

# **JOST**

**Montage- und Betriebsanleitung**

## **SATTELKUPPLUNG JSK 38 / JSK 50**



- Ⓜ Installation and operating instructions
- Ⓟ Instructions de montage et de d'utilisation
- Ⓡ Istruzioni per il montaggio e l'uso
- Ⓢ Instrucciones de montaje y funcionamiento

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**The safety information is compiled in one section. Where the user of the fifth wheel coupling is in danger, the safety information is repeated in the various sections and marked with the danger symbol shown here on the left.**

The relevant safety regulations in your country (for example Health & Safety at Work) apply for working with fifth wheel couplings, tractor units and semi-trailers. The appropriate safety information in the owner's handbook for the tractor unit and the semi-trailer are valid and must be followed.

The following safety information apply to the installation, servicing and mounting work. Safety information directly linked to the activity is listed again individually.

### 1.1 Safety information for operation

- ▶ The fifth wheel coupling may only be used by authorised persons.
- ▶ Only use the fifth wheel coupling and skid plate on the semi-trailer if they are in perfect technical condition.
- ▶ The front of the skid plate must not be sharp, otherwise it may damage the fifth wheel coupling.
- ▶ Comply with the relevant safety regulations when coupling up a semi-trailer, for example the Health and Safety at Work Regulations. Only connect a semi-trailer on firm, flat ground.
- ▶ The skid plate must be at the same height or preferably lower – no more than 50 mm lower – than the coupling plate on the fifth wheel coupling. Pressure losses in the air suspension may change the height of the semi-trailer.
- ▶ Check the locking mechanism before starting your journey to ensure that it is properly locked. Only drive the vehicle with the locking mechanism locked and secured.

### 1.2 Safety information for servicing

- ▶ Only use the specified lubricants for servicing work.
- ▶ The servicing work should only be completed by trained personnel.

### 1.3 Safety information for installation

- ▶ Do not change the installation area defined by the manufacturer of the tractor unit.
- ▶ The installation work may only be completed by authorised specialists.
- ▶ Refer to the instructions issued by the vehicle manufacturer, for example the type of fastening, fifth wheel position, fifth wheel height, axle load, cavity, mounting plate, slider, etc.
- ▶ Follow the installation instructions supplied by the mounting plate and slider manufacturers.

The fifth wheel coupling must be mounted on the vehicle in compliance with the requirements of Appendix VII of Directive 94/20/EC (see Appendix No. 1, No. 5.10 of this Directive). It may also be necessary to comply with the licensing regulations of the appropriate country.

§§ 19, 20 and 21 of the Road Traffic Act apply in Germany. In addition, your attention is drawn to the requirements of § 13 of the Vehicle Registration Ordinance in Germany relating to the data in the vehicle documents in terms of the maximum trailer load.

## 2.1 Application

Fifth wheel couplings provide the link between the tractor unit and the semi-trailer. They are designed for mounting on a tractor unit.

The fifth wheel coupling and mounting plate are connecting parts that must comply with very high safety requirements and must also undergo design approval tests.

Modifications of any kind will render both the warranty and the design approval void and therefore also cancel the vehicle's operating licence.

JOST type JSK 38 fifth wheel couplings are suitable for steering wedges according to Directive/standard 94/20/EC and DIN 74085. The JSK 38 version with 3.5-inch locking mechanism complies with Directive 94/20/EC class S and must be used in conjunction with king pins according to DIN 74083 or ISO 4086. The JSK 38 version with 2-inch locking mechanism complies with Directive 94/20/EC class G50-X and must be used in conjunction with king pins according to DIN 74080 or ISO 337. Type JSK 38 fifth wheel couplings must be used in conjunction with mounting plates according to 94/20/EC class J or with comparable approved devices.

JOST type JSK 50 fifth wheel couplings are suitable for steering wedges according to Directive/standard 94/20/EC and DIN 74085. All JSK 50 versions comply with 94/20/EC class S and must be used in conjunction with king pins according to DIN 74083 or ISO 4086. Type JSK 50 fifth wheel couplings must be used in conjunction with mounting plates according to 94/20/EC class J or with comparable approved devices.

## 2.2 Design

The fifth wheel coupling is specified with the vehicle by the vehicle manufacturer (the design must comply with Directive 94/20/EC, Appendix VII). In addition to the imposed load the D value is a criterion for the load capacity of fifth wheel couplings and mounting plates.

It can be calculated using the following formula:

D = Drawbar value [kN]

g = 9.81 m/s<sup>2</sup>

R = Maximum gross weight of the semi-trailer [t]

T = Maximum gross weight of the tractor unit including U [t]

U = Maximum imposed load [t]

$$D = g \cdot \frac{0.6 \cdot T \cdot R}{T + R - U} \text{ [kN]}$$

Specimen calculation:

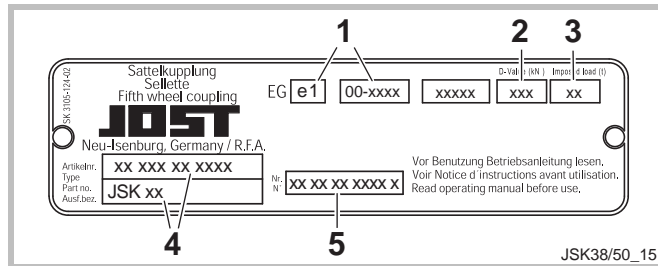
T = 38 t

R = 75 t

U = 28 t

$$D = 9.81 \cdot \frac{0.6 \cdot 38 \cdot 75}{38 + 75 - 28} = 197.4 \text{ kN}$$

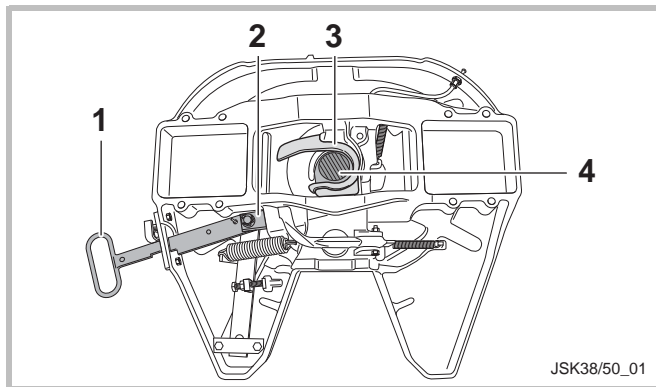
The maximum load data for JOST fifth wheel couplings are set out on the type plate and the appropriate JOST catalogue sheets. They are applicable for proper usage pursuant to Directive 94/20 EC. If they are subject to dynamic tensile forces, for example if they are used on uneven road surfaces or on construction sites, do not use the complete imposed load and D value or use a stronger fifth wheel coupling or consult JOST.



- 1 EU approval
- 2 Maximum D value in kN
- 3 Maximum imposed load U in t
- 4 Article no. and type
- 5 Serial no.

Every fifth wheel coupling has a serial number, which is embossed on the type plate and also underneath the type plate on the edge of the plate. This is designed to give the coupling a unique identity.

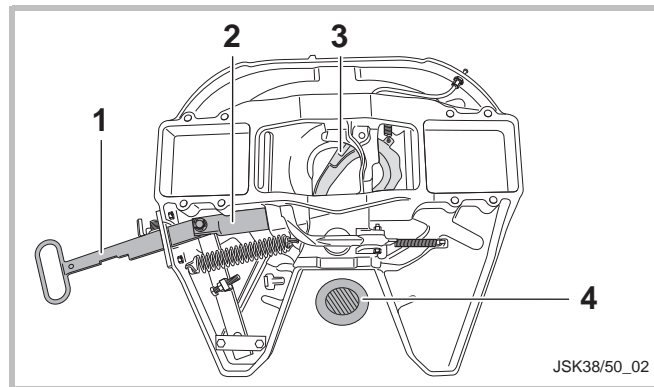
## 3.1 Fifth wheel coupling closed and locked



The figure shows JSK 38

- 1 Handle
- 2 Locking bar
- 3 Lock jaw
- 4 King pin

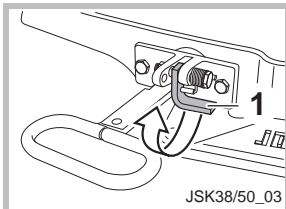
## 3.2 Fifth wheel coupling ready for engagement



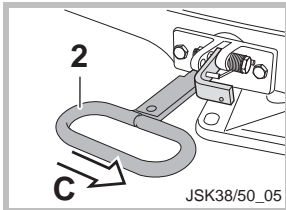
The figure shows JSK 38

- 1 Handle
- 2 Locking bar
- 3 Lock jaw
- 4 King pin

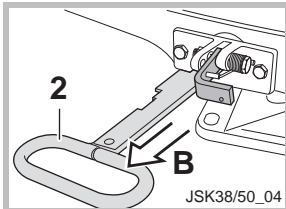
### 3.3 To open the fifth wheel coupling



- ▶ Lift the catch (1).



- ▶ Swing the handle (2) towards the front into position **C** to release the lock.



- ▶ Pull out the handle (2) as far as possible into position **B**.

### 3.4 To couple up a semi-trailer

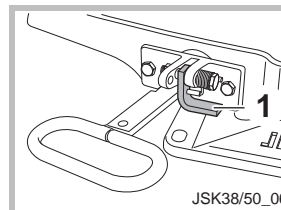
- ▶ Secure the semi-trailer to prevent its rolling away.
- ▶ The fifth wheel coupling must be ready to engage (see section 3.2). Otherwise open the fifth wheel coupling (see section 3.3).
- ▶ Check the height of the semi-trailer. The skid plate must ideally be at the same height as or no more than 50 mm lower than the coupling plate on the fifth wheel coupling.
- ▶ Drive the tractor unit under the semi-trailer.
- ▶ The locking mechanism will close automatically.

- ▶ Perform a moving-off test in a low gear.
- ▶ Check the locking mechanism (see section 3.5).
- ▶ Connect the supply lines.
- ▶ Retract the landing gear as described in the operating manual.
- ▶ Release the parking brake and remove the chocks.

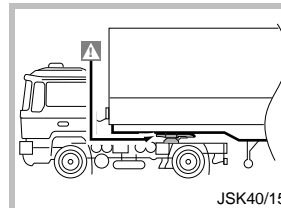


**Check the locking mechanism status before starting any journey (see section 3.5).**

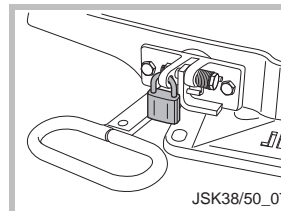
### 3.5 To check the locking mechanism



- ▶ The catch (1) must be down as shown.



**The skid plate must rest on the fifth wheel coupling without a gap.**



#### Note

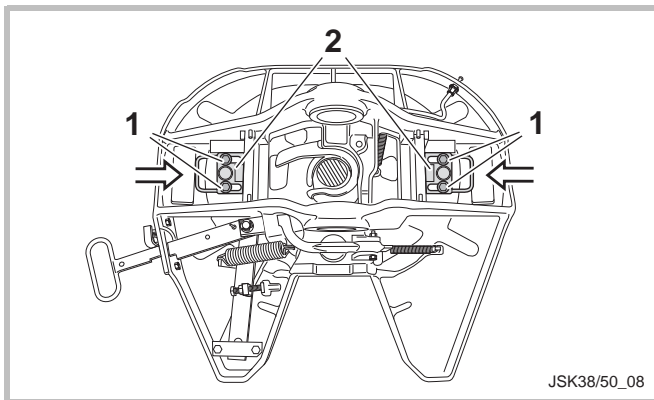
To prevent the fifth wheel coupling from being opened without authorisation, a security device (for example a padlock) can be inserted into the hole in the handle as shown.

### 3.6 To uncouple a semi-trailer

- ▶ Park the vehicle on flat, firm ground.
- ▶ Secure the semi-trailer to prevent its rolling away.
- ▶ Extend the landing gear as described in the operating manual until the fifth wheel coupling has almost no strain on it.
- ▶ Disconnect the supply lines.
- ▶ Open the fifth wheel coupling (see section 3.3).
- ▶ Drive the tractor unit out from under the semi-trailer.
- ▶ The fifth wheel coupling is automatically ready for engagement again.

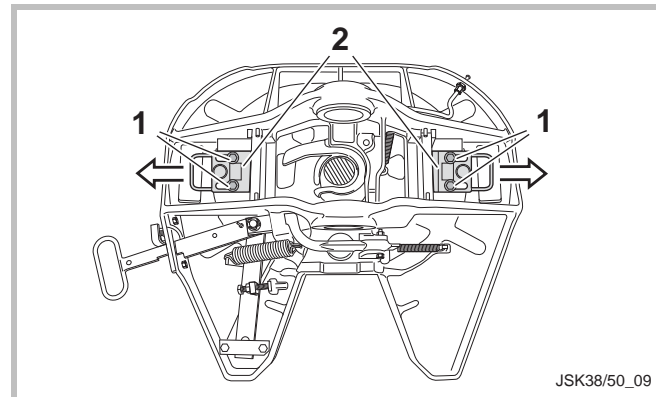
### 3.7 Sideways movement (type JSK 38 G version)

Sideways movement is only allowed to be released when driving off-road. For safety reasons, sideways movement must be blocked when driving on-road, in particular at high speed.



To block sideways movement for driving on-road:

- ▶ Loosen 2 hexagonal bolts (1) on each side.
- ▶ Push in both blocking pieces (2) until the stop in the slot.
- ▶ Retighten the hexagonal bolts (1) to 80 Nm.



To release sideways movement for driving off-road:

- ▶ Loosen 2 hexagonal bolts (1) on each side.
- ▶ Pull out both blocking pieces (2) until the stop in the slot.
- ▶ Retighten the hexagonal bolts (1) to 80 Nm.

### 4.1 Servicing instructions

The skid plate on the semi-trailer that engages with the fifth wheel coupling must meet the following conditions to provide a long service life and trouble-free function:

- ▶ Max. 2 mm unevenness.
- ▶ Smooth and groove-free surface if possible, without weld bumps (smooth existing groove burr).
- ▶ Rounded or chamfered front and side edges.
- ▶ Complete coverage of the fifth wheel coupling support area with an adequate reinforcement adapted to the particular application.



**Effective lubrication of the top of the fifth wheel plate, the lock, the pivot bearing (only type JSK 38 G version and type JSK 50) and the king pin before using for the first time and after cleaning is essential to ensure their long service life.**

#### Note

When you clean the fifth wheel coupling you may produce waste that contains pollutant substances. We would like to point out that you must comply with the various national waste regulations for the disposal of this waste.

#### 4.1.1 Fifth wheel coupling with manual lubrication

At short intervals, at the latest every 5,000 km:

- ▶ Uncouple the semi-trailer
- ▶ Clean the fifth wheel coupling and the skid plate
- ▶ Grease the fifth wheel plate, locking parts and king pin
- ▶ Grease specification: Extreme pressure grease (EP) with MoS<sub>2</sub> or graphite additive (e.g. Collgranit A3 paste or Turmogeargrease B2 supplied by Lubcon, [www.lubcon.com](http://www.lubcon.com)).
- ▶ Depending on the degree of use, the articulation points of the relay lever and the locking lever must be cleaned and greased.
- ▶ In type JSK 38 G version, the pivot bearings must be regreased using the grease nipples on the bearing pivot and the grease nipples on the pedestals, while type JSK 50 must be regreased using the grease nipples on the bearing pin at every maintenance.

The pivot bearings of type JSK 38 C version are maintenance-free.

The grease nipple on the edge of the coupling plate (special version) is only designed for additional greasing of the locking mechanism between service intervals.

#### 4.1.2 Fifth wheel coupling with central lubrication connection (Z version)

Depending on the conditions in which it is used, the grease specification and metering, at the latest every 50,000 km or every six months:

- ▶ Uncouple the semi-trailer
- ▶ Clean the fifth wheel coupling and the skid plate
- ▶ Check the function of the central lubrication system as described in the manufacturer's instructions
- ▶ Grease the fifth wheel plate, the locking mechanism parts and the king pin using a grease recommended in section 4.1.1
- ▶ Grease the pivot bearings of type JSK 38 G version and type JSK 50
- ▶ Grease specification according to the instructions issued by the manufacturer of the central lubrication system

The pivot bearings of type JSK 38 C version are maintenance-free.

### 4.2 Test instructions

Depending on the conditions in which it is used, but at the latest every 50,000 km or every six months, the fifth wheel coupling, the mounting plate or slider, the king pin and their securing elements are to be checked to ensure that they are in good working condition, not suffering from wear, corrosion, damage or cracks and to be repaired if necessary (see appropriate JOST repair manual for JSK 38/JSK 50 fifth wheel couplings on [www.jost-world.com](http://www.jost-world.com)).

The securing elements are to be checked to ensure that they are tightened to the correct torque.

### 4.3 Wear test

Fifth wheel couplings and king pins are subject to more or less wear depending on the conditions in which they are used, and this wear is noticeable by play towards the front of the vehicle.

Excessive play causes shocks and may lead to instability on the road and damage to the fifth wheel coupling, mounting plate and vehicle chassis.

JOST fifth wheel couplings have a manual infinite adjustment facility for the locking mechanism to extend their service lives.

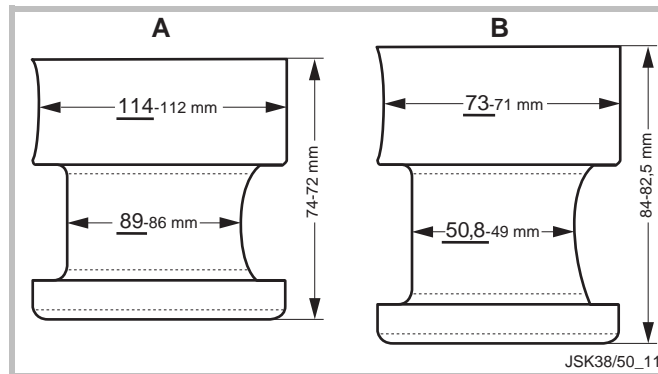


**The wear on the king pin must not be compensated by the adjustment facility.**

When the wear limit on the king pin has been reached, it must be replaced.

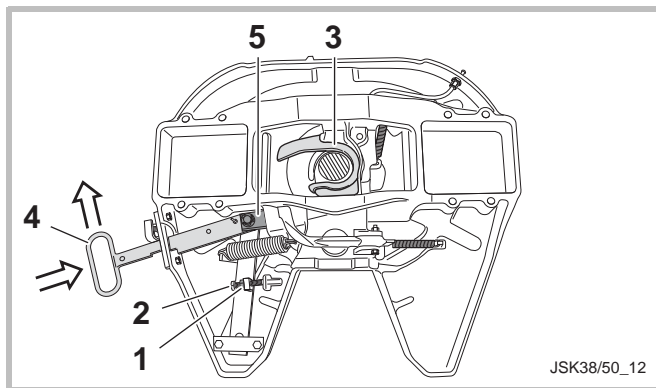
After replacing the king pin, the locking mechanism must be adjusted again.

Play caused by wear on the king pin should either be accepted if within the permitted wear limit for the king pin (see illustration) or should be rectified by fitting a new king pin.



- A 3.5-inch king pins
- B 2-inch king pins

## 4.4 To adjust the locking mechanism



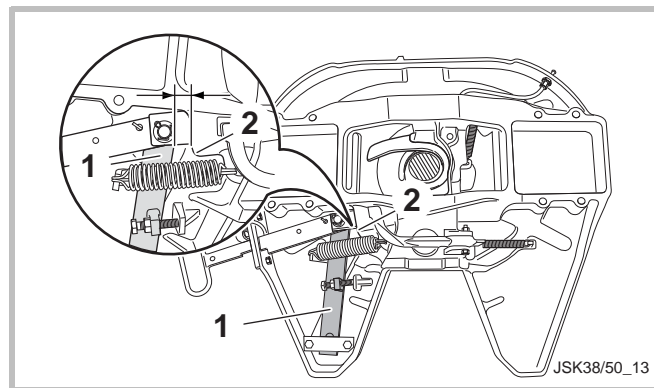
- 1 Lock nut
- 2 Adjusting screw
- 3 Lock jaw
- 4 Handle
- 5 Locking bar

The locking mechanism must be adjusted as follows using a semi-trailer without forced steering with a new king pin:

- ▶ Uncouple the tractor unit on a flat, firm piece of ground.
- ▶ Undo the lock nut (1).
- ▶ Unscrew the adjusting screw (2) by approximately 10 turns.
- ▶ Couple the tractor unit up again.
- ▶ Swivel the handle (4) towards the front of the vehicle and hold it there (get somebody to assist you).
- ▶ Tighten the adjusting screw (2) again until the handle (4) starts to move (have your assistant check this).
- ▶ To set the recommended basic play of 0.3 mm, tighten the adjusting screw (2) by a further 1 turn and secure it with the lock nut (1).

If there is still excessive play, the wearing ring and the lock jaw must be replaced as described in the repair manual.

## 4.5 Wear limit – locking mechanism



- 1 Relay lever
- 2 Bar guide

The wear limit of the locking mechanism has been reached when there is no more gap between the relay lever (1) and the bar guide (2).

The locking mechanism cannot be adjusted any further at this point. In this case, the wearing ring and the lock jaw must be replaced as described in the repair manual.

### 5.1 General installation instructions

The following bolts must be used to secure the JOST fifth wheel coupling (pursuant to Directive 94/20/EC) on the mounting plate:

- ▶ **Type JSK 38 C-1 and G-1 versions:**  
12 x M16, preferably M16 x 1.5 with strength class 10.9
- ▶ **Type JSK 38 C and G versions:**  
At least 12 x M20, preferably M20 x 1.5 with strength class 10.9 arranged symmetrically to the lengthways and transverse axis of the fifth wheel coupling
- ▶ **Type JSK 50:**  
24 x M20, preferably M20 x 1.5 with strength class 10.9

The following bolts must be used to secure the mounting plate onto the vehicle chassis or flitch:

- ▶ **Type JSK 38:**  
6 x M16 per side, preferably M16 x 1.5 with strength class 10.9 or at least 4 x M20 per side, preferably M20 x 1.5 with strength class 10.9
- ▶ **Type JSK 50:**  
Up to 12 x M20 per side, preferably M20 x 1.5 with strength class 10.9

#### Note

If the coupling is used in harsh conditions (for example on construction sites), with trailers with forced steering or with trailers that use the full D-value and/or imposed load, we recommend that you use all the bolts.

We recommend that you use JOST mounting kits (see JOST catalogue for order numbers).

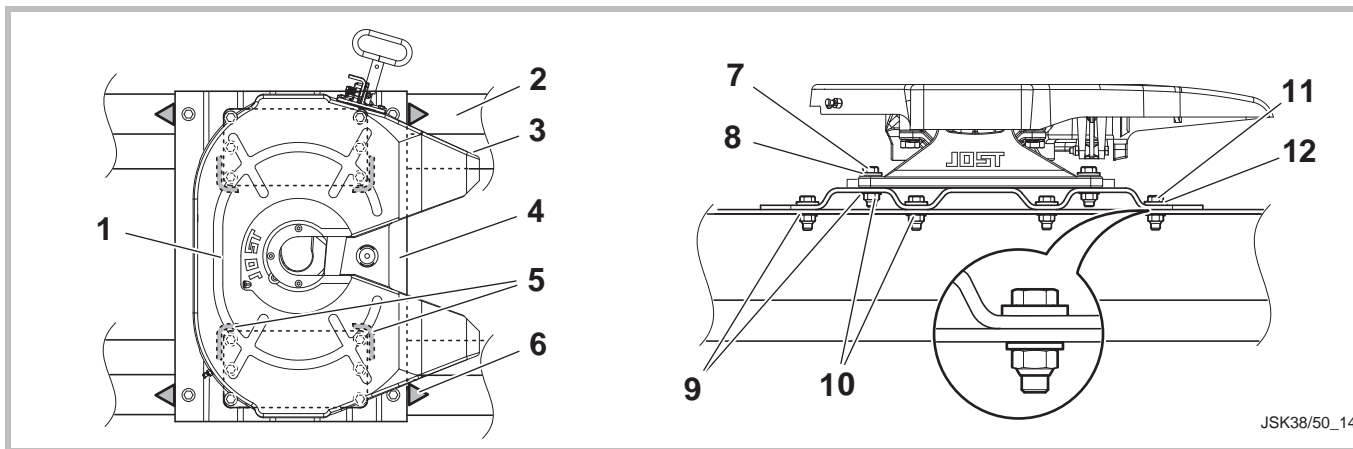
We recommend securing the pedestals in the longitudinal and lateral directions and the mounting plates in the longitudinal direction by pre-welded thrust plates. Use the welding methods set out by the manufacturers of the vehicle and mounting plate for this purpose.

There is no need to use thrust plates, however, if the permitted D-value will not be completely utilised and it can be ensured that the correct tightening torque for the bolts and therefore the perfect friction contact can be generated and maintained at all times.

The bolt connections are therefore to be designed so that the prescribed tightening torque values or prestressing forces can be applied permanently. The general rule is that the coating thickness of the paintwork around the securing area of the bolts must be no more than 170 µm per component. The bolt connections are to be secured using state of the art methods to prevent them coming loose.

The fifth wheel coupling must be able to move freely and must not be in contact with either the mounting plate or parts of the chassis or flitch when the vehicle is being driven.

## 5.2 Installation of the fifth wheel coupling on mounting plate



JSK38/50\_14

- 1 Fifth wheel coupling
- 2 Flitch
- 3 Vehicle chassis
- 4 Mounting plate
- 5 Thrust plates to secure the pedestals
- 6 Thrust plates to secure the mounting plate
- 7 Hexagonal bolt DIN EN ISO 8765/8676 (DIN 960/961) M16 x 1.5-10.9
- 8 Washer 17 DIN 7349, 6 mm thick (min. HB150)
- 9 Optional washer (min. HB150) or disc spring
- 10 Hexagonal nut DIN EN ISO 7042 (DIN 980) M16 x 1.5-10 or M20 x 1.5-10
- 11 Hexagonal bolt DIN EN ISO 8765/8676 (DIN 960/961) M16 x 1.5-10.9 or M20 x 1.5-10.9
- 12 Optional washer/disc spring

Tightening torque, see section 5.3

### 5.3 Fastening material and tightening torque values

Fastening material		Strength class 10.9
Hexagonal bolt DIN EN ISO 4014/4017 (DIN 931/933) standard thread	M16 M20	260 Nm 500 Nm
Hexagonal bolt DIN EN ISO 8765/8676 (DIN 960/961) fine thread	M16 x 1.5 M20 x 1.5	280 Nm 500 Nm
Countersunk bolt DIN EN ISO 10642 (DIN 7991)	M16 or M16 x 1.5 M20 or M20 x 1.5	250 Nm 400 Nm

#### Note

The values shown above are guide values for a coefficient of friction  $\mu_{\text{tot.}} = 0.14$ . Further information is available in VDI 2230.

**JUST**

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