

**JOST**



## **Kingpin KGZ 31**

- DE** Montage- und Betriebsanleitung
- EN** Installation and operating instruction
- FR** Instructions de montage et d'utilisation
- IT** Istruzioni per il montaggio e l'uso
- ES** Instrucciones de montaje y funcionamiento





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# 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.

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## **ATTENTION!**

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

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## **ADVICE!**

Contains additional important information.

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## 2 Safety information

The relevant safety regulations in your country (for example Health & Safety at Work) apply for working with fifth wheel couplings, tractor units, semi-trailers and the kingpin.

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.



### **ADVICE!**

Technical modifications reserved. The latest information can be found at [www.jost-world.com](http://www.jost-world.com)

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### **2.1 Safety information for installation**

- Only original JOST spare parts must be used.
- 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 Proper usage

### 3.1 Application

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 cancel 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 = Draw bar value [kN]

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

R = Max. total weight  
Semi-trailer [t]

p = Max. total weight  
Weight of the towing vehicle, including U [t]

U = Permitted fifth wheel load [t]

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

Sample calculation:

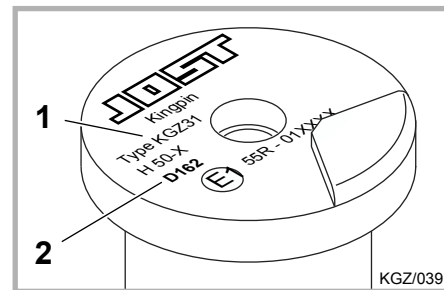
R = 33 t

p = 17 t

U = 10.5 t

$$D = 9,81 \times \frac{0,6 \times 17 \times 33}{17 + 33 - 10,5} = 83,6 \text{ kN}$$

The permitted D value 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.



1 Type

2 D value in KN

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 alternatively, consult JOST.

Permitted load data

Type	Test mark	Design designation	D value [kN]
KGZ 31	E1 55R - 01 2719	KGZ 3106 - KGZ 3112	162



## 4 Installation



### ADVICE!

When installed, the kingpins must extend by a tolerated longitudinal distance from the semi-trailer plate.



### WARNING!

Sharp edges and protruding welding seams can cause serious injuries.

Before installation, the semi-trailer plate must be checked to ensure it is even, and the semi-trailer plate thickness must also be checked. The unevenness of the semi-trailer plate must be no more than 2 mm in the load-bearing section of the fifth wheel coupling. The semi-trailer plate must cover the fifth wheel coupling's set-down surface in every position. The design designation of the kingpins is made up as follows:

For example:

KGZ31 12

└─ 12 mm semi-trailer plate thickness in mm  
└─ KGZ31 - type (type series)

Permissible tolerances of the semi-trailer plate in mm:

+ 0.6	+ 0.6	+ 0.4	+ 0.4	+ 0.2
6 mm	7 mm	8 mm	10 mm	12 mm
- 0.1	- 0.1	- 0.3	- 0.3	- 0.5

## 4 Installation

When the mounting flanges or mounting cones are being welded, the following welding methods are permitted with the specified additional materials and welding materials:

<b>Welding method according to ISO 4063</b>	111	135	135
<b>Welding additive</b> (approved by one of the following organisations: BV, DB, DNV, GL, LR, TÜV)	Rod electrode	Welding wire	Inert gas
<b>Standard name</b> Welding additive/ Welding consumables	ISO 2560-A- E 35 3 B ISO 2560-A- E 38 3 B ISO 2560-A- E 42 3 B	ISO 14341-A-G 38 3 C1 2Si ISO 14341-A-G 42 3 M21 2Si ISO 14341-A-G 42 3 C1 3Si1 ISO 14341-A-G 42 4 M21 3Si1 ISO 14341-A-G 46 3 C1 4Si1 ISO 14341-A-G 46 4 M21 4Si1	ISO 14175 - C1 ISO 14175 - M21



### ATTENTION!

The quality of the welding must satisfy the requirements of evaluation group B in accordance with EN ISO 5817. The choice of welding material must be made in accordance with the stability of the substrate material used.

## 4 Installation

Welding seam preparation is the responsibility of the user, in accordance with technological regulations. The semi-trailer plate must be adequately reinforced according to the load. The vehicle constructor will decide on the type and dimensions of the reinforcement. For stability reasons we recommend a semi-trailer plate thickness of 12 mm for 2" kingpins (recommended material: EN 10025 S355J2G3). The kingpins must be installed centred and at right angles. Suggested installations and tightening torques can be found in the following table:

Type designation	Screw/nut		Tightening torque in Nm
	Art. No.	Size	
KGZ 3106- KGZ 3112	KZE1012-03	M14 x 35	190 ± 10



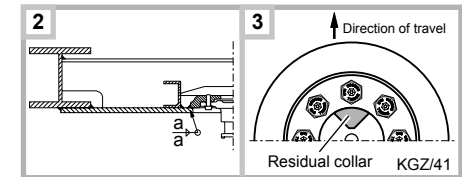
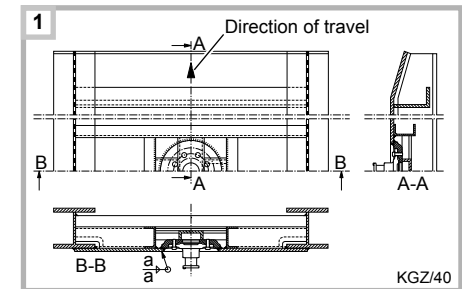
### ATTENTION!

The installed kingpins must be protected from weld spatter. After welding, the fastening nuts and screws must be checked to ensure they are at the correct tightening torque and tightened as necessary. After installation, check the tolerated length dimension by which the kingpin projects out of the semi-trailer plate. The adjustment and functional surfaces must be masked before painting.

### 4.1 Suggested installations

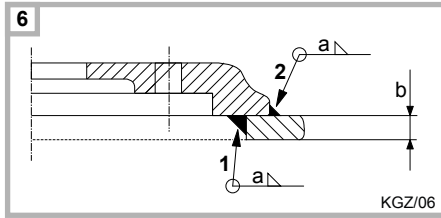
Depending on the type of semi-trailer plate, there are different options for fitting the kingpins. The various options are described in graphic form below. (The flange hole pattern is shown rotated around 22.5°).

The residual collar protects the mounted parts during the coupling process and must be installed in the direction of travel (see Details 3).



## 4 Installation

### 4.2 Weld seam thickness



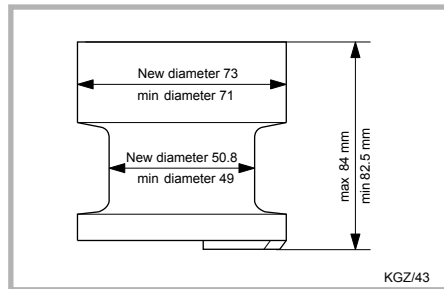
The required weld thickness "a" for welding the mounting flange depends on the thickness of the semi-trailer plate.

Type designation KZ 31YY	b (semi-trailer plate thickness)	a (weld seam thickness)	
		1	2
YY = 06	6 mm	4 mm	6 mm
YY = 07	7 mm	5 mm	6 mm
YY = 08	8 mm	5 mm	7 mm
YY = 10	10 mm	7 mm	7 mm
YY = 12	12 mm	8 mm	8 mm

## 5 Servicing and testing

Before commissioning the semi-trailer, the kingpin, the semi-trailer plate and the fifth wheel coupling lock must be greased thoroughly. We recommend the use of JOST high-performance lubricant (Art. No. SKE 005 670 000). Generous lubrication of the kingpin and fifth wheel coupling is essential for a long service life.

### 5.1 Kingpin 50 (2")



### 5.2 Test instructions

Depending on the conditions of use, but after no more than 50,000 km or every six months, the mounting plate, the kingpins and the fastening elements must be checked to ensure they are functioning properly and are free from wear, damage or cracks and repaired as necessary. The fastening elements must be checked to ensure that they are tightened to the correct torque.

### 5.3 To check for wear

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



#### ATTENTION!

The wear on the kingpin must not be compensated by adjusting the fifth wheel coupling.

When the wear limit on the kingpin has been reached, it must be replaced. After the kingpin has been replaced, the locking mechanism on the fifth wheel coupling must be reset. Play caused by wear on the kingpin should either be accepted within the permitted wear limit for the kingpin or should be rectified by fitting a new kingpin.





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