

# SEO, SEG LUBRICATION SET

## Operating Instructions



Modification of indicated specifications and design reserved

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## 1 PURPOSE

This document serves as a user guide for proper handling, storage, installation, commissioning, operation and maintenance of the product:

### SEO, SEG Lubrication set

The product is in standard execution. Individual products are identified and provided with a nameplate, bearing the code number, year of manufacture and serial number.

## 2 APPLICATION

### 2.1 SEO LUBRICATION SET

The SEO lubrication sets are used as sources of pressure lubricant, oil, for loss and circulation central lubrication systems. Circuits of loss lubrication systems are equipped with one-line dosing devices of SKIE, SKIB and SKIC series with the use of SRK distribution cubes, or with one-line dosing devices of SMIE or SMIB series mounted directly in the lubricated point. Circulation lubrication circuits are usually equipped with PR progressive distributors.

The lubrication sets are used for continuous, regular lubrication of various machines and devices, e.g. metal-cutting, textile, food-processing, woodworking, shoemaking, plastic-processing, printing, paper-making, packing, etc.

The SEO lubrication sets are available with variable lubricant reservoir volumes of 2, 3, 6, 8, 12 and 50 litres. The reservoirs are available in plastic or metal versions. The nominal delivered quantity of 500 cm<sup>3</sup>/min. is set uniformly and the working pressure is adjustable in the range from 15 to 50 bar; a set with the nominal delivery of 100 cm<sup>3</sup>/min. and working pressure of 25 bar is available by request. Electric motors are available in 240/380 V and 280/440 V versions as standard; for other voltages including direct-current voltages consult the supplier.

### 2.2 SEG LUBRICATION SET

The SEG lubrication sets are used as sources of pressure lubricant, liquid greases, for loss one-line central lubrication systems. Circuits of loss lubrication systems are equipped with one-line dosing devices of SKIE and SKIB series with the use of SRK distribution cubes, or with one-line dosing devices of SMIE and SMIB series mounted directly in the lubricated point. Modified SEG lubrication sets can be used also for lubricating with liquid greases in lubrication circuits with PR progressive distributors; consult the supplier.

The lubrication sets are used for continuous, regular lubrication of various machines and devices, e.g. metal-cutting, forming, food-processing, woodworking, shoemaking, plastic-processing, printing, paper-making, packing, etc.

The SEG lubrication sets are available with variable lubricant reservoir volumes of 3, 6, 8, 12 and 50 litres. The reservoirs are available in plastic or metal versions. The nominal delivered quantity of 500 cm<sup>3</sup>/min. is set uniformly, the working pressure is adjustable in the range from 15 to 50 bar. Electric motors are available in 240/380 V and 280/440 V versions as standard; for other voltages including direct-current voltages consult the supplier.

### 3 DESCRIPTION

The lubrication set consists of a reservoir and a lid. The reservoir is fixed to the lid with 6 screws and sealed by a paper gasket. All parts of the lubrication set are placed on the lid, namely electric motor, connecting piece, gear hydraulic generator, suction basket, outlet with a pressure gauge, distributor, pressure control, level gauge with electric indication and filling hole with a strainer and a lid.

### 4 FUNCTION

When the lubrication set is put into operation, the gear hydraulic generator driven by the electric motor delivers the oil into the distributor whose working piston is adjusted to its working position alongside the start of the electric motor. Then the way to the lubrication circuit is open for the pressure oil and all installed distributors make their stroke due to the pressure impact of the delivered oil and deliver the lubricant to the lubricated points. When the pressure increases to the switching pressure of the inbuilt pressure switch in the most distant point of the lubrication circuit, the electric motor will be switched off by its electric signal and the working piston of the distributor will be adjusted to its zero position. Then the way to the lubrication circuit is closed for the pressure oil and the pressure in the lubrication circuit decreases through the relief valve with an outlet. When the lubrication circuit is relieved, the distributor pistons move to the starting position and the lubrication cycle can be repeated.

It is recommended to equip each of the lubrication circuits at the most distant end with a pressure (i.e. end limit) switch.

### 5 TECHNICAL PARAMETERS

#### 5.1 SEO LUBRICATION SET

Table 1 Technical parameters – SEO

Maximum pressure	70 bar
Operating pressure	50 bar (25 bar)
Relief pressure	approx. 1 ms
Working pressure control range	15 to 50 bar (5 to 25 bar)
Nominal delivered quantity	500 cm <sup>3</sup> /min. (100 cm <sup>3</sup> /min.)
Lubricant reservoir capacity	2, 3, 6, 8, 12, 50 dm <sup>3</sup>
Number of outlets	1
Outlet pipe union	M12×1 mm, for TR 6, 8 mm
Electric motor	220–240/380–420 V, 250–280/440–480 V, 50/60 Hz, 0.09 kW, 0.6–0.35 A
Nominal voltage of the level gauge	250 V AC, 200 V DC, 1.5 A
Lubricant	oil
Lubricant temperature	min. 50 mm <sup>2</sup> .s <sup>-1</sup>
Lubricant temperature	0 to 80 °C
Temperature of the working environment	0 to 60 °C
Weight	according to design

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## 5.2 SEG LUBRICATION SET

Table 2 Technical parameters – SEG

Maximum pressure	70 bar
Operating pressure	50 bar
Relief pressure	approx. 1 ms
Working pressure control range	15 to 50 bar
Nominal delivered quantity	500 cm <sup>3</sup> /min.
Lubricant reservoir capacity	3, 6, 8, 12, 50 dm <sup>3</sup>
Number of outlets	1
Outlet pipe union	M12×1 mm, for TR 6, 8 mm
Electric motor	220–240/380–420 V, 250–280/440–480 V, 50/60 Hz, 0.09 kW, 0.6–0.35 A
Nominal voltage of the level gauge	24 V DC, 200 mA
Lubricant	grease NLGI 000, 00
Lubricant temperature	0 to 80 °C
Temperature of the working environment	0 to 60 °C
Weight	according to design

## 6 CATALOGUE DESIGNATION

### 6.1 SEO LUBRICATION SET

Table 3 Standard parameters – SEO

Nominal dose quantity (cm <sup>3</sup> /min)	Working pressure (bar)	Reservoir volume (dm <sup>3</sup> )	Reservoir version	Designation	Code
100	25	2	plastic	SEO-2P	1608210
500	50	3	plastic	SEO-3P	1608222
500	50	4	metal	SEO-4M	1608227
500	50	6	plastic	SEO-6P	1608223
500	50	8	metal	SEO-8M	1608228
500	50	12	metal	SEO-12M	1608229
500	50	50	metal	SEO-50M	1608291

#### NOTE

The SEO lubrication sets in versions for loss and circulation lubrication can be completed according to specific requirements of the customer. The customer versions are equipped with a filter unit, more pumping units (outlets), atypical size of lubricant reservoirs, indication of more lubricant levels, flowmeters, inbuilt control unit (automation), etc.

## 6.2 SEG LUBRICATION SET

Table 4 Standard parameters – SEG

Nominal dose quantity (cm <sup>3</sup> /min)	Working pressure (bar)	Reservoir volume (dm <sup>3</sup> )	Reservoir version	Designation	Code
500	50	3	plastic	SEG-3P	1608242
500	50	6	plastic	SEG-6P	1608243
500	50	8	metal	SEG-8M	1608248
500	50	12	metal	SEG-12M	1608249
500	50	50	metal	SEG-50M	1608293

### NOTE

The SEG lubrication sets in versions for one-line lubrication and lubrication with progressive distributors can be completed according to specific requirements of the customer. The customer versions are equipped with more pumping units (outlets), atypical size of lubricant reservoirs, indication of more lubricant levels, inbuilt control unit (automation), etc.

## 7 DIMENSIONAL DRAWING

### 7.1 SEO, SEG – 2 l, 3 l, 6 l

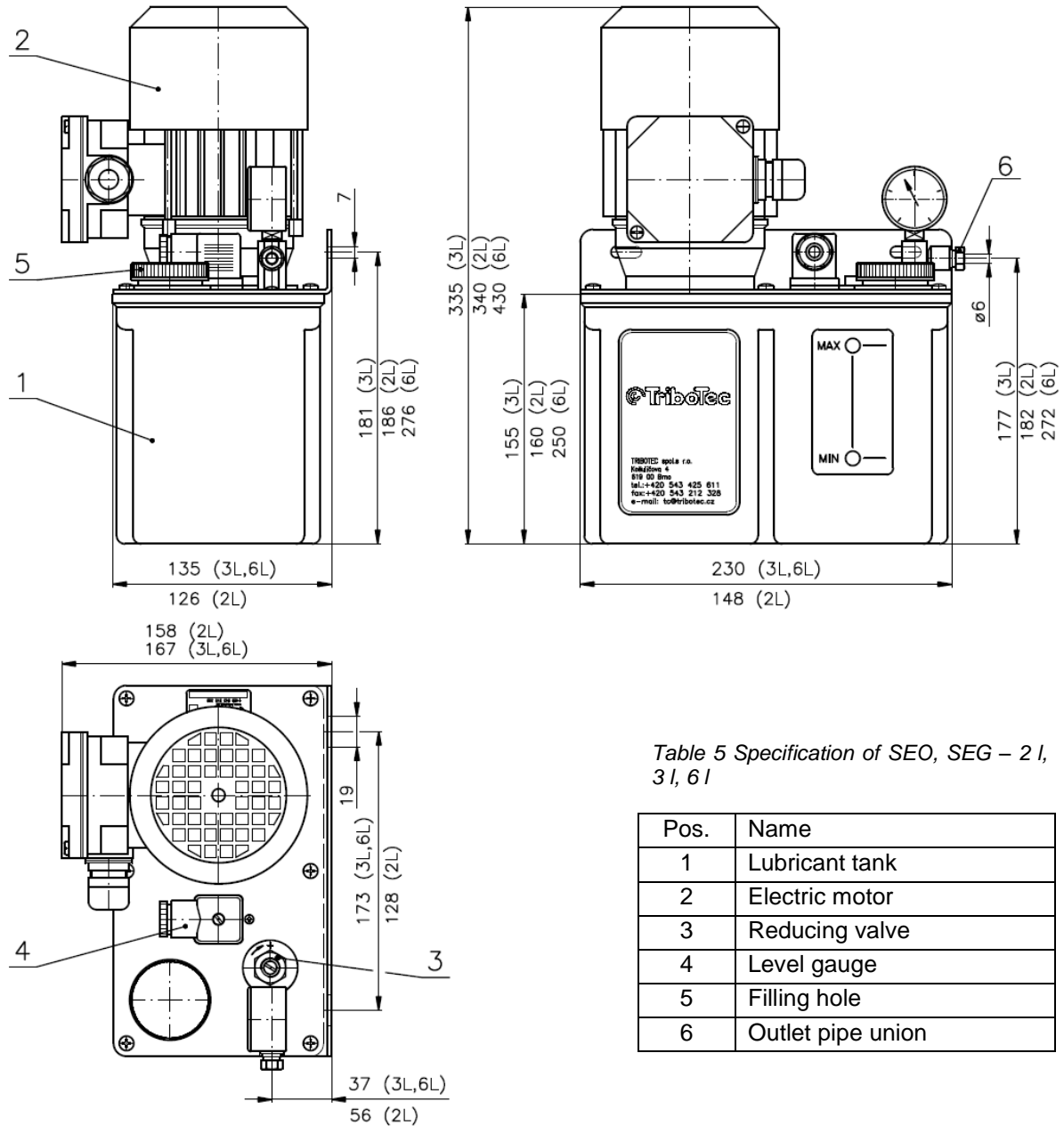


Table 5 Specification of SEO, SEG – 2 l, 3 l, 6 l

Pos.	Name
1	Lubricant tank
2	Electric motor
3	Reducing valve
4	Level gauge
5	Filling hole
6	Outlet pipe union

Fig. 1 SEO, SEG – 2 l, 3 l, 6 l

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## 7.2 SEO, SEG – 8 l, 12 l, 50 l

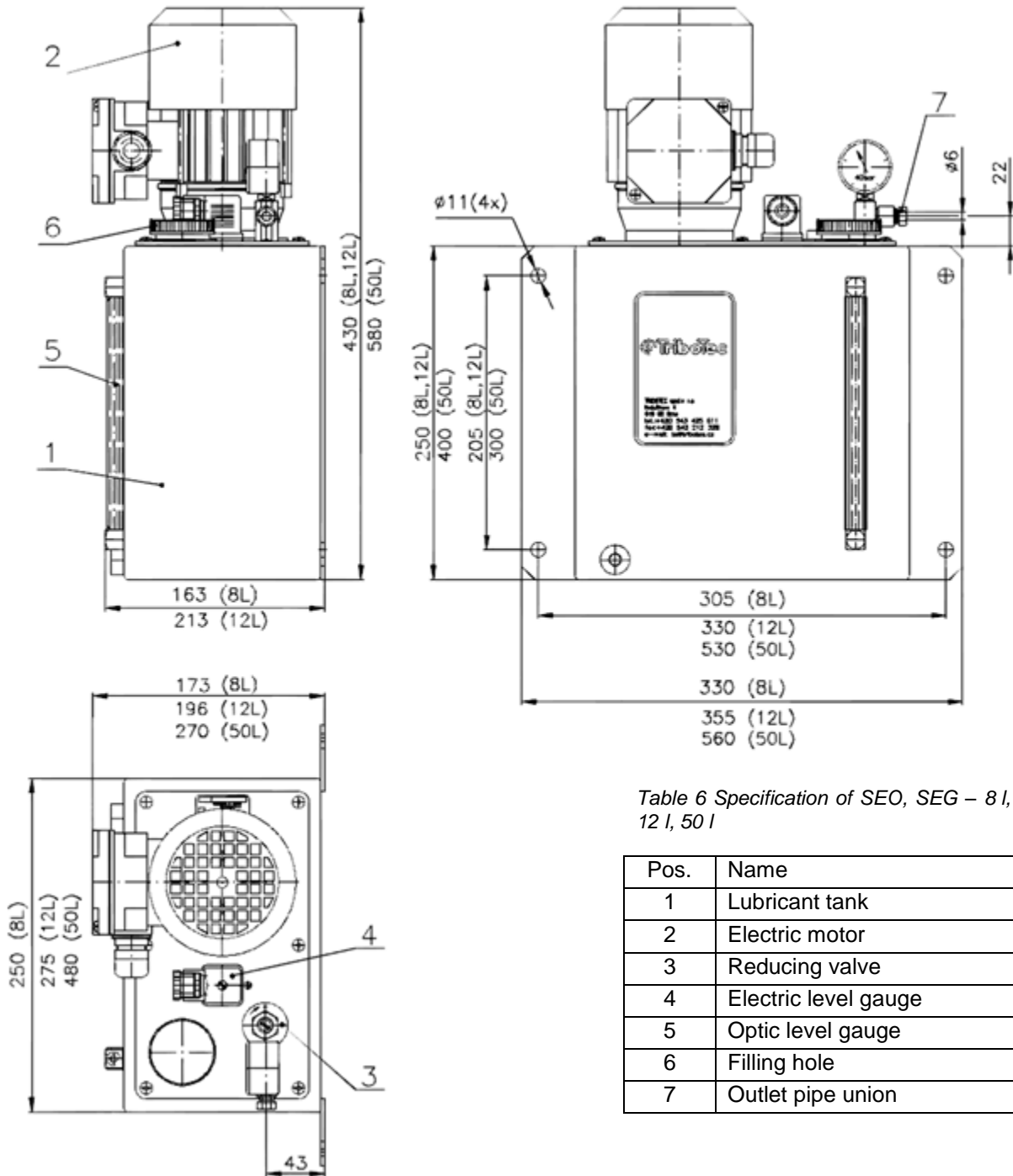


Fig. 2 SEO, SEG – 8 l, 12 l, 50 l

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## 8 HYDRAULIC DIAGRAM

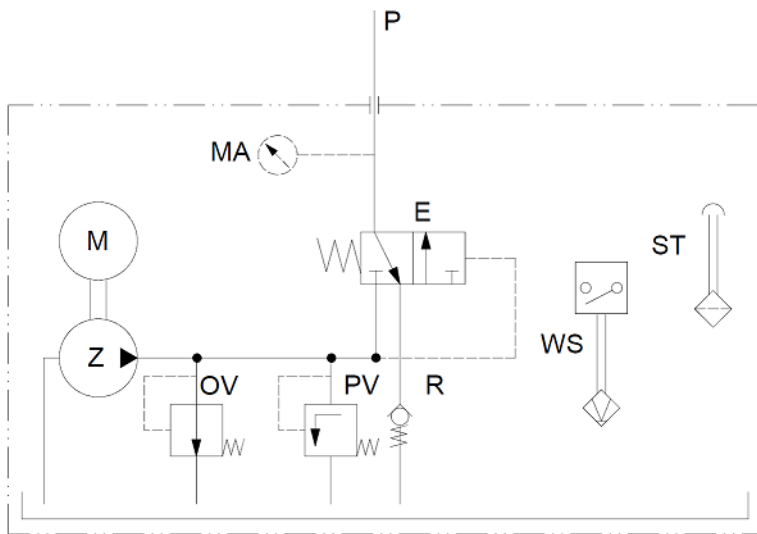


Figure 3 Hydraulic diagram

Table 7 Description of hydraulic diagram

Z	Gear pump
M	Electric motor
PV	Safety valve
E	Change-over valve
R	Pressure release valve
MA	Pressure gauge
P	Outlet pipe union
WS	Electric level gauge
ST	Filler neck
OV	Change-over relief valve

## 9 INSTALLATION AND PLACING INTO OPERATION

The SEO lubrication sets are mounted in a horizontal position and attached to a machine or device wall. For attaching the SEG – 3 and 6, SEO – 2, 3 and 6 lubrication sets, there are 2 mounting holes with the diameter of 7 mm and for attaching the SEO – 8 and 12 lubrication sets, there are 4 holes with the diameter of 11 mm prepared on side of the reservoir.

When the lubrication set is mounted in the selected place and the outlet connected to the lubrication circuit line, fill the reservoir with the specified lubricant. The outlet is designed to be connected to TR 6; an outlet for TR 8 or another diameter must be specified in the order.

For correct operation of the lubrication set, it is necessary to perfectly deaerate the lubrication circuit and it is also necessary to observe the required cleanness of the line, i.e. remove burrs and other dirt from the pipes before the assembly.

### WARNING

**When filling the tank with lubricant, it is important to ensure its purity. For filling, only use the lubricant that is pure, i.e. free of all impurities, and the lubricant intended for central lubrication systems. The lubrication pump should be operated with the lubricant appropriate to climatic conditions, viscosity (of oil), classification NLGI (plastic lubricants), and a given application. When working, avoid any contamination of the lubricant. If the lubricant becomes contaminated with any impurities, the lubricant should be immediately removed from the lubrication pump, the pump should be disassembled, each part should be carefully cleaned and subsequently, its functionality should be checked.**

## 10 WIRING DIAGRAM, ELECTRICAL CONNECTION

Electrical connection may only be carried out by an authorized person qualified for work on electrical equipment.

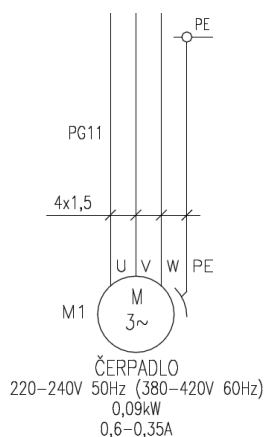


Fig. 4 Motor wiring

### 10.1 LEVEL GAUGE WIRING

#### 10.1.1 OIL

- Standard version

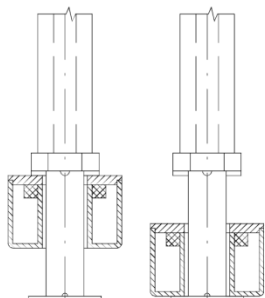


Fig. 6 Standard version of the float position

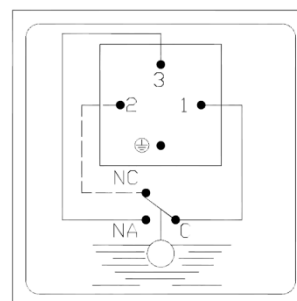


Fig. 5 Level gauge wiring diagram

The level gauge of the standard version indicates when the level has dropped under the minimum.

### 10.1.2 GREASE

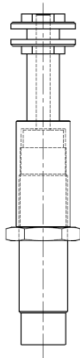


Fig. 8 Capacitive level gauge

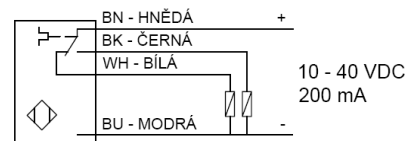
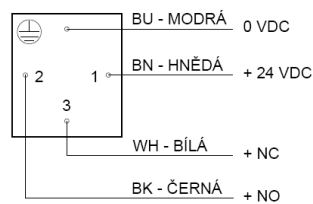


Fig. 7 Capacitive level gauge wiring

The standard wiring of the NC level gauge indicates that the lubricant has dropped under the minimum.

## 11 ADJUSTMENT OF WORKING PARAMETERS

The nominal delivered quantity of 500 cm<sup>3</sup>/min. is set uniformly. The working pressure is adjustable in the range from 15 to 50 bar using the reducing valve; Fig. 1 and 2, pos. 3. Lubrication sets with the nominal dose of 200 cm<sup>3</sup>/min. and working pressure of 25 bar are available by request.

## 12 BASIC ADJUSTMENT

The following values are adjusted by the manufacturer

Table 8 Basic adjustment

Nominal dose quantity [cm <sup>3</sup> /min]	Working pressure [bar]
100	25
500	50

## 13 MAINTENANCE AND INSPECTION

The lubrication set does not require any other operation except for the on-time lubricant filling. In case of continuous operation, it is recommended to clean the reservoir and suction basket of the lubrication set twice a year. This is done by flushing gasoline when the reservoir of the lubrication set is taken off. Occasionally it is suitable to check the lubrication circuit for leakage. When dosing devices, distribution cubes, pressure switch, or distributors have been replaced or the lubrication circuit has been repaired, it is necessary to deaerate the system.

**DURING MAINTENANCE, THE LUBRICATION SET MUST BE DISCONNECTED FROM THE ELECTRICAL NETWORK.**

## 14 ACCESSORIES

The SEO, SEG lubrication sets do not require any special accessories for installation, operation or maintenance.

## 15 WORK SAFETY

Electrical connection of the lubrication pump must be executed professionally and applicable safety precautions must be adhered to. The customer is liable for correct and professional installation.

**The SEO, SEG lubrication sets may be operated and its operating parameters adjusted solely by authorized persons who are duly informed and trained in such activities.**

## 16 STORAGE AND TRANSPORT

The lubrication set is to be stored in a dry sheltered place with the maximum relative air humidity of 70% and free from corrosive vapours. The lubrication set is preserved inside on a short-term basis with odd oil from the tests. If it is stored at the customer's for more than 3 months, the customer shall carry out long-term preservation of its inside parts by rinsing with preservative oil. Before the use, rinse the lubrication set with warm lubricating oil.

The transport is governed by conditions according to the set of combinations of IE21 classes according to CSN EN 60721-3-2 (temperature range from -25 °C to 60 °C, relative humidity 75%). The customer is responsible for storage of the product after delivery.

The products must be transported in protective containers. It is also possible to use cardboard packaging with crushed polystyrene filler or similar protection against mechanical damage of the SEO, SEG lubrication set. The products must be placed on a vehicle so that mechanical loading by stacking, damaging by shocks and weather effects during transportation can be avoided. Loading and unloading must be carried out carefully, avoiding fall and mechanical damage of the shipment.

## 17 QUALITY WARRANTY

TRIBOTEC guarantees that all products manufactured by TRIBOTEC will be free of material and workmanship defects on the date of sale from TRIBOTEC to the original buyer of these products.

With the exception of any special, extended or limited warranty published by TRIBOTEC, any product confirmed by TRIBOTEC as defective will be repaired or replaced by TRIBOTEC for a period of six (6) months from the date of sale.

This warranty is only valid in the event that the products are installed, operated and maintained in compliance with the written instructions and requirements contained in this document.

This warranty does not cover and TRIBOTEC will not be liable for product's normal wear and tear. The company will not be liable for defects on the product, its damage or wear and tear caused by the following:

1. Defective installation (unless performed directly by TRIBOTEC),
2. Misuse, i.e. use and operation under other than specified operating conditions,
3. Using for other purposes than recommended,
4. Abrasion,
5. Pollutants or chippings,
6. Corrosion caused by installation in other than recommended working environment,
7. inadequate or unsuitable maintenance,

8. Damage due to negligence, accident or by malicious damage,
9. Using spare parts not delivered by TRIBOTEC,
10. additional installation of parts and components not delivered or not approved by TRIBOTEC,
11. incompatibility of a TRIBOTEC product with devices, accessories or materials not delivered by TRIBOTEC, or by their incorrect design, production, installation or maintenance.

TRIBOTEC covers the items sold by TRIBOTEC, whether as part of the product or separately, but not manufactured by TRIBOTEC (such as electric motor, switches, relays, pressure gauges, etc.) with the guarantee period covering the complete product at its expense in full, except the cases TRIBOTEC advised the customer of in this document or in the purchase contract. In such cases, TRIBOTEC will provide the buyer with reasonable co-operation in submitting complaints regarding the components or parts in question to the manufacturer.

THIS WARRANTY IS THE EXCLUSIVE WARRANTY AND REPLACES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

TRIBOTEC will not be responsible for indirect, incidental damages and losses or consequential damages and losses caused by Force Majeure, resulting from the fact that TRIBOTEC has supplied the products.

## 18 POSSIBLE FAULTS AND THEIR ELIMINATION

Table 9 Faults and their elimination

FAULT	POSSIBLE CAUSE	REMEDY
The end-limit switch does not switch off the lubrication set.	Opposite direction of the electric motor and the gear hydraulic generator does not deliver the lubricant	Check for correct connecting to the electric network
	Clogged line	Clean the line of the lubrication circuit
	Leaky interconnecting screwed joints of the lubrication circuit or burst pipe	Check the screwed joint and retighten, replace the pipe
	The lubrication level decreased under the minimum level	Refill the lubricant
	Faulty pressure switch	Replace the pressure switch
The pump motor is not working	No electric current is consumed by the pump motor	Check the supply voltage of the pump motor
		Check the supply cables; replace if faulty
		Check the fuse; replace if faulty

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	Faulty external control unit	Remove the fault of the external control unit (repair, replace)
The pump motor is running but the lubricant does not get to a lubrication point	Dosing device failure	Replace the dosing device
	Clogged lubricant supply due to contamination of the lubricant or bent pipe	Replace the lubricant
		Observe the recommended pipe elbow radius
	Replace the faulty pipe	
Incorrect lubricant dosing	Wrong working pressure setting	Check and adjust the working pressure
	Faulty pump of the lubrication device	Replace the gear pump
	Lubricant incorrectly dosed in some lubrication points	Check the doser identification and if needed replace with a doser having the required type and size

## 19 ANNEXES

### No. 1. Spare parts