

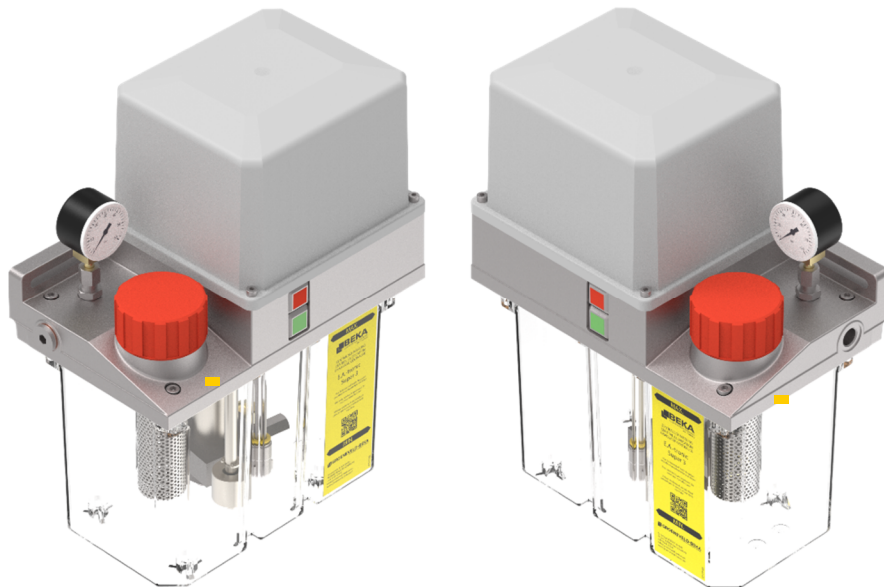
Single line unit

Super 3 EA-tronic

Code 2805 ... / 2806 ...

Revision 03-2025

Original operating- and assembly manual



00-1003941_BAL_2805_2806_Super_3_EA_tronic_R04EN

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1. Technical data

General:

Reservoir capacity: 3 litre
 Reservoir material: plastic, transparent
 Dimensions: see dimensional drawing
 Pressure connection: G1/4
 Lubricant: oil, 20 - 700 mm²/s
 fluid grease NLGI-cl. 000-00 (acc. to release list)
 Operating pressure: max. 35 bar
 Temperature range: lubricant 0 - 70°C
 ambient 0 - 40°C
 Oil purity class: ISO 4406: ≤ 19/17/14
 Sound pressure level: <70dB(A)

Pump:

Pump type: gear pump
 Delivery rate: 0,4 l/min
 Drive type: electric motor
 Power: 185 / 210 W
 Operating voltage and nominal current: 115 V AC; 50 / 60 Hz; 1,6 / 1,9 A
 230 V AC; 50 / 60 Hz; 0,8 / 1,0 A
 Three-phase current: 200-240 / 345-420 V; 50 Hz; 0,44 / 0,25 A
 254-277 / 440-480 V; 60 Hz; 0,44 / 0,25 A
 Degree of protection: IP 54

Float switch (version oil):

Voltage: 250 V AC / DC
 Starting current: 0,5 A
 Switching capacity: 10 VA
 Switching contact: NO contact at rising level (NC contact by turning the float)

Proximity switch (version fluid grease):

Voltage: 10 - 60 V DC
 Switching type: positive switching NC contact / NO contact
 Switching current: 200 mA
 Current consumption (without load): < 20 mA
 Degree of protection: switch IP 67, plug IP 54

Pressure switch:

Voltage: 42 V
 Switching capacity: 100 VA
 Connection: AMP 6,3 x 0,8

The **single line unit** is consecutively called a **device**.

2. Code

2.1 Type 2805 (left)

2805.A.1.9.1.2.00.000

Model	oil	fluid grease		
Code-no.	A	B		
Level monitoring	without	with, for oil	with, for fluid grease	
Code-no.	0	1	2	
Control unit	without	standard		
Code-no.	0	9		
Pressure gauge	without	with		
Code-no.	0	1		
Voltage	115 V AC	230 V AC	24 V DC	3~/400 V
Code-no.	1	2	4	6*
Pressure connection	left	right		
Code-no.	00	01		
Special models				

* not available with control unit!

2.2 Type 2806 (right)

2806.A.1.9.1.2.00.000

Model	oil	fluid grease		
Code-no.	A	B		
Level monitoring	without	with,for oil	with,for fluid grease	
Code-no.	0	1	2	
Control unit	without	standard		
Code-no.	0	9		
Pressure gauge	without	with		
Code-no.	0	1		
Voltage	115 V AC	230 V AC	24 V DC	3~/400 V
Code-no.	1	2	4	6*
Pressure connection	left	right		
Code-no.	00	01		
Special models				

* not available with control unit!

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

Please observe the safety instructions within this main point as well as special safety instructions 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.
- Observe the universally valid Ordinance on Hazardous Substances in the latest version.

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 or fall below 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 or fall below 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 or fall below 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.

The device may only be transported completely empty.



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 ambient 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.

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).

7.2 Power connection



- Power supply must be done by a professional electrician!
- Electrical device components must be wired professionally!
- Compare voltage details with the existing mains voltage!
- Equipotential bonding must be done professionally by the operator via an according ground connection!
- Wire the device according to the circuit diagram!

7.3 Terminal connections

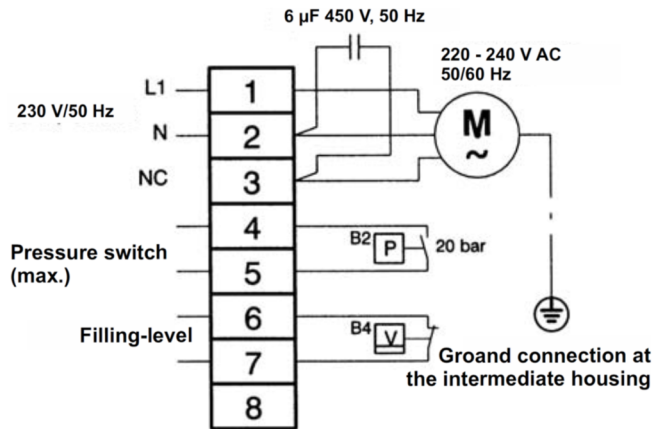
The **valid terminal diagram** (electric documentation) for the terminals can be found **below the cover!** This is obligatory for the device.

Caution!

Open the cover of the device and **wire the electric connection according to this electric documentation**. The terminal connections below are **examples** for the **standard wiring** and can **deviate** depending on the **version**.

7.3.1 Terminal diagram without control

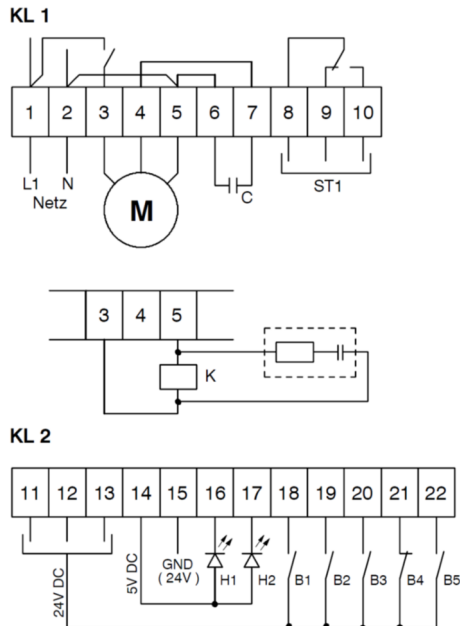
(Standard version; 230 V AC; oil)



7.3.2 Terminal diagram with control

The alarm output, KL 1 terminals 8, 9 and 10 with potential-free contact, is closed from 8-9 and opened from 8-10 in currentless condition and error message mode. At release contact 8-10 closes.

At inductive load on contact prepare a protective circuit (RC).



- M Alternating current motor (3-pole)
- K Relay / motor contactor (protective circuit provided)
- C Motor - operating capacitor
- ST1 Alarm output (active at operation and release)
- H1 Operating display (LED)
- H2 Error message display (LED)
- B1 Break time adding or machine stroke input
- B2 Pressure switch max. (NO contact)
- B3 Lubrication pulse lock or pressure switch min. (NC contact)
- B4 Level switch (NC contact)
- B5 Reset button (NO contact)

8. Start up

8.1 Filling with lubricant

- Fill the reservoir with clean lubricant at the filling filter with hinged lid!
- 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.
- Check the level several times in equal intervals during the first hours of operation and refill lubricant, if necessary.
- 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.

8.3 Error message at the control during start-up

LED display Flashing frequency: 1" = 1 second
 Flashing frequency: 0,1" = 0,1 seconds

LED H1 green or white	LED H2 red	Possible cause	Trouble shooting
Flashes 0,1" No start possible via reset	Flashes 0,1"	Program pressure relief monitoring is pre-set, but pressure switch B3 is not installed or connected	Check installation, connection or contact type of the pressure switch B3. If installation of this pressure switch is not requested - change program (see chapter 10. Control EA-tronic)
On No start of the device	Off	Program pulse lock is pre-set and contact of pulse lock B3 is closed	Operate machine until contact opens
		Program pulse lock is pre-set and pressure switch for pressure relief monitoring is installed	Branch off the pressure switch or change the program (see chapter 10. Control EA-tronic)
Flashes 1" No start possible via reset	Off	Lack of lubricant in reservoir	Error can only be solved when lubricant is refilled (no reset possible). Device starts automatically.
		Level switch has the wrong contact type or is not connected	Check contact type and installation of the level switch. If no level switch is installed, install a bridge +24 V DC to B4.

9. Functional description

9.1 Operation

The device supplies lubricant via the pressure valve into the main pressure line. At the same time the access towards the relief valve is closed. Actuated by the lubricant's pressure built-up, the lube points are supplied by the connected proportioning or metering valves. When the operating pressure of 20 bar is reached, the contact of the first pressure switch (NO contact, 20 bar - optional) closes and the pressure limiting valve, set to approx. 35 bar, opens. The pump's run down time is started when the pressure switch closes in order to build up pressure in the main line. If the pressure switch is not installed in the device but at the end of the pressure line (respectively at the position most far away), the run down time is not necessary. When the run down time is processed, the break time starts. If there is no pressure build-up signal, an error message is send.

9.2 Break

After switching off the pump motor, the pressure valve is no longer supplied with lubricant, the spring presses the piston back into the initial position and makes access towards the relief valve available. The pressure line is relieved to a residual pressure of approx. 1 bar by the relief valve. The proportioning valve or metering valve piston is also pressed back into its initial position by the pressure drop. The pressurized lubricant flows to the metering chamber of the spring side. A new lubrication cycle is started after the break time or after the set number of machine strokes is reached. If the second pressure switch (NC contact 5 bar - optional) has not opened during the break time, an error message is send. The length of the pulse-off time complies with the ambient conditions and the system's design.

9.3 Intermediate lubrication

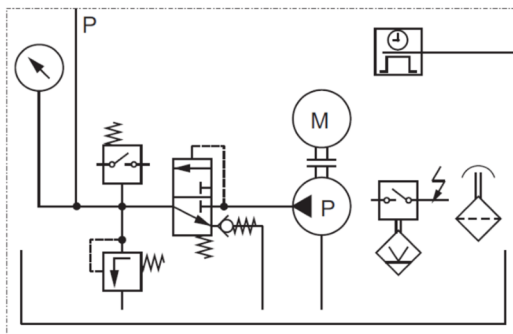
An intermediate lubrication can be initiated at the intermediate lubrication button. The lubrication duration lasts as long as the button is pressed. The mentioned button is only installed, if a control is installed.

9.4 Level monitoring (optional)

The level monitoring serves for monitoring the level in the reservoir. It is equipped with a minimum switching point that can be used as NC contact or NO contact. The level monitoring signals contact, if the level falls to a minimum point. The signal can be used to switch off the device or the machine to be lubricated or for visual or acoustic warning depending on the customer's wishes.

The level monitoring is carried out by a flow switch for oil and by a proximity switch for fluid grease.

9.5 Hydraulic plan

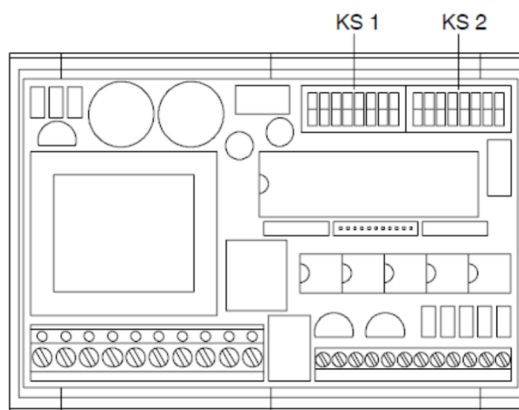


10. Control EA-tronic (optional)

The device can be equipped with a control.

10.1 Setting control unit

- Stop voltage supply of the device
- Take off protective cover from device
- Set operating functions at KS1 and KS2 on request



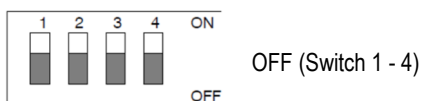
10.2 Operating modes

Set the operating modes before starting-up the device. The setting is done at the coding switches of KS2.

10.2.1 Lubrication pulse lock

When switching inlet B3 - terminal strip 2, terminals 11, 12 or 13 (24 V) onto terminal 20, the activation of the device is locked after break time is processed until contact is opened.

Switch position
KS2

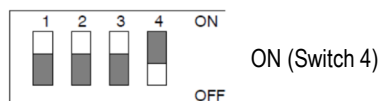


ALTERNATIVE!!!

10.2.2 Monitoring of pressure reduction

This feature monitors the pressure reduction via a second (minimum) pressure switch, (contact closes at falling pressure). The wiring is done at inlet B2. If this pressure switch is installed, the coding switch 4 of KS2 must be set to ON.

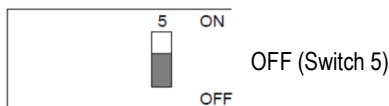
Switch position
KS2



10.2.3 Monitoring time

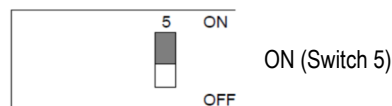
If the device does not build-up pressure within the monitoring time, an error message is send.

Switch position
KS2



Monitoring time 20 sec.

Switch position
KS2



Monitoring time 60 sec.

10.2.4 Relubrication time

The relubrication time is the run down time of the device after the pressure build-up signal from max. pressure switch B2 (terminal strip 2, terminals 11, 12 or 13 to terminal 19). Hence it is ensured that the necessary operating pressure of the metering piston is available for a certain time also at far away installed proportioning or metering valves.

Switch position KS2



10.2.5 Break time addition

Break time stops in option break time (time dependent - see chapter 10.2.7 Break time, time dependent) if the wiring of input B1 - terminal strip 2, terminals 11, 12 or 13 are switched to terminal 18.

10.2.6 Cycle time

The cycle time, i.e. the order of strokes in which the lubrication pulses are initiated, is the sum of break time, pressure build-up time up to the pressure signal of the pressure switch and the relubrication time.

10.2.7 Break time, time dependent

The break time is set by activating switch 2 to 8 of KS1. Switch 1 always must be in position OFF. The break time setting (basic time) is done in 8 time sections of switch 2 to 4 of KS1. This break time is only valid if switch 5 to 8 is set in position OFF. If other break times are necessary, set switch 5 to 8 in position ON to enlarge the break time range. The individual break times of switch 5 to 8 must be added up and result in the total time.

10.2.8 Break time, load dependent

If the switch 1 of KS1 is in position ON, the load-dependent lubrication pulses are initiated after the set number of machine strokes is reached at KS1. The stroke counting is done at input B1 - terminal strip 2, terminals 11, 12 or 13 (24 V DC) onto terminal 18.

10.2.9 Setting table for time operation (break time)

Selection for stroke operation	Time interval	Basic time	Time value		Time value		Time value		Time value		Total time
KS 1 <div><div>ON OFF</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></di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10.2.10 Setting example

Break time / Switch position at KS1

Switches 3, 4 and 6 off:

Switch 1 off:

Time operation

Switch 2 on:

Break time range

15 - 450 seconds

Switch 5 on:

Break time

30 seconds

Switch 7 on:

Break time

120 seconds

Switch 8 on:

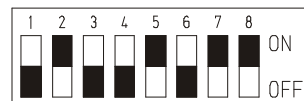
Break time

240 seconds

by addition:

Total break time

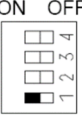





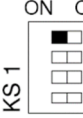
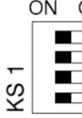








390 seconds



Notice!

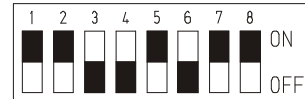
The basic time of the individual ranges is only valid if switches 5, 6, 7 and 8 are in position OFF!

10.2.11 Setting table for stroke operation (strokes)

Selection for stroke operation	Stroke interval	Basic strokes	Stroke value	Stroke value	Stroke value	Stroke value	Total strokes
KS 1 ON OFF 	KS 1 ON OFF 	KS 1 ON OFF 	KS 1 ON OFF 	KS 1 ON OFF 	KS 1 ON OFF 	KS 1 ON OFF 	KS 1 ON OFF 
2; 3 + 4 OFF		1 stroke	2 +	4 +	8 +	16	30 st.
2 ON		5 strokes	10 +	20 +	40 +	80	150 st.
3 ON		15 strokes	30 +	60 +	120 +	240	450 st.
2 + 3 ON		50 strokes	100 +	200 +	400 +	800	1500 st.
4 ON		150 strokes	300 +	600 +	1200 +	2400	4500 st.
2 + 4 ON		500 strokes	1000 +	2000 +	4000 +	8000	15000 st.
3 + 4 ON		1500 strokes	3000 +	6000 +	12000 +	24000	45000 st.
2; 3 + 4 ON		5000 strokes	10000 +	20000 +	40000 +	80000	150000 st.

10.2.12 Setting example

Strokes / Switch position at KS1



Switches 3, 4 and 6 off:

Switch 1 on:	Stroke operation	
Switch 2 on:	Stroke range	5 - 150 strokes
Switch 5 on:	Strokes	10 strokes
Switch 7 on:	Strokes	40 strokes
Switch 8 on:	Strokes	80 strokes
by addition:	Total no. of strokes	130 strokes

Notice!

The basic strokes for the individual ranges are only valid if switches 5, 6, 7 and 8 are in position OFF!

10.3 Operating mode with pre-lubrication

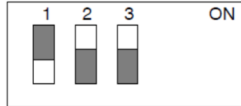
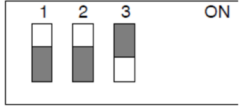
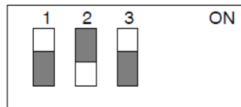
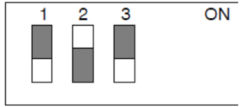
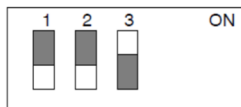
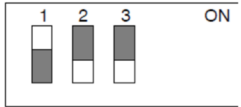
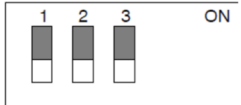
In operating mode with pre-lubrication 4 to 28 pre-lubrication pulses in shortened time intervals are initiated when activating the device. The alarm relay switches over to release when the pre-lubrication is processed; then the device continues operating in cycle of the set break time (time- or load dependent).

The actuation of Reset-input B5 reactivates the pre-lubrication - with drop of the alarm relay.

The operating mode with pre-lubrication is set with the coding switches 1 to 3 of KS2.



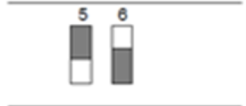
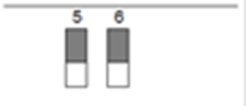
10.3.1 Number of pre-lubrication pulses

The number of pre-lubrication pulses is set by the switches 1 to 3 of KS2.

Switch position KS2	Pre-lubrication pulses	Switch position KS2	Pre-lubrication pulses
	4 Lubrication pulses		16 Lubrication pulses
	8 Lubrication pulses		20 Lubrication pulses
	12 Lubrication pulses		24 Lubrication pulses
			28 Lubrication pulses





10.3.2 Break time between pre-lubrication pulses

The break time between pre-lubrication pulses is defined by setting switch 5 and 6 of KS2. In the pulse-off time, the pressure in the main line is built up to the residual pressure, which is dependent on the unit, via the relief valve. The shifting of the proportioning or metering valves is processed.

Switch position KS2	Break time	Switch position KS2	Break time
	2 sec.		8 sec.
	4 sec.		12 sec.

10.3.3 Relubrication time

The relubrication time is the time in which the device stays active after the operating pressure is reached and signalled by the pressure switch. Hence it is ensured that the necessary operating pressure is sufficient long available to actuate the metering piston also if the proportioning or metering valve is installed far away. Relubrication time is set with switches 7 and 8 of KS2.

Switch position KS2	Relubrication time	Switch position KS2	Relubrication time
	0 sec.		4 sec.
	2 sec.		6 sec.

Notice!

The relubrication time is valid for the pre-lubrication operation and the following normal operation.

10.3.4 Lubrication pulse lock

The lubrication pulse lock is active after the pre-lubrication is processed. When wiring B3 during the pre-lubrication, the lubrication pulse following the pre-lubrication is locked after the break time is processed. For settings and operation process see chapter 10.2.1 "Lubrication pulse lock".

10.3.5 Pressure relief monitoring

The pressure relief monitoring is also active during the pre-lubrication. For setting and operation process see chapter 10.2.2 "Pressure relief monitoring".

10.3.6 Monitoring time

The monitoring time is fix set to 20 sec at operation with prelubrication.

10.4 Memory (optional)

Concerning the version with memory module the reached break time or number of break strokes is saved; the version without memory module resets all operating procedures when set currentless and starts with a lubrication pulse or the pre-lubrication after reactivation. When the version with memory module is reactivated, the remaining break time or number of strokes is processed. Also the error messages are stored and can only be deleted with the reset button. In case of a voltage drop during the pre-lubrication, the pre-lubrication will be initiated anew as soon as voltage is available, but an interrupted lubrication cycle will be started from the beginning after a blackout.

10.5 Error message of the control

The alarm output terminal strip 1, terminals 8, 9 and 10 with potential free contacts is closed from 8-9 in currentless condition and opened from 8-10. Contact 8-10 closes at release.

Prepare a protective circuit (RC - part) at inductive load.

LED display Flashing frequency: 1" = 1 second
 Flashing frequency: 0,1" = 0,1 seconds

LED H1 green or white	LED H2 red	Possible cause	Trouble shooting
On	Off	Device in operation – The control can be reset with the reset button and can be start anew, except at active pulse lock.	
Start possible via reset	On	no pressure build up within the monitoring time	Check pump and valves. Exchange defective parts.
		Pressure build up time too long: Values of consumer are too high or pressure line is not ventilated	Ventilate the pressure line. Set the monitoring time to 60 seconds if connection value is too high.
		Pressure switch B2 (NO contact) or B3 (NC contact) defective	Exchange pressure switch
Flashes 1" No start possible via reset	Off	Lack of lubricant in the reservoir	Error can only be solved by refilling lubricant (no reset possible). Device starts automatically.
Flashes 1" Start possible via reset	On	Pressure drops within the relubrication time as the pump or the valves are defective or polluted.	Check the components of the device and exchange them if necessary
		Pressure drops within the relubrication time, as the pressure line is broken.	Repair the pressure line
Flashes 1" No start possible via reset	Flashes 1"	The contact of pressure switch B2 does not open within the break time, as the pressure is not relieved via the relief valve.	Check the relief valve and exchange it if necessary.
		The contact of pressure switch B2 does not open within the break time, as pressure switch B2 is defective.	Check the pressure switch and exchange it if necessary.
Flashes 0,1" No start possible via reset	Flashes 0,1"	The contact of pressure switch B3 does not close within the break time, as the pressure is not relieved to the admissible residual pressure (approx. 1 bar).	Check the relief valve and exchange it if necessary.
		The contact of pressure switch B3 does not close within the break time, as the pressure switch B3 is defective.	Check the pressure switch and exchange it if necessary.
Off Start possible via reset	Flashes 0,1" or Flashes 1"	Delayed pressure relief during the break time, as the relief valve is polluted.	Clean the relief valve.
		Delayed pressure relief during the break time, as the lubricant's viscosity is too high.	Fill with lubricant of lower viscosity or enlarge the break time. If H2 blinks 1" a big change is needed; if H2 blinks 0,1" a small change is needed.

11. Maintenance



Disconnect the device from power supply before **maintenance or repair**.

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** by radiant heat. 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!

11.1 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.

11.2 Lubricant change

Caution!

Observe utmost **cleanness** when refilling lubricant!

- Check the level regularly and refill clean lubricant 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.
- 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!

12. Shutdown

- Relieve the device from pressure!
- Turn off power supply!
- Have the device disconnected from power supply by a qualified electrician!
- Remove all pipes and hoses from the device and loosen all fastenings for disassembly!

13. 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.

14. Troubleshooting

Notice!

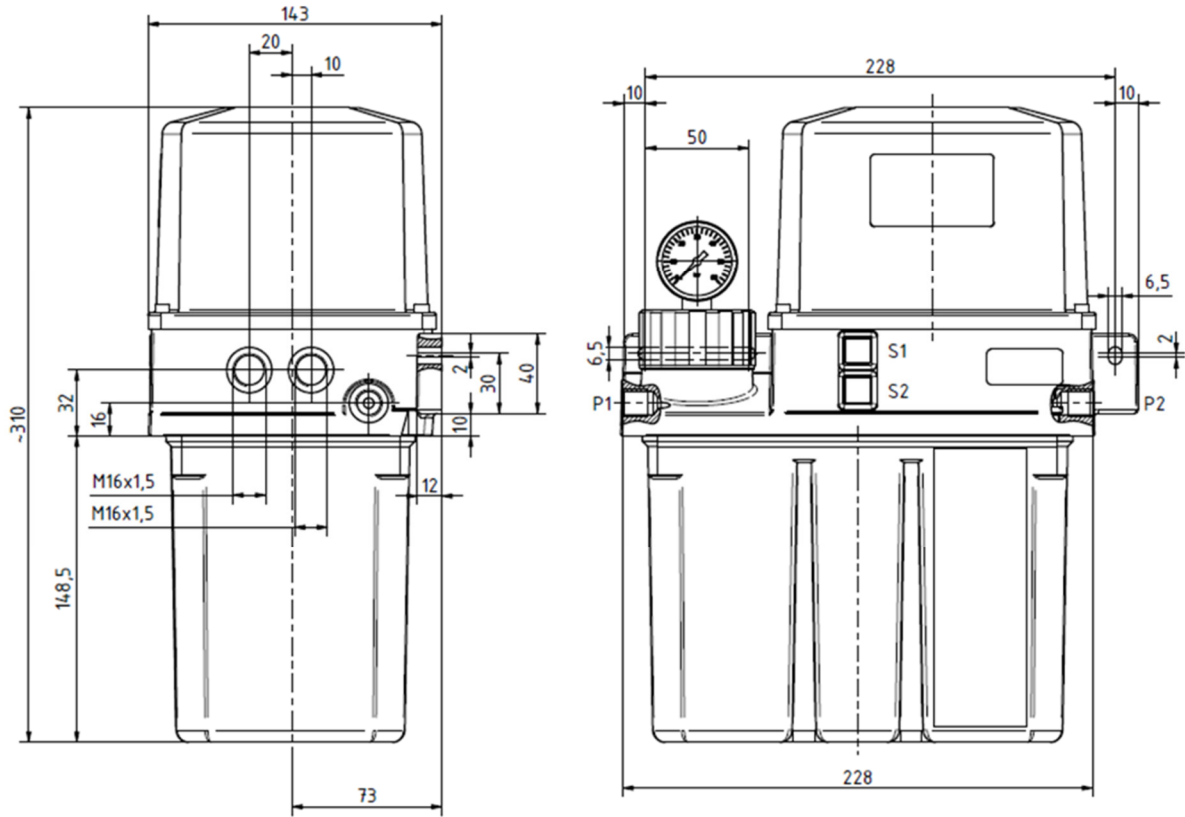
Please observe also the chapter 8.3 "Error message at the control during start-up" and chapter 10.5 "Error message of the control", if an internal control is installed in the device!

Malfunction	Possible cause	Possible remedy
Pump does not aspirate	Coupling defective	Renew coupling
	Lack of lubricant in reservoir	Refill lubricant
	Lubricant cannot be conveyed	Fill in lubricant with correct viscosity
	Wrong direction of rotation of drive motor	Correct direction of rotation
	Motor shaft was sheared off	Repair by Groeneveld-BEKA
	Pump shaft was sheared off	Repair by Groeneveld-BEKA
Pump does not supply	Pressure line in reservoir defective	Renew pressure line
	Coupling defective	Renew coupling
	Lack of lubricant in reservoir	Refill lubricant
	Motor shaft was sheared off	Repair by Groeneveld-BEKA
	Motor shaft was sheared off	Repair by Groeneveld-BEKA

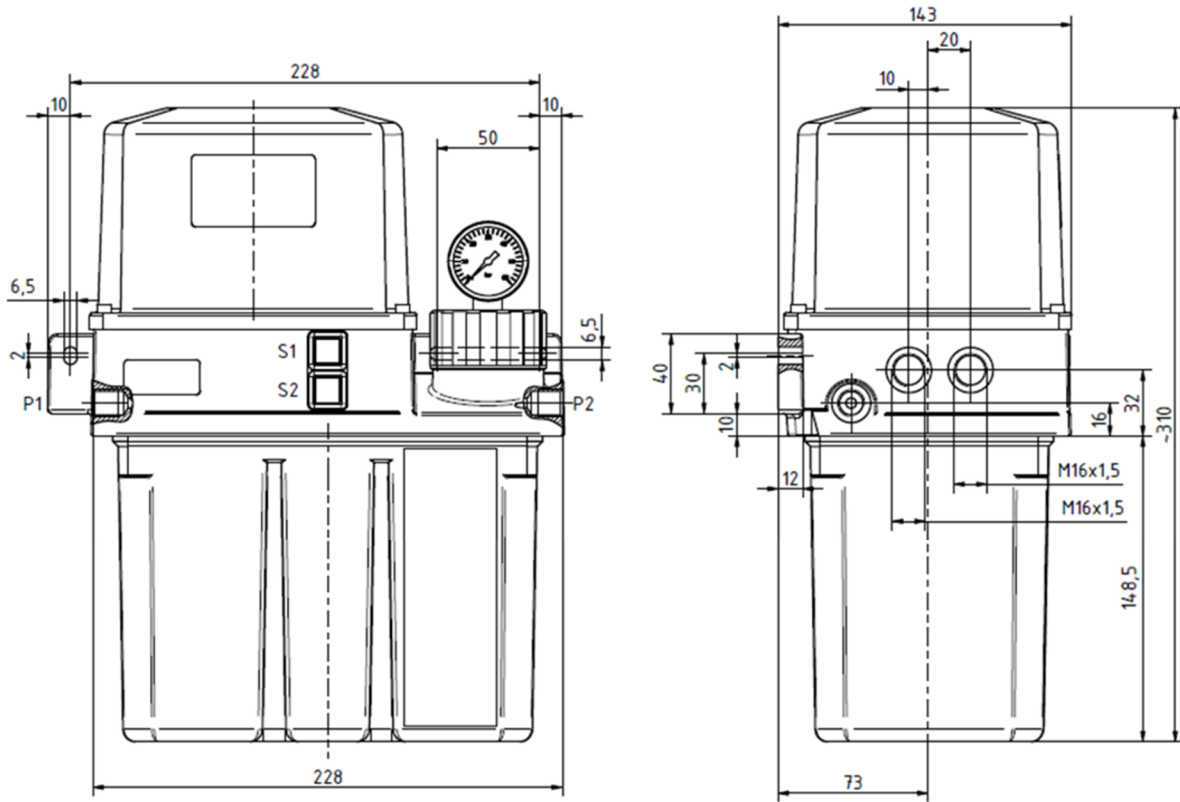
15. Spare part list and drawing

Spare part lists and drawings are available on request.

16. Dimensional drawing type 2805



17. Dimensional drawing type 2806



18. Details of the manufacturer

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Our range of supply:

- Gear pumps
- 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
- Commercial vehicle lubrication
- Progressive distributors
- Control and monitoring units

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