

JOST

Montage- und Betriebsanleitung

SATTELKUPPLUNG JSK 38 & JSK 50



- Ⓒ Installation and operating instructions
- Ⓕ Instructions de montage et 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 adjacent here.

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 applies to the operating, servicing and assembly 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 or the liner.
- ▶ Comply with the relevant safety regulations when connecting 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, even when driving without a semi-trailer (solo driving).

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 assembly

- ▶ Do not change the assembly area defined by the tractor unit's manufacturer.
- ▶ The assembly 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.
- ▶ On vehicles that are used to transport hazardous goods, a ground connection must be put in place between the fifth wheel coupling and the vehicle chassis.

It is a basic principle that bolt connections must be tightened to the specified tightening torque as the setting for the torque wrench acc. to DIN ISO 6789 in classes A or B.

Mounting onto the vehicle must take place in accordance with the requirements of Appendix VII of Directive 94/20 EC or Appendix 7 of Regulation ECE R55-01. The applicable licensing regulations of the appropriate country may also need to be complied with.

Sections 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 Usage

JOST fifth wheel couplings are mechanical connecting devices and establish a connection between the tractor and the semi-trailer. They are designed for mounting on a tractor unit.

Fifth wheel couplings, mounting plates and kingpins are vehicle-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 fifth wheel couplings of type JSK 38 are suitable for steering wedges as per regulation ECE R55-01 and DIN 74085. The JSK 38 design with 3.5" locking mechanism corresponds to ECE R55-01 Class S and must be used in combination with king pins as per DIN 74083 or ISO 4086. The JSK 38 design with 2" locking mechanism corresponds to ECE R55-01 Class G50-X and must be used in combination with king pins as per DIN 74080 or ISO 337. JSK 38 fifth wheel couplings must be used in combination with mounting plates as per regulation ECE R55-01 Class J or with comparable approved devices.

JOST fifth wheel couplings of type JSK 50 are suitable for steering wedges as per regulation ECE R55-01 and DIN 74085. All JSK 50 designs correspond to regulation ECE R55-01 and must be used in combination with king pins as per DIN 74083 or ISO 4086. JSK 50 fifth wheel couplings must be used in combination with mounting plates as per regulation ECE R55-01 Class J or with comparable approved devices.



Technical modifications reserved. The latest information can be found at www.jost-world.com.

2.2 Design

The design of the fifth wheel coupling in combination with the vehicle is specified by the vehicle manufacturer (the design must comply with regulation ECE R55-01, Appendix 7).

In addition to the fifth wheel load, the D value is a criterion for the load capacity of fifth wheel couplings and mounting plates.

It is calculated using the following formula:

$$D = \text{Drawing bar value [kN]}$$

$$g = 9.81 \text{ m/s}^2$$

$$R = \text{Permissible total weight of the semi-trailer [t]}$$

$$T = \text{Permissible total weight of the towing vehicle, including U [t]}$$

$$U = \text{Permissible fifth wheel load [t]}$$

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

Sample calculation:

$$T = 38 \text{ t}$$

$$R = 75 \text{ t}$$

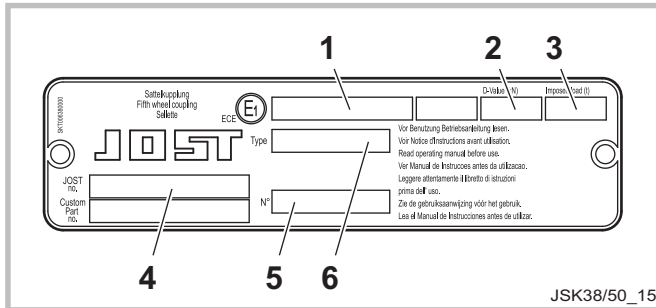
$$U = 28 \text{ t}$$

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

2 Correct use

The permitted load data for JOST fifth wheel couplings can be found in the adjacent table. This data is also listed on the relevant pages of the JOST catalogue and imprinted on the factory plate. This load data is applicable for proper usage pursuant to Directive 94/20 EC or Regulation ECE R55-01.

If they are subject to additional dynamic forces, for example if they are used on uneven road surfaces or on construction sites, do not use the complete fifth wheel load and D value, or use a heavier fifth wheel coupling. Alternatively, consult JOST.



- 1 ECE approval number
- 2 Maximum D value in kN
- 3 Maximum imposed load U in t
- 4 Article No.
- 5 Factory No.
- 6 Type

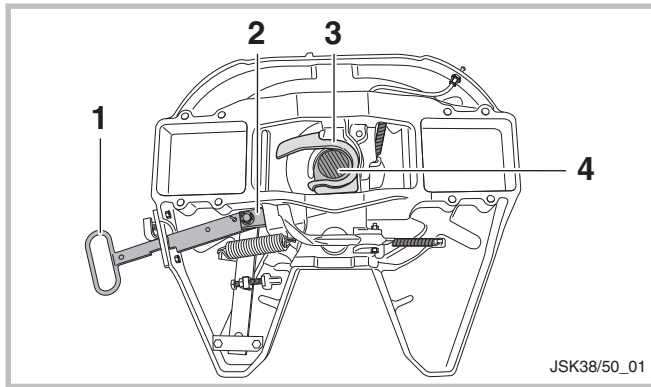
Each fifth wheel coupling has a serial number, which is embossed on the type plate and also underneath the type plate on the plate edge. This is designed to give the coupling a unique identity.

Permitted load data

ECE test symbol and approval number	Type	Fifth wheel coupling	Fifth wheel load [t]	D value [kN]
E1 55R-01 0471	JSK38C	JSK38C	36	260
		JSK38C-1		
E1 55R-01 0472	JSK38C	JSK38C 2"	28	170
		JSK38C-1 2"		
E1 55R-01 0339	JSK38G	JSK38G	36	260
		JSK38G-1		
E1 55R-01 0443	JSK38G	JSK38G 2"	28	170
		JSK38G-1 2"		
E1 55R-01 2504	JSK50	JSK50	50	300

3 Operation

3.1 Fifth wheel coupling closed and locked

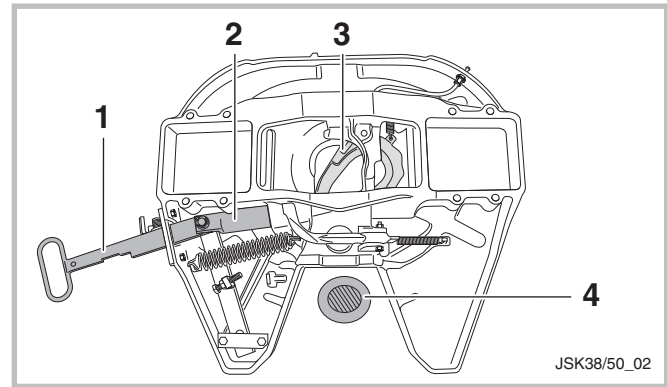


JSK38/50_01

Illustration shows JSK 38

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

3.2 Fifth wheel coupling ready for engagement

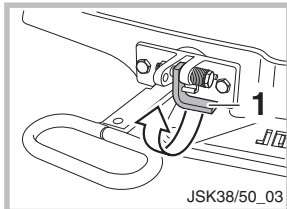


JSK38/50_02

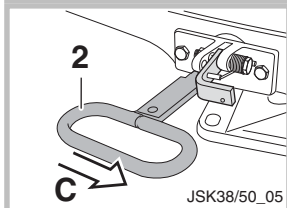
Illustration shows JSK 38

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

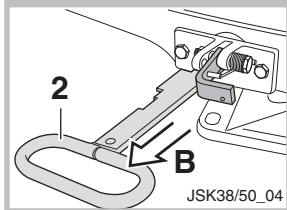
3.3 Opening the fifth wheel coupling



- ▶ Lift the catch (1).



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



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

3.4 Coupling up a trailer

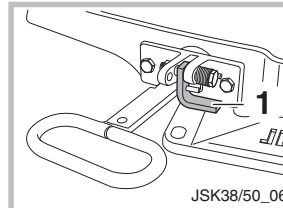
- ▶ Secure the semi-trailer to prevent it from rolling away.
- ▶ The fifth wheel coupling must be ready to engage (see section 3.2). Otherwise open the fifth wheel coupling (see section 3.3).
- ▶ Check the height of the semi-trailer. The skid plate must ideally be at the same height as or no more than 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.

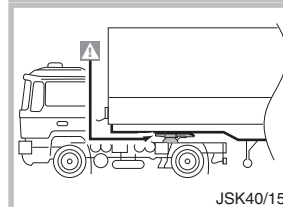


Check the locking mechanism status before starting any journey (see section 3.5).

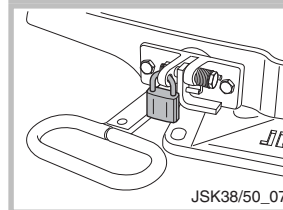
3.5 Checking the locking mechanism



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



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



Note

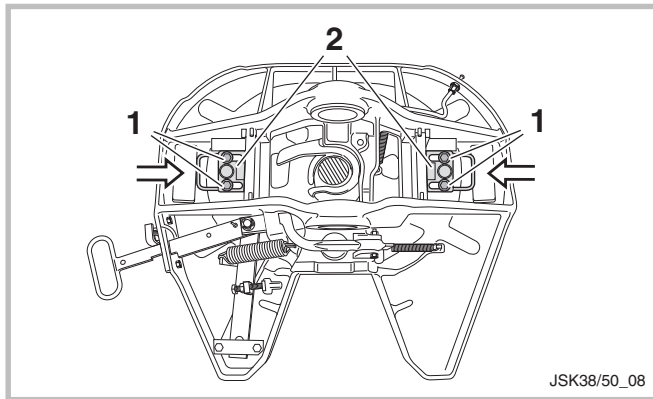
To prevent the fifth wheel coupling being opened without authorisation, a security device (for example a padlock) can be inserted into the hole in the latch holder as shown.

3.6 Uncoupling a trailer

- ▶ Park the vehicle on flat, firm ground.
- ▶ Secure the semi-trailer to prevent it from 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.

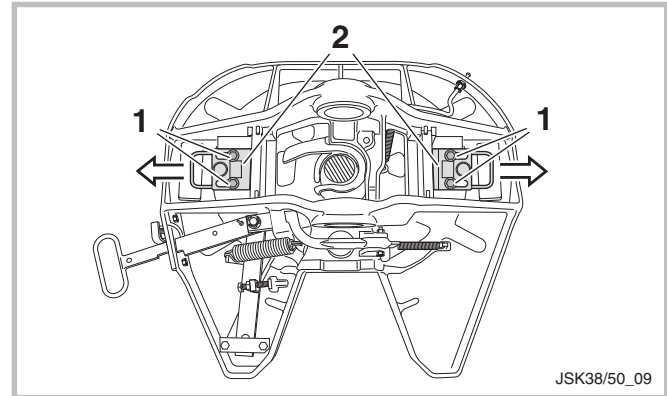
3.7 Lateral swing movement (type JSK 38 G version)

Lateral swing movement must only be permitted during off-road use. When used on roads, lateral swing movement must be prevented for safety reasons, especially at high speeds.



Preventing lateral swing movement for road use:

- ▶ Loosen 2 hexagon screws (1) on each side.
- ▶ Push the two blocking pieces (2) inwards until the long hole stop.
- ▶ Re-tighten the hexagon screws (1) to 80 Nm.



Allowing lateral swing movement for off-road use:

- ▶ Loosen 2 hexagon screws (1) on each side.
- ▶ Pull the two blocking pieces (2) outwards until the long hole stop.
- ▶ Re-tighten the hexagon screws (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 as groove-free a surface as possible, without weld bumps (smooth any existing groove burr).
- ▶ Rounded or chamfered front and side edges.
- ▶ Complete coverage of the fifth wheel coupling support area with adequate reinforcement appropriate to the situation.



Effective lubrication of the top of the fifth wheel plate, the locking mechanism, the pivot bearing (only type JSK 38 G version and type JSK 50) and the king pin before using for the first time and each time 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
- ▶ Depending on the state of use, the articulated points of the bell crank and locking lever must also be cleaned and greased.
- ▶ On type JSK 38 G version, the pivot bearings must be regreased via the lubricating nipples on the bearing pinion and the lubricating nipples on the pedestals, and in the case of the type JSK 50 via the lubricating nipples on the bearing bolts every time maintenance is carried out.

The pivot bearings of type JSK 38 C version require no maintenance. The grease nipple on the edge of the coupling plate (special design) 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 used, 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
- ▶ Lubricate the fifth wheel coupling plate, wear parts and king pin with greases recommended in Section 4.1.3
- ▶ Lubricate the pivot bearings of type JSK 38 G version and type JSK 50

The pivot bearings of type JSK 38 C version require no maintenance.

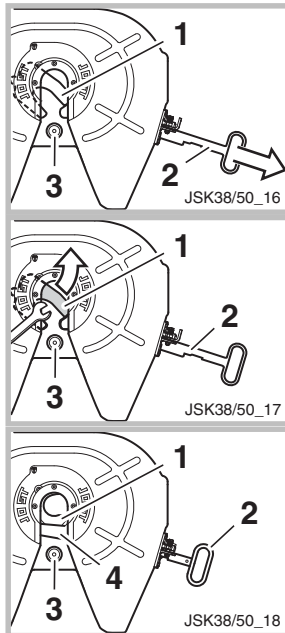
4.1.3 Grease specification

We recommend JOST high-performance lubricant (Art. No. SKE 005 670 000).

Closing the lock



A second person is required to help close the lock. A screwdriver can be used, for example, to pivot the lock jaw (1). Under no circumstances should the lock jaw (1) be pivoted by hand. There is a risk of crushing.



Starting state: The fifth wheel coupling is ready for engagement.

- ▶ Get the second person to pull the handle (2) until the lock jaw (1) is free.
- ▶ Hold the handle (2) in this position.
- ▶ Swivel the lock jaw (1) forwards using a screwdriver, for example, and hold it.
- ▶ Push the lock (3) downwards and hold it.
- ▶ Slowly move the handle (2) to the locked position.

The fifth wheel coupling is now closed and locked.

- ▶ Lubricate the lock jaw (1) and locking bar (4) on all sides.



Before the next coupling up, the fifth wheel coupling must be opened (see section 3.3).

4.2 Test instructions

Depending on the conditions of use, but no later than every 50,000 km or every six months, the fifth wheel coupling, the mounting plate, the slider and the king pins should be checked for:

- ▶ Function
- ▶ Wear
- ▶ Correct position of the fastening elements (check prescribed torque values)
- ▶ Damage or distortion
- ▶ Cracks
- ▶ Corrosion
- ▶ To ensure adequate lubrication
- ▶ To ensure the smooth running of the mechanisms

and repaired where necessary (see the appropriate JOST repair instructions for JSK 38 & JSK 50 fifth wheel couplings at www.jost-world.com).

4.3 Checking for wear

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.

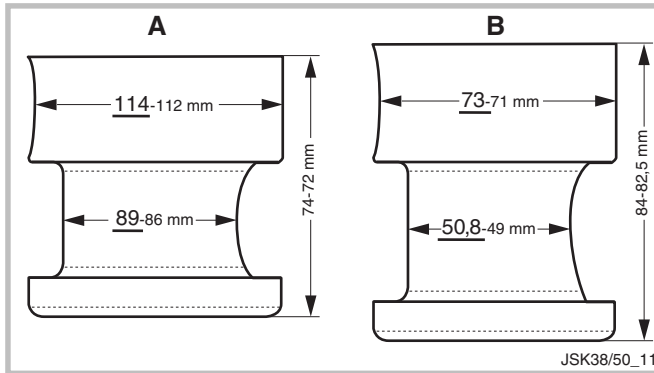


The wear on the king pin must not be compensated by the adjustment facility.

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

After the king pin has been replaced, the locking mechanism must be adjusted again.

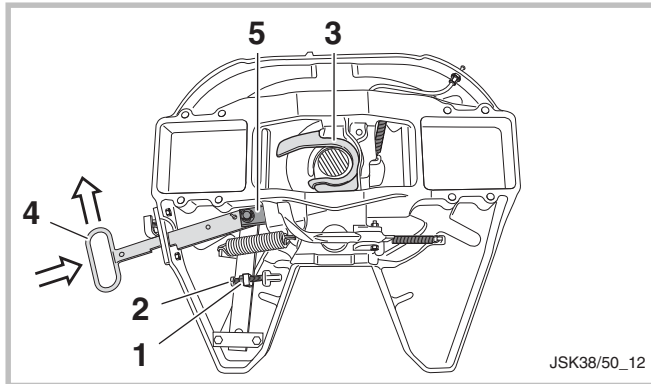
Play caused by wear on the king pin should either be accepted if within the permitted wear limit for the king pin (see illustration) or should be rectified by fitting a new king pin.



A 3.5" king pins

B 2" king pins

4.4 Adjusting the locking mechanism



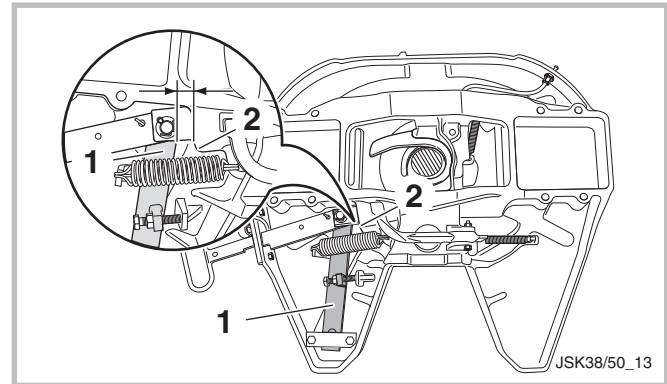
- 1 Lock nut
- 2 Adjusting screw
- 3 Lock jaw
- 4 Handle
- 5 Locking bar

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 up
- ▶ Swivel the handle (4) in direction of travel and have an assistant hold it
- ▶ Tighten the adjusting screw (2) again until the handle (4) starts to move (have an 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 Bell crank
- 2 Bar guide

The locking mechanism wear limit is reached when there is no longer any distance between the bell crank (1) and the bar guide (2).

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

5.1 General assembly instructions

The following bolts must be used to fasten the JOST fifth wheel coupling (as per regulation ECE R55-01) on the mounting plate:

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

The following bolts must be used to fasten the mounting plate onto the vehicle chassis or fliitch:

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

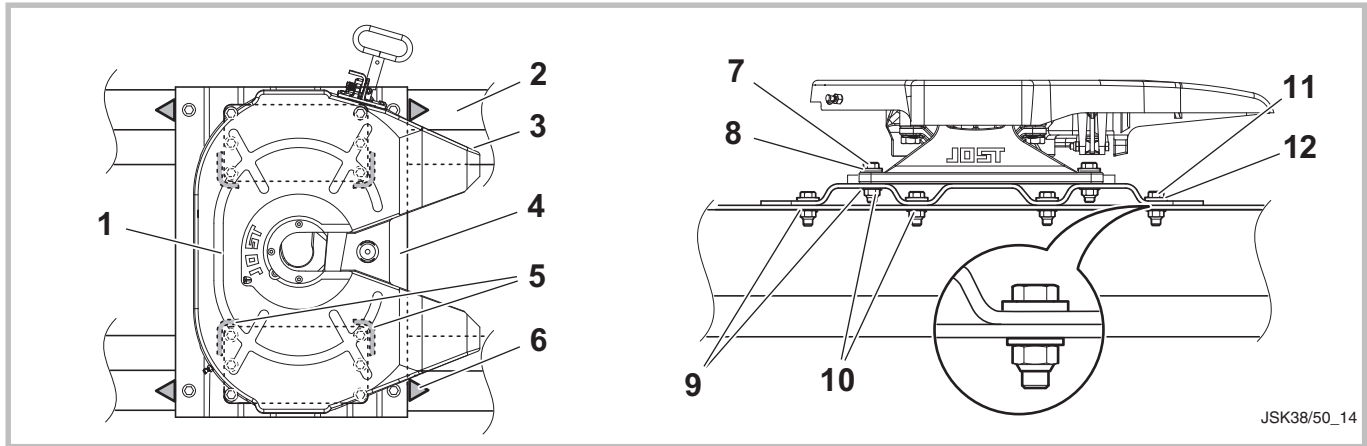
The bolt connections are therefore to be designed so that the prescribed tightening torque values or prestressing forces can be applied permanently.

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 screw connections must 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 fliitch when the vehicle is being driven.

5.2 Assembly of the fifth wheel coupling on the mounting plate



- 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 Hexagon bolt DIN EN ISO 8765/8676 (DIN 960/961) M16 x 1.5-10.9
- 8 Washer 17 DIN 7349, 6 mm thick (min. HB 150)
- 9 Optional washer (min. HB295) or disc spring
- 10 Hexagon nut DIN EN ISO 7042 (DIN 980) M16 x 1.5-10 or M20 x 1.5-10
- 11 Hexagon 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 torques

Fastening material	Strength class 10.9
Hexagon bolt DIN EN ISO 4014/4017 (DIN 931/933) standard thread	M16 M20 260Nm 500Nm
Hexagon 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.



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