



# POTENTIAL OPPORTUNITIES FOR THE IMPROVEMENT OF SAFETY MEASURES FOR THE TRANSPORTATION OF CARGO IN COMMERCIAL VANS

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Your safety in good hands with us.



Mercedes-Benz

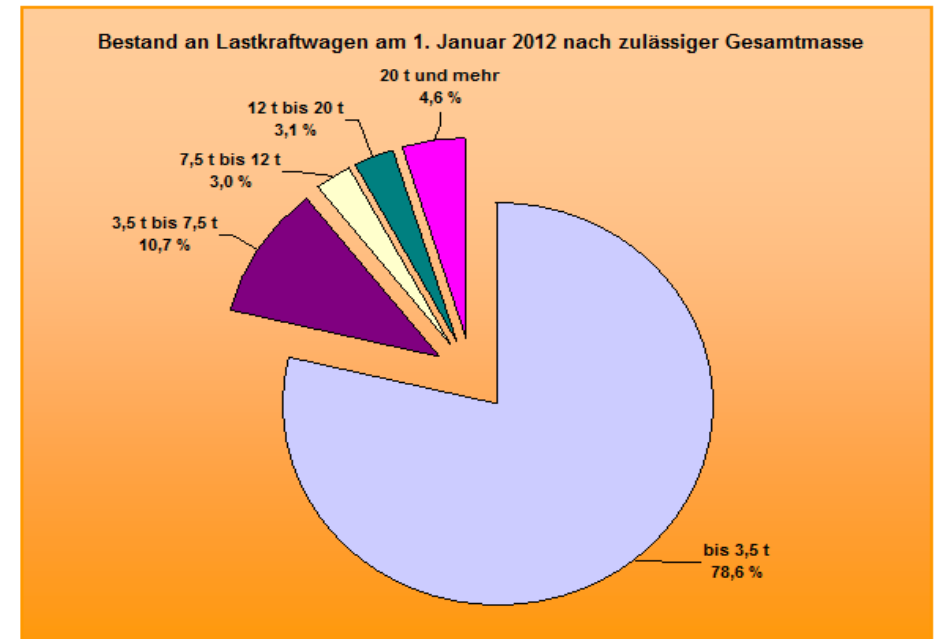
# Agenda

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# General topics regarding commercial vans and cargo securing

As goods vehicles of categories N<sub>1</sub> (up to 3.5 tons) and N<sub>2</sub> (more than 3.5 up to 7.5 tons) commercial vans record still significant increasing figures in the registered fleet. These vehicles are named as well as vans, lorries or box-type vehicles.

A commercial van is a vehicle for the transportation of goods characterised by a body in which the load space and the occupant compartment form one unit.



# General topics regarding commercial vans and cargo securing

Compared with cars the statistics do not indicate an anomaly accident risk of commercial vans. Still increasing registration figures in the rolling fleet and furthermore a rapid growth of the haulage capacity, especially for CEP (Courier, Express, Parcels) business necessitate strongly to make further effort in increasing traffic safety and to minimize the accident risk of these vehicles.

# General topics regarding commercial vans and cargo securing

## The following risks i.a. become apparent:

- Commercial-van drivers, especially route drivers are stressed physically and mentally higher than average
- Labour times of 12 to 16 hours are not unheard-of!
- Due to an enormous pressure of time the accident risk increases
- Commercial van drivers are often not qualified adequate
- Small share of drivers buckle up
- Additional accident risks for commercial-vans occupants and other road users due to not installed partitioning systems in box-type vehicles and vans



# General topics regarding commercial vans and cargo securing

**Primarily the correct vehicle configuration is a prerequisite for securing of cargo according to the rules. However this implies following:**

- The customer is ready for an open dialog about the topics of cargo securing
- He has some technical competence on the topics of cargo securing and load distribution
- The vehicle seller provides technical competence and has basic knowledge as well to the topics of cargo securing and load distribution
- The vehicle seller furthermore has knowledge and industry experience so that he can give recommendations outside of his responsibility area to provide the customer with appropriate equipment as well, airline rails for example

# General topics regarding commercial vans and cargo securing

**Commercial vans up to 3.5 tons GVM have the following benefits for commercial use:**

- Lower acquisition costs compared to heavier trucks with more than 3.5 tons GVM
- May be driven with car-driver license, no further education necessary
- Not subjected by special speed limits and similar fast as cars
- Because of size and manoeuvrability a parking lot is almost to be found
- Drivers are not subjected by law to have a driver certificate of professional competence
- No requirement to record driving times and rest periods (except when driving a vehicle drawing a trailer)

# Cargo securing from the legislative point of view

**The vehicle-relevant equipment for the securing of cargo in commercial vans with a GVM up to 7.5 tons is determined in ISO 27956 (2011).**

The standard describes specifies minimum requirements and test methods to ensure a safe securing of the cargo. The aim of the standard is to give the prerequisite for a reliable and roadworthy cargo securing in order to protect the occupants against injuries caused by shifting cargo.



# Cargo securing from the legislative point of view

**Practical implementations for cargo securing in commercial vans are described very clear in the guideline VDI 2700 Part 16 (2009).**

Numerous sample applications for corresponding industrial sectors show the vehicle keepers, drivers and loaders as well practical implementation possibilities. Because of cargo diversity, for example uniform or non-uniform cargo, resistant or fragile cargo pieces etc., adequate cargo securing is often not easy to realise.

Certain creativity with the acceptance of physical forces and legal requirements, knowledge and mastering of different methods for cargo securing and their correct application are mandatory.

# Cargo securing from the point of view of Mercedes-Benz

It always takes three to safety: Man, commercial van and cargo.

Cargo securing is not built in as series equipment at the outset. It is not deliverable as extra equipment as well. Instead, cargo securing is a mix from right awareness to the danger, sense of responsibility, know-how and right equipment in terms of lashing points, lashing belts, tension rods, clamping bars, lashing nets and slip-inhibiting material.

Furthermore to be kept have the gross vehicle weight permissible, the maximal load of the axles, the minimal load of the steering axles and the maximal payload.

Mercedes-Benz wants to come up to his needs and his responsibility both to drivers of commercial vans and to other road users.

Mercedes-Benz stands for safety and this does not end at the vehicle but includes the equipment as well and the know-how for correct cargo securing in transportation traffic.

# Cargo securing from the point of view of Mercedes-Benz



*Serial equipment with lashing points in all commercial vans according to ISO 27956*

The retaining equipment (i.e. partitioning walls) in all MB commercial vans is as well in line with the requirements of ISO 27956.

As extra equipment in commercial vans i. e. airline rails at the roof frame, the railing and the loading platform can be ordered among others.

This is for additional auxiliary means for cargo securing and very effective because of the distance of the fixing holes of 25 mm. A fitting (mobile lashing point) can be inserted where needed.

# Cargo securing from the point of view of Mercedes-Benz

When using this system it has to be considered particularly to avoid damage to the vehicle body that the forces applied are acting in horizontal direction. The variety of cargo pieces is such big, that it is always challenging for entrepreneurs and drivers to come to reasonable decisions for transportation.

Though, the following factors play a significant role:

- Which preconditions are given for the entrepreneur to come to a responsible decision? Here the knowledge in relation to occupational health and safety as well as traffic safety is supposing respectively the necessity of duly cargo securing. Unfortunately the way into freelance working is partially made too easy, especially in the CEP sector.

# Cargo securing from the point of view of Mercedes-Benz

- Is the transport vehicle suitable in line with paragraph 30 Road Traffic Licensing Regulations “vehicle constitution” as well with BGDV 29 paragraph 22 “vehicle body, body parts, furniture and equipment for cargo securing”?
- Which qualification standard and sense of responsibility has the driver?
- What economic situation for the company is given?
- Mercedes-Benz since more than 3 years now runs in the framework of dealer education intensive instruction regarding the topics of cargo securing. Herewith theory and practice are combined very effective.
- Acceptance is most impressive considering that the dealer is in fact a salesman and not an advisor for occupational health and safety! The earlier these topics are integrated into the sales activities for commercial vans the clearer becomes the acceptance of safe goods transportation.

# Cargo securing from the point of view of Mercedes-Benz

An internet portal for body manufacturers is established for numerous partners co-operating with Mercedes-Benz. More than 1.1 million information, 2-D drawings and 3-D data are available all around the clock in many languages. It is the aim of this portal for body manufacturers to achieve customer demands, but also consider OEM standards. There are many positive examples showing how cost effectiveness, in particular work organization in the commercial van can be combined for example by using vehicle equipment, and cargo securing which is in line with accepted codes of practice.

# Cargo securing from the point of view of Mercedes-Benz



## Positive example

Vehicle equipment according to customer demands and in line with OEM standards



## Negative example

**Fastening elements at the roof are not designed to take forces!**

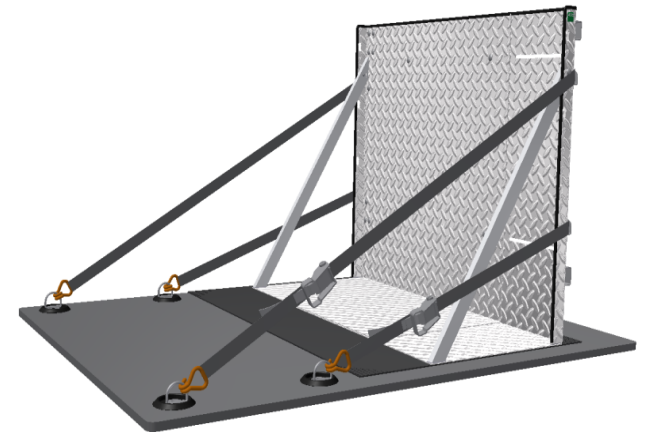
Here the body standards of Mercedes-Benz were not considered respectively not known

# Cargo securing from the point of view of Mercedes-Benz

During the commercial van training on tour it was discovered that partitioning walls often are missing, particularly in craftsmen vehicles. The entrepreneur needs the commercial van for business during the week but indeed for private use at the weekend. Of course a partitioning wall is disturbing then.

## Alternative: Mobile cargo bulkhead

- max. payload 1400 kg
- adjustable range 940-1600 mm
- no permanent assembly is required, only two lashing points are necessary, one opposite to the other
- fast installation/removal by the driver possible
- universal application to all commercial vans
- kind of securing is spring lashing (4 times lashing capacity LC)
- Testing in accordance with ISO 27956, certificate available
- Manufacturer Bott GmbH, Gaildorf





# The Mercedes-Benz commercial-van training on tour 2013

**We give all for the safety of our customers!**



# The Mercedes-Benz commercial-van training on tour 2013

## Four stations as an overview

- Cargo securing
- Driving technique
- Driving dynamics
- ECO competition



On 21 facilities 101 events took place with more than 4800 attendees

# The Mercedes-Benz commercial-van training on tour 2013

## Compendium of the four stations

### **Cargo securing:**

Introduction to basics of cargo securing

Here physical demonstrations are running, especially to illustrate forces acting in x- and y-direction at the vehicle. Furthermore numerous practical examples regarding VDI 2700, part 16, are displayed with a collective of four commercial vans

Not only equipment for cargo securing approved by Mercedes-Benz come into operation but also from partners and body manufacturers as i. a. SORTIMO and Bott GmbH

Topics relevant for occupational health and safety as first instructions at the workplace, evaluations of hazard and resulting measure will be described or exemplified

# The Mercedes-Benz commercial-van training on tour 2013

## Compendium of the four stations

### Driving technique:

Execution of braking in dangerous situations and evasion from obstacles on different road conditions

### Driving dynamics:

Experience of dynamic vehicle reactions as under-/oversteering

Experience of functionality for active control systems, for example adaptive electronic stability control or traction control in situations at the physical limit

### ECO-trial:

Special drive exercises and helpful practical hints will be learned and tested in a small trial regarding the minimal fuel consumption with optimal acceleration

# Sprinter-driver assistance systems – the cross-wind assistant

The crosswind assistant is standard equipment for the new Sprinter<sup>1</sup>



## Benefit:

The crosswind assistant increases the safety and relieves the driver because a counter steering is no longer necessary when sudden gusts occur.

## Description and functionality:

- The crosswind assistant is based on the standard equipment ESC and active from 80 km/h to the maximum speed
- Registration of the attack angle by sensors
- Reaction with respect to vehicle velocity, loading conditions and steering behaviour of the driver (withdrawal of the assistant by manual counter steering)
- Reaction time of the system is approx. 50 ms

<sup>1</sup> The crosswind assistant is available for box-type vans and kombis with 3.5 tons and 3,88 tons GVM as well as for the body length standard, long and extra long – with normal roof and high roof.

# Sprinter driver assistance systems - the lane-keeping assistant

Optional equipment for all Sprinter variants



## **Benefit:**

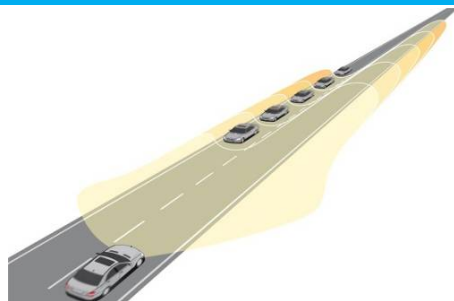
The lane-keeping assistant increases the driving safety by keeping the lane.

## **Description and functionality:**

- The system warns when unintended running over the lane marking margins respectively when leaving the actual lane
- A multi-purpose camera (MPC) detects the area in front of the vehicle at speeds above 60 km/h – calculation of the distance between vehicle and lane margin
- An algorithm detects and prevents unintended warnings by analysing in-vehicle signals (for example velocity of the steering-rim angle, acceleration/deceleration)
- Acoustic warning or visual warning on the display

# Sprinter driver assistance systems – The high-beam assistant

Optional equipment for all Sprinter versions

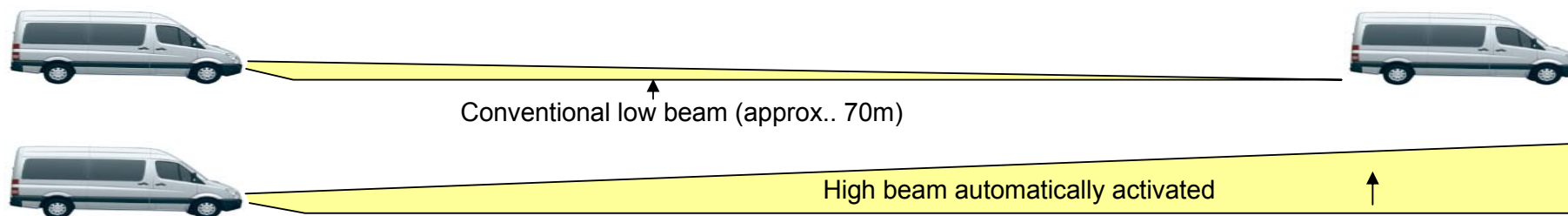


## Benefit:

The high-beam assistant relieves the driver and increases the road lighting with reduced dazzling by automatic activation of high and low beam.

## Description and functionality:

- The high-beam assistant takes lighting control at night
- Cognition of other vehicles in the frontal surrounding and activation of high/low beam respectively
- Available for halogen und bi-xenon bulbs



# The Mercedes-Benz commercial-van training on tour 2013

## Customer benefit:

1. Free-of-charge participation on driving-safety training
2. Without risk driving of Mercedes-Benz commercial vans at the limit
3. Professional care and instructions by special trained staff
4. Useful technical expertise and information for every-day operating especially driving safety, cargo securing and occupational safety
5. Partial fulfilment of the annual duty on instructions according to BGV A1 paragraph 4, respectively „factors of mechanical endangering“



# The Mercedes-Benz commercial-van training on tour 2013

## Experience based on 10 years „Commercial-van training on tour“

Again and again mainly not already existing customers but new clients attend the training.

- Big willingness to learn (further education) and to get new experience
- Consternation about own driving performance respectively in braking or steering
- From the participants very well feedback after the event
- **Insufficient knowledge on the topics of cargo securing**, forces of inertia are underestimated, securing forces are determined from personal feeling. Only persons having negative experiences (normally an accident) handle this more responsible!
- Neither Paragraph § 22 of the road traffic act nor guideline VDI 2700 are known!

# The Mercedes-Benz commercial-van training on tour 2013

- The figures of freelancers and individual enterprises are growing
- Especially for passenger transport drivers are of high age, improvement of retirement pension and having the feeling of being needed (on the basis of 400 Euro per month)
- More and more the stress of competition increases – money for labour protection respectively cargo securing is not available (especially in the CEP business or at sub-contractors)
- no knowledge of the execution of risk assessment according to occupational safety and health act paragraph 5 with necessary measures, including obligation of confirmation and documentation
- Not all labels about ISO 9001 certainly contain ISO 9001!
- Instructions of the staff are partly done by occupational safety and health practitioners who do not have adequate knowledge of the topics of cargo securing

# The Mercedes-Benz commercial-van training on tour 2013

## Final remarks and recommendations

Mercedes-Benz as OEM takes within the framework of the commercial-van training on tour a unique contribution for the improvement of road safety. Year by year this programme is further developed for the needs of Mercedes-Benz customers and adapted for special sectors as for example rescue services or CEP.

# The Mercedes-Benz commercial-van training on tour 2013

## Recommended actions

- Execution of education for entrepreneurs/managers in occupational health and safety topics and management and resultant measures
- Consequent further development of existing effective educational measures
- Instructions must be practice-oriented to respective business sectors and the needs of the drivers
- The industry (manufacturing of products) should concentrate in an even better user-friendliness according to measures of cargo securing  
„It should be produced regarding the market needs not regarding the prestige“

**Thank you very much indeed for your attention!**