

Inflatable Dock Seals and Shelters



Pentalift Inflatable Dock Seals and Truck Shelters

Inflatable dock seals were originally introduced in the mid 1950's. The initial concept was excellent however, the initial products were not. The first inflatables had design deficiencies, there were problems with the quality of the cover materials and they carried a high price, which made inflatable dock seals difficult to cost justify. The product never reached acceptance.

In 1991 Pentalift made the commitment to explore and develop new designs for inflatable dock seals and truck shelters that would function reliably in the most severe conditions. Pentalift Equipment Corporation, North America's most progressive manufacturer of loading dock equipment has re-designed and refined the inflatable dock seal concept. Through the use of state of the art computer design technology, incorporating innovative manufacturing efficiencies and by taking advantage of revolutionary developments in materials, Pentalift inflatable dock seals and shelters surpass comparable conventional models in both performance and product value.

Why use a Pentalift Inflatable Seal or Shelter?

Pentalift inflatables are designed to accommodate the widest range of truck/trailer configurations. They provide an effective seal, and eliminate excessive pressure on the building wall. Pentalift inflatables provide the most effective weather-protected passageway between a building and the truck/trailer. When the seal/shelter is in position it keeps costly conditioned air inside the building.

How Do Pentalift Inflatables Work?

Pentalift inflatable truck shelters are designed to "hug" a truck/trailer by inflating to come up against the top and inward against the sides of the truck/trailer. Once the truck/trailer is in position the attendant activates the unit. A motor/blower assembly forces air through the head and side air bags to instantly form a gasket on the truck/trailer. Since the Pentalift inflatable's fabric is breathable, air flows through the material and high pressure does not build up. Any condensation inside the air bags is automatically exhausted each time the unit is activated. When finished, the operator switches the unit off. A recoiling spring and internal tension straps quickly return the truck shelter air bags to the retracted position before the truck/trailer departs. When not in use, Pentalift inflatables are kept deflated. This prolongs their service life and when desired allow additional building ventilation.

Design Features

Motor/Blower

Low power consumption motor, premounted on galvanized brackets inside the top head frame protected from the outside environment. The shelter activation can be easily interlocked with the overhead door, dock leveler or vehicle restraint.

Trim

Aluminum trim on all external edges for durability and improved aesthetics.

Controls

Wall-mounted, manual on/off activation switch with overload protection and indicator light to identify when the unit is in operation.

Side Air Bags

100% air filled side air bags. Internal retraction system is used to return and hold side bags when deflated in the retracted position to protect the unit from potential impact damage.



Pentalift PSI-550 shown.



Pentalift PSI-350 inflatable dock seals are durable and provide an effective seal.

What are the benefits of Pentalift Inflatables?

Cost Savings: Improves energy conservation (air-loss) and reduces repair and replacement costs thereby providing rapid return on investment. The loss of conditioned air from an open, unsealed 8' x 8' door can cost up to \$2000.00 a door per year.*

Safety: A positive seal on trucks/trailers immediately improves dock safety by eliminating the effects of adverse weather conditions that can cause slippery dock surfaces, poor visibility and worker discomfort.

Durability: The non-compression design of Pentalift inflatable seals eliminates excessive cover material damage caused by the abrasion that occurs both when a truck/trailer compresses conventional dock seals and when the truck/trailer's suspension rises and lowers as loads are transferred. These abrasion conditions can puncture, tear and wear through the cover materials on conventional models.

Flexibility: Pentalift inflatables offer maximum flexibility. When inflated, Pentalift inflatables custom shape themselves to seal the individual truck/trailer. They consistently seal diverse trailer configurations. Also, the wraparound effect of Pentalift inflatables provides the optimal seal on misaligned trucks/trailers.

Head Frame

Pentalift inflatables feature a raked protective canopy designed to allow water run off to the sides and to prevent snow build up. The top of the head frame incorporates a translucent panel. A torsion spring assembly is used to retract and hold the head air bag under the canopy when the head air bag is in its stored (deflated) position.

Material

The air bags for all Pentalift inflatables are made using a high strength material exclusive to Pentalift called DURALITE. DURALITE is a durable, highly flexible material even in extreme cold conditions. Additionally, external inhibitors are part of the formulation of the DURALITE cover material for maximum ultra violet stabilization. These inhibitors also prevent material breakdown and discoloration. When activated, the DURALITE air bags quickly inflate (5 seconds) and conform to the profile of the truck/trailer to form a gasket seal on the truck/trailer.

** See Pentalift Loading Dock Design Guide-Energy Loss Analysis Section*

How Pentalift Inflatables Save You Money

What is the cost?

A common misconception about inflatables is that their initial cost is much greater than comparable conventional models. In fact, the initial cost difference is not substantial and is quickly justified through increased energy conservation, reduced maintenance, improved safety and flexibility.

Minimized Repair/Replacement Costs

The Pentalift inflatable's non-compression design virtually eliminates abrasion damage to the seal/shelter caused when a positioned truck's/trailer's suspension moves up and down as loads are transferred. Conventional seals require 4" to 6" of compression to be effective and are therefore subject to damage from impact and constant abrasion, which result in punctures and tears to the cover material.



Fig. 2

An inside view of a positioned trailer with a Pentalift PSI-450 inflated. A complete seal is achieved and unobstructed access is available.

Low Product Damage Costs

Unobstructed access reduces product damage costs caused by the flow of traffic into the truck/trailer (Fig. 2). Conventional dock seal/shelter models can restrict the access into the truck/trailer by protruding into the door opening. This can lead to product spills and damage to the seal itself. Inflatable truck shelters also reduce product damage costs by providing greater protection from adverse weather conditions such as rain, snow and ice. The seal made when a Pentalift inflatable head air bag contacts the roof of the truck/trailer provides for maximum product protection from the rain running off a sloped truck/trailer in position at a loading dock.



Fig. 1

Zero compression between trailer and shelter until the unit is inflated (Pentalift PSI-450 shown).

Eliminate Building Maintenance Costs

With Pentalift inflatables there is virtually no pressure against the building wall from the positioned truck/trailer (Fig.1). This eliminates building repair and maintenance costs due to twisted doorframes, pushed-in steel siding and cracked walls; conditions associated with overcompressed conventional dock seal models.



A complete seal is achieved at the top and sides of the trailer (Pentalift PSI-550 shown).

Energy Conservation

Pentalift inflatables offer increased energy savings over conventional models by sealing a more diverse range of truck/trailer sizes and configurations. Pentalift inflatables are effective with specialty trailers such as rack and tarp. Inflatables also automatically accommodate jackknifed trailers and truck/trailers in position on sloped approaches. Consequently, **consistent sealing provides consistent savings.**

Selecting a Pentalift Inflatable Dock Seal or Truck Shelter

Many of the same selection criteria for conventional seals/shelters are applicable to inflatables (ie: door size, dock height, bumper projection, mounting surface). Select the Pentalift inflatable that is best suited for the specific needs of your loading dock operation and application. Six styles of Pentalift Inflatables are listed to assist you in your selection process.

PSI-150 Fixed Header Dock Seal

- Suits door openings up to 8' wide x 8' high
- Well suited for loading docks which service a captive fleet of trucks/trailers of relatively similar dimensions.

PSI-250 Adjustable Curtain Dock Seal

- Suits door openings up to 8' wide x 9' high
- Similar features as PSI-150
- Manually adjustable head curtain to accommodate varied truck/trailer heights

PSI-350 Adjustable Header Dock Seal

- Suits door openings up to 8' wide x 11' high
- Inflatable head air bag provides greater flexibility to seal varied truck/trailer heights and configurations; allows full access to the top of the truck/trailer
- Well suited for limited door spacing applications
- Available in three side bag configurations - all air - air/foam - all foam



PSI-450 Rigid Truck Shelter

- Suits door openings up to 12' wide x 12' high
- Clear unobstructed access to the rear of the truck/trailer
- Accommodates a wide variety of truck/trailer sizes and configurations
- Inflated only when needed, allowing dock attendant to take advantage of favorable weather conditions
- Heavy duty steel guards to protect the side frames against impact damage
- Improved building aesthetics

PSI-550 Retractable Truck Shelter

- Suits door openings up to 10' wide x 12' high
- Similar features as PSI-450 with the added advantages of the following:**
- Seals misaligned, jackknifed and sloped trucks/trailers
- Wraparound side air bags eliminate the potential of impact damage to shelter by off-center trucks/trailers
- Well suited for sites with limited space for truck turning and positioning
- Maximum sealing ability and product protection

Inflatable Rail Shelter



PSI-650 Inflatable Rail Shelter

- Suits door openings up to 10' wide x 10' high
- Provides a weather-protected passageway between the building and rail car
- Eliminates heat, cold, rain, ice and snow from loading dock
- Maintains a positive seal once inflated and in contact with the rail car
- Contributes to improved efficiency and safety at the dock
- Protects both personnel and product
- When not in use unit rests deflated against building wall

Typical installation of a Pentalift inflatable rail shelter. The shelter in the foreground of the photo (PSI-650) is fully inflated to show the extension or projection possible from building wall. When not in use, the inflatable rail shelter rests deflated against the wall.

For architectural and construction specifications on Pentalift Inflatables refer to Product Bulletin D006

Consult a Pentalift Sales Representative for additional information or equipment recommendations.

NOTE: Some photos may reflect products with optional features. All Pentalift Equipment products are subject to design improvement through modification without notice.

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