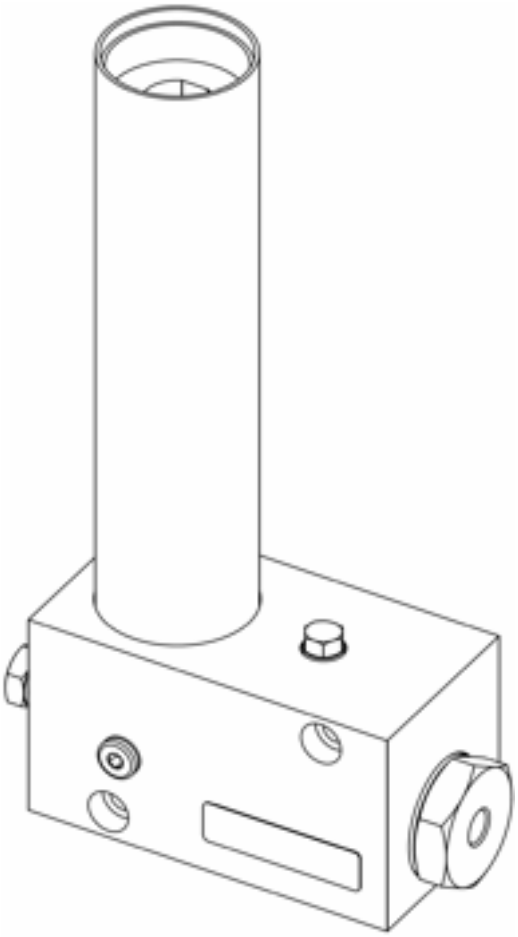
Hydraulic pump

HPM-2S

Article-no. 2574 …

Revision 11-2024

Original operating- and assembly manual



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1. Technical data

General:

Drive type: ..... hydraulic
min. drive pressure: ..... 130 bar
max. drive pressure: ..... 250 bar
max. relief pressure (back pressure): ..... 10 bar
max. lubrication outlet pressure: ..... 220 bar
Pressure connection: 1x M10x1
Return connection: ..... 1x M10x1 closed
Delivery rate: ..... from 0,2 up to 2,0 cm³/stroke

Delivery rate regulation:

Regulation range: ..... infinitely to 9 mm length
No. of strokes: ..... 1 stroke per pulse at hydraulic connection
Grease cartridges: ..... cartridge type S
Grease cartridge capacity: ..... 400 cm³
Lubricant: ..... grease up to NLGI class 2 (grease with solid content on demand)
Temperature range: ..... 0°C up to +50°C
Installation position: ..... cartridge vertically upright

Hydraulic connection (A, Fig.1):	**Order number**
M10x1:	2574 A20101
G¼:	2574 A20102
9/16”-18 UNF:	2574 A20103

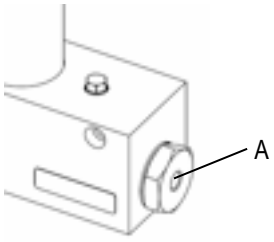


Fig.1

The **hydraulic pump HPM-2S** is consecutively called a **device.**

2. 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.

2.1 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 implemented 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.

Attention! 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.

Note! 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!

2.2 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.

2.3 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.

2.4 Owner's/Operators' obligations

- If movable, rotating, hot or cold parts of the device bear risks, these parts need to be secured against contact by the customer. This protection against contact 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.

2.5 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 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.

2.6 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.

2.7 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 of the technical data.

2.8 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**.

3. Intended use

Attention!

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.

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

4. Scope of warranty

Warranties regarding to 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

Attention!

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.

5. 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.

6. 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 the grease cartridge change.
Special measures concerning noise prevention or oscillation reduction do not have to be taken.

6.1 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).
- Pay attention to a sufficient dimensioning of the return lines and decline of the pipelines from the lube points to the device (at least 5 %).

6.2 Hydraulic connection

- Hydraulic connection must be assembled by a qualified specialist!
- Compare the existing hydraulic pressure with the stated min. and max. operating pressure!
- The hydraulic connection needs to be carried out referring to the instructions of these assembly instructions.

6.2.1 Lubrication line

A high-pressure hose with hose connections has to be mounted into the connection at the lubrication outlet (W, Fig.2) for the lubrication line.

6.2.2 Hydraulic line

Put a bypass line from the hydraulic system of the carrier unit to the hydraulic connection of the device (X, Fig.2)

Note!

This line has to be relieved to drain surplus oil from the hydraulic pressure chamber in the reservoir during the lubrication supply.

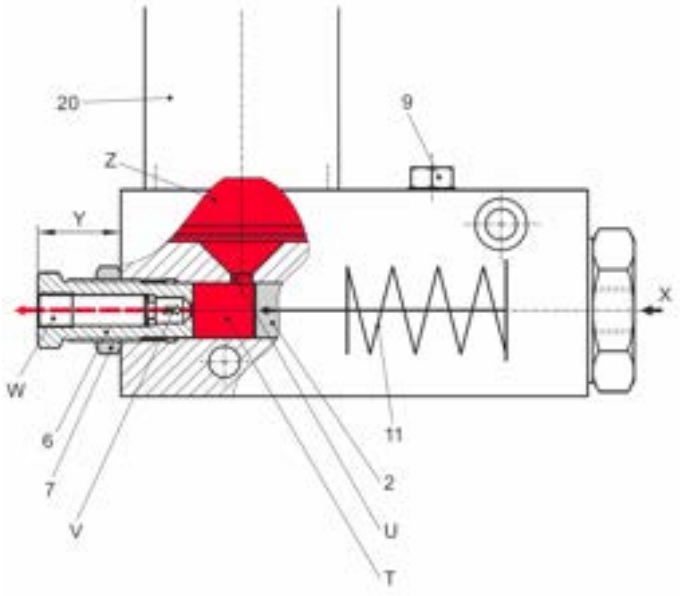


Fig.2

7. Start up

7.1 Setting the delivery rate

The delivery rate can be set progressively via the setscrew (6, Fig.2) for the delivery rate within a range from 0,2 to 2,0 cm³/stroke. Normally the delivery rate is preadjusted to 2,0 cm³/stroke. Dimension Y determines the flow rate of the device (see Fig.3).

- Release lock nut (7, Fig.2)
- Set delivery rate via the setscrew (6, Fig.2)
  - Turn clockwise to reduce the delivery rate; turn counter-clockwise to increase it.
  - One turn of the setscrew corresponds to 1 mm and approx. 0,2 cm³/stroke
- Retighten lock nut.

Fig.3

7.2 Replacement of grease cartridge

The device is filled with commercially available grease cartridges of type S.

- Observe utmost cleanness when changing the grease cartridge!
- Unscrew grease cartridge (20, Fig.2) counter-clockwise out of the pump housing (1, Fig.2).
- Dispose empty grease cartridge properly.
- Screw in the new cartridge clockwise into the pump housing.
- Air may have entered into the system through the grease cartridge replacement. The grease area must be bled after each grease cartridge replacement.

7.3 Ventilation (grease area)

- Ventilate the complete system after the start-up as well as after a grease cartridge exchange.
- Ventilation is done by operating the system in pressureless condition and with open system outlets. Remove the pressure line from the set screw (6, fig. 2).
- Operate the device until lubricant comes out of the pressure connection without air inclusions!

7.4 Ventilation (oil area)

Ventilate the oil section of the device after each first- or reconnection of the hydraulic connection.

- Release ventilation screw (9, Fig.2) (it is not necessary to turn it out completely).
- Fill oil area until oil escapes through the ventilation screw.
- Retighten ventilation screw.

8. Functional description

8.1 General

The device is designed to deliver multi-purpose grease NLGI grade 2. Thanks to the use of grease cartridges of type S, the lubricant supply can be replenished quickly and tidily.
The device is equipped with a lubricant out.et to which e. g. a progressive distributor can be connected. The lubricant quantity can be set progressively, so that the device can be used for all lubricant circuits.
A return line can be connected to the return connection M10x1 on the device front side. The device is delivered with closed return connection by default.

8.2 Function

All stated positions to Fig.2 (page 7)
At each pressurization with hydraulic oil (X) the supply piston (2) is moved to the left thus pressing together the pressure spring (11) and the suction drilling (U) is closed. The Lubricant (Z) of the suction chamber (T) flows through the non-return valve (V) that avoids a back flow, towards the pressure connection (W). After the pressure stroke the spring (11) presses back the piston (2) into its initial position. The thereby developed vacuum sucks lubricant (Z) into the suction chamber (T) for the next stroke.

8.3 Hydraulic scheme

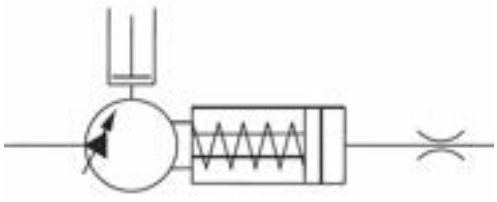


Fig.4

8.4 Pressure transmission

The delivery pressure is directly related to the hydraulic pressure which actuates the device (see Fig.5).

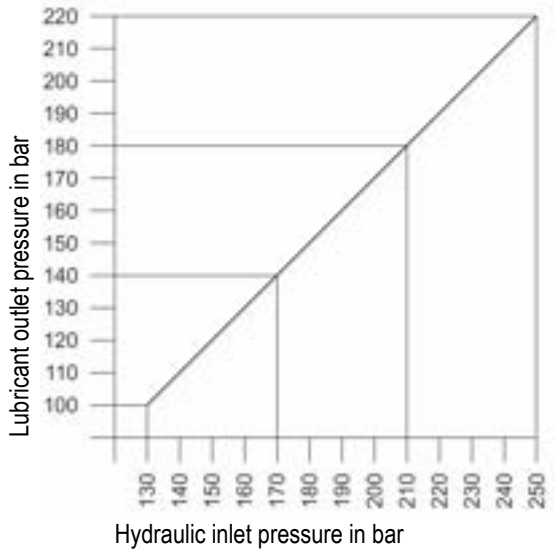


Fig.5

9. 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!

9.1 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.

9.2 Lubricant change

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

- Check the level regularly and change cartridge as necessary, see chapter start up.
- 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.

10. Shutdown

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

11. Disposal

Note!

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 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.

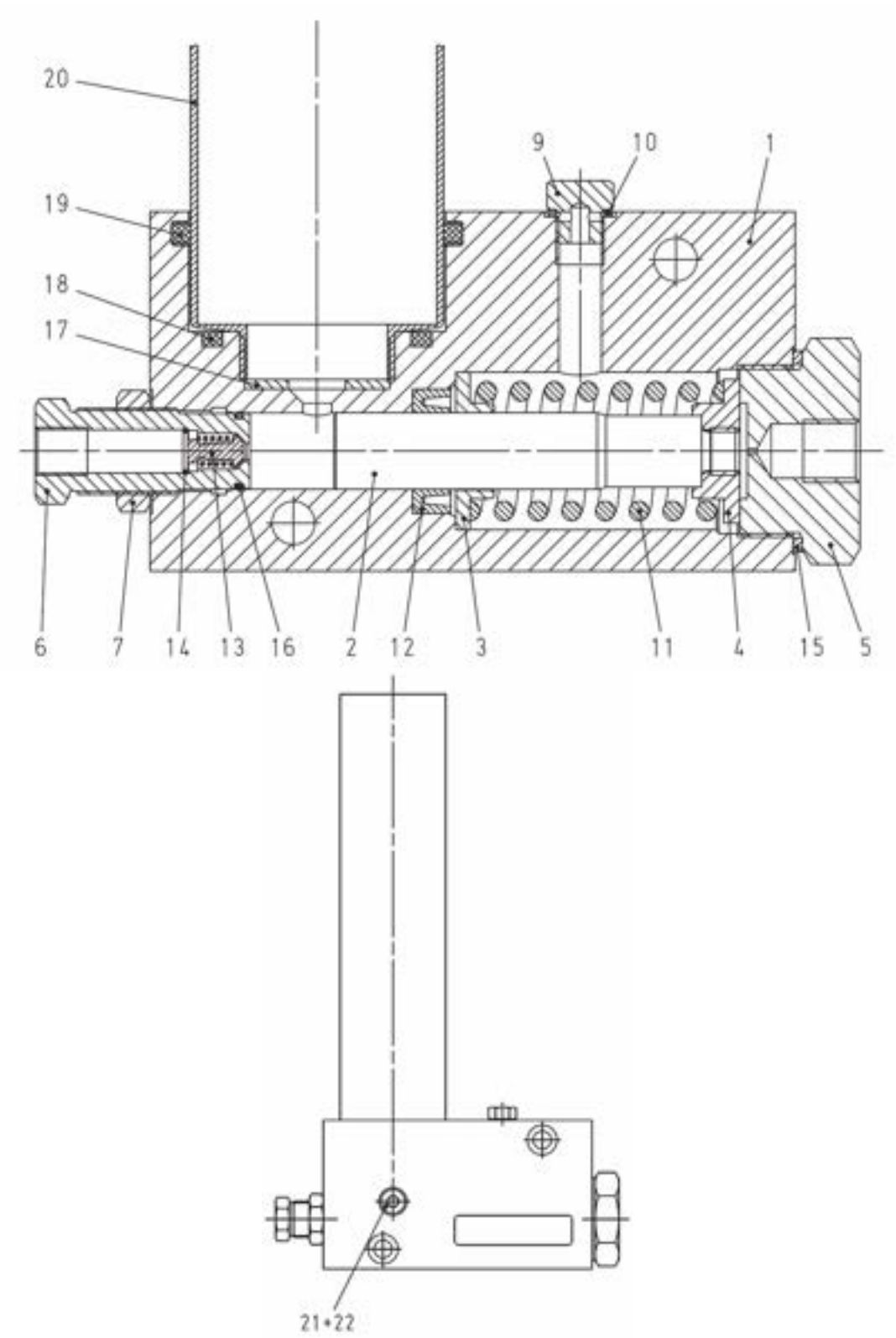
12. Troubleshooting

Malfunction	Possible cause	Possible remedy
Pump does not deliver lubricant	No hydraulic oil pressure at hydraulic connection	Check the pressure at the hydraulic connection
	Pressure spring broken	Renew pressure spring
	Delivery rate adjusted to 0,0 cm³/stroke	Adjust delivery rate
	Cartridge empty	Change cartridge
	Sealing to cartridge leaky	Renew sealing
	Counter pressure in lubrication system too high (line rest pressure too high)	Check lubrication system
Lubricant quantity too low or too high	Delivery rate adjusted wrong	Adjust delivery rate

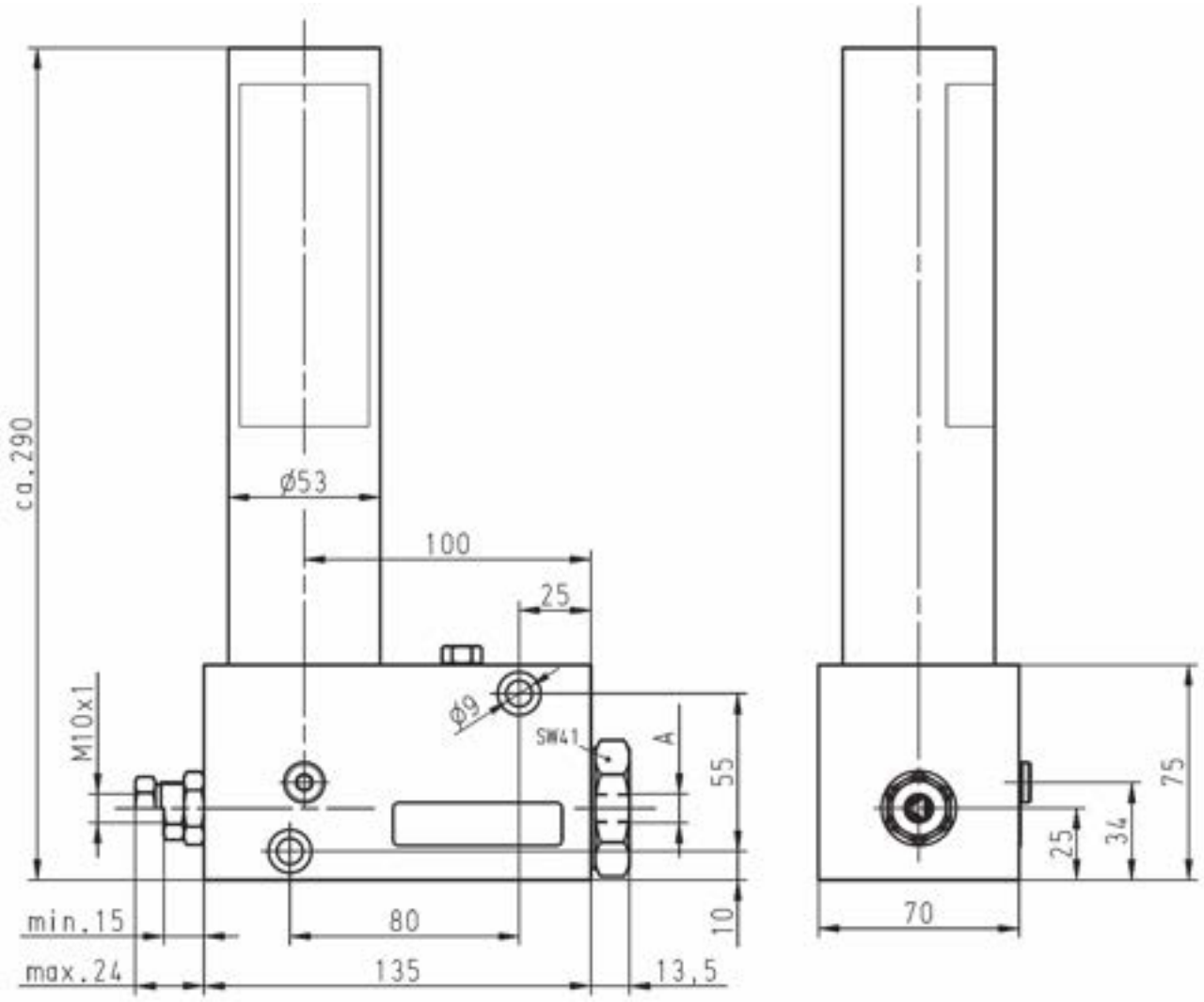
13. Spare part list

Pos.	Pcs.	Designation	Order-no
1	1	Pump housing (can only be ordered together with pos.2)	F0619/01-10
2	1	Delivery piston (can only be ordered together with pos.1)	F0619/02-03
3	1	Spring centring ring	F0619/03-03
4	1	Piston centring ring	F0619/04-03
5	0-1	Screw connection (G¼)	F0619/05-01
	0-1	Screw connection (M10x1)	F0619/05-02 001
	0-1	Screw connection (9/16”-18 UNF)	F0619/05-03 001
6	1	Set screw	F0619/06-04
7	1	Counter nut	F0619/07-00
9	1	Ventilation screw M10x1	0802000255
10	1	Sealing ring A10x13,5x1,5	090760305121
11	1	Pressure spring D-40031 (hydraulic)	104005147
12	1	Grooved ring NI 300	100150090316
13	1	Valve interior parts	0438010001
14	1	Retaining ring 9x0,8	090047202411
15	1	Sealing ring A36x42x2	090760307811
16	1	O-ring 13,5x1,5	09037710125141
17	1	Sealing washer	080100134
18	1	O-ring 38x4	09037710315141
19	1	O-ring 55x4	09037710286181
20	1	Cartridge type S – EP 2 grease, 400g	0320252
21	1	Sealing screw M10x1	090090800213
22	1	Sealing ring A10x14x1	090760300311

14. Spare part drawing



15. Dimensional drawing



For technical details of the hydraulic connection A, see chapter **1. Technical data**.

16. Details of the manufacturer

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