

Welcome to Aeroflex Webinar

Part 1



- 🎧 Welcome
- 🎧 Your camera and microphone will be turned off during the webinar
- 🎧 This webinar is being recorded, your voice or image will not be recorded
- 🎧 Please use the chat box to ask questions for Q&A sessions
- 🎧 Thank you for your attendance

 **Welcome & Introductions**

Mr. Hans Van Eck
Mr. Ben Kraaijenhagen for Aeroflex
Mr. Ton Bertens for Van Eck Trailers

 **Short Introduction VECK**

Mr. Ton Bertens 5 min

 **Innovations VECK**

15 min

 **Q&A Session**

5 min

 **Short Introduction AEROFLEX**

Mr. Ben Kraaijenhagen 5 min

 **Innovations AEROFLEX**

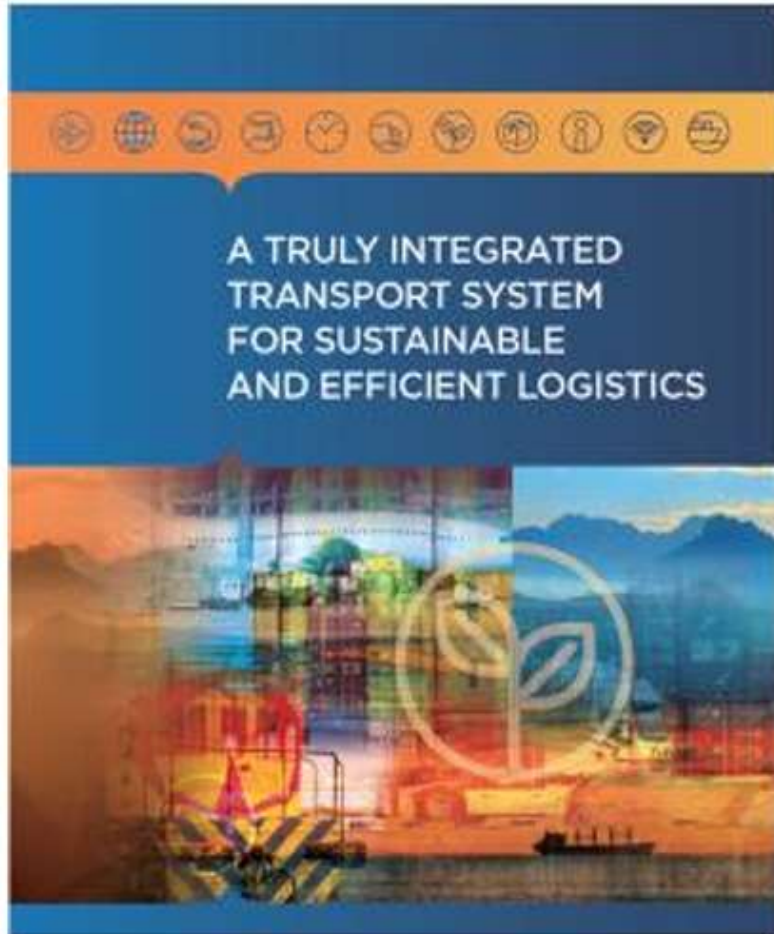
15 min

 **Q&A Session**

5 min

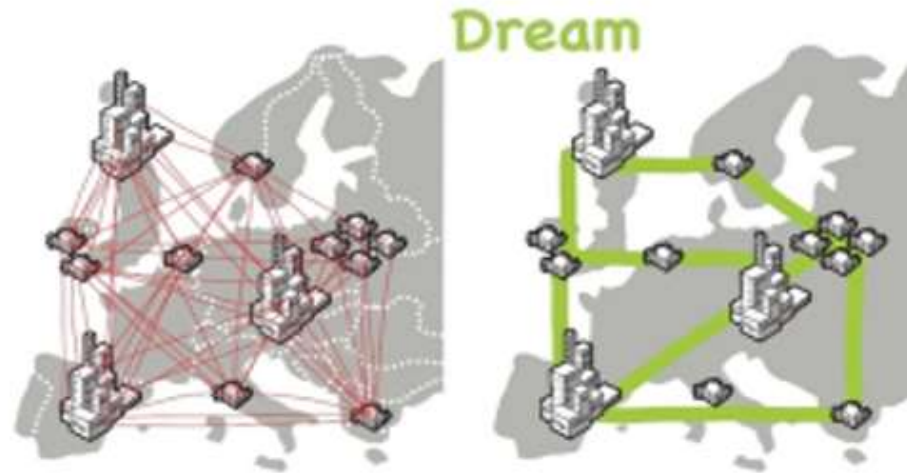
AEROFLEX PROJECT WEBINAR





THE PHYSICAL INTERNET

Interconnected logistic networks, sharing assets and capabilities



Activities performed partially in the frame of WINN, SETRIS & SENSE Projects. WINN, SETRIS & SENSE projects have received funding from the European Union's FP7 and Horizon 2020 research and innovation Programme under grant agreements No. 314743, No. 653739 and No. 769967

Van Eck: From Vision to Innovation

Longer and heavier vehicle combinations that meet the practical requirements of visionary transporters...



1. Air Cargo Trailers



- To the bottom integrated rollerbeds which still allow achieving height of 3 meters at least
- The rollerbed trailers for big containers have a weight capacity of 20 ton that can be loaded/unloaded with Van Eck Rollerbed Systems
- Ability to carry 7 pallets per vehicle

2. Double Deck Trailers



- Built as reefers but also for DC to DC and supermarket delivery
- Transformer trailers designed as Double Deck Trailers are also available which is a very flexible double deck solution

3. Double Cargo Type Trailers



- A combination of fluid and pallets

4. **Smart Loading Units**

Trailers integrated with smart loading units and connected to the Cloud allowing to collect the data of status, maintenance, aero messages, weight and in the future, volume.

LHV light weight reefer with chain system



- Automatic loading and unloading system
- Capacity of 33 ton loading
- Drives everyday for 10 years in the Netherlands

LHV 3 x C745 container vehicle as presented on IAA, new generation



- First shown at the last IAA Show in one vehicle
- Now developing a new generation with a less complex steering system

Eco-Combi B double, fully automated or standard



- Fully automated, the driver does not need to get out of the cabin to slide it in and/or out.

Linkable chassis (City Trailer-Dolly; v Heezik)



- Being built at the moment
- Linkable means there is a separate Dolly that shifts into a trailer and then becomes one vehicle allowing to drive it as long vehicle

Extensive Experience in LHV

- The main contribution of Van Eck for the Aeroflex project is integrating new aerodynamics in our LHVs
- Developing the e-Dolly that leads to energy recuperation and also has the possibility to do warehouse maneuvering.

Van Eck approaches each LHV as a unique challenge to offer the best possible solution. Based on the country-specific regulations, the cargo and route, Van Eck calculates the turning radius and decides on the trailer steering systems accordingly for the best tyre wear and road handling performance.

According to its vision that aims to reinvent modern road transport, Van Eck will continue to focus on LHVs for upcoming years.



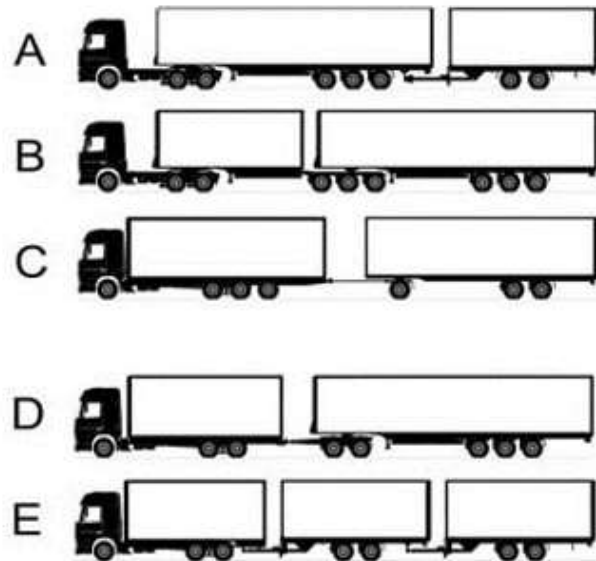
Van Eck LHV: Focus for Upcoming Years



Van Eck Vision

With sustainability in mind, our passion for high-quality and innovation will guide us constantly to reinvent modern road transport.

The NETHERLANDS LHV COMBINATIONS



GERMANY LHV COMBINATIONS



The first problem of the developing new vehicles is that in all different countries there are different types of LHVs allowed. In Netherlands there are 5 types allowed as seen above, where in Germany the categorization is different and the Type E from the Netherlands is not allowed which forces to choose for a type of a LHV that will be allowed in different countries in Europe.

Dutch Regulation: Technical Demands

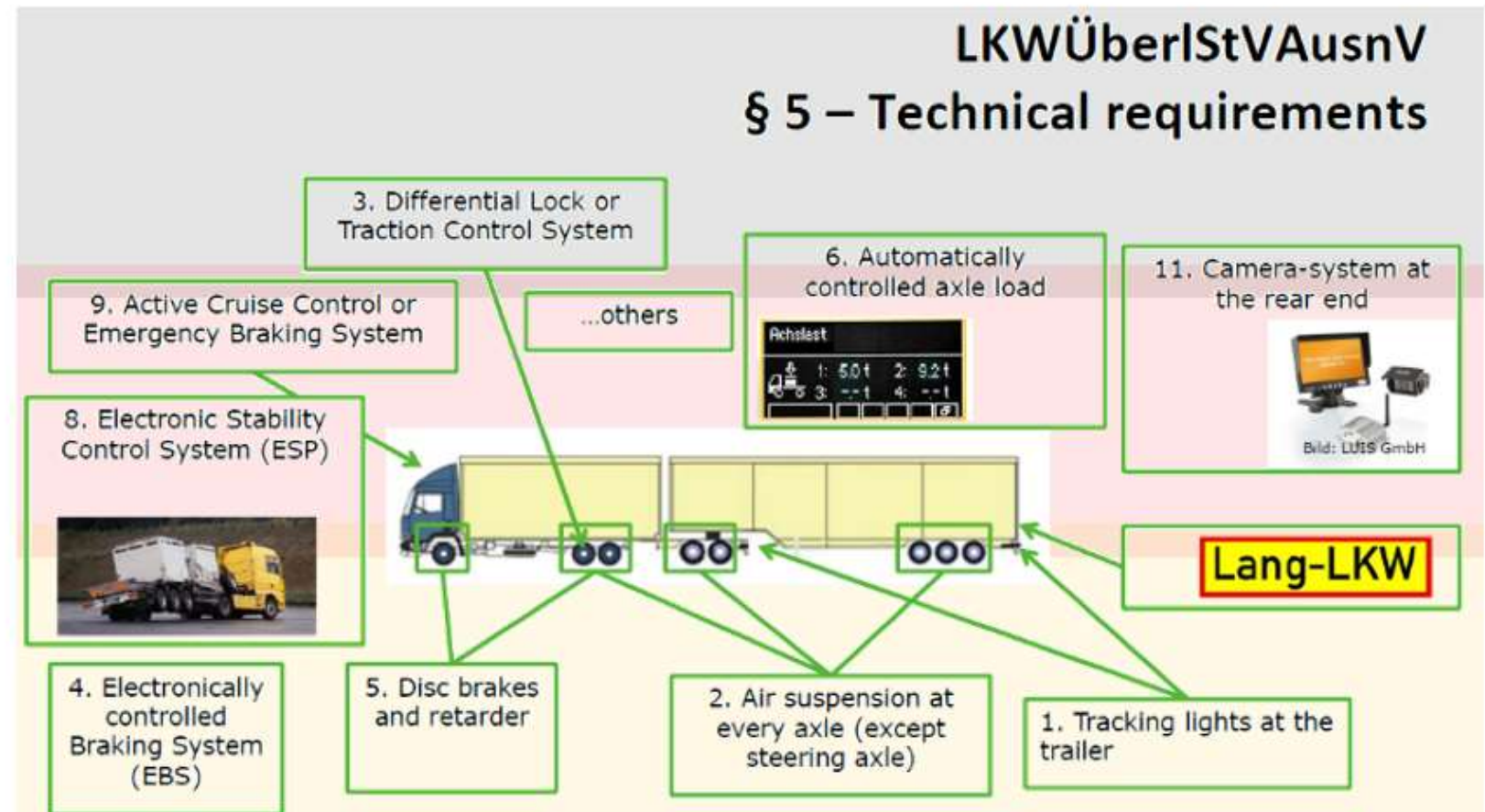
LET OPI! EXTRA LANG



- Maximum length 25,25 meter and loading area length between 18 and 21,8 meter which is a typical Dutch rule
- 60 ton of maximum weight
- Special rules for maximum axle loads
- Maximum turning circle radius 14,5x8 m (6,5 R inner)
- Closed side protection
- Maximum 2 turning points in total vehicle
- Axle load to be shown on device
- Marker boards special text «Extra long»
- Driver needs special certificate
- Every vehicle needs to have special exemption on license

Beesd, 11 SEPT 2020 | [Emons](#)

- Maximum length 25,25 meter
- 40 ton of maximum weight
- Turning circle: 12,5 x 5,3 meter which gives an extra demand to product designs to be allowed in Germany
- Closed side protection
- 3 turning points allowed
- Axle load to be shown
- Marker boards special «Extra long»
- Requirement of a camera mounted at the end of the vehicle



Lots of technical requirements. Partly with implementation alternatives.

Van Eck LHVs for Europe for next years

We approach each LHV as a unique challenge to offer you the best possible solution. Based on the country-specific regulations, your cargo and route, we calculate the turning radius and decide on the trailer steering systems accordingly for the best tyre wear and road handling performance.

Project focus

In compliance with German and Dutch regulation for cross bordering

- Basic LHV : City trailer and a standard trailer
- Air Cargo long vehicle
- Twin Deck long vehicle
- EMS-2 pre-design



Van Eck solutions for moving forward

Basic LHV : City trailer and a standard trailer



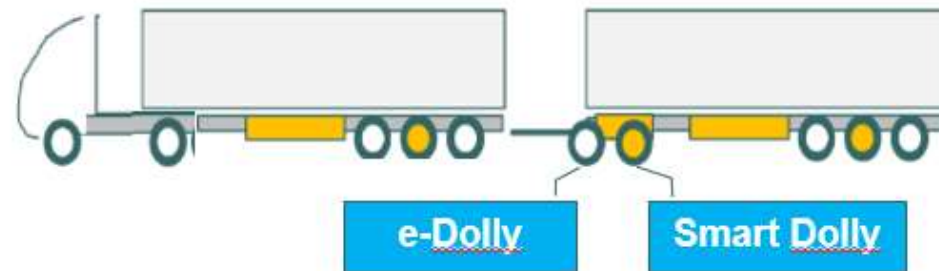
Air Cargo LHV



Twin deck LHV



EMS-2 Pre-design



Basic LHV : City trailer and a standard trailer



- As a basic LHV, the truck with a city trailer with the axle systems a standard trailer behind it.
- The standard trailer can be a reefer, curtainsider or even a twin deck trailer.
- Axles configuration can be made as two or three axles and the steerability can be chosen to keep it for Dutch or German regulation

Air Cargo LHV



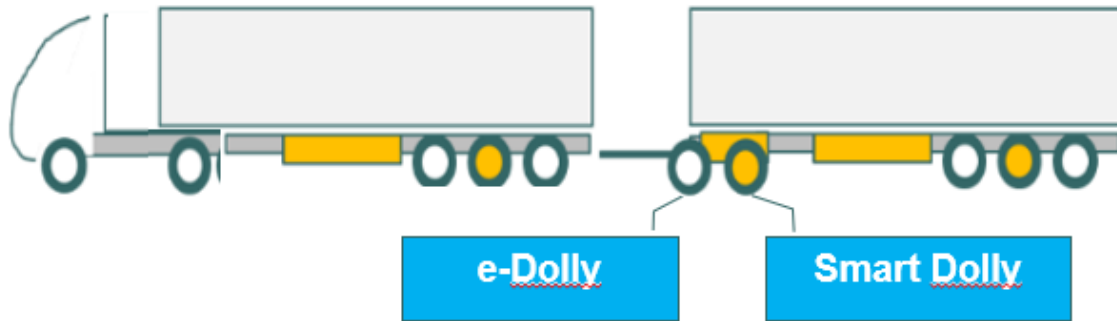
- Trailer needs a smart steering system to cope within the turning circles
- Design idea is based on the vehicle shown at the last IAA Show but now with a different, more simple steering system

Twin deck LHV



- Possibility to turn the city trailers into a twin deck
- The dolly that can be coupable into the trailer
- We are now on our drawing boards busy with this design of a twin deck of Van Eck

EMS-2 Pre-design



- A vehicle that is designed within the Aeroflex project
- In this EMS-2 vehicle an e-Dolly will be needed to recuperate the energy but for a better performance in turning circle the e-dolly must be also smart, as the standard e-dolly of this vehicle has a very big turning circle. Implementing a smart e-Dolly to the configuration can keep the vehicle within the standard turning circles.

Transformer Trailer



- Developed with the Transformers project and can shape according to cargo. In a case of a low cargo the roof can automatically go down and even take a tear drop shape saving a lot of drag.

Flex Floor



- Very flexible double stock system with a floor that can be lifted out of the bottom of the trailer. In case of no need it functions just as a regular flat bottom trailer.
- According to the need of the cargo a double stock is possible in a very fast and a new way.

NMLU – Clusters 2.0



- A new modular unit between the pallet and the trailer
- The pallets can be loaded as fast and quickly and secure as is done in the air cargo systems.



Trailer Innovation 2021 | 3rd Place in Environment Category with Smart rollerbed with NMLU

- NMLU (New Modular Loading Unit) is the new element between the trailer and pallet, developed with Van Eck team included group effort supported by H2020 project 2.0.
- The NMLU concept via standardized loading units that operates on rollerbed vehicles has operational efficiency benefits up to 50% and load capacity efficiencies of average 20%, distributed along with the players of the logistics systems.



NMLU
(New Modular Loading Unit)
is the new element between
the trailer and the pallet

Developed within Van Eck team included
group effort of H2020 project Clusters 2.0,
NMLU accomodates smaller pieces
of load into a standardized
box that is then
loaded into vehicles



<https://www.youtube.com/watch?v=0P8nSpIDAU8&t=214s>



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