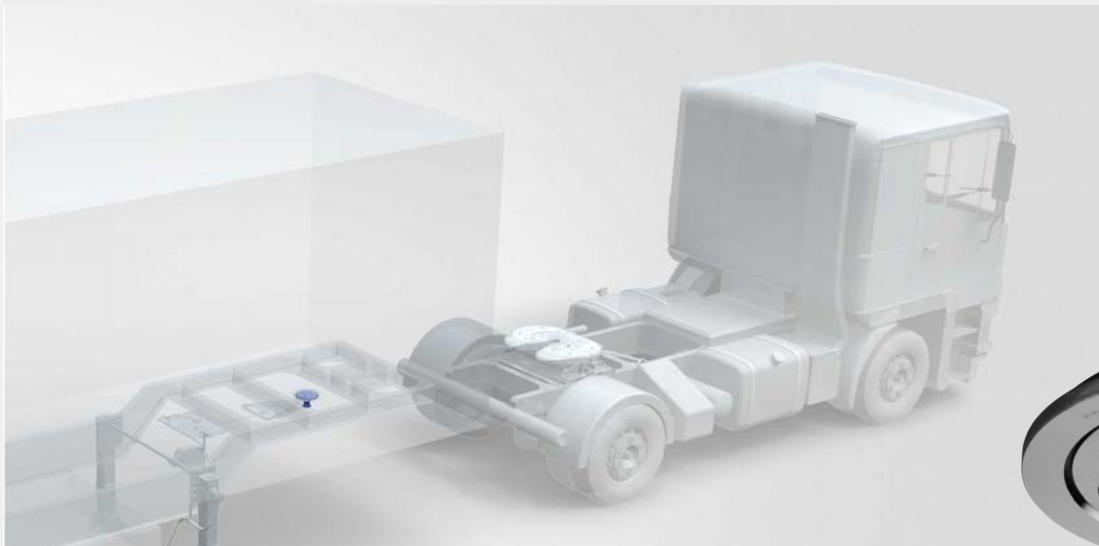




Kingpin

EN Installation and operating instructions for



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**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.



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 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 = Drawing bar value [kN]

g = 9.81 m/s²

R = Permissible total weight of the semi-trailer [t]

T = Permissible total weight of the towing vehicle, including U [t]

U = Permissible fifth wheel load [t]

$$D = g \times \frac{0,6 \times T \times R}{T + R - U} \text{ [kN]}$$

Specimen calculation:

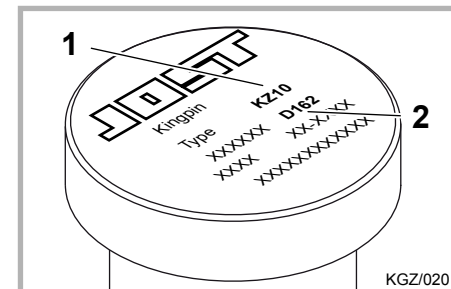
R = 33 t

T = 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 permissible 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 imprinted 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	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



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

Permissible 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

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

+ 0.0
6 mm to 16 mm
- 0.3

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
Welding material (with approval of one of the following organisations: BV, DB, DNV, GL, LR, TÜV)	Rod electrode	Welding wire	Inert gas
Standard designation Welding material/ welding additive	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.

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 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 splint. 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	KZE 1012-03	M14 x 35	190 ± 10
KZ1410 - KZ1412			
KGZ5006 - KGZ5012			
KZ0906 - KZ0912	KZE0912-06	M14 x 1.5	130 ± 10
KZ1712			
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



ADVICE!

For safety reasons, we recommend using bolts only once.



ATTENTION!

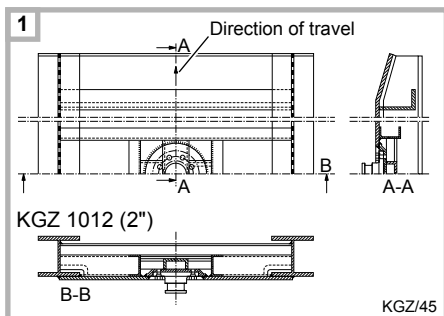
The installed kingpins must be protected from weld spatter. After welding, check the fastening nuts and bolts to ensure they are at the correct tightening torque, and tighten as necessary. After installation, check the tolerated length dimension by which the kingpin projects out of the skid plate. Mask mating surfaces and functional surfaces before painting.

4.1 Suggested installations

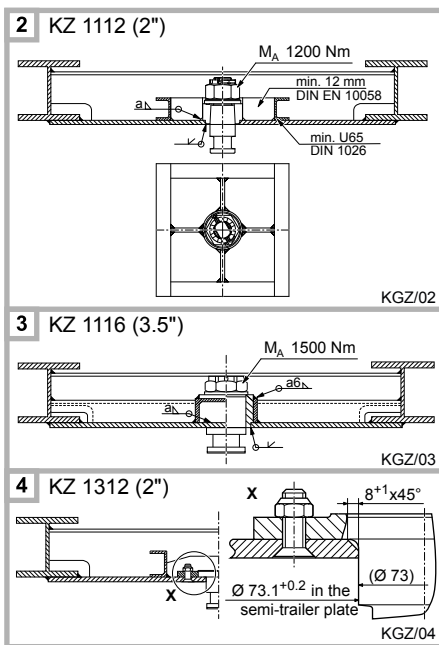
Depending on the type of skid plate, there are different options for fitting the kingpins (see Figures 1 - 6).

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

For use with the KKS Comfort Coupling System, the mounting flange must be welded into the skid plate all the way round both from above and below. For the welding sequence, please see Figures 5 and 6. You will find the weld seam thickness in the table in Section 4.2.



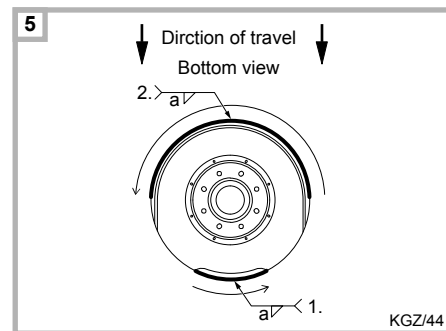
The type KZ11 conical kingpin must always be installed with adequate rigidity (see Figures 2 and 3).

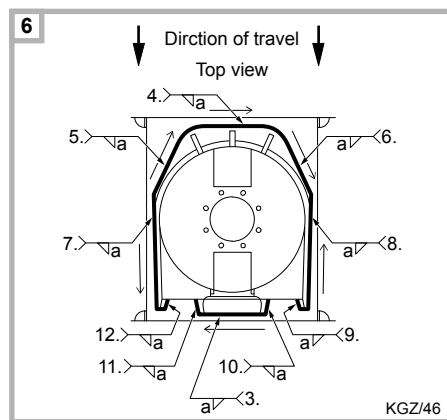


ADVICE!

For kingpins that are commissioned along with the KKS, it is essential to adhere to the welding sequence shown in Figures 5 and 6 below.

Please see the KKS installation and operating instructions for more detailed information.





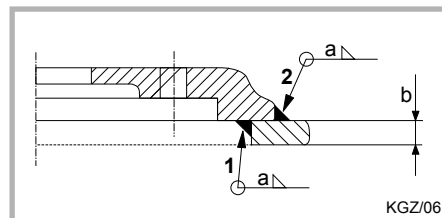
ADVICE!

Pay attention to the weld seam thickness in Section 4.2.

Use weld seam thickness $a=1$ when welding from below.

Use weld seam thickness $a=2$ when welding from above.

4.2 Weld seam thickness



ADVICE!

For the kingpin in the KKS semi-trailer, please note that the skid plate must have a thickness of 8 mm minimum and 12 mm maximum.

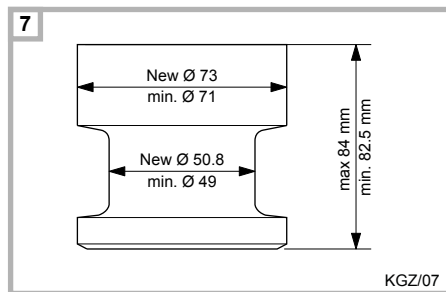
The required weld seam thickness "a" for welding the mounting flange / cone depends on the thickness of the semi-trailer plate.

Type designation KZ XYY	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

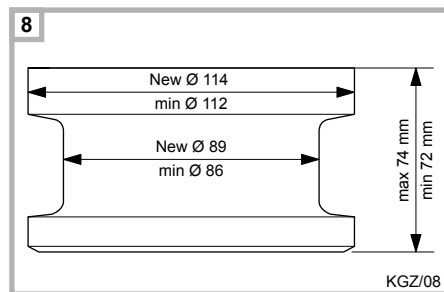
5 Servicing and testing

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.

5.1 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, kingpin and fastening elements must be checked to ensure they are functioning properly and are free from wear, damage or cracks, and repaired as necessary. Check fastening elements to ensure 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!

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.

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