

## 61 The installation of the mechanical coupling device or component

Refer to: R55 01-S5

### 61.1 Effective date and Scope:

61.1.1 As for the vehicle category N2, N3, O3 and O4, the new vehicle type from 2011/7/1 and all vehicle types from 2012/1/1, shall comply with this regulation and the mechanical coupling device or component installed on the above vehicles shall comply with the requirements for "Mechanical coupling device or component" regulated in these Directions.

### 61.2 Definitions

61.2.1 "mechanical coupling devices and components means" all those items on the frame, load-bearing parts of the bodywork and the chassis of the motor vehicle and trailer by means of which they are connected together to form the combination of vehicles or the articulated vehicles. Fixed or detachable parts for the attachment or operation of the mechanical coupling device or component are included.

61.2.2 automatic coupling requirement is achieved if reversing the towing vehicle against the trailer is sufficient to engage the coupling completely, to lock it automatically and to indicate proper engagement of the locking devices without any external intervention. In the case of hook type couplings automatic coupling requirement is achieved if opening and closing of the coupling locking device takes place without any external intervention when the drawbar eye is inserted into the hook.

61.2.3 Steering wedges are devices or components mounted on semitrailers which control positive steering of the trailer in conjunction with the fifth wheel coupling.

61.2.4 Remote control systems are devices and components which enable the coupling device to be operated from the side of the vehicle or from the driving cab of the vehicle.

61.2.5 Remote indicators are devices and components which give an indication in the vehicle cab that coupling has been effected and that the locking devices have engaged.

The official directions are written in Chinese, this English edition is for your reference only.

61.2.6 "Centre axle trailer" means a trailer having a drawbar which cannot move in a vertical plane independent of the trailer and having an axle or axles positioned close to the centre of gravity of the trailer, when uniformly loaded. The vertical load imposed on the coupling of the towing vehicle shall not exceed 10 % of the maximum mass of the trailer, or 1,000 kg, whichever is the lesser. The maximum mass of the centre axle trailer means the total mass transmitted to the ground by the axle or axles of the trailer when coupled to a towing vehicle and when loaded to the technically permissible maximum mass.

61.2.7 "Positive mechanical engagement" means that the design and geometry of a device and its component parts shall be such that it will not open or disengage under the action of any forces or components of forces to which it is subject during normal use or testing.

61.3 The installation of the mechanical coupling device or component shall according to suitable types and range of principle are as below :

61.3.1 The same vehicle category symbol.

61.3.2 The same brand and vehicle type.

61.3.3 The same chassis brand.

61.3.4 Chassis manufacturers announced that the same chassis vehicle type.

61.3.5 If use chassis vehicle instead of completed vehicle for entire or partial testing, which shall according to suitable types and range of principle are as below :

61.3.5.1 The same chassis brand.

61.3.5.2 Chassis manufacturers announced that the same chassis vehicle type.

61.4 General requirements for vehicles fitted with a mechanical coupling device or component

61.4.1 The mechanical coupling device or component fitted to the vehicle shall be approved in accordance with the requirements of paragraphs 61.4 and 61.5 of this Regulation. The applicants applying for low volume safety approval or vehicle-by-vehicle low volume safety approval could be exempt from regulation of "Mechanical coupling device or component" regulated in these Directions.

61.4.2 The installation of the mechanical coupling device or component shall meet the requirements of this Regulation.

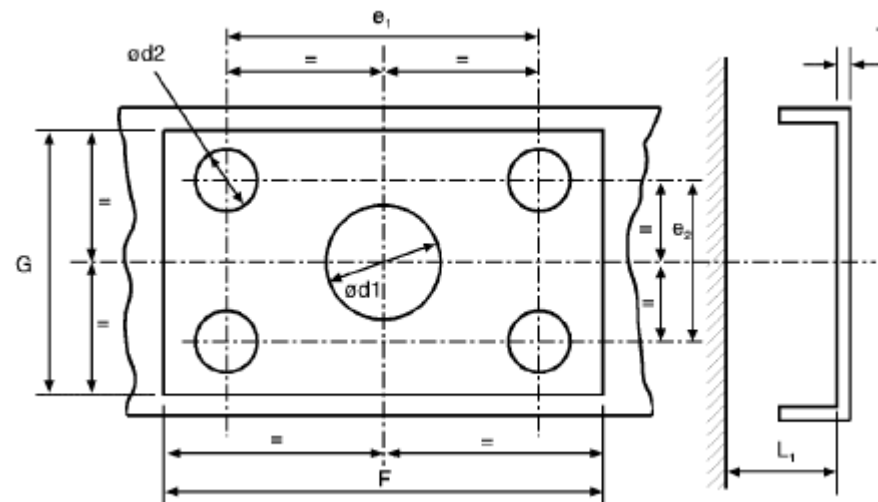
61.4.3 Operating instructions shall be provided for use of the coupling device or component which shall contain any special instructions for operations which are different from those normally associated with the type of coupling device or component and instructions for coupling and uncoupling with different modes of operation, for example, at various angles between the towing and towed vehicles. Each vehicle shall be accompanied by these operating instructions which shall be at least in the language of the country in which it will be offered for sale.

## 61.5 Installation and special requirements

### 61.5.1 Attachment of drawbar couplings and mounting blocks

#### 61.5.1.1 Mounting dimensions for standard drawbar couplings:

In the case of types of standard drawbar couplings the mounting dimensions on the vehicle given in Figure 1 and Table 1 must be met.



The official directions are written in Chinese, this English edition is for your reference only.

Figure 1: Mounting dimensions for standard drawbar couplings

Table 1: Mounting dimensions for standard drawbar couplings (mm)

Class	C50-1	C50-2	C50-3	C50-4	C50-5	C50-6 C50-7	Remarks
e <sub>1</sub>	83	83	120	140	160	160	+/-0.5
e <sub>2</sub>	56	56	55	80	100	100	+/-0.5
d <sub>1</sub>	-	55	75	85	95	95	+1.0/-0.5
d <sub>2</sub>	10.5	10.5	15	17	21	21	H13
T	-	15	20	35	35	35	maximum
F	120	120	165	190	210	210	minimum
G	95	95	100	130	150	150	minimum
L <sub>1</sub>	-	200	300	400	400	400	minimum

#### 61.5.1.2 Need for remote controlled couplings

If one or more of the following requirements regarding easy and safe operation (paragraph 61.5.1.3), accessibility (paragraph 61.5.1.5) or clearance for the hand lever cannot be met, a coupling with a remote control device as described in 62.5.18.3 of “Mechanical coupling device or component” shall be used.

#### 61.5.1.3 Easy and safe coupling operation

Drawbar couplings shall be mounted on the vehicle in such a manner that they are easy and safe to operate. In addition to the functions of opening (and closing, if applicable) this also includes checking the position of the indicator for the closed and locked positions of the coupling pin (by sight and touch). In the area in which the person operating the coupling has to stand, there shall not be any points of possible danger such as sharp edges, corners, etc. inherent in the design unless these are protected so that injury is unlikely. The way of escape from this area shall not be restricted or barred on either side by any objects attached to either

The official directions are written in Chinese, this English edition is for your reference only.

the coupling or the vehicles. Any underrun protection device shall not prevent the person adopting a suitable position to operate the coupling.

#### 61.5.1.4 Minimum angle for coupling up and uncoupling

Coupling and uncoupling of the drawbar eye shall be possible when the longitudinal axis of the drawbar eye in relation to the centre line of the jaw is simultaneously rotated:

- 50 degrees horizontally to right or left;
- 6 degrees vertically up or down.
- 6 degrees axially to right or left.

This requirement shall also apply to Class K hook type couplings for vehicles having maximum permissible mass above 3.5t.

#### 61.5.1.5 Accessibility

The distance between the centre of the coupling pin and the edge of the bodywork of the vehicle shall not exceed 550 mm. Where the distance exceeds 420 mm, the coupling shall be fitted with an actuation mechanism which will allow safe operation at a maximum distance of 420 mm from the outer board of the bodywork. The distance of 550 mm may be exceeded as follows, provided that technical necessity can be demonstrated and that easy and safe actuation of the drawbar coupling is not adversely affected:

- (i) to a distance of up to 650 mm for vehicles with tipping bodies or rear-mounted
- (ii) to a distance of up to 1,320 mm if the unobstructed height is at least 1,150 mm;
- (iii) in the case of car transporters with at least two loading levels when the trailer vehicle is not separated from the towing vehicle in normal transport operation.

#### 61.5.1.6 Clearance for the hand lever

In order to permit safe operation of drawbar couplings there shall be adequate free space around the hand lever. The clearance illustrated in Figure 2 is regarded as sufficient. If different types of standard drawbar couplings are intended to be fitted to the vehicle, the clearance shall be such that the conditions are also satisfied for the largest size of coupling of the appropriate class

given in paragraph 62.9 of “Mechanical coupling device or component”.

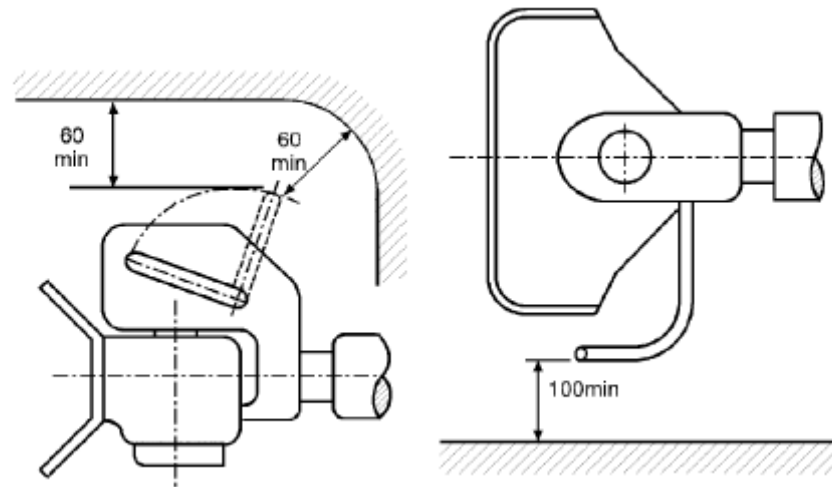


Figure 2: Hand lever clearance

The clearance dimensions are also applicable as appropriate for drawbar couplings having hand levers pointing downwards or of a different design. The clearance shall also be maintained within the specified minimum angle for coupling up and uncoupling given in paragraph 61.5.1.4.

#### 61.5.1.7 Clearance for free movement of drawbar coupling

The drawbar coupling attached to the vehicle shall have a minimum clear gap of 10 mm from every other part of the vehicle taking into account all possible geometrical positions given in paragraph 62.5.9 of “Mechanical coupling device or component”. If different types of standard drawbar couplings are intended to be fitted to the vehicle type, the clearance shall be such that the conditions are also satisfied for the largest possible coupling of the appropriate class stated in paragraph 62.5.9 of “Mechanical

coupling device or component”.

61.5.1.8 Acceptability of drawbar couplings with a special joint for vertical rotation in paragraph 62.5.9.4 of “Mechanical coupling device or component”. Couplings having a cylindrical pin and which achieve vertical rotation for the coupled drawbar eye by means of a special joint will only be permitted when technical necessity can be demonstrated. This may be the case, for example, on rear tippers when the coupling head shall be hinged, or with the couplings of heavy transporters when for strength reasons the use of a cylindrical coupling pin is necessary.

#### 61.5.2 Attachment of drawbar eyes and drawbars on trailers

61.5.2.1 Drawbars for centre axle trailers shall have a support device which is adjustable in height if the bearing mass at the drawbar eye on the trailer exceeds 50 kg, when the trailer is uniformly loaded to its technically permissible maximum mass.

61.5.2.2 When attaching drawbar eyes and drawbar to centre-axle trailers with a maximum mass, C, of more than 3.5 t and more than one axle, the trailers shall be equipped with device for axle load sharing.

61.5.2.3 Hinged drawbars shall be clear of the ground. They shall not fall below a height of 200 mm from the ground when released from the horizontal position. See paragraphs 62.5.11.3 and 62.5.11.4 of “Mechanical coupling device or component”.

#### 61.5.3 Attachment of fifth wheel couplings, mounting plates and coupling pins on vehicles

61.5.3.1 Class G50 fifth wheel couplings shall not be mounted directly on the vehicle frame unless permitted by the vehicle manufacturer. They shall be fixed to the frame by means of a mounting plate and the installation instructions provided by the vehicle manufacturer and coupling manufacturer shall be followed.

61.5.3.2 Semitrailers shall be equipped with landing gear or any other equipment which allows uncoupling and parking of the semitrailer. If semitrailers are equipped so that the connection of the coupling devices, the electrical systems and braking systems can be effected automatically, the trailer shall have landing gear which retracts from the ground automatically after the semitrailer has been coupled up. These requirements shall not apply in the case of semitrailers designed for special operations where they are

normally only separated in a workshop or when loading and unloading in specifically designed operating areas.

61.5.3.3 The fixing of the fifth wheel coupling pin to the mounting plate on the semitrailer shall be as instructed by the vehicle manufacturer or the manufacturer of the fifth wheel coupling pin.

61.5.3.4 If a semitrailer is equipped with a steering wedge it shall meet the requirements as described in paragraph 62.5.13.8 of “Mechanical coupling device or component”.

#### 61.5.4 Remote indication and control

61.5.4.1 When installing remote indication and control devices any relevant requirements given in paragraph 62.5.18 of “Mechanical coupling device or component” shall be taken into account.