Oil lubrication pump

DFG

Article-no. 2268 …

Revision 07-2024

Original operating- and assembly manual

00-1012894_BAL2268_DFG_R02EN

Table of contents

1. Technical data

General:

Output rate: ..... max. 0,15 cm³/stroke and outlet
Regulation of output: ..... outlets 1 - 6 individual
..... outlets 7 - 12 outlets in pairs
Driving speed: ..... max. 2500 r.p.m
Operating pressure: ..... max. 50 bar
Suction height: ..... max. 1000 mm
Lubricant: ..... oil
Viscosity range: ..... 25 - 1500 mm²/s
Temperature range: ..... lubricant 0°C up to +70°C
..... ambient 0°C up to +40°C
No. outlets: ..... max. 12
Outlet type: ..... see order key
Sense of rotation: ..... optional
Drive: ..... rotating
Weight: ..... 4,0 kg
Sound pressure level: ..... <70dB(A)

The **oil lubrication pump** is consecutively called a **device.**

2. Order key

2268 02 22 1 1 000

Type number	2268											
Code-no.	2268											
Reduction	160:1		320:1			640:1						
Code-no.	01		02			03						
Pressure connection									no. of outlets			
Outlet type	1	2	3	4	5	6	7	8	9	10	11	12
Solderless pipe Ø4 mm	01	02	03	04	05	06	07	08	09	10	11	12
Solderless pipe Ø6 mm	21	22	23	24	25	26	27	28	29	30	31	32
Ring piece for soldering in pipe Ø4 mm	41	42	43	44	45	46	47	48	49	50	51	52
Ring piece for soldering in pipe Ø6 mm	61	62	63	64	65	66	67	68	69	70	71	72
Suction connection	straight pipe Ø6 mm					ring piece pipe Ø8 mm						
Code-no.	1					4						
Crank handle	without			with (not revolving)					revolving			
Code-no.	0			1					8			
Special models												

3. General safety instructions

All persons that are in charge with the assembly, start-up, maintenance and operation of the device must carefully read these instructions. Furthermore this manual must permanently be available at the site of operation!

Basic notes for setup, operation and maintenance can be found below.

3.1 Safety instructions

Do not only observe the safety instructions within this main point but also have a look at the special safety warnings that are included in other parts of this documentation.

Warning of electrical voltage.

Safety instructions which in case of non-observance might cause hazards to persons are marked with the general danger symbol.

This symbol warns of hot surfaces.

Warning of suspended loads.

Warning of material damage due to electrostatic discharge! Marks potential risks which may result in material damage, if not avoided.

Caution! This heading is used if the improper or general non-observance of the operating manual, specified work flow and the like might result in device damage.

Notice! This term is used to point out particular details.

Instructions which are directly attached to the device have to be strictly observed and kept in readable condition!

3.2 Qualification and training of staff

The staff in charge for operation, maintenance, inspection and assembly has to have the according qualification for these tasks. Competence, responsibility and supervision of staff must be clearly defined by the operator. In case the staff does not have the necessary knowledge it has to be instructed and trained accordingly. The operator is obliged to ensure that the staff fully understands the contents of this user information.

3.3 Hazards in case of non-observance of the safety instructions

Results of **non-observance** of the **safety instructions** can be **hazards to persons**, the environment and for the device. Non-observance of the safety instructions may result in the loss of any liability claims. In detail the non-observance could entail the following hazards:

- Failure of important device functions.
- Failure of prescribed methods for maintenance and repair.
- Danger to persons by electrical, mechanical and chemical effects.
- Danger to the environment by leakage of hazardous substances.

3.4 Obligations of the operator / user

- If movable, rotating, hot or cold parts of the device bear risks, the customer must protect these parts against contact. This protection must not be removed.
- Any leakages of hazardous substances must be drained in a way that no risks for persons or the environment arise.
- Keep to all legal provisions.
- Hazards due to electricity are to be excluded.
- Examination of pipes and hoses regarding safe provision, use, proper assembly and function has to be carried out according to regionally applicable directives. Inspection intervals may not be exceeded.
- Defective pipes or hoses must be replaced immediately and professionally.
- Hydraulic hoses and polyamide pipes are subject to a natural aging-process and thus have to be exchanged in regular intervals according to the manufacturer's specifications.
- A safety data sheet of the currently used lubricant must be provided at the device.

3.5 Safety instructions for maintenance, inspection and assembly

All **maintenance**, **inspection** and **assembly work** may only be carried out by **qualified personnel** who is sufficiently informed by thorough reading of the user information.

Generally any work at the device may only be carried out at **complete standstill** and in **pressureless** as well as **disconnected condition**. Furthermore appropriate **personal protective equipment** (goggles among others) is necessary. The shutdown procedure of the device as described in the manual must be strictly followed.

Secure the device against intentional or unintentional recommissioning during maintenance or repair. All safety and protection arrangements have to be put back in place again immediately after finishing work.

Environmentally hazardous media must be disposed of professionally and in correspondence to relevant legal provisions. **Polluted** and **contaminated surfaces** have to be cleaned before maintenance. Please wear protective equipment to that purpose. See the lubricant manufacturers' safety data sheets hereto, respectively the data sheets provided by the manufacturers of auxiliaries and working materials.

Check the surface temperature of the device as a possible heat transfer bears the **risk of burns**. Wear heat resistant protective gloves!

Open flame and fire are strictly forbidden during maintenance, inspection and repair due to fire hazard.

3.6 Unauthorized modification and production of spare parts

Modification, repair and alterations of the device are only accepted after manufacturer feedback. **Original spare parts** and authorized accessories from the manufacturer contribute to **safety**. The use of other parts can result in the loss of any liabilities for the resulting consequences. Groeneveld-BEKA does not assume liability for parts that are retrofit by the operator.

3.7 Inadmissible modes of operation

The operational safety of the device is only guaranteed for appropriate application as indicated in the operating manual. Never exceed the limit values, as stated in the technical data.

3.8 Electrostatic discharge

Avoid electrostatic discharge! There are electronic components integrated into the devices which might be destroyed by electrostatic discharge. Observe the safety precautions against electrostatic discharge according to DIN EN 61340-5-1/-3. Ensure that the environment (persons, workplace and packing) is well grounded when handling these devices.

3.9 General hazard warning – residual risk

All components are designed according to valid regulations of the construction of technical systems in regards to operational safety and accident prevention. Independently from this the use can lead to hazards for the user or third parties as well as for other technical facilities. Therefore the device may only fulfill its intended use in a **technically acceptable and faultless condition**. This has to happen in adherence of the according safety regulations and under observance of the operating manual. **Inspect** the device and its attachment parts **regularly** and **check** them for possible **damage** or **leakages**. **Liquids** could **escape under high pressure** from pressurized components which become **leaky**.

4. Intended use

Caution!

The device is **only** approved for the **industrial use.**
Only operate the device if it is installed in/to another machine and operated together with it.
Only lubricants which comply with the machine manufacturer's specifications may be conveyed.
The device must only be used according to the technical data (see chapter 1 „technical data"). Never exceed the mentioned values. Never operate the device without lubricant.

Unauthorized alterations of the device are **not permitted**. Groeneveld-BEKA is not liable for damage of machine or persons that results thereof.

Use according to the regulations means also:

- Observance of all chapters and notes in the operating manual.
- Carrying out all maintenance work.
- **Observance** of all regulations concerning **work safety and accident prevention** during all life cycles of the device.
- Having the necessary professional training and authorization of your company to operate the device and to carry out the necessary work.

Caution! **Another use or a use beyond this is deemed improper.**

5. Scope of warranty

Warranties regarding operational safety, reliability and performance will only be granted by the manufacturer if the device is used according to the regulations and under the following conditions:

- Assembly, connection and maintenance are carried out by authorized professional staff
- The device is only used according to the operating manual
- Never exceed the limit value indicated in the technical data.
- Modifications and repairs at the device may only be done by Groeneveld-BEKA

Caution!

Guarantee and warranty for any damage at the device caused by improper lubricant (e.g. wear of piston, piston jamming, blockades, brittled sealings etc.) will expire.
Groeneveld-BEKA will generally not assume guaranty claims for any damage caused by lubricants, although those have been laboratory tested and released by Groeneveld-BEKA, as such damage (e.g. by over-stored or incorrectly stored lubricants, batch fluctuations, etc.) cannot be verified or reconstructed later.

6. Transport and storage

Use suitable lifting devices for transport.
Do not **throw** the device or impose it to **shocks**.
Secure the device against toppling down or slipping during transport.

Observe all valid safety and accident prevention regulations for the transport. Wear suitable **protective equipment** if necessary. **Keep adequate distance to suspended loads**. The transport help or the elevating device must have the **adequate carrying capacity**.

When storing the device pay attention that the storage area is cool and dry in order to avoid corrosion of the individual parts of the device.

7. Assembly instructions

Check the device for possible transport damage and for completeness before the assembly. Any installed equipment for transportation safety has to be removed.

Comply with the following conditions for assembly of the device in order to obtain a properly built together machine of all parts without compromise of safety or persons' health:

Assemble the device in balance on the installation location in order to ensure safe operation. Observe the information on the fastening holes given in the dimensional drawing. When selecting the set-up location, please mind that the device should be protected against ambiental and mechanic influences. Ensure full access, e.g. for filling with lubricant.
Special measures concerning noise prevention or oscillation reduction do not have to be taken.

Caution! It needs to be ensured that oil can drain – without back pressure – out of the leakage bore!

7.1 Line assembly

- Professional layout!
- When using pipes, observe that they are clean, seamless and of precision steel!
- Assemble the pipes professionally and free from distortion!
- Pay attention to pressure tightness of fittings!
- All components must be approved for max. operating pressure (see technical data).

8. Start up

8.1 Filling with lubricant

- The device must be connected with an oil reservoir. Furthermore it always has to have the necessary lubricant quantity to prime!
- Observe the machine manufacturer's lubricant details! Only use lubricants according to machine manufacturer's specifications!
- Collect outcoming lubricant in a suitable receptacle and dispose it professionally!
- Observe the safety data sheet of the lubricant manufacturer!
- The lubricant viscosity changes with the operating temperature.
- Observe utmost cleanness when refilling the reservoir!

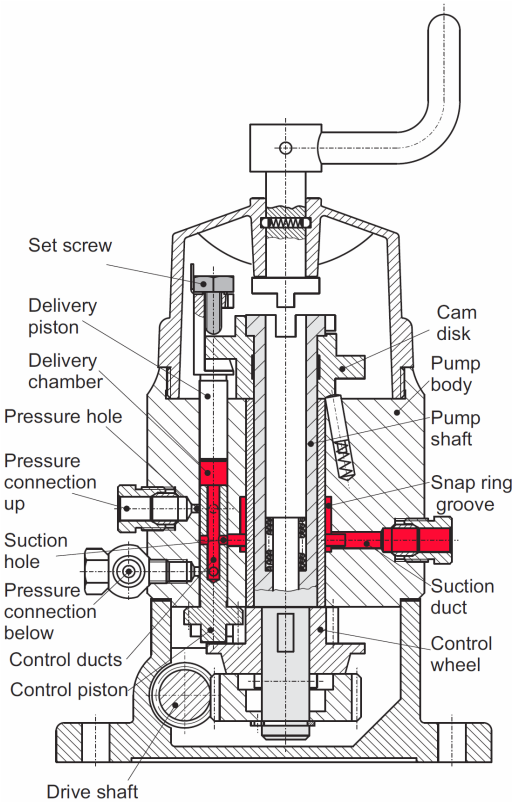
8.2 Ventilation of the lubrication system

- Ventilate the whole lubrication system with first start-up and after each lubricant change!
- Ventilation is done by operating the system in pressureless condition and with open system outlets!
- Operate the device until lubricant comes out of the pressure connection without air inclusions.

9. Functional description

9.1 General

The drive of the device occurs rotating. The drive shaft puts the centrally positioned pump shaft and the cam disk with a gear into a rotating movement. This carries out the strokes of the delivery pistons. Max. six delivery pistons with opposite lying control pistons are arranged circular, in the pump body. The oil flow or the suction- and pressure stroke is controlled by the pump shaft via the cam disk, the control wheel and the control piston. The advantage of this construction is that the complete cross-section of the control ducts is open during the whole suction- or pressure stroke. With the suction stroke, the oil gets from a reservoir through the suction duct into the delivery chamber. After this suction stroke, the control piston affects the changeover. The suction hole is closed by that and the pressure hole is opened so that with the following piston stroke the oil can under pressure be supplied to the lube point. For seven or more pressure connections one time the upper and the other time the lower pressure outlet is operated. The regulation of the output rate therefore is done in pairs.



9.2 Pre-lubrication device

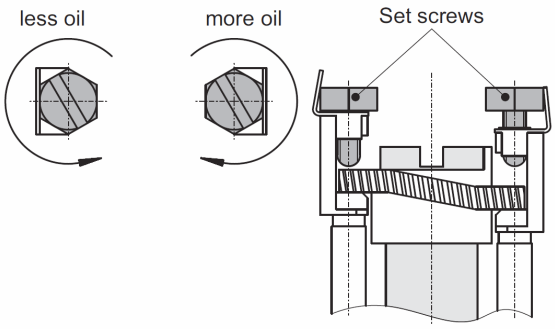
The device can be equipped with a crank handle for pre-filling long lines with lubricant before the device starts-up.

9.3 Use

The device can be used to lubricate compressors, combustion engines, tool-, textile-, and wood processing machines, printing presses, pumps and plastic machines, etc.

9.4 Adjustment of the output rate

The piston stroke is adjusted with the set screw in the delivery piston and that regulates the output rate. Turning clockwise increases the output rate, turning counter-clockwise reduces it.
To adjust the output rate, take off the screw cap, use the set screw to adjust the desired rate and tighten the screw cap after that again.
The delivery volume can be reduced by four and a half turns of the set screw as a maximum, without the function of the device being affected.
The quantity reduces with one turn by approx. 1/6 of the total delivery volume.
The device is adjusted to full stroke when being delivered. Please only adjust the delivery volume after putting into operation and a complete air discharge of the pressure connection.



Caution!

While adjusting the output rate, always ensure best cleanliness!
Non-used outlets can be reduced to zero delivery by screwing out the set screw. The appertaining outlet must not be closed tightly by a screw. Rather use plastic plugs to avoid dirt entering the device.
Anyway in case of bad operating conditions the device can be damaged due to a lack of lubricant when zero delivery is set.
Do not touch the cam disk when setting the supply lubricant – **risk of injuries!**

10. Maintenance

Disconnect the device from voltage before any **maintenance or repair.**
Both**, maintenance and repair,** may only be carried out at **complete standstill** and under **pressureless condition**. Check the surface temperature of the device, as there is the **risk of burns** due to heat transfer. Wear heat-resistant gloves and safety goggles! Soiled or contaminated surfaces have to be cleaned before maintenance, wear protective equipment to this purpose, if necessary! Protect the device against recommissioning during maintenance/repairs!

10.1 General maintenance

- Retighten all fittings 6 weeks after start up!
- Check all components for leakages and damage at least every four weeks!

If leakages are not repaired, lubricant **might come out there under high pressure**. Remove possible puddles of lubricant immediately.

10.2 Lubricant change

Caution! Observe utmost **cleanness** when refilling lubricant!

- Check the level of the connected reservoir regularly and refill clean lubricant as necessary
- Lubricant change has to be done according to the specifications of the lubricant manufacturer. Environmental influences like increased temperature or pollution may make it necessary to shorten these intervals!
- Please take care to only use lubricants that are suitable for the device as well as the lubricated machine and that comply with the requirements of the particular operating conditions.
- In case of **different lubricant manufacturers**, ensure that the lubricant **quality** corresponds to the quality of the previously used one! As precautionary measure, drain the lubricant reservoir professionally and clean it!

11. Shutdown

- Relieve the device from pressure!
- Remove all pipes and hoses from the device and loosen all fastenings for disassembly!

12. Disposal

Notice!

Observe the disposal instructions of the lubricant manufacturer when lubricant is changed! Lubricants or cloths contaminated with lubricant or similar must be collected in specially marked receptacles and disposed of accordingly.
Disposal of the device must be done properly and professionally and according to the national and international laws and regulations.

Moreover, Groeneveld-BEKA devices could contain batteries. Professionally and properly disposed batteries will be recycled. They contain important raw materials.

13. Troubleshooting

Malfunction	Possible cause	Possible remedy
Device does not aspirate	Suction line leaky	Retighten fitting; seal thread
	Level too low	Refill lubricant
	Lubricant cannot be conveyed	Fill in lubricant with correct viscosity
Supply interrupts but drive is ok	Coupling defective	Renew coupling
	Suction line leaky	Retighten fitting; seal thread
	Lack of lubricant in reservoir	Refill lubricant
Device supplies without or with low pressure	Suction connection not tightened	Retighten fitting of suction line
	Heavy wear of the device	Renew device
	Suction line aspires air	Retighten fitting; seal thread
Device is too noisy	Device aspires air	Retighten fitting of suction line; seal thread
	Coupling defective	Renew coupling
	Device defective	Renew device
	Shaft sealing ring defective	Renew shaft sealing ring
	Cavitation in device	Seal suction line Check lubricant level, refill lubricant if necessary

14. Spare part list without crank handle

Pos.	Pcs.	Designation	Order-no
1	0-1	Gear box with leakage connection M6	F0066/01-000 001
	0-1	Gear box with leakage connection G1/8”	F0066/01-000 002
2	1	Pump body	F0060/02-01
3	1	Slide bearing	F0060/02-02
4	1	Screw cap	F0060/03-001 002
5	1	Pump shaft	F0060/04-00
6	1	Cam disk	F0060/05-00
7	1	Worm wheel	F0060/06-00 001
8	1	Control wheel	0802000395
9	1-6	Delivery piston	F0060/09-00
10	0-6	Control piston at 1-6 outlets	F0060/10-00
	0-6	Control piston at 7-12 outlets	F0060/11-00
11	1	Hexagon nut	F0020/29-00
12	0-1	Drive shaft 640:1 and 320:1	F0066/05-01 001
	0-1	Drive shaft 160:1	F0066/05-01 002
	0-1	Drive shaft with fitting key 640:1 and 320:1	F0066/02-01 001
	0-1	Drive shaft with fitting key 160:1	F0066/02-01 002
13	0-1	Worm shaft 640:1	F0066/02-02 001
	0-1	Worm shaft 320:1	F0066/02-02 002
	0-1	Worm shaft 160:1	F0066/02-02 004
14	1	Washer	F0066/04-00
15	1	Slide bearing	F0060/10-01
16	1	Slide bearing	F0062/03-00
17	1	Slide bearing	F0066/02-03
18	1	Bearing bush	F0066/03-00
19	2	Plug	F0060/22-00
20	1-6	Set screw	0802000195
21	1-6	Safety plate	0802100002
22	1	Pin	F0060/16-00
23	1	Compression spring	080150105
24	1	Sealing ring	080100070
25	4	Grub screw M4x6	09i0743400211
26	1	Fitting key M4x4x14	090688500711
27	1	Radial shaft sealing ring 12x22x7	0903760010110
28	3	Sealing ring A5x9x1	090760300111
29	3	Cylinder head cap screw M5x45	090091202321
30	0-1	Fitting key 4x4x20	090688500211
31	0-1	Cross wedge	F0066/05-02
32	0-1	Retaining ring	F0066/06-00

Suction connection optional

with union screw and double conical ring

33	0-1	Outlet screw fitting Ø6	0802000325
34	0-1	Double conical ring Ø6	0802000235

with banjo union and banjo bolt

35	0-1	Banjo union Ø8	F0060/26-01
36	0-1	Banjo bolt M11x1	F0060/26-02

Pressure connection optional

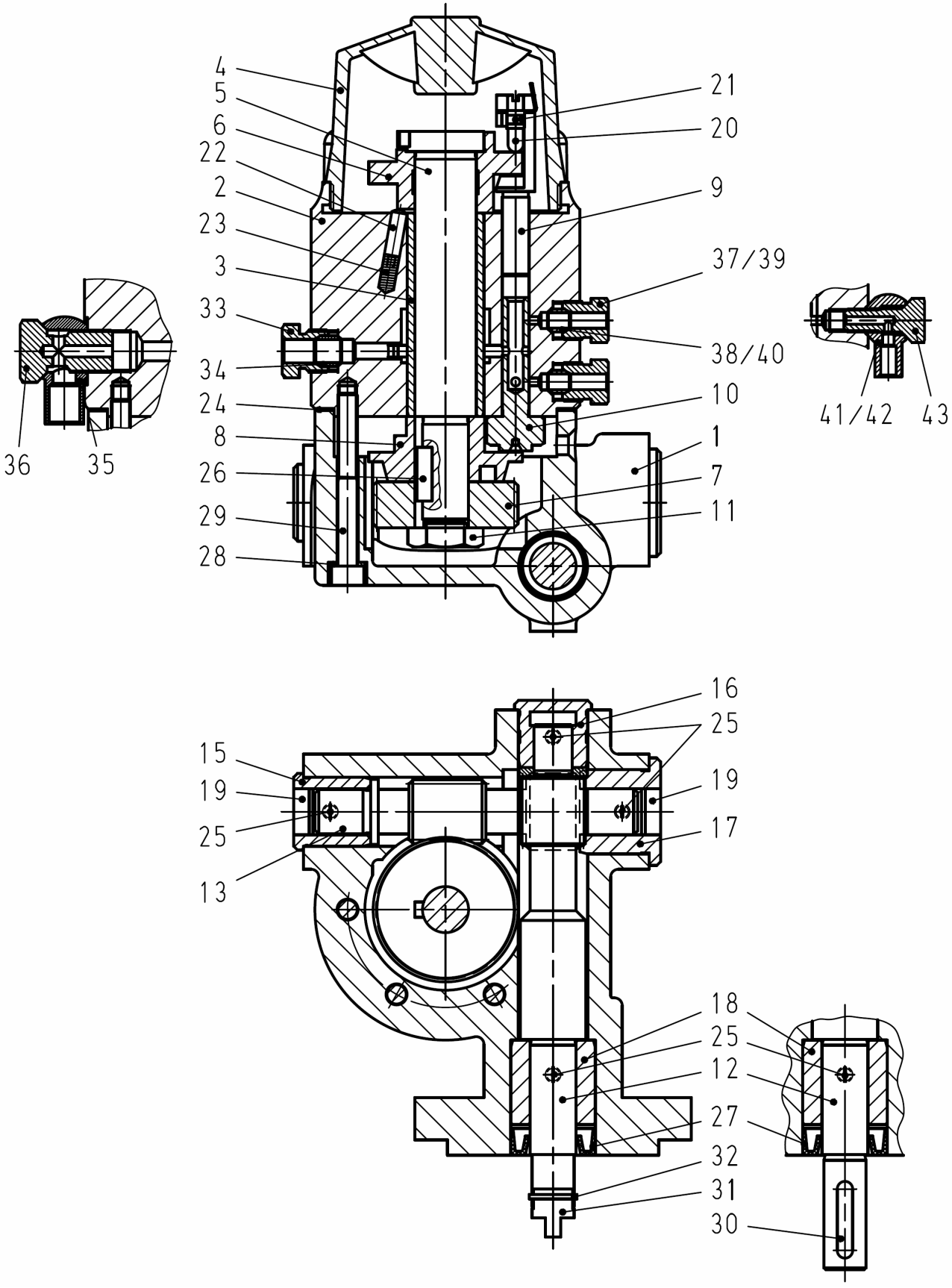
with union screw and double conical ring

37	0-12	Union screw Ø4	0802000320
38	0-12	Double conical ring Ø4	0802000235
39	0-12	Outlet screw fitting Ø6	0802000325
40	0-12	Double conical ring Ø6	0802000235

with banjo union and banjo bolt

41	0-12	Banjo union Ø4	F0060/24-001 001
42	0-12	Banjo union Ø6	F0060/25-001 001
43	0-12	Banjo bolt M6	F0060/24-002 001

15. Spare part drawing without crank handle



16. Spare part list with crank handle

Pos.	Pcs.	Designation	Order-no
1	0-1	Gear box with leakage connection M6	F0066/01-000 001
	0-1	Gear box with leakage connection G1/8"	F0066/01-000 002
2	1	Pump body	F0060/02-01
3	1	Slide bearing	F0060/02-02
4	1	Screw cap	F0061/01-00 001
5	1	Pump shaft	F0061/02-00
6	1	Fitting key A4x4x10	090688500511
7	1	Cam disk	F0060/05-00
8	1	Worm wheel	F0061/05-00 001
9	1	Control wheel	0802000395
10	1	Needle roller	100001205006
11	1-6	Delivery piston	F0060/09-00
12	0-6	Control piston at 1-6 outlets	F0060/10-00
	0-6	Control piston at 7-12 outlets	F0060/11-00
13	1	Retaining ring Ø12x1	090047100511
14	0-1	Drive shaft 640:1 and 320:1	F0066/05-01 001
	0-1	Drive shaft 160:1	F0066/05-01 002
	0-1	Drive shaft with fitting key 640:1 and 320:1	F0066/02-01 001
	0-1	Drive shaft with fitting key 160:1	F0066/02-01 002
15	0-1	Worm shaft 640:1	F0066/02-02 001
	0-1	Worm shaft 320:1	F0066/02-02 002
	0-1	Worm shaft 160:1	F0066/02-02 004
16	1	Washer	F0066/04-00
17	1	Slide bearing	F0060/12-01
18	1	Slide bearing	F0062/03-00
19	1	Slide bearing	F0066/02-03
20	1	Bearing bush	F0066/03-00
21	2	Plug	F0060/22-00
22	1-6	Set screw	0802000195
23	1-6	Safety plate	0802100002
24	1	Pin	F0060/16-00
25	1	Compression spring	080150105
26	1	Sealing ring	080100070
27	4	Grub screw M4x6	09i0743400211
28	1	Radial shaft sealing ring 12x22x7	0903760010110
29	0-1	Coupling bolt not revolving	F0061/03-00 002
	0-1	Coupling bolt revolving	F0061/03-00 001
30	1	Compression spring	080150110
31	0-1	Tappet for not revolving crank handle	F0061/07-00
	0-1	Tappet for revolving crank handle	F0065/03-00
32	0-1	Compression spring*	080150115
33	0-1	Ball Ø3*	0905401002123
34	3	Sealing ring A5x9x1	090760300111
35	3	Cylinder head cap screw M5x45	090091202321
36	0-1	Fitting key 4x4x20	090688500211
37	0-1	Cross wedge	F0066/05-02
38	0-1	Retaining ring	F0066/06-00
39	1	Crank handle	0802000267

* Position is not applicable for revolving crank handle

Suction connection optional

with union screw and double conical ring

40	0-1	Outlet screw fitting Ø6	0802000325
41	0-1	Double conical ring Ø6	0802000235

with banjo union and banjo bolt

42	0-1	Banjo union Ø8	F0060/26-01
43	0-1	Banjo bolt M11x1	F0060/26-02

Pressure connection optional

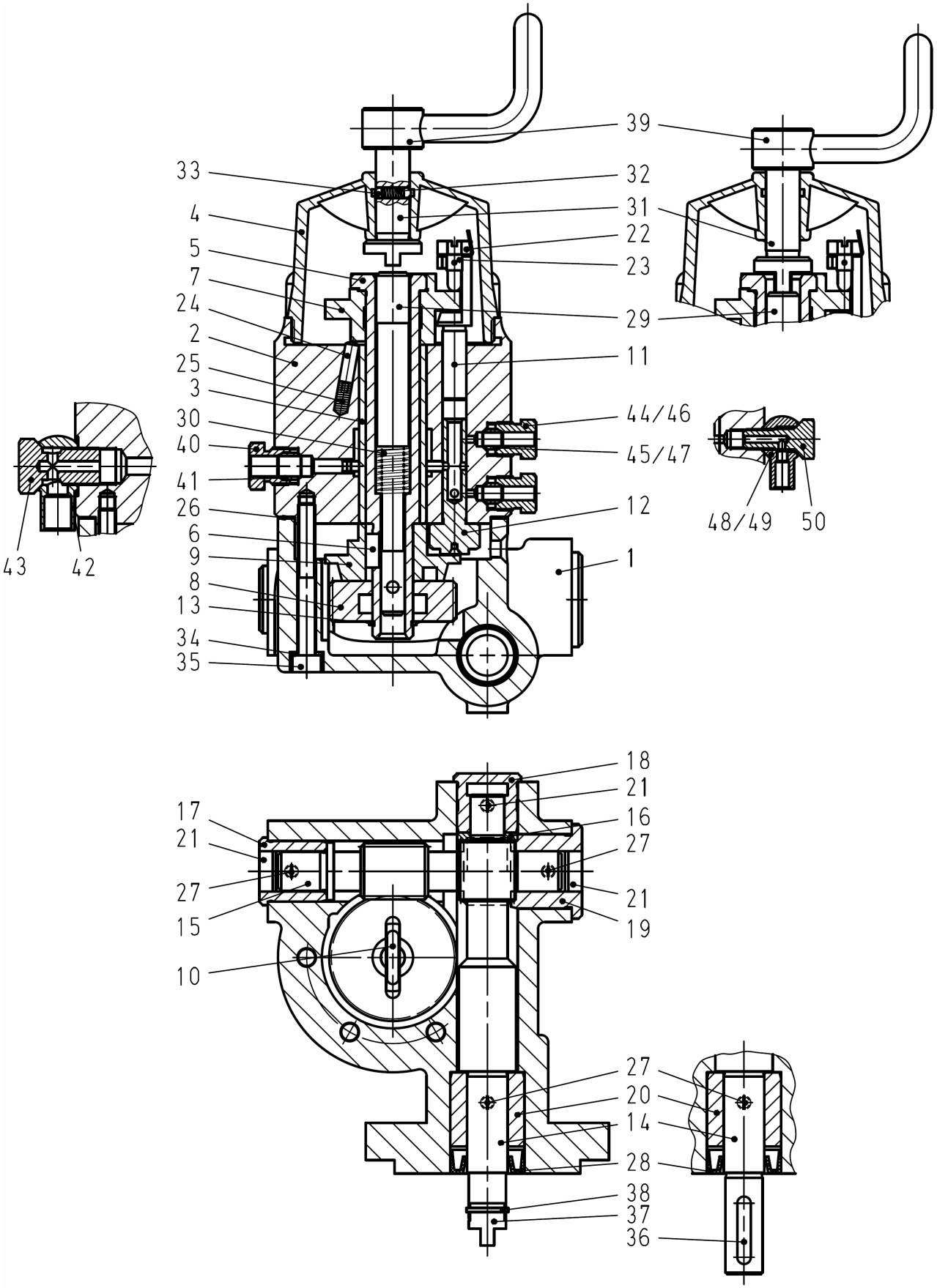
with union screw and double conical ring

44	0-12	Union screw Ø4	0802000320
45	0-12	Double conical ring Ø4	0802000235
46	0-12	Outlet screw fitting Ø6	0802000325
47	0-12	Double conical ring Ø6	0802000235

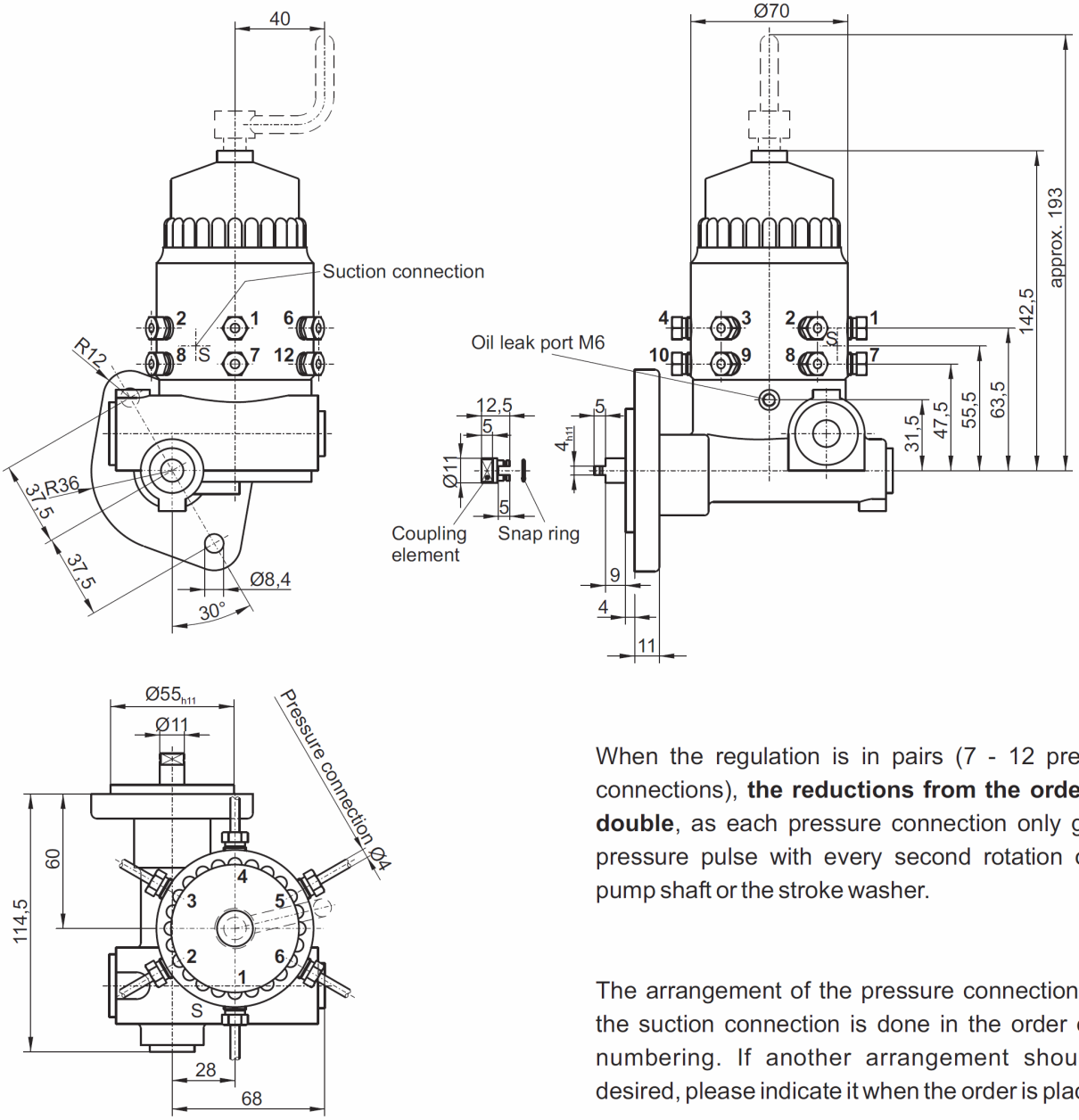
with banjo union and banjo bolt

48	0-12	Banjo union Ø4	F0060/24-001 001
49	0-12	Banjo union Ø6	F0060/25-001 001
50	0-12	Banjo bolt M6	F0060/24-002 001

17. Spare part drawing with crank handle



18. Dimensional drawing



When the regulation is in pairs (7 - 12 pressure connections), **the reductions from the order key double**, as each pressure connection only gets a pressure pulse with every second rotation of the pump shaft or the stroke washer.

The arrangement of the pressure connections and the suction connection is done in the order of the numbering. If another arrangement should be desired, please indicate it when the order is placed.

19. Details of the manufacturer

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E-Mail: info-de@groeneveld-beka.com

Our range of supply:

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Multi-line oil pumps
Multi-line grease pumps
Single-line central lubrication systems
Dual line central lubrication systems
Oil circulation central lubrication systems
Oil-air and spray lubrication
Wheel flange central lubrication systems
Rolling mill central lubrication systems
Utility vehicle central lubrication systems
Progressive distributors
Control and monitoring devices