



# Aqua-Tank

The Concrete Solution





## SAFE EFFECTIVE CONTAINMENT

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Aqua-Tank provides a safe, cost effective method of containment with numerous applications within the Water, Waste and Industrial sectors. Guaranteed factory controlled quality combined with a robust structure along with tried and tested design

principals, offer life expectancy previously only achieved with cast in-situ installations. A-Consult are the market leaders in the Design, Manufacture and Installation of Precast Concrete Storage Tanks.

### Adaptable Product Range

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Extensive design and construction experience in varied sectors:

- Waste & Water Treatment
- Food Processing
- Biogas and Alternative Energies
- Pharmaceutical
- Fish Farming
- Agricultural
- Ministry of Defence
- Mining
- Petrochemical

### Benefits of Aqua Tank

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Cost effective construction

- *Off-site manufacture, fast track installation;*

Rugged construction

- *resulting in 40-60 years design life;*

Guaranteed Quality

- *manufactured under factory conditions;*

Construction programmes reduced

- *fast track installation carried out in virtually any weather conditions;*

Above or belowground installation;

Minimum maintenance;

Optimum storage capabilities

- *ranging from 50m<sup>3</sup> to 12,500m<sup>3</sup>;*

Over 20 years product development;

Kit form construction

- *allows dismantling and re-siting in future;*

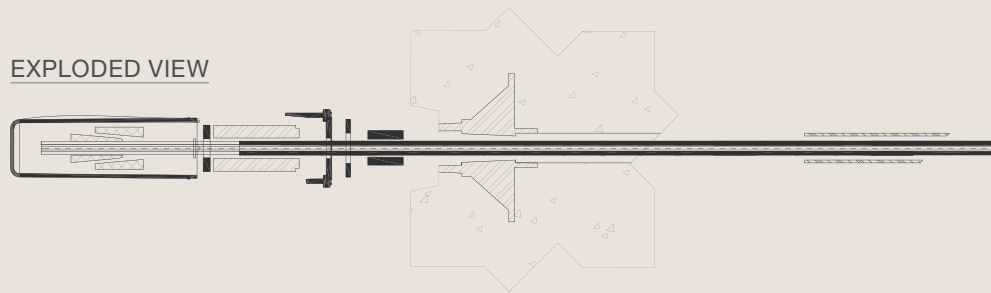
Health and Safety

- *standardised construction methods.*



Post-tensioned precast tanks have been a commercially viable alternative to in-situ concrete structures for over 30 years. During this time A-Consult have been at the forefront of product development, being amongst the first to locate the post tensioning tendons within the precast panel and responsible for developing the no maintenance EPDM rubber jointing gasket. The latest development offered by A-Consult is the 'Extracted Anchor Arrangement'.

The benefits of incorporating the extracted anchor arrangement in our structures result in PE-sheeting protected tendon fully encapsulated within the ducting system; maximum possible protection to the post tensioning tendons; easy access for inspection.



## PRODUCT DEVELOPMENT

### Hidden Strength

The Aqua-Tank is constructed using high specification concrete panels held together by a series of circumferential 7 wire PE-sheeted grease impregnated tendons. The tendon is coated in a highly corrosion-resistant grease conforming to the recommendations of both the American Post Tensioning Institute and the FIB. The PE-sheeting is formed by the continuous hot extrusion of high density polyethylene or polypropylene to a minimum radial thickness of between 1.00mm and 2.00mm, again conforming to recommendations of both the American Post Tensioning Institute and the FIB.



### Panel Seal

The Aqua-Tank panel seal is unique due to the use of a patented, WRAS approved, substantial EPDM Rubber strip, which absorbs the movement to which every tank is subjected; e.g. seasonal weather changes, variation in liquid level and external pressure from back-fill.

Its elasticity is resistant to ammonia and ultra violet light, and with a life expectancy in excess of the concrete panels themselves results in no maintenance on this area for the structure's total design life.



### Panel to Base Seal

The panel to base seal is typically performed by applying a rebate solution to the base slab. The A-Consult panels can be provided with dowel bars if required. Below shows a typical ring beam section showing how an effective seal is achieved by utilising the step in the base slab along with the correct placement of three strips of hydrotite.

Additional security can be achieved during the construction of the in-situ ring beam by forming a small rebate to the inside face and then by filling this rebate with an elastic polyurethane sealant after the ring beam has cured.





## GROUND BREAKING CONSTRUCTION

Recent projects undertaken have resulted in the design, manufacture and installation being carried out to exacting standards. A-Consult is proud to have been suppliers of groundbreaking structures on a Yorkshire Water project at Knostrop STW in Leeds.

Working with two of Yorkshire Water's AMP4 partners the following structures were designed, manufactured and installed meeting an extremely tight construction programme, whilst ensuring target costs were achieved.

Using pre-stressed concrete panels, tanks of 25m diameter and wall heights of 12m were installed within a 5 day period, tolerances achieved during construction allowed GRP roofs to be pre manufactured and fully constructed on site to allow immediate fitting after tank erection.

Completing these projects highlights the flexibility of the A-Consult range and demonstrates an ability to design and construct precast concrete tanks to new heights.

2 No. Sludge Tanks

25.33m Nominal Internal Diameter  
— Wall Height 11.90m

3 No. Sludge Tanks

21.62m Nominal Internal Diameter  
— Wall Height 12.00m

2 No. SAS Tanks

23.32m Nominal Internal Diameter  
— Wall Height 12.00m

3 No. Final Settlement Tanks

40.16m Nominal Internal Diameter  
— Wall Height 3.60m integrated coping for ½ bridge





## DESIGN PROCESS

With our in-house Civil Design Department, headed up by a Chartered Civil Engineer, A-Consult offer professional advice regarding construction methodology. This invariably results in commercial savings through design development, whilst ensuring product performance is maximised.

The Aqua-Tank precast concrete tank systems are designed in accordance with BS8007 (1987) 'Design of Concrete Structures for Retaining Aqueous Liquids' and in accordance with other British Standards referred to therein, notably BS8110 'Structural use of Concrete'.

Design to other recognised standards can also be facilitated.

Through working closely with our Clients and their Consultants, the full potential of the A-Consult precast concrete tank can then be realised. Pre formed apertures in the concrete panel to facilitate pipe work entry, complex decant arrangements, mixer entry points and man way access, casting in of sockets and channel to allow the fixing of launder channel, scum boxes, weirs, external walkways and platforms can be attached and supported by the panels.

Tanks can be provided with integrated runway beams, either cast onto the panels during manufacture or separate runway beams can be post fixed after tank installation.

Both systems have been designed to support and run either ½ or full bridge scraper.



