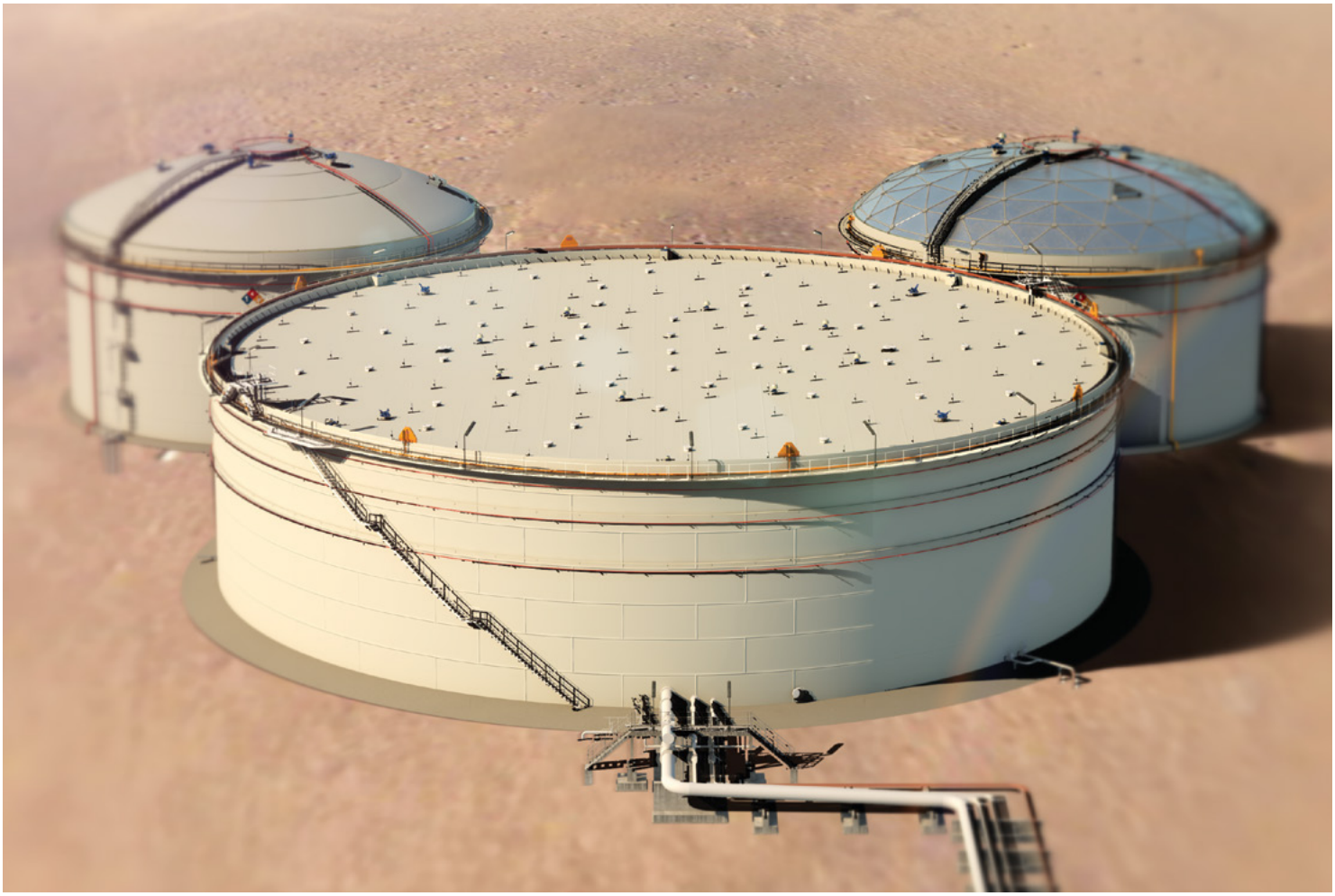
PETRO ENERGY
Global Thinking,Global Working

GPE
PETRO ENERGY CO.

Engineering, Procurement,
Construction of Oil, Gas,
Petrochemical, Offshore, Marine
& Power Plant Projects

Floating Roof Sealing Systems
Roof Drainage Systems
Floating Skimmer and Oil Suction Systems

2024



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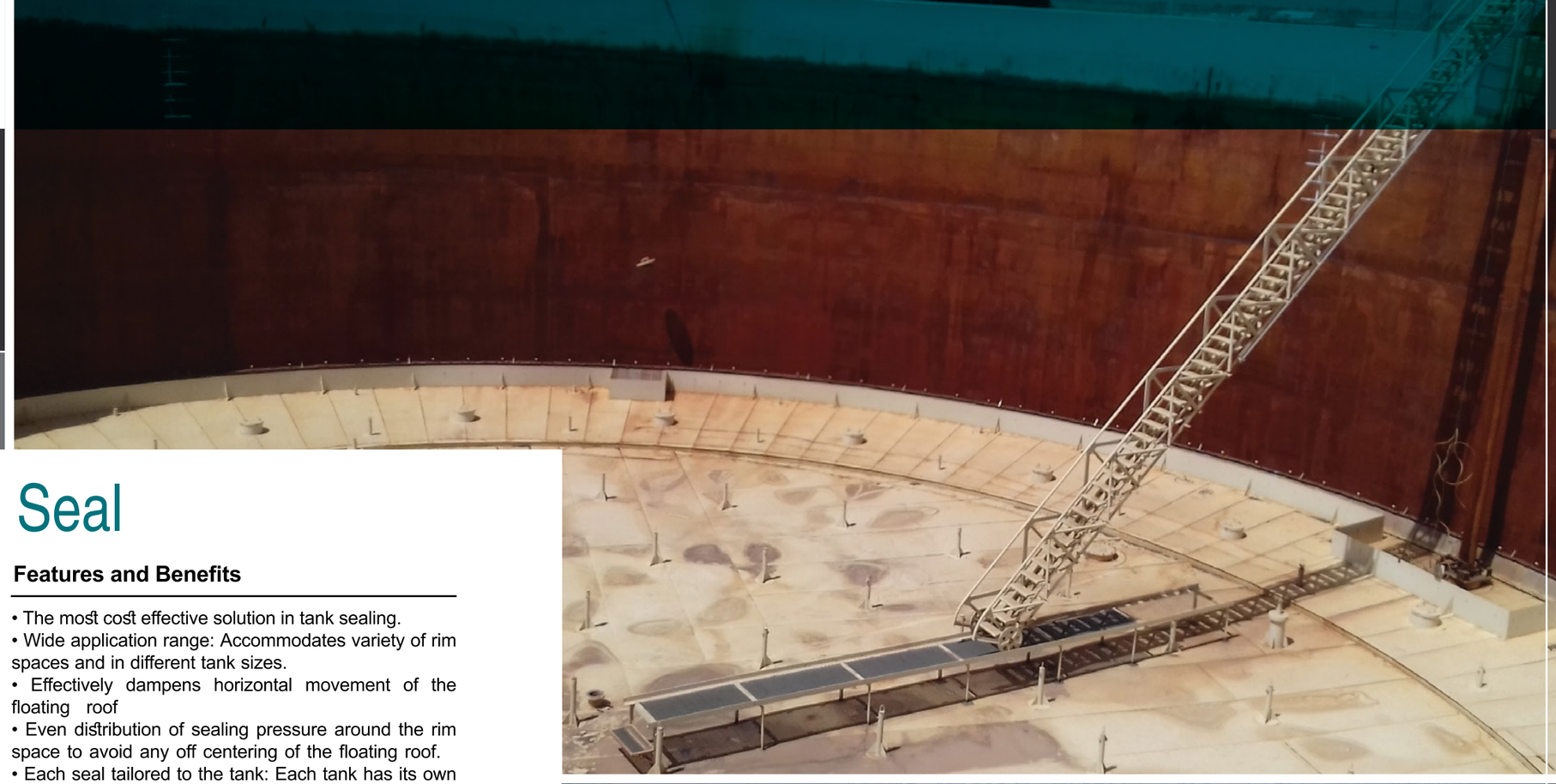
Introduction

GPE as a knowledge based company, is the sole Iranian manufacturer and one of the world leaders of providing Storage Tanks Systems and Marine and Offshore Loading Solutions in oil and gas, petrochemicals and power industries with brilliant global reputation and innumerous domestic and international clients and customers in last two decades Global in vision and rooted in regional values, GPE is driven by the performance and quality etic pegged on value creation for its clients. GPE is anchored by an extraordinary workforce and professional employees in different levels. The state of art manufacturing facilities coupled with its extensive quality management system provides compliance of GPE products with exact customer requirements and industry standards.

At the moment, GPE is an important market maker in its all operational sectors and specifically in Storage Tanks Systems business units owns more than 80 percent of Iranian domestic market. With the vast experience, comprehensive referencing, brilliant project portfolios and vendor list registrations, GPE offers distinctive customer many tailor made solutions by its products and services.

Roof Sealing Systems

Primary Seal



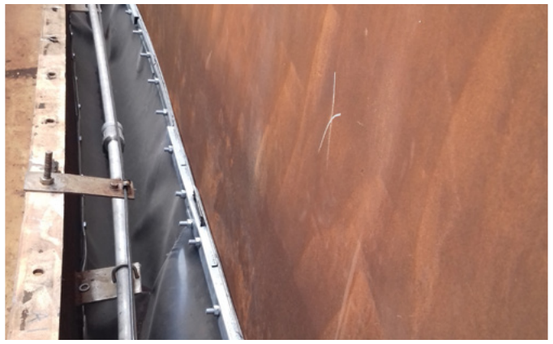
Mechanical Shoe Seal

Application

The GPE Shoe Plate Spring type seal is the most versatile and common primary sealing system within the industry. This cost effective model brings innovation, performance and durability in one place and is the exact interpretation of adding value to the customers by GPE. The GPE Bolt Gear® assembly eliminates all hot works and allows for easier and safer installation and tank maintenance. The spring steel parts are manufactured according to GPE specially engineered strict specifications to maintain maximized sealing pressure and longevity of the system. GPE tailor made UV resistant composite parts are durable in even the most aggressive services and corrosive products. The seal rings extend into the product to ensure vapor retention. These unique specifications are the reasons why GPE shoe plate spring mechanical seal remains unsurpassed in function and performance.
The GPE shoe plate spring type seals are designed and sized to fit the specific tank and floating roof dimensions up to 120m and perform well in rim spaces ranging.

Features and Benefits

• The most cost effective solution in tank sealing.
• Wide application range: Accommodates variety of rim spaces and in different tank sizes.
• Effectively dampens horizontal movement of the floating roof
• Even distribution of sealing pressure around the rim space to avoid any off centering of the floating roof.
• Each seal tailored to the tank: Each tank has its own variations in roundness and verticality. To provide the most effective sealing, in GPE we use varying length parts for varying rim spaces within a given tank.
• Available for internal or external floating roofs.
• Stays level as rim space varies: Very useful feature specially in wider rim spaces and to minimize the secondary seal level, which can add effective capacity.
• Flawless operation and long life: Specially engineered materials to ensure a high tight seal and failure free life time performance. Sliding parts in contact with the tank shell are wear resistant.
• Compatible with virtually all stored products.
• Flame retardant composite materials.
• GPE Bolt Gear® assembly that allows for quick, easy, safe installation and maintenance.
• Excellent flexibility: Conforms well to local anomalies in shell roundness.



Mechanical Pantograph Seal

Application

The GPE Pantograph type seal is a primary seal and is the pioneer of mechanical sealing concept within the industry. It has been designed and sized to fit the specific tank and floating roof dimensions up to 120m and perform well in rim spaces ranging.
The space between the sealing ring and the roof is closed by GPE UV resistant, specific continuous seal composite layer. The pushing force that keeps the sealing rings maintained on their position comes from the interaction between weights and arms as the sealing mechanism. The seal rings extend into the product to ensure vapor retention.

Features and Benefits

• Wide application range: Accommodates variety of rim spaces and in different tank sizes.
• tailored to the tank: Each tank has its own variations in roundness and verticality. To provide the most effective sealing, in GPE we use varying length parts for varying rim spaces within a given tank.
• Flawless operation: Specially engineered materials to ensure a high tight seal and failure free life time performance. Sliding parts in contact with the tank shell are wear resistant.
• Continuous distribution of sealing pressure around the rim space to avoid any off centering of the floating roof.
• Long life: All parts are manufactured according to GPE specially engineered strict specifications to maximize sealing pressure and longevity of the system.
• Flame retardant composite materials.
• Compatible with virtually all stored products.
• GPE Bolt Gear® assembly that allows for quick, easy, safe installation and maintenance (for pre-installation requirements please check the erection manual).

Master Seal

Application

The GPE Mechanical Seal Master is the ultimate solution for storage industry of global oil and gas. This model perfectly meets all possible specifications of tank sealing by bringing, innovation, technology, performance, flexibility and durability in one place. In a more practical wording, the GPE mechanical seal master adjusts to the irregularities of tanks by covering a wide working range (rim space) while remains extremely gas tight, with very low profile (allowing more working capacity) and virtually maintenance free long life.
The GPE Bolt Gear® assembly eliminates all hot works and allows for easier and safer installation and tank maintenance. The spring steel parts are manufactured according to GPE specially engineered strict specifications to maximize sealing pressure and longevity of the system. GPE tailor made UV resistant composite parts are durable in even the most aggressive services and corrosive products.
These unique specifications are the reasons why GPE mechanical seal master remains unsurpassed in function and performance.
The GPE mechanical seal masters are designed and sized to fit the specific tank and floating roof dimensions up to 120m.

Features and Benefits

• Wide application range: Accommodates variety of rim spaces and in different tank sizes.
• Extremely gas tight to reduce the vapor loss from the tank to the minimum possible level.
• Effectively dampens horizontal movement of the floating roof.
• Even distribution of sealing pressure around the rim space to avoid any off centering of the floating roof.
• Each seal tailored to the tank: Each tank has its own variations in roundness and verticality. To provide the most effective sealing, in GPE we use varying length parts for varying rim spaces within a given tank.
• Very low profile will add effective working capacity to tank
• Flawless operation and long life: Specially engineered materials to ensure a high tight seal and failure free life time performance. Sliding parts in contact with the tank shell are wear resistant.
• Compatible with virtually all stored products.

Liquid Mounted Tube Seal

Application

The GPE Liquid Filled Tube Seal is a classic primary sealing system which was introduced to meet sealing concept basic requirements. The high performance of this sealing system and its long history within the industry caused loyalty of industry to it which still works well.
The space between the shell and the roof is closed by GPE specific composite tube which is being filled preferly with the same product as tank content. The tube seal is being wrapped by scuff band envelope and maintained firmly down to the rim space by the hold down bars. The sealing pressure comes from the hydrostatic force of product filled flexible tube. The GPE tailor made UV resistant composite parts including scuff band and tube are durable in even the most aggressive services and corrosive products. The steel parts are manufactured according to GPE specially engineered strict specifications to maximize longevity of the system.
The GPE liquid filled tube seals are designed and sized to fit the specific tank and floating roof dimensions up to 120m and perform well in rim spaces ranging.
This should be mentioned that due to roundness of the tank shell, accommodation of the tube and scuff band inside the rim space may cause appearance of some wrinkles on the surface of scuff band in some areas. These very tiny free spaces facilitate product vapor loss which should be taken into account in selection of sealing system.

Liquid Mounted Foam Seal

Application

The GPE Foam Seal is a classic primary sealing system which was introduced to meet sealing concept basic requirements. The simple parts and proper performance of this sealing system caused this model to be the most common system within the industry during 1980 - 2000.
The space between the shell and the roof is closed by GPE specific composite foams. The foams are being wrapped by scuff band envelope and pushed firmly down to the rim space. The sealing pressure comes from tendency of compressed foams to reform to their initial uncompressed status while installed down to the rim space. The GPE tailor made UV resistant composite scuff band is durable in even the most aggressive services and corrosive products. The GPE specially manufactured foams are resistant to any corrosive products and keep their physical properties as long as they are kept dry. The steel parts are manufactured according to GPE specially engineered strict specifications to maximize longevity of the system.
The GPE foam seals are designed and sized to fit the specific tank and floating roof dimensions up to 120m and perform well in rim spaces ranging.
This should be mentioned that due to roundness of the tank shell, accommodation of the foam and scuff band inside the rim space may cause appearance of some wrinkles on the surface of scuff band in some areas. These very tiny free spaces facilitate product vapor loss which should be taken into account in selection of sealing system.

Features and Benefits

• Wide application range: Accommodates variety of rim spaces and in different tank sizes.
• Even distribution of sealing pressure around the rim space to avoid any off centering of the floating roof.
• Each seal tailored to the tank: Each tank has its own variations in roundness and verticality. To provide the most effective sealing, in GPE we use varying length parts for varying rim spaces within a given tank.
• Excellent flexibility: Conforms well to local anomalies in shell roundness.
• Flame retardant composite materials.

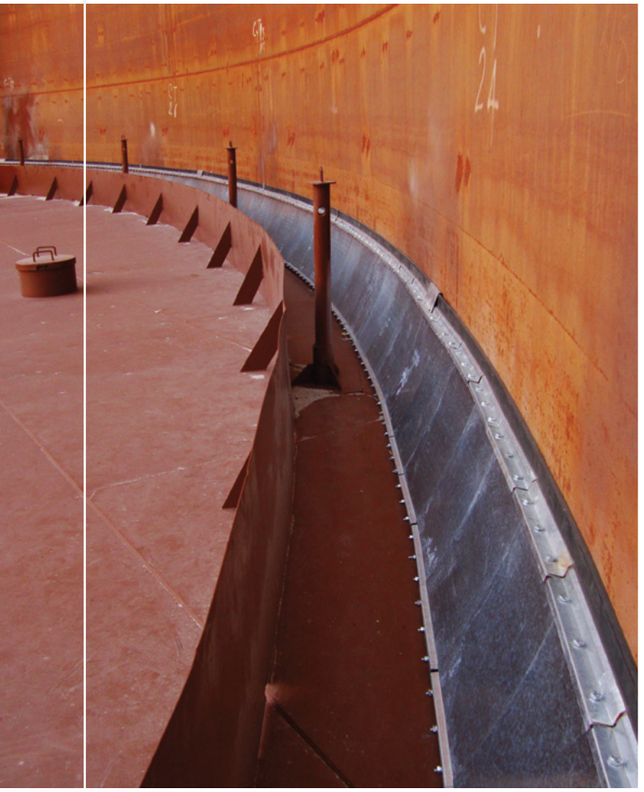
Roof Sealing Systems

Secondry seal

Secondary Seal Wiper Seal Type

Application

The GPE Secondary Wiper Sealis the most effective solution for tanks secondary sealing systems protection and acts complementary and acts complementary to sealing task of primary layer. This multipurpose model effectively meets all possible sealing requirements by adjusting to the irregularities of tanks by covering a wide working range(rim space) while remains extremely gas tight, allowing more working capacity with very low profile and virtually maintenance freelong life. The multipurpose composite parts which has been engineered and developed by GPE surpass global rivals to specifications by providing the most effective solution for gas tight sealing(by maximizing wiper contact surface to the shell), facilitating over pass of the seating system on welding lines and other tank irregularities and superior rain water shedding due to wiper profile which leaves no space for penetration underneath.
The GPE Bolt Gear assembly eliminates all hot works and allows for easier and safer installation and tank maintenance. GPE tailor made UV resistant composite parts are durable in even the most aggressive services and corrosive product vapors. The steel parts are manufactured according to GPE specially engineered strict specifications to maximize sealing pressure and longevity of the system.
The GPE secondary wiper seals are designed and sized to fit the specific tank and floating roof dimensions up to 120m.



Secondary Seal Weather Sheild Type

Features and Benefits

Wide application range: Accommodates variety of rim spaces and in different tank sizes.
Stable Design to avoid any push back and separation from the shell even in case of maximum roof displacements.
Long life: Sliding parts in contact with the tank shell are wear resistant.

Roof Drainage System

Swivel Joint Drainage System

Application

The floating roof drainage systems have been designed by GPE to drain water from the top of external floating roof tanks without contamination by the stored product.
The system is fully articulated and allowances have been built in to cater for all possible axial, lateral, and rocking motions within the confines of the tank shell, without causing heavy loads on any part of the system.
The weight of the assembly is carried on the underside of the roof about its own center of gravity. Thereby avoiding heavy offset loads. the arrangement of pipes and swivel joints allows the lowest possible ‘collapsed’ height of the floating roof. To facilitate assembly, the entire pipe work system from sump inlet to shell nozzle outlet is in the form of flanged pipe lengths.

Features and Benefits

Our heavy duty swivel joints are fully sealed units specifically designed for submerged service in such as articulated pipe drainage systems for floating roof tanks.
Inside the joints, there are widely spaced precision raceways each carries a full compliment of large diameter hard chrome plated balls with a reservoir between them which enables the joint to be grease packed for ‘life’.

Flexible Hose Drainage System

Application

GPEs flexible pipe is designed for aboveground Storage tank applications such as roof drains and skimmer lines. GPE›s flexible pipe designs are compatible for continuous service, both externally and internally, in a wide range of PH solutions and chemicals.
The GPE Flexible Hoses are being designed to resist immersion in high aromatic or corrosive liquids, crude oil, condensate and ATK applications with a temperature range from -20 to +100°C. Multi-Layer composite special construction and wire reinforced (internal and external) prevents any possible collapse due to the external pressure. The hoses are specifically designed to have a negative buoyancy, to prevent the hose floating in the tank liquid. Hoses can be electrically continuous, antistatic and can be used for suction or discharge purpose. The flexible nature of hoses gives versatility of to any design with no restriction may be seen in rigid systems. The only concern is in application of flexible hoses as floating tank roof drainage system. In design of flexible hose roof drainage systems, GPE will be carefully considers any existing environmental conditions to avoid the conflict between deck supports and hose to assure long operation of the system.

Features and Benefits

Operates in a vertical plane and does not scrape on the floor of the tank.
• Proprietary designed fittings give roof drain permanent non-leaking couplings at each end of the assembly.
• Dose not add pressure to the floating roof.
• Will not cause «off-center» roof or seal gaps such as those may cause by swivel joints or rigid pipe systems.
• Has negative buoyancy.
• Less maintenance, less product loss, reduced shutdowns, ease of installation, maximum service life.

Pivot Joint Drainage System

Application

GPE Pivot Flexible Joint was designed to innovatively provide an easy solution to floating roof drainage problems. It combines flexibility of oil resistance composite hoses with strength of stainless steel helical reinforcement. The Pivot Flexible Joint is basically a steel pipe drain system with flexible Joints that withstand an extremely wide range of service conditions.
It is designed for submerged service with no lubrication required, and there are no corrosion freeze-ups. Pivot Flexible Joints are compatible with 100% aromatic products and can withstand high design pressures.

Features and Benefits

The pivot flexible joint is designed with inner and outer stainless steel wire helixes to maintain not only hose shape but also the flexibility when subjected to internal or external pressures.
The flexible joint pivot-pin design uses stainless steel bushings and spacers to eliminate binding and assure rotation. The reinforced side plates transfer the load around the flexible hose, eliminating stress on the hose end connections and minimizing the risk of hose end failure.
These side plates are available carbon steel (Galvanized or Primer coated) and stainless steel materials.

Floating Check Valve

Application

GPE floating check valves have been designed to avoid overflow of rain water from the roofs of external floating roof tanks, in case of blockage or shut off the drainage system or in case of any damage to drainage system to avoid roof sinking .

Features and Benefits

GPE floating check valve is side mounted type to be installed in drain sump of floating roof deck. Other type of this product is also available as bottom mounted type to be installed under drain sump of floating roof deck.

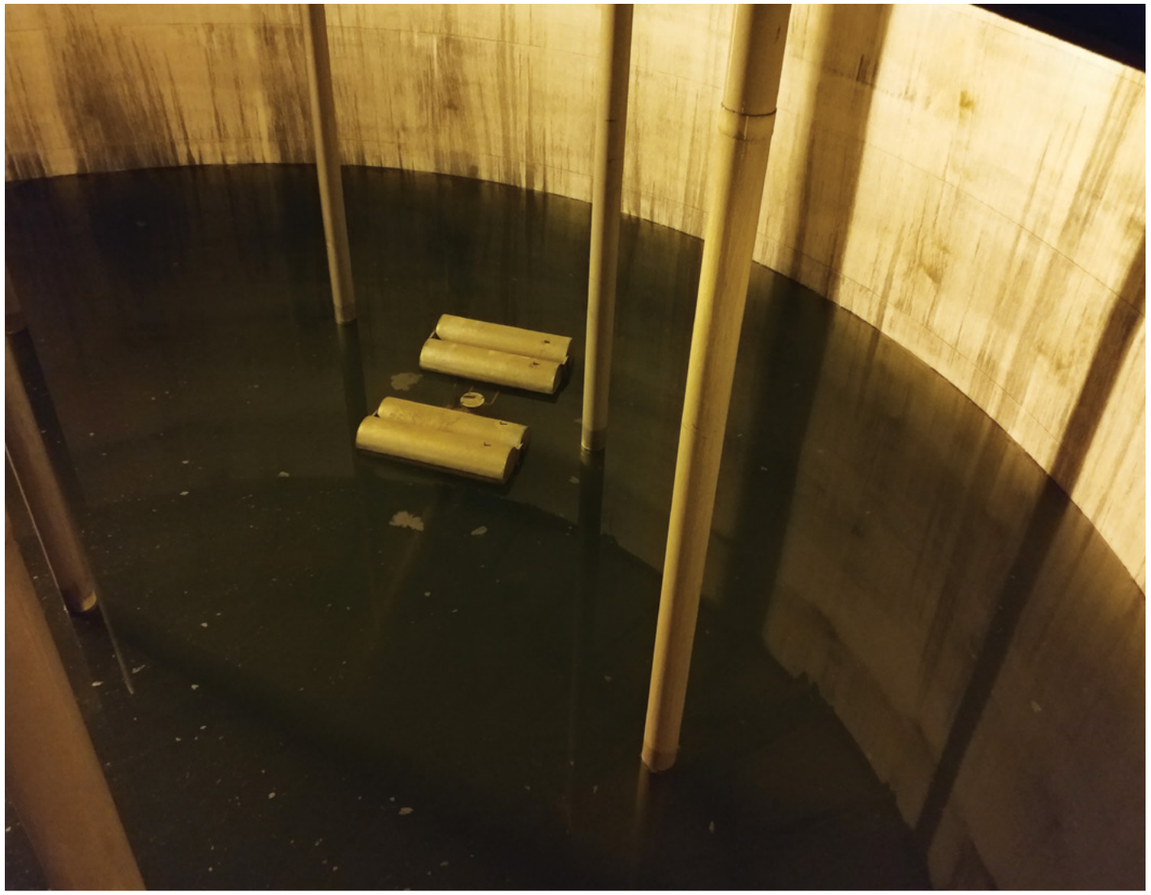
Oil Skimmer System (Oil Suction)

Application:

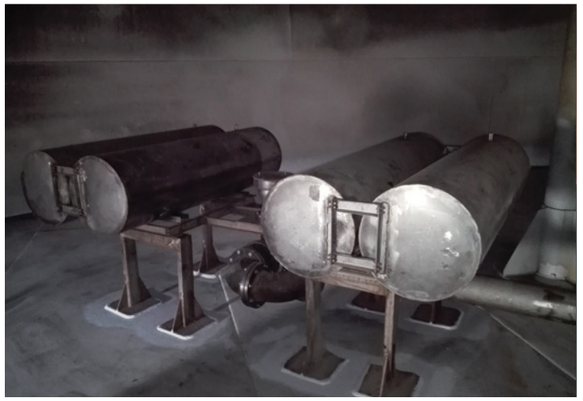
The Main task of GPE Skimmers are accumulation and discharge of tank content top layer of fluid out from the tank.
GPE Skimmer units are being supplied with swivel joint and pipe work, floats are available in either aluminum or stainless steel upon customer request.
The suction unit safeguards the quality of product drawn off from the tank.

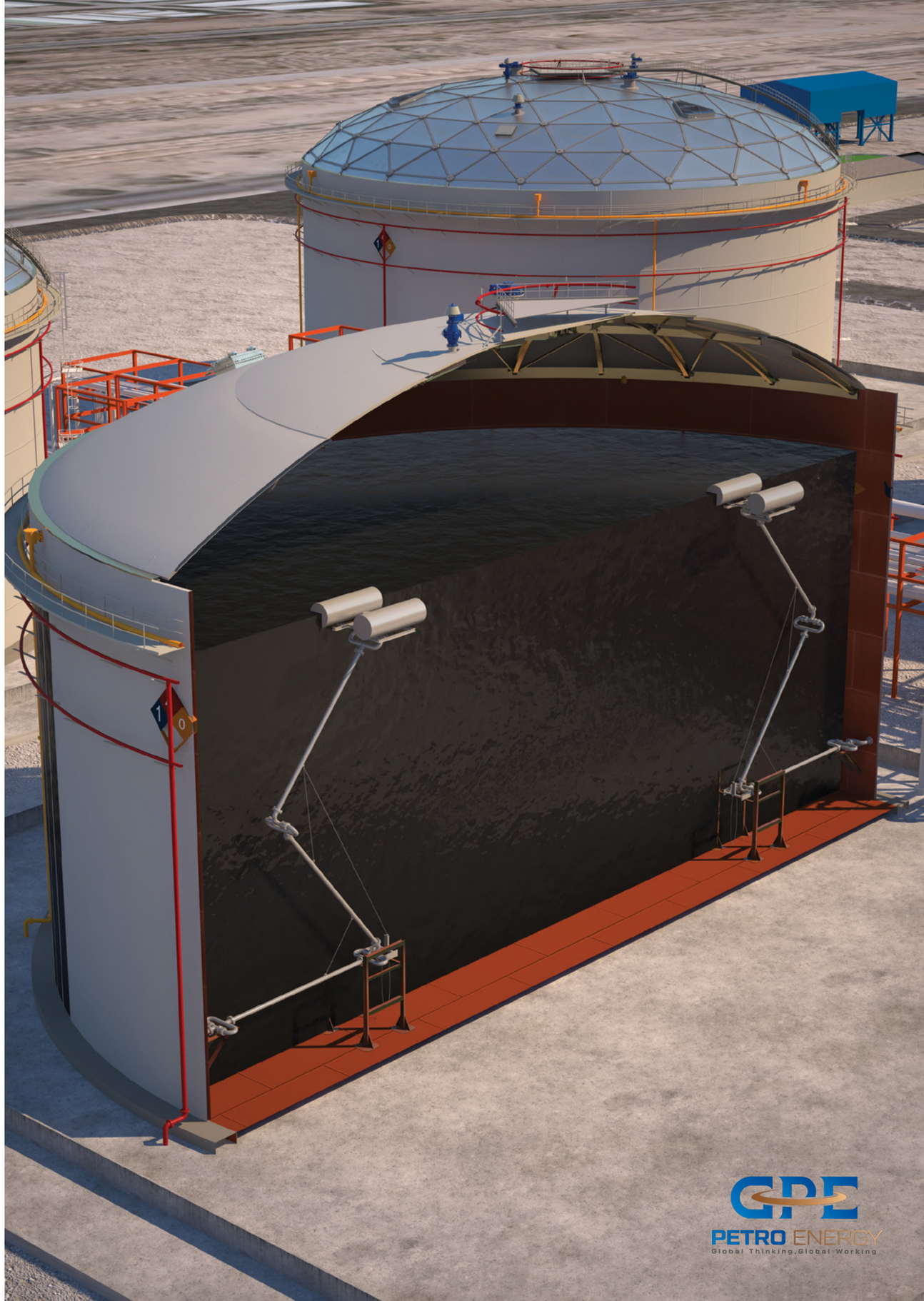
Feature and Benefits:

The units are designed to maintain the intake approximately 50150- mm below the liquid surface and the intake is effectively baffled to avoid vortex formation.
The suction is fitted with a low level stop to prevent disturbance of any water or sediment in the tank bottom.
All the swivel joints have been designed for fully immersed service with two widely spaced raceways each with a full compliment of large diameter stainless steel balls.
The swivel seals are suitable for both vacuum and pressure service enabling, and the swivels are packed for life with grease that is fully compatible with aviation fuels.
Foam Skimmer units are available in suitable configurations to pass through tank entrance manhole.



Skimmer





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