



AD & Biogas

THE CONCRETE SOLUTION





AD TANK SOLUTIONS from A•Consult

A•Consult precast concrete tanks are the most efficient and commercially beneficial way to construct your AD plant tank requirements. Our high-quality, robust tanks can be used for primary/secondary digesters, digestate storage and mixer/reception tanks.

Operating across Europe, A-Consult has 25 years of experience installing over 8,000 precast concrete tanks. Manufactured under factory controlled conditions, A-Consult offer a product constructed from high strength concrete panels and being precast, installation is speedy and generally unhampered by inclement weather conditions, a real consideration for meeting tight programme dates.

Our digester tank range features diameters from 5m to 50m, with tank heights ranging from 3m to 12m increasing wall heights of 100mm increments. Cast in items such as sockets, flanges and man ways can be facilitated in a factory using during panel construction, this can greatly assist with the post fixing of pipework, mixers, feeders and gas tight roofs, resulting in programme and cost reduction for on-site working. Gas tight precast concrete roofs can be offered as an alternative to standard double membrane gas tight domes, non gas tight roofs are also available for digestate storage.

Digestate storage tank diameters range from 8m to 50m and can be easily converted into digester tanks at a later date should you wish to increase the capacity of your plant.

A•Consult tanks offer:

High quality — Pre-manufactured in a factory controlled environment. Designed to crack widths of 0.1mm and improvement over traditionally poured in-situ structures offering crack widths of 0.2mm.

Robust construction — Available as above and below ground installation.

50 year design life — Compliant with British Standards and current Eurocodes design standards.

Rapid construction and installation — The shortest construction time available within the industry. Kit form construction methods ensure safe and fast on-site installations.

Flexible design — Wall heights ranging from 2m to 12m with diameters from 4m to > 50m. Pre-formed apertures to accommodate pipe work, mixer entries, gas outlets and pressure relief valves.





AVAILABLE ROOF TYPES

The diversity offered by a range of Biogas service providers means it is crucial A•Consult to develop its precast concrete tank system to allow the different types of roof installation required by various process techniques.

Precast Concrete Roof — GAS TIGHT & NON GAS TIGHT

- Cheesecake or half moon segments.
- Available as pre-insulated unit.
- PE-Lined for concrete protection in the gasification zone.
- Robust construction allows pre-formed openings to support mixers, access hatch and pressure release plates.
- Service openings and man way access are a few options made available on this extremely flexible roof solution.

Foil Fabric Single Membrane — NON GAS TIGHT

- Reduces emissions of both gas and odour.
- Available in Grey or Green.
- Openings available to allow over the top mixing.
- Robust construction using UV resistant reinforced foil.

Foil Fabric Double Membrane — GAS TIGHT

- Manufactured from biaxial reinforced fabrics with a high grade chemically resistant PVC coating.
- Operational pressures varying from 0 to 5mbar, higher pressures can be accommodated.
- Supplied with desulphurisation netting (netting strength 400kg/m²).
- Offering maximum levels of gas storage with domes available to accommodate tank structures up to 40m diameter.
- Service openings available upon request.
- Available in Quarter Dome option, offering all the benefits of a standard double membrane roof but with a lower dome height to assist with potential planning restrictions.



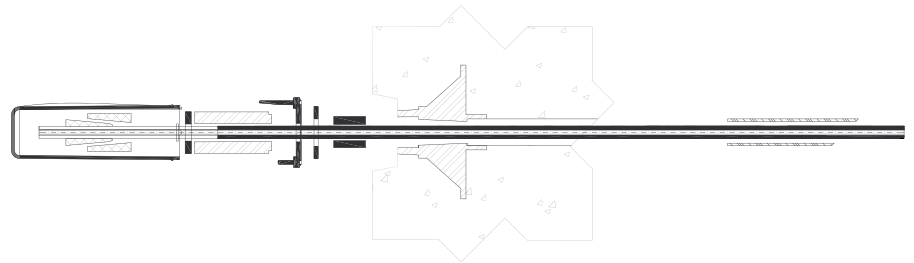


Post-tensioned precast tanks have been a commercially viable alternative to in-situ concrete structures for over 30 years. During this time A-Consult have been at the forefront of product development, being amongst the first to locate the post tensioning tendons within the precast panel and responsible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

The 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.

Exploded View

Cross-section diagram showing the latest development offered by A-Consult: the 'Extracted Anchor Arrangement'.



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 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 base seal is typically formed by casting both an internal and external concrete ring beam. Waterbar is cast into the tank base along with the foot of all precast concrete tank wall units. Below shows the in-situ cast in water bar around the full circumference of the tank base.

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.





ANCILLARIES & FEATURES

Service Box

- In case of maintenance, the mixers can be removed from fermenters in one piece without opening of the membrane roof, without lowering the liquid level inside the tank and without needing to de-commission the digester.
- Avoids gas losses, providing a perfect combination, protecting the environment along with ensuring safe operation and increasing efficiency.
- Quick access and easy maintenance while complying with health & safety standards.
- Larger maintenance openings allow for the installation and removal of mixers blades of diameters up to 1.50m.
- Robust Over/Underpressure Valves - Underpressure 1 to 3 mbar (100 - 300 Pa).
- Overpressure 1 to 8 mbar (100 - 800 Pa).
- Frost-proof pressure valve in the service-Box
- Easy maintenance / cleaning by a large opening with window.
- Further reduction of methane emissions.

Apertures through tank walls

- Openings can be formed through the tank walls to allow fitting of mixers, pipework, pressure release valves & sight glasses.

PE-Liner

- Easily cast into the precast wall units to provide life-long protection to the concrete surfaces in the gasification zones.
- Underside of concrete roof's and full internal surfaces of gas tight structures can be protected from concrete corrosion in the gasification zones.
- PE-Liner is cast into each individual wall panel and after tank installation all joints are extrude welded to achieve both a water tight and gas tight seal.





Contact A•Consult —

With projects under construction all year round please contact us to arrange a site visit to learn more about the most efficient and commercially beneficial way to construct your AD plant tank requirements.



A•CONSULT LTD

The Barn, Manor Business Park
East Drayton, Retford DN22 0LG

T.+44 (0)1777 249444
F.+44 (0)1777 248452
www.aconsult.co.uk
info@aconsult.co.uk



A•CONSULT AGRO A/S

Fabriksvej 8, V. Lyby
7800 Skive, Denmark

T.+45 96 87 58 00
F.+45 96 87 58 58
www.aconsult.dk
info@aconsult.dk



A•CONSULT GMBH

Werner-von-Siemens-Str. 8
24837 Schleswig, Germany

T.+49 (0) 46 21 85 50 94 0
F.+49 (0) 46 21 85 50 94 20
www.a-consult-gmbh.de
a-consult@online.de