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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!

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 machine 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 (continuation)

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 machine. The nonobservance 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 machine/system
- 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 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.



(DIN 4844 – Use breathing mask)

Before recommissioning, observe the points stated in section “initial start-up”.

2.7 Unauthorized conversion and manufacture of spare parts

Conversion or modifications to the machine 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. Safety (continuation)

2.8 Unacceptable modes of operation

The operational reliability of the machine supplied is only guaranteed if the machine 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)

3.0 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

- Grease pump
- Central piston pump
- with follower piston and optical low level control
- Hand lever operating
- Discharge pressure max. 120 bar
- Lubricant grease, semifluid grease
- Surface light grey RAL 7004

A PUMP TYPE VBB

B NUMBER OF OUTLETS

1 outlet with 2.0 cm³/double stroke

C INSPECTION

Stage A

D. KINDS OF DRIVE

Hand lever

E. POSITION OF DRIVE

without

F. RESERVOIR

1 litre for grease
1.6 litre for grease
4 litres for grease

G. ACCESSORIES

without
4/2-way valve for dual-line units only reservoir 4 litre

3. Application

The lubrication pump type VB-B are reservoir pumps with a single-action plunger operated by a hand lever. The lubricant reservoir has a capacity of 1.6 or 4 litre.

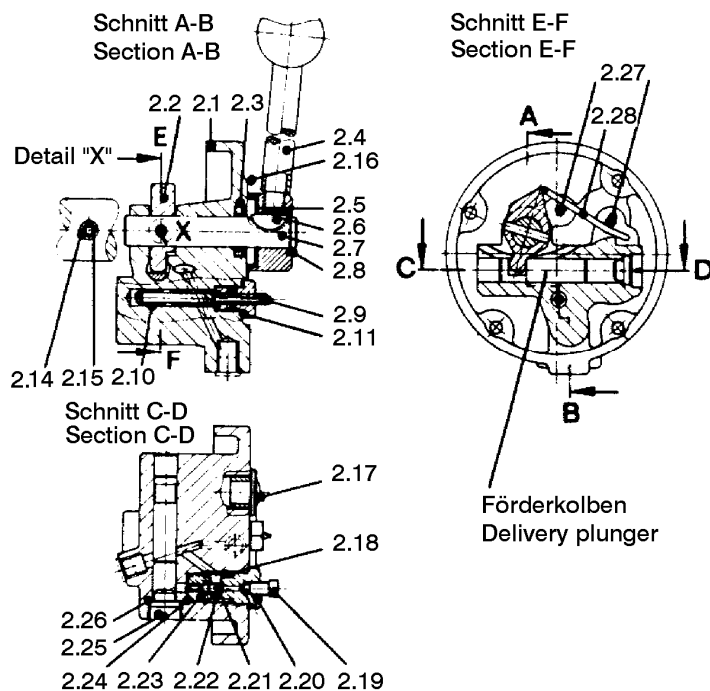
Pump of type VB-B are intended for grease and semifluid grease. Type VB-B grease lubrication pumps a anti-cavitation plate with a level indicator projecting through the reservoir cover (1.1).

When the hand lever is in the pressure release position, the delivery out let is conneted to the pumps suction compartment. The pump can be used as a filling pump, or it can be used for single-line, dual-line or progressive systems. When used for dual-line systems, a 4/2-way valve available as an accessory, must be screwed into the delivery connection. In systems, which do not require depressurisation (progressive systems, filling and greasing systems), de pressurisation can be prevented by installing a non-return valve in the main delivery line.

4. Principle of operation

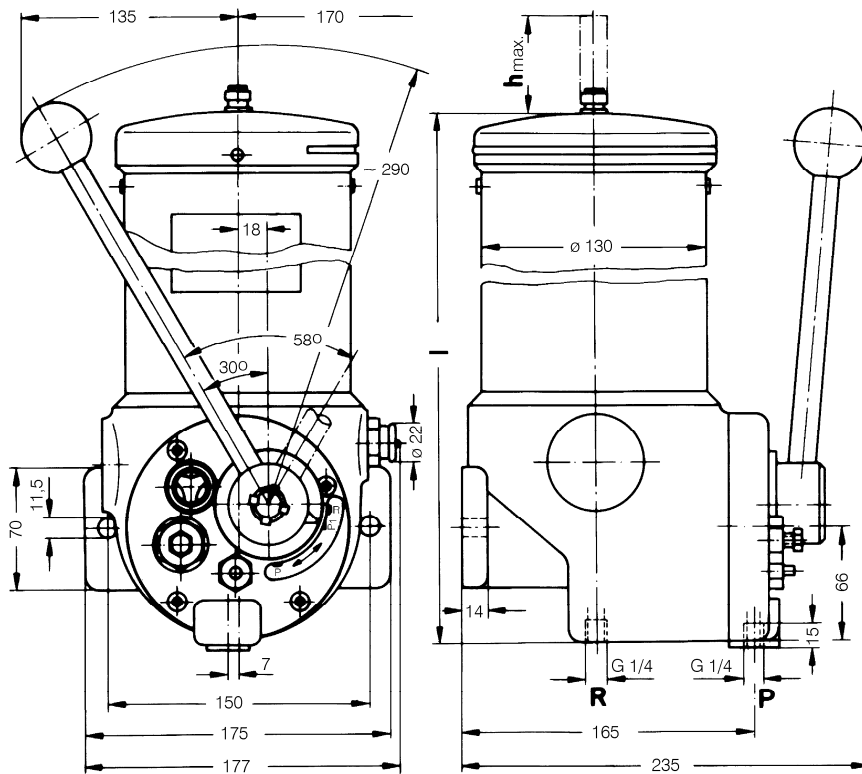
There are three positions for the hand lever, P, P1 and R. Moving the hand lever from P1 to P pumps the lubricant through valve (2.21) to the outlet. When the hand lever is moved in the opposite direction from P to P1, the suction stroke takes place. The lever can be moved on past the notch at position P1 into the position R, in which the pumps delivery and suction compartment are connected to one another.

Within the pump body, the drive shaft (2.7) operates the cam (2.2) which in turn moves the delivery plungers axially. The space in front of the delivery plunger is connected alternately with the pumps suction chamber and, via valve (2.2.1), with the delivery outlet. The indicator unit shows when the maximum delivery pressure has been reached; it operates at the same time as the relief valve, and when the maximum pressure is exceeded it connects the pumps delivery compartment to the reservoir. The screw (2.19) is used to bleed the pump at start-up.

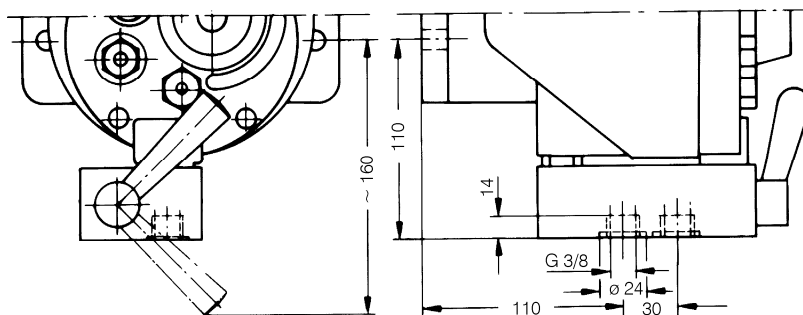


5. Specification

Discharge pressure max. :	120 bars
Output volume :	2.0 cm ³ /double stroke
Reservoir capacity :	1, 1.6 or 4 litre
Lubricants :	
Greases	up to consistency class 2 and a worked penetration exceeding 265
Service temperature :	- 20 °C to + 70 °C
Installation position :	vertical
Fixing :	2 screws M 10 x 30
Filling valve :	flat lubrication nipple AM 16 x 1.5 DIN 3404
Filter screen mesh :	wire mesh 0.4 x 0.18 DIN 4189 - Cu Zn 37



Pump with 1.6 and 4 litre reservoir



Pump with 4/2-way valve fitted for dual line systems

6. Installation and Start-up

The pump is fixed to the machine to be lubricated by means of two screws. The position of the hand lever can be changed through 90° or 180° if necessary. To do this, remove the locking ring (2.8), take off the handle, put it back in the required position and relock.

Filling

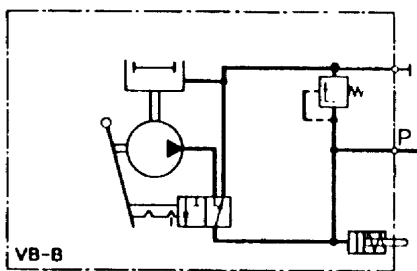
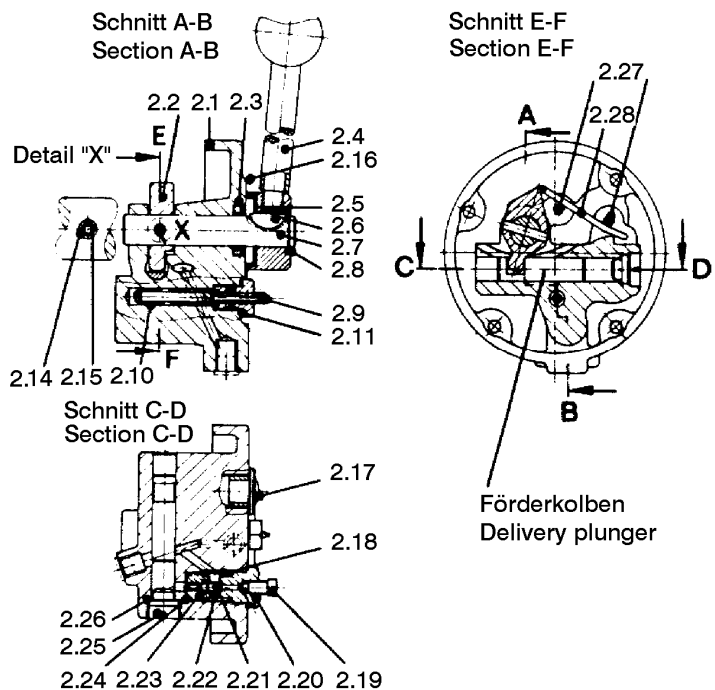
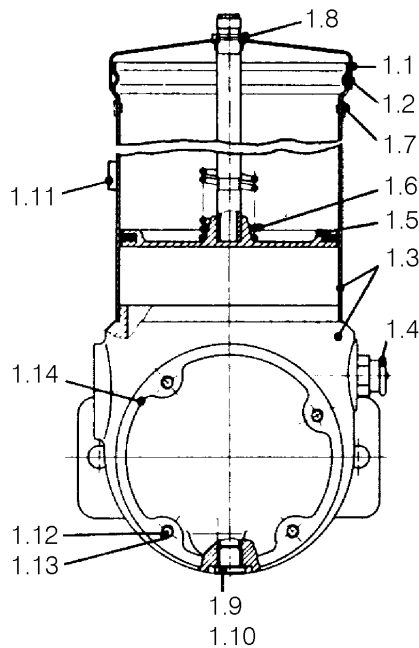
Remove the cover and plate and fill up with grease. Avoid air lubrications when filling and when in setting the plate. Pump the grease in if possible. For the initial filling of the pump, it is recommended that the pump housing should first be filled with oil up to its top edge before the reservoir is filled with grease.

Pumps heaving 1.6 l and 4 l reservoirs are fitted with a filling valve, the use of which is recommended in order to be sure of preventing dirt and air getting into the grease. The filling valve is a flat lubrication nipple AM 16 x 1.5 DIN 3404 (see fig., item 1.4).

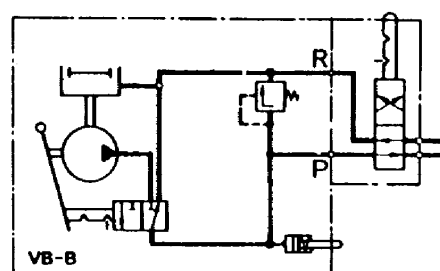
Filling is carried out by a filling pump with the aid of a grease gun and coupling.

Do not fill the reservoir up to above the level of the overflow near the top.

After filling the reservoir, slacken the screw (2.19) and move the hand lever backwards and forwards between position P and P1 until air-free lubricant issues regularly at the screw. Retighten the screw. Continue to operate the hand lever until lubricant issues from the pump delivery outlet. If the 4/2-way valve is fitted, check that lubricant issues satisfactorily from the outlet for both the main delivery lines. Only then should the main delivery line, previously filled up with lubricant, be connected (the two main delivery lines in the case of dual-line systems). Continue pumping until lubricant issues from the end of the delivery line (or lines) and then connect the end of the line to the distributor or lubrication point.



Pump VB-B for single-line and progressive central lubrication systems



Pump VB-B with 4/2-way valve for dual-line central lubrication systems

7. Operation

In single-line central lubrication systems

Move the hand lever backwards and forwards between P and P1 once, or as many times as necessary, to cause the rod of the indicator unit (2.9) to project out of the pump housing. This shows that the pressure at the delivery connection has reached 120 bar. If operation of the pump is continued, the lubrication will be pumped back to the reservoir via the built-in relief valve.

Projection of the indicator rod shows that the lubrication operation is finished; the hand lever should be moved to the pressure release position R.

In dual-line central lubrication systems

Operate the hand lever until the indicator rod projects from the pump casing, showing that main delivery line 1 is pressurized and that lubrication has been carried out at half the lubrication points. Change the 4/2-way valve over into position 2. Operate the hand lever until the indicator rod projects a second time out of the pump casing, showing that main delivery line 2 is pressurized and that lubrication has been carried out at the other half of the lubrication points change the 4/2-way valve back into position 1.

In progressive central lubrication systems

Operate the hand lever until the movement pointer in the main distributor, or on a particular distributor, has moved in and out once; the distributor has been then carried out one complete lubrication cycle and the hand lever can be left in the position it is occupying.

Note:

Although in dual-line and progressive systems it is not necessary to move the hand lever to the pressure release position R after the lubrication operation has been completed, it does no harm to do so.

8. Maintenance

It is recommended that if the pumps is damaged it should be returned the supplier's works for repair. Apart from the pump plungers and the control shaft for the 4/2-way valve, all the pump parts are replaceable; they can be ordered in dividually and changed.

The pump plunger and the control shaft for the 4/2-way valve are fitted in their bores so as to be liquied-tight; they can not be replaced or re-machined.

The spares required for all other servicing and repair jobs are available. It is recommended that every time the pump is dismantled, all the gaskets and small parts included in the repair kit should be changed.

9. Fault finding

When the hand lever is moved, the no resistance is felt. The system does not become pressurized.

Cause

- a) no lubricant in the reservoir
- b) leak in the delivery lines
- c) air inclusions in the lubrication pump
- d) non-return valve in the lubrication pump is leaking

Remedy

- a) top up with lubricant
- b) seal the leak
- c) bleed the pump and, if necessary, the whole system
- d) remove the valve and clean it

10. Plates

Name plate



Type plate

		
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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