

# Instruction and parts manual

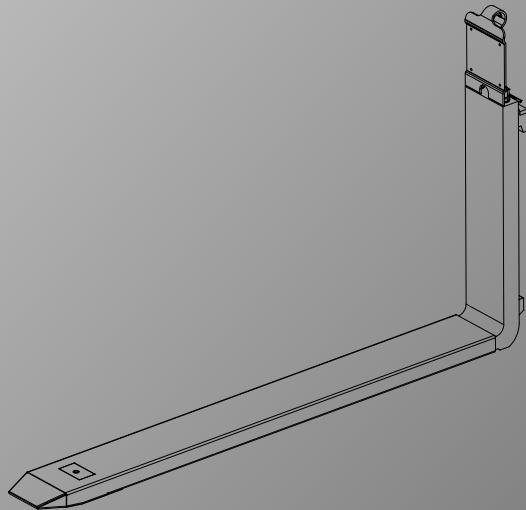


REE2-17, 24

RIE2-17, 19

REE4-17

IKEA



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# Definitions



## **Warning:**

Text blocks marked by a "Warning" icon (as shown on the left) and starting with the text "**Warning:**" provide information on actions which may result in serious injury.



## **Caution:**

Text blocks marked by a "Caution" icon (as shown on the left) and starting with the text "**Caution:**" provide information on actions which may result in damage to the KOOI®-REACHFORKS, parts of the KOOI®-REACHFORKS or goods.

*"Only applies to:"* texts (italics) indicate that a text only applies to a certain situation or certain type of KOOI®-REACHFORKS.

# Note

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KOOI®-REACHFORKS is a registered trademark of Meijer Handling Solutions. (Gebr. Meijer).

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# Quality Standards/Norms and Directives

Meijer Handling Solutions B.V. complies with the following quality standards: ISO 9001

KOOI®-REACHFORKS comply with the following norms/directives:

- ISO 13284 – Fork Arm Extensions and Telescopic Fork Arms;
- ISO 4406 – Hydraulic Fluid Power – Fluids – Method for Coding the Level of Contamination by Solid Particles
- ISO 2328 – Forklift Trucks – Hook-On Type Fork Arms and Fork Arm Carriages
- CE (2006/42/EC) – Machinery Directive
- ISO 3834-2 Quality Requirements for Fusion Welding of Metallic Materials - Part2: Compressive Quality Requirements
- CE (94/9/EC) – ATEX (only applies to forks with an ATEX name plate!)

KOOI®-REACHFORKS are randomly subjected to dynamic testing in accordance with ISO 2330.

# Safety

**Warning:**

The operator should be trained and familiarized with the local regulations for operating a forklift truck.

**Warning:**

Do not ride on the KOOI®-REACHFORKS or on the load.

**Warning:**

Do not walk or stand under the KOOI®-REACHFORKS.

**Warning:**

Do not reach through the mast of the forklift truck.

**Warning:**

Do not load the KOOI®-REACHFORKS beyond the limits of the lifting capacities and load centre stipulated by the manufacturer.

**Warning:**

Do not weld anything onto the KOOI®-REACHFORKS without the express permission of the supplier. Welding carried out without permission shall void any warranty.

**Warning:**

Do not use faulty KOOI®-REACHFORKS before they have been either professionally repaired or replaced.

**Warning:**

Do not carry out maintenance work on the KOOI®-REACHFORKS whilst there is pressure in the hydraulic system (remove key from forklift ignition switch).

**Warning:**

Do not place limbs between pallet stops and the inner fork (vertical section) of the KOOI®-REACHFORKS. If the load shifts, limbs can become trapped which can result in serious injury.

**Warning:**

Do not use the KOOI®-REACHFORKS in areas where the temperature is below -30°C (-22°F) unless otherwise agreed with the manufacturer.

**Warning:**

Do not extend or retract KOOI®-REACHFORKS of types 'REE' and 'RGE' with load. These types are extension forks only.

**Warning:**

Temperature differences can cause pressure to build up in a plugged hydraulic product, which can lead to the plug shooting out of the coupling if the swivel is being removed without releasing the pressure first. In the case of a plugged product, partially loosen the coupling swivels and give the plug a slight tap with a tool (i.e. wrench) until it is loose. At this time oil might flow out of the coupling, releasing any buildup pressure. Next, completely unscrew the swivels and plugs from the product.

**Caution:**

When leaving the forklift the engine must be switched off and the handbrake applied.

**Caution:**

Bear in mind the space above and beneath the KOOI®-REACHFORKS.

**Caution:**

The load must be distributed as evenly as possible on the KOOI®-REACHFORKS and may consist of one or multiple pallets.

**Caution:**

Retract the KOOI®-REACHFORKS as soon as possible.

**Caution:**

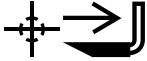
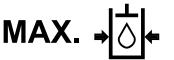
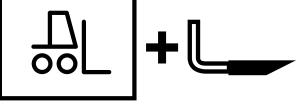
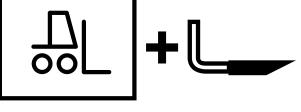
If possible, retract the KOOI®-REACHFORKS before driving.

**Caution:**

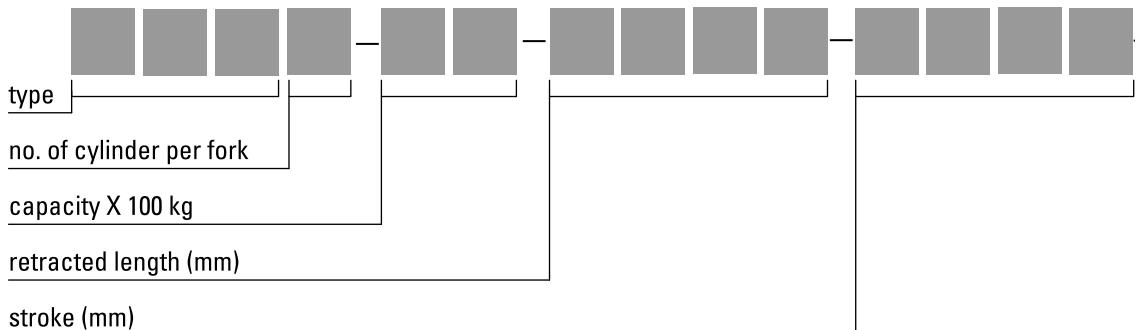
Always drive with the KOOI®-REACHFORKS in the lowest possible position.

# Identification

Type plate legend:

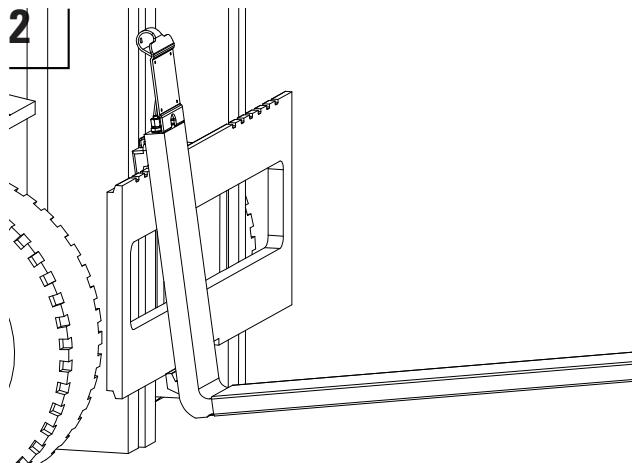
<b>REF</b>	Type description		Weight
<b>SN</b>	Serial number		Max. capacity on retracted load center
	Retracted center of gravity		Max. capacity on extended load center
	Extended center of gravity		Maximum allowed oil pressure
	At load center		Production year
	Lost Load Thickness		Extra information
 	 + 	<p><b>WARNING:</b> Never exceed the maximum truck capacity as seen on the truck type plate. Rated capacity of both truck and attachment is the responsibility of the original truck manufacturer and may be less than the capacity shown on the attachments type plate.</p>	

Mounting type description of KOOI®-REACHFORKS:

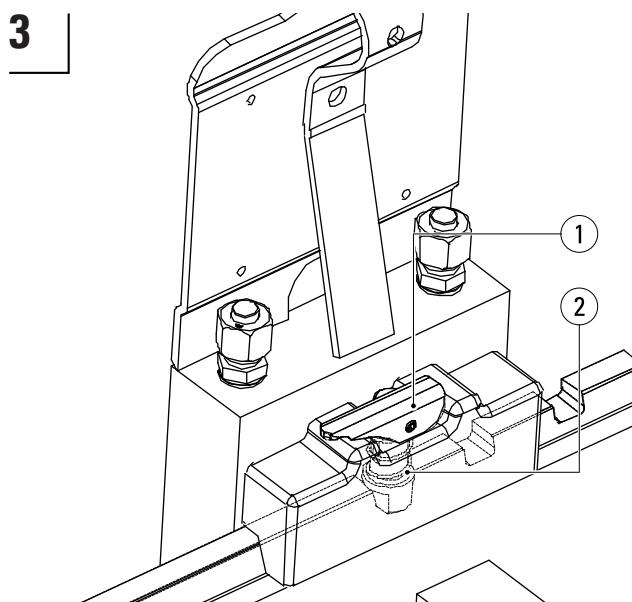


# Assembly

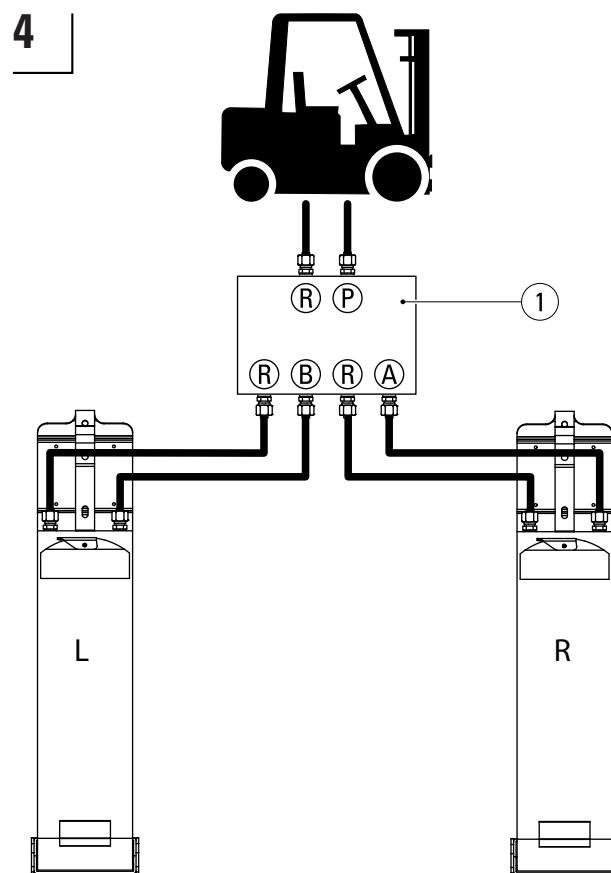
**1** The KOOI®-REACHFORKS type plates are stamped with an 'L' and an 'R'. Mount the KOOI®-REACHFORKS on the left (L) and right (R) as viewed from the forklift operator's seat.



Slide the KOOI®-REACHFORKS onto the carriage plate.



Make sure that each of the KOOI-REACHFORK® locking pins (2) drops into one of the notches on the carriage plate. Use catch (1) before operating.



Connect the KOOI®-REACHFORKS to the hydraulic system via the flow divider (1).

Type KOOI®-RE- ACHFORKS	Recom- mended oil flow	Recom- mended hose diameter	Maximum operating pressure	Connection
REE2	7,5-12,5 (L/ min)		250 bar (3626 psi)	8L / 7/16" JIC (USA) / 9/16" (USA)
RIE2	2-3,3 (gal/ min)	1/4"		

**5** Bleed the hydraulic system:

- Tilt the forklift truck mast forwards and backwards several times.
- Tilt the forklift mast forwards and slide the KOOI®-REACHFORKS in.
- Extend and retract the KOOI®-REACHFORKS several times.

Check that hydraulic hoses are unobstructed and that there are no oil leakages.

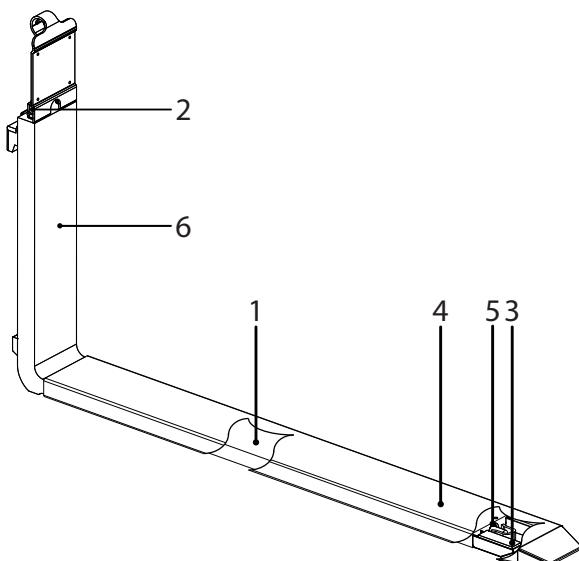
# Working with KOOI®-REACHFORKS

To minimise wear, avoid allowing the KOOI®-REACHFORKS to come in contact with the ground during operation . In order to reduce wear:

- The chains in the forklift mast can be shortened so that the KOOI®-REACHFORKS cannot reach the ground.
- The manufacturer can replace the wear-resistant plate under the sleeve when worn out.

## Maintenance Schedule

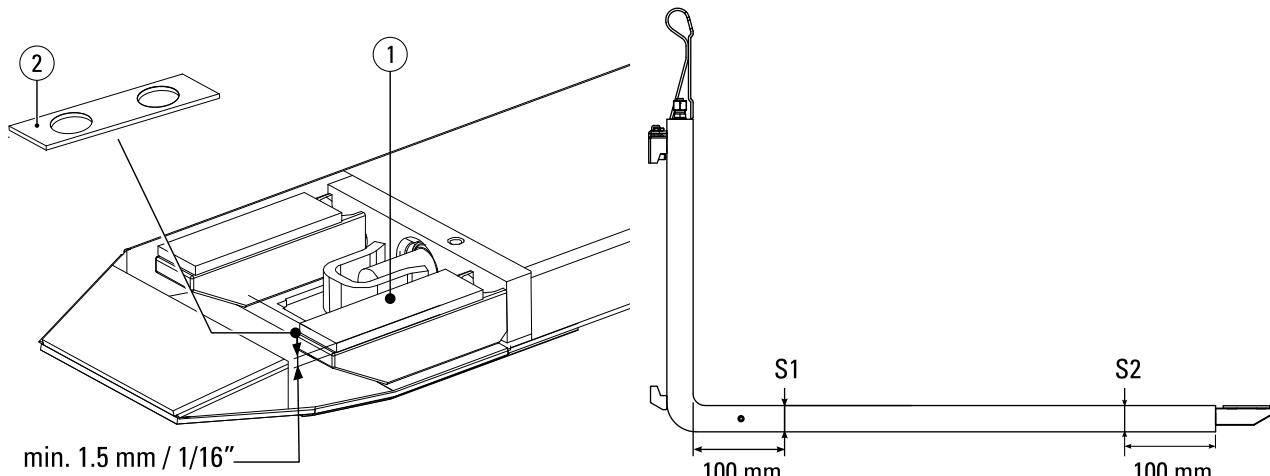
Nº	Description	Weekly	Monthly	6 months or every 1000 hours	Annually or every 2000 hours
1.	Grease the underside and topside of the inner fork				
2.	Check inner fork for leaks				
3.	Check wear strips for any sign of wear				
4.	Check for and remove any dirt in the sleeve				
5.	Check for any cylinder head leaks				
6.	Check inner forks in accordance with ISO 5057 standards				



### Notes on 'Maintenance Schedule'

- Recommended lubricating grease: Nova-tex EP2 (point 1).
- In the event of leakage, immediately remove the forks from the forklift and contact your supplier (point 2).
- If defects are detected, solve the problem / replace parts before proceeding to work with the KOOI®-REACHFORKS.
- See chapter on 'Instructions for Replacement of Sleeve' and 'Instructions for Replacement of Hydraulic Parts' for further explanation about replacing parts and required tools.

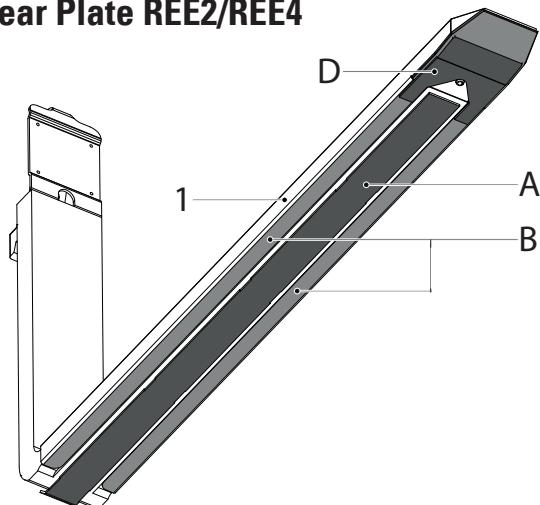
# Wear



The thickness of Wear Strips (1) may not be less than 1.5 mm (1/16"). When Wear Strips (1) have worn to this thickness, replace them or fill with spacers (2) (Art. N° RE0092002). See point 3 of the Maintenance Schedule.

The inner fork must be replaced when S1 is 5% thinner than S2. See point 7 of the Maintenance Schedule.

## Wear Plate REE2/REE4



When surface A (dark grey, welded on wear plate) is worn to the extent that it is level with or below surface B (light grey), then the welded on wear plate (A) needs to be replaced. Wear plate D (optional wear plate) needs to be replaced when it is has worn 3 mm or more. For more information about welded-on wear plates, please contact your fork supplier. See point 4 of the Maintenance Schedule.

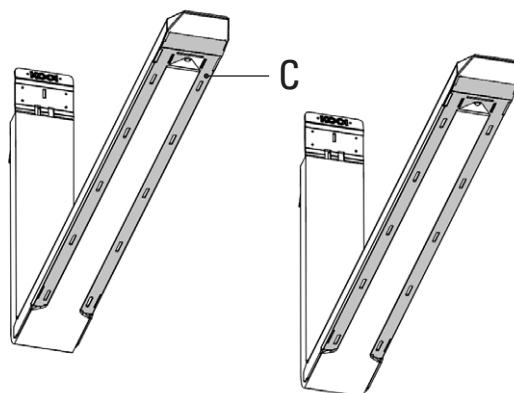


### Caution:

The sleeves must be removed from the KOOI®-REACHFORKS before welding work can proceed. Pistons, piston rods and cylinder heads must be removed before welding is carried out at the inner fork.

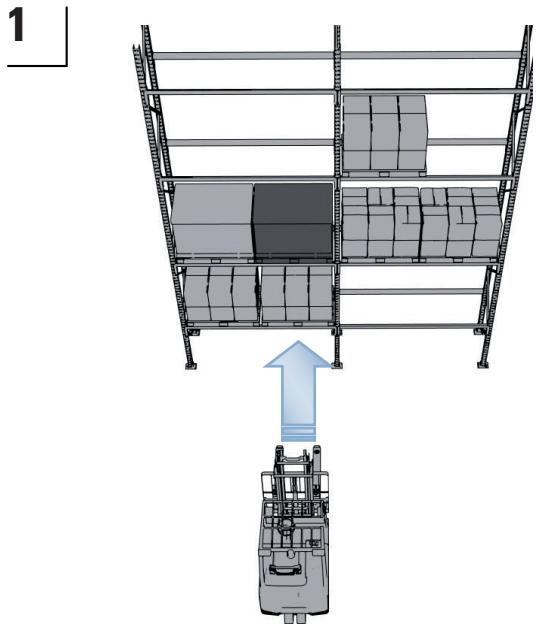
## Outer Sleeve RIE2

When surface C (light grey) has worn 3 mm or more, the sleeve needs to be replaced.

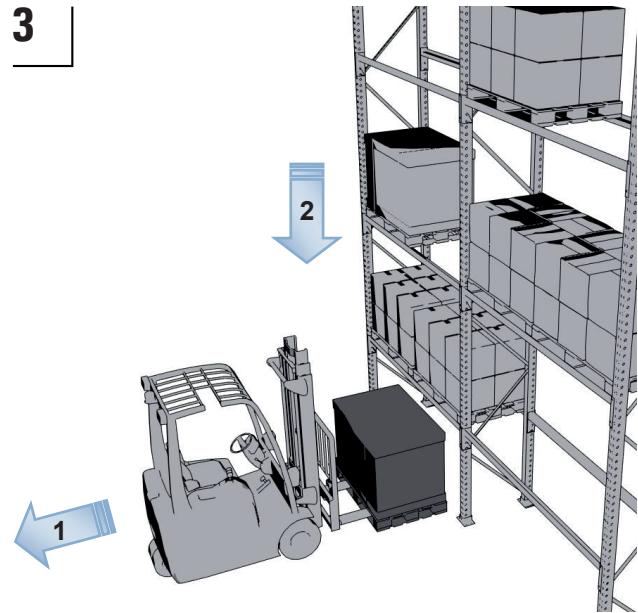


# Taking goods from the racking

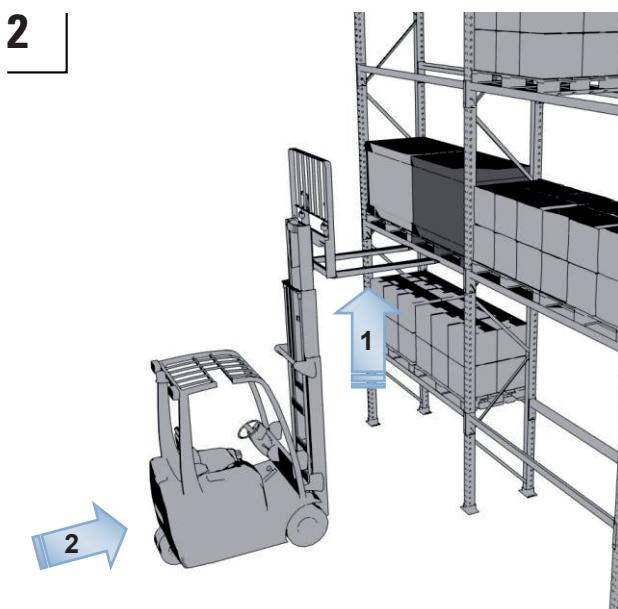
1. Position the lift truck straight in front of the racking



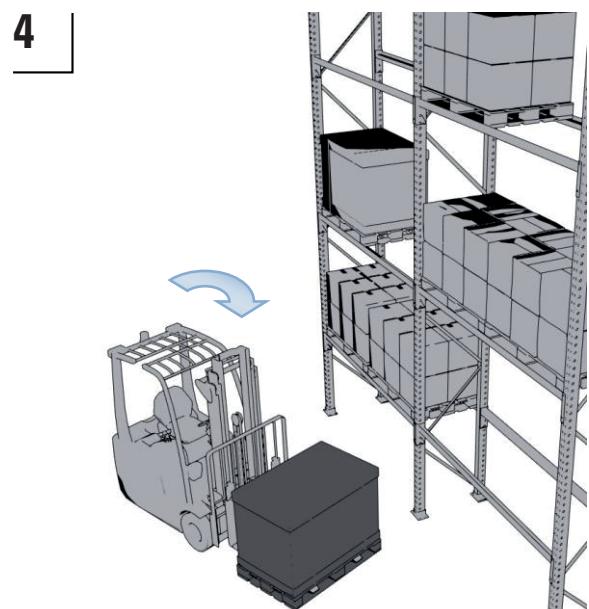
3. drive straight backwards and only then lower the goods in the lowest possible position.



2. Lift the forks to the right position to take out the goods.

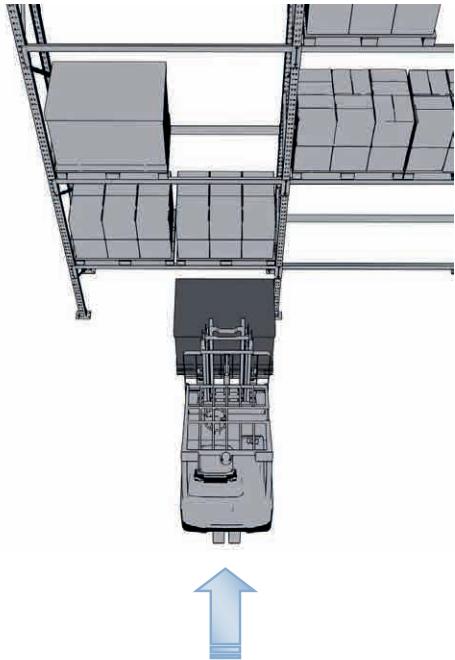


4. Then turn the lift truck into a new driving direction

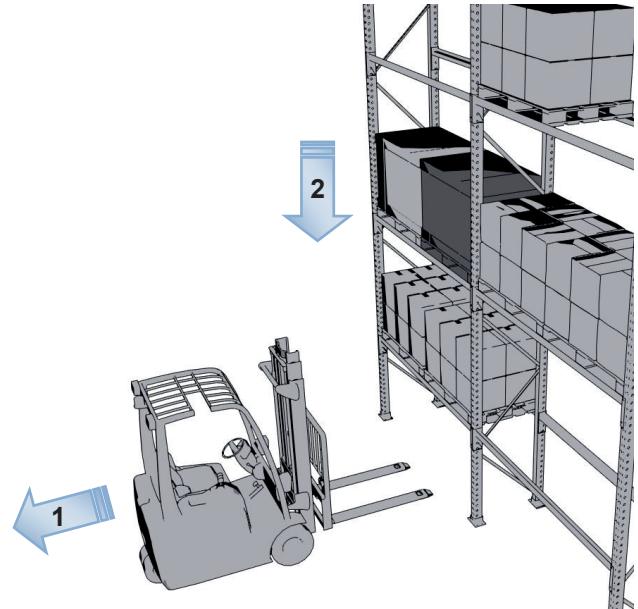


# Loading goods into the racking

1. Position the lift truck straight in front of the racking with the load still in the lowest position.

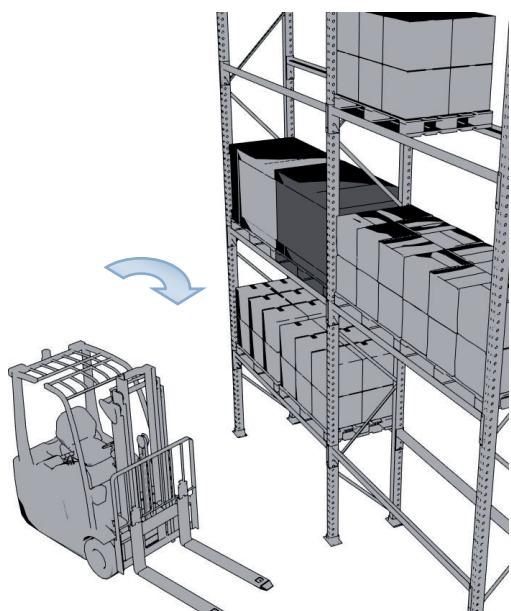


3. Drive straight backwards and only then lower the forks in the lowest possible position.



2. Lift the load and place the goods inside the racking.

4. Then turn the lift truck into a new driving direction



# Instructions for Replacement of Sleeve

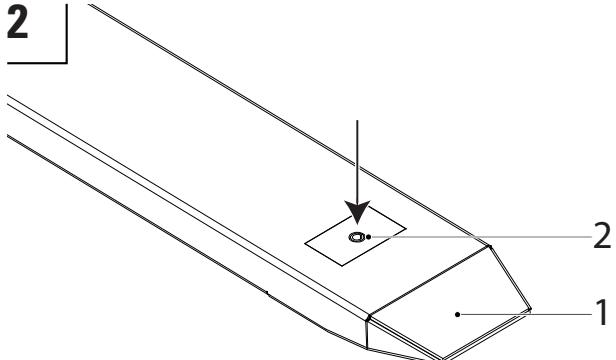
**1** Position the KOOI®-REACHFORKS at hip height, tilt the mast of the forklift slightly forward and remove the key from the ignition switch of the forklift.



**Warning:**

Do not carry out maintenance work on the KOOI®-REACHFORKS whilst there is pressure in the hydraulic system (remove key from forklift ignition switch).

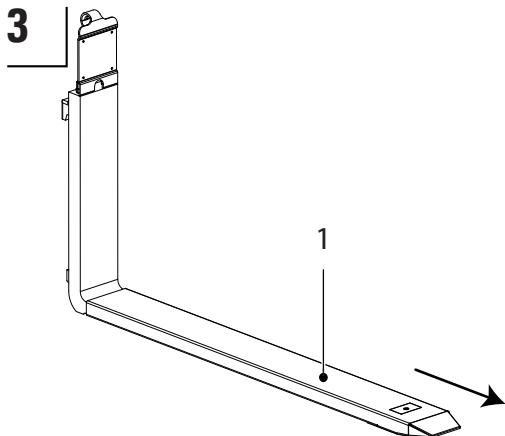
**2**



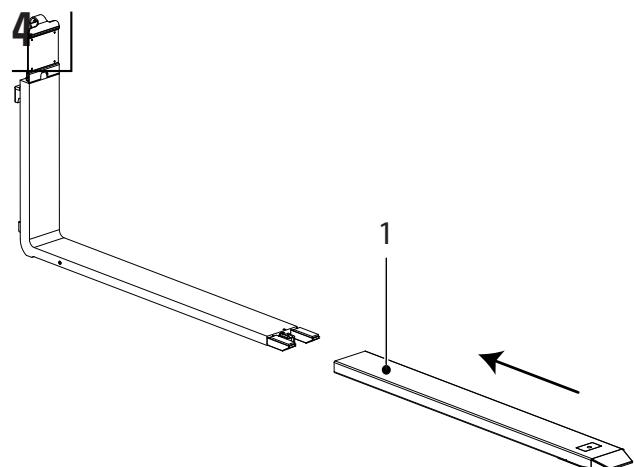
Tap the clamping bush (2) out of the sleeve (1).

**Tools required:** Hammer, punch Ø10

**3**

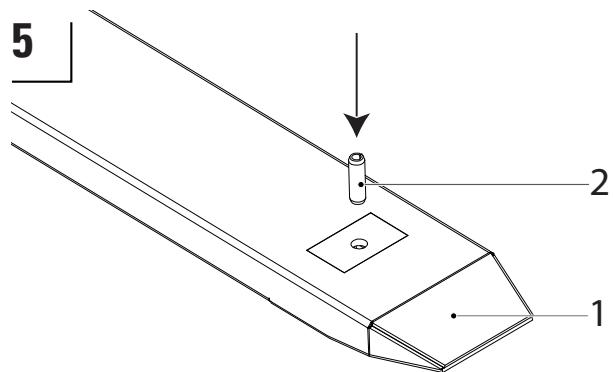


Pull the sleeve (1) off the fork.



Slide the (new) sleeve (1) over the fork.

**5**



Tap the clamping bush (2) into the (new) sleeve (1).



**Caution:**

Ensure that the holes in the sleeve (1) are aligned with the opening in the bracket(s) that are welded onto the piston rod(s). DO NOT tap the clamping bush onto the bracket or piston rod!

**Tools required:** Hammer.

# Replacement of Hydraulic Parts

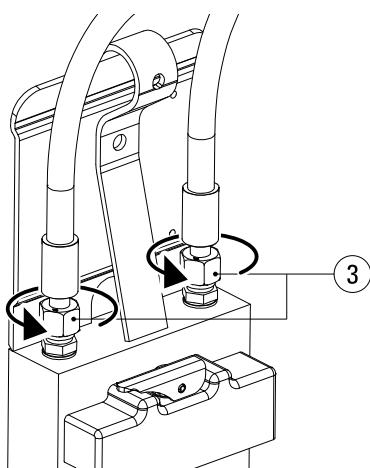
**1** Follow steps 1 to 3 in chapter on 'Instructions for Replacement of Sleeve'.



## Warning:

Do not carry out maintenance work on the KOOI®-REACHFORKS whilst there is pressure in the hydraulic system (remove key from forklift ignition switch).

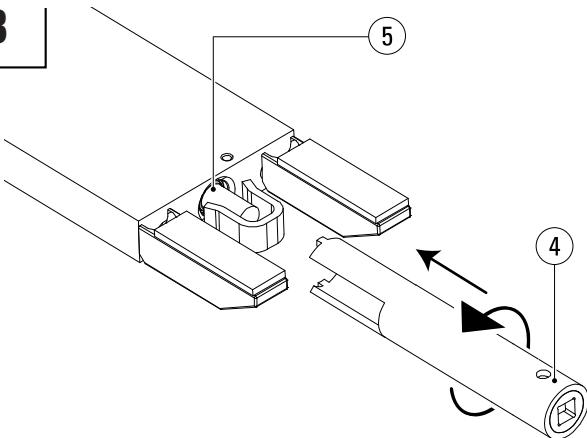
**2**



Loosen the hose connectors (3) slightly so that the pistons do not create a vacuum when removing the hydraulic parts.

**Tools required:** Open-ended spanner size 19.

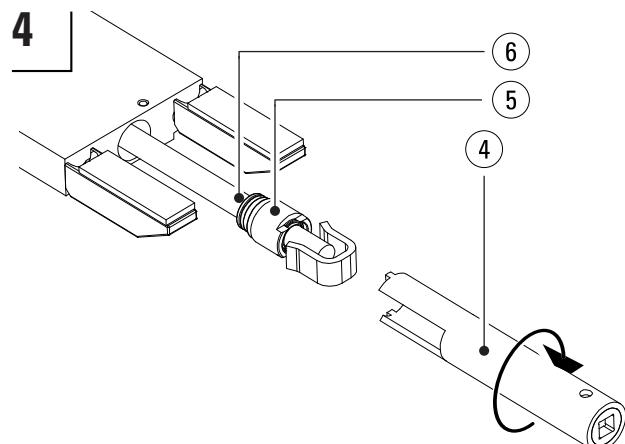
**3**



Place a drip tray below the fork. Unscrew the cylinder head(s) (5) using a cylinder head spanner (4) and a ratchet.

**Tools required:** Cylinder head spanner, 1/2" ratchet.

\*Cylinder head spanners are only available from Meijer Handling Solutions B.V. (Art. N° RE0058049).

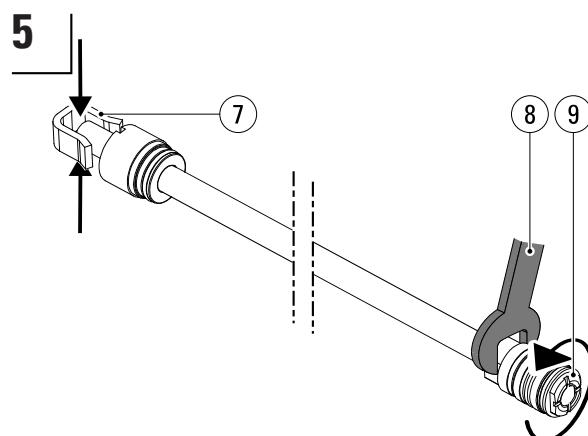


Pull the entire hydraulics set (6) consisting of the piston, cylinder head and piston rod out of the fork.



## Caution:

Take care with the surface of the piston rod. Minor damage to surface can cause leaks.



Clamp the piston rod at the rod end (7), not on the piston rod itself to prevent damage (see step 4 in this chapter). Use a size 19 (8) open-ended spanner to loosen the piston (9). If the piston cannot be loosened, heat the piston with a burner.

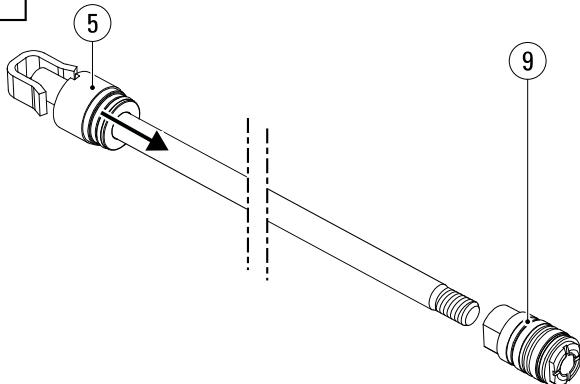
**Tools required:** Open-ended spanner size 19, clamp.

**Note:** When heating the piston with a burner, it must be replaced due to the damage to the seals caused by heating.

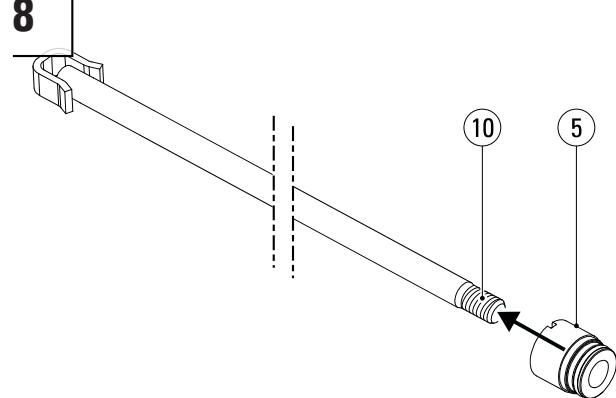


## Warning:

Do not use a burner in an area not equipped/intended for his purpose because of fire hazard.

**6**

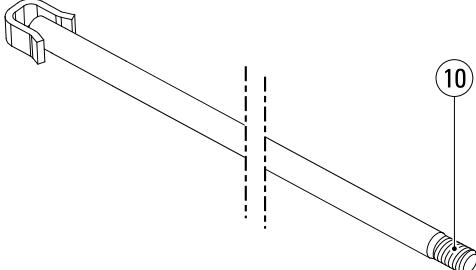
When piston (9) is removed, the cylinder head (5) can be removed, should it need to be replaced.

**8**

Slide the (new) cylinder head (5) onto the piston rod (10).

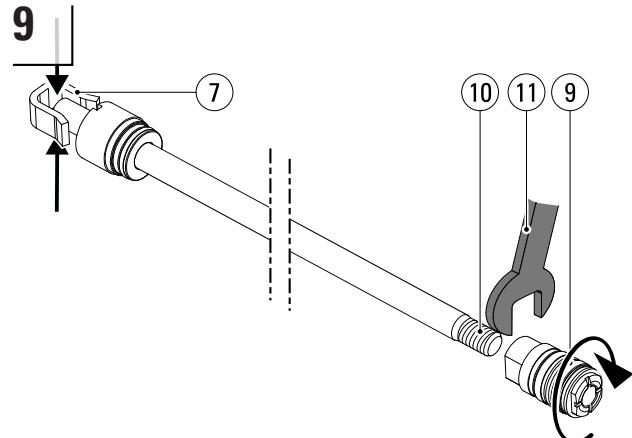
**Caution:**

Do not damage the cylinder head seals (5) during assembly as this can result in leakage. Pay particular attention when sliding the cylinder head (5) over the thread (10) of the piston rod.

**7**

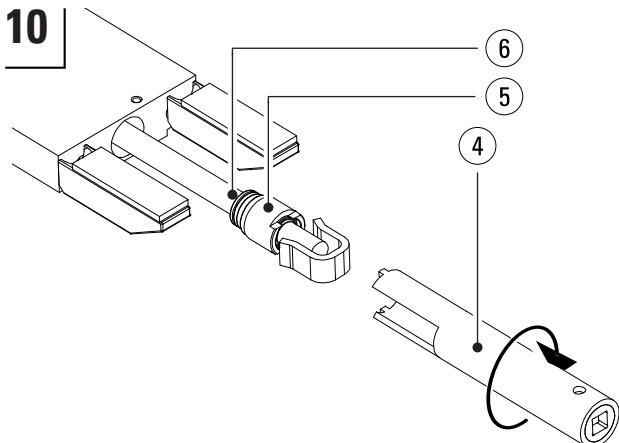
Remove remaining adhesive residue from the piston rod thread (10), then clean the piston rod and thread (10) using Loctite 7063<sup>1</sup>.

**Tools required:** Loctite 7063<sup>1</sup>.



Apply Loctite 270 to the thread (10) of the piston rod<sup>1</sup>. Clamp the piston rod at the rod end (7), not on the piston rod itself to prevent damage (see step 4 in this chapter). Clean the piston thread with Loctite 7063<sup>1</sup>. Use a torque wrench 19 (11) to tighten the piston (9) onto the piston rod (10) to a torque of 40 Nm.

**Tools required:** Loctite 270<sup>1</sup>, Loctite 7063<sup>1</sup>, torque wrench 19.



Smear Copaslip<sup>2</sup> onto the thread of the cylinder head (5). Line up the hydraulic set (6) with the cylinder and use a hammer to tap it carefully into the bore. Screw the cylinder head tight using the cylinder head spanner (4) and a torque wrench. See table below for torque value.

**Tools required:** Hammer, Copaslip<sup>2</sup>, cylinder head spanner\*, 1/2" ratchet.

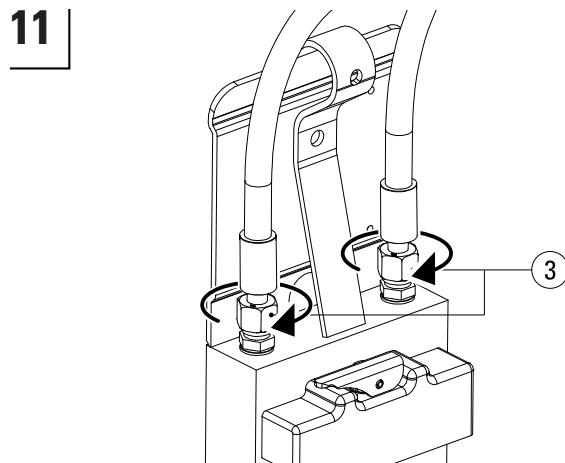
Cylinder diameter (mm)	Torque (Nm)
25	70

\*Cylinder head spanners are only available from Meijer Handling Solutions B.V. (Art. N° RE0058049).



**Caution:**

Do not damage the piston or cylinder head seals during assembly as this can result in leakage.



Screw the hose connectors (3) tight.

**Tools required:** Open-ended spanner 22.

**12** | Follow steps 4 to 5 in chapter on 'Instructions for Replacement of Sleeve'.

**13** | Finally, follow step 5 of the chapter on 'Assembly'.

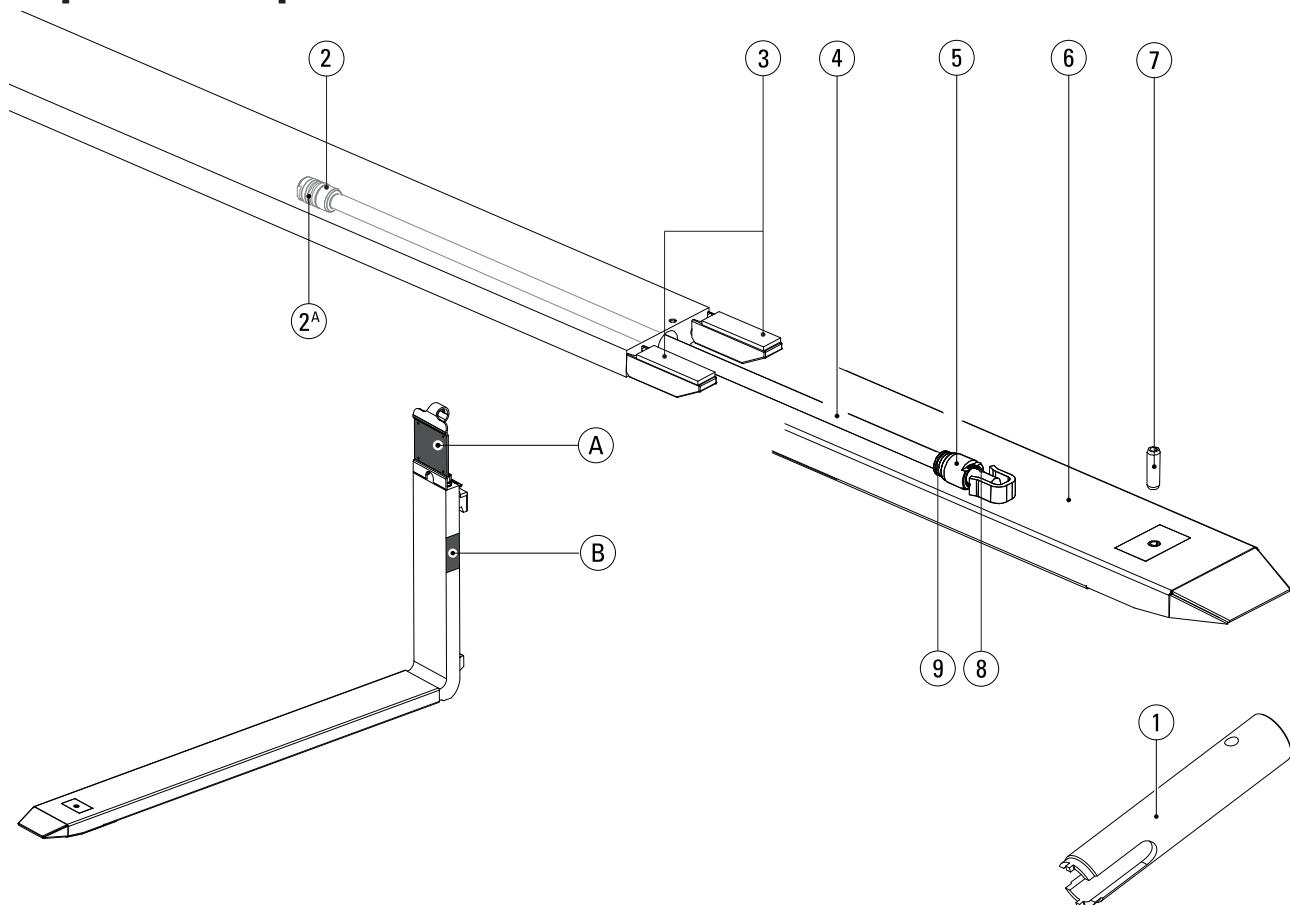
<sup>1</sup> See [www.loctite.com](http://www.loctite.com)

<sup>2</sup> See [www.kroon-oil.com](http://www.kroon-oil.com)

# Troubleshooting

Observation	Symptom	Possible Cause	Possible Solution
Oil leak	Oil leak between cylinder head and piston rod	Bent piston rod Scratched/damaged piston rod	Replace piston rod and cylinder head
		Leaking piston seal	Replace cylinder head
	Oil leak between cylinder head and fork blade.	Leaking O-Ring	Replace O-ring
	Oil leak at connector	Leaking copper ring Loose connector	Replace copper ring Tighten connector
Forks not moving in unison	Forks leaking oil	One or both KOOI®-REACHFORKS are cracked	Remove KOOI®-REACHFORKS from carriage immediately and contact supplier.
	Sleeves not moving in unison	A piston seal is leaking	Replace the piston with the leaking seal
	Left or right sleeve extends without operating lever being used.	Air in hydraulic system	Follow step 5 of the chapter on 'Assembly'
Difference in length between the sleeves	Stroke length difference	Piston rods are not same length.	Please contact your supplier.
		Loose piston	Dismantle outer fork, remove hydraulic set from fork and tighten piston (40 Nm)
		One of the KOOI®-REACHFORKS has been permanently deformed as a result of overloading.	Remove KOOI®-REACHFORKS from carriage immediately and contact supplier
Difference in height between forks	One fork point hangs lower than the other	One of the KOOI®-REACHFORKS is not hanging on the carriage plate	Hang the KOOI-REACHFORK® properly onto the carriage plate (check locking mechanism)
		Carriage plate is not completely horizontal	Please do contact your forklift truck supplier.
		The forks do not match (forks belong to different sets)	Check serial N°s.
		Wear strips on one KOOI-REACHFORK® are more worn than the other	Replace wear strips
Excessive play between fork blade and sleeve	Wear strips worn out		
		Sleeves worn out	Replace sleeves

# Replacement parts list REE2 / RIE2 / REE4



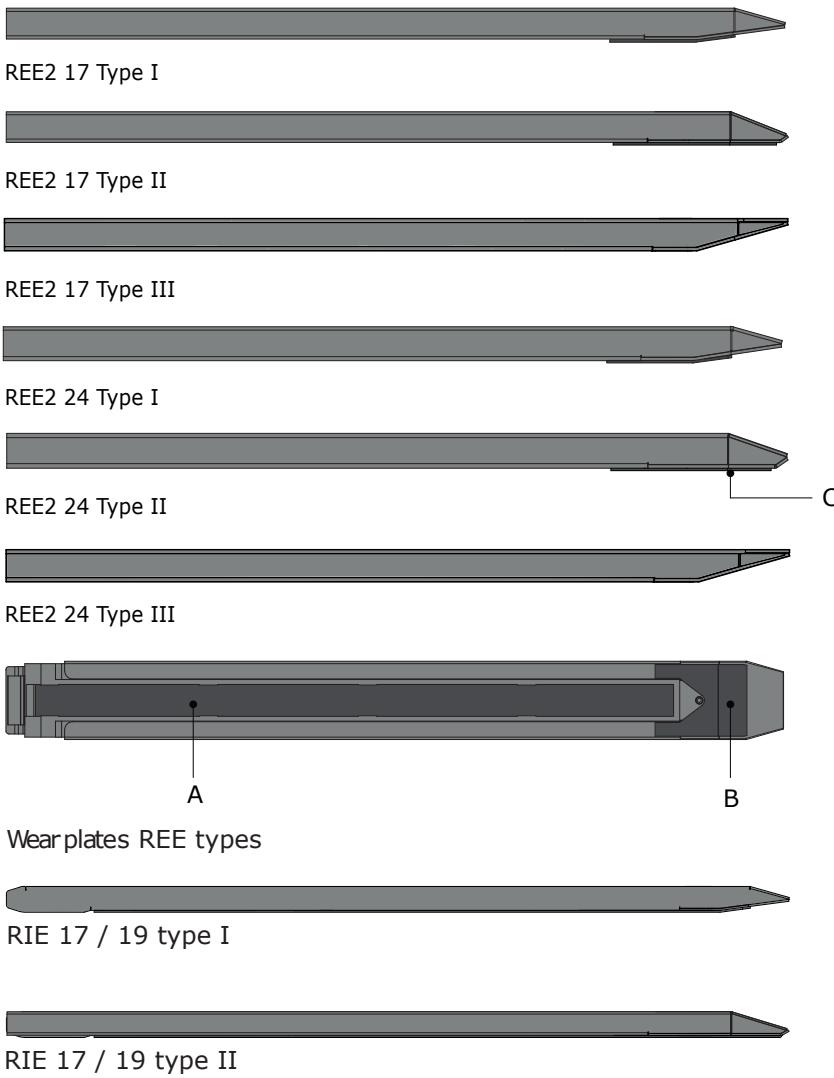
Pos. N°	Description	Article N°	Number of parts per set and type of forks			
			REE4-17	REE2-17	REE2-24	RIE2-17
1	Cylinder head spanner REE2	RE0058049	1 <sup>2</sup>	1 <sup>2</sup>	1 <sup>2</sup>	1 <sup>2</sup>
2	Piston with sealing RE Ø25 (for piston rod Ø16)	RE2008000	4	2	2	2
2 <sup>A</sup>	Piston seal RE Ø25 (for piston rod Ø16)	RE0015000	4	2	2	2
3	Wear strip plastic 80x25x4.5	RE0020000	4	4	4	4
4	Piston rod RE Ø16 stroke 800 mm <sup>1</sup>	RE20100000900	4	2	2	-
4a	Piston rod RE Ø16 stroke 700 mm <sup>1</sup>	RE20100000800	-	-	-	2
5	Cylinder head incl. seal Ø25 (for piston rod Ø16)	RE2009023	2	2	2	2
6	Sleeve	*	2	2	2	2
7	Clamping bush 12x40 mm	RE0033018	4	2	2	2
8	Wiper ring Ø16	RE0014000	4	2	2	2
9	O-ring 20x2.5 Ø25	RE0012000	4	2	2	2
	Flowdivider 6-12ltr (Metric)	RE0100044	1	1	1	1
	Flowdivider 6-12ltr (JIC)	RE0100045	1	1	1	1
A	Type plate					
B	Engraved type information and serial number					

\*For type of sleeve see chapter: replacements parts list sleeves REE2

<sup>1</sup> If fork length is unequal to 1200 and/or if the stroke is unequal to 800 (REE) or 700 (RIE) than attach the serial number in de spare part request.

<sup>2</sup> Available separately from KOOI®-REACHFORKS supplier, is **not** supplied as standard with KOOI®-REACHFORKS.

## Replacement parts list sleeves REE2 / RIE2 / REE4



Description	Article N°	Retracted fork length
REE 17 type I <sup>1</sup>	BV00029657	1200
REE 24 type I <sup>1</sup>	BV00037485	1200
REE 17 type II <sup>1</sup>	M00028013	1200
REE 24 type II <sup>1</sup>	M00008510	1200
REE 17 type III <sup>1</sup>	M00044122	1200
REE 24 type III <sup>1</sup>	10107303	1200
Wear plate A (REE) <sup>1</sup>	M00012315	1200
Wear plate B (REE)* <sup>1</sup>	M00014882	1200
Wear plate C (REE) ** <sup>1</sup>	M00028014	1200
RIE 17 / 19 type I *** <sup>1</sup>	M00030127	1200
RIE 17 / 19 type II *** <sup>1</sup>	10088397	1150

\*Wear plate only supplied with REE2-17 forks

\*\*Wear plate only supplied with type II forks

\*\*\*Only RIE: Outer sleeve contains integrated, external wear plate (underside) - when wear plate is worn down outer sleeve should be replaced. The base fork does not contain a separate wear plate.

<sup>1</sup> - If fork length is unequal to 1200 and/or if the stroke is unequal to 800 then attach the serial number in the spare part request.

# Production and safety standards

Meijer Handling Solutions B.V. requires its products to be of the highest quality and we can only guarantee this by complying with all applicable international standards and regulations such as:

## **ISO 9001**

Quality management systems - Requirements.

## **ISO 13284**

Fork-arm extensions and telescopic fork arms. Technical characteristics and strength requirements. (safety factor 3 at all times)

## **ISO 2328**

Hook-on type fork arms and fork carriages. Mounting dimensions.

## **ISO 4406**

Hydraulic Fluid Power – Fluids – Method for Coding the Level of Contamination by Solid Particles

## **ISO 3834-2**

Quality requirements for welding. Fusion welding of metallic materials.

## **CE**

European Machine Directive 2006/42/EC

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