

Kingpin

EN Installation and operating instructions



Installation and operating instructions

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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.



ATTENTION!

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



ADVICE!

Contains additional important information.

2 Safety information

When handling fifth wheel couplings, tractor units, semi-trailers and the king pins, the relevant safety regulations for the country in question (e.g. "Berufsgenossenschaft für Fahrzeughaltung" in Germany).

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.



ADVICE!

Technical modifications reserved.

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

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 maintenance

- Only use the specified lubricants for maintenance 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/s²

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

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

U = Maximum fifth wheel load [t]

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

Sample calculation:

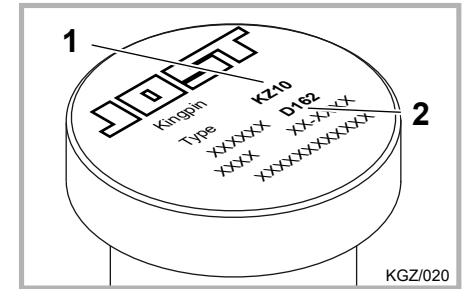
R = 33 t

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 values and relevant type (type series e.g. KZ 10) can be found in the following table. 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.

3 Proper usage

Maximum load data

Type	Test mark	Kingpin	D value [kN]
KZ 10	E1 55R - 01 0145	KZ 1006-1012	162
KZ 1016	E1 55R - 01 0150	KZ 1016	320
KZ 11	E1 55R - 01 0146	KZ 1108-1112	152
KZ 1116	E1 55R - 01 0151	KZ 1116	260
KZ 14	E1 55R - 01 0147	KZ 1410-1412	162
KZ 1416	E1 55R - 01 1572	KZ 1416	170
KZ 15	E1 55R - 01 0148	KZ 1516	170
KZ 1312	F 3458	KZ 1312	105
	RDW 17010244	KZ 2816	152

4 Installation



ADVICE!

JOST kingpins comply with the applicable standards. 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:

F. e.: KZ10 12

└─ 12 mm semi-trailer plate thickness
└─ KZ10 - Type (type series), here KZ10

Maximum tolerances for the semi-trailer plate in mm, except KZ1106 to KZ1112 and KZ1116:

+ 0.6	+ 0.6	+ 0.4	+ 0.4	+ 0.2	+ 0.3
6 mm	7 mm	8 mm	10 mm	12 mm	16 mm
- 0.1	- 0.1	- 0.3	- 0.3	- 0.5	- 0.5

Maximum tolerances for the semi-trailer plate in mm for types KZ1106 to KZ1112 and KZ1116:

+ 0.0
6 mm to 16 mm
- 0.3

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:

Welding method according to ISO 4063	111	135	135
Weld filler metal (approved by one of the following organisations: BV, DB, DNV, GL, LR, TÜV)	Rod electrode	Welding wire	Inert gas
Standard name Weld filler metal/ 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 meet the requirements of assessment group B under EN ISO 5817.
The weld filler must be selected according to the rigidity of the base metal 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 manufacture must 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 and a semi-trailer plate thickness of 16 mm for 3.5" kingpins (recommended material: EN 10025 S355J2G3). The kingpins must be installed centred and at right angles. Kingpins with a cone must be fixed in position after cleaning of the joint surface (impact). The castle nut must be tightened to the specified torque and secured with a split pin. Suggested installations and tightening torques can be found in the following table:

Type designation	Screw/nut		Tightening torque in Nm
	Art. No.	Size	
KZ1006 - KZ1012 KZ1410 - KZ1412 KGZ5006 - KGZ5012	KZE 1012-03	M14 x 35	190 ± 10
KZ0906 - KZ0912 KZ1712	KZE0912-06	M14 x 1.5	130 ± 10
KZ1416, KZ2816	KZE1416-03	M16 x 45	280 ± 15
KZ1016, KZ1516	KZE1016-06	M20 x 50	500 ± 30
KZ1312	KZE1312-05	M14	120 ⁺⁵ ₋₁₀
KZ1108 - KZ1112			1200
KZ1116 - KZ1120			1500



ATTENTION!

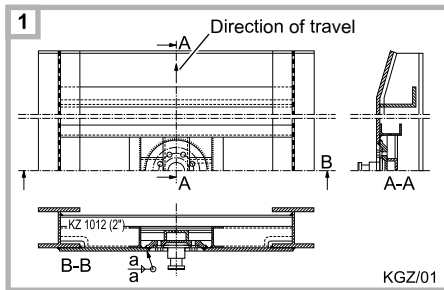
The installed kingpins must be protected from weld spatter. After welding, the fastening nuts and screws must be checked to ensure they are at the correct tightening torque and tightened as necessary. After installation, check the tolerated length dimension by which the kingpin projects out of the semi-trailer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

4 Installation

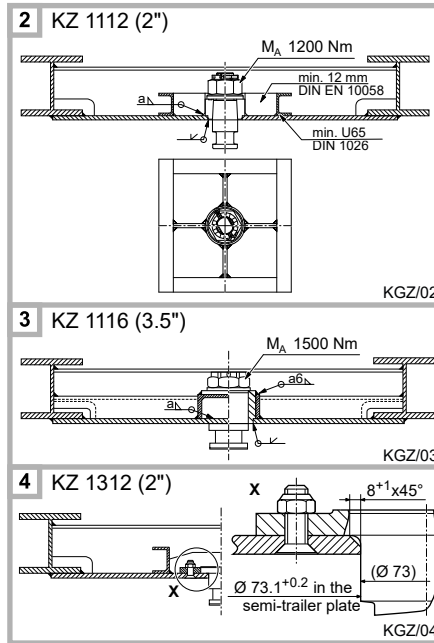
4.1 Suggested installations

Depending on the type of semi-trailer plate, there are different options for fitting the kingpins (see Figures 1 - 4).

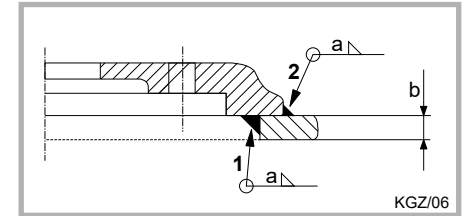
The various options are shown below in graphic form (the flange hole pattern must be installed as shown in Figure 1).



The type KZ11 conical kingpin must always be installed with adequate rigidity (see Figures 2 and 3).



4.2 Weld seam thickness



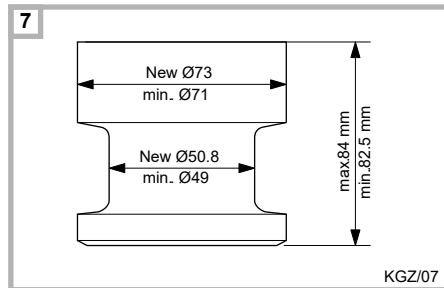
The required weld seam thickness "a" for welding the mounting flange / cone depends on the thickness of the semi-trailer plate.

Type designation KZ XXYY	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
YY = 16	16 mm	8 mm	8 mm

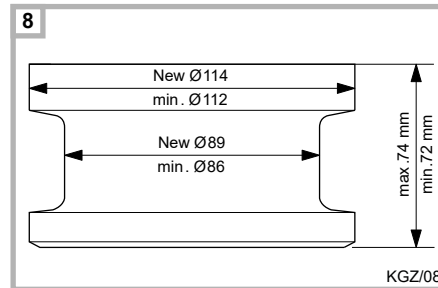
5 Maintenance and inspection

Before commissioning the semi-trailer, the kingpin, the semi-trailer plate and the fifth wheel coupling lock must be greased thoroughly. We recommend 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 Kingpin 90 (3.5")



5.3 Inspection 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.

5.4 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.



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 maximum wear limit for the kingpin or should be rectified by fitting a new kingpin.

5 Maintenance and inspection

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