EPOXY COATED STEEL TANKS

BALMORAL TANKS
a BALMORAL GROUP company

Balmoral Tanks

Balmoral Tanks is a leading design and manufacturing company that provides unique turnkey services spanning civils groundwork, tank design and manufacture, installation, pipework, commissioning and technical after sales services.

Producing what is believed to be the most comprehensive range of tank products from a single source, civil engineering, firefighting, potable/non-potable water, anaerobic digestion, wastewater, desalination and drainage are key sectors for the company.

Trusted. Innovative. Collaborative.

Our decades-long global track record is built on outstanding levels of customer service. We continually drive efficiencies and add value to our valued client base through our end to end market offering from design to installation, commissioning and after sales care.

Since 2018 we have invested more than $25m in our 150,000sqft (14,000sqm) state-of-the-art design and manufacturing facilities as well as in a continuous learning programme for all staff. We believe we have the most technically advanced production facilities in the industry supported by unrivalled levels of expertise across the whole operation.

Our longevity is proof of our success; we're here for the long term.

Our promise

Balmoral Tanks benefits from being part of Balmoral Group Holdings Ltd and the huge support infrastructure that offers. It is this depth of expertise that differentiates us from any other tank manufacturer in the world.

With 40+ years' experience in managing the design, manufacture and installation of liquid storage and treatment products we will do all that is humanly possible to ensure delivery of your project on budget, on time with care and professionalism from enquiry to installation.

$25M INVESTMENT IN MANUFACTURING FACILITIES

Balmoral Tanks
Thurnscoe, England

EFUSION® EPOXY COATED STEEL TANKS

Balmoral Tanks is acknowledged as the industry's leading manufacturer of fusion bonded epoxy coated steel tanks. Products ranging in capacity from 5-35,000m³ are provided in a range of diameters and heights.

Operating from a purpose built state of the art manufacturing plant, the company utilises both CNC punch and laser cutting equipment in its semi-automated production line.

All raw materials are quality checked on arrival before moving into the production phase. Black steel panels are lasered or punched, depending on their thickness, prior to being shot-blasted to SA2.5/SSPC10 near white finish. After shot-blasting the sheets are automatically transferred to the paint line via vertical rollers if necessary. At point of transfer the panels are automatically weighed as a final quality check on material thickness before being coated.

Following the coating process, the panels undergo three separate quality checks to confirm the external panel colour, internal coating thickness (micrometer) and internal coating integrity (high voltage holiday test). Balmoral operates a zero defect policy with every defective panel being rejected.

Once the final inspection has taken place the finished sheets are packed onto heat treated pallets or crates for transportation.

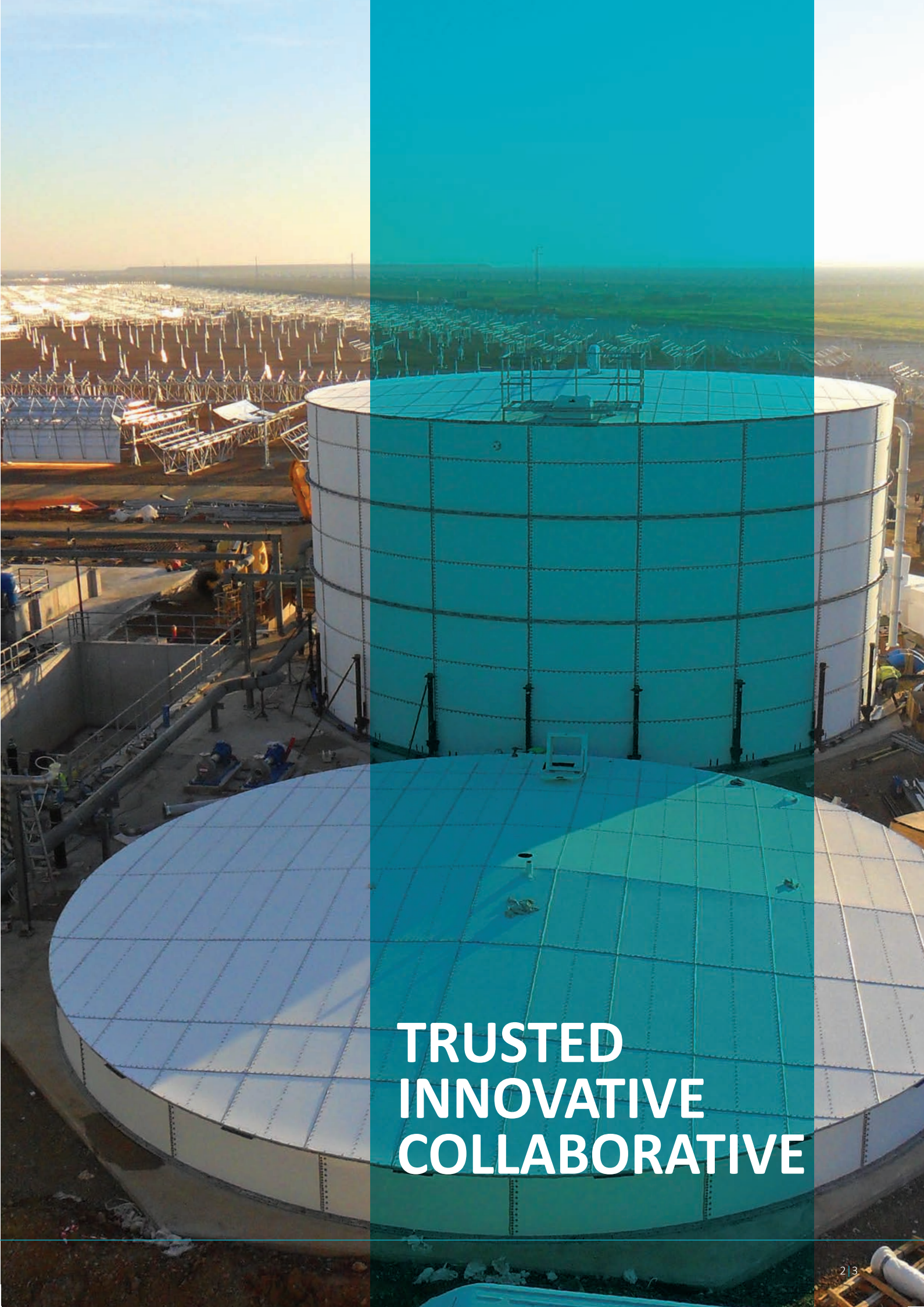
During panel production, tank components, including nuts, bolts, washers, sealants, etc, are packaged according to the bill of material, whilst fabricated items are procured, produced, quality checked and palletised for transport.

The company is accredited to ISO9001-2015 and enforces quality checks and stop points throughout the production process to ensure goods are received, produced and shipped 'Right First Time'.

APPLICATION GUIDE

Application	efusion	efusion1500	Stainless steel 316L	Stainless steel 304L
Agricultural waste/slurry	✓		✓	✓
Potable/drinking water	✓		✓	✓
Covered municipal waste	✓		✓	
Open topped municipal waste	✓		✓	✓
Municipal/industrial aeration*	✓	✓	✓	
Municipal/industrial settlement	✓		✓	✓
Municipal/industrial clarification	✓		✓	✓
Digester liquid zone	✓		✓	✓
Digester gaseous zone		✓	✓	
Leachate storage	✓		✓	
Borehole/brackish/seawater	✓		✓	
Desalinated water	✓		✓	
Demineralised water	✓		✓	
Treated water	✓		✓	
UF water	✓		✓	

**Subject to grade*



TRUSTED
INNOVATIVE
COLLABORATIVE

NOT JUST ANOTHER TANK COMPANY

COATING PERFORMANCE AND QUALITY STANDARDS

Internal coating: Thermoset resin fusion bonded epoxy

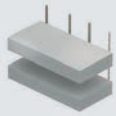
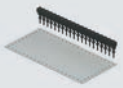
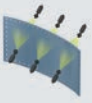
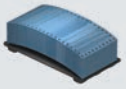
Description	Test standard	Result	Colour
Dry film thickness	Industry standard device (efusion)	150µm–250µm/6-10mils (efusion)	SIMILAR TO RAL 5015
	Elcometer 456 (efusion 1500)	300µm–650µm/13-26mils (efusion 1500)	
PH range	Subject to contents and temperature	PH 2-11 (efusion) PH 2-13 (efusion 1500)	
Corrosion resistance (Salt spray test)	EN ISO 9227	Pass - 0mm creep from scribe at 1440hrs	
Hot water immersion 90 days, 75ºC	EN ISO 21809-2	Pass rating 1	
Humidity	EN ISO 6270-2	Pass – 1000 Hrs	
Adhesion	EN ISO 21809-2	Pass - 0mm	
Hardness	EN ISO 2815 - Bucholtz Hardness Test	Pass - Indentation resistance = 91	
Impact resistance	EN ISO 6272-2	Pass >15J	
Abrasion resistance	Abrasion wheel ASTM 4060	CS17,1000g,1000 cycles < 27mg	
Chemical immersion	50% NaOH, 50% H2SO4	Meets/exceeds industry standard	
Holiday test	1100v/1500v every panel	100% defect free at test voltage	

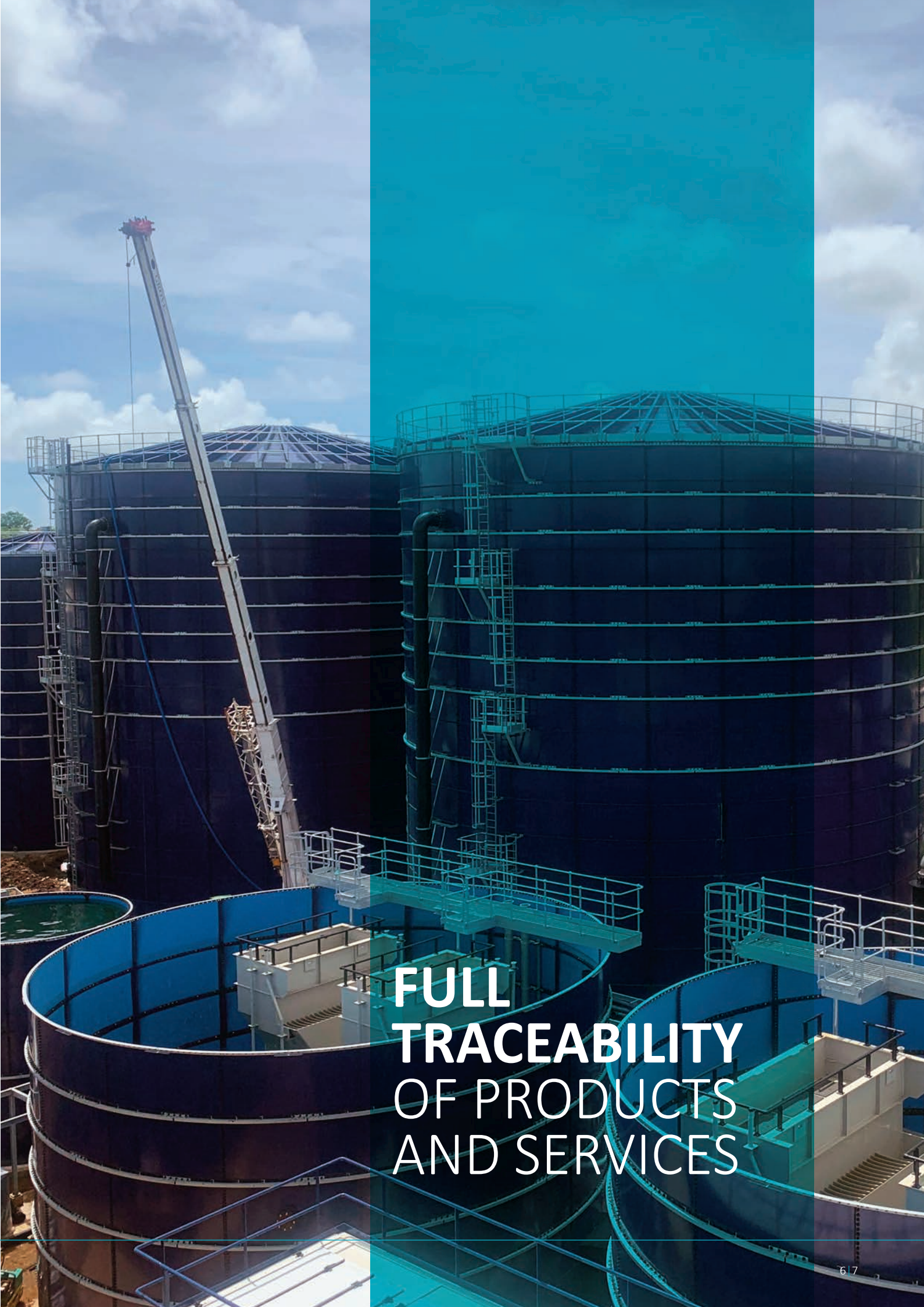
External coating: Durable polyester

Description	Test standard	Result	Colour
Dry film thickness	Industry standard device	150µm – 230µm (6-9mils)	SIMILAR TO RAL 5013
Corrosion resistance (Salt Spray Test)	EN ISO 9227	16mm creep from scribe at 1000 Hrs	
Humidity	EN ISO 6270-2	Pass - 1000Hrs	
Adhesion	EN ISO 21809-2	Pass - 0mm	SIMILAR TO BS 12-B-29
Hardness	EN ISO 2815 - Buchholtz Hardness Test	Pass - Indentation Resistance = 80	
Impact resistance	EN ISO 6270-2	2.5Nm/22 inch-pound (no sign of detachment)	
Weathering	EN ISO 16474-2	Pass -1000Hrs, residual gloss ≥50%, Colour change ΔE according to Qualicoat requirements (appendix A7)	
Weathering	EN ISO 16474-3	Pass - 300Hrs, Residual gloss ≥ 50%	
Environment	ISO 12944	Suitable for use in a C5M Environment	

Any coating damage must be repaired in accordance with the operation and maintenance manual to maintain an effective barrier to the environment

FUSION BONDED EPOXY COATING PROCESS

1  Raw steel sheets	2  Sheet punching and cutting, including pipework cut-outs	3  Grit blasting to SA2.5 / SSPC10	4  Sheet rolling	5  Pre-treatment *Degrease, application of bonding agent and rinse*
6  Flash drying	7  Pre-heating prior to epoxy application	8  Electrostatically applied thermoset resin fusion bonded epoxy	9  'Green' curing	10  Ultra durable polyester top coat application
11  'Crosslink' curing	12  Sheet cooling	13  End of line inspection Visual, including colour, thickness; high voltage testing of every panel to 1100v/1500v, subject to grade and colour	14  Packing	



FULL TRACEABILITY OF PRODUCTS AND SERVICES

TANK INSTALLATION

Balmoral operates via a network of distributors worldwide that are trained in all areas of tank construction. Experienced Balmoral service engineers are available if additional support is required.

There are two main methods of building modular tanks:

Scaffolding

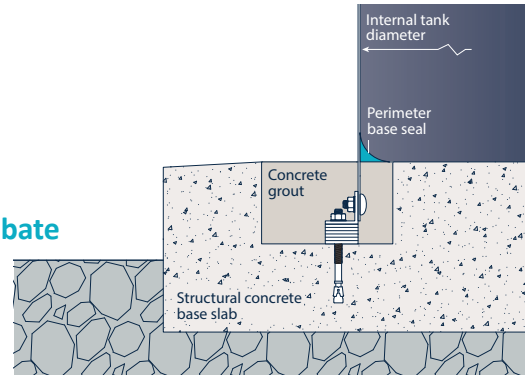
Scaffold building suits open top tanks and tanks in areas of the world where the importation of jacks is difficult or restricted by customs laws.

Jacking

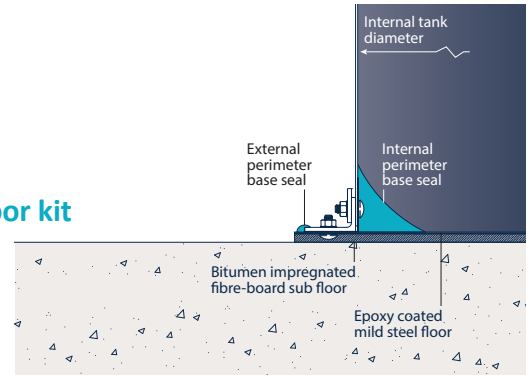
Jack building suits tanks with covers, tall tanks, and project sites where working at height is restricted or perilous. The jacks are normally shipped with the tank kit and allow for the majority of works to be completed within 2.4m of ground level.

TANK FOUNDATIONS

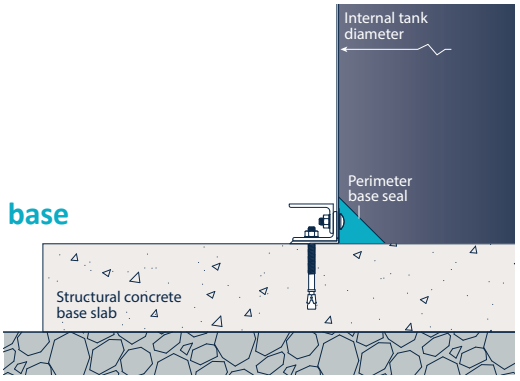
Rebate



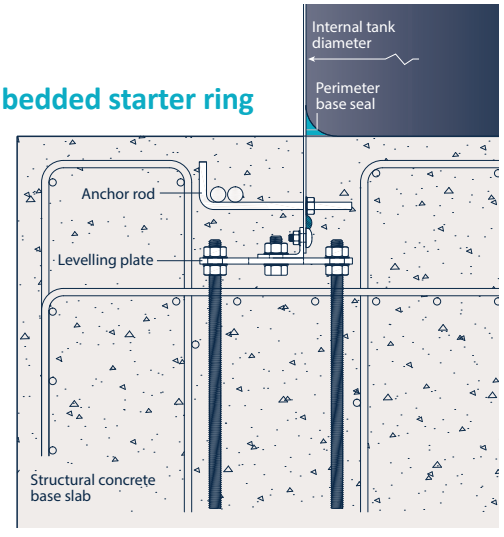
Floor kit



Flat base



Embedded starter ring



Note: Bases may vary to suit individual site requirements

Hybrid tanks

We offer a range of different tank materials which allows us to design and engineer tanks with multiple grades of material for different areas of the tank.

By offering a combination of glass fused to steel grades, fusion bonded epoxy coated steel, stainless steel or a combination of all materials, this allows the most cost effective combination of materials to meet storage requirements based on the process design.

Stainless steel tanks

In addition to fusion bonded epoxy coated steel tanks, we offer a full range of stainless steel tanks, roofs and ancillaries for use in the water, wastewater and anaerobic digestion industries.

These tanks are available as a complete tank kit in grade 304 and 316 stainless steel, in a combination of grades or as a hybrid tank with glass fused to steel or fusion bonded epoxy coated steel in the lower rings and stainless steel in the upper rings.

Roof systems

Balmoral Tanks provides a full range of tank cover solutions with the specific design being based on project requirements. Options range from simple debris covers through to pressurised, gas tight, load bearing covers.

Our options include:

- Fusion bonded epoxy coated external beam roofs (for large diameters and anaerobic digesters)
- 304L and 316L stainless steel external beam roofs (for large diameters and anaerobic digesters)
- Aluminium geodesic dome roofs
- Self-supporting, low profile, external beam roof systems (for drinking water and wastewater)
- Tank mounted double membrane roofs
- Tank mounted single membrane roofs
- Glass reinforced plastic (GRP)
- Trough deck (free spanning and column supported options)

Ancillaries

Balmoral Tanks' ancillary options include:

- Ladders and platforms
- Staircases
- Roof walkways / interconnecting bridges
- Manways / hatches
- Connections
- Floor kits
- Specialised items including baffles, internals, bespoke design

Balmoral Group

Established in 1980, Balmoral Group builds futures and supports change through strategic investments in diverse businesses. Our profits foster growth and create a positive, lasting social impact by funding community and charitable initiatives.

The Group has earned a global reputation for innovative product solutions, quality and exceptional service throughout its businesses, including Balmoral Comtec in the energy sector, Balmoral Tanks for bulk liquid storage, Blaze Manufacturing and The Marcliffe Hotel and Spa. Additionally, the Group is involved in property through its business park division.

At Group HQ in Aberdeen the company has invested in a pioneering design and manufacturing facility that includes laboratories, design engineering, toolmaking, production, project management and testing facilities.

Balmoral Tanks' Thurnscoe facility designs and produces the company's glass fused to steel, epoxy coated and stainless steel tanks as well as concrete tanks for the water, wastewater, processing and anaerobic digestion sectors.

In Llantrisant, South Wales, Balmoral Tanks runs a specialised design and manufacturing operation providing hot press GRP and steel sectional tanks as well as cylindrical steel tanks for the global water storage and fire-fighting sectors.

Balmoral Group HQ, Aberdeen, Scotland

NOT JUST ANOTHER TANK COMPANY

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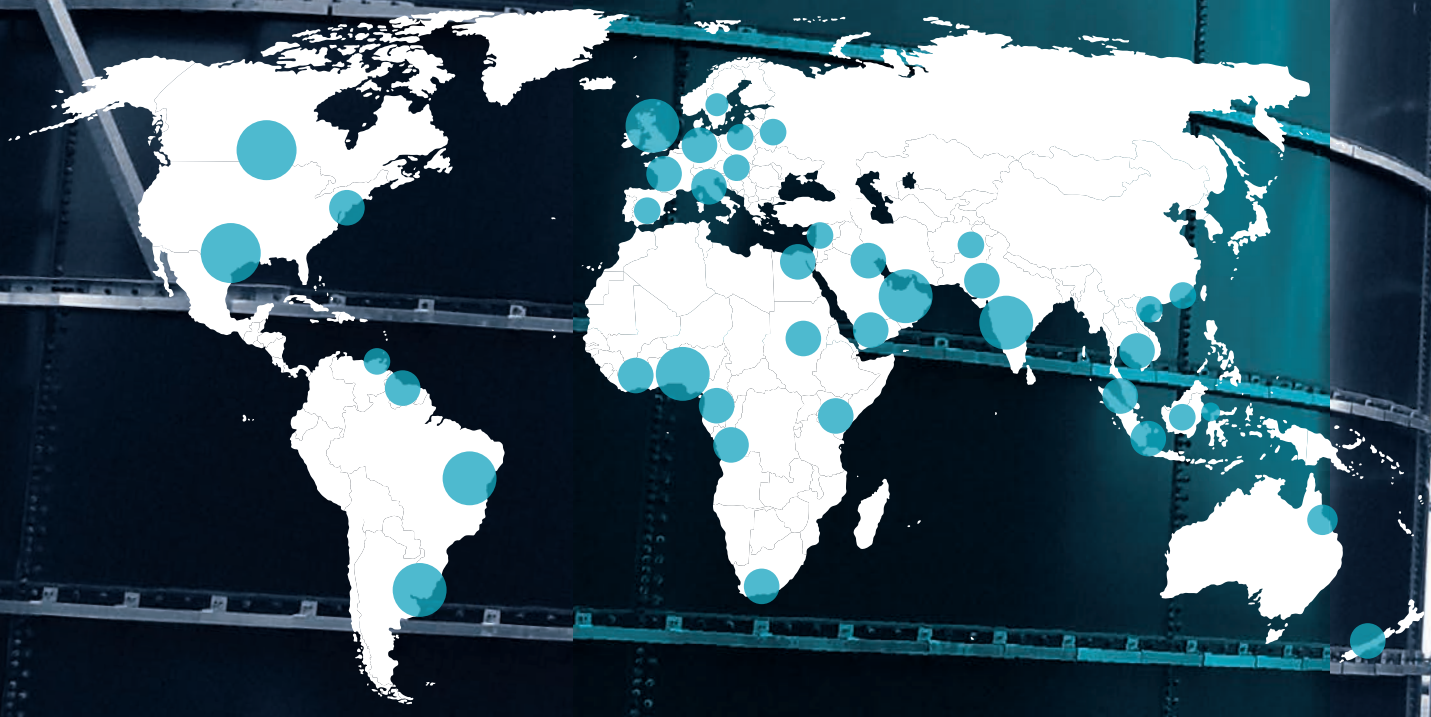
GLOBAL WATER, WASTEWATER AND PROCESSING STORAGE SOLUTIONS



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