# MGA Pneumatic lubrication pump

| | |
|---|---|
| Date: | **07.03.2025** |
| Document no.: | **951-175-024-EN** |
| Version: | **01** |

Read this manual before installing or commissioning the product and keep it at hand for later reference!

# Original EC Declaration of Incorporation in accordance with Directive 2006/42/EC, Appendix II Part 1 B

The manufacturer hereby declares at its sole responsibility that the partly completed machinery conforms to the essential health and safety requirements of the Machinery Directive 2006/42/EC, Annex I, marked in the Annex to the EC Declaration of Incorporation as applicable and fulfilled at the time of placing on the market.

The special technical documents were prepared following Annex VII part B. Upon justifiable request, these special technical documents can be forwarded electronically to the respective national authorities. The authorized company for the compilation of the technical documentation is the manufacturer.

| | |
|---|---|
| Designation: | Pneumatic operated pump for the supply of lubricants within a centralized lubrication system |
| Type: | MGA |
| Item number: | MGA-ABCC-DDEEEE |

Furthermore, the following directives and standards were applied in the respective applicable areas:

EN ISO 12100:2010
EN 809:1998+A1:2009/AC:2010

The partly completed machinery must not be put into service until it has been established that the machinery into which it is to be incorporated is in compliance with the provisions of the Machinery Directive 2006/42/EC and all other applicable Directives.

Muurame, 07.03.2025
Juha Kärkkäinen
Design office Manager

Manufacturer: Oy SKF Ab Finland Teollisuustie 6, 40951 Muurame, Finland

# Original UK Declaration of Incorporation according to the Supply of Machinery (Safety) Regulations 2008 No. 1597 Annex II

The manufacturer hereby declares under sole responsibility that the partly completed machinery complies with the essential health and safety requirements of UK legislation Supply of Machinery (Safety) Regulations 2008 No. 1597 Annex I, marked in the Annex to the EC Declaration of Incorporation as applicable and fulfilled at the time of placing on the market.

The special technical documents were prepared following Annex VII part B. Upon justifiable request, these special technical documents can be forwarded electronically to the respective national authorities. The authorized company for the compilation of the technical documentation is SKF (U.K.) Limited, 2 Canada Close, Banbury, Oxfordshire, OX16 2RT, GBR.

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Muurame, 07.13.2025
Juha Kärkkäinen
Design Office Manager

Manufacturer: Oy SKF Ab Finland Teollisuustie 6, 40951 Muurame, Finland

**Annex to declaration of incorporation in accordance with 2006/42/EC, Annex II, No. 1 B**

Description of the essential health and safety requirements according to 2006/42/EC, Annex I, which have been applied and complied with:

Table 1

**Annex to declaration of incorporation**

| No. | Essential health and safety requirements | Applicable | Complied with |
|---|---|---|---|
| 1.1.1 | Definitions | Yes | Yes |
| 1.1.2 | Principles of safety integration | Yes | Yes |
| 1.1.3 | Materials and products | Yes | Partly [1)] |
| 1.1.5 | Design of machinery to facilitate its handling | Yes | Yes |
| 1.1.6 | Ergonomics | Yes | Yes |
| 1.3 | Protection against mechanical hazards | | |
| 1.3.1 | Risk of loss of stability | Yes | Yes |
| 1.3.2 | Risk of break-up during operation | Yes | Partly [2)] |
| 1.3.4 | Risks due to surfaces, edges or angles | Yes | Yes |
| 1.5 | Risks due to other hazards | | |
| 1.5.3 | Energy supply other than electricity | Yes | Yes |
| 1.5.4 | Errors of fitting | Yes | Yes |
| 1.5.13 | Emissions of hazardous materials and substances | Yes | Yes |
| 1.5.15 | Risk of slipping, tripping and falling | Yes | Yes |
| 1.6 | Maintenance | | |
| 1.6.1 | Machinery maintenance | Yes | Yes |
| 1.6.2 | Access to operating positions and servicing points | Yes | Partly [3)] |
| 1.6.4 | Operator interventions | Yes | Yes |
| 1.6.5 | Cleaning of internal parts | Yes | Yes |
| 1.7 | Information | | |
| 1.7.1 | Information and warnings on the machinery | Yes | Yes |
| 1.7.1.1 | Information and information devices | Yes | Yes |
| 1.7.2 | Warning of residual risks | Yes | Yes |
| 1.7.3 | Marking of machinery | Yes | Yes |
| 1.7.4 | Instructions | Yes | Yes |
| 1.7.4.2 | Contents of the instructions | Yes | Yes |
| 1.7.4.3 | Sales literature | Yes | Yes |

[1)] Hazards due to the lubricant used must be assessed by the operator based on the Safety Data Sheet (SDS) and, if necessary, protective measures must be taken.

[2)] The operator must protect the lubrication system against excessive pressure. For this purpose, a pressure limiting valve with max. 270 bar opening pressure (as applicable) must be provided on the pump element.

[3)] The operator must make sure that the pump is integrated into the higher-level machine in such a way that the pump can be operated without danger.

# Masthead

**Manufacturer**

Oy SKF Ab
Teollisuustie 6 (PO Box 80)
FI-40951 Muurame, Finland
English
Tel:  +358 20 7400 800
E-mail: skf-lube@skf.com
www.skf.com/lubrication

**Warranty**

The instructions contain no statements regarding the warranty or liability for defects. That information can be found in our general terms of payment and delivery.

**Training**

We conduct detailed training in order to enable maximum safety and efficiency. We recommend taking advantage of this training. For further information, contact your authorized SKF dealer or the manufacturer.

# Table of contents

# Safety alerts, visual presentation, and layout

While reading these instructions, you will encounter various symbols, illustrations, and text layouts intended to help you navigate and understand the instructions. Their meaning is explained below.

**Safety alerts:**

Activities that present specific hazards (to life and limb or possible damage to property) are indicated by safety alerts. Always be sure to follow the instructions given in the safety alerts.

**⚠ DANGER**

These safety alerts indicate an imminent danger. Ignoring them will result in death or serious injury.

**⚠ WARNING**

These safety alerts indicate potentially imminent danger. Ignoring them could result in death or serious injury.

**⚠ CAUTION**

These safety alerts indicate potentially imminent danger. Ignoring them could result in minor injury.

**NOTICE**

These safety alerts indicate a potentially harmful situation. Ignoring them could result in damage to property or malfunctions.

**Illustrations:**

The illustrations used depict a specific product. For other products, they may have the function of a diagram only. This does not alter the basic workings and operation of the product.

**Text layout:**

- **First-order bulleted lists: Items on a bulleted list start with a solid black dot and an indent.**
  - **Second-order bulleted lists: If there is a further listing of subitems, the second-order bulleted list is used.**

1 **Legend:** A legend explains the numbered contents of an illustration, presented as a numbered list. Items in a legend start with a number (with no dot) and an indent.

– **Second-order legend: In some cases, the numbered contents of an image represent more than just one object. A second-order legend is then used.**

1. **Instruction steps:** These indicate a chronological sequence of instruction steps. The numbers of the steps are in bold and are followed by a period. If a new activity follows, the numbering starts again at "**1.**"

– **Second-order instruction steps**: In some cases, it is necessary to divide up a step into a few sub steps. A sequence of second-order instruction steps is then used.

# 1 Safety instructions

## 1.1 General safety instructions

- Putting the products into operation or operating them without having read the instructions is prohibited. The operator must make sure that the instructions are read and understood by all persons tasked with working on the product or who supervise or instruct such persons. Retain the instructions for further use.
- The product may only be used in awareness of the potential dangers, in proper technical condition, and according to the information in this manual.
- Any faults that could affect safety must be remedied according to responsibility. The supervisor must be notified immediately in case of malfunctions outside one's individual scope of responsibility.
- Unauthorized modifications and changes can have an unpredictable effect on safety and operation. Unauthorized modifications and changes are therefore prohibited. Only original SKF spare parts and SKF accessories may be used.
- Any unclear points regarding proper condition or correct assembly/operation must be clarified. Operation is prohibited until issues have been clarified.
- The components used must be suitable for the intended use and the applicable operating conditions, e.g. max. operating pressure and ambient temperature range, and must not be subjected to torsion, shear, or bending.

## 1.2 General electrical safety instructions

- Electrical devices must be kept in proper condition. This must be ensured by periodic inspections in accordance with the relevant applicable standards and technical rules. The type, frequency, and scope of the inspections must be determined in accordance with the risk assessment to be carried out by the operator. Work on electrical components may be performed only by qualified electricians. Connect the electrical power only in accordance with the valid terminal diagram and in observance of the relevant regulations and the local electrical supply conditions.
- Work on electrical components may be performed only in a voltage-free state and using tools suitable for electrical work. Do not touch cables or electrical components with wet or moist hands.
- Fuses must not be bridged. Always replace defective fuses with fuses of the same type.
- Make sure proper connection of the protective conductor for products with protection class I. Observe the specified enclosure rating.
- The operator must implement appropriate measures to protect vulnerable electrical devices from the effects of lightning during use. The electrical device is not furnished with a grounding system for the dissipation of the respective electric charge and does not have the voltage strength necessary to withstand the effects of lightning.

## 1.3 General behaviour when handling the product

- Familiarize yourself with the functions and operation of the product. The specified assembly and operating steps and their sequences must be observed.
- Keep unauthorized persons away.
- Wear personal protective equipment always.
- Precautionary operational measures and instructions for the respective work must be observed.
- In addition to these instructions, general statutory regulations for accident prevention and environmental protection must be observed.
- Precautionary operational measures and instructions for the respective work must be observed. Uncertainty seriously endangers safety.
- Safety-related protective and safety equipment must not be removed, modified, or affected otherwise in its function and is to be checked at regular intervals for completeness and function.
- If protective and safety equipment has to be dismantled, it must be reassembled immediately after finishing the work, and then checked for correct function.
- Remedy occurring faults in the frame of responsibilities. Immediately inform your superior in the case of faults beyond your competence.
- Never use parts of the centralized lubrication system or of the machine as standing or climbing aids.

## 1.4 Intended use

- Supply of lubricants and lubricants to lubrication points.
- Spare parts should only be used to replace faulty components of identical construction.
- The product is intended solely for installation in another machine.
- Use is only permitted within the scope of commercial or economic activity by professional users, in compliance with the specifications, technical data, and limits specified in this manual.

## 1.5 Persons authorized to use the product

**Operator**

A person who is qualified by training, knowledge and experience to carry out the functions and activities related to normal operation. This includes avoiding possible hazards that may arise during operation.

**Specialist in electrics**

Person with appropriate professional education, knowledge and experience to detect and avoid the hazards that may arise from electricity.

**Specialist in mechanics**

Person with appropriate professional education, knowledge and experience to detect and avoid the hazards that may arise during transport, installation, start-up, operation, maintenance, repair and disassembly.

## 1.6 Foreseeable misuse

Any usage of the product other than as specified in this manual is strictly prohibited. Particularly prohibited are:

- Use of non-specified consumables, contaminated lubricants, or lubricants with air inclusions.
- Use of C3 versions in areas with aggressive, corrosive substances (e.g. high salt load).
- Use of plastic parts in areas with high exposure to ozone, UV light, or ionizing radiation.
- Use to supply, convey, or store hazardous substances and mixtures as defined in the CLP Regulation (EC 1272/2008) or GHS with acute oral, dermal, or inhalation toxicity or substances and mixtures that are marked with hazard pictograms GHS01-GHS06 and GHS08.
- Use to supply, convey, or store Group 1 fluids classified as hazards as defined in the Pressure Equipment Directive (2014/68/EU) Article 13 (1) a).
- Use to supply, convey, or store gases, liquefied gases, dissolved gases, vapors, or fluids whose vapor pressure exceeds normal atmospheric pressure (1013 mbar) by more than 0.5 bar at their maximum permissible operating temperature.
- Use in an explosion protection zone.
- Use without proper securing against excessively high pressures, in the case of pressurized products.
- Use outside of the technical data and limits specified in this manual.

## 1.7 Referenced documents

In addition to this manual, the following documents must be observed by the respective target group:

- Company instructions and approval rules

If applicable:

- Safety data sheet of the lubricant used
- Project planning documents
- Supplementary information regarding special designs of the pump. This you will find in the special system documentation.
- Instructions for other components for setting up the centralized lubrication system.

## 1.8 Prohibition of certain activities

- Replacement of or modifications to the pistons of the pump elements.
- Repairs or modifications to the drive.

## 1.9 Painting plastic components and seals

The painting of any plastic components and seals of the products described is prohibited. Completely mask or remove plastic components before painting the main machine.

## 1.10 Safety markings on the product

No safety markings on the product

**NOTE**

In accordance with the results of the workstation risk assessment, additional labels (e.g. warnings, safety signs, prohibition signs, or labels in accordance with CLP/GHS) are to be attached by the operator if necessary.

## 1.11 Note on the type plate

The type plate provides important data such as the type designation, order number, and sometimes regulatory characteristics. To avoid loss of this data in case the type plate becomes illegible, these characteristics should be entered in the manual.

Model:

_____

P. No.: _____
S. No.:_____

(CW/YY):

_____
Calendar week/year of manufacture

## 1.12 Note on pressure equipment directive

Due to its performance characteristics, the product does not reach the limit values defined in Article 4, Paragraph 1, Subparagraph (a) (ii) and is excluded from the scope of Pressure Equipment Directive 2014/68/EU in accordance with Article 1, Paragraph 2 Subparagraph (f).

## 1.13 Note on UKCA marking

The UKCA conformity marking confirms the product's conformity with the applicable legal provisions of Great Britain.

## 1.14 Note on China RoHS mark


The China RoHS mark confirms that there is no danger to persons or the environment from the regulated substances contained within for the intended period of use (year number shown in the circle).

## 1.15 Emergency shutdown

This is done by a course of action to be defined by the operator.

## 1.16 Assembly, maintenance, fault, repair

Prior to the start of this work, all relevant persons must be notified of it. At a minimum, the following safety measures must be taken before any work is done:
- Unauthorized persons must be kept away
- Mark and secure the work area
- Cover adjacent live parts
- Dry any wet, slippery surfaces or cover them appropriately
- Cover hot or cold surfaces appropriately

Where applicable:
- Depressurize
- Isolate, lock and tag out
- Check to make sure live voltage is no longer present
- Ground and short-circuit.

The product should be protected as much as possible from humidity, dust, and vibration, and should be installed so that it is easily accessible. Make sure an adequate distance from sources of heat or cold. Any visual monitoring devices present, such as pressure gauges, min./max. markings, or oil level gauges must be clearly visible. Observe the mounting position requirements.

Drill required holes only on non-critical, non-load-bearing parts of the operator's infrastructure. Use existing holes where possible. Avoid chafe points. Immobilize any moving or detached parts during the work. Adhere to the specified torques.

If guards or safety devices need to be removed, they must be reinstalled immediately following conclusion of work and then checked for proper function.

Check new parts for compliance with the intended use before using them.

Avoid mixing up or incorrectly assembling disassembled parts. Label parts. Clean any dirty parts.

## 1.17 First start-up, daily start-up

Make sure that:
- All safety devices are fully present and functional
- All connections are properly connected
- All parts are correctly installed
- All warning labels on the product are fully present, visible, and undamaged
- Illegible or missing warning labels are immediately replaced.

## 1.18 Residual risks

Table 2

**Residual risks**

| Residual risk | Possible in lifecycle | Avoidance/Remedy |
|---|---|---|
| Personnel slipping due to floor contamination with spilled or leaked lubricants. | B C E G H K | • Exercise caution when connecting lubricant connections on the product.<br>• Promptly apply suitable binding agents and then remove the spilled or leaked lubricant.<br>• Follow operational instructions for handling the lubricants and contaminated parts. |
| Tearing or damage to lines when installed on moving machine components. | B | • Installing the pump on moving machine components should be avoided whenever possible. In cases where mounting the pump in this way cannot be avoided, flexible hose lines must be used. |
| Personal injury/property damage due to tilting or falling of the product due to non-compliance with specified tightening torques. | B C G | • Observe the specified tightening torques. Fix the product only to components with sufficient load capacity. If no tightening torques are stated, apply tightening torques according to the screw size characteristics for 8.8 screws. |
| Lubricant spraying out due to faulty component fitting, or incorrect connection of lines. | B C | • Tighten all components securely or using the specified torques.<br>• Use hydraulic screw unions and lines suitable for the indicated pressures and check them for proper connection and for damage prior to first start-up. |

Lifecycle phases: A = Transport, B = Assembly, C = First start-up, D = Operation, E = Cleaning, F = Maintenance,
G = Malfunction, repair, H = Shutdown, K = Disposal

# 2 Lubricants

## 2.1 General information

Lubricants are selected specifically for the relevant application. The manufacturer or operator of the machine should ideally make the selection in consultation with the supplier of the lubricant. If you have no or little experience in selecting lubricants for lubrication systems, please contact us. We would be happy to assist you in selecting suitable lubricants and components to build a lubrication system optimized for your particular application. Consider the following points when selecting/using lubricants. This will spare you potential downtime and damage to the machine or lubrication system.

## 2.2 Material compatibility

The lubricants must generally be compatible with the following materials:

- Plastics: ABS, CR, FPM, NBR, NR, PA, PET, PMMA, POM, PP, PS, PTFE, PU, PUR
- Metals: steel, gray cast iron, brass, copper, aluminum.

## 2.3 Temperature properties

The lubricant used must be suitable for the specific ambient temperature of the product. The viscosity approved for proper functioning must neither be exceeded at low temperatures nor fall too low at high temperatures.

## 2.4 Aging of lubricants

Based on past experience with the lubricant used, checks should be conducted at regular intervals defined by the operator, to determine whether the lubricant needs to be replaced due to aging processes (oil separation). In case of doubt regarding the continued suitability of the lubricant, it must be replaced before the system is started up again. If you do not yet have any experience with the lubricant used, we recommend conducting a check after just one week.

## 2.5 Avoidance of faults and hazards

To avoid faults and hazards, please observe the following:

- When handling lubricants, observe the relevant safety data sheet (SDS) and any hazard labeling on the packaging.
- Due to the large number of additives, some lubricants that meet the pumpability requirements specified in the manual are not suitable for use in centralized lubrication systems.
- Whenever possible, always use SKF lubrication greases. They are ideal for use in lubrication systems.
- Do not mix lubricants. This can have unpredictable effects on the properties and usability of the lubricant.
- Use lubricants containing solid lubricants only after technical consultation with SKF.
- The lubricant's ignition temperature has to be at least 50 °C above the maximum surface temperature of the components.

## 2.6 Solid lubricants

Solid lubricants may only be used after prior consultation with SKF. When solid lubricants are used in lubrication systems, the following rules generally apply:

**Graphite:**

- Maximum graphite content 8%
- Maximum grain size 25 µm (preferably in lamellar form).

**MoS2:**

- Maximum MoS2 content 5%
- Maximum grain size 15 µm.

**Copper:**

Lubricants containing copper are known to lead to coatings forming on pistons, bore holes, and mating surfaces. This can result in blockages in the centralized lubrication system.

**Calcium carbonate:**

Lubricants containing calcium carbonate are known to lead to very heavy wear on pistons, bore holes, and mating surfaces.

**Calcium hydroxide:**

Lubricants containing calcium hydroxide are known to harden considerably over time, which can lead to failure of the centralized lubrication system.

**PTFE, zinc, and aluminum:**

For these solid lubricants, it is not yet possible to define any limit values for use in lubrication systems on the basis of existing knowledge and practical experience.

## 2.7 Chisel pastes

Due to their high resistance to pressure and temperature, chisel pastes are used to reduce wear on insert tools and wear bushings on hydraulic and pneumatic hammers, stone crushers and hydraulic grabs. Before use, observe the safety data sheet (SDS) and the technical data and application limits of the respective chisel paste.

**NOTE**

The chisel paste grease can be used only with pump element C.

Chisel pastes may be pumped only with SKF pumps and pump elements developed for this application.

Chisel pastes are special lubricants and must not be used as a lubricant for bearings.

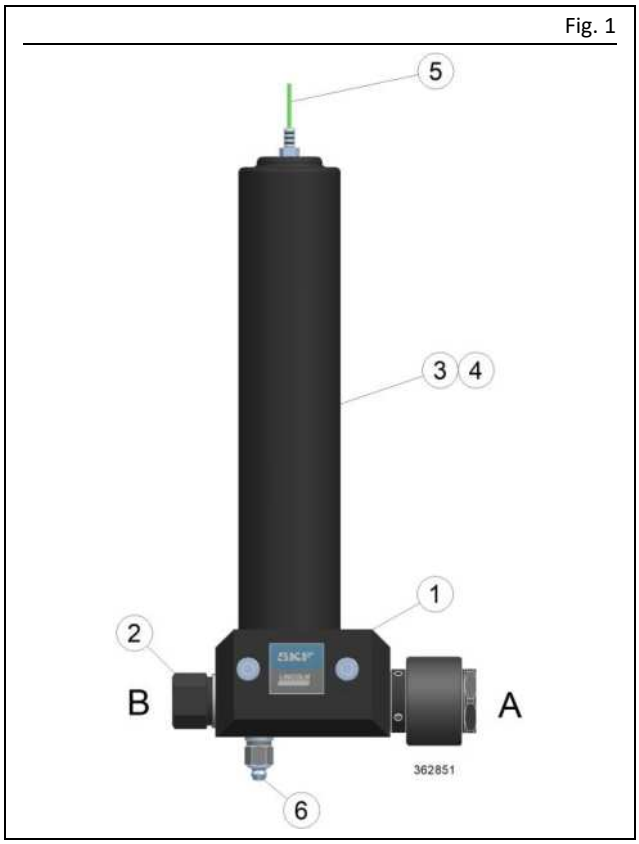
Grease guns filled with chisel paste must be permanently marked with a corresponding note.

# 3 Overview, functional description

The MGA grease cartridge pump is designed for machines which have pneumatic air supply available. It can directly supply individual lubrication points or work within a system with progressive metering devices for up to 22 lubrication points. The lubricant cartridge enables easy maintenance, making it ideal for trucks, trailers, and vehicle attachments, as well as pneumatic material handling applications. MGA pump elements deliver metering quantities ranging from 0.04 $cm^3$ to 0.24 $cm^3$ per shot. The Lube-Shuttle version with a cover features an optical low-level indicator. MGA designs with a cover and spring-loaded cartridge piston can be installed horizontally if needed.

MGA will be connected to lubricated machines pneumatic system so no external power supply is needed. MGA is used with progressive dividers which divides lubricant to lubrication points, or it can be connected directly to lubrication point without dividers. The lubrication device has connections for pneumatic (A) and lubrication (B). The pneumatic connection is connected to the air supply of the machine which is to be lubricated and supplies power to the lubrication unit.

Fig. 1




MGA pump

| | |
|---|---|
| 1 Pumping block | 4 Cartridge [1)] |
| 2 Pump element | 5 Level indicator [2)] |
| 3 Reservoir cover | 6 Venting nipple |
| A Pneumatic connection | B Lubrication connection |

[1)] Grease cartridge must order separately.
[2)] Level indicator option available only with MGA-LPLI-Kx0000 pumps.

# 4 Technical data

## 4.1 MGA pump

Table 3

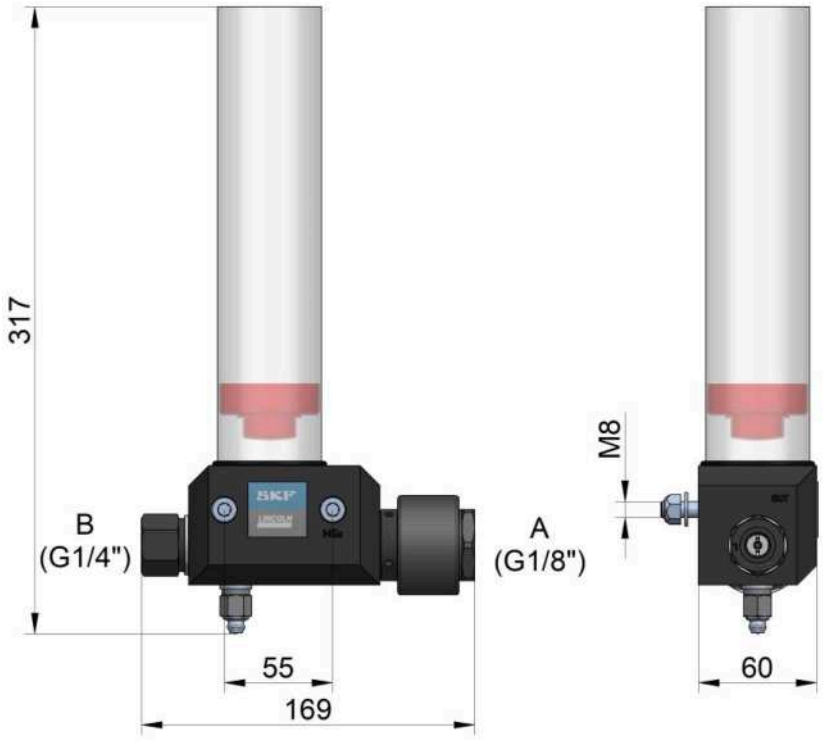
| Technical data | |
|---|---|
| Parameter | Value |
| Reservoir volume | 380 ml<br>400 ml |
| Pressure ratio (pneumatic/grease) | 50:1, K5 pump element (eg. air pressure 5 bar -> 250 bar grease pressure)<br>35:1, K6 pump element (eg. air pressure 5 bar -> 175 bar grease pressure)<br>25:1, K7 pump element (eg. air pressure 5 bar -> 125 bar grease pressure) |
| Lubricant output quantity | See section 4.4 Pump elements nominal output volumes |
| Operating pressure (grease) [1)] | 50 to 300 bar |
| Actuation air pressure | 4 - 10 bar |
| Air connection | G $^1/_8$" |
| Lubrication line connection | G $^1/_4$" |
| Lubricant | NLGI grade 0 - 2 |
| Ambient temperature | –20 °C to +60 °C |
| Corrosion class | C4 |
| Degree of protection | IP6K9K |
| Weight (without grease) | 1.3 kg models without cartridge cover<br>1.8 kg with cartridge cover |
| Height, width, depth | See section 4.2 |
| Installation positions | Upright/any with spring loaded cover |

[1)] System max grease pressure must be limited by adding pressure relief valve such as **STVS-270-R1/4 -D 6 (624-28892-1)** after pump element.

## 4.2 MGA pump dimensions

### 4.2.1 MGA-LNLN-KX0000

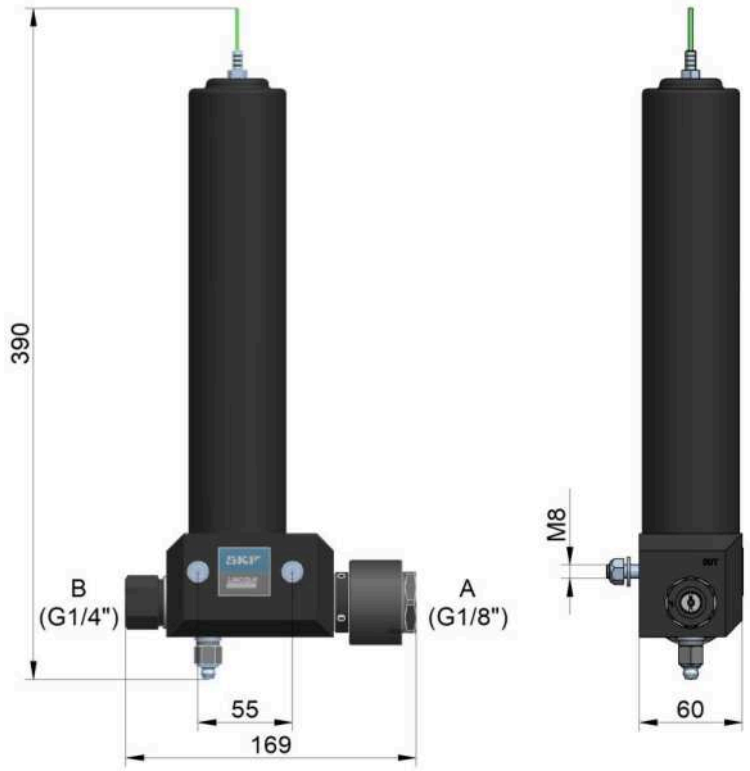
Fig. 2




MGA-LNLN-KX0000

## 4.2.2 MGA-LPLI-KX0000

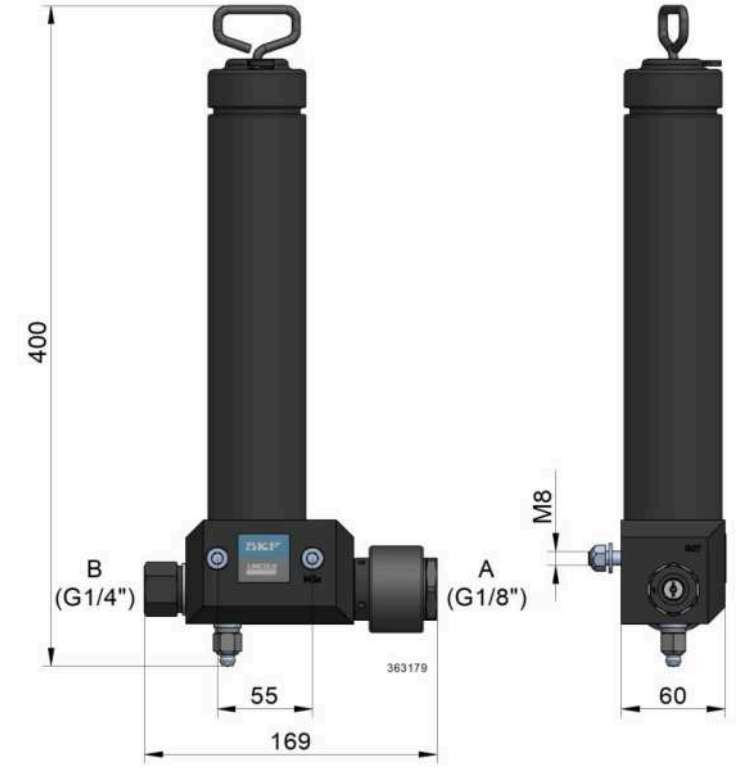
Fig. 3




MGA-LPLI-KX0000

## 4.2.3 MGA-SPLN-KX0000

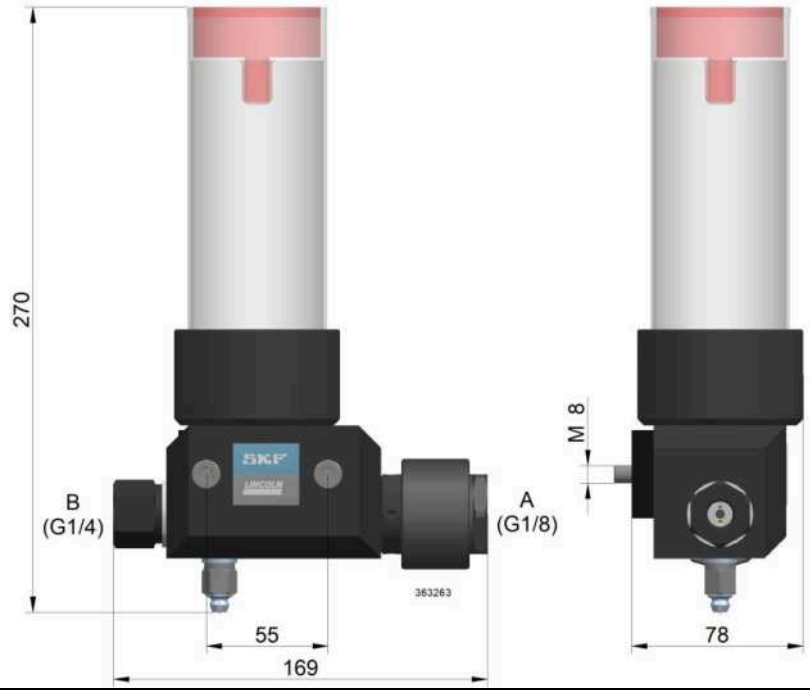
Fig. 4




MGA-SPLN-KX0000

## 4.2.4 MGA-TNLN-KX0000 and MGA-RNLN-KX0000

Fig. 5




MGA-TNLN-KX0000 & MGA-RNLN-KX0000

## 4.3 Symbols and codes

Table 4

**Symbols and codes**

| MGA-ABCC-DDEEEE | Abbreviation | Description |
|---|---|---|
| MGA | MGA | Pneumatisch cartridge lubrication pump |
| A: | L | Lube-Shuttle® grease cartridge |
| | S | Standard grease cartridge (DIN 1284) |
| | T | TLMR grease cartridge (see SKF.com) |
| | R | Lincoln grease cartridge |
| B: | P | Protected by cover [1)] |
| | N | Without cover |
| CC: | LI | Level indicator [2)] |
| | LN | No level indicator |
| | LS | Electrical level switch |
| DD: | K7 | Pump element K7 |
| | K6 | Pump element K6 |
| | K5 | Pump element K5 |
| | KR | Adjustable pump element |
| | KC | Pump element for chisel paste only |
| EEEE: | – | – |

[1)] Standard grease cartridge model always contains a cover.
[2)] Level indicator only with LP models (lube shuttle with cover).

Example: MGA-LPLI-K70000
MGA pneumatic cartridge lubrication pump with Lube-Shuttle® grease cartridge, protected by cover which contains level indicator and K7 pump element.

### 4.3.1 MGA order numbers

Table 5

**Order numbers**

| | |
|---|---|
| MGA-LNLN-K50000 | MGA-SPLN-K50000 |
| MGA-LNLN-K60000 | MGA-SPLN-K60000 |
| MGA-LNLN-K70000 | MGA-SPLN-K70000 |
| MGA-LNLN-KC0000 | MGA-SPLN-KC0000 |
| MGA-LNLN-KR0000 | MGA-SPLN-KR0000 |
| MGA-LPLI-K50000 | MGA-TNLN-K50000 |
| MGA-LPLI-K60000 | MGA-TNLN-K60000 |
| MGA-LPLI-K70000 | MGA-TNLN-K70000 |
| MGA-LPLI-KC0000 | MGA-TNLN-KR0000 |
| MGA-LPLI-KR0000 | MGA-RNLN-KC0000 |

## 4.4 Pump elements nominal output volumes and adjustment

**NOTICE**

In case of pump elements 5, 6, 7 and R, the stated nominal outputs per stroke refer to NLGI 2 lubrication greases, for pump element L refer to NLGI 0 lubrication greases, at an ambient temperature of +20 °C (68 °F) and a back pressure of 100 bar (1450 psi) on the pump element. Deviating operating conditions or deviating pump configuration result in a changed motor speed and thus in a change of the output per time unit. If as a consequence of the changed motor speed the output per time unit needs to be adapted, this will be done by adapting the lubrication and pause time settings of the pump.

| Pump element | Unit | L [1] | 5 | 6 | 7 | R | B | C [2] |
|---|---|---|---|---|---|---|---|---|
| Nominal output per stroke | cc | 0.03 | 0.10 | 0.16 | 0.22 | 0.04/0.18 | 0.10 | 0.24 |

[1] Pump element L must not be used for pumps with follower plate. With the pump element L, lubricants according to the specifications mentioned in these instructions up to class < NLGI 2 can be pumped without restrictions. For lubricants of class NLGI 2, the applicability of pump element L for pumping from temperatures of –5 °C or lower must be checked in each individual case.

[2] Pump element C serves to supply exclusively chisel paste. When using chisel paste, observe the corresponding notes in the chapter Lubricants.

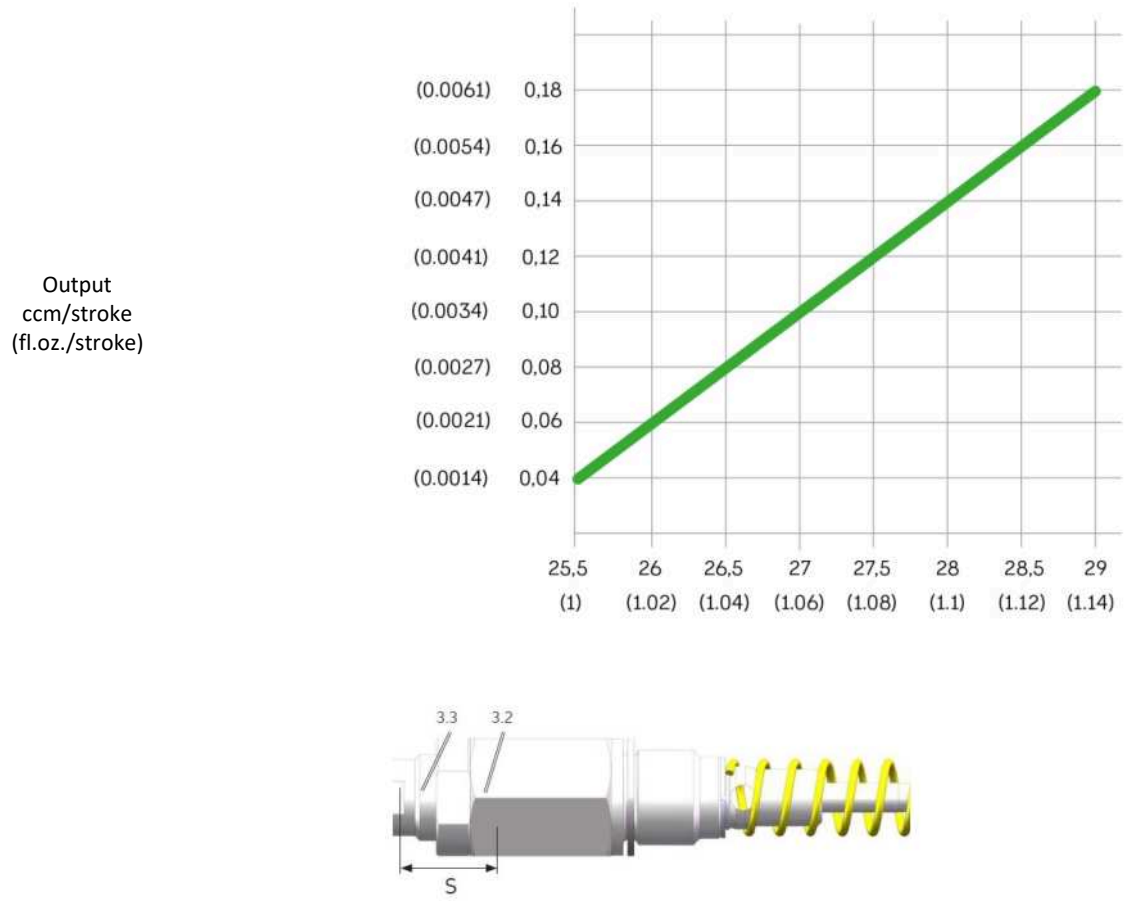
### 4.4.1 Influencing variables on the output volume

Table 6

| Influencing variables | Increasing the output | Reducing the output |
|---|---|---|
| Ambient temperature | > +20 °C | < +20 °C |
| Consistency class of the lubrication grease | < NLGI 2 | N/A |
| Number of pump elements | N/A | > 1 |
| Back pressure at the pump element | < 100 bar | > 100 bar |

## 4.5 Adjusting the output volume on the pump element R

Fig. 6




Adjusting the output volume on the pump element R

**NOTE**

The output of pump element R can be adjusted only while the pump is idle. Factory setting is full supply, i.e. The adjusting measure is S = 1.14 in. (29 mm).

To set the output volume proceed as follows:

- Loosen the counter nut (3.2).
- Adjust the output volume by screwing the spindle (3.3) to the indicated measure according to the table on the **Fig. 6**.

  = lower delivery rate

  = higher delivery rate
- After adjusting the output volume, retighten the counternut (3.2).

Tightening torque = 14.75 ft.lb. ± 1.4 ft.lb (20 Nm ± 2.0 Nm).

# 5 Delivery, returns, storage

## 5.1 Delivery

After receipt of the shipment, it must be inspected for any shipping damage and for completeness according to the shipping documents. Immediately inform the transport carrier of any shipping damage. The packaging material must be preserved until any discrepancies are resolved.

## 5.2 Return shipment

Before return shipment, all contaminated parts must be cleaned. If this is not possible or practical, e.g. if it would impede fault detection in the case of complaints, the medium used must always be specified. If products are contaminated with hazardous substances as defined by GHS or CLP regulations, the safety data sheet (SDS) must be sent with the product and the packaging must be labelled in accordance with GHS/CLP. There are no restrictions for land, air, or sea transport. The choice of packaging should be based on the specific product and the stresses to be expected during transport (e.g. necessary anti-corrosion measures in the case of shipment by sea). In the case of wooden packaging, the applicable import regulations and the IPPC standards must be observed. Required certificates must be included in the shipping documents. The following information, as a minimum, must be marked on the packaging of return shipments.

Fig. 7

Marking of return shipments

## 5.3 Storage

**The following conditions apply to storage:**

- Dry, low-dust, vibration-free, in closed rooms
- No corrosive, aggressive substances at the storage location (e.g. UV rays, ozone)
- Protect against animals (insects, rodents)
- If possible, keep in the original product packaging
- Protect from nearby sources of heat or cold
- In the case of large temperature fluctuations or high humidity, take appropriate measures (e.g. heating) to prevent the condensation of water
- Before usage, check products for damage that may have occurred during storage. This applies in particular to parts made of plastic (due to embrittlement).

## 5.4 Storage temperature range

For parts not filled with lubricant, the permitted storage temperature is the same as the permitted ambient temperature range (see “Technical data”).

## 5.5 Storage conditions for products filled with lubricant

For products filled with lubricant, the permitted storage temperature range is:

| | | |
|---|---|---|
| minimum | +5 °C | [+41 °F] |
| maximum | +35 °C | [+95 °F] |

If the storage temperature range is not maintained, the following steps for replacing the lubricant may not lead to the desired result under certain circumstances.

### 5.5.1 Storage period up to 6 months

Filled products can be used without implementing additional measures.

### 5.5.2 Storage period between 6 and 18 months

**Pump:**

- Connect the pump to a power source
- Switch on the pump and run it until lubricant comes out of every outlet without air bubbles
- Disconnect the pump from the power source
- Remove and dispose of the lubricant that came out

**Lines:**

- Remove pre-installed lines
- Make sure that both ends of the line are open
- Fill the lines completely with fresh lubricant

**Metering devices:**

**NOTE**

Due to the large number of different metering devices, no universally valid statement can be made regarding the removal of the old lubricant and correct bleeding after filling with new lubricant. The instructions can be found in the technical documentation of the specific metering device used.

### 5.5.3 Storage period more than 18 months

To prevent faults, the manufacturer should be consulted before start-up. The basic procedure for removal of the old lubrication filling corresponds to that for storage periods between 6 and 18 months.

# 6 Assembly

## 6.1 General information

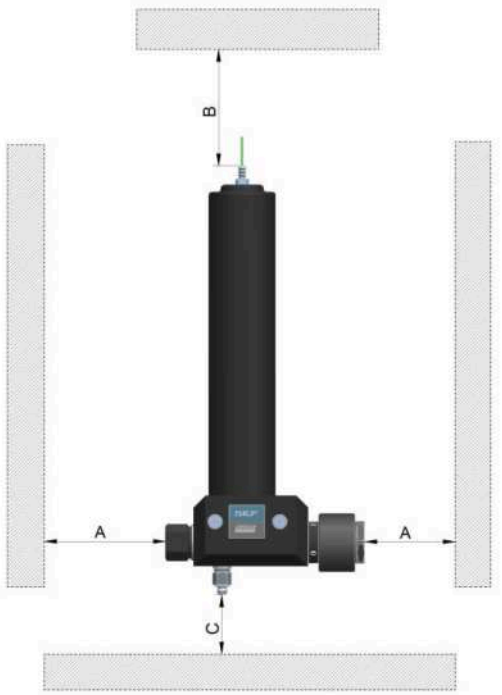
Only qualified technical personnel may install the products described in these instructions. During assembly pay attention to the following:

- Other units must not be damaged by the assembly
- The product must not be installed within the range of moving parts
- The product must be installed at an adequate distance from sources of heat and coldness
- Obey to safety distances and legal prescriptions on assembly and prevention of accidents
- Possibly existing visual monitoring devices, e.g. pressure gauges, MIN/MAX markings or piston detectors, must be clearly visible
- Observe prescriptions in chapter Technical data regarding the installation position
- Protect the product against humidity, dust and vibrations and install it in an easily accessible position to facilitate other installation and maintenance works.

## 6.2 Minimum assembly dimensions

Leave free space around the pump for maintenance work or for attachment of further components, to build a centralized lubrication system.

Fig. 8




Assembly dimensions

A = 100 mm, B = 100 mm, C = 50 mm

**NOTICE**

MGA-SPLN variant needs 200 mm extra space above when changing a new cartridge.

## 6.3 Installation bores

**NOTICE**

**Risk of damage to the superior machine and to the pump.**

Drill the mounting bores on non-load bearing parts of the superior machine only. Fastening must not be done on two parts moving against one another (e.g. machine bed and machine assembly).

The product is fastened on the 2 mounting bores and fastening is done means of:
2 × M8 Allenscrew (screw strength class 8.8)
2 × M8 Hex nut
2 × Washer 8
The screws lengths depend on the actual installation situation.
Tightening torque 25 Nm

## 6.4 Mount pressure relief valve

Protect each pump element by means of a pressure relief valve suitable for the planned maximum admissible operating pressure of the centralized lubrication system.

To carry out the assembly proceed as follows:

- Remove the closure plug (1) from the pump element.
- Screw pressure relief valve (2) into pump element.

Tightening torque = 6 Nm ± 0.5 Nm

Fig. 9


1 Closure plug 2 Pressure relief valve

## 6.5 Lubrication line connection

**⚠ DANGER**

Stellen Sie vor der Installation sicher, dass der pneumatische Anschluss für die MGA-Pumpe für den vorgesehenen Gebrauch geeignet ist und den normalen Betrieb der Maschine nicht beeinträchtigt

**⚠ CAUTION**

**Risk of falling**

Exercise care when dealing with lubricants. Bind and remove spilled or leaked lubricants immediately.

All components of the centralized lubrication system must be laid out for:

- The maximum arising operating pressure
- The admissible ambient temperature
- The output volume and the lubricant to be supplied

Observe the following installation instructions for safe and smooth operation.

- Use clean components and filled lubrication lines only.
- The main lubrication line should be laid preferably rising with a possibility to vent it at its highest point. Lubrication lines shall generally be laid in such way that there can never be created air pockets at any point.
- Possibly mount the lubricant metering devices at the end of the main lubrication line in such way that the outlets of the lubricant metering devices show upwards.
- If lubricant metering devices have to be mounted below the main lubrication line, then this should not be done at the end of the main lubrication line.
- The lubricant flow should not be impeded by the installation of sharp elbows, angle valves, gaskets protruding to the inside, or cross-section changes (big to small). Provide unavoidable changes of the cross sections in the lubrication lines with as smooth transitions as possible.

## 6.6 Filling with lubricant/cartridge change

**⚠ WARNING**

Before carrying out cartridge change de-pressurize the pneumatic line and make sure that pressure does not rise during maintain operation.

**NOTICE**

Make sure that impurities/contaminant cannot get inside pump when changing cartridge.

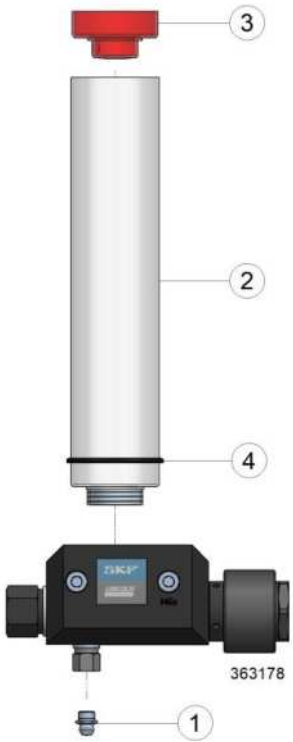
**NOTICE**

Vent the pump before commissioning.

### 6.6.1 MGA for lube-shuttle grease cartridge (MGA-LNLN-Kx0000)

- Use 14 mm wrench to remove venting nipple (1) from pumping block.
- Remove cartidge's plug and push the follower piston (3) into the cartridge (2), apply light pressure until grease will leak from the open threaded collar.
- Place O-ring (4) around cartridge threaded side as an image below.
- Position cartridge into the bore of the HTL housing, using light pressure and tighten by hand.
- Push follower plate until grease comes out from pumping block's venting hole.
- Screw venting nipple to pumping block and tighten it to 10 Nm.

Fig. 10



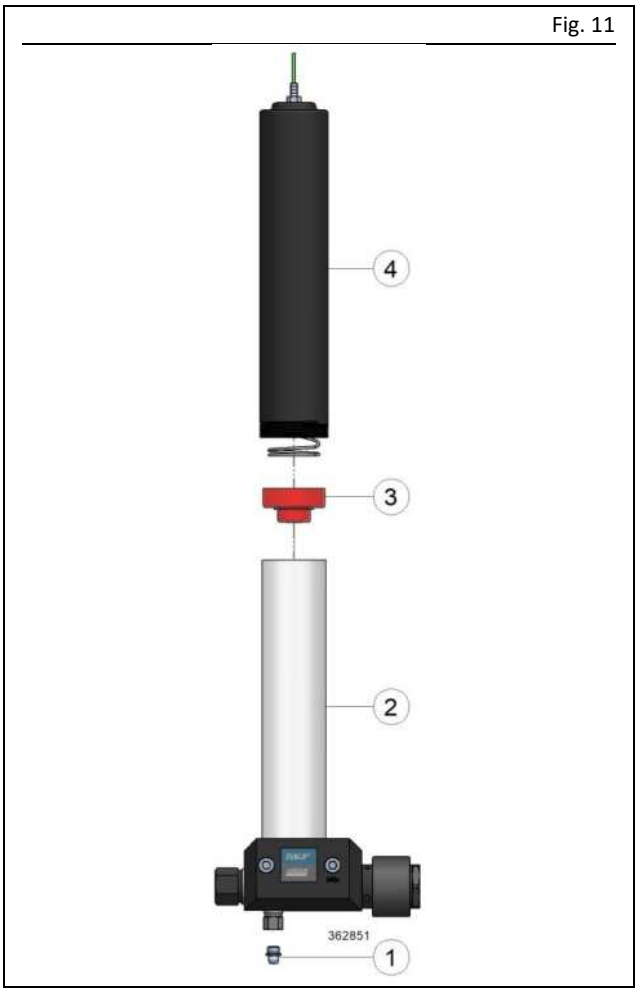

Lube-shuttle grease cartridge

1 Venting nipple
2 Cartridge
3 Follower piston
4 O-ring

## 6.6.2 MGA with covered lube-shuttle grease cartridge (MGA-LPLI-Kx0000)

- Use 14 mm wrench to remove venting nipple (1) from pumping block.
- Remove the cover (4).
- Remove cartidge's plug and push the follower piston (3) into the cartridge (2), apply light pressure until grease will leak from the open threaded collar.
- Position cartridge into the bore of the pump's housing using light pressure and tighten by hand.
- Push follower plate until grease comes out from pumping block's venting hole.
- Screw filling nipple to pumping block and tighten it to 10 Nm.
- Place cover around grease cartridge and tighten it to pump's housing by hand.
- Make sure that indicator pin is visible after changing a new cartridge.

Fig. 11



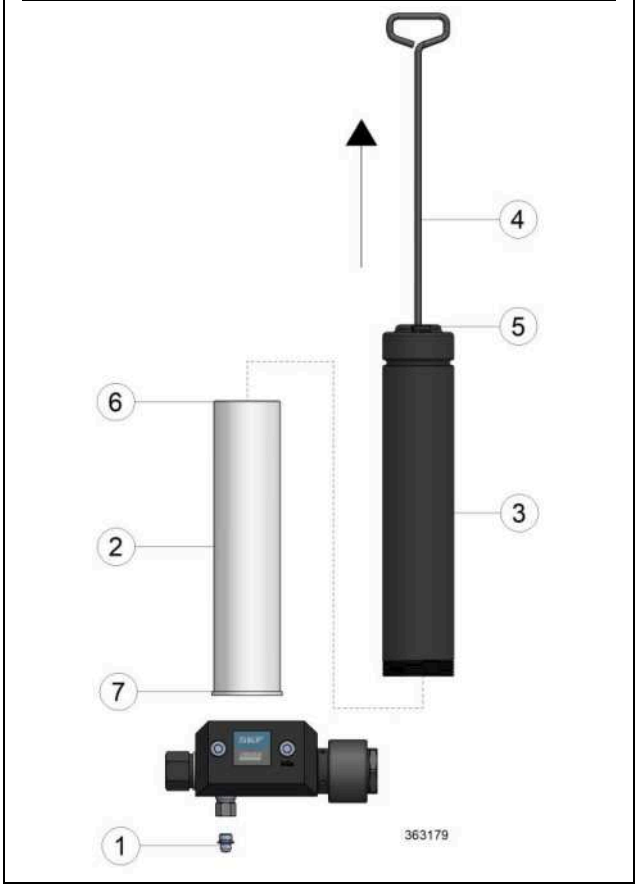

Covered lube-shuttle grease cartridge

| | |
|---|---|
| 1 Venting nipple | 3 Follower piston |
| 2 Cartridge | 4 Cover |

## 6.6.3 MGA with covered standard grease cartridge (MGA-SPLN-Kx0000)

- Pull out the piston handle (4) of the grease cover to lock it to loading position.
- Unscrew the cover (3) of the grease gun (turn anticlockwise).
- Remove the piston cap (6) from the top of the cartridge.
- Insert cartridge into the cover (3). The top part (400 ml side) of the cartridge must be inserted first.
- Remove the pull cap (7) from the bottom of the cartridge.
- Reconnect the cover (3) to pumping block (turn clockwise).
- Push level (5) to release piston handle (4).
- Use 14 mm wrench to remove venting filling nipple (1) from pumping block and keep it open until no air is coming out.
- Screw filling nipple (1) to pumping block and tighten it to 10 Nm.

Fig. 12




Covered standard grease cartridge

| | |
|---|---|
| 1 Filling nipple | 5 Level |
| 2 Cartridge | 6 Piston cap |
| 3 Cover | 7 Pull cap |
| 4 Piston handle | |

## 6.6.4 MGA for TLMR and Lincoln grease cartridges (MGA-TNLN-Kx0000 and MGA-RNLN-Kx0000)

- Use 14 mm wrench to remove venting nipple (1) from pumping block.
- Remove cartidge‘s plug and push the follower piston (3) into the cartridge (2) using light pressure until grease will leak from the open threaded collar.
- Position cartridge into the bore of the  housing using light pressure and tighten by hand.
- Push follower plate until grease comes out from pumping block‘s venting hole until.
- Screw venting nipple to pumping block and tighten it to 10 Nm.

Fig. 13


TLMR & Lincoln grease cartridges

1 Venting nipple
2 Cartridge
3 Follower piston

# 7 First start-up

To make sure safety and functionality, the person specified by the operator is required to inspect certain areas of the centralized lubrication system prior to initial commissioning. Any detected deficiencies must be reported immediately to the supervisor. The correction of deficiencies must be done exclusively by a specialist.

## 7.1 Inspections before first start-up

Table 7

**Checklist: Inspections before first start-up**

| Inspections to be performed | YES | NO |
|---|---|---|
| Mechanical connection established correctly. | ☐ | ☐ |
| All components, such as lubrication lines and metering devices, have been correctly installed. | ☐ | ☐ |
| No apparent damage, contamination, or corrosion. | ☐ | ☐ |
| Any dismantled protective and monitoring equipment is fully reinstalled and functional. | ☐ | ☐ |
| Lubrication system is prefilled with grease and vented | ☐ | ☐ |

## 7.2 Inspections during first start-up

Table 8

**Checklist: Inspections during first start-up**

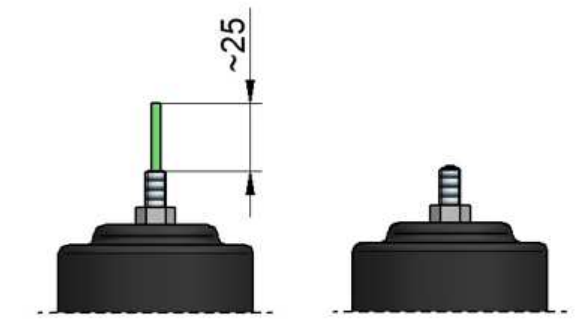
| Inspections to be performed | YES | NO |
|---|---|---|
| No unusual noises, vibrations, moisture accumulation, or odors present. | ☐ | ☐ |
| No undesired discharge of lubricant at connections (leakage). | ☐ | ☐ |
| Lubricant is fed without bubbles. | ☐ | ☐ |
| The bearings and friction points requiring lubrication receive the planned lubricant volume. | ☐ | ☐ |
| The performance characteristics for the aforementioned connections match the specifications in Chapter 4 “Technical data”. | ☐ | ☐ |

# 8 Operation

Der Anschluss A der MGA-Pumpe (siehe Abb. 1) wird an die Luftzuleitung des pneumatischen Systems der Maschine angeschlossen. Wenn der Luftdruck ansteigt, löst dies einen Schuss Schmiermittel aus dem Anschluss B der Pumpe aus. Nach dem Druckzyklus des pneumatischen Systems muss die Druckleitung für einige Sekunden entladen werden, um das Laden des nächsten Fettschusses zu ermöglichen. Die MGA-Pumpe verwendet standardmäßige P203-Pumpenelemente, die je nach gewähltem Pumpenelement einen Bereich von 0,1 cm³ bis 0,24 cm³ pro Schuss bieten.

MGA-LPLI-Kx0000 pump includes visual low-level alarm which indicate filling level of the grease cartridge. When green indicator pin is full out (25 mm) cartridge is full. If indicator pin is no more visual (right hand side image) cartridge is empty and it must change as soon as possible.

Fig. 14




Cartridge full Cartridge empty

# 9 Maintenance

Regular and appropriate maintenance is a prerequisite to detect and clear faults in time. The specific timelines must be determined, verified at regular intervals and adapted by the operator based on the operating conditions. If needed, use the below table for regular maintenance activities.

Table 9

**Maintenance checklist**

| Activity to be done | YES | NO |
|---|---|---|
| All mechanical and pneumatic connections carried out correctly and tightened properly as per the given torques. | ☐ | ☐ |
| All components, such as lubrication lines and metering devices, have been correctly installed. | ☐ | ☐ |
| No apparent damage, contamination, or corrosion. | ☐ | ☐ |
| Any dismantled protective and monitoring equipment is fully reinstalled and functional. | ☐ | ☐ |
| No unusual noises, vibrations, accumulation of moisture or odors present. | ☐ | ☐ |
| Lubricant is supplied free from bubbles. | ☐ | ☐ |
| Any warning labels on the product are present and in proper condition. | ☐ | ☐ |
| No unwanted escape of lubricant from connections. | ☐ | ☐ |
| Bearings and friction points are provided with the planned amount of lubricant. | ☐ | ☐ |
| The performance data correspond to the specifications stated in the Chapter 4 Technical data. | ☐ | ☐ |

# 10 Cleaning

## 10.1 Basics

Cleaning should be carried out in accordance with the operator's own company rules, and cleaning agents and devices and the personal protective equipment to be used should likewise be selected in accordance with those rules. Only cleaning agents compatible with the materials may be used for cleaning. Completely remove any cleaning agent residue left on the product and rinse with clear water. Unauthorized persons must be kept away. Use signage to indicate wet areas.

**⚠ WARNING**

**Serious injury from contact with or inhalation of hazardous substances**

Wear personal protective equipment. Observe the safety data sheet (SDS) of the hazardous substance. Avoid contaminating other objects or the environment during cleaning.

## 10.2 Interior cleaning

The interior normally does not need to be cleaned. The interior of the product must be cleaned if incorrect or contaminated lubricant accidentally enters the product. Please contact our Service department.

## 10.3 Exterior cleaning

Do not allow any cleaning fluid to enter the interior of the product during cleaning.

# 11 Faults, causes, and remedies

Table 10

**Fault table**

| Fault | Possible cause | Remedy |
|---|---|---|
| The pump does not pump lubricant. | No air supply pressure. | Check that pump has connected to pneumatic system properly. |
| | Insufficient air pressure. | Check that the air pressure is 4 – 10 bar.<br>Check air supply hoses and connectors for leaks. |
| | Too high venting pressure. | Air pressure line must be discharged for few seconds enabling loading of next grease shot. |
| The pump starts but pressure does not increase. | Insufficient air supply pressure. | Check that the air pressure is approximately 4 – 10 bar. |
| | There is air in the pump's piping/ pumping block. | Bleed the system of air. |
| | Lubricant cartridge is empty. | Change a new lubricant cartridge. |
| | Lubricant viscosity is too high (in cold conditions). | Check lubricant viscosity, replace if necessary (NLGI-0 to NLGI-2). |
| | Pump element failure (impurities) | Replace the pump element. |

**NOTE**

If the faults cannot be determined and remedied, please contact your Oy SKF Ab representative.

# 12 Repairs

**⚠ WARNING**

**Risk of injury**

**At a minimum, the following safety measures must be taken before any repairs:**

- Unauthorized persons must be kept away
- Mark and secure the work area
- Depressurize the product
- Cover any adjacent live parts

## 12.1 Replace pump element and pressure control valve

**NOTE**

Pump element contains plastic seal ring which have to be replaced by USIT 11682457.

To replace the pump element, proceed as follows:

- Unscrew defective pump element (1) at its hexagon out of pump housing together with pressure control valve (2).
- Screw the new pump element (1) into the pump housing together with a new USIT seal ring (3).
  Tightening torque = 45 Nm ± 2.0 Nm
- Then screw a new pressure control valve (2) into the pump element.
  Tightening torque = 6 Nm ± 0.5 Nm

Fig. 15


1 Pump element
2 Pressure control valve
3 Seal ring

# 13 Shutdown, disposal

## 13.1 Temporary shutdown

Temporary shutdowns should be done by a course of action to be defined by the operator.

## 13.2 Permanent shutdown, disassembly

Permanent shutdown and disassembly of the product must be planned properly by the operator and conducted in compliance with all applicable laws and regulations.

## 13.3 Disposal

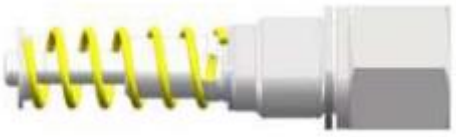
The waste producer/operator must dispose of the various types of waste in accordance with the applicable laws and regulations of the country in question.

# 14 Spare parts

Spare parts may be used exclusively for replacement of identical defective parts. Modifications with spare parts on existing products are not allowed. Exceptions to this are the pump elements.

## 14.1 Pump elements

Table 11

| Designation | Part number | Figure |
|---|---|---|
| Pump element 5 | 600-26875-2 |  |
| Pump element 6 | 600-26876-2 | |
| Pump element 7 | 600-26877-2 | |
| Pump element R | 655-28716-1 | |
| Pump element C | 600-28750-1 | |
| Usit seal 22,7 x 30 x 2 | 11682457 | |

## 14.2 Pressure relief valve

Table 12

| Designation | Part number | Figure |
|---|---|---|
| STVS-270-R1/4-D 6 | 624-28892-1 |  |
| SVTSV-270-R1/4-1/8NPTF+NIP00R | 624-28859-1 | |

## 14.3 Cartridge cover

Table 13

| Designation | Part number | Figure |
|---|---|---|
| Cartridge cover LS | 11380150 |  |
| Cartridge cover RB2155 | 11650045 |  |

# 15 Appendix

## 15.1 China RoHS Table

Table 14

| 部件名称 (Part Name) | 有毒害物质或元素 (Hazardous substances) | | | | |
|---|---|---|---|---|---|
| | 铅 | 汞 | 镉 | 六价铬 | 多溴联苯 |
| | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (Cr(VI)) | Polybrominated biphenyls (PBB) |
| 用钢和黄铜加工的零件 (Components made of machining steel and brass) | X | 0 | 0 | 0 | 0 |
| 部件名称 (Part Name) | 多溴二苯醚 | 邻苯二甲酸二丁酯 | 邻苯二甲酸丁苄酯 | 鄰苯二甲酸二(2-乙基己基)酯 | 邻苯二甲酸二异丁酯 |
| | Polybrominated diphenyl ethers (PBDE) | Dibutyl phthalate (DBP) | Benzyl butyl phthalate (BBP) | Bis (2-ethylhexyl) phthalate (DEHP) | Diisobutyl phthalate (DIBP) |
| 用钢和黄铜加工的零件 (Components made of machining steel and brass) | 0 | 0 | 0 | 0 | 0 |

本表格依据SJ/T11364的规定编制 (This table is prepared in accordance with the provisions of SJ/T 11364.)

| | |
|---|---|
| 0: | 表示该有毒有害物质在该部件所有均质材料中的含量均在GB/T 26572 规定的限量要求以下。<br>(Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.) |
| X: | 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572标准规定的限量要求。<br>(Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.) |

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PUB 951-175-024-EN 07.3.2025