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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_1_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 AltölV (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

- Single-line distributor
- oil
- 1 outlet
- Metered volume: 10; 25; 50; 100; 150; 200 mm³
- Static distributor
- Material: brass

A. DISTRIBUTOR TYPE ZEG

B. METERED VOLUME

10 mm³
25 mm³
50 mm³
100 mm³
150 mm³
200 mm³

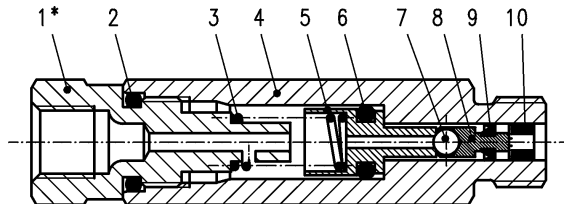
C. INSPECTION

Stage A

3. Design

The lubricant distributors ZE-G are manufactured as compact and screw-in unit. They are screwed into injector manifolds which are arranged in the main line. (see separately operating instructions with the following code: BA_2005_1_GB_VZE).

The metered volume of the lubricant distributors ZE-G is determined by metering screws (item no. 1) and delivered with the pressure cycle.



ATTENTION

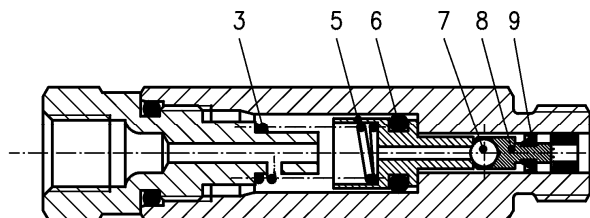
* Tightening torque of the metering screw – max. 5 Nm

Advantages of lubricant distributors ZE-G

- Low price
- Little space
- Precise metering
- The metered volume is delivered to the friction point independently of the counterpressure of the same.
- Installation at any position
- Extension and modification of existing plants without great expenditure.

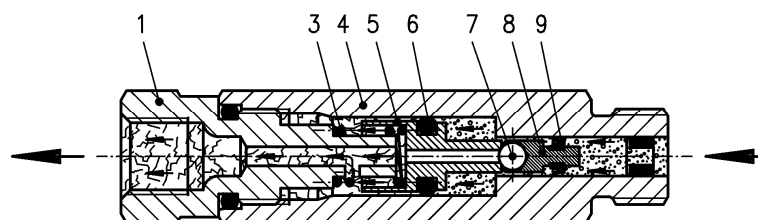
4. Principle of operation

Idle position



Pressure in the main line has been relieved. The compression spring (item no. 3) pushes the delivery pistons (item no. 5 and 6) against the control piston (item nos. 7, 8 and 9). Thus pushing the ball (item no. 7) onto the delivery piston seat (item no. 5 and 6).

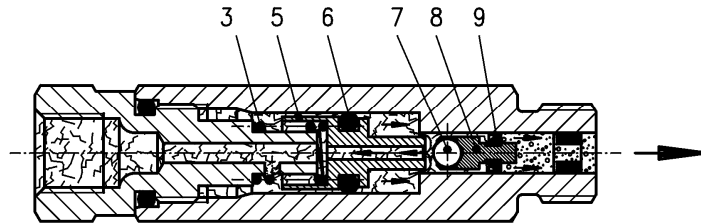
Compression stroke



Due to the pressure build-up in the main line, the control piston (item nos. 7, 8 and 9) and the delivery piston (item no. 5 and 6) are moved to the left against the force of the compression spring (item no. 3), and the ball (item no. 7) in the control piston (item nos. 7, 8 and 9) always remains pressed onto the seat of the delivery piston (item no. 5 and 6). With the displacement of the pistons, the sealing effect of the groove ring (item no. 9) against the housing (item no. 4) is cancelled. This fact causes lubricant to get on the right side in front of the delivery piston (item no. 5 and 6). The lubricant, which as a result of the preceding lubricating cycle is on the left side in front for the delivery piston (item no. 5 and 6), is pressed – duo to the displacement of the pistons to the left – into the line towards the lubrication point by the metering screw (item no. 1).

4. Principle of operation (continuation)

Relief stroke



When the main line is released, the groove ring (item no. 9) reseals the space in the distributor against the main line. At the same time, the compression spring (item no. 3) displaces the delivery piston (item no. 5 and 6) to be right, and the ball (item no. 7) of the control piston (item nos. 7, 8 and 9) is left off the seat of the delivery piston (item no. 5 und 6).

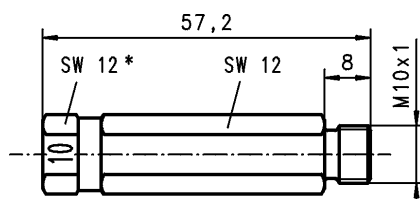
5. Technische Daten

Service pressure : between 10 and 30 bar
 Relief pressure : min. 2.5 bar
 Metered volume : 10; 25; 50; 100; 150 and 200 mm³
 Operating temperature : between -20°C and +80°C
 Compatible lubricants :

Mineral oils with a viscosity between 30 and 3000 mm²/s at operating temperature
 Synthetic oils and semi-fluid greases on request

Installation position : optional

Materials : Brass, NBR and viton



ATTENTION

* Tightening torque of the metering screw – max. 5 Nm
 Connection M 8 x 1 for pipe outside dia. 4 mm
 with male fitting and cone ring

6. Installation and Start-up

(item no. see principle of operation, page 6)

The lubricant distributors ZE-G are screwed into injector manifolds. A Cu-seal ring is used to ensure the sealing between distributor and injector manifold. The connection to the lubrication point is made by means of a cone ring, a male fitting for pipes (item no. 1.1) and a pipe having an outside diameter of 4 mm.

ATTENTION

When tightening the male fitting, hold up at the metering screw (item no. 1) with the help of an open-jawed spanner (wrench size across flats 12) in order to inhibit an overwinding of the metering screw in the housing (item no. 4). Tightening torque of the metering screw - max. 5 Nm

The main line connection to the injector manifold is made by means of the cone ring, the male fitting for pipes and the pipe having an outside diameter of 6 mm. Cone rings and male fittings for pipes are supplied together with the injector manifolds.

ATTENTION

- When plastic pipes are used, it is necessary to use reinforcing sleeves.
- Install main line from the pump in a rising position and avoid syphons – so-called sacks -, for instance when it deals with bypasses of obstacles. In such syphons, air inclusions are collected, which cannot be removed by deaeration of the main line.

6. Installation and Start-up (continuation)

- Take care that the lines are clean and free from chips or other contaminations.
- The last distributor in the system has to be installed in such a way that the outlet and/or the outlets are at the top to ensure an easy deaeration.
- Prefill main line with lubricant prior to commissioning.
- Do not connect the lines leading to the friction points before the pump works perfectly and lubricant comes without air bubbles out of the distributor outlets when the pump is actuated.
- The friction point lines should also be prefilled with lubricant before they are connected to the distributor to ensure that lubricant is available at the friction points on commissioning.



- The lubricant distributors ZE-G must not be pressurized with an actuating pressure exceeding 30 bar

7. Disassembly and Assembly

(item no. see principle of operation, page 6)

The user has to take care that all kinds of maintenance inspectional and assembly works are carried out by authorized and qualified specialists who have informed themselves sufficiently by studying the operating instructions thoroughly.



For all kind of works to be carried out at the machine or system, the machine or system must imperatively be out of operation. The procedure for stopping the machine or system described in the operating instructions must by all means be observed.



- Shut down machine or system according to the relevant instructions.
- Loosen line leading to the lubrication point from the lubricant distributor and unscrew the latter from the injector manifold.
- Remove metering screw (item no. 1) from the lubricant distributor.
- Remove compression spring (item no. 3).
- Press control piston (item no. 7, 8 and 9) and delivery piston (item no. 5 and 6) out of the housing (item no. 4).
- Clean parts in naphtha or petroleum ether,
- Check parts for damages.
- Replace damaged parts.
- Assemble lubricant distributor in reverse order.

ATTENTION

Tighten metering screw (item no. 1) with a max. torque of 5 Nm.

- Screw lubricant distributor into the injector manifold and reconnect line leading to the lubrication point.

ATTENTION

When tightening the male fitting for pipes, hold up with an open-jawed spanner (wrench size across flats 12) at the metering screw (item no. 1) in order to avoid an overwinding of the metering screw in the housing (item no. 4).



- Dispose of oil and cleanser according to rule.

8. Plates

Type plate 26 x 52mm (75511-1311)

