

Directive 94/20/EC of the European Parliament and of the Council
of 30 May 1994 relating to the mechanical coupling devices of motor
vehicles and their trailers and their attachment to those vehicles (repealed)

Status: This is the original version (as it was originally adopted).

LIST OF ANNEXES

ANNEX I

2. DEFINITIONS

- 2.1. Mechanical coupling devices between motor vehicles and trailers are all parts and devices on the frames, load-bearing parts of the bodywork and chassis of the vehicles by means of which towing and towed vehicles are connected together.

It also includes fixed or detachable parts for the attachment, adjustment or operation of the abovementioned coupling devices.

- 2.1.1. The coupling balls and towing brackets in Section 1.3.1 are mechanical coupling devices employing a spherical device and brackets on the towing vehicle for connecting to the trailer by means of a coupling head.
- 2.1.2. The coupling heads in Section 1.3.2 are mechanical coupling devices on the drawbar of trailers for connecting to a coupling ball on the towing vehicle.
- 2.1.3. The drawbar couplings in Section 1.3.3 are mechanical coupling devices with a jaw and an automatic closing and locking pin on the towing vehicle for connecting to the trailer by means of a drawbar eye.
- 2.1.4. The drawbar eyes in Section 1.3.4 are mechanical coupling devices on the drawbar of trailers having a parallel hole for connecting to the automatic drawbar couplings.
- 2.1.5. The drawbars in Section 1.3.5 comprise overrun devices and similar items of equipment mounted on the front of the towed vehicle or to the vehicle chassis, which is suitable for coupling to a towing vehicle by means of drawbar eyes, coupling heads and similar coupling devices.

Drawbars can be attached to the trailer so as to move freely in the vertical plane and therefore support no vertical load, so called hinged drawbars, or be fixed in the vertical plane so as to support a vertical load, so called rigid drawbars. Drawbars fixed in the vertical plane can be either rigid or sprung.

Drawbars may also comprise more than one component, be adjustable or cranked. This Directive concerns drawbars only of the type which forms a separate unit, which is not part of the chassis of the towed vehicle.

- 2.1.6. The drawbeams in Section 1.3.6 are all parts and devices placed between the coupling devices, such as coupling balls and drawbar couplings, and the frame (e.g. rear cross member), the load-bearing bodywork or the chassis of the towing vehicle.
- 2.1.7. The fifth wheel coupling in Section 1.3.7 are plate-like coupling devices used on towing vehicles having an automatic coupling lock and connecting to the fifth wheel coupling pins in Section 1.3.8.
- 2.1.8. The fifth wheel coupling pins in Section 1.3.8. are a coupling device in the form of a pin for mounting on a semi-trailer and connecting to the towing vehicle by means of a fifth wheel coupling.
- 2.1.9. The mounting plates in Section 1.3.9 are all parts and devices used for attaching fifth wheel couplings to the frame of the towing vehicle. The mounting plate may have provision to move horizontally (i.e. sliding fifth wheel).
- 2.1.10. Steering wedges are components mounted on semi-trailers which control positive steering of the trailer in conjunction with the fifth wheel coupling.

- 2.1.11. Standard coupling devices are classified in Section 1.3. and conform to standard dimensions and standard characteristic values as given in this Directive. They are interchangeable within their class, independent of type and manufacturer.
- 2.1.12. Non-standard coupling devices are those of Classes A to J which do not fall under the classification of standard coupling devices but which can be connected to standard coupling devices of the relevant classes.
- 2.1.13. The miscellaneous coupling devices for transitional or exceptional use in Section 1.3.10 are mechanical coupling devices which do not belong to any of the Classes A to J (e.g. coupling devices according to existing national standards or for heavy transport).
- 2.1.14. Remote control devices are devices which, in the case of an inaccessible coupling device, enable the coupling device to be operated from the side of the vehicle or from the driving cab.
- 2.1.15. Remote indicators are indicating devices which indicate to the vehicle driver in his cab that coupling has been effected and the safety devices have engaged.
- 2.1.16. A type of mechanical coupling device means a device which does not differ in such essential aspects as:
- 2.1.16.1. class of coupling device;
- 2.1.16.2. factory mark or trade name;
- 2.1.16.3. external shape or principal dimensions or other fundamental differences in design;
- 2.1.16.4. characteristic values D, S, V and U.
- 2.1.17. A coupling procedure is automatic if reversing the towing vehicle against the trailer is sufficient to engage the coupling completely and properly without any external intervention, to secure it automatically and to indicate proper engagement of the safety devices. An automatic coupling procedure requires the use of automatic couplings.
- 2.1.18. The 'D-value' is defined as the theoretical reference force for the horizontal force between towing vehicle and trailer.

The D-value is taken as the basis for horizontal loads in the dynamic tests.

For mechanical coupling devices unsuitable for transmitting vertical bearing loads the value is:

$$D = g \times \frac{T \times R}{T + R} \text{ (kN)}$$

For mechanical coupling devices suitable for centre axle trailers the value is:

$$D_c = g \times \frac{T \times C}{T + C} \text{ (kN)}$$

For fifth wheel couplings on towing tractors and vehicles of comparable type the value is:

$$D = g \times \frac{0,6 \times T \times R}{T + R \cdot U} \text{ (kN)}$$

where:

- T = technically permissible maximum mass in tonnes of the towing vehicle (also towing tractors) including, if necessary, the vertical load of a centre axle trailer,
- R = technically permissible maximum mass in tonnes of the full trailer with drawbar free to move in the vertical plane or of the semi-trailer,

- C = sum of the axle loads of the centre axle trailer carrying maximum permissible load, in tonnes (see Section 2.1.20),
- U = fifth wheel imposed vertical load in tonnes,
- S = the static vertical load S in kg is the proportion of the mass of the centre axle trailer exerted under static conditions at the coupling point,
- g = acceleration due to gravity (assumed as 9,81 m/s²).

2.1.19. The 'V-value' is defined as the theoretical reference force for the amplitude of the vertical force between towing vehicle and centre axle trailers having a maximum mass exceeding 3,5 tonnes (see Section 2.1.21). The V-value is taken as a basis for the vertical test loads in the dynamic tests:

$$V = a \cdot \frac{x^2}{l^2} \cdot C$$

where:

- a is an equivalent vertical acceleration in the coupling point, dependent on the kind of suspension on the rear axle(s) of the towing vehicle including a constant factor:
- a₁ = 1,8 m/s² for vehicles with air suspension or equivalent (as defined in Directive 85/3/EEC)⁽¹⁾,
- a₂ = 2,4 m/s² for vehicles with other suspension,
- x is the length of the loading area of the trailer, in metres (see Figure 1),
- l is the theoretical drawbar length, i.e. the distance between the centre of the drawbar eye and the centre of the axle assembly, in metres (see Figure 1),

$$\frac{x^2}{l^2} \geq 1,0$$

(where the result is a value less than 1,0 the value used should be at least 1).

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- 1. **Additional information**
- 1.1. Vehicle construction, bodywork/chassis:
- 1.1.1. Materials used:
.....
- 1.2. Class and type of the coupling device(s) ⁽¹⁾:
- 1.3. Use of towing brackets or mounting plates, attachment instructions of the coupling type:
.....
- 1.4. EEC vehicle type-approval is extended to the following type(s) of coupling device and class(es):
.....
- 1.5. Technically permissible maximum laden mass stated by the manufacturer (maximum and minimum for each version): tonnes
- 1.6. Maximum mass of trailer which may be coupled
- 1.6.1. Full trailer: tonnes ⁽²⁾
- 1.6.2. Semi-trailer: tonnes ⁽²⁾
- 1.6.3. Centre-axle trailer: tonnes ⁽²⁾
- 1.6.3.1. Maximum V-value: kN
- 1.6.4. Maximum mass of the combination: tonnes
- 1.7. Maximum vertical load S or fifth wheel load U ⁽³⁾ of the vehicle type fitted with the coupling device: kg/tonne
- 1.8. Maximum D-value: kN:
- 1.9. Maximum mass of the towing vehicle (T) or maximum mass of the vehicle combination (if T is less than 32 tonnes)
- 5. **Remarks ⁽⁴⁾:**
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⁽¹⁾ For non-standard couplings the type-approval number(s) must also be indicated.

⁽²⁾ If applicable.

⁽³⁾ Delete where not applicable.

⁽⁴⁾ Including information as to whether fifth wheel couplings are unsuitable for positive steering.

- 2.1.20. ‘Centre-axle trailer’ means a towed vehicle equipped with a towing device which cannot move vertically (in relation to the trailer), and in which the axle(s) is (are) positioned close to the centre of gravity of the vehicle (when uniformly loaded) such that only a small vertical load, not exceeding 10 % of the maximum mass of the trailer of 1 000 kg (whichever is the lesser) is transmitted to the drawing vehicle.

The maximum mass of a centre-axle trailer to be taken into consideration shall be the mass transmitted to the ground by the axle(s) of the centre-axle trailer when coupled to the drawing vehicle and laden with a maximum load.

- 2.1.2.1. For vehicles not falling clearly in any of the above categories they shall be treated in the same way as the type they most closely resemble.
- 2.1.22. ‘Vehicle type’ means vehicles which do not differ with respect to the following main characteristics: the structure, dimensions, shape and materials of the relevant parts concerning the fixing of the coupling device of the towing vehicle, or the front part in the case of a trailer, in so far as they have a bearing on the requirements of Annex VII.

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(1) OJ No L 2, 3. 1. 1985, p. 14.