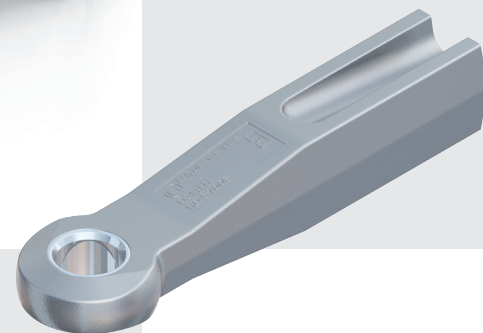


ROCKINGER



RO Drawbar eyes

EN Installation and operation instructions



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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.



ATTENTION!

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, UNECE 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. In order to avoid weld seam faults caused by 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.



ATTENTION!

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 afterwards.

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.

Post welding 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 procedure

When welding the towing eyes or mounting plates, the following welding procedures with the specified filler materials and welding consumables are permitted:

Welding procedure per ISO 4063	111	135	135
Welding filler material (with approval from one of the following companies: BV, DB, DNV, GL, LR, TÜV)	Rod electrode	Welding wire	Shielding gas
Standard designation	ISO 2560-A- E 35 3 B	ISO 14341-A-G 38 3 C1 2Si	ISO 14175 - C1
Welding filler material /	ISO 2560-A- E 38 3 B	ISO 14341-A-G 42 3 M21 2Si	ISO 14175 - M21
Welding consumables	ISO 2560-A- E 42 3 B	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	



ATTENTION!

The quality of the weld must meet the requirements of assessment group B in accordance with *EN ISO 5817*. The welding consumables must be selected in accordance with the strength of the base material used.

1.5. Weld seam checking

General

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

Test procedure

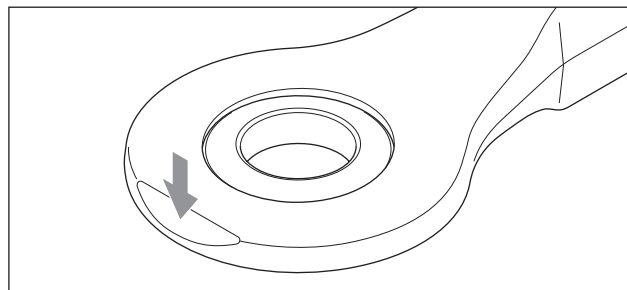
To ensure that the test does not cause damage, use procedures that can detect faults that are close to the surface and that reach the surface (e.g. dye penetrant test and magnetic particle test).

Rejected weld seams

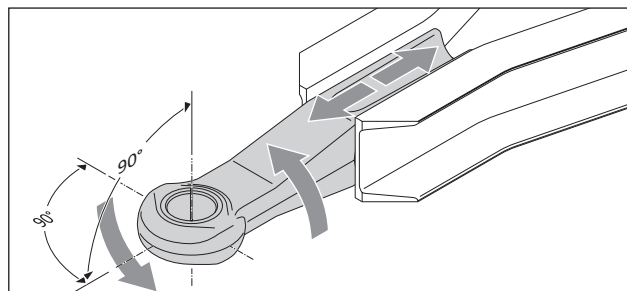
Weld seams that do not meet the quality requirements must be removed and replaced with fault-free weld seams. The type and scope of the rework must be defined together with the welding supervisor responsible (*SAP per ISO 14731*).

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 per *ISO 5817-B*
- Observe the permissible welding procedure; see table 1.4
- Observe the filler metal "minimum requirement"; see table 1.4
- Carry out welding in accordance with the following table: "Welding instructions"



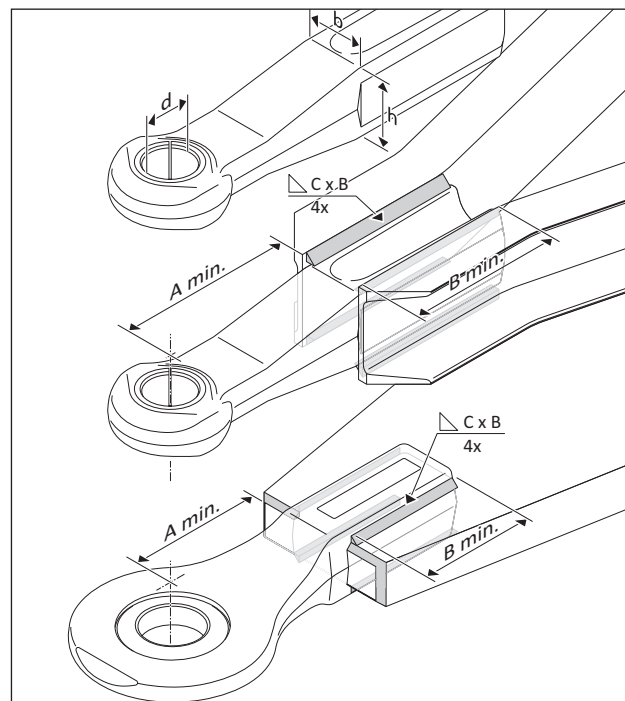
[1] Installation position (chamfer upwards)



[2] Angled installation

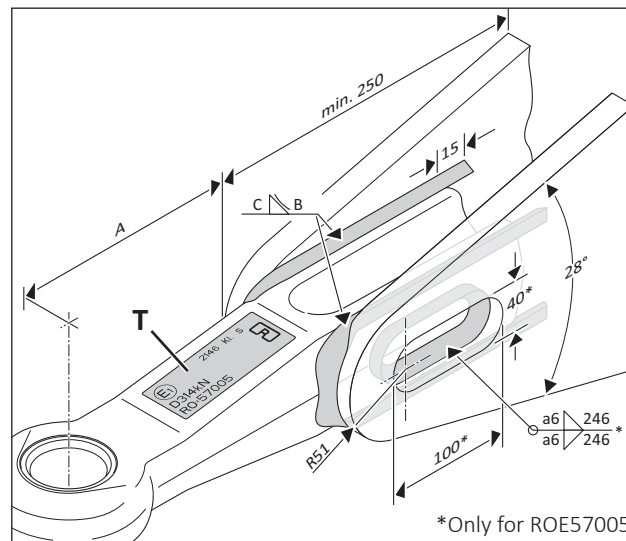
Welding instructions

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
ROE57384	Ø 57,5	75 x 70	185	120	a7
ROE57425	Ø 57,5	75 x 70	185	120	a7
ROE57006	Ø 76	65 x 60	200	120	a5
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
ROE57427	Ø 50	65 x 60	200	385	a5
ROE57005	Ø 50	80 x 75	200	444	a5



[3] Welding instructions

- Observe installation position per drawing [4] - Type designation [4T] readable from above!
- Align the drawbar eye [2] at an angle to the drawbar
- Observe the minimum weld quality requirement per *ISO 5817-B*
- Observe the permissible welding procedure; see table 1.4
- Observe the filler metal "minimum requirement"; see table 1.4
- Carry out welding in accordance with drawing [4]

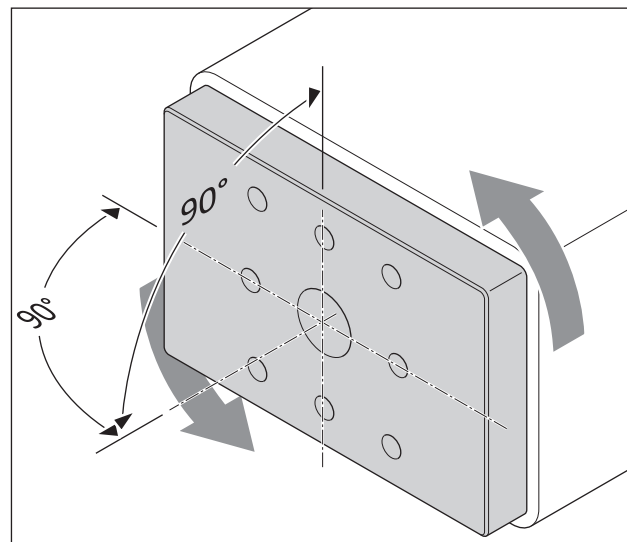


[4] Installation position and welding instructions

T Type designation

2.2. Connecting plates

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



[5] Align the connecting plate at an angle

Overview of the connecting plates

RO Item no.	Dimensions b x h x C [mm]	Use 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

* Connecting plates incl. screw set



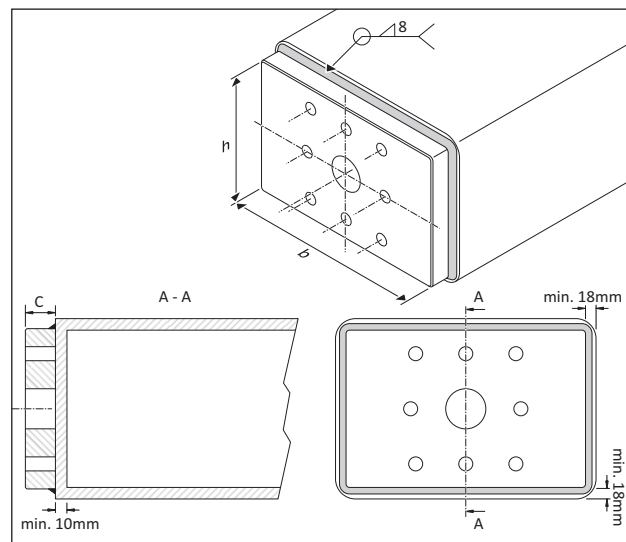
NOTE!

Screw-on/connecting plates are not included in the scope of delivery of the flange drawbar eyes. They must be taken into account in the type approval of the drawbar during installation.



ATTENTION!

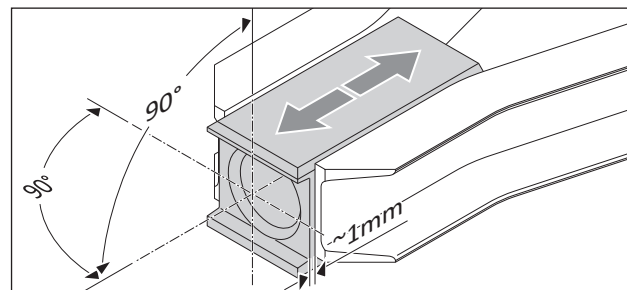
Do not paint over the connecting plate and keep it free of grease.



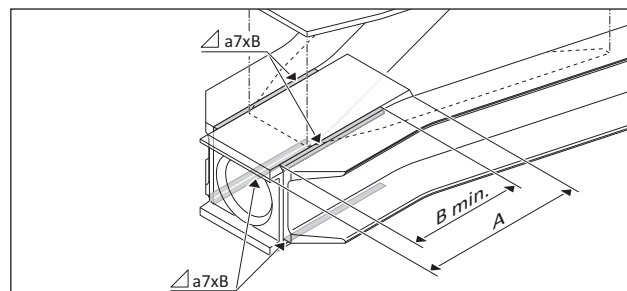
[6] Weld seam

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 per *ISO 5817-B*
- Observe the permissible welding procedure; see table 1.4
- Observe the filler metal "minimum requirement"; see table 1.4
- Carry out welding in accordance with "Welding instructions for weld-in bearings" table
- Push the drawbar eye through the sleeve and use a nut to screw tight to the correct torque



[7] Align the weld-in bearing



[8] Welding instructions

Welding instructions for weld-in bearings

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

Tightening torque

RO Item no.	Tightening torque*
ROE57318	min. 500 Nm, max. 1000 Nm
ROE57321	min. 500 Nm, max. 1000 Nm
ROE57431	min. 500 Nm, max. 1000 Nm
ROE57294	min. 500 Nm, max. 1000 Nm
ROE57295	min. 750 Nm

* Setpoint value (for washer friction value $\mu = 0.14$)

Tighten screws with a torque wrench per
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



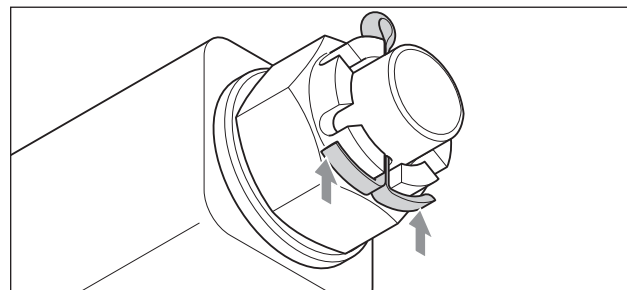
NOTE!

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

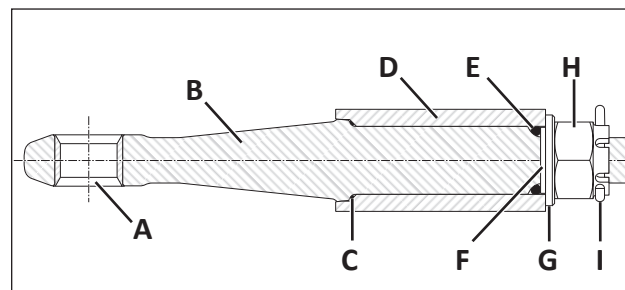


ATTENTION!

Do not tighten with less than the minimum tightening torque! Do not turn the crown nut back under any circumstances!



[9] Split pin locking



[10] **A** Bushing **D** Weld-in bearing **G** Large washer
B Drawbar eye **E** Large O-ring **H** Crown nut
C Small O-ring **F** Small washer **I** Split pin

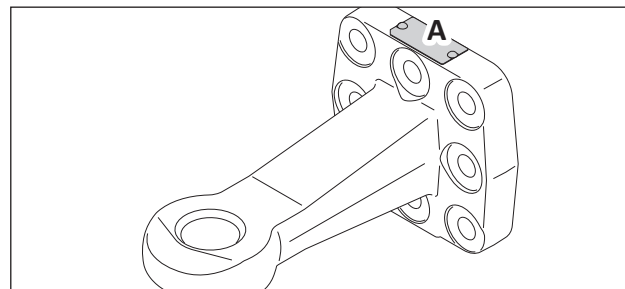
2.4. Flange drawbar eyes



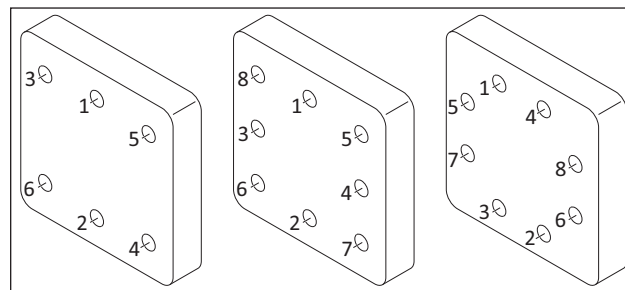
USE

- For direct installation on trailer frame parts
- For attachment to drawbars
- For connecting the corresponding trailer couplings in accordance with the standard or the installation and operating instructions for the respective trailer couplings
- Installation method, number of screws, tightening torque, screw quality in accordance with the table below

- Note the installation position of the respective towing eye [11A]; the type plate must be at the top
- Screw the drawbar eye tight. Observe the tightening sequence [12] for the screws depending on the flange



[11] A Type plate faces upwards



[12] Tightening sequence for the screws

Tightening torque

RO Item no.	Screw quality	Number of screws	Installation instructions per illustration	Tightening torque*	RO screw set
ROE57284	M20x70 - 10.9	8	13A or 13B	610 Nm	ROE70965
ROE57370 ROE57410	Rib M16x60 - 12.9	6	13A	360 Nm	ROE30414
ROE57349	M16x55 - 10.9	6	13A or 13B	295 Nm	ROE70951
ROE57244 ROE57243 ROE57423	M16x55 - 10.9	8	13A or 13B	295 Nm	ROE70950

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



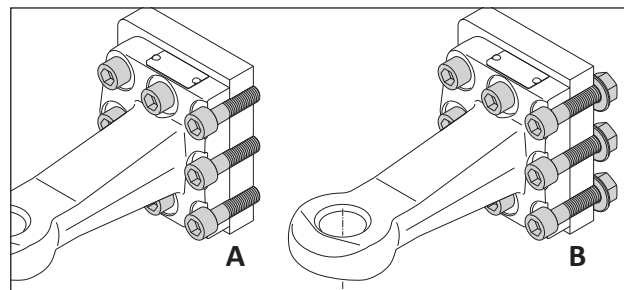
ATTENTION!

Do not paint the contact surfaces on the flange and connecting plate, and keep them free of grease.



ATTENTION: RISK OF ACCIDENTS!

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.



[13] **A** Hex screws or equivalent Allen screws

B Hex screws or equivalent Allen screws with flange nuts

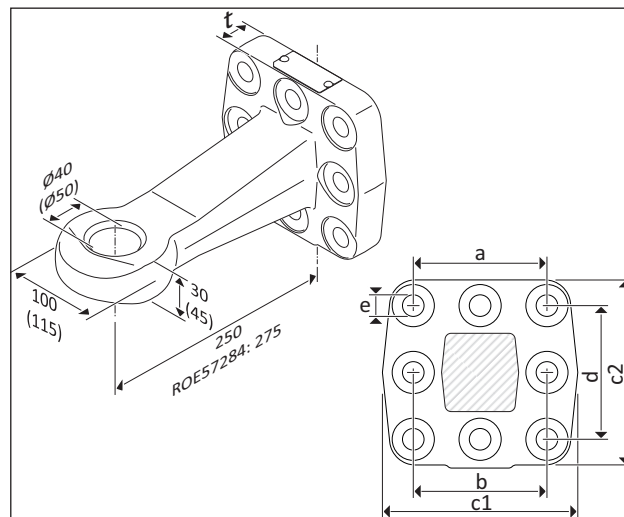
3. Technical Data

RO Drawbar eyes

RO Item no.	Type	Class	Ø (mm)	 D (kN)	 Dc (kN)	 S (kg)	 V (kN)	 (kg)	E1 55R-
ROE57260	201001	S	40	18	18	180	8	4.1	01 2545
ROE57262	201003	S	40	25	25	250	9	4.7	01 2544
ROE57264	RO*57264	S	40	70	50	500	14	5.9	01 2332
ROE57268	RO*57268	S	40	125	66	900	20	7.8	01 2333
ROE57270	RO*57270	S	40	125	74	1000	23	8.2	01 2334
ROE57374	RO*57374	S	40	125	42.4	250	12	5	01 2203
ROE57272	RO*57272	D50-X	50	190	90	1000	30	11.4	01 2335
ROE57427	RO*57272	D50-X	50	190	90	1000	30	11.4	02 2335
ROE57229	RO*57229	S	40 CH	168	66	900	20	8.7	01 2202
ROE57318	RO*57317	S	40	125	74	1000	23	11	01 2336
ROE57321	RO*57320	D50-X	50	190	90	1000	25	12.6	01 2337
ROE57431	RO*57320	D50-X	50	190	90	1000	25	12.6	02 2337
ROE57005	RO*57005	S	50	314	-	-	-	13.4	01 2146
ROE57384	RO*ZE57 V	S	57	200	90	1000	30	10	01 1659
ROE57425	RO*ZE57 V	S	57	225	90	1000	30	10	02 1659
ROE57243	RO*57243	S	40	130	100	1000	35.8	8.8	01 0046
ROE57349	RO*57243	S	40	130	100	1000	35.8	8.8	01 0046
ROE57244	RO*57244	D50-X	50	190	135	1000	72.5	9.5	01 0045
ROE57244	RO*57244	D50-X	50	190	113	2500	43.2	9.5	01 0045
ROE57423	RO*57244	D50-X	50	200	135	1000	72.5	9.5	02 0045
ROE57423	RO*57244	D50-X	50	200	113	2500	43.2	9.5	02 0045
ROE57284	RO*57284	S	50	250	135	1000	90	17.9	01 0162
ROE57284	RO*57284	S	50	250	113	3000	43.2	17.9	01 0162
ROE57284	RO*57284	S	50	250	162	1000	25	17.9	01 0162
ROE57370	RO*57-ZF	S	57	300	131	1000	82	18.7	01 1356
ROE57370	RO*57-ZF	S	57	300	130	2000	50	18.7	01 1356
ROE57370	RO*57-ZF	S	57	300	146.5	1000	65.5	18.7	01 1356

Flange drawbar eyes

RO Item no.	a [mm]	b [mm]	c1 [mm]	c2 [mm]	d [mm]	e [mm]	t [mm]
ROE57243	100	110	154	154	110	17.0	26.0
ROE57349	100	-	154	154	110	17.0	26.0
ROE57244	100	110	154	154	110	17.0	26.0
ROE57423	100	110	154	154	110	17.0	26.0
ROE57284	130	130	190	180	130	21.0	33.0
ROE57370	140	-	200	200	160	17.0	28.5



[14] Bracketed values = ROE57244, ROE57423, ROE57284

**NOTE**

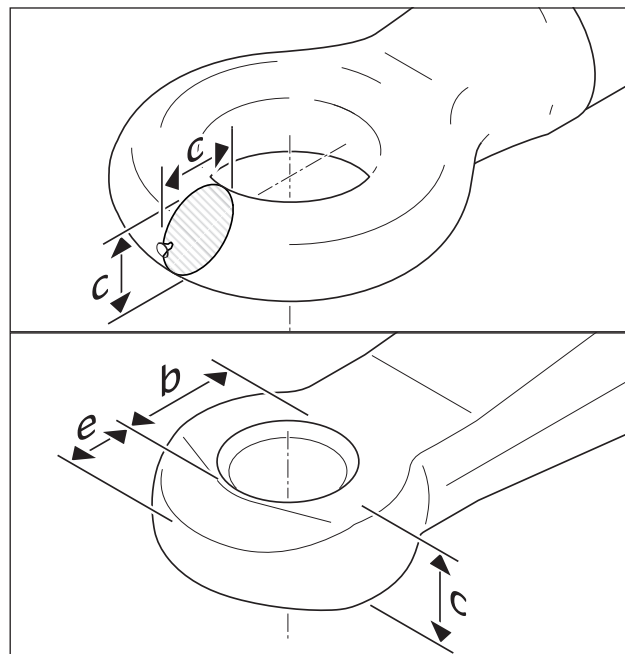
In order to ensure as long a service life as possible for the drawbar eye, lubricate the drawbar eye with high performance lubricant before using for the first time and after an extended period of use.

LUBRICANT

- High-performance lubricant Item no. SKE013440100

**ATTENTION: RISK OF ACCIDENTS!**

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.



[15] Drawbar eye wear limits

Bush diameter	Ø b ¹ max. [mm]	c min. [mm]	e ² min. [mm]	RO 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 bush² Size without bush

Drawbar eye diameter [mm]	c min. [mm]
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

Bushings Ø 40 and Ø 50

Slotted bushing Ø RO Item no.	Roller expander RO Item no.	Non-slotted bushing Ø RO Item no.	Installation mandrel RO Item no.
Ø 40 ROE53051	ROE57059	Ø 40 ROE53386	ROE57111
Ø 50 ROE53004	ROE57088	Ø 50 ROE53376	ROE57228

Oversize bushings 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

Oversize bushings Ø 50

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

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