

GB Fitting and Operating Instructions King pin febi 03437 (Type FZZ 50 – A – 162)

The king pin is the link between the fifth wheel and the coupling mounted on the semi-trailer tractor and the semi-trailer (trailer).

The complete king pin is made up of the king pin, mounting plate and eight hexagon bolts M14 x 35. The king pin is produced from a forging blank made of 50CrMo4+QT, the mounting plate from a forging blank made of S355J2G3 for 12 mm thick trailer plates. Tensile strength 10.9 is specified for the hexagon bolts. The bolts are coated with "Verbus plus" or „Loctite 242 e“ to lock them in position.

The king pin is fastened to the mounting plate using the eight hexagon bolts which are tightened using a torque of 190 Nm. The mounting plate is welded to the trailer plate. This requires a weld thickness „a“ for welding the mounting plate of a = 8 mm.

King pins are parts which require type approval; they are vehicle linking parts and are subject to the highest safety requirements. Modifications of any type invalidate warranty claims and lead to termination of the type approval. Damaged or repaired parts must not be used.

Fitting of the mechanical linking device to the vehicle must be carried out according to the requirements of Appendix VII of directive 94/20/EC or regulation R55/ECE. The permissible D value and type may be taken from the information on the face of the king pin. The load data are applicable to operation on paved roads and transport conditions such as are customary in central Europe.

The **D value** is calculated according to DIN 74080 and DIN 74083 in line with the following formula:

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

T = permissible total weight of the tractor vehicle in t (including U)

R = permissible total weight of the semitrailer in t

U = permissible imposed coupling load in t

g = 9.81 m/sec

The value permissible for this king pin is **D = 162 kN**.

The king pins comply with the applicable standards according to which the pin, when fitted, must project out of the semitrailer plate by a toleranced length. Therefore the flatness and the thickness of the semitrailer plate must be checked before fitting. The semitrailer plate must be flat and must be free from welds and sharp edges. Uneven semitrailer plates prevent the articulated vehicle from running smoothly, cause the semitrailer to shake and cause major wear on the trailer coupling plate, on the locking device and on the king pin. The trailer plate must

overlap the bearing surface of the trailer coupling plate in every position.

The permissible tolerance of the trailer plate thickness is 12 +0.8 mm. A plate thickness of 12 mm is required for the trailer plate for strength. The king pins must be inserted centrally and flat, and the angled seat must be checked. Fitted king pins must be protected against weld spatter.

After welding, all the mounting bolts must be tightened to the prescribed torque or checked for the correct torque. Depending on the conditions in use but after no longer than six months and also at all future inspections of the vehicle, the entire system should be checked for wear, damage and incipient cracks. It should be replaced if necessary and the tightening torques of the mounting bolts should be checked.

When welding the mounting plate, adhere to the following welding processes and permissible filler metals:

Electrode

Welding process: E II

Filler metal: VIIIs DIN 1913

Shielding gas

Welding process: MAG C

Filler metal: Griduct SV5 green and/or Griduct SV4 red (Messer Griesheim) or Union K52 and/or Union K56 (Thyssen Draht AG) or E M and/or E MK 6 (Böhler) or other welding processes and filler metals approved by TÜV for the material used.

Weld preparation must follow the rules of general technical practice and is the user's responsibility. Before use, the king pin must be well greased with a long lasting high-pressure grease with the addition of molybdenum or graphite. Generous lubrication of the king pin and the trailer coupling is critical to the service life of these safety elements.

The king pin is subject to natural wear during operation. The king pin must be replaced if the wear limits are exceeded:

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- New Ø73 → min. Ø71
- New Ø50.8 → min. Ø49