

ATECO TANK TECHNOLOGY COMPANY

**GLOBAL
SOLUTIONS
STORAGE
TANKAGE
EQUIPMENT**





www.ecosealthailand.com



INTRODUCTION TO ATECO

Aluminium Geodesic Dome Roof

Aluminium Internal Floating Roof

Pontoon – Full Contact

Primary and Secondary Seal Systems

Pantograph – Pusher Plate – Double Compression Plate – Foam – Liquid Tube

Secondary Seal – Foam Dam

Roof Drain Systems - Floating Suction & Skimmer Units

Earthing Rewinder System

RES 2000

Tank Equipment

*Pressure Vacuum Vent - Gauge Hatch – Emergency Vents – Rim Vents – Manhole Covers Free Vents – Flame Arresters
Vacuum Vents – Pressure Vents – Fire Protection System*

Inspection and Supervision Services

Certification

Contact Details

Ecoseal Co.,Ltd.

Website :www.ecosealthailand.com



Ateco specialise in the design and manufacture of storage tankage equipment for above ground vertical storage tanks.

All our Ateco Storage Tankage Products are manufactured at our facilities in Turkey; we do not outsource manufacturing and all material is sourced from within Europe.



We have been in business for more than 30 years, our commitment to excellence has not changed and that is why we can claim to be the supplier of choice for most of the international oil refinery and terminal operating companies.

Ateco is a privately owned company, employing over 100 people at our Head Office and Manufacturing Plants in Turkey and our Sales and Marketing Office in the UK. We have an extensive worldwide network of agents and distributors who will provide you with expert knowledge of and customer support for Ateco products that are designed to provide the lowest total owning and operating life cycle costs.

You will find that Ateco stands for:

- Reliability
- Quality
- Efficiency
- Value for money

by delivering

- Competitive
- Quality products
- Services
- Solutions



We are sure you will consider Ateco to be the best in the business, quality is the bedrock of our business - we are an ISO 9001 Company - and lead the storage tankage equipment market with innovative technology and a very simple Quality Philosophy:-

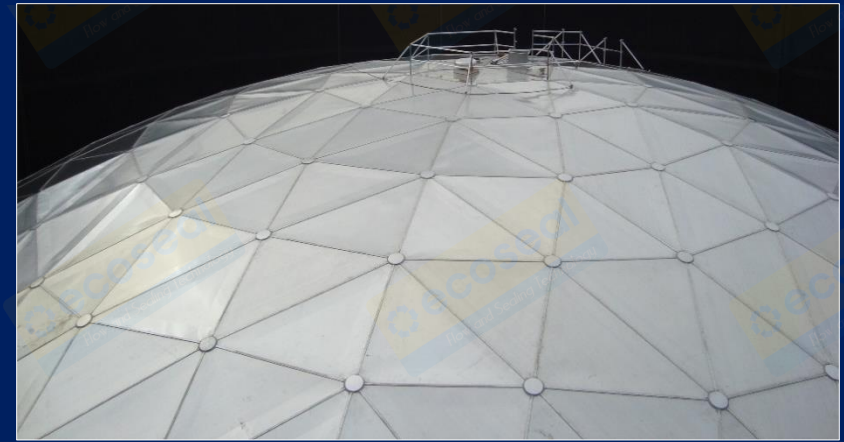
GET IT RIGHT FIRST TIME



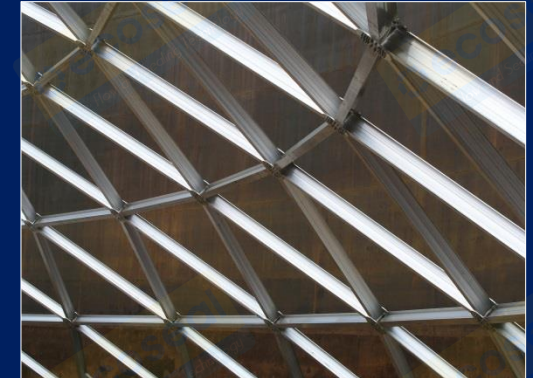
ATECO
ALUMINIUM
GEODESIC
DOME
ROOF



Aluminium (more specifically an aluminium alloy) is one of the world's most commonly used metals. Its lightness coupled with its strength, and excellent corrosion resistance are the main reasons for it being used in the design of the aluminium geodesic dome roof and this non corrosive property means that the aluminium geodesic dome roof can be used on tanks used to store most products.



The aluminium geodesic dome roof is a system of triangular, lightweight extruded profiles, normally from the 6000 series, that act in compressive and tensile force to resist loading. The profiles are connected through node points and this configuration works together transmitting loads laterally to the integral tension ring and then through sliding or fixed ring supports to the tank shell and tank foundation. The framework is then covered with a minimum; usually from the 3000 or 5000 series, H16 Tempered 1.2 mm thick aluminium sheeting.



Because of the corrosion resistance of aluminium alloys the aluminium geodesic dome roof does not require painting – EVER, and can therefore be considered as maintenance free in this respect for the entire lifetime of the tank.



The **Ateco Aluminium Geodesic Dome Roof** is an all bolted structure and no welding is required at site for its assembly and erection, it fully complies with the requirements of API 650 Appendix G.

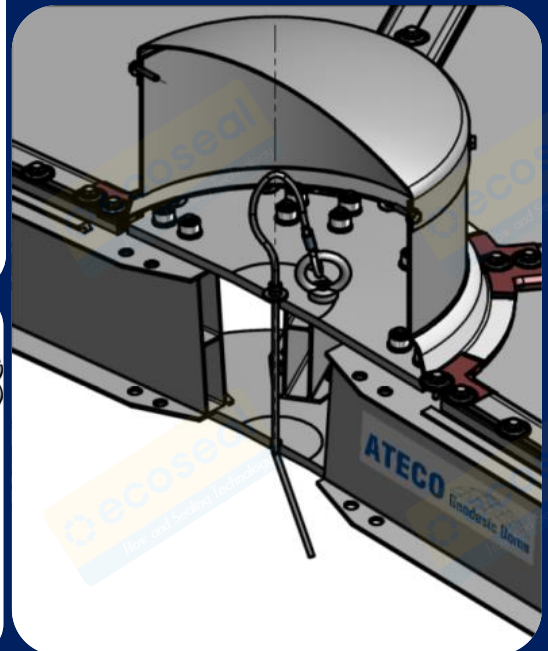
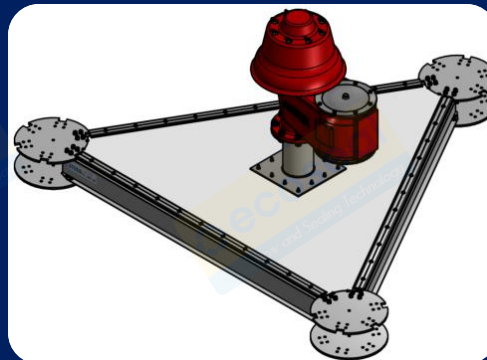
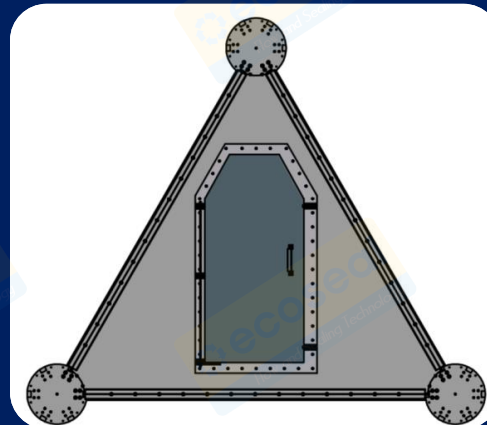
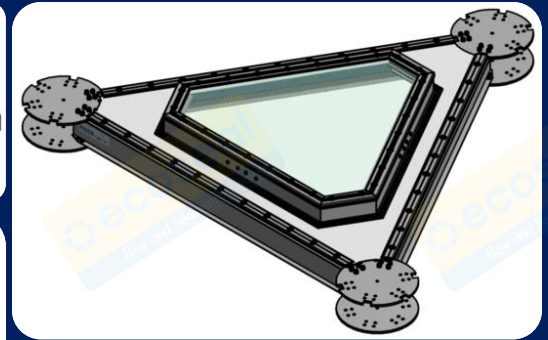
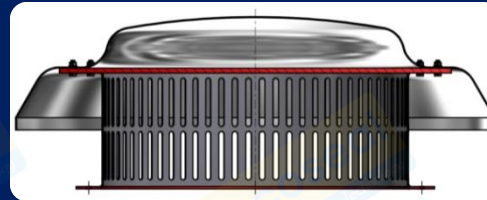
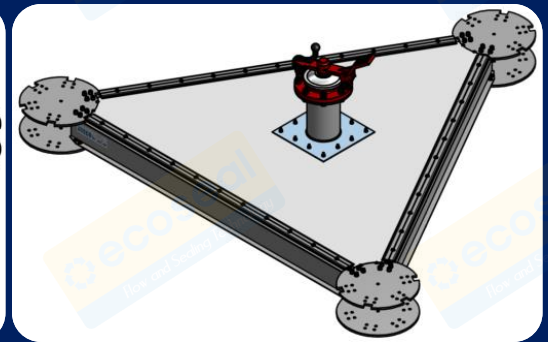
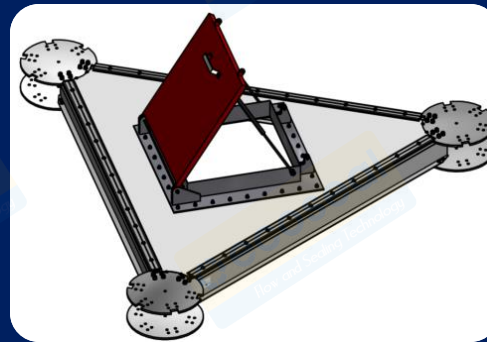
We normally offer the following features in our standard design:

- Gauge Hatch Assembly
- Access/Manway Assembly
- Centre Free Vent Assembly
- Skylight Assembly
- Free vented design with Sliding Supports
- Bird Screen

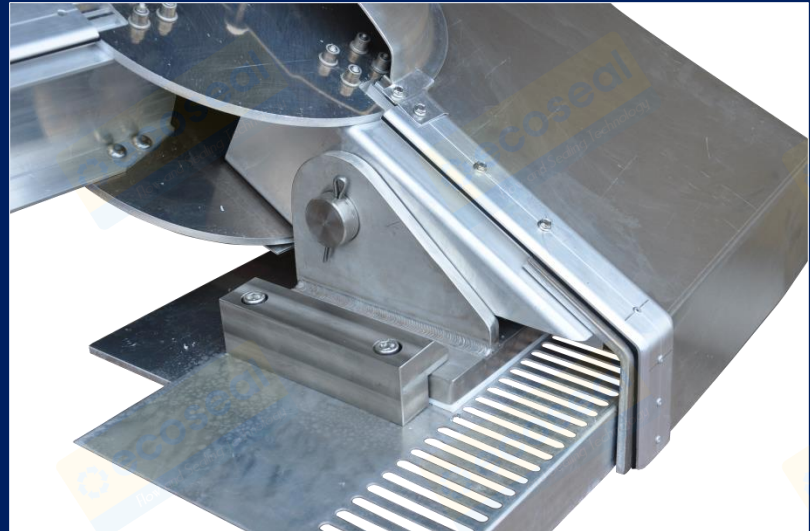
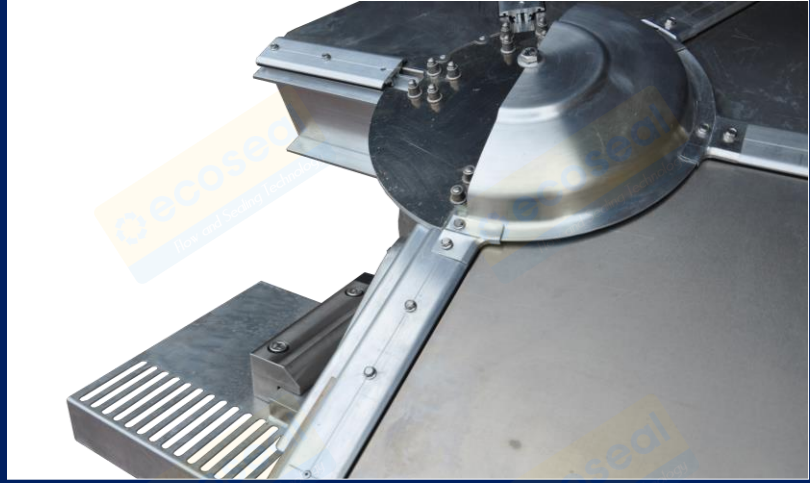
The **Ateco Aluminium Geodesic Dome Roof** can be assembled inside the tank and lifted into its final position with either a system of pulley blocks or a crane. If using the "jacking method" to erect the tank, the Ateco Aluminium Geodesic Dome Roof is fitted on the top course and jacked up with the shell.

Essentially any equipment that you have on a conventional steel dome or cone roof tank can be fitted on the **Ateco Aluminium Geodesic Dome Roof** and without any significant modification to the equipment or the roof.

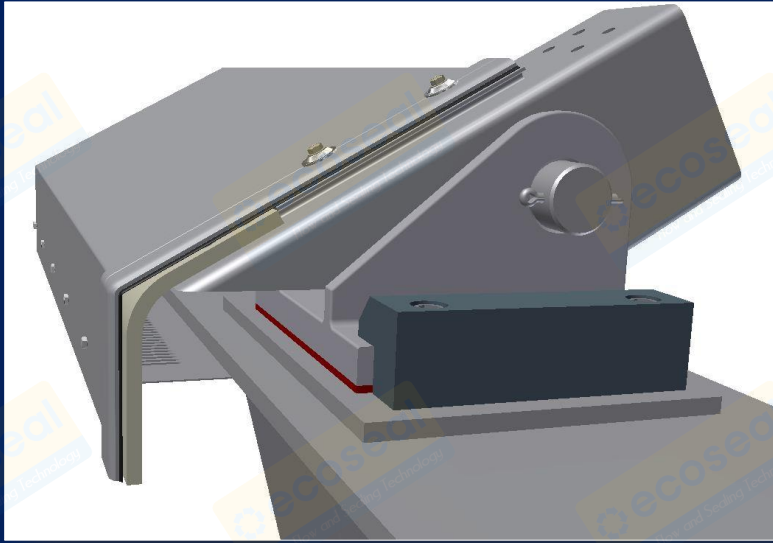
The **Ateco Aluminium Geodesic Dome Roof** is normally designed with a maximum radius equal to 1.2 times the tank diameter and the minimum is 0.7 times the tank diameter, this equates to the ratio of dome height to tank diameter of about 1:6.



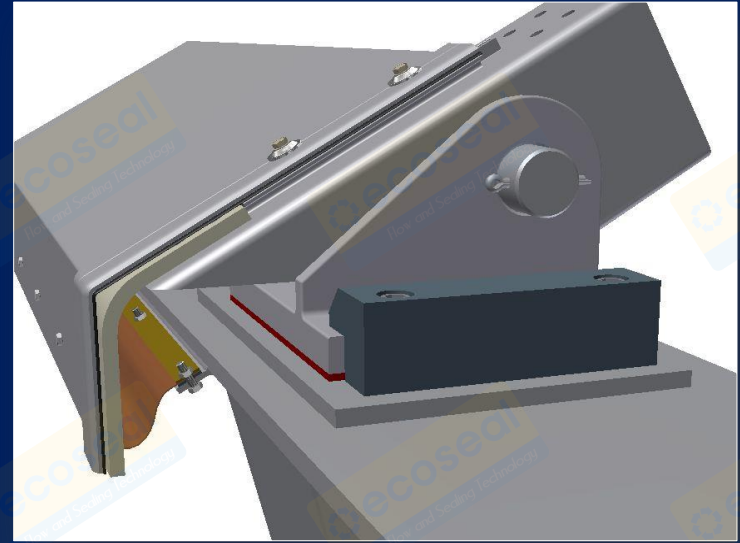
If specified the **Ateco Aluminium Geodesic Dome Roof** can be designed to support an aluminium internal floating roof.



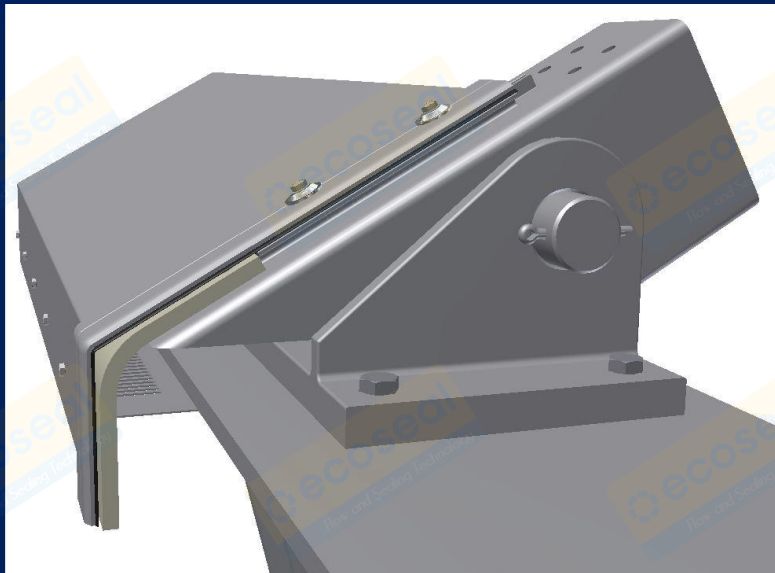
DOME SUPPORTS



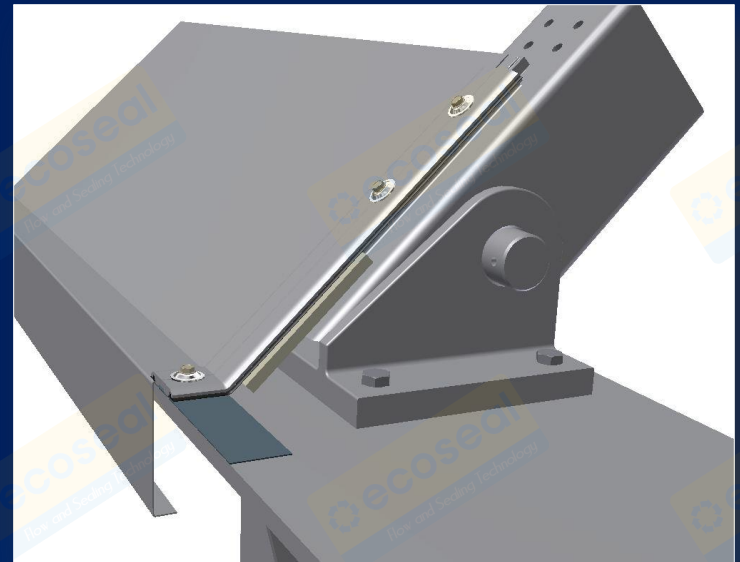
SLIDING SUPPORT - FREE VENTED



SLIDING SUPPORT - VAPOUR TIGHT



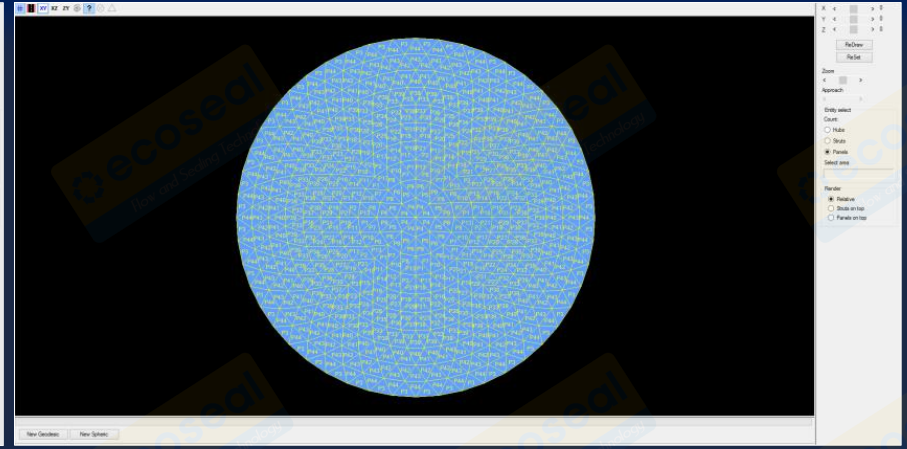
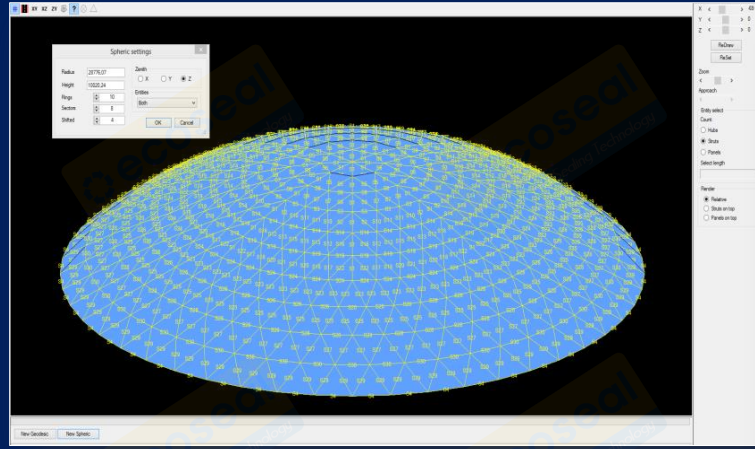
FIXED SUPPORT - FREE VENTED



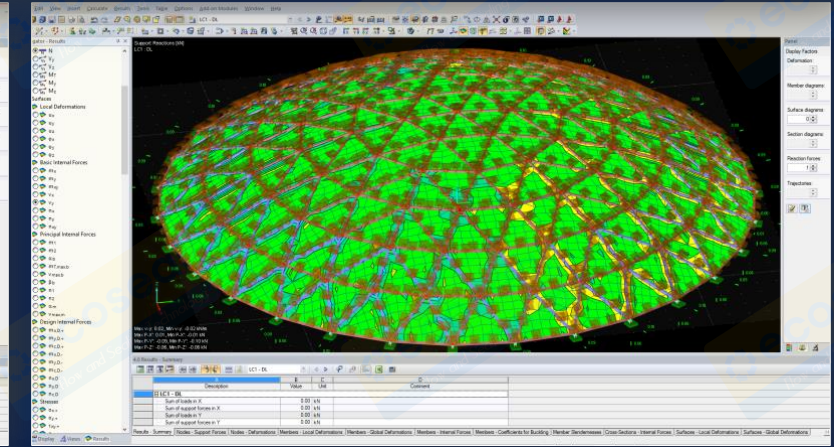
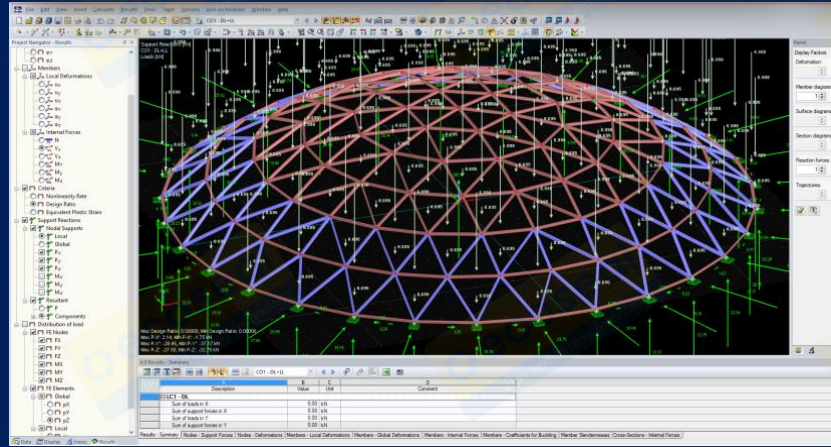
FIXED SUPPORT - VAPOUR TIGHT

DOME DESIGN ENGINEERING

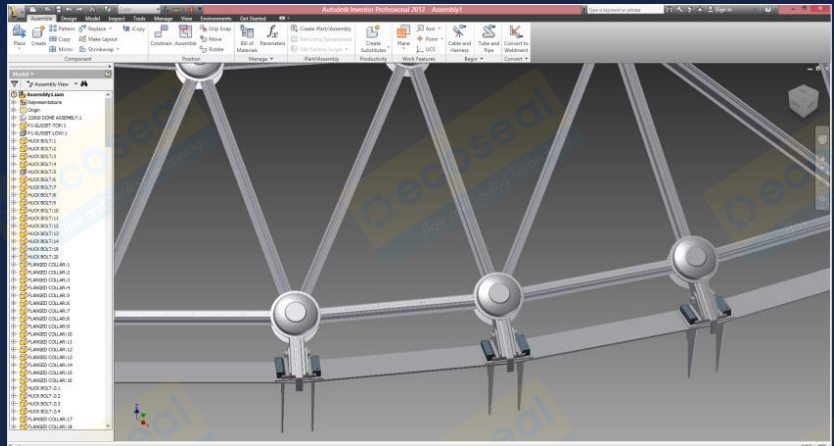
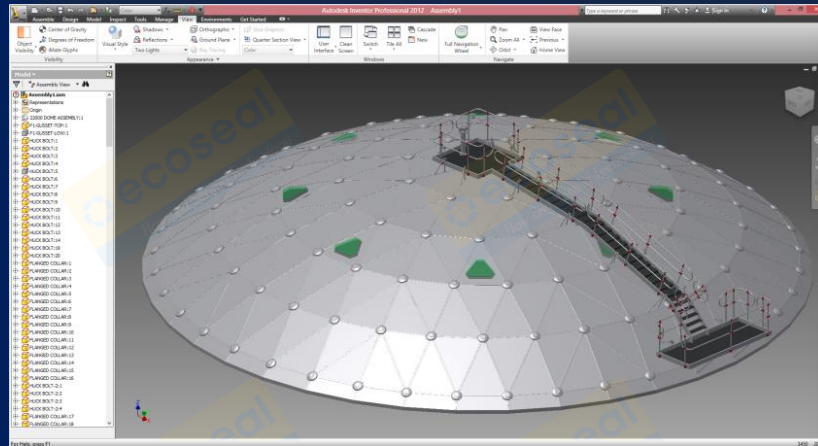
Dome Frame Modelling



Dome Structural Analysis



3D Modelling & Drafting





ATECO ALUMINIUM INTERNAL FLOATING ROOF



Ateco offer various designs of internal floating roofs, pontoon and full contact types, that meet and in most cases exceed the requirements of API 650 Appendix H.

Although there is a fundamental difference in the design of each type of roof, many of their features and accessories are the same - selection is primarily based upon the preference of the owner.

The pontoon internal floating roof is without doubt the most cost effective type due to ease of assembly and installation. All component parts can be passed through a standard tank shell manhole. There is no welding required at site and the complete installation can normally be carried out in a matter of weeks.

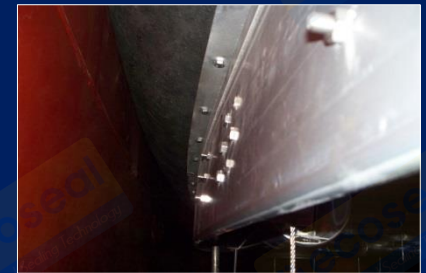
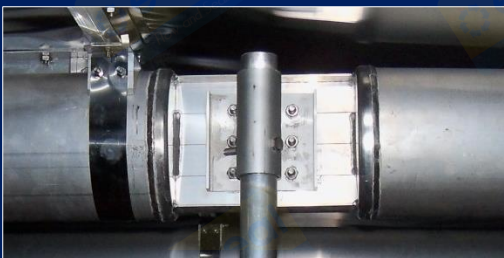
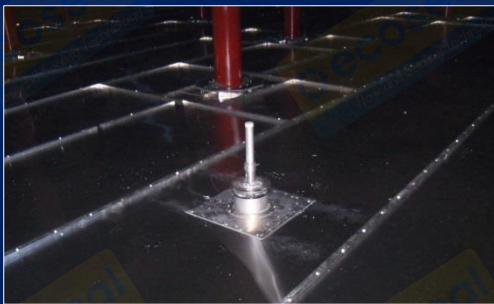
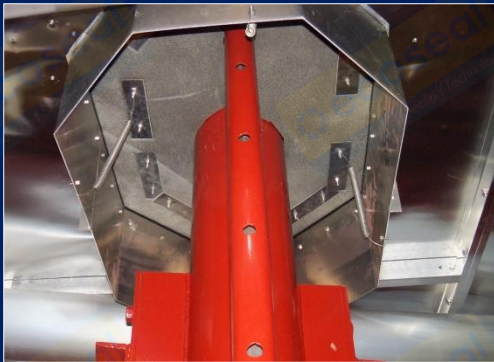
Ateco aluminium internal floating roof uses a peripheral rim profile custom made to suit the nominal tank diameter this ensure that saturated hydro carbon vapours are trapped and do not escape to atmosphere and can accommodate both primary mechanical shoe seal and a secondary seal without additional modifications.

Where the stored product is not compatible with aluminium the Ateco internal floating roof is offered with a hybrid design using stainless steel or anodized steel for parts in contact with the stored product - both the pontoon and full contact are offered as a complete stainless steel design.



Ateco offer as standard a simple double polyethylene foam seal on all internal floating roofs but if necessary can supply various alternative seal systems including mechanical primary seal and a secondary seal.

Ateco aluminium internal floating roofs can be cable suspended from either cone roof tanks or aluminium geodesic dome roofs, this option allows roof height adjustments to be completed from the outside of the tank and with no leg structure under the roof, cleaning inspection and repairs to the tank bottom are simplified.



Ateco offers a large number of accessories to meet all operational requirements of the aluminium internal floating roofs; however the standard accessories include :-

- Fixed Legs
- Simple Double Polyethylene Foam Seal
- Anti - Rotation system
- Grounding cables
- Pressure/Vacuum Relief Vent
- Manway - Access Ladder - Ladder platform



The **Alumax Ultra 2000 Internal Floating Roof** is an upgrade to the very successful **Ateco Ultimate Internal Floating Roof** and has been introduced to satisfy customer requirements for an internal floating roof that can accommodate storage tanks with a high frequency of filling and discharge of product. Designed to withstand loads up to 1000 lbs/sqft, this makes the **Alumax Ultra 2000 Internal Floating Roof** one of the strongest but most flexible internal floating roofs on the market today.

The high quality **Alumax Ultra 2000 Internal Floating Roof** obviously complies with, but in most cases exceeds, the requirements of the industry standard for internal floating roofs – API 650 Appendix H

The **Alumax Ultra 2000 Internal Floating Roof** is compatible with most stored products being manufactured as an all aluminium alloy product, all stainless steel or a combination of both with stainless steel for the parts in direct contact with store product.

Installation is quick and efficient as all parts of the internal floating are sent to site completely prefabricated, no welding is required to complete the assembly and all component parts fit through a standard tank 24 ins shell manway.

The main design features of the **Alumax Ultra 2000 Internal Floating Roof** can be summarised as follows:

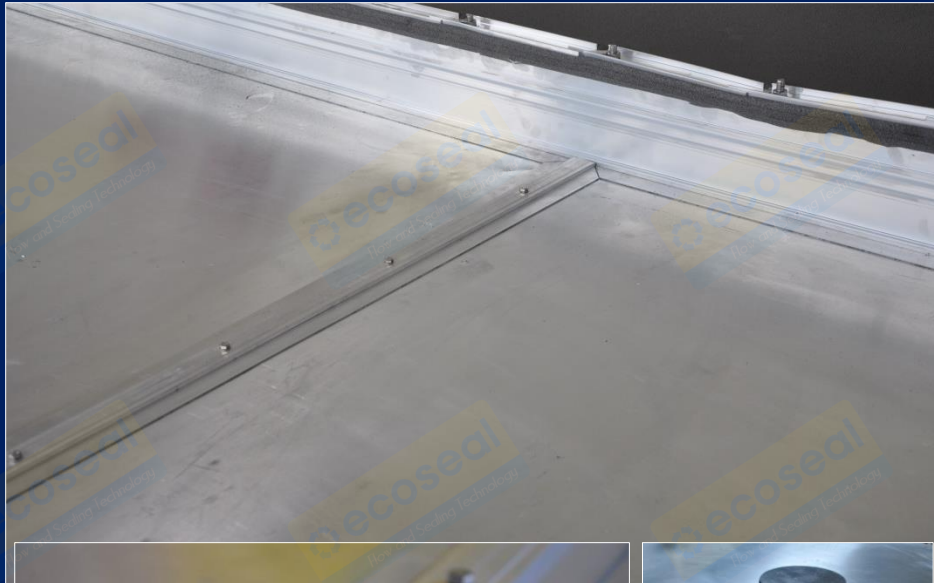
- Can accommodate any type of seal system including the mechanical primary shoe plate seal or simple wiper seal
- Roof leg supports connect to the main beams of the structure and not to the pontoons
- Deck sheeting is a nominal 0.6 mm thick
- Standard 300 mm (10") diameter pontoons are not structural components but are independently connected to the main structures, additionally the seamless 2.6 mm thick aluminium pontoons are fitted with a test port and tested at the manufacturing facility before being sent to the customer
- Extruded rim channel ensures consistent rim gap and if necessary can be manufacture to suit a particular tank profile.
- Option to suspend from the tank roof.

The **Robust Pontoon Aluminium Internal Floating Roof** has standard 254 mm (10 ins) diameter by 2,5 mm thick extruded aluminium alloy pontoons and 0.5 mm thick aluminium sheet and designed to withstand loads up to 500 lbs/sqft.

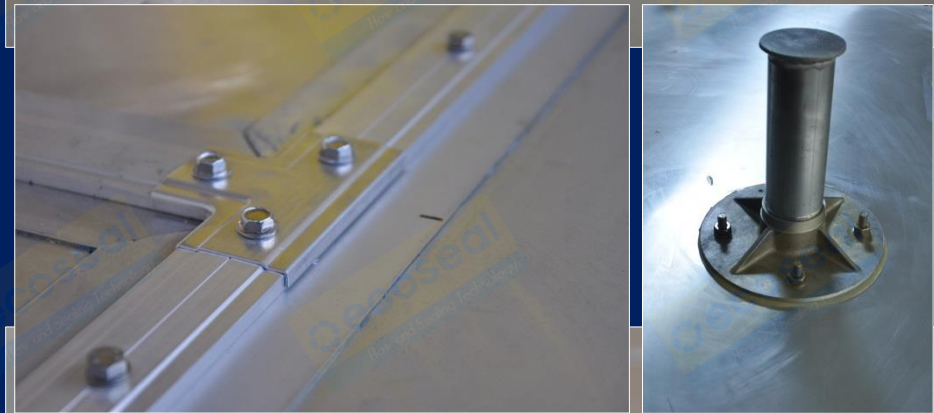
The pontoons are suspended from the basic structure.

The **Ultimate Pontoon Aluminium Internal Floating Roof** has standard 200 mm (8 ins) diameter by 2 mm thick extruded aluminium alloy pontoons and 0.5 mm thick aluminium sheet and designed to withstand loads up to 500 lbs/sqft. The pontoons are an integral component of the basic structure.

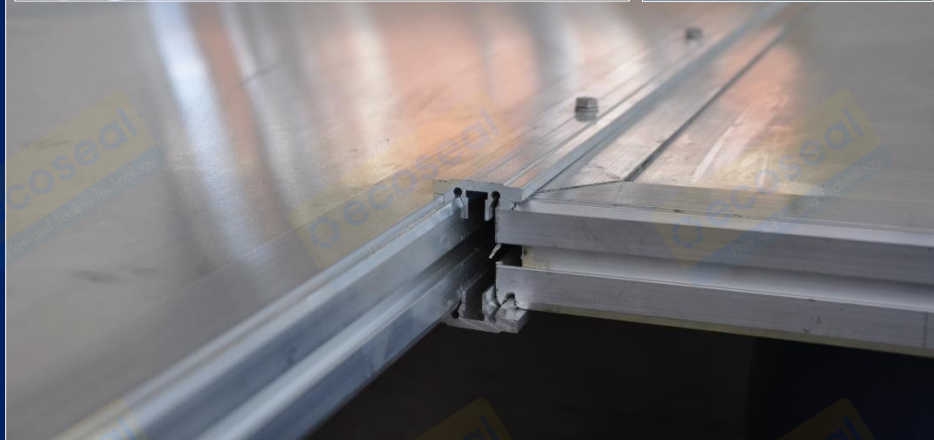




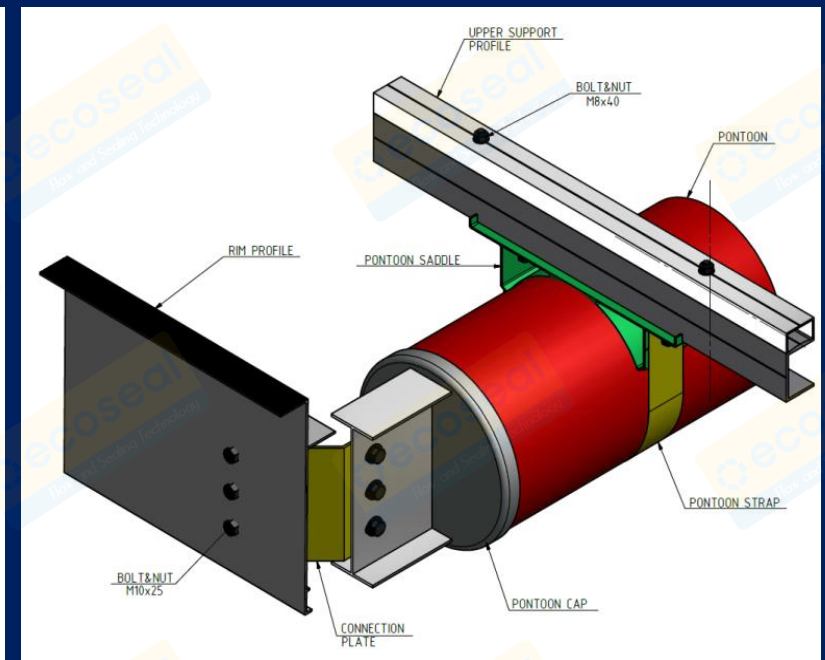
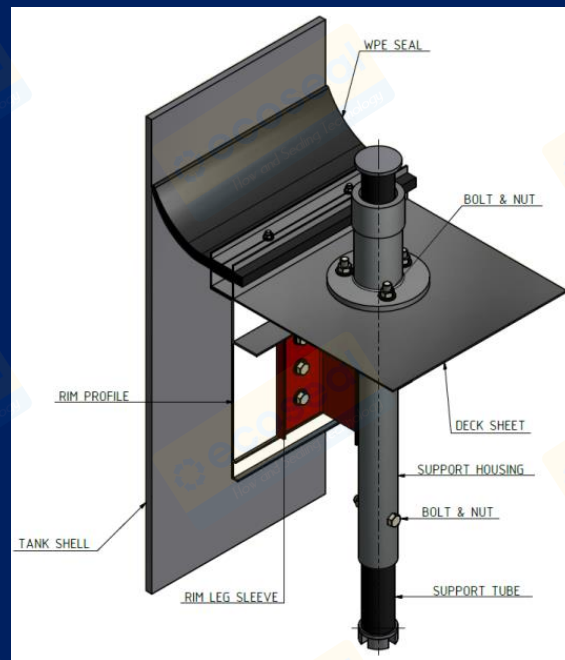
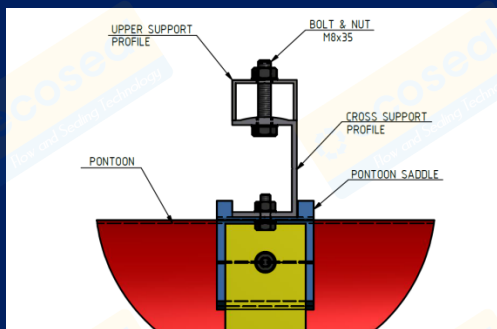
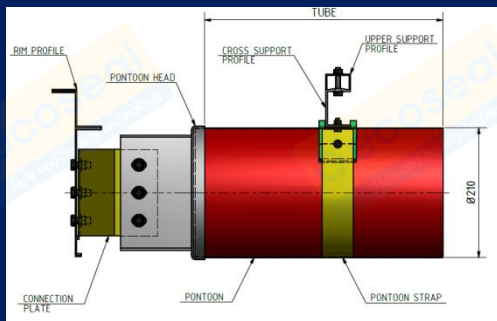
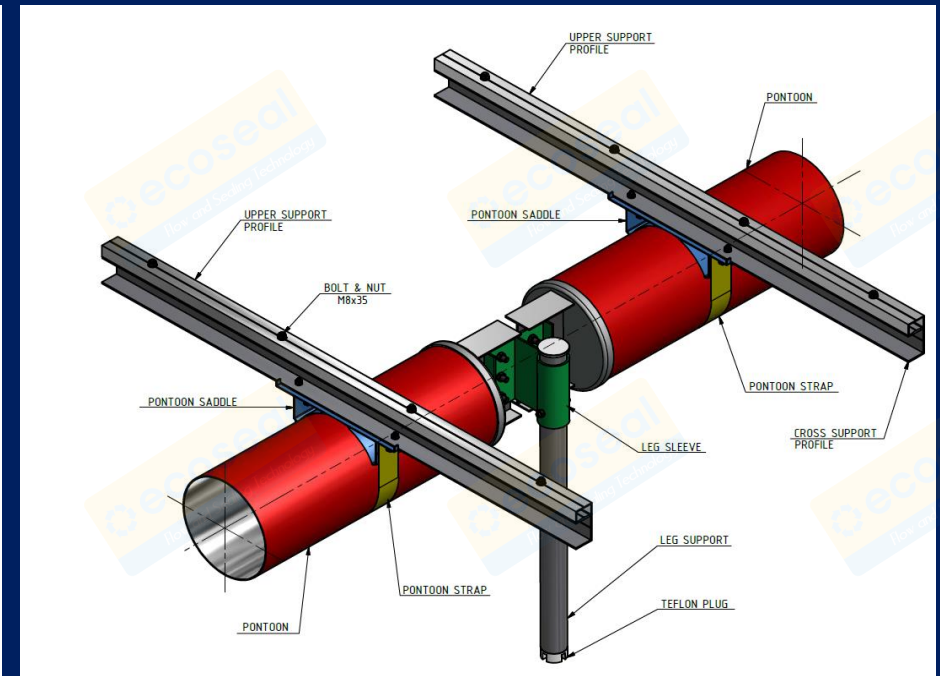
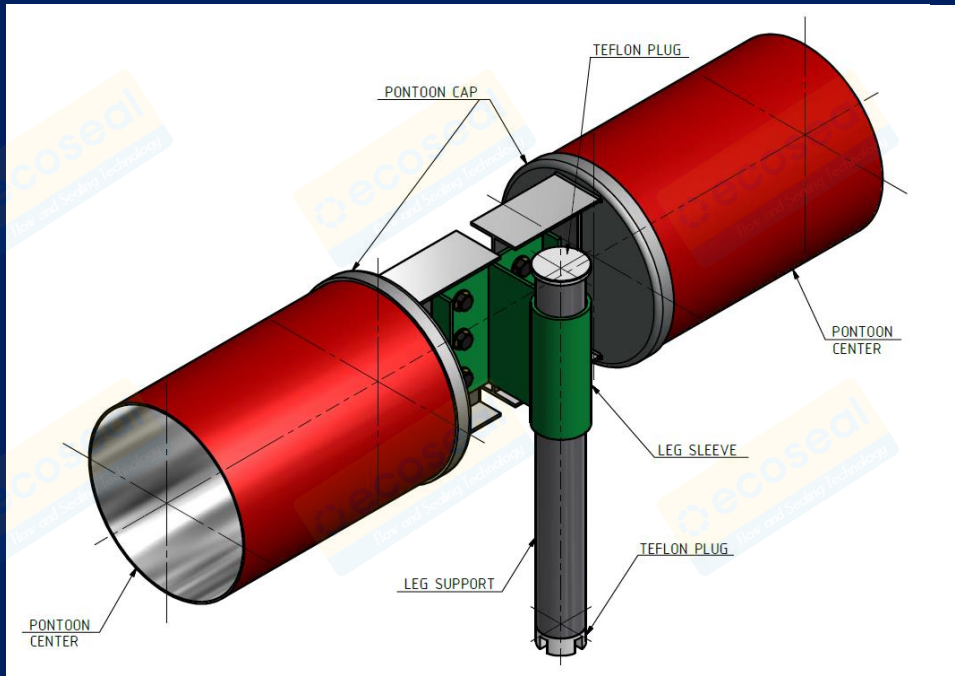
The honeycomb modular panel design of the Ateco full contact internal floating roof ensures that there is no vapour space between the surface of the product and the underside of the roof sheet.



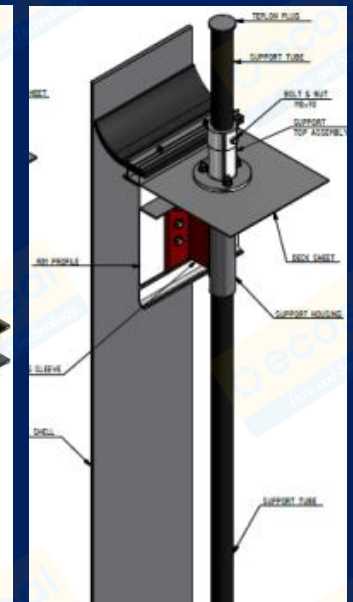
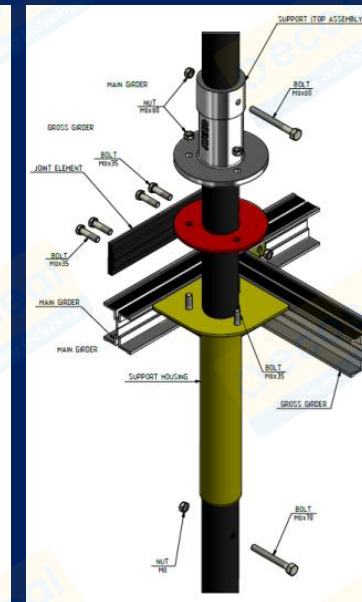
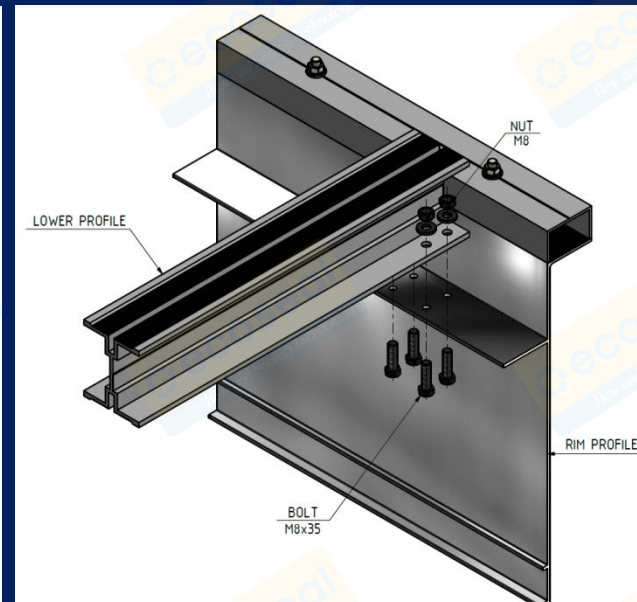
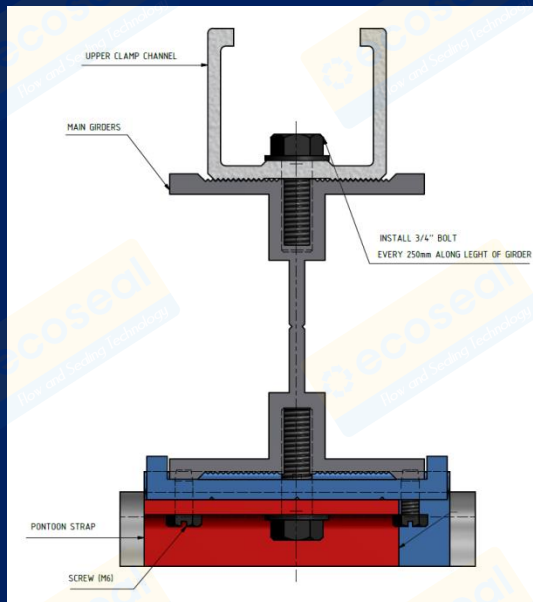
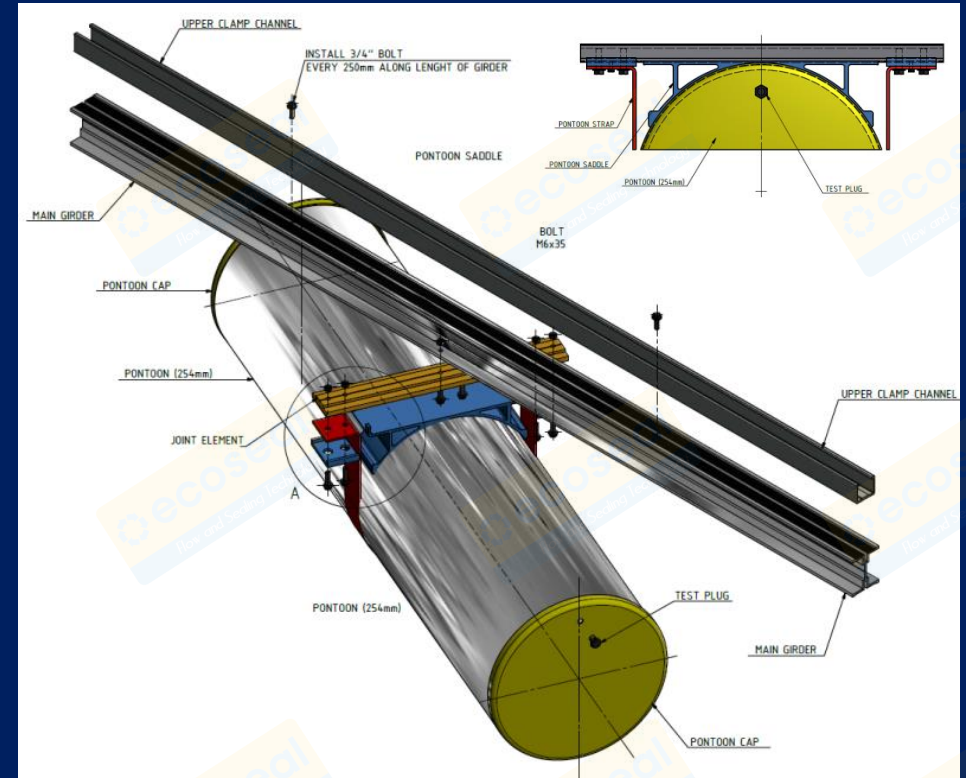
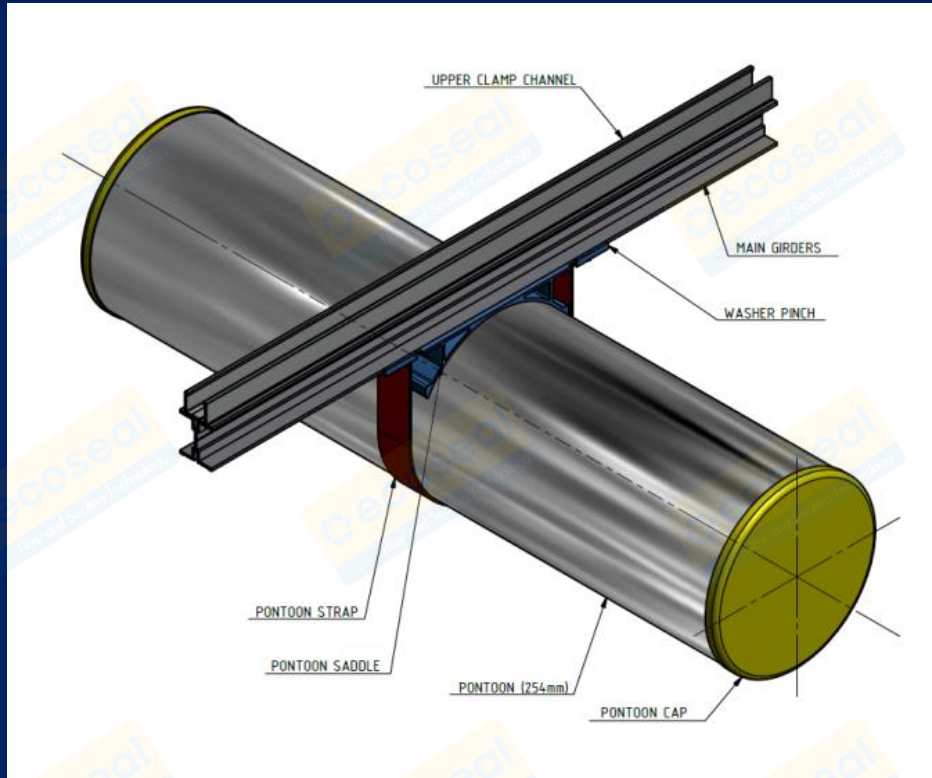
The **Ateco *OpenDeck* Internal Floating Roof** is based on the principal of the full contact pan type of IFR and is manufactured in either 1.5 mm aluminum or 1.2 mm stainless steel plate. The open structural design ensures that product vapours or liquid can not leak into or be trapped in buoyancy chambers. The completely prefabricated panels are bolted together at site and when fitted with the rolled perimeter profile and mechanical seal system provides a very efficient and cost effective IFR compatible with most stored products.



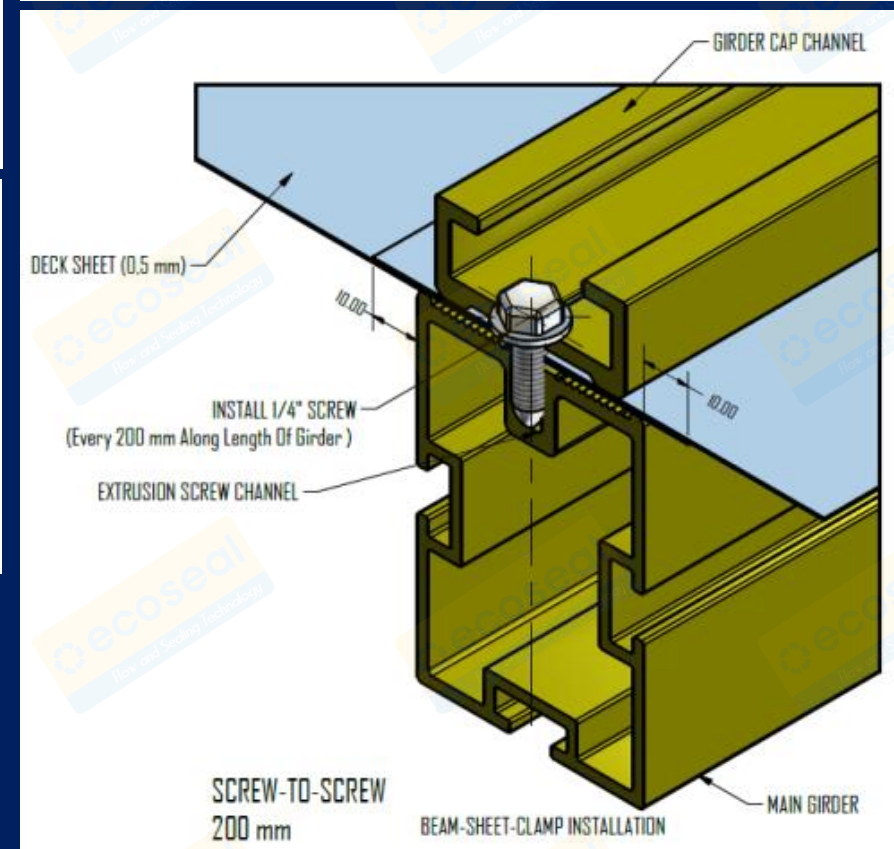
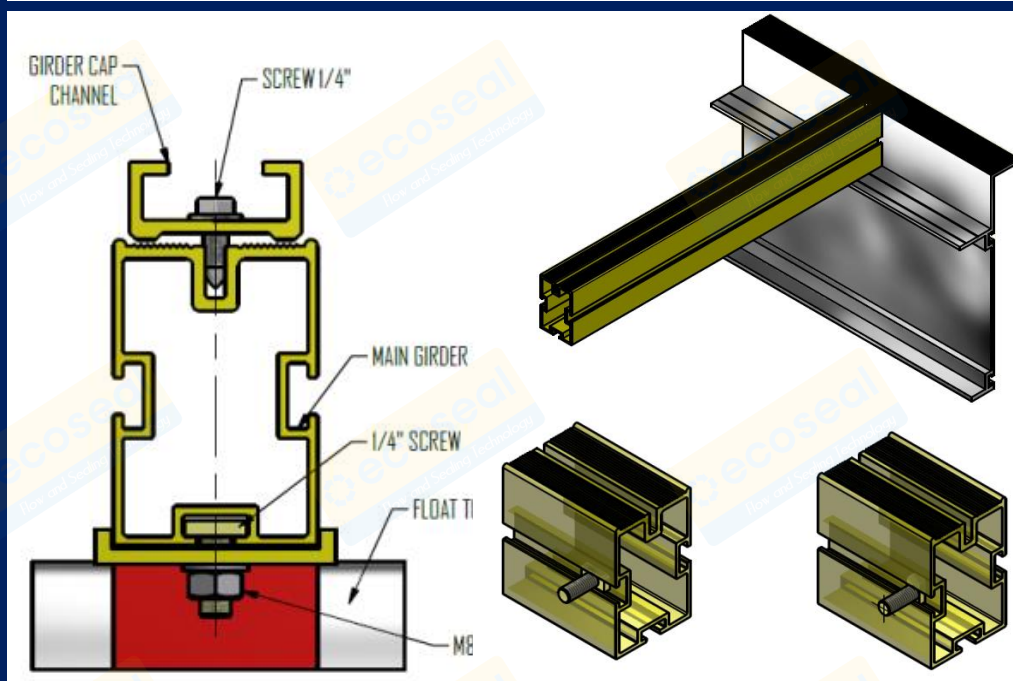
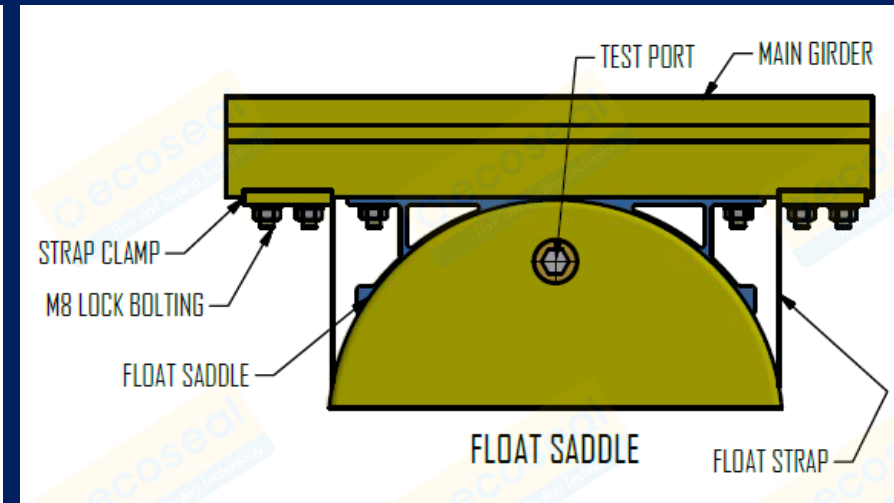
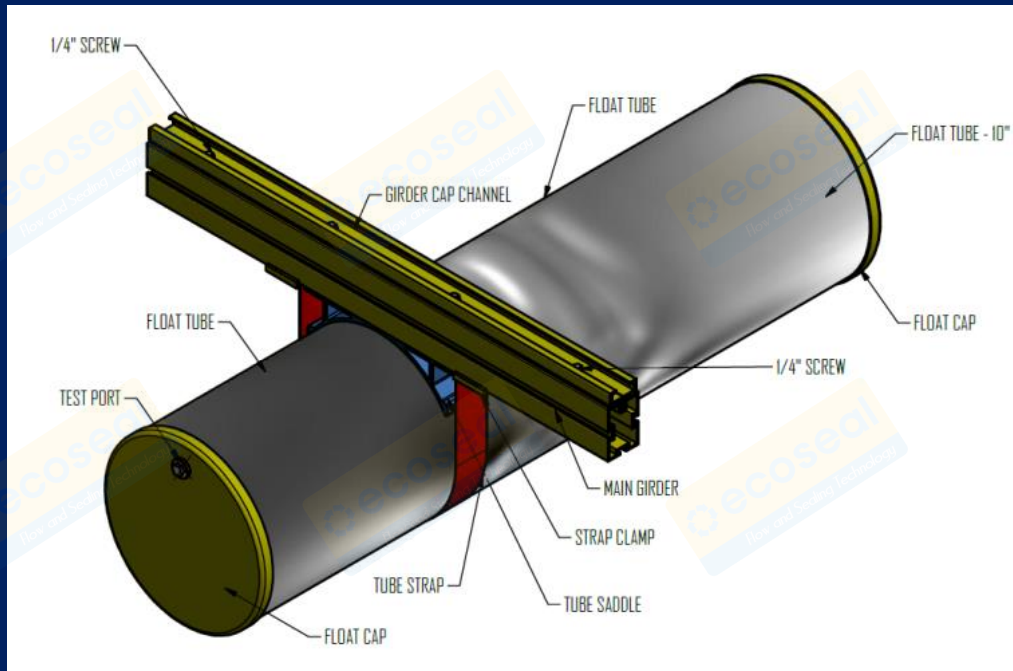
Details - ATECO ULTIMATE PONTOON TYPE ALUMINIUM INTERNAL FLOATING ROOF



Details - ATECO ROBUST PONTOON TYPE ALUMINIUM INTERNAL FLOATING ROOF



Details - ATECO ULTRA 2000 PONTOON TYPE ALUMINIUM INTERNAL FLOATING ROOF





Primary and Secondary Seal Systems



API 650 advise that all tanks storing hydrocarbon liquids should be fitted with a seal system comprising a primary seal and a secondary seal. Ateco manufacture a range of primary and secondary seals.

All Ateco primary and secondary seals are fitted to the rim angle on the floating roof and are designed for a rim gap of 200 mm to 250 mm +/- 100 mm, however most can be modified to accommodate varying gaps provided we are aware of the requirements before seal manufacture begins.

The essential details that operators should take into consideration and provide to Ateco when purchasing a "seal system" are; compatibility of the stored product with all component parts of the seals, rim gap tolerance for the total travel of the floating roof and overall condition of the tank.

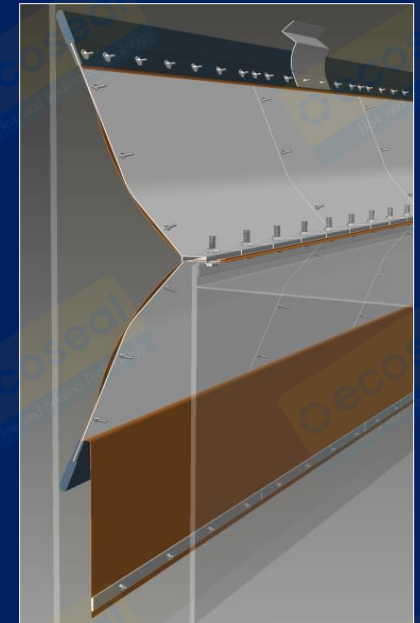
The most popular seals are mechanical seals and this simply means that most of the seal parts are made from metal.

The weighted pantograph primary seal is the industry standard and oldest seal still in use. The **Ateco Mechanical Weighted Pantograph Primary Seal** comprises 1.6 mm thick compression plates which can be either stainless or galvanized steel held against the tank shell by a system of levers and heavy weights. The pushing force is gravity and since this is always present this type of seal has proved to me robust and very reliable. However, installation, maintenance and repair is relatively difficult and for this reason Ateco has introduced the **Ateco Pusher Plate Primary Seal** which is commonly referred to as a "top mounted seal" meaning that this seal can be accessed from the top of the floatino roof.

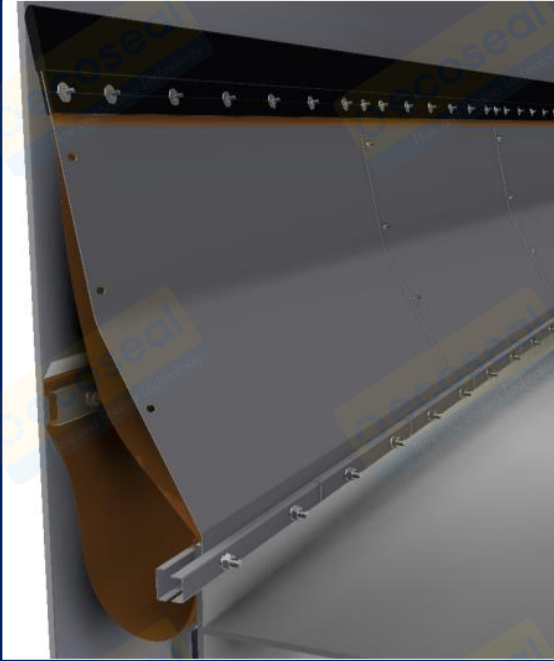
The **Pusher Plate Primary Seal** comprises 1.6 mm thick compression plates which can be either stainless or galvanized steel held against the tank shell by spring steel plates. Installation, maintenance and repair is relatively straight forward since all parts of the seal can be access from the top of the floating roof and even with the tank in service.

The **Double Compression Plate Seal** is a very efficient and most cost effective seal system since it comprises a primary and secondary seal in the same unit.

Features include 1.6 mm thick independent and overlapping galvanized or 1.2 mm stainless spring steel plates, a continuous vapour barrier membrane can be included or, in the gasket version, with no vapour barrier, the compression plates are bolted together using shoulder bolts and a gasket is fitted between the plates to form the seal.



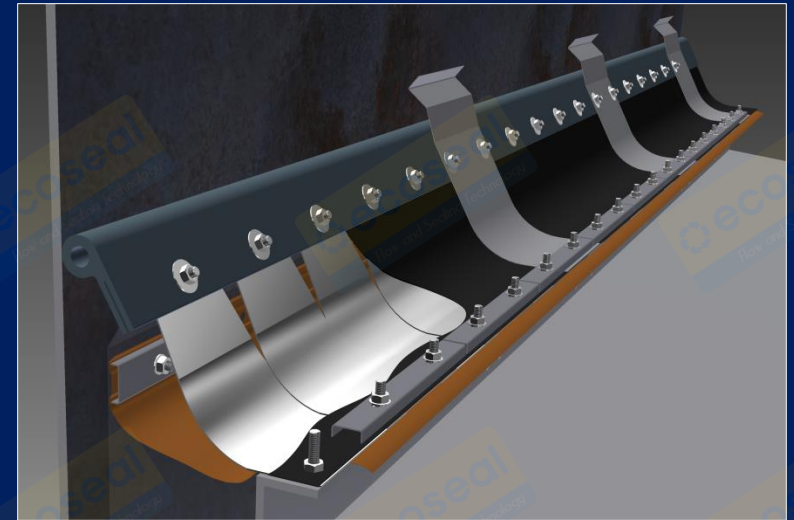
The **Ateco Compression Plate Secondary Seal** with 1.6 mm thick independent and overlapping galvanized or 1.2 mm stainless spring steel plates is the most popular secondary seal and can be used with all the Ateco primary seals to provide a very effective seal system. A continuous vapour barrier membrane can be supplied, or in the gasket version, with no vapour barrier; the compression plates are bolted together using shoulder bolts and a gasket is fitted between the plates to form the seal.



Mechanical seals can be fitted with a wax scraper and where highly volatile products are stored a drip curtain can be attached and this has the effect of enhancing the sealing efficiency in areas where seal tip to shell contact is less than perfect due to protruding welds, severe corrosion of shell plates.

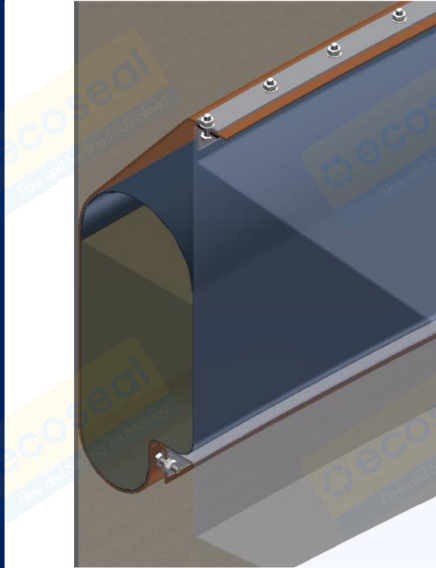
Ateco have a range of seal tips and this ensures that the material used to manufacture them is fully compatible with the stored product and the profile used suits the condition of the tank shell.

The **Ateco Low Profile Secondary Seal** has been designed to reduce the overall height of the secondary seal tip above the rim angle and gives the potential for increased tank storage capacity.

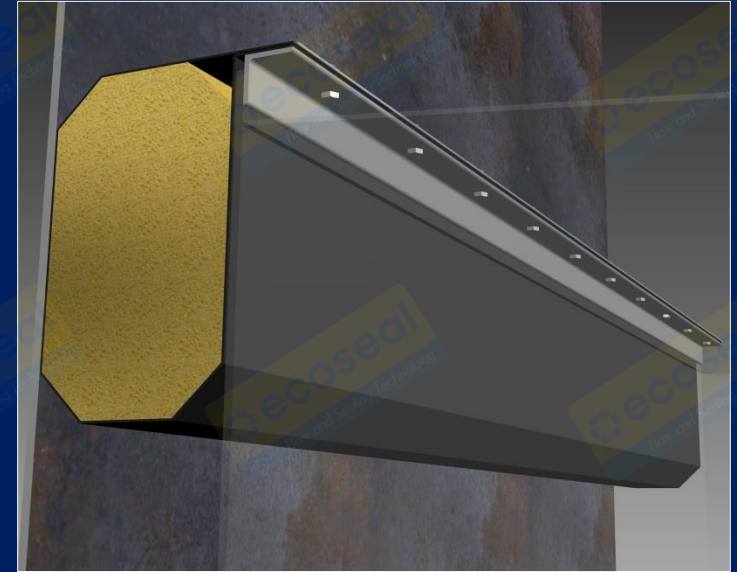


The main Ateco seals in the non- mechanical category are;

- **Ateco Foam Log Seal**
- **Ateco Liquid Filled or Tube Seal.**

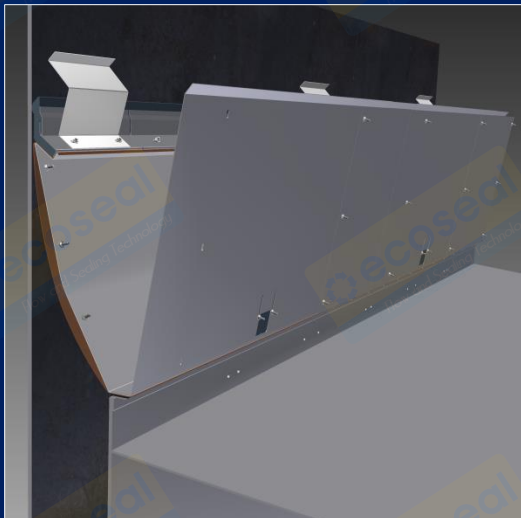


Both of these seal types comprise a tough polymer coated envelope surrounding compressible polyurethane foam or in the case of the liquid filled tube seal, simply filled with a liquid such as kerosene.



A mechanical seal has lower friction resistance than foam wiper seals, therefore Ateco has developed a lighter weight mechanical pusher plate type of primary seal specifically for use with an aluminum internal floating roof.

Ateco supply a foam dam that bolts on the pontoon rim angle and has the same hole spacing as the primary and secondary seals, with either 1.6 mm Galvanized or 1.2 mm Stainless Steel Plates the Ateco Foam Dam meets the intent of API 650 and NFPA10 but to fully comply we also offer 3.5 mm thick plates for bolting or welding to the tank roof.



EMISSION CONTROL DEVICES

The **Ateco Guide Pole Sleeve, Leg Seals and Leg Socks** are designed to control the vapour emissions coming from the slotted guide/gauge pole and the roof support legs on an external floating roof tank.

Ateco Guide Pole Sleeve incorporates a reinforced premium grade urethane laminated fabric which is compatible with most hydrocarbon products as well as ozone and UV resistant. Can be fitted and maintained with the tank remaining in service.

Ateco Leg Seal is made of EPDM rubber and is resistant to most hydrocarbons, industrial chemicals and ozone, they are used to control product vapour emissions from the floating roof legs. The leg seal is easy to install and easily removed and are supplied to suit 3" and 4" roof legs and has the advantage of eliminating condensation that can occur within the leg sock.

Ateco Leg Sock is made from PVC - PU - PTFE fabric and control emissions from floating roof legs.





Roof Drain Systems

Floating Suction and Skimmer Units

Rewinder Earthing System

Fire Protection System

Tank Equipment

Supervision and Inspection Services

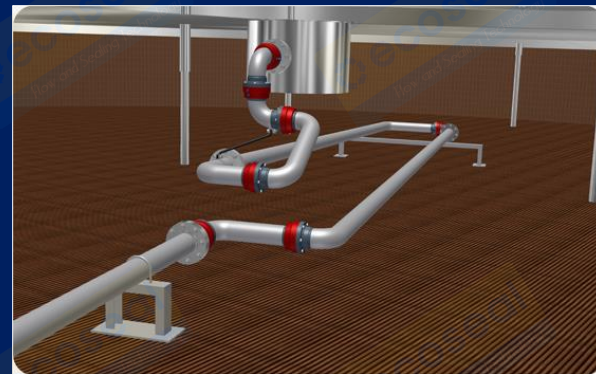


Ateco offer two types of roof drain systems for external floating roof tanks
Ateco Articulated Pipe with BendMasters and Ateco Articulated Pipe with Swivel Joints.

Ateco Articulated Pipe with BendMasters is the most practical and cost effective roof drain system incorporating the maintenance free *BendMasters*. The advantages of this type of roof drain is the continuous sloping drain pipe which can be located so that it does not interfere with any tank internals and the *BendMaster* is specifically designed for submersible operations. If required Ateco can provide the complete roof drain design, pipe system fabrication drawings and the *BendMasters* - pipe material can be sourced locally and drain system manufacture carried out at site by the customer - with significant savings in transport costs.



The **Ateco Articulated Pipe with Swivel Joints** is another practical and cost effective roof drain system incorporating dependable and long lasting Ateco swivel joints which are custom built to ensure they are compatible with most stored products.



Ateco design and manufacture floating suction units for vertical and horizontal tanks where there is a requirement to draw product from the top surface of the stored product. **Ateco Floating Suction Units** incorporating swivel joints or *BendMasters* are manufactured with aluminium, stainless or carbon steel pipe/floatation chambers and supplied in diameters from 50 mm (2 ins) to 500 mm (20 ins)



Ateco design and manufacture skimmer units for oily-water vertical storage tanks where there is a requirement to draw off only the hydrocarbon liquid floating on the top surface. **Ateco Skimmer Units** incorporating swivel joints or *BendMasters* are manufactured with aluminium, stainless or carbon steel pipe/floatation chambers and supplied in diameters from 50 mm (2 ins) to 500 mm (20 ins).



Rewinder Earthing System – RES 2000

The **Ateco RES 2000** for external floating roof tanks is an effective and virtually maintenance free electrical grounding system specifically designed for subduing sustained arcs during lightning storms. The unit is bolted to the highest point of the tank and the tinned copper braided cable is bolted to a point on the floating roof - it extends and retracts as the floating roof travels up and down.

A traditional earthing system relies upon flexible stainless steel grounding shunts around the perimeter of the floating roof, however this type of system is only good when the tank is new and the shell is clean; eventually the tank shell becomes coated with product which then compromises the electrical bond.

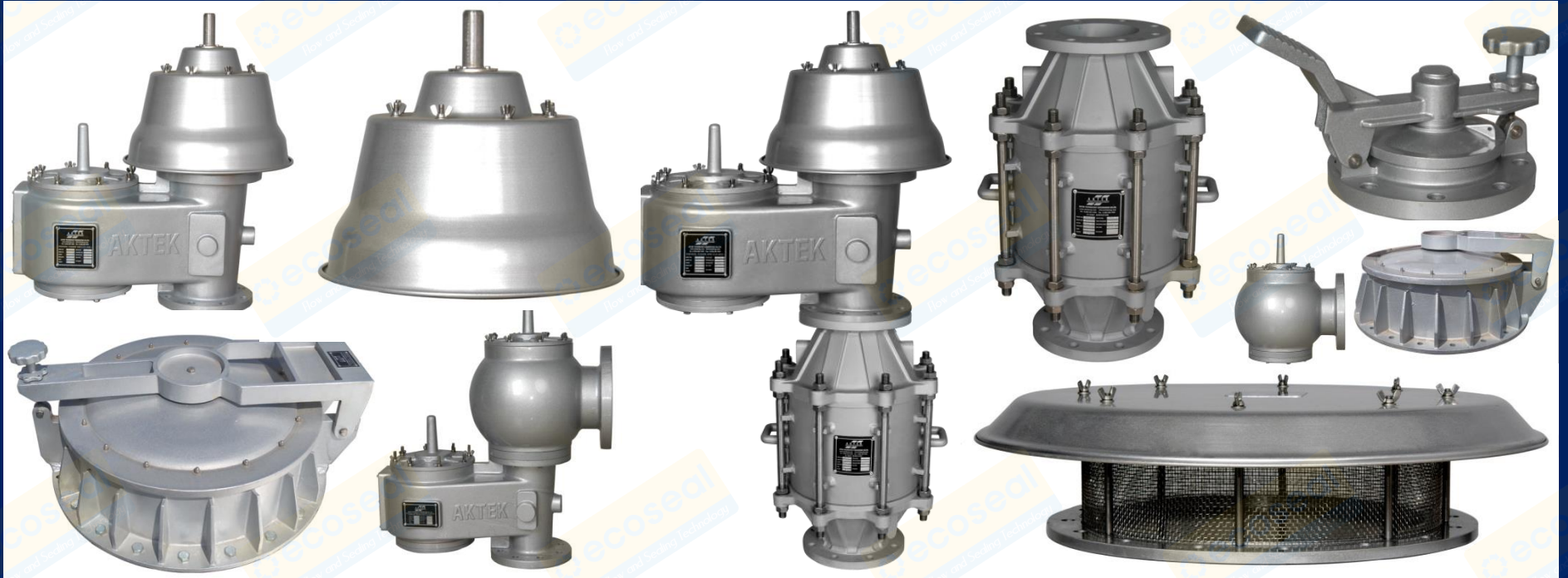
The principal advantage of the **Ateco RES 2000** is that it provides the permanent contact between the tank roof and the tank shell which is not dependent upon the condition of the tank shell. The length of grounding cable varies with the height of the floating roof and this ensures the lowest possible impedance/resistance to safely discharge lightning currents. The sealed unit is made from stainless steel and can be fitted with the tank in service.



Tank Equipment

Ateco design and manufacture a complete range of equipment for storage tanks, including:

Pressure Vacuum Vent - Gauge Hatch - Emergency Vents - Rim Vents - Manhole Covers Free Vents - Flame Arresters - Vacuum Vents



FIRE PROTECTION SYSTEM

Rim seal fires account for the majority of fires on external floating roof tanks and for this reason Ateco has developed a fully automated, fast acting, vapour detection, foam discharge based fire extinguishing system. The **Ateco Rim Seal Protection System** is actually a fire fighting 'package' of integrated fire detection and fire suppression equipment. A fixed number of foam storage vessels are located on the floating roof each containing the extinguishing agent which is commonly a fluoromethane compound. Ateco design and can supply the complete rim seal protection system including all necessary pipework and control instrumentation.

Bladder Tanks are the essential component equipment in a balanced pressurized foam proportioning system which is essentially the introduction of foam concentrate into a flowing water system. They do not require external power other than pressurized water and are designed and manufacture as a complete skid mounted unit to meet the requirements of NFPA 11.



Inspection and Supervision Services

Ateco has qualified and experience engineers who can support the installation of all Ateco tank equipment on site, we also offer Inspection Services to give advice on the operation, suitability, maintenance, repair or replacement of all Ateco supplied tank equipment.



CERTIFICATIONS

Quality Policy Statement

Ateco is dedicated to quality and continuous quality improvement is our priority. Ateco aim to produce products and provide services and solutions for the highest customer value in the most cost-effective manner.

Our customer's satisfaction is our highest priority.

Every Ateco employee shares the responsibility for providing the highest level of quality, reliability, and customer service.

Quality includes all aspects of our work.

Our goal is to satisfy our customers by providing trouble-free and reliable products and solutions with competent customer service and support in a timely manner.

In the procurement of goods and services, we look for partnerships with suppliers that apply the same principles of quality assurance and continuous quality improvement.

This Quality Policy is fully support by Ateco senior management and we are committed to providing all necessary resources to ensure it is fully implemented.

Signed:

IHSAN AKGUN - CEO

