

Operating- and assembly manual

Grease lubrication pump-ABDB Multi-line pump

ABDB-05
ABDB-15
ABDB-30



Contents

1	Declaration of incorporation	2
2	Impressum	3
3	Explanation of symbols	4
4	Warranty and extent of warranty	4
5	Safety instructions	4
6	Transport, returns and storage	7
7	Shutdown and disposal	8
8	Accompanying documents	8
9	Technical data	9
10	Installation dimensions	11
10.1	ABDB-05 with gearbox 70:1 with plastic PC reservoir size 4 / 8 / 20 Liter	11
10.2	ABDB-15 with gearbox 70:1 with plastic PC reservoir size 8 / 20 Liter	11
10.3	ABDB-15 with gearbox 50:1 or 100:1 with metal reservoir size 30 / 60 / 100 Liter	12
10.4	ABDB-30 with gearbox 50:1 or 100:1 with metal reservoir size 30 / 60 / 100 Liter	12
11	Components	13
11.1	Pump element	13
11.2	Ultrasonic level monitoring sensor	14
12	Functional description	15
13	Start up / Assembly	16
14	Trouble shooting	18
15	Order key	19
15.1	ABDB-05	19
15.2	ABDB-15, ABDB-30	20

All information subject to technical changes.

Rev.	Change	Date / Author:	Date / Released:
00	First edition	04.12.2024 / HB	04.12.2024 / MK

1 Declaration of incorporation

Declaration of incorporation for incomplete machinery (acc. To EC-directive 2006/42/EG)

The manufacturer: Lubmann GmbH, Kleiner Johannes 21, 91257, Pegnitz, Germany

declares hereby, that the following partly completed machinery:

Designation: Centralized lubrication pump
Type: ABDB
Part No.: 20xxxxxxx / 99xxxxx / 15xxxxx

is complying with all essential requirements of the above-mentioned machinery directives (2006/42/EG):
Annex I, article 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4, and 1.5.1.

The following coordinated standards have been used:
DIN EN 809
DIN EN ISO 12000

The following other specifications and standards have been used:

VDE 0530

The protection targets of the directive for have been electric equipment 2006/95/EG observed according to the annex I, no. 1.5.1 of the machine directive.

The incomplete machine may only be put into service as soon as there has been stated that the machine, into which the incomplete machine shall be installed, responds to the determinations of the machine directive (2006/42/EG).

The special documentation that responds to the machine, has been prepared according to annex VII-part B.

The manufacturer (documentation department, phone +49 9241 80 89 87 00, email: info@lubmann-gmbh.de) obliges itself to pass on electronically the special documentation for partly completed machinery to individual national authorities upon request.

Pegnitz, 01.10.2022



ppa. Markus Kürzdörfer
General Manager

Lubmann GmbH

2 Impressum

Manufacturer

Lubmann GmbH
Add: Kleiner Johannes 21, 91257, Pegnitz, Germany
E-Mail: info@lubmann-gmbh.de
Website: www.lubmann-gmbh.de

Training courses

In order to provide a maximum of safety and economic viability, Lubmann GmbH carries out detailed training courses. It is recommended that the training courses are attended. For more information, please contact Lubmann GmbH.

Copyright

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Disclaimer

The manufacturer shall not be held responsible for damages caused by:

- Non appropriate use faulty assembly, operation, setting, maintenance, repair or accidents
- Use of inappropriate lubricants
- Improper or late response to malfunctions
- Unauthorized modifications of the product
- Intent or negligence
- Use of non-original Lubmann spare parts
- Faulty planning or layout of the centralized lubrication system

Liability for loss or damage resulting from the use of our products is limited to the maximum purchase price. Liability for consequential damages of whatever kind is excluded.

3 Explanation of symbols



Safety instructions which, if not complied with, may endanger persons, are marked specifically with the general hazard symbol!



This heading is used if inaccurate compliance or non-compliance with the Operating Instructions or specified work procedures etc. may result in damage.



Points out Special Information!

4 Warranty and extent of warranty

Inappropriate intervention will rule out your warranty claim!

Warranty regarding operational safety, reliability and performance of the grease lubrication pump is only accepted by the manufacturer under the following conditions:

- Assembly, connection, setting, maintenance and repair are carried out by authorized and specialized staff.
- The limits stipulated in the technical data must never be exceeded.
- Only original components or components approved by the manufacturer may be used for repair and maintenance work.

All guarantees and warranties expire for damages to the grease lubrication pump that are caused by operation with improper lubricants (e.g., piston wear, piston jamming, plugins, embrittled sealings).

Lubmann does not assume liability on damages caused by lubricants, even if these lubricants have been tested and released by laboratory tests, as damages caused by lubricants (e.g., by expired or improper stored lubricants, batch variations etc.) can not be retraced to their root cause in retrospect.

Service address: Kleiner Johannes 21, 91257 Pegnitz, Germany

5 Safety instructions

General information

Any safety-related faults must be eliminated without delay.

Below, please find fundamental instructions to be complied with, regarding assembly, operation and maintenance. The mechanical and the competent specialists / staff of the operating company must read the Operating Instructions on all accounts prior to starting assembly and commissioning. Moreover, the Operating Instructions must permanently be available on site.

Not only the safety instructions included under this item, but also the specific safety instructions appearing in other parts of this manual must be complied with.

General risk reference

All system components have been designed in view of operational safety and accident prevention according to the applicable provisions for the design of technical equipment.

Nevertheless, utilization thereof may result in risks for the user or third parties and/or technical equipment. Thus, the system may only be used in proper technical working within its intended fields of application and in compliance with the safety provisions and the Operating Instructions.

Personal

The staff in charge of operation, maintenance, inspection and assembly must be qualified accordingly for this work. The operating company must stipulate competences, responsibilities and the supervision of staff precisely. If the staff does not dispose of the appropriate knowledge, they must be trained and instructed. The operating company must ensure that the staff have understood the contents of the Operating Instructions

Danger due to non-observance of the safety information



Non-compliance with the safety information may put persons at risk and endanger the environment and/or the machine.

Non-compliance with the safety instructions may rule out any claims for damages.

Non-compliance may lead, e. g. to the following dangers:

- Failure of important system functions,
- Failure of the specified maintenance and servicing methods,
- Endangering people due to electrical, mechanical and chemical effects,
- Endangering the environment due to leakages of dangerous materials.

Use in conformity with the intended purpose:

The grease lubrication pumps of the series ABDB serve only for the supply of central lubrication systems at vehicles, industrial application and machines.

Any use beyond this scope is regarded as being not in conformity with the intended purpose.

Assembly and maintenance

Observe for all assembly works at vehicles, industrial applications and machines the valid local accident prevention regulations and safety instructions as well as the specifications for operation and maintenance.

All maintenance, inspection and assembly work may only be carried out by trained specialists. All work must only be carried out when the plant is at a standstill and while wearing appropriate protective clothing.

All the safety and protective equipment must be replaced immediately after completing work.



Media that endangers the environment must be disposed in accordance with pertinent official specifications.

Secure the system during maintenance and repair works, against intentional or unintentional reoperation.

Dispose of process materials in accordance with the safety data sheets of the lubricant manufacturer.

Safety information for operators/operating staff

If hot or cold machine parts led to hazards, the customer must secure them from being touched.

The guards on moving or rotating parts must not be removed.



Drain leakages of dangerous materials in a way, that people or the environment are not endangered.

Comply with legal regulations.

Exclude any hazards by electric energy.

Unauthorized modification and spare part production



Modifications and alterations on the grease lubrication pump require the manufacturer's prior approval.

The use of non-original parts excludes liability for the resulting consequences.

Danger caused by the electrics



The units may be connected to the power supply exclusively by appropriately trained qualified personal in conformity with the local connection conditions and regulation (e. g. DIN, VDE)!

Improperly connected equipment may lead to serious personal injury and damage to property!

Danger caused by system pressure



The units might be under pressure. Make them pressure less before you start with repairs, changes or extensions.

Use of hydraulic hose lines:

By installing hydraulic hose lines at the greas lubrication pump, the operator must observe respectively ensure the following items:



Checks for proper assembly and function must be carried out according to the regional valid guidelines.

Checks for a safe provisioning and use must be carried out according to the regional valid guidelines.

The check deadline must not be exceeded.

Exchange defect hydraulic hose lines immediately and professional.

Hydraulic hose lines subject to a wear process and must be exchanged regularly and according to the manufacturer's details.

Cleaning



The grease lubrication pump has an IP65 (according to DIN EN 60529) protection class!

It is not allowed to clean the Lubmann grease lubrication pumps of serie ABDB with a high-pressure cleaner.

The high-pressure jets can allow water to penetrate the seals into the grease lubrication pump.

We do not provide a warranty when high-pressure cleaner are used!

Lubricant

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

Use greases with high-pressure additives (EP greases).

Only use greases of the same saponification type.

Lubricants containing solid contents must not be used (lubricants like graphite or MoS₂ on request).



Observe the vehicle manufacturer's specifications, when you select the lubricant.

After the system has been shut down, check the lubricant for physical and chemical signs of aging to see whether it is still suitable for use.

Observe the safety data sheet for the lubricant used.

Hazards to environment cause by lubricants

The lubricants which are recommended by the manufacturer of your vehicle, system or machine correspond in their composition to the common safety regulations. Mineral oils and greases are generally hazardous to ground water and their storage, processing and transport requires special precautions.

Inadmissible methods of operation



Operational security of the plant is only guaranteed if it is operated in accordance with the operating instructions. The limit values stated in the technical data must not be exceeded under any circumstances.

6 Transport, returns and storage

Transport

The grease lubrication pumps of the series ABDB are packed commercially, according to the regulations of the recipient country and to the wish of the customer.

There are no limitations with respect to land, air or sea transport.

Store in a dry place at a temperature of -5° C to +35°C.

After receipt of the shipment, check the shipment for damage and completeness according to the shipping documents. Immediately report any transport damages to the forwarding agent. Keep the packaging material until any discrepancies are resolved. During in-house transport ensure safe handling.

Returns

Clean all parts and pack them properly (i.e., following the regulations of the recipient country) before returning them.

Protect the product against mechanical influences such as impacts.

There are no restrictions for land, sea or air transport.

Storage

Lubmann products are subject to the following storage conditions:

- dry, dust- and vibration-free in closed premises
- no corrosive, aggressive materials at the place of storage (ozone)
- protect against environmental damage such as UV radiation
- protected against pests and animals (insects, rodents, etc.)
- possibly in the original product packaging
- shielded from nearby sources of heat and coldness
- in case of high temperature fluctuations or high humidity take adequate measures (e. g. heater) to prevent the formation of condensation water

Storage conditions for parts filled with lubricant

The conditions mentioned in the following will have to be adhered to when storing products filled with lubricant.

Storage period of up to 6 months

The filled products can be used without having to take further measures.

Step for storage period from 6 to 18 months - Pump



1. Connect the pump electrically
2. Switch the grease lubrication pump on and let it run, e.g., by triggering an additional lubrication, until about 4 cc of lubricant will leak from each pump element.
3. Switch the pump off and disconnect it from the electrical grid.
4. Remove and dispose of leaked lubricant.

Storage period exceeding 18 months



To avoid dysfunctions, consult the manufacturer before commissioning.
The general procedure to remove the old grease filling corresponds to that of a storage period from 6 to 18 months

7 Shutdown and disposal

Temporary shutdown

Temporarily shut the system down by:

- Switching off the superior machine.
- Disconnecting the product from the power supply.

Final shutdown and disassembly

The final shutdown and disassembly 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.

Disposal

- for Countries within the European Union

Disposal should be avoided or minimized wherever possible. Disposal of products contaminated with lubricant must be affected via licensed waste disposal contractor in accordance with environmental requirements and waste disposal regulations as well as local authority requirements.



The specific classification of the waste is in the waste producer's responsibility, as the European Waste Catalogue provides different waste disposal codes for the same type of waste but of different origin.

Electrical components have to be disposed of or recycled following WEEE directive 2012/19/EU.

Plastic or metal parts can be disposed of with the commercial waste.

- for Countries outside the European Union



The disposal must be done according to the valid national regulations and laws of the country where the product is used

8 Accompanying documents

In addition to this manual, the following documents must be considered by the respective target audience:

- Operational instructions and release regulations for the pump used
- Safety data sheet for the lubricant used
- Project documentation
- Operating instructions for components installed during assembly of the central lubrication system
- Release regulations and regulations in the company

9 Technical data

Technical data for ABDB-05			
Motor:	Single-range 50Hz	Multi-range 50Hz	Multi-range 60Hz
Motor type:	T4A63		
Construction type:	B5		
Frame size:	63		
Flange:	140mm		
Shaft:	D11x23		
IP class:	IP55		
Rated voltage:	290/500 V AC	220-240/380-420V AC	250-275/440-480V AC
Rated power:	0.12 kw	0.12 kw	0.12 kw
Rated revolution:	1400 rpm	1400 rpm	1680 rpm
Gear box:			
Available transmission ratios:	70:1, 300:1		
Construction type:	B5		
Frame size:	63		
Flange:	140mm		
General:			
Working temperature:	-20°C~70°C	Mounting position:	Vertical
Max operating pressure:	IP55	Direction of rotation:	Clockwise
Sound pressure level:	≤55dB		
Level sensor as option:	Ultra sonic sensor (4 positions) Laser sensor (2 positions)		
Refilling:	Reservoir cover, quick coupling, grease nipple, hand press adapter		
Lubricant:	Lubrication greases from NLGI 000 up to and including NLGI 2. Lubrication oils with min. 40 mm ² /s at operating temperature		
Reservoir size:	4 / 8 / 20 Liter transparent PC		
Max. pump elements:	5		
Type of pump elements:	PE 1,5 / 2,5 / 4,5 M22x1,5, PR adjustable M22x1,5		

Technical data for ABDB-15, ABDB-30

Motor:	Single-range 50Hz	Multi-range 50Hz	Multi-range 60Hz
Motor type:	T4A71		
Construction type:	B14		
Frame size:	71		
Flange:	105mm		
Shaft:	D14x30		
IP class:	IP55		
Rated voltage:	290/500 V AC	220-240/380-420V AC	250-275/440-480V AC
Rated power:	0.25 kw	0.25 kw	0.25 kw
Rated revolution:	1400 rpm	1400 rpm	1680 rpm

Gear box:

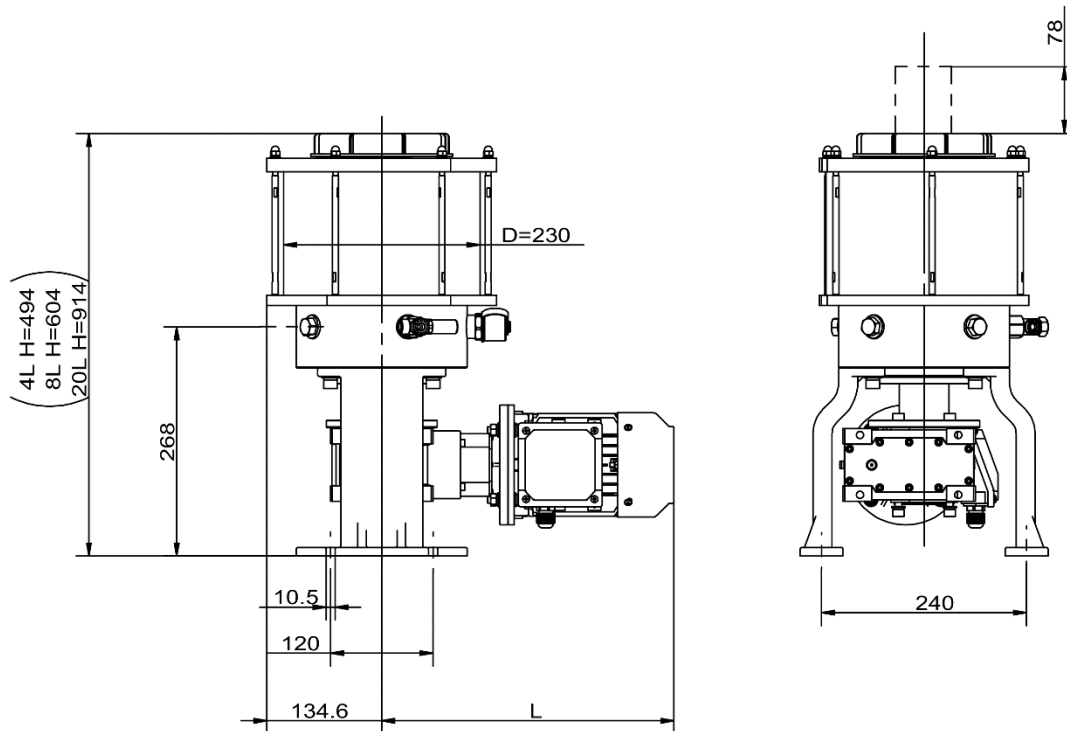
Available transmission ratios:	7:1 (free shaft), 50:1, 100:1, 500:1		
Construction type:	B14		
Frame size:	71		
Flange:	105mm		

General:

Working temperature:	-20°C~70°C	Mounting position:	Vertical
Max operating pressure:	IP55	Direction of rotation:	Clockwise
Sound pressure level:	≤55dB		
Level sensor as option:	Ultra sonic sensor (4 positions) Laser sensor (2 positions)		
Refilling:	Reservoir cover, quick coupling, grease nipple, hand press adapter		
Lubricant:	Lubrication greases from NLGI 000 up to and including NLGI 2. Lubrication oils with min. 40 mm ² /s at operating temperature		
	ABDB-15		ABDB-30
Reservoir size:	8 / 20 Liter transparent PC, 30 / 60 / 100 Liter metal		30 / 60 / 100 Liter metal
Max. pump elements:	15		30
Type of pump elements:	K6 M22x1,5 G1/4 0,033-0,160cm ³ /cy K7 M22x1,5 G1/4 0,046-0,230cm ³ /cy		
Type fo safety valve:	G1/4 M10x1		

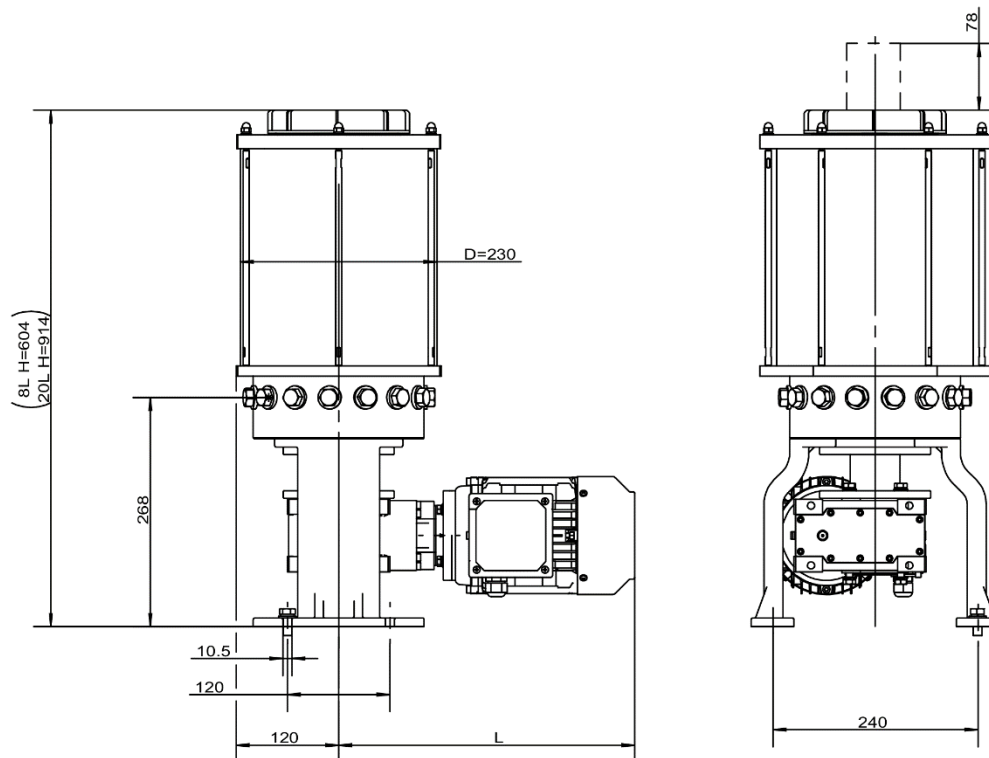
10 Installation dimensions

10.1 ABDB-05 with gearbox 70:1 with plastic PC reservoir size 4 / 8 / 20 Liter



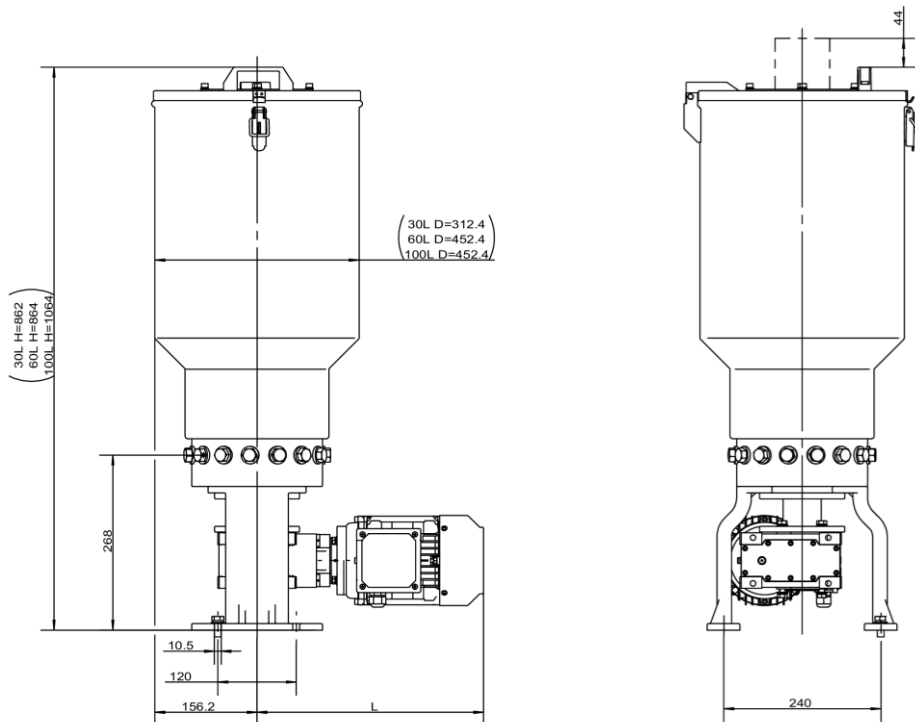
* For ABDB-05, when a 70:1 ratio gear box is used, L = 342. For ABDB-05 with plastic PC reservoir pump, when the order key has only difference by the ultrasonic grease level monitoring sensor, the pump with sensor is 78 mm higher than without sensor pump.

10.2 ABDB-15 with gearbox 70:1 with plastic PC reservoir size 8 / 20 Liter

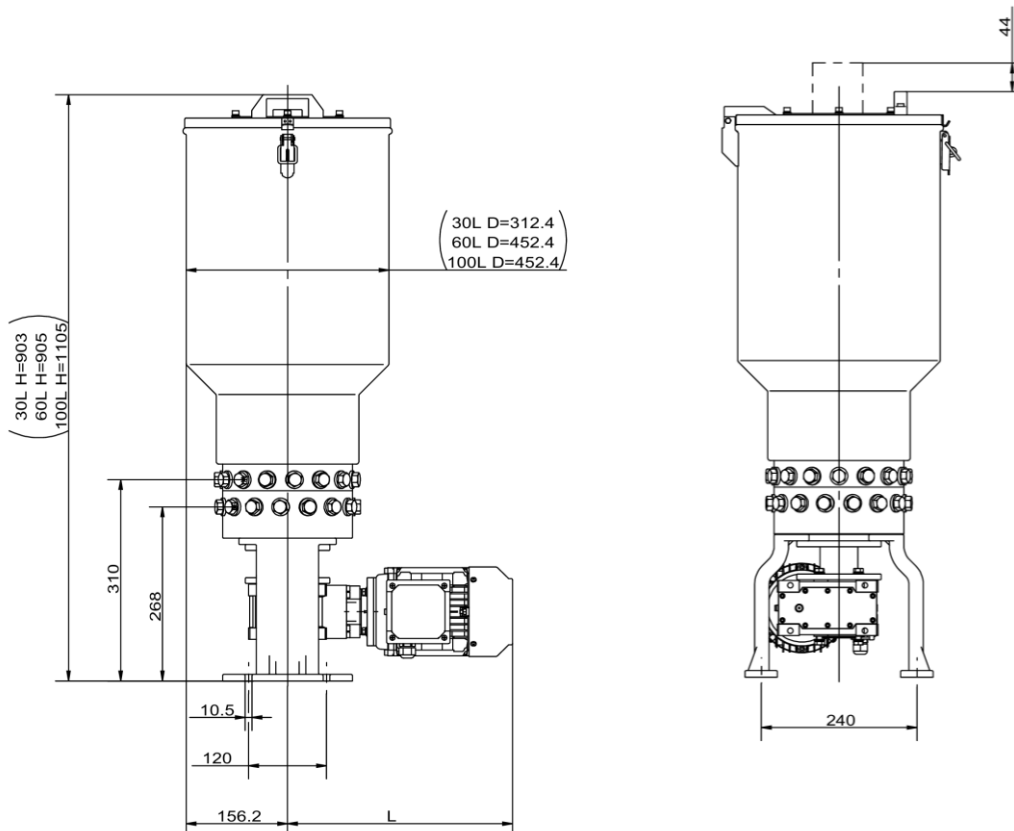


* For both ABDB-15 and ABDB-30, when a 50:1 ratio gear box is used, L = 346.5, when a 100:1 ratio gear box is used, L = 383. For both ABDB-15 and ABDB-30 with plastic PC reservoir pump, when the order key has only difference by the ultrasonic grease level monitoring sensor, the pump with sensor is 78 mm higher than without sensor pump.

10.3 ABDB-15 with gearbox 50:1 or 100:1 with metal reservoir size 30 / 60 / 100 Liter



10.4 ABDB-30 with gearbox 50:1 or 100:1 with metal reservoir size 30 / 60 / 100 Liter



* For both ABDB-15 and ABDB-30, when a 50:1 ratio gear box is used, L = 346.5, when a 100:1 ratio gear box is used, L = 383. For both ABDB-15 and ABDB-30 with metal reservoir pump, when the order key has only difference by the ultrasonic grease level monitoring sensor, the pump with sensor is 44 mm higher than without sensor pump.

11 Components

11.1 Pump element

Installation and removal of ABDB-05 pump element

1. Insert the pump element vertically into the pump outlet housing drilling (Dia. A).
2. Tighten the pump element clockwise with a torque wrench, the pre-set value of the torque wrench cannot be less than 43 Nm +/- 2 Nm* (Dia. A).

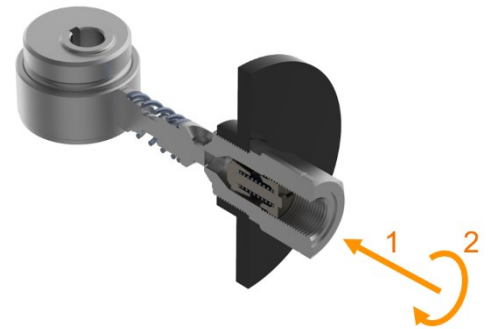


* Value is default setting by original manufacturer.

3. For removal, reverse above sequence.



Only install or remove the pump element when pump power OFF!!!



Installation and removal of ABDB-15 and ABDB-30 pump element

1. Pull out the plunger of the pump element by around 28 mm (Dia. B-1).
2. Tilt the pump element upwards as shown in the figure and install the pump element into the corresponding mounting outlet of the pump (Dia. B-2).
3. Place the pump element in a horizontal position and ensure that the head of the pump element has fallen into the groove between the mounting ring and cam shaft, then tighten the pump element with a torque wrench SW24. the preset value of the torque wrench cannot be less than 32.5 Nm +/- 2.5 Nm* (Dia. B-3).

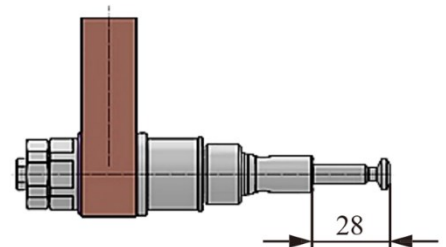


* Value is default setting by original manufacturer.

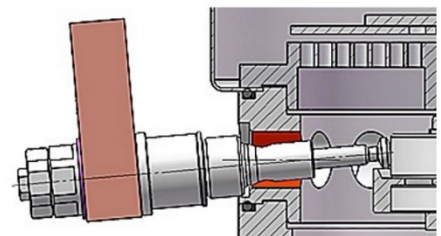
4. For removal, reverse above sequence.



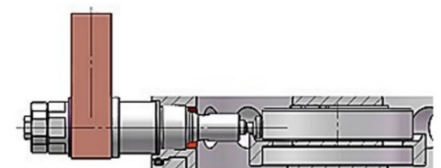
Only install or remove the pump element when pump power OFF!!!



Dia. B-1



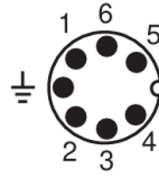
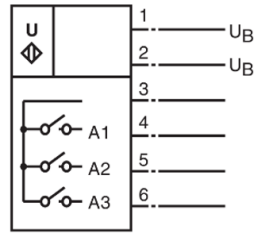
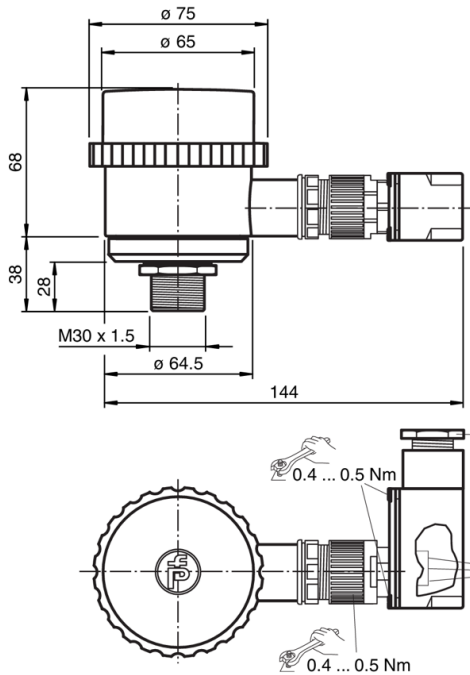
Dia. B-2



Dia. B-3

**Dia. B Pump Element
installation and removal for
ABDB-15, ABDB-30**

11.2 Ultrasonic level monitoring sensor



Dia. B Standard symbol / connection

Dia. C Connector V7

LED	S4 = OFF	S4 = ON
1 ⊗ (red)	full	full
2 ⊗ (green/yellow)	high	normal
3 ⊗ (green/yellow)	normal	low
4 ⊗ (red)	empty	empty

Dia. D Indicators

Dia. A Dimension for ultrasonic monitoring sensor

Technical data for ultrasonic level monitoring sensor

General specifications:

Sensing range:	6 to 550 mm
Dead band:	0 to 60mm
Standard target plate:	100mm x 100 mm
Transducer frequency:	Approx. 380 kHz
Response deday:	> 10 s, relay < 1 s, LEDs
Ambient temperature:	-20 to 60 °C
Storage temperature:	-40 to 85 °C
Degree of protection:	IP65

Indicators:

LED red:	LED 1: overfill indication	LED 4: underfill indication
LED green / yellow:	LED 2: overfill warning and normal operation	LED 3: normal operation and underfill warning
DIP switch:	setting of the switch points/operating modes	

Electrical specifications:

Operating voltage:	10 ... 253 V DC or 20 ... 253 V AC, 47 ... 63 Hz
Standard conformity:	EN IEC 60947-5-2:2020 / IEC 60947-5-2:2019

12 Functional description

Lubmann multi-line pump type – ABDB series have been widely used in industries such as mining, metallurgy, machine tools, textiles, food, ports, and heavy mechanical equipment, etc.

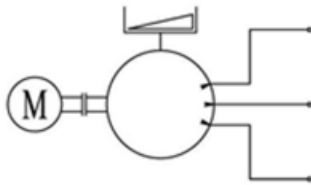
Our Lubmann automatic lubrication system lubricates all lube points as required through progressive lubrication system. It can reduce the friction resistance, reduce contact wear and decrease the friction surface temperature. Meanwhile, it plays a supporting role of anti-rust, shock absorption and sealing.

Areas of application

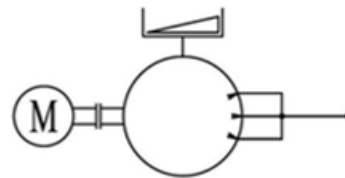
ABDB series multi-line pump serves as centralized lubrication pump in large-scale progressive lubrication system.

As a multi-line pump, ABDB can be connected directly to supply the lubricants to each lube point with hose or can supply to each lube by combining multiple pump elements (*Dia. A and B*).

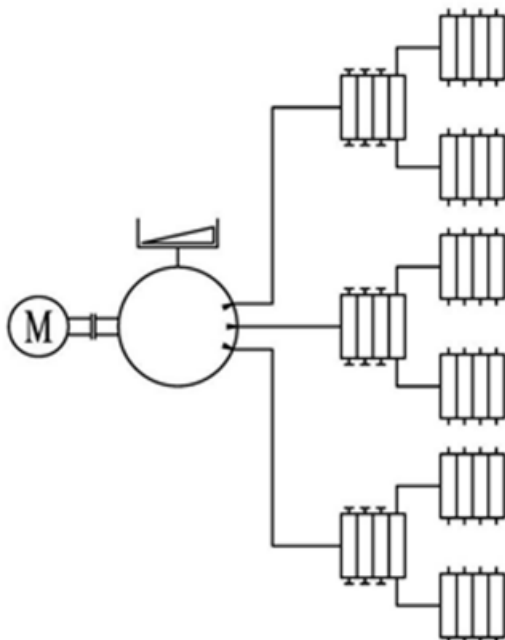
In the large-scale progressive lubrication system, ABDB series pump can supply the lubricant with a set or multiple sets of progressive dividers and at least 1 or multiple pump elements (*Dia. C and D*).



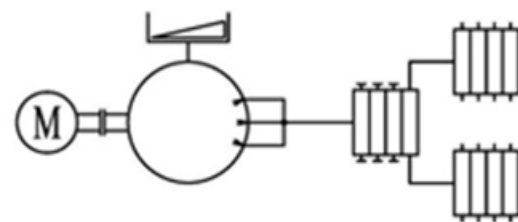
Dia. A



Dia. B



Dia. C



Dia. D

13 Start up / Assembly

General information

Only qualified technical personnel may install the products described in these Instructions. During assembly pay attention to the following:



- Other units must not be damaged by the assembly
- The product must not be installed within the range of moving parts
- The product must be installed at an adequate distance from sources of heat and coldness
- Observe the product's IP degree of protection
- Adhere to safety distances and legal prescriptions on assembly and prevention of accidents
- Possible existing visual monitoring devices, e.g. pressure gauges, MIN/MAX markings or piston detectors, must be clearly visible
- Observe prescriptions in chapter Technical data regarding the installation position

Place of installation

Protect the product against humidity, dust and vibrations and install it in an easily accessible position to facilitate other installation and maintenance works.

Mechanical connection



- Minimum assembly dimensions
- Ensure sufficient space for maintenance work or for attachment of further components to build a centralized lubrication system to the pump by leaving a free space of at least 100 mm into each direction in addition to the stated dimensions.
**All the installation dimensions can be found in chapter installations dimensions*

Installation bores



Drill the mounting bores on non-loadbearing parts of the superior machine only. Fastening must not be done on two parts moving against one another (e. g. machine bed and machine assembly).

Electrical connection



Electric shock.

Work on electrical components may be performed only by qualified electricians. At a minimum, the following safety measures must be taken before any work on electrical components is done:



- Switch off electricity.
- Ensure that electricity cannot be switched on again.
- Double check that no electrical current is flowing.
- Ground the circuit.
- Cover or otherwise isolate components that are still electrically active

The electrical connection must be implemented in accordance with the specifications of the standards of the DIN VDE 0100 series or of the standards of the IEC 60364 series, respectively.

Connect the electrical cables or wirings without mechanical forces are transferred to the products. Connect plugs with the corresponding bushes and secure them against becoming loose.



The central lubrication pump must be secured with a suitable external fuse.

The electrical connection is established in accordance with the type of connection of the specific central lubrication pump.

Connect the motor according to the terminal diagram in the terminal box.
Connect the level monitoring sensor according to the terminal diagram in these instructions or check the page of "Ultrasonic level monitoring sensor" in the manual.

Mount pump element and safety valve

Generally, a standard grease lubrication pump has a set of pump element and safety valve (SV-C) on the left side of the pump outlet.

To mounting an extra set of pump element and safety valve, please make sure, that the grease lubrication pump has been disconnected from the power supply.



Tightening torque for pump element (ABDB-05) = 43 Nm +/- 2,0 Nm

Tightening torque for pump element (ABDB-15, ABDB-30) = 32.5 Nm +/- 2,5 Nm

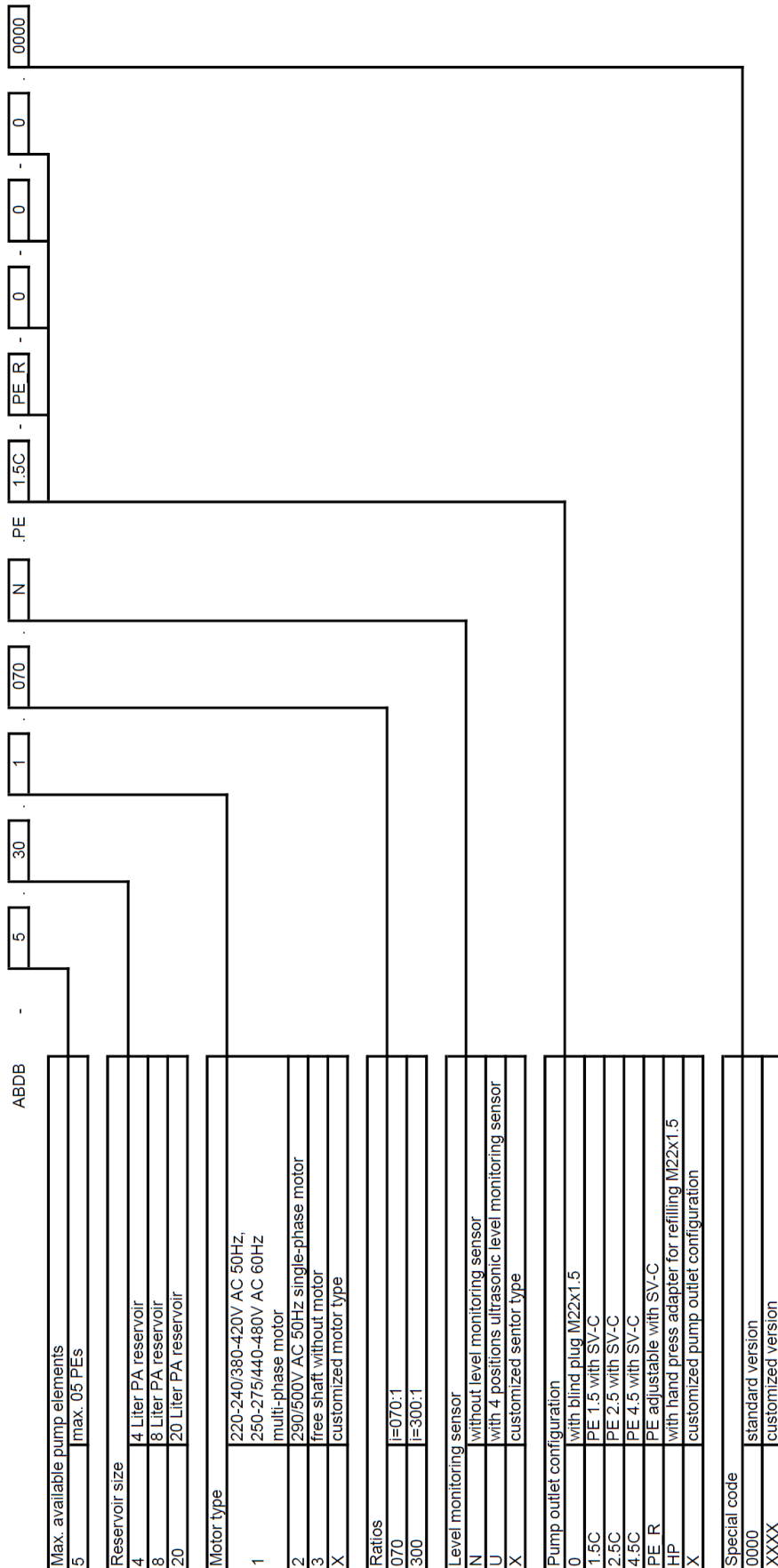
Tightening torque for safety valve = 36 Nm +/- 2,0 Nm

14 Trouble shooting

Fault	Possible cause	Solution
<p>Grease lubrication pump does not run</p>	<p>Power supply to pump interrupted</p> <ul style="list-style-type: none"> ▪ Superior machine is switched off ▪ Connection cable of pump is loose or defective ▪ External fuse is defective <p>Grease lubrication pump is in the pause time mode</p> <p>Grease lubrication pump motor is defective</p> <p>Grease lubrication pump print board is defective</p> <p>Internal cable break</p>	<p>Check whether one of the indicated faults is present and remedy it in the frame of responsibilities.</p> <p>Faults outside of your own responsibility have to be reported to your superior to initiate further measures.</p> <p>If the fault cannot be determined and remedied, please contact our Customer Service</p>
<p>Grease lubrication pump runs but supplies no or only little lubricant</p>	<p>Blockade, fault within the centralized lubrication system</p> <p>Grease level in reservoir under Min. level</p> <p>Defective non-retrun valve</p> <p>Defective safety valve</p> <p>Suction bore of pump element is clogged</p> <p>Close pump element</p> <p>Air bubbles in the pump body</p> <p>Too high lubricant consistency (at low temperatures)</p> <p>Too low lubricant consistency (at high temperatures)</p> <p>Wrong configuration of dividers</p>	<p>Check whether one of the indicated faults is present and remedy it in the frame of responsibilities.</p> <p>Faults outside of your own responsibility must be reported to your superior to initiate further measures.</p> <p>If the fault cannot be determined and remedied, please contact our Customer Service</p>

15 Order key

15.1 ABDB-05



15.2 ABDB-15, ABDB-30

