

**ROCKINGER**

*Montage- und Betriebsanleitung*

**D**

*Installation and operating instructions*

**GB**

*Instructions de montage et d'utilisation*

**F**

*Member of JOST-World*

**Modellreihe**

**Series**

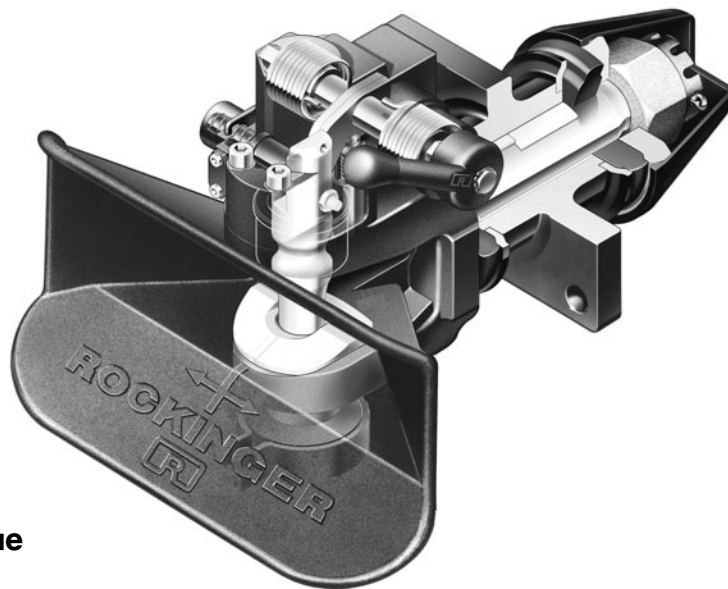
**Type**

**RO\*400**

**Vollautomatische Anhängerkupplung**

**Automatic Trailer Coupling**

**Attelage de remorque entièrement automatique**



## Series RO★400 technical release C, 0 and 1

★94/20★e1★00 – 0350, 0351, 0352

Suitable for:

- drawbar eyes 40  
DIN 74054 and class S (EC)



**The coupling must be installed by authorised personnel!**

**Read these instructions carefully before fitting!**

### Official note

When fitting the trailer coupling the regulations for fitting mechanical fastening systems in accordance with Appendix VII of Directive 94/20/EC and the national regulations for commercial vehicles must be observed.

**Subject to technical changes without prior notice**

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## Mounting technical release C and 0

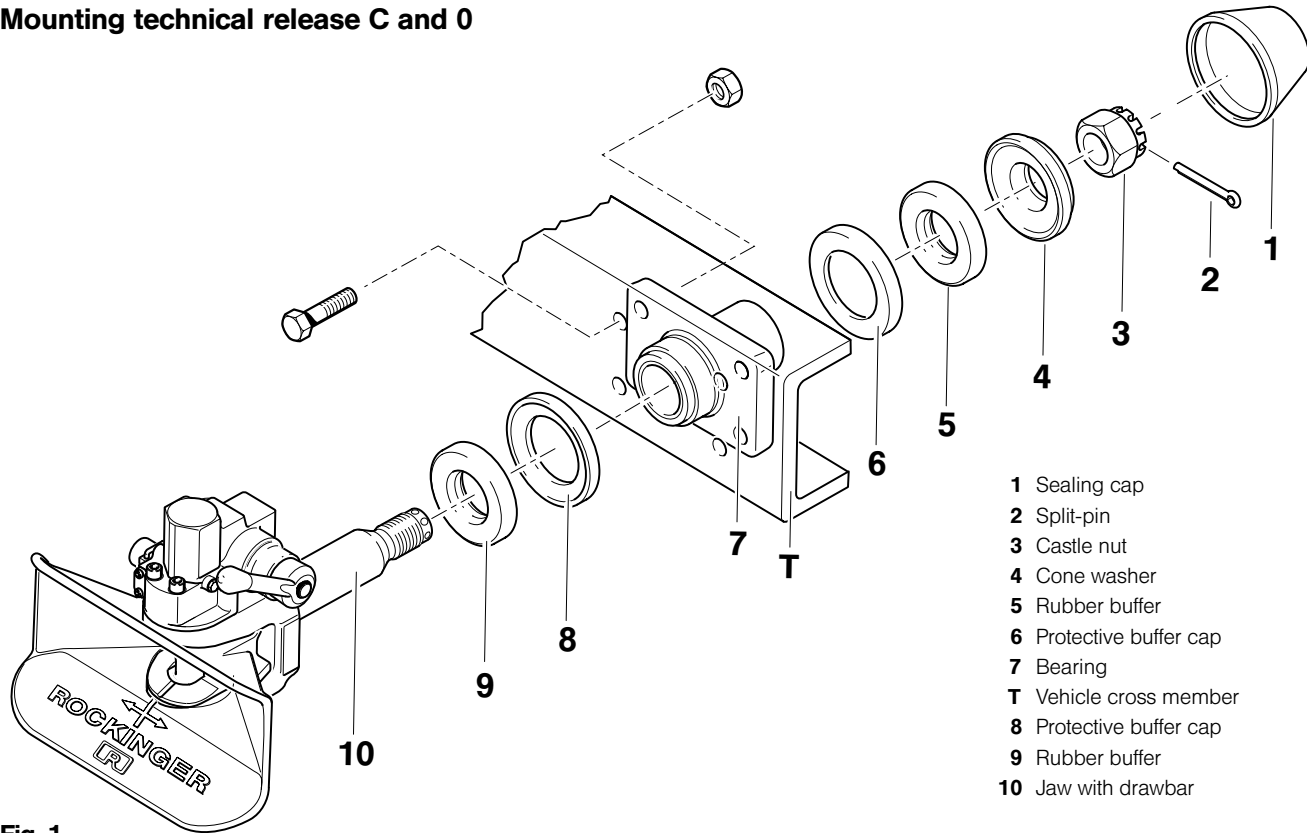
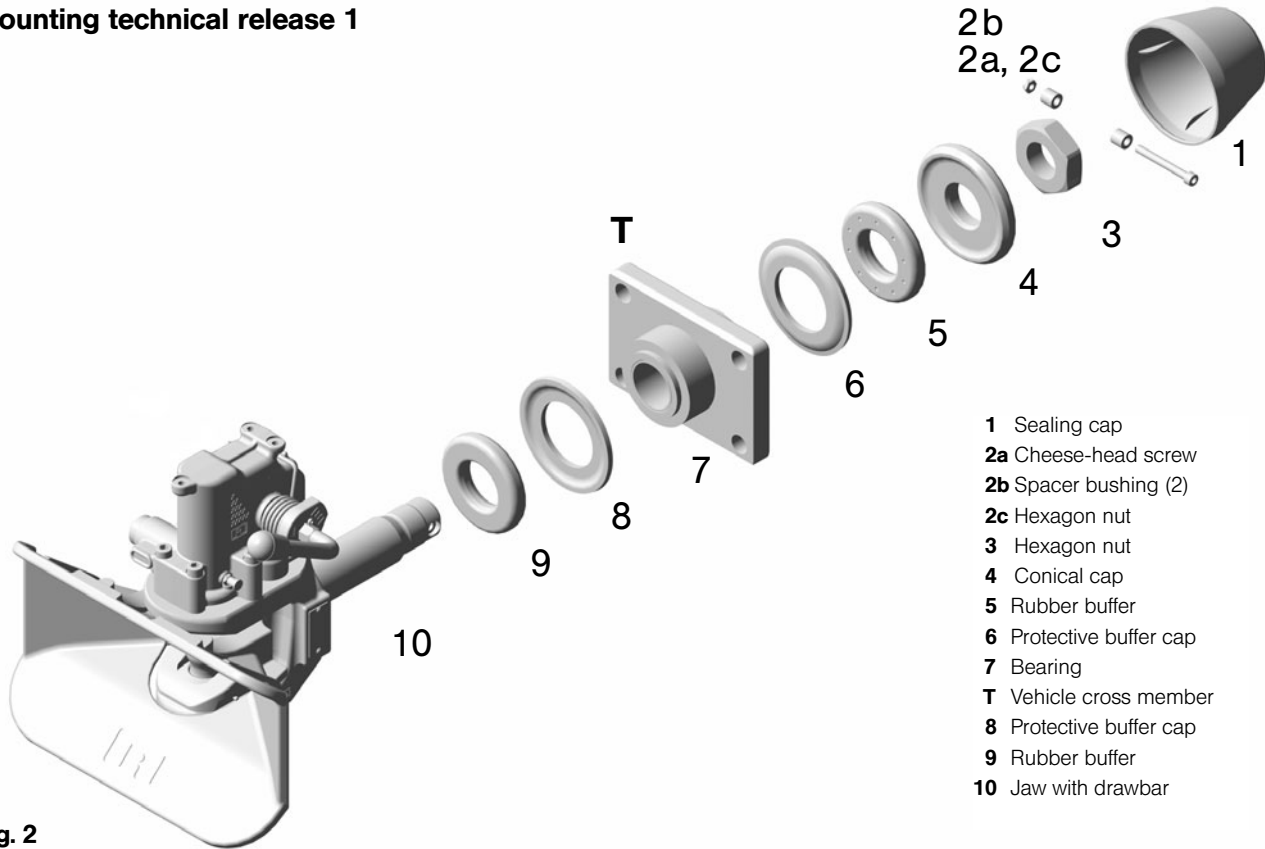


Fig. 1

## Mounting technical release 1



- 1 Sealing cap
- 2a Cheese-head screw
- 2b Spacer bushing (2)
- 2c Hexagon nut
- 3 Hexagon nut
- 4 Conical cap
- 5 Rubber buffer
- 6 Protective buffer cap
- 7 Bearing
- T Vehicle cross member
- 8 Protective buffer cap
- 9 Rubber buffer
- 10 Jaw with drawbar

Fig. 2



## 1.1 Before installation

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**Note:** Please comply with following when fitting hitch:

- applicable national regulations
- vehicle manufacturer's specifications
- clearance for axial rotation of coupling head of at least  $\pm 25^\circ$

### Fig. 1 and 2 depend on technical standard

- Unscrew **3**
- Remove **4, 5, 6** and **7, 8** and **9** remain on **10**

**Note:**

- **1** and **2** in equipment pack, **do not remove grease** from **6, 8** and **10!**

## 1.2 Installation

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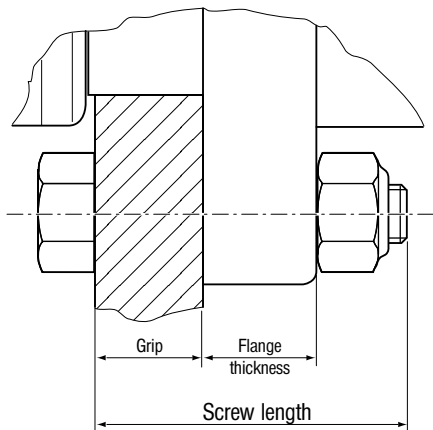
- Install the bearing (**7**) onto the inner side of the cross member (**T**)
- Secure with 4 hexagon bolts (DIN 931, grade 8.8) and self-locking nuts, grade 8.

Size of bolts, nuts and torque to be chosen, see table

**Note:** Observe manufactures' instructions in case different bolts and nuts are recommended!

### ATTENTION:

Mount bolt heads on the side directed towards the jaw (outside the cross member) to avoid impairing movability of the hitch (see Fig. 2)



**Fig. 3**

### Torque of bolts on the bearing

Size of hitch	Size of bolts	Width across flats S (mm)	Tightening torque <sup>1)</sup> (Nm)	ROCKINGER set of bolts part no.
150	M 20	30	410	70971
145	M 16	24	210	70952
135	M 14	22	135	70970

<sup>1)</sup> use a torque meter

### Grip (thickness) of cross member (s. fig. 3)

Size of hitch:	145 / 150	135
Central-axle-trailer:	11 – 35 mm	11 – 32 mm
Drawbar trailer:	max. 35 mm	max. 32 mm

- Insert spring cap **(8)** (concave side facing **9**) onto **7**
- Shaft of hitch **10** with **9** into **7** (do not remove grease, if necessary regrease with EP3 grease)
- **(6)** concave side facing **5**, **5** and **4** (like **6**) onto **10**



**1.2a Mounting RO★400 technical release C and 0**

- Screw **3** on: see table for tightening torque details

Size	Castle nut	Width across flats (mm)	tightening torque (Nm)
135	M 36 x 3	55	min. 350
145	M 45 x 2	70	min. 500
150	M 45 x 2	70	min. 500

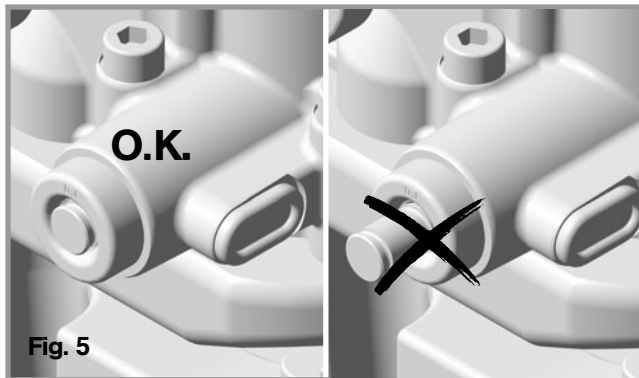
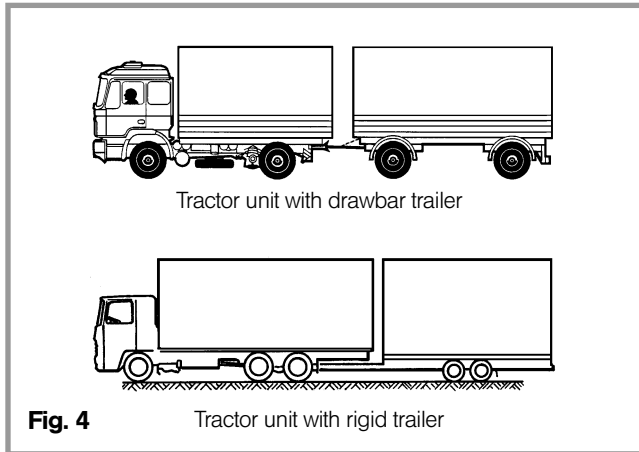
- Insert **2** and bend over as specified.  
**Caution:** If split-pin cannot be inserted, it is essential to tighten further until next point where split-pin holes mate.  
 Minimum tightening torque must be met!  
**Do not loosen castle nut under any circumstances in order to fit split-pin.**
- Grease **3** and **2** (to protect against rust).
- Fit **1** to protect against weather.

**1.2b Mounting RO★400 technical release 1**

- Tighten **3**, **tightening torque 500 Nm (350 Nm by G 135)**
- Locate 1 x **2b** onto **2a**
- Slide **2a** and **2b** through the bore in **3**
- Locate 1 x **2b** onto **2a** and tighten with **2c**:  
**tightening torque 25 Nm**
- Fit the sealing cap (**1**) to protect against corrosion.  
**Valid for all technical releases!**

**Note:** Before painting, it is essential to close hitch and grease or **cover** coupling pin. After painting clean and regrease the coupling pin.

Abb. 1



### 2.1 Hitching

**Note:** The relevant national regulations (f.e. safety-at-work) must be observed when hitching and unhitching.

#### No one must stand between the vehicles!

- To engage, press hand lever upwards until it engages
- Check whether funnel is **locked**.
- Position drawbar eye in centre of funnel
- **Disengage brake on front axle** of turntable drawbar trailer
- Set drawbar eye to height of coupling point (centre of funnel).
- Slowly reverse prime mover

**When hitching to a central-axle trailer** (see fig. 4):

- Reverse prime mover very slowly
- The drawbar eye must be inserted into the middle of the jaw. Otherwise the jaw, the drawbar eye or the drawbar support legs might be damaged.

#### Kontrolle:

After each hitching procedure, it is essential to check that the hitch is correctly closed and locked.

The lock-control pin must not protrude out of its guide after hitching (see fig. 5)

If the lock-control pin protrudes from its guide (in the dark detectable by touching it), the hitching procedure has been carried out incorrectly and there is the **risk of an accident!**

**Driving a trailer in that condition is not allowed.**

#### If not correctly coupled:

- move the prime mover forward (approximately 1 m)
- **check again**

In-cab status indicator upgrade kit available for retrofitting.

## 2.2 Closing coupling manually

(e.g. for tow-rope)

- Raise coupling pin with suitable tool – **or**
- Strike hand lever knob briefly in opening direction with heel of hand (taking care to avoid injury).

## 3. Maintenance

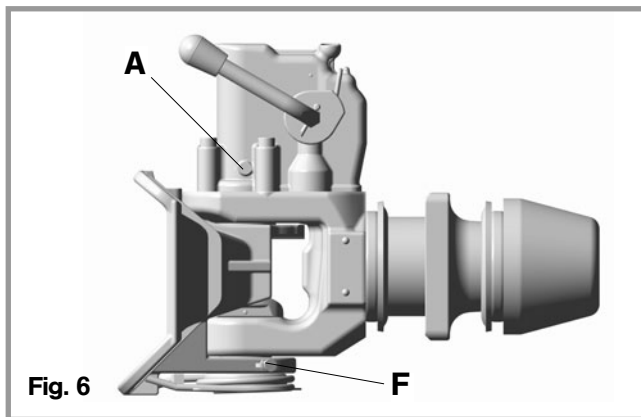


Fig. 6

- Lubricate coupling bin, support ring and drawbar eye with heavy-duty grease (EP3) which is waterproof if possible before first use and after extended period in use.
- Under harsh operating conditions or severe exposure to dirt or water regrease automatic unit (**A**) when coupling is open (see fig. 6):
  - use multi-purpose grease NLGI 2
  - intervals: 6 months or 50,000 km
- Lubricate lower funnel bearing (**F**) with EP3 grease.

**Note:** Close coupling before cleaning with high-pressure washers (see para. 2.2).

- After cleaning, relubricate coupling pin and support ring with EP3 grease.

Please note following when carrying out repairs on coupling (e.g. changing coupling pin):

- Remove as much of old grease as possible.
- Relubricate with multi-purpose grease (NLGI 2; temperature range –40° bis 120°C)

### 3.1 Care

Before starting maintenance work on the hitch ensure that hitch is closed. **Risk of Accident!** (see para. 2.2)

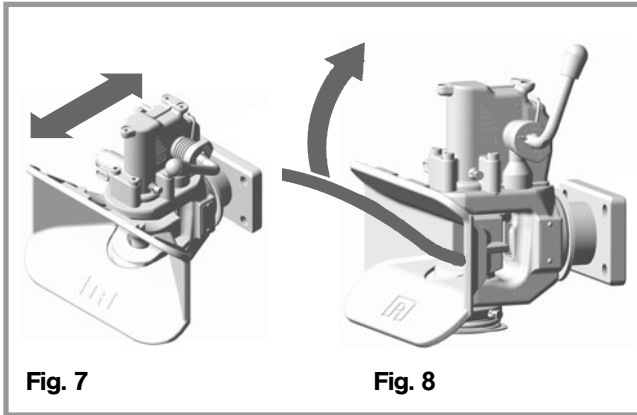


Fig. 7

Fig. 8

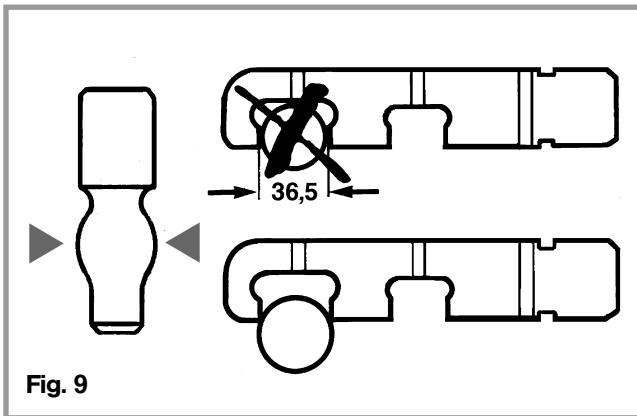


Fig. 9

### 3.2 Inspection

#### Bearing:

##### – Longitudinal play

- Grip coupling head (not jaw funnel) with both hands when uncoupled and move vigorously in longitudinal direction (see fig. 7): **No longitudinal play is allowed.**

##### – Vertical play

- Open hitch.
- Move coupling head up and down with appropriate tool (see fig. 8): Vertical play may **not exceed 3 mm** measured at coupling head (centre axis of coupling pin).

#### Coupling pin:

Check wear using ROCKINGER reference gauge (order no. 57026) (see Fig. 9):

Coupling pin may be used until diameter of crowned section has worn to less than **36.5 mm**, after which it must be replaced.



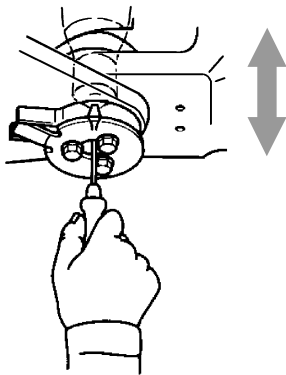


Fig. 10

Vertical play in coupling pin (see fig. 10) may **not exceed 2mm**.

**Lower bush:**

Check wear using ROCKINGER reference gauge (order no. 57290).

Max. admissible internal diameter of lower bush is **31.5 mm**.

Passage below pin must be free.

Please consult repair leaflet (available on request) for details of replacing.

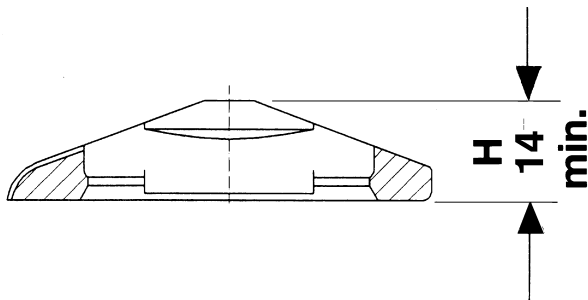


Fig. 11

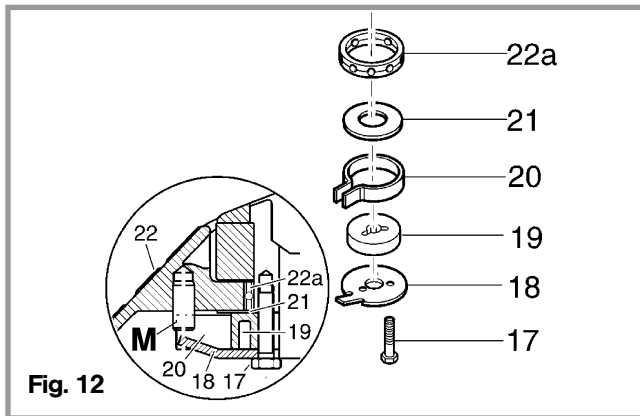
**Support ring:**

Support ring for drawbar eye must be replaced if drawbar eye could touch lower bush because of wear or if wear limit **H min.** of 14 mm (see Fig. 11) has been reached.

**Lower bush must not be damaged under any circumstances as this will impair closure of coupling.**

**Take care to prevent risk of accident!**

Always grease support ring to reduce wear (please consult repair leaflet, available on request, for details of replacing).



#### Check lock of the funnel:

**Note:** The funnel must be locked in its central position when coupling is opened to be prepared for coupling on!

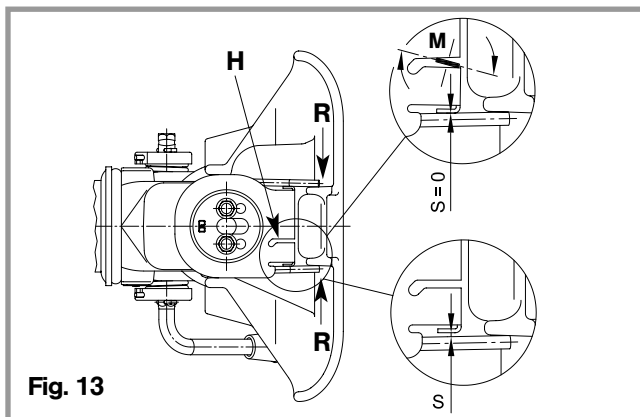
- Push the funnel sideways
- Move handlever in locking direction (up)
- Release funnel
- The funnel must swing back in central position and be locked again
- If not, justify the central position by the lower unit as below.

#### Adjustment for technical release C and O:

- Loosen screws (17) and bring the funnel in the central position: Spring surrounds retaining pin (M) on funnel
- Open coupling: Funnel lock should be inserted
- Tighten screws (17) when the funnel is in the central position:

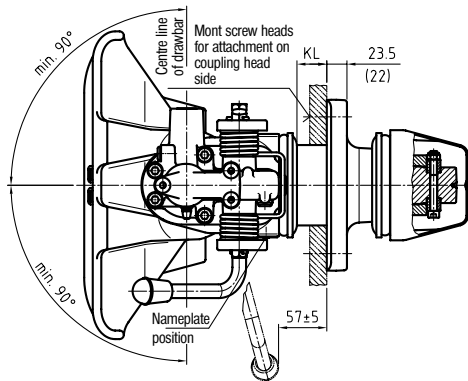
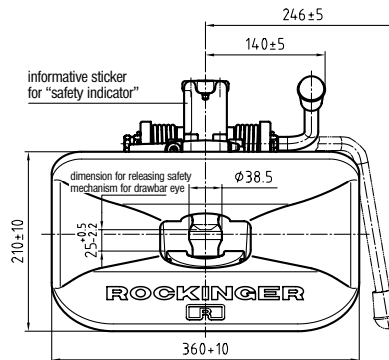
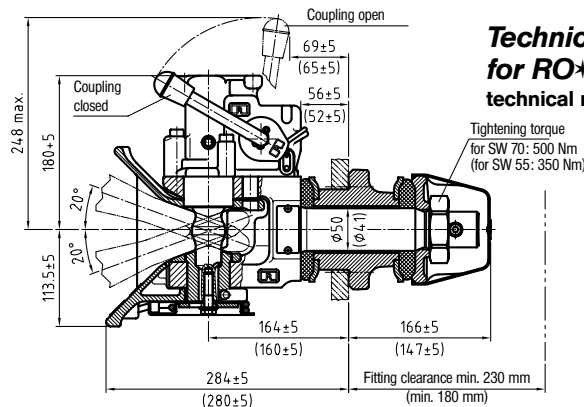
#### Tightening torque 30 Nm

- Please, check the lock and movement of the funnel again



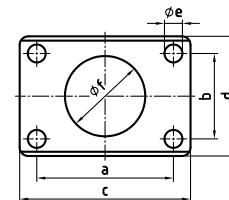
#### Adjustment for technical release 1:

- Loosen screws (17) and bring the funnel into the central position:
- Open coupling: Funnel lock should be inserted
- Tighten screws (17) – **Tightening torque 30 Nm.**
- Both ends of torsion springs (R) must lie slack free (S) against the rib of the funnel. Between the spring holder (H) and the lay-on points of the torsion springs should also be no gap.
- In case there is a gap you can close it very easily by bending the spring holder with a screwdriver (M) (see fig. (S = 0)).



## Serie RO★400

400 G 135 e1 00-0352  
 400 G 145 e1 00-0351  
 400 G 150 e1 00-0350  
 for drawbar eyes 40  
 DIN 74054 und EC-Class S



Flange size to 94/20/EG

Size	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	KL max. (mm)
135	120	55	155	90	15	74	32
145	140	80	180	120	17	84	35
150	160	100	200	140	21	94	35

part no.		size	hole pattern (mm)	maximum D-value* (kN)	CENTRAL - AXLE TRAILER			weight (kg)
hand lever upwards	hand lever downwards				maximum Dc-value* (kN)	maximum static vertical load** (kg)	maximum V-value* (kN)	
400A3600	400B3600	135	120x 55	70	70	700	24	30
				70	70	500	26,4	30
400A4600	400B4600	145	140x 80	100	91.5	1000	31,2	34
400A5100	400B5100	150	160x100	130	90	1000	35	35

\* Calculation see liste A

\*\* When using a central-axle trailer, the vertical load should amount to at least 4% of the trailer weight, in order to prevent increased wear caused by bouncing of the drawbar eye.

## Upgrade kits technical release C and 0

## RO★400

Upgrade kits	part no.	Upgrade kits	part no.
● Mechanical remote operation	70962	● In-cab status indicator	70936
● Electro-pneumatic remote operation	70844	<b>Repair instructions and parts list available on request!</b>	

## Upgrade kits technical release 1

## RO★400

Upgrade kits remote operation	part no.	Upgrade kits remote control	part no.
Mechanical remote operation <b>power assistent opening</b>	ROE 71599FA	Mechanical remote indicator	ROE 71575
Pneumatic remote operation <b>power assistent opening</b>	upon request	Electrical remote indicator	ROE 71546
<b>power assistent opening and closing</b>	ROE 71459C	<b>Repair instructions and parts list to be obtained upon request!</b>	



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