

# LIFEGUARD 4FRONT®

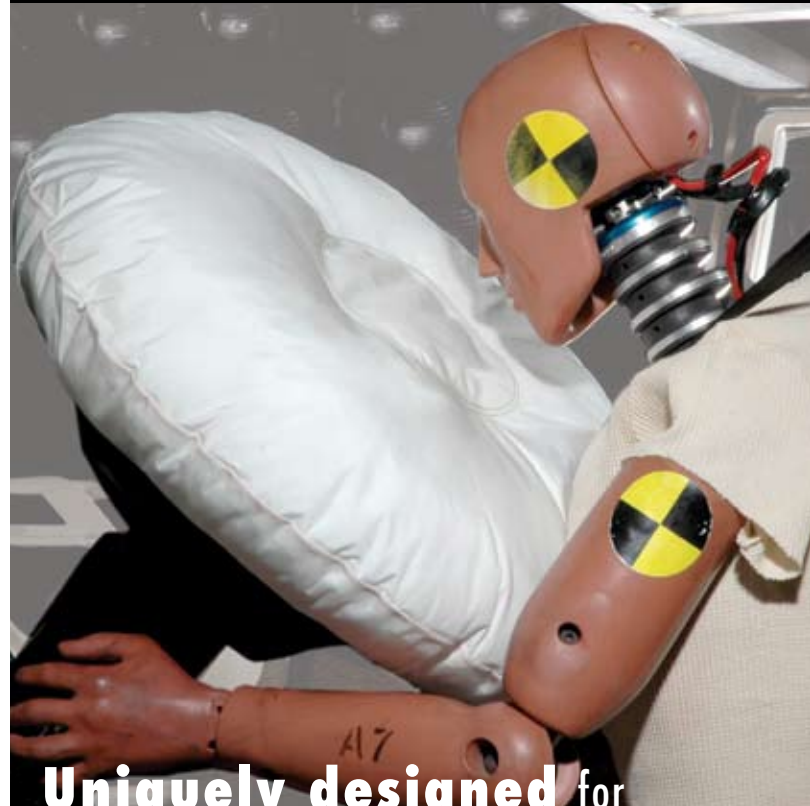
In moderate to severe frontal crashes, frontal airbags can mean the difference between life and death for front seat occupants. Standard on passenger vehicles since 1998, frontal airbags are saving the lives of thousands of Americans every year, yet this critical equipment is far from becoming mandated on commercial trucks. Despite the lack of regulations, manufacturers of heavy trucks are implementing safety equipment voluntarily.

Now LifeGuard 4Front® frontal collision protection, the first advanced protection system of its kind for fire apparatus, protects firefighters in the most common type of collision – one that hits the apparatus head-on.

LifeGuard Technologies engineers, in coordination with the OEM and the sensor supplier, determined airbag parameters and placement after a careful study of frontal collision impact points in fire apparatus. For the driver, the point of critical impact is the steering wheel, and for the first officer, the point of critical impact is lower, where the occupant's knees hit the bolster panel. The steering wheel airbag is uniquely designed to deploy outward and upward to protect the driver's chest from the wheel rim and provide head and neck protection. The knee bolster airbag cushions the impact of the knees with the bolster panel.



- The first advanced frontal collision protection system of its kind for fire apparatus
- Minimizes occupant movement and increases survivable space
- Steering wheel airbag deploys outward and upward to protect the driver's chest, head and neck
- Knee bolster airbag cushions impact of the officer's knees with bolster panel
- Tested and demonstrated to dramatically increase the safety and survivability of fire apparatus



**Uniquely designed** for commercial vehicle applications

4Front is one of the latest innovations from LifeGuard Technologies, a division of IMMI – the leading provider of advanced safety systems for fire apparatus. LifeGuard Technologies engineers work alongside the most trusted fire apparatus manufacturers, delivering advanced occupant protection products that are durable, reliable and designed to perform even in harsh environments.

## First advanced frontal collision protection system of its kind for fire apparatus.

### How it works

A sensor inside the cab monitors the truck's longitudinal accelerations. If the sensor detects a frontal crash of significant magnitude, it sends a signal to initiate three events that provide frontal protection for the driver and first officer:

1. **Buckle pretensioners** tighten seat belts around the driver and first officer to position them securely in their seats.
2. **Suspension seats** are pulled down to their lowest position to increase survivable space.
3. A **steering wheel airbag** inflates to protect the head and neck of the driver, while a **knee bolster airbag** inflates to protect the first officer's knees.

These subsystems work together to dramatically reduce the risk of fatality or severe injury in a frontal collision.



### Available on:

Pierce: All Models



A Division of IMMI

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### CAPE Testing

Design engineers at LifeGuard Technologies utilize the company's state-of-the-art testing facility to conduct testing for its customers as well as guide development of new advanced safety systems for fire apparatus. The Center for Advanced Product Evaluation (CAPE) conducts fire apparatus crash tests, rollover tests and cab integrity tests, capturing performance data through the use of sophisticated imaging and data acquisition technology. CAPE houses the world's only 90-degree rollover impact machine for commercial vehicles as well as the largest barrier facility of its kind for evaluating crash worthiness for large vehicles. Extensive and rigorous testing of every LifeGuard Technologies product enables the company to deliver dependable, high quality safety systems to the fire industry.