

Operating manual
Pump BF-G

BA_2017_2_GB_BFG



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1. GENERAL

Prior to start up, we recommend to read these operating instructions carefully as we do not assume any liability for damages and operating troubles which result from the nonobservance of these operating instructions!

The below described pump is designed for use in centralized lubrication systems or to supply downstream lubrication systems.

Any use beyond the applications described in these operating instructions is considered to be not in accordance with the product's intended purposes. The manufacturer is not to be held responsible for any damages resulting from this: the user alone bears the corresponding risk.

As to figures and indications in these operating instructions we reserve the right to make technical changes which might become necessary for improvements.

The copyright on these operating instructions is kept reserved to the company DELIMON. These operating instructions are intended for the erecting, the operating and supervising personnel. They contain regulations and drawings of technical nature which must not - completely or partially - be distributed nor used nor communicated to others without authorization for competition purposes.

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2. SAFETY

These operating instructions contain fundamental instructions which are to be observed during erection, operation and maintenance. Therefore it is absolutely necessary for the fitter and the competent qualified staff/user to read these operating instructions before installation and start-up. The operating instructions must be available at all times at the place of use of the machine/system.

Not only the general safety instructions stated under this main point "safety" are to be observed, but also the other specific safety instructions stated under the other main points.

2.1 Identification of safety warnings in the operating instructions

The safety warnings contained in these operating instructions which, if not observed, may cause dangers to people, are specially marked with general danger symbols



safety sign according to DIN 4844, warning about a danger spot, in case of warning about electric voltage with



safety sign according to DIN 4844, warning about dangerous electric voltage.

In case of safety instructions which, if not observed, may cause damage to the product and its function, the word

ATTENTION

is inserted.

Instructions that are directly attached to the machine, as for example

- rotational direction arrow
- identifications for fluid connections must be observed at all events and maintained in a fully legible condition.
- Note: There is an increased skid risk in case of spilled/leaked out lubricants. They are to be removed at once properly.



Safety sign according to DIN 4844, warning about skid risk.

2. SAFETY

2.2 Personnel qualification and training

The operating, maintaining, inspecting and erecting personnel must have the appropriate qualification for such work. Area of responsibility, competence and supervision of the personnel have to be regulated by the user. If the personnel do not have the necessary knowledge, they have to be trained and given instructions. This can be effected, if necessary, by the manufacturer/supplier on behalf of the user of the machine. Furthermore, the user has to make sure that the contents of the operating instructions are fully understood by the personnel.

2.3 Dangers in case of nonobservance of the safety instructions

The nonobservance of the safety instructions may result in hazards to persons, to the environment and to the product. The non-observance of the safety instructions may lead to the loss of any claims for damages.

In detail, the nonobservance may for instance lead to the following hazards:

- Failure of important functions of the product/system/machine
- Failure of prescribed methods for maintenance and repair
- Hazard to persons by electrical, mechanical and chemical influences
- Hazard to the environment by the leakage of dangerous substances

2.4 Safety conscious working

The safety instructions stated in these operating instructions, the existing national regulations as to the accident prevention as well as possible internal working, operating and safety rules of the user are to be observed.

2.5 Safety instructions for the user/operator

- If hot or cold product or machine parts lead to dangers, these parts have to be protected against touch.
- Protection against touch for moving parts (e. g. coupling) must not be removed when the machine is in operation.
- Leakages (e. g. from the shaft seal) of hazardous goods to be delivered (e. g. explosive, toxic, hot) are to be removed in such a way that there is no danger to persons and environment. Legal rules are to be observed.

- Hazards caused by electrical power are to be excluded (for details please refer for instance to the rules of the VDE and the local power supply companies).

2.6 Safety instructions for maintenance, inspection and installation work

The user has to take care that all the maintenance, inspection and installation work is executed by authorized and qualified skilled personnel who have informed themselves adequately by thoroughly studying the operating instructions. Basically, work on the machine is only to be carried out during shut-down. It is obligatory to observe the shut-down procedure described in the operating instructions.

Pumps or pump aggregates that deliver media being hazardous to health have to be decontaminated. Immediately after completion of the work, all safety and protective equipments have to be reinstalled and/or reactivated.

- Advice: When working with compressed air, do wear glasses.



(DIN 4844 – Use breathing mask)

- Advice: Observe EC-Safety Data Sheet for materials of consumption and additives used and use personal protective equipment.

2.7 Unauthorized conversion and manufacture of spare parts

Conversion or modifications to the product are only permitted when agreed with the manufacturer. Original spare parts and accessories authorized by the manufacturer serve to ensure safety. The use of other parts may render the liability for consequential losses null and void.

2.8 Unacceptable modes of operation

The operational reliability of the product supplied is only guaranteed if the product is used in accordance with its intended purposes as per section 1 - General - of the operating instructions. The limiting values specified in the data sheet must on no account be exceeded.

2.9 Guidelines & standards

1., 2. and 3. guideline (see data sheet: R&N_2009_X_GB)

2.10 Notes on environmental protection and waste disposal

In correct operation with lubricants, the components are subject to the special requirements set by environmental legislation.

The general requirements for lubricants are specified in the respective safety data sheets.

Used lubricants are hazardous forms of waste and therefore require special supervision in the sense of § 41 paragraph 1 sentence 1 and paragraph 3 no. 1 of KrW-/AbfG (Closed-Loop Waste Management Act).

Used oils must be handled in compliance with AltöIV (Waste Oil Ordinance).

The devices or components contaminated with lubricant must be disposed of by a certified waste management company. Records of proper waste management must be filed in conformance to NachwV (Ordinance on Waste Recovery and Disposal Records).

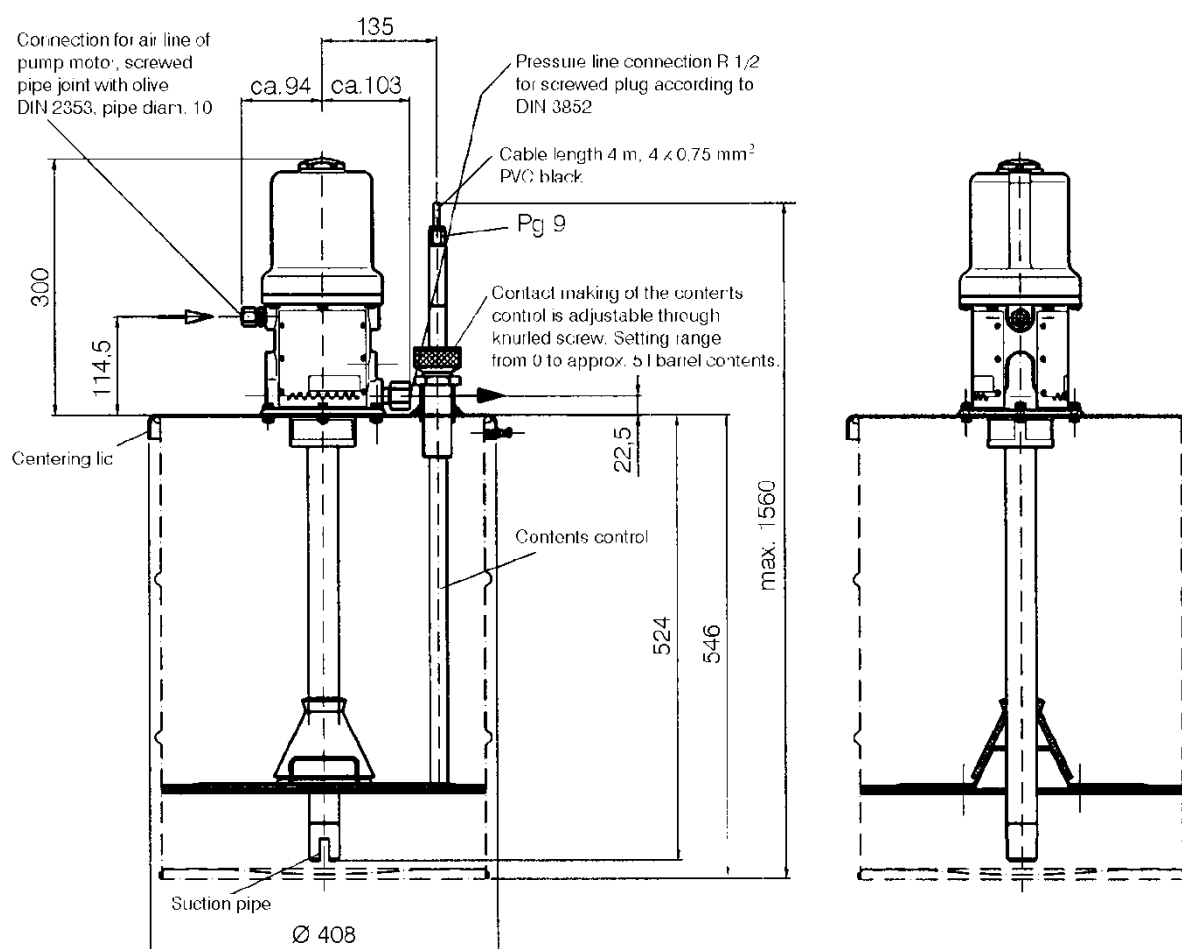
GENERAL PRODUCT CHARACTERISTICS

- Pneumatically driven drum pump
- Discharge max. 2.64 l/min (15 : 1)
- Lubricant grease
- Surface signal grey RAL 7004

3. APPLICATION

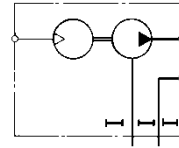
The barrel pump BF-G is adapted to take the grease of penetration class 000 up to 2 straight from a 50 litre and 200 litre barrel (DIN 6644 -2 / - 4 and DIN EN 13008).

4. DIMENSIONS (mm)

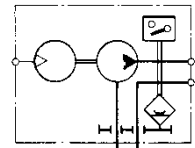


5. DESIGN / ASSEMBLY

The pump basically comprises an air motor (= compressed air cylinder) with control system and a pump section, together with a centering lid and a follower piston.



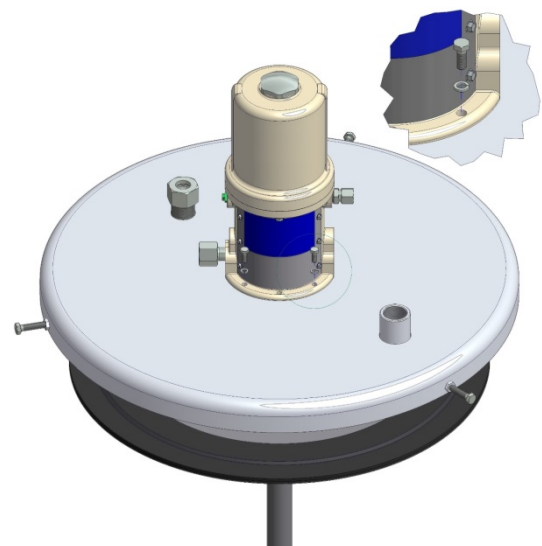
without contents control



with contents control
(Accessories)

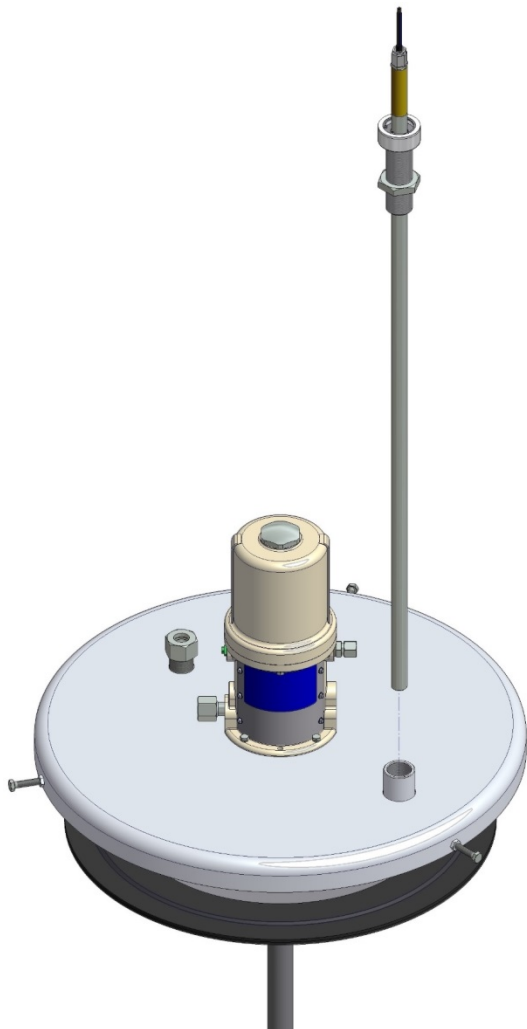


Step 1: Lightly grease the pump at the suction pipe to allow easy assembly. Connect the cover and the pump.

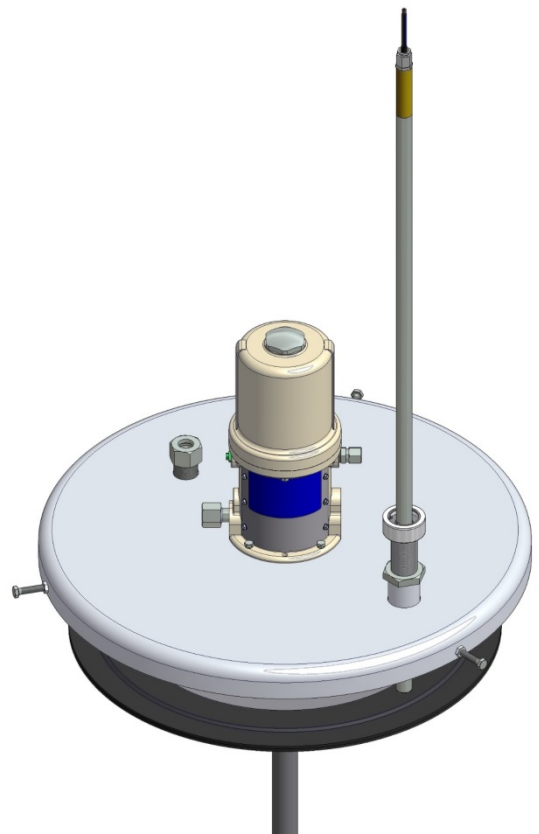


Step 2: Align and tighten the pump.

5. DESIGN / ASSEMBLY (continued)



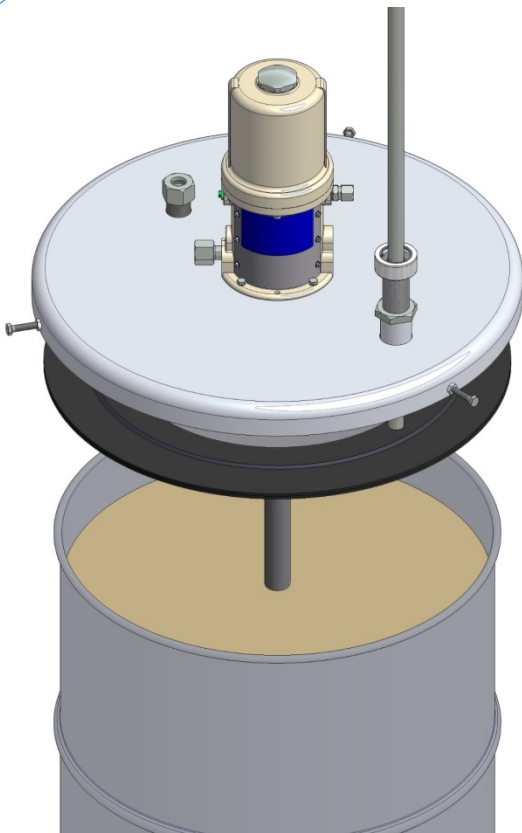
Step 3: Installation of the level monitoring.



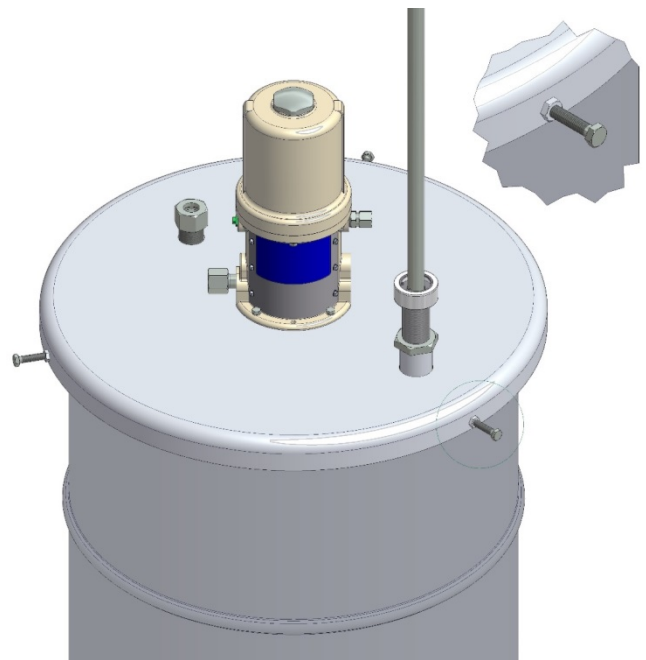
Step 4: Tighten the guide on the cover.

Step 1: Lightly grease the pump at the suction pipe to allow easy assembly.
Connect the cover and the pump.

5. DESIGN / ASSEMBLY (continued)



Step 5: Place the pump with cover on the barrel and align it.



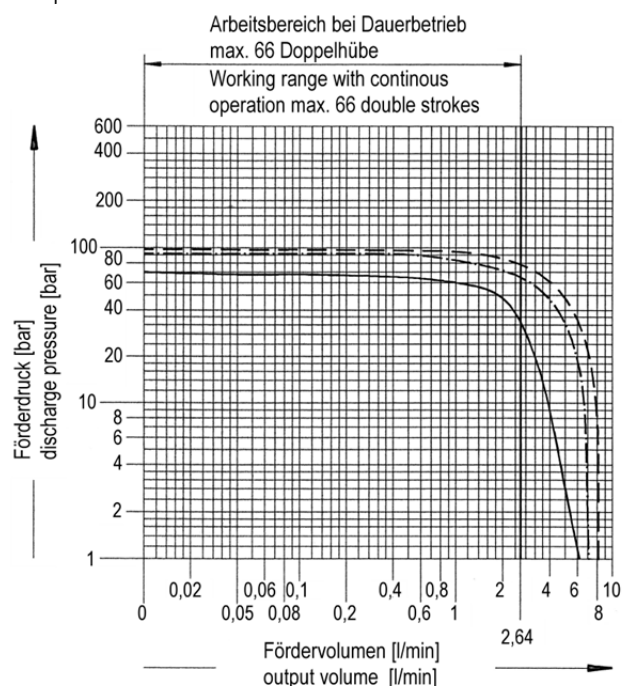
Step 6: Tighten the screws to ensure an axial cover position on the barrel.

6. PRINCIPLE OF OPERATION

The plunger-type pump is so designed as to suck lubricant during the downward stroke of the plunger and to force it to the user during the upward stroke. The grease pressure which can be achieved is approximately proportional to the compressed air pressure used for operation, multiplied by the internal ratio factor of the pump. The characteristics show how the output rating depends on the counterpressure (see diagram).

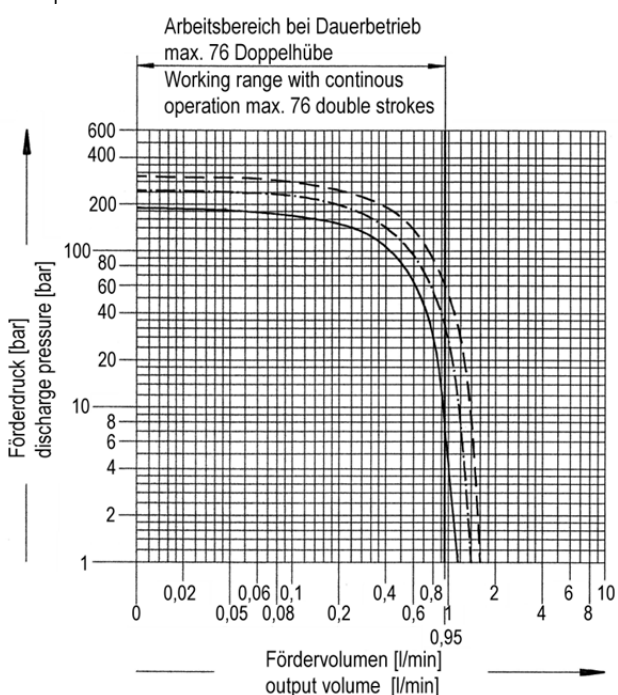
The edge of the next plate is fitted with a rubber lip for sealing purposes. A new kind of packing between the compressed air motor and the grease pump creates a seal by hydraulic means and results in almost maintenance-free drum emptying. In the model with adjustable level control, an optical and acoustical warning signal indicates that the quantity of grease left in the barrel is down to almost zero.

Compressed-air 15 : 1



Air pressure: _____ 4 bar; _ _ . _ _ 5 bar, - - - - - 6 bar

Compressed-air 50 : 1



7. SPECIFICATION

Ambient temperature : + 5 °C ... + 55 °C
 Protection system : IP 54

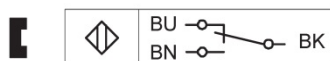
Pressure ratio	15 : 1	50 : 1	70 : 1
Air pressure required	1.8 ... 12 bar	3 ... 9 bar	3 ... 6.9 bar
Air consumption each double stroke, N-litre	approx. 0.7 l x air pressure		approx. 0.2 l x air pressure
Discharge max.	2.64 l/min	0.95 l/min.	0.35 l/min.
Discharge volume each double-stroke	40 cm ³	12 cm ³	3.5 cm ³
Cycle (double-strokes) max.	66/min	76/min	100/min
Wetted parts	steel, brass, aluminium, perbunan (NBR)		
Suitable lubricants	Mineral oil base grease up to NLGI class 2 (viscosity of oil base max. 200 cSt at 40 °C).		

The degree to which the drum is emptied depends on the lubricant and the ambient temperature.

Electrical data of the contents control (accessories)

Switching voltage : max. 250 V
 Type of contact: 1 change-over switch
 Switching current : 1.0 A
 Switching capacity : ON 60 VA
 Temperature range : - 5 °C ... + 70 °C
 Protection system : IP 67 according to IEC 529, EN 60529
 Output function : change-over function
 Housing : aluminium / brass

Connection picture:



8. START-UP

- The pump starts working automatically when the compressed air is turned on and it continues until the material being pumped reaches a pressure dependent on the pump's pressure ratio and the pressure of the air.
- The delivery rate is set by adjusting the air supply rate by means of an air regulator. Keep the air pressure as low as possible, while still ensuring that the required delivery pressure is reached.
- When the pump is to be out of use for a longer period of time, turn off the compressed air and relieve the pressure on the pumped material.

9. MAINTENANCE

Changing the packing

Note:

The pump must be shut down once a week and the plate removed in order to check the neck packing for impermeability. In the event of leaks, the straining ring must be tightened slightly. Overtightening of the straining ring will slow down the pump and reduce the service life of the neck packing.

- Relieve the pressure. Remove the pump from its mounting and clamp the air motor base in a vice.
- Screw the displacement cylinder out of the base, pull it away from the base far enough to allow the pin to be removed. Remove the pin and screw the connecting rod out of the piston tube (see figure 1).
- Remove the six screws fixing the air motor base to the cylinder.
- Carefully withdraw the cylinder and piston from the base. Check the O-rings in the base and replace.
- Take off the exhaust plate and, using a special spanner or a 6 mm bar, remove the packing nut (see figure 1). Remove the guide, gasket, washer and packing from the base, clean and check them and renew if necessary. If the packing is renewed, renew also the gasket and guide. Reassemble the parts in the reverse order. Loosely screw on the packing nut in the motor base.
- Grease the gaskets, piston rod and piston with a light, waterproof grease. Refit the piston and cylinder with care.
- Assemble the base to the cylinder with the six screws.
- Fit all the remaining parts in the reverse order as described for assembly.

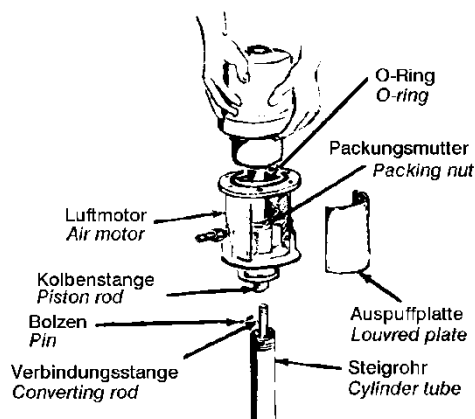


figure 1

Air motor

- Turn off the air supply and relieve the pressure in the air and delivery lines. For better handling, remove the hoses, valves, etc. from pump. Clamp the air motor base in a vice, remove the exhaust plate and bring the piston to the top carefully, use air at a low pressure.
- Unscrew cap from cylinder, pull upward and hold piston rod with tongs. Unscrew cap from rod. Loosen the screws that connect the cylinder with the housing. Take off cylinder carefully without tilting it to prevent bore from being damaged.
- Push bow in lowest position, but do not put your fingers into the mechanism. Take locking wires from external air valves, remove upper lock and screw out valve stem. Remove rubber valve. Carefully check all disassembled parts for damages.
- Check spring clip and valve traverse in installed condition. Remove the entire valve mechanism of the piston rod bow and traverse. Loosen clamps from cylinder if they are to be replaced.
- Clean all parts in a solvent and dry carefully. Check all parts for damages and wear and replace them, if necessary.

Note:

When replaced the four rubber air valves, it is recommended to exchange the two rubber rings, too.

9. MAINTENANCE (continued)

- f) Put grease on all parts with a light, waterproof grease before installing them. Install internal valves and rubber rings of the external valves. Cut off pegs of the internal valves (see figure 2 and 3).

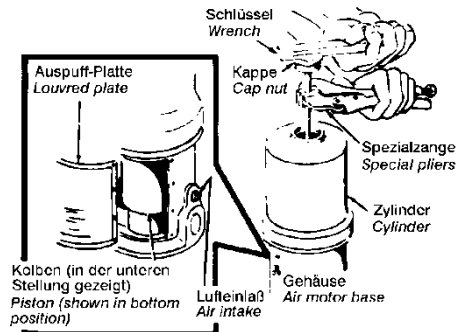


figure 2

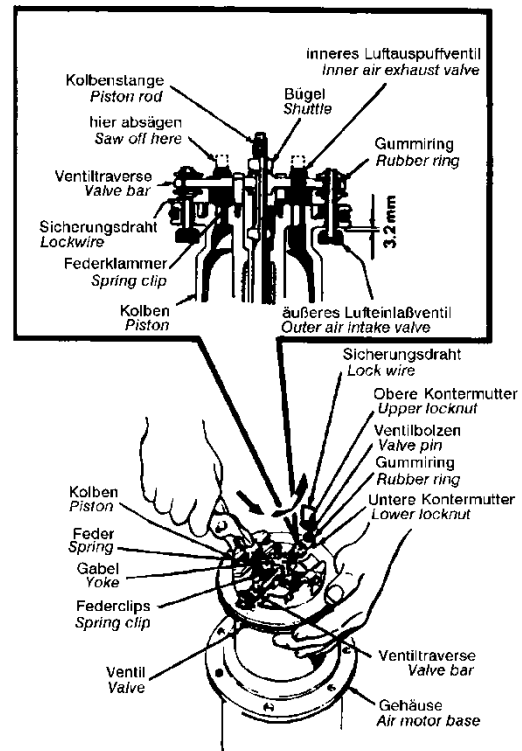


figure 3

- g) Fix mechanism with the valve traverse in the lower position in such a way that the internal valves coincide with the outlet holes of the piston. Check, whether the piston rod works freely.
- h) Mount external valves onto the valve stems. Push valve stems downwards through the bores of the housing and screw on lower nuts. Push stems through the rubber rings and install upper lock nut.
- i) Before inserting the locking wire, adjust the clearance of the external valves follows: Check clearance between inlet valve and valve seat to be 3.2 mm (see figure 3); screw stems into the upper lock nuts until valve clearance is correct. Tighten lower and upper lock nut without changing the adjustment. Align bores of lock nuts, insert locking wire and bend over the ends. Move mechanism upwards and downwards to check function.
- j) Reassemble all parts of the air motor in reverse order.

ATTENTION

When installing the cylinder, do not tilt it as the bore may easily be damaged.

- k) Connect up the pump and put in into use.

9. MAINTENANCE (continued)

Pump

- Relieve air and delivery line from pressure. Remove pump.
- Clamp pump casing in a vice and detach foot valve box from cylinder tube. Disassemble foot valve, clean and check the same for defective parts. Replace possibly defective parts and reassemble foot valve.
- Check copper gasket and reinstall foot valve after repair using graphite or a thread sealing compound.
- Screw cylinder tube off the casing. Check inner surfaces for damages as they may lead to pressure variations during the up-stroke.
- Loosen piston body and disassemble all the parts. Be careful when removing the brass guide since it was pressed onto the piston body by the piston coupling. Clean all parts and check them, replace damaged parts if necessary. Renew gasket and packing at the same time.

ATTENTION

The seat in the piston valve is of hard metal. Do not modify the ball or the seat, since components made of hard metal can easily be damaged.

- Grease all parts with a light waterproof grease and reassemble in reverse order.

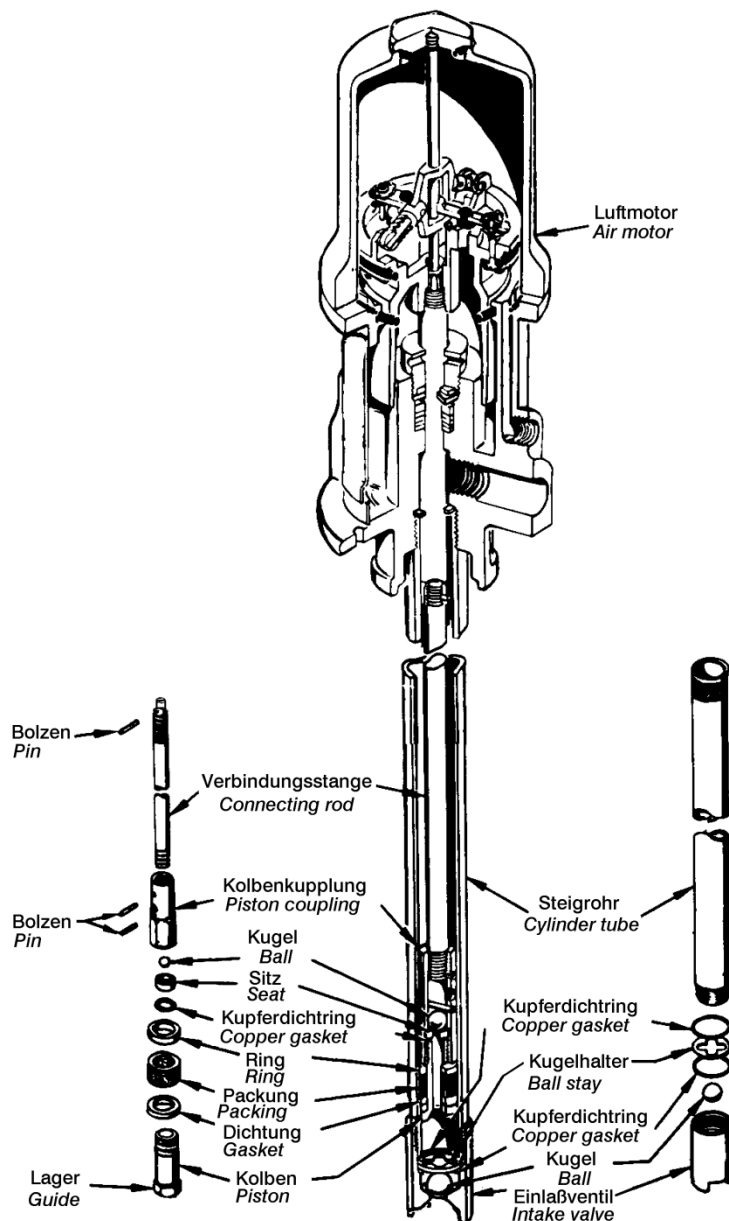
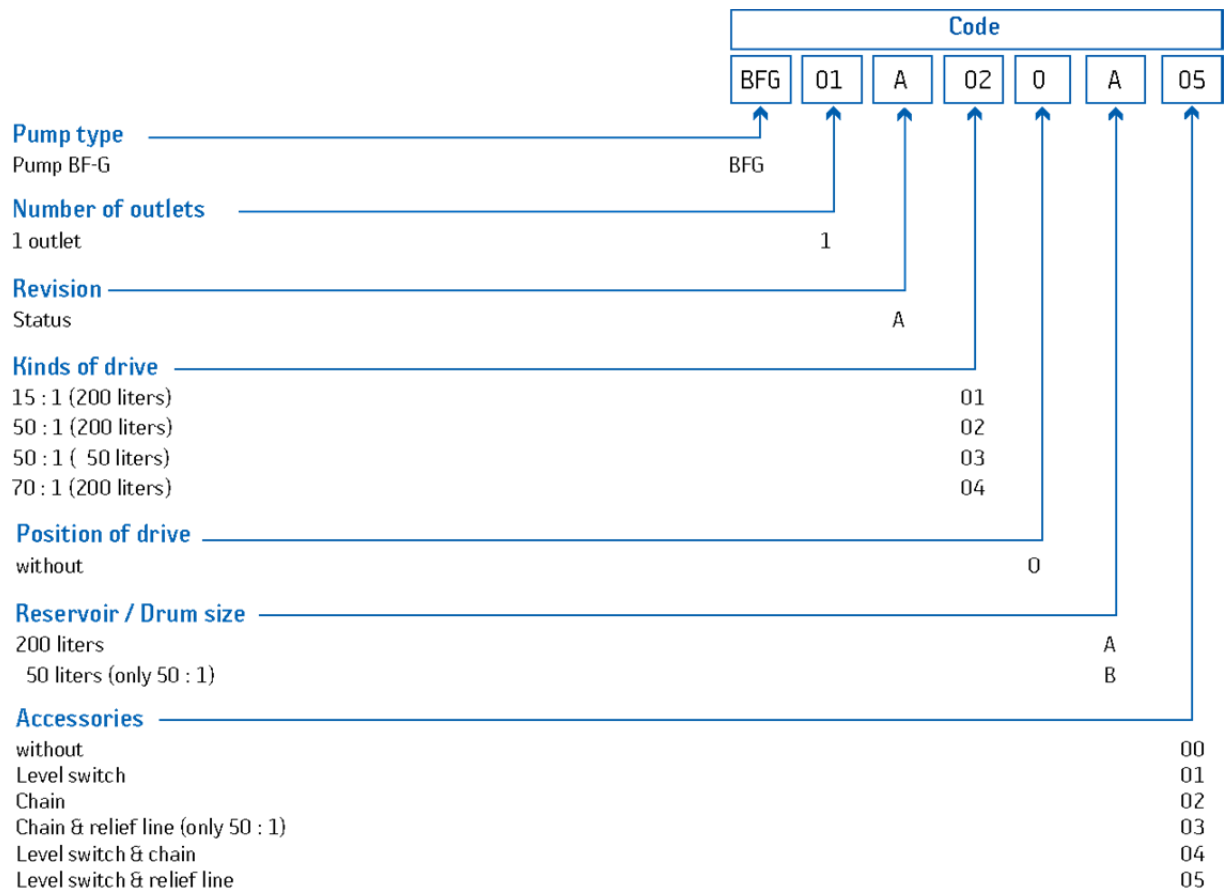


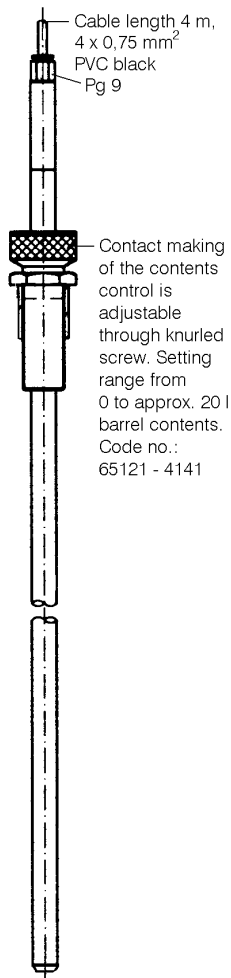
figure 4

10. CODING / EXAMPLES OF ORDER

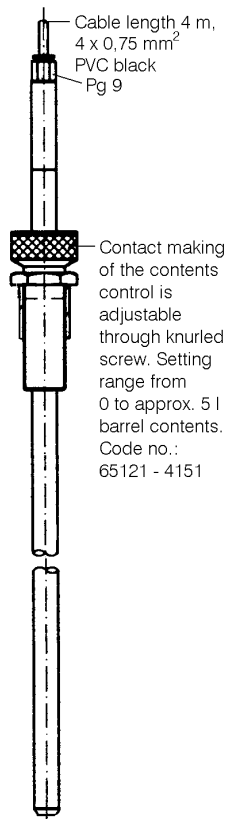


RECOMMENDED ACCESSORIES

Level switch



for reservoir 200 liters



for reservoir 50 liters

12. PLATES (Examples)



BIJUR DELIMON INTERNATIONAL		
Artikel-Nr. Code no.		
Fabrik-Nr. Serial no.	Betriebsdruck max. Operating pressure	
Baujahr Year of manufacture	Fördervolumen Feed volume	
Übersetzung Ratio		
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Tel: +49 211 7774 0		