

CASE STUDY



Fire Hazard Solved in Six Days - At Sea, Onboard Live Cruise!

Customer Overview

The customer is a leading American cruise operator, one of the world's largest leisure travel companies. Founded in 1972, the customer is known for offering fun, affordable, and family-friendly cruise vacations. The company operates a large fleet of ships that sail to popular destinations including the Caribbean, Mexico, Alaska, and Europe.



Project Overview

The Problem: A Lint Fire Risk at Sea

The cruise line faced a critical fire hazard aboard one of its premier vessels. The ship's industrial dryers were generating excessive lint—far more than the original exhaust system could handle. This lint was accumulating in ductwork and exhaust stacks, significantly increasing the risk of onboard fires.

To mitigate the threat, crews were manually cleaning the ducts at every port—a labor-intensive, high-cost, and ultimately unsustainable workaround. With thousands of passengers onboard and only brief port stops, the cruise line needed a permanent, reliable, and quickly installed solution.

That's when they turned to Air Dynamics Industrial Systems Corporation—a specialist in engineered lint removal systems for complex environments.



Lint buildup in vets.

The Challenge

Six Days, Live Cruise, No Room for Error.

The scope and constraints of this project were severe:

Tight Timeline: The customer required full system removal and replacement in just six days—during an active cruise with over 7,000 passengers and crew onboard.

Difficult Access: The failing system was in a tight mechanical room with irregular geometry and no direct access—demolition and installation had to occur without disturbing ship operations.

Hot Work Restrictions: For safety, welding and cutting were prohibited, ruling out traditional removal methods.

Limited Material Pathways: New system components had to be hand-carried through narrow, crowded corridors, competing with ongoing cruise operations and logistics.

The Solution

Air Dynamics deployed a specialized team with deep experience in maritime retrofits. The team worked split shifts from 6 a.m. to midnight, coordinating tightly with ship operations. Every element of the solution was tailored to meet the exact challenges of this environment.

Demolition Without Hot Work

To navigate safety restrictions, Air Dynamics used reciprocating carbon steel saws to carefully disassemble the outdated system—avoiding sparks and enabling safe removal in confined quarters. This addressed the hot work limitation without compromising the demolition timeline.

Custom-Engineered System for Confined Spaces

The replacement system—LRS II—was pre-engineered for the unique space constraints of the Vista. Its modular frame and insulated panels ensured fast assembly in the irregular mechanical room. This design reduced ambient temperatures from over 110°F to safe levels—directly addressing crew comfort and heat-related risk.

Fire Risk Eliminated Through Advanced Filtration

The LRS II features 66 HEPA filters, capturing lint particles with 99.97% efficiency at 0.3 microns. The system's self-cleaning function prolongs filter life and cuts down maintenance—solving the original problem of dangerous lint buildup and the need for constant manual cleanings.

Simplified Operation and Maintenance

Controlled via a NEMA 12 panel, the new system allows laundry staff to monitor and manage airflow in real time. Quick-access doors and swivel-mounted filter racks make servicing easy—reducing downtime and eliminating the need for port-based interventions.



LRSII Lint Collection System.



The Result: A Safer, More Reliable Operation

In just six days, Air Dynamics fully removed the failing system, installed and tested the LRS II, and had it operational before the ship's next departure.

Carnival's crew immediately reported lower heat, easier system controls, and better airflow performance. Most importantly, the fire hazard from lint accumulation was eliminated, securing the safety of the ship, its passengers, and crew—permanently.

Why Cruise Lines Choose Air Dynamics

- Rapid Deployment
- Custom Engineered Solutions
- Minimal Disruption to Cruise Operations
- Proven Track Record in Maritime Installations

When downtime isn't an option and performance is critical, trust Air Dynamics to deliver.