REAL-WORLD SOLUTIONS

APPLICATION CASE STUDIES

How Dynamic Rubber's custom inflatable seals solve hard-to-seal applications across marine, food processing, medical, and industrial markets.

> Every inflatable seal DRI manufactures is custom-engineered for a specific application. The following case studies demonstrate how our seals have solved real sealing challenges where conventional seals failed — eliminating leaks, reducing downtime, and enabling new capabilities across a range of industries.

IN THIS DOCUMENT

CASE STUDIES 01 & 02

MARINE

YACHT HATCH SEALING — ELIMINATING LEAKS ON IRREGULAR SURFACES

THE CHALLENGE

A large hatch on a yacht — used to store wave runners and other equipment — was leaking consistently. The hatch mated against an irregular surface with varying gap widths, causing conventional compression seals to fail. The compression seals would take a set over time, losing their ability to conform to the uneven surface, and leaks would return. The seals required frequent replacement, adding cost and downtime.

THE SOLUTION

DRI provided a custom DR-152 non-reinforced inflatable seal in EPDM. When inflated, the seal expands to conform to the irregular mating surface regardless of gap variance — something a compression seal physically cannot do. When deflated, the seal fully retracts to allow the hatch to open freely.

THE RESULT

The inflatable seal eliminated the leak problem entirely. Unlike the compression seals that required frequent replacement due to compression set, the inflatable seal maintains consistent performance over time because it actively conforms to the surface on each inflation cycle rather than relying on static compression. The cost of the inflatable seal was justified by eliminating ongoing leak damage and seal replacement.

TECHNICAL DETAILS

Profile	DR-152
Seal Type	Non-Reinforced
Material	EPDM
Industry	Marine
Application	Hatch Seal
Replaced	Compression Seal

0
LEAKS AFTER INSTALLATION

FOOD PROCESSING

DUST-FREE BAG FILLING — BETTER PRICE & FASTER LEAD TIME

THE CHALLENGE

A food processing facility needed an inflatable seal for a bag filling operation that could contain dust during filling while holding the bag in place. The application required a gap large enough to slide bags into position, then seal the opening during the fill cycle. The facility's existing seal supplier had long lead times and higher costs.

THE SOLUTION

DRI provided a DR-13 non-reinforced inflatable seal in FDA-compliant EPDM at a lower cost and shorter lead time. The seal allows the bag to slide freely into position when deflated, then inflates to seal the opening and clamp the bag in place — performing dual functions of sealing and holding. The FDA-grade compound meets food-contact requirements for the processing environment.

THE RESULT

The dust problem was completely eliminated. Installation time was significantly reduced compared to using a compression seal that would need to be mechanically clamped. The DRI seal simplified the process: position the bag, inflate, fill, deflate, remove — with no tools or clamps required. The competitive pricing and faster delivery made DRI the preferred supplier.

TECHNICAL DETAILS

Profile	DR-13
Seal Type	Non-Reinforced
Material	FDA EPDM
Industry	Food Processing
Application	Bag Fill Station
Advantage	Lower Cost, Faster Lead Time

100%
DUST ELIMINATED

MEDICAL

RF SHIELDING DOOR — METAL-TO-METAL CONTACT VIA SEAL ACTUATION

THE CHALLENGE

A medical facility required metal-to-metal contact between a door and its frame to achieve proper RF (radio frequency) shielding. The existing solution used a fabric reinforced EPDM inflatable seal that held up well enough, but the facility was looking for a more cost-effective option with shorter lead times.

THE SOLUTION

DRI proposed a DR-12 non-reinforced Nitrile inflatable seal covered with a conductive metal mesh — a simpler, less costly design with a much shorter lead time than the existing fabric reinforced seal. The seal acts as an actuator: when the door closes, the seal inflates and pushes the metal mesh outward to make positive metal-to-metal contact between the door and frame, creating a continuous conductive path for RF shielding. The non-reinforced construction was tested and approved for the application.

THE RESULT

The non-reinforced Nitrile seal passed testing and was approved as a replacement for the fabric reinforced EPDM seal. The facility gained the same RF shielding performance at lower cost and with significantly shorter lead times. The inflate/deflate cycle allows the door to operate freely when depressurized, with reliable shielding engagement on every cycle.

TECHNICAL DETAILS

Profile	DR-12
Seal Type	Non-Reinforced
Material	Nitrile
Covering	Metal Mesh
Industry	Medical
Advantage	Lower Cost, Faster Lead Time

> *"DRI replaced a fabric reinforced seal with a non-reinforced alternative — same performance, lower cost, shorter lead time."*

INDUSTRIAL / COMMERCIAL EQUIPMENT

COMMERCIAL WASHING MACHINE — WATERTIGHT DOOR SEAL

THE CHALLENGE

A manufacturer of commercial washing machines needed a reliable watertight seal for the machine door. The existing seal from another supplier was allowing water leakage during wash cycles, leading to water damage and maintenance issues in commercial laundry facilities.

THE SOLUTION

DRI provided a DR-152 non-reinforced inflatable seal in Nitrile. Nitrile was selected for its resistance to the detergents, solvents, and cleaning chemicals present in commercial wash cycles. The inflatable seal creates a complete watertight perimeter when inflated, and fully retracts when deflated to allow the door to swing open without interference.

THE RESULT

The inflatable seal eliminated water leakage from the washing machine door. The Nitrile compound provides long-term resistance to the chemical environment inside the machine, maintaining seal integrity across thousands of wash cycles.

TECHNICAL DETAILS

Profile	DR-152
Seal Type	Non-Reinforced
Material	Nitrile
Industry	Commercial Equipment
Application	Machine Door Seal
Advantage	Watertight Performance

0
LEAKS AFTER INSTALLATION

APPLICATION SPOTLIGHT | BIOCONTAINMENT / GOVERNMENT

CDC AIRLOCK DOORS — CRITICAL CONTAINMENT SEALING

THE APPLICATION

Inflatable door seals are used in Center for Disease Control (CDC) airlock doors and similar biosafety containment facilities. These doors require a fast, reliable airtight seal that engages instantly when the door closes — critical for maintaining negative pressure zones and preventing cross-contamination between containment levels.

WHY INFLATABLE SEALS

Conventional compression seals take a set over time and can't guarantee a complete airtight perimeter on every door closure. Inflatable seals solve this by actively expanding to fill the gap between door and frame on each cycle. The seal engages quickly, provides a verified airtight barrier, and retracts fully when deflated — allowing smooth door operation with zero drag.

DRI'S CAPABILITY

The standard seal profiles for this application are the DR-F20 and DR-F3 — fabric-reinforced inflatable seals manufactured in FDA-compliant EPDM. These profiles are specifically designed for airlock-type applications requiring rapid, complete airtight sealing. DRI manufactures these profiles and can provide custom configurations to match specific door frame geometries and containment requirements.

TECHNICAL DETAILS

Profiles	DR-F20, DR-F3
Seal Type	Fabric Reinforced
Material	FDA EPDM
Industry	Biocontainment
Application	Airlock Door Seal
Requirement	Airtight / Rapid Seal

> *"Inflatable seals provide a quick and effective airtight seal for critical containment applications — far superior to compression-style alternatives."*

HAVE A SEALING CHALLENGE?

DRI engineers work directly with you to solve hard-to-seal applications. Send us your requirements and we'll recommend the right seal profile, compound, and configuration.

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