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PROD FAS-CPSS 05

Flex-A-Seal™ Secondary Seal

The Matrix Applied Technologies Flex-A-Seal™ reduce evaporation loss, minimize rainwater contamination of stored product, and extend the life of primary seals by installing Flex-A-Seal™ secondary compression plate seal.

Specifically designed to fit all types of support mountings, the Flex-A-Seal™ requires no “hot work” or special fitments to the tank roof for installation.

Unlike other seal manufacturers who offer a “one size fits all”, the Flex-A-Seal™ is custom designed for each tank, ensuring proper fit and compliance of all air quality regulations. The Flex-A-Seal™ maintains a constant force around the circumference of the floating roof and at all shell contact levels, even as the roof travels during normal operation. Each seal is designed to accommodate a plus or minus of four (4) inches from the nominal rim space measurement.

Flex-A-Seal™ has a patented tip design that reduces product contamination due to weather conditions such as rain, snow, blowing sand and dust with up to 98% shedding control capacity. This dramatically reduces water draw-off, as well as the loss of many additives in the stored product that are often lost with water.

The compression plates are not bolted together, allowing each individual area to conform to the contours of the tank shell. The reinforced fabric placed under the compression plates provides a continuous vapor barrier and protects the underside of the plates from corrosion caused by product aromatics.

The PVC Nitrile flexible wiper tip blade is mounted vertically on the end of the compression plate to even further increase the sealing efficiency and virtually eliminates the release of hydrocarbons within the tank.



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1-866-367-6879

Flex-A-Seal™

Secondary Seal system

| Feature | Benefit |
|-------------------------------|---|
| Patented wiper seal design | Highly efficient vapor emission control with an estimated cost "pay back" of 18 months. Reduces product contamination with up to 98% water shedding control capacity. |
| Continuous vapor barrier | Provides superior sealing over designs which employ individual gaskets at each joint. Protects underside of compression plates from corrosion. |
| Custom designed | Improves installation efficiency and quality. Eliminates need for breaking of compression plate tabs or field drilling of holes in the compression plates. |
| Overlapped compression plates | Speeds installation by eliminating bolting and gasketing of each individual joint. Eliminates failure of gaskets and joints caused by friction between plates. Allows each individual compression plate to conform to tank shell contour. |
| Wiper tip protector clip | Minimizes potential damage to wiper tip in the event that seal is allowed to ride above the top of the shell. |
| In-service installation | Eliminates high cost of tank cleaning and downtime. |

Material specifications

Compression plates

Description: Flat sheets.

Materials: 304 stainless steel with 2B finish.

Dimensions: Tank specific, based on rim space measurements.

Vapor barrier

Description: A product compatible membrane which forms a continuous circumferential seal.

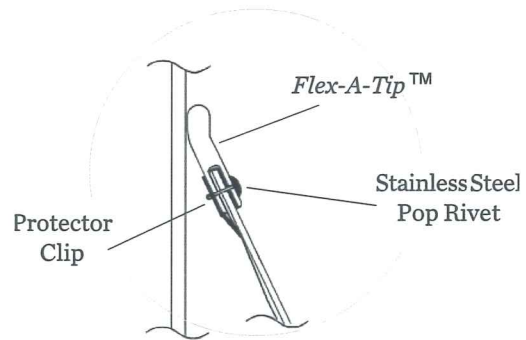
Materials: 20 mil urethane coated fabric. Other materials are available based on product requirements.

Flex-A-Tip™

Description: Flexible wiper tip connected to the top of compression plates.

Materials: PVC Nitrile/Buna compound. Viton available by special order.

Flex-A-Tip™ wiper tip detail

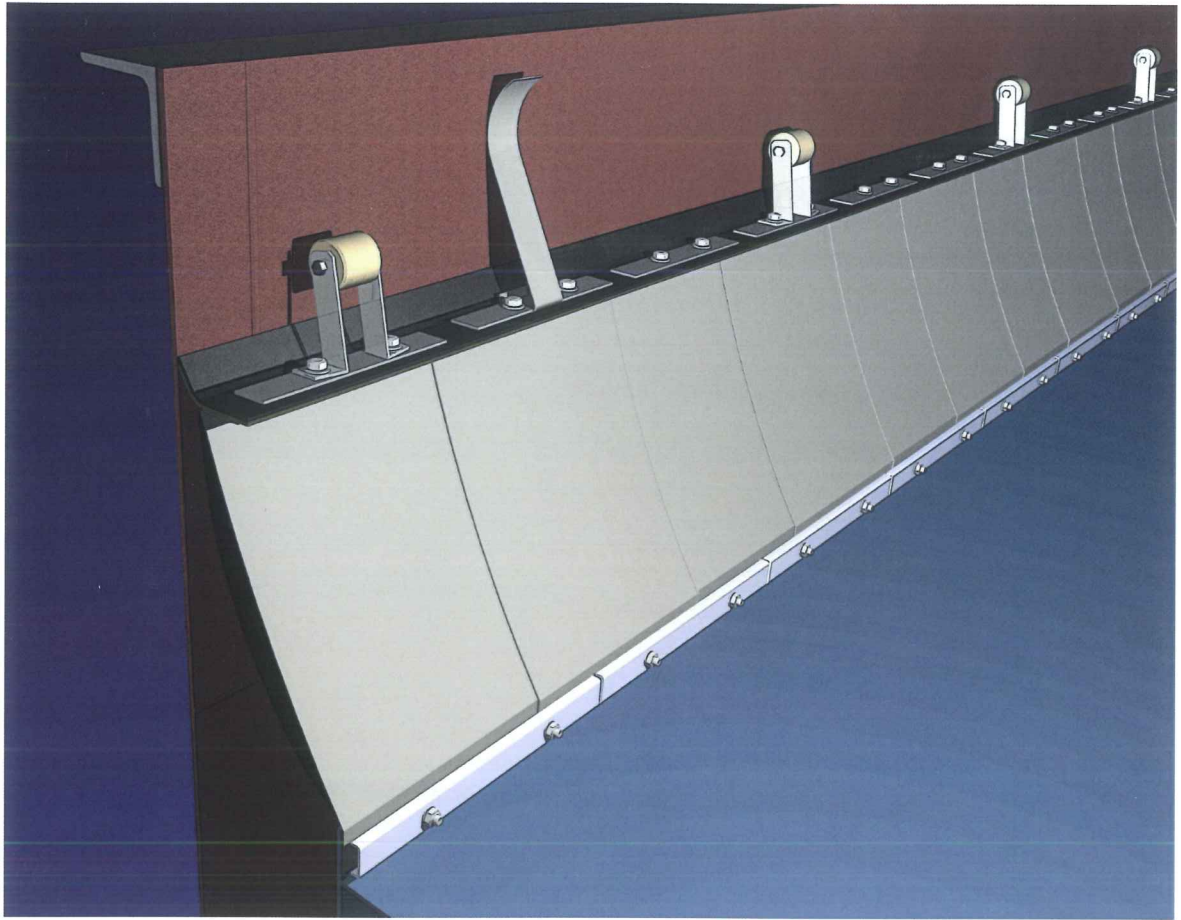


Hardware

Description: Bolting shall meet ASTM A307 specifications and hex nuts shall meet ASTM 563. Stainless steel bolting shall meet ASTM F593 and hex nuts shall meet ASTM F594. Stainless steel large head pop rivets.

Materials: Zinc plated or stainless steel.

Dimensions: Min. bolt dia. of 3/8" (9.5 mm) x required length. Pop rivets are 3/16" x 5/8".



Secondary Wiper Seal and RollerSeal for Floating Roof Tanks

The Matrix Applied Technologies secondary wiper seal is designed to provide secondary sealing for all floating roof applications. Metal parts can be galvanized or stainless steel with a variety of materials available for wiper tips and vapor barrier fabric. Our standard configuration includes neoprene wiper tips and urethane vapor barrier fabric.

A significant feature of the seal is the special synthetic roller assembly. These positively eliminate seal rollover. Ideal for old, out-of-round tanks. The corrosion free roller is shell-contoured to minimize painted shell marking. The roller assembly allows a shorter support plate height for a given maximum rim space. This allows greater working tank volume. The roller normally only contacts the shell when the rim space is larger than nominal.

The Matrix Applied Technologies Secondary RollerSeal plates are not bolted together. Support plates can fan out independently of each other easily accommodating rim space changes. Because the seal is very flexible, less tension is required by the support plates to keep the wiper tip in contact with the shell. This means lower tip wear.

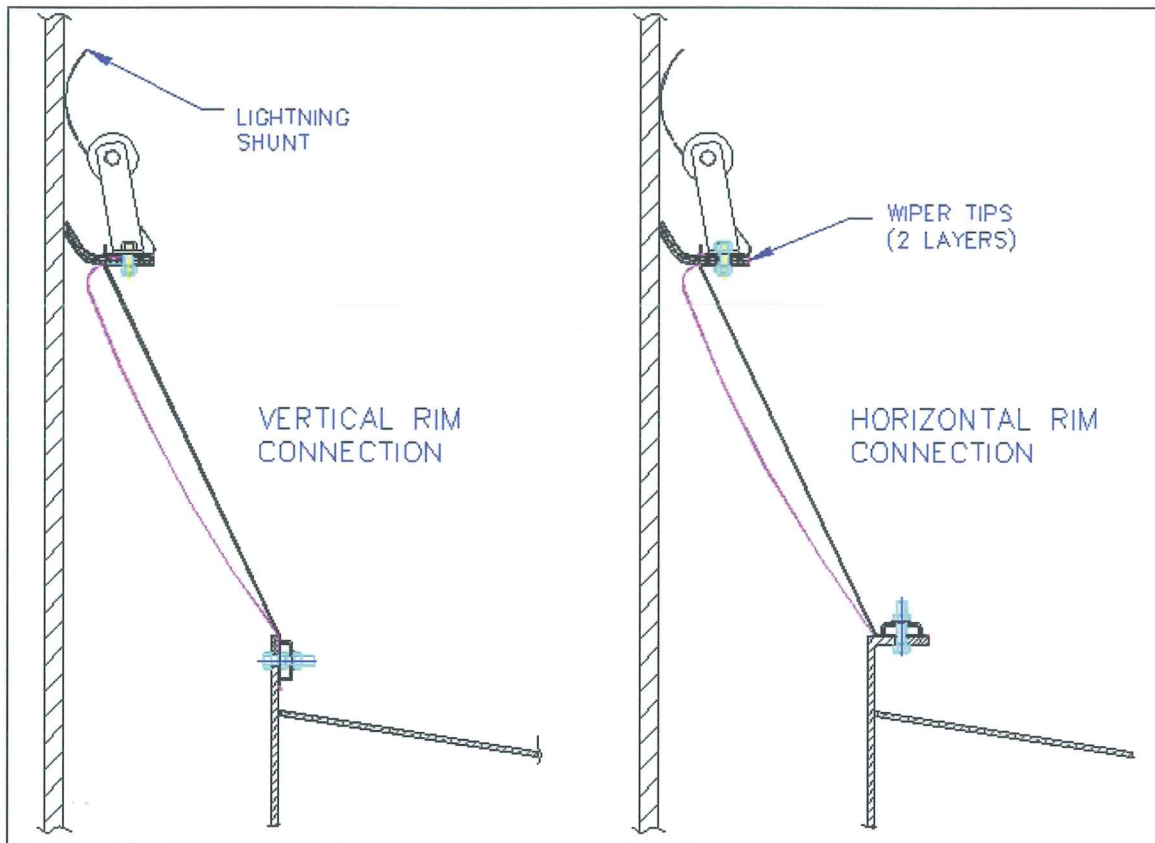
Other brand rigid-tip design secondary seals are very stiff, do not conform easily to out-of-round shells and require more tension secondary support plates to keep the tip in contact with the shell, accelerating tip wear.



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Secondary RollerSeal for Floating Roof Tanks



Matrix Applied Technologies tank products include:

- Aluminium internal floating roofs
- Floating roof tank seals
- Floating roof tank drain systems
- Floating roof tank fire foam systems
- Floating suction lines & skimmers
- Floating suction swing joints 3" to 44"



Low Profile Secondary Seal for Floating Roof Tanks

The Matrix Applied Technologies low profile secondary seal is designed to provide secondary sealing for all floating roof applications. All metal parts are stainless steel. Our standard configuration includes neoprene/nitrile wiper tip and Teflon vapor barrier fabric.

The Matrix Applied Technologies low profile secondary seal was specifically designed to allow tank owners to maximize the operation of their tanks. With its low profile design, the low profile secondary seal increases the capacity of a floating roof tank thus increasing the operating efficiency and allowing tank owners to maintain competitiveness.

The Matrix Applied Technologies low profile secondary seal plates are not bolted together. Support plates can fan out independently of each other easily accommodating rim space changes. Because the seal is very flexible, less tension is required by the support plates to keep the wiper tip in contact with the shell. This means lower tip wear.

Other brand rigid-tip design secondary seals are very stiff, do not conform easily to out-of-round shells and require more tension secondary support plates to keep the tip in contact with the shell, accelerating tip wear.

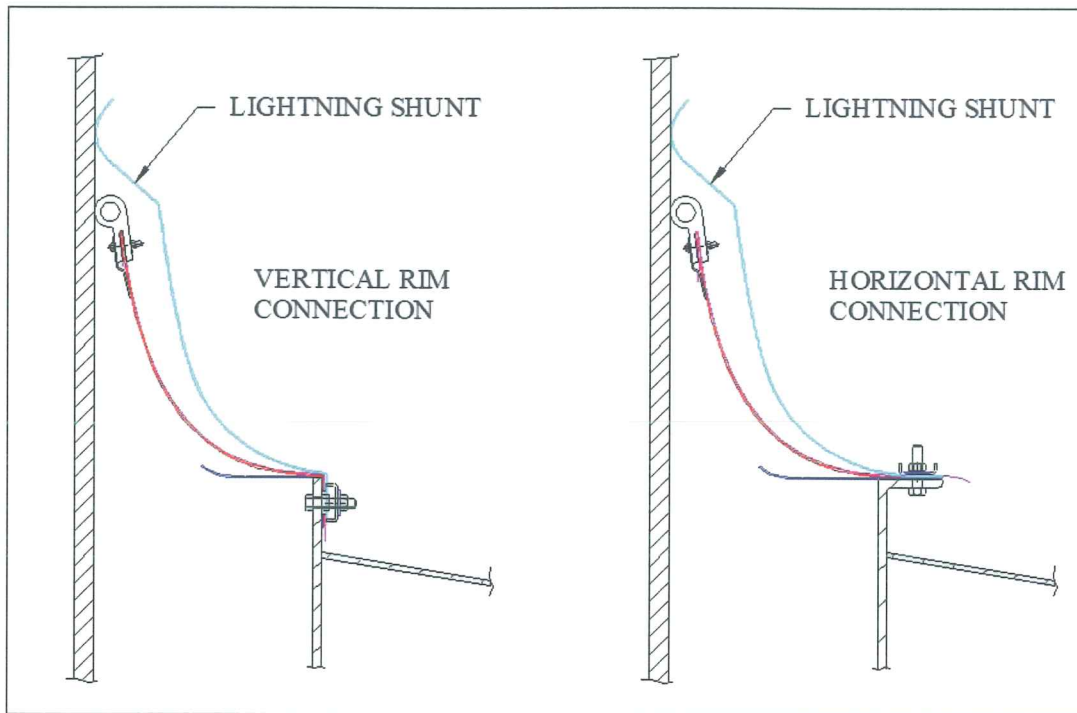


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Low Profile Secondary Seal for Floating Roof Tanks



Matrix Applied Technologies tank products include:

- Low profile seals normal operating height approximately 310mm above the floating roof rim at 200mm rim space.
- Increase tank working height by approximately 140mm compared to standard secondary seal.
- Can be installed on external floating roofs, internal steel pan and aluminium roofs.
- The Matrix Applied Technologies low profile seals can be installed while the tank is in-service on external floating roofs.
- Light weight compared to other internal and external secondary seals.
- PTFE vapor barrier is mounted on the outside of the secondary for easy inspection.
- Excellent vapor sealing ability.
- Extruded neoprene/nitrile wiper tip compatible with most stored products.
- Stainless steel construction for long service life.