

Manual and safety instructions GB

К90

Forward tipping box rotator



к90

CE





English

Table of contents

1.	то т	HE USER	2
	1.1	INTRODUCTION	2
	1.2	SAFETY PRECAUTIONS AND WARNINGS	3
	1.2.1	Safety precautions	
	1.2.2	Saftey stickers and warning signs	6
	1.2.3	Location of the safety stickers on the machine	6
	1.3	PURPOSE OF USE	7
	1.4	LIABILITY	8
	1.5	WARRANTY	8
2.	TECH	INICAL DATA	9
	2.1	GENERAL TECHNICAL DATA	9
	2.2	К90	10
	2.2.1	Parts list	
	2.2.2	Commissioning the K90 box rotator	13
	2.3	Provisions for connecting K90	15
	2.4	REPLACEMENT COMPONENTS	16
3.	MAI	NTENANCE AND TROUBLESHOOTING	18
	3.1	PREVENTIVE MAINTENANCE AND LUBRICATION	18
	3.2	TROUBLESHOOTING	18
	3.2.1	Adjustment of hydraulic limit switch	19
	3.2.2	The rotator starts rotating before the upper clamp has closed properly (only with sequence valve)	20
	3.2.3	The rotator rotates too slowly (only with sequence valve)	20



1. To the user

1.1 Introduction

The aim of this manual is to inform users about the commissioning, use and maintenance of their new WIFO forward tipping box rotator. Also included in this manual are a number of safety instructions to create a safe working environment.

At WIFO-Anema B.V. we aim to continuously improve our products. WIFO-Anema B.V. reserve the right to introduce any changes and improvements deemed necessary without prior notice.

Please read the manual thoroughly and observe the safety procedures before putting the unit into operation. Contact your dealer for any further questions or concerns you may have.

We trust that your WIFO forward tipping box rotator will provide many years of useful service.



ATTENTION: Carefully read this manual before you put the machine into operation and act upon all directions that are given. This is to guarantee its safe, trouble-free operation.

Keep this manual in a safe place for future reference!

WIFO-Anema B.V.

Dealer:



1.2 Safety precautions and warnings

Please read this manual before you put the machine into operation for the first time, and observe the safety instructions at all times. The most important instructions are marked with a symbol.



Any person in charge of the commencement of operation, the operation itself or the maintenance of the machine is urged to carefully read and observe the following instructions.

1.2.1 Safety precautions

The following safety instructions apply to all types of WIFO forward tipping box rotators. No distinction is made with regard to the type of lifting vehicle used.







Adjust the clamping frame and the top stop to take account of the height and depth of the boxes to be tipped.



Adjust the forklift forks to the right width so that they will not damage the box.



Raise the upper clamp using the clamping cylinder before picking up the box with the box rotator. Distribute the load as evenly as possible over the forks.



Keep the load as low as possible during transportation to maximise the stability of the lifting vehicle. Boxes must always be clamped during transportation.





Only solid boxes must be used for tipping operations.

The box rotator must only be operated from the driver's position in the vehicle. Ensure that there is adequate visibility of the work activities from this position

Make sure the hydraulic hoses and any power cables do not get jammed and that the box rotator is able to move freely.

Ensure that the operating levers for tipping and clamping cannot be confused with each other or with other controls, in order to prevent unintended operation. Only the rotating cylinder function remains in the event of a power cut while operating an electrically controlled valve.

The tipper must be placed in its lowest position when parking the lifting vehicle. Ensure that the clamp/vehicle combination cannot make any unintended movements while the vehicle is not in use. While the box rotator is being taken off and stored away, it is important to use the support legs. Always park the box rotator on a level and solid surface.



1.2.2 Saftey stickers and warning signs



A safe working environment also requires personnel to be well-informed about the various safety stickers on the machine. Be aware of the hazards they warn you to look out for.

Replace any loose, illegible or missing stickers.

Several safety stickers have been put onto the machine. The meaning of the stickers on this machine is as follows:



<u>N.B.:</u> Please read the instruction manual prior to any maintenance to the machine. Turn off the engine and remove the key from the ignition while maintenance is carried out on the machine!

2



<u>Danger:</u> Always keep at a safe distance from the machine!

1.2.3 Location of the safety stickers on the machine



Figure 1.2.1-Location of safety stickers for K90



1.3 Purpose of use

WIFO K90 forward tipping box rotators are suitable only for the transportation and forward tipping (180° max.) of boxes with or without a bottom deck, provided the total weight of the box and its load does not exceed 2500 kg.

The K90 comes with adjustable forklift forks as standard:

- K90-1600/1800/2000: FEM II 125x45-L1200 (2x)
- K90-2240: FEM II 125x45-L1100 (2x)
- K90-2400: FEM II 100x40-L1200 (4x)

A K90 is suitable of picking up boxes ranging in depth from 1000 mm to 1200 mm and 800 mm to 1250 mm in height.



ATTENTION:

The capacity of the forklift truck or lifting mast must exceed the total mass of the forward tipping box rotator, the box and its load. The forklift truck or lifting mast must be equipped with a double action hydraulic connection at the fork carrier, as a minimum. The format will depend on the width of the boxes to be tipped.

The K90 forward tipping box rotator is generally suitable for attaching to a FEM II or FEM III (K90-2400 FEM III or IV) fork carrier of a forklift truck or lifting mast. In addition the box rotator can be supplied ex works with a range of attachments for various telehandlers. When ordering, please specify what you intend to attach the box rotator to. If available they can be fitted in the factory and will be covered by the normal warranty terms.



ATTENTION:

WIFO-Anema B.V. can accept no liability for the construction and mounting of fitting equipment attached by users themselves.

The box rotator must in no circumstances be used for the carriage of persons!



1.4 Liability

Any person working with or on the machine must have read this manual. The machine is to be used for its intended purpose only. Included in the intended purpose are, among other things:

- 1. Work must be carried out in accordance with the directions and within the functional restrictions (e.g. maximum hydraulic working pressure) as outlined in the regulations. Use only sound and appropriate tools.
- 2. Electric/electronic equipment and accessories (e.g. cables) must be treated in accordance with the general accepted policy for using non-waterproof portable electric and electronic equipment, such as:
 - a) Storing and keeping in a clean, dry environment away from rodents and the like; and
 - b) Protecting the equipment against severe, uncushioned schocks and water (precipitation).
- 3. Use only original or compatible spare parts. Such parts must be assembled as directed (e.g. by observing the recommended tightening moments). Spare parts (as well as lubricants) are considered compatible only if explicitly approved by WIFO or in the event that the customer is able to prove they possess the required properties for the purpose(s) they are used.
- 4. Use only lubricants that meet the specifications as described in the directions.
- 5. Always observe the local regulations in terms of accident prevention, safety, traffic and transport.
- 6. Only trained personnel with knowledge of the possible hazards have permission to work with/on the machine.
- 7. WIFO-Anema B.V. will assume no liability in any shape or form for losses or damage caused following modifications to the machine, which have not been explicitly approved by WIFO.

Noncompliance with the rules and directions from this manual will be considered as serious negligence, for the consequences of which WIFO-Anema B.V. accepts no liability whatsoever. In such cases, the user will bear the full risk of his actions!

WIFO-Anema B.V. is continuously working on the improvement of its products. For that reason, WIFO-Anema B.V. reserves the right to introduce any changes and improvements deemed necessary without prior notice. However, it does not imply an obligation to make any such changes or improvements to machines bought by customers in the past!

1.5 Warranty

WIFO-Anema B.V. guarantees the soundness of its products in terms of materials used and/or structural defects. However, in any event this warranty is limited to the free-of-charge replacement or repairs of the defect product, or part thereof. WIFO-Anema B.V. assumes no liability for any loss or damage arising from faulty deliveries and/or the breakdown of purchased goods before the warranty period has expired. **The warranty period for this product is twelve months.**



2. Technical data

2.1 General technical data

Туре	К90-1600	К90-1800	К90-2000	K90-2240
Max. carrying capacity	2500 kg	2500 kg	2500 kg	2500 kg
Weight	945 kg	970 kg	995 kg	1020 kg
Working pressure	18 Mpa - 23 Mpa	18 Mpa - 23 Mpa	18 Mpa - 23 Mpa	18 Mpa - 23 Mpa
	(180 bar - 230 bar)	(180 bar - 230 bar)	(180 bar - 230 bar)	(180 bar - 230 bar)
Centre of gravity	530 mm	530 mm	530 mm	460 mm
Frontal extension length	460 mm	460 mm	460 mm	460 mm
Transport width	2020 mm	2220 mm	2420 mm	2660 mm
Tipping angle	180°	180°	180°	180°
Туре	K90-2400			
Max. carrying capacity	2500 kg			
Weight	1115 kg			
Working pressure	18 Mpa - 23 Mpa			
	(180 bar - 230 bar)			
Centre of gravity	530 mm			
Centre of gravity Frontal extension length	530 mm 460 mm			
Centre of gravity Frontal extension length Transport width	530 mm 460 mm 2820 mm			

 Table 2.1.1-K90 forward tipping box rotator

The K90-1600/1800/2000/2240 forward tipping box rotators are suitable for attachment to FEM II (407mm) and FEM III (508mm) fork carriers. The K90-2400 forward tipping box rotator is suitable for attachment to FEM III (508mm) and FEM IV (635mm) fork carrier.

Туре	Letter	Description	
К90	E	Electrically controlled switching valve	
	S	4-hose connection	
	V	Sequence valves	

Table 2.1.2-Description data on model plate

The box rotators are equipped with an hydraulic limit switch to prevent unintended opening of the upper clamp during tipping. The upper clamp can only be opened when the tipping frame is horizontal.



2.2 К90





Number	Description	Number	Description
1	Fixed frame K90-1600	43	Bolt M12x60 DIN 912
	Fixed frame K90-1800	44	Washer M12 DIN 125
	Fixed frame K90-2000	45	Nut M12 DIN 985
	Fixed frame K90-2240	46	Washer M12 DIN 125
	Fixed frame K90-2400	47	Bronze bearing Ø75x60,7-L80
2	Mounting block FEM 2/3	48	Hose clamp 15
	Mounting block FEM 3/4	49	Bolt M8x25 DIN 933
3	Spring lock washer M20 DIN 128	50	Locking plate Ø80x17-L10
4	Bolt M20x40 DIN 933	51	Roll pin 10x40 DIN EN ISO 8752
5	Support leg	52	Spring lock washer M16 DIN 128
6	Linch pin 11x45	53	Bolt M16x40 DIN 933
7	Locking strip plate FEM 2/3	54	Flat round hex screw M8x12 ISO 7380
	Locking strip plate FEM 3/4	55	Tipping frame K90-1600
8	Bolt M10x35 DIN 933		Tipping frame K90-1800
9	Spring lock washer M10 DIN 128		Tipping frame K90-2000
10	Bolt M16x50 DIN 933		Tipping frame K90-2240
11	Heico washer M16		Tipping frame K90-2400
12	Sequence valve 3/8"	56	Bolt M16x90 DIN 931
13	Bolt M6x50 DIN 931	57	Bolt M16x30 DIN 933
14	Nut M6 DIN 985	58	Spring lock washer M16 DIN 128
15	Sequence valve 1/2"	59	Clamp cylinder section 1 K90-1600 – 2240
16	Bolt M6x50 DIN 931		Clamp cylinder section 2 K90-2400
17	Balancing valve 3/8" DW		Clamp cylinder section 3 K90-2400
18	Bolt M8x45 DIN 931	60	Clamping cylinder DW50-30-330
19	Spring lock washer M8 DIN 128	61	Vibration isolator Ø100x43
20	Tipping arm right-side tipping frame	62	Hexagon lock nut M16 DIN 985
21	Tipping arm right-side tipping frame	63	Hexagon lock nut M16 DIN 985
22	Circlip external 40x1,75 DIN 471	64	Upper clamp cylinder pin Ø25-L154
23	Grease nipple M8 DIN 71412	65	Linch pin 11x45
24	Tipping stay, double 3 holes	66	Roll pin 10x40 DIN EN ISO 8752
25	Sinter bronze bearing Ø46x40-L40	67	Upper clamp pin Ø25-L195
26	Tipping stay, 2 holes	68	Linch pin 11x45
27	Bolt M8x30 DIN 933	69	Roll pin 10x40 DIN EN ISO 8752
28	Nut M8	70	Linch pin 11x45
29	Circlip external 40x1,75 DIN 471	71	Intermediate section top clamp K90-1600
30	Grease nipple M8 DIN 71412		Intermediate section top clamp K90-1800
31	Stay pin Ø40-L80 >2018		Intermediate section top clamp K90-2000
	Stay pin Ø40-L74 <2018		Intermediate section top clamp K90-2240
32	Hydraulic 3-way valve 3/8"		Intermediate section top clamp K90-2400
33	Bolt M6x55 DIN 931	72	Insert tube top stop
34	Spring lock washer M6 DIN 128	73	Top stop
35	Pin for end stop Ø16	74	Square tube circlip 12x75
36	Bolt M10x20 DIN 933	75	Bolt M12x35 DIN 933
37	Nut M10	76	Nut M12 DIN 934
38	Rotating cylinder DW 70-35-350	77	Clamping arm right boxdepth 1200mm
39	Rotating cylinder pin		Clamping arm right boxdepth 1100mm
40	Tipping arm right-side main frame	78	Clamping arm left boxdepth 1200mm
41	Tipping arm left-side main frame		Clamping arm left boxdepth 1100mm
42	Rubber buffer 200x52-L60	79	Bolt M16x60 DIN 931

Table 2.2.1-Parts list for K90 forward tipping box rotator



Number	Description	Number	Description
80	Locking nut M16 DIN 985		
81	Cross tube top clamp K90-1600		
	Cross tube top clamp K90-1800		
	Cross tube top clamp K90-2000		
	Cross tube top clamp K90-2240		
	Cross tube top clamp K90-2400		
82	Synthetic roller Ø100x71-L140		
83	Grub screw M8x12 DIN 916		
84	Synthetic roller locking ring Ø89x70.5-L15		
85	Threaddisc cross tube top clamp		
86	Countersunk headscrew M12x40 DIN7991		
87	Countersunk headscrew M16x50 DIN7991		
88	FEM 2 forklift fork 125x45x1200		
	FEM 2 forklift fork 100x40x1200		
89	Grease nipple M8 DIN 71412		



2.2.2 Commissioning the K90 box rotator

Different methods are used to fit the mounting blocks (2) and the locking strip plate (7), depending on the type of fork carrier used.

FEM II fork carrier

- 1. Unscrew the FEMII/III mounting block (2) bolts and remove the mounting blocks.
- 2. Reattach the mounting blocks using the bolts, so that the FEM II is underneath. Tighten the bolts securely (200Nm).
- 3. Unscrew the bolts from the locking strip plate (7) and put it in the lowest position with the FEM II cam pointing down.
- 4. Screw the bolts back into the locking plate strip.
- 5. Remove the forks from the forklift truck or forklift mast.
- 6. Make sure the fork carrier is straight and clean.
- 7. Place the forward tipping box rotator on the forklift truck or lifting mast fork carrier.
- 8. Make sure the locking strip plate slots into the recess in the centre of the fork carrier. If no recess is available:
 - a) Grind such a recess; or
 - b) Take the locking strip plate off the box rotator and attach a good locking cam at the spot where there is an existing recess in the fork carrier.
 In doing so, make sure the box rotator sits securely in the centre in front of the fork carrier, so it is unable to slide sideways.
- 9. Check to make sure the hydraulic hoses are clean before connecting them to the rapid-action couplings to prevent any debris from entering the hydraulics of the machine.
- 10. Depending on the model, the following hydraulic hoses are connected:

a) Electrically controlled switching valve

Connect the hydraulic supply/discharge hoses to the dual-action connection on the fork carrier.

Install the supplied switch so that the machine driver is able to operate it from his driving position and cannot confuse it with other controls.

For a safe working environment, avoid situations such as inadvertently starting the machine or not being able to control it.

Keep an eye on the correct voltage of the lifting device and the valve. The voltage is shown on the coil. Attach a twin core cable in accordance with the circuit diagram. Include a warning light, fuse and/or plug socket in the circuit if required.

b) Four-hose connection

Connect the two pairs of hydraulic supply/discharge hoses to the dual-action connection on the fork carrier.

c) Sequence valves

Connect one pair of hydraulic supply/discharge hoses to the dual-action connection on the fork carrier.



FEM III fork carrier

- 1. See FEM II fork carrier, however the mounting blocks must be fitted with the FEM III profile pointing downwards, and must be fitted in the highest position.
- 2. The locking strip plate also needs to be turned and mounted in the highest position, with the FEM III cam pointing down.

Adjusting the upper clamp

- 1. The K90 forward tipping box rotator is suitable for tipping boxes between 800 mm and 1250 mm in height. For maximum efficiency the top stop (73) must be setto the height of the box being used. This can be adjusted as follows:
 - Remove the tube locking pin from the top stop.
 - Adjust the top stop to the correct net box height +5 cm.
 - Secure the top stop with the tube locking pin.



Ensure that the hydraulic hoses and electrical cables can not become trapped during use.

The WIFO forward tipping box rotator is now ready for use.



2.3 Provisions for connecting K90

With four-hose connection

With electro/hydraulic valve



With sequence valves (2 pieces)



Number	Description	Note
1	4-hose connection	4-hose connection
2	Electro-hydraulic valve	Electrically operated model
3	Electro-hydraulic valve coil	-
4	Switch on forklift truck handle	-
5	Sequence valve	Sequence valves model

Table 2.3.1-Parts list for K90 connections



2.4 Replacement components

Type: K90

1 Fixed frame K90-1600 - 48 Hose clamp 15 - 49 Bolt MSx25 DIN 933 - 50 Fixed frame K90-2000 - 61 Locking pite Q8017-110 - 7 Fixed frame K90-2400 - 7 Mounting block FEM 2/3 - 8 Bolt M20x40 DIN 128 - 5 Syring lock washer M30 DIN 128 - 5 Support leg - 6 Locking strip pite FEM 2/3 - 7 Locking strip pite FEM 3/4 - 8 Bolt M10x30 DIN 933 - 9 Spring lock washer M10 DIN 128 - 10 Bolt M16x50 DIN 933 - 11 Heico washer M16 - 12 Sequence valve 3/8" 420063 13 Bolt M5x50 DIN 931 - 14 Heico washer M8 DIN 128 - 15 Sequence valve 3/8" 420063 16 Bolt M5x50 DIN 931 - <td< th=""><th>Nr.</th><th>Onderdeel:</th><th>Artikelnr.:</th><th>Nr.</th><th>Onderdeel:</th><th>Artikelnr.:</th></td<>	Nr.	Onderdeel:	Artikelnr.:	Nr.	Onderdeel:	Artikelnr.:
Fixed frame K90-1800 - Fixed frame K90-2000 - Mounting block FEM 2/3 - Mounting block FEM 3/4 - Syping lock washer M20 DIN 128 - Support leg - G Licking strip plate FEM 2/3 - Locking strip plate FEM 3/4 - Soping lock washer M10 DIN 128 - Soping lock washer M16 - Clamp cylinder section 1 K90-1600 - 2240 - Soping lock washer M16 DIN 128	1	Fixed frame K90-1600	-	48	Hose clamp 15	-
Fixed frame K90-2000 . Fixed frame K90-2400 . Fixed frame K90-2400 . Spring lock FEM 2/3 . Mounting block FEM 3/4 . Spring lock washer M20 DIN 128 . Suppring lock washer M20 DIN 128 . Bolt M20x40 DIN 933 . Locking strip plate FEM 3/4 . Spring lock washer M10 DIN 128 . Sequence valve 3/8" 429063		Fixed frame K90-1800	-	49	Bolt M8x25 DIN 933	-
Fixed frame K90-2200 - Fixed frame K90-2200 - Fixed frame K90-2400 - Mounting block FEM 2/3 - Spring lock washer M20 DIN 128 - Spring lock washer M20 DIN 128 - Support leg - Guiding strip plate FEM 2/3 - Locking strip plate FEM 2/3 - Locking strip plate FEM 2/3 - Locking strip plate FEM 3/4 - Spring lock washer M10 DIN 128 - Spring lock washer M10 DIN 128 - Spring lock washer M10 DIN 128 - Sequence valve 3/8" 429063 Solt M16x50 DIN 931 - Sequence valve 3/8" 429063 Solt M16x50 DIN 931 - Clamp cylinder section 1 K90-1600 - 2240 - Sequence valve 3/8" 429063 Bolt M16x50 DIN 931 - Sequence valve 3/8" 429081 Bolt M16x50 DIN 931 - Sequence valve 1/2" 429081 Sequence valve 1/2" - Sequence valve 1/		Fixed frame K90-2000	-	50	Locking plate Ø80x17-L10	-
Fixed frame K90-2400 - 2 Mounting block FEM 2/3 - 3 Spring lock washer M20 IN 128 - 4 Bolt M20x40 DIN 933 - 5 Support leg - 6 Linch pin 11x45 - 7 Locking strip plate FEM 2/3 - 7 Locking strip plate FEM 3/4 - 7 Locking strip plate FEM 3/4 - 8 Bolt M16x50 DIN 933 - 9 Spring lock washer M10 DIN 128 - 10 Bolt M16x50 DIN 933 - 12 Sequence valve 3/8" 429063 13 Bolt M6x50 DIN 931 - 14 Not M6x50 DIN 931 - 15 Sequence valve 3/8" 429063 16 Bolt M6x50 DIN 931 - 17 Balancing valve 3/8" DW 429059 16 Bolt M6x50 DIN 931 - 17 Balancing valve 3/8" DW 429081 18 Bolt M6x50 DIN 933 - <td< td=""><td></td><td>Fixed frame K90-2240</td><td>-</td><td>51</td><td>Roll pin 10x40 DIN EN ISO 8752</td><td>-</td></td<>		Fixed frame K90-2240	-	51	Roll pin 10x40 DIN EN ISO 8752	-
2 Mounting block FEM 2/3 - 3 Spring lock washer M20 DIN 128 - 4 Bolt M20x40 DIN 933 - 5 Support leg - 6 Linch pin 11x45 - 7 Locking strip plate FEM 2/3 - 7 Locking strip plate FEM 3/4 - 8 Bolt M10x35 DIN 933 - 9 Spring lock washer M10 DIN 128 - 10 Bolt M6x50 DIN 933 - 11 Heico washer M16 - 12 Sequence valve 3/8" 429063 13 Bolt M6x50 DIN 931 - 14 Nut M6 DIN 985 - 15 Sequence valve 3/8" 429099 16 D61 M6x50 DIN 931 - 17 Balancing valwe 3/8" DW 429084 18 D61 M6x50 DIN 931 - 17 Balancing valwe 3/8" DW 4290815 18 D61 M6x50 DIN 931 - 17 Balancing valwe 3/8" DIN 71412 - <		Fixed frame K90-2400	-	52	Spring lock washer M16 DIN 128	-
Mounting block FEM 3/4 - 3 Spring lock washer M20 DIN 128 - 4 Bolt M20Ad0 DIN 933 - 5 Support leg - 6 Linch pin 11x45 - 7 Locking strip plate FEM 2/3 - 8 Bolt M10x35 DIN 933 - 9 Spring lock washer M10 DIN 128 - 10 Bolt M16x50 DIN 933 - 11 Heico washer M16 - 12 Sequence valve 3/8" 429063 13 Bolt M16x50 DIN 931 - 14 Nut M6 DIN 985 - 15 Sequence valve 3/8" 429063 16 Bolt M8x45 DIN 931 - 17 Balancing valve 3/8" DW 429058 16 Bolt M8x45 DIN 931 - 17 Balancing offactig tupping frame 4290816 18 Bolt M8x45 DIN 931 - 17 Balancing yalve 3/8" DW 4290816 19 Spring lock washer M8 DIN 1242 - <tr< td=""><td>2</td><td>Mounting block FEM 2/3</td><td>-</td><td>53</td><td>Bolt M16x40 DIN 933</td><td>-</td></tr<>	2	Mounting block FEM 2/3	-	53	Bolt M16x40 DIN 933	-
3 Spring lock washer M20 DIN 128 - 4 Bolt M20x40 DIN 933 - 5 Support leg - 6 Linch pin 11x45 - 7 Locking strip plate FEM 2/3 - 1 - Tipping frame K90-2240 - 7 Locking strip plate FEM 3/4 - - 8 Bolt M10x35 DIN 933 - - 9 Spring lock washer M10 DIN 128 - 10 Bolt M16x50 DIN 933 - - 11 Heico washer M10 DIN 128 - - 12 Sequence valve 3/8" 429063 - 13 Bolt M6x50 DIN 931 - - 14 Nut M6 DIN 985 - - 15 Sequence valve 3/8" DW 429094 61 Vibration isolator Ø100x43 429034 15 Sequence valve 3/8" DW 4290816 - - - 16 Bolt M6x50 DIN 931 - - - - - -		Mounting block FEM 3/4	-	54	Flat round hex screw M8x12 ISO 7380	-
4 Bolt M20x40 DIN 933 - 5 Support leg - 6 Linch pin 11x45 - 7 Locking strip plate FEM 3/4 - 8 Bolt M10x35 DIN 933 - 9 Spring lock washer M10 DIN 128 - 10 Bolt M16x50 DIN 933 - 11 Heico washer M16 - 12 Sequence valve 3/8" 429063 13 Bolt M6x50 DIN 931 - 14 Nut M6 DIN 985 - 15 Sequence valve 3/8" OW 429093 16 Bolt M6x50 DIN 931 - 17 Balancing valve 3/8" OW 429058 18 Bolt M6x40 DIN 985 - 16 Bolt M6x40 DIN 985 - 17 Balancing valve 3/8" OW 429058 18 Bolt M6x40 DIN 931 - 19 Spring lock washer M8 DIN 128 - 10 Tipping arm right-side tipping frame 4290815 12 Grease nipple MS DIN 7412 -	3	Spring lock washer M20 DIN 128	-	55	Tipping frame K90-1600	-
Support leg 6 Linch pin 11x45 7 Locking strip plate FEM 2/3 8 Bolt M10x35 DIN 933 9 Spring lock washer M10 DIN 128 10 Bolt M16x50 DIN 933 11 Heico washer M16 DIN 128 12 Sequence valve 3/8" 429063 13 Bolt M6x50 DIN 931 14 Nut M6 DIN 985 15 Sequence valve 3/8" 429093 16 Bolt M6x50 DIN 931 17 Balancing valve 3/8" DW 429093 18 Bolt M6x50 DIN 931 19 Spring lock washer M8 DIN 128 20 Tipping arm right-side tipping frame 4290816 21 Tipping stay, double 3 holes 4290815 22 Scripting stay, double 3 holes 4290812 23 Grease nipple M8 DIN 71412 24 Tipping stay, double 3 holes 4290812 25 Sint	4	Bolt M20x40 DIN 933	-		Tipping frame K90-1800	-
6 Linch pin 11x45	5	Support leg	-		Tipping frame K90-2000	-
7 Locking strip plate FEM 3/4 - 8 Bolt M10x35 DIN 933 - 9 Spring lock washer M10 DIN 128 - 10 Bolt M16x50 DIN 933 - 11 Heico washer M16 - 12 Sequence valve 3/8" 429063 13 Bolt M6x50 DIN 931 - 14 Nut M6 DIN 985 - 15 Sequence valve 3/8" 429093 16 Bolt M6x50 DIN 931 - 15 Sequence valve 3/8" 429034 16 Bolt M6x50 DIN 931 - 17 Balancing valve 3/8" DW 429038 18 Bolt M6x45 DIN 931 - 17 Balancing valve 3/8" DW 4290826 18 Bolt M8x45 DIN 931 - 17 Balancing valve 3/8" DW 4290826 18 Diot M8x45 DIN 71412 - 17 Grease nipple M8 DIN 71412 - 18 Diot M8x30 DIN 933 - 22 Circlip external 40x1,75 DIN 471 <td< td=""><td>6</td><td>Linch pin 11x45</td><td>-</td><td></td><td>Tipping frame K90-2240</td><td>-</td></td<>	6	Linch pin 11x45	-		Tipping frame K90-2240	-
Locking strip plate FEM 3/4 - 8 Bolt M10x35 DIN 933 - 9 Spring lock washer M10 DIN 128 - 10 Bolt M16x50 DIN 933 - 11 Heico washer M16 - 12 Sequence valve 3/8" 429033 13 Bolt M6x50 DIN 931 - 14 Nut M6 DIN 985 - 15 Sequence valve 3/8" 429034 16 Bolt M6x50 DIN 931 - 17 Balancing valve 3/8" DW 4290358 18 Bolt M8x45 DIN 931 - 19 Spring lock washer M8 DIN 128 - 20 Tipping arm right-side tipping frame 4290815 21 Tipping arm right-side tipping frame 4290815 22 Circlip external 40x1,75 DIN 471 - 23 Grease nipple M8 DIN 71412 - 24 Tipping stay, choles 4290814 25 Sinter bronze bearing Ø46x40-L40 429015 26 Tipping stay, choles 4290814 27	7	Locking strip plate FEM 2/3	-		Tipping frame K90-2400	-
8 Bolt M10x35 DIN 933 - 9 Spring lock washer M10 DIN 128 - 9 Spring lock washer M10 DIN 128 - 10 Bolt M16x50 DIN 933 - 11 Heico washer M16 - 12 Sequence valve 3/8" 429063 13 Bolt M6x50 DIN 931 - 14 Nut M6 DIN 985 - 15 Sequence valve 1/2" 429099 16 Bolt M6x50 DIN 931 - 17 Balancing valve 3/8" DW 429038 18 Bolt M8x45 DIN 931 - 19 Spring lock washer M8 DIN 128 - 20 Tipping arm right-side tipping frame 4290816 21 Tipping stary, double 3 holes 4290812 22 Circlip external 40x1,75 DIN 471 - 23 Greasen inpple M8 DIN 7142 - 24 Tipping stary, double 3 holes 4290812 25 Sinter bronze bearing Ø46x40-L40 4290155 26 Tipping stary, a holes 4290813		Locking strip plate FEM 3/4	-	56	Bolt M16x90 DIN 931	-
9 Spring lock washer M10 DIN 128 - 10 Bolt M16x50 DIN 933 - 11 Heico washer M16 - 12 Sequence valve 3/8" 429063 13 Bolt M6x50 DIN 931 - 14 Nut M6 DIN 985 - 15 Sequence valve 1/2" 429063 16 Bolt M6x50 DIN 931 - 17 Balancing valve 3/8" DW 429058 18 Bolt M6x50 DIN 931 - 19 Spring lock washer M8 DIN 128 - 19 Spring lock washer M8 DIN 128 - 20 Tipping arm right-side tipping frame 4290816 21 Tipping arm right-side tipping frame 4290816 22 Circlip external 40x1,75 DIN 471 - 23 Grease nipple M8 DIN 71412 - 24 Tipping stay, double 3 holes 4290812 25 Sinter bronze bearing Ø46x40-L40 4290195 26 Tipping stay, 2 holes 4290813 27 Tipping stay, 2 holes 4290813	8	Bolt M10x35 DIN 933	-	57	Bolt M16x30 DIN 933	-
10 Bolt M16x50 DIN 933 - 59 Clamp cylinder section 1 K90-1600 - 2240 - 11 Heico washer M16 - Clamp cylinder section 2 K90-2400 - 12 Sequence valve 3/8" 429063 Clamp cylinder section 2 K90-2400 - 13 Bolt M6x50 DIN 931 - 60 Clamp cylinder section 3 K90-2400 - 14 Nut M6 DIN 985 - 60 Clamp cylinder section 1 K90-100x43 429034 15 Sequence valve 1/2" 429099 61 Vibration isolator Ø100x43 429034 16 Bolt M6x50 DIN 931 - 63 Hexagon lock nut M16 DIN 985 - 17 Balancing valve 3/8" DW 429058 64 Upper clamp cylinder pin Ø25-1154 4290829 18 Bolt M8x45 DIN 931 - 66 Roll pin 10x40 DIN EN ISO 8752 - 20 Tipping arm right-side tipping frame 4290812 - 69 Roll pin 10x40 DIN EN ISO 8752 - 21 Tipping stay, double 3 holes 4290814 - - 71 Interme	9	Spring lock washer M10 DIN 128	-	58	Spring lock washer M16 DIN 128	-
11 Heico washer M16 - Clamp cylinder section 2 K90-2400 - 12 Sequence valve 3/8" 429033 Clamp cylinder section 3 K90-2400 - 13 Bolt M6x50 DIN 931 - Clamp cylinder section 3 K90-2400 - 14 Nut M6 DIN 985 - Clamp cylinder section 3 K90-2400 429034 15 Sequence valve 1/2" 429099 61 Vibration isolator Ø100x43 429034 15 Sequence valve 3/8" DW 429058 62 Hexagon lock nut M16 DIN 985 - 17 Balancing valve 3/8" DW 429058 64 Upper clamp cylinder pix Ø25-1154 4290829 18 Bolt M8x45 DIN 931 - 65 Linch pin 11x45 - 20 Tipping arm right-side tipping frame 4290816 68 Linch pin 11x45 - 21 Tipping stay, double 3 holes 4290812 - 1 - 23 Grease nipple M8 DIN 71412 - - 70 Linch pin 11x45 - 24 Tipping stay, 2 holes 4290813 <td>10</td> <td>Bolt M16x50 DIN 933</td> <td>-</td> <td>59</td> <td>Clamp cylinder section 1 K90-1600 – 2240</td> <td>-</td>	10	Bolt M16x50 DIN 933	-	59	Clamp cylinder section 1 K90-1600 – 2240	-
12 Sequence valve 3/8" 429063 Clamp cylinder section 3 (\$90-2400 - 13 Bolt M6x50 DIN 931 - 60 Clamp ing cylinder DW50-30-330 429039 14 Nut M6 DIN 985 - 60 Clamp cylinder section 3 (\$90-2400 - 15 Sequence valve 1/2" 429099 61 Vibration isolator Ø100x43 429034 16 Bolt M6x50 DIN 931 - 63 Hexagon lock nut M16 DIN 985 - 17 Balancing valve 3/8" DW 429058 - 63 Hexagon lock nut M16 DIN 985 - 19 Spring lock washer M8 DIN 128 - 66 Roll pin 10x40 DIN EN ISO 8752 - 20 Tipping arm right-side tipping frame 4290815 68 Linch pin 11x45 - 21 Tipping stay, double 3 holes 4290812 - - 69 Roll pin 10x40 DIN EN ISO 8752 - - 23 Grease nipple M8 DIN 71412 - - - 70 Linch pin 11x45 - - 24 Tipping stay, 2 holes 4290813 - - 71 Intermediate section top clamp K90-16	11	Heico washer M16	-		Clamp cylinder section 2 K90-2400	-
13 Bolt M&S0 DIN 931 - 14 Nut M6 DIN 985 - 15 Sequence valve 1/2" 429039 16 Bolt M&S0 DIN 931 - 17 Balancing valve 3/8" DW 429058 18 Bolt M&S45 DIN 931 - 19 Spring lock washer M8 DIN 128 - 20 Tipping arm right-side tipping frame 4290816 21 Tipping arm right-side tipping frame 4290815 22 Circlip external 40x1,75 DIN 471 - 23 Grease nipple M8 DIN 71412 - 24 Tipping stay, 2 holes 4290811 25 Sinter bronze bearing Ø46x40-L40 429015 26 Tipping stay, 2 holes 4290811 27 Bolt M&S30 DIN 933 - 28 Nut M8 - 29 Circlip external 40x1,75 DIN 471 - 30 Grease nipple M8 DIN 71412 - 31 Stay pin Ø40-L50 > 2018 4290813 32 Hydraulic 3-way valve 3/8" 4290813	12	Sequence valve 3/8"	429063		Clamp cylinder section 3 K90-2400	-
14 Nut MG DIN 985 - 15 Sequence valve 1/2" 429034 16 Bolt M6x50 DIN 931 - 17 Balancing valve 3/8" DW 429058 18 Bolt M8x45 DIN 931 - 19 Spring lock washer M8 DIN 128 - 20 Tipping arm right-side tipping frame 4290816 21 Tipping arm right-side tipping frame 4290816 22 Circlip external 40x1/5 DIN 471 - 23 Grease nipple M8 DIN 71412 - 24 Tipping stay, double 3 holes 4290812 25 Sinter bronze bearing Ø46x40-L40 4290195 26 Tipping stay, 2 holes 4290811 27 Bolt M8x30 DIN 933 - 28 Nut M8 - 29 Circlip external 40x1/75 DIN 471 - 30 Grease nipple M8 DIN 71412 - 31 Stay pin Ø40-L80 > 2018 4290813 32 Hydraulic 3-way valve 3/8" 429051 33 Bolt M6x55 DIN 931 - 34 Spring lock washer M6 DIN 128 -	13	Bolt M6x50 DIN 931	-	60	Clamping cylinder DW50-30-330	429039
15 Sequence valve 1/2" 429099 62 Hexagon lock nut M16 DIN 985 - 16 Bolt M6x50 DIN 931 - 63 Hexagon lock nut M16 DIN 985 - 17 Balancing valve 3/8" DW 4290816 64 Upper clamp cylinder pin Ø25-L154 4290829 18 Bolt M8x45 DIN 931 - 66 Roll pin 10x40 DIN EN ISO 8752 - 20 Tipping arm right-side tipping frame 4290815 68 Linch pin 11x45 - 21 Tipping arm right-side tipping frame 4290815 68 Linch pin 11x45 - 22 Circlip external 40x1,75 DIN 471 - 69 Roll pin 10x40 DIN EN ISO 8752 - 23 Grease nipple M8 DIN 71412 - 69 Roll pin 10x40 DIN EN ISO 8752 - 24 Tipping stay, 2 holes 4290812 71 Intermediate section top clamp K90-1600 4290832 25 Sinter bronze bearing Ø46x40-L40 42909150 Intermediate section top clamp K90-2000 4290832 26 Circlip external 40x1,75 DIN 471 - - 73 Top stop - 31 Stay pin Ø40-L74 - 2018 </td <td>14</td> <td>Nut M6 DIN 985</td> <td>-</td> <td>61</td> <td>Vibration isolator Ø100x43</td> <td>429034</td>	14	Nut M6 DIN 985	-	61	Vibration isolator Ø100x43	429034
16 Bolt M6x50 DIN 931 - 63 Hexagon lock nut M16 DIN 985 - 17 Balancing valve 3/8" DW 4290819 64 Upper clamp cylinder pin Ø25-L154 4290829 18 Bolt M6x45 DIN 931 - 65 Linch pin 11x45 - 20 Tipping arm right-side tipping frame 4290816 66 Roll pin 10x40 DIN EN ISO 8752 - 21 Tipping arm right-side tipping frame 4290815 68 Linch pin 11x45 - 22 Circlip external 40x1,75 DIN 471 - 69 Roll pin 10x40 DIN EN ISO 8752 - 23 Grease nipple M8 DIN 71412 - 69 Roll pin 10x40 DIN EN ISO 8752 - 24 Tipping stay, double 3 holes 4290812 - 70 Linch pin 11x45 - 25 Sinter bronze bearing Ø46x40-L40 4290195 Intermediate section top clamp K90-1600 4290833 26 Circlip external 40x1,75 DIN 471 - - 73 Intermediate section top clamp K90-2400 4290836 29 Circlip external 40x1,75 DIN 471 -<	15	Sequence valve 1/2"	429099	62	Hexagon lock nut M16 DIN 985	-
17 Balancing valve 3/8" DW 429058 64 Upper clamp cylinder pin Ø25-L154 4290829 18 Bolt M8x45 DIN 931 - 65 Linch pin 11x45 - 19 Spring lock washer M8 DIN 128 - 66 Roll pin 10x40 DIN EN ISO 8752 - 20 Tipping arm right-side tipping frame 4290816 67 Upper clamp pin Ø25-L195 4290829 21 Tipping arm right-side tipping frame 4290815 68 Linch pin 11x45 - 23 Grease nipple M8 DIN 71412 - 69 Roll pin 10x40 DIN EN ISO 8752 - 24 Tipping stay, double 3 holes 4290812 - 70 Linch pin 11x45 - 25 Sinter bronze bearing Ø46x40-L40 4290195 Intermediate section top clamp K90-1600 4290833 26 Tipping stay, 2 holes - - 71 Intermediate section top clamp K90-2240 4290836 29 Circlip external 40x1,75 DIN 471 - - 73 Top stop - 30 Grease nipple M8 DIN 71412 - - 74 Square tube circlip 12x75 - 3	16	Bolt M6x50 DIN 931	-	63	Hexagon lock nut M16 DIN 985	-
18 Bolt M8x45 DIN 931 - 19 Spring lock washer M8 DIN 128 - 20 Tipping arm right-side tipping frame 4290816 21 Tipping arm right-side tipping frame 4290815 22 Circlip external 40x1,75 DIN 471 - 23 Grease nipple M8 DIN 71412 - 24 Tipping stay, double 3 holes 4290812 25 Sinter bronze bearing Ø46x40-L40 4290195 26 Tipping stay, 2 holes 4290811 27 Bolt M8x30 DIN 933 - 28 Nut M8 - 29 Circlip external 40x1,75 DIN 471 - 20 Tipping stay, 2 holes 4290813 28 Nut M8 - 29 Circlip external 40x1,75 DIN 471 - 30 Grease nipple M8 DIN 71412 - 31 Stay pin Ø40-L80 > 2018 4290813 32 Hydraulic 3-way valve 3/8" 4290844 32 Hydraulic 3-way valve 3/8" 429059 33 Bolt M6x55 DIN 931	17	Balancing valve 3/8" DW	429058	64	Upper clamp cylinder pin Ø25-L154	4290829
19 Spring lock washer M8 DIN 128 - 66 Roll pin 10x40 DIN EN ISO 8752 - 20 Tipping arm right-side tipping frame 4290816 67 Upper clamp pin Ø25-L195 4290828 21 Tipping arm right-side tipping frame 4290815 68 Linch pin 11x45 - 23 Grease nipple M8 DIN 71412 - 69 Roll pin 10x40 DIN EN ISO 8752 - 24 Tipping stay, double 3 holes 4290812 - 69 Roll pin 10x40 DIN EN ISO 8752 - 25 Sinter bronze bearing Ø46x40-L40 4290812 - 70 Linch pin 11x45 - 26 Tipping stay, 2 holes 4290812 - 1 1 1 - 27 Bolt M&S30 DIN 933 - - 1 Intermediate section top clamp K90-2000 4290832 28 Nut M8 - - 72 Insert tube top stop - 30 Grease nipple M8 DIN 71412 - - 73 Top stop - 74 Stay pin Ø40-L74 <2018	18	Bolt M8x45 DIN 931	-	65	Linch pin 11x45	-
20 Tipping arm right-side tipping frame 4290816 67 Upper clamp pin Ø25-L195 4290828 21 Tipping arm right-side tipping frame 4290815 68 Linch pin 11x45 - 22 Circlip external 40x1,75 DIN 471 - 69 Roll pin 10x40 DIN EN ISO 8752 - 23 Grease nipple M8 DIN 71412 - - 70 Linch pin 11x45 - 24 Tipping stay, double 3 holes 4290812 - 70 Linch pin 11x45 - 25 Sinter bronze bearing Ø46x40-L40 4290195 Intermediate section top clamp K90-1600 4290833 26 Tipping stay, 2 holes 4290811 Intermediate section top clamp K90-2000 4290835 27 Bolt M8x30 DIN 933 - Intermediate section top clamp K90-2240 4290836 29 Circlip external 40x1,75 DIN 471 - - 73 Top stop - 30 Grease nipple M8 DIN 71412 - - 74 Square tube circlip 12x75 - 31 Stay pin Ø40-L74 <2018	19	Spring lock washer M8 DIN 128	-	66	Roll pin 10x40 DIN EN ISO 8752	-
21Tipping arm right-side tipping frame429081568Linch pin 11x45-22Circlip external 40x1,75 DIN 471-69Roll pin 10x40 DIN EN ISO 8752-23Grease nipple M8 DIN 71412-70Linch pin 11x45-24Tipping stay, double 3 holes429081271Intermediate section top clamp K90-1600429083225Sinter bronze bearing Ø46x40-L404290195Intermediate section top clamp K90-1800429083326Tipping stay, 2 holes4290811Intermediate section top clamp K90-2000429083427Bolt M8x30 DIN 933-Intermediate section top clamp K90-2240429083528Nut M8-Intermediate section top clamp K90-2400429083629Circlip external 40x1,75 DIN 471-73Top stop-30Grease nipple M8 DIN 71412-73Top stop-31Stay pin Ø40-L80 >2018429081374Square tube circlip 12x75-32Hydraulic 3-way valve 3/8"42905976Nut M12 DIN 934-33Bolt M6x55 DIN 931-77Clamping arm right boxdepth 1200mm429084334Spring lock washer M6 DIN 128-77Clamping arm right boxdepth 1200mm429084335Pin for end stop Ø16429071Clamping arm left boxdepth 1200mm4290843	20	Tipping arm right-side tipping frame	4290816	67	Upper clamp pin Ø25-L195	4290828
22Circlip external 40x1,75 DIN 471-69Roll pin 10x40 DIN EN ISO 8752-23Grease nipple M8 DIN 71412-70Linch pin 11x45-24Tipping stay, double 3 holes429081271Intermediate section top clamp K90-1600429083225Sinter bronze bearing Ø46x40-L404290195Intermediate section top clamp K90-1800429083326Tipping stay, 2 holes4290811Intermediate section top clamp K90-2200429083427Bolt M8x30 DIN 933-Intermediate section top clamp K90-2240429083528Nut M8-Intermediate section top clamp K90-2400429083629Circlip external 40x1,75 DIN 471-72Insert tube top stop-30Grease nipple M8 DIN 71412-73Top stop-31Stay pin Ø40-L74 <2018	21	Tipping arm right-side tipping frame	4290815	68	Linch pin 11x45	-
23Grease nipple M8 DIN 71412-24Tipping stay, double 3 holes429081225Sinter bronze bearing Ø46x40-L40429019526Tipping stay, 2 holes429081127Bolt M8x30 DIN 933-28Nut M8-29Circlip external 40x1,75 DIN 471-30Grease nipple M8 DIN 71412-31Stay pin Ø40-L80 > 2018429081332Hydraulic 3-way valve 3/8"42905933Bolt M6x55 DIN 931-34Spring lock washer M6 DIN 128-35Pin for end stop Ø1642907136Grease nipple M8 DIN 7128-37Clamping arm right boxdepth 1100mm429083834Spring lock washer M6 DIN 128-35Pin for end stop Ø1642907136Grease nipple M8 DIN 123-37Clamping arm left boxdepth 1200mm429083836Clamping arm left boxdepth 1200mm429083837Pin for end stop Ø16429071	22	Circlip external 40x1,75 DIN 4/1	-	69	Roll pin 10x40 DIN EN ISO 8752	-
24 Hipping stay, double 3 holes 4290812 25 Sinter bronze bearing Ø46x40-L40 4290195 26 Tipping stay, 2 holes 4290811 27 Bolt M8x30 DIN 933 - 28 Nut M8 - 29 Circlip external 40x1,75 DIN 471 - 30 Grease nipple M8 DIN 71412 - 31 Stay pin Ø40-L74 < 2018	23	Grease nipple M8 DIN 71412	-	70	Linch pin 11x45	-
25Sinter bronze bearing Ø46x40-L404290195Intermediate section top Clamp K90-1800429083326Tipping stay, 2 holes4290811Intermediate section top Clamp K90-2000429083427Bolt M8x30 DIN 933-Intermediate section top Clamp K90-2240429083528Nut M8-Intermediate section top Clamp K90-2400429083629Circlip external 40x1,75 DIN 471-72Insert tube top stop-30Grease nipple M8 DIN 71412-73Top stop-31Stay pin Ø40-L80 >2018429081374Square tube circlip 12x75-32Hydraulic 3-way valve 3/8"42905976Nut M12 DIN 933-33Bolt M6x55 DIN 931-77Clamping arm right boxdepth 1200mm429084334Spring lock washer M6 DIN 128-Clamping arm right boxdepth 1100mm429084335Pin for end stop Ø16429071Clamping arm left boxdepth 1200mm4290818	24	Tipping stay, double 3 holes	4290812	/1	Intermediate section top clamp K90-1600	4290832
26 Intermediate section top clamp K90-2000 4290834 27 Bolt M8x30 DIN 933 - 28 Nut M8 - 29 Circlip external 40x1,75 DIN 471 - 30 Grease nipple M8 DIN 71412 - 31 Stay pin Ø40-L80 >2018 4290813 5 Kay pin Ø40-L74 <2018	25	Sinter bronze bearing Ø46x40-L40	4290195		Intermediate section top clamp K90-1800	4290833
27 Boit M8X30 DIN 933 - 4290835 28 Nut M8 - 1 29 Circlip external 40x1,75 DIN 471 - 1 30 Grease nipple M8 DIN 71412 - 73 Top stop - 31 Stay pin Ø40-L80 >2018 4290813 74 Square tube circlip 12x75 - 32 Hydraulic 3-way valve 3/8" 429059 75 Bolt M12x35 DIN 933 - 33 Bolt M6x55 DIN 931 - 77 Clamping arm right boxdepth 1200mm 4290843 34 Spring lock washer M6 DIN 128 - Clamping arm right boxdepth 1200mm 4290843 35 Pin for end stop Ø16 429071 Clamping arm left boxdepth 1200mm 4290818	26	Tipping stay, 2 holes	4290811		Intermediate section top clamp K90-2000	4290834
28 Nutrivis 1	27	BOIT MI8X30 DIN 933	-		Intermediate section top clamp K90-2240	4290835
25 Circlip external 40X, // 5 Din 47/1 1	20	Circlin external 40x1 75 DIN 471	-	72	Intermediate section top clamp K90-2400	4290650
30 Grease hipple for bin 71412 1 <td< td=""><td>29</td><td>Circlip external 40x1,75 DIN 471</td><td>-</td><td>72</td><td>Top stop</td><td>-</td></td<>	29	Circlip external 40x1,75 DIN 471	-	72	Top stop	-
31 Stay pin Ø40-L03 2008 4250813 74 Square tube circlip 12X75 1 Stay pin Ø40-L74 <2018	30	Stav nin $0/0-180 > 2018$	- 4200813	73	Square tube circlin 12v75	-
32 Hydraulic 3-way valve 3/8" 429059 33 Bolt M6x55 DIN 931 - 34 Spring lock washer M6 DIN 128 - 35 Pin for end stop Ø16 429071 26 Bolt M12/20 DIN 032 - 27 Clamping arm right boxdepth 1200mm 4290843 26 Bolt M12/20 DIN 032 -	51	Stay pin $040-180 > 2018$	4290813	74	Bolt M12x35 DIN 933	
32 Hydraulie 5 way valve 5/6 425055 33 Bolt M6x55 DIN 931 - 34 Spring lock washer M6 DIN 128 - 35 Pin for end stop Ø16 429071 36 Rolt M10v20 DIN 022 Clamping arm left boxdepth 1200mm 4290838 36 Rolt M10v20 DIN 022 - Clamping arm left boxdepth 1200mm 4290818	32	Hydraulic 3-way valve 3/8"	429059	76	Nut M12 DIN 934	-
34 Spring lock washer M6 DIN 128 - Clamping arm right boxdepth 1200mm 4290843 35 Pin for end stop Ø16 429071 Clamping arm left boxdepth 1200mm 4290818 36 Bolt M10v20 DIN 022 Clamping arm left boxdepth 1100mm 4290820	32	Bolt M6x55 DIN 931	-	70	Clamping arm right boxdenth 1200mm	4290838
35 Pin for end stop Ø16 429071 Clamping arm left boxdepth 1200mm 4290818 36 Bolt M10v30 DN 032 Clamping arm left boxdepth 1200mm 4290820	34	Spring lock washer M6 DIN 128	_		Clamping arm right boxdepth 1100mm	4290843
26 Bolt M10/20 DN 022	35	Pin for end stop Ø16	429071		Clamping arm left boxdepth 1200mm	4290818
	36	Bolt M10x20 DIN 933	-		Clamping arm left boxdepth 1100mm	4290820
37 Nut M10 - 78 Bolt M16x60 DIN 931 4290837	37	Nut M10	_	78	Bolt M16x60 DIN 931	4290837
38 Rotating cylinder DW 70-35-350 4290468 Insert tube top stop 4290842	38	Rotating cylinder DW 70-35-350	4290468	_	Insert tube top stop	4290842
39 Rotating cylinder pin - Top stop 4290817	39	Rotating cylinder pin	-		Top stop	4290817
40 Tipping arm right-side main frame - Square tube circlip 12x75 4290819	40	Tipping arm right-side main frame	-		Square tube circlip 12x75	4290819
41 Tipping arm left-side main frame - 79 Bolt M12x35 DIN 933 -	41	Tipping arm left-side main frame	-	79	Bolt M12x35 DIN 933	-
42 Rubber buffer 200x52-L60 609007 80 Locking nut M16 DIN 985 -	42	Rubber buffer 200x52-L60	609007	80	Locking nut M16 DIN 985	-
43 Bolt M12x60 DIN 912 - 81 Cross tube top clamp K90-1600 4290821	43	Bolt M12x60 DIN 912	-	81	Cross tube top clamp K90-1600	4290821
44 Washer M12 DIN 125 - Cross tube top clamp K90-1800 4290822	44	Washer M12 DIN 125	-		Cross tube top clamp K90-1800	4290822
45 Nut M12 DIN 985 - Cross tube top clamp K90-2000 4290823	45	Nut M12 DIN 985	-		Cross tube top clamp K90-2000	4290823
46 Washer M12 DIN 125 - Cross tube top clamp K90-2240 4290824	46	Washer M12 DIN 125	-		Cross tube top clamp K90-2240	4290824
47 Bronze bearing Ø75x60,7-L80 4290218 Cross tube top clamp K90-2400 4290825	47	Bronze bearing Ø75x60,7-L80	4290218		Cross tube top clamp K90-2400	4290825

 Table 2.4.1- Replacement components for WIFO forward tipping box rotators



Type: K90

Nr.	Onderdeel:	Artikelnr.:
82	Synthetic roller Ø100x71-L140	429115
83	Grub screw M8x12 DIN 916	-
84	Synthetic roller locking ring Ø89x70.5-L15	4290839
85	Threaddisc cross tube top clamp	-
86	Countersunk headscrew M12x40 DIN7991	-
87	Countersunk headscrew M16x50 DIN7991	-
88	FEM 2 forklift fork 125x45x1200	-
	FEM 2 forklift fork 100x40x1200	-
89	Grease nipple M8 DIN 71412	-

Nr.	Onderdeel:	Artikelnr.:



3. Maintenance and troubleshooting



<u>N.B.</u> Please read the instruction manual prior to any maintenance to the machine. Turn off the engine and remove the key from the ignition while maintenance is carried out on the machine!

The forward tipping box rotator must be placed in its lowest position when maintenance or repairs are carried out. Prevent the unintended tipping and/or raising of the rotator during maintenance activities by switching off the vehicle's engine and removing the ignition key. An additional precaution would be to disconnect the hydraulic hoses.

3.1 Preventive maintenance and lubrication

After the first 8 working hours:

- Check the connections and turnbuckles of the hydraulic hoses.
- Tighten all bolts.



This sticker shows the position of a grease nipple on the machine. Lubricate the machine after every 10 working hours. Recommended lubricants include SAE 30 oil and Grade 2 lithium-based grease.

Regularly check the hydraulic system for any leaks. Never try and search for leaks or stop a leak by hand. Liquid under high pressure can easily penetrate skin and clothing, and may cause serious injuries. Replace any damaged hydraulic hoses to prevent them from breaking and any accidents as a result.
Regularly check the oil level of the hydraulic system of your forklift truck / tractor.

3.2 Troubleshooting

Forward tipping box rotator type	Problem	Solution
K90 with hydraulic limit switch.	The upper clamp fails to rise when operated	See section 3.2.1.
Table 3.2.1-Troublesbooting		

Table 3.2.1-Troubleshooting



3.2.1 Adjustment of hydraulic limit switch

The K90 forward tipping box rotator is protected against unintended opening of the upper clamp during tipping by means of a hydraulic limit switch. See figure 3.2.3. If the upper clamp fails to open in its horizontal position, check whether the limit switch on the tipping frame is operated. If not, the limit switch stop must be raised to the point where the switch does operate.



Figure 3.2.1-Hydraulic limit switch

- 1. Check that the tipping frame is horizontal and resting on its bump rubbers.
- 2. Loosen the adjusting tube bolt and locknut. See figure 3.2.1.
- 3. Bring the stop to the correct height, so that it comes up against the handle of the hydraulic switch. Check that the limit switch operates.
- 4. Securely retighten the bolt and locknut in the adjusting tube.
- 5. Check the machine for proper operation.



Always use original WIFO parts for replacement in order to comply with the warranty terms and conditions.



Please contact your dealer for any further concerns you may have. He will be pleased to assist.



3.2.2 The rotator starts rotating before the upper clamp has closed properly (only with sequence valve)

If the upper clamp does not close properly and the rotator has already started rotating the pressure in the sequence valve has not been set correctly. The (switch) pressure is set too low and needs to be increased. Remove the cap from the sequence valve to get access to an adjustment screw. Turn this screw carefully in a clockwise direction. Adjust with small turns and keep testing its effect by operating the hydraulic function of the forklift/tractor. Always stay clear of the rotator while doing this to avoid accidentally getting trapped!

3.2.3 The rotator rotates too slowly (only with sequence valve)

If the rotator rotates too slowly the pressure in the sequence valve has not been set correctly. The (switch) pressure is too high and needs to be lowered. Remove the cap from the sequence valve to get access to an adjustment screw. Turn this screw carefully in an anticlockwise direction. Adjust with small turns and keep testing its effect by operating the hydraulic function of the forklift/tractor. Always stay clear of the rotator while doing this to avoid accidentally getting trapped!



EG-VERKLARING VAN OVEREENSTEMMING VOOR MACHINES EC-DECLARATION OF CONFORMITY FOR MACHINERY EG-MASCHINENÜBEREINSTIMMUNGSERKLÄRUNG DÉCLARATION DE CONFORMITÉ "CE" POUR MACHINES

Fabrikant/Manufacturer/Fabrikant/Fabricant:

WIFO-Anema B.V.

Adres/Address/Adresse/Adresse:

Hegebeintumerdyk 37 9172 GP Ferwert The Netherlands

Verklaart hiermede dat /Herwith declares that/Erklärt hiermit, daß/Déclare ci-après que

Serienummer/Serial number/Serienummer/Numéro de série:

Uitvoering/Model/Ausführung/Modèle:

- Voldoet aan de bepalingen van de Machinerichtlijn (Richtlijn 2006/42/EG, zoals laatstelijk gewijzigd) en de nationale wetgeving ter uitvoering van deze richtlijn;
- Is in conformity with the provisions of the Machine Directive (Directive 2006/43/EC, as amended) and with national implementing legislation;
- Konform ist min den einschlägigen Bestimmungen der EG-Maschinerichtlinie (EG-Richtlinie 2006/42/EG), inklusive deren Änderung, sowie mit dem entsprechenden Rechtserlaβ zur Umsetzung der Richtlinie in nationales Recht;
- Est conforme aux dispositions de la Directive "Machines" (Directive 2006/42/EC telle que dernièrement modifiée) et la législation nationale adoptée en application de ladite directive.

Ferwert, January 2022

Wytze Anema (Director)