CLK lubrication system

Airless oil projection system for conveyor roller chain lubrication

Date issue:	15.03.2023
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Version :	02

Read manual prior to installation or use of this product. Keep manual nearby for future 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: Oil lubrication unit for chains
Type: CLK
Item number: see nameplate
Year of construction: see nameplate

Furthermore, the following directives and standards were applied in the respective applicable areas:
2011/65/EU: RoHS II
2014/30/EU: Electromagnetic Compatibility
2014/35/EU: Low Voltage Directive

EN ISO 12100:2010	EN 809	EN IEC 63000	EN 60204-1
EN 61000-6-2	EN 61000-6-4		

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.

Saint-Cyr-sur-Loire, 02-12-2022
Laurent Aulay
Product Innovation
Manager

Manufacturer: SKF France SAS, 204 bld Charles de Gaulle, B.P. 239 FR 37540 St-Cyr-sur-Loire
Person responsible for technical file compilation: SKF France SAS, bld Charles de Gaulle, B.P. 239, 37540 St-Cyr-sur-Loire, France

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: Oil lubrication unit for chains
Type: CLK
Item number: see nameplate
Year of construction: see nameplate

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
Electrical Equipment (Safety) Regulations 2016 No. 1101
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 No. 3032

EN ISO 12100:2010	EN 809	EN IEC 63000	EN 60204-1
EN 61000-6-2	EN 61000-6-4		

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 UK legislation Supply of Machinery (Safety) Regulations 2008 No. 1597 and all other applicable Directives.

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Appendix 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 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	Partly[1)]
1.1.4	Lighting	no	
1.1.5	Design of machinery to facilitate its handling	yes	yes
1.1.6	Ergonomics	no	
1.1.7	Work place	no	
1.1.8	Seat	no	
1.2	Control systems		
1.2.1	Safety and reliability of control systems	yes	yes
1.2.2	Control devices	yes	yes
1.2.3	Starting	yes	yes
1.2.4	Stopping	yes	yes
1.2.4.1	Normal stop	yes	yes
1.2.4.2	Operational stop	yes	yes
1.2.4.3	Emergency stop	yes	yes
1.2.4.4	Assembly of machinery	yes	yes
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	Risks due to falling or ejected objects	yes	yes
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	yes	yes
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	no	
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	no	
1.5.3	Energy supply other than electricity	no	
1.5.4	Errors of fitting	yes	yes
1.5.5	Extreme temperatures	no	
1.5.6	Fire	yes	yes
1.5.7	Explosion	no	
1.5.8	Noise	yes	yes
1.5.9	Vibrations	no	
2010-05-01	Radiation	no	

Table 1

Appendix to Declaration of Incorporation

No.:	Essential health and safety requirement	Applicable:	Fulfilled:
1.5.11	External radiation	no	
1.5.12	Laser radiation	no	
1.5.13	Emissions of hazardous materials and substances	no	
1.5.14	Risk of being trapped in a machine	no	
1.5.15	Risk of slipping, tripping or falling	no	
1.5.16	Lightning	no	
1.6	Maintenance		
1.6.1	Machinery maintenance	yes	Partly[2)]
1.6.2	Access to operating positions and servicing points	yes	Partly[3)]
1.6.3	Isolation of energy sources	yes	Partly[4)]
1.6.4	Operator intervention	yes	yes
1.6.5	Cleaning of internal parts	no	
1.7	Information		
1.7.1	Information and warnings on the machinery	yes	yes
1.7.1.1	Information and information devices	yes	yes
1.7.1.2	Warning devices	yes	yes
1.7.2	Warning of residual risks	yes	yes
1.7.3	Marking of machinery	yes	yes
1.7.4	Instructions	yes	yes
1.7.4.1	General principles for the drafting of instructions	yes	yes
1.7.4.2	Contents of the instructions	yes	yes
1.7.4.3	Sales literature	yes	yes

[1)] The product is basically designed for the use of harmless media. The operator must check whether the lubricant used has certain hazardous effects (e.g. sensitization). If necessary, a retention tray may be required.

[2)] The lubrication system is installed on a chain conveyor. Therefore, setting, maintenance, repair and cleaning tasks on the lubrication system must be carried out when the conveyor is stopped.

[3)] The integrator has to ensure that the pump is integrated into the machine in such way to have a quick and safe access to control and monitoring devices of the pump.

[4)] The integrator must provide isolation devices for energy supply (electricity) to the pump.

Imprint

In accordance with the EU Machine Directive 2006/42/CE, the installation and operation instructions are an integral part of a lubrication system and must be kept close to the equipment for future reference.

The installation and operation instructions were drafted in compliance with the applicable standards and rules governing technical documentation.

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Or an SKF Service Center, the addresses of which are given on our website:

www.skf.com/lubrication

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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.
Supply of lubricant to lubrication points.
Spare parts should only be used to replace faulty components of identical construction.
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.

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. You can find this in the special system documentation.
- Instructions for other components for setting up the centralized lubrication system.
- SKF app for monitoring and setting Bluetooth-enabled SKF pumps. You can find the SKF app in the Apple App Store and the Google Play Store. Following registration, use of the app is free of charge.

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

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, it should be entered in the manual.

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 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 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.

1.16 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

2. Lubricants

2.1 General information

Lubricants are selected specifically for the respective application. The selection is made by the manufacturer or operator of the machine, preferably together with the lubricant supplier. Should you have little or no experience with the selection of lubricants for lubrication systems, please contact us. We will be pleased to support you in the selection of suitable lubricants and components for the construction of a lubrication system optimized for the respective application. Please observe the following points when selecting/using lubricants. You will avoid possible downtimes and damages to your machine or the lubrication system.

2.2 Material compatibility

Lubricants must generally be compatible with the following materials:

- Plastics: ABS, CR, FPM, NBR, NR, PA, PET, PMMA, POM, PP, PS, PTFE, PU, PUR

Metal steel, grey iron, brass, copper, aluminium

2.3 Temperature characteristics

The lubricant used must be suitable for the specific ambient temperature of the product. The viscosity required for proper operation of the product must not be exceeded in case of low temperatures nor fall below specification in case of high temperatures. Specified viscosity, see chapter Technical data.

2.4 Ageing of lubricants

Depending on the experience with the lubricant used, it should be checked at regular intervals to be determined by the operator whether the lubricant needs to be replaced due to ageing processes (bleeding). If there is any doubt as to the further suitability of the lubricant, it must be replaced before recommissioning. If you have no experience with the lubricant used, we recommend testing after only one week.

2.5 Avoidance of malfunctions and hazards

To avoid malfunctions or hazards, please observe the following:

- When handling lubricants, observe the relevant safety data sheets (SDS) and hazard designations on the packaging, if any.
- Due to the large number of additives, individual lubricants which meet the requirements for pumpability specified in the instructions may not be suitable for use in centralized lubrication systems.
- Always use SKF lubrication greases, if possible. These are optimally suited for use in lubrication systems.
- Do not mix lubricants. This may have unforeseeable effects on the characteristics and on the usability of the lubricant.
- The ignition temperature of the lubricant must lie at least 50 K over the maximum surface temperature of the components.

3. Overview, functional description

3.1 General

CLK lubrication systems have a central unit and all electrical and hydraulic components necessary to operate a lubrication system by airless oil squirt. The central unit comprises a housing with an electromagnetic pump and an integrated control unit and a reservoir. Their compact design makes it very easy to implement the CLK lubrication systems as close as possible to the lubrication points located on a moving chain.

3.2 Versions

The CLK lubrication system can be sold as a kit, mainly containing:

- CLK central unit
- squirt nozzles
- inductive proximity sensor
- lubricant lines
- etc

3.3 Construction

3.3.1 Central unit

The central unit (→ fig. 1is a compact group comprising a reservoir mounted on a pump housing.

The pump housing houses an electromagnetic pump and an integrated control unit. The control unit can be controlled and monitored from the control panel located on the housing front side. For more information on the control unit, refer to chapter 7.2 .

The unit electrical connections are located under the rear part of the housing. It comprises three connectors (power supply, proximity sensor and fault outputs). A fourth connector can be optionally added to check the lubricant level.

The hydraulic outlets (lubricant) are located on the housing side.

The reservoir, with a usable capacity of 7.5 l, is made of translucent plastic to facilitate the control of the lubricant level.

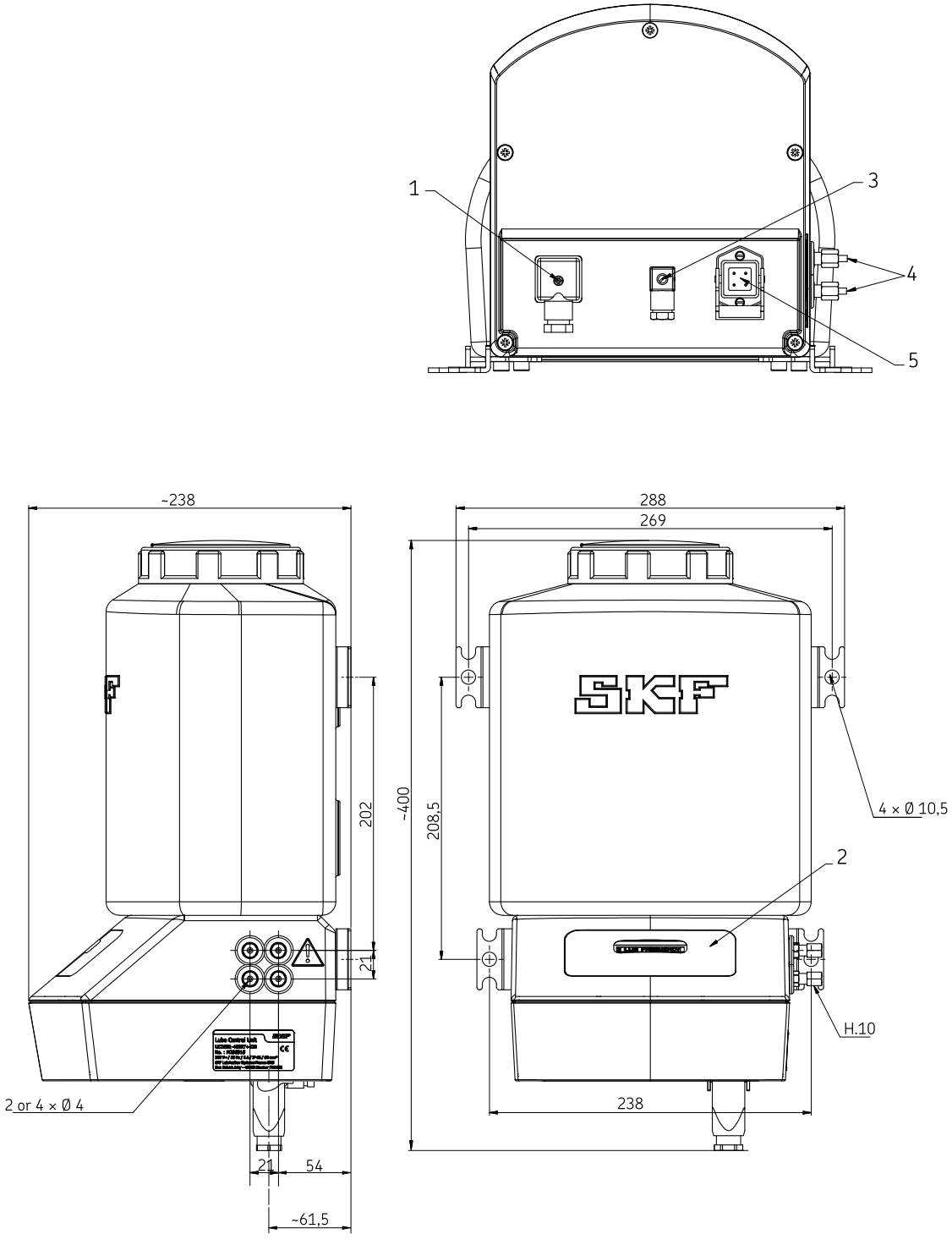
Four mounting plates, placed on the reservoir rear side (×2) and on the pump housing rear side (×2) allow the easy mounting of the central unit against a wall or the machine wall.

3.3.2 Lubrication system kits

The complete kit of the CLK lubrication system includes, in addition to the central unit, different accessory subsets:

- long pipe
- short pipe
- nozzles
- inductive proximity sensor

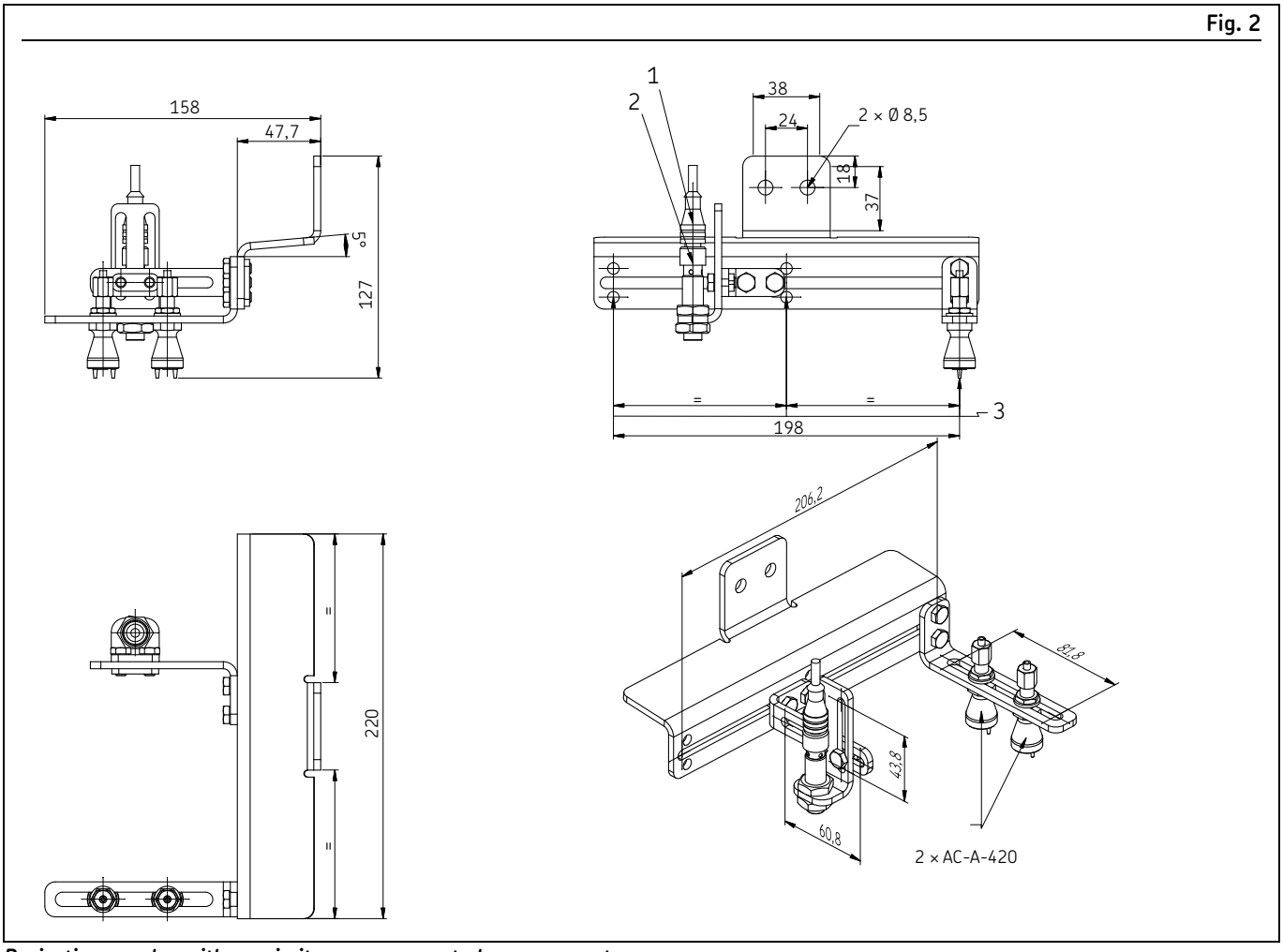
Fig. 1



CLK central unit

1 Level-contact connector (according to the version)
2 Fault output connector
3 Control panel of the control unit
4 Proximity sensor connector
5 Lubricant outlets
6 Power supply connector

Fig. 2



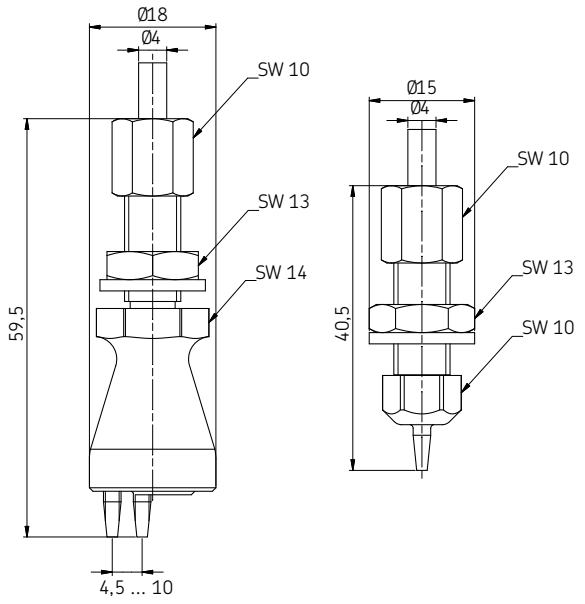
Projection nozzles with proximity sensor mounted on a support

1 Connector M12 (with 5 m cable)

2 Inductive proximity sensor

3 3 mounting positions

Fig. 3



Squirt nozzles

3.4 Function

The CLK-type lubrication systems for conveyor chains generally comprise a piston pump with electromagnetic control, an oil reservoir and a control unit. The lubricant is supplied to the lubrication points by means of squirt nozzles.

3.4.1 Oil squirt

With these systems the lubricant is squirted to the lubrication point without any mechanical contact.

Lubrication is done while the chain is moving.

For optimal oil squirt , very small amounts of oil should be squirted at a specific time on the chain lubrication point. A proximity sensor is used to accurately determine the position of the chain, the rollers and the links, and so the exact time to squirt lubricant. When the lubrication point is detected, the control unit triggers a lubrication impulse. At each lubrication impulse, the electromagnetic pump releases precise lubricant doses - 60 mm^3/pulse - which are squirted to the lubrication point.

The user sets, from the integrated control unit, the duration of the lubrication cycle. For further information, see chapter 7.2 .

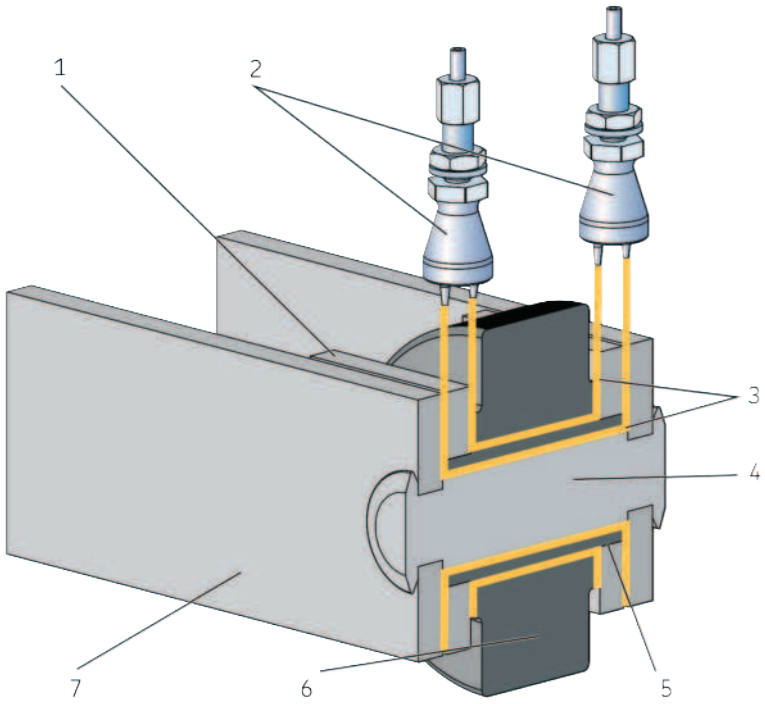
3.4.2 Capillarity

When the lubricant has reached the lubrication point, it penetrates between the different elements of the chain by capillarity. A lubricant film is formed at the friction zones. It reduces the temperature rising and therefore the part wear. In addition, it provides extra protection against external pollution, by preventing the foreign matter (dust, particles ...) to penetrate between the different parts.

Friction zones

The chains have a large number of friction zones that should be lubricated. The example below shows a sectional view of a roller chain with different parts and friction zones.

Fig. 4



Friction zone

1 Inner plate
2 Lubricant supply
3 Lubricant film
4 Pin
5 Bearing
6 Roller
7 Outer plate

3.5 Version

There are different models of the CLK lubrication system. They differ in the pump model (number of outlets, flow rate and operating voltage) and in the various accessories (nozzles, proximity switch, pipes...).

The equipment of the lubrication system is indicated on the nameplate and delivery papers. The adjacent table explains the type key.

NOTE

If a lubrication system is not listed in table please refer to the delivered technical sheet to know the specific technical data of the system. It is also possible to get some information from the SKF Service Center.

Table 2

CLK numbering system

CLK - 2 3 0 R - 1 0 0 + 4 2 8

Number of outlets
2 = 2 lubricant outlets
4 = 4 lubricant outlets

Flow rate stroke/outlet
30 = 30 mm^3
60 = 60 mm^3

Chain detection
0 = standard sensor
1 = high temperature sensor
2 = small chain sensor

Nozzle type
0 = two-outlet nozzle
1 = one-outlet nozzle

Voltage key
428 (230 V AC, 50/60 Hz)
429 (115 V AC, 50/60 Hz)

4. Technical data

Table 3

Technical data

CLK lubrication system

Pumping unit	
Flow rate	30 or 60 mm^3 / per stroke and outlet according to the model
Lubricant	mineral or synthetic oils without additive or particle
Viscosity	20 to 1 000 mm^2/s at squirt temperature
Discharge pressure	100 bar max.
Working frequency	2 strokes/s max.
Mechanical life	20 × 10^6 cycles maximum
Operating temperature	60 °C max.
Altitude	< 2,000 m
Reservoir capacity	7.5 l (usable capacity)
Level monitoring	Minimum level check
Material, reservoir	HDPE
Material, housing	ABS
Weight	approx. 12 kg (reservoir full)
Acoustic emission	≤ 70 dB (A)
Protection class	IP 65
Operating voltage	115 or 230 V AC (according to the model)
Frequency	50/60 Hz
Current	5.5 A
Network over voltage category	2 500 V
Fuse	2,5 A (T2.5AL250V)
Network type	TN
Power supply connector	24 square, female, 3 x 1.5 mm^2
Inductive proximity sensor connector	DIN43650 type C
Fault output connector	DIN43650 type A
Projection nozzle	
Type	squirt nozzle with one or two outlets
Projection	vertical, top-down
Volume	30 mm^3 / stroke and outlet
Projection distance	5 to 50 mm
Lubricant	7 to 220 mm^2/s at squirt temperature
Operating temperature	-25 to +200 °C
Off service temperature	-40 to +200 °C
Lubricant inlet	for metallic tube Ø 4 mm, length 5 m max.
Weight	approx. 50 g
Material	stainless steel 304, FPM seal for check valves
Number of nozzles	2
Accessories	holder and fittings
Inductive proximity switch	
AC-5212	
Sensor type	3 wires DC PNP, Ø 12
Output function	NO
Operating voltage	10 to 36 V DC
Nominal range	5 mm
Operating temperature	-40 to +85 °C
UCDE01-100-HT	

Table 3

Technical data

CLK lubrication system

Sensor type	3 wires DC PNP, Ø 18
Output function	NO
Operating voltage	10 to 36 V DC
Nominal range	5 mm
Operating temperature	-25 to +180 °C
AC-5145	
Sensor type	3 wires DC PNP, Ø 8
Output function	NO
Operating voltage	10 to 36 V DC
Nominal range	5 mm
Operating temperature	-25 to +70 °C

Pipe

Length	2.5 or 5 m
Diameter	4 mm thin wall
Material	stainless steel, PTFE pipe holder

*) For other viscosities, take contact with the SKF Service Center.

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. 5

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”).

6. Assembly

CAUTION

System part list

Check the integrity of the delivery before starting installation works.

⚠ WARNING

Chain in motion

All installation, setting, maintenance and repair works on the lubrication system must be carried out only when the conveyor is off duty. Working closed to a running conveyor chain may cause operator's injuries and/or important material damages.

6.1 General

The product described in the mounting instructions may only be installed, operated, maintained, and repaired by qualified experts. Qualified experts are persons who have been trained, instructed, and familiarized with the end product into which the described product is installed. These persons are considered capable of such tasks due to their education, training, and experience with valid standards, conditions, accident prevention regulations in effect, and installation conditions. They should be able to carry out the required tasks and to recognize – and thus avoid – any dangers that might otherwise occur.

Before installing/positioning the product, remove the packaging material and any transportation safety devices such as sealing plugs. Keep packaging material until any possible problems have been clarified.

⚠ CAUTION

Lubricants

Centralized lubrication systems must be absolutely leak-free. Leaking centralized lubrication systems can cause a slip hazard. When performing installation, maintenance, and repairs test the centralized lubrication system for leaks. Leaky parts of the centralized lubrication system or components of the lubrication equipment have to be sealed immediately.

Leaking centralized lubrication systems or components of the lubrication equipment are a source of danger in relation to slip hazard and the risk of injury. These dangers can cause physical injury to persons or damage to other material assets.

Refer to safety precautions in the lubricant manufacturer's material safety data sheet.

Lubricants are hazardous substance. It is essential to respect any safety instructions given in the lubricant safety data sheet. The product safety data sheet for a lubricant can be obtained from the lubricant manufacturer.

6.2 Setup

The system must be mounted in a way that protects it from humidity and vibrations. It should also be easily accessible so that all other installation work can be carried out without hindrance. Ensure that there is sufficient circulating air to prevent the system from overheating. For information on the maximum admissible ambient temperature, see the technical data section.

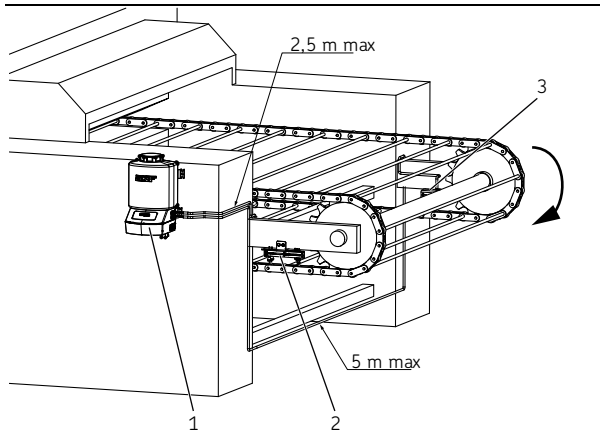
The product should be mounted vertically in accordance with documentation data.

The control panel of the control unit should be easily accessible to allow the user to control the operation of the system and to make various adjustments. The lubricant reservoir should be clearly visible to easily check the lubricant level.

The location of the lubricating system always depends on the machine configuration. However, SKF recommends to follow this instructions:

- Squirt nozzles should be placed at the starting point and above the return belt of the conveyor chain
- The line maximum length between the central unit and the squirt nozzles should not exceed 5 m.
- The connection maximum length between the central unit and the proximity sensor should not exceed 5 m.

Fig. 6



System installation

1 Central unit
2 Squirt nozzles and proximity sensor
3 Squirt nozzles

⚠ CAUTION

Temperature

The squirt nozzles and the proximity sensor operate in different temperature ranges. It is not therefore necessary to check the ambient temperature and the working temperature of the place where the nozzles and the sensor will be placed.

6.3 Assembly

During installation, and more specifically when holes should be carried out, it is mandatory to observe the following points:

- During installation, do not damage the existing lines.
- During installation, do not damage the other existing groups.
- The central unit should not be mounted in the range of moving parts.
- The central unit should be installed at a sufficient distance from heat sources (→ chapter 4.).
- It is mandatory to observe safety distances, as well as local guidelines on installation and accident prevention.
- Use existing holes if possible.
- Use washers if the holes on the holder are too large.

6.3.1 Installing the central unit

The central unit is intended to be mounted on a wall.

The central unit has four mounting plates, two on the reservoir, and two on the housing (→ fig. 7). The mounting plates are intended for M8 × 1.25 Class 8.8 (metal bracket) screws or expansion metal plugs and diameter 8 screws. Mounting is carried out in the space provided for this purpose and with the appropriate mounting material (eg screws, washers, nuts).

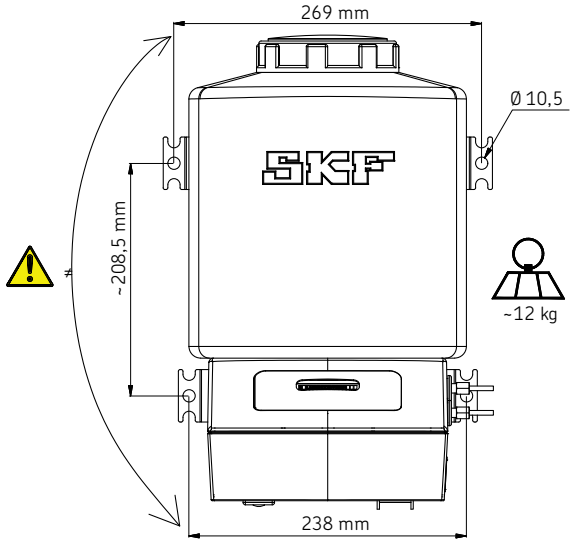
It is important to provide a free space (→ fig. 8) around the central unit to allow all installation and maintenance works, as well as the unit filling.

⚠ CAUTION

Fixing

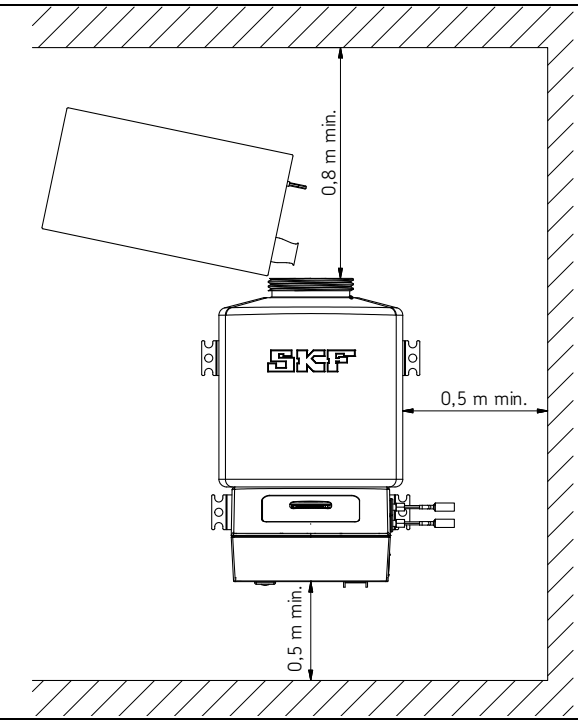
It is necessary to properly secure the lubrication system on its support to prevent any accidental system fall. A system fall may damage it or cause material damage and can also injure the operator or other people.

Fig. 7



System installation

Fig. 8



Free space

6.3.2 Nozzle assembly

CAUTION

Protection plug

Only remove the protections from the squirt nozzle heads at the last moment to avoid any damage due to installation work.

The nozzles should be placed directly above the chain rollers, at the starting point of the chain return belt (→ fig. 6). The squirt head should be placed vertically with respect to the lubrication point - i.e. the friction zone between two roller elements (→ fig. 9). In the case where the two squirt heads of the nozzle are not perfectly aligned, it is possible to adjust the gap between them.

CAUTION

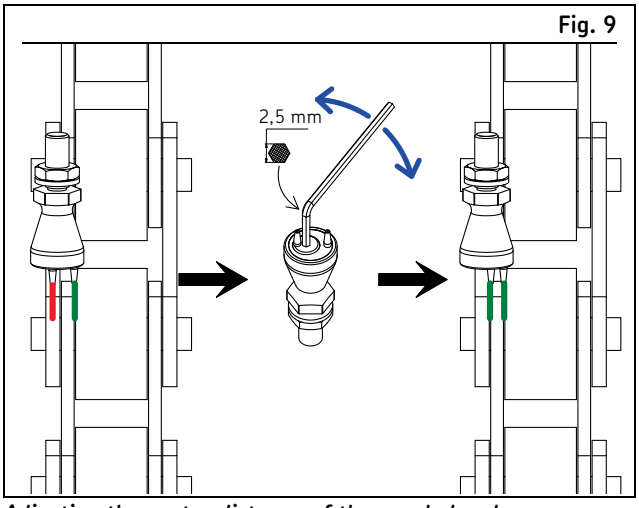
Nozzle positions

The nozzles should be perfectly vertical to the chain rollers. It is also mandatory to observe the installation distances of the nozzles.

6.3.2.1 Nozzle adjustment

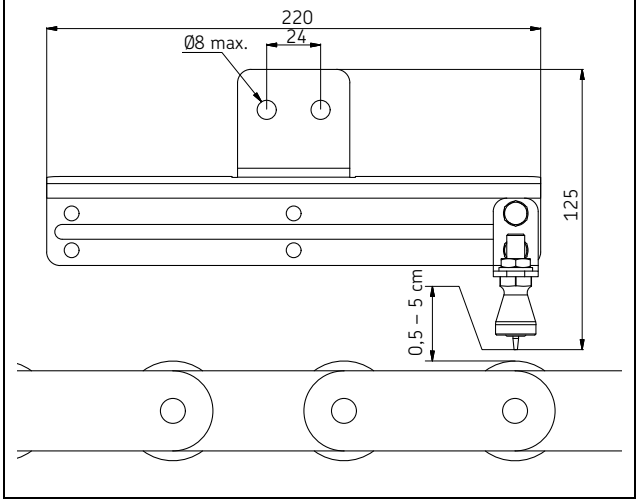
The center distance between the two spay heads of a nozzle is min 4.5 mm and max 10 mm. The nozzle heads should be perfectly vertical to the lubrication points (→ fig. 10). Depending on the chain roller configuration, you can adjust mechanically the center distance between the nozzle heads by means of a 2,5 mm hexagonal wrench (→ fig. 9).

Fig. 9



Adjusting the center distance of the nozzle heads

Fig. 10



Nozzles and nozzle support

6.3.2.2 Fixing of nozzles

To mount the squirt nozzles, you can use the support provided for this purpose (→ fig. 10). Once the support is mounted, it is only possible to adjust horizontally the squirt nozzle position. SKF recommends therefore to simulate the nozzle positioning with respect to the chain before mounting the support.

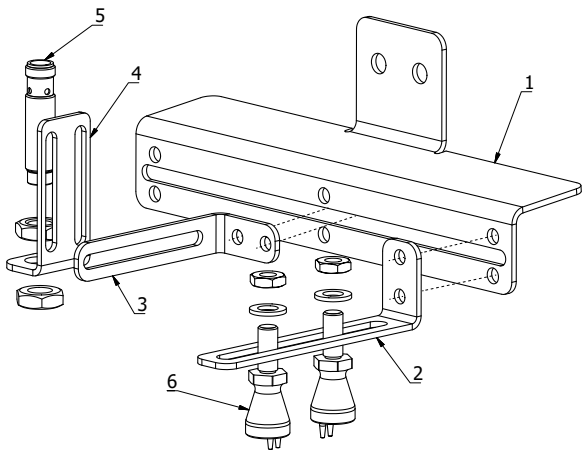
1. Install and fix the support (fig. 11/1). Depending on the chain configuration, the support can be fixed in two different ways (→ fig. 12).
2. Place and secure the nozzles bracket (fig. 11/2) (three possible positions) (→ fig. 11). Observe the distances
3. Insert the nozzles (fig. 11/6) in the bracket slot from below
4. Insert and slightly tighten the washer and the nut
5. Adjust the nozzle position by sliding them along the slot
6. Tighten the nut

⚠ CAUTION

Chain in motion

The chain to be lubricated is moving during the process. It is therefore important to follow the installation distances to avoid any mechanical damage to the squirt nozzles.

Fig. 11



Proximity sensor and sensor support

Fig. 12

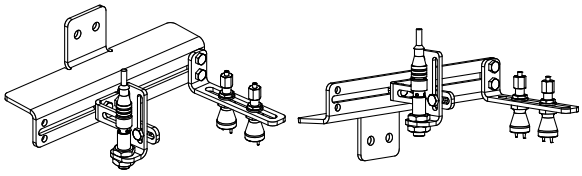
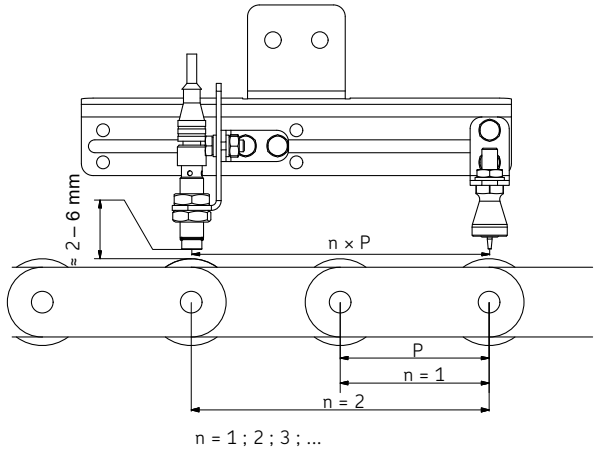


Fig. 13



Proximity switch distance

6.3.3 Mounting proximity switch

The proximity sensor is mounted on the same support as the nozzles. SKF recommends to place the proximity sensor before the squirt nozzle relative to the chain travel direction.

CAUTION

Mounting distance

It is necessary to observe the installation distances of the proximity sensor.

1. Mount the sensor (fig. 11/5+4) on the bracket (fig. 11/3) with the nut and the lock nut
2. Mount bracket on support (fig. 11/1)
3. Adjust the proximity switch horizontal and vertical position (→ fig. 13). It must be vertical with respect to a lubrication point
4. Pay attention to the rated sensing range of the proximity switch (→ chapter 4.).

6.4 Hydraulic connections

The lubrication line should be connected to the central unit so that no force can be transmitted to the unit once installed (no pressure on the connection).

⚠ CAUTION

Pressure

The connectors and accessories used to connect the lubricant line must be compatible with the pump's maximum service pressure.

CAUTION

Pipe length

The maximum pipe length between the central unit and the nozzles is 5 m. For a superior length, contact the SKF Service Center.

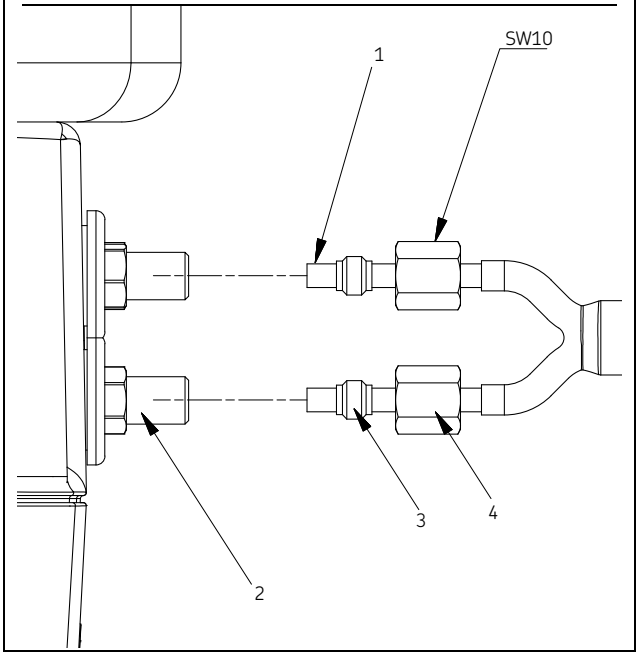
6.4.1 Central unit outlets

The central unit is equipped with two to four lubricant outputs depending on the model. These outputs are located on the housing side. The connection is made by crimp ring fittings for stainless steel pipes with an outer diameter of 4 mm (→ fig. 14).

6.4.2 Nozzles

Nozzles (→ fig. 15) are connected with crimp ring fittings for stainless steel pipes OD. 4 mm.

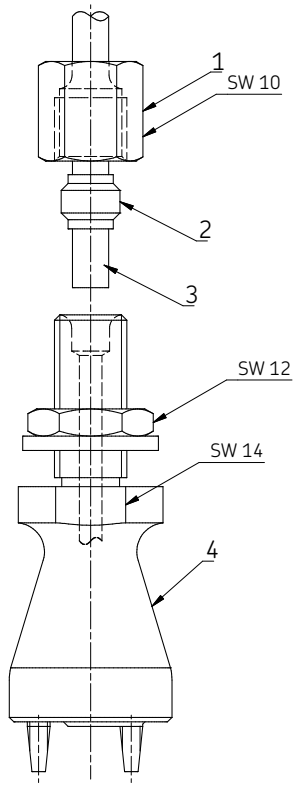
Fig. 14



Central unit output connection

1 Stainless steel pipe Ø 4 mm
2 Central unit output
3 Double tapered sleeve
4 Union nut

Fig. 15



Nozzle connection

1 M8×1
2 Double tapered sleeve
3 Pipe outer Ø 4 mm
4 Squirt nozzle

6.5 Electrical connection

⚠ WARNING

Electrical connection

Only qualified, instructed specialists who are authorized by the operator may install the electrical connections for the lubrication unit. The connection conditions and the local regulations (eg DIN, VDE) must be scrupulously respected. If systems are improperly connected, substantial material or personal damage my be the consequence.

⚠ CAUTION

Voltage

The supply voltage on site must agree with the information on the codification of the lubrication unit. Check the fusing of the circuit. Use only original fuse with the required ampere value. If other fuses are used, damage to property of personal injury may be the consequence.

NOTE

For the product-specific electric data see the relevant documentation. If you do not have access to this documentation, you can request it directly from SKF.

Three different items have to be electrically connected to the central unit:

- power supply connector (→ fig. 16/3)
- proximity switch connector (→ fig. 16/2)
- default output connector (→ fig. 16/1)

Fig. 16

CLK electrical connection

6.5.1 Power supply

The power supply of the CLK central unit is 230 V~, 50/60 Hz (voltage key + 428) or 115 V~, 50/60 Hz (voltage key + 429).

For the pin assignment on the power supply connector, see table 4.

6.5.2 Fault output

The user can connect the fault output to an external light signal or to its control panel. The user can therefore get more easily the fault information.

For pin assignment on the fault output connector, see table 5.

6.5.3 Proximity switch

An inductive proximity sensor is placed at the chain. It detects the passage of the lubrication points. When the system is in lubrication phase, the sensor sends a signal to the control unit each time it detects a lubrication point. The control unit triggers an lubrication impulse.

For pin assignment on the proximity switch connector, see table 6.

Table 4

Power supply connector pins

Pin	Description
1	L – phase
2	N – neutral
GND	GND – grounding

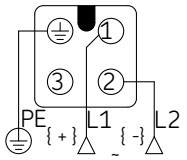


Table 5

Default output connector pins

Pin	Description
1	NO – closing contact
2	NC – opening contact
3	common

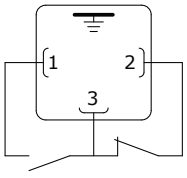
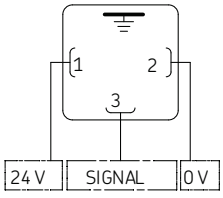


Table 6

Proximity switch connector pins

Pin	Description	Wire color
1	24 V	brown
2	0 V	blue
3	Signal	black



7. First start-up

7.1 Inspections prior to commissioning

The operator must carry out the following inspections before commissioning the lubrication system. If a problem appears during inspection, appropriate corrective measures must be taken before commissioning.

Table 7

Prior inspections

Monitoring	yes	no	Chapter
The unit is correctly installed	☐	☐	6.
Air inlet line correctly connected	☐	☐	6.5
Oil inlet line correctly connected	☐	☐	4.
or			
Oil reservoir is full	☐	☐	4.
Electric connections carried out correctly	☐	☐	6.5
Bifluid hoses are correctly connected to the unit outlets	☐	☐	6.4.1
Air inlet pressure meet the specification of the technical data	☐	☐	4.
Transported oil meet the specification of the technical data	☐	☐	4.

⚠ CAUTION

Only use a clean lubricant. Soiled lubricants can cause major defects in the system.

⚠ CAUTION

Different lubricants must not be mixed together. Doing so can cause damage and require extensive cleaning of the lubrication unit. To prevent any risk of error, it is recommended to clearly identify the lubricant used on the reservoir.

CAUTION!

Depending on the nature of the lubricant used, the user should wear protective equipment such as glasses, a mask and gloves. For further information please consult the technical file and the safety data sheet for the lubricant used.

7.2 Control unit

The UCDE central unit features an integrated command and control unit. The main function of this unit is to trigger a lubrication impulse upon reception of a signal from the proximity sensor placed on the chain to be lubricated.

7.2.1 Interface

The command and control unit features an easy-to-use interface in front of the UCDE unit housing (→ fig. 17). This interface includes:

- a 2 × 16 digit screen
- four buttons (→ table 8)
- a LED (default)

Table 8

Buttons on the control unit

Button	Description
	Manual start of the lubrication / stop of the lubrication in progress
	Navigation or increment
	Navigation or decrement
OK	Validation / access to a parameter for modification (press ca. 5 s)

Fig. 17

User interface

7.2.2 Menus on the control unit

The control unit software has seven main menus. These menus are numbered for easy identification.

1 Display: real-time display of the lubrication status
2 Lubrication: configuration of lubrication mode (cyclic, semi-automatic or continuous) and cycle time in case of cyclic lubrication (can be changed by user).
3 Number of axes: configuration of number of axes to be lubricated on the chain for each lubrication cycle (can be changed by user)
4 Lubrication ratio: lubrication frequency according to lubrication points
5 Pump control: pump control setting
6 Fine adjustment: adjustment of the squirt position relative to the chain
7 Draining: lubrication circuit draining
8 Status of inputs and outputs
9 Languages: selection of the control unit interface language

To move from one menu to another, press the navigation buttons.

7.2.3 Parameters

The control unit allows you to adjust various parameters.

7.2.3.1 Lubrication

The lubrication parameter allows to adjust the lubrication system mode: cyclic, semi-automatic or continuous. In case of cyclic lubrication, you should set a time corresponding to the time between two lubrication cycle start-ups. The cycle includes the lubrication phase, determined by the number of axes of the chain (→ chapter 7.2.3.2), followed by the pause phase. The minimum cycle time is 0 h 01 min, and the maximum cycle time is 999 h 59. The default set value is 0 h 01 min.

Table 9

Lubrication, menu 2

Screen	Description
	• Go to menu 2 *Lubrication* with ← and → • Enter the menu by pressing for 5 seconds **OK**
  	• Select the lubrication mode with ← and → – Continuous* – Semi-automatic* – Cyclic If you select cyclic lubrication, it is necessary to set the cycle time with the same keys. The minimum cycle time is 0 h 01 min, and the maximum cycle time is 999 h 59. *) To access the Continuous and Semi-automatic parameters, you have to lower the time to 0 h 01 min • Confirm and go back to menu 2 *Lubrication* by pressing **OK**

Lubrication cycle
A lubrication cycle consists of a lubrication phase, during which lubrication points are lubricated, followed by a pause phase. There are two parameters to be set: the duration of the lubrication cycle in time and the number of chain roller to be lubricated during the lubrication phase. The length of the pause phase depends on the total number of lubrication points and the duration of the lubrication cycle.

Semi automatic lubrication
The user manually triggers the lubrication phase. This phase corresponds to the number of lubrication points set by the user. Once the last point has been lubricated, the lubrication phase is done and the system stops. The user can trigger another lubrication phase whenever necessary.

Continuous lubrication
All lubrication points are continuously lubricated as long as the chain is running and the lubrication system is powered.

7.2.3.2 Number of pins:

The pin number parameter allows to set the number of lubrication points to be lubricated during a lubrication cycle. The minimum number of points is 0, and the maximum number of points is 9,999. The default value is 100.

Table 10

Number of axes, menu 3

Screen	Description
	• Go to menu 3 *Number of axes* with ← and → • Enter the menu by pressing for 5 seconds **OK**
	• Set the number of axes with ← and → The minimum number of points is 0, and the maximum number of points is 9,999. *) To access the Continuous and Semi-automatic parameters, you have to lower the time to 0 h 01 min • Confirm and go back to menu 3 *Number of axes* by pressing **OK**

7.2.3.3 Lubrication ratio

The lubrication ratio parameter allows to set the lubrication frequency according to the lubrication points. If it is no possible to lubricate all lubrication points in a row because of the chain speed, it is then possible to lubricate every n points.
The default value of n is 1 (factory setting).

Table 11

Lubrication ratio

Screen	Description
	•Go to menu 4 *Pitch jump* with ← and → • Enter the menu by pressing for 5 seconds **OK**
	• Set pitch jump with ← and → • Confirm and go back to menu 4 *Pitch jump* by pressing **OK**

NOTE
The total number of lubrication points cannot be a multiple of the lubrication ratio value.
If you need some held to determine the best lubrication ratio value for your chain, please contact the SKF Service Center.

7.2.3.4 Actuation

Lubrication impulse triggering when the lubrication point is detected.

Lubrication impulse can be triggered straight – DIRECT – when control unit receives the signal from proximity switch (factory setting). This solution suits to chain with constant speed or with frequent stops. With this mode it may be necessary to adjust mechanically the proximity switch or nozzle(s) position to balance the system response time.

The lubrication impulse triggering can be adjusted automatically – ADAPTIVE – after reception of the proximity switch signal. Reception times of previous proximity switch signals are taken into account. This solution suits to chains with variable speed or with very few stops.

Table 12

Pump control, menu 5

Screen	Description
	• Go to menu 5 *Pump control* with ← and → • Enter the menu by pressing for 5 seconds **OK**
	• Select the control mode with ← and → • Confirm and go back to menu 5 *Pump control* by pressing **OK**

7.2.3.5 Fine adjustment – Nozzle position

The user can adjust the position of the nozzles relative to the lubrication points, without mechanical intervention. To do so, the user increases or decreases the lubrication signal advance in order to refine the accuracy of the squirt impact.

NOTE
This setting is only possible when in the previous menu PUMP CONTRAL the parameter ADAPTIVE has been selected.
In the contrary, the menu is locked and cannot be modified.

Table 13

Fine adjustment, menu 6

Screen	Description
	• Go to menu 6 *Fine adjustment* with ← and → • Enter the menu by pressing for 5 seconds **OK**
	• Increase or decrease advance of the impact location on chain with ← and → • Confirm and go back to menu 6 *Fine adjustment* by pressing **OK**

7.2.3.6 Languages

The user can select the language of the control unit interface.
Three languages are available: English, French and German.

7.3 Bleeding

It is essential to bleed (lubrication line filling) the system before commissioning and after works carried out on the lubrication lines.

You should start bleeding from the control unit. To facilitate bleeding, it is recommended to initially bleed without nozzles.

At the beginning of the bleeding phase, the lubrication system is off

1. If the nozzles are already connected to the lubrication system, remove the fittings to separate nozzles from the system
2. Switch the central unit on
3. Start draining following the procedure described in table 14
4. Once the lubricant comes out from all lines with no air bubbles, stop bleeding
5. Turn the system off
6. Connect the nozzles to the lines
7. Turn the lubrication system on again
8. Restart bleeding until lubricant comes out from all nozzles with no air bubbles.

CAUTION

Pipe length

Pipes have not the same length. The duration of the bleeding phase can vary. SKF estimates the bleeding lasts ca. 5 min for the 5 m long lubrication line, i.e. 1 m/min average

Table 14

Draining, menu 7

Screen	Description
	• Go to menu 9 *Bleeding* with ← and → • Start bleeding by pressing for 5 seconds **OK**
	• Stop draining by pressing **OK**

8. Operation

Once the CLK lubrication system is on, the lubrication process starts according to user configuration.

The user can follow the progress of the lubrication process at any time by reading the messages displayed on the central unit (→ table 15).

⚠ WARNING

Risk of fire

Do not squirt lubricant in direction of an incandescent/hot body or any other potential inflammation source.

⚠ CAUTION

Only use a clean lubricant. Soiled lubricants can cause major defects in the system.

⚠ CAUTION

Different lubricants must not be mixed together. Doing so can cause damage and require extensive cleaning of the lubrication unit. To prevent any risk of error, it is recommended to clearly identify the lubricant used on the reservoir.

CAUTION!

Depending on the nature of the lubricant used, the user should wear protective equipment such as glasses, a mask and gloves. For further information please consult the technical file and the safety data sheet for the lubricant used.

⚠ WARNING

Risk of fire

Do not squirt lubricant in direction of an incandescent/hot body or any other potential inflammation source.

⚠ WARNING

Risk of contamination

Do not squirt lubricant in direction of a person.

Table 15

Display, menu 1

Screen	Description
	• The lubrication system is operating in cyclic mode. Lubrication phase is in progress. – 0357 = number of axes lubricated – 3000 = number of axes to be lubricated – 000h08 = time elapsed since the beginning of the lubrication cycle
	• The lubrication system is operating in cyclic mode. Pause phase is in progress. – 000h00 = pause time elapsed – 000h30 = pause time remaining
	• The lubrication system is operating in semi-automatic mode. Lubrication phase is in progress. – 0003 = number of axes lubricated – 3000 = number of axes to be lubricated
	• The lubrication system is operating in semi-automatic mode. Lubrication phase is completed. – 000h35 = time elapsed since the lubrication of the first axis
	• The lubrication system is operating in continuous mode. Lubrication phase is in progress. – 0006 = number of axes lubricated – 3000 = number of axes to be lubricated (loop counting)

8.1.1 Lubricant filling

1. Clean the filling cap before removing it
2. Remove the reservoir cap and fill up with an appropriate lubricant.
3. Put back the reservoir cap.

⚠ CAUTION

Unsuitable lubricant

Only authorized lubricants for the pump type may be supplied. Unsuitable lubricants may cause the unit to fail and lead to serious material damage and bodily injury.

⚠ CAUTION

Air

Ensure the reservoir is filled with lubricant that does not contain air bubbles.

⚠ CAUTION

Pollution

If the ambient air is polluted, set aside a clean zone to fill the system and thereby prevent foreign bodies from entering. It is also important to clean the reservoir cover or the filler plugs before removing them.

9. Maintenance and repair

⚠ WARNING

Voltage

Working on products that have not been disconnected from the power supply can cause serious injury or death to persons. Installation, maintenance, and repair work may only be carried out by qualified experts on a product that is not connected to a power supply. The supply voltage must be turned off before any product components are opened.

⚠ WARNING

Pressure

The lubrication system may be under pressure. Centralized lubrication systems must therefore be depressurized before starting installation, maintenance, or repair work and before making any changes to the system.

⚠ CAUTION

Connector temperature

Connectors are heating up when they are in service. Therefore they must first cool down when they are switched off before being manipulated.

CAUTION

Personal protective equipment

Any person involved in maintenance works must wear appropriate personal protective equipment (eg gloves).

CAUTION

You must not dismantle the product or parts of the product during the warranty period. Doing so invalidates all warranty claims.

All other work relating to installation, maintenance, and repair must only be carried out by SKF Service.

Only original SKF spare parts may be used. It is prohibited for the operator to make alterations to the product or to use non original spare parts and resources.

Lubrication units are for the most part maintenance free. To ensure they work properly, however, please regularly check the following:

- If there is no monitoring device on the lines and after longer operation (max. 6 months), check the good function of the pump.
- Regularly check the level of lubricant in the reservoir and, if necessary refill the reservoir.
- Check the system regularly for external damages and leaks.
- All electrical connections and lines must be checked regularly for damage and to ensure that they are firmly in place.
- Any faults found must be properly rectified before the system is activated again.

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.

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 17gives an overview of possible malfunctions and their causes. If you are unable to rectify the malfunction, please contact SKF Service Center.

CAUTION

You must not dismantle the product or parts of the product during the warranty period. Doing so invalidates all warranty claims.
All other work relating to installation, maintenance, and repair must only be carried out by SKF Service.
Only original SKF spare parts may be used. It is prohibited for the operator to make alterations to the product or to use non original spare parts and resources.

Table 16

Failure analysis and remedy

Screen	Possible cause	Solution
LOW OIL LEVEL	Not enough oil in the reservoir	Fill up the reservoir
SENSOR FAULT	Damaged sensor Disconnected connector Cut or damaged cable Wrong sensor used	Replace the sensor Reconnect the connector Repair or replace the cable Use only SKF-provided sensors
	Note : if the proximity switch sends no signal after 5 minutes a failure signal is sent.	
CONTINUOUS OFF	Lubrication stopped manually	Restart lubrication by pressing ♦
1 CHAIN STOPPED 0000/3000 000h01	Information that the sensor works, but it does not detect any link The sensor is too far from the link Chain stopped or very slow	Set the position of the sensor (→ chapter 6.3.3) The system works but indicates links too seldom detected *Note : interval between two signals from proximity switch must be less than 5 minutes.*

Table 17

Failure analysis and remedy

Problems	Possible cause	Remedy
The system does not work	Power supply	• Check if the power supply meets the requirement of the pump. • Check that the supply voltage corresponds to the one indicated on the rating plate • Check the connector wiring
No lubricant exits the nozzle	Lack of lubricant	• Check the lubricant level in the reservoir and top up if necessary.
	Wrong lubricant	• Check that the lubricant used is compliant with the system technical data. If this is not the case you must: – Drain the lubricant in accordance with the applicable local rules and laws regarding the disposal of lubricant – Thoroughly clean the entire system – Fill up with a suitable lubricant and carry out a new system draining
	Reservoir strainer clogged	• Check the condition of the strainer down in the reservoir and clean it if necessary. Before restarting the system, you must bleed it again.
	Fittings	• Check fittings on both sides, tighten if necessary
	Pipes	• Check pipe condition (fracture, cut, pinch), and replace them if necessary
	Clogged nozzle head	• Check and clean nozzle heads
	Damaged nozzle head	• Replace nozzles

12. Shutdown, disposal

12.1 Temporary shutdown

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

12.2 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.

12.3 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.

13. Spare parts

Spare parts may be used exclusively for replacement of identical defective parts. Modifications with spare parts on existing products are not allowed.

Table 18

Spare part list CLK lubrication system

Part number	Designation
Electric	
AC.4026.10	Power supply connection kit
AC.2218	Fault output connector
AC-4388	Connector proximity switch input
Pipes	
UCDE01-TU0250	Kit stainless steel tube 316L length 2.5 m
UCDE01-TU0500	Kit stainless steel tube 316L length 5 m
SY-9736	Fixing clips for tube Ø12 (min. qty 5)
BI.410	Double tapered sleeve for tube Ø4 (only with RB.409.I)
RB.409.I	Nut for tube Ø4 (only with BI.410)
Nozzles	
AC-A-420	Double nozzle with adjustable interaxial distance
AC-A-410	Simple nozzle
Sensors	
AC-5121	Proximity switch – Ø12, –40 to +85 °C (standard)
UCDE01-100-HT	Proximity switch – Ø18, –25 to +180 °C (high temperature)
AC-5145	Proximity switch – Ø8, –25 to +70 °C (standard)
Nozzle and switch support plate	
SY-9729	Support plate
SY-9730	Nozzle bracket support
SY-9732	Intermediate support for proximity switch
SY-9733	Proximity switch bracket support Ø12 and Ø8
SY-9733-1	Proximity switch bracket support
Miscellaneous	
TK-1317	Reservoir plug

Table 19

Accessories list CLK lubrication system

Part number	Designation
UCDE01-100-HTD30	Proximity switch – Ø18, 0 to 180 °C (high temperature)
UCDE01-TU0250-AC	Kit steel tube length 2.5 m
UCDE01-TU0500-AC	Kit steel tube length 5 m
TU-3X4-IX	Stainless steel tube 316L Ø4×0,5 (per meter)
WV-RO4X0.7VERZI	Steel tube Ø4×0,7 (4 m bar)
UC-1060-22-1	Proximity switch support, Ø30
UCDE01-CT-3-16	Tube cutter 3-16 mm

14. Appendix

14.1 China RoHS Table

Table 20

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	多溴二苯醚
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
用钢和黄铜加工的零件 (Components made of machining steel and brass)	X	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。 (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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