



# AEROFLEX

## Aerodynamic and Flexible Trucks for Next Generation of Long Distance Road Transport

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## Document Change Log

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Roy Veldhuizen	2020/11/23	First version, with initial structure
Ton Bertens	2021/02/14	Contribution concerning VET body work and trailer
Roy Veldhuizen, Hilal van der Holst & Per Elofsson	2021/02/16	Several text changes when preparing the Draft
Roy Veldhuizen, Hilal van der Holst & Per Elofsson	2021/02/23	Several text changes to incorporate suggestions from reviewers

## Document Distribution Log

Name	Organisation	Distributed to
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## Publishable Executive Summary

As part of the activities of WP3 within the AEROFLEX project, a full-scale demonstrator is planned.

This demonstrator consists of three parts:

- A newly specified Scania three axle rigid truck
- An existing Schmitz dolly
- The existing Van Eck trailer as used in the TRANSFORMERS project.

The vehicle was designed such that it would provide a good baseline state-of-the-art reference case, meeting the regulations of today. This vehicle would serve as the baseline vehicle first, and would later be optimized aerodynamically.

Earlier work of WP3 of the AEROFLEX project has resulted in several aerodynamic improvements for the complete vehicle combination of truck, dolly, trailer. Of these improvements, the 14 most promising innovations were selected to be realized and implemented on the Scania AeroLoad Demonstrator.

The truck is to be outfitted with an active air deflector, adjustable ride height, truck side skirt extensions, a swap body with a movable roof, underbody covers and a gap reducer.

The dolly is to be outfitted with aerodynamically shaped dolly skirts and adjustable ride height.

The trailer will feature an adjustable ride height, a movable roof, active side skirt extensions, a diffuser, an adaptable boat tail and boat tail side panel extension.

The entire vehicle is equipped with an Aerodynamic Vehicle Control system, which controls and harmonizes all aerodynamic features. Vehicle wide communication is achieved using the Automotive Ethernet Router Repeater.

All innovations were designed, manufactured, tested, integrated & validated for use on the demonstrator vehicle. Delays due Coronavirus disease 2019 (COVID-19) notwithstanding, it was still possible to finalize the installation of all aerodynamic improvements and deliver the demonstrator ready for testing on the proving ground. The aerodynamic demonstrator is ready to be tested to show what kind savings can be achieved by implementing a range of aerodynamic innovations on a heavy-duty vehicle.

Initial cost and weight estimates are provided for all the aerodynamic features. In combination with the aerodynamic improvements that have been reported in AEROFLEX D3.2 – CFD simulations, the cost and weight values can be used as input to the cost and benefit analysis that will be performed within Work Package 6 of the AEROFLEX project.