



*Montage- und Betriebsanleitung*

DE

*Installation and operating instructions*

EN

*Instructions de montage et d'utilisation*

FR

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**Modellreihe**

**Series**

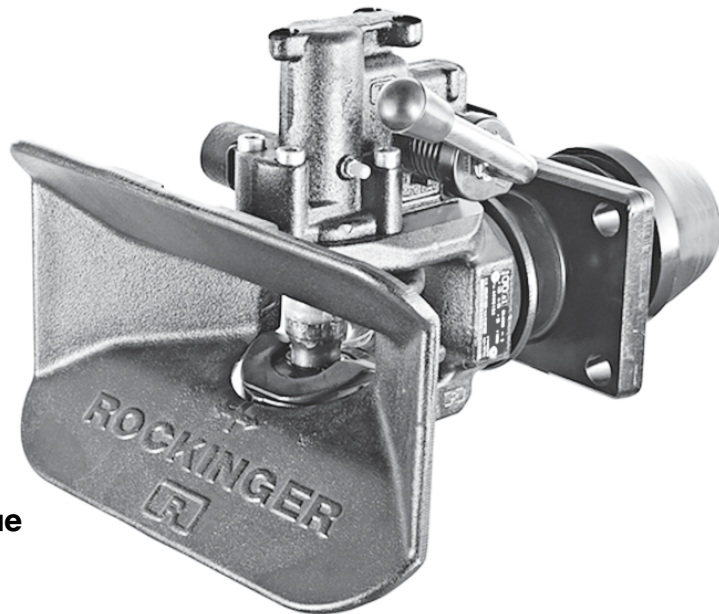
**Type**

**RO\*400**

**Vollautomatische Anhängerkupplung**

**Automatic Trailer Coupling**

**Attelage de remorque entièrement automatique**



## Series RO★400

### technical release 1

ECE (E1) 55 R-01 0350 Typ RO★400-G 150

ECE (E1) 55 R-01 0351 Typ RO★400-G 145

ECE (E1) 55 R-01 0352 Typ RO★400-G 135

Suitable for:

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



**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 7 of Directive ECE R 55 and the national regulations for commercial vehicles must be observed.

**Subject to technical changes without prior notice**

## Safety instructions

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**The safety instructions are summarised in a single chapter. In any situation where the user of the trailer coupling is at risk, the safety instructions are repeated in the individual sections and marked with the warning symbol shown here.**

When handling hitches, prime movers and trailers the relevant safety regulations in the respective country must be observed (e.g. Berufsgenossenschaft in Germany). Any safety instructions in the operating manual of the tractor vehicle and the trailer remain valid and must be observed.

For operation, maintenance and assembly the safety instructions listed below must be observed. Further safety instructions are then given in the individual case which relate directly to the respective activity.

## **Safety instructions for operation**

- The hitch may only be operated by authorised persons.
- The installation and operating instructions of the respective hitch retain their validity and must be observed.
- Only use the hitch and the towing eye of the trailer if they are in perfect technical condition.
- Only carry out hitching / unhitching operations on firm, level ground.
- During hitching, nobody may stand between the tractor vehicle and the trailer.
- After every hitching operation the correct locked status of the trailer coupling must be checked by means of the control pin or the remote indicator. Only drive the rig in the correctly locked status.
- The remote indicator does not exempt the driver from the obligation to check before driving off subject to StVZO (Regulations Authorising the Use of Vehicles for Road Traffic). Before driving off, among other things, the coupling status of the mechanical connection device for the tractor vehicle and the trailer must be checked.

## **Safety instructions for maintenance**

- For maintenance work, only use the prescribed lubricants.
- Maintenance work may only be carried out by qualified personnel.

## **Safety instructions for installation**

- Installation may only be carried out by authorised workshops.
- Installation must be carried out in compliance with the relevant accident prevention regulations and the technical regulations for mechanical equipment..
- Only original components may be used.
- Instructions and installation guidelines of the vehicle manufacturer must be observed, e.g. type of fastening, clearances etc.
- All screwed connections must be tightened with the prescribed tightening torque.
- Work may only be carried out on the trailer coupling when it is closed.

### **Risk of injuries!**

The installation of the hitch on the prime mover must be carried out in accordance with Annex 7 of Directive ECE R55-01 and must be checked accordingly. As applicable, the relevant licensing regulations in the respective country must be observed.

§§ 19, 20 and 21 StVZO apply in Germany. The mechanical remote control and the mechanical remote indicator are equipment with safety components. This is why the installation must be documented.



**The hitch, the remote control and the remote indicator are connection devices which require model approval and are subject to the highest safety requirements.**

**Alterations of any kind shall cause the warranty to lapse and invalidate the type approval, which in turn invalidates the vehicle operation permit.**

## Mounting technical release 1

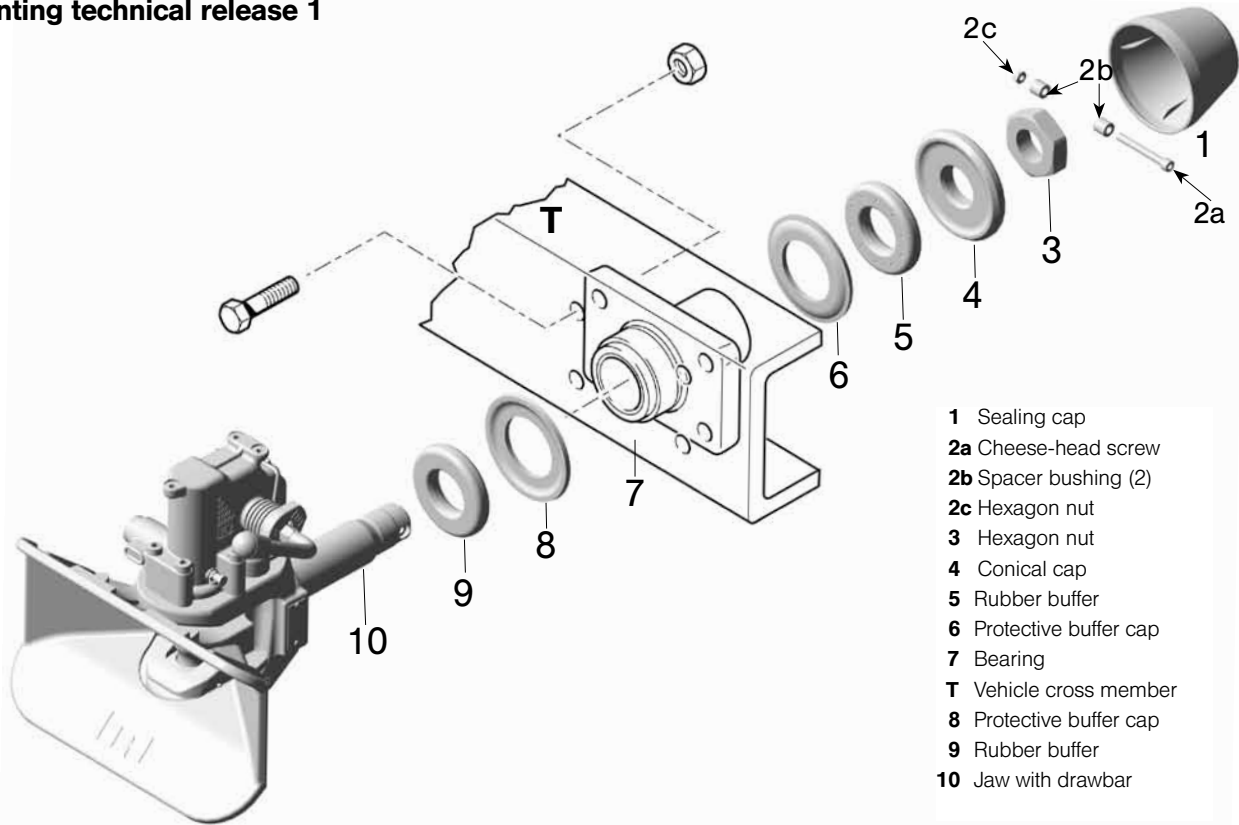


Fig. 1

- 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

## 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

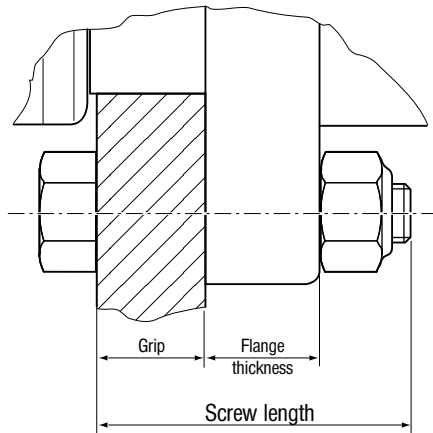
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- Install the bearing (**7**) onto the inner side of the cross member (**T**)
- Secure with 4 hexagon bolts (DIN 931, grade 8.8) and self-locking nuts, grade 8.  
Size of bolts, nuts and torque to be chosen, see table

**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. 2**

### 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> Tightening torque for screws use a torque meter to fix according to DIN ISO 6789, class A or B

### 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**



## 1.2 Mounting RO★400 technical release 1

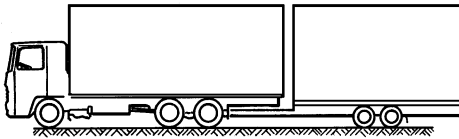
- Tighten **3**, **tightening torque 500 Nm<sup>1</sup> (350 Nm<sup>1</sup> by G 135)**
- Locate 1 x **2b** onto **2a**
- Slide **2a** and **2b** through the bore in **3**
- Locate 1 x **2b** onto **2a** and tighten with **2c**:  
**tightening torque 25 Nm<sup>1</sup>**
- Fit the sealing cap (**1**)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

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

<sup>1</sup> Tightening torque, screws are to fix with a torque wrench at DIN EN ISO 6789, classe A or B



Tractor unit with drawbar trailer



Tractor unit with rigid trailer

Fig. 3

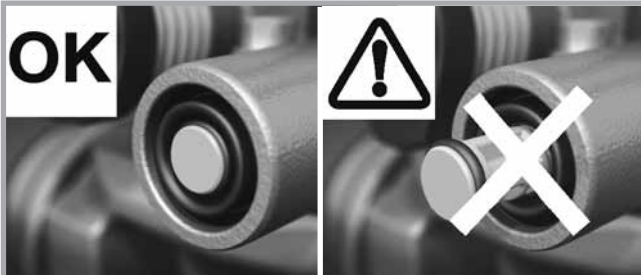


Fig. 4

### 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. 3):

- 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. 4)

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

## 3. Maintenance

## RO★400

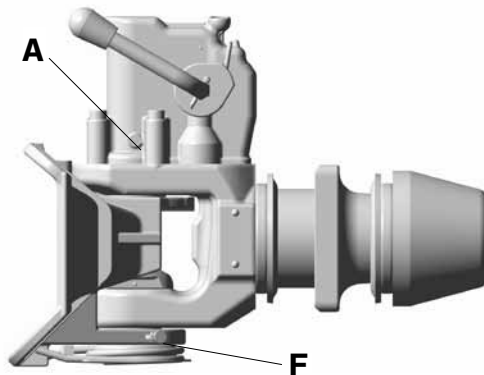


Fig. 5

### 3.1 Care

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

- 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. 5):
  - 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.

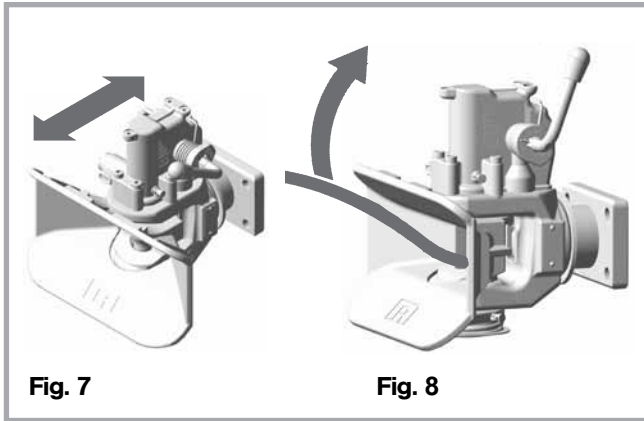


Fig. 7

Fig. 8

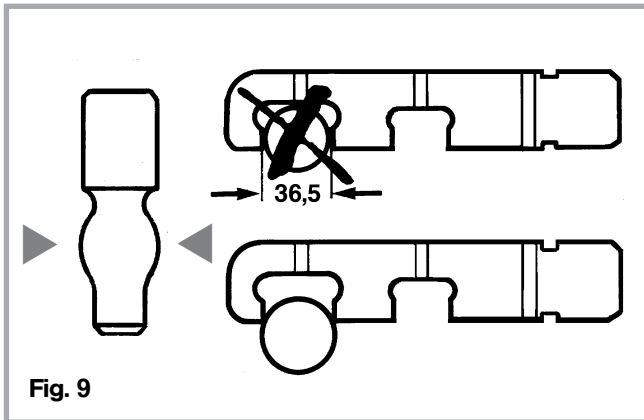


Fig. 9

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)

### 3.2 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. 8):

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

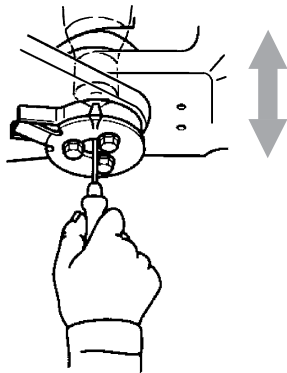


Fig. 9

Vertical play in coupling pin (see fig. 9) 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.

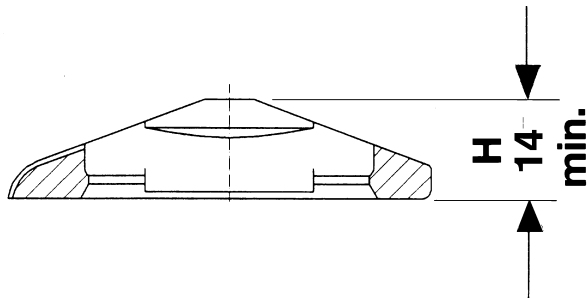


Fig. 10

**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. 10) 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).

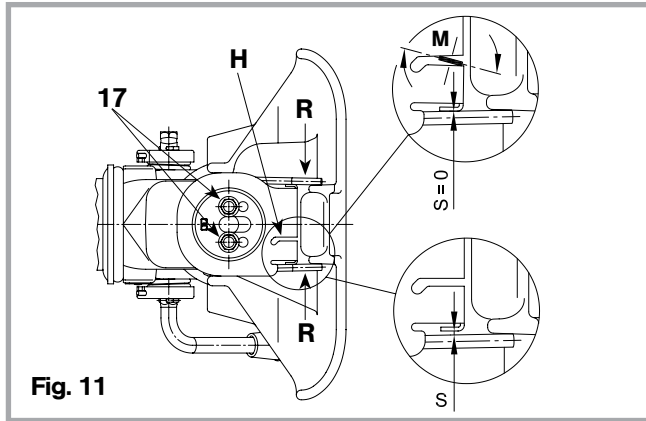


Fig. 11

### 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!

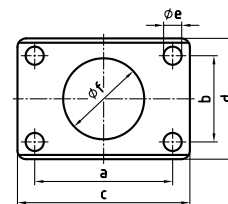
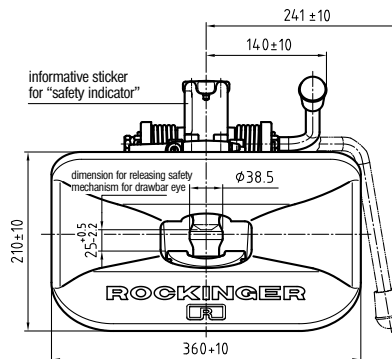
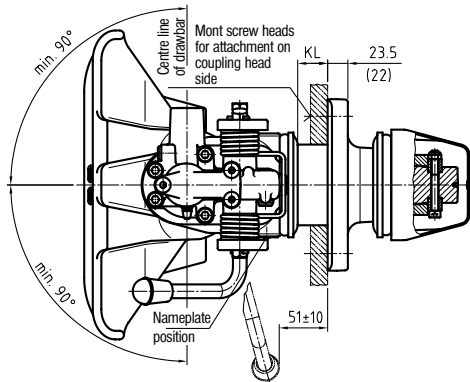
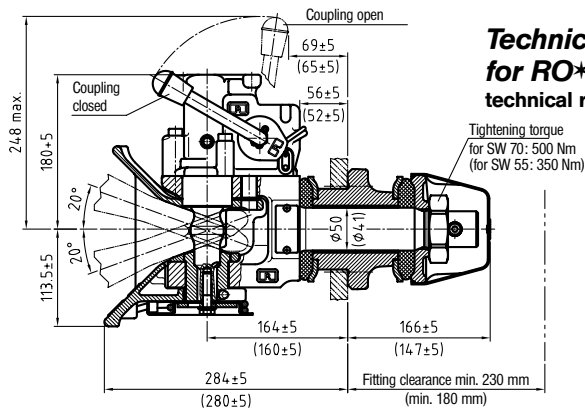
- Push the funnel sideways
- Move handlever in locking direction (up)
- Release funnel
- The funnel must swing back in central position and be locked again
- If not, justify the central position by the lower unit as below.

### Adjustment for technical release 1:

- Loosen screws (17) and bring the funnel into the central position:
- Open coupling: Funnel lock should be inserted
- Tighten screws (17) – **Tightening torque 85 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 gap you can close it very easily by bending the spring holder with a screwdriver (M) (see fig. (S = 0)).
- Please, check the lock and movement of the funnel again

<sup>1)</sup> Tightening torque for screws use a torque meter to fix according to DIN ISO 6789, class A or B





## Series RO★400

ECE (E1) 55 R-01 0350 Typ RO★400-G 150

ECE (E1) 55 R-01 0351 Typ RO★400-G 145

ECE (E1) 55 R-01 0352 Typ RO★400-G 135

or drawbar eyes 40  
DIN 74053 und ECE-Class S

Flange size to  
ECE R55-01

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.		CENTRAL - AXLE TRAILER						
hand lever upwards	hand lever downwards	size	hole pattern (mm)	maximum D-value* (kN)	maximum Dc-value* (kN)	maximum static vertical load** (kg)	maximum V-value* (kN)	weight (kg)
400A36001	400B36001	135	120x 55	70	70	700	24	30
				70	70	500	26,4	30
400A46001	400B46001	145	140x 80	100	91.5	1000	31,2	34
400A51001	400B51001	150	160x 100	130	90	1000	35	35

\* Calculation see catalogue or internet: <http://www.jost-world.com>

\*\* 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 1

## RO★400

Upgrade kits remote operation	part no.
Mechanical remote operation <b>power assistent opening</b>	ROE 71599FA
Pneumatic remote operation <b>power assistent opening and closing</b>	ROE 71461
Mechanical remote operation	ROE 71676

Upgrade kits remote control	part no.
Electronical remote indicator RI-BE	ROE 71546
Electrical remote indicator RI-BC	ROE 71654

**Repair instructions and parts list to be obtained upon request!**







**ROCKINGER**

JOST-Werke · Siemensstr. 2, D-63263 Neu-Isenburg · Telefon +49(0)61 02 295-0 · Fax +49(0)61 02 295-298 · [www.jost-world.com](http://www.jost-world.com)

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