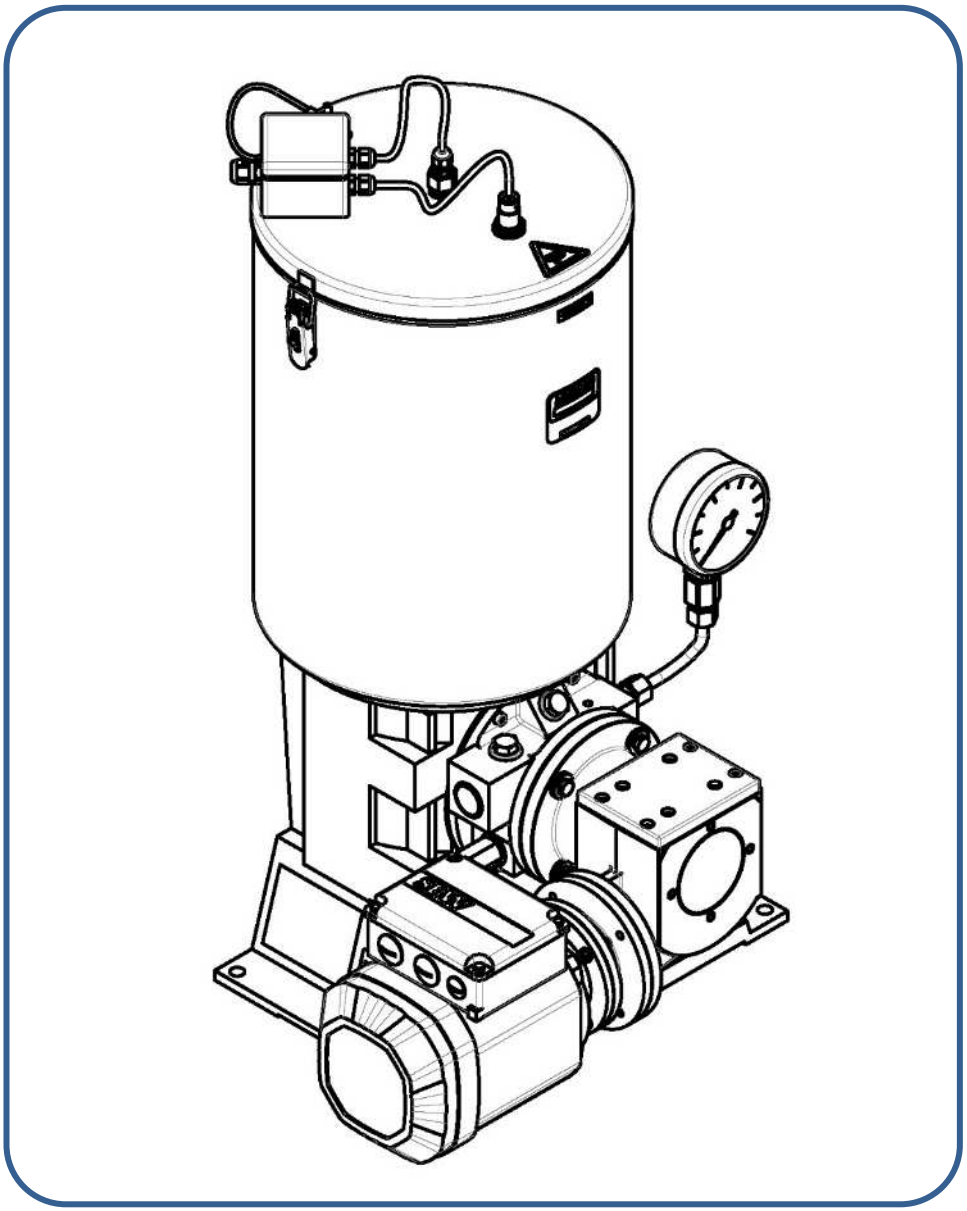
Operating Instructions

Pump ZPU 08 ATEX

ZPU 08



810-53711-1
Rev.: 009
2023/11/20

EU Declaration of Conformity according to ATEX Directive 2014/34/EU, Annex X

The manufacturer, SKF Lubrication Systems Germany GmbH, Walldorf Plant, Heinrich-Hertz-Str. 2- 8, DE - 69190 Walldorf hereby declares, under its sole responsibility, conformity of the device

Designation: Electrically operated pump for the supply of lubricants within a centralized lubrication system
Type: ZPU 08
Part numbers: 605-40759-6 | 605-40759-7 | 605-41759-8 | 605-46211-3

complies with all essential safety and health requirements of ATEX directive 2014/34/EU and the safety and health requirements of machinery directive 2006/42/EC (see appendix to the EU declaration of conformity) at the time of placing on the market).

The technical documentation according
- ATEX Directive 2014/34/EU Annex VIII No. 2 has been compiled and filed with the conformity assessment body (CE0123).
- Machinery Directive 2006/42/EC Annex VII Part B has been compiled.

We undertake to transmit these in electronic form in response to a reasoned request by the national authorities. The manufacturer is authorized for the technical documentation.
Furthermore, the following Directives and (harmonized) standards were applied in the applicable areas:

Directives

2011/65/EU RoHS II
2014/30/EU Electromagnetic Compatibility t

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EN ISO 12100:2010
EN 809:1998+A1:2009/AC2010
EN 60204-1:2018
EN 1127-1:2019
EN ISO 80079-36:2016
EN ISO 80079-37:2016
EN IEC 63000:2018

Standards
The device 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 ATEX Directive 2014/34/EU, Machinery Directive 2006/42/EC, and all other applicable Directives.

Walldorf, 2022.11.24

Jürgen Kreutzkämper
Manager R&D Germany

UK Declaration of Conformity pursuant to the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 (2016 No. 1107)

The manufacturer, SKF Lubrication Systems Germany GmbH, Walldorf Plant, Heinrich-Hertz-Str. 2- 8, DE - 69190 Walldorf hereby declares, under its sole responsibility, conformity of the device

Designation: Electrically operated pump for the supply of lubricants within a centralized lubrication system
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complies with all essential safety and health requirements of the regulation The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 No. 1107, and the applicable health and safety requirements of the Supply of Machinery (Safety) Regulations 2008 No. 1597 (see appendix to the EU declaration of conformity) at the time of placing on the market.

The technical documentation according to:

- The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 No. 1107 has been compiled and filed with the conformity assessment body (CE0123).
- Supply of Machinery (Safety) Regulations 2008 No. 1597 has been compiled.

We undertake to transmit these in electronic form in response to a reasoned request by the national authorities. The authorized representative for the compilation of the technical documentation is SKF (U.K.) Limited, 2 Canada Close, Banbury, Oxfordshire, OX16 2RT, GBR. The following regulations and standards were applied in the applicable areas:

Regulations

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 No. 3032
Electromagnetic Compatibility Regulations 2016 No. 1091

EN ISO 12100:2010	EN 1127-1:2019	EN IEC 63000:2018
EN 809:1998+A1:2009/AC2010	EN ISO 80079-36:2016	
EN 60204-1:2018	EN ISO 80079-37:2016	

The device must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 (2016 No. 1107), the Supply of Machinery (Safety) Regulations 2008 (2008 No. 1597) and all other applicable regulations.

Walldorf, den 2022.11.24

Jürgen Kreutzkämper
Manager R&D Germany

Essential health and safety requirements according to 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. Any essential health and safety requirements not listed here are not relevant to this product.

No.:	Essential health and safety requirement	Applicable:	Fulfilled:
1.1.1	Definitions	YES	YES
1.1.2	Principles of safety integration	YES	YES
1.1.3	Materials and products	YES	Partially
Regarding 1.1.3: Hazards due to the lubricant used must be assessed by the operator on the basis of the Safety Data Sheet (SDS) and, if necessary, protective measures must be taken.			
1.1.5	Design of machinery to facilitate its handling	YES	YES
1.1.6	Ergonomics	YES	Partially
Regarding 1.1.6 Not completely fulfilled: The operator must ensure that the pump is integrated into the higher-level machine in such a way that the pump can be operated and filled ergonomically.			
1.2	Control systems	YES	YES
1.2.1	Safety and reliability of control systems	YES	YES
1.2.3	Starting	YES	YES
1.2.6	Failure of the power supply	YES	YES
1.3	Protection against mechanical hazards	YES	YES
1.3.1	Risk of loss of stability	YES	YES
1.3.2	Risk of break-up during operation	YES	Partially
Regarding 1.3.2 Not completely fulfilled: The operator must protect the lubrication system against excessive pressure. For this purpose, a pressure relief valve with max. 350 bar opening pressure must be provided on each pump element.			
1.3.4	Risks due to surfaces, edges or angles	YES	YES
1.3.7	Risks related to moving parts	YES	YES
1.3.9	Risks of uncontrolled movements	YES	YES
1.5	Risks due to other hazards	YES	YES
1.5.1	Electricity supply	YES	YES
1.5.6	Fire	YES	YES
1.5.8	Noise	YES	YES
1.5.11	External radiation	YES	YES
1.5.13	Emissions of hazardous materials and substances	YES	YES
1.5.15	Risk of slipping, tripping, or falling	YES	YES
1.6	Servicing	YES	YES
1.6.1	Machinery maintenance	YES	YES
1.6.2	Access to operating positions and servicing points	YES	YES
Regarding 1.6.2 Not completely fulfilled: The operator must ensure that the pump is integrated into the higher-level machine in such a way that the pump can be operated without danger.			
1.6.4	Operator interventions	YES	YES
1.7	Information	YES	YES
1.7.1	Information and warnings on the machinery	YES	YES
1.7.1.	Information and information devices	YES	YES

1.7.2	Warning of residual risks	YES	YES
1.7.3	Marking of machinery	YES	YES
1.7.4	Operating instructions/assembly instructions	YES	YES
1.7.4.	General principles for the drafting of operating instructions/assembly instructions	YES	YES
1.7.4.	Contents of the operating instructions/assembly instructions	YES	YES
1.7.4.	Sales literature	YES	YES

Table of contents

1. Guidelines

As you read these instructions, you will notice a number of depictions and symbols which are to facilitate the navigation and understanding of these instructions. For reasons of better legibility, in these instructions we mainly use the male form for general references. Of course, the female form is also always intended.

Text representations	Meaning
Bold print	Highlighting of particularly important words or passages
• List 1	Marks lists
○ List 2	Marks lists
(parenthesis)	Item numbers
➢ Instructions	Instructions to personnel. These always appear in chronological order.

1.1 Warnings

Activities which generate actual hazards (to life and limb or possible damage to the material) are marked by warnings. Definitely observe the instructions given in the warnings. The following warnings are possible.

Warning level		Consequence	Probability
⚠	**DANGER**	Death/ serious injury	imminent
⚠	**WARNING**	Death/ serious injury	possible
⚠	**CAUTION**	Minor injury	possible
	NOTICE	Property damage	possible

1.2 Illustrations

The illustrations used refer to a specific product. In the case of other products or product versions they may have a schematic character only. The basic functions, however, do not change.

1.3 Addresses of manufacturer

Address of manufacturer plants	Authorized party placing the product on the market locally
Manufacturer SKF Lubrication Systems Germany GmbH E-mail: Lubrication-germany@skf.com www.skf.com/lubrication Werk Walldorf Heinrich-Hertz-Straße 2-8 69190 Walldorf Deutschland Tel: +49 (0) 6227 33-0 Fax: +49 (0) 6227 33-259 Werk Berlin Motzener Straße 35/37 12277 Berlin Deutschland Tel. +49 (0)30 72002-0 Fax +49 (0)30 72002-111	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

1.4 Warranty

The instructions do not contain any information on the warranty. This can be found in our general terms and conditions.

1.5 Disclaimer

Observation of these instructions is the prerequisite for safe operation and the achievement of product characteristics and performance levels. The manufacturer shall bear no liability for damages - of any kind - resulting from the non-observance of these instructions.

1.6 Copyright

2. Safety information

Safety information is to be read and observed by any persons entrusted with works on the machine or by those persons who supervise or instruct the before-mentioned group of persons. It is prohibited to commission or operate the machine prior to reading the Instructions. These Instructions must be kept at an accessible location for further use.

2.1. Emergency stopping of the pump

In case of an emergency stop the pump by:

- Switching off the machine or system in which the pump has been integrated.

2.2. Intended use

Supply of lubricants within a centralized lubrication system following the specifications made in these Instructions and the stated explosion protection class: The pump may be used within commercial machines or systems exclusively.

2.3. Explosion protection class / Explosion protection marking

See declaration of conformity or type identification plate of the pump.

2.4. Expiry of the ATEX certification

The ATEX certificate for this product expires through:

- Use not in accordance with the intended purpose
- Unauthorized modifications.
- Use of non-original spare parts.
- non-observance of these instructions and other applicable documents.
- Use of non-specified lubricants.
- Non-observance of the specified maintenance and repair intervals.
- Operation with damaged or lacking ATEX painting or ATEX painting done wrongly later on and not complying with the standards applicable for ATEX

2.5. Pump operation

Operation is permitted only, if in compliance with:

- All information given in these instructions or stated in the referenced documents.
- All laws and regulations to be complied with by the user.
- Information on explosion protection according to directive 1999/92/EC (ATEX 137).
- ATEX approval.

2.6. Foreseeable misuse

Any other use and purpose of the pump than the ones described before are strictly prohibited. It is expressly forbidden to be used:

- outside the indicated temperature range
- with non-specified means of operation
- with contaminated lubricants or lubricants with air inclusions
- with lubricants the temperature of which exceeds the maximum admissible ambient temperature
- without adequate pressure control valve
- in areas with aggressive or corrosive materials (e.g. high ozone pollution). These may affect seals and painting.
- in areas with harmful radiation (e. g. ionising radiation)
- to supply, transport, or store hazardous substances and mixtures in accordance with annex I part 2-5 of the CLP regulation (EG 1272/2008) and marked with GHS01 - GHS06 and GHS08 hazard pictograms.
- to feed, forward, or store gases, liquefied gases, dissolved gases, vapours, or fluids whose vapour pressure exceeds normal atmospheric pressure (1013 mbar) by more than 0.5 bar at the maximum permissible operating temperature.
- to feed, forward, or store lubricants containing volatile solvents
- in explosive gas and vapour atmospheres, the ignition temperature of which is smaller than 125 % of the maximum surface temperature
- in explosive dust atmospheres, the minimum ignition and glow temperature of which is smaller than 150 % of the maximum surface temperature
- In a different, more critical potentially explosive atmosphere than stated on the type identification plate of the pump used.
- with damaged or lacking ATEX painting or ATEX painting done wrongly later on. The painting must comply with the standards valid for ATEX.
- With a frequency converter.

2.7. Prohibition of certain activities

The following activities may be carried out by manufacturer specialists or authorized persons only due to potential sources of faults that may not be visible for the user, or due to legal regulations:

- Repairs/ changes to the motor/ gear

2.8. Conversions or modifications

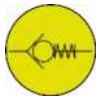
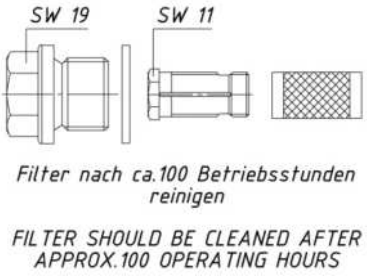
Unauthorized conversions or modifications may result in unforeseeable impacts on safety. Therefore, any unauthorized reconstructions or changes are expressly prohibited.

2.9. Inspections

The following inspections were carried out prior to delivery:

- Inspections following ATEX.
- Electrical inspections following DIN EN 60204-1 / VDE 0113-1.
- Safety and functional tests

2.10. Labels on the pump

	**Hand injury warning** During operation of the pump, never remove the lid and reach into the reservoir. Risk of trapping or shearing off hands and fingers!
	Behind the protective fitting marked with this symbol there is the lubricant filter.
	Behind the protective fitting marked with this symbol there is the check valve.
	Marks the equipotential bonding connection of the pump.
	Provides instructions on how to clean the lubricant filter.

2.11. Note on UKCA marking

UK CA	The UKCA marking confirms the conformity of the product with the applicable directives of Great Britain.

2.12. Other applicable documents

In addition to these instructions, the following documents must be observed by the respective target group:

- Operator's explosion protection document.
- Operational instructions and release provisions by the operator.
- Safety data sheet (MSDS) of the lubricant used.

Gear

Rehfuss

- Instructions for the SM type series

Motor

SEW

- Explosion-protected three-phase motors EDR.71-225 documentation no.: 19402007

Where appropriate:

- Any documents of other components required to set up the centralized lubrication system.
- Project planning documents.
- Other relevant documents for the integration of the pump into the machine or system.

The owner must supplement these documents by the respective valid national or regional regulations laid down by the country in which the product is to be used. If the product is sold or transferred, any associated documents must be passed on to the subsequent operator as well.

2.13. Sources of hazard

The pump has been designed, built and tested using state-of-the-art technology. It will have left our company only after having passed stringent safety and reliability tests. Like for all complex machines, also for this pump there may still be involved potential sources of hazard, For example:

2.14. Moving, rotating parts

- Drive, stirring paddles

2.15. Energies

- Electricity
- Temperature (hot/ cold surfaces)
- Position energy (raised components)
- Parts subject to (operating) pressure
- Parts subject to spring tension

2.16. Lubricants

- Greases

2.17. Explosive substances at the location of use

- Gases, dusts

2.18. Existing residual risks

Residual risks	Remedy
Operation in potentially explosive area	
Deviating installation position. Loss of correct low-level signal function.	Maintain installation position (± 5°). Correct installation position, if necessary.
Heat-up of non-lubricated lubrication points in the area of ignition temperature through undetected faults within the centralized lubrication system.	The operator must check thoroughly whether an operation without low-level signal leads to a new hazard potential (e.g. through heat-up of bearing points on the machine in the area of ignition temperature). If uncertain, provide low-level signal.
Heat-up of components in the area of ignition temperature or formation of a potentially explosive atmosphere through whirling up of dust.	Avoid dust accumulation and remove dust regularly. Select a location of installation with as little dust as possible.
Strong heating up of the motor in case of high load or failure of the motor circuit breaker.	Switch the pump off. Let parts cool down, eliminate cause. Replace the motor circuit breaker or adjust it correctly.
Loosening of plug-in connections under voltage.	Secure plug-in connections against inadvertent loosening by means of safety clips. Prior to loosening the plug-in connections: de-energise the pump.
Generation of electrostatic charges or sparks through unsuitable clothing or tools.	Within potentially explosive areas use ESD clothing and tools only.
Generation of sparks through dropping parts.	Secure parts against falling. Where appropriate, cover parts in order to avoid the formation of sparks.
Missing or insufficient grounding.	Check the grounding on the pump.
Bringing catalytic, unstable or pyrophoric substances into a potentially explosive area.	Ensure that none of these substances gets into the potentially explosive area. Have all substances approved by the operator.
Use of isolating amplifiers to operate the capacitive sensor in potentially explosive areas.	Mount isolating amplifiers outside potentially explosive areas only.
Operation with damaged or lacking ATEX painting or ATEX painting done wrongly later on and not complying with the standards applicable for ATEX	Before the first start-up and later at regular intervals check the painting and let it be renewed by authorized personnel, where appropriate.

Residual risks	Remedy
Transport lifecycle	
Tilting or falling of parts during transport, e.g. over inclines.	Secure parts against tilting or falling during transport (e.g. using tapes, belts, ropes, etc.).

Installation life cycle	
Dropping of lifted parts or tools.	No people may remain under suspended loads. Keep unauthorized persons away. Secure suspended loads using suitable hoisting equipment (e.g. tapes, belts, ropes, etc.).
Falling of parts due to insufficient fixing to the machine.	Fix parts only to machine parts with sufficient load capacity. Observe the weight. Observe the stated tightening torques. If no tightening torques are stated, the tightening torques are to be applied according to the screw size for 8.8 screws.
Electric shock when connecting the pump.	Prior to connection of the pump, de-energize all affected electrical components. If necessary, please observe discharge times. The electrical connection may be carried out by commissioned and qualified electricians only and in accordance with the connection diagram.
People falling due to contamination of floors with spilled lubricant.	Take care when filling. Bind and remove leaked or spilled lubricant immediately with a suitable agent. Observe the legal or company regulations on dealing with oils and greases and contaminated parts.
Ripping out or damage to lines when assembling movable machine parts (e.g. pivot arm).	If possible, do not mount onto movable parts. Should this not be possible, use flexible hose lines of sufficient length.
Deviating installation position. Foreign objects falling into the motor air intake. Borehole for drainage of condensation water is no longer at the lowest point of the motor.	Installation of a suitable protective roof over the air intake. Deviating installation position only, if the formation of condensation water has been completed.

Residual risks	Remedy
Lifecycle Commissioning/ operation/ maintenance	
Lubricant spraying out due to incorrect screw connection of components or lines.	Tighten all parts with appropriate tightening torques. Use suitable hydraulic screw connections and lines for the stated pressures. Check these prior to commissioning for correct connection and damage.
Contact with the stirring paddle when filling from the top during operation of the pump.	Fill preferably via the filling connection. Fill only from the top when the pump is not moving. When filling, do not reach into the reservoir.
Electric shock through reduced insulation resistance.	Check the formation of condensation water in the motor regularly. If applicable, drain off condensation water at the drain plug. Check the insulation resistance regularly.
Electric shock when connecting the pump.	Prior to connection of the pump, de-energize all affected electrical components. If necessary, please observe discharge times. The electrical connection may be carried out by commissioned and qualified electricians only and in accordance with the connection diagram.

Residual risks	Remedy
Fault lifecycle	
Severe heat-up or defect of motor through blockage.	Switch the pump off. Let parts cool down, eliminate cause.

Residual risks	Remedy
Disposal lifecycle	
Contamination of the environment with lubricant and wetted parts.	Dispose of the parts following the valid legal and company regulations.

2.19. Persons authorized to operate the pump

2.20. Operator

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

2.21. Specialist for maintenance and repairs in potentially explosive atmospheres

A person who is qualified by training and experience to identify and assess possible risks and hazards during work on the machine or partial components in potentially explosive areas and to initiate suitable measures to prevent such risks. The specialist has knowledge of the different ignition protection types, installation procedures and zone divisions. He is familiar with the rules and regulations relevant for his activities and explosion protection, in particular with ATEX directive 2016/34/EU.

2.22. Protection of special groups of persons

The respective legal employment restrictions do apply.

Persons with cardiac pacemakers and/or metal implants

Magnetic fields existing in the environment of live conductors and motors may present a hazard to above-mentioned persons. Should it be necessary for them to access such areas, a doctor should be consulted beforehand, as health impairments cannot be excluded generally.

2.23. Safety recommendations to be complied with

2.24. General behaviour when handling the pump

- The pump may be used only in awareness of the potential dangers, in proper technical condition, and according to the information in these instructions.
- Familiarize yourself with the functions and operation of the product. The specified assembly and operating steps and their sequences must be observed.
- Any unclear points regarding proper condition or correct assembly/ operation must be clarified. Operation is prohibited until issues have been clarified.
- Keep unauthorized persons away from the machine.
- Precautionary operational measures and instructions for the respective work must be observed.
- Responsibilities for different activities must be clearly defined and observed. Uncertainty seriously endangers safety.
- Safety-related protective and emergency devices must not be removed, modified or affected otherwise in their function and are to be checked at regular intervals for completeness and function.
- Remedy occurring faults in the frame of responsibilities. Immediately inform your superior in the case of faults beyond your competence.
- Do not open the reservoir lid during operation. Do not reach into the reservoir.
- Wear personal protective equipment always.
- When handling lubricants, adhere to the respective safety data sheets.
- Never use parts of the centralized lubrication system or of the machine as standing or climbing aids.

2.25. Explosion protection

- Always behave so that fire and explosion hazards are avoided.
- A written work approval from the operator is required prior to working in potentially explosive areas.
- There must be no indications that parts of the explosion protection are missing or are not working. Should such indications become apparent, switch off the machine and inform a superior without delay. Keep unauthorized persons away.
- Measures for explosion protection must never be deactivated, modified or bypassed.
- It is forbidden to bring in ignition sources such as sparks, open flames and hot surfaces in potentially explosive areas.
- Check the machine at regular intervals for damage which may represent an ignition risk.
- The ignition temperature of the lubricant must lie at least 50 K over the maximum admissible surface temperature of the components.
- The ignition temperature of the ambient explosive gas and vapour atmospheres must be greater than 125 % of the maximum surface temperature.
- The minimum ignition and glow temperature of the ambient explosive dust atmospheres must be greater than 150 % of the maximum surface temperature.
- Only use tools and clothing which are permitted for use in potentially explosive areas (ESD).
- Transport, installation, repairs and work on electrical components may only be carried out, if it has been ensured that the atmosphere is not potentially explosive.
- Repairs or modifications to machines which are protected against explosions may be carried out only by the manufacturer or by a workshop recognized by a named institution and confirmed in writing. If the work is not carried out by the manufacturer, the repairs must be approved by a named expert and confirmed in writing. The repairs are to be marked by a repair sign on the machine, stating the following:
    - Date
    - Company responsible for the work
    - Type of repair
    - If applicable, expert's code
- Transport damages can result in the loss of the explosion protection. If transport damages can be seen, do not assemble the machine or put it into operation

- All parts of the grounding concept must be correctly available and connected with the superordinate machine.
- If transport lugs are dismantled after set-up, the threaded bores must be permanently sealed in accordance with the protection class.
- Handle the materials so that no sparks generated by tilting, falling, sliding, rubbing, impacting, etc. If needed, cover materials with suitable means.
- Never disconnect plug-in connections when energized. Secure plug-in connections against inadvertent manual disconnection with the safety clips included in the delivery.
- The operator must check thoroughly whether an operation without low-level signal leads to a new hazard potential (e.g. through heat-up of bearing points on the machine in the area of ignition temperature). If this cannot be ascertained, provide a low-level signal or suitable organisational measures for monitoring of the bearing point temperature.
- Avoid dust accumulation and remove dust immediately. Dust accumulations have a thermally insulating effect and, if whirled up, generate the formation of a potentially explosive atmosphere.
- The pump should be integrated into the operator's lightning protection concept.
- All parts are to be checked regularly for corrosion. Replace the affected parts.
- Terminal boxes must be firmly closed and the cable breakthroughs correctly sealed.
- Additional electrical monitoring devices must be firmly connected and correctly adjusted.
- Protect the motor with a motor circuit breaker against inadmissible heating up.
- When reaching their nominal life, the motor bearings have to be replaced or inspected to ensure their suitability for further utilisation.

2.26. Transport / installation / maintenance / repairs / servicing

- All relevant persons (e.g., operating personnel, supervisors) must be informed of the respective activity prior to starting any work. Observe the precautionary operational measures and work instructions.
- If protective and safety equipment has to be dismantled, it must be reassembled immediately after finishing the work, and then checked for correct function.
- Ensure through suitable measures that movable or detached parts are immobilized during the work and that no limbs can be caught in between by inadvertent movements.
- Carry out transport using only suitable hoisting equipment.
- All the parts to be mounted onto the shaft end of the motor have to be dynamically balanced according to the balancing system of the motor. With a direct coupling, ensure that the parts align precisely (observe the manufacturer's guidelines).
- Assemble the product only outside of the operating range of moving parts, at an adequate distance from sources of heat or cold.
- Dry wet, slippery surfaces.
- Cover hot or cold surfaces accordingly.
- Prior to performing work, de-energize and depressurize the pump and secure it against unauthorized switch-on. Work on electrical components must be carried out by electrical specialists only. Observe any waiting periods for discharging, if necessary.
- Carry out electrical connections only according to the information in the valid wiring diagram and taking the relevant regulations and the local connection conditions into account.
- Do not touch cables or electrical components with wet or damp hands.
- Maintenance and repair work can be subject to restrictions in low or high temperatures (e.g. changed flow properties of the lubricant). Therefore, where possible, try to carry out maintenance and repair work at room temperature.

- Carry out all works on electrical components using voltage insulated tools only.
- Fuses must not be bypassed Always replace fuses by such of the same type.
- Ensure correct grounding of the electrical system.
- Undertake drilling at non-critical, non-load bearing parts only. Use any available boreholes. Do not damage lines and cables when drilling.
- Observe possible abrasion points. Protect the parts accordingly.
- Other units of the machine or vehicle must not be damaged or impaired in their function by the installation of the centralized lubrication system.
- All components used must be designed for:
    - maximum operating pressure
    - maximum/ minimum ambient temperature
    - lubricant to be supplied
    - required ATEX zone
    - operating/ ambient conditions at the location of use.
- Parts of the centralized lubrication system must never be subjected to torsion, shearing or bending.
- Check all parts prior to use for contamination and clean, if necessary. Lubricant lines should be primed with lubricant prior to installation. This makes the subsequent ventilation of the system easier.
- Observe the specified tightening torques. When tightening, use a calibrated torque wrench.
- When working with heavy parts use suitable lifting tools.
- Avoid mixing up or wrong assembly of dismantled parts. Mark these parts accordingly.

2.27. Initial commissioning / daily start-up

Ensure that:

- All safety devices are completely available and functional.
- All connections are correctly connected.
- All parts are correctly installed.
- All warning labels on the machine are completely available, highly visible and undamaged.
- Illegible or missing warning labels are to be replaced without delay.
- The machine is correctly earthed.

2.28. Cleaning

- Risk of fire and explosion when using inflammable cleaning agents. Only use non-flammable cleaning agents suitable for the purpose.
- Do not use any aggressive cleaning agents.
- Do not use sharp-edged or spark-generating tools for cleaning (e.g. cooling fins of the motor).
- Do not use steam jet or high pressure cleaners. Electrical components may be damaged. Observe the IP protection class.
- Cleaning work on energized components may be carried out by electrical specialists only.
- Do not touch cables or electrical components with wet or damp hands.
- Mark damp areas accordingly.
- Remove dust accumulations regularly. Do not whirl up dust whilst doing so.

2.29. Training courses

In order to provide a maximum of safety and economic viability, SKF carries out detailed training courses. It is recommended that the training courses are attended. Please contact SKF Customer Service for information.

2.30. Inspection of the delivery

The delivery must be inspected for completeness based on the delivery papers. Transport damages must be reported to the forwarder immediately. Keep the packaging material until any discrepancies are resolved.

2.31. Returns

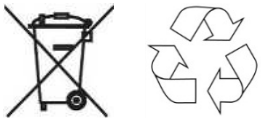
Clean all parts and pack them properly before returning them. Mark returns on the packaging as follows.

	Do not burden / this side up!
	Protect against moisture
	Handle with care! Fragile, do not throw!

2.32. Disposal

At the end of its service life, the pump must be dismantled correctly and disposed of according to the respective valid provisions.
It is forbidden to use parts of a pump that is to be disposed of or to assemble these parts to make a new pump.

Electrical components:
Dispose of or recycle electrical components following WEEE directive 2012/19/EU.
Plastic or metal parts
can be disposed of with commercial waste.



3. Lubricant

Lubricants are used specifically for certain application purposes. In order to fulfil their tasks, lubricants must fulfil various requirements to varying extents. The most important requirements for lubricants are:

- Reduction of abrasion and wear
- Corrosion protection
- Noise minimisation
- Protection against contamination or penetration of foreign objects
- Cooling (primarily with oils)
- Longevity (physical/ chemical stability)
- Compatibility with as large a number of materials as possible
- economic and ecological aspects.

3.1. Selection of lubricants

A suitable lubricant is selected already when designing the machine and forms the basis for the planning of a centralized lubrication system.
The selection is made by the manufacturer/ operator of the machine, preferably together with the lubricant supplier based on the requirement profile defined by the specific application.
Should you have little or no experience with the selection of lubricants for centralized lubrication systems, please contact SKF. You will avoid possible costly downtimes through damage to your machine/ system or damage to the centralized lubrication system.

3.2. Ageing of lubricants

After a prolonged downtime, the lubricant must be inspected prior to recommissioning as to whether it is still suitable for use due to chemical or physical ageing. We recommend that you undertake this inspection already after a machine downtime of 1 week. If doubts arise as to the suitability of the lubricant, please replace it prior to re-commissioning and, if necessary, undertake initial lubrication manually.

3.3. *Specification*

Lubricants of the following consistencies can in principle be conveyed using SKF centralized lubrication systems.

- Lubricating greases up to NLGI 2
- solids content up to 5 % maximum
- mineral oils with a viscosity of minimum 40 mm²/s at +40 °C

Lubricants must be compatible with the following materials:

- steel / grey iron / brass / copper / aluminium
- NBR / FPM / ABS / PA / PU

NOTICE

Risk of damage to the machine or system

Do not mix lubricants. This may have unforeseeable effects on the usability and therefore on the function of the centralized lubrication system.
Due to the multitude of possible additives, it is possible that individual lubricants, which - according to the manufacturer's data sheets - fulfil the necessary specification, are not in fact suitable for use in centralized lubrication systems (e.g. incompatibility between synthetic lubricants and materials). In order to avoid this, always use lubricants tested by SKF.
Please contact the SKF Service Department for an overview of lubricants tested by SKF.

DANGER

Risk of explosion

The ignition temperature of the lubricant must lie at least 50 K over the maximum admissible surface temperature of the components.

4. Technical data

4.1. Ambient temperatures

	min.	max.
Part no.: 605-40759-6	-20 °C	+50 °C
Part no.: 605-40759-7	-20 °C	+40 °C
Part no.: 605-41759-8	-20 °C	+40 °C
Part no.: 605-46211-3	-20 °C	+40 °C
Part no.: 6050-00000008	-20 °C	+40 °C

4.2. Explosion protection marking

Part no.: 605-40759-6	II 2G Ex h IIB T3 Gb	
Part no.: 605-40759-7	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120 °C Db
Part no.: 605-41759-8	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120 °C Db
Part no.: 605-46211-3	II 2G Ex h IIC T6 Gb	II 2D Ex h IIIC T85°C Db
Part no.: 6050-00000008	II 2G Ex h IIC T3 Gb	II 2D Ex h IIIC T120°C Db

4.3. Operating pressure

Operating pressure is limited to max. 410 bar ± 10 % by a pressure control valve.
All system parts must be designed for the maximum operating pressure.

4.4. Installation position

Vertical, i.e. reservoir at top. Maximum deviation ± 5°

4.5. sound pressure level

< 70 dB (A)

4.6. Maximum set-up height

1000 m above sea level.

4.7. Maximum dust thickness

< 5 mm

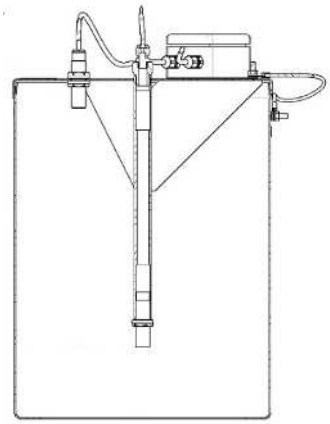
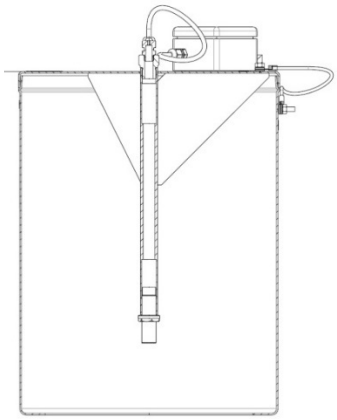
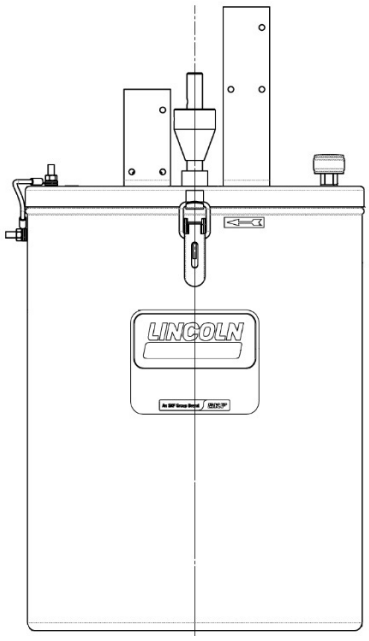
4.8. Weight

The weight of the empty pump is approx. 62 kg.

4.9. Gear ratio

i = 20:1

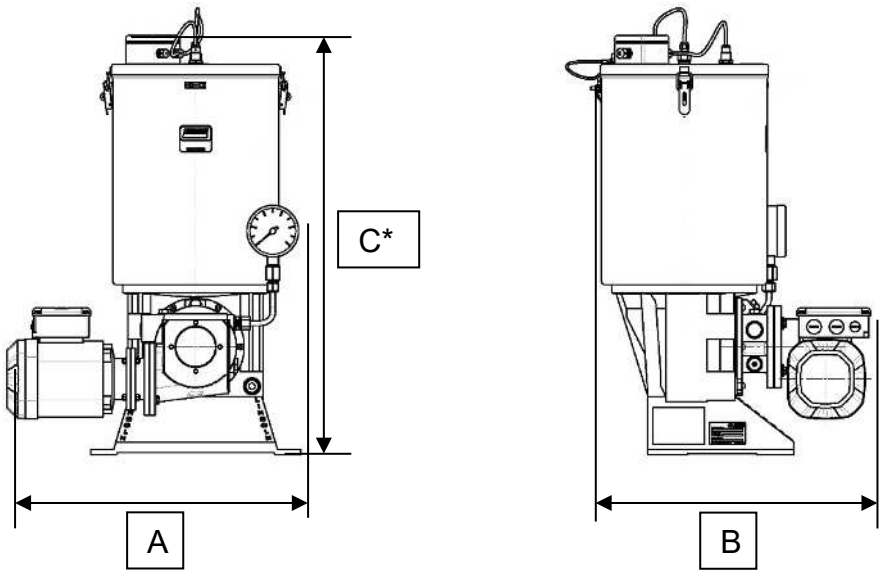
4.10. reservoir

40 XB (Part no.: 605-46554-6)	40 XL (Part no.: 605-46554-7)
Used with pump 6050-00000008 605-41759-8 605-40759-6	Used with pump Part no.: 605-40759-7
	
40 XBF (Part no.: 605-77177-1)	
Used with pump 605-46211-3	
	

4.11. Space requirements

	Width A	Depth B	Height C*
	approx. 530 mm	approx. 580 mm	approx. 820 mm

It is recommended that an additional free space of 100 mm is provided in each direction for maintenance and inspections works.
The distance between the motor air intake and any obstacle must total to at least 40 mm. Ensure that the air can flow into the motor without hindrance. Outflowing air must not be sucked in again directly.



* When planning consider an additional free space of 350 mm above the reservoir to remove the reservoir lid (XB and XL) respectively to extend the guide rod (XBF).

4.12. Electrical connection

Connection must be done in such way that a permanent, safe electrical connection can be maintained (use safe protective conductor connection and dedicated cable ends; avoid protruding wire ends). Make sure that there are no foreign particles, dirt or humidity in the terminal box. Close the terminal box dust- and watertight.
In addition to the general valid installation prescriptions for electrical systems, the electrical connection is carried out in accordance with the applicable national ATEX regulations, for example:

- ElexV
- DIN EN 60079-14, VDE 0165-1
  Electrical systems in explosive areas
- DIN EN 60079-17
  Electrical equipment for use in areas with combustible dust
- DIN VDE 0100

Tolerance voltage ± 5 %
Tolerance frequency ± 2 %
The waveform and mains symmetry must be maintained so that the motor heat-up remains within the permitted limits.
The distance to any voltage-carrying or conductive parts has to correspond to the minimum values following DIN EN 60079-7 / VDE 0170-6.

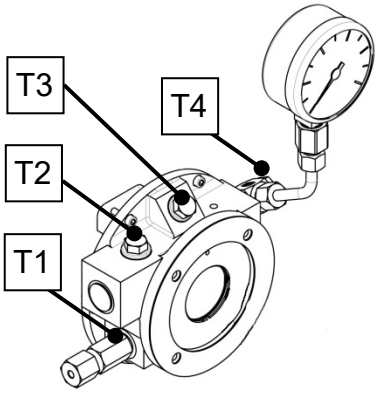
Nominal voltage	Distance to motors Ex category 2
For motors up to 500 V	5 mm

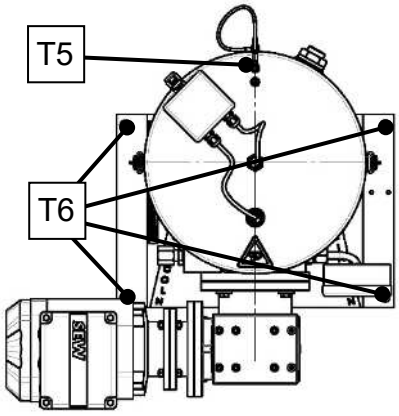
4.13. IP Types of protection

Gear	Motor	Capacitive sensor	Terminal box
IP 65	IP 55	IP 67	IP 65

4.14. Tightening torques

Component			Tightening torques
T1	Pressure control valve	AF 24	80 ± 8 Nm
T2	Lubricant filter:		
	Protective fitting	AF 19	80 ± 8 Nm
	Filter element	AF 11	20 ± 2 Nm
T3	Check valve		
	Protective fitting	AF 19	80 ± 8 Nm
	Check valve (flat-bladed screwdriver)		20 ± 2 Nm
T4	Pressure gauge	AF 22	60 ± 5 Nm
T5	Grounding connection lid / reservoir	AF 6	8 ± 1 Nm
T6	Pump to foundation		18 ± 2 Nm
If no tightening torques are stated, the tightening torques are to be applied to the screw size for 8.8 screws.			





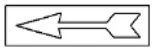
4.15. Connections / outlets

- Pressure line G ¾“
- Relief line G ¾“
- Filling adapter G ¾“

4.16. Filling possibilities

- via filling adapter
- via reservoir lid

4.17. Rotational direction of the pump

	The rotational direction is always clockwise (CW). Observe the arrow on the reservoir. The rotational direction of the motor is as needed.

4.18. Admissible speed of the eccentric shaft

Minimum speed	Maximum speed	
10 rpm	85 rpm	

When supplying the pump without motor and gear, speeds must be maintained by selecting a suitable motor and gear.

4.19. Output

approx. 11.2 dm^3/h

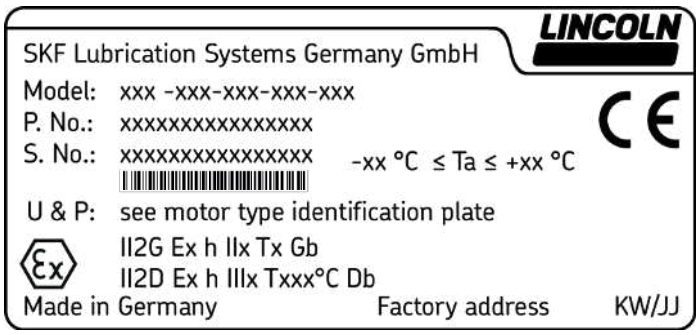
This information applies for grease of NLGI class 2 at +20 °C and 100 bar counterpressure. Deviating conditions such as different NLGI class, temperature or counterpressure may lead to a deviation in the flow rate. This should be taken into account when designing the lubrication points.

4.20. Lubricant filter

Filter area: 5.1 cm^2
Grade of filtration: 280 µm

4.21. Type identification plate

The following information is stated on the type identification plate:



4.22. Storage until the first use

- in the original packaging
- in dry rooms with little dust
- without direct sun or UV radiation
- without aggressive, corrosive substances at the place of storage
- without vibrations
- protected against pests (insects, rodents, etc.)

Temperature range:	- 20 °C minimum
	+ 40 °C maximum
For part number 605-40759-6	+ 50 °C maximum
Air humidity (relative):	90 % maximum
Storage time:	24 months max.

NOTICE

Risk of damage to the machine or system
Prior to initial use or after the storage time ends, prefilled components must be inspected and replaced, if necessary, in case the lubricant quality has changed, or filled with lubricant suitable for the application purpose.

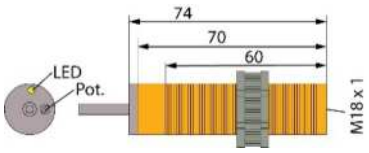
Special storage conditions of the motor

- Do not store the motor on the fan cover.
- After a longer period of storage, make sure to check the insulation resistance.

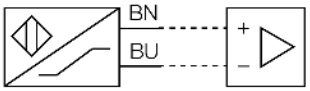
In case of storage > 1 year:
Make sure to observe the grease service life of the ball bearings which is reduced by 10 % per year.

5. Technical data of the capacitive sensor

Type designation	Capacitive sensor (Namur)
Part number	664-34621-2
Rated operating distance Sn	5 mm for flush installation 7.5 mm for non-flush installation
Secured switching distance	≤ (0.72 x Sn) mm
Hysteresis	1….. 20 %
Temperature drift	≤ ± 20 %
Repeatability	≤ 2 %
Ambient temperature	-25 °C - +70 °C
Voltage	nominal 8.2 VDC
Current consumption, not activated	≤ 1.2 mA
Current consumption, activated	≥ 2.1 mA
Switching frequency	0.1 kHz
Output function	2-wire NAMUR
Internal capacity (C_i)	150 nF
Inductivity (L_i)	150 µH
Design	Threaded tube M 18 x 1
Dimensions	74 mm
Housing material	Plastic PA12-GF30
Material of active surface	Plastic PA12-GF30, yellow
Admissible pressure onto front closing cap	≤ 6 bar
Max. tightening torque Housing nut	2 Nm
Connection	Cable
Cable quality	Ø 5.2 LiYY, PVC, 10 m
Cable cross section	2 x 0.34 mm²
Vibration resistance	55 Hz (1mm)
Shock resistance	30 g (11ms)
Degree of protection	IP 67
MTTF	448 years following SN 29500 40 °C
Switching status display	LED, yellow
Fine adjustment	Potentiometer
Approvals	KEMA 02 ATEX 1090X
Marking	Ⓔx II 2G EX ia IIC T6 Gb Ⓔx II 1D EX ia IIIC T 115 °C Da max. U_i = 20 V, I_i = 20mA, P_i = 200 mW



Connection diagram



6. Technical data of the motor

Part no.	Type of motor	ATEX no.	Manufacturer
245-13984-6	EDRS80S4	PTB 10 ATEX 3026/01	SEW

for pumps with part number 605-40759-6

Rated power	0.55		kW	Code	---------
Operating mode	S 1			Flange	Ø 120
Rated frequency	60		Hz	IP	55
Rated speed	1715		rpm	Design	B14
Rated voltage	254	/ 440	VDC	Size	80
Circuit	D	/ Y		Shaft	19x40
Nominal current	2.15	1.24	A		
Performance factor	0.81		cos φ		
Insulation class	F				
Starting current	5,6 x Rated current				

Part no.	Type of motor	ATEX no.	Manufacturer
245-13984-7	EDRS80S4	PTB 10 ATEX 3026/01	SEW

for pumps with part numbers 605-40759-7 / 605-41759-8

Rated power	0.55		kW	Code	-------
Operating mode	S 1			Flange	Ø 120
Rated frequency	50		Hz	IP	55
Rated speed	1415		rpm	Design	B14
Rated voltage	219 – 241 / 380- 440		VDC	Size	80
Circuit	D	Y		Shaft	19x40
Nominal current	2.35	1.36	A		
Performance factor	0.81		cos φ		
Insulation class	F				
Starting current	5,1 x Rated current				

Part no.	Type of motor	ATEX no.	Manufacturer
2450-00000038	EDRN80MK4	PTB 10 ATEX 3026/01	SEW

for pumps with part numbers 605-40759-7 / 605-41759-8

Rated power	0,55		kW	Code	---------
Operating mode	S 1			Flange	Ø 120
Rated frequency	50		Hz	IP	55
Rated speed	1430		rpm	Design	B14
Rated voltage	220 – 240 / 380 - 415		V	Size	80
Circuit	D	/ Y	Shaft	Shaft	19x40
Nominal current	2,40	1,38	A		
Performance factor	0,76		cos φ		
Insulation class	F				
Starting current	5,9 x Rated current				

7. Brief description of the pump

DANGER

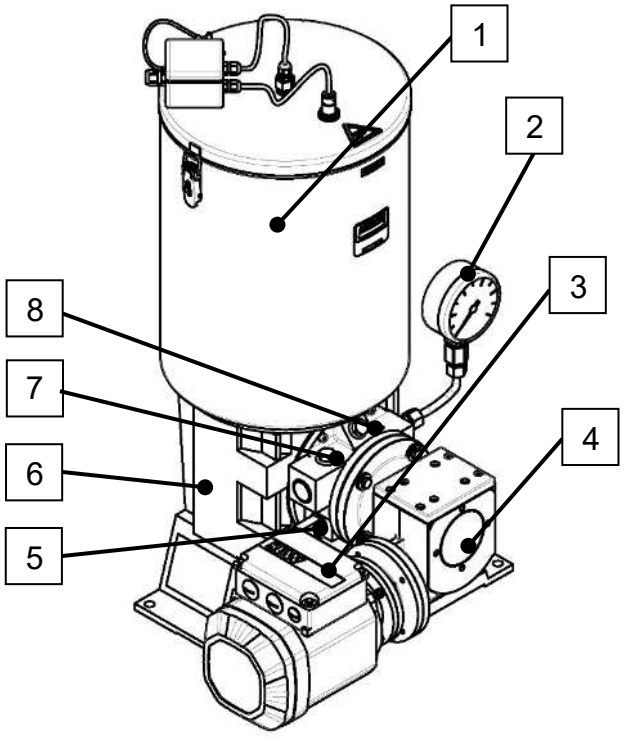
Risk of explosion
Carry out work on electrical parts only if the atmosphere is not potentially explosive.

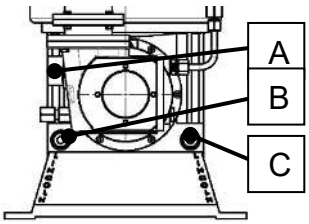
Electric shock
Disconnect the pump from the mains prior to all work on electrical parts.

The ZPU 08 pump consists of the following main components:

(1) Reservoir with stirring paddle, capacitive sensors for filling-level monitoring and grounding
(2) Pressure gauge
(3) Motor
(4) Gear
(5) Pressure control valve
(6) Pump housing
(7) Lubricant filter
(8) Check valve

Connections:
(A) Pressure line
(B) Relief line
(C) Filling line





Operating principle:
The gear reduces the motor speed to the necessary speed of the pump. The eccentric shaft drives the high-pressure pump elements and the stirring paddle. The stirring paddle homogenizes and vents the lubricant.

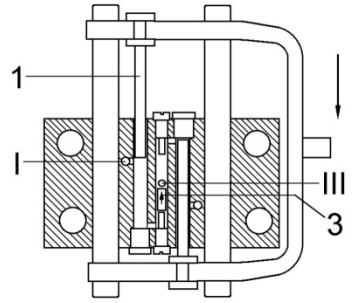
The high-pressure pump element works as a piston pump with two counter-actively acting pistons that alternately take in lubricant and dispense it via the outlet bore to the pressure line. The outlet channels of the high-pressure pistons are controlled by a floating valve piston.

The pump element is driven via a hollow shaft with eccentric pin and switch roll, whereby the rotational movement is transformed into an oscillating linear movement of the pump pistons.

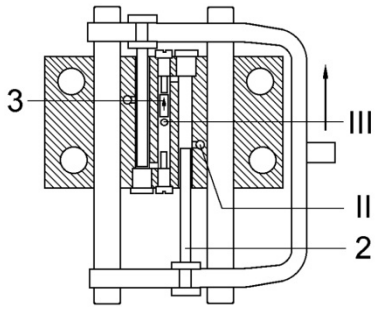
This type of drive allows to select or change the rotational direction of the pump shaft as needed.

The lubricant supplied by the pump element is dispensed to the pressure-line connection via a check valve and a lubricant filter.

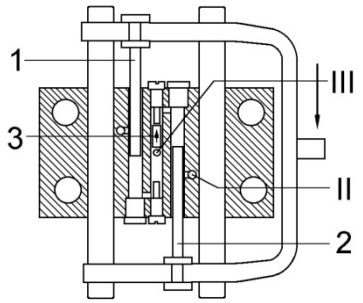
One respectively two sensors determine the reservoir filling level (low-level respectively high- and low-level indication).



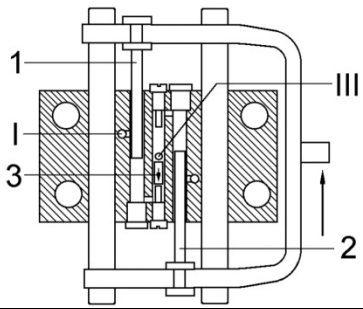
Upper end position
Start of the piston movement downwards



Downward working stroke
Supply piston 1 displaces the floating piston upwards together with the lubricant in front of it. Lubricant is supplied into the pressure line via the open outlet bore. Supply piston 2 generates a negative pressure that sucks in lubricant after opening bore II.



Lower end position
Start of the piston movement upwards



Upward working stroke
By means of the lubricant of the previous suction stroke, supply piston 2 displaces the floating piston downwards.
Lubricant is supplied into the pressure line.
Supply piston 1 sucks in lubricant.

8. Installation and commissioning

8.1. Filling of the reservoir

NOTICE

Risk of centralized lubrication system faults

When filling ensure that no dirt enters the reservoir.

Filling via filling adapter

Automatic Filling:
The filler pump is started by the low-level indication and stopped by the high-level indication.

Manual filling:

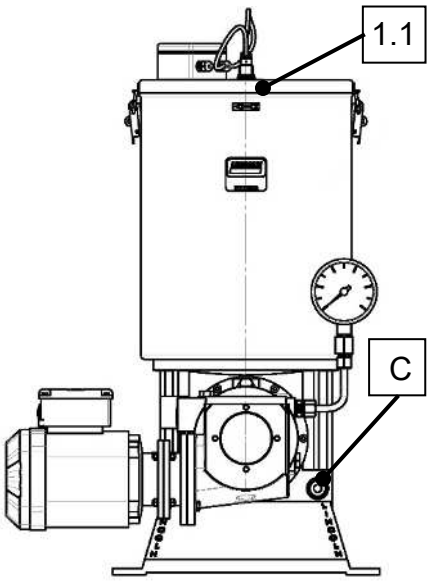
Let a second person observe the filling procedure.

- Switch the filling pump on.
- Fill the reservoir
- Switch off the filler pump.

Filling port (C)

Filling via the reservoir lid

- Switch the pump off.
- Open the reservoir lid (1.1).
- Ensure that no dirt enters the reservoir or the inner side of the reservoir lid. In case of reservoirs equipped with a sensor, the sensor must not be damaged or contaminated.
- Fill in lubricant up to a maximum of 1 cm below the reservoir rim.
- Reposition and close the reservoir lid (1.1). Make sure not to crush the grounding cable.
- Switch the pump on.



8.2. *Inadvertent filling with incorrect lubricant*

Should incorrect lubricant have been filled, please proceed as follows:

- Switch off the pump and secure it against being switched on.
- Remove lubricant.
- Clean the reservoir, pump housing and, if applicable, the tubing system.
- Fill in lubricant of correct specification.
- Switch the pump on.
- Inform your superior to ensure that the error won't occur again.

8.3. *Inspections prior to initial start-up*

NOTICE

Risk of damage to the machine

Fill the feed lines with lubricant and fill the lubrication points manually. Otherwise the bearing points may become damaged due to a lack of lubricant.

Check the entire system for accordance with the intended purpose and the planning documentation.

Ensure that all parameters, characteristic values and means of operation have been correctly adjusted or are present.

If deviations are detected, they must be remedied without delay.

In order to warrant safety and function, a person assigned by the operator must inspect certain areas of the central lubrication system prior to initial commissioning. Report any detected deficiencies immediately to your superior and remedy them. Deficiencies may be remedied by an authorized and qualified specialist only.
Check the following points prior to initial commissioning.

Electrics

- Electrical connections carried out correctly.
- Cable entries sealed correctly.
- The voltage and frequency of the power network correspond to the information on the type identification plate of the motor.
- Monitoring devices and additional equipment (e.g. motor circuit breaker) are correctly connected and adjusted.
- Grounding is complete.
- All parts such as lines, cables, metering devices, etc. have been correctly installed and are undamaged.

Mechanics:

- No dust accumulations present, in particular on the air intake of the motor.
- Loose or missing parts remaining (e.g. pressure relief valves, feed lines).
- Damages, deformations, or cracks.
- Smoke or smouldering spots.
- Discolorations, contaminations and/or corrosion.
- Unusual humidity.
- Unusual odours, vibrations, or sounds.
- Leakages of lubricant at connections and from lines.

8.4. Activation of the pump

The pump is activated on:

- Installation into a machine
    - By switching on the machine contact.
    - By a control provided by the customer.

9. Standard operation

9.1. *Daily start-up*

Below find the activities to be carried out in case of standard operation.

9.2. *Inspections*

With regard to the actions listed below "Inspections prior to commissioning" the operator has to determine adequate control intervals depending on the respective operating situation of the pump.

9.3. *Filling of the reservoir during operation*

Fill the reservoir as described in the chapter "Installation and commissioning".

9.4. *Cleaning*

Exterior cleaning

- Thorough cleaning of all surfaces with a damp cloth.
- Mark and secure wet areas.

Interior cleaning

- Normally, interior cleaning is not required.

10. Maintenance

Regular and appropriate maintenance is a prerequisite to detect and clear faults in time. As individual operating conditions cannot be defined for all applications, the listed terms represent a general advice for undisturbed operation. The terms have to be adapted to the local conditions always.

<table>
<tr><td rowspan="2"> 
  </td><td>  DANGER</td></tr>
<tr><td>Risk of explosion
When carrying out maintenance, repair or modification works on explosion-protected machines, observe the legal and operational prescriptions. If the works are not carried out by the manufacturer, authorized and qualified personnel only is allowed to carry out such works. Works then have to be reviewed by a qualified and officially recognised person.
Carry out work on electrical parts only, if the atmosphere is not potentially explosive.

Electric shock
Make sure to disconnect the pump from the power supply before carrying out works on electrical parts.</td></tr>
</table>

10.1. Maintenance of pump

Any maintenance works may be carried out only while the pump is idle and when there is no potentially explosive atmosphere.
The pump is mainly maintenance-free.
However, the following parts should be inspected and, if necessary, replaced by new parts at regular intervals:

- Pressure relief valves
- Check valves
- Lubricant filter

.
Tolerance frequency of the pressure control valve ± 10 %
If this tolerance is exceeded, the pressure control valve must be replaced.

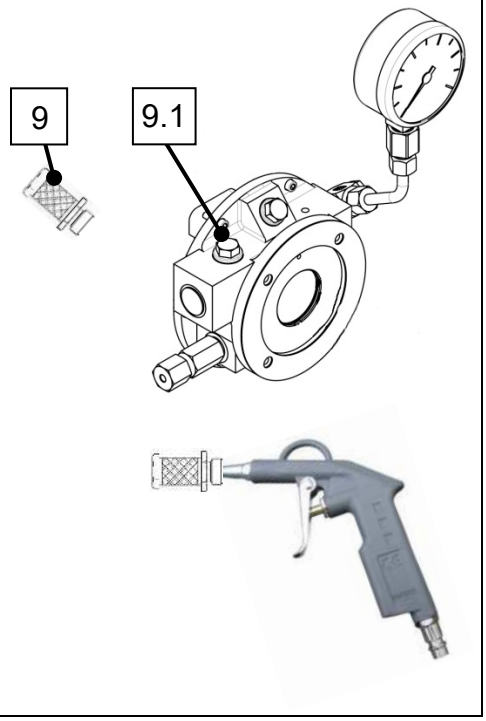
10.2. Maintenance of lubricant filter

The lubricant filter should be checked and, if necessary, be cleaned every 100 operating hours. To do so proceed as follows:

- Switch the pump off.
- Unscrew protective fitting (9.1) from lubricant filter (AF 19).
- Unscrew lubricant fitting (9) (SW 11).
- Clean lubricant filter with non-flammable cleaning agents.
- Blow lubricant filter with compressed air from inside two outside - as shown in the accompanying figure - to avoid contaminations in the strainer.
- Reinstall lubricant filter and protective fitting.

Tightening torques

Lubricant filter	20 ± 2 Nm
Protective fitting	80 ± 8 Nm



10.3. Maintenance of gear unit

For further relevant information on maintenance, see original Instructions by the gear manufacturer.	
Activity	Interval
Visual check for: • Leakages	Every 3,000 hours, but at least once a year
• Damages to the surface protection/ corrosion protection	Depending on the type of application and ambient conditions

10.4. SEW motor maintenance

For further relevant information on maintenance, see original Instructions by the motor manufacturer.	
Activity	Interval
Check the airways and surfaces	Depending on the local degree of contamination, at the latest, however, every 4 weeks
Initial inspection	After about 500 operating hours, at the latest, however, after 1/2 a year.
Ball bearing/ radial sealing ring	Check and, if necessary, replace every 10,000 operating hours
Re-lubrication / oil change	Re-lubrication interval, grease volume and grease quality ➔ see type identification respectively lubrication plate of the motor
Main inspection	After about 10,000 operating hours, at the latest, however, after 1 year.

10.5. Measurement of the insulation resistance

DANGER

Electric shock
Do not touch the terminals when measuring the insulation resistance. If necessary, wear insulating gloves. Observe the manual of the insulation measurement device.

NOTICE

Risk of damage to the motor
The voltage applied for the insulation test must not exceed 500 V.

Before the first start-up and after longer downtimes measure the insulation resistance following the standards (e. g. VDE 0100 / DIN EN 61557-1) valid in the country of use.

If the insulation resistance falls below the required minimum value, determine and eliminate the cause (e.g. appropriate drying of the coil, etc.).

10.6. Maintenance of gear unit

Capacitive sensor:
The capacitive sensor is maintenance-free. Repairs are not possible.

11. Troubleshooting

Motor of pump does not run		
Possible cause	Visible	Remedy
Fault in the superior machine/ external control unit. Motor circuit breaker has tripped.	no pump noise	Check power supply lines/ external control/ motor circuit breaker.
Motor runs, but pump does not supply lubricant		
Possible cause	Visible	Remedy
Reservoir empty	by visual check	Refill
Air pockets in the lubricant	Air bubbles in the lubricant	Vent
Contaminated filter	Short deflections on the pressure gauge (fluttering)	Check and clean filter and replace, if necessary.
Suction bore of pump element is clogged.	After disassembling the pump element	Disassemble and clean the pump element.
Defective or dirty check valve	After disassembling the pump element	Replace check valve.
Eccentric shaft or driving parts of the swivelling lever and the stirring device defective.	Visual check	Replace the affected parts.
Faults on the change-over device	See instructions of change-over device.	See instructions of change-over device.
Blockade in the downstream lubrication system	Lubricant leaking from the pressure relief valve	Determine cause and eliminate it.
If the fault cannot be determined/ remedied, contact our Customer Service.		

Rehfuss gear		
Fault	Possible cause	Remedy
Constant unusual running noise	Bearing damage (grinding noise)	Check oil and oil level, if required, change bearing. ➔ Consult the manufacturer.
	Irregular toothing (knocking noise)	➔ Consult the manufacturer.
Inconstant unusual running noise	Foreign particle in the gear oil	Check oil and oil level (see original instructions of the gear manufacturer). ➔ Consult the manufacturer)
Oil / grease leaking from shaft seal[#]	Defective seal	➔ Consult the manufacturer.
Oil leaking from vent valve	Too much oil in the gear; vent valve dirty; frequent cold starts (foaming oil)	➔ Consult the manufacturer.
Output shaft does not rotate although motor is on	Defective shaft-hub joint	Sent gear to manufacturer for repair.
For further relevant information on maintenance, see original Instructions by the gear manufacturer. Make sure to observe these at all times. [#] Oil/ grease leaking from the radial sealing ring (small quantities) during the run-in phase (24 hours runtime) is deemed normal (DIN 3761).		

SEW motor		
Fault	Possible cause	Remedy
Motor does not start	Feed line interrupted	Check and correct connections, if necessary.
	Blown fuse	Replace fuse
	Motor circuit breaker has responded	Check correct adjustment of motor circuit breaker. If necessary, remedy the fault
	Motor circuit breaker does not switch; fault in the control program.	Check control program of motor circuit breaker and, if necessary, remedy the fault
Motor is hard to start	Motor has been designed for delta connection, but has been wired to star connection	Correct the wiring
	Voltage or frequency largely differ from the target value at least when starting the motor	Provide better grid conditions; check cross section of the feed line
Motor does not start when wired as a star connection, only when wired as a delta connection	In case of star connection torque is not sufficient	Provided the delta starting current is not too high, immediately switch the motor on. Otherwise use larger motor or special version (after consultation)
	Contact fault on star respectively delta connection	Remedy the fault
Wrong direction of motor rotation	Motor connected wrongly	Reverse two phases
Motor hums and has a high power consumption	Defective winding	➔ Consult the manufacturer. Motor must be sent to the workshop for repair
	Rotor touches	
Fuse is tripped or motor circuit breaker trips immediately	Short circuit in the line	Remedy the short circuit
	Short circuit in the motor	➔ Consult the manufacturer. Motor must be sent to the workshop for repair
	Lines connected wrongly	Correct the wiring
	Short circuit on the motor	➔ Consult the manufacturer. Motor must be sent to the workshop for repair
Speed decreasing significantly in case of load	Overload	Measure performance, if necessary, use larger motor or reduce load
	Voltage drops out	Increase cross section of feed line
For further relevant information on maintenance, see original Instructions by the motor manufacturer. Make sure to observe these at all times.		

SEW motor		
Fault	Possible cause	Remedy
Motor heats up too much (measure the temperature)	Overload	Measure performance, if necessary, use larger motor or reduce load
	Insufficient cooling	Correct cooling air supply or open cooling air ways, if necessary, retrofit external fan
	Ambient temperature is too high	Observe admissible temperature range
	Motor is wired to delta connection instead of planned star connection	Correct the wiring
	Feed line has a loose contact (one phase is missing)	Remedy the loose contact
	Blown fuse	Search the cause and remedy (see above); replace fuse
	Mains voltage deviates by more than 5 % from the rated motor voltage. Higher voltage is very unfavourable in case of high-pole motors, as in case of a normal voltage their no-load current is already close to the rated current.	Adapt the motor to the mains voltage
	Nominal operating mode (S1 to S10) exceeded, e.g. because of too high switching frequency	Adapt the nominal operating mode of the motor to the required operating conditions; if necessary, consult an expert to determine the appropriate type of drive
Extreme noise emission	Ball bearing strained, contaminated or damaged	Realign the motor, inspect the ball bearing and replace it, if necessary (see original instructions of the motor manufacturer)
	Vibration of the rotating parts	Determine cause, e.g. imbalance, and eliminate it.
	Foreign particle in the cooling airways	Clean cooling airways
For further relevant information on maintenance, see original Instructions by the motor manufacturer. Make sure to observe these at all times.		

12. Declarations of conformity of the purchase parts

Carl Rehfuss GmbH + Co. KG Antriebstechnik

- Getriebe und Getriebemotoren mit konstanten Drehzahlen / Fixed speed gearboxes and geared motors
- Elektronisch und mechanisch regelbare Antriebe / Electronic and mechanical variable speed drives
- Sonderantriebe und kundenspezifische Lösungen / Special drives and customized solutions

Buchtalsteigle 5
D-72461 Albstadt
Tel.: + 49 (0) 7432 / 70 15-0
Fax: + 49 (0) 7432 / 70 15-0
Email: info@rehfuss.com
Url.: www.rehfuss.com

EU-Konformitätserklärung
EU Declaration of conformity

CARL REHFUSS GmbH + Co.KG erklärt in alleiniger Verantwortung, das die SR, FG, S, SM, SS, SSM-Getriebe
für Gerätegruppe II der Kategorien 2G,2D und 3G,3D, auf die sich diese Erklärung bezieht, mit der

declares in sole responsibility that the SR,FG, S, SM,SS,SSM-gearboxes for equipment group II in category 2G,2D and 3G,3D that are subject to this declaration are meeting the requirements set forth in

ATEX – Richtlinie 2014/34/EU

ATEX – Directive 2014/34/EU

übereinstimmen.
to conform.

Angewandte Norm:
Applicable standard:

EN 1127-1:2011
EN 13463-1:2009
EN 13463-5:2011
EN 13463-8:2003
EN 60529:2000

Die technische Dokumentation für Getriebe der Kategorie 2 ist hinterlegt bei notifizierter Stelle:
The technical documentation for category 2 gearboxes is stored at the notified location:

TÜV PRODUKT SERVICE GmbH, EU-Code 0123

Bevollmächtigter zur Ausstellung dieser Erklärung im Namen des Herstellers
authorized representative for issuing this declaration on behalf of the manufacturer

Ort und Datum der Ausstellung
place and Date of issuing

Albstadt 20.04.2016

Bevollmächtigter zur Zusammenstellung der technischen Unterlagen
authorized representative for compiling the technical documents

Dipl. Ing. (FH) M. Fink

Funktion: Bereichsleiter Technik
Function: Technical Director

EU Declaration of Conformity

SEW EURODRIVE

Translation of the original text

903260318/EN

SEW-EURODRIVE GmbH & Co KG
Ernst-Blickle-Str. 42, 76646 Bruchsal
declares under sole responsibility that the following products

Motors of the series	**EDRN63.. – EDRN315..**	
Possibly in connection with brake of the series	**BE.., BF.., BT.., as well as for FS02 and FS11**	**14)**
Possibly in connection with encoder of the series	**ES7., EG7., EH7., EK8., AK8., AH7., AH8., XK., XV., AS7., AG7., XS7., XG7., EV2., EV7., AV7., EV8., AV8.,** **also in FS04 and FS11**	**12)** **14)**
Variant	**/3GD** **/3D** **/3G**	
Designation	**II 3G Ex ec IIB T3 Gc** **II 3G Ex ec IIC T3 Gc** **II 3D Ex tc IIIB T120°C Dc** **II 3D Ex tc IIIB T140°C Dc** **II 3D Ex tc IIIC T120°C Dc** **II 3D Ex tc IIIC T140°C Dc**	
are in conformity with		
ATEX Directive	**2014/34/EU** **(L 96, 29.03.2014, 309-356)**	
Machinery Directive	**2006/42/EG** **(L 157, 09.06.2006, 24-86)**	**14)**

This includes the fulfillment of the protection targets for "electrical power supply" in accordance with annex I No. 1.5.1 according to the Low Voltage Directive 73/23/EEC and 2006/95/EC.

EMC Directive	**2014/30/EU** **(L 96, 29.03.2014, 79-106)**	**12)**
ErP Directive	**2009/125/EC** **(L 285, October 31, 2009, 10-35)**	**17)**
RoHS Directive	**2011/65/EU** **(L 174, 01.07.2011, 88-110)**	

Bruchsal	3/30/2021		Page 1 of 2
Place	Date	Dr. Hans Krattenmacher Managing Director Innovation/Mechatronics	a) b)

a) Authorized representative for issuing this declaration on behalf of the manufacturer
b) Authorized representative for compiling the technical documents

EU-Konformitätserklärung Nr. 5021M
EU Declaration of Conformity No.:

TURCK

Wir/ We HANS TURCK GMBH & CO KG
WITZLEBENSTR. 7, D – 45472 MÜLHEIM A.D. RUHR

erklären in alleiniger Verantwortung, dass die Produkte
declare under our sole responsibility that the products

Zweidraht Näherungsschalter Typ ...-....-.Y1.-...../.... (gemäß EN 60947-5-6 NAMUR)

Two Wire Proximity Sensors Type ...-....-.Y1.-...../.... (according to EN 60947-5-6 NAMUR)

auf die sich die Erklärung bezieht, den Anforderungen der folgenden EU-Richtlinien durch Einhaltung der folgenden Normen genügen:
to which this declaration relates are in conformity with the requirements of the following EU-directives by compliance with the following standards:

EMV – Richtlinie / EMC Directive	2004 / 108 / EG	15. Dez.2004 [1]
EMV – Richtlinie / EMC Directive	2014 / 30 / EU	26. Feb. 2014 [2]
EN 60947-5-6:2000		
Richtlinie / Directive ATEX 100a	94 / 9 / EG	23. März 1994 [1]
Richtlinie / Directive ATEX	2014 / 34 / EU	26. Feb. 2014 [2]
EN 60079-0:2012 EN 60079-11:2012		

[1]: bis zum / until 19. April 2016 [2]: ab / as from 20. April 2016

Weitere Normen, Bemerkungen
additional standards, remarks

Zusätzliche Informationen:
Supplementary information:

Angewandtes ATEX-Konformitätsbewertungsverfahren / ATEX - conformity assessment procedure applied:
Modul B + Modul D / E / module B + module D / E

EU-Baumusterprüfbescheinigung (Modul B) KEMA 02 ATEX 1090 X / EC-type examination certificate (module B):
ausgestellt von / issued by: DEKRA Certification B.V., Kenn-Nr. / number 0344,
Utrechtseweg 310, NL-6812 AR Arnhem

Zertifizierung des QS-Systems gemäß Modul D durch:
certification of the QS-system in accordance with module D by :
Physikalisch Technische Bundesanstalt, Kenn-Nr. / number 0102,
Bundesallee 100, D-38116 Braunschweig

Mülheim, den 01.04.2016

i.V. Dr. M. Linde, Leiter Zulassungen / Manager Approvals

Ort und Datum der Ausstellung / Place and date of issue

Name, Funktion und Unterschrift des Befugten / Name, function and signature of authorized person

EU Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de conformité

BARTEC VARNOST

BARTEC Varnost d.o.o.
Cesta 9. Avgusta 59
1410 Zagorje ob Savi
Slovenia

Nº VS-02 02 099E

Wir	We	Nous
BARTEC Varnost d.o.o.,		
erklären in alleiniger Verantwortung, dass das Produkt	declare under our sole responsibility that the product	attestons sous notre seule responsabilité que le produit
Abzweig- und Verbindungskasten	**Junction Box**	**Boites de derivation et coffrets de junction**
Typ: 07-5103-*/***, 07-5105-***/***, 07-5106-***/*** and 07-5107-***/***		
auf das sich diese Erklärung bezieht den Anforderungen der folgenden **Richtlinien (RL)** entspricht	to which this declaration relates is in accordance with the provision of the following **directives (D)**	se référant à cette attestation correspond aux dispositions des **directives (D)** suivantes
ATEX-Richtlinie 2014/34/EU (gültig ab 20. April 2016)	**ATEX-Directive 2014/34/EU (valid from April 20th, 2016)**	**ATEX-Directive 2014/34/UE (valide à partir du 20. Avril 2016)**
RoHS-Richtlinie 2011/65/EU	**RoHS-Directive 2011/65/EU**	**RoHS-Directive 2011/65/UE**
Maschinen-Richtlinie 2006/42/EG	**Machinery Directive 2006/42/EC**	**Directive Européenne de l'Equipment 2006/42/CE**
und mit folgenden Normen oder normativen Dokumenten übereinstimmt	and is in conformity with the following standards or other normative documents	et est conforme aux normes ou documents normatifs ci-dessous
EN 60079-0:2012 **EN 60079-7:2007**	**EN 60079-11:2012** **EN 60079-31 :2014**	**EN 60529:1991** **+A1:2000+ A2:2013**
Kennzeichnung	**Marking**	**Marquage**
Ⓔx	**II 2G Ex e ia/ib IIA, IIB, IIC T6,T5 Gb** **II 2G Ex ia/ib IIA, IIB, IIC T6,T5 Gb** **II 2D Ex tb IIIC T80°C, T95°C Db IP66** **II 2D Ex ia/ib IIIC T80°C, T95°C Db IP66**	
Verfahren der EU-Baumuster-prüfung / Benannte Stelle	**Procedure of EU-Type Examination / Notified Body**	**Procédure d'examen UE de type / Organisme Notifié**
PTB 08 ATEX 1064 **0102 PTB, Bundesallee 100, 38116 Braunschweig, D**		

CE 1304

Zagorje, den 19.04.2016

Janez Gaiski
Technical Manager

VS-02 02 099E-5103(4,5,6,7) – EU (April 2016)

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Konformitätsbescheinigung
Attestation of Conformity
Attestation de conformité

№ **01-9702-7C0001_B**

BARTEC GmbH
Max-Eyth-Straße 16
97980 Bad Mergentheim
Germany

Wir	We	Nous
	BARTEC GmbH,	
erklären in alleiniger Verantwortung, dass das Produkt	declare under our sole responsibility that the product	attestons sous notre seule responsabilité que le produit
Miniklemme	**Mini-terminal**	**Minibornes**
	Typ 07-9702-0*2*/**	
auf das sich diese Erklärung bezieht den Anforderungen der folgenden **Richtlinien (RL)** entspricht	to which this declaration relates is in accordance with the provision of the following **directives (D)**	se référant à cette attestation correspond aux dispositions des **directives (D)** suivantes
ATEX-Richtlinie 2014/34/EU **RoHS-Richtlinie 2011/65/EU**	**ATEX-Directive 2014/34/EU** **RoHS-Directive 2011/65/EU**	**ATEX-Directive 2014/34/UE** **RoHS-Directive 2011/65/UE**
und mit folgenden Normen oder normativen Dokumenten übereinstimmt	and is in conformity with the following standards or other normative documents	et est conforme aux normes ou documents normatifs ci-dessous
EN 60079-0:2012	**IEC 60079-7:2015**	
Kennzeichnung	**Marking**	**Marquage**
	II 2G Ex eb IIC Gb **I M2 Ex eb I Mb**	
Verfahren der EU-Baumusterprüfung / Benannte Stelle	**Procedure of EU-Type Examination / Notified Body**	**Procédure d'examen UE de type / Organisme Notifié**
	PTB 99 ATEX 3117 U **0102 PTB, Bundesallee 100, 38116 Braunschweig, D**	
(*) Die Ex-Komponente ist Teil eines elektrischen Betriebsmittels oder eines Moduls, das mit dem Symbol „U" gekennzeichnet ist, das nicht für sich allein verwendet werden darf und über dessen Einbau in elektrische Betriebsmittel oder Systeme zur Verwendung in explosionsgefährdeten Bereichen gesondert entschieden werden muss.	(*) The Ex-component is a part of an electrical apparatus or a module, marked with the symbol „U", which is not intended to be used alone and requires additional consideration when incorporated into electrical apparatus or systems for use in explosive atmospheres.	(*) Le composant Ex est partie de matériel électrique ou de module, marquée du symbole „U", ne devant pas être utilisée seule et nécessitant une certification complémentaire lorsqu'elle est incorporée a un matériel électrique ou à un système pour atmosphères explosives.

03-0383-0363

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Konformitätsbescheinigung
Attestation of Conformity
Attestation de conformité

BARTEC

BARTEC GmbH
Max-Eyth-Straße 16
97980 Bad Mergentheim
Germany

Nº **01-9702-7C0001_B**

Merkmale dieser Komponenten sowie die Bedingungen für ihren Einbau in Geräte und Schutzsysteme siehe Betriebsanleitung der Komponente.	Characteristics and how the component must be incorporated into equipment or protective systems see operation manual of the component.	Les caractéristiques du composant ainsi que les conditions d'incorporation dans des appareils ou des systèmes de protection regarde voir l'instruction d'emploi du composant.

0044

Bad Mergentheim, den 25.04.2016

i.V. Paul Wielsch
Director Business Line ESS

i.V. Michael Schulte
Leiter GW PZ

03-0383-0363

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Operating Instructions
Pump ZPU 08 ATEX

810-53711-1
Rev.: 009
2023/11/20