Air operated piston pump unit

Series PPS30

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Read these instructions before installation or start-up of the product and keep them readily available for later consultation!

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: Air operated piston pump unit of the series PPS30
Type / item number: PPS30
Year of manufacture: See type plate

Furthermore, the following directives and standards were applied in the respective applicable areas:
2006/42/EC: Machinery Directive
2011/65/EU: RoHS II
2014/30/EU: Electromagnetic Compatibility

EN ISO 12100:2010	EN 809+A1/AC:2010	EN 60204-1:2018	EN 60947-5-2:2020
EN IEC 61000-6-1:2007	EN IEC 61000-6-2:2005	EN IEC 61000-6-3:2012	EN IEC 61000-6-4:2011
EN IEC 63000:2018			

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.

Berlin, 24.01.2023
Jürgen Kreutzkämper
Manager, R&D
Germany

Richard Lindemann
Manager, SE
Berlin

Manufacturer: SKF Lubrication Systems Germany GmbH, Motzener Strasse 35/37, 12277 Berlin, Germany

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.

Designation: Air operated piston pump unit of the series PPS30
Type / item number: PPS30
Year of manufacture: See type plate

Furthermore, the following regulations and standards were applied in the respective applicable areas:
Supply of Machinery (Safety) Regulations 2008 No. 1597
Electromagnetic Compatibility Ordinance 2016 No. 1091
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 No. 3032

EN ISO 12100:2010	EN 809+A1/AC:2010	EN 60204-1:2018	EN 60947-5-2:2020
EN IEC 61000-6-1:2007	EN IEC 61000-6-2:2005	EN IEC 61000-6-3:2012	EN IEC 61000-6-4:2011
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Appendix to ACP 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 fulfilled:

Table 1

Appendix to Declaration of Incorporation

No.:	Essential health and safety requirement	Applicable:	Fulfilled:
1.1.1	Definitions	No	
1.1.2	Principles of safety integration	Yes	Yes
1.1.3	Materials and products	Yes	Partially[1)]
1.1.4	Lighting	No	
1.1.5	Design of machinery to facilitate its handling	Yes	Yes
1.1.6	Ergonomics	Yes	Partially[2)]
1.1.7	Operating positions	No	
1.1.8	Seating	No	
1.2	Control systems		
1.2.1	Safety and reliability of control systems	No	
1.2.2	Control devices	No	
1.2.3	Starting	Yes	Yes
1.2.4	Stopping	Yes	Yes
1.2.4.1	Normal stop	No	
1.2.4.2	Operational stop	Yes	Yes
1.2.4.3	Emergency stop	No	
1.2.4.4	Assembly of machinery	No	
1.2.5	Selection of control or operating modes	Yes	Yes
1.2.6	Failure of the power supply	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	Yes
1.3.3	Risk due to falling or ejected objects	No	
1.3.4	Risks due to surfaces, edges or angles	Yes	Yes
1.3.5	Risks related to combined machinery	No	
1.3.6	Risks related to variations in operating conditions	No	
1.3.7	Risks related to moving parts	No	
1.3.8	Choice of protection against risks arising from moving parts	No	
1.3.8.1	Moving transmission parts	No	
1.3.8.2	Moving parts involved in the process	No	
1.3.9	Risks of uncontrolled movements	No	
1.4	Required characteristics of guards and protective devices		
1.4.1	General requirements	Yes	Yes
1.4.2	Special requirements for guards	No	
1.4.2.1	Fixed guards	No	
1.4.2.2	Interlocking movable guards	No	
1.4.2.3	Adjustable guards restricting access	No	
1.4.3	Special requirements for protective devices	No	
1.5	Risks due to other hazards		
1.5.1	Electricity supply	Yes	Yes
1.5.2	Static electricity	Yes	Yes
1.5.3	Energy supply other than electricity	Yes	Yes
1.5.4	Errors of fitting	Yes	Yes
1.5.5	Extreme temperatures	Yes	Yes
1.5.6	Fire	Yes	Yes
1.5.7	Explosion	No	
1.5.8	Noise	Yes	Yes
1.5.9	Vibrations	Yes	Yes
1.5.10	Radiation	Yes	Yes
1.5.11	External radiation	Yes	Yes

Table 1

Appendix to Declaration of Incorporation

No.:	Essential health and safety requirement	Applicable:	Fulfilled:
1.5.12	Laser radiation	No	
1.5.13	Emissions of hazardous materials and substances	Yes	Yes
1.5.14	Risk of being trapped in a machine	No	
1.5.15	Risk of slipping, tripping, or falling	Yes	Yes[3)]
1.5.16	Lightning	Yes	Yes
1.6	Servicing		
1.6.1	Machinery maintenance	Yes	Yes
1.6.2	Access to operating positions and servicing points	Yes	Partially[4)]
1.6.3	Isolation of energy sources	Yes	Yes
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	No	
1.7.1.1	Information and information devices	Yes	Yes
1.7.1.2	Warning devices	Yes	Yes
1.7.2	Warning of residual risks	Yes	Yes
1.7.3	Marking of machinery	Yes	Yes
1.7.4	Operating instructions/assembly instructions	Yes	Yes
1.7.4.1	General principles for the drafting of operating instructions/assembly instructions	Yes	Yes
1.7.4.2	Contents of the operating instructions/assembly instructions	Yes	Yes
1.7.4.3	Sales literature	Yes	Yes

[1)] The product is fundamentally designed for the use of non-hazardous media. The owner-operator must check whether the lubricant used has certain hazardous effects (such as sensitization). A retaining tank may be required. Pressure limiting valves must also be used.
[2)] The integrators must ensure that the pump is integrated into the machine in such a way that the pump can be operated and filled ergonomically.
[3)] Not relevant inside the incomplete machine (pump), only outside the incomplete machine. Responsibility here lies with the machine integrator/owner-operator.
[4)] The integrator must ensure that the pump is integrated into the machine in such a way that the pump can be operated without danger.

Masthead

Manufacturer
SKF Lubrication Systems Germany GmbH
Email: Lubrication-germany@skf.com
www.skf.com/lubrication

Berlin Plant
Motzener Strasse 35/37
12277 Berlin
Germany
Tel. +49 (0)30 72002-0
Fax +49 (0)30 72002-111

Walldorf Plant
Heinrich-Hertz-Strasse 2-8
69190 Walldorf, Germany
Germany
Tel.: +49 (0) 6227 33-0
Fax: +49 (0) 6227 33-259

Authorized local distributors
- Great Britain -
SKF (U.K.) Limited,
2 Canada Close, Banbury, Oxfordshire,
OX16 2RT, GBR.

- North America -
SKF Lubrication Business Unit
Lincoln Industrial
5148 North Hanley Road, St. Louis,
MO. 63134 USA

- South America -
SKF Argentina Pte. Roca 4145,
CP 2001 Rosario, Santa Fe

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 substeps. 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 ensure 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.
- Ensure 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.
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
- Alterations to the control circuit board beyond adjustment of lubrication times and interval times or replacement in case of defect
- Alterations to the power supply board beyond replacement in case of defect

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

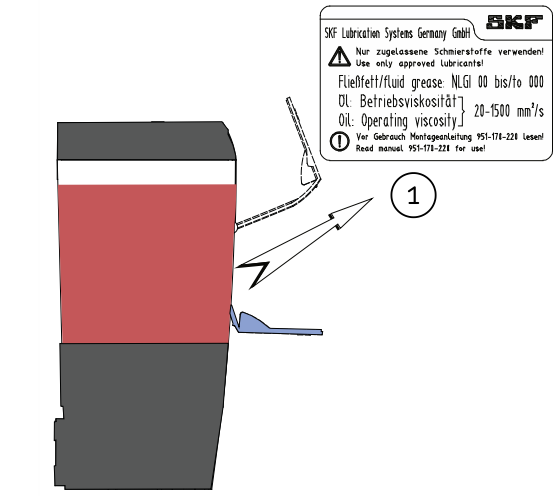
The following information label is affixed to the product. Before commissioning, check that the label is present and intact. Immediately replace the label if damaged or missing. The product must not be operated until then.

See the positioning diagram for the order number and position on the product.

NOTICE

Fill only with suitable lubricants: see section 2. Lubricants

Fig. 1



Positioning diagram for information label

Legend to Figure 1:

1 Information label

Table 2

Spare parts kit

Designation	Order No.
Flap and information label	995-901-060

No safety markings on the product

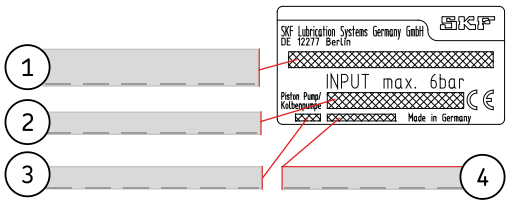
NOTE
In accordance with the results of the workstation risk assessment, additional labels (e.g., warnings, safety signs, prohibition signs, or labels in accordance with CLP/GHS) are to be attached by the operator if necessary.

1.11 Note on the type plate

The type plate provides important data such as the type designation, year/week of manufacture, and barcode.

To avoid loss of this data in case the type plate becomes illegible, these characteristics should be entered in the manual.

Fig. 2



Type plate (example)

Legend to Figure 2:
1 Type designation (order code)
2 Barcode
3 Week/year of manufacture
4 Serial number

1.12 Notes on CE marking

CE marking is effected following the requirements of the applied directives requiring a CE marking:

- 2014/30/EC Electromagnetic Compatibility
- 2011/65/EU Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS II)

1.13 Note on Low Voltage Directive

The protection objectives of the Low Voltage Directive 2014/35/EU are met in accordance with Annex I, No. 1.5.1 of the Machinery Directive 2006/42/EC.

1.14 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).

1.15 Note on UKCA marking

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

1.16 Note on EAC marking

The EAC conformity marking confirms the product's conformity with the applicable legal provisions of the Eurasian customs union.

1.17 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).

1.18 Emergency shutdown

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

1.19 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 ensure 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. Ensure 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.

1.20 First start-up, daily start-up

Ensure 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

1.21 Residual risks

Table 3

Residual risks

Residual risk	Possible in lifecycle	Avoidance / Remedy
Personnel slipping due to floor contamination with spilled or leaked lubricants	B	• Exercise caution when connecting hydraulic connections on the product • Promptly apply suitable binding agents and remove the spilled or leaked lubricant • Follow operational instructions for handling the lubricants and contaminated parts
Tearing or damage to lines when installed on moving machine components	B	Do not install on moving components. if this cannot be avoided, use flexible hose lines.
Excessive system air pressure resulting in destruction of lubrication system components	B C	Install a pressure reducer on the compressed air feed and set regulator to maximum pressure of 6 bar
Lubrication oil spraying out due to faulty component fitting, or incorrect connection of lines	B C	Tighten all components securely by hand or to the specified torques. Use hydraulic screw unions and lines suitable for the indicated pressures. These must be checked for proper connection and for damage prior to commissioning.
People slipping due to floor contamination with spilled/leaked lubricant	C E G H K	• Exercise caution when undoing or connecting the product's hydraulic connections • Promptly apply suitable binding agents and remove the leaked/spilled lubricant • Follow operational instructions for handling lubricants and contaminated parts
Environmental contamination by lubricants and wetted parts	H K	Dispose of contaminated parts according to the applicable legal and company rules

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. For the approved viscosity, see the “Technical data” chapter.

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 kelvin 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.

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.

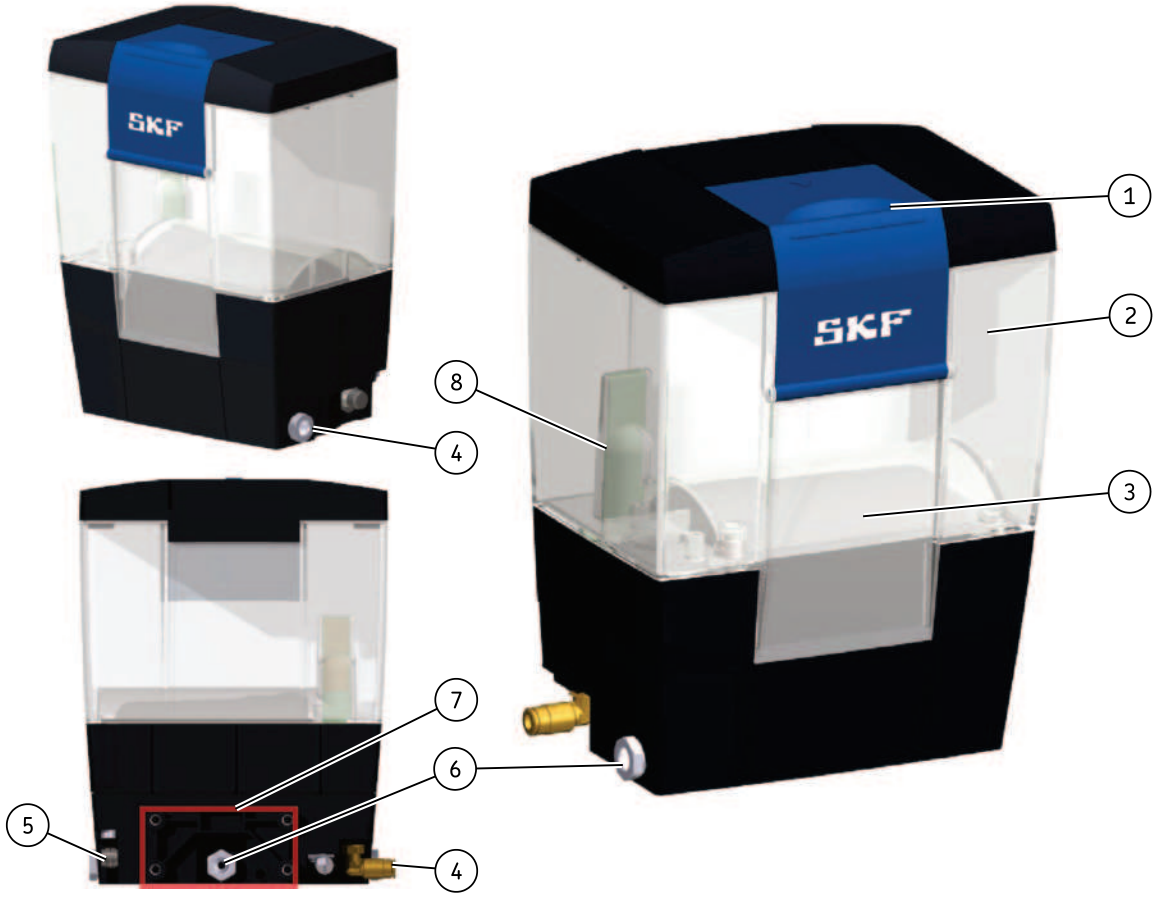
Grease guns filled with chisel paste must be permanently marked with a corresponding note.

NOTE

The use of chisel paste requires prior consultation with the SKF Product Management.

3. Overview, functional description

Fig. 3



Overview of PPS30 piston pump unit

Legend to Figure 3:
1 Filling flap
2 Reservoir
3 Pneumatic piston pump
4 Compressed air supply port
5 Connection for electrical signal
6 Lubrication line connections
7 Installation surface with M6 installation thread inserts
8 Level switch

NOTICE
Property damage
Damage due to screws that are too short or too long
Note the length of the mounting screws

3.1 General functional description

NOTE
The numbers in parentheses below refer to positions on the diagram in section 3.2 Overview of single-line centralized lubrication system

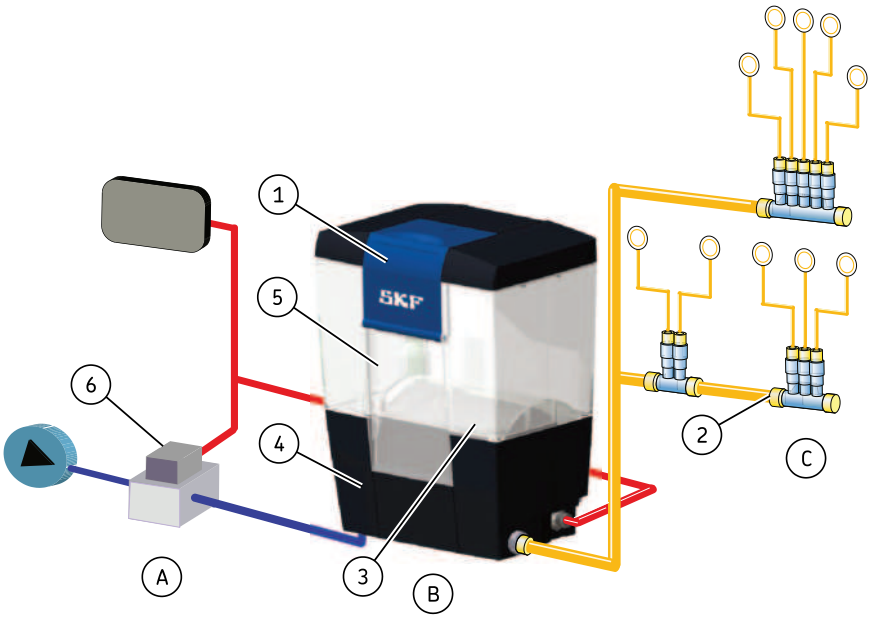
The PPS30 piston pump unit contains a pneumatic piston pump (3) with a pressure switch for system pressure monitoring, a fill level switch for "minimum fill level" pre-warning, a pressure relief valve and a lubricant reservoir (5) with an effective volume of approx. 1.5 liters.

The housing and reservoir are made on plastic, providing reduced weight compared to conventional pump units. Thanks to its compact design and easy installation, the PPS30 piston pump unit can be used to set up single-line centralized lubrication systems very easily and with little mounting effort. On the PPS30, the delivery rate of the piston is up to 30 cm^3/stroke.

However, when configuring the system, note that only about 70% of this value can be used as a metered volume (see the basic concepts of configuration for single-line centralized lubrication systems).

3.2 Overview of single-line centralized lubrication system

Fig. 4



Single-line centralized lubrication system

Legend to Figure 4:
1 Flap
2 Metering device
3 Pneumatic piston pump
4 Piston pump unit
5 Lubricant reservoir
6 3/2 directional solenoid valve
A 3/2 directional control valve
B PPS30 piston pump unit
C Single-line metering device

3.3 Functional description of single-line systems

NOTE
The numbers in parentheses below refer to positions on the diagram in section 3.2 Overview of single-line centralized lubrication system

An inlet air pressure of 4.5 to a maximum of 6 bar is present at the 3/2 directional control valve (6).

The pneumatic piston pump (3) in the pump unit is actuated once the machine control unit switches the directional solenoid valve to feed-through. This triggers a piston stroke/delivery stroke with constant lubricant delivery of up to 30 cm^3/stroke.

The hydraulic system pressure is increased due to contact resistance within the pump unit.

The lubricant is then fed to the metering devices (2) at a system pressure of approx. 20 to 30 bar depending on the inlet pressure.

An integrated pressure switch monitors the system pressure and transmits a signal to the machine control unit once system pressure rises to 16 bar.

The system pressure that has been built up meters the lubricant for each lubrication point via the downstream piston metering devices (2) and feeds it to the consuming points. In the case of prelubrication metering devices, this occurs at the same time as the pressure build-up in the lubrication line; in relubrication metering devices, it only occurs after the pressure relief procedure.

In a time slot specified by the machine control unit, the 3/2 directional solenoid valve (6) switches over (switch position "vent"), which turns off the pneumatic piston pump (3).

The pressure relief valve in the piston pump unit is used to relieve the system pressure built up during a lubrication cycle to a residual pressure of approx. 0.5 bar once the pneumatic piston pump is turned off. This is required for the operation of the metering devices.

A further signal to the machine control is sent from the lubrication level switch when the pre-warning "Minimum level" is reached. The signal serves as a pre-warning and allows for continued temporary operation until filling.

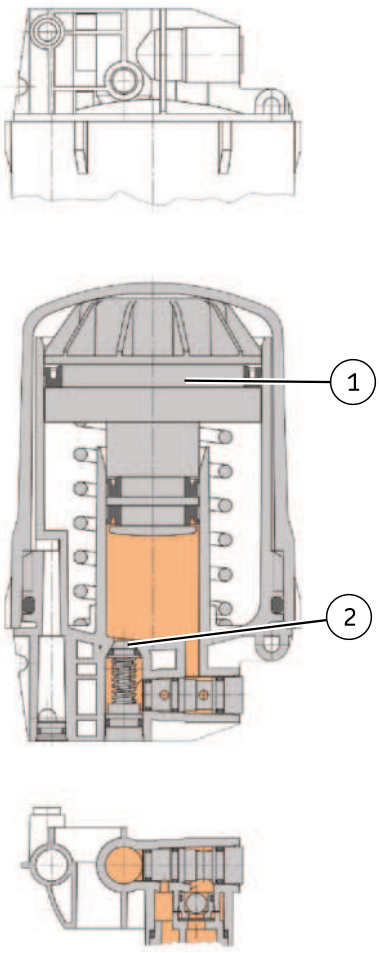
The fill connection on the reservoir is accessible via a forward-opening flap (1). It is opened by pulling forward over the upper recessed grip.

To simplify filling with fluid grease, the PPS30 is not equipped with a filler screen in the fill connection, though a strainer is integrated in the suction area of the pump. If this strainer becomes contaminated by impurities in the lubricant, the unit must be sent in to SKF. Therefore, fill using only clean, uncontaminated lubricants.

3.4 Functional description of the pneumatic piston pump

3.4.1 Time between 2 lubricating cycles

Fig. 5



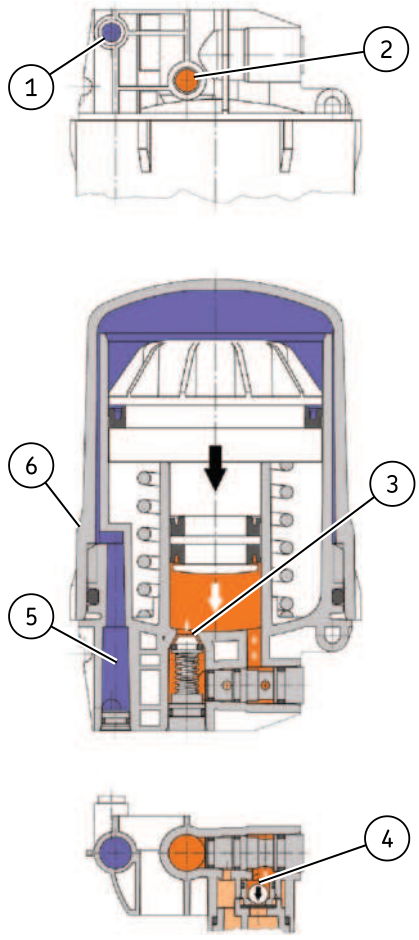
Neutral position

Legend to Figure 5:
1 Actuating piston
2 Outlet valve

The following requirements are met:
- No compressed air is applied to the PPS30
- All lubricant lines are filled
- The lubricant lines are relieved (relief pressure approx. 0.5 bar)
- The actuating piston (Fig. 5/1) is in its upper end position
- The outlet valve (Fig. 5/2) is closed

3.4.2 Start of lubrication cycle

Fig. 6



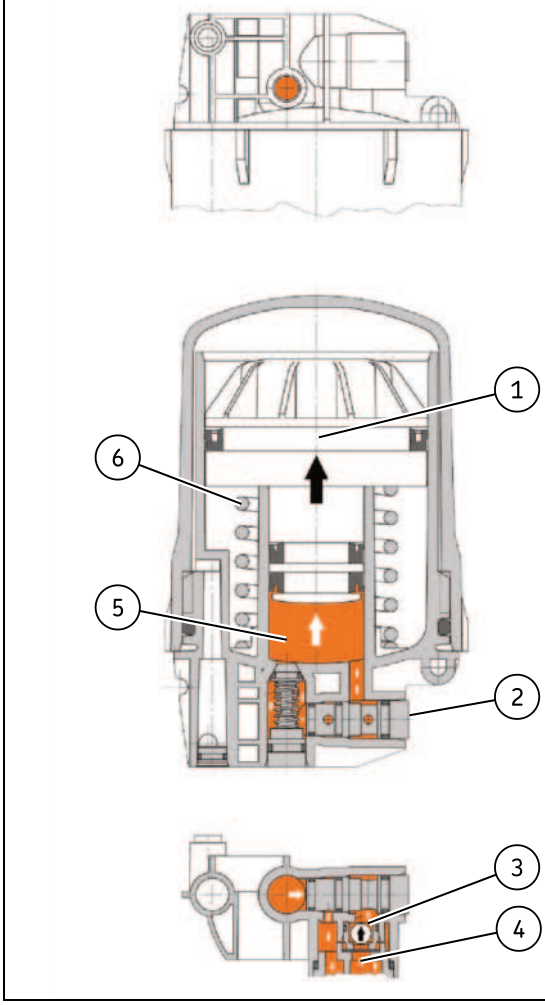
Start of lubrication cycle

Legend to Figure 6:
1 Pneumatic input
2 Pneumatic output
3 Outlet valve
4 Inlet suction valve
5 Pump body
6 Pressure cap

The compressed air is activated by the control unit/the 3/2 directional control valve (blue). It flows through the pump body (Fig. 6/3) and the pressure cap (Fig. 6/6) into the chamber above the actuating piston (Fig. 5/1), pressing the piston downward. The actuation pressure closes the inlet suction valve (Fig. 6/ 4). The lubricant is expelled via the outlet valve (Fig. 6/3) (orange). The single-line system is filled with the lubricant until pressure is equalized. The piston metering devices expel the lubricant.

3.4.3 End of lubricating cycle

Fig. 7



End of lubricating cycle

Legend to Figure 7:
1 Actuating piston
2 Pressure relief valve
3 Inlet suction valve
4 Reservoir
5 Pump body
6 Pressure spring

The compressed air is deactivated by the control unit/the 3/2 directional control valve and set to pressure relief.

The actuating piston (Fig. 7/1) is moved back to the upper end position by the pressure spring (Fig. 7/6). During the return movement, the inlet suction valve (Fig. 7/3) is opened and lubricant is suctioned from the reservoir (Fig. 7/4) and into the metering chamber of the pump body (Fig. 7/5). At the same time, pressure in the lubricant lines is relieved. The lubricant is returned to the reservoir from the lubricant lines via the pressure relief valve (Fig. 7/2). The pressure relief valve (Fig. 7/2) closes at a residual pressure of approx. 0.5 bar in the lubricant lines.

The piston metering devices in the single-line system switch over and are ready for the next lubricating cycle.

4. Technical data

4.1 General technical data

Table 4

General technical data	
Mounting position	Vertical
Ambient temperature	+ 10 °C to + 50 °C
Operating temperature	+ 10 °C to + 50 °C
Delivery rate	Up to 30 cm^3/stroke
Operating pressure	Up to 26 bar - see Figure 8
Pumped medium [1)]	Fluid greases of NLGI Grades 00 to 000 with mineral oil base, environmentally friendly base, or synthetic base, with a permissible effective dynamic viscosity of 20 to 1500 mm^2/s.
Compatible with	Plastics, NBR elastomers, copper, copper alloys
Purity of permissible compressed air	At least quality class 5 per ISO 8573-1: max. particle size/density 40 µm/10 mg/m^3; pressure dew point 7 °C; water content max. 7.800 mg/m^3; residual oil content max. 25 mg/m^3
Purity level of permissible oils	ISO 4406:1999 <= class 20/17/14 recommended degree of filtration 5 to 10 µm
Effective volume	approx. 1.5 liters
Residual pressure of residual-pressure valve	approx. 0.5 bar
Max. permissible elevation difference on main line	approx. 5 m
Weight empty	2150 g (with 3 screw unions and one banjo fitting, order code: PPS30-21W1AA3XXX)
Maximum actuating frequency	6 cycles/hour
Max. permissible loading by	Impact loading, half-sine acc. to IEC 60068-2-27 (15 g) Vibrations, sinusoidal acc. to IEC 60068-2-6 (2 g)
Enclosure rating per EN 60529	IP 54

[1)] The lubricant must not impair the fill level monitoring function due to high adhesion and/or poor flow characteristics!

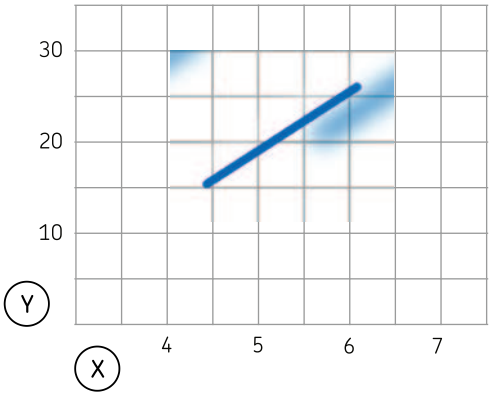
Table 5

Pressure switch	
Changeover pressure	16 ± 1 bar
Form of contact	NO contact
Switching voltage, max.	48 V DC
Switched current, max.	0.5 A

Table 6

Lubricant level switch	
Form of contact	PNP (NC)
Output current (typ.)	10 mA
Current limit (typ.)	20 mA (short-circuit proof)
Switching capacity, max.	0.6 W
Switching voltage, max.	10 to 32 V

Fig. 8



Inlet pressure/operating pressure

Legend to Figure 8:
X Inlet pressure (bar)
Y Operating pressure (bar)

Table 7

Inlet pressure/operating pressure

Inlet pressure (bar)	Operating pressure (bar)
4.5	Approx. 17
5.0	Approx. 21
5.5	Approx. 23
6.0	Approx. 26

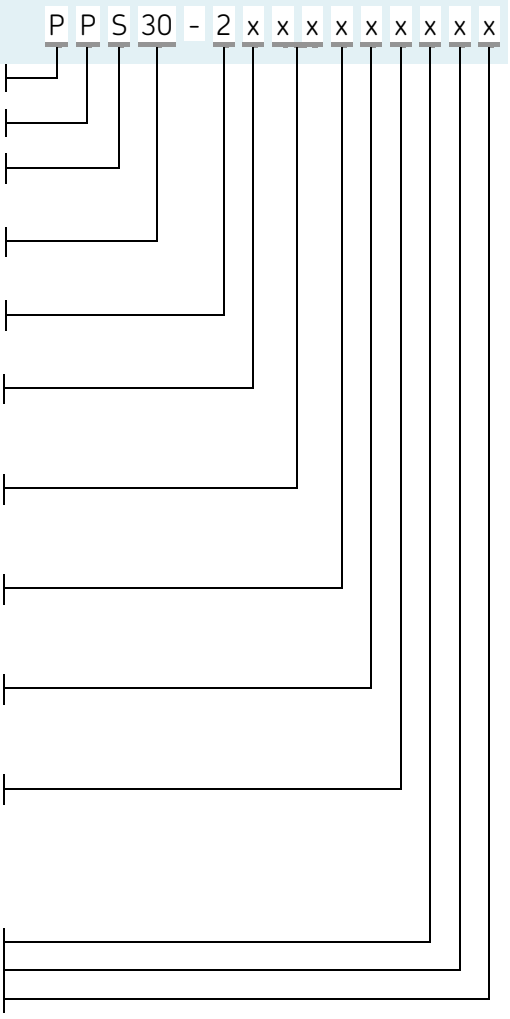
Table 8

Requirements for compressed air

Requirement	Values
Inlet pressure	Min. 4,5 bar
Continuous operating pressure	Max. 6 bar
Max. pressure peak [1])	7 bar
Required air flow per stroke	Approx. 0.2 l
Based on the compressed air quality classes defined by ISO 8573-1	
Particle content	Class 5
Maximum particle size	40 µm
Maximum particle content	10 mg/m³
Pressure dew point	Maximum: +7 °C
Oil concentration	Maximum: 25 mg/m³
Residual water	Maximum: 7.8 g/m³

[1]) In brief and isolated cases

4.2 Product code



P Pump

P Pneumatically operated

Lubricant
S Oils and fluid greases

Delivery rate
30 30 cm^3/stroke

generation
2 2. generation

Lubricant reservoir
1 1,5 liters [1)]
2 1.5 liters with oil filling strainer [3)]

Fill level switch min. (pre-warning)
W 1 with switch [1)]
x x without switch

Pressure switch
A 16 bar [1)]
x None

Electrical connection [2)]
A M12x1 plug, 4-pin [1)]
x None

Pneumatic connection
1 Pipe thread M10x1
2 Plug connector Ø 6
3 Banjo fitting Ø 6 [1)]
4 Plug connector Ø 8

Left pump side
Rear pump side
Right pump side
1 Pipe thread M10x1
2 Plug connector Ø 6 [1)]
3 Banjo fitting Ø 6
4 Plug connector Ø 8
x Closed

[1)] Order example: PPS30-21W1AA32xx
[2)] "x" is entered automatically if there is no lubricant level switch or pressure switch
[3)] The optional oil filling strainer can only be used with PPS30 pumps that were produced after September 29, 2017

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. In the case of products 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. 9

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)
- Protected against animals (insects, rodents)
- If possible, keep in the original product packaging
- Protected 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
- Ensure 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.

5.6 Declaration of decontamination

If the product came in contact with harmful substances, make sure to thoroughly clean the product before returning it to us. Due to statutory provisions and for the safety of our employees and operation facilities we further need a fully completed and signed “Declaration of decontamination”.

6. Assembly

6.1 Setup and attachment

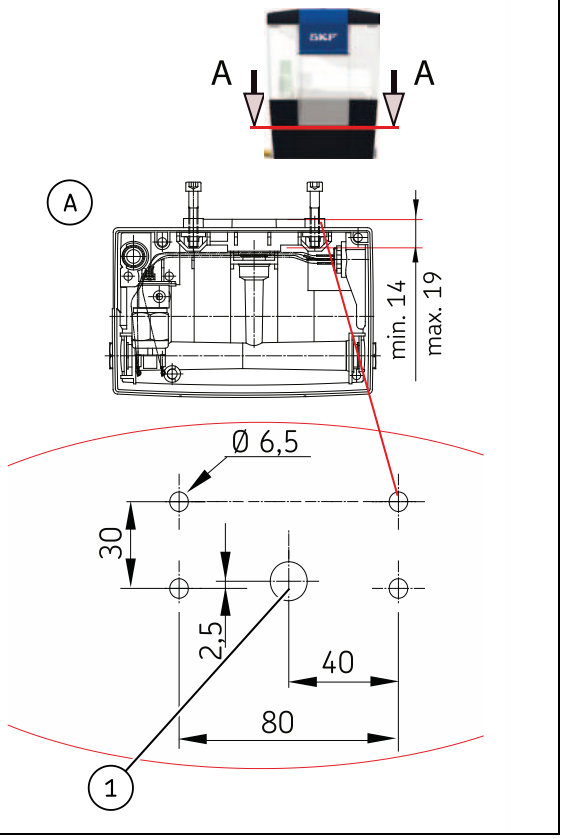
⚠ WARNING

Installation damage
Injury/damage due to incorrect installation
When drilling the assembly holes, you must be careful of any supply lines or other units, as well as of other hazards such as moving components.
Maintain safety clearances and comply with local regulations for assembly and accident prevention.

⚠ WARNING

Installation damage
Injury/damage due to incorrect installation
Drill assembly holes in such a way that no lines, units, or moving parts are damaged or their function impaired. Maintain safety clearances and comply with regulations for assembly and accident prevention.

Fig. 10



PPS30 assembly hole pattern

Legend to Figure 10:
1 Outlet on pump rear side (M10x1)
A Section A-A (without pump)

The product should be protected from humidity and vibration and should be mounted so that it is easily accessible, allowing all further installation work to be done without difficulty and allowing the piston pump unit to be filled easily later. The fill level of the reservoir should be easily visible.
The unit is mounted in a vertical position. Assembly holes must be made as shown in Figure 10. Design specifications of the manufacturer and conditions of the object must be observed when installing the piston pump unit!
For the maximum permissible ambient temperature, see "Technical data."

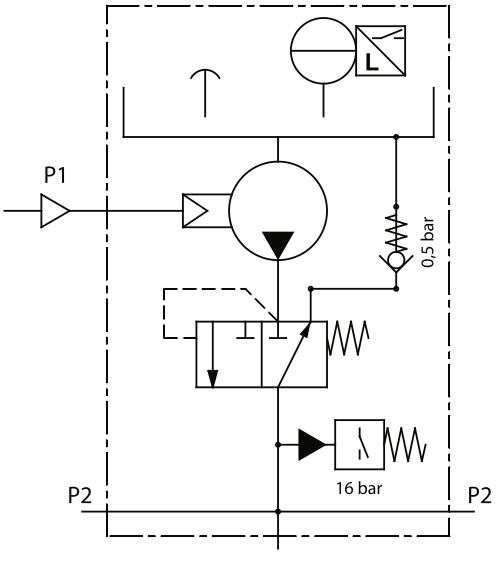
During assembly, always pay attention to the following:
- Existing supply lines must not be damaged by assembly work
- Other units must not be damaged by assembly work
- The product must not be installed within range of moving parts
- The product must be installed at an adequate distance from sources of heat
- Maintain safety clearances and comply with local regulations for installation and accident prevention
- Observe the maximum engagement length of the mounting screws (14 to 19 mm) see Fig. 10

6.1.1 Minimum mounting dimensions

To ensure enough space for maintenance work and for any disassembly of the product, be sure to comply with the minimum mounting dimensions; see section 6.8 Venting the centralized lubrication system

6.1.2 Hydraulic diagram

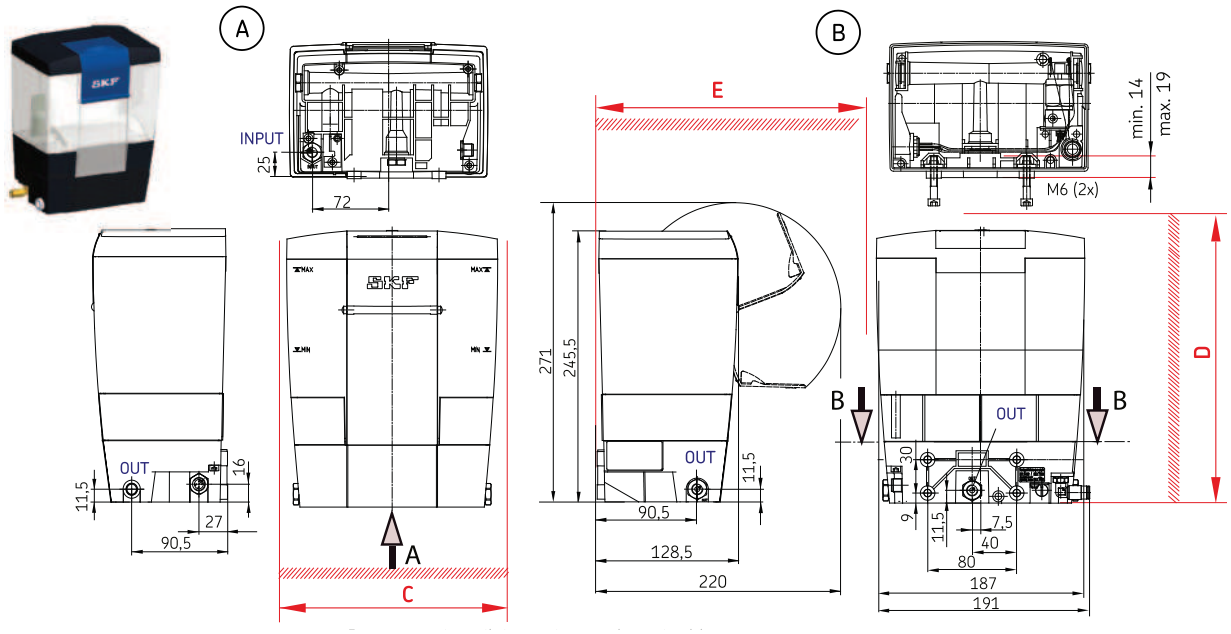
Fig. 11



Hydraulic diagram

6.2 Port dimensions, assembly holes, and minimum mounting dimensions

Fig. 12



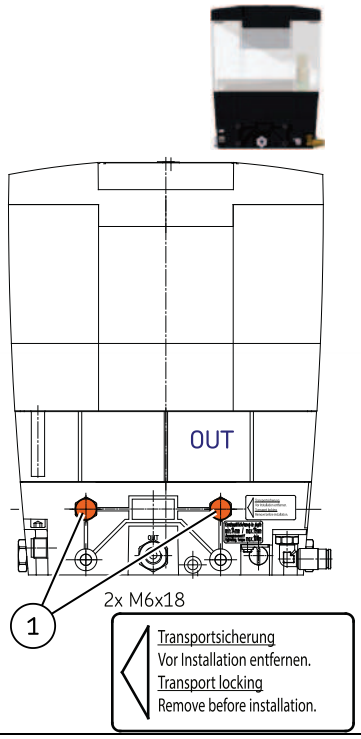
Port dimensions, assembly holes, and minimum mounting dimensions

Legend to Figure 12:
A View A
B Section B-B (without pump)
OUT Pump outlet, left, right, and rear
INPUT Compressed air connection port

Minimum mounting dimensions:
C (Width): 220 mm
D (Height) 450 mm
E (Depth) 250 mm

6.3 Installation of the product

Fig. 13



Shipping braces

1. Remove the shipping braces (Fig. 13): 2x hexagon socket screws, M6x18

The PPS30 pneumatic piston pump unit is installed using 4 screws and 4 washers

NOTICE

Installation damage

Damage due to incorrect installation

The minimum engagement depth of the mounting screws is 14 mm and the maximum engagement depth is 19 mm. The engagement depths must not be above or below these values. The total length of the mounting screws must be determined by the customer according to the particular installation conditions.

Recommended fastening hardware:

- Hexagon socket screws (4x) acc. to DIN EN ISO 4762 M6x...-8.8
- Washers (4x) acc to DIN EN ISO 7090 6-200HV

2. The customer must drill assembly holes (recommended diameter: 6.5 mm) in the mounting surface according to the assembly drawing (Fig. 13 and the figure in section 6.2 Port dimensions, assembly holes, and minimum mounting dimensions) as well as the conditions on the surface.

3. Clean the surface to remove drilling chips.

4. Place the piston pump unit on the surface and roughly align it.

5. Pass hexagon socket screws (4x) acc. to DIN EN ISO 4762 M6x...-8.8 with associated washers (4x) acc. to DIN EN ISO 7090 6-200HV through customer-provided fixing holes and apply the screws to the M6 installation thread inserts of the piston pump unit.

6. Gently tighten hexagon socket screws (4x).

7. Align the piston pump unit, then tighten the hexagon socket screws to the following torque:

Tightening torque 6 Nm.

6.4 Air supply line connection

⚠ WARNING

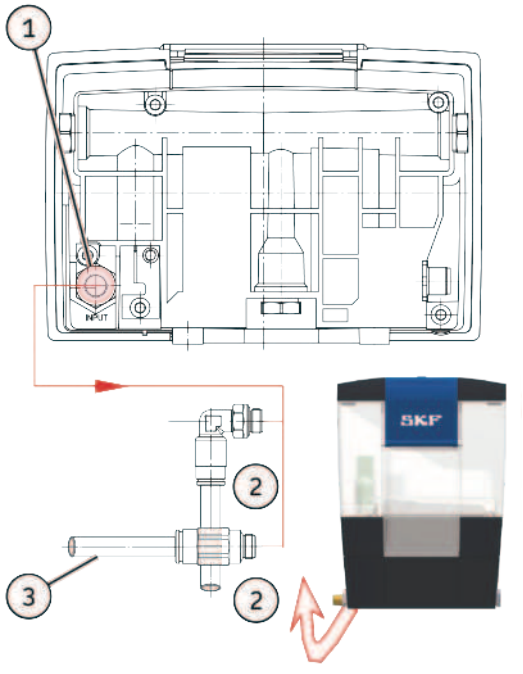
Pneumatic system pressure

Injury/damage due to excessive pressure

The fittings used for the compressed air connection should be designed for the maximum operating pressure of 6 bar.

The customer's compressed air feed must not exceed a pressure of 6 bar. Otherwise, a pressure reducer must be installed and set to a maximum pressure of 6 bar.

Fig. 14



Compressed air connection

Legend to Figure 14:

1 INPUT Compressed air connection port
2 Quick disconnect coupling
3 Compressed air hose

The compressed air must be dry and filtered. A water separator with semi-automated draining is recommended for treatment of the compressed air.
Detailed requirements for the compressed air can be found in section 4. Technical data"Requirements for compressed air".

NOTICE
Installation damage
Damage due to incorrect installation
If installing a compressed air hose with quick disconnect coupling, see the installation instructions in section 6.6 Assembly of the lubrication lines using SKF quick couplings

If quick disconnect couplings are not pre-assembled:
1. Attach the quick disconnect coupling (Fig. 14/2) for the compressed air hose to the compressed air connection on the base (M10x1). Make sure the quick disconnect coupling is positioned correctly.
Tightening torque: 3 ± 0.5 Nm

NOTICE
Installation damage
Damage due to incorrect installation
The compressed air hose must not be kinked. Avoid tight radiuses.

2. Insert the compressed air hose into the quick disconnect coupling and make sure it is correctly in place: see section 6.6 Assembly of the lubrication lines using SKF quick couplings
3. Lay the compressed air hose so that it does not come into contact with moving parts

6.5 Lubrication line connection

⚠ CAUTION

Risk of slipping and injury
Risk of slipping and injury due to lubricant coming out
Leaking lubricant is hazardous. Eliminate leaks immediately and remove leaked lubricant in accordance with company and statutory regulations.

NOTICE
Installation damage
Damage due to incorrect installation
When installing the hydraulic connection elements (e.g., quick disconnect couplings), counter the force by applying an open-end wrench (size 17 mm) to the hexagon on the corresponding lubrication line connection (see section 3. Overview, functional descriptionno. 6) on the pump.
Always connect the lubrication lines in such a way that no forces are transferred to the assembled pump (stress-free connection).

Lubricant lines made of transparent plastic are recommended so that the lubricant transport can be assessed visually.
Lubricant lines made of transparent plastic are available in rigid (unplasticized) and flexible (plasticized) designs: see section .

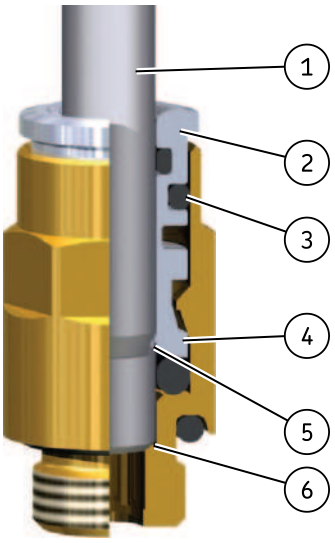
The following applies in general:
- The pipes, tubes, shutoff valves, directional control valves, fittings, etc. that will be used must be designed for the maximum operating pressure of the lubrication unit, the permissible temperatures, and the lubricants that will be fed
- All components of the lubrication line system such as pipes, hoses, shut-off valves, directional control valves, fittings, etc. must be carefully cleaned before assembly
- No seals in the lubrication line system should protrude inwards in a way that disrupts the flow of the lubricant and could allow contaminants to enter the lubrication line system
- Lubrication lines should always be arranged so that air inclusions cannot form anywhere
- Avoid changes in the cross-section of the lubrication line from small to large cross-sections in the flow direction of the lubricant
- When the cross-section does change, the transition should be gentle
- The flow of lubricant in the lubrication lines should not be impeded by the incorporation of sharp bends, angle valves, or flap valves
- Unavoidable changes in the cross-section in lubrication lines must have smooth transitions. Sudden changes of direction should be avoided if possible.

6.6 Assembly of the lubrication lines using SKF quick couplings

The SKF quick couplings are available in designs for metal pipes or plastic tubing.
With the design for metal pipes, there is a choice available between pipe versions with and without claw groove.
The claw groove securely fastens the pipe in the quick disconnect coupling, which prevents the metal pipe from slipping out of the quick disconnect coupling. The claw groove does not need to be used if appropriate fastening hardware such as pipe clamps are used to prevent the pipe from slipping out of the quick disconnect coupling.
Both versions – the one for metal pipes and the one for plastic pipes – have a locking claw. The locking claw of the collet secures the pipe in the quick disconnect coupling, which prevents the pipe from accidentally slipping out, at least in the case of the version for plastic pipes.

6.6.1 Installing the metal pipe

Fig. 15



Quick disconnect couplings for metal pipes

Legend to Figure 15:
1 Metal pipe
2 Collet
3 First O-ring
4 Locking claw
5 Claw groove
6 Mechanical stop

1. Cut the pipe to be installed (Fig. 15/1) to the correct length with a tube cutter.

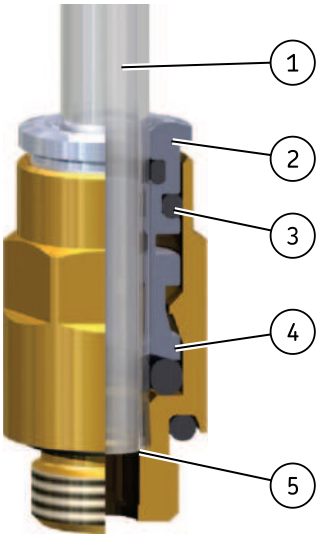
NOTE
During the following installation of the pipe, a noticeable resistance must be overcome when passing through the first O-ring (Fig. 15/3) and the locking claw (Fig. 15/4) of the collet (Fig. 15/2). If a claw groove is not used, secure the pipe using appropriate fastening hardware such as pipe clamps, to prevent the pipe from slipping out of the SKF quick disconnect coupling.

2. Insert the pipe (Fig. 15/1) fully into the collet (Fig. 15/2) of the SKF quick disconnect coupling until the pipe passes the first O-ring (Fig. 15/3) and the locking claw (Fig. 15/4) of the collet (Fig. 15/2) and it reaches the mechanical stop (Fig. 15/6).

NOTE
To remove the metal pipe (Fig. 15/1), press the collet (Fig. 15/2) inward into the SKF quick disconnect coupling. The metal pipe (Fig. 15/1) can now be pulled out of the collet (Fig. 15/2) of the SKF quick coupling.

6.6.2 Removing the plastic tube

Fig. 16



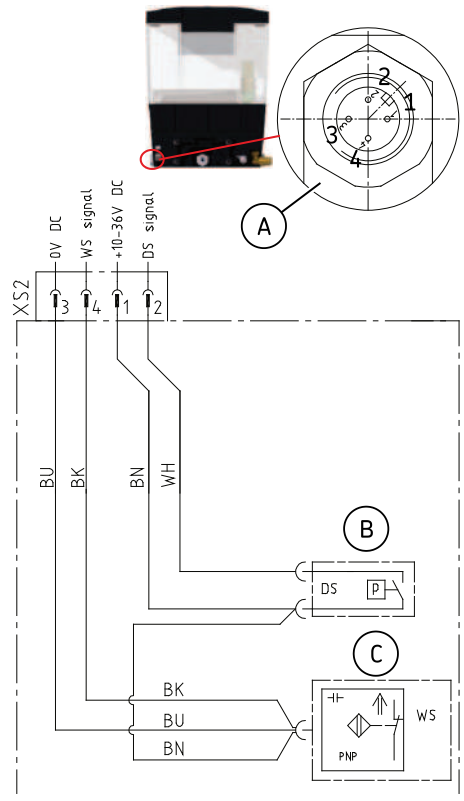
Quick disconnect couplings for plastic tubes

Legend to Figure 16:
1 Plastic tube
2 Collet
3 First O-ring
4 Locking claw
5 Mechanical stop

1. To remove the plastic tube (Fig. 16 /1), press the collet (Fig. 16/2) inward into the SKF quick disconnect coupling. While doing so, also move the plastic tube (Fig. 16/1) inward into the SKF quick disconnect coupling, which releases the collet (Fig. 16/2) from the plastic tube (Fig. 16/1).
2. The plastic tube (Fig. 16/1) can now be pulled out of the collet (Fig. 16/2) of the SKF quick disconnect coupling.
3. Before reassembling, shorten the end of the plastic pipe by at least 7 mm to ensure that the locking claw (Fig. 16/4) of the collet (Fig. 16/2) functions properly.

6.7 Connection of electrical pressure switch and fill level switch

Fig. 17

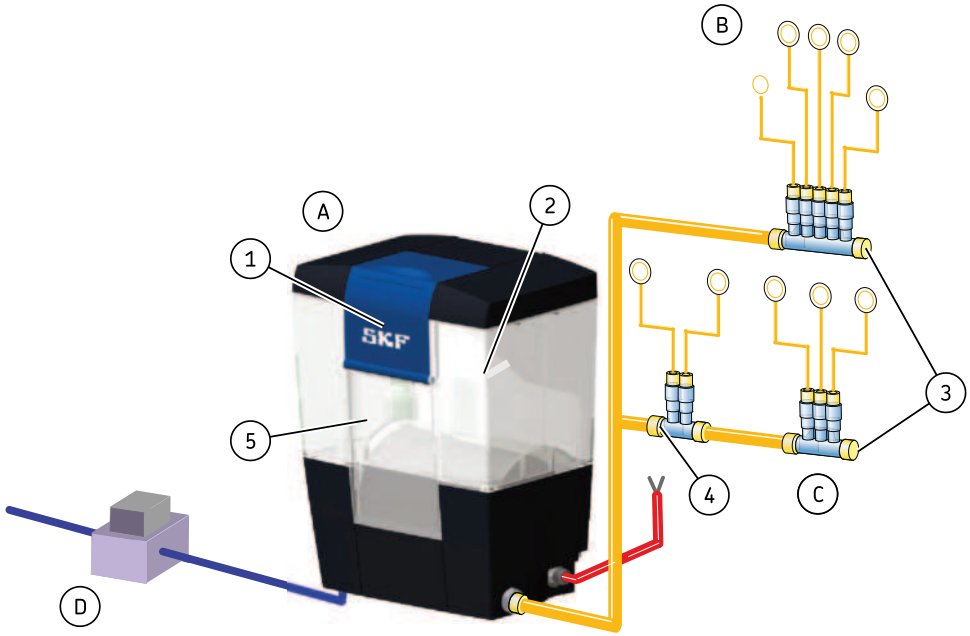


Connection of pressure switch/ fill level switch

Legend to Figure 17:
BU blue
BK black
BN brown
WH white
1 Voltage + 10-36 V DC (pressure switch)
2 Pressure switch signal (DS) (pressure switch)
3 0V voltage 0 V DC (fill level switch)
4 "Pre-warning for min. fill level" signal (lubricant level switch)
A XS2 Plug (M12x1) DIN EN IEC 60947-5-2
B Pressure switch
C Fill level switch

6.8 Venting the centralized lubrication system

Fig. 18



Single-line centralized lubrication system

Legend to Figure 18:
1 Filling flap
2 "MAX" marking
3 Ends of the main pipes
4 Inlet to the first metering device
5 PPS30 piston pump unit
A PPS30 piston pump unit
B Lubrication points
C Single-line metering device
D 3/2 directional control valve

NOTE
The numbers in parentheses below refer to positions on the diagram in section 6.8 Venting the centralized lubrication system

The process of bleeding the air from the centralized lubrication system can be facilitated by:
- Filling long pipe sections before connecting to the lubrication points
- Opening the ends of the main pipes (3) until lubricant without bubbles is discharged

Requirement
- The PPS30 piston pump unit (**5**) must already be installed as described in this chapter and the compressed air line and lubricant line must be installed as well

1. Fill PPS30 piston pump unit with lubricant to "MAX" mark (2) via the filling flap (1).

2. Remove the lubricant lines at the inlet to the first metering device (4).
3. Cycle PPS30 piston pump unit (5) until bubble-free lubricant discharges at the first metering device.
4. Mount the lubrication line.
5. Repeat the procedure at the following metering devices.
6. Allow PPS30 piston pump unit (5), to run until lubricant can be seen discharging at all lubrication points.

7. First start-up

NOTICE

Lack of lubrication

Damage due to excessively low or no lubricant

Check the lubricant level. The lubricant may only be supplied without bubbles

Before the first start-up of the piston pump unit, check the following:

- 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

In addition, before the first start-up of the piston pump unit, inspect all electrical and hydraulic connections.

The lubricant may only be fed without bubbles. The lubricant reservoir must be filled with clean lubricant without introducing bubbles.

- Fill the lubricant reservoir only using clean lubricant and an appropriate device.

If air is present in the lubrication system due to a possible leak, remedy the leak immediately and bleed the centralized lubrication system: see section 6.8 Venting the centralized lubrication system

To ensure safety and functionality, the person specified by the operator is required to perform the following inspections. Any detected deficiencies must be resolved immediately. The correction of deficiencies must be done exclusively by a specialist competent and authorized to do so.

7.1 Inspections before first start-up

Table 9

Checklist (before first start-up)

	YES	NO
Electrical connection established correctly	☐	☐
Mechanical connection established correctly	☐	☐
Pneumatic connection established correctly	☐	☐
The performance characteristics for the aforementioned connections match the specifications in the “Technical data”	☐	☐
All components, such as lubrication lines and metering devices, are correctly installed	☐	☐
No apparent damage, contamination, or corrosion	☐	☐
Any dismantled protective and monitoring equipment is fully reinstalled and functional	☐	☐

7.2 Inspections during first start-up

Table 10

Checklist (during first start-up)

	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.	☐	☐

8. Operation

8.1 General

NOTICE
Manufacturer's instructions
Damage from ignoring manufacturer's instructions
Observe the instructions from the machine manufacturer regarding the lubricants that are to be used

NOTICE
System malfunction
System malfunction due to contaminated lubricant
Only fill using clean lubricant and an appropriate device. Contaminated lubricants lead to system malfunctions. The lubricant reservoir must be filled without introducing bubbles.

NOTICE
Mixed lubricant
Damage due to mixing of different lubricants
It is recommended that a sign indicating the lubricant in use be placed over the lubricant reservoir in order to prevent accidental mixing of lubricants

NOTICE
Lack of lubricant
Damage due to excessively low or no lubricant
Check the lubricant level. The lubricant may only be supplied without bubbles

The products described here function automatically. The lubricant transport in the lubrication lines should, however, be subjected to regular visual inspection.

The lubricant level in the lubricant reservoir should be inspected visually on a regular basis. Top up the lubricant if the lubricant level is too low.

In addition, check 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

9. Maintenance and repair

⚠ WARNING

Compressed air
Injury from working on pressurized system components
The product described here is pressurized during operation. The product must therefore be depressurized before starting assembly, maintenance or repair work or any system modifications or system repairs.

NOTICE

Service life
Shortened service life due to contaminated lubricant
Only fill with clean grease. The purity of the lubricants used is the decisive factor in the service life of the pump and the lubricated machinery elements.

NOTE

Dismantling of the product or individual parts of the product within the statutory warranty period is prohibited and voids any claims

NOTE

SKF shall not be held liable for damages resulting from improperly performed assembly, maintenance, or repair work on the product.

Careful and regular maintenance is required in order to detect and remedy possible faults in time. The specific maintenance intervals must always be determined by the owner-operator according to the operating conditions and must be regularly reviewed and adapted where necessary.

9.1 Maintenance schedule

Table 11

Maintenance work

Maintenance work	Time period
Visual inspection of the lubricant level	Depending on pump cycles and system configuration
Regularly inspect system components for leaks	During each filling
Inspect electrical cables for damage	Annually
Visual inspection of bearings' lubrication	Annually

10. Cleaning

⚠ WARNING

Compressed air
Injury from working on pressurized system components
The product described here is pressurized during operation. The product must therefore be depressurized before starting assembly, maintenance or repair work or any system modifications or system repairs.

⚠ WARNING

Electric shock
Performing work on products that have not been de-energized may result in serious injury or death
Perform cleaning work only on products that have been de-energized and depressurized. Do not touch cables or electrical components with wet or moist hands.

Use steam-jet equipment or high-pressure cleaners only in accordance with the IP enclosure rating of the pump. Otherwise, electrical components may be damaged.

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.

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.

⚠ 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.

11. Faults, causes, and remedies

⚠ WARNING

Compressed air
Injury from working on pressurized system components
The product described here is pressurized during operation. The product must therefore be depressurized before starting repair work, system modifications, or system repairs.

NOTE
Dismantling of the product or individual parts of the product within the statutory warranty period is prohibited and voids any claims.

NOTE
All assembly, maintenance, and repair work beyond this scope must be performed by SKF's service department.

NOTE
Only original SKF spare parts may be used. Unauthorized alterations to products and the use of non-original spare parts and accessories are prohibited.

The following table provides an overview of possible malfunctions and their causes. Contact the SKF Service department if you cannot remedy the malfunction.

Table 12

Commissioning, product, and system malfunctions

	Cause	Remedy
Pneumatic piston pump fails to start when pneumatic valve is actuated	3/2 directional control valve is not switching to feed-through	• Check inlet pressure; 4.5 to max. 6 bar required • Check electrical connection (plug) on valve • Check operating voltage on plug, replace plug if necessary • Inspect 3/2 directional control valve, replace valve if necessary
Pneumatic piston pump is jammed	Pressure not relieved in advance	• Check the system pressure • Inspect 3/2 directional control valve, replace valve if necessary
	Piston is jamming due to resistance or faulty seal	• Check whether the metering device is jammed • Check the pressure limiting valve to make sure that its opening pressure is correct and that there is no contamination or damage. (install pressure gauge between pump outlet and main lubrication line to do so) • If resistance is high, replace the PPS30 unit
	Impermissible lubricant (see technical data)	Remove lubricant from entire system and dispose of lubricant in the proper manner; fill system with suitable lubricant

Table 12

Commissioning, product, and system malfunctions

	Cause	Remedy
Pneumatic piston pump runs with difficulty, builds up no pressure or does so very slowly	• System pressure is too low • Screw union of pneumatic feed line is defective • Impermissible lubricant (see technical data)	• Check inlet pressure: 4.5 to 6 bar required • Tighten the screw union, replace the seal if necessary • Remove the lubricant from the entire system and dispose of lubricant properly; fill system with suitable lubricant • Replace unit
No pressure relief	Impermissible lubricant (see technical data)	Remove lubricant from entire system and dispose of lubricant in the proper manner; fill system with suitable lubricant
	• 3/2 directional control valve does not switch • Pressure relief valve is jammed or defective	• Inspect 3/2 directional control valve, replace solenoid valve if necessary • Replace unit
No pressure build up in the main line	• Air in the main line • Main line leaky/broken Pump defective Suction inlet strainer is very contaminated	• Bleed the main line • Repair the main line Replace unit Replace unit

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
- Isolate the product, and lock and tag it out
- Check to ensure live voltage is no longer present
- Ground and short-circuit the product
- Cover any adjacent live parts

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.

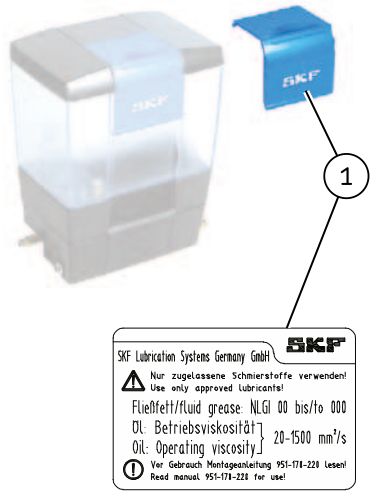
13.3 Disposal

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.

Fig. 19



Sealing flap

Table 13

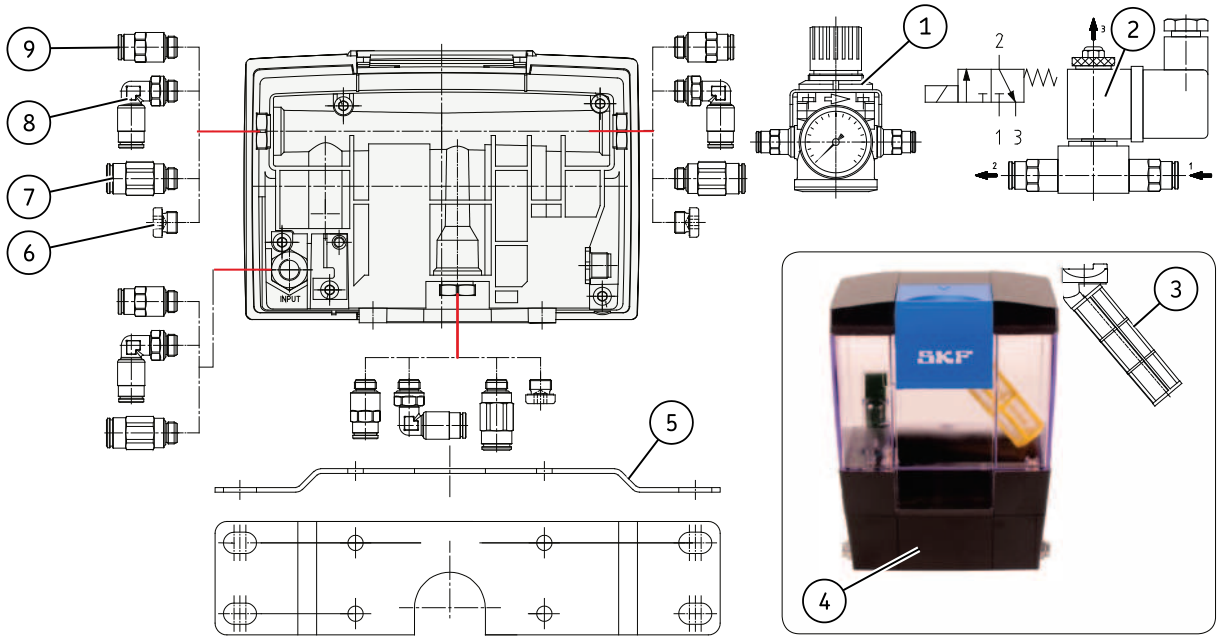
Sealing flap

No.	Designation	Weight [g/pc.]	Order No.
1	Spare part kit, flap & information label	30	995-901-060

15. Accessories

15.1 Fittings and accessories

Fig. 20



Fittings and accessories

Table 14

Fittings and accessories

No.	Designation	Weight [g/pc.]	Order No.
1	Control valve PPS30 - kit [1]	460	995-901-062
2	3/2 directional control valve PPS30 - kit [1]	180	995-901-063
3	Oil filter PPS30 [3]	16	169-400-405
4	PPS30 unit with optional built-in oil filling strainer	-	PPS30-22xxxxxxxx
5	Wall mounting PPS30 - kit [2]	160	995-901-061
6	Plug screw with packing ring [1]	7	466-431-001
7	Fitting, quick disconnect coupling for 8 mm hose diameter [1]	20	408-004-VS
8	Banjo fitting, quick disconnect coupling for 6 mm hose diameter [1]	23	506-140-VS
9	Fitting, quick disconnect coupling for 6 mm hose diameter [1]	15	406-004-VS

[1] Maximum tightening torque 3,5 Nm
[2] Maximum tightening torque 6 Nm
[3] The optional oil filling strainer can only be used with PPS30 pumps that were produced after September 29, 2017

15.2 Other accessories

Table 15

Other accessories

Designation	Order No.
Plastic tubing, unplasticized	
Ø 6 mm	WVN715-R06×1.25 [1]
Ø 8 mm	WVN715-R08×1.25 [1]
Plastic tubing, flexible (plasticized)	
Ø 6 mm	WVN716-R06×1.25 [1]
Ø 8 mm	WVN716-R08×1.25 [1]
Cable socket for electrical connection (M12x1)	
Cable socket M12x1, straight	179-990-371
Cable socket M12x1, straight with cable 5 m	179-990-600

[1] Add the desired length, e.g. 30 meters, to the order No. Order example: WVN716-R06×1.25×30M

NOTE

You can find additional technical specifications in the following leaflets:
Electric Plug and Socket Connectors Leaflet 1-1730-EN
Lubricant metering devices for SKF MonoFlex systems Leaflet 1-5001-EN
Transport of Lubricants in Centralized Lubrication Systems Leaflet 1-9201-EN

16. Appendix

16.1 China RoHS Table

Table 16

部件名称 (Part Name)	有毒害物质或元素 (Hazardous substances)					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr(VI))	多溴联苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
用钢和黄铜加工的零件 (Components made of machining steel and brass)	X	O	O	O	O	O

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.)

O：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。
(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。
(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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