



Montage- und Betriebsanleitung

DE

Installation and operation instructions

EN

Instructions de montage et d'utilisation

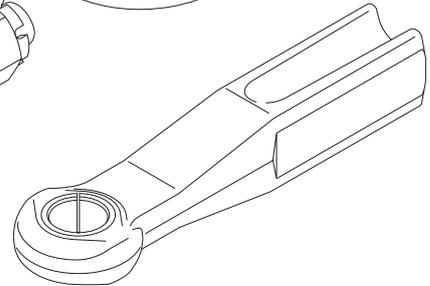
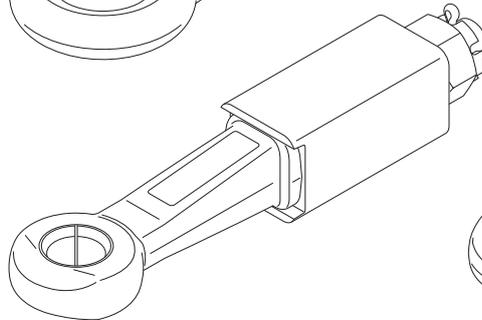
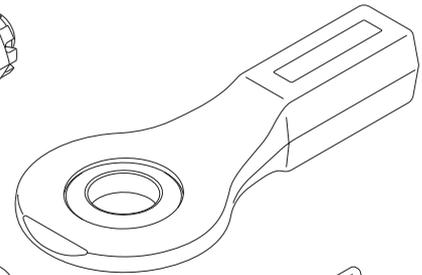
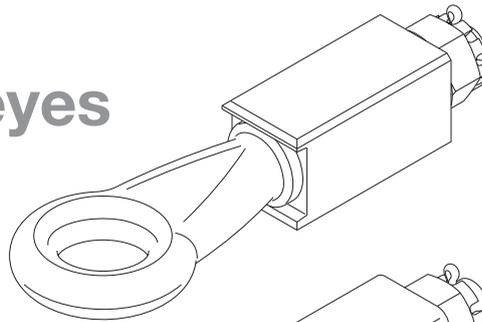
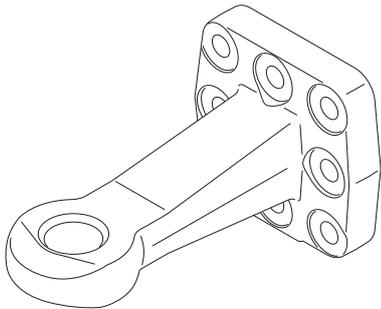
FR

Member of JOST-World

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

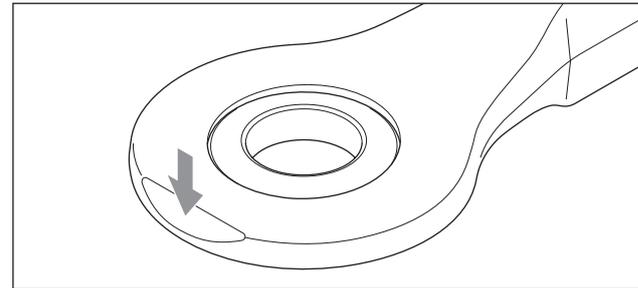
To ensure that the test does not cause damage, use procedures that can detect faults that are close to the surface and that reach the surface (e.g. dye penetrant test and magnetic particle test).

Rejected weld seams

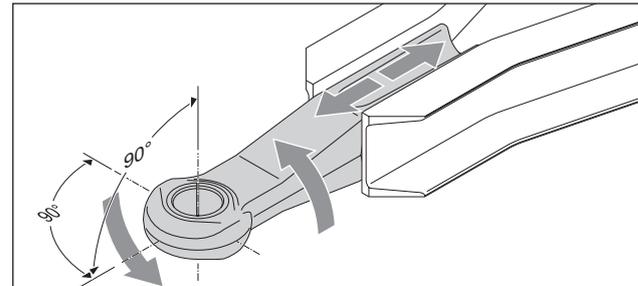
Weld seams that do not meet the quality requirements must be removed and replaced with fault-free weld seams. The type and scope of the rework must be defined together with the welding supervisor responsible (SAP per ISO 14731).

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“



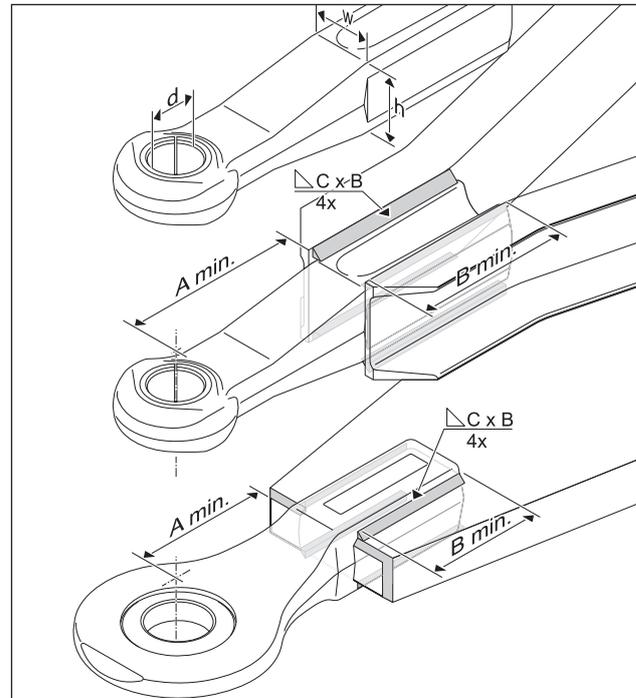
[1] Installation position (phase at top)



[2] Angled installation

Welding instructions

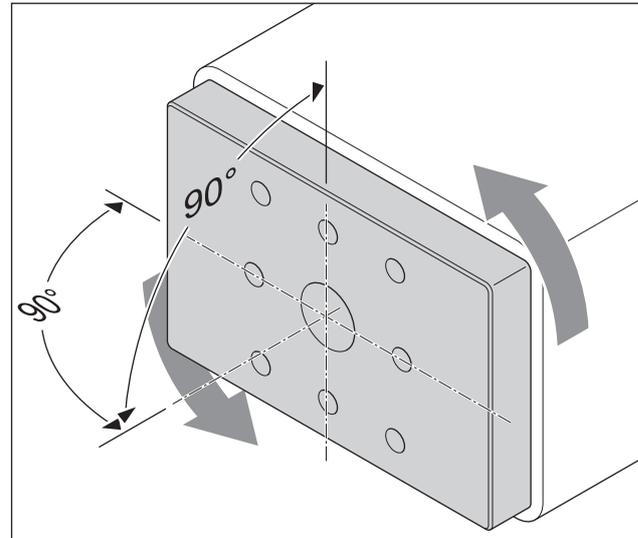
| RO Item no. | d [mm] | Shaft h x w [mm] | A min. [mm] | B min. [mm] | Min. weld seam thickness C [mm] |
|----------------|-----------|------------------------|----------------|----------------|--|
| ROE57065 | Ø 35 | 35 x 35 | 95 | 40 | a5 |
| ROE57260 | Ø 40 | 40 x 40 | 200 | 110 | a3 |
| ROE57262 | 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

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 |

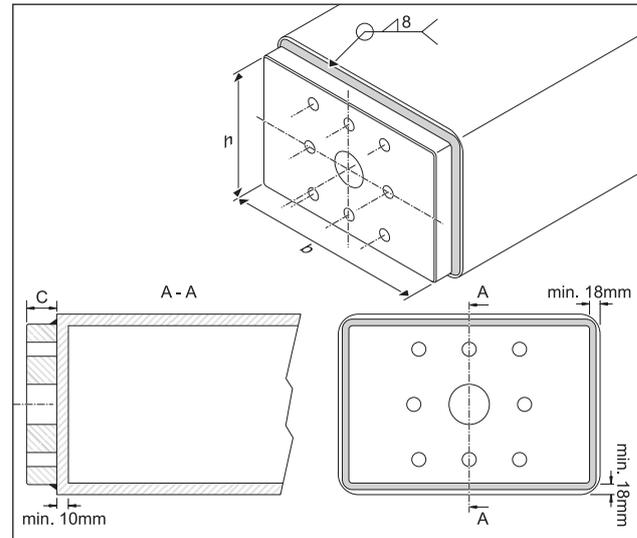
* welding plates including screw set



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.

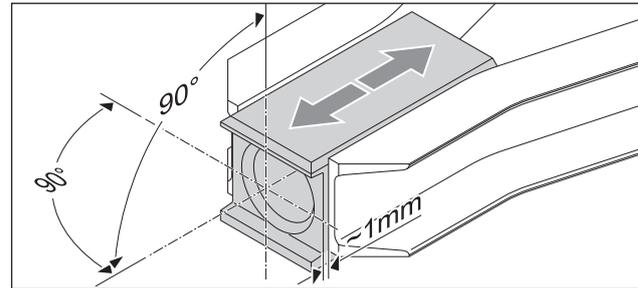
The counterface were you screw on the drawbar eye must not be painted and has to be free of grease.



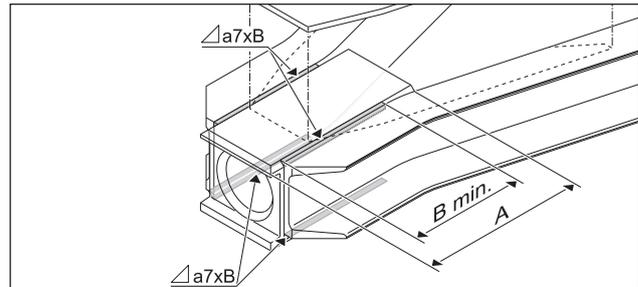
[6] Weld seam

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



[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 |

2.4. Flange drawbar eyes

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SUITABLE FOR

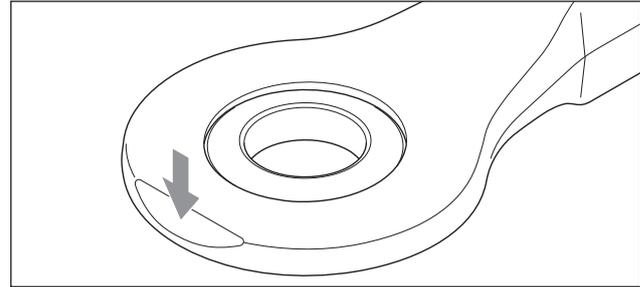
- for direct mounting on trailer frame elements
- for mounting on drawbars
- for use with towing hitch with a nominal pin diameter which refers to the drawbar eye diameter

- 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

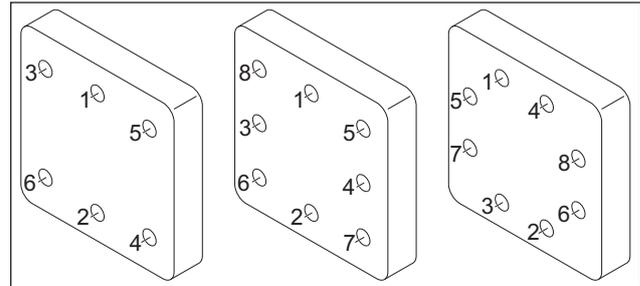
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NOTE

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 |

**NOTE**

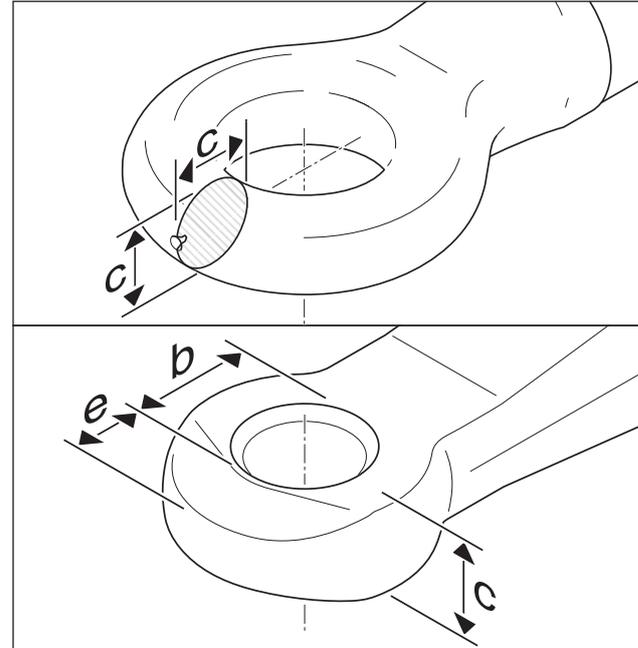
In order to ensure as long a service life as possible for the drawbar eye, lubricate the drawbar eye with high performance lubricant before using for the first time and after an extended period of use.

**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

4. Maintenance and wear limits

RO* Drawbar eyes

| Bush diameter | Ø b ¹ max. [mm] | c min. [mm] | e ² 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 |



ROCKINGER

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