



- ▶ **FLOATING ROOF SEAL SYSTEM**
- ▶ **ROOF DRAIN , FLOATING SUCTION & SKIMMER LINE**
- ▶ **TANK ACCESSORIES**

Design
Manufacture

Installation & Maintenance





Internal Floating Roof Seal System

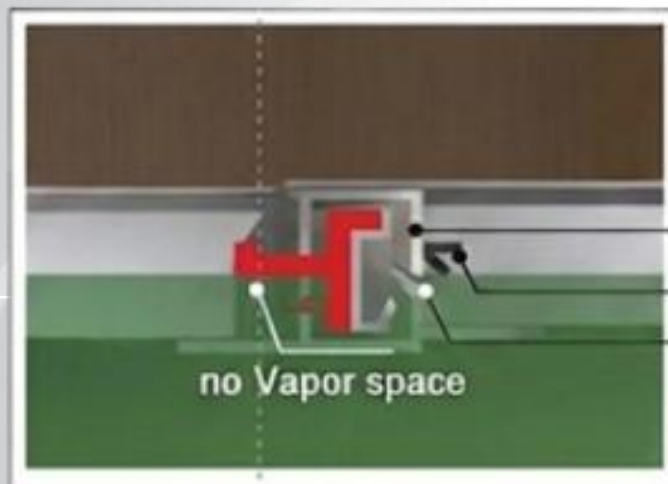
► Deck skin on floating tube type --

The **LINTECH Internal Floating Roof Seal System**

consists of float tubes joined with clamp beams on deck skins. It is equipped with a continuous closure device (primary and secondary seals) fitted between the tank shell and the floating roof edge.

The primary purpose of the internal floating roof system is to minimize the vapor zone above the stored liquid, drastically reducing volatile organic compound (VOC) emissions and evaporative product losses while preventing internal shell corrosion.

All parts are manufactured under LINTECH high quality control, and all floating tubes are leak-tested. In addition, all components can be easily accessed through an existing manhole without any special tools



no Vapor space

► Full contact Honeycomb floating deck type --

Designed around a full-contact tray combination principle, the **LINTECH Honeycomb Floating Deck** eliminates the vapor space beneath the deck skin.

By eliminating the liquid-vapor interface entirely, product evaporation is virtually zero. Honeycomb decks provide exceptional structural rigidity, economic cost-efficiency, and maximum vapor containment for high-volatility petroleum products.

► Double Wiper Seal

Two wiper seals are vapor mounted and overlapped by each other. These seals completely cover the space between the tank shell and the edge of the internal floating roof. The wiper seals are continuous and made from high quality material of 100% aromatic resistance. Double wiper seals are easily to install and have a low cost.



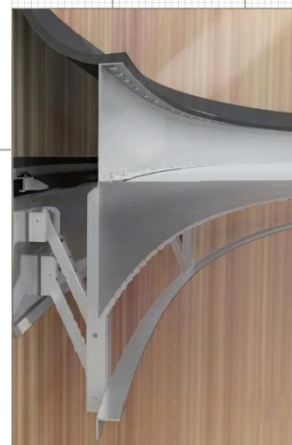
► Foam Seal & Wiper Seal

The primary foam seal is liquid mounted type composed of foam blocks and envelopes; the secondary wiper seal is vapor mounted type. The envelope is designed to prevent liquid capillary action and provide a long service life for B.T.X and other strong chemical storage tanks. This foam seal can effectively reduce VOC ((*Volatile Organic Compounds*)) emissions and project losses of liquid products completely.



► Mechanical Shoe Seal

The mechanical shoe seal is a metal sheet held vertically against the tank shell by spring. It is connected by brace arms to the floating roof. A flexible coated fabric (continuous seal) spans the annular space between the shoe plate and the rim plate of the floating roof. This seal offers actual advantages of universal resistance to all storage products, good emission reduction, long service life and liquid mounted.



INTERNAL FLOATING ROOF SEAL SPECIFICATIONS & MODELS

Model No.	Primary Seal Type	Secondary Seal Type	Deck Type Compatibility
LNW-IFR-DW	Vapor Mounted Wiper Seal	Vapor Mounted Wiper Seal	Floating Tube / Honeycomb Deck
LNW-IFR-FW	Liquid Mounted Foam Seal	Vapor Mounted Wiper Seal	Floating Tube / Honeycomb Deck
LNW-IFR-MW	Mechanical Shoe Seal	Vapor Mounted Wiper Seal	Floating Tube / Honeycomb Deck
LNW-IFR-CSM	Mechanical Shoe Seal	Vapor Mounted Wiper Seal	C.S. Pontoon Deck

► Specifications ◀

Item	Internal Floating Roof & Sealing System	Rim Space	Normal 180mm ± 100mm (Custom larger sizes available)
Pontoon / Deck Material	Aluminum, Stainless Steel (FRP available upon request)	Application	Reliable conversion of fixed roof tanks to internal floating roof storage
Seal Types	Primary: Wiper, Foam, or Mechanical Shoe Secondary: Wiper Seal		

LINTECH Technical Advantages

- Dramatically reduces product evaporation loss and VOC emissions.
- Prevents potential vapor space explosive hazards and fire risks.
- Superior peripheral sealing performance with optimized investment cost.
- Long maintenance-free service life under severe operational conditions.
- 100% aromatic resistance against aggressive chemical storage products.
- Fully compliant with **API 650 Appendix H**.
- Compatible with Crude Oil, Gasoline, Naphtha, Jet Fuel, and Petrochemicals.
- Modular design allows all parts to pass through a standard 24" manhole.

Engineered to exceed API 650 standards, **LINTECH's** Floating Roofs integrate precision-fabricated pontoon structures and high-efficiency rim seals to virtually eliminate vapor loss and ensure smooth vertical travel. Reinforced with heavy-duty drainage and anti-rotation systems, our designs deliver superior resilience against hydrostatic and seismic loads, guaranteeing long-term asset integrity and uncompromised operational safety.

External Floating Roof Seal System

▼ Primary Seal ▼



► Foam Seal type

The flexible foam filled with primary rim seal is mounted in the bottom position of the seal contacted with the stored products.

LINTECH foam seal is comprised of a series of polyurethane foam blocks covered by an envelope and compressed between the tank shell and the floating roof rim. The foam blocks are held down by steel plates. This mounted-type seal eliminates vapor area.

The curtain seal prevents any vapors passing between the roof and the metal frame or hanger bar.

▼ Description	Material
✓ Foam Block	Polyurethane foam
✓ Envelop	Synthetic rubber, Polyurethane, PTFE, Viton or Polyethylene on polyester fabric
✓ Curtain Seal	Nitrile/PVC, Polyurethane or PTFE
✓ Metal parts	Carbon steel with hot dip galvanized coating or Stainless steel

► Mechanical Seal Weigh load type

This pantograph type mechanical shoe seal is the most widely used design on external floating roof tanks. The metallic band is formed as a series of shoes that are overlapped together to form a ring and held against the tank shell by pantograph type mechanical device. The assembling counterweight and arms exert a constant pressure to push the shoe against the tank shell.



- ✓ Long service life
- ✓ 100% aromatic protection available
- ✓ Complies with API 650 appendix C
- ✓ Compatible with all stored products: Crude oil, Naphtha
- ✓ Available with secondary seal
- ✓ Compatible with weld, lapped or riveted tanks

▼ Primary Seal ▼



► Mechanical Seal spring type

This spring type mechanical shoe seal has an economic and simple design. It is easy to install without hot work, such as welding, and gives good performance for sealing. The shoes are held in permanent contact with the tank shell and extended into the product by hanger arms. The material of pushing spring is high tensile stainless spring steel, and the spring pushes the shoe at two positions, upper and lower. The vapor membrane covers the vapor space between the shoe and the roof from the atmosphere.

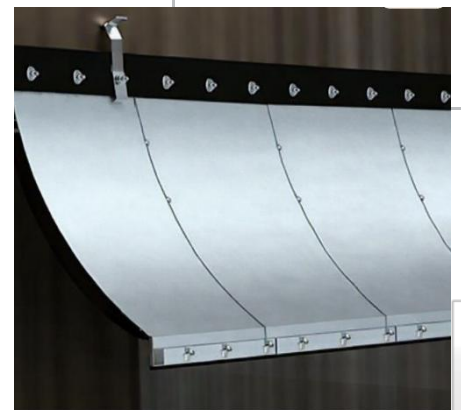
- ✓ Long service life & maintenance free
- ✓ Easy to install & no hot work required (welding or flame curing)
- ✓ Relatively low cost
- ✓ Complies with API 650 Appendix C
- ✓ Compatible with all stored products: Crude oil, Naphtha
- ✓ 100% Aromatic protection available
- ✓ Available with secondary seal
- ✓ Compatible with weld, lapped or riveted tanks

▼ Secondary Seal ▼

► Secondary Seal

The secondary seal reduces the evaporation losses of the primary seal, and it also prevents the rainwater and other products from falling into the stored products. The compressed plates may be mounted on horizontal or vertical type of roof rims and made to accept specific bolt pitching. The overlapping of compressed plates give strong sealing pressure to the tank shell.

The wiper tip complies with a UV and weather resistant type of synthetic rubber and exerts a high sealing efficiency. The shunts complies with API 2003.



- ✓ Rim mounted type
- ✓ High sealing efficiency & durable service life
- ✓ Large wiper seal contact to the tank shell
- ✓ No scratching or damage to the tank shell
- ✓ Complies with API 650 Appendix C
- ✓ Compatible with all stored products
- ✓ Easy installation and available while operating
- ✓ Available to re-enter the tank without any damage and hang-up when over filled
- ✓ Can be installed with either a vertical or horizontal rim plate
- ✓ Foam port is available (*optional)

Floating Suction System/Oil Skimmer System

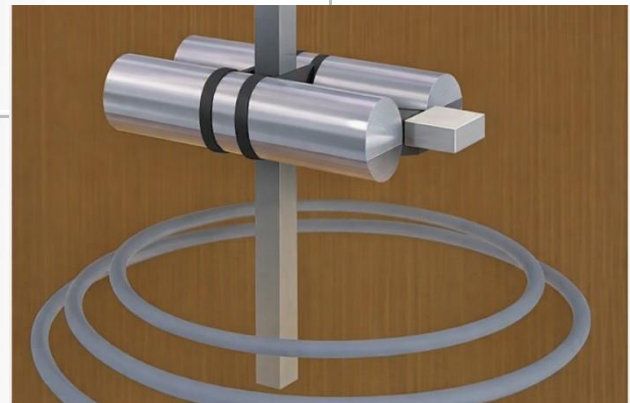
► Articulated Rigid Pipe Type Floating Suction System

Airplane fuel, motor fuel, heating oil, petrochemicals and water may need to be delivered without impurities. LINTECH Floating Suction System is used to deliver a clean product from a defined depth under the liquid level.



► Constant or adjustable Oil Skimmer System

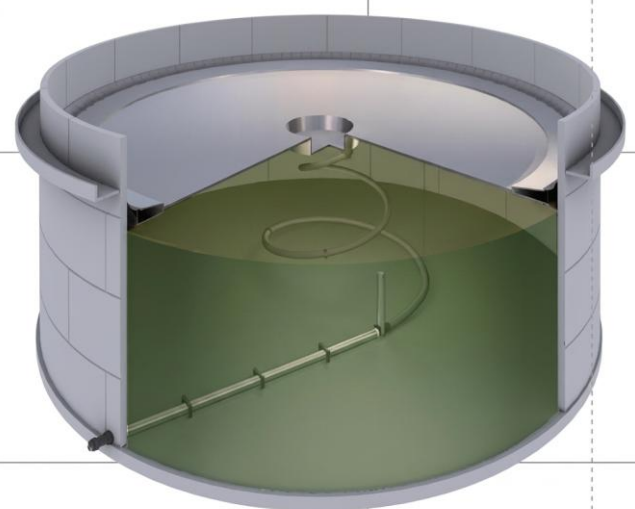
A custom designs and manufactures pontoon and floating roof skimmer systems, our exclusive flexible skimmer discharge line do not need to add extra weights or torques to skimmer pontoon, floating panel and floating roof. The smooth chemical resistance fluid way will not cause turbulence or trap solids as waxy residue.



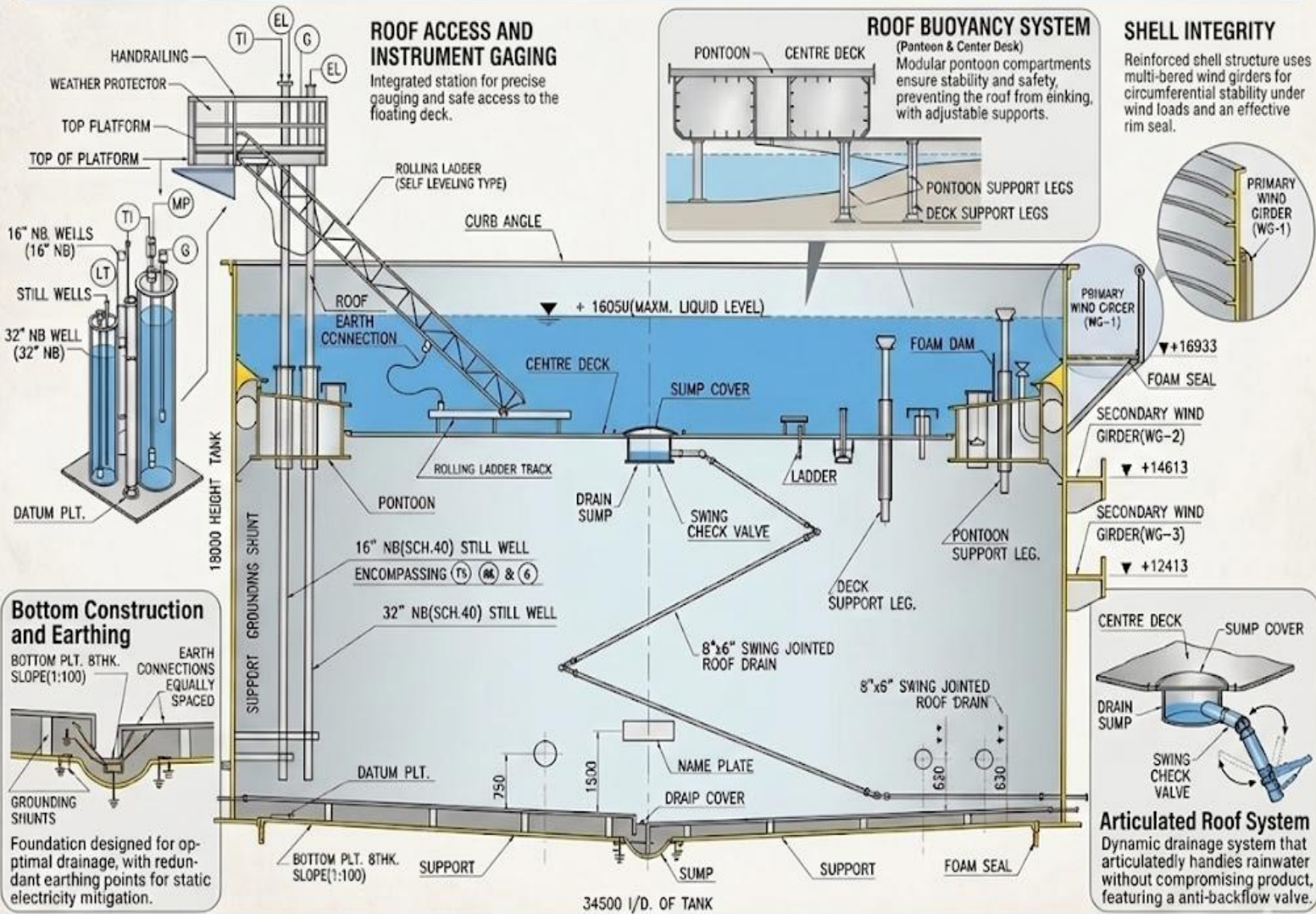
► Flexible Pipe for Water Drain and Fire Foam Conduits

Completely compatible for continuous service in pure M.T.B.E.. 100% aromatic hydrocarbons, pure alcohol also leaded and unleaded gasoline and jet fuels. Fully preformed, repeated and controlled lay pavern, no sliding on tank floor and with negative buoyancy even in heavy crude or water.

Smooth internal fluid-way has very low resistance to water flow.

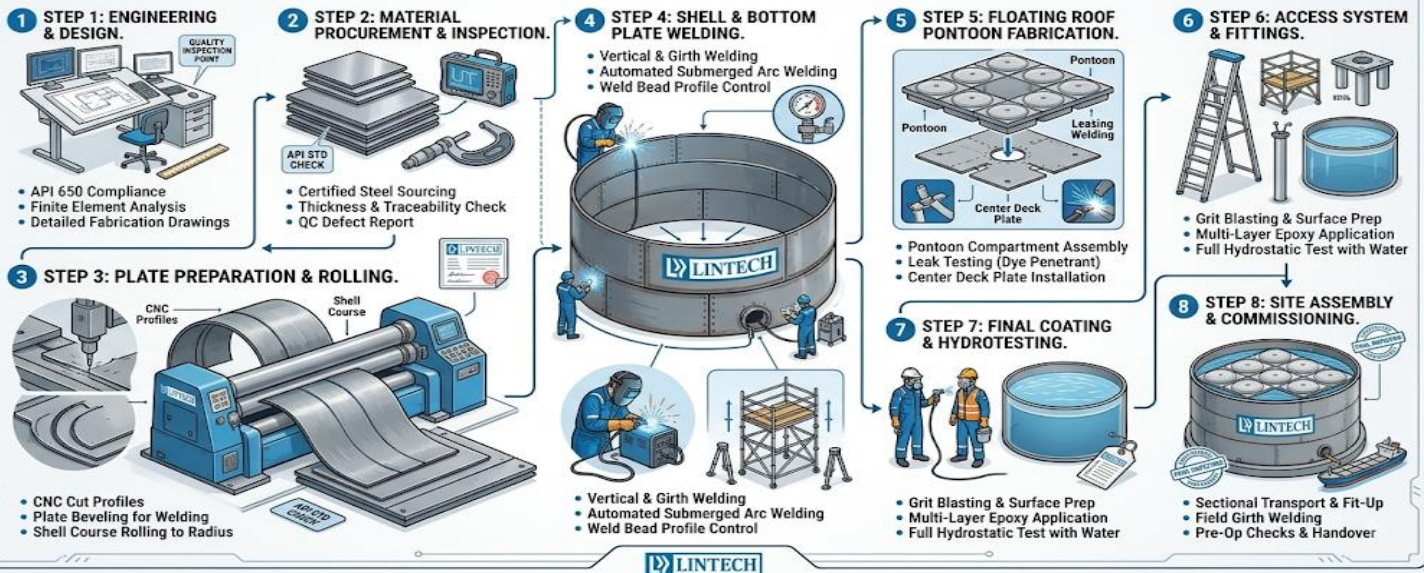


Flexible drain for External floating roof



The floating roof tank design integrates advanced structural shell engineering with dynamic internal systems for safe, efficient storage. Key features like the Articulated Roof Drain, Modular Buoyancy Pontoons, and Multiple Wind Girders are crucial. Understanding terminology such as "Still Well," "Swing Joint," and "Curb Angle" is essential for fabrication, installation, and operation. Lintech's approach ensures meticulous attention to these details for API 650 compliance.

The engineering of Floating Roof Tanks (FRT) begins with API 650 front-end calculations to optimize pontoon buoyancy and minimize vapor loss. During fabrication, critical elements—primary/secondary rim seals, articulated roof drains, guide poles, and support legs—are integrated under strict QC tolerances to ensure smooth vertical travel during pump-in/pump-out cycles. Backed by **LINTECH's** proven engineering mastery and fabrication excellence, this execution guarantees structural resilience against hydrostatic and seismic loads, securing long-term asset integrity



LINTECH delivers high-precision **Floating Roof Storage Tank** fabrication built strictly to API 650 standards. Our process starts with high-accuracy CNC plate cutting and expert rolling, followed by certified automated welding for pontoon decks, rims, and seals. Through rigorous non-destructive testing (NDT), precise mock-up trial assembly, and high-performance coating, **LINTECH** ensures flawless structural integrity, leak-proof performance, and superior corrosion resistance before field installation.

▼ Tank Accessories ▼

► Breather Valves



Conservation vent to ATM
Size: 2" through 12"
pressure saving: 20mmW.C to
700mmW.C
Vacuum seving: 20mmW.C to
700mmW.C



Conservation vent Pipe away type
Size: 2" through 12"
pressure seving: 20mmW.C to
10,000mmW.C
Vacuum seving: 20mmW.C to
10,000mmW.C

► Flame Arresters



Deflagration & Explosion proof type
Size: 1/2" through 48"



Deflagration & Explosion proof type
Size: 2" through 48"



Deflagration & Explosion proof type
Size: 1" through 12"



Top mounted , end of line type
Size: 2" through 18"

► Emergency Vent Covers



Hinged type emergency relief
manhole cover
Size: 16" through 24"
pressure saving: 50mmW.C to
700mmW.C



Hinged type emergency pressure
& Vacuum relief manhole cover
Size: 16" through 24"
pressure saving: 50mmW.C to
700mmW.C

► Gauge Hatches



Lockdown & Non-sparking type
Size: 4" through 12"



Self-closing slot dipping device
Size: 4" through 8"



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