 2150 | 2150 | 1580 |
| NP1980/1.5 | 9000 | 3150 | 2150 | 1580 |
| NP2640/1.5 | 12000 | 4150 | 2150 | 1580 |
| NP3300/1.5 | 15000 | 5150 | 2150 | 1580 |
| NP3960/1.5 | 18000 | 6150 | 2150 | 1580 |
| NP1760/2 | 8000 | 2150 | 2150 | 2080 |
| NP2640/2 | 12000 | 3150 | 2150 | 2080 |
| NP3520/2 | 16000 | 4150 | 2150 | 2080 |
| NP4400/2 | 20000 | 5150 | 2150 | 2080 |
| NP5280/2 | 24000 | 6150 | 2150 | 2080 |

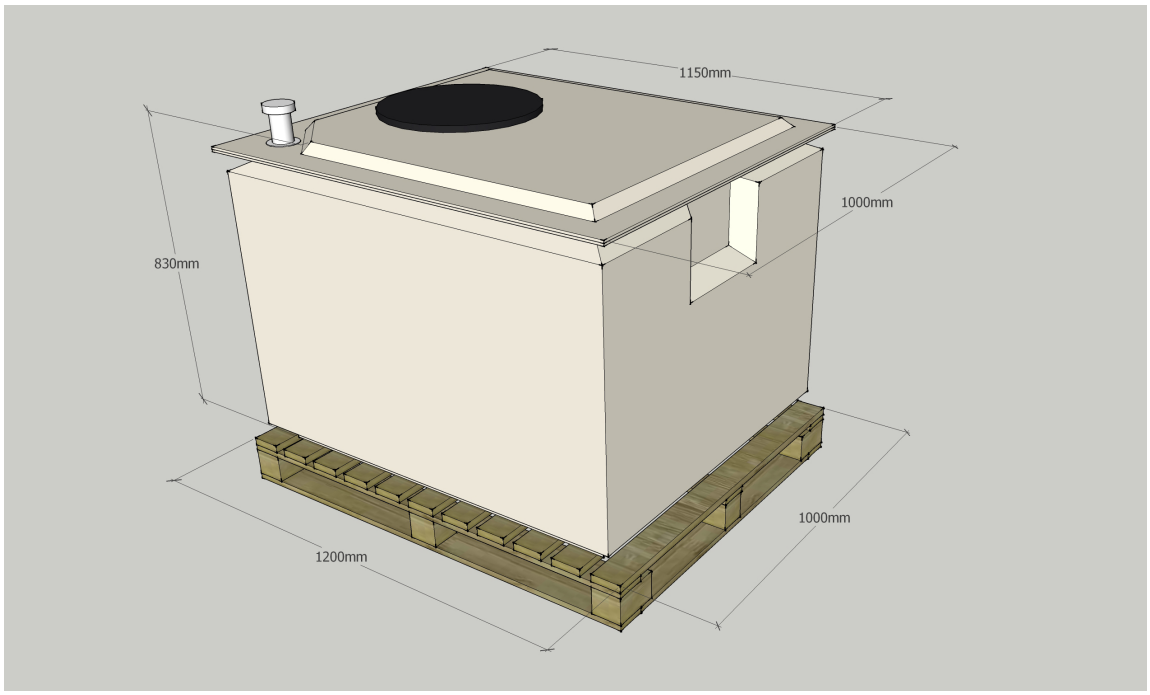
# MP TANK RANGE

The MP range of one piece tanks was created to keep carriage costs to a minimum. Dimensions have been carefully planned so that no tank takes up more than two pallet-spaces. This also means they have a smaller footprint which is ideal for areas of restricted space.

*MP Range one piece tank*

## MP Tank Range

| Model | Litres (nominal) | Length External (mm) | Width External (mm) | Height External (mm) |
|---|---|---|---|---|
| MP82 | 375 | 1150 | 650 | 830 |
| MP110 | 500 | 1150 | 650 | 1080 |
| MP137 | 625 | 1150 | 650 | 1330 |
| MP165 | 750 | 1150 | 650 | 1580 |
| MP140 | 638 | 1150 | 1000 | 830 |
| MP187 | 850 | 1150 | 1000 | 1080 |
| MP234 | 1063 | 1150 | 1000 | 1330 |
| MP280 | 1275 | 1150 | 1000 | 1580 |
| MP327 | 1488 | 1150 | 1000 | 1830 |
| MP374 | 1700 | 1150 | 1000 | 2080 |
| MP421 | 1913 | 1150 | 1000 | 2330 |
| MP165 | 750 | 2150 | 650 | 830 |
| MP220 | 1000 | 2150 | 650 | 1080 |
| MP275 | 1250 | 2150 | 650 | 1330 |
| MP330 | 1500 | 2150 | 650 | 1580 |
| MP280 | 1275 | 2150 | 1000 | 830 |
| MP374 | 1700 | 2150 | 1000 | 1080 |
| MP467 | 2125 | 2150 | 1000 | 1330 |
| MP561 | 2550 | 2150 | 1000 | 1580 |
| MP654 | 2975 | 2150 | 1000 | 1830 |
| MP748 | 3400 | 2150 | 1000 | 2080 |
| MP841 | 3825 | 2150 | 1000 | 2330 |




*MP140 one piece tank*

If you have any queries please contact our sales team at **sales@nicholsonplastics.co.uk**

# TANK LIDS AND COVERS

To comply with regulations most water storage tanks must be fitted with a secure lid preventing light, dust and vermin coming in contact with the water and must also be equipped with a screened air vent. Nicholson Plastics supply a range of standard and custom designed lids and accessories to meet regulatory requirements and can also manufacture lids for tanks storing non - potable water.

*Large custom moulded one piece tank.*

*Pre-insulated one piece tanks.*

### Pre-insulation

An important aspect in the storage of cold potable water is the requirement to maintain the temperature of the stored water below 20°C to inhibit the growth of Legionella bacteria. Our pre-insulated tanks utilise a core of rigid polyurethane foam encapsulated in a protective layer of GRP laminate on the sides and top of the tank to provide an effective thermal barrier which additionally assists in reducing the likelyhood of freezing in outdoor situations.

WRAS
Water Regulations Advisory Scheme
**APPROVED PRODUCT**

# TWO-PART TANKS

These are an ideal solution where access is restricted to a standard doorway and are easily and quickly assembled by site operatives. The single horizontal joint seal is compressed by bolting through the predrilled flanges and connections are made via the preformed recesses in the encapsulated insulation.

As with all our hand layup tanks these are carefully manufactured using WRAS approved materials and are completely suitable for use with potable water.

Standard two part tanks are available from 910 litres to 5690 litres nominal and non standard sizes can be made to order

### Integrally Moulded Foam core

A major design advantage in the KD range is the integral foam insulation core, which is incorporated into the panel during manufacture and extends to the very edge of the flange maintaining thermal integrity across the entire face of the panel. The foam core is CFC and HCFC-free, giving zero ozone depletion, and is approved under the Building Research Establishment Environmental Assessment Method (BREAM).

### Two Part Tank - Capacity Chart

| Model | Litres (nominal) | Length External (mm) | Width External (mm) | Height External (mm) | Max height of single section (mm) |
|---|---|---|---|---|---|
| TP200 | 910 | 1320 | 1040 | 940 | 495 |
| TP220 | 1000 | 1150 | 1150 | 1080 | 557 |
| TP250 | 1140 | 1670 | 1060 | 863 | 482 |
| TP300 | 1370 | 1980 | 1060 | 863 | 482 |
| TP350 | 1590 | 1670 | 1290 | 960 | 507 |
| TP400 | 1820 | 1370 | 1370 | 1270 | 660 |
| TP500 | 2280 | 1670 | 1370 | 1270 | 660 |
| TP600 | 2730 | 1980 | 1370 | 1270 | 660 |
| TP700 | 3190 | 2280 | 1370 | 1270 | 660 |
| TP800 | 3640 | 2590 | 1370 | 1270 | 660 |
| TP1000 | 4550 | 2590 | 1670 | 1270 | 660 |
| TP1250 | 5690 | 3200 | 1670 | 1270 | 660 |

*TP400 two part tank*

If you have any queries please contact our sales team at **sales@nicholsonplastics.co.uk**

# SECTIONAL WATER STORAGE TANKS

Sectional tanks are mainly used where larger volumes of water are to be stored and all panels and components are palletised for dispatch and site assembly. Four types of sectional tanks are available, three using standard Hot Press panels and one using Hand Laid internally flanged panels.

### Internally flanged base

Suitable for building on a perfectly flat plinth or on a set of levelled steel beams at specified centres.

### Externally flanged base

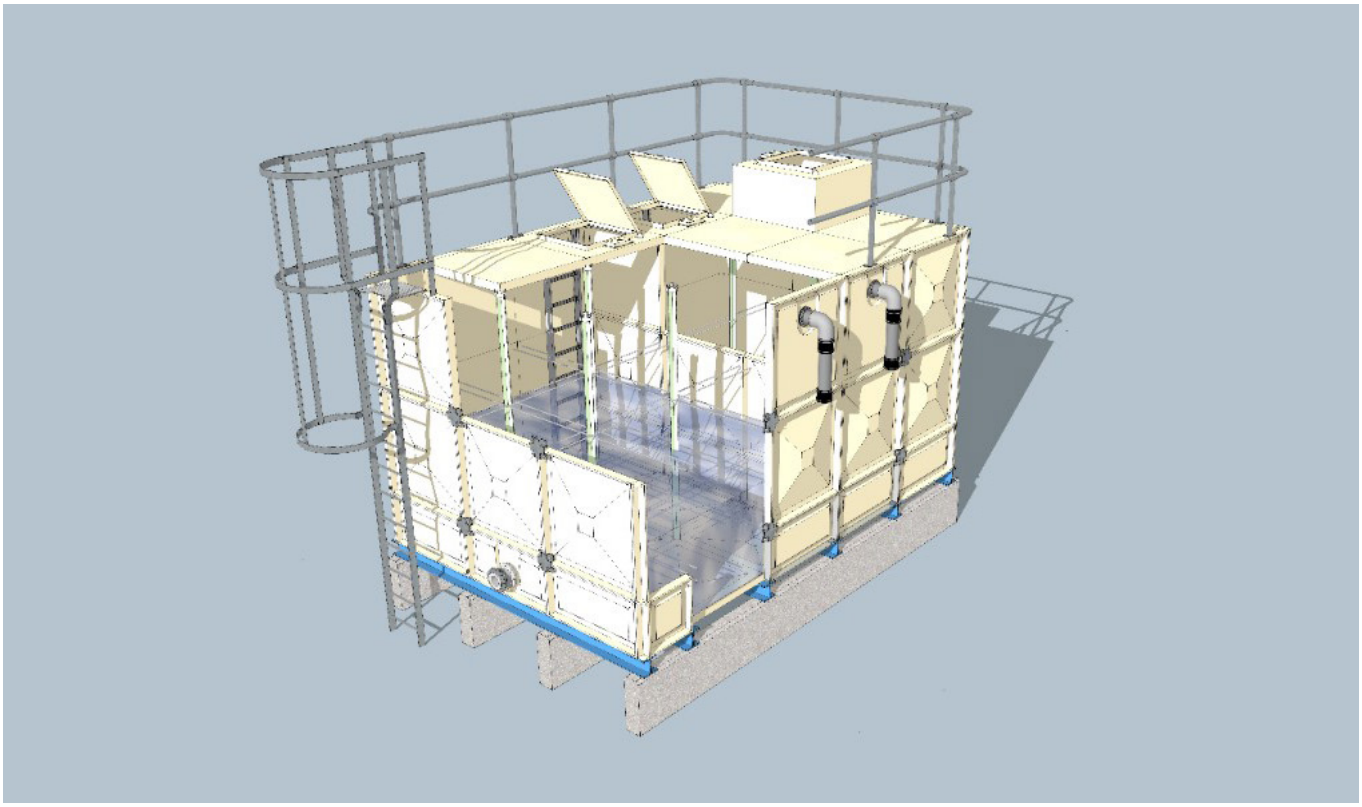
This is designed for building on raised supports to give access to joints and connections below. Occasionally a combination of masonry piers crossed by steel beams is needed to allow adequate access. Fully draining bases with sump panels available on request.

### Internally Flanged (I.F.)

This tank utilises Hot Press Moulded panels and is suitable where there is insufficient room to build a tank with externally flanged sides. Most of the joint flanges are internal.

### True Totally Internally Flanged Spacesaver

Specially designed 3D panels are bolted together with all the joint flanges internal. This enables the tank to be built hard against walls on up to 3 sides utilising space that would be too small for conventional sectional tanks.



*Hot press moulded sectional tank.*

Sectional tanks are supplied with a top access hatch, screened air vent and all necessary seals, gaskets and fixings. Tie rods and bolts in contact with stored water are Grade 316 Stainless Steel and hot dipped galvanised fixings are supplied for all external joints.

## Options

- Stainless steel fixings throughout.
- Tank divider (partition) to allow continuity of supply during maintenance.
- Sump base panels to facilitate draining.
- Raised inlet valve chamber (Ballvalve Box).
- Screened spill slot to provide Type AB air gap – normally fitted to raised chamber.
- Side mounted manway. Provides safe egress during maintenance inside the tank.

## Connections

- Inlet valves
  - Brass equilibrium value, ½" to 4" (15mm to 102mm approx.) complete with float.
  - Keraflo range of delayed action valves including those suitable for a raised chamber, ½" to 6" (15mm to 150mm approx.)
- Overflows
  - PN16 Intersect PVC screened overflow kit, ¾" to 8" (18mm to 200mm approx.)
  - McAlpine screened overflow kit, ¾" to 2" (18mm to 50mm approx.)
- Outlets
  - PVC PN16 stub flanges, ½" to 12" (15mm to 300mm approx.)
  - BSP male and female threaded flanges, ½" to 3" (15mm to 75mm approx.)
- Sensors and Indicators for water level and temperature.
- Frost protection immersion heaters.

## Ancillaries

- Ladders – internal and external. External available with optional safety cages.
- Perimeter railing.
- Condensation/drip trays for tanks with an internally flanged base. Reduces the likelihood of damage or slips from dripping pipework or condensation.
- Base levelling steels.

*Sectional Tank*

*Male Threaded Connection*

*3" Stub Flange*

*4" Overflow*

*Aylesbury "K" Type Inlet Valve*

*Equilibrium Ball Valve*

# TANK INSTALLATION

The tank type will determine the foundation options suitable for installation. The following is a general guideline, but base supports must conform to the detailed information that is provided specifically for the tank ordered.

### Externally Flanged Base

Supports must be level and positioned at 1000mm / 500mm centres for metric panels or 4ft/2ft centres for imperial panels.

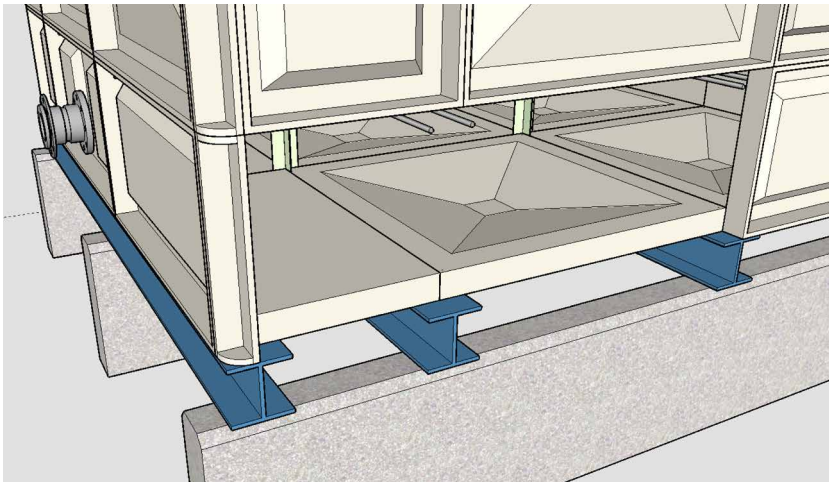
### Access Requirements:

- 600mm under tank.
- Tanks up to 3m high - 500mm around and above the tank.
- Tanks over 3m high – 550mm around and above the tank.

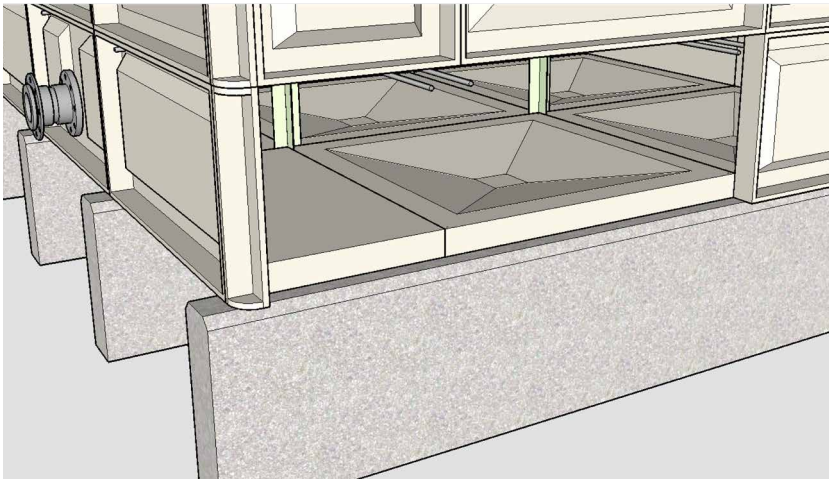
*Sectional tank installation*

### Self-draining bases

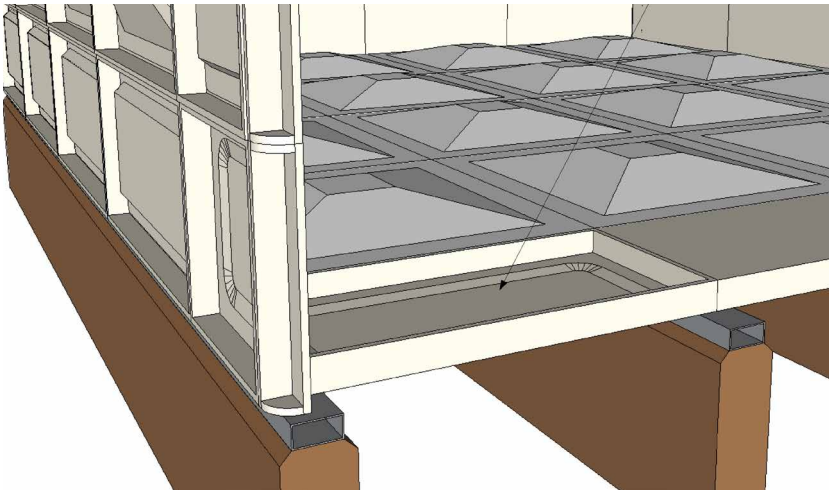
Where there is a requirement to minimise the amount of water retained within the tank after draining, a “Self Draining” base with a sump panel should be specified. These base panels are domed upwards to shed the water which is then able to travel along the network of flat perimeters to the sump panel to which the tank outlet and drain should be fitted.



*Externally flanged base supported on piers with spanning steels.*



*Externally flanged base supported on piers*



*Self draining base supported on piers with levelling steels*

# INTERNALLY FLANGED BASE

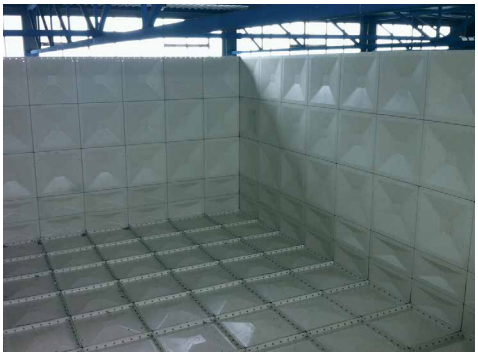
### Steel Supports

Steel supports must be level and positioned at 500mm centres for metric panels and 16” (406mm) centres for imperial panels.

**or**

### Flat Concrete Plinth - Access Requirements:

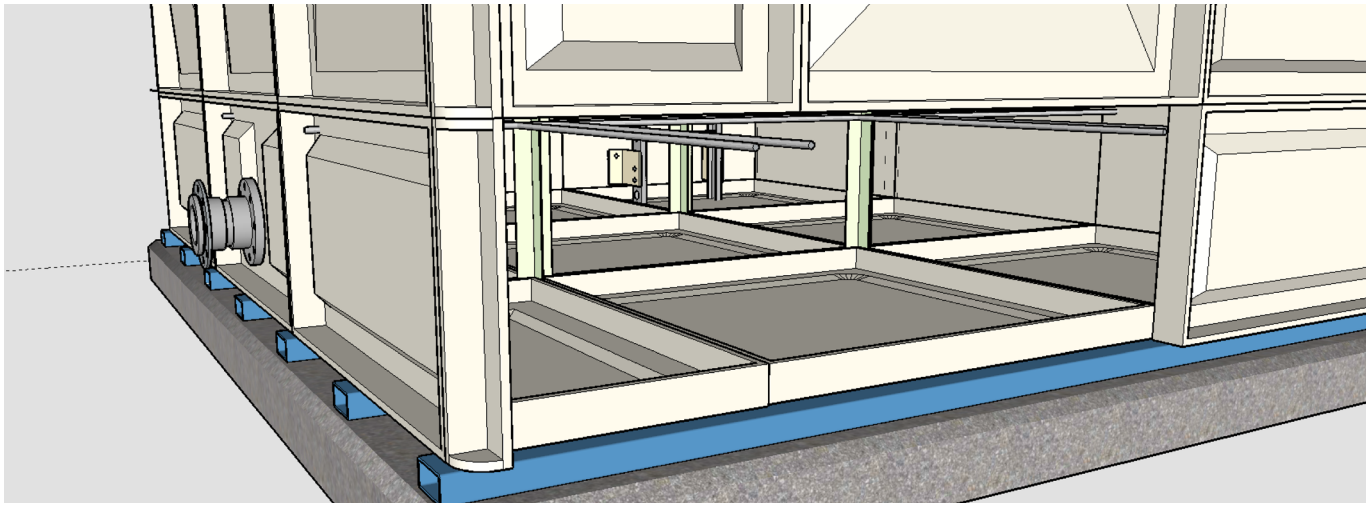
The foundation should be flat, level, free from local irregularities and not vary more than 2mm in any 1m or a total of 6mm in any 6m measured laterally or diagonally. The plinth should extend 150mm beyond the tank dimension.



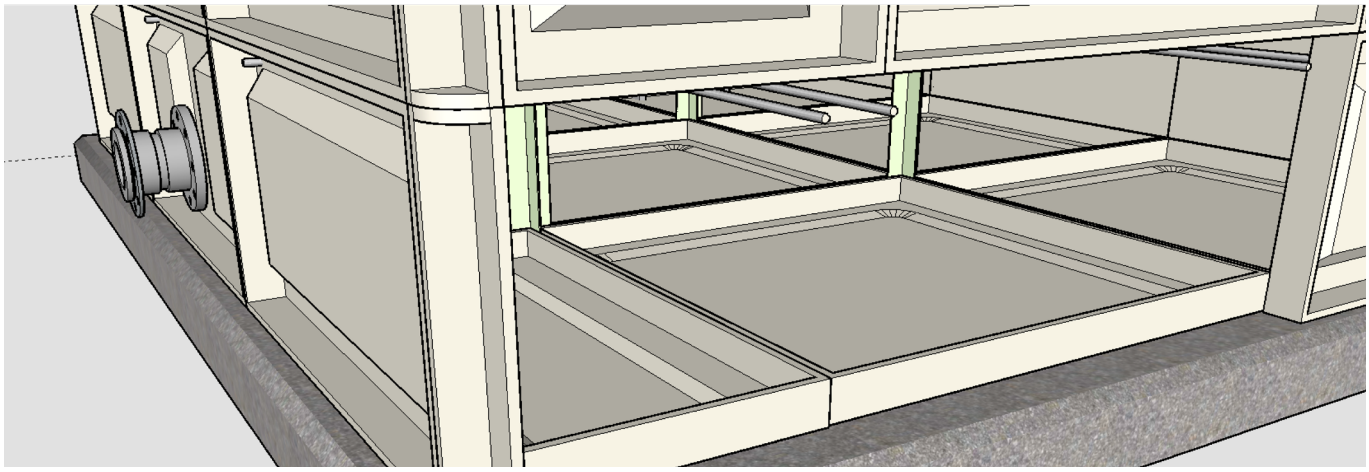
*Sectional tank with internally flanged base*

### Access Requirements:

- Tanks up to 3m high - 500mm around and above the tank.
- Tanks over 3m high - 550mm around and above the tank.



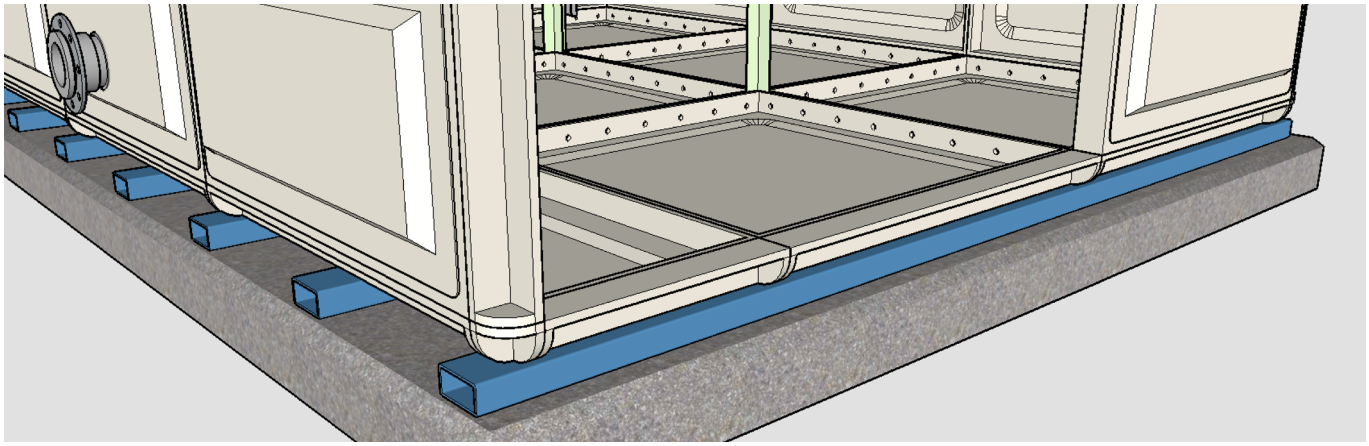
*Internally flanged base supported on concrete plinth with levelling steels*



*Internally flanged base supported on concrete plinth.*

# INTERNALLY FLANGED TANKS

Nicholson Plastics provide two solutions where access restrictions prohibit the use of a standard sectional tank. These hybrid tanks provide a cost effective way of reducing the amount of space needed around the tank for assembly. Some space is required however as the perimeter corner angle bolts around the top, bottom and sides require access during the build.

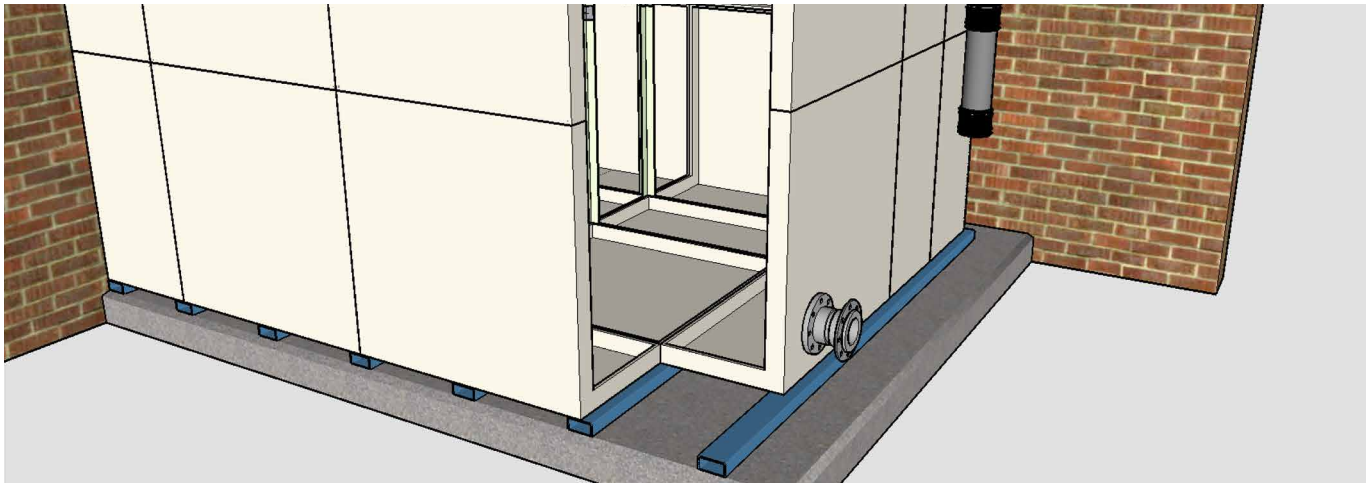


*Internally flanged I.F. tank supported on concrete plinth with levelling steels.*

# SPACESAVER TANKS

Spacesaver tanks are constructed from highly specialised and modular panels which are individually manufactured by hand. Layers of tailored fibreglass matting are laminated into moulds along with the integrally moulded insulation creating a series of exceptionally strong three-dimensional panels.

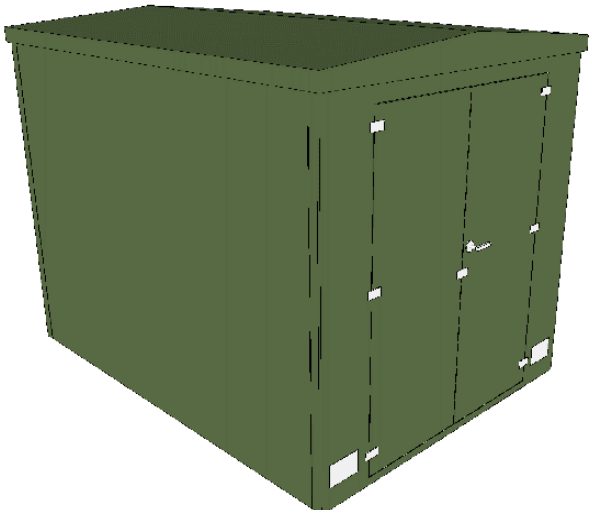
This modular design with all joint flanges internal to the tank enables a tank to be constructed against walls and is the perfect solution where tanks require to be fitted into tight spaces.



*Spacesaver tank supported on concrete plinth with levelling steels*

# ENCLOSURES

A GRP enclosure from NP is the ideal way to provide cost effective protection for valuable equipment ranging from pump sets to inverter arrays for renewable energy systems. We are able to offer a wide range of cost effective solutions designed to meet your specific requirements. Whether one piece or site built, these easily installed units can be manufactured in a range of sized, finishes and colours to RAL or BS5252 ranges.



*In house drawing.*

*Bespoke enclosure.*

*Combined tank and enclosure.*

*Combined tank and enclosure.*

*Bespoke one piece enclosure.*

If you have any queries please contact our sales team at **sales@nicholsonplastics.co.uk**

# CREATIVE GRP

Ever since the advent of Glass Reinforced Plastics the possibilities have been only limited by the designer's imagination. With experience of moulding anything from reproduction chimneys to car park cladding panels we are confident we can help you find your solutions.

*Suncatcher skylight*

*Helipad*

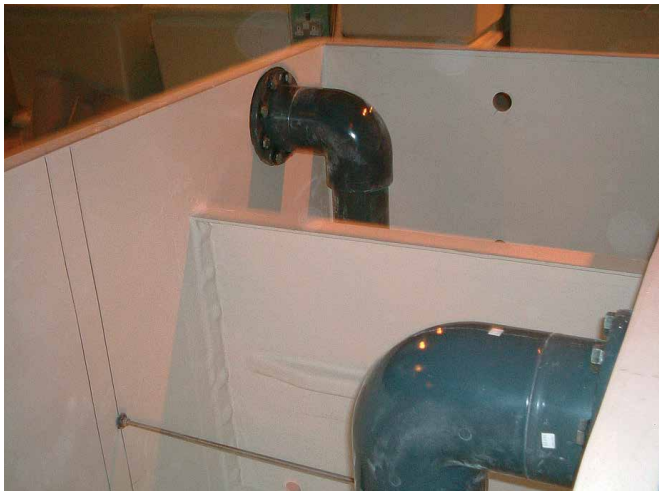
*Haptic Cow*

*Graveliner*

# CUSTOM MOULDED TANKS

In addition to our standard range of one piece tanks, Nicholson Plastics Ltd manufactures custom moulded tanks to meet special requirements. Rising building costs have led to smaller and smaller spaces being allocated for water storage and often these spaces are irregular in shape.  A custom moulded tank from Nicholson Plastics is often the answer.

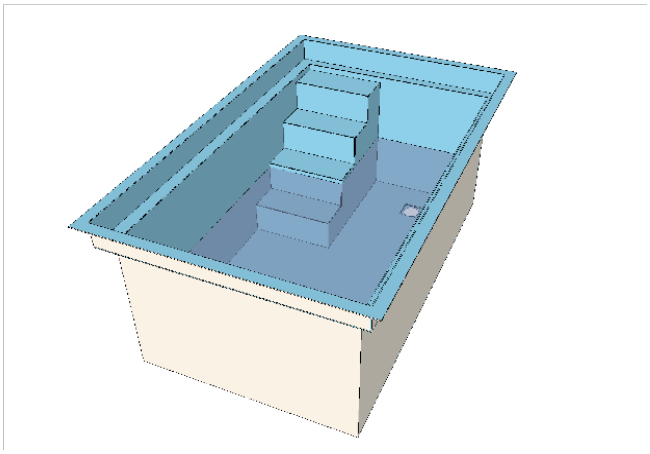
*Custom moulded one piece tank*



*Custom moulded one piece tank with internal division*

## BAPTISMAL TANKS

Baptismal tanks are another example of our ability to tailor a GRP moulded product to the customer's exact requirements. Not just a liner, these units incorporate internal stairs, textured walking surfaces and a moulded drain sump.  Normally self-supporting, the top flange detail of the baptismal can be moulded to suit the installation of a concealing floor section (by others).  Available in any RAL colour (normally pale blue) these one piece units provide the contractor with a simple "drop in" solution.



*In house drawing*

*Finished Product*

If you have any queries please contact our sales team at **sales@nicholsonplastics.co.uk**

# TECHNICAL GUIDANCE NOTES

## Technical Guidance Notes*

### Sizing overflows (Type AF and AG air gaps)

It is a mandatory requirement that an air gap between the tank contents and the inlet valve must be maintained at all times. Prior to hydraulic testing carried out in the 1990s it was considered adequate to size the overflow at 1.5 times the diameter of the inlet valve. Nowadays it is highly recommended to size the overflow at 2 times the inlet diameter. Failure to do so means that the air gap requirement will not be met unless the overflow is placed low enough on the tank wall so that the hydrostatic head will overcome the resistance of the smaller diameter. This will obviously reduce the useable capacity of the tank.

### Spill over weirs (Type AB air gaps)

According to the WRAS Guidelines a suitably sized circular overflow will provide adequate air gap protection for all water categories up to and including Category 4. In the case of Category 5, the worst category of contamination, additional protection of the air gap is required.

The most common method is to provide a calculated rectangular screened spill over weir in the shape of a "letterbox" slot between the top of the normal circular overflow and the discharge orifice of the inlet valve. To maximise tank capacity this slot is normally sited in the side of a raised chamber on the tank lid.

In order to calculate the size of the slot (or slots) it is necessary to know the number and size of the inlets to the tank.

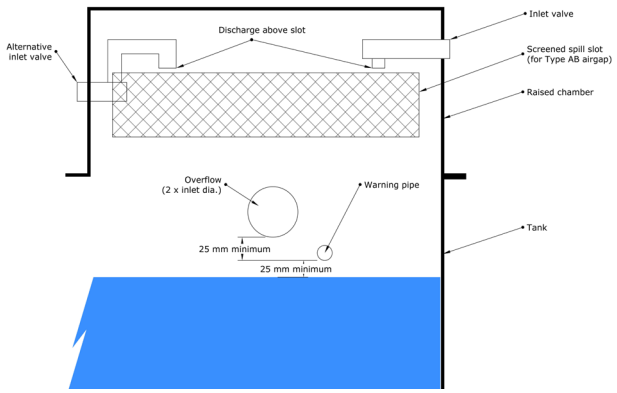
Despite the existence of categories 2 - 4 and a guidance note on the WRAS web site advising against the over-use of category 5 it appears to be common practice to automatically treat any possibility of contamination as Category 5 and therefore requiring a spill slot. It should be noted that if the tank is a "wholesome water" tank it should not require a spill over weir (slot).

### Siting tank outlets

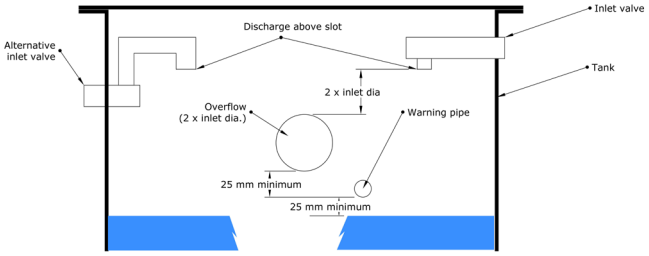
Except for connections that will be serving hot water systems the WRAS Guidelines indicate that outlet connections should be taken off the base of the tank where practicable. This means that an externally flanged tank base with access beneath is the preferred option.

* These notes are given in good faith and are based on the information available at the time of going to press.

Nicholson Plastics can accept no liability for errors or omissions.




*Setting overflow levels (Type AB Air Gap)*




*Setting overflow levels (Type AF Air Gap)*

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