Freight Wing™ Aerodynamic Fairings

Innovative Aerodynamic Fairings Minimize Drag on Box Shaped Semi-Trailers

A great deal of scientific research has demonstrated that streamlining box-shaped semi-trailers can significantly reduce a truck's fuel consumption. However, significant design challenges have prevented past concepts from meeting industry needs. Freight Wing, Inc., was formed to improve fleet profitability through innovative aerodynamic devices. Freight Wing was initially funded through a grant from DOE's Inventions and Innovation Program to develop rear-fairing technology and has since expanded the company's products to a complete line of aerodynamic solutions. Their initial research focused on developing a practical rear fairing that would not interfere with the truck's operation and on investigating other means to reduce aerodynamic drag on box-shaped semi-trailers. Freight Wing market research soon revealed that the industry was not very interested in the rear fairing because that area is extremely prone to damage and durability is a primary concern.

Freight Wing also developed designs for front or gap fairings and undercarriage or belly fairings and made prototypes of all three fairing designs with their manufacturing partner, ASAP Metal Fabricators. In May 2004, Freight Wing tested all three fairing prototypes at the independently owned Transportation Research Center (TRC) in East Liberty, Ohio. TRC tested the fairings using the industry standard Society of Automotive Engineers/Technology & Maintenance Council (SAE/TMC) J1321 fuel consumption procedure Type II test. A 7% fuel savings was demonstrated on trailers equipped with all three fairings. Freight Wing arranged a testing partnership with Transport America to retrofit five of their trailers for an operational test. These tests enabled Freight Wing to identify some problems and finalize the designs. The product was marketed starting in the fall of 2004, and soon thereafter the company made its first sale of two belly fairings to a fleet called LVL, Inc., in Little Rock, Arkansas. Additional research is also underway to develop second-generation designs using different materials and aerodynamic concepts.

Overview

- Developed and marketed by Freight Wing, Inc.
- Commercialized in 2004.

Applications

The Freight Wing Fairings are used on semi-trailers to reduce the effects of aerodynamic drag.

Capabilities

- Reduces aerodynamic drag on semi-trailers.
- Retrofits on existing semi-trailers.

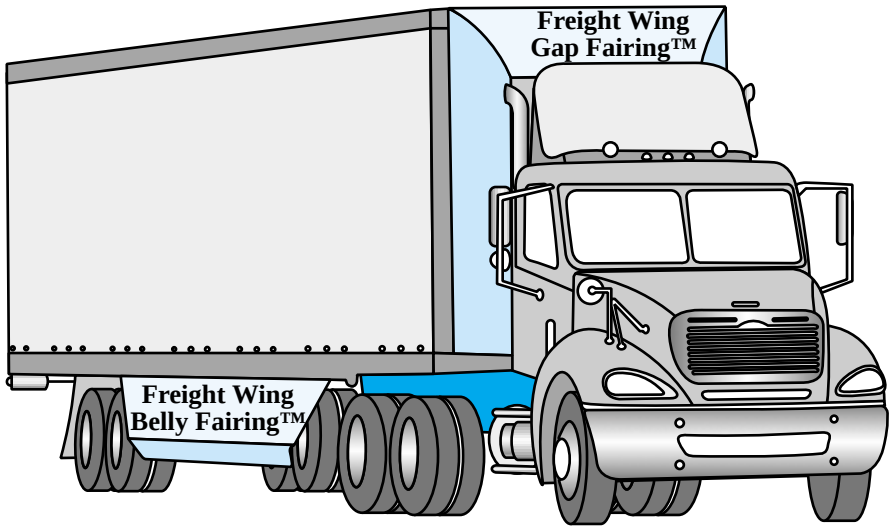
Benefits

Emission Reduction

Reduces emissions of combustion products, including particulates, SO_X, NO_X, and CO_2.

Energy Savings

Reduces fuel usage by 7%.



Freight Wing Fairings Installed on a Semi-Trailer

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