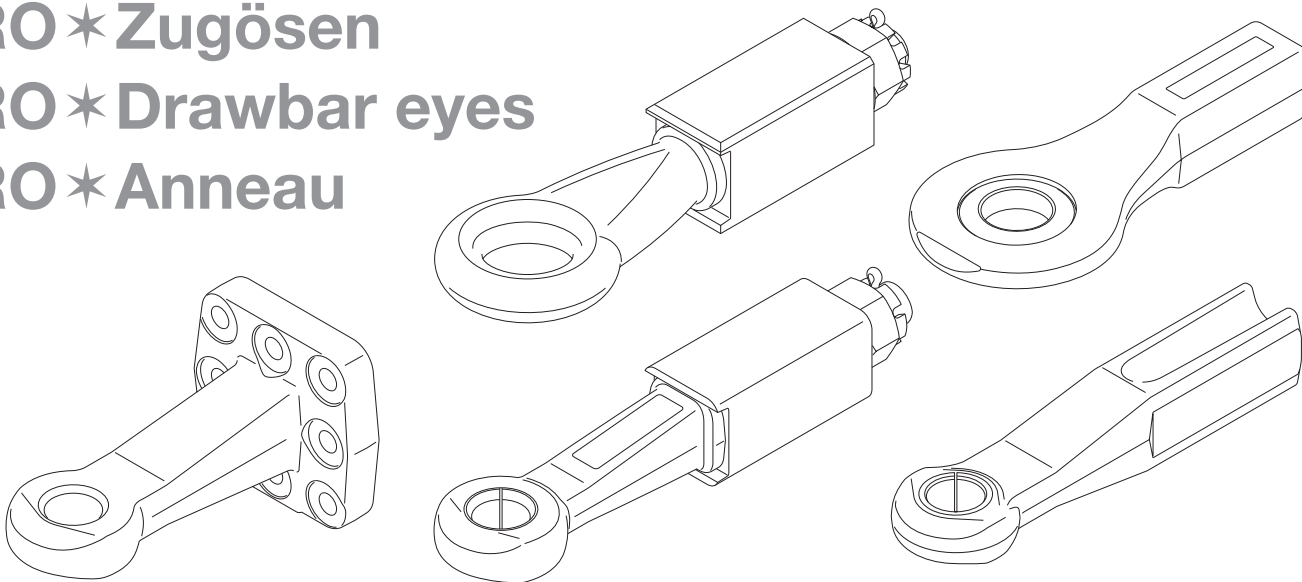


RO★Zugösen
RO★Drawbar eyes
RO★Anneau



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Liability

ROCKINGER cannot guarantee that the specifications are complete and correct. No claims can be derived from the contents of the instructions, in particular, we take no liability for damage that is caused by improper installation.



CAUTION!

All installation and welding work on drawbar eyes must be carried out by specialist staff! Read these instructions carefully before installing!



Official notice

When installing drawbar eyes, EC Directive 94/20 Annex VII or UN ECE Regulation 55 Annex 7, as well as the applicable national regulations must be observed.



1.1 Weld seam preparation

General

The surfaces in the vicinity of the weld seam must be suitable to obtain fault-free weld seams. Moisture and contamination such as dirt, rust, scaling, scum, paint, oils and greases have a negative effect on the result. If there are weld seam faults that can be traced back to the aforementioned surface contamination, the components in the vicinity of the weld seam must be prepared accordingly (clean, dry, etc.). If welding multiple layers, before welding the next layer, the surface must be prepared again to ensure that the next layer can be welded without problems.

Weld edge shape

The weld edge shape on metal sheets and profiles must be established as shown in EN ISO 9692-1.

Processing procedure

Weld edges should preferably be processed mechanically. If cutting edges are produced using autogenous flame cutting, the material to be cut must correspond to EN ISO 9013-442. The fusion faces must be free of oxidation products.

1.2 Welding process

General

Only welders with approved suitability (EN 287-1 / EN ISO 9606 -I) are permitted to perform welding work. The earth connection must be established so that a problem-free electrical contact is obtained. If the components are moved during the welding work, ensure that the weld seams and the tack welds must only be stressed slightly and must not tear.



CAUTION!

When performing welding work on vehicles, always exercise extreme caution to ensure that the electrical cabling is not damaged. Connect the welding device's negative cable as close to the vehicle's welding point as possible.

Tack welding

If tack welds are part of the welded structure, the same criteria apply to these as to the entire welded structure.

Tack welds are only permitted to be welded over if they do not have any cracks and if they fuse completely when being welded over. Otherwise, the tack welds must be removed once welding is complete.

1.3 Heat treatment**General**

Heat treatment can be carried out using any method that is suitable for the base material. However, ensure that the specified temperatures are reached and that the prescribed time is adhered to.

Pre-heating

Depending on the type of material, the seam cross-section and the thickness of the components to be welded, the seam area must be pre-heated sufficiently if required. (EN1011-2, SEW088, SEW088 Supplement 1, SEW088 Supplement 2) If the material is to be welded with pre-heating, a sufficiently large area must also be pre-heated before tack welding. If welding in multiple layers, the weld seam temperature of the existing layer must not fall below the specified pre-heating temperature when welding the intermediate and covering layers.

Heat treatment

The type and scope of post welding heat treatment depends on the material used, the wall thickness, the structure itself and the intended use. Post welding heat treatment must be carried out in accordance with the currently applicable technical regulations, the customer's specifications or the specifications of the material supplier.

Temperature check

When pre-heating and during post welding heat treatment, the workpiece temperature must be checked using suitable and monitored measuring equipment such as a thermocouple or a temperature indicating crayon.

1.4 Welding method

When the drawbar eye and welding plates are being welded, the following welding methods are permitted with the specified additional materials and welding materials:

Welding method according 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 weldfiller 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.

1.5 Weld seam test

General

Covered weld seams must be tested to ensure that they are fault-free before the subsequent work.

Test procedure

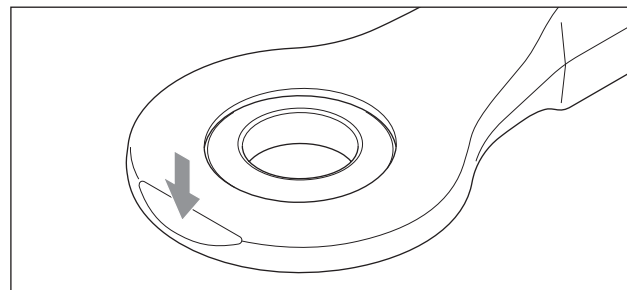
To ensure that the test does not cause damage, use procedures that can detect faults that are close to the surface and that reach the surface (e.g. dye penetrant test and magnetic particle test).

Rejected weld seams

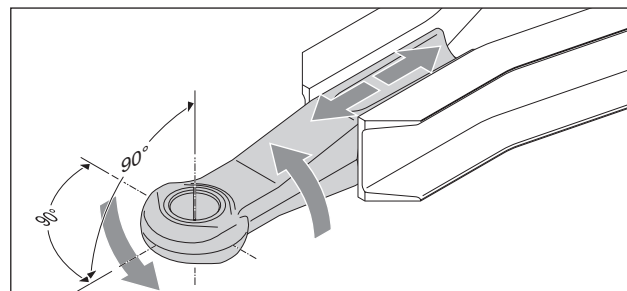
Weld seams that do not meet the quality requirements must be removed and replaced with fault-free weld seams. The type and scope of the rework must be defined together with the welding supervisor responsible (SAP per ISO 14731).

2.1. Weld-in drawbar eyes

- Observe the installation position [1] depending on the drawbar eye
- Align the drawbar eye [2] at an angle to the drawbar
- Observe the minimum weld quality requirement according to ISO 5817-B
- Observe the permissible welding procedure; table 1.4
- Observe the filler metal ,minimum requirement“; table 1.4
- Carry out welding in accordance with the following table: „Welding instructions“



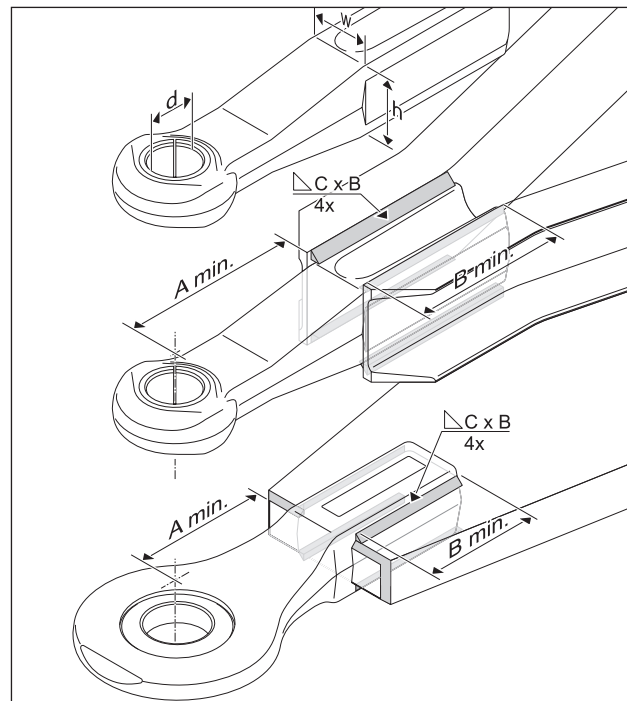
[1] Installation position (phase at top)



[2] Angled installation

Welding instructions

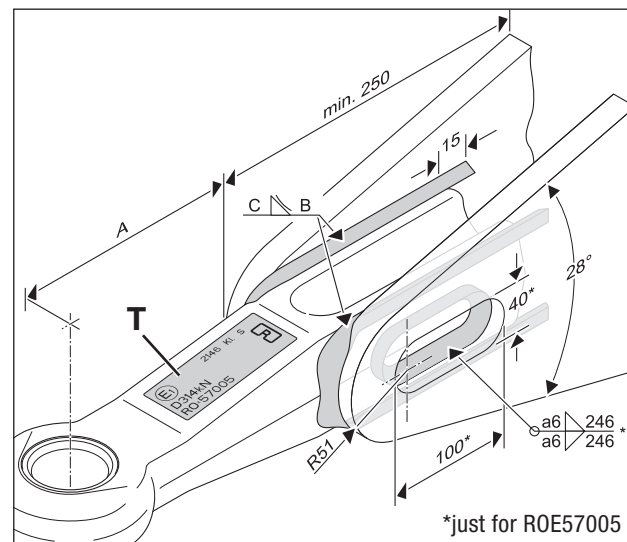
RO Item no.	d [mm]	Shaft h x w [mm]	A min. [mm]	B min. [mm]	Min. weld seam thickness C [mm]
ROE57065	Ø 35	35 x 35	95	40	a5
ROE57260	Ø 40	40 x 40	200	110	a3
ROE57262	Ø 40	50 x 40	200	110	a3
ROE57394	Ø 50	80 x 75	200	180	a7
ROE57384	Ø 57,5	75 x 70	185	120	a7
ROE57386	Ø 57,5	75 x 70	185	120	a7
ROE57006	Ø 76	65 x 60	200	120	a5



[3] Welding instructions

- Observe the installation position [4] - type values at top [4T]
- Align the drawbar eye [2] at an angle to the drawbar
- Observe the minimum weld quality requirement according to ISO 5817-B
- Observe the permissible welding procedure; table 1.4
- Observe the filler metal ,minimum requirement'; table 1.4
- Carry out welding in accordance with drawing [4]

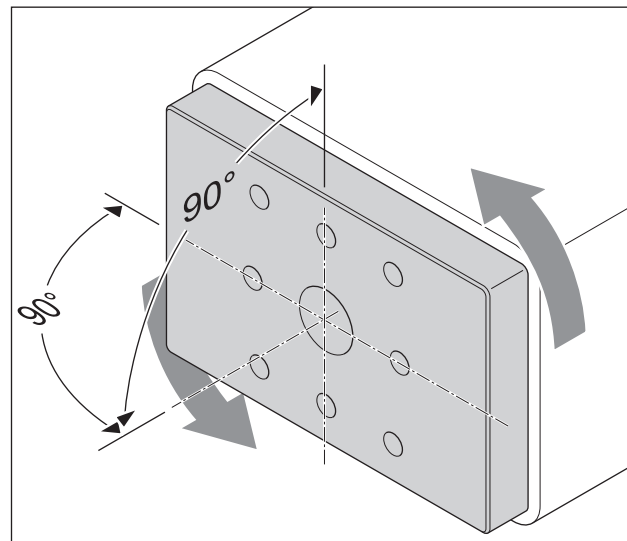
RO Item no.	d [mm]	Shaft h x w [mm]	A min. [mm]	B min. [mm]	Min. weld seam thickness C [mm]
ROE57229	Ø 40	65 x 55	200	270	a5
ROE57264	Ø 40	50 x 50	200	265	a3
ROE57268	Ø 40	65 x 55	200	295	a5
ROE57270	Ø 40	65 x 60	200	295	a5
ROE57374	Ø 40	65 x 57	200	275	a5
ROE57272	Ø 50	65 x 60	200	385	a5
ROE57005	Ø 50	80 x 75	200	444	a5



[4] Installation position and welding requirements
T Type description

2.2. Welding plates

- Observe the installation position of the relevant welding plate when installing
- Align the welding plate [5] at an angle to the drawbar
- Observe the minimum weld quality requirement according to ISO 5817-B
- Observe the permissible welding procedure; table 1.4
- Observe the filler metal ,minimum requirement'; table 1.4
- Carry out welding in accordance with figure [6]



[5] Align the welding plate at an angle

Overview of the welding plates

RO Item no.	Dimensions [mm]	for flange drawbar eyes
ROE70304*	162x162x30	Ø 40, 50
ROE70305*	200x185x30	Ø 40, 50
ROE70306*	240x270x30	Ø 40, 50
ROE70307	200x195x40	Ø 50 (57284)
ROE71277*	162x178x30	Ø 40, 50
ROE59394	200x205x35	Ø 40, 50, 57
ROE59395	200x380x35	Ø 40, 50, 57
ROE59455	210x210x40	Ø 80 (57388)
ROE59471	200x200x30	Ø 40, 50, 68

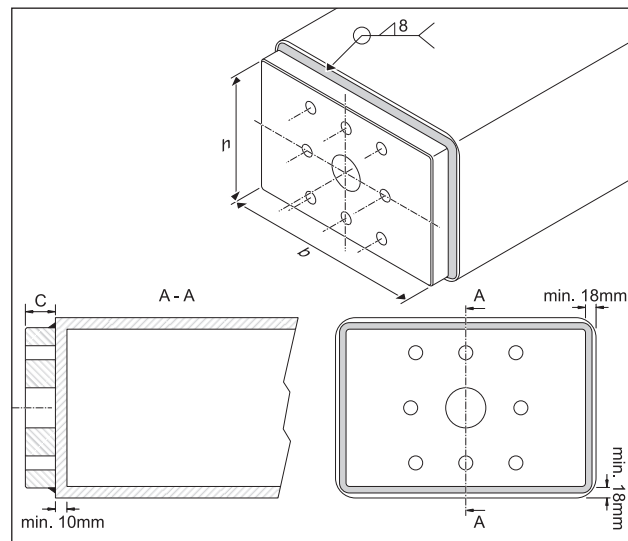
* welding plates including screw set



NOTE

Welding- or screw on - plates are not part of the delivery of the flange drawbar eye. They have to be ordered separately. Please obtain also the homologation of the rigid drawbar itself.

The counterface where you screw on the drawbar eye must not be painted and has to be free of grease.



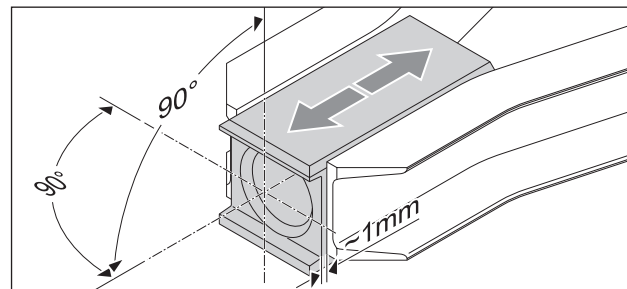
[6] Weld seam

2.3. Screw-in drawbar eyes

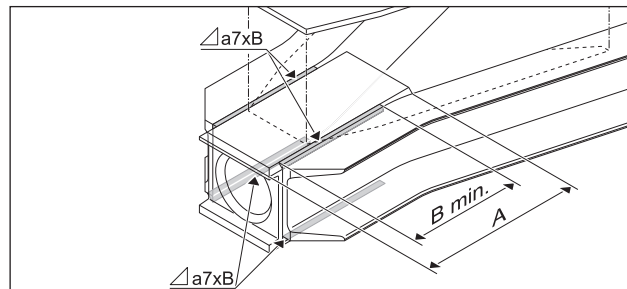
- Observe the installation position of the weld-in bearing when installing
- Align the weld-in bearing at an angle to the drawbar [7]
- Observe the minimum weld quality requirement according to ISO 5817-B
- Observe the permissible welding procedure; table 1.4
- Observe the filler metal ,min. requirement‘; table 1.4
- Carry out welding in accordance with the table ,Welding instructions for weld-in bearings‘
- Push the drawbar eye through the sleeve and use the nut to screw tight to the correct torque

Welding instructions for weld-in bearings

RO Item no.	A [mm]	B min. [mm]
ROE53435	173	120



[7] Align the weld-in bearing



[8] Welding instructions

**TORQUE**

Screw-in drawbar eye

RO Item no.	Torque*
ROE57318	min. 500 Nm, max. 1000 Nm
ROE57321	min. 500 Nm, max. 1000 Nm
ROE57294	min. 500 Nm, max. 1000 Nm
ROE57295	min. 750 Nm

* Setpoint (friction coefficient of washer $\mu = 0,14$) tighten the screw connection with a torque spanner according to DIN EN ISO 6789, class A or B

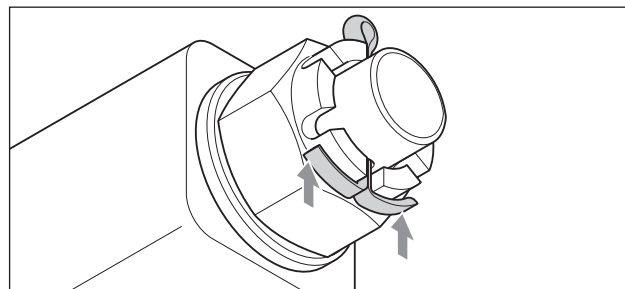
- Secure the crown nut with a split pin [9]
- Bend the split pin's ends [9] to prevent the split pin falling out

**NOTE**

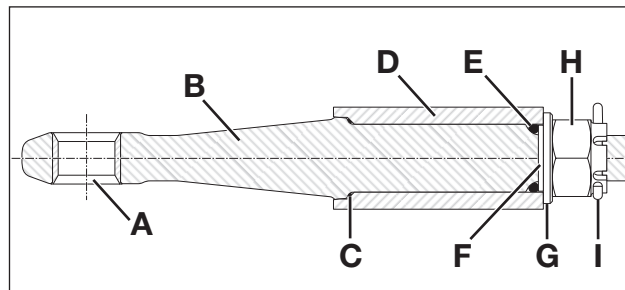
If the split pin cannot be inserted, tighten further until the next split pin cover is reached.

**ATTENTION!**

Ensure that the minimum torque is reached! Do not turn the crown nut back under any circumstances!



[9] Split pin locking



- | | | |
|-------------------------------|--------------------------|-----------------------|
| [10] A Bush | D Weld-in bearing | G Washer large |
| B Screw-in drawbar eye | E O-ring large | H Crown nut |
| C O-ring small | F Washer small | I Split pin |

2.4. Flange drawbar eyes



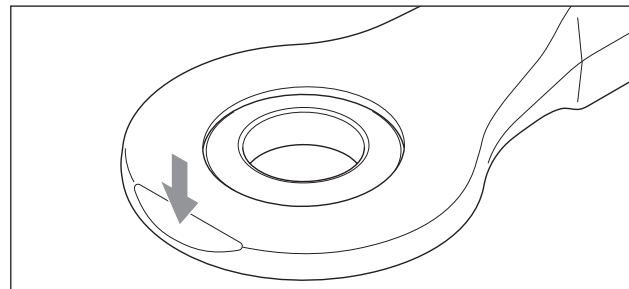
SUITABLE FOR

- for direct mounting on trailer frame elements
 - for mounting on drawbars
 - for use with towing hitch with a nominal pin diameter which refers to the drawbar eye diameter
- Observe the installation position of the relevant drawbar eye [11] when installing
- Screw the drawbar eye tight. Observe the tightening sequence [12] for the screws depending on the flange
- To screw tight, adhere to the prescribed torques that are specified in the following table

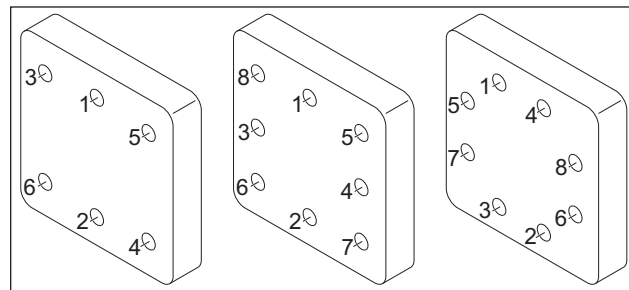


NOTE

Do not paint drawbar eye flange or connection plate and ensure that they are grease free when fitting.



[11] Installation position (phase at top)



[12] Tightening sequence for the screws



TORQUE

RO Item no.	Screw quality	Number of screws	Torque*	RO screw set
ROE57284	M20x70 - 10.9	8	610 Nm	ROE70965
ROE57370 ROE57410	serrated M16x60 - 12.9	6	360 Nm	ROE30414
ROE57350 ROE57349	M16x55 - 10.9	6	295 Nm	ROE70951
ROE57244 ROE57243	M16x55 - 10.9	8	295 Nm	ROE70950
ROE57400	M20x60 - 10.9	8	440 Nm	ROE30503

* Setpoint, tighten the screw connection with a torque spanner according to DIN EN ISO 6789, class A or B






**ATTENTION: RISK OF ACCIDENT!**

After installing the drawbar eye for the first time, re-tighten after 2500 km.

Always check the fastening screws as part of regular vehicle maintenance. Replace damaged or elongated screws with new screws immediately.

3. Technical data

RO* Drawbar eyes

RO Item no.	Type	Ø (mm)	 D (kN)	 Dc (kN)	 S (kg)	 V (kN)	 (kg)	ECE
ROE57260	201001	40	18	18	180	8	4,1	01 2545
ROE57262	201003	40	25	25	250	9	4,7	01 2544
ROE57264	RO*57264	40	70	50	500	14	5,9	01 2332
ROE57268	RO*57268	40	125	66	900	20	7,8	01 2333
ROE57270	RO*57270	40	125	74	1000	23	8,2	01 2334
ROE57374	RO*57374	40	125	42,4	250	12	5	01 2203
ROE57272	RO*57272	50	190	90	1000	30	11,4	01 2335
ROE57229	RO*57229	40 CH	168	66	900	20	8,7	01 2202
ROE57318	RO*57317	40	125	74	1000	23	11	01 2336
ROE57321	RO*57320	50	190	90	1000	25	12,6	01 2337
ROE57005	RO*57005	50	314	-	-	-	13,4	01 2146
ROE57384	RO*ZE57V	57	200	90	1000	30	10	01 1659
ROE57386	RO*ZE57R	57	200	90	1000	30	10	01 1658
ROE57243	RO*57243	40	130	100	1000	35,8	8,8	01 0046
ROE57349	RO*57243	40	130	100	1000	35,8	8,8	01 0046
ROE57244	RO*57244	50	190	135	1000	72,5	9,5	01 0045
ROE57244	RO*57244	50	190	113	2500	43,2	9,5	01 0045
ROE57284	RO*57284	50	250	135	1000	90	17,9	01 0162
ROE57284	RO*57284	50	250	113	3000	43,2	17,9	01 0162
ROE57370	RO*57-ZF	57	300	131	1000	82	18,7	01 1356
ROE57370	RO*57-ZF	57	300	130	2000	50	18,7	01 1356
ROE57370	RO*57-ZF	57	300	146,5	1000	65,5	18,7	01 1356

i**NOTE**

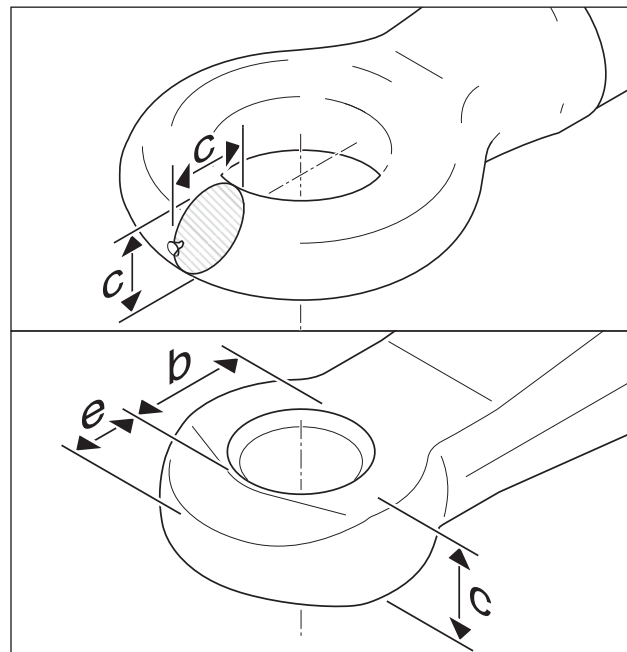
In order to ensure as long a service life as possible for the drawbar eye, lubricate the drawbar eye with high performance lubricant before using for the first time and after an extended period of use.

**LUBRICANT**

- high performance lubricant
Item no. SKE005670000

**ATTENTION: RISK OF ACCIDENT!**

Drawbar eyes must not be damaged or worn. Worn out or loose wear bushes must be replaced in good time. Twisted or bent drawbar eyes must not be straightened under any circumstances.



[13] Drawbar eyes wear limits

Bush diameter	Ø b' max. [mm]	c min. [mm]	e² min. [mm]	ROE test gauge
Ø 40 ISO8755 / DIN74054	41,5	28	22	ROE57026
Ø 40 CH	41,5	36,5	29,5	ROE57026
Ø 50 DIN74053	52,5	41,5	23,5	ROE57122
Ø 50 HD ROE57005	52,5	41,5	21	ROE57122
Ø 57,5	59,5	19	-	ROE58243

¹ Size with bush

² Size without bush

Drawbar eye diameter [mm]	c min. [mm]
Ø 68 Ø 68 NF R 41-102 BNA (ECE R55-01 Class L1)	Ø 37
Ø 76 NATO VG 74059	Ø 38

Overview of drawbar eye bushes

Bushes with Ø 40 and Ø 50

Slotted bush Ø RO Item no.	Roller expander RO Item no.	Non slotted bush Ø RO Item no.	Mandrel RO Item no.
Ø 40 ROE53051	ROE57059	Ø 40 ROE53386	ROE57111
Ø 50 ROE53004	ROE57088	Ø 50 ROE53376	ROE57228

Oversized bushes with Ø 40

Ø outer	Number of notches R	RO Item no.
Ø 48,5	1	ROE53206
Ø 49	2	ROE53207
Ø 49,5	3	ROE53208
Ø 50	4	ROE53209

Oversized bushes with Ø 50

Ø outer	Number of notches R	RO Item no.
Ø 60,5	1	ROE53362
Ø 61	2	ROE53363



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