

Detention Tanks

FRP Underground Wastewater Tanks / Pump Stations / Wetwells

Maskell have successfully supplied over 3,000 fibreglass underground storage tanks in New Zealand, Australia and the Pacific Islands.

The tanks are manufactured under license to Containment Solutions Inc, formerly Owens Corning Tanks, who have manufactured in excess of 250,000 tanks in the United States, dating back to 1964.

The tank technology is licensed worldwide, with manufacturers in over ten countries.

Tanks are used for safe containment of wastewater, petroleum products, potable water and industrial chemicals where longevity and the prevention of ground contamination are paramount.



Maskell manufacture standard, underground tanks from 1,000L to 110,000L and project specific tanks / pipe systems in greater capacities. Capacities for pipe configurations to 5m diameter, limited only by site size. Above ground storage tanks and bolted panel tanks are also manufactured for wastewater storage where burial is not suitable. Multiple tank configurations are also used to reduce cleaning requirements in small pump station overflows through serial high/low connection of several tanks.

Envirotank FRP Features

The significant advantages of Envirotank FRP Option include:

Benefits

- Smooth internal surface for ease of cleaning and prevention of fouling / growth
- Self-cleaning cylindrical shape with domed ends
- Spray system to ensure cleaning of tank without man access is available
- Similar tank depth/diameter to concrete unit to match existing hydraulic design
- Zero leakage tank solution with tank able to be vented safely
- Non-corroding fibreglass tank to ensure longevity in below water table situation
- Tank able to be installed in minimum time (>1 week) with minimum disruption to area
- Minimum burial depth using deadman anchoring available, or above ground tanks also available
- Tank suitable for containment of fuel spills, hydrogen sulphide vent gases and by-products and range of chemical environments

MASKELL PRODUCTIONS LIMITED

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Detention Tanks

Design Specification

Maskell have a detailed structural specification for our standard range of underground tanks, based upon the specification from our US technology licensor. The products design, safety factors and manufacturing are covered by this license. Pipe systems are designed on a project specific basis to meet burial requirements.

Tank Dimension/ Construction Details

Diameters :	1.2, 1.35, 1.5, 1.8, 2, 2.5, 3, 3.5, 4, 4.5 and 5m
Length :	To Capacity Specified
Capacity :	from 1,000L to volume required
Material :	E-glass / polyester laminate
Internal Surface :	Smooth Molded fibreglass finish
Construction :	Single wall tank with integral ribs
Technology :	CSI

Additional Items available

- Twin manway arrangement with std manway covers at grade
- Internal spray nozzle system for self cleaning of tank
- Tank FRP vent stack with rain cowl
- Inlet and outlet pipe fittings with flanged or spigot connections
- Ladders and ladder supports
- Submersible pump mounting brackets
- Internal pipework available in FRP/PVC/PE as required
- Interconnecting pipework as required between tanks

Backfill Materials/ Excavation

- Tanks may be backfilled with range of approved backfill materials – including crushed aggregate, river gravel and sand
- Prime backfill criteria is used to ensure suitable sidewall and haunch support for the tank

Details of standard backfill materials and alternative installation procedures are detailed in the installation information

Tank Anchoring

- Deadman anchoring system is provided by Maskell (for prevention of buoyant uplift of the tank) where the installing location is high water table or there is a potential for flooding of the tank.

Resin System/ Chemical Resistance

- High grade polyester resin which provide strong chemical resistance to acidic and alkaline wastewater streams, fuels and broad range of chemicals.
- Chemical resistance is superior to concrete tanks and the tanks are suitable for containment of H₂S and the resulting by-products.

Traffic loading

- Design is based upon H-20, 32,000 lb axle load. Suitable for full traffic loading.

Tank Special Fittings

- Inlet/outlet connections and other items may be provided to suit the clients required arrangement. Scope of supply may include traffic covers, in cast iron, aluminium or FRP, ladders, pump guide rails and other items as required.
- Maskell typically provide twin manway for tanks, one for access and a second for ventilation purposes. Dimensions and details can be to client requirements.

Site Fibreglass Jointing

- Jointing of tanks/pipe systems greater than 110kL capacity may be completed on site using one of the range of jointing systems offered by Maskell.
- Pipe systems may be provided with overwrap or bell-spigot jointing, using rubber o-rings or mechanical couplings.

Delivery Lead time

- 6 weeks from date of order – for manufacture and supply throughout Australia and New Zealand. Includes drawing preparation and approval

Maintenance & Repair

- No maintenance required on Envirotank underground storage tanks.

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Applicable Standards

Tank design and construction is in accordance with our US licensor, Containment Solutions, standards and tank and pipe products use the following codes:

- ASTM D4021-86: Glass Fibre Reinforced Polyester Underground Fuel Storage Tanks
- UL1316-87: Standard for Glass Fibre Reinforced Underground Storage Tanks
- AWWA C950: Standard for Fibreglass Pressure Pipe
- Australian Standards AS3571 and AS2566 for GRP / Flexible Pipelines

Maskell engineers undertake design work on site specific projects and third party review is utilised for design verification.



Quality Assurance

Tank Manufacture

Maskell Productions underground tank manufacturing is accredited to ISO9001, license QEC6641 with external auditing of both plants by Quality Assurance Services Ltd.

Further details regarding the quality assurance system are available upon request and the client is welcome to conduct a review of the Maskell QA system

Tank Installation

Maskell provide full installer training and accreditation and can provide engineer site attendance during installation for the client. Tank installation is the responsibility of the installation contractor however. Verification of the tank installation is achieved through installer training and use of an installation checklist which is completed by both the contractor and the client's representative.

Tank installation is typically a very short process involving 2-5 days for most tanks, including excavation and backfilling

Control & Testing

Suitability for Saline / Acidic Ground Conditions

- The standard tanks are suitable for direct burial on sites with saline groundwater and acidic or alkaline ground conditions, without further protection.
- Exterior, tank surface corrosion tests have been conducted using sulphuric acid, pH 3, and sodium carbonate, pH 10 solutions, to represent the range of potential ground conditions.

Maskell have proven case histories of sites installed directly adjacent to the ocean and in aggressive groundwater environments.

Tank Raw Materials / Manufacturing Process Control

- Fibreglass tanks and pipe systems are all manufactured using PLC / computer controlled machinery. Refer company profile for list of major plant and machinery. Processes utilised by Maskell include filament winding and the OC/Veroc underground tank manufacture process.
- All stages of production manufacture are controlled by an extensive QA system, which includes in process controls. Refer Maskell quality policy / QA manuals for further details.
- Raw materials utilised are all approved for use by our US licensors and are controlled by in-house procurement procedures. Batch number and raw materials inspection are completed as part of the QA process. Refer QA manual for further details.

Manufacturing process control is detailed in our process manual.

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