

MARKET LEADING

# BIOSPHERE

GAS HOLDERS

Flexible membrane biogas management systems



A J Tensile  
**Biogas** Systems

# BIOGAS

- *World-leading BioSphere gasholders and digester membrane roofs*
- *Totally in-house design and fabrication*
- *Unique design*
- *World-class anaerobic design skills and knowledge*
- *The biogas storage membrane solution of choice by the engineering profession*



*“A crucial part of the biogas production process is the ability to safely and securely store and control the biogas. This is why the gasholder is a critical item of process requirement”*

The anaerobic digestion (AD) process is a remarkable one, generating an energetic fuel, biogas, from the decomposition of organic material. The AD process has traditionally been mainly used to reduce odours and to stabilise volatile sludges and wastes, but very often the biogas by-product was being burnt in a gas burner to no useful purpose.

As early as 1895, a few street lights in Exeter in the UK were fuelled using biogas from sewage sludge, but the concept of using the gas as a

useful source of energy is much more recent. Now, in the twenty-first century, there are many hundreds of farm-based AD plants in Europe and around the world, as well as AD plants for domestic sludge treatment, and the use of biogas as a source of power for electricity generation is becoming increasingly the method of choice for these organizations.



# BIOSPHERE

EXCEEDING INDUSTRY STANDARDS



*“Our market-leading BioSphere gas holder is available in either slab-mounted or tank-top format.”*

The slab-mounted gas holder is commonly used where existing digesters are producing gas with no remediation required, whereas the tank-top gas holder is the perfect replacement for old steel roofs, or as a durable and extremely economical roof for new anaerobic digestion systems. We can provide any size in any proportions up to 25,000 cubic metre capacity, and, in the case of a tank-top holder, over 45 metres in diameter. Every project is designed and fabricated on a bespoke basis to suit the project parameters, and no size is too small – we have provided sizes down to 10 cubic metres.

The implication of this is that our customers, knowing the exact constraints and requirements they face on a particular site, can determine their optimum requirements, and our designers will then create a geometric and perfectly engineered solution for that particular location and purpose.

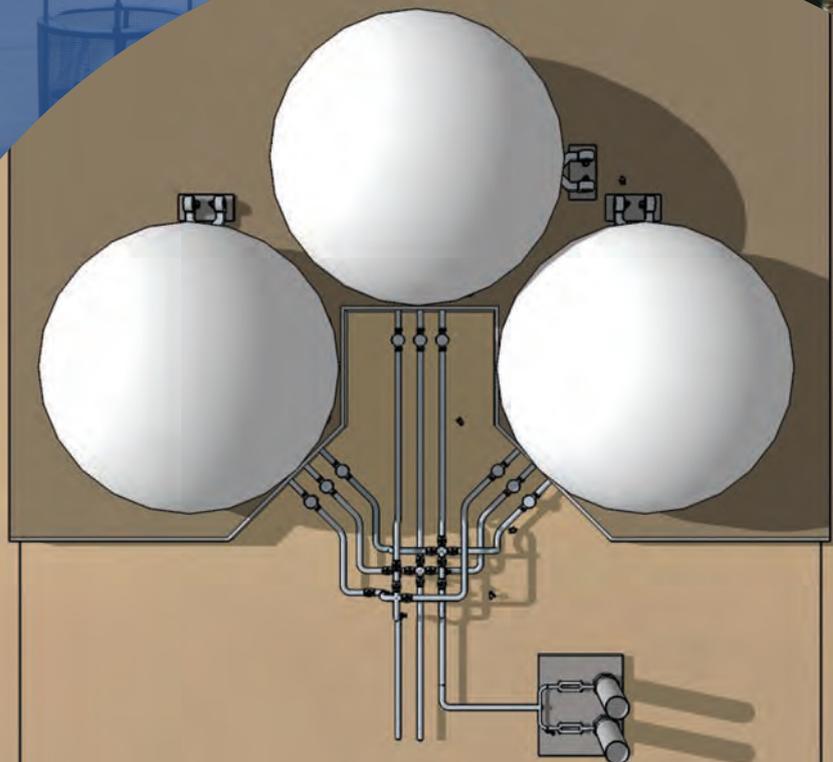


**BioSphere**

We can work with pressures up to 80mbar (and in certain circumstances 100mbar), and can provide single, double or triple membrane solutions. However, the normal preference is for double-membrane designs, as these provide the most effective overall solution to the storage and handling of biogas.

We can provide a wide range of forms including doughnuts, ellipsoidal domes, cylinders, 'shed-shaped' gas holders and truncated structures.

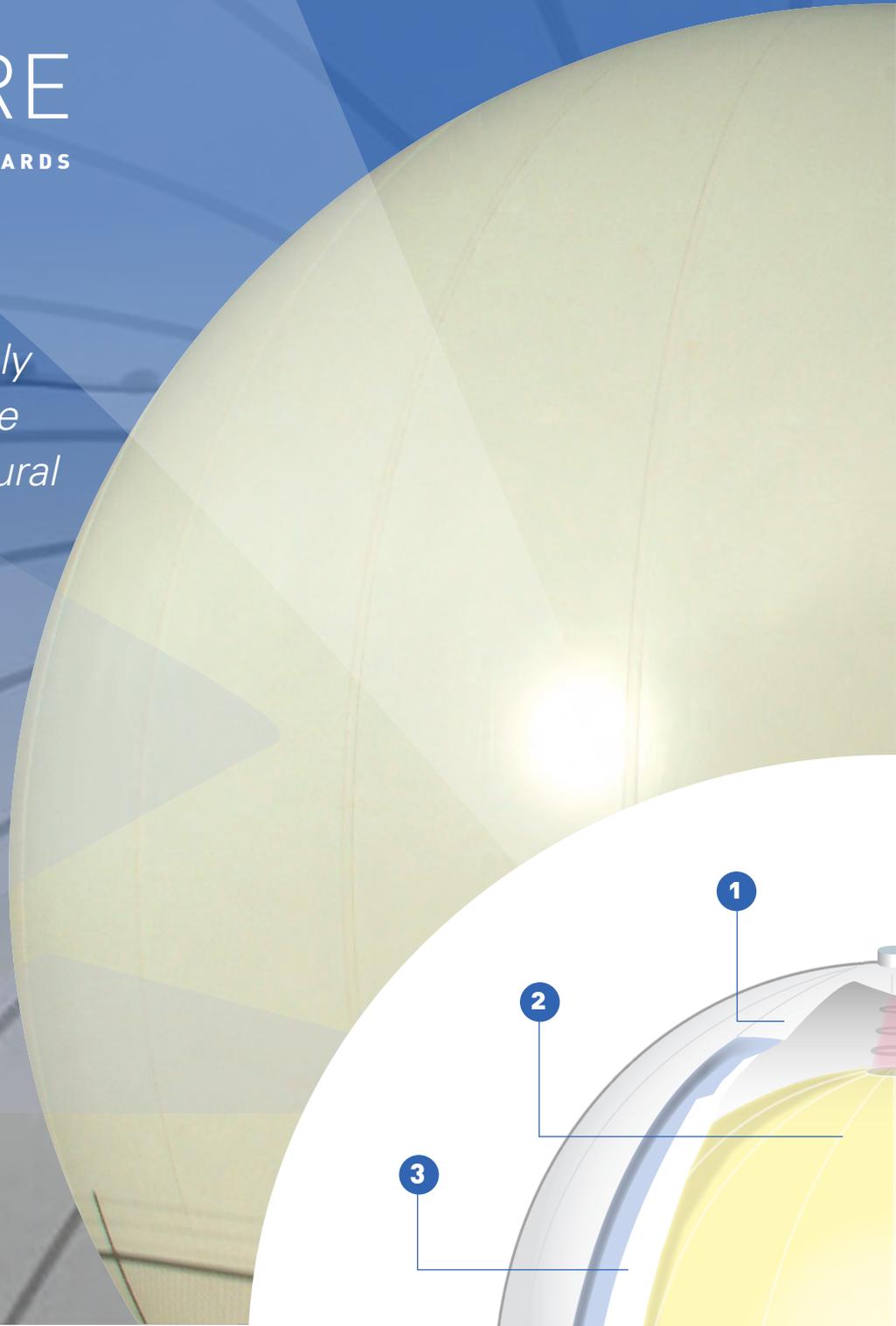
A cube would provide a challenge, but we can normally accommodate almost every other geometric shape that can provide a tensioned structure.



# BIOSPHERE

EXCEEDING INDUSTRY STANDARDS

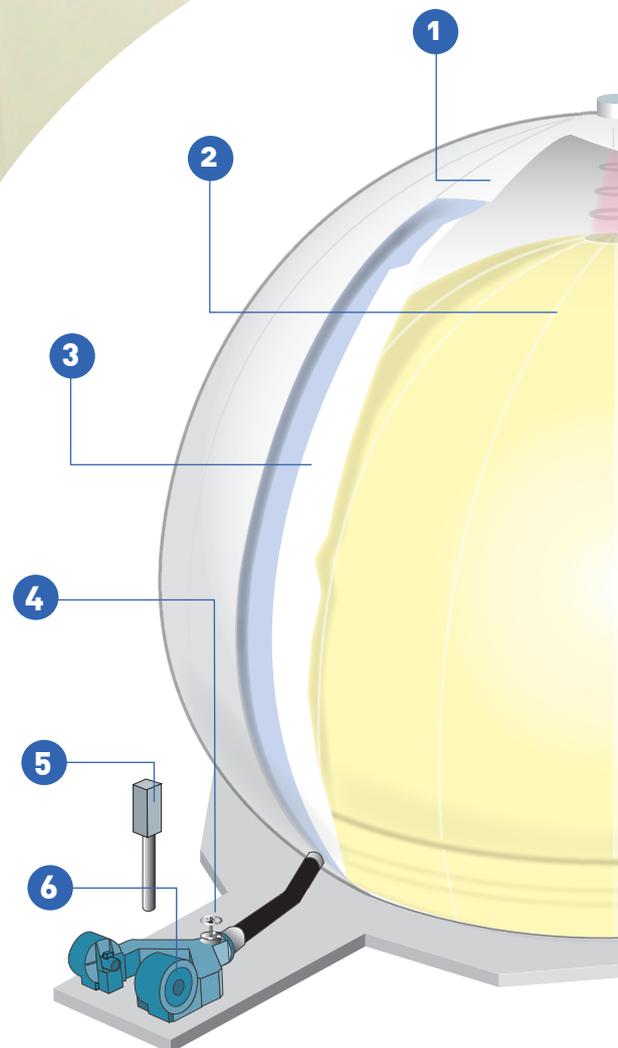
“Our gas storage systems are exclusively manufactured from the most advanced structural fabrics available and designed for every climatic condition”



Every gasholder is designed to the same exacting engineering standards and is the safest and most operator-friendly flexible membrane gasholder design possible.

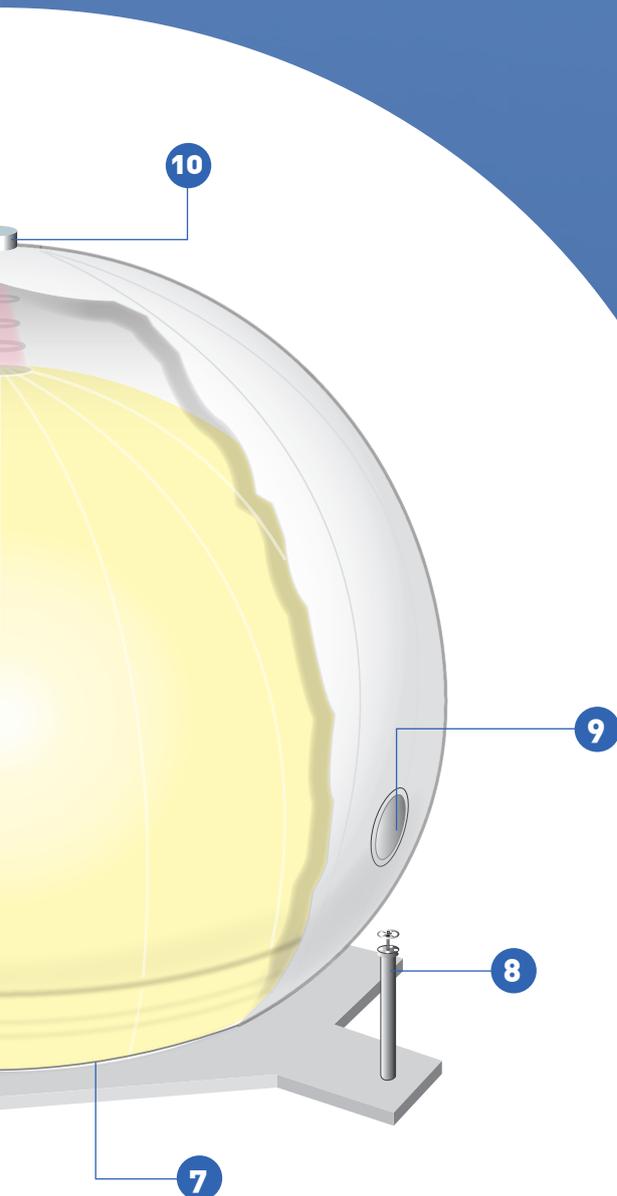
All our gasholders include a sealed inner gas-containing membrane, which is tested before it leaves our factory. Thus, with our design, we avoid vulnerable site-formed seals.

1. Outer membrane
2. Inner membrane
3. Air flow system
4. Air regulation valve
5. Gas detector
6. Support air blower
7. Anchor ring
8. Safety valve
9. Inspection window
10. Level measurement transducer



AJT Biogas Systems gasholders cost less than a third of the price of a typical steel gasholder of the same capacity. These gasholders are increasingly becoming the normal method of containing and handling biogas.

Our gas storage systems are exclusively manufactured in the UK from advanced structural fabrics, and no metals are used, except for the anchorage connecting the membranes to a concrete foundation slab.

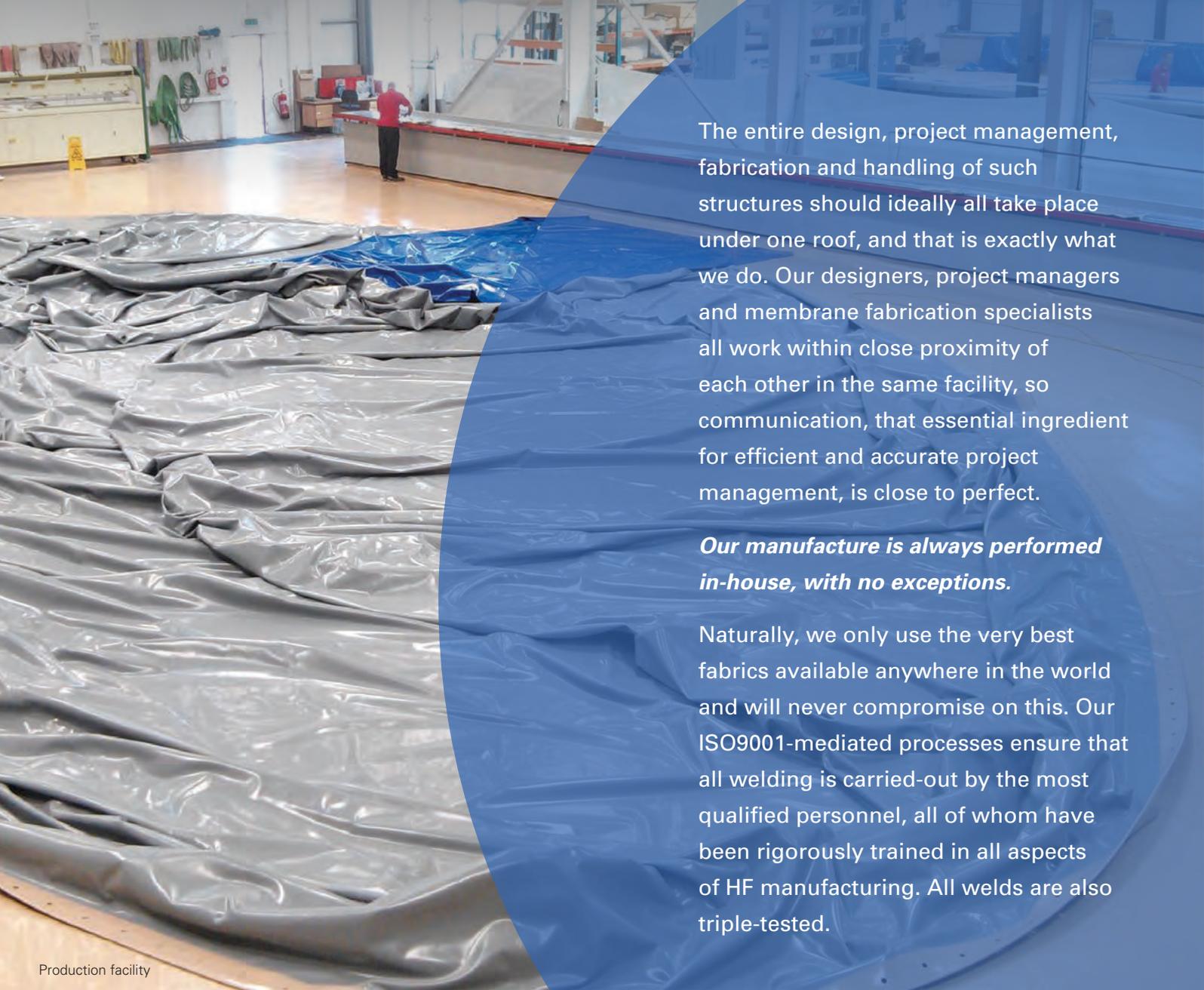


The gasholders are provided with inflation fans and full instrumentation to measure and control the storage process.

Unlike steel, the membranes are totally resistant to the acids inevitably formed during the biogas production process in the anaerobic digesters.

# DESIGN

AND MANUFACTURING

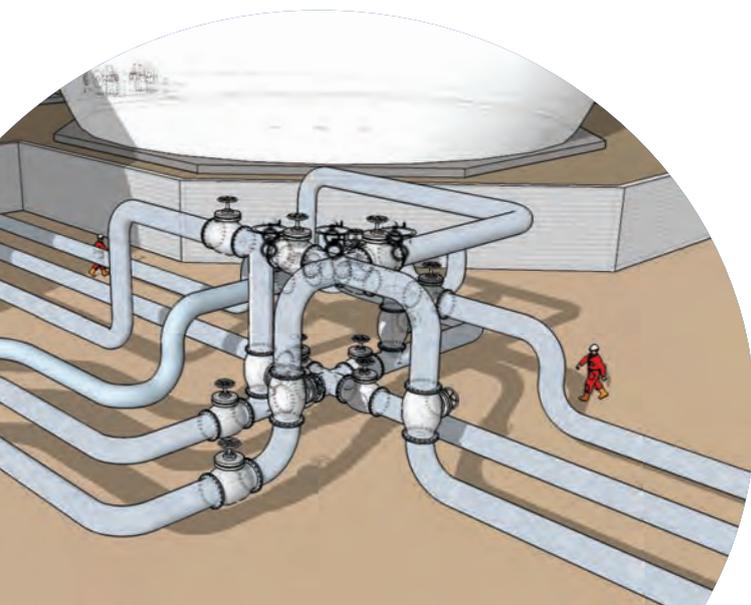


Production facility

The entire design, project management, fabrication and handling of such structures should ideally all take place under one roof, and that is exactly what we do. Our designers, project managers and membrane fabrication specialists all work within close proximity of each other in the same facility, so communication, that essential ingredient for efficient and accurate project management, is close to perfect.

***Our manufacture is always performed in-house, with no exceptions.***

Naturally, we only use the very best fabrics available anywhere in the world and will never compromise on this. Our ISO9001-mediated processes ensure that all welding is carried-out by the most qualified personnel, all of whom have been rigorously trained in all aspects of HF manufacturing. All welds are also triple-tested.



One of the matters on which we are most particular is the all-important inner membrane. In the case of the slab-mounted gas holder, for example, our engineers originated the concept of an 'all-in-one' membrane, in which the entire inner membrane is manufactured in one piece in our factory. There are NO site-made joints.

This is of crucial importance, as the use of 'bottom' sheet and upper dome separate membranes implies a site-made joint in this crucial gas-holding membrane, and this would never pass our rigorous standards of integrity.

ON-SITE

# INSTALLATION



When it comes to on-site installation, we have highly qualified personnel who have many years of combined experience in installing these gas holders. They are all Confined Space trained and suitably certified.

Furthermore, the lead engineers in our company are not just biogas handling experts: our Managing Director, for example, has over a quarter of a century of experience in the overall provision of anaerobic digestion schemes, and he and his team are instinctively aware of the exact role and importance that biogas handling has in the overall AD scheme.

At AJ Tensile Biogas Systems we offer our clients peace of mind with a one-stop solution all under one roof, enabling us to remain in complete control of the whole process from initial enquiry right through to delivery and installation of the finished structure on site.

We welcome visitors to our facility at any time, where we would be delighted to introduce you to our team and demonstrate our skill and expertise in the field of anaerobic digestion systems.



**A J Tensile**  
**Biogas Systems**



Specialists in the Cutting and Welding of PVC and PTFE Fabrics

## THE AJ TENSILE GROUP

AJ Tensile Biogas is just one division of the AJ Tensile Group of companies. The group has extensive experience in the cutting and welding of PVC and PTFE fabrics and the design and construction of all types of tensile structures.



ISO9001  
CERTIFIED



Tensile Fabric Canopies, Roofs and Structures



Biogas Storage Vessels and Industrial Covers

**AJ TENSILE  
MANUFACTURING  
IS A SPECIALIST  
INDUSTRIAL  
MANUFACTURER  
OFFERING A  
COMPREHENSIVE  
RANGE OF  
SERVICES TO  
ALL AREAS OF  
THE WORLDWIDE  
TENSILE FABRIC  
INDUSTRY.**



Staging, Event and Marquee Cover



Banner Finishing and Building Wraps

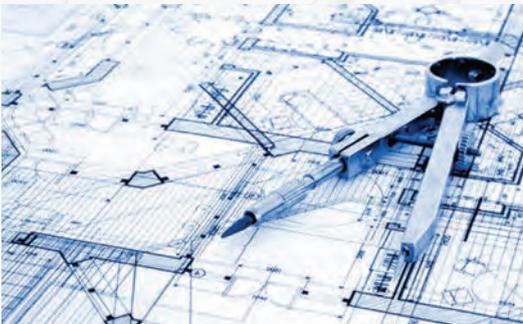


Contract Cutting, Welding and Repairs



**A J Tensile  
TENSION STRUCTURES**

Specialists in the Design and Manufacture of PVC and PTFE Tensile Fabric Structures



Tension Structures  
Design



Tension Structures  
Engineering



Tension Structures  
Project Management



Tension Structures  
Fabrication



Tension Structures  
Installation



Tension Structures  
Maintenance and Repairs

**AJ TENSILE  
TENSION  
STRUCTURES  
IS A SPECIALIST  
DESIGNER,  
MANUFACTURER  
AND INSTALLER  
OF BESPOKE  
TENSILE FABRIC  
STRUCTURES  
AROUND THE  
WORLD.**





**A J Tensile Biogas Systems**

4 Castle Way  
Severnbridge Industrial Estate  
Portskewett  
Monmouthshire  
NP26 5PR  
United Kingdom

Tel: +44(0)1291 425099

Fax: +44(0)1291 427290

[www.ajtensile.co.uk](http://www.ajtensile.co.uk)