

BALMORAL TANKS

# GRP SECTIONAL TANK STANDARD SPECIFICATION

[www.balmoraltanks.com](http://www.balmoraltanks.com)



## **1 General**

- 1.1 The manufacture and design of Balmoral (Hot Press Moulded GRP Sectional Water Storage Tanks) shall be to the quality standard requirements of (BS EN ISO 9001) and shall comply with (BSEN13280:2001) glassfibre reinforced plastic cisterns for cold water storage.

## **2 Process Requirements**

- 2.1 Cisterns shall be manufactured by the Hot Press Moulded method, glass reinforced plastic, moulded at temperatures up to 150°C using polyester resins which conform to ISO 472, UV stabilised and 'E' glassfibre reinforcement, colour grey(RAL7004).
- 2.2 The cistern design shall incorporate 1x1m pillow panels to the walls of cisterns with provision for flat panels for connections and fittings. Purpose made cover panels 1x1m and 1x0.5m flat panels positioned to give free draining channels.
- 2.3 Base panels available internally flanged (IFB) with 1x1m flat panels, fasteners internal (stainless steel Grade 1.4401), or externally flanged (EFB) with 1x 1m flat panels and one pillow sump panel, fasteners external (Galvanised). Alternatively stainless steel fasteners throughout can be requested.
- 2.4 All surfaces of the panels shall be smooth and crevice free to provide hygienic finish and be dimensionally accurate with sharply defined profiles.
- 2.5 Float valve chambers can be provided with central hinged or lift off lockable ABS lid, with options of 180mm, 300mm and 500mm depth, where appropriate provision for Type AB air gap in compliance with BSEN13077:2008.
- 2.6 Man access 600mm diameter screwed, hinged or lift off lockable ABS lid available.
- 2.7 All tanks deeper than 1.5m shall be fitted to client requirements with internal stainless or GRP and external standard duty aluminium access ladders: to BS4211 with hooped safety cage.
- 2.8 Handrail is offered as an option and should be considered to meet particular contract needs.

## **3 Steelwork**

- 3.1 Panels to be rigidly supported by a combination of stainless steel tie rods internally and galvanised box section externally.
- 3.2 Steelwork designed to EN 10088-3:1995. Internal stainless steel 1.4401 (316/A4) grade and external mild steel galvanised to BSEN ISO 1461:2009. Cisterns to incorporate external wall bracing on depths 1.5m and greater and tie rods 2m and greater.

## **4 Insulation (Encapsulated)**

- 4.1 Panels shall be factory insulated either on the top, sides and base as required, using 40mm thick CFC/HFC expanded polystyrene.
- 4.2 Panels to be insulated within a profiled face covering the maximum surface area and to be encapsulated with an external weather skin made from ultraviolet stabilised material providing protection against weathering.
- 4.3 Connections to be site fitted on flat insulated panels, and all holes shall be sealed with a recessed plastic section from the outer surface of the insulation skin to the cistern panel.

## **5 Foundation**

- 5.1 All cisterns to be installed on either flat continuous foundation, close centre beams, pier walls or bearer beams conforming to manufacturer's specification of flatness and deflection and to be provided by the client. Refer to BSTL 1693-004 to BSTL-1693-012.

## **6 Partitions**

- 6.1 Where partitions are required, they will be full height using standard panels. Each compartment will be capable of supporting water on either side with one side empty.
- 6.2 Where tank walls require external reinforcement, then partition walls shall be similarly reinforced in grade 316 stainless steel.

## **7 Connections**

- 7.1 All connections supplied to be site installed.

- 7.2 Connections 54mm and below, plain/BSP threaded, 67mm and above flanged to PN16 unless otherwise stated.
- 7.3 Standard flanged connections as Balmoral 'BSTL' range, spool piece with internal support flange, external stub flange with loose galvanised ring.
- 7.4 All connections to be installed in accordance with WRAS/current water byelaws. Tank manufacturer has WRAS approval for compliance with BS EN 13077 installations.

**8 Installation**

- 8.1 To be carried out by Balmoral approved installers, for warranty to be valid.
- 8.2 BALSEAL high density foam/butyl sealing strip to be used covering full width of panel flange providing a watertight seal.

**9 Commissioning and Testing**

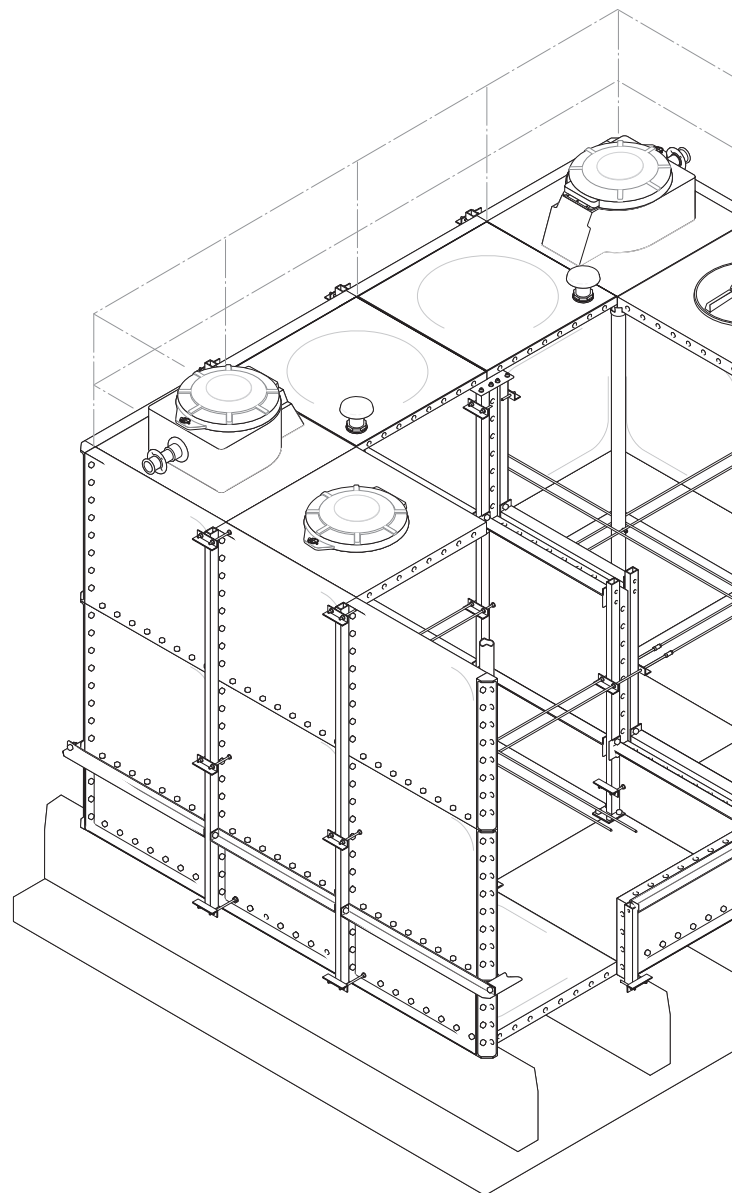
- 9.1 Testing shall be carried out on completion of installation by a mechanical contractor and should be completed within ten working days of assembly. This shall include the final setting of float valves level switches and any other connection which requires setting.
- 9.2 The testing and compliance of panels, sealant , conections and fixings shall be as listed in WRAS Water Fittings and Materials Directory and current water regulations.

**10 Mechanical properties**

Method of manufacture	Hot Press Moulded
Specific gravity	1.84 ± 0.2 g/cm <sup>3</sup>
Tensile strength	>100Mpa
Flexural strength	>200Mpa
Flexural modulus	>11500 Mpa
Impact strength	90 Kj/m
Shore hardness	Barcol:54
Shear strength	94.1 Mpa
Glass content %	30% ± 2
Thermal expansion	16.10 <sup>-6</sup> (-6)m/(m.k)
Thermal conductivity	0.3W/(m.k)
Overall heat transmission	0.6 W/m <sup>2</sup> K
Water absorption %	<0.3%
Light transmission	<0.2 % Transmission
Insulation thickness	40mm Expanded Polystyrene
Insulation cover	ABS

**11 Approvals**

- M100 WRc approved, capacities to 4.00m deep - Listing 0706068.
- M100-B30 WRc approved, capacities to 4.00m deep - Listing 0706067.
- LPCB Approval - 445b/01 445b/02



**BALMORAL SECTIONAL TANKS LTD**

Unit 2, Coomber Way Ind Est, Croydon, Surrey CR0 4TQ

Tel +44 (0)208 665 4100 Fax +44 (0)208 665 0200

Email [southernsalesoffice@balmoral.co.uk](mailto:southernsalesoffice@balmoral.co.uk)

[www.sectionaltanks.com](http://www.sectionaltanks.com)



Balmoral Sectional Tanks Ltd believe that the information printed in this leaflet is accurate, and published for information only. No warrants, express or implied, are contained therein, nor does any legal liability attach to Balmoral Sectional Tanks Ltd for any reason whatsoever. Property rights of the subject belong to Balmoral Sectional Tanks Ltd, and transfer of these rights is not granted by possession of this document. The company's policy is one of continuous product improvement and we reserve the right to make alterations to our range and specification without prior notice.