# Table of contents

1 Explanation of symbols................................................. 3

2 Safety information.................................................... 4
   2.1 Safety information for installation.............................. 4
   2.2 Safety information for servicing................................. 4

3 Intended use............................................................ 5
   3.1 Use............................................................................. 5
   3.2 Design........................................................................ 5

4 Installation............................................................... 6
   4.1 Installation suggestions............................................. 8
   4.2 Weld seam thickness................................................ 9

5 Servicing and testing.................................................. 10
   5.1 Kingpin 90 (3.5")....................................................... 10
   5.2 Inspection instructions............................................... 10
   5.3 Wear inspection......................................................... 10
1 Explanation of symbols

**WARNING!**
Means that death, serious physical injury or significant material damage can occur if the relevant safety instructions are not followed.

**ATTENTION!**
Means that slight physical injury or material damage can occur if the relevant safety instructions are not followed.

**ADVICE!**
Contains additional important information.
Pay attention to the relevant safety regulations in your country when handling fifth wheel couplings, tractor units, semi-trailers and the kingpin (e.g. the Road Traffic Law in Germany).

The relevant safety information in the owner’s handbook for the tractor unit and the semi-trailer remains 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.

**2.1 Safety information for installation**
- Only use genuine JOST spare parts.
- Damaged and repaired (e.g. repair by deposition welding) individual parts must not be used.
- If the kingpin is not installed correctly, all warranty claims against the manufacturer and the supplier of the kingpin will be rendered void.
- The kingpin must only be installed by authorised specialist workshops.
- Refer to the instructions issued by the vehicle manufacturer, for example regarding the type of fastening, fifth wheel position, fifth wheel height, axle load, clearance, etc.

**2.2 Safety information for servicing**
- Only use the specified lubricants for servicing work.
- The servicing work should only be completed by trained personnel.

The licensing regulations of the appropriate country must also be complied with.
3 Intended use

3.1 Use

Kingpins provide the link between the tractor unit and the semi-trailer. They are designed for mounting on the semi-trailer.

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 invalidate the vehicle’s operating licence.

3.2 Design

The D value is a criterion for the load capacity of kingpins. It is calculated using the following formula:

\[
D = \text{Drawbar value [kN]} \times \frac{0.6 \times T \times R}{T + R - U} \text{ [kN]}
\]

Sample calculation:

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

\[
D = 9.81 \times \frac{0.6 \times 17 \times 33}{17 + 33 - 10.5} = 83.6 \text{ kN}
\]

Maximum load data

<table>
<thead>
<tr>
<th>Type</th>
<th>ECE test mark and approval number</th>
<th>Kingpin</th>
<th>D value [kN]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KGZ 5216</td>
<td>E\text{E} R55-01 2936</td>
<td>KGZ 5216</td>
<td>400</td>
</tr>
</tbody>
</table>

The permitted D values can be found in the table below. This information can also be found on the relevant pages of the JOST catalogue and is embossed on the front of the kingpin.

If they are subject to additional dynamic forces - if used on uneven road surfaces or on construction sites, for example - do not use the full imposed load and D value, or consult JOST.
**ADVICE!**
JOST kingpins comply with the applicable standards. When installed, the kingpin must protrude from the skid plate by a length that is within tolerance.

**WARNING!**
Sharp edges and protruding weld seams can cause serious injuries.

Before installation, inspect the skid plate to ensure it is even and has the correct thickness. The unevenness of the skid plate must be no more than 2 mm in the load-bearing area of the fifth wheel coupling. The skid plate must fully cover the contact surface of the fifth wheel coupling in every position. The model name of the kingpin is made up as follows:

For example: KGZ52 16

16 mm semi-trailer plate thickness

KGZ52 - type (type series), here KGZ52

Permitted tolerances of the skid plate in mm:

<table>
<thead>
<tr>
<th></th>
<th>+ 0.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 0.5</td>
</tr>
</tbody>
</table>
For welding mounting flanges or mounting cones in place, the following welding methods are permitted along with the specified welding materials and consumables:

<table>
<thead>
<tr>
<th>Welding method to ISO 4063</th>
<th>111</th>
<th>135</th>
<th>135</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Welding material</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(with approval from one of the following organisations: BV, DB, DNV, GL, LR, TÜV)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electrode rod</td>
<td>Welding wire</td>
<td>Inert gas</td>
</tr>
<tr>
<td><strong>Standard designation</strong></td>
<td>ISO 2560-A- E 35 3 B</td>
<td>ISO 14341-A-G 38 3 C1 2Si</td>
<td>ISO 14175 - C1</td>
</tr>
<tr>
<td>welding consumable</td>
<td>ISO 2560-A- E 42 3 B</td>
<td>ISO 14341-A-G 42 3 C1 3Si1</td>
<td>ISO 14175 - C1</td>
</tr>
<tr>
<td></td>
<td>ISO 14341-A-G 42 4 M21 3Si1</td>
<td>ISO 14175 - M21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ISO 14341-A-G 46 3 C1 4Si1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ISO 14341-A-G 46 4 M21 4Si1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ATTENTION!**

The quality of the weld must satisfy the requirements of quality level B to EN ISO 5817. Choose a welding material that suits the stability of the substrate material used.
Weld seam preparation is the responsibility of the user, in accordance with generally accepted engineering standards. The skid plate must be adequately reinforced for the load. The vehicle manufacturer must decide on the type and dimensions of the reinforcement. For stability reasons, we recommend a skid plate thickness of 16 mm for 3.5" kingpins (recommended material: EN 10025 S355J2+N). Kingpins must be installed centred and at right angles. Installation suggestions and tightening torques can be found in the following table:

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Bolt/nut</th>
<th>Tightening torque in Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>KGZ 5216</td>
<td>KZE1016-06</td>
<td>M20 x 50</td>
</tr>
</tbody>
</table>

To ensure maximum safety, we recommend only using bolts once.

**ATTENTION!**
The installed kingpins must be protected from weld spatter. After welding, check bolts to ensure they have the correct torque, and tighten if necessary. After installation, check that the length by which the kingpin protrudes from the skid plate is within tolerance. Mask mating surfaces and functional surfaces before painting.

### 4.1 Installation suggestions
Depending on the type of skid plate, there are different options for fitting the kingpins. The various options are described in graphic form below. (The flange hole pattern is shown rotated around 22.5°).
4.2 Weld seam thickness

Weld the seam as a geometrically perfect concave fillet weld, to prevent any notch effect.

<table>
<thead>
<tr>
<th>b (skid plate thickness)</th>
<th>a (weld seam thickness)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 mm</td>
<td>min. 8 mm</td>
</tr>
</tbody>
</table>
Before commissioning the semi-trailer, thoroughly grease the kingpin, the skid plate and the locking mechanism of the fifth wheel coupling. We recommend JOST biodegradable high-performance lubricant SKE 013 440 000. Generous lubrication of the kingpin and fifth wheel coupling is essential for a long service life.

5.2 Inspection instructions

Depending on the conditions of use, but after no more than 50,000 km or every six months, check the skid plate, kingpins and fastening elements to ensure they are functioning properly and are free from wear, damage or cracks, and repair if necessary. Check fastening elements checked to ensure they are tightened to the correct torque.

ATTENTION!

Kingpin wear must not be compensated by adjusting the fifth wheel coupling.

Replace the kingpin when its wear limit has been reached. To measure wear, we recommend wear gauge J 1027 for 2” kingpins and wear gauge J 1044 for 3 ½” kingpins. After the kingpin has been replaced, you need to reset the locking mechanism on the fifth wheel coupling. Play caused by kingpin wear should either be accepted within the maximum wear limit for the kingpin or rectified by fitting a new kingpin.

5.3 Wear inspection

Fifth wheel couplings and kingpins 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 impacts and may lead to instability on the road and damage to the fifth wheel coupling, mounting plate and vehicle chassis.

There are no maximum wear limits for the kingpin collar. Impact marks and grinding scores commonly sustained during use have no effect whatsoever on further use. Cracks and ruptures in the material are not permitted, however.