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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

- Progressive Distributor
- Grease and oil
- Metering volume 0.4 ccm
- Working pressure max. 160 bar
- Material: steel

A. DISTRIBUTOR TYPE PE4

B. NUMBER OF OUTLETS

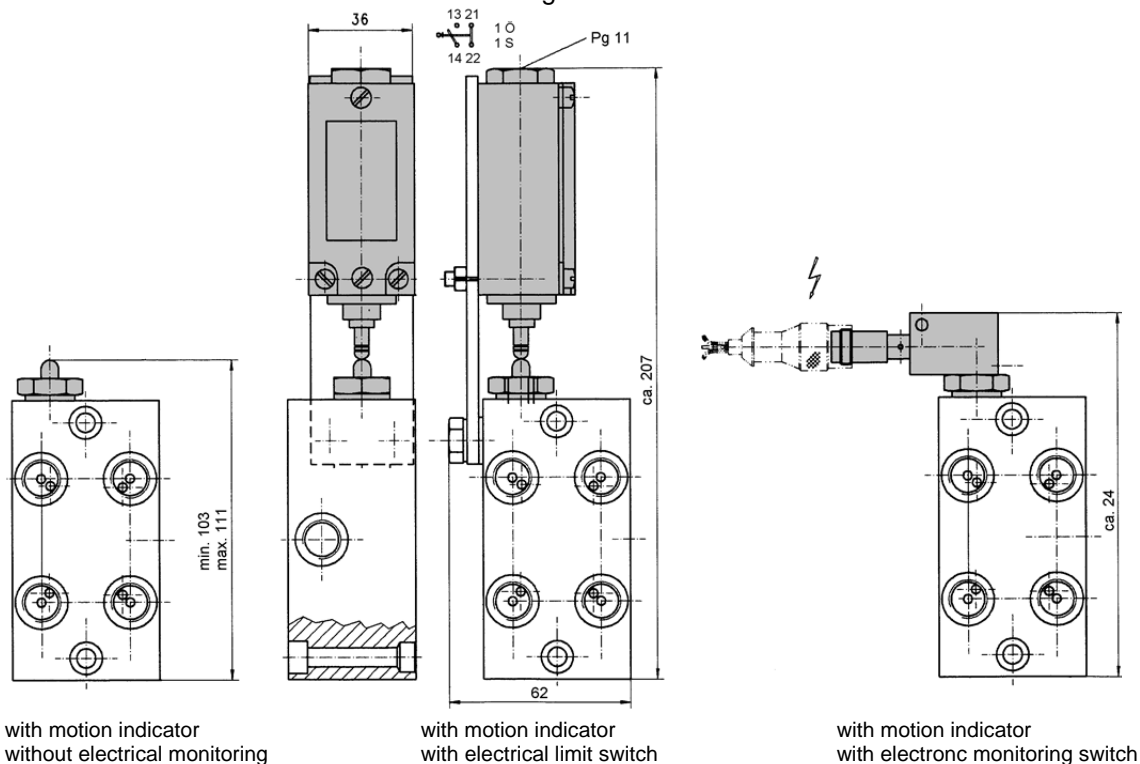
- 2 outlets
- 3 outlets
- 4 outlets

C. INSPECTION

Stage A

D. MONITORING

- without motion indicator
- with motion indicator without electrical monitoring
- with motion indicator with electrical limit switch
- with motion indicator with electronic monitoring switch



E. ACCESSORIES

- without
- 10 m cable for monitoring switch

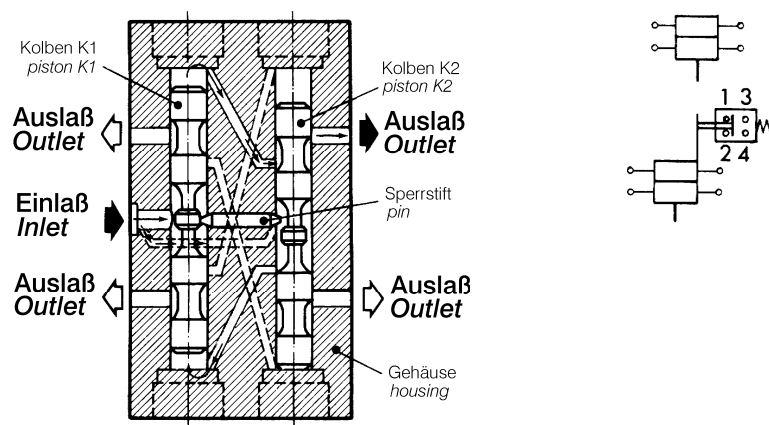
3. Application

Positive dividers type E 4 are employed for progressive centralized lubrication systems. The grease or oil fed into them under pressure is distributed to various lubrication points or slave dividers.

If so required, the dividers can also be installed in oil circulating, single, dual or multi-line systems to divide the lubricant in a supply line and feed it to several lubrication points.

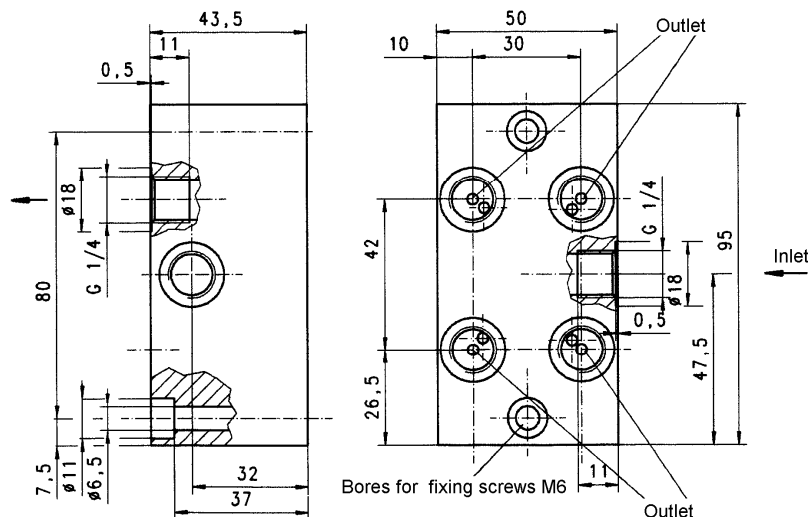
4. Principle of operation

Each divider incorporates two pistons that under the feed pressure of the lubricant are forced into their two end positions in alternation. A locking pin between the two pistons ensures that only one piston can move at a time. Depending on the end position of the locked piston, lubricant fed into the centre channel flows into the end space ahead of the other piston, which then moves to the opposite end position and in so doing forces the entrapped lubricant through an annular space around the locked piston and out of the discharge port. Immediately this movement is completed the piston is locked, thereby releasing the other piston, which continues the cycle.



5. Specification

Max. admissible working pressure : 160 bar
 Max. admissible differential pressure between 2 outlets : 100 bar
 Control pressure min.: 10 bar
 Metered volume: 0.4 cm³ per piston stroke
 Internal actuation volume: 0.3 cm³
 Temperature range : - 20° C up to + 80° C
 Compatible lubricants: all grease having a consistency of up to penetration class 3 and all oils having a viscosity of 190 mm²/s at service temperature (approx. 20° C).



6. Installation

Positive dividers E4 can be installed horizontally in any position. For fixing there are 2 cheese-head screws M 6 provided.

7. Start-Up

Prime dividers and make sure that lubricants protrudes out of outlets free of air bubbles, then interconnect pipework properly prefilled with lubricant, then pump is started.

8. Maintenance

Failures and their remedies

In the event of failing to deliver lubricant, despite having pressurized the main line, dismantle divider, clean all parts with petrol, check for damages, oil and refit parts in the correct sequence, by making sure that pistons are fitted into the same bore as before.

Replace any damaged parts and seals, and in case piston or piston bores show deterioration, replace divider completely.

9. Plates

Type plate 26 x 52mm (75511-1311)

