



Information leaflet

Transport of cars & trucks on vehicle transporters



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Information leaflet for the transport of cars & trucks on vehicle transporters

Since March 2017, TÜV SÜD Division Mobility has been working with twelve industry partners to investigate the transportation of cars and trucks on vehicle transporters using scientific methods. The minimum load securing requirements for vehicle transporters were examined with great effort resulting in new findings. Due to the further development of vehicle technology in the area of transport vehicles and the vehicles to be transported, these studies were considered necessary from the point of view of all parties involved. Special testing machines and scientific methods for carrying out the test series were developed in order to further develop the already high standard in the vehicle transportation sector. This is intended to ensure that manufacturers, consignors, transporters and consignees benefit from these further developments and that comprehensible as well as practicable load securing methods can be defined for transportation.

The tests carried out by the working group and the resulting conclusions were submitted to the "Verein Deutscher Ingenieure" (Association of German Engineers) in 2022 for the revision of the loading guideline VDI 2700 Part 8.1 "Securing of loads on road vehicles, securing of passenger cars and cargo minivans on vehicle transporters" as of April 2009. The same applies to VDI 2700 Part 8.2 "Securing of loads on road vehicles, securing of trucks on vehicle transporters" as of December 2010.

The VDI working group immediately started to revise the VDI 2700 Part 8.1 & 8.2. In the course of the revision, it was recognised that it is necessary to create a Part 8 indicating the test requirements. The aforementioned guidelines are currently available as greenprint.

In order to provide all groups involved in the transport of motor vehicles on trucks with the possibility to deal with the resulting innovations in VDI 2700 Part 8.1 & 8.2 in the sector of transport vehicles and load securing equipment in good time, TÜV SÜD Division Mobility decided to create an information leaflet.

From the point of view of TÜV SÜD Division Mobility, the following points are important for the transport of cars and trucks in the future:



Web lashings:



The web lashings used for the transport of passenger cars must comply with DIN EN 12195-2 and meet the following minimum requirements:

- Standard to be applied: DIN EN 12195-2
- Elongation: $\leq 4\%$
- LC: 1,500 daN
- STF: 330 daN
- Webbing width: at least 35 mm
- The ETA value of the web lashing/ anti-slip device configuration must be indicated on the label.
- The lashing hooks must be approved for the ramp elements.



The web lashings used for the transport of trucks must comply with DIN EN 12195-2 and meet the following minimum requirements:

- Standard to be applied: DIN EN 12195-2
- Elongation: $\leq 4\%$
- LC: 2,500 daN
- STF: 500 daN
- Webbing width: at least 50 mm
- The ETA value of the web lashing/ anti-slip device configuration must be indicated on the label.
- The lashing hooks must be approved for the ramp elements.

Anti-slip device:

The web lashings must be equipped with anti-slip devices, e.g. hose-shaped. The anti-slip devices shall be designed in such a way that already during lashing, the webbing tension is distributed as evenly as possible in both directions preventing the web lashings from slipping off the wheel.

The web lashing may only touch the wheel via the anti-slip device. As a guideline value, at least half the circumference of the wheel (180°) shall be applied. Removable anti-slip devices (adapters) can be applied to adapt them to different wheel sizes.

The anti-slip devices used must meet the following minimum requirements:

- ETA value ≥ 0.5
- Web lashing/ anti-slip device configuration:
Web lashing only in combination with approved anti-slip device.
- The following specifications must be indicated on the anti-slip device:
 1. Brand name/ type designation of the anti-slip device
 2. Name of the manufacturer
 3. ETA value of the web lashing/ anti-slip device configuration

Multiple point lashing systems for load securing devices in ramp elements:



Passenger car - unladen weight

0 - 1,500 kg

>1,500 - 4,500 kg

Securing forces of the fixing points

(plus 25% safety)

- 0° at least 500 daN
- 45° at least 500 daN
- 90° at least 500 daN

- 0° at least 700 daN
- 45° at least 700 daN
- 90° at least 600 daN



Truck - unladen weight

0 - 20,000 kg
when loading the truck from 0° - 10°

0 - 11,000 kg
when loading the truck from 0° - 25°
in a trough or chamfer

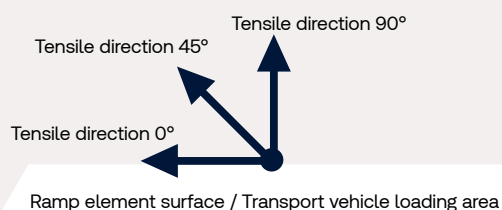
0 - 11,000 kg
when loading the truck from 10° - 25°

Securing forces of the fixing points

(plus 25% safety)

- 0° at least 1,000 daN
- 45° at least 1,000 daN
- 90° at least 1,000 daN

- 0° at least 1,500 daN
- 45° at least 1,500 daN
- 90° at least 1,400 daN



The securing forces of the fixing points may deviate from the upper specifications for some loading variants when transporting trucks.



Wheel chocks in combination with ramp elements:

- Height: Greater than or equal 1/6 of the tyre diameter, alternative wheel chock heights must be verified separately and approved by the body manufacturer
- Blocking force (BC) in horizontal direction
Car: ≥ 500 daN
- Blocking force (BC) in horizontal direction
Truck: $\geq 1,500$ daN
- Wheel chock only in combination with approved ramp

Dynamic friction coefficient of the ramp element to car/ truck tyre:

- At least $\mu = 0.4$
- Longitudinal as well as transverse to the alignment of the ramp
- Surface conditions: wet and dry

Vehicle configuration:

The vehicle configurations must be designed for the acceleration forces occurring in accordance with DIN EN 12195-1 (in loaded condition).

We recommend the following procedure:

In order to be able to adjust to the necessary minimum requirements in the area of the transport vehicle and the load securing equipment in a good time before the introduction of the new guidelines in day-to-day business, TÜV SÜD Division Mobility recommends that all groups of people involved in transport operations with vehicle transporters, contact the manufacturers of the existing and used transport vehicles in order to find out to what extent these transport vehicles used comply with the above-mentioned minimum requirements, which are described in VDI 2700 Sheet 8: 2023-10 "Securing of loads on road vehicles - Test requirements for vehicle transporters and load securing devices for vehicle securing of passenger cars and light and heavy commercial vehicles on vehicle transporters".

TÜV SÜD Division Mobility also recommends contacting the manufacturers of load securing devices to ensure that the existing and used devices, such as web lashings and anti-slip devices, also meet the minimum requirements mentioned above.

The testing specifications for the above points are published in a separate guideline VDI 2700 Sheet 8:2023-10 "Securing of loads on road vehicles - Test requirements for vehicle transporters and load securing devices for vehicle securing of passenger cars and light and heavy commercial vehicles on vehicle transporters". All tests according to this guideline can be carried out by TÜV SÜD Division Mobility.

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Would you like to know more? We're here to help. Get in touch.

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