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 to the side.

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. Corresponding safety instructions in the fifth wheel coupling’s operating manual and that of the semi-trailer retain their validity and must be complied with. For operation, servicing and assembly, the following safety instructions must be observed. Safety information directly linked to the activity is listed again individually.

1.1 Safety information for operation

- The fifth wheel coupling may only be operated by authorised personnel.
- Only use the fifth wheel coupling and skid plate on the semi-trailer if they are in perfect technical condition.
- The front edge 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.
- When coupling up a semi-trailer, the skid plate must be at the same height as, and ideally lower than – maximum 50 mm – than the fifth wheel coupling’s coupling plate. 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 with the lock securely fastened, even when driving without the semi-trailer (solo mode).

1.2 Safety instructions 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 tractor unit’s manufacturer.
- 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.
- 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.

Essentially, screw connections must be tightened with the specified tightening torque as a setting value for torque wrenches as per DIN ISO 6789 in classes A or B.

The mounting plate must be installed on the vehicle in accordance with the requirements of Appendix VII of Directive 94/20/EC or Appendix VII of Regulation ECE R55-01. The applicable licensing regulations of the country in question may also need to be complied with.

§§ 19, 20 and 21 of the Road Traffic Act apply in Germany. In addition, your attention is drawn to the requirements of Section 13 of the German Road Traffic Act with regard to the data in the vehicle documents relating to the maximum trailer load.
2 Proper usage

2.1 Utilisation

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 king pins 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 are specified to comply with Directives 94/20/EC and Regulation ECE R55-01 in class 50 and are to be used only in conjunction with king pins of class H50 and class J mounting plates or comparable licensed equipment.

JOST fifth wheel couplings are suitable for use in power steering systems.

2.2 Specification

The fifth wheel coupling is specified with the vehicle by the vehicle manufacturer (the design must comply with Directive 94/20/EC, Appendix VII or 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:

\[ D = \left( \frac{g \times T \times R}{T + R - U} \right) \times 0.6 \times \frac{T \times R}{T + R - U} \times \frac{U}{T + R - U} \]  

[kN]

Sample calculation:

\[ T = 17 \text{ t} \]
\[ R = 33 \text{ t} \]
\[ U = 10.5 \text{ t} \]

\[ D = 9,81 \times \frac{0.6 \times 17 \times 33}{17 + 33 - 10.5} \text{ kN} = 83,6 \text{ kN} \]

Technical modifications reserved. You will find the latest information at: www.jost-world.com
The permitted load data for JOST fifth wheel couplings can be found in the adjacent table. It 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.

### Permissible load data

<table>
<thead>
<tr>
<th>ECE Test marks and approval numbers</th>
<th>Type</th>
<th>Fifth wheel coupling</th>
<th>Fifth wheel load [t]</th>
<th>D value [KN]</th>
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<tr>
<td>E1 55R-01-1245</td>
<td>JSK40</td>
<td>JSK40K</td>
<td>20</td>
<td>152</td>
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<td></td>
<td></td>
<td>JSK42K</td>
<td>20</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>JSK42MK</td>
<td>15</td>
<td>126</td>
</tr>
</tbody>
</table>

1. ECE approval number
2. Permissible D value in kN
3. Permissible fifth wheel load U in t
4. Article No.
5. Serial 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.
3 Operation

Note
The following sections describe the operation of the fifth wheel coupling type JSK 40 with the handle facing towards the front. The operating instructions also apply equivalently for the fifth wheel coupling of type JSK 40 with the handle facing towards the rear. The relevant safety information must be observed.

1 King pins
2 Handle facing towards the front
3 Handle facing towards the rear
4 Locking bar
5 Lock jaw
6 Coupling plate
3 Operation

3.1 Fifth wheel coupling closed and locked

3.2 Fifth wheel coupling ready for engagement

1 Lock jaw
2 Handle
3 Locking bar
4 King pins

1 Lock jaw
2 Handle
3 Locking bar
4 King pins
3 Operation

3.3 To open the fifth wheel coupling

- Handle (1) locked in position.

- Pull the handle (1) until the locking edge a is clear (2nd lock).

- Swivel the handle (1) towards the front of the vehicle to unfasten the lock b (1st lock).

- Pull the handle (1) out to its end position and hang it on the plate edge c.

3.4 To uncouple a semi-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.

3.5 To couple up a semi-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. When coupling up, the skid plate must be at the same height, ideally lower (maximum 50 mm) than the fifth wheel coupling plate.
- 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 3.6).
- 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 3.6).
3.6 To check the locking mechanism

- The indicator pin (1) on the locking edge must be inside the coupling plate.

- The locking edge a must be inserted into the coupling plate, 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 handle as shown.
4 Servicing and testing

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 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 coupling (except JSK with top plate liners), the lock jaw, the handle and the king pin - before commissioning and after every clean - is crucial for ensuring a long service life. In the W version, we recommend applying a thin coat of grease to the skid plate.

Note
When you clean the fifth wheel coupling, you may produce waste products that contain 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
- Lubricate the king pin, top of the coupling plate (3), lock jaw (4) and locking bar (5) (see section 4.2)

Every 50,000 km or every six months:

- Also lubricate the handle (1) and (2) and the articulated connections and lever guides (6) (see section 4.2)

The grease nipple on the edge of the coupling plate is only designed for additional greasing of the locking mechanism between service intervals. The pivot bearings of the pedestals must not be lubricated.

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
- Lubricate the king pins, handle (1) and (2), top of the coupling plate (3), lock jaw (4), locking bar (5) and articulated connections and lever guides (6) (see section 4.2)

4.1.3 Low maintenance fifth wheel coupling with top plate liners (W version)

At the latest every 50,000 km or every six months, in harsh conditions every 25,000 km:

- Uncouple the semi-trailer
- Clean the skid plate and the king pin
- Lubricate the king pin, handle (1) and (2), lock jaw (4), locking bar (5) and articulated connections and lever guides (6) (see section 4.2)
- Check the top plate liners for signs of wear and damage (see section 4.7)

Also, every 10,000 km, use the greasing nipple on the edge of the coupling plate to lubricate the lock - with the semi-trailer coupled up. You can also install automatic lubricant dispensers. To prevent corrosion on the skid plate, we recommend that the skid plate is greased lightly during the above service intervals.

4.1.4 Grease specification

We recommend high-pressure grease (EP) with MoS₂ or graphite additive, e.g. JOST high-performance lubricant (Art. No. SKE 005 670 000).
4.2 Lubrication instructions

Lubricate the areas marked in yellow:
- Handle (1) on the side (see arrows), the guide (2) and the articulated connections and lever guides (6).
- Generously lubricate the top side (3) (except W version - the top plate liners must not be greased).
- Lubricate the lock jaw (4) and locking bar (5) with the fifth wheel coupling closed (to close the fifth wheel coupling, see the instructions on the following page).

Grease specification: We recommend JOST high-performance lubricant (Art. No. SKE 005 670 000).
4 Servicing and testing

4.3 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:

- Good working condition
- Signs of wear
- The securing elements being secure (note specified tightening torques)
- Damage and deformation
- Cracks
- Corrosion
- To ensure adequate lubrication
- Ease of movement of mechanics

and repaired where necessary (see the appropriate JOST repair instructions at www.jost-world.com).

A second person is required to help close the lock. A large 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.

Get a second person to pull the handle (2) until the lock jaw (1) is free. Hold the handle (2) in this position.

Using a large flat-head screwdriver, pivot the lock jaw (1) forwards until the locking bar (3) is free.

Slowly move the handle (2) to the locked position.

Lubricate the lock jaw (1) and locking bar (3) on all sides.

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

4.4 To check 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 figure JSK 40/05) or should be rectified by fitting a new king pin.

4.5 To adjust the locking mechanism

The locking mechanism must be adjusted using a semi-trailer without forced steering with an unworn king pin as described below:

1. Uncouple the tractor unit on a flat, firm piece of ground.
2. Undo the lock nut (1).
3. Unscrew the adjusting screw (2) by approx. 15 turns.
4. Couple up the semi-trailer.
5. Unlock the handle (4), pivot it towards the front of the vehicle and hold it (with help), see Fig. JSK40/12 on page 33.
6. Tighten the adjusting screw (2) again until the handle (4) starts to move (have a helper check this).
7. To set the recommended basic play of 0.3 mm, tighten the adjusting screw (2) by a further 1.5 turns 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 instructions.
4 Servicing and testing

4.6 Wear limit of the locking mechanism

Locking mechanism (handle at the front)

The wear limit of the locking mechanism is reached when there is no longer any space between the lever (10) and the coupling plate. 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 per the repair instructions.
Locking mechanism (rear handle)

The wear limit of the locking mechanism is reached when there is no longer any space between the lever (16) and the coupling plate. 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 per the repair instructions.
4.7 Wear limit of the top plate liners

The top plate liners (1) and their fastening screws (2) must be checked to ensure they are secure, for signs of wear and for signs of damage at regular intervals that depend on usage, but at least every 50,000 km or every six months. The top plate liners (1) must be replaced when they have worn to the top of the securing bolts (2).

4.8 Wear limit of the collars

The pedestals are each supported by a collar in the fifth wheel coupling. These collars are subject to a degree of wear. To check the wear on the collars, the coupling plate must be aligned by tilting it so that the two markings "0" on the front and rear of the pedestal extend the same distance out of the coupling plate. As the collars wear further, dimension "a" reduces from its initial 5 mm to 0 mm. When the two markings are no longer visible (a = 0 mm), the collars are worn and must be replaced.
5 Installation

5.1 General installation instructions

To secure the JOST fifth wheel coupling (pursuant to Directive 94/20/EC or Regulation ECE R55-01 / ISO 3842 / DIN 74081) on the mounting plate or the flitch, at least 8 M16 bolts, ideally M16 x 1.5 of strength class 8.8, must be used. These must be positioned in a symmetrical pattern to the longitudinal and lateral axes of the fifth wheel coupling.

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 12 bolts.

Fifth wheel couplings with a design height of over 250 mm and a D value of over 133 kN must be secured with 12 bolts. We recommend that you use JOST mounting kits (see JOST catalogue for order numbers).

The pedestals should be positioned as completely as possible over the entire surface of the mounting plate or on the flitch. With undulating mounting plates, it is necessary to have a support in the middle area as well as the contact in the screw connection area (see also section 5.2 and 5.3).

We recommend securing the pedestals in the longitudinal and lateral directions and the mounting plates in the longitudinal direction using zero-play 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 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 120 μm per component.

The bolt 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 flitch when the vehicle is being driven.
5 Installation

5.2 To position the fifth wheel coupling on the mounting plate

1 Fifth wheel coupling
2 Flitch
3 Vehicle chassis
4 Mounting plate
5 Thrust plate to secure the pedestals
6 Thrust plate to secure the mounting plate
7 Hexagon screw DIN EN ISO 8765/8676 (DIN 960/961) M16 x 1.5-8.8
8 Washer 17 DIN 7349, 6 mm thick (min. HB 295)
9 Optional washer (min. HB 295) or disc spring
10 Hexagon nut DIN 980 M16 x 1.5-8.8 or M20 x 1.5-8.8
11 Hexagon bolt DIN EN ISO 8765/8676 (DIN 960/961) M16 x 1.5-8.8 or M20 x 1.5-8.8
12 Optional washer/disc spring

Tightening torque, see section 5.4
5 Installation

5.3 To position the fifth wheel coupling on the flitch

1 Fifth wheel coupling
2 Flitch
3 Vehicle chassis
4 Hexagon bolt DIN EN ISO 8765/8676 (DIN 960/961)
   M16 x 1.5 x ...-10.9 (for slot 18 x ...) min. 12 pcs.
   M20 x 1.5 x ...-10.9 (for slot 22 x ...) min. 8 pcs.
5 Washer 17 DIN 7349-St (min. HB 295, for slot 18 x ...) min. 12 pcs.
   Washer 21 DIN 7349-St (min. HB 295, for slot 22 x ...) min. 8 pcs.
6 Disc spring DIN 2093
   A31.5 (for slot 18 x ...), optionally without
   B40 (for slot 22 x ...), optionally without
7 Hexagon nut DIN EN ISO 10513 (DIN 980-V)
   M16 x 1.5 x 10 (for slot 18 x ...) min. 12 pcs.
   M20 x 1.5 x 10 (for slot 22 x ...) min. 8 pcs.

Tightening torque, see section 5.4
### 5.4 Fastening material and tightening torque values

<table>
<thead>
<tr>
<th>Fastening material</th>
<th>Strength class 8.8</th>
<th>Strength class 10.9</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hexagon bolt DIN EN24014/24017 (DIN 931/933) standard thread</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M16</td>
<td>210 Nm</td>
<td>260 Nm</td>
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<tr>
<td>M20</td>
<td>410 Nm</td>
<td>500 Nm</td>
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<tr>
<td><strong>Hexagon bolt DIN EN ISO 8765/8676 (DIN 960/961) fine thread</strong></td>
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<td>M16 x 1.5</td>
<td>225 Nm</td>
<td>280 Nm</td>
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<tr>
<td>M20 x 1.5</td>
<td>460 Nm</td>
<td>500 Nm</td>
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<td><strong>Countersunk bolt DIN 7991</strong></td>
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<tr>
<td>M16 or M16 x 1.5</td>
<td>170 Nm</td>
<td>250 Nm</td>
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<tr>
<td>M20 or M20 x 1.5</td>
<td>330 Nm</td>
<td>400 Nm</td>
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</table>

**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.
5.5 To move the handle to the operating position (front handle position)

- Undo the locking mechanism (1).
- Swivel out the handle (2).
- Re-tighten the screw connection (1), tightening torque 46 Nm.
5.6 To move the handle to the operating position (rear handle position)

- Undo the locking mechanism (1).
- Swivel out the handle (2).
- Hook in the spring (3).
- Re-tighten the screw connection (1), tightening torque 46 Nm.