GRANIT
QUALITY PARTS

Operating Instructions

Centralised lubrication system

11092131, 11088243, 11094514, 11091924

These operating instructions must be read thoroughly before use and followed carefully.
Please retain these operating instructions for future reference.

CE

Original operating instructions

Table of contents

1 About these operating instructions and description of symbols

WARNING	Incorrect operation may lead to serious injury or death.
CAUTION	Incorrect operation or carelessness may result in injury, damage to the equipment or incorrect measurements.
NOTICE	Advice and tips for operation.

- Numbers in illustrations (1, 2, 3, etc.) refer to the corresponding numbers in brackets ((1), (2), (3), etc.) in the text next to item numbers in the tables.
- Instructions where the order must be followed are numbered (1, 2, 3, etc.).
- Lists are marked with bullet points (●, ●, etc.).

2 Safety and accident prevention regulations

2.1 General safety instructions

Safety-relevant errors must be eliminated immediately.
You will find basic instructions for installation, operation and maintenance that must be observed within the following documentation. The operating instructions must be read in their entirety by the installer and the responsible specialists/personnel of the operator before starting installation and commissioning. In addition, the operating instructions must always be available at the place of use.

Not only the safety instructions listed under this point must be observed, but also the special safety instructions in other parts of this manual.

2.2 General risk information

All system components have been designed with a view to operational safety and accident prevention in accordance with the applicable regulations for the design of technical work equipment.

Nevertheless, their use may cause hazards for the user or third parties or for technical equipment. The system may therefore only be used within the scope of its intended use and in compliance with the safety regulations and the operating instructions in a technically perfect condition.

Personnel:

The personnel entrusted with the operation, maintenance, inspection and assembly must be appropriately qualified for this work. The operator must precisely regulate the competences, responsibilities and supervision of the personnel. If staff do not have the appropriate knowledge, they must be trained and instructed. The operator must ensure that the personnel have understood the contents of the operating instructions.

Danger if the safety instructions are not observed

Non-compliance with the safety instructions may endanger persons, the environment and/or the machine. Failure to comply with the safety instructions may result in the rejection of claims for damages.

Non-compliance can lead to the following hazards, for example:

- Failure of important system functions.
- Non-compliance with the prescribed maintenance and servicing methods.
- Danger to persons due to electrical, mechanical and chemical effects.
- Danger to the environment due to leakage of hazardous substances.

Intended use

The pumps of the ALPB series are used exclusively to supply central lubrication pumps on vehicles, systems and machines. Any use beyond this is considered improper use.

Assembly and maintenance

When carrying out any assembly work on vehicles, plant and machinery, observe the applicable local accident prevention regulations and safety instructions as well as the regulations for operation and maintenance.

All maintenance, inspection and assembly work may only be carried out by trained specialist personnel. All work must only be carried out when the system is at a standstill and using suitable protective clothing.

All safety equipment and guards must be replaced immediately after the work has been completed. Environmentally hazardous media must be disposed of in accordance with the relevant official regulations. During maintenance and repair work, secure the system against intentional or unintentional restarting.

Dispose of the operating fluids according to the safety data sheets of the lubricant manufacturers.

Safety instructions for operators/operating personnel

If hot or cold machine parts cause hazards, the customer must secure them against contact.

- The guards on moving or rotating parts must not be removed.
- Route away leaks of hazardous substances in such a way that people or the environment are not endangered.
- Comply with the legal requirements.
- Exclude hazards due to electrical energy.

Unauthorised modification and spare parts production

CAUTION Conversions and modifications to the equipment require the prior approval of the manufacturer.

Original spare parts and accessories approved by the manufacturer increase safety. The use of other parts may result in liability for the resulting consequences being excluded. Wilhelm Fricke SE accepts no liability or claims for damages for components that are subsequently installed by the operator.

Danger from electricity

The units may only be connected to the mains by appropriately trained personnel in compliance with the local connection conditions and regulations (e.g. DIN, VDE)!

CAUTION Improperly connected equipment can cause serious personal injury and property damage!

Hazard due to system pressure

CAUTION The equipment may be under pressure. Depressurise them before starting any repairs, modifications or upgrades.

Use of lubricant lines

CAUTION When laying lubricant lines to the pump, the operator must observe or ensure the following points:

- The inspection for proper assembly and function must be carried out in accordance with the customary national guidelines.
- Tests for safe commissioning and use must be carried out in accordance with the country-specific guidelines.
- The inspection period must not be exceeded.
- Replace defective lubricant lines immediately and professionally.
- Lubricant lines are subject to a wear process and must be replaced regularly and according to the manufacturer's instructions.

Lubricants

The system is designed for commercially available multi-purpose greases of NLGI class 2 for summer and winter operation.

- Use greases with high-pressure additives (EP greases).
- Only use fats of the same saponification type.
- Lubricants containing solids must not be used
- (Lubricants such as graphite or MoS2 on request).
- When selecting the lubricant, observe the vehicle manufacturer's specifications.

Danger to the environment from lubricants

CAUTION

The lubricants recommended by the manufacturer of your vehicle, system or machine comply with the current safety regulations in terms of their composition. Mineral oils and greases are usually hazardous to groundwater and their storage, processing and transport require special precautions.

Improper working methods

The operational safety of the unit is only guaranteed if it is operated in accordance with the operating instructions. The limit values specified in the technical data must not be exceeded under any circumstances.

Storage and transport of the pump

CAUTION

The ALPB series pumps are packaged according to commercial standards, in accordance with the regulations of the recipient country and the customer's request. There are no restrictions on land, air or sea transport. Store in a dry place at a temperature of -5° C to +35°C.

3 Specifications

3.1 Technical data

The ALPB progressive central lubrication pump is widely used in various industries such as wind power, mining, steel industry, machine tools, textile machinery, food industry, ports, commercial vehicles, construction machinery and mining machinery.Our central lubrication system supplies all necessary lubrication points with grease as needed through a progressive lubrication system. It reduces frictional resistance, decreases contact wear and the temperature of the friction surface. At the same time, it plays a supporting role in corrosion protection, as well as shock absorption and the sealing of bearings and bolts.

The progressive central lubrication pump type ALPB is electrically operated and has up to max. 4 independently operating lubricant outlets, which can be bridged by bypasses. A separate PE pump element is required for each outlet. Three different delivery rates are available. This allows the grease quantity to be metered precisely for the requirements of the individual progressive distributor circuits.

Fig. 12.1 Pump with 2/4/6 litre outer diameter: 170 mm

These pumps allow the delivery of lubricants
up to NLGI class 2 at a maximum operating pressure of 300 bar
(setting of the pressure relief valve PRV).

The ALPB series pumps differ in reservoir size and control. The control can be carried out via the standard AK06* control unit, via an external PLC, an on-board computer or an external control unit.

* The version of the control unit can be updated by the manufacturer, please ask us for the latest version if necessary.

DC motor

operating voltage:	12V DC ±10%	24V DC ±10%
Speed:	20 rpm	20 rpm
Duty cycle ED:	30% ED S3 30 min	30% ED S3 30 min
Current consumption **+20°C** **Idle** **Full load** **Fuse**	 1 A 5 A 10 A	 0.6 A 3 A 6 A

WARNING Pump must be protected by a pre-fuse before the pump to avoid overvoltage damage!

Pump:

Max. Number of pump elements PE:	4
Max. operating pressure:	350 bar
Adjustment of the pressure relief valve PRV:	300 bar
Permitted operating temperature:	-35°C to +70°C
Noise level:	<70 dB
Reservoir size:	2/4/6/8/15/20 L
Installation position:	Reservoir vertical
Protection class:	IP65
Lubricant:	Grease up to NLGI class 2 (No lubricants with solid content), no oils

3.2 Functional description of the pump

A DC motor (9) continuously actuates the eccentric pressure disc EDS (5). This eccentricity causes the suction and pressure stroke of the delivery piston (6), whereby the integrated non-return valve (7) prevents the pumped medium from being sucked back out of the main line.

The agitator (2) forces the lubricant from the grease reservoir (1) through a grease screen intermediate ring (4), which reduces any air bubbles, into the suction area in the pump housing (3). The agitator (2) enables a visual check of the amount of lubricant still present in the transparent reservoir (1).

The pressure relief valve, PRV, (8) is preset to 300 bar.

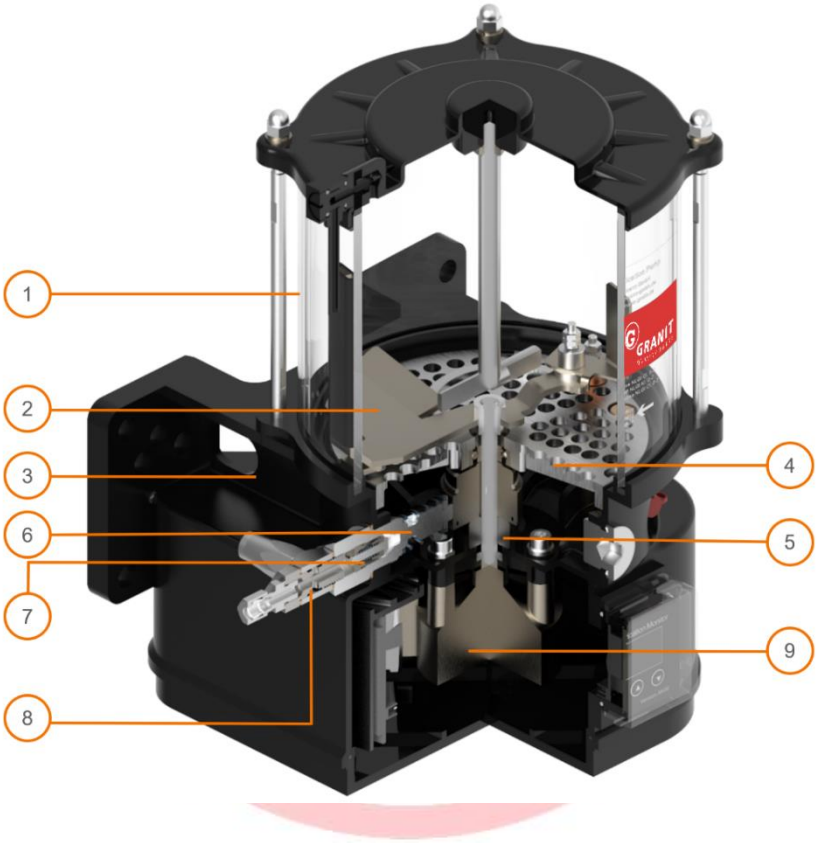


Fig. 13.1

Fig.13.1 Working principle of the pump
1.Fettbehälter
2. Agitator
3. Aluminium pump housing
4. Grease sieve intermediate ring
5. Eccentric pressure disc EDS
6. Delivery piston
7. Check valve
8. Pressure relief valve PRV
9. DC motor

3.3 Pump element PE

In pumps of the ALPB series, a maximum of 4 Pump elements with pressure relief valve, PRV, type C (SV-C) at pump outlet position 1/2/3 or max. 2 pump elements with PRV type A (SV-A) on the Pump outlet position 1/3*.

* Further options for customer-specific settings of the pump elements on request.

The pump elements can deliver the grease individually with a flow Rate range of 1.5 - 4.5 cm³/min or can be bridged together to achieve a higher flow rate up to 13.5 cm³/min with PRV SV-A or up to 18 cm³/min with PRV SV-C*.

For further information on the pump element bridge please contact us.

Fig. 14.1 Pump outlets

Blanking plugs for pump outlets

Technical data pump element PE (without PRV)

	Delivery rate(cm³/min)	Order number	Connection thread
PE 1.5	1.5	11736202*	M22x1.5
PE 2.5	2.5	11936646*	M22x1.5
PE 4.5	4.5	11934243*	M22x1.5

*** Order numbers for PE1.5/2.5/4.5 with copper sealing ring, but without PRV**

Fig.14.2 Pump element structure

Functional description pump element

An eccentric pressure disc EDS is mounted on the vertical shaft o the DC motor
.
When the pump starts, the EDS generates an oscillating movement (X1, X2, X3). The piston of the pump element, which is mounted in the pump body, runs against the eccentric pressur disc EDS.

When the EDS moves away from the piston (Fig. 15.1-1), the spring on the pump element pushes the piston against the EDS. During the suction stroke, grease is sucked into the pump element through the two suction holes (see the two arrows in (Fig. 15.1-1), the vertical shaft continues to rotate and the EDS pushes the piston in the opposite direction

(Fig. 15.2-2) During the pump stroke, the piston closes the 2 Aspiration holes and pushes the aspirated grease to the check valve.
The pressure
generated by the piston and the grease opens the check valve (fig. 15.3-3) and the grease flows
to the outlet of the pump element onwards into the lubrication system

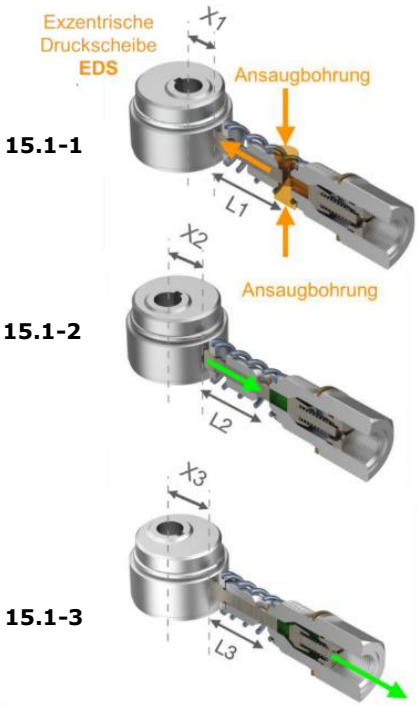


Fig. 15.1 Functional description PE

Installation and removal of pump element PE

1. Place the pump element vertically into the pump outlet housing bore (Fig. 15.2).
2. Tighten the pump element clockwise with
3. a torque wrench, the preset value of the torque wrench must not be less than 18 Nm (Fig. 15.2).
4. To dismantle, keep to the sequence described above.

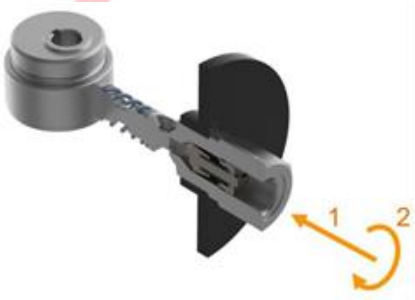


Fig. 15.2 Pump Element Installation and removal

CAUTION **Change pump elements only when the pump is switched off!**

3.4 Pressure relief valve PRV-C, standard variant:

PRV-C without bypass function
PRV-C is set to 300 bar

If the system pressure is higher than the preset valve, the safety valve PRV-C opens, lubricant escapes from the overpressure outlet of the safety valve. Please observe the applicable environmental regulations.

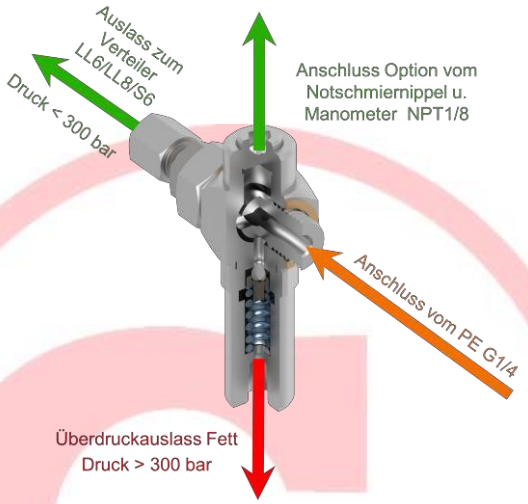


Fig. 16.1 PRV-C functional principle

* For other screw connections such as swivel or angle couplings, please refer to our accessories catalogue or contact us.

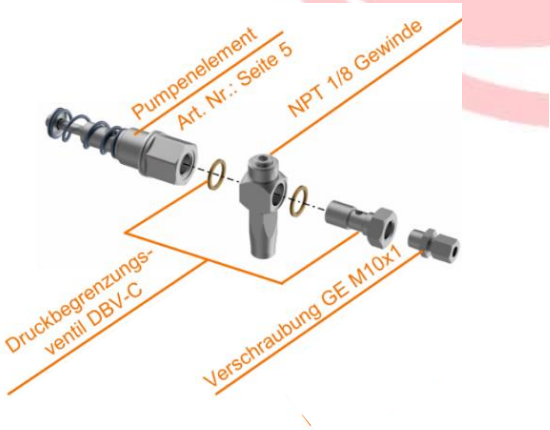


Fig. 16.2 Exploded view PE with PRV-C

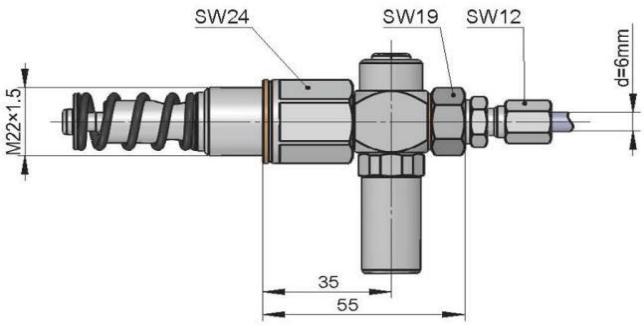


Fig. 16.3 Dimensions PRV-C with mounted pump element PE

3.5 Pressure relief valve PRV-A: PRV-A for PE

PRV- A/B (PRV-A, PRV-B): With bypass function
PRV- A/B (PRV-A, PRV-B): Set to 300 bar.

When the system pressure is above 300 bar, the PRV-A opens, the escaping grease is returned to the grease reservoir of the pump via the bypass outlet of the safety valve.
PRV-A: Has one bypass outlet
PRV-B: Has two bypass outlets*

* For further technical information on the PRV-B, please contact us.

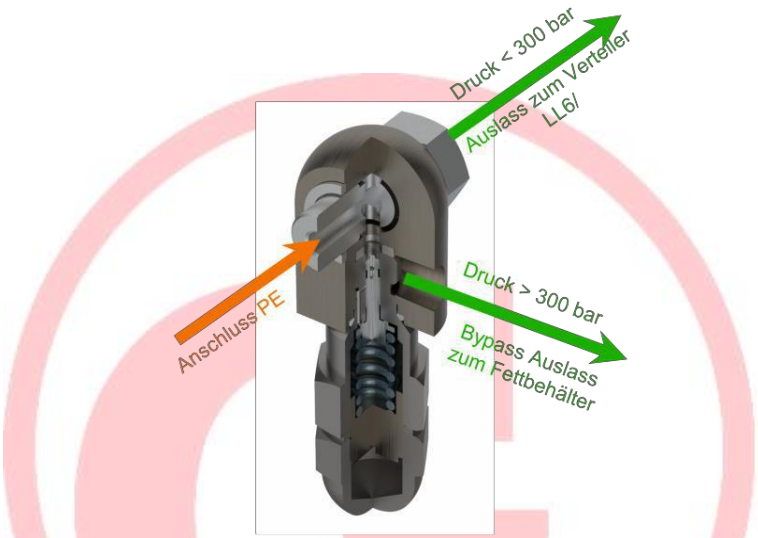
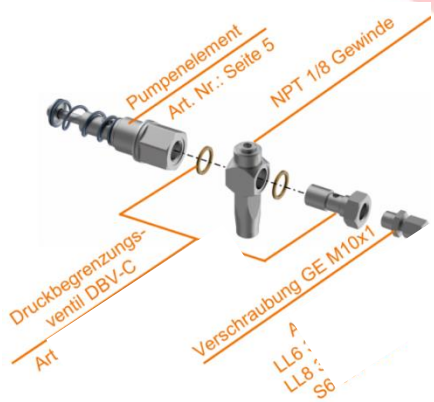


Fig. 17.1 PRV-A operating principle

* For other screw connections such as swivel or angle couplings, please refer to our accessories catalogue or contact us.



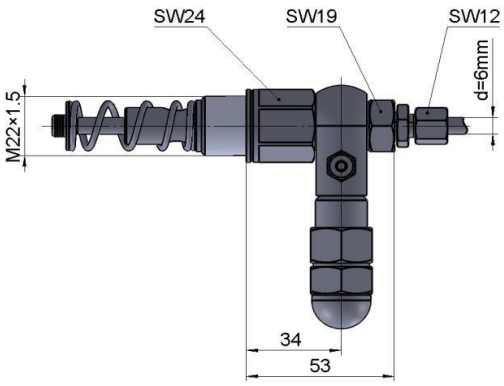


Fig. 17.2 Exploded view PE with PRV Fig. 17.3 Dimensions PRV-A with mounted pump element PE

Bypass Kit for PRV-A

Fig. 18.2 shows the pump with PRV- A and one-sided grease recirculation. If the system pressure is higher than the im 300 bar in the PRV-A, the grease is returned to the grease reservoir via the PE.
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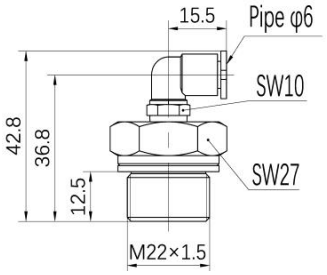


Fig. 18.1 Connection fitting for one bypass

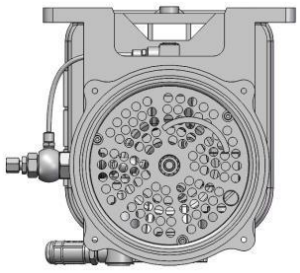


Fig. 18.2 Pump with one bypass and one PRV-A

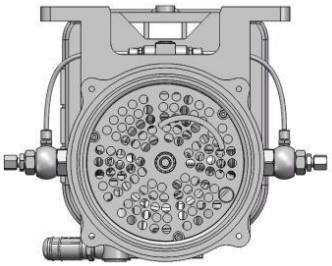


Fig. 18.2 Pump with two bypasses and two PRV-As

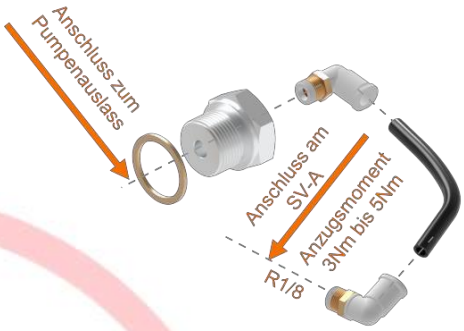


Fig. 18.4 One-sided bypass kit

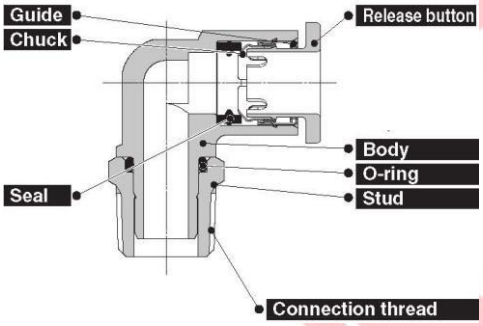


Fig. 18.5 One-touch fitting for one bypass

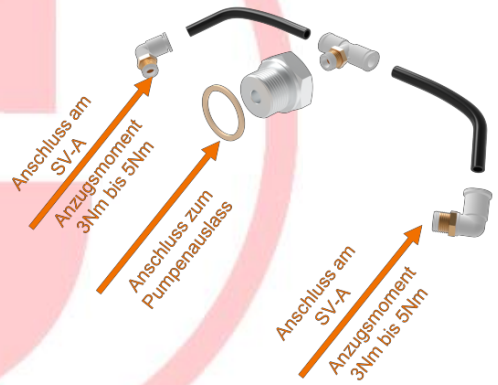


Fig. 18.4 Two-sided bypass kit

Two-sided bypass kit

Fig. 18.3 shows the pump with PRV- A and two-sided grease return. If the system pressure is higher than the 300 bar in two PRV-As, the grease is returned through both PEs to the grease reservoir.

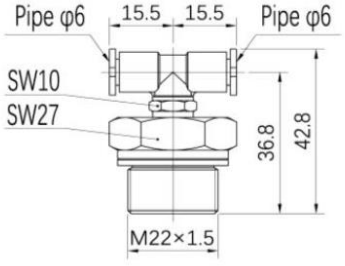


Fig. 18.7 Connection fitting for two bypasses

3.6 Installation dimensions

Fig. 11.1 Installation dimensions of the ALPB pump reservoir, 2-6 litres D170mm, 8 to 20 litres D230mm

Installation dimensions for ALPB 2-20 litre pump

Reservoir size	2L	4L	6L	8L	15L	20L
A (mm)	242	242	242	259	259	259
B (mm)	245	245	245	265	265	265
H (mm)	317	462	562	521	626	769

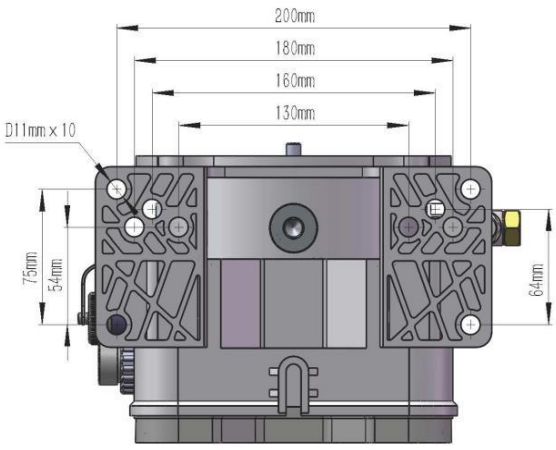


Fig. 11.2 Connection dimensions, hole pattern of the ALPggB pump.
Due to the different bores, our ALPB can replace all pumps commonly available on the market!

Installation dimensions for ALPB 15-20 litre pump

Reservoir size	15L	20L
H1(mm)	402	545
C(mm)	160	160

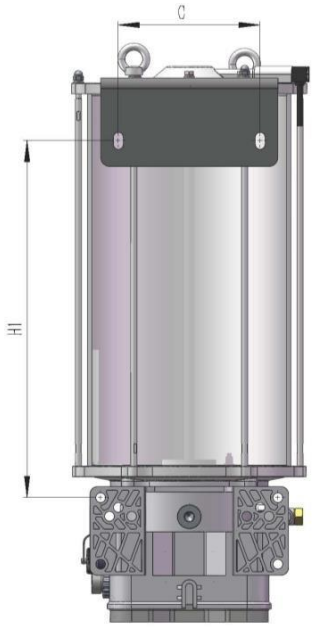


Fig. 11.3 For the reservoir sizes 15L and 20L, these pumps can also be attached to the upper holder on the cover

3.7 Minimum fill level empty message

Functional principle of the intermittent empty signal

The intermittent empty message (three different warnings) works without contact and essentially consists of the following parts:

1. Fixed solenoid switch (A) in the reservoir bottom
2. Movable baffle (B) connected to the agitator blade with a magnet (C) and a control cam (D).

If the reservoir is filled with a grease suitable for intermittent empty signalling and the pump is running, the baffle (B) is deflected by the resistance of the grease. The magnet (C) connected to the baffle (B) is thereby moved on its inner circular path and cannot trigger a pulse at the magnetic switch (A). A control cam (D) forcibly guides the magnet with the rotating guide plate outwards with each revolution. After leaving the control cam, the resistance of the lubricant pushes the baffle and the magnet back inwards. If the lubricant in the reservoir has dropped to the point where the resistance of the grease is no longer sufficient to deflect the guide plate (B), the magnet (C) remains on the outer track and triggers a pulse every revolution when it slides over the solenoid switch (A). If the solenoid (C) moves over the solenoid switch (A) six times during a working cycle, an empty signal is output directly at the signal connection of the pump. For programming the external control of the pump, see the corresponding chapter in this manual.

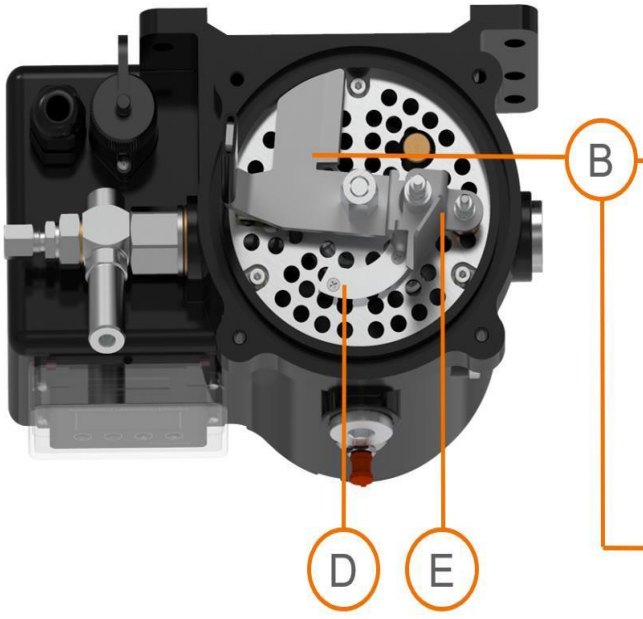


Fig. 20.1 Low-level display - Perspective view

A – Magnet, B – Stirring Paddle, C – Solenoid switch, D - Curved track, E - Baffle

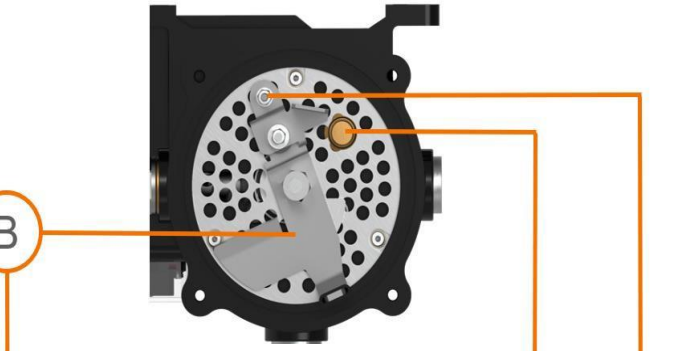


Fig. 20.2 Magnet on the inner

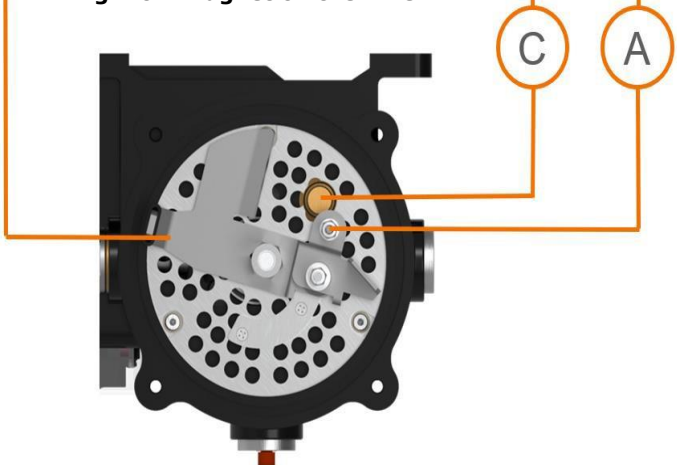


Fig. 20.3 Magnet on the outer circle.

3.8 Programmable control unit AK09 with LED display AK06

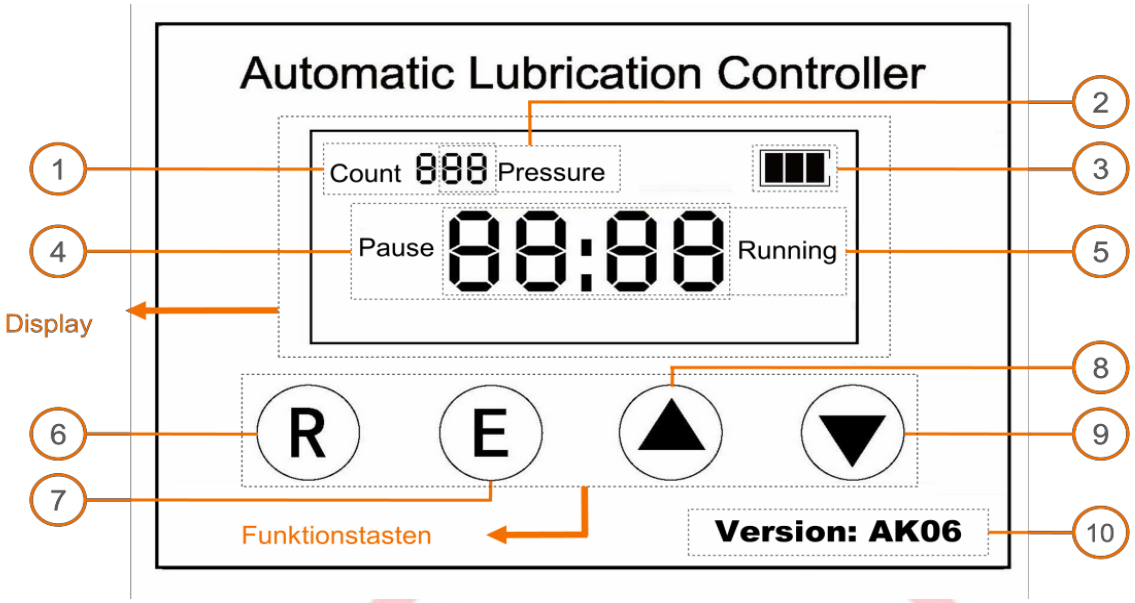


Fig. 21.1 AK06 Indications on the LED display

Our AK06 controller is the integrated programmable controller for ALPB & 811 series pumps. The AK06 LED Display Universal (only works in conjunction with the AK09 programmable controller (board) which is factory-programmed with different programme codes depending on the version (e.g. d-56 or d-61). Fig. 21.1

The display: Displays the system status, such as the number of completed lubrication cycles (1), the distributor monitoring (2), the grease level from the reservoir (3), counting down the break time (4) and counting up the lubrication time (5). If the controller detects an error message, the display shows the error code instead of the break time or lubrication time in the display.

Error code:
EE-1 Low grease level or no grease in the grease reservoir, pump is in danger of running empty. **EE-2** Distributor monitoring - "failure", e.g. blocked lubrication point, overpressure between pump and main distributor. PRV opens at a pressure above 300 bar!

Function key range: To set the individual parameters shown in the display, reset the lubrication cycle or delete an error code!

NOTICE

The AK09 has an error tolerance programme, the error code only starts in the second cycle after which the AK09 receives an error signal. After resetting the error code, the AK09 also needs 2 cycles to automatically reset the error signal!

3.9 Parameter setting

Item	Parameter description	Setting range
1P	Pause time	0 to 99 hours and 0 to 59 hours min.1 minute/max.99 hours 59 seconds
2P	Monitoring the distributor	0 to 99 pulses if 0 is set, the distributor monitoring is deactivated
3P	Lubrication time	0 to 99 hours and 0 to 59 hours min.1 minute/max.99 hours 59 seconds
4P	Low temperature	-50 to 0

3.10 Control unit AK 06

Function and display *I* Display

Item	Symbol	Description
1	Count 888	Count *I* Lubrication cycles:During break time P1,pos.1, displays the number of completed lubrication cycles. The value of. Count" increments by 1 after a full lubrication time. Means, for example, that the system has completed 168 lubrication cycles.
2	88 Pressure	Distributor monitoring: During the lubrication time 3P, pos.2, indicates the pulses of the distributor monitoring. OFF PRESSURE means that the control unit counts the detected pulse cycles from the distributor. The sign changes to ON PRESSURE after the preset value of pulse cycles has been detected. The display changes to, EE-2, if the control unit has not detected the preset value of the pulse cycles, during the lubrication time. If 2P is set to 0, pos. 2 is inactive.
3		Minimum fill level empty reservoir message:  Grease level three bars: Grease level OK, enough grease is in the grease reservoir.  Grease level two bars: Warning message 1. Grease level has reached the minimum! Until the pump stops, 6 more lubrication cycles are carried out. Refill the grease reservoir.  Grease level one bar: Warning message 2. Grease level has reached the minimum! Up to the standstill, 3 more lubrication cycles are carried out. Refill the grease reservoir.

		Grease level no bar: Warning message 3. You will see the error message EE-1 in the display and hear a warning signal. The pump stops for the set break time. Afterwards, the pump runs again for 8 seconds and the error message EE-1 with the warning signal sounds again. This is repeated until the grease reservoir is filled!
4		break Time I break time During the break time, the display shows the remaining break time for a short moment, e.g. break 10:28. 10 hours, 28 minutes, are counted down by the control unit to 00:00.
5		Lube Time *I* Lube Time During the lube time, the display shows the remaining lube time for a short moment, e.g. 01:28 Running. 01 minute, 28 seconds. This time counts up from 00:00 to the set lubrication time and then automatically switches to the break time.
6		Reset button: Press R during the break time, the display immediately stops counting down the remaining break time and starts a new lubrication cycle with the preset Lube Time *I* lubrication time Press R during the lubrication time, the display immediately stops counting up the remaining lubrication time and starts a new lubrication cycle with the preset break Time *I* break time.
7		Enter button: Error message Reset button. For the "Enter" function, please check the details in the parameter setting. Press E during the system warning or error message (EE-1 or EE-2) to clear.
8		Parameter setting "+": Up in the menu. For details, see the parameter setting.
9		Parameter setting "-": Up in the menu. For details, see the parameter setting.
10	**Version AK 06**	Version of the LED display: AK06 is the current version of our display

Control unit AK06

Parameter setting after first connection to power supply.

When you first connect power to the pump,
the display shows the program code "d-56", (Fig. 23.1) or other number combinations, depending on the pump and software type.

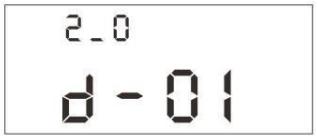


Fig.23.1 Control Program Code

You cannot change the programme code! The control unit has preset parameters that you can adjust
to your needs by following the setup steps. If you do not change the parameters, the control unit will run with the preset parameters.

After programme code "d-56" the controller displays 1P break time and counts down, cycle is 0 (Fig. 23.2).

Fig. 23.2 Pause time display after the first connection to the voltage

Setting new parameters

Press the ▲ and ▼ keys together with two fingers simultaneously for 4 seconds. After releasing the ▲ and ▼ keys (you will hear a tone), press to enter the parameter set-up mode and start setting 1P (break time hour parameter Fig. 23.3).

Fig. 23.3 Setting 1 P Pause time "hours"

Press the ▲ or ▼ button to set the 1P break time value for the hour (Fig. 15.3). Then press the
button again to enter the setting -1 (parameter Pause time minute).
Press the ▲ or ▼ button to set the value -1 for the minutes (Fig. 23.4)*.

Fig. 23.4 Setting 1 P break time "minutes"

**** 1P and -1 cannot be set as 00 at the same time.***
If 1P is set as 00, -1 starts with 01.

After setting P1, press
again the key to switch to the 2P pulse cycle monitoring setting until 2P is successfully set. Press the
button to save and exit the setting status (Fig. 23.5)*.

Fig. 23.5 Setting 2P Distributor monitoring cycles

*** For a system without distributor monitoring 2P, always set 2P as 0.**

3P Setting the lubrication time. 3P in minutes and -3 in seconds, follow the same way of setting the parameters,
that we describe for 1P break time and -1 setting
(Fig 23.6 and Fig 23.7)
*.

Fig. 23.6 Setting 3P Lubrication time minutes"

*** 3P and -3 cannot be set as 00 at the same time.**
If 3P is set as 00, -3 starts with 01.

Fig.23.07 Setting of 3P-lubrication time "seconds"

Control unit AK06

Setting new parameters - 2

4P Setting for low temperatures. With this parameter you can stop the operation of the pump at low temperatures. The preset temperature is - 15° C. Press the ▲ or ▼ button to adjust the 4P low temperature setting. Press the key to confirm the new low temperature setting (fig. 24.1)*.

*** The system has a temperature sensor. If the actual temperature is below the preset value, the pump stops automatically to avoid damaging the motor.**

Fig. 24.1 Setting 4P low temperature

Press to exit edit mode.

Display indications during the lubrication cycle

The control unit starts automatically with the 1P break time!
The display now shows the newly set 1P break time, e.g. break 10:28, i.e. the break time is 10 hours and 30 minutes. The break time is counted down in hours and minutes until 00:00 (Fig. 24.2).

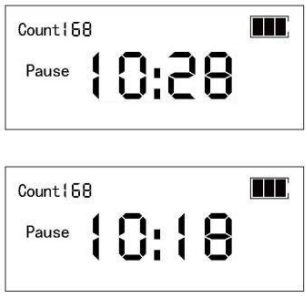


Fig. 24.2 Display counts down break time 1P

After the 1P break time is finished, the 3P lubrication time starts counting up in minutes and seconds. E.g. 01:28 Running, you have set 1 min. and 28 sec. as the lubrication time.
This results in an upwards count from 0 sec. to 01 min. 28 sec. (Fig. 24.3)

Fig. 24.3 Display for lubrication time 3P counts upwards

One complete lubrication cycle = 1 full break time + 1 full lubrication time, only after a complete lubrication cycle the cycle number+1 is set to pos. 1 in fig. 13.1.

Reset button, start an intermediate lubrication

Press during the break time, the display immediately stops counting down the remaining break time and starts a new cycle with preset lubrication time (Fig. 24.4).

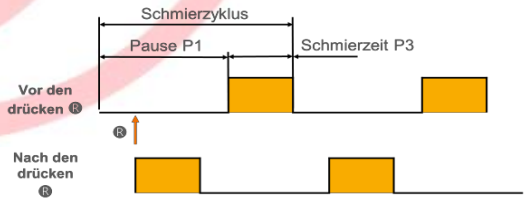


Fig. 24.4 break time changes by pressing the key during the break

Press during the lubrication time, the display immediately stops counting the lubrication time and starts a new cycle with the preset break time. (Fig. 24.5)
Pressing always means that the current break/lubrication time is skipped and a new lubrication/break time begins.

Fig. 24.5 Lubrication time changes by pressing the key during lubrication time

Control unit AK06

Restarting the control after switching off the machine

If the power supply / machine is switched off during a lubrication time P3 or break time P1
the following happens:

Switching on the machine during break time P1, the break time p1 counts down from the remaining break time when the machine was switched off (Fig. 25.1).

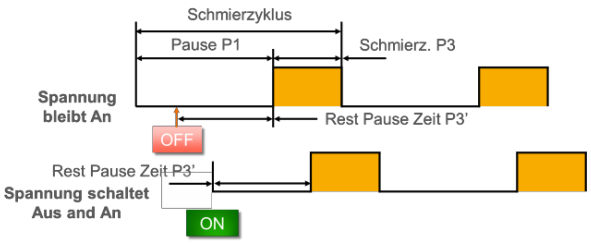


Fig. 25.1 Lubrication cycle changes by switching on and off during the break

If the power supply / machine is switched off during a 3P lubrication time, a
full new lubrication time starts, which you have set (Fig. 25.2).

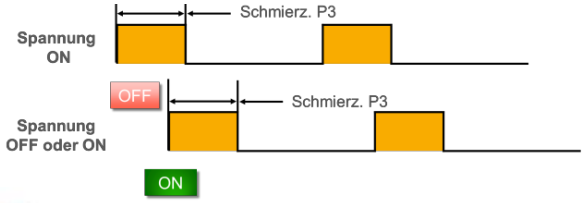


Fig. 25.2 Lubrication cycle changes by switching on and off during the lubrication time

Distribution Monitoring 2P - Pulse Cycles And monitoring time

2P distributor monitoring, must NOT be set as 0.

If the monitoring time T1, which is required,
to detect the preset value of the pulse cycles,is shorter than the preset lubrication time 3P, the display switches from "OFF Pressure" to "ON Pressure" at the end of the monitoring time T1 and the controller continues the remaining lubrication time. After completion of the lubrication time 3P, the lubrication cycles are counted up with +1. (Fig. 25.3).

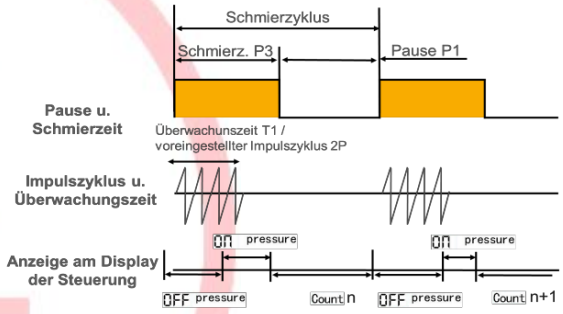


Fig. 25.3 T1 < 3P

If the monitoring time T1, which is required,
to detect the preset value of pulse cycles is longer than the preset lubrication time 3P, the display remains at "OFF Pressure" and shows error message EE-2 at the end of 3P, which is displayed for 30 seconds. The lubrication cycles are not counted.
(Fig. 25.4).

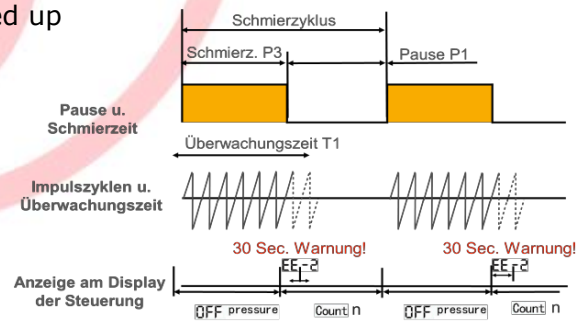


Fig. 25.4 T1 > 3P

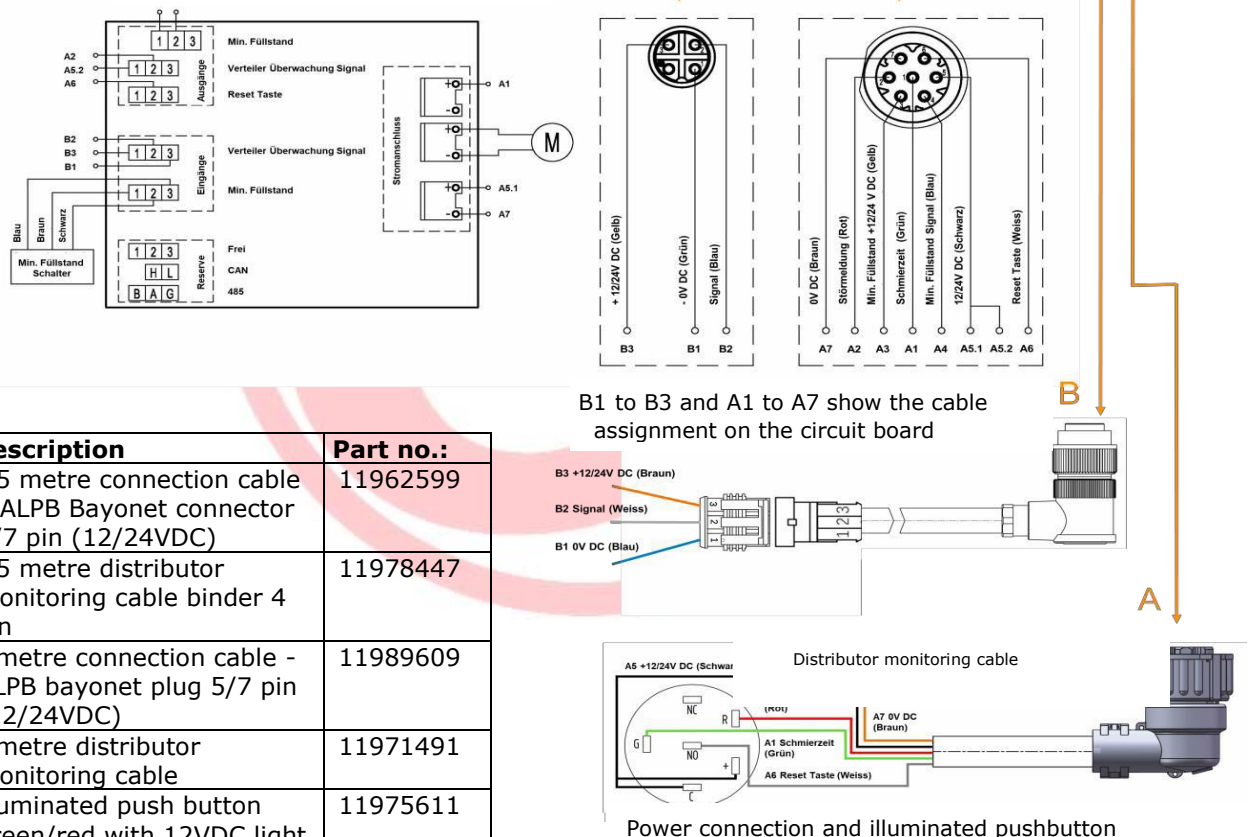
NOTICE For the preset value of 3P - lubrication time less than 5 min, the preset value of 2P less than 3 is recommended. For the preset value of 3P - lubrication time less than 10 min, the preset value of 2P less than 5 is recommended. The grease quantity for each lubrication point is only determined by the 3P - lubrication time, not by the 2P - pulse cycles, these are only used for distributor monitoring.

3.11 Pin assignment and cable connections 12/24V DC with control unit

ALPB pump with 7-pin bayonet connector - System monitoring via an external multi-coloured illuminated push button

The pump is supplied with 12V or 24V DC power via the 7 pin bayonet connector via pos. A. This connection is standard. An intermediate lubrication "reset" function is triggered by pressing an illuminated push button installed in the cabin. During the lubrication time - 3P, the optional illuminated push button lights up "green". If the button lights up "red", this signals an EE error message (for a description, see pages 13 & 14). Button lights up "yellow" when an error message is reset. (Fig. 26.1).
The distributor monitoring 2P (solenoid switch) is connected to the pump via pos. B.

Layout of the circuit board



B1 to B3 and A1 to A7 show the cable assignment on the circuit board

Power connection and illuminated pushbutton (Output)

Description	Part no.:
7.5 metre connection cable – ALPB Bayonet connector 5/7 pin (12/24VDC)	11962599
7.5 metre distributor monitoring cable binder 4 Pin	11978447
5 metre connection cable - ALPB bayonet plug 5/7 pin (12/24VDC)	11989609
5 metre distributor monitoring cable	11971491
Illuminated push button green/red with 12VDC light	11975611
Illuminated push button green/red with 24VDC light	11934252

Fig. 26.1 Cable assignment for ALPB BJN with control units

3.12 Pin assignment and cable connections 12/24V DC without control units

ALPB pump with 7-pin bayonet connector - level monitoring via an external light

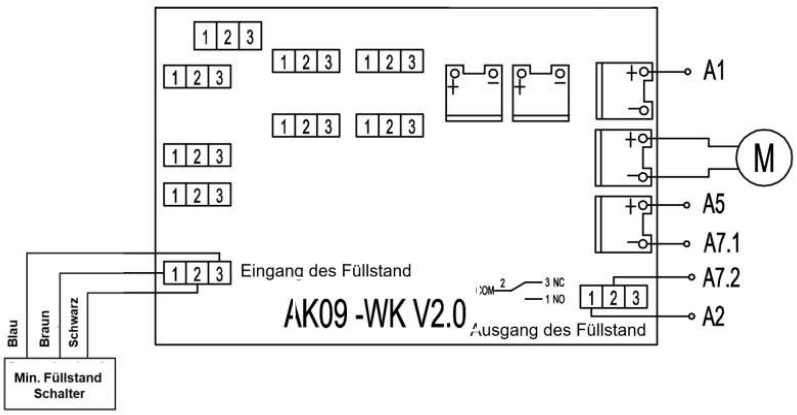
The pump is supplied with 12/24V DC via the 7-pin bayonet connector via pos. A and the pump is not programmable with lubrication time and break time. The grease level indicator lights up "red" when the pump receives a grease level error signal.

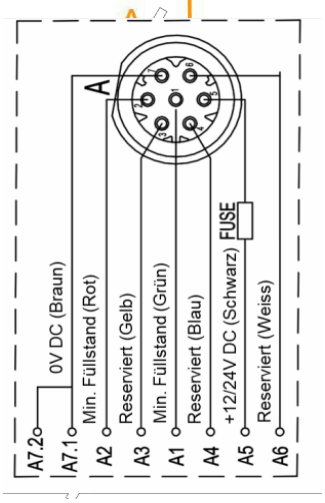
NOTICE

With the ALPB pump without control, it is **not** possible to monitor the status of the manifold!

**** For more information about other solutions, please contact us.***

Layout of the circuit board

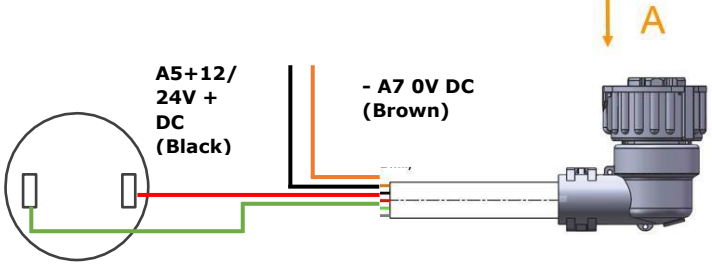




A1 to A7 show the cable assignment on the circuit board

Part numbers for cables and connectors

Description	Part no.:
7.5 metre connection cable - ALPB bayonet plug 5/7 pin (12/24VDC)	11962599
5 metre connection cable - ALPB bayonet plug 5/7 pin (12/24VDC)	-
7.5 metre connection cable - ALPB bayonet plug 2/7 pin (12/24VDC)	12047836
5 metre connection cable - ALPB bayonet plug 2/7 pin (12/24VDC)	12054203
Fill level light red 12VDC	-
Fill level light red 23VDC	-



A1 G.L. (Green)

Power connection and illuminated push-button (output)

Fig. 27.1 Cable assignment for ALPB BJN without control units

3.13 Filling the grease reservoir

NOTICE Greases: NLGI class 0 to 2. Only use greases which are approved for the various temperatures!

a) -10℃～70℃, EP greases!

b) -20℃～-10℃, low temperature grease -30℃～120℃

c) -30℃～-20℃, low temperature grease -40℃～120℃

1. The pump must be in a vertical position during the reservoir filling process.
2. When refilling the grease reservoir, fill 5 to 10 mm below the "Grease Level Max" marking! Please keep an eye on the grease reservoir during the filling process so that "Grease Level Max" is not exceeded!

CAUTION 3. It is forbidden to open the lid of the grease reservoir and refill lubricant!

WARNING 4. Only fill with clean lubricants! Contaminated grease will cause the pump to block.

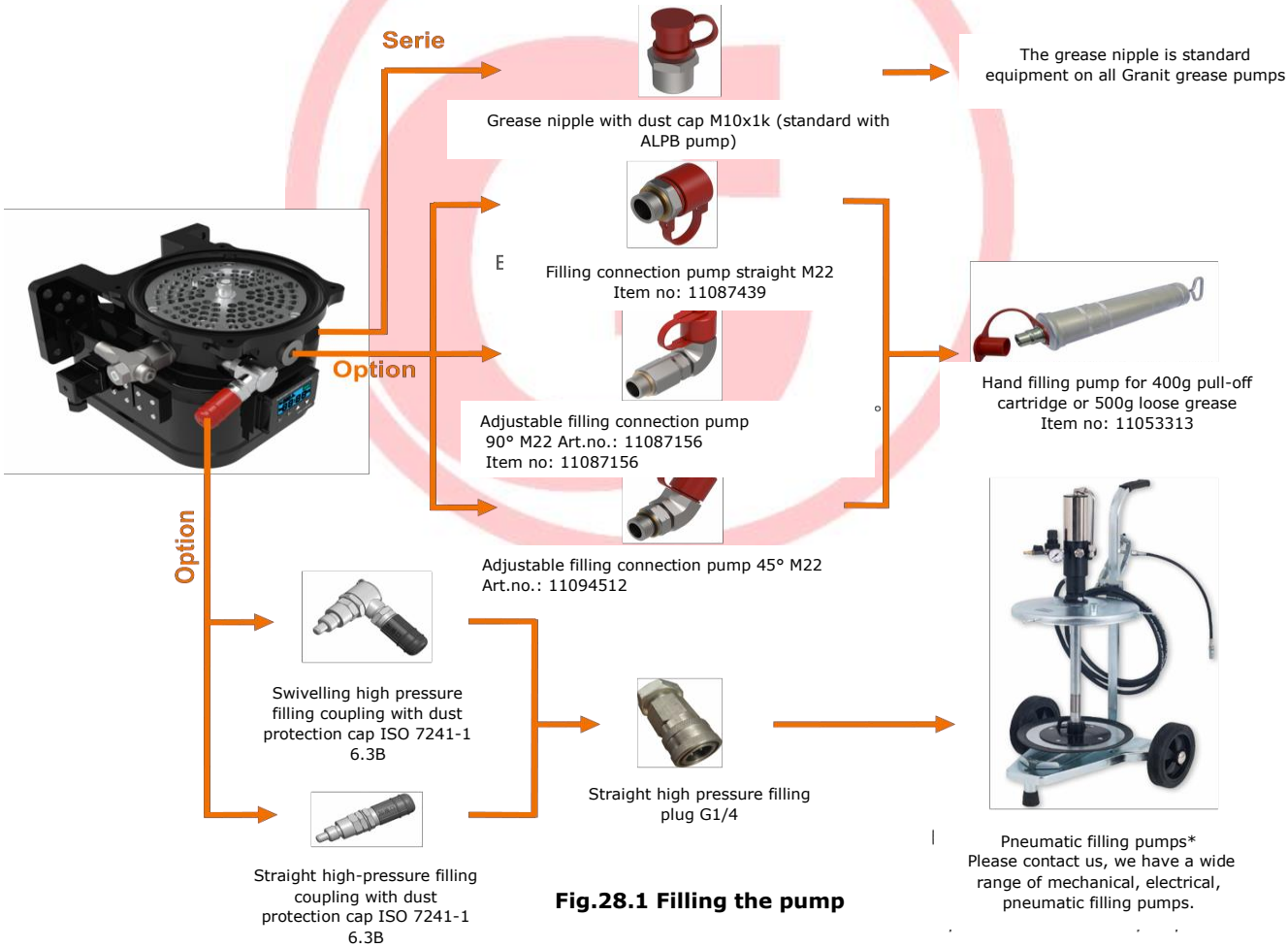
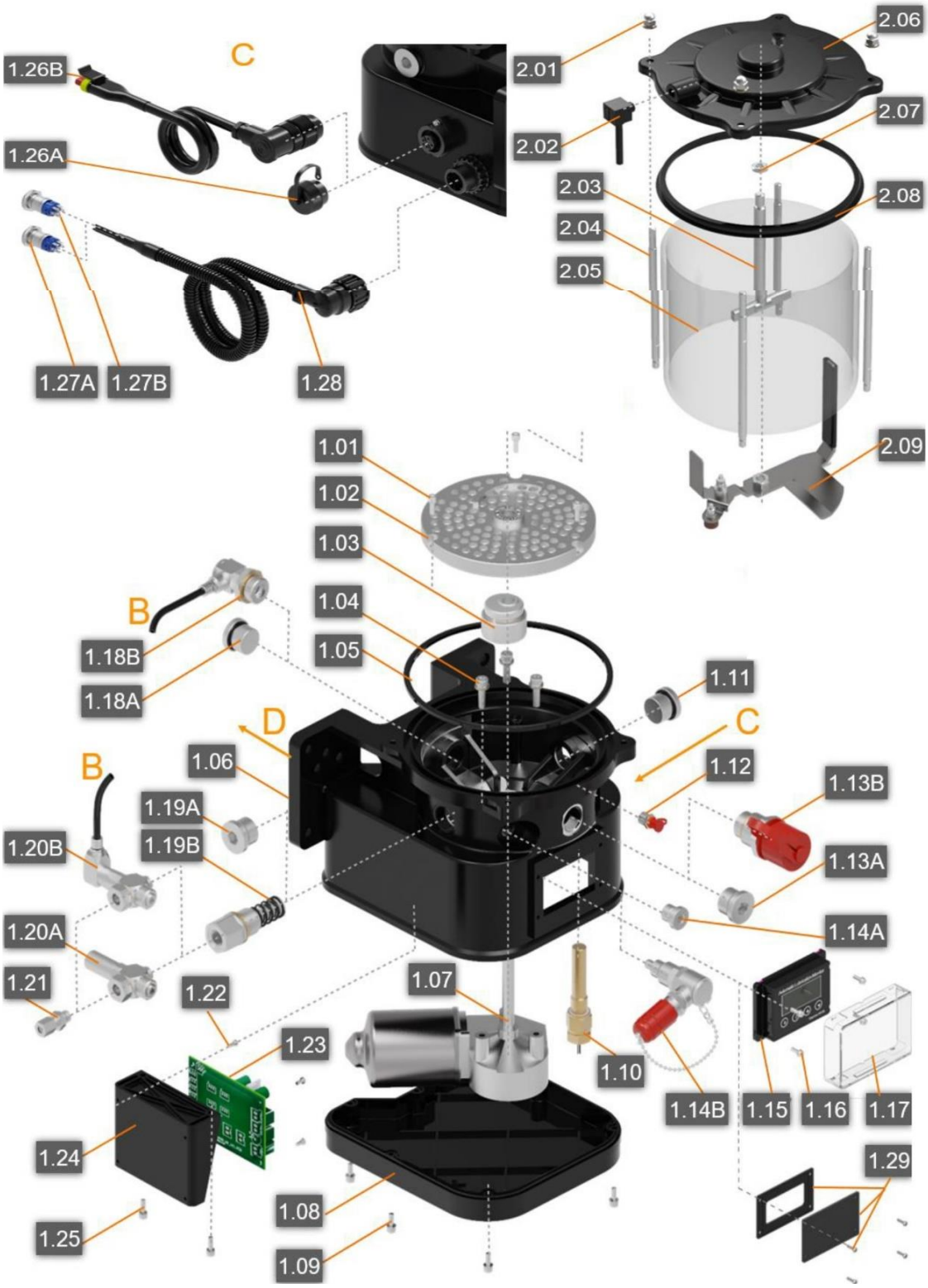


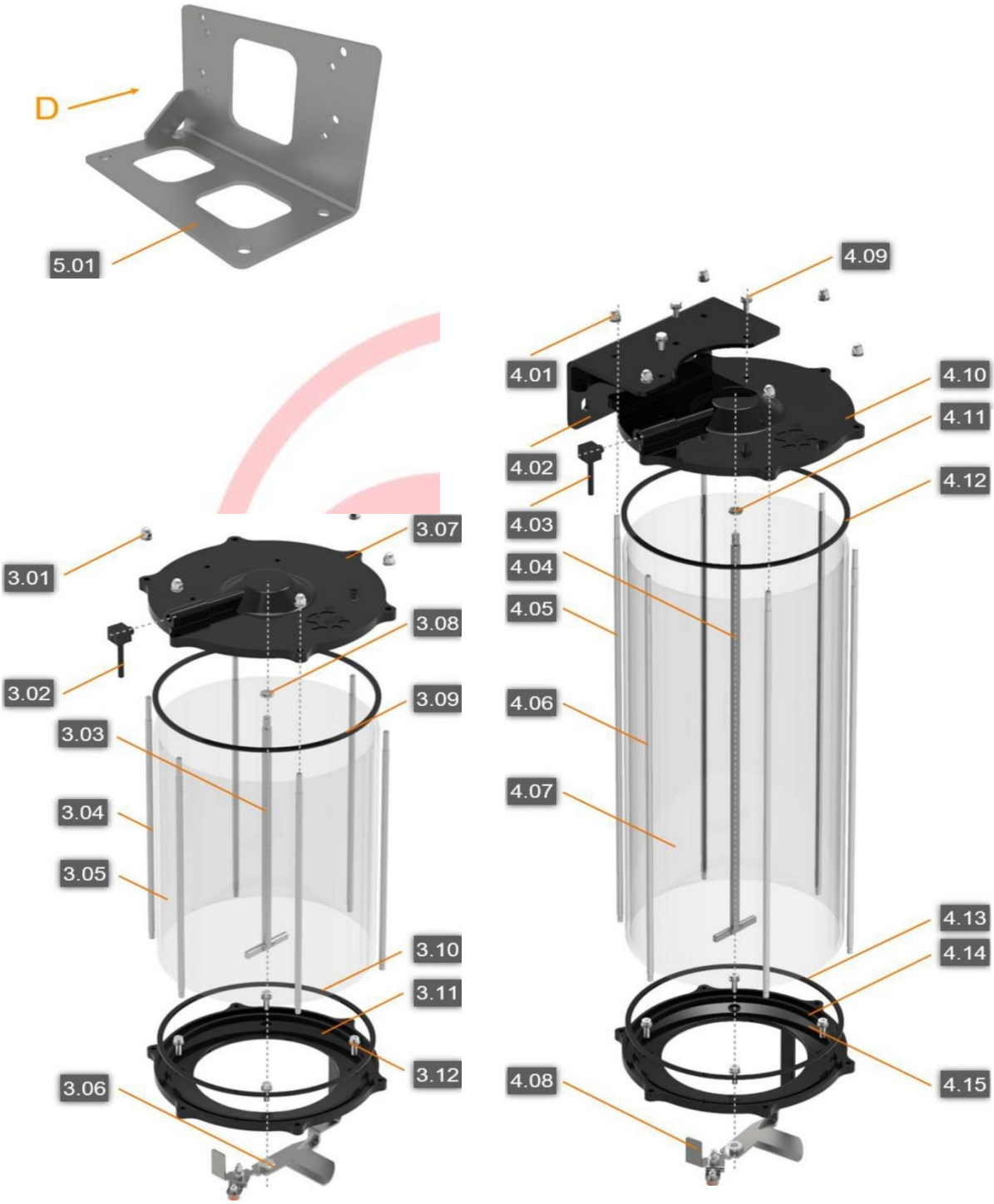
Fig.28.1 Filling the pump

4 Exploded drawings and spare parts list

4.1 Pump BJN Ver., 12/24 VDC 2-6 litre reservoir



4.2 Grease reservoir 8 to 20 litres



4.3 Spare parts list - pump base body BJN Ver.

Item	Qty.	Description	Article no.
1:01	3	Kit - cyl. Hexagon socket head screw M4 L12 with washer	11981831
1:02	1	Grease strainer intermediate ring D142 H12 ALPB	-
1:03	1	Eccentric pressure disc EDS	-
1.04-1	3	Cylindrical Hexagon socket screw M6 L25	-
1.04-2	3	D6 Washers	-
1:05	1	O-ring D160-170x3 for reservoir D170mm	11974856
1:06	1	Pump housing - ALPB	-
1.07A	0-1	DC motor 12V DC	11968097
1.07B	0-1	DC motor 24V DC	11981440
1.08-1	1	Cover bottom pump housing - ALPB 201x180x23.5	11982735
1.08-2	1	Sealing ring - ALPB cover bottom pump housing	11980944
1:09	7	Kit - cyl. Hexagon socket screw M4 L20 with washer and spring washer	11909677
1:10	1	Solenoid switch Min. level monitoring - ALPB SP	-
1:11	1	Blanking plug with ED seal M22x1.5	11094513
1:12	1	Tapered grease nipple M10x1	11968798
1.13A	0-1	Blanking plug with seal (with ED seal) M22x1.5	11094513
1.13B	0-1	Filling connection adapter straight M22 with protective cap for pump 811&ALPB for manual filling press	11087439
1.14A	0-1	Blanking plug with ED seal M14x1.5	11979457
1.14B	0-1	Swivelling filling coupling ISO 7241-1B with dust protection cap	-
1.15A	0-1	AK09 V5.3 ALPB BJN Ver. PCB Standard (Ori. Pro. Code D-56 PNP)	11983622
1.15B	0-1	AK09-WK V20-ALP811/ALPB Hirschmann/Bayonet ver.circuit board without control units (switch signal for grease min. level)	-
1:16	4	Kit - cross recessed socket head cap screw M3 L10 with washer and spring washer	11972674
1:17	1	Transparent protective cap for AK06 LED display	11983525
1.18A	0-1	Blanking plug with ED seal M22x1.5	11094513
1.18B	0-1	One-sided bypass kit for PRV A	-
1.19A	0-1	Blanking plug with ED seal M22x1.5	11094513

Item	Qty.	Description	Article no.
1.19B-C	0-1	Pump element PE - ALPB/ALP811 1.5cm3/min M22x1.5	11736202
1.19B-B	0-1	Pump element PE - ALPB/ALP811 2.5cm3/Min M22x1.5	11936646
1.19B-C	0-1	Pump element PE - ALPB/ALP811 4.5cm3/min M22x1.5	11934243
1.20A	0-1	Pressure relief valve PRV type A (SV-A) Kit	-
1.20B	0-1	Pressure relief valve PRV type C (SV-C) Kit	-
1:21	1	Straight screw connection GE-ZN M10D6	-
1:22	4	Cheese head screw with cross recess M3 L6	11985311
1:23	1	AK09 V5.3 - Programmable controller (board) Programme code d-56	11982834
1:24	1	Bracket for board AK09 - ALPB version	11975460
1:25	2	Kit - cyl. Hexagon socket screw M4 L14 with washer and circlip	11983834
1.26A	0-1	Protective cap distributor monitoring on pump - binder 4 Pin	11978753
1.26B-A	0-1	7.5 metre distributor monitoring cable binder 4 pin	11978447
1.26B-B	0-1	5 metre distributor monitoring cable binder 4 Pin	11971491
1.27A	0-1	Illuminated push button green/red with 12VDC light	11975611
1.27B	0-1	Illuminated push button green/red with 24VDC light	11934252
1.28-A	0-1	7.5 metre connection cable - ALPB bayonet plug 7 pin 12/24VDC	11962599
1.28-B	0-1	5 metre connection cable - ALPB bayonet plug 7 pin 12/24VDC	11989609
1:29	0-1	Kit - Blanking plates for without control units Ver. with seal and screws	-

General BOM - ALPB Reservoir Kit - 1

Item	Qty.	Description	Article no.
2.00A	0-1	Kit grease reservoir - ALPB 2 litres (Complete Kit 2.01-	-
2.00A-	0-1	Conversion kit grease reservoir - ALPB 2 litres 1.05,	-
2.00B	0-1	Kit grease reservoir - ALPB 4 litres (Complete Kit 2.01-	-
2.00B-	0-1	Conversion kit grease reservoir - ALPB 4 litres 1.05,	-
2.00C	0-1	Kit grease reservoir - ALPB 6 litres (Complete Kit 2.01-	-
2.00C-	0-1	Conversion kit grease reservoir - ALPB 6 litres 1.05,	-
2.01-1	4	Cap nut M6	-
2.01-2	4	D6 Washers	-
2.01-3	4	Circlip D6	-
2:02	1	Ventilation unit grease reservoir ALPB	-
2.03A	0-1	T-bar for grease distribution Grease reservoir (ALPB 2L)	-
2.03B	0-1	T-bar for grease distribution Grease reservoir (ALPB 4L)	-
2.03C	0-1	T-bar for grease distribution Grease reservoir (ALPB 6L)	-
2.04A	0 or 4	Tension rod for grease reservoir (ALPB 2L) D7 M6 L161	-
2.04B	0 or 4	Tension rod for grease reservoir (ALPB 4L) D7 M6 L306	-
2.04C	0 or 4	Tension rod for grease reservoir (ALPB 6L) D7 M6 L406	-
2.05A	0-1	Grease reservoir transparent (ALPB 2L) D160-170 L140	-
2.05B	0-1	Grease reservoir transparent (ALPB 4L) D160-170 L285	-
2.05C	0-1	Grease reservoir transparent (ALPB 6L) D160-170 L385	-
2:06	1	Grease reservoir cover for reservoir D170mm	-
2:07	1	Hexagon nut M8	-
2:08	1	Z-sealing ring for grease container Cover for container	-
2:09	1	Kit - Agitator blade with guide plate, magnet and control cam for tank D170mm	-
3.01-1	6	Cap nut M6	-
3.01-2	6	D6 Washers	-
3.01-3	6	Circlip D6	-
3:02	1	Ventilation unit grease reservoir ALPB	-
3:03	1	T-bar for grease distribution Grease reservoir (ALPB 8L)	-
3:04	6	Tension rod for grease reservoir (ALPB 8L) D7 M6 L348	-
3:05	1	Grease reservoir transparent (ALPB 8L) D220-230 L322	-
3:06	1	Kit - Stirrer blade with guide plate, magnet and control	-
3:07	1	Grease reservoir cover for reservoir D230mm	-
3:08	1	Cap nut M8	-
3:09	1	O-ring D220-232x3 for reservoir D230mm	-
3:10	1	O-ring D220-232x3 for reservoir D230mm	-
3:11	1	Intermediate flange (ALPB 8-20L) D240x22 for reservoir	-
3.12-1	4	Cylindrical Hexagon socket screw M6 L20	-
3.12-2	4	D6 Washers	11979250
4.00B	0-1	Kit - ALPB 20 litre grease container with cover	-
4.01-1	6	Grooved cap nut M6	-
4.01-2	6	D6 Washers	-
4.01-3	6	Circlip D6	-
4:02	1	Bracket for grease reservoir top (ALPB 15-20L)	-

General BOM - ALPB Reservoir Kit - 2

Item	Qty.	Description	Article no.
4:03	1	Ventilation unit grease reservoir ALPB	-
4.04A	0-1	T-bar for grease distribution grease reservoir (ALPB 15L)	-
4.04B	0-1	T-bar for grease distribution Grease reservoir (ALPB 20L)	-
4.05A	0 or 4	Tension rod for grease reservoir A (ALPB 15L) D7 M6 L595	-
4.05B	0 or 4	Tension rod for grease reservoir A (ALPB 20L) D7 M6 L805	-
4.06A	0 or 2	Tension rod for grease reservoir B (ALPB 15L) D7 M6 L601	-
4.06B	0 or 2	Tension rod for grease reservoir B (ALPB 20L) D7 M6 L811	-
4.07A	0-1	Grease reservoir transparent (ALPB 15L) D220-230 L570	-
4.07B	0-1	Grease reservoir transparent (ALPB 20L) D220-230 L780	-
4:08	1	Kit - Stirrer blade with guide plate, magnet and control	-
4.09-1	3	Cap nut M6 L15	-
4.09-2	3	Washer D6 for reservoir D230mm	-
4.09-3	3	Circlip D6	-
4:10	1	Grease reservoir cover for reservoir D230mm	-
4:11	1	Hexagon nut M8	-
4:12	1	O-ring D220-232x3 for reservoir D230mm	-
4:13	1	O-ring D220-232x3 for reservoir D230mm	-
4:14	1	Intermediate flange D240x22 for reservoir D230mm	-
4.15-1	4	Cylindrical Hexagon socket screw M6 L20	-
4.15-2	4	T-bar for grease distribution grease reservoir (ALPB 15L) D10 L582	-
5:01	1	Bracket for pump	-

5 Delivery and storage

5.1 Delivery

Check the shipment for damage and completeness upon receipt based on the shipping documents. Report any transport damage to the carrier immediately. Keep the packaging material until any discrepancies have been resolved. Ensure safe handling during internal transport.

5.2 Storage

The products are subject to the following storage conditions:

- dry, dust- and vibration-free in closed rooms
- no corrosive, aggressive substances at the storage location (e.g. UV rays, ozone)
- protected from pests and animals (insects, rodents, etc.)
- if possible in the original packaging of the product
- shielded from nearby sources of heat and cold
- take appropriate measures (e.g. heating) to prevent the formation of condensation in case of strong temperature fluctuations or high humidity.

Storage conditions for parts filled with lubricant

When storing products filled with lubricant, the conditions mentioned below must be ensured.

Storage period of up to 6 months

The filled products can be used without further measures.

NOTICE **storage period of 6 to 18 months – pump**

1. Connect pump electrically
2. Switch on the pump and let it run, e.g. by triggering an additional lubrication,
3. until approx. 4 cm³ of lubricant emerge from each pump element
4. Switch off the pump and disconnect it from the mains
5. Remove and dispose of escaped lubricant

NOTICE **Storage time of 6 to 18 months - distributor**

1. Remove all connection lines and screw plugs
2. Connect the pump, filled with new grease suitable for the application, to the distributor
3. Run the pump until new grease comes out of the divider
4. Remove escaped lubricant
5. Refit the screw plugs and connection lines

Storage time of 6 to 18 months - hose

1. Dismantle the pre-assembled hose
2. Ensure that both sides of the hose remain open
3. Fill the hose with new lubricant

Storage time of more than 18 months

To avoid malfunctions, consult the manufacturer before commissioning. The general procedure for removing the old grease filling corresponds to a storage period of 6 to 18 months

6 Installation and assembly

6.1 General tips

The installation of the products described in this manual may only be carried out by qualified personnel. The following must be observed during assembly:

- Other devices must not be damaged by the assembly
- The product must not be mounted in the area of moving parts
- The product must be installed at a sufficient distance from sources of heat and cold
- Note the IP protection class of the product
- Observe safety distances and legal regulations for assembly and accident prevention
- Any optical monitoring devices, e.g. pressure gauges, MIN/MAX markings or piston detectors, must be clearly visible
- Observe the instructions in the chapter Technical data for the installation position

Installation location

Protect the product from moisture, dust and shocks and install it in an easily accessible location to facilitate further installation and maintenance work.
Assembly

Minimum installation dimensions

Ensure that there is a clearance of at least 100 mm in each direction in addition to the specified dimensions for maintenance work or for attaching further components to the pump to set up a central lubrication system.

***For all installation dimensions, see page 16**

Installation holes welding studs

Risk of damage to the higher-level machine and the pump Only drill the fastening holes on non-load-bearing parts of the higher-level machine. The attachment must not be made to two parts that move relative to each other. Please speak to the manufacturer and get approval for the holes and welding studs you wish to fit, or contact us.

Cleaning

The pump has a degree of protection IP65! It is not permitted to clean the pumps with a high-pressure cleaner! The spray jet can cause water to enter the pump via the seals. No warranty if high-pressure cleaners are used!

6.2 Electrical connection

Electric shock

CAUTION Be sure to disconnect the pump from the power supply before working on electrical components.

Carry out the electrical connection according to the connection type of the pump,

1. Use cable for power supply according to the respective connection diagram as described in this manual. It is mandatory to use a pre-fuse See description on page 12!
2. Insert the socket into the corresponding plug and tighten it or, in the case of square plugs (Hirschmann version), tighten it with its screw. Only in this way can the protection class (IP class) be maintained.

6.3 - Mount pump element and safety valve

CAUTION In a standard pump, the pump element and the safety valve (SV-C) are usually located on the left side of the pump outlet. To fit an additional set of pump elements and safety valves, please ensure that the pump is disconnected from the power supply.

NOTICE Tightening torque for the pump element = 20 Nm +/- 2.0 Nm
Tightening torque for the safety valve = 6 Nm +/- 0.5 Nm

6.4 - Filling with lubricants

CAUTION Lubricant: NLGI Cl.0-Cl.2, it is strongly recommended to use the various special greases under the following temperatures:

NOTICE

a) -10℃～70℃, normal grease can be used,
b) -20℃～-10℃, low temperature grease -30℃～120℃ is recommended,
c) -30℃～-20℃, low temperature grease -40℃～120℃ is recommended.

Hold the pump vertically during the filling process, filling in the unassembled state.

The level of the refilled grease must not be higher than the "Grease Level Max". Keep an eye on the electric / pneumatic filling pump as long as it is in operation, turn off the filling pump before the grease level in the reservoir is 5-10 mm below the "Grease Level Max" position.

It is strictly forbidden to remove the top cover of the pump to fill lubricant!

Only fill with clean lubricants! The service life of the pump elements depends heavily on the quality of the lubricants used.

7 Troubleshooting

Malfunction	Possible cause	Solution
Pump does not work	Power supply to the pump interrupted • Higher-level machine is switched off • Pump connection cable is loose or defective • External fuse is faulty • Pump is in break time mode • Pump motor is defective • Circuit board of the pump is defective • Internal cable break	Check whether one of the specified faults is present and rectify it within the scope of your responsibility. You must report any faults that are not your responsibility to your supervisor so that they can take further action. If the fault cannot be determined and rectified, please contact our customer service department
Pump runs, but delivers no or only little lubricant	• Blockage, disturbance in the • Centralised lubrication system • Grease level in the reservoir below • minimum level • Defective non-return valve • Defective safety valve • Suction hole of the pump element is blocked • Close pump element • Air bubbles in the pump body • Lubricant consistency too high (at low temperatures) • Lubricant consistency too low (at high temperatures) • Incorrect arrangement of the manifold elements or incorrect bridging of the manifold	Check whether one of the specified faults is present and rectify it within the scope of your responsibility. You must report any faults that are not your responsibility to your supervisor so that they can take further action. If the fault cannot be determined and rectified, please contact our customer service department

8 Shutdown and decommissioning

8.1 Temporary shutdown

Temporarily switch off the system by:

- Switch off the higher-level unit.
- Disconnect the product from the power supply.

8.2 Decommissioning and dismantling

The final decommissioning and dismantling of the product must be planned and carried out by the operator in a professional manner and in compliance with all regulations to be observed.

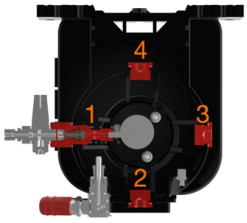
9 Order key

ALPB - 2 . 2 . PE 2.5C - 0 - 0 - 0 . 2 . 0 . 1 . 0000

Pos. 1 | Pos. 2 | Pos. 3 | Pos. 4

Motorspannung	
12V	1
24V	2

Fettbehälter L	
2L	2
4L	4
6L	6
8L	8
15L	15
20L	20



Pumpauslass M22 - Pos. 1/2/3/4	Pos. 1	Pos. 2	Pos. 3	Pos. 4
Verschlossen - Blindstopfen	0	0	0	0
PE 1.5 ohne Bypass	1.5C	1.5C	1.5C	1.5C
PE 1.5 mit bypass	1.5A	1.5A	1.5A	1.5A
PE 2.5 ohne Bypass	2.5C	2.5C	2.5C	2.5C
PE 2.5 mit Bypass	2.5A	2.5A	2.5A	2.5A
PE 4.5 ohne Bypass	4.5C	4.5C	4.5C	4.5C
PE 4.5 mit Bypass	4.5A	4.5A	4.5A	4.5A
Adapter gerade Handbefüllpresse		HP	HP	
Bypass Eingang				BP
Sonderausführung	X	X	X	X

Standard PE in Position 1

Bei PE's mit einem SV-A mit Bypass muss ein Bypass Eingang an Pos. 4 sein!

Pos. A - Stromanschluss	
Ohne Stromkabel	3
Mit Bajonett Stromkabel 7,5m	2
Sonderausführung	X

Pos. B - Verteiler Überwachung (Signal Eingang)
Bitte beachten Sie unsere Verteiler Beschreibungen

Pos. C - Reset / Zwischenschmierung für Kabine (Signal Ausgang)	
für Bajonett Ver. Bitte Pos. C immer auf 0	0

Steuergerät	
Ohne Steuergerät	0
Mit integriertem Steuergerät AK06	1

Sonderausführung	
Standard Version	0000
Customized Version	XXXX

10 EU declaration of conformity

The distributor,

Wilhelm Fricke SE
Zum Kreuzkamp 7
DE-27404 Heeslingen

hereby declares its sole responsibility for ensuring that the central lubrication system

type/series identification: **11092131, 11088243, 11094514, 11091924**

complies with the provisions of the

2006/42/EC	**Machinery Directive**
2014/30/EU	**Directive on electromagnetic compatibility (EMC directive)**

The product was developed in accordance with the following standards:

DIN EN 809
DIN EN ISO 12000

Documentation authorised by:

Eike Viebrock
Wilhelm Fricke SE
Zum Kreuzkamp 7
DE-27404 Heeslingen

The serial number and model year can be found on the equipment's type plate.

Heeslingen, 26.01.2023

Holger Wachholtz, Board of Directors

Original declaration of conformity

11 Disposal

The separate, environmentally responsible disposal of materials promotes the reusability of resources. The equipment and all associated individual parts such as lubricants, packaging and wearing parts should therefore be taken to a recycling point once the equipment has reached the end of its normal service life. Packaging, equipment and accessories are made of recyclable materials and should be disposed of accordingly.

Ensure that equipment that has reached the end of its service life is unusable before disposing of it.

!!! Always observe regional disposal regulations!!!

12 Warranty

The Wilhelm Fricke SE warranty terms apply. These can be found in the sales documents and the current version of the terms and conditions.

If you have any questions, please contact our customer services team.

13 Addresses

Sales/customer services/
replacement parts sales:

Tel.: +49 (4281) 712 712
Fax: +49 (4281) 712 700

Postal and delivery address:

Wilhelm Fricke SE
Zum Kreuzkamp 7
DE-27404 Heeslingen

14 Legal notice

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