

OPERATING MANUAL

Pump Model BEKA Simplex Original Instructions



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1 General Safety Instructions

1.1 Importance of safety instructions

DANGER



Importance of safety instructions

This operating manual contains important information on handling and safety.

Read the operating manual carefully before you start any work with the product.

Always have the operating manual available on site.

Residual risk

Despite the comprehensive safety measures considered for design and operation of our product, the product is not absolutely safe. There remain residual risks, which cannot be eliminated.

To mitigate the residual risks:

- Take all appropriate precautions as stated in the safety instructions and safety messages.
- Observe the operating instructions.
- Keep to regular check intervals and maintenance.
- Wear personal protective equipment where required.




Non-observance of the safety instructions

Failure to follow the safety instructions can result in:






- damage to persons, serious injuries or death.
- material damage.
- failure of the product.
- Danger to the environment.

1.2 Signal words and symbols used

You will find the following signal words and symbols throughout the whole operating manual:

Level	Meaning
 DANGER	Warns of dangers for persons with a high potential risk. Non-observance of this warning is highly likely to result in serious injury or even death.
 WARNING	Warns of dangers to persons with a medium potential risk. Non-observance of this warning could result in serious injury.
 CAUTION	Warns of dangers for persons with a low potential risk. Non-observance of this warning could result in minor injuries.
NOTICE	Indicates information considered important but not hazard related. Non-observance could lead to damage to property and the environment.

Symbols used

	This symbol warns of electrical voltage.
	This symbol warns of danger to persons if not observed.
	This symbol warns of hot surfaces.
	This symbol warns of suspended loads.
	This symbol warns of possible material damage due to electrostatic discharge if not avoided.

Information labels

	Notice
	Wear ear protection.
	Wear eye protection.
	Wear protective clothing.
	Wash your hands.
	Recycle properly.

1.3 Personnel qualification and training

This operating manual is intended for:

Any person entrusted with tasks involving the product throughout its life cycle.

Qualified personnel

Only qualified personnel may handle the product. Qualified personnel can recognize and minimize possible hazards due to their skills and knowledge. They are qualified by training, certifications, the relevant degree and/or are instructed accordingly.

Authorized persons

Operators	Operators work with the product. They are involved in operation, monitoring and basic maintenance.
Qualified electricians	Electricians install and maintain electrical components, wire the product, diagnose and repair electrical issues.
Service technician	Service technicians are involved with installation, maintenance and repair on site of operation.
Handling personnel	Handling personnel are involved in transport, storage and control of the product.

1.4 Safety instructions for assembly, inspection, maintenance

- Only carry out any installation, inspection or maintenance work at standstill of the product.
- Wear appropriate protective equipment.
- Depressurize and disconnect the product from power supply.
- Secure the product against intentional and unintentional restart during your work. Reinstall all safety and protective equipment after completion of the work.
- Clean soiled or contaminated surfaces before installation, inspection or maintenance.

CAUTION



Hot surfaces

Hot surfaces of the product can lead to burns.

- a) Wear heat-resistant gloves.
- b) Check the surface temperature of the product.

- Naked light or fire are strictly forbidden.

1.5 Unauthorized modification / Production of spare parts

Modification and repair of the product are only permitted after consultation with the manufacturer.

Use only original spare parts and accessories.

Do not modify the product until you receive the written specific instructions by the manufacturer.

1.6 Intended use and improper use

The product is used to convey lubricants within an automatic lubrication system.

Intended use

The product is intended for commercial use only.

The product is a machine according to Machinery Directive 2006/42/EC.

- Use the product only within the values as stated in the technical data.
- Mind the lubricant specifications of the manufacturer.
- Observe all relevant regulations for occupational safety and accident prevention during the whole life cycle of the product.

Improper use

Any other use beyond the stated intended use is improper.

Improper use can be in particular, but not limited to:

- operating the product with improper lubricants.
- changing the product without authorization by the manufacturer.
- carrying out work at or with the product without having the necessary professional training and authorization.
- disregarding required maintenance and inspection intervals.
- exceeding or undergoing the limit values as stated in the technical data.

1.7 Electrostatic discharge

NOTICE



Avoid Electrostatic discharge (ESD).

Electrostatic discharge on contact could destroy integrated electronic components.

- a) Keep to the safety precautions against Electrostatic discharge (according to EN 61340-5-1/-3).
- b) Ensure well grounding of the environment (people, workplace and packaging) when handling the products.

2 Scope of Warranty

Warranty is only granted by the manufacturer for the use as intended and under the following conditions:

- Authorized qualified personnel carries out installation, connection and maintenance.
- The product is used in accordance with the information in the operating manual.
- The limit values as stated in the technical data are not exceeded or gone below.
- Only Groeneveld-BEKA may carry out modification and repair of the product.

NOTICE



Damage caused by lubricants

Damage caused by operation with an unsuitable lubricant will invalidate guarantee and warranty.

Groeneveld-BEKA will generally not assume liability for damage caused by lubricants, even if Groeneveld-BEKA has tested and approved the lubricants. Damage caused by lubricants (e.g. due to improper storage) cannot be retraced.

3 Manufacturer

Company name and address of the manufacturer of the machine:

Groeneveld-BEKA GmbH

Beethovenstraße 14

91257 Pegnitz, Bayern, Germany

Tel.: +49 9241729-0

Fax: +49 9241729-50

4 General Product Information

4.1 Product Description

The BEKA Simplex is an electrically driven gear pump unit for the use in single-line systems. The BEKA Simplex is able to deliver oil and fluid greases of NLGI-000-00 at a maximum operating pressure of 35 bar. The BEKA Simplex delivers lubricant via one line and metering valves directly to the lubrication points. The design and intuitive handling make the BEKA Simplex a perfect solution for simple applications in the industrial sector.

The BEKA Simplex is available with or without integrated control unit.



1	Filling cap You can fill the reservoir via the filling cap in the cover.
2	Reservoir The reservoir is made of transparent plastic and has a capacity of 3 L.
3	Rotary switch You can adjust control settings with the rotary switch.
4	Control unit The BEKA Simplex can be controlled with the integrated BEKA Simplex control unit (optional).
5	Pressure connection

4.2 Applicable documents

Dimensioned drawing

Connection diagram

Spare parts drawing

Certificates

4.3 CE Declaration of Conformity



DIRECTIVE 2006/42/EC - Annex II A

Company name and address of the manufacturer of the machine:

Groeneveld-BEKA GmbH
 Beethovenstraße 14
 91257 Pegnitz, Bayern, Germany
 Tel.: +49 9241729-0
 Fax: +49 9241729-50

Name and address of the company authorised to compile the technical file:

Groeneveld-BEKA Italia S.r.l.
 Via Pertini, 1
 23893 Cassago Brianza (LC), Italy
 Tel./Fax: +39 039 9215611

THIS DECLARATION OF CONFORMITY APPLIES TO THE FOLLOWING PRODUCT:

Machine Designation	AUTOMATIC LUBRICATION SYSTEM
Type Designation	BEKA Simplex
Brief Description	THE MACHINE IS A PUMPING SYSTEM DESIGNED AND BUILT TO CARRY OUT AUTOMATIC LUBRICATION CYCLES OF MACHINES AND/OR SYSTEM PARTS.

THE MANUFACTURER DECLARES UNDER ITS OWN RESPONSIBILITY THAT THE PRODUCT COMPLIES WITH THE FOLLOWING EU DIRECTIVES AND HARMONIZED STANDARDS:

- Directive 2006/42/EC (Machinery Directive)
- Directive 2014/35/EU (Low Voltage Directive)
- Directive 2014/30/EU (Electromagnetic Compatibility Directive)
- EN ISO 12100:2010
- EN 809:2009

Via Pertini, 1, 23893 Cassago Brianza (LC), Italy

In witness whereof

Groeneveld-BEKA GmbH

President

Diego Macario

4.4 Conformity marking



This product is CE certified.

4.5 Shutdown and Disposal

WARNING



Product under pressure and connected to power

You can get injured by:

- a) liquids which escape due to high pressure.
- b) electrical power due to high voltage.

Mind all relevant national and international laws and regulations for disposal.

1. Depressurize the product.
2. Switch off electrical power supply.
3. Have electrical components disconnected from the electrical power supply by a trained electrician.
4. Remove all pipes and hoses from the product and detach fittings.
5. When you change the lubricant, observe the disposal instructions of the lubricant manufacturer.
6. Collect lubricants or contaminated cloths in marked containers and dispose of them properly.

5 Transport and storage

Transport

WARNING



Suspended loads

You might get injured if suspended loads fall down.

- a) Keep distance to suspended loads.
- b) Wear appropriate protective clothing.

-
- Make sure that the means for transportation or the lifting device has sufficient carrying capacity.
 - Observe the applicable regulations on safety and accident prevention for transportation.
 - Do not throw the product or expose it to shocks.
 - Secure the product against slipping or falling over during transport.
 - Make sure the product is empty before moving it.

Storage

- Store the product cool and dry to avoid corrosion.
- If the product contains lubricants, observe the storage conditions of the lubricants.
- If the lubricant is overstored, check if oil and soap are separated. In this case, replace the lubricant.
- Store the product in upright position.

6 Technical Data

General

Delivery volume per stroke and outlet	0,2 - 0,3 l/min
Number of outlets	1
Outlet connection thread	G1/4
Lubricant	fluid grease NLG cl. 000-00 (acc. to release list) oil
Operating pressure	max. 35 bar
Pressure limiting valve	set to 35 bar (standard)
Operating temperature	medium: 0 to +70°C ambient: 0 to +40°C
Reservoir material	plastic
Reservoir size	3 L
Installation position	horizontal
Degree of protection	IP 54
Sound pressure level	<70dB(A)
Drive torque required	0,2 Nm

Motor

Drive	motor
Power supply	24 V DC / 100 - 240 AC (50 - 60 Hz)
Power	60 W
Current type of motor	direct current
Operational voltage	24 V DC
Current consumption	max. 4 A
Speed	1500 rpm
Fuse protection (not included in the product)	5 A

Control Unit

Supply voltage	24 V DC
Current consumption	max. 4 A
Output for signal lamp	P-MOSFET 100 mA normally closed
Fuse protection (not included in the product)	5 A

Level Monitoring

Operational voltage	24 V DC
Switching current	100 mA
Switching type	normally open P-MOSFET (M12x1 plug)
Connection	plug M12x1 (DIN EN 61076-2-101-A)

7 Installation Instructions

- 1) Check the product for transport damage and completeness before installation.
- 2) Remove transport protection.
- 3) Select the place of installation so that the product is protected against environmental and mechanical impacts.
- 4) Ensure unhindered access.
- 5) Observe the information on fastenings from the dimensional drawing.

7.1 Level monitoring

Optical

Product with control unit / without control unit:

Due to the transparent reservoir you can check the level optically at the minimum and maximum markings.

Electrical

The BEKA Simplex is equipped with a capacitive sensor in the housing. The sensor checks the level with the beginning of each lubrication process.

With control unit:

- The sensor is an NO contact.
- With the control unit you can determine a number of lubrication processes (100 as a maximum) which will be completed even after a low level warning. See [Simplex control \(8.1: BEKA Simplex control unit\) \[► 22\]](#) for the procedure.
- If the number for the lubrication processes after low level warning is zero, the control will stop the pump / the release signal.

Without control unit:

- For the product version without control unit, the sensor is a NO contact as standard.
- If the sensor detects low level, it will emit a signal, which you have to evaluate, e.g. with an external control.

The error low level resets automatically when you refill the product reservoir.

7.2 Electrical connection

WARNING



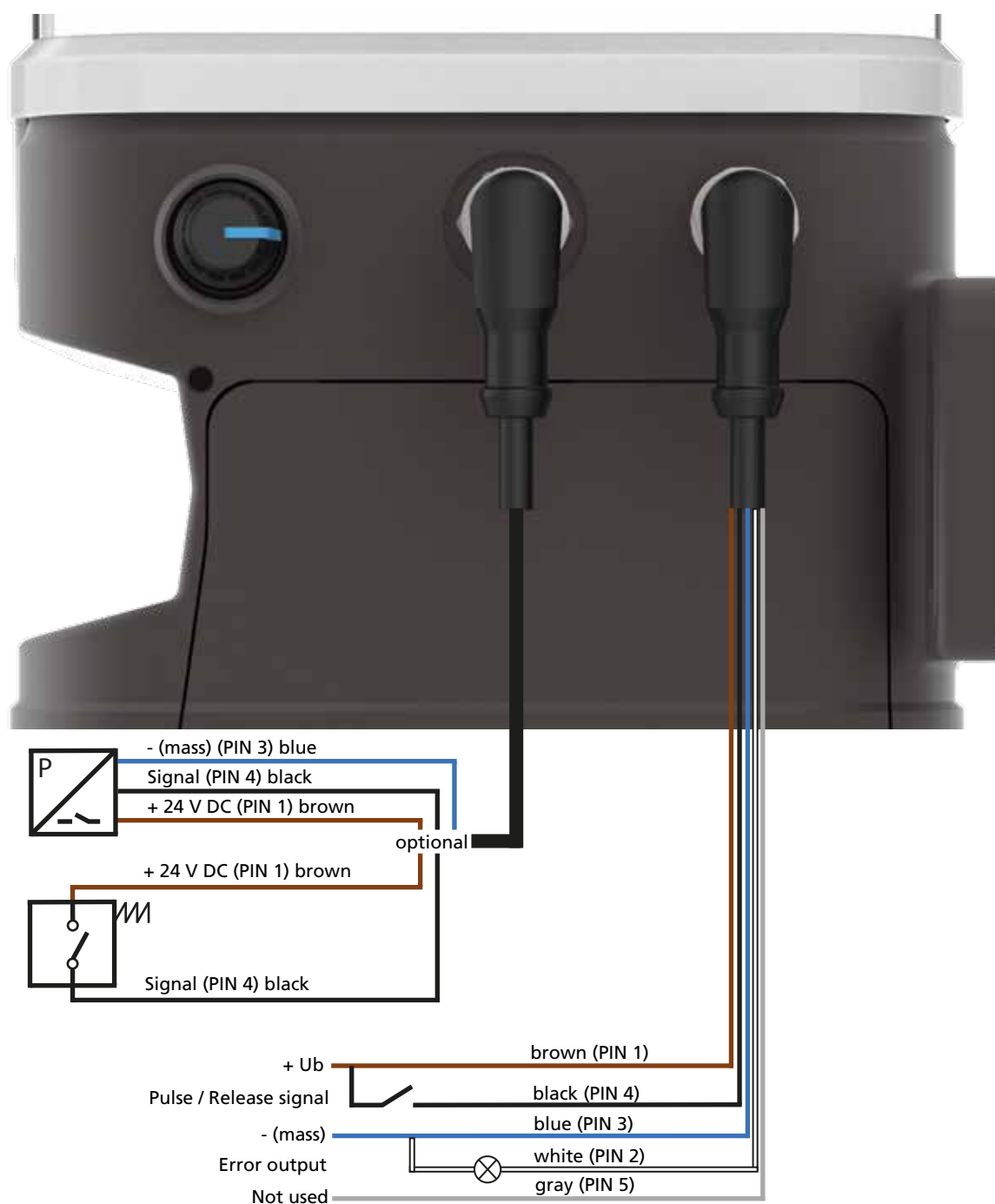
Risk of electric shock

- a) Have the electrical power supply installed by a qualified electrician.

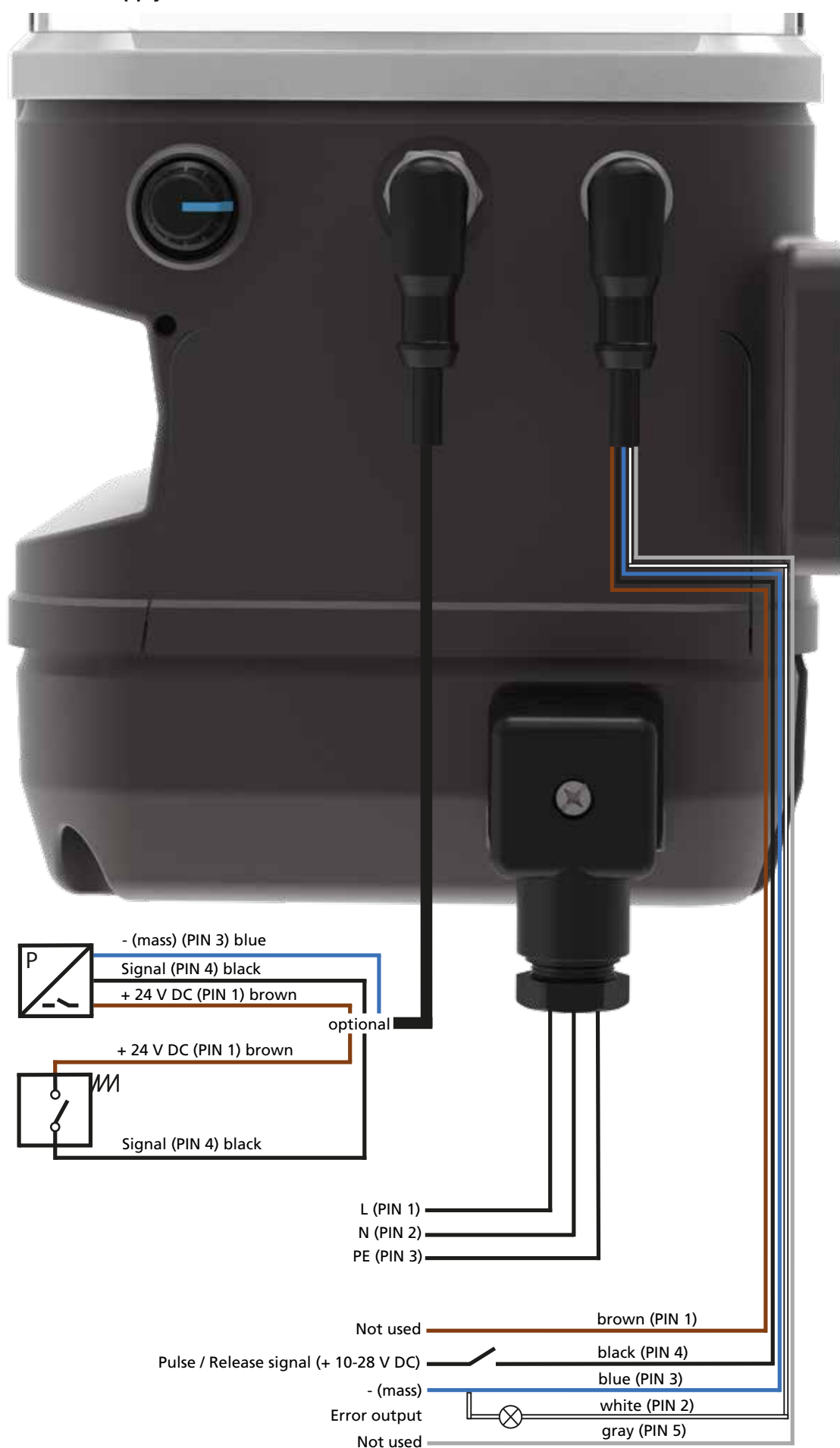
- Mind all specifications of the electrical connection diagram.
- Compare the voltage specifications with the existing mains voltage.

7.2.1 BEKA Simplex control connection diagrams

Product with 24 V DC supply

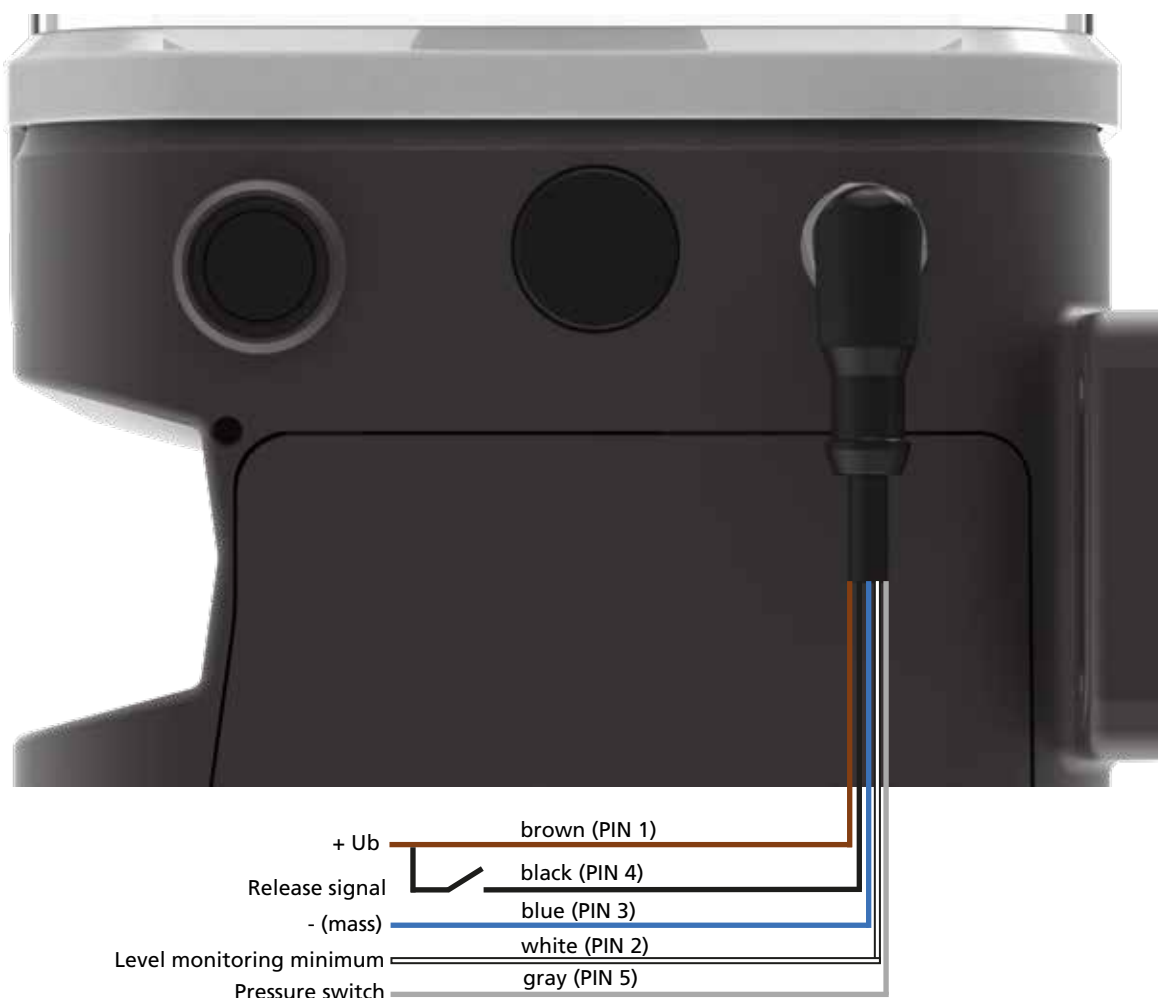


Product with 230 V AC supply



7.2.2 No control connection diagrams

Product with 24 V DC supply



Product with 230 V AC supply



7.3 Lubricants

Lubricant

fluid grease NLG cl. 000-00 (acc. to release list) oil

- Use lubricants with high-pressure additives.
- Use only lubricants of the same saponification type.
- Comply with the lubricant specifications of the machine manufacturer.
- Comply with the safety data sheet of the lubricant manufacturer. Keep the safety data sheet of the used lubricant on hand.

NOTICE



The lubricant flow changes with the operating temperature.

- Do not use lubricants with solids content.

7.4 Lubricant filling

Filling process

NOTICE



Contamination of the reservoir

Dirt particles that get into the reservoir can cause malfunctions or clog lines and connected equipment.

- Ensure a clean environment for the filling process.
- Only fill with clean lubricant

General

- Do not overfill the reservoir.
- Collect leakages and dispose of them properly.
- Check the level regularly at equal intervals during the first hours of operation. Refill clean lubricant if necessary.

Filling at filling cap

- 1) Unscrew the filling cap.
- 2) Fill up to maximum level.
- 3) Screw the filling cap back on after filling.



7.5 Vent the lubrication system

- Vent the lubrication system with initial start-up and after each lubricant change.
- Only vent the lubrication system when depressurized and with open outlets.
- Operate the product until the lubricant comes out from the pressure connection free of air bubbles.

7.6 Line assembly

Please comply with the following for line assembly:

- Lay out the lines professionally.
- Ensure that fittings are tight against pressure.
- All components must be approved for the maximum operating pressure as stated in the technical data.

8 Control unit and Settings

8.1 BEKA Simplex control unit

The BEKA Simplex control unit allows the management and configuration of the BEKA Simplex pump. The control unit is equipped with a 16x2 LCD screen, used to display the information and a rotary switch that allows navigation through the menus. The LCD screen can display 16 characters on 2 different lines, for a total of 32 characters.

8.1.1 Status Display

The LCD Screen shows the current status of the pump on the first line and the time remaining before switching to another status on the second line. The pump can be in one of the following five statuses:

Status: break	The pump is currently stopped and is waiting for the end of the countdown to start again.
Time: hh:mm:ss	Indicates the time remaining in hours:minutes:seconds (countdown) before the pump starts. In operating mode "Time" it counts down the "CycleT" and in operating mode "Pulse" it counts down the "Pulses".

Status: pumping	The pump is currently pumping and will continue until the end of the countdown.
Time: hh:mm:ss	Counts down the "PressMaxT" time for a timeout error. In a normally functioning system, the pressure reaches over 20 bar before this time is counted down to zero. After the pressure reached over 20 bar, it continues with "Status: hold".

Status: hold	The pump is in hold status.
Time: hh:mm:ss	Counts down the "PressHoldT".

Status: relieve	The pump is in relieve status.
Time: hh:mm:ss	After the motor has stopped, the system has 60 seconds to reduce the pressure in the line, otherwise a timeout error will occur.

Status: finished	The pump has finished its ongoing job.
Time: hh:mm:ss	The finished message is displayed for 2 seconds.

If the rotary switch is pressed when the LCD screen shows any of the pump statuses, the main menu is accessed.

8.1.2 Main Menu

The main menu has 5 pages, selectable via the rotary switch. The submenus are accessed by pressing (clicking) the rotary switch.

Menu 1/5	Current main menu page (1 of 5).
Intermediate lub	If the pump is in break status, clicking on this command starts the lubrication and then returns to the Status Display.

Menu 2/5	Current main menu page (2 of 5).
Configuration	Clicking on this page opens the configuration submenu.

Menu 3/5	Current main menu page (3 of 5).
Pump Information	Clicking on this page opens the pump information submenu

Menu 4/5	Current main menu page (4 of 5).
System	Clicking on this page opens the system configuration submenu

Menu 5/5	Current main menu page (5 of 5).
back	Clicking on this page allows to return to the Status Display page

8.1.2.1 Menu -> Configuration

The configuration submenu allows the working parameters of the pump to be set: the adjustable parameters change according to the operating mode set (time or pulse)

M->Config: 1/8	Current option in the configuration submenu (1 of 8)
Mode: Time	<p>This option allows to change the functioning mode of the pump between:</p> <ul style="list-style-type: none"> • Time (time-based duty cycle) • Pulse (pulse-based duty cycle) <p><i>The default setting is "Time".</i></p>

M->Config: 2/8	Current option in the configuration submenu (2 of 8).
CycleT: hh:mm	<p>This option allows to set the duty cycle time of the pump in hours:minutes between:</p> <ul style="list-style-type: none"> • 00:05 • 24:00 <p><i>The default setting is "00:10".</i></p> <p>This working parameter only appears if the functioning Mode is set to "Time".</p>

M->Config: 2/7	Current option in the configuration submenu (2 of 7).
Pulses: x/x	<p>This option allows to set the duty cycle in number of the pulses for the pump between:</p> <ul style="list-style-type: none"> • 1 • 1000 <p><i>The default setting is "10".</i></p> <p>This working parameter only appears if the functioning Mode is set to "Pulse".</p>

M->Config: 3/8	Current option in the configuration submenu (3 of 8).
PressMaxT: x	<p>This option allows to set the allowed duration for the pump to reach the pressure in the line in seconds between:</p> <ul style="list-style-type: none"> • 30 • 120 <p><i>The default setting is "80".</i></p>

M->Config: 4/8	Current option in the configuration submenu (4 of 8).
PressHoldT: x	<p>This option allows to set the duration, for which the pump maintains the pressure in the line, after the set pressure has been reached in seconds between:</p> <ul style="list-style-type: none"> • 1 • 30 <p><i>The default setting is "10".</i></p>

M->Config: 5/8	Current option in the configuration submenu (5 of 8).
CntFillLev.: x	<p>This option allows to set the counter for the fill level in pieces between:</p> <ul style="list-style-type: none"> • 0 • 100 <p><i>The default setting is "0".</i></p> <p>This counter indicates how often you can still lubricate after the minimum level is reached. "0" means that the pump no longer delivers lubricant. "100" means that the pump will do 100 more lubrications.</p>

M->Config: 6/8	Current option in the configuration submenu (6 of 8).
extPressure: OFF	<p>This option allows to connect an external pressure sensor. If you want to use an external pressure sensor you need to deactivate the integrated pressure sensor of the pump by setting this option to "ON"</p> <ul style="list-style-type: none"> • OFF • ON <p><i>The default setting is "OFF".</i></p> <p>When the option is set to "ON" and no external sensor is connected the error "Press-MaxT" will occur.</p>

M->Config: 7/8	Current option in the configuration submenu (7 of 8).
extRelease: OFF	<p>When this option is set to "ON" the "CycleT" is only counted down if a HIGH signal is present at "Pulse / Release signal" see 7.2.1: BEKA Simplex control connection diagrams [► 16]</p> <ul style="list-style-type: none"> • OFF • ON <p><i>The default setting is "OFF".</i></p> <p>This option can not be changed for the "Pulse" mode, as the pulses also come via the same PIN. If your in operating mode "Pulse" always set this option to "ON".</p>

M->Config: 8/8	Current option in the configuration submenu (8 of 8).
back	This selection allows to return to the Main Menu page.

8.1.2.2 Menu -> Pump Information

The Pump Information submenu shows the following information about the pump:

M->P-Info: 1/22	Current selection in the Pump Information submenu (1 of 22)
Firmware: Vx.xx	It shows information about the firmware installed.

M->P-Info: 2/22	Current selection in the Pump Information submenu (2 of 22)
Hardware: Rxx	It shows information about the hardware components.

M->P-Info: 3/22	Current selection in the Pump Information submenu (3 of 22)
SerialNr: xxxx	It shows the serial number.

M->P-Info: 4/22	Current selection in the Pump Information submenu (4 of 22)
Pr.Date: DD.MM.YY	It shows the production date.

M->P-Info: 5/22	Current selection in the Pump Information submenu (5 of 22)
Operating: h	It shows the total hours of operation.
M->P-Info: 6/22	Current selection in the Pump Information submenu (6 of 22)
Motor T: hh:mm	It shows information about the motor working time, in hours:minute.
M->P-Info: 7/22	Current selection in the Pump Information submenu (7 of 22)
Motor SW: x	It shows how often the motor has been switched on.
M->P-Info: 8/22	Current selection in the Pump Information submenu (8 of 22)
Motor I: mA	It shows information about the current absorbed by the motor, in milliamps.
M->P-Info: 9/22	Current selection in the Pump Information submenu (9 of 22)
Motor P: %	It shows information about the motor power, in percent.
M->P-Info: 10/22	Current selection in the Pump Information submenu (10 of 22)
Ratio: s	It shows the average time until the pressure in the line is reached. Average time in the "Status: pumping" process.
M->P-Info: 11/22	Current selection in the Pump Information submenu (11 of 22)
Input U: V	It shows the input voltage in volts.
M->P-Info: 12/22	Current selection in the Pump Information submenu (12 of 22)
Temp.: °C	It shows the temperature of the pump in the unit depending on the configuration in point "M->System: 4/9".
M->P-Info: 13/22	Current selection in the Pump Information submenu (13 of 22)
Temp. MAX: °C	It shows the maximum temperature of the pump. The unit depends on the configuration in point "M->System: 4/9"
M->P-Info: 14/22	Current selection in the Pump Information submenu (14 of 22)
Temp. MIN: °C	It shows the minimum temperature of the pump. The unit depends on the configuration in point "M->System: 4/9"
M->P-Info: 15/22	Current selection in the Pump Information submenu (15 of 22)
P SW int: x	It shows how often the internal pressure switch has switched to "ON"
M->P-Info: 16/22	Current selection in the Pump Information submenu (16 of 22)
P SW ext: x	It shows how often the external pressure switch has switched to "ON"

M->P-Info: 17/22	Current selection in the Pump Information submenu (17 of 22)
Inputs: 00000	It shows information about the inputs in real time a HIGH == 1 or LOW == 0. Inputs: 12345 1: External release or pulse 2: External pressure sensor 3: Internal pressure sensor 4: Minimum level sensor 5: DiSys connection
M->P-Info: 18/22	Current selection in the Pump Information submenu (18 of 22)
Errors: 00000000	It shows information about the errors in real time a ACTIVE == 1 or NOT ACTIVE == 0. Errors: 12345678 1: Short circuit motor 2: Minimum fill level reached 3: Relieve (startup or timeout) 4: Maximum pressure time reached 5: Motor current too high 6: Motor current too low 7: Input voltage too high 8: Input voltage too low
M->P-Info: 19/22	Current selection in the Pump Information submenu (19 of 22)
FLASH P: x/18	It shows status information about the condition of the internal FLASH
M->P-Info: 20/22	Current selection in the Pump Information submenu (20 of 22)
FLASH S: x	It shows status information about the condition of the internal FLASH
M->P-Info: 21/22	Current selection in the Pump Information submenu (21 of 22)
FLASH D: x	It shows status information about the condition of the internal FLASH
M->P-Info: 22/22	Current selection in the Pump Information submenu (22 of 22)
back	This selection allows to return to the Main Menu page

8.1.2.3 Menu -> System

The system submenu allows you to manage the following general settings of the control unit:

M->System: 1/9	Current selection in the System submenu (1 of 9).
PIN: xxxx / OFF	This option allows to enable or disable the PIN code. The pin code is a four-digit numeric code. The code can be changed by choosing a number between 0000 and 9999. <i>The default PIN code is 0000.</i> <i>The default setting for this option is OFF.</i>

M->System: 2/9	Current selection in the System submenu (2 of 9).
Language: english	<p>This option allows to change the language of the interface. The selectable languages are:</p> <ul style="list-style-type: none"> • English • Deutsch • Espanol • Francais • Italiano <p><i>The default value is "English".</i></p>
M->System: 3/9	Current selection in the System submenu (3 of 9).
MaxCurrent: x.x	<p>This option allows to set the maximum RMS current absorbed by the pump. The selectable range is between 1.5 A and 2.5 A</p> <p><i>The default value is 2.5 A.</i></p> <p>If the value of 2.5 A is reduced, the flow rate of the pump decreases.</p>
M->System: 4/9	Current selection in the System submenu (4 of 9).
Temp. unit: °C	<p>This option allows to set the reference scale for the temperature.</p> <p>The selectable values are:</p> <ul style="list-style-type: none"> • °C (Degrees Celsius) • °F (Degrees Fahrenheit) <p><i>The default value is °C.</i></p>
M->System: 5/9	Current selection in the System submenu (5 of 9).
Error output: NC	<p>This option allows to set the operating mode of the error output signal.</p> <p>The selectable values are:</p> <ul style="list-style-type: none"> • NC (normally closed) • NO (normally open) <p>The default value is NC.</p>
M->System: 6/9	Current selection in the System submenu (6 of 9).
Man. relieve: x	<p>This option allows to set the number of complete cycles, that the pump should perform without waiting for the "CycleT".</p> <p>The selectable values are between 2 pcs and 30 pcs.</p> <p>The default value is 3 pcs.</p> <p>Here you can only select the number of cycles. To start the process go to "M->System: 7/9"</p>
M->System: 7/9	Current selection in the System submenu (7 of 9).
Man. relieve: OFF	<p>This option allows to start the manual relieve process with the number of complete cycles set in "M->System: 6/9"</p> <p>The selectable values are</p> <ul style="list-style-type: none"> • OFF • ON <p>The default value is OFF.</p>

M->System: 8/9	Current selection in the System submenu (8 of 9).
Man. motor: OFF	<p>This option allows to set a manual motor control. Also possible if the customer wants to fill the pressure line or remove air from the system. Maximum "ON" time is set to 5 minutes.</p> <p>The selectable values are</p> <ul style="list-style-type: none"> • OFF • ON <p>The default value is OFF.</p>

M->System: 9/9	Current selection in the System submenu (9 of 9).
back	This selection allows to return to the Main Menu page.

8.1.3 Errors

The control unit can detect and display on the LCD screen the following errors that may occur during pump operation:

!! ERROR !!	It indicates that an error message is currently being displaying.
Undervoltage	The message warns that the input voltage is less than 18 volts.

!! ERROR !!	It indicates that an error message is currently being displaying.
Overvoltage	The message warns that the input voltage is higher than 28 volts.

!! ERROR !!	It indicates that an error message is currently being displaying.
Motor I too low	<p>The message warns that the motor current is less than 100mA.</p> <p>It may indicate that the motor is not connected or is defective.</p>

!! ERROR !!	It indicates that an error message is currently being displaying.
Motor I too high	<p>The message warns that the motor current is higher than 2.7 A.</p> <p>It may indicate that the motor is turning too hard.</p>

!! ERROR !!	It indicates that an error message is currently being displaying.
Pressure time	The message warns that the set pressure time was exceeded before pressure could build up.

!! ERROR !!	It indicates that an error message is currently being displaying.
Relieve	The message warns that a pressure above 20 bar is already present at the beginning of a new pumping process or in the process "Status: relieve" the timeout of 60 seconds has been reached. After a pump cycle, it is not possible for the system to release the pressure in the line.

!! ERROR !!	It indicates that an error message is currently being displaying.
Check fill level	<p>The message warns to check the fill level of the medium.</p> <p>It indicates that the reservoir is empty.</p>

!! ERROR !!	It indicates that an error message is currently being displaying.
Motor overloaded	The message warns of a large current peak. It may indicate a motor short-circuit.

!! ERROR !!	It indicates that an error message is currently being displaying.
PIN protected	The message warns that the PIN is active and the selected value cannot be changed.

9 Start-up and Operation

You can mount the product at the wall or you can operate it upright standing.

NOTICE



If you want to use the product without wall mounting, make sure that it is adequately secured.

Please check the following before you start up the product:

- Clean environment
- Reservoir filled with suitable lubricant, refer to [Lubricants \(7.3: Lubricants\) \[► 20\]](#). As standard you will receive the product checked with oil but unfilled. Refer to [Lubricant filling \(7.4: Lubricant filling\) \[► 20\]](#).
- Lubrication system vented, refer to [Vent the lubrication system \(7.5: Vent the lubrication system\) \[► 21\]](#).
- Correct electrical connections
- Correct pressure line connection
 - directly at pressure connection or
 - at connection block if available

WARNING



Movable, rotating, hot or cold parts

Movable, rotating, hot or cold parts of the product can cause serious injuries.

- a) Protect movable, rotating, hot or cold parts of the product against contact.

10 Maintenance

WARNING



Risk of burns due to hot surfaces

- a) Check the surface temperature of the product.
- b) Wear heat-resistant gloves.

Before any maintenance work or repair, do the following:

- 1) Disconnect the product from voltage.
- 2) Depressurize the product.
- 3) Put the product at standstill.
- 4) Make sure the product cannot be restarted during maintenance.
- 5) Clean soiled or contaminated surfaces. Wear protective equipment if necessary.

10.1 General Maintenance

Preventive Maintenance

Regular inspections and maintenance are essential to ensure optimal performance and longevity of the product.

- Keep to the inspection intervals. Groeneveld-BEKA recommends to replace wear parts as listed in the table.

NOTICE



Maintenance intervals

Independent from the listed intervals for inspection and maintenance, define the specific intervals according to the operating conditions.

- a) Review the specified intervals regularly.
- b) Ensure that safety and function of the product are not affected if you adjust intervals.

Operation	Interval					
	1 month	3 months	1 year	2 years	5 years	8-10 years
Check lubricant quantity and refill if necessary		X				
Check lubricant and compressed air lines		X				
Check visually the fastening of all parts of the lubrication system		X				
Function test		X				
Clean the lubricant lines with oil			X			
Replace lubrication oil filter				X		
Replace hoses						X
Replace seals of reservoir cover						X

Corrective Maintenance

Lubrication oil filter change

- 1) Unscrew the filling cap
- 2) Remove the soiled filter
- 3) Insert the new filter

Extraordinary Maintenance

Extraordinary maintenance is only carried out by qualified personnel of Groeneveld-BEKA.

10.2 Lubricant change

NOTICE



Pay attention to utmost cleanliness when filling lubricant.

- Carry out the lubricant change according to the specifications of the lubricant manufacturer.
- Ambient influences like temperature or pollution might effect the recommended intervals.
- Only use lubricants which are suitable for the product, the machine and the operational conditions.
- Ensure that the lubricant quality is the same as of the previously used lubricant.
- Drain and clean the reservoir even with good compatibility of the lubricants.

11 Cleaning

Basics

Clean the product regularly to ensure proper function.

Only use cleaning detergents that do not damage the product.

Interior cleaning

You need to clean the inside of the product only if incorrect or contaminated lubricants accidentally enters the product. Please contact Groeneveld-BEKA for assistance.

Exterior cleaning

WARNING



Risk of electric shock

- a) Switch off electrical power supply.

Make sure no cleaning fluid enters the interior of the product during cleaning.

Mind the IP rating of the product when cleaning.

12 Troubleshooting

12.1 General Troubleshooting

Error	Possible cause	Possible troubleshooting
Product does not operate	Fuse defective	Replace fuse
	Electrical line interrupted	Replace electrical line
	No release signal	Check release signal
	Product defective	Replace product
Product operates, but does not deliver	Air bubbles in the gear pump	Vent the product
	Air bubbles in the reservoir	Vent the product
	Reservoir empty	Fill reservoir
No lubricant collar at all lubrication points	Product does not operate	Check if any errors are displayed
	Lubrication duration (product operation time) too short	Extend lubrication duration
	Cycle time too long	Reduce cycle time
No lubricant collar at some lubrication points	Supply line to secondary distributors burst or leaky	Replace lines
	Screw connections leaky	Retighten or renew screw connections
Speed of the product reduced	High system pressure	Check lubrication system / lubrication points (no damage)
	Supply voltage too low	Check supply voltage
Level monitoring sends a signal although the reservoir is full	Level monitoring defective	Send the product in for repair
	Level monitoring incorrectly connected	Check connection of level monitoring, change if necessary
"Undervoltage"	Input voltage less than 18 V.	Increase the voltage
"Overvoltage"	Input voltage greater than 28 V.	Decrease the voltage
"Motor I too low"	Motor current less than 100 mA.	Send the product in for repair
"Motor I too high"	Motor current greater than 2.7 A.	Send the product in for repair
"Pressure time"	Set pressure time exceeded before pressure could be built up.	Check for line rupturing or increase pressure time
"Relieve"	If pressure is already present at the start of a new pumping process (greater than 20 bar).	Send the product in for repair
"Check fill level"	Medium empty.	Fill reservoir
"Motor overloaded"	Large current peak.	Send the product in for repair
"PIN protected"	PIN is active and the value cannot be changed.	Remove PIN protection

Error	Possible cause	Possible troubleshooting
Product does not operate	Fuse defective	Replace fuse
	Electrical line interrupted	Replace electrical line
	No release signal	Check release signal
	Product defective	Replace product
Product operates, but does not deliver	Air bubbles in the gear pump	Vent the product
	Air bubbles in the reservoir	Vent the product
	Reservoir empty	Fill reservoir
No lubricant collar at all lubrication points	Lubrication duration (product operation time) too short	Extend lubrication duration
	Cycle time too long	Reduce cycle time
No lubricant collar at some lubrication points	Supply line to secondary distributors burst or leaky	Replace lines
	Screw connections leaky	Retighten or renew screw connections
Speed of the product reduced	High system pressure	Check lubrication system / lubrication points (no damage)
	Supply voltage too low	Check supply voltage
Level monitoring sends a signal although the reservoir is full	Level monitoring defective	Send the product in for repair
	Level monitoring incorrectly connected	Check connection of level monitoring, change if necessary



WEBSITE



CONTACT



This document is intended solely as a means of evaluation and to provide you with data to assist you in using our product. Product performance is influenced by many factors outside the control of Groeneveld-BEKA. Groeneveld-BEKA products are sold in accordance with the Groeneveld-BEKA terms and conditions of sale, which include our limited warranty and remedies.

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