

Lubrication pump P205EEX

Operating Instructions
following ATEX directive 2014/34/EU

EN



951-181-014-EN
Version 29
18/03/2024



EU Declaration of conformity following ATEX directive 2014/34/EU, annex X

The manufacturer, SKF Lubrication Systems Germany GmbH, Walldorf Facilities, Heinrich-Hertz-Str. 2-8, DE - 69190 Walldorf hereby declares under sole responsibility that the electrical equipment

Designation: Electrically driven pump to supply lubricant within a centralized lubrication system
Types: P205xxxEEEX
Part numbers: 655-xxxxx-x | 6550-xxxxxxx

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 documents according to:

- 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.

The following directives and standards were applied in the applicable areas:

Directives

2011/65/EU	RoHS II
2014/30/EU	Electromagnetic compatibility

Standards

EN ISO 12100:2010	EN 1127-1:2019	EN 61000-6-2:2005	EN IEC 630000:2018
EN 809:1998+A1:2009/AC2010	EN ISO 80079-36:2016	EN 61000-6-4:2007/A1:2011	
EN 60204-1:2018	EN ISO 80079-37:2016	EN IEC 60947-5-2:2020	

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, 24.11.2022

Jürgen Kreutzkämper
Manager R&D Germany



Stefan Schürmann
Manager PD Germany South



UK Declaration of Conformity following to Regulation 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
 Type: P205xxxEEX
 Part numbers: 655-xxxxx-x | 6550-xxxxxxx

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 documents 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

Standards

EN ISO 12100:2010	EN 1127-1:2019	EN 61000-6-2:2005	EN IEC 63000:2018
EN 809:1998+A1:2009/AC2010	EN ISO 80079-36:2016	EN 61000-6-4:2007/A1:2011	
EN 60204-1:2018	EN ISO 80079-37:2016	EN IEC 60947-5-2:2020	

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), of the Supply of Machinery (Safety) Regulations 2008 No. 1597 and all other applicable regulations

Walldorf, 24.11.2022

Jürgen Kreutzkämper
 Manager R&D Germany



Stefan Schürmann
 Manager PD Germany South



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

No.:	Essential health and safety requirement	Applicable:	Fulfilled:
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
1.7.1.1	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
1.7.4.1	General principles for the drafting of operating instructions/assembly instructions	YES	YES
1.7.4.2	Contents of the operating instructions/assembly instructions	YES	YES
1.7.4.3	Sales literature	YES	YES

Manufacturer

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

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

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

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. For more information please contact the respective SKF Service address.

Authorized local distributorsGreat 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

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Warranty

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

Warranty

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

Disclaimer

The manufacturer shall not be held responsible for damages caused by:

- Non appropriate use
faulty assembly, operation, setting, maintenance, repair or accidents
- Use of inappropriate lubricants
- Improper or late response to malfunctions
- Unauthorized modifications of the product
- Intent or negligence
- Use of non-original SKF spare parts
- Faulty planning or layout of the centralized lubrication system

Liability for loss or damage resulting from the use of our products is limited to the maximum purchase price. Liability for consequential damages of whatever kind is excluded.

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Explanation of symbols, signs and abbreviations

The following abbreviations may be used within these instructions. Symbols within safety notes mark the kind and source of the hazard.

	General warning		Dangerous electrical voltage		Risk of falling		Hot surfaces
	Unintentional intake		Crushing hazard		Pressure injection		Suspended load
	Electrostatically sensitive components		Risk of explosion		Explosion-protected component		
	Wear personal protective equipment (goggles)		Wear personal protective equipment (face shield)		Wear personal protective equipment (gloves)		Wear personal protective equipment (protective clothes)
	Wear personal protective equipment (safety shoes)		Disconnect product from mains		General obligation		
	Keep unauthorized persons away		Protective earth		Safety extra-low voltage (SELV)		Safe galvanic isolation (SELV)
	CE marking		Disposal, recycling		Disposal of waste electrical and electronic equipment		

	Warning level	Consequence	Probability	Symbol	Meaning
	DANGER	Death, serious injury	imminent	●	Chronological guidelines
	WARNING	Death, serious injury	possible	○	Lists
	CAUTION	Minor injury	possible	☞	Refers to other facts, causes, or consequences
	NOTICE	Property damage	possible		

Abbreviations and conversion factors

re.	regarding	°C	degrees Celsius	°F	degrees Fahrenheit
approx.	approximately	K	Kelvin	Oz.	Ounce
i.e.	that is	N	Newton	fl. oz.	fluid ounce
etc.	et cetera	h	hour	in.	inch
poss.	possibly	s	second	psi	pounds per square inch
if appl.	if applicable	d	day	sq.in.	square inch
a.a.r.	as a rule	Nm	Newtonmeter	cu. in.	cubic inch
incl.	including	ml	millilitre	mph	miles per hour
min.	minimum	ml/d	millilitre per day	rpm	revolutions per minute
max.	maximum	cc	cubic centimetre	gal.	gallon
min.	minute	mm	millimetre	lb.	pound
etc.	et cetera	l	litre	hp	horse power
e.g.	for example	dB (A)	sound pressure level	kp	kilopond
kW	kilowatt	>	greater than	fpsec	feet per second
U	Voltage	<	less than	conversion factors	
R	resistance	±	plus/minus	Length	1 mm = 0.03937 in.
I	current	Ø	diameter	Area	1 cm ² = 0.155 sq.in
V	volt	kg	kilogram	Volume	1 ml = 0.0352 fl.oz.
W	watt	rh	relative humidity		1 l = 2.11416 pints (US)
AC	alternating current	=	about	Mass	1 kg = 2.205 lbs
DC	direct current	=	equal to		1 g = 0.03527 oz.
A	ampere	%	per cent	Density	1 kg/cm ³ = 8.3454 lb./gal(US)
Ah	ampere hour	‰	per mille		1 kg/cm ³ = 0.03613 lb./cu.in.
Hz	frequency [Hertz]	≥	greater than	Force	1 N = 0.10197 kp
nc	normally closed	≤	less than	Pressure	1 bar = 14.5 psi
no	normally open contact	mm ²	square millimetre	Temperature	°C = (°F-32) x 5/9
OR	logical OR	rpm	revolutions per minute	Output	1 kW = 1.34109 hp
&	logical AND			Acceleration	1 m/s ² = 3.28084 ft./s ²
N/A	Not applicable			Speed	1 m/s = 3.28084 fpsec.
					1 m/s = 2.23694 mph

1. Safety instructions

1.1 General safety instructions

- The owner must ensure that safety information has been read by any persons entrusted with works on the product or by those persons who supervise or instruct the before-mentioned group of persons. In addition, the owner must also ensure that the relevant personnel are fully familiar with and have understood the contents of the Instructions. It is prohibited to commission or operate the product prior to reading the Instructions.
- These Instructions must be kept for further use.
- The described products were manufactured according to the state of the art. Risks may, however, arise from a usage not according to the intended purpose and may result in harm to persons or damage to material assets.
- Any malfunctions which may affect safety must be remedied immediately. In addition to these Instructions, general statutory regulations for accident prevention and environmental protection must be observed.

1.2 General behaviour when handling the product

- The product 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.
- Unauthorized persons must be kept away.
- 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.
- Remedy occurring faults in the frame of responsibilities. Immediately inform your superior in the case of faults beyond your competence.
- Wear personal protective equipment.
- Never use parts of the centralized lubrication system or of the machine as standing or climbing aids.

1. Safety instructions

1.3 Intended use

Supply of lubricants within a centralized lubrication system following the specifications, technical data and limits stated in these Instructions:

Usage is allowed exclusively for professional users in the frame of commercial and economic activities.

1.4 Foreseeable misuse

Any usage differing from the one stated in these Instructions is 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.

1.5 Painting of plastic parts

Painting of any plastic parts or seals of the described products is expressly prohibited. Remove or tape plastic parts completely before painting the superior machine

1.6 Modifications of the product

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

1.7 Prohibition of certain activities

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

- Repairs or changes to the drive
- Replacement of or changes on the pistons of the pump elements

1.8 Inspections prior to delivery

The following inspections were carried out prior to delivery:

- Safety and functional tests
- Electrical inspections following DIN EN 60204-1:2007 / VDE 0113-1:2007.
- In case of explosion-protected products: Inspections following the requirements of the ATEX Directive.

1.9 Other applicable documents

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

- Operational instructions and approval rules
- Safety data sheet of the lubricant used

Where appropriate:

- Project planning documents
- Any documents of other components required to set up the centralized lubrication system
- Operator's explosion protection document
- Reh fuss gear:
Instructions for the SM type series
- SEW motor:
Explosion-protected three-phase motors
Instructions for type series
 - EDRN
 - EDR
 - DR
- CEMP motor:
ATEX safety instructions (multilingual)
Instructions for use and maintenance (multilingual)

1.10 Markings on the product



Warning of dangerous electrical voltage



Warning of hand injuries when reaching into the reservoir



Rotational direction of the pump



Equipotential bonding connections

1.11 Notes related to the UKCA marking



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

1. Safety instructions

1.12 Notes related to the type identification plate

The type identification plate states important characteristics such as type designation, order number, and regulatory characteristics.

To ensure that the loss of data due to an illegible type identification plate is avoided, the characteristics should be entered in the Instructions.

Model: _____

P. No.: _____

Series: _____

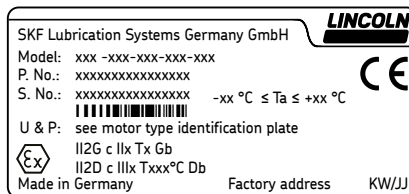
Year of construction (KW/YY)

Voltage: _____

Control voltage: _____

Power: _____

_____ °C ≤ Ta ≤ _____ °C



1.13 Notes related to the CE marking

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

- 2014/34/EU
Directive relating to equipment and protective systems for use in explosive atmospheres (ATEX)
- 2014/30/EU
Electromagnetic compatibility
- 2011/65/EU
(RoHS II) Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Reference on Low Voltage Directive 2014/35/EU

The protective regulations of Low Voltage Directive 2014/35/EU are fulfilled according to annex II (1.2.7) of ATEX Directive 2014/34/EU.

Reference on Pressure Equipment Directive 2014/68/EU

Because of its performance data the product does not achieve the limit values defined in Article 4 (1) (a) (ii) and is therefore excluded from the scope of application of Pressure Equipment Directive 2014/68/EU following Article 1 (2) (f).

1.14 Persons authorized to operate the pump

1.14.1 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.

1.14.2 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.

1.14.3 Specialist in electrics

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

1.14.4 Specialist for maintenance and repairs in potentially explosive atmospheres

A person who is qualified by training, knowledge 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 directives 2014/34/EU and 1999/92/EC.

1.15 Briefing of external technicians

Prior to commencing the activities, external technicians must be informed by the operator of the company safety provisions, the applicable accident prevention regulations to be maintained, and the functions of the superordinate machine and its protective devices.

1.16 Provision of personal protective equipment

The operator must provide suitable personal protective equipment for the respective location of operation and the purpose of operation. For work in potentially explosive atmospheres this also includes ESD clothing and ESD tools.

1. Safety instructions

1.17 Operation

The following must be observed during commissioning and operation:

- Any information within this manual and the information within the referenced documents
- All laws and regulations to be complied with by the user

1.18 Emergency stopping

In case of an emergency stop the pump station by:

- Switching off the superior machine or system in which the pump station has been integrated.
- Actuating the emergency stop switch of the superior machine.

1.19 Transport, installation, maintenance, malfunctions, repair, shutdown, disposal

- All relevant persons must be informed of the activity prior to starting any work. Observe the precautionary operational measures and work instructions.

- Carry out transport using suitable transport and hoisting equipment on suitable ways only.
- 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.
- Prior to performing work, the product and the machine, into which the product will be integrated, must be depressurized and secured against unauthorized activation.
- 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.
- Assemble the product only outside of the operating range of moving parts, at an adequate distance from sources of heat or cold. Other units of the machine or vehicle must not be damaged or impaired in their function by the installation.
- Dry or cover wet, slippery surfaces accordingly.
- Cover hot or cold surfaces accordingly.
- Work on electrical components must be carried out by electrical specialists only. Observe any waiting periods for discharging, if necessary. Carry out works on electrical components only while the system is depressurized and use voltage isolated tools suitable for electrical works only.
- 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.
- Fuses must not be bypassed Replace defective fuses always by fuses of the same type.
- Ensure proper grounding of the product.
- Ensure proper connection of the protective conductor.
- Undertake drilling only at non-critical, non-load bearing parts of the operator's machine/ infrastructure. Use any available boreholes. Do not damage lines and cables when drilling. Changes to SKF products are prohibited. This includes all drilling, welding, flame-cutting, and grinding work.
- Observe possible abrasion points. Protect the parts accordingly.
- All components used must be designed for:
 - maximum operating pressure
 - max / min ambient temperature
 - the lubricant to be supplied
 - the ATEX zone required
 - the operating / ambient conditions at the place of usage
- No parts of the centralized lubrication system may be subjected to torsion, shear, or bending.
- Check all parts prior to their usage 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.

1.20 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 product are present completely, highly visible and undamaged
- Illegible or missing warning labels are to be replaced without delay

1.21 Cleaning

- Risk of fire and explosion when using inflammable cleaning agents Only use non-flammable cleaning agents suitable for the purpose.
- Do not use aggressive cleaning agents.
- Thoroughly remove residues of cleaning agents from the product.
- Do not use steam jet and high pressure cleaners. Electrical components may be damaged. Observe the IP type of protection of the pump.
- Cleaning work may not be carried out on energized components.
- Mark damp areas accordingly.

1.22 Safety-related protective and emergency devices must

- 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.
- If protective and safety equipment has to be dismantled, it must be reassembled immediately after finishing the work, and then checked for correct function.

Depending on the equipment variant of the pump the following safety-related protective and emergency devices are available:

- Sensors for filling-level monitoring
- Mechanical indication of the filling level
- Overload / thermal circuit breaker of the electric motor
- Pressure relief valves
- Equipotential bonding

1.23 Special safety instructions regarding explosion protection

- Always behave so that explosion hazards are avoided.
- A written work approval from the operator is required prior to working in potentially explosive areas. Keep unauthorized persons away
- 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.
- Measures for explosion protection must never be deactivated, modified or bypassed.
- Transport damages can result in the loss of the explosion protection. If transport damages can be seen, do not assemble the product nor put it into operation.
- 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 in line with the operating conditions for damage which may represent an ignition risk as well as with regard to correct functioning. An inspection must be carried out every 12 months at the latest.
- 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
- The limits of use related to explosion protection are clearly defined by the device categories, gas and dust groups as well as temperature classes stated in the explosion protection marking. In any case, also if dust group IIIC is specified, light-metal dusts as explosive ambient media are prohibited
- The filling-level monitoring must be ensured by the operator at a high degree of safety.
- The product may be filled via the reservoir lid only, if there is no potentially explosive atmosphere. Filling via the filling port is also possible with a potentially explosive atmosphere. Connect the filler pump to the equipotential bonding of the pump.
- The product may be cleaned only, if there is no potentially explosive atmosphere.
- The ignition temperature of the lubricant must lie at least 50 K over the maximum surface temperature of the components.
- In case of products without electrical filling level control make sure to check the lubricant filling level at regular intervals.

- 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
 - Executing company
 - Type of repair
 - If applicable, expert's code
- All parts of the earthing 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.
- The operator must check critically whether operation without a low-level signal might lead to a new risk potential (e.g. through heat-up of bearing points on the machine in the area of ignition temperature in the case of lacking lubrication). 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 product must be integrated in 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.

1.24 Expiry of the ATEX approval

The ATEX certificate for this product expires through:

- Inappropriate usage
- Unauthorized modifications
- Use of non-original SKF 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

1.25 Operation in explosion-protected areas

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.

1.26 Explosion protection marking

The explosion protection marking is found in chapter "Technical data" and on the type identification plate of the pump.

1.27 Residual risks

Residual risk	Possible in life cycle										Prevention/ remedy
Personal injury/ material damage due to falling of raised parts	A	B	C				G	H	K		Keep unauthorized persons away. No people may remain under suspended loads. Lift parts with adequate lifting devices.
Personal injury/ material damage due to tilting or falling of the product because of non-observance of the stated tightening torques		B	C				G				Observe the specified tightening torques. Fix the product only to components with sufficient load capacity. If no tightening torques are stated, apply tightening torques according to the screw size characteristics for 8.8 screws.
Personal injury/ material damage due to electric shock in case of damage to the connection cable		B	C	D	E	F	G	H			Check the connection cable with regard to damages before the first usage and then at regular intervals. Do not mount cable to moving parts or friction points. If this cannot be avoided, use spring coils respectively protective conduits.
Personal injury/ damage to material due to spilled or leaked lubricant		B	C	D		F	G	H	K		Be careful when filling the reservoir and when connecting or disconnecting lubricant feed lines. Always use suitable hydraulic screw connections and lubrication lines for the stated pressures. Do not mount lubrication lines to moving parts or friction points. If this cannot be avoided, use spring coils respectively protective conduits.

Life phases:

A = transport, B = installation, C = initial start-up, D = operation, E = cleaning, F = maintenance, G = fault, repair, H = shutdown, K = disposal

1.28 Residual risks ATEX

Residual risk						Prevention/ remedy
Usage in a potentially explosive atmosphere without testing the equipotential bonding with regard to electrical continuity	C	D			G	Check the equipotential bonding with regard to electrical continuity before the initial start-up, after each repair and additionally at regular intervals to be determined by the operator.
Operation with damaged, lacking ATEX painting or ATEX painting done wrongly later on and not complying with the standards applicable for ATEX	C	D	E	F	G	Before the first start-up and later at regular intervals check the painting and let it be renewed by authorized personnel, where appropriate.
Heat-up of non-lubricated lubrication points in the area of ignition temperature through undetected faults within the centralized lubrication system.	C	D			G	The operator must check critically whether an operation without corresponding detection options might lead to a new risk potential (e.g. through heat-up of non-lubricated bearing points on the machine up to the ignition temperature range). If this cannot be excluded with certainty, provide adequate countermeasures.
Heat-up of components in the area of ignition temperature or formation of a potentially explosive atmosphere through whirling up of dust.	C	D	E	F	G	Avoid dust accumulation and remove dust immediately. Select a location of installation with as little dust as possible.

Life cycle: A = transport, B = installation, C = initial start-up, D = operation, E = cleaning, F = maintenance, G = fault, repair, H = shutdown, K = disposal

Residual risk							Prevention/ remedy
Generation of electrostatic charges and sparks through dropping parts.		C	D	E	F	G	Secure parts against falling. Where appropriate, cover parts in order to avoid the formation of sparks.
Bringing catalytic, unstable or pyrophoric substances into a potentially explosive area.		C	D	E	F	G	Ensure that none of these substances gets into the potentially explosive area. Have all substances approved by the operator first.
Use of isolating amplifiers to operate the capacitive sensor in potentially explosive areas.		C	D			G	Mount isolating amplifiers outside potentially explosive areas only.
Deviating installation position. Loss of correct filling-level signal function.		C	D			G	Observe the specified installation position ($\pm 5^\circ$). If needed, correct installation position.
Using a lubricant not suitable for low temperatures. In case of low temperatures too high lubricant viscosity may result in a functional failure of the pump		C	D		F	G	Only use lubricants suitable for the respective actual operating temperature
Filling of the reservoir via the reservoir lid in case of a potentially explosive atmosphere	B	C	D		F		Fill the reservoir via the reservoir lid only, if there is no explosive atmosphere

Life cycle: A = transport, B = installation, C = initial start-up, D = operation, E = cleaning, F = maintenance, G = fault, repair, H = shutdown, K = disposal

2. Lubricants

2.1 General information

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)
- economic and ecological aspects

2.2 Selection of lubricants

SKF considers lubricants to be an element of system design. 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 or operator of the machine, preferably together with the lubricant supplier based on the requirement profile defined.

Should you have little or no experience with the selection of lubricants for centralized lubrication systems, please contact SKF. If required we will be glad to support customers to select suitable components for feeding the selected lubricant and to plan and design their centralized lubrication system.

You will avoid possible downtimes through damage to your machine or system or damage to the centralized lubrication system.

2.3 Material compatibility

Lubricants must generally be compatible with the following materials:

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

2.4 Temperature characteristics

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



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

2.5 Ageing of lubricants

After a prolonged downtime of the machine, the lubricant must be inspected prior to re-commissioning 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 a further suitability of the lubricant, please replace it prior to re-commissioning and, if necessary, undertake initial lubrication by hand.

It is possible for lubricants to be tested in the company's laboratory for their suitability for being pumped in centralized lubrication systems (e.g. "bleeding").

Please contact SKF if you have further questions regarding lubricants.

You may request an overview of the lubricants tested by SKF.



Only lubricants specified for the product (see chapter Technical data) may be used. Unsuitable lubricants may lead to a failure of the product.



Do not mix lubricants. This may have unforeseeable effects on the usability and therefore on the function of the centralized lubrication system.



When handling lubricants the relevant safety data sheets and hazard designations, if any, on the packaging have to be observed.



Due to the multitude of possible additives, individual lubricants, which according to the manufacturer's data sheets fulfil the necessary specification, may not, in fact, be 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.

3. Overview, functional description

1 Reservoir lid with earthing

The terminal box, if any, for connection of the low-level indication is located on the reservoir lid. The reservoir lid is connected to the reservoir and the pump earthing system via an earth strap.

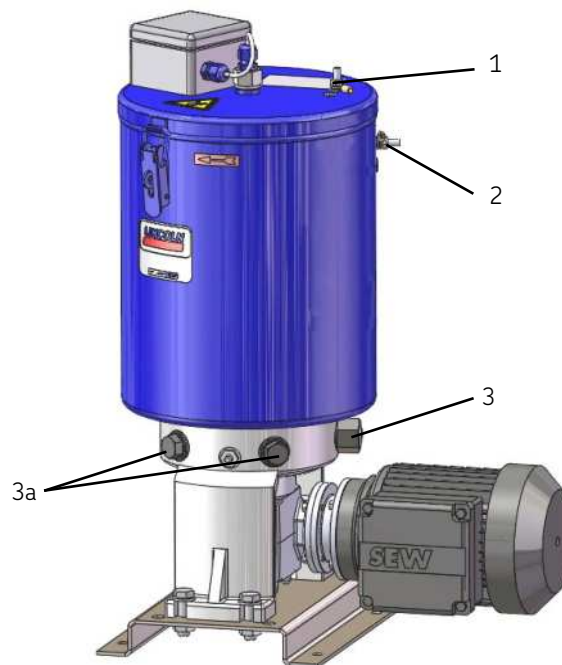
2 Reservoir with earthing

The lubricant is stored in the reservoir. Depending on the pump version there are different types of reservoirs.

3 Pump elements

The pump can be operated with up to 5 pump elements. Type and number of the pump elements installed to the newly supplied pumps, see type identification code.

Unused outlets are closed with closure screws (3a).



Overview Fig. 1

4 Pump housing

The pump housing serves to fasten the pump to the base. Either pump elements or closure screws are screwed into the pump housing.

5 Gear

The gear reduces the motor speed to the necessary speed of the pump.

6 Motor

The motor drives the pump. Depending on the pump version there are available different types of motors

Overview Fig. 2



Operating principle:

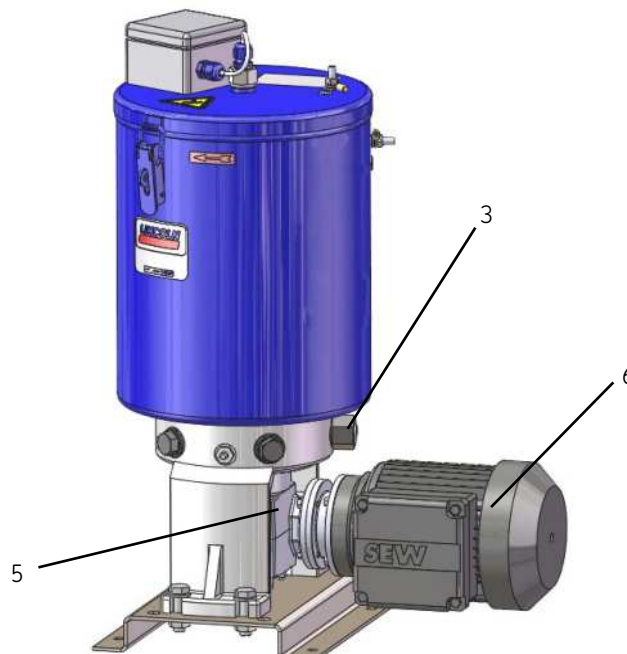
The gear (5) reduces the speed of the motor (6) to the required speed of the pump's eccentric shaft. The eccentric shaft drives the pump elements (3) and the stirring paddle in the reservoir.

The stirring paddle homogenizes and ventilates the lubricant and pushes it in the direction of the suction boreholes of the pump elements (3).

The pump elements (3) supply the lubricant via the pistons' movements. Here it is distinguished between the suction phase (suction of lubricant out of the reservoir) and the pressure phase (supply of lubricant into the lubrication line).

Where applicable, one or two sensors detect the filling level of the lubricant in the reservoir. When reaching the minimum or maximum admissible quantity a low-level respectively high-level signal is given.

Overview Fig. 3



4. Technical data

4.1 Mechanical data

Admissible operating pressure	max. 350 bar ¹⁾	
Pump elements	max. 5	
Approved lubricant consistencies	Reservoir variants for grease	Lubricating greases up to NLGI 2
	Reservoir variants for oil	Lubrication oils of at least 40 mm ² /s at operating temperature
We recommend a use of lubricants with a high conductivity (> 1000 pS/m at 20 °C) in order to keep electrostatic charge of the lubricants low		
Installation position	Vertical, i.e. reservoir at top. Deviation 5 ° max.	
Direction of rotation	Clockwise. Observe the arrow on the reservoir.	
sound pressure level	< 70 dB (A)	
Filling	Reservoir lid / if available, filling port	
Installation height	max. 1.000 m above sea level	
Weight of the empty pump	between 17 kg and 32 kg ²⁾	
Maximum dust thickness	< 5 mm ³⁾	
Ratio	i = 75:1	
Permitted speeds	When supplying the pump without motor/ gear, the following speeds must be maintained absolutely by selecting a suitable motor and gear	
		Minimum speed Maximum speed
	Grease	2.0 rpm 25 rpm
	Oil	2.0 rpm 25 rpm
Painting	All (painted) components of the pump are painted following the requirements of DIN EN 60079-0:2014 (electrostatic charge). Should a new painting be required, for example, after repair or corrosion, etc., make sure to comply with the requirements of DIN EN 60079-0:2014. Carefully mask all seals before painting. Ensure that the painting is compatible with the sealing materials employed.	

¹⁾ All systems parts must be designed for the maximum operating pressure. Each pump element must be secured against higher pressures using a suitable pressure control valve.

²⁾ Weight depending on the equipment variant (number of pump elements, motor and gear variants, reservoir size). Further to this weight there must be added the weight of the lubricant in the reservoir and, if applicable, the weight of the base plate and of the coupling.

³⁾ When planning the temperature range, additionally consider the thermally insulating dust.

4.2 Electrics:



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 respective applicable ATEX regulations, for example:		
Electrical connection	DIN EN 60079-14:2014, VDE 0165-1:2014 DIN EN 60079-17:2014 ElexV		
VAC motors			
Tolerance of input voltage	± 5 %	The waveform and mains symmetry must be maintained so that the motor heat-up remains within the permitted limits.	
Tolerance of supply voltage	± 2 %		
Electrical connection ratings of the motor	See type identification plate or rating plate of the motor or corresponding part number in chapter Technical data of the motors		
IP types of protection	Gear 65	Sensors 67	Motor see Technical data of the motors
Low-level indication/ filling-level indication	Depending on the equipment version, the low-level or filling-level indication is realized with a capacitive proximity switch or a contact rod.		
Minimum distance to live parts	following DIN EN 60079-7:2014 /VDE 0170-6:2014		
	Nominal voltage		Distance of motor Ex-category 2
	≤ 500 V AC		5.0 mm
	> 500 V AC ≤ 690 V AC		5.5 mm

4.3 Nominal output volumes

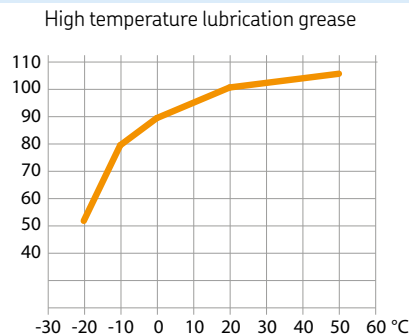
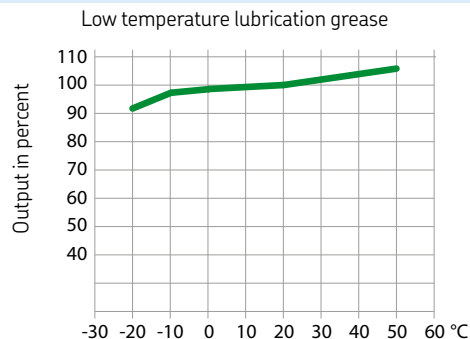
Pump element	K6	K7	KR
Nominal output per pump element and stroke	0.16 cc	0.23 cc	0.04 - 0.18 cc

The stated nominal outputs per stroke refer to NLGI II lubricating greases at an operating temperature of + 20 °C and a backpressure of 100 bar on the pump element. Deviating operating conditions or deviating pump configuration result in a changed motor speed and thus in a change of the actual output per time unit. If as a consequence of the changed motor speed the output per time unit needs to be adapted, this will be done by adapting the lubrication and pause time settings of the pump.

4.3.1 Influencing variables on the actual output volume

Operating temperature	> + 20 °C	↑	< + 20 °C	↓	Consistency class of lubricant	> NLGI 2	↓	< NLGI 2	↑
Number of pump elements	> 1 piece	↓			Back pressure	< 100 bar	↑	> 100 bar	↓

4.3.2 Output diagrams of typical NLGI 2 lubricants



Example: high temperature grease

Nominal speed of the pump motor per minute x nominal output of the K7 pump element per stroke x efficiency in percent at an assumed operating temperature of -10 °C = 20 rpm x 0.22 cc x 80 % = 3.50 cc/min.

4.4 Tightening torques

The stated tightening torques must be adhered to.

Pump element with housing	25 Nm ± 2.5 Nm
Pressure control valve	6 Nm ± 0.6 Nm
Closure screw with housing	20 Nm ± 0.2 Nm
Filling connection / return line	10 Nm ± 0,1 Nm
Lubrication fitting/ adaptor for lubrication fitting	10 Nm ± 0,1 Nm
Reservoir with pump housing	25 Nm ± 0.25 Nm
Terminal box with reservoir lid	4 Nm ± 0.4 Nm
Earthing connection lid / reservoir	8 Nm ± 0.8 Nm
Capacitive sensor	6 Nm ± 0.6 Nm

If no tightening torques are stated for screw connections, the tightening torques are to be applied according to the properties of 8.8 screws.

4.4.1 Tightening torques for CEMP motor

M4	2.0	Nm	M8	10	Nm
M5	3.2	Nm	M10	16	Nm
M6	5.0	Nm	M12	25	Nm

Connections to the mains and utility connections of the motor must be performed with the following tightening torques.

4.5 Overview of pump versions

Part number	Designation on the type identification plate	Motor	Reservoir	Sensor	Ambient temperature range			Explosion protection marking	
					min.		max.		
655-41261-2	P205-M075- 5XL -1K6-460 KAP. EEX	1	3	A	- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-41261-3	P205-M075- 5XYN -1K6-400 EEX	4	5		- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-41261-6	P205-M075-.....-2K7-000 EEX				- 20 °C		+ 55 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-41261-7	P205-M075- 5XL -1K6-400 KAP. EEX	4	3	A	- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-41261-8	P205-M075- 5XYN -1K6-24 EEX	7	5		- 20 °C		+ 55 °C	II 2G Ex h IIB T4 Gb	
655-41306-1	P205-M075-10XL -1K6-400 KAP. EEX	4	7	A	- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-41306-2	P205-M075- 5XYN -1KR-24 EEX	7	5		- 20 °C		+ 55 °C	II 2G Ex h IIB T4 Gb	
655-41306-3	P205-M075-10XL -1K6-480 KAP. EEX	6	7	A	- 20 °C		+ 40 °C		II 2D Ex h IIIC T120°C Db
655-41306-4	P205-M075- 5XL -1K6-500 KAP. EEX	9	3	A	- 20 °C		+ 40 °C	II 2G Ex h IIC T3 Gb	II 2D Ex h IIIC T120°C Db
655-41306-5	P205-M075-10XYN -2KR-400 EEX	4	8		- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-41306-6	P205-M075-10XYN -1K7-440 EEX	5	8		- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-41306-7	P205-M075-10XL-1KR-400 KAP. EEX	4	7	A	- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-41306-8	P205-M075-10XL-1K7-400 KAP. EEX	16	7	A	- 20 °C		+ 40 °C	II 2G Ex h IIC T3 Gb	II 2D Ex h IIIC T120°C Db
655-41306-9	P205-M075- 5YL -1K6-400 KAP. EEX	4	9	A	- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-41364-1	P205-M075- 5XL -1K6-230 KAP. EEX	10	3	A	- 20 °C		+ 55 °C	II 2G Ex h IIC T4 Gb	
655-41364-2	P205-M075- 5XYN -2K5-400 EEX	4	5		- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-46716-1	P205-M075-10XL -2K7/1KR-460 KAP. EEX	3	7	A	- 20 °C		+ 50 °C		II 3D Ex h IIIC T120°C Dc
655-46716-3	P205-M075-10XYN -1KR-400 EEX	2	8		- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-46716-7	P205-M075- 5XL -2K6- 24 KAP. EEX(-30°C)	7	16	B	- 30 °C		+ 55 °C	II 2G Ex h IIB T4 Gb	
655-46848-4	P205-M075- 5XL-2K6-230 KAP.EEX	10	4	D	- 20 °C		+ 55 °C	II 2G Ex h IIC T4 Gb	
655-46848-6	P205-M075- 5XYN -1K5/1K7-400 EEX	4	5		- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-47109-1	P205-M075-5XYN -2K5-460 KAP.EEX	1	5		- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db
655-47109-3	P205-M075- 10XL -1K7- 400 KAP. EEX	2	7	A	- 20 °C		+ 40 °C	II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T120°C Db



The indicated temperature range of the pump presupposes the suitability of the lubricant used for the respective actually existing ambient temperature. Using a lubricant not suitable for the actual ambient temperature may, in case of low temperatures, result in a blockade of the pump due to a too high lubricant viscosity. The ignition temperature of the lubricant must lie at least 50 K over the maximum surface temperature of the components.

Part number	Designation on the type identification plate	Motor	Reservoir	Sensor	Ambient temperature range		Explosion protection marking
					min.	max.	
655-47109-4	P205-M075-5XL-2K6-380 KAP. EEX VN1410	14	4	D	- 20 °C	+ 40 °C	II 2G Ex h IICT4 Gb
655-47109-5	P205-M075- 5XYN -1K6-440 EEX RAL 7031	5	10	-	- 20 °C	+ 40 °C	II 2G Ex h IICT4 Gb
6550-00000002	P205-M075-10XL-2K7-000 KAP. EEX		7	A	- 20 °C	+ 55 °C	II 2G Ex h IICT4 Gb
6550-00000010	P205-M075- 5XL-3K6-400KAP. EEX	4	3	A	- 20 °C	+ 40 °C	II 2G Ex h IICT4 Gb
6550-90000014	P205-M075- 5XYN -1K6-... EEX RAL 7031		10		- 20 °C	+ 40 °C	II 2G Ex h IICT4 Gb
6550-90000016	P205-M075-5XL-2KR-500 KAP.EEX RAL6011	18	12	D	- 20 °C	+ 40 °C	II 2G Ex h IICT4 Gb
6550-00000018	P205-M075- 5XL -1K7-500 KAP. EEX	9	3	A	- 20 °C	+ 40 °C	II 2G Ex h IICT3 Gb
6550-00000019	P205-M075- 5XL -3KR-500 KAP. EEX	9	3	A	- 20 °C	+ 40 °C	II 2G Ex h IICT3 Gb
6550-00000022	P205-M075- 5XYN -1K6-400 EEX	16	5		- 20 °C	+ 55 °C	II 2G Ex h IICT3 Gb
6550-00000025	P205-M075- 5XL -1K6-400 KAP. EEX	16	3	A	- 20 °C	+ 55 °C	II 2G Ex h IICT3 Gb
6550-00000028	P205-M075-10XYN -1K7-400 EEX	17	8		- 20 °C	+ 55 °C	II 2G Ex h IICT3 Gb
6550-00000029	P205-M075-10XYN -1K7-400 EEX	16	8		- 20 °C	+ 55 °C	II 2G Ex h IICT3 Gb
6550-00000040	P205-M075- 10XYN-1KR-400 EEX	19	8	-	- 20 °C	+ 40 °C	II 2G Ex h IICT4 Gb
6550-00000050	P205-M075- 5XL -1K6-230 KAP.(EL.IECEX) EEX	12	3	A	- 20 °C	+ 55 °C	II 2G Ex h IICT4 Gb
6550-00000051	P205-M075- 5XL -2K6-230 KAP.(EL.IECEX) EEX	12	3	A	- 20 °C	+ 55 °C	II 2G Ex h IICT4 Gb
6550-00000052	P205-M075- 5XB -1K6-230 KAP.(EL.IECEX) EEX	12	18	E	- 20 °C	+ 55 °C	II 2G Ex h IICT4 Gb
6550-00000053	P205-M075- 5XL -2KR-230 KAP. EEX(-30°C)	10	16	B	- 30 °C	+ 55 °C	II 2G Ex h IICT4 Gb
6550-00000059	P205-M075- 5XL -3K6-400 KAP. EEX	16	3	A	- 20 °C	+ 55 °C	II 2G Ex h IICT3 Gb
6550-00000060	P205-M075- 5XYN -1K7-400 EEX	19	5		- 20 °C	+ 40 °C	II 2G Ex h IICT4 Gb
6550-00000061	P205-M075-10XL-1K7-400 KAP. EEX	22	7	A	- 20 °C	+ 40 °C	II 2G Ex h IICT4 Gb
6550-00000064	P205-M075- 5XYN -1KR-400 EEX	19	5		- 20 °C	+ 40 °C	II 2G Ex h IICT4 Gb



The indicated temperature range of the pump presupposes the suitability of the lubricant used for the respective actually existing ambient temperature. Using a lubricant not suitable for the actual ambient temperature may, in case of low temperatures, result in a blockade of the pump due to a too high lubricant viscosity. The ignition temperature of the lubricant must lie at least 50 K over the maximum surface temperature of the components.

Part number	Designation on the type identification plate	Motor	Reservoir	Sensor	Ambient temperature range				Explosion protection marking	
					min.		max.			
Seawater-resistant version										
655-46716-2	P205-M075- 5XL -1K6- 24 KAP. EEX	7	3	A	- 20	°C	+ 55	°C	II 2G Ex h IIB T4 Gb	
655-46716-4	P205-M075- 5XL -2K6- 24 KAP. EEX	7	15	D	- 20	°C	+ 55	°C	II 2G Ex h IIB T4 Gb	
655-46716-8	P205-M075- 5XL -2K6- 230 KAP. EEX	10	15	D	- 20	°C	+ 55	°C	II 2G Ex h IICT4 Gb	
655-46716-9	P205-M075- 5XL -2K6- 230 KAP. EEX	10	15	D	- 20	°C	+ 55	°C	II 2G Ex h IICT4 Gb	
655-46848-1	P205-M075- 5XL -2K6-230 KAP. EEX(-30°C)	10	2	B	- 30	°C	+ 55	°C	II 2G Ex h IICT4 Gb	
655-46848-3	P205-M075- 5XL -2K6- 230 KAP. EEX	11	15	D	- 20	°C	+ 55	°C	II 2G Ex h IICT4 Gb	
655-46848-7	P205-M075- 5XL-2KR-230 KAP.(EL.IECEX) EEX	12	15	D	- 20	°C	+ 55	°C	II 2G Ex h IICT4 Gb	
655-46848-8	P205-M075- 5XL-2KR-230 KAP.EEX	10	15	D	- 20	°C	+ 55	°C	II 2G Ex h IICT4 Gb	
655-47109-2	P205-M075- 5XL -2K6- 24 KAP. EEX	7	15	D	- 20	°C	+ 55	°C	II 2G Ex h IIB T4 Gb	
655-46848-5	P205-M075- 5XL-2K6-230KAP.(EL.IECEX) EEX	12	15	D	- 20	°C	+ 55	°C	II 2G Ex h IICT4 Gb	
6550-90000004	P205-M075- 5XL-2K6-120KAP.(EL.IECEX) EEX	15	15	D	- 20	°C	+ 40	°C	II 2G Ex h IICT3 Gb	
6550-00000024	P205-M075-10XL -1K6-24 KAP. SEE EEX	7	11	A	- 20	°C	+ 55	°C	II 2G Ex h IIB T4 Gb	
6550-00000055	P205-M075- 5XL-2KR-230 KAP.(EL.IECEX) EEX	21	15	D	- 20	°C	+ 55	°C	II 2G Ex h IICT4 Gb	
6550-00000062	P205-M075- 5XBF -1KR-400/60 KAP.SEE EEX	23	18	E	- 20	°C	+ 55	°C	II 2G Ex h IICT3 Gb	II 2D Ex h IICT120°C Db
6550-00000063	P205-M075- 5XBF -1KR-400/50 KAP.SEE EEX	24	18	E	- 20	°C	+ 55	°C	II 2G Ex h IICT3 Gb	II 2D Ex h IICT120°C Db
Unpainted version										
655-46848-2	P205-M075- 5XL -2K6-230 KAP. EEX GEDAX	10	14	D	- 20	°C	+ 55	°C	II 2G Ex h IICT4 Gb	
6550-00000048	P205-M075- 5XL-2KR-230 KAP.(EL.IECEX) EEX	20	14	D	- 20	°C	+ 55	°C	II 2G Ex h IICT4 Gb	



The indicated temperature range of the pump presupposes the suitability of the lubricant used for the respective actually existing ambient temperature. Using a lubricant not suitable for the actual ambient temperature may, in case of low temperatures, result in a blockade of the pump due to a too high lubricant viscosity. The ignition temperature of the lubricant must lie at least 50 K over the maximum surface temperature of the components.

4.6 Technical data of motor variants



Assignment of the motor variants to a certain pump type, see table 4.5 Overview of pump variants

Part number	Type of motor				Manufacturer			1
245-13998-5	EDFR63S4				SEW			
Rated voltage	V	266	460	V AC	Operating mode	S1		
Circuit		\triangle	Y		Design	B14		
Rated frequency	f	60	60	Hz	Size	63		
Rated power	P	0.12	0.12	KW	Degree of protection	IP	65	
Rated speed	n	1680	1680	rpm	Insulation class	F		
Nominal current	I _N	0.61	0.35	A	Flange	90		
Starting current		4.0 x rated current		A	Shaft	Ø 11x23 mm		
Efficiency	η	61.4		%				
Performance factor	cos φ	0.7						

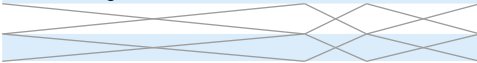

Part number	Type of motor				Manufacturer			2
245-13998-6	EDFR63S4				SEW			
Rated voltage	V	230	400	V AC	Operating mode	S1		
Circuit		\triangle	Υ		Design	B14		
Rated frequency	f	50	50	Hz	Size	63		
Rated power	P	0.12	0.12	KW	Degree of protection	IP	65	
Rated speed	n	1380	1380	rpm	Insulation class	F		
Nominal current	I _N	0.71	0.4	A	Flange	90		
Starting current	3.4 x rated current			A	Shaft	Ø 11x23 mm		
Efficiency	η	61.8		%	Special version	Seawater-resistant painting OS3 (similar C4)		
Performance factor	cos φ	0.70						

Part number	Type of motor				Manufacturer			3
245-13998-7	DFR63S4/II3D				SEW			
Rated voltage	V	266	460	V AC	Operating mode	S1		
Circuit		\triangle	Υ		Design	B14		
Rated frequency	f	60	60	Hz	Size	63		
Rated power	P	0.12	0.12	KW	Degree of protection	IP	65	
Rated speed	n	1680	1680	rpm	Insulation class	F		
Nominal current	I _N	0.58	0.034	A	Flange	90		
Starting current	4.0 x rated current			A	Shaft	Ø 11x 23 mm		
Efficiency	η	64.1		%	Special version	Seawater-resistant painting OS3 (similar C4)		
Performance factor	cos φ	0.69						

Part number	Type of motor				Manufacturer			4
245-13998-8	EDFR63S4				SEW			
Rated voltage	V	230	400	V AC	Operating mode	S1		
Circuit		\triangle	Υ		Design	B14		
Rated frequency	f	50	50	Hz	Size	63		
Rated power	P	0.12	0.12	KW	Degree of protection	IP	65	
Rated speed	n	1380	1380	rpm	Insulation class	F / B		
Nominal current	I _N	0.71	0.4	A	Flange	90		
Starting current	3.4 x rated current			A	Shaft	Ø 11x23 mm		
Efficiency	η	61.8		%				
Performance factor	cos φ	0.70						

Part number	Type of motor				Manufacturer			5
245-00101-2	EDFR63S4				SEW			
Rated voltage	V	254	440	V AC	Operating mode		S1	
Circuit		\triangle	Υ		Design		B14	
Rated frequency	f	60	60	Hz	Size		63	
Rated power	P	0.12	0.12	KW	Degree of protection	IP	65	
Rated speed	n	1680	1680	rpm	Insulation class		F	
Nominal current	I _N	0.64	0.37	A	Flange		90	
Starting current	4.0 x rated current			A	Shaft		Ø 11x 23 mm	
Efficiency	η	60.7		%	Special version Seawater-resistant painting OS3 (similar C4)			
Performance factor	cos φ	0.7						

Part number	Type of motor				Manufacturer			6
245-00101-3	EDFR63S4				SEW			
Rated voltage	V	277	480	V AC	Operating mode	S1		
Circuit		△	Y		Design	B14		
Rated frequency	f	60	60	Hz	Size	63		
Rated power	P	0.12	0.12	KW	Degree of protection	IP	65	
Rated speed	n	1680	1680	rpm	Insulation class	F		
Nominal current	I _N	0.59	0.34	A	Flange	90		
Starting current	4.0 x rated current			A	Shaft	Ø 11x 23 mm		
Efficiency	η	60.6		%	Special version	Seawater-resistant painting OS3 (similar C4)		
Performance factor	cos φ	0.7						
Part number	Type of motor				Manufacturer			7
245-13980-2	BAAP80SHAR				ELNOR			
Rated voltage	V	24		V DC	Operating mode	S1		
					Design	B14		
					Size	63		
Rated power	P	0.09		KW	Degree of protection	IP	65	
Rated speed	n	1607		rpm	Insulation class	F		
Nominal current	I _N	6.6		A	Flange	90		
Starting current	3.0 x rated current			A	Shaft	Ø 11x 23 mm		
Efficiency	η	56		%	Special version	Seawater-resistant painting OS3 (similar C4)		
Performance factor	cos φ							

Part number	Type of motor			Manufacturer			8
245-13980-4	BAAP80SHAR			ELNOR			
Rated voltage	V	24	V DC	Operating mode	S1		
				Design	B14		
				Size	63		
Rated power	P	0.09	KW	Degree of protection	IP	65	
Rated speed	n	1607	rpm	Insulation class	F		
Nominal current	I _N	6.6	A	Flange	90		
Starting current	3.0 x rated current		A	Shaft	Ø 11x 23 mm		
Efficiency	η	56	%	Special version Primary coated with Sigmafast 20			
Performance factor	cos φ						

Part number	Type of motor				Manufacturer			9
245-13999-2	EDRN64MS4				SEW			
Rated voltage	V	290	500	V AC	Operating mode	S1		
Circuit		△	Y		Design	B14		
Rated frequency	f	50	50	Hz	Size	63		
Rated power	P	0.12	0.12	KW	Degree of protection	IP	65	
Rated speed	n	1360	1360	rpm	Insulation class	F		
Nominal current	I _N	0.59	0.35	A	Flange	90		
Starting current	3.3 x rated current			A	Shaft	Ø 11x 23 mm		
Efficiency	η	64.8		%				
Performance factor	cos φ	0.65						

Part number	Type of motor			Manufacturer			10
245-13975-4	KR/AC1204065B14M4			CEMP			
Rated voltage	V	230	V AC	Operating mode	S1		
				Design	B14		
Rated frequency	f	50	Hz	Size	63		
Rated power	P	0.09	KW	Degree of protection	IP	55	
Rated speed	n	1400	rpm	Insulation class	F		
Nominal current	I _N	1.3	A	Flange	90		
Starting current	2.5 x rated current		A	Shaft	Ø 11x 23 mm		
Efficiency	η	35	%	Special version	Tropicalised		
Performance factor	cos φ	0.99					

Part number	Type of motor			Manufacturer			11
245-13975-5	CE/AC1204065B14M4			CEMP			
Rated voltage	V	230	V AC	Operating mode	S1		
				Design	B14		
Rated frequency	f	60	Hz	Size	63		
Rated power	P	0.09	KW	Degree of protection	IP	55	
Rated speed	n	1400	rpm	Insulation class	F / B		
Nominal current	I _N	1.3	A	Flange	90		
Starting current	2.5 x rated current		A	Shaft	Ø 11x 23 mm		
Efficiency	η	35.0	%	Special version	Tropicalised		
Performance factor	cos φ	0.99					

Part number	Type of motor			Manufacturer		12
245-13975-7	KR/AC1204065B14M4			CEMP		
Rated voltage	V	230	V AC	Operating mode	S1	
				Design	B14	
Rated frequency	f	50	Hz	Size	63	
Rated power	P	0.09	KW	Degree of protection	IP 55	
Rated speed	n	1400	rpm	Insulation class	F	
Nominal current	I _N	1.3	A	Flange	90	
Starting current	2.5 x rated current		A	Shaft	Ø 11x 23 mm	
Efficiency	η	35	%	Special version	Tropicalised	
Performance factor	cos φ	0.99				

Part number	Type of motor			Manufacturer			13
245-13975-8	AC12r63B4			CEMP			
Rated voltage	V	230	V AC	Operating mode	S1		
				Design	B14		
Rated frequency	f	60	Hz	Size	63		
Rated power	P	0.09	KW	Degree of protection	IP	56	
Rated speed	n	1703	rpm	Insulation class	F / B		
Nominal current	I _N	0.9	A	Flange	90		
Starting current	1.95 x rated current		A	Shaft	Ø 11x 23 mm		
Efficiency	η	55.8	%				
Performance factor	cos φ	0.45					

Part number	Type of motor				Manufacturer			14
245-00107-4	EDRN63MS4/FT/2G/TF				SEW			
Rated voltage	V	219-241	380-420	V AC	Operating mode	S1		
		△	Y		Design	B14		
Rated frequency	f	50	50	Hz	Size	63		
Rated power	P	0.12	0.12	KW	Degree of protection	IP	65	
Rated speed	n	1360	1360	rpm	Insulation class	F		
Nominal current	I _N	0.75	0.43	A	Flange	90		
Starting current	3.3 x rated current			A	Shaft	Ø 11x 23 mm		
TE/TA time	s	17			Special version	Seawater resistant painting RAL OS4 5002		
Performance factor	cos φ	0.65						

Part number	Type of motor				Manufacturer			15
2450-00000012	AC12r63B4				CEMP			
Rated voltage	V	120		V AC	Operating mode	S1		
					Design	B14		
Rated frequency	f	60		Hz	Size	63		
Rated power	P	0,09		KW	Degree of protection	IP	55	
Rated speed	n	1703		U/min	Insulation class	F		
Nominal current	I _N	1,73		A	Flange	90		
Starting current	1,95 x rated current			A	Shaft	Ø 11x 23 mm		
Performance factor	cos φ	0,45			Special version	Seawater resistant painting RAL 9005 Tropicalised		

Part number	Type of motor				Manufacturer		16
2450-00000036	EDRN63MS4/FT/2GD/TF/AL				SEW		
Rated voltage	V	220-240	380-415	V AC	Operating mode	S1	
		△	Y		Design	B14	
Rated frequency	f	50	50	Hz	Size	63	
Rated power	P	0.12	0.12	KW	Degree of protection	IP 65	
Rated speed	n	1360	1360	rpm	Insulation class	F	
Nominal current	I _N	0.75	0.43	A	Flange	90	
Starting current	3.3 x rated current			A	Shaft	Ø 11x 23 mm	
TE/TA time	s	17					
Performance factor	cos φ	0.65					

Part number	Type of motor				Manufacturer		17
2450-00000054	EDRN63MS4/FT/2GD/TF/AL				SEW		
Rated voltage	V	220-240	380-415	V AC	Operating mode	S1	
		△	Y		Design	B14	
Rated frequency	f	50	50	Hz	Size	63	
Rated power	P	0.12	0.12	KW	Degree of protection	IP 65	
Rated speed	n	1360	1360	rpm	Insulation class	F	
Nominal current	I _N	0.75	0.43	A	Flange	90	
Starting current	3.3 x rated current			A	Shaft	Ø 11x 23 mm	
TE/TA time	s	30					
Performance factor	cos φ	0.65		Special version	Seawater resistant painting RAL OS4 5002		

Part number	Type of motor				Manufacturer			18
2450-00000055	EDRN63MS4/FT/2G/TF				SEW			
Rated voltage	V	290	500	V AC	Operating mode	S1		
Circuit		\triangle	Υ		Design	B14		
Rated frequency	f	50	50	Hz	Size	63		
Rated power	P	0.12	0.12	KW	Degree of protection	IP	65	
Rated speed	n	1360	1360	rpm	Insulation class	F		
Nominal current	I _N	0.59	0.35	A	Flange	90		
Starting current	3.3 x rated current			A	Shaft	Ø 11x 23 mm		
Efficiency at 50/75/100 PN	η	58,3 / 63,9 / 64,8			%			
Performance factor	cos φ	0.65			Special version: RAL6011 Reseda green			

Part number	Type of motor				Manufacturer			19
2450-00000060	EDRN63MS4/FT/2G/TF				SEW			
Rated voltage	V	220-240	380-415	V AC	Operating mode	S1		
Circuit		\triangle	Υ		Design	B14		
Rated frequency	f	50	50	Hz	Size	63		
Rated power	P	0.12	0.12	KW	Degree of protection	IP	65	
Rated speed	n	1360	1360	rpm	Insulation class	F		
Nominal current	I _N	0.59	0.35	A	Flange	90		
Starting current	3.3 x rated current			A	Shaft	Ø 11x 23 mm		
Efficiency at 50/75/100 PN	η	58,3 / 63,9 / 64,8			%			
Performance factor	cos φ	0.65			Special version: RAL5002 ultramarine blue			

Part number	Type of motor			Manufacturer			20
2450-00000061	AC12r63B4			CEMP			
Rated voltage	V	230	VAC	Operating mode	S1		
				Design	B14		
Rated frequency	f	60	Hz	Size	63		
Rated power	P	0,09	KW	Degree of protection	IP	65	
Rated speed	n	1800	U/min	Insulation class	F		
Nominal current	I _N	1,3	A	Flange	90		
Starting current	2,5 x rated current		A	Shaft	Ø 11x 23 mm		
TE/TA time	h	35	%	Special version	Tropicalised		
Performance factor	cos φ	0,99					

Part number	Type of motor			Manufacturer			21
2450-00000070	KR/AC1204065B14M4			CEMP			
Rated voltage	V	230	VAC	Operating mode	S1		
				Design	B14		
Rated frequency	f	50	Hz	Size	63		
Rated power	P	0,09	KW	Degree of protection	IP	65	
Rated speed	n	1400	U/min	Insulation class	F		
Nominal current	I _N	1,3	A	Flange	90		
Starting current	2,5 x rated current		A	Shaft	Ø 11x 23 mm		
TE/TA time	h	35	%	Special version	Seawater resistant painting OS4		
Performance factor	cos φ	0,99	RAL6011				

Part number	Type of motor				Manufacturer			22
2450-00000078	EDRN63MS4/FT/2G/TF				SEW			
Rated voltage	V	220-240	380-415	VAC	Operating mode	S1		
		△	Y		Design	B14		
Rated frequency	f	50	50	Hz	Size	63		
Rated power	P	0,12	0,12	KW	Degree of protection	IP	65	
Rated speed	n	1360	1360	U/min	Insulation class	F		
Nominal current	I _N	0,75	0,43	A	Flange	90		
Starting current	3,3 x rated current			A	Shaft	Ø 11x 23 mm		
TE/TA time	s	17			Special version	RAL7031 blue-gray		
Performance factor	cos φ	0,65						

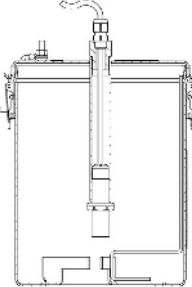
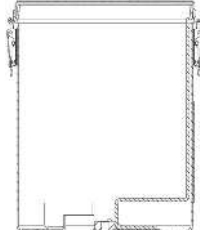
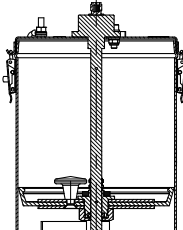
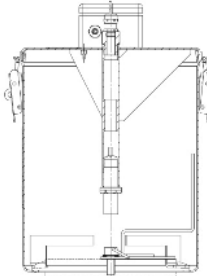
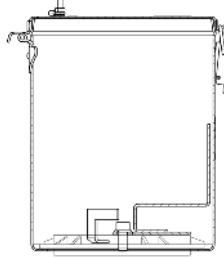
Part number	Type of motor				Manufacturer			23
2450-00000081	EDRN63MS4/FT/2GD/TF/AL				SEW			
Rated voltage	V	230	400	VAC	Operating mode	S1		
		△	Y		Design	B14		
Rated frequency	f	60	60	Hz	Size	63		
Rated power	P	0,12	0,12	KW	Degree of protection	IP	65	
Rated speed	n	1 660	1 660	U/min	Insulation class	F		
Nominal current	I _N	0,75	0,43	A	Flange	90		
Starting current	3,6 x rated current			A	Shaft	Ø 11x 23 mm		
TE/TA time	s	30			Special version			
Performance factor	cos φ	0,65						

Part number	Type of motor				Manufacturer			24
2450-00000082	EDRN63MS4/FT/2GD/TF/AL				SEW			
Rated voltage	V	230	400	V AC	Operating mode	S1		
		\triangle	Y		Design	B14		
Rated frequency	f	50	50	Hz	Size	63		
Rated power	P	0,12	0,12	KW	Degree of protection	IP	65	
Rated speed	n	1 360	1 360	U/min	Insulation class	F		
Nominal current	I _N	0,75	0,43	A	Flange	90		
Starting current	3,3 × rated current			A	Shaft	Ø 11x 23 mm		
TE/TA time	s	30			Special version			
Performance factor	cos φ	0,65						

4.7 Reservoir versions



Assignment to a certain pump type, see table 4.5 Overview of pump variants

5 XL / 5 YL			5 XYN			5 XB			10 XL			10 XYN		
														
No.	Part number		No.	Part number		No.	Part number		No.	Part number		No.	Part number	
1	655-46805-2	XL	5	655-46404-7		18	5550-00000024		7	655-46607-5		8	655-46404-9	
2	655-46805-3	XL	10	655-47206-1					11	5550-00000010				
3	655-46607-4	XL												
4	655-46607-7	XL												
9	655-46805-5	YL												
12	5550-00000013	XL												
13	5550-00000015	XL												
14	5550-00000019	XL												
15	5550-00000021	XL												
16	5550-00000023	XL												
17	5550-00000016	XL												

4.8 Capacitive sensors

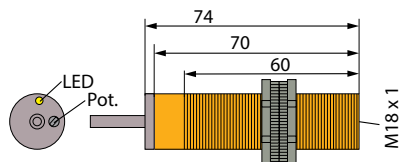
! Assignment to a certain pump type, see table 4.1 Overview of pump variants

Part numbers 664-34621-2 (aligned for grease) / 664-34621-5 (aligned for oil)
D | part number 664-34621-3 (like 664-34621-2, but with 10 m connection cable)

A/D

Rated operating distance S_n

flush installation	5 mm	Explosion protection marking	II 2G EX ia IIC T6 Gb
non-flush installation	7.5 mm		II 1D EX ia IIIC IP 67 T 115 °C Da
Secured switching distance	(0.72 x S_n) mm	Design	Threaded tube M 18 x 1
Hysteresis	1.....20 %	Dimensions	74 mm
Temperature drift	$\leq \pm 20$ %	Housing material	Plastic PA12-GF30
Repeatability	≤ 2 %	Material of active surface	Plastic PA12-GF30
Ambient temperature	-25 °C - +70 °C	Admissible pressure onto front closing cap	≤ 6 bar
Voltage	nominal 8.2 VDC	Max. tightening torque of housing nut	2 Nm
Current consumption, not activated	≤ 1.2 mA	Connection	Cable
Current consumption, activated	≥ 2.1 mA	Cable quality	Ø 5,2 LiYY, PVC, 2 m /10 m
Switching frequency	0.1 kHz	Cable cross section	2 x 0.34 mm ²
Output function	2-wire NAMUR	Vibration resistance	55 Hz (1mm)
Internal capacity (Ci)	150 nF	Shock resistance	30 g (11ms)
Inductivity (Li)	150 µH	Degree of protection	IP 67
Approvals	KEMA 02 ATEX 1090X	MTTF	448 years following SN 29500 40 °C
Fine adjustment	Potentiometer	Switching status display	LED, yellow



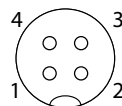
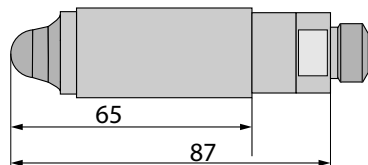
Connection diagram



Part number	664-34621-7 (aligned for grease)			B
Housing	Stainless steel	Explosion protection marking	II 1G EX ia IICT4/T5	
Insulation material	PEEK		II 1D EX ta IICT 100 °C Da	
Ambient temperature	-40 °C to + 85 °C	Factory setting	0.1 s	
Operating temperature	-40 °C to + 115 °C	Hysteresis	± 1 mm	
Degree of protection	IP 67	Repeatability	± 1 mm	
Pressure	100 bar max.	Response time	0,2 s nominal	
Installation position	any	Cable	5 m, 4-core	
Thread	M18 x 1	Connection	M12 plug	
Frequency	100 - 180 MHz	Output (active)	max. 20 mA short-circuit and overheat protection	
Voltage supply	12 - 30 V DC	Type of output	PNP or NPN	
Current consumption	35 mA maximum	Output polarity	Normally open (NO) or normally closed (NC) contact	
Switch-on time	< 2 S	Leakage current	max. ± µ 100 A	
Damping	0 - 10 s	High active	PNP (VDC-1,5V ± 0,5 V) Rload 10 kOhm	
Internal capacity	Ci ≤ 43 nF	Low active	NPN (VDC-1,5V ± 0,5 V) Rload 10 kOhm	
Internal induction	Li ≤ 10 µH	Blocking data	U ≤ 30 VDC / I ≤ 0,1A / P ≤ 0,75 W	

Approvals TÜV Nord TÜV11 ATEX 076877 X

Connection diagram



1	brown	VDC +
2	white	Normally closed contact (NC)
3	blue	VDC +
4	black	Normally open contact (NO)

4.9 Contact rod

Part number 2340-00000211

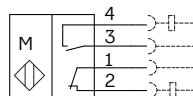
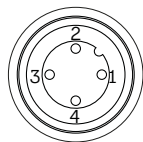
E



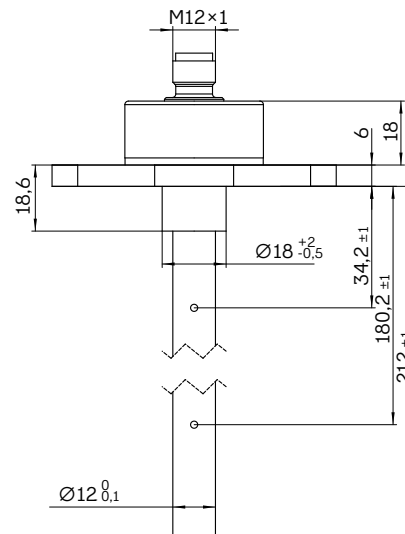
Simple equipment without certification following EN 60079-x. Therefore no explosion protection marking. For connection to an intrinsically safe circuit with a maximum switching capacity of 100 mA and at least ignition protection category Ex ib. Connection must be provided by a suitable isolating switching amplifier always.

Switching voltage	Namur 8,2 VDC
Switching current	100 mA
Switching power	0,82 W
Material	Stainless steel / plastic

Connection diagram



1 Power supply	brown
2 Min. level	white
3 Power supply	blue
4 Max. level	black



5. Delivery, returns, and storage

5.1 Delivery

After receipt of the shipment, check the shipment for damage and completeness according to the shipping documents. Immediately report any transport damages to the forwarding agent.

Keep the packaging material until any discrepancies are resolved. During in-house transport ensure safe handling.

5.2 Returns

Clean all parts and pack them properly (i.e. following the regulations of the recipient country) before returning them. Protect the product against mechanical influences such as impacts. There are no restrictions for land, sea or air transport. Mark returns on the packaging as follows.



5.3 Storage



Before application inspect the products with regard to possible damages occurred during their storage. This particularly applies for parts made out of plastic and rubber (embrittlement) as well as for components primed with lubricant (ageing).

SKF products are subject to the following storage conditions:

- the admissible storage temperature range corresponds to that of the operating temperature (see Technical data)
- dry, dust- and vibration-free in closed premises
- no corrosive, aggressive materials at the place of storage (e. g. UV rays, ozone)
- protected against pests and animals
- in the original product packaging
- shielded from nearby sources of heat and coldness
- in case of high temperature fluctuations or high humidity take adequate measures (e. g. heater) to prevent the formation of condensation water.

5.3.1 Corrosion protection

The corrosion protection (e. g. on the inside of the reservoir) should be verified and renewed every 6 - 12 months corresponding to the conditions at the place of storage.

We recommend:

- Henkel Teroson FLuid DS 150 ML VE 12
- OKS 450 chain and adhesive lubricating oil

5.3.2 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 of the motor.
- In case of a storage > 1 year make sure to consider the bearing grease's service life that will be reduced by 10% per year.

5.4 Special storage conditions for parts primed with lubricant

The conditions mentioned in the following will have to be adhered to when storing products primed with lubricant,

5.4.1 Storage period of up to 6 months

The primed products can be used without having to take further measures.

5.4.2 Storage period from 6 to 18 months

Pump

- Connect the pump electrically.
- Switch the pump on and let it run until about 4 cc of lubricant will leak from each pump element.
- Switch the pump off and disconnect it from the electrical grid.
- Remove and dispose of leaked lubricant.

Metering device

- Remove all connection lines and closure screws, if any.
- Connect the pump primed with new lubrication grease suitable for the application purpose to the divider bar in such way that the opposite port of the divider bar remains open.
- Let the pump run until new lubricant leaks from the divider bar.
- Remove leaked lubricant.
- Reinstall closure screws and connection lines.

Lines

- Dismantle preassembled lines.
- Ensure that both line ends remain open.
- Prime lines with new lubricant.

5.4.3 Storage period exceeding 18 months

To avoid dysfunctions consult the manufacturer before commissioning. The general procedure to remove the old grease filling corresponds to that of a storage period from 6 to 18 months.



6. Installation

6.1 General information

Only qualified technical personnel may install the products described in these Instructions.

During assembly pay attention to the following:

- Other units must not be damaged by the assembly.
- The product must not be installed within the range of moving parts.
- The product must be installed at an adequate distance from sources of heat and coldness.
- Observe the product's IP type of protection.
- Adhere to safety distances and legal prescriptions on assembly and prevention of accidents.
- Possibly existing visual monitoring devices, e.g. pressure gauges, MIN/MAX markings or piston detectors, must be clearly visible.
- Observe prescriptions in the Technical data (chapter 4) regarding the installation position.

	 WARNING
	Risk of explosion When carrying out installation 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. Any installation work may be carried out only provided there is no explosive atmosphere at the place of installation.

6.2 Place of installation

Protect the product against humidity, dust and vibrations and install it in an easily accessible position to facilitate other installation and maintenance works.

6.3 Mechanical connection

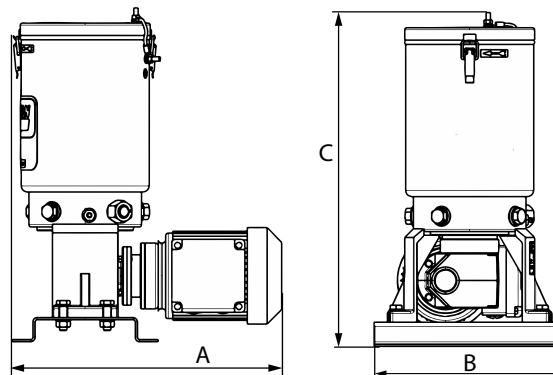
6.3.1 Minimum assembly dimensions

Ensure sufficient space for maintenance or repair work or for assembly of further components of the centralized lubrication system by leaving a free space of at least 100 mm into each direction in addition to the stated dimensions.



The distance between the air intake on the SEW and CEMP motors and any obstacle must total to at least 40 mm. Ensure that the air can flow into the motor without hindrance. Out-flowing air must not be sucked in again directly.

Minimum assembly dimensions Fig. 4



	SEW motors			CEMP motors			ELNOR motors		
reservoir	Width A (mm)	Depth B (mm)	Height C# (mm)	Width A (mm)	Depth B (mm)	Height C# (mm)	Width A (mm)	Depth B (mm)	Height C# (mm)
5 XYN	~ 370	~ 260	~ 460				~ 410	~ 260	~ 460
5 XL	~ 370	~ 260	~ 480	~ 410	~ 260	~ 480	~ 410	~ 260	~ 480
5 XL*	~ 370	~ 260	~ 510						
10 XYN	~ 380	~ 260	~ 510						
10 XL	~ 380	~ 260	~ 550						

* with follower plate;

additional free space requirement to remove the reservoir lid upwards = 190 mm

6.3.2 Installation bores

NOTICE**Damage to the pump**

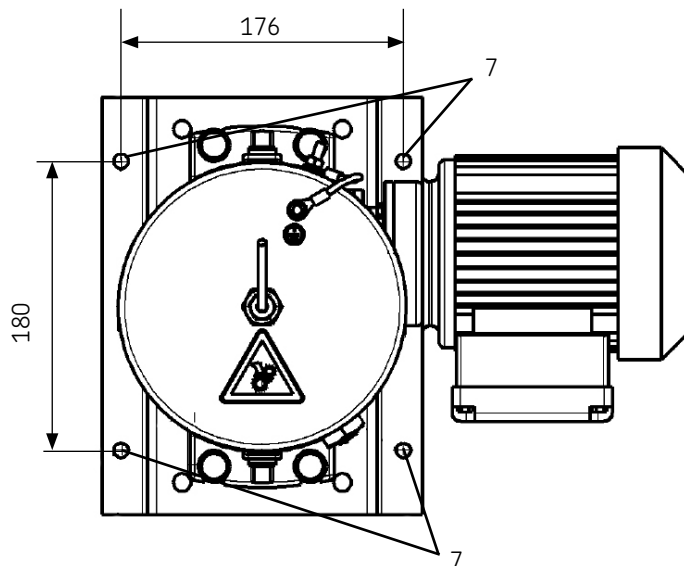
Fastening may not be done on two parts moving against one another (machine bed and machine assembly).

The product is fastened to the 4 mounting bores (7). Drill the mounting bores on non load-bearing parts only.

Fastening is done by means of:
 4 x screw M8 (strength class 8.8)
 4 x hex nut M8
 4 x washer 8C

Tightening torque = $25 \text{ Nm} \pm 2.5 \text{ Nm}$

Installation bores Fig. 5



6.4 Electrical connection of SEW and CEMP motors



WARNING



Electric shock

Make sure to disconnect the product from the power supply before carrying out any works on electrical components.



WARNING



Risk of explosion

Connect the product to the equipotential bonding of the superior machine. Check the electrical continuity before the initial start-up.

Electrical connection of the motor follows the indications on the connection diagram in the terminal box (8) of the motor.

Electrical connection, Fig. 6



SEW motor

CEMP motor

6.5 Protective conductor connection of SEW motor

To connect the protective conductor in the terminal box (8) of the motor use a cable lug. The cable lug and the motor housing must be separated by means of a washer (9).

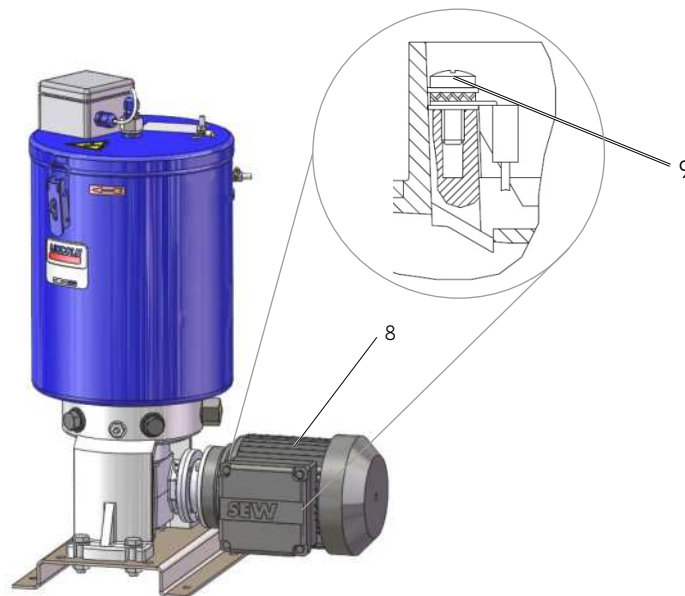


Connect the cables in such way that no mechanical forces are transferred to the product.

6.6 Electrical connection of the low-level indication

Electrical connection of the low-level indication follows the respective technical data of the sensor in these instructions. In addition, indications regarding the switch amplifier and, if applicable, those of other devices to be connected by the operator have to be observed.

Correct connection of the protective conductor in the terminal box Fig. 7



6.7 Electrical connection of ELNOR motor



WARNING



Explosion hazard
Loss of pressure-resistant encapsulation

After the assembly make sure to correctly fasten the lid of the terminal connection box again. Use admitted cable only with the specified diameters.



WARNING



Risk of explosion
Connect the product to the equipotential bonding of the superior machine. Check the electrical continuity before the initial start-up.

For electrical connection proceed as follows:

- Loosen the 3 screws (1) and remove the lid.
- Unscrew the terminal insert (2a) of the cable gland (2) to that extent that about 7 threads (3) will become visible.
- Guide the cable through the cable gland (2) into the terminal box.

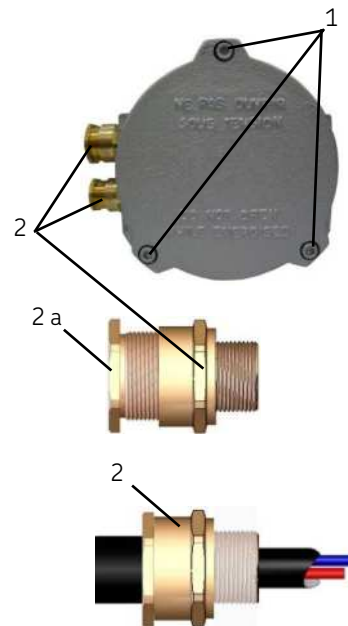
Cable diameter

min. 6.5 mm

max. 11.7 mm

- Connect supply lines in accordance with the connection diagram (4) = red, (5) = blue (6) = white (connection of thermal circuit breaker).

Electrical connection, Fig. 8

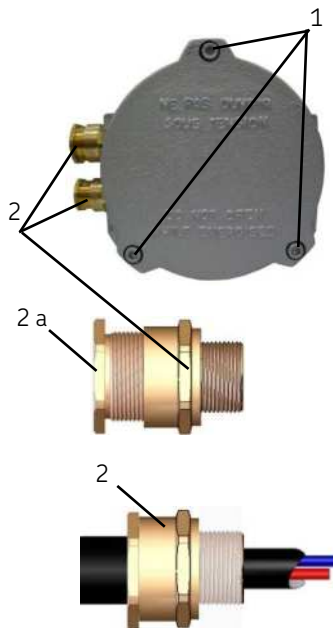


NOTICE

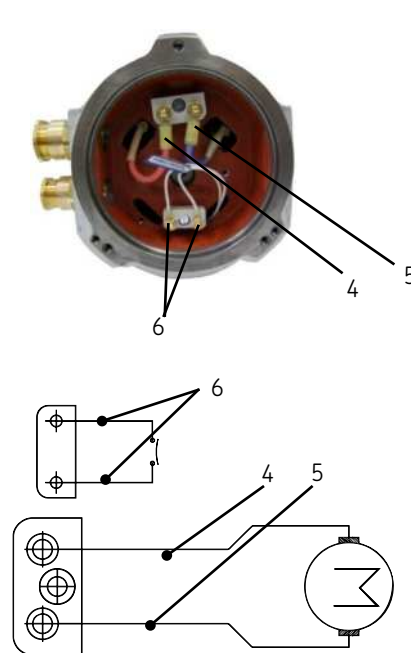
Damage to the motor

Risk of damage to the motor
Always connect the thermal circuit breaker to the control circuit of the motor.

- Screw-in terminal insert (2a) by hand until cable is clamped safely (higher resistance can be felt). Make sure that cable is clamped in the cable duct (2) without tensile load.
- Use tool to turn terminal insert (2a) one complete revolution to ensure safe locking.
- Repeat the procedure at the second cable duct.
- Mount lid of terminal connection box and fasten with the screws (1).



Correct connection in the terminal box Fig. 9



6.8 Adjustment of the KR pump elements



CAUTION



Risk of falling

Exercise care when dealing with lubricants. Immediately absorb and remove any leaked lubricant.



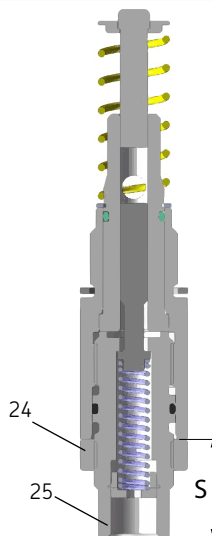
Output adjustment of the KR pump elements is possible only with the pump being idle and the supply lines being disconnected.

To adjust the output volume per stroke proceed as follows:

- Loosen the counter nut (24).
- Turn the spindle (25) until the correct adjusting measure S is reached.
- After adjusting the output volume, retighten the counter nut (24).

Tightening torque = 15-1,5 Nm

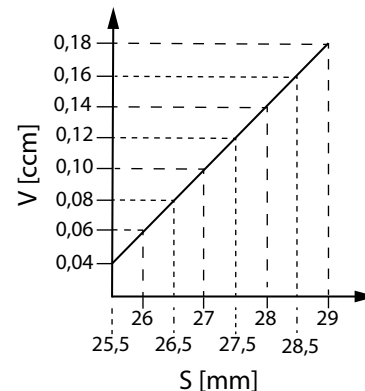
Adjusting pump element KR Fig. 10





lower output volume



higher output volume



6.9 Lubrication line connection

	CAUTION
	<p>Risk of falling Exercise care when dealing with lubricants. Immediately absorb and remove and leaked lubricant.</p>



Connect lubrication lines in such way that no forces are transferred to the product (tension-free connection).

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

- the maximum arising pressure
- the admissible temperature range
- the output volume and the lubricant to be supplied.





Protect the centralized lubrication system against too high pressure by means of a suitable pressure relief valve.



Observe the following installation instructions for safe and smooth operation.

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

6.10 Filling with lubricant

		WARNING
	Risk of explosion The ignition temperature of the lubricant must lie at least 50 K over the maximum surface temperature of the components. When filling through a filling port, the filler pump must be connected to the equipotential bonding of the pump. 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.	

6.10.1 Filling via the reservoir lid

		WARNING
	Hand injuries caused by the stirring paddle Fill lubricant via the lid only when the pump is not moving. Never reach into the reservoir while the pump is running.	

- Switch the pump off.
- Open the reservoir lid.
- Fill in lubricant up to a maximum of 1 cm below the reservoir rim.
- Reposition and close the reservoir lid (1). Make sure not to crush the ground-ing cable.

6.10.2 Filling via filling port



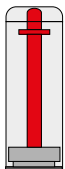
Automatic filling

The filler pump is controlled by the pump's high-/ low-level indication.

Manual filling:

- Connect filling pump to filling adapter.
- Open the reservoir lid.
- Switch the filling pump on.
- Fill in lubricant up to a maximum of 1 cm below the reservoir rim.
- Switch off and remove the filling pump.
- Switch the pump on.

In case of pumps with follower plate make sure to observe the visual filling-level indication on the reservoir lid.

reservoir		
not full	full	overfull
		

6.10.3 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 the lubricant from the reservoir.
- Loosen lubricant lines from the pump elements.
- Switch on the pump and let it run until the wrong lubricant has been fully supplied.
- Switch off the pump and secure it against being switched on.
- Fill reservoir with lubricant of correct specification.
- Switch on the pump and let it run until correct lubricant leaks from the pump elements.
- Switch off the pump and secure it against being switched on.
- Reconnect the lubricant lines
- Switch the pump on again.
- Inform your superior to ensure that the error won't occur again.

7. Initial start-up

In order to warrant safety and function, a person assigned by the operator must carry out the following inspections. Remedy detected defects before the initial start-up. Deficiencies may be remedied by an authorized and qualified specialist only.

Checklist – Inspections prior to the initial start-up

7.1 Inspections prior to initial start-up

YES NO

Electrics

Electrical connection of the motor carried out correctly following the connection diagram in the terminal box.	<input type="checkbox"/>	<input type="checkbox"/>
Cable ducts of terminal box carried out and sealed professionally.	<input type="checkbox"/>	<input type="checkbox"/>
The voltage and frequency of the power network correspond to the information on the type identification plate / rating plate of the motor.	<input type="checkbox"/>	<input type="checkbox"/>
Equipotential bonding fully present, properly connected and electrically conductive	<input type="checkbox"/>	<input type="checkbox"/>
Possibly existing monitoring devices and additional equipment (e.g. motor circuit breaker) are correctly connected and adjusted.	<input type="checkbox"/>	<input type="checkbox"/>

Mechanics:

Mechanical connection of the pump and the base carried out correctly	<input type="checkbox"/>	<input type="checkbox"/>
Minimum distance of parts to the air inlet of the motor has been observed. No loose parts remaining in the suction area of the motor	<input type="checkbox"/>	<input type="checkbox"/>
Supply lines and lubrication points primed in order to avoid damages to the superior machine.	<input type="checkbox"/>	<input type="checkbox"/>
All components, such as lubrication lines and metering devices, have been correctly installed	<input type="checkbox"/>	<input type="checkbox"/>
Product protected with adequate pressure relief valve	<input type="checkbox"/>	<input type="checkbox"/>
No visible damages, contamination and corrosion. Painting of pump is not damaged	<input type="checkbox"/>	<input type="checkbox"/>
No dust accumulations > 5 mm existing	<input type="checkbox"/>	<input type="checkbox"/>
Any dismantled protection and monitoring equipment has been reassembled and checked for correct function	<input type="checkbox"/>	<input type="checkbox"/>
The lubricant used corresponds to the planned lubricant.	<input type="checkbox"/>	<input type="checkbox"/>
The lubricant used is free from contaminations and air inclusions	<input type="checkbox"/>	<input type="checkbox"/>

Check list - Inspections during the initial start-up

7.2 Inspections during initial start-up

	YES	NO
No unusual noises, vibrations, accumulation of moisture, or odours present	<input type="checkbox"/>	<input type="checkbox"/>
No smoke or smouldering spots	<input type="checkbox"/>	<input type="checkbox"/>
No unwanted escape of lubricant from connections (leakages).	<input type="checkbox"/>	<input type="checkbox"/>
Lubricant is supplied free from bubbles	<input type="checkbox"/>	<input type="checkbox"/>
Bearings and friction points are provided with the planned amount of lubricant	<input type="checkbox"/>	<input type="checkbox"/>

8. Operation

SKF products operate automatically to the greatest possible extent.

Basically, activities during standard operation are limited to the control of the filling level and the timely refilling of lubricant as well as the outside cleaning of the product in case of contamination.

8.1 Activation of the pump





The pump is activated:

- by switching on the machine contact
- by a control provided by the customer

8.2 Refill lubricant

Description, see chapter Filling with lubricant

9. Cleaning

	 WARNING
  	<p>Risk of electric shock, fire and explosion</p> <p>Risk of fire and explosion when using inflammable cleaning agents. Clean product only, if there is no explosive atmosphere. Carry out cleaning works only on depressurized products that have been disconnected from the power supply. Do not touch cables or electrical components with wet or damp hands.</p> <p>Use steam-jet cleaners or high-pressure cleaners only in accordance with the IP protection class of the product. Otherwise electrical components may be damaged. Performance of cleaning, required personal protective equipment, cleaning agents and devices following the valid operational regulations of the operator.</p>

9.1 Cleaning agents

Cleaning agents compatible with the material may be used only (materials, see chapter 2.3).



Thoroughly remove residues of cleaning agents from the product and rinse off with clear water.

9.2 Exterior cleaning



Make sure to keep the reservoir closed during the cleaning procedure.

- Mark and secure wet areas.
- Keep unauthorized persons away.
- Thorough cleaning of all outer surfaces with a damp cloth.



9.3 Interior cleaning

Normally, interior cleaning is not required. Should incorrect or contaminated lubricant have been filled, inside cleaning of the product will be required. To do so, contact the SKF Customer Service.

9.4 Cleaning of capacitive sensors

If the active sensor face is contaminated with lubricant, clean it with a cloth.

10. Maintenance

	 WARNING
	<p>Risk of explosion</p> <p>Inspection and maintenance of electrical installations in potentially explosive atmospheres shall be executed in compliance with the criteria specified in the IEC/EN 60079-17.</p> <p>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.</p> <p>Before starting any work on the motor or on the driven components make sure to switch off and block the motor.</p> <p>Carry out work on electrical parts only, if the atmosphere is not potentially explosive.</p>

Regular and appropriate maintenance is a prerequisite to detect and clear faults in time. As it is not possible for us to exactly define the operating conditions, we cannot indicate any definite deadlines. The specific timelines have to be determined, verified at regular intervals and adapted, if necessary, by the operator based on the local operating conditions. If needed, copy the table "Maintenance check list" for regular maintenance activities.

10.1 Pump maintenance

Checklist pump maintenance

Activity to be done	YES	NO
Electrical connection carried out correctly	<input type="checkbox"/>	<input type="checkbox"/>
Mechanical connection carried out correctly	<input type="checkbox"/>	<input type="checkbox"/>
The performance data of the previously indicated connections correspond to the specifications stated in the Technical data	<input type="checkbox"/>	<input type="checkbox"/>
All components, such as lubrication lines and metering devices, have been correctly installed	<input type="checkbox"/>	<input type="checkbox"/>
Product protected with adequate pressure relief valve	<input type="checkbox"/>	<input type="checkbox"/>
No visible damage, contamination and corrosion	<input type="checkbox"/>	<input type="checkbox"/>
Any dismantled protection and monitoring equipment has been reassembled and checked for correct function	<input type="checkbox"/>	<input type="checkbox"/>
All warning labels on the product are available and in proper condition	<input type="checkbox"/>	<input type="checkbox"/>
No unusual noises, vibrations, accumulation of moisture, or odours present	<input type="checkbox"/>	<input type="checkbox"/>
No unwanted escape of lubricant from connections	<input type="checkbox"/>	<input type="checkbox"/>
Lubricant is supplied free from bubbles	<input type="checkbox"/>	<input type="checkbox"/>
Bearings and friction points are provided with the planned amount of lubricant	<input type="checkbox"/>	<input type="checkbox"/>
Painting complete, no parts of painting missing.	<input type="checkbox"/>	<input type="checkbox"/>
Protective conductor system fully present, properly connected and electrically conductive.	<input type="checkbox"/>	<input type="checkbox"/>
No dust accumulations present.	<input type="checkbox"/>	<input type="checkbox"/>

10.2 Maintenance of gear unit

Activity to be done	Interval / deadline
Visual check for leakages	Every 3,000 hours, but at least once a year
Visual check for damage of the surface protection/ corrosion protection	Depending on the type of application and ambient conditions

For further relevant information on maintenance, see original Instructions by the gear manufacturer.

10.3 Cleaning of capacitive sensors

The capacitive sensors are maintenance-free.

10.4 Motor maintenance

Maintenance check list of SEW and CEMP motors



SEW		CEMP
Activity to be done	Interval / deadline	Interval / deadline
Inspection of the cooling air ways of the motor with regard to contamination	Every 4 weeks Depending on the local contamination load significantly shorter intervals may be required	Every 4 weeks Depending on the local contamination load significantly shorter intervals may be required
Check condensation water and, if any, drain off If necessary, dry winding	Interval depends on climatic conditions at the place of use, should be carried out at the latest, however, in the frame of the main inspection	Interval depends on the operating conditions, at the latest, however, every 4 weeks
Check the current and earth cables for damages and proper installation	Interval depends on the operating conditions, at the latest, however, every 4 weeks	Interval depends on the operating conditions, at the latest, however, every 4 weeks
Check the ball bearing/ the radial sealing ring	Check and, if necessary, replace every 10,000 operating hours	Check and, if necessary, replace after 20,000 operating hours in case of 2-pole motors, after 40,000 operating hours in case of 3-pole motors
First inspection	Every 500 operating hours or every 6 months	Every 500 operating hours or every 6 months
Main inspection	Every 1000 operating hours or once a year: <ul style="list-style-type: none"> ○ Check rolling bearing and replace, if necessary ○ Change radial sealing ring ○ Clean cooling airways 	After about 10,000 operating hours, at the latest, however, after 1 year.
Re-lubrication / oil change	<ul style="list-style-type: none"> ○ Re-lubrication interval, grease volume and grease quality, see type identification respectively lubrication plate of the motor 	<ul style="list-style-type: none"> ○ In case of motors with lubrication device: See indications on the additional type identification plate

For further relevant information on maintenance, see original Instructions by the gear manufacturer.

Checklist maintenance of ELNOR motors

Activity to be done	Interval / deadline
Check the current and earth cables for damages and proper installation	Interval depends on the operating conditions, at the latest, however, every 4 weeks
First inspection	Every 500 operating hours or every 6 months
Main inspection	<p>Once a year:</p> <ul style="list-style-type: none">○ Check rolling bearing and replace, if necessary○ Change radial sealing ring○ Check for outside damages○ Check for traces of an explosion within the pressure-encapsulated motor○ Check the function of the thermal circuit breaker

10.5 Measurement of the insulation resistance

	 WARNING
	Electric shock Do not touch the terminals when measuring the insulation resistance. 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 61557-1:2007) 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.).

11. Troubleshooting

11.1 Fault table of pump

Fault	Possible cause	Remedy
No supply	Reservoir empty	Check visually, refill if necessary.
Bad suction behaviour/ little pressurization	Air bubbles in the lubricant	Vent
	Suction bore of pump element is clogged.	Disassemble and clean the pump elements.
	Inappropriate lubricant	Check and, if necessary, use a different type of lubricant.
	Defective or dirty check valve	Replace check valve.
	Worn pump element	Replace the pump element
	Too high viscosity of the lubricant	Lubricant is not suitable for the present temperature range. Use suitable lubricant only.
Lubricant leaking from the pressure relief valve	Defective pressure relief valve/ fault at the lubrication point / blockade in the downstream lubrication system	Determine cause. Replace pressure control valve

11.2 Fault table of the Reh fuss 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 radial sealing ring	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.

Document number, see chapter: Other applicable documents

Oil/ grease leaking from the radial sealing ring (small quantities) during the run-in phase (24 hours runtime) is deemed normal (DIN 3761).

11.3 Fault table of 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 in the star connection, but in the delta connection only	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

11.4 Fault table of SEW motor

Fault	Possible cause	Remedy
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
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
	Main s 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





11.5 Fault table of SEW motor

Fault	Possible cause	Remedy
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

11.6 Fault table of CEMP motor

Fault	Possible cause	Remedy
Motor does not accelerate	Incorrect connection	Check whether the connection corresponds to the connection diagram of the motor.
	Motor switch opens due to overload	Check motor switch
	Check motor switch	Check bearings and lubrication
	Short circuit in the stator	Motor must be replaced
	Defective rotor	Check rotor and replace, if necessary.
	One phase is down	Check the connection cables
	Too low voltage	Check whether the motor is powered with the right voltage
	Overload	Reduce load
Motor does not reach the rated speed / too low acceleration	Defective rotor	Check rotor and replace, if necessary.
	Voltage drop in the line	Check whether the connection cables have been dimensioned correctly
Motor gets too hot during the load	Overload	Reduce load
	Contaminated airways and cooling fins	Clean airways and cooling fins
Bearings too hot	Insufficient bearing lubrication	Check bearings and refill or replace lubricant, if applicable
	Too much lubricant in the bearing	Check bearings and remove lubricant, if applicable
	Defective bearing	Check bearing and replace, if necessary.
Wrong direction of motor rotation	Wrong connection of the phases	Check phases and correct, if necessary.
Unusual vibrations	Defective bearing	Check bearing and replace, if necessary.
	Motor not fixed appropriately	Check fixation and correct, if necessary.
Unusual noises	Defective bearing	Check bearing and replace, if necessary.
	The fan touches the fan housing	Check and correct, if necessary.
For further relevant information on maintenance, see original Instructions by the motor manufacturer. Make sure to observe these at all times.		

12. Repairs

	 WARNING
	Risk of injury Before carrying out any repair work, take at least the following safety measures:
	<ul style="list-style-type: none">○ Keep unauthorized persons away
	<ul style="list-style-type: none">○ Mark and secure work area
	<ul style="list-style-type: none">○ De-pressurize the product
	<ul style="list-style-type: none">○ Disconnect the product from the power supply and secure it against being switched on
	<ul style="list-style-type: none">○ Verify that no power is being applied
	<ul style="list-style-type: none">○ Earth and short-circuit the product
	<ul style="list-style-type: none">○ Where needed, cover neighbouring units that are live



The work described shall be carried out by a specialist for maintenance and repairs in potentially explosive atmospheres. The work described should possibly be done at room temperature in a workshop. At low temperatures the work may be subject to restrictions.

12.1 Replacement of capacitive sensor



The instructions refer to reservoirs with terminal box. Reservoirs without terminal box are disassembled electrically in accordance with the local connection situations.

To replace the capacitive sensor proceed as follows:

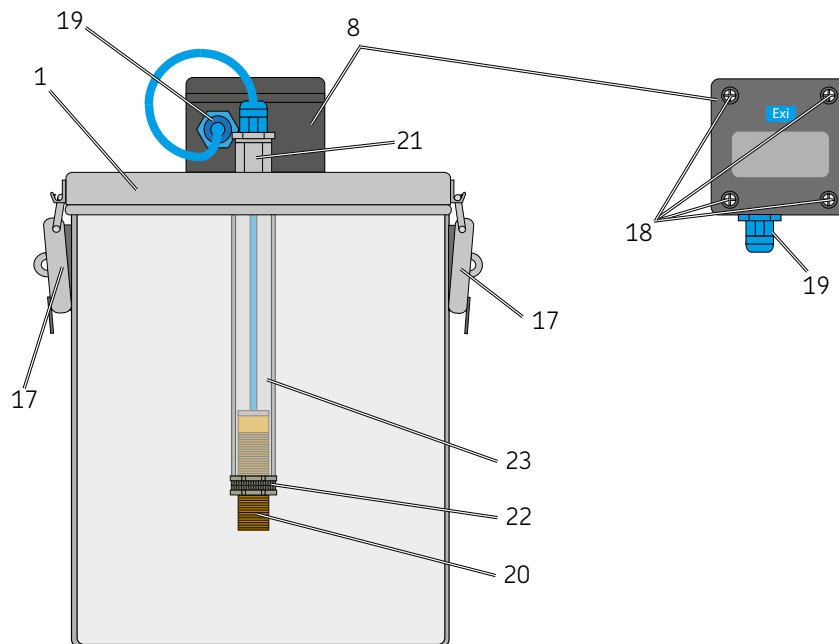
- Check the new sensor for accordance with the documentation and the intended purpose.
- Implement the safety measures as specified in the warning notice at the beginning of this chapter.
- Open the reservoir lid (1) on the two locks (17) and remove it.



Make sure not to damage the earthing cable when removing it or later when mounting the reservoir lid.

- Open the terminal box (8) by unscrewing the 4 screws (18) and disconnect the two cores of the cable.

Replacement of capacitive sensor Fig 11



- Loosen the cable duct (19) on the terminal box (8).
- Loosen the sensor (20) by loosening the fitting (21) on the reservoir lid.
- Loosen the sensor (20) by means of its counter fitting (22) from the sensor pipe (23), unscrew it completely out of the sensor pipe and remove it downwards.
- Guide the cable of the new sensor upwards through the sensor pipe (23).



When mounting the sensor in the sensor pipe, it must be sealed with Loctite 5331.

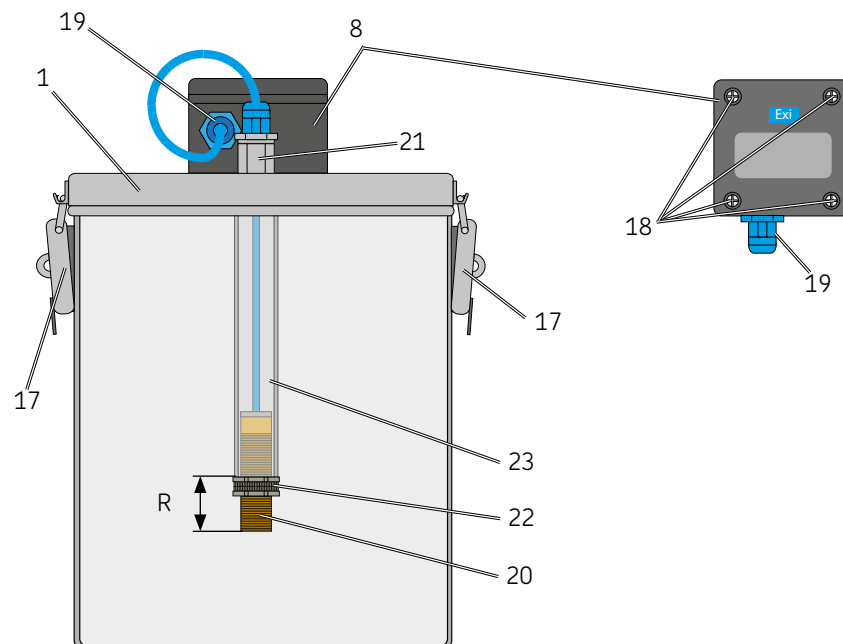
- Screw sensor into sensor pipe until the correct adjusting measure R is reached.

Sensor	Adjusting measure R
M18 x 1	35 mm \pm 5 mm

- Tighten the sensor (20) by tightening its counter fitting (22) on the sensor pipe.

Sensor M18 x 1.0 = 2 Nm \pm 0.1 Nm

Replacement of capacitive sensor Fig 12



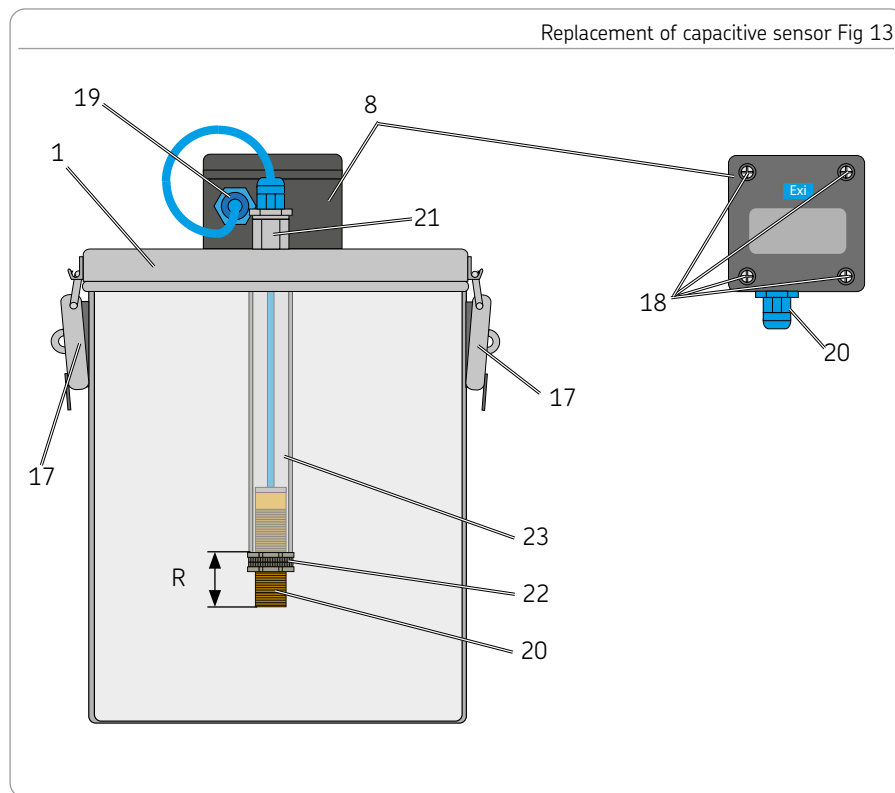
- Guide the cable through the cable duct (19) on the terminal box (8).
- Mount the cable in the terminal box (see connection diagram in the Technical data)
- Tighten the cable duct (19) on the terminal box (8) correctly again.

Tightening torque = $1.5 \text{ Nm} \pm 0.1 \text{ Nm}$

- Firmly screw lid to terminal box by means of the 4 screws (18).
- Tighten sensor fitting (21) on reservoir lid.

Sensor M18 x 1.0 = $2 \text{ Nm} \pm 0.1 \text{ Nm}$

- Place reservoir lid (1) on reservoir again and lock it on the two lockings (17).



13. Shutdown and disposal

13.1 Temporary shutdown

Temporarily shut the system down by:

- Switching off the superior machine
- Disconnecting the product from the power supply

13.2 Final shutdown and disassembly

The final shutdown and disassembly of the product must be professionally planned and carried out by the operator in compliance with all regulations to be observed.

13.3 Disposal

Countries within the European Union

Disposal should be avoided or minimized wherever possible. Disposal of products contaminated with lubricant must be effected via a licensed waste disposal contractor in accordance with environmental requirements and waste disposal regulations as well as local authority requirements.



The specific classification of the waste is in the waste producer's responsibility, as the European Waste Catalogue provides different waste disposal codes for the same type of waste but of different origin.

Dispose of or recycle electrical components following WEEE directive 2012/19/EU.



Parts made of plastic or metal can be disposed of with the commercial waste.



Countries outside the European Union

The disposal has to be done according to the valid national regulations and laws of the country where the product is used.

14. Spare parts

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

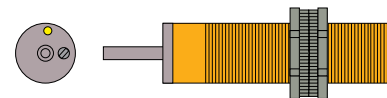


Assignment of the spare parts to the respective pump type: See table 4.1 Overview of pump variants P205 ATEX

14.1 Capacitive sensor M18 x 1

Designation	Qty.	Part number
<u>Aligned for grease:</u>	1	664-34621-2
Capacitive sensor M18x 1, with LED and potentiometer incl. 2 m connection cable		
Capacitive sensor M18x 1, with LED and potentiometer incl. 10 m connection cable	1	664-34621-3
<u>Aligned for oil:</u>	1	664-34621-5
Capacitive sensor M18x 1, with LED and potentiometer incl. 2 m connection cable		

Capacitive sensor M18x1 Fig. 14



14.2 Filling level sensor LBFS

Designation	Qty.	Part number
<u>Aligned for grease:</u>	1	664-34621-7
Capacitive filling-level sensor LBFS M12 including 5 m connection cable		

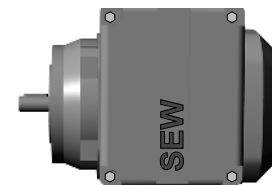
Fill-level switch LBFS Fig. 15



14.3 SEW motor

Designation	Motor number	Qty.	Part number
EDFR63S4	1	1	245-13998-5
EDFR63S4	2	1	245-13998-6
DFR63S4/II3D	3	1	245-13998-7
EDFR63S4	4	1	245-13998-8
EDFR63S4	5	1	245-00101-2
EDFR63S4	6	1	245-00101-3
EDRN63MS4	9	1	245-13999-2
EDFR63S4	14	1	245-00107-4
EDRN63MS4/FT/2GD/TF/AL	16	1	2450-00000036
EDRN63MS4/FT/2G/TF	18	1	2450-00000055
EDRN63MS4/FT/2G/TF	19	1	2450-00000060
EDRN63MS4/FT/2G/TF	22	1	2450-00000078
EDRN63MS4/FT/2GD/TF/AL	23	1	2450-00000081
EDRN63MS4/FT/2GD/TF/AL	24	1	2450-00000082

SEW motors Fig. 16

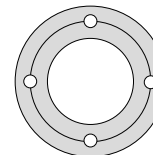


14.4 Gasket Abil Ø 40 x 70 x 0.5

Designation	Qty.	Part number
Gasket Abil 40 x 70 x 0.5	1	306-19713-1

Required in case of replacement of SEW motor.
Make sure to always order the gasket together with the motor directly.

Gasket Abil Fig. 17



14.5 Cemp motor

Designation	Motor number	Qty.	Part number
KR/AC1204065B14M4	10	1	245-13975-4
CE/AC1204065B14M4	11	1	245-13975-5
KR/AC1204065B14M4	12	1	245-13975-7
AC12r63B4	13	1	245-13975-8
AC12r63B4 120 V	15	1	2450-00000012
AC12r63B4	20	1	2450-00000061
KR/AC1204065B14M4	21	1	2450-00000070

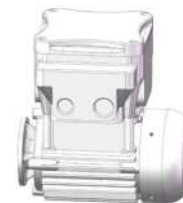
14.6 ELNOR motor

Designation	Motor number	Qty.	Part number
BAAP80SHAR	7	1	245-13980-2
BAAP80SHAR	8	1	245-13980-4

14.7 Gasket Abil Ø 60 x 90 x 0.5

Designation	Qty.	Part number
Gasket Abil 60 x 90 x 0.5 Required in case of replacement of CEMP or ELNOR motors. Always order gasket together with the motor.	1	306-19415-1

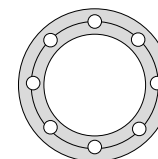
CEMP motors Fig. 18



ELNOR motors Fig. 19



Gasket Abil Fig. 20



15. Annexes purchase parts

Declaration of conformity of gear make Rehfuß

Carl Rehlfuss GmbH + Co. KG Antriebstechnik

- Erleuchtungs- und Lichtschaltanlagen mit Hochdruck-Fluoreszenz- / Fluoreszenz- und Gasentladungslampen
- Elektronische und mechanisch hydraulische Antriebe / Electronic and mechanical variable speed drives
- Sonderentwürfe und kundenspezifische Lösungen / Special drives and customized solutions

Bürogebäude 5
D-72681 Albstadt
Tel. + 49 (0) 7432 770 15-0
Fax + 49 (0) 7432 770 15-10
Email: info@rehlfuss.com
Url: www.rehlfuss.com

EU-Konformitätserklärung EU Declaration of conformity

CARL REHLFUSS GmbH + Co.KG

erklärt in alleiniger Verantwortung, das die SR, FG, S, SM, SS,

SSM-Getriebe
für Getriebegruppe II der Kategorie 2G, 2D und 3G, 3D, auf die sich diese
Erklärung bezieht, mit der

deklariert 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 13463-9:2003
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

Beschränkter Zugriff zur Ausstellung dieser Erklärung in Namen des Herstellers
authorized representative for issuing this declaration on behalf of the manufacturer

Ort und Datum der Ausstellung
place and date of issuing

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

Albstadt 20.04.2016


Dipl. Ing. (FH) M. Fink

Funktion: Bereichsleiter Technik
Function: Technical Director

Verfahrensbefugnis: Baugruppen 1016, 02022
Fremdprüfung: Baugruppen 1016, 02022
Bauteilprüfung: Baugruppen 1016, 02022
Bauteilprüfung: Baugruppen 1016, 02022

Qualitätsführer: Carl Rehlfuss, Carl Rehlfuss, Carl Rehlfuss, Carl Rehlfuss, Carl Rehlfuss, Carl Rehlfuss
Verfahrensbefugnis: Baugruppen 1016, 02022
Fremdprüfung: Baugruppen 1016, 02022
Bauteilprüfung: Baugruppen 1016, 02022
Bauteilprüfung: Baugruppen 1016, 02022

Declaration of conformity of EDNR motor make SEW

EU Declaration of Conformity		SEW EURODRIVE 902450417/EN
Translation of the original text		
SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Str. 42, 76646 Bruchsal		
declares under sole responsibility that the following products		
Motors of the series	EDNR63.. – EDNR315..	
Variant	/ZGD /ZD /ZG	
Designation	IIG Ex eb IIB T2 Gb IIG Ex eb IIC T2 Gb IIG Ex eb IIB T3 Gb IIG Ex eb IIC T3 Gb IIG Ex eb IIB T4 Gb IIG Ex eb IIC T4 Gb IIG Ex eb IIC T120°C Db IIG Ex eb IIC T140°C Db	
according to		
ATEX Directive	2014/34/EU, Appendix VII (L 96, 20.03.2014, 305-356)	
ErP Directive	2009/125/EC (L 285, October 31, 2009, 10-35)	
RoHS Directive	2011/65/EU (L 174, 01.07.2011, 88-110)	
Applied harmonized standards:	EN IEC 60079-0:2018 EN 60034-1:2010+AC:2010 EN 60034-30-1:2014 EN 60079-31:2014 EN 60079-7:2015+A1:2018 EN IEC 63000:2018	
Notified body:	see appendix	
Third-party certificate:	see appendix	
7) If the products come under the area of application of this directive, the requirements of regulation (EU) No. 2019/1761 are met.		
Bruchsal	12/3/2020	Page 1 of 2
Place	Date	
		
Dr. Hans Kraftenmacher		
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		

Declaration of conformity of DFR motor make SEW

EU Declaration of Conformity



901160311/EN

Translation of the original text

SEW-EURODRIVE GmbH & Co. KG
Ernst-Blickle-Straße 42, D-76646 Bruchsal

declares under sole responsibility that the following products

Motors of the series DR63... or DFR63..

Category 3G
3D

Designation I13G Ex nA IIB T3 Gc
I13G Ex nA IIC T3 Gc
II 3D Ex tc IIB T120°C Dc
II 3D Ex tc IIB T140°C Dc
II 3D Ex tc IIC T120°C Dc
II 3D Ex tc IIC T140°C Dc

in accordance with

ATEX Directive 2014/34/EU
(L 96, 29.03.2014, 309-356)

RoHS Directive 2011/65/EU
(L 174, July 1, 2011, 88-110)

Applied harmonized standards:
EN 60034-1:2010
EN 60079-0:2012/A11:2013
EN 60079-15:2010
EN 60079-31:2014
EN 50581:2012

Bruchsal	11.07.2017	
Place	Date	
Johann Soder		
Managing Director Technology		
a) Authorized representative for issuing this declaration on behalf of the manufacturer		a) b)
b) Authorized representative for compiling the technical documents		

Declaration of conformity of EDR motor make SEW

EU Declaration of Conformity

Translation of the original text

SEW-EURODRIVE GmbH & Co. KG
Ernst-Blickle-Straße 42, D-76646 Bruchsal

declares under sole responsibility that the following products

Motors of the series eDR63.. or eDR63..

variant /2GD, /2G or /2D

Designation

II2G Ex eb IIB T3 Gb
 II2G Ex eb IIC T3 Gb
 II2G Ex eb IIB T4 Gb
 II2G Ex eb IIC T4 Gb
 II2D Ex tb IIC T120°C

in accordance with

ATEX Directive

2014/34/EU
 (L 96, 29.03.2014, 309-356)

RoHS Directive

2011/65/EU
 (L 174, July 1, 2011, 88-110)

Applied harmonized standards:

EN 60034-1:2010
 EN 60079-0:2012/A11:2013
 EN 60079-7:2015
 EN 60079-31:2014
 EN 50581:2012

SEW
EURODRIVE
 900460510/EN

Bruchsal

1/22/2019

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

Declaration of conformity of BA AP80 motor make ELNOR



EU declaration of conformity

We, **ELNOR MOTORS NV**
De Doornstraat 45,
B-3160 Haacht (West-Vlaanderen), **BELGIUM**

hereby declare that the following electrical motors:

Model: 65D030075
Type: BAAP80SH AR 90W 24VDC 1500T
Batch N°: 1526/18030
Serial N°: Nr. 001->010

Are in conformity with the relevant requirements of:

ATEX	Directive 2014/34/EU
Machinery	Directive 2006/42/EC
ROHS 2	Directive 2011/65/EU

from April 20th 2016.

The following Harmonized standards and technical specifications have been applied:

EN 60204-1:2006/AC:2010	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
EN 60934-1:2010	Rotating electrical machines – Part 1: Rating and performance
EN 60079-0:2012/A11:2013 ⁽¹⁾	Explosive Atmospheres – Part 0: Equipment – General requirements
EN 60079-1:2014 ⁽¹⁾	Explosive Atmospheres – Part 1: Equipment – Equipment protection by flameproof enclosures "d"
EN 50581:2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

⁽¹⁾ Following assessment and certificate by Notified Body 0492 ISSeP

-	Series BA(VX) 73xx:	ISSEP09ATEX019X
-	Series BA(VX) 1xx:	ISSEP08ATEX051X
-	Series BA(VX) 2xx:	ISSEP08ATEX041X
-	Series BA(VX) 3xx:	ISSEP08ATEX014X
-	Series BAAP30X:	ISSEP09ATEX036X

THE ABOVE-MENTIONED PRODUCT 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 DIRECTIVE.

Belgium, Haacht

Tom Paetmans*, General Manager

14/02/2018

*Permanent representative: BYBA

Uitzondering: e Atex kanbare tot 2 count

Declaration of conformity of motor make CEMP



FAC SIMILE

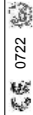
Senago, 24/01/2020

Dichiarazione EU di conformità / EU Declaration of conformity / Declaration UE de conformité / EU Konformitätserklärung / Declaración EU de conformidad

I motori elettrici asincroni del tipo / Electric asynchronous motors type / Les moteurs électriques asynchrones type / Elektrische Asynchrone Motoren Typ / Los motores eléctricos asincronos del tipo:

AC.../ 63-71-80-90-100-112-132-160-180-200-225-250-280-315M SERIAL N.001-0010

che riportano la marcatura / bearing the marks / marqués / Kennzeichnung / que llevan marcado:



0722 IIG Ex db/Ex db eb IIC T3-T6 Gb IP55

TUV IT 14ATEX050X

sono stati prodotti da Cemp srl sotto la propria responsabilità in conformità alle seguenti direttive comunitarie / have been manufactured by Cemp srl under his sole responsibility in accordance with the following EC directives / sont fabriqués par Cemp srl sous sa responsabilité selon les CE directives suivantes / wurden gefertigt unter der Verantwortung von Cemp srl in Übereinstimmung mit den folgenden EG-Vorschriften / han sido fabricados por Cemp srl, bajo su propia responsabilidad, de acuerdo con las siguientes directivas EC:

2014/34/UE (ATEX) 2014/30/UE (EMC) 2014/35/UE (Machinery)(*) EU2015/863 (RoHS3)

e in conformità alle seguenti Norme / and complying with the following Standards / et conforme aux normes suivantes / und sind entsprechend den folgenden Standards / y conforme a las siguientes normas:

EN 60079-0: 2012/A11:2013 - EN 60079-1: 2014 - EN 60079-7: 2015

EN 60079-31: 2014 - IEC 60034-1, 5, 6, 7, 8, 9, 12, 14 - IEC 60072

(*) Note / Note / Bemerkung / Notas

Direttiva macchine / Machinery Directive / Maschinen-Richtlinie / Directiva Maquinaria:

I motori in oggetto, da considerarsi componenti, sono conformi per progetto alla direttiva se l'installazione è correttamente eseguita dal costruttore della macchina. Il motore non deve essere messo in servizio finché la macchina in cui è stato incorporato non sia stata dichiarata conforme alla Direttiva Macchine. Above motors, considered as components, comply by design with the directive providing that installation is correctly performed by the manufacturer of the machine. The motor must not be put into service until the machine in which it has been incorporated has been declared conform to the Machinery Directive. Les moteurs ci-dessus, considérés comme des composants, sont conformes par conception à la directive, si l'installation est correctement exécutée par le constructeur de la machine. Le moteur ne doit pas être mis en service avant que la machine dans laquelle il été incorporé soit déclarée conforme à la Directive Machine. Die Motoren entsprechen den zu dieser Bescheinigung aufgeführten Vorschriften übereinstimmen, ist der Maschinenhersteller - Betreiber verantwortlich. Die Motoren entsprechen den Vorschriften nur, solange die Anlage, in die sie eingebaut wurden, in Übereinstimmung mit den geltenden Maschinenrichtlinien und Vorschriften errichtet wurde. The motor in object, por tratarse de componentes, cumplen las normas de la directiva si la instalación la constructora correspondiente a la máquina es correcta. El motor no debe entrar en servicio hasta que la máquina en la que ha sido incorporado expreso de la declaración de la Directiva Maquinaria.

L'organismo preposto per la notifica della produzione è: / The Notified body (ENB) is: / L'organisme chargé de la notification de la production / Aunamabehator (Ex) / El Organismo Notificado (ON) es


CESI (0722), Via Rubattino 54, 20134 Milano, ITALY
Notification number : CESI 00 ATEX 030 Q



Cemp Srl

Via Piemonte, 16 - I 20030 SENAGO (MI)
Tel. +39 02 94435401 - Fax +39 02 9899177
E-mail: dlc@comp.eu - Internet: www.comp.eu
C. Fiscale e P. IVA IT 0593500988 - Registro Imposte di Milano 0593500988
REA di Milano n. 1559665 - Capitale Sociale Euro 20.000,00 I.v.
Socio Unico ROTOR BEHEER B.V.

Declaration of conformity of motor make CEMP



IECEX Certificate

of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:
IECEX EXA 16.0006X

Status:
Current

Date of Issue:
2016-03-10

Applicant:
CEMP Srl
via Piemonte 16
I-20030 Senago (MI)
Italy

Equipment:
Optional accessory:
Type of Protection:
Marking:

Approved for issue on behalf of the IECEx
Certification Body:

Position:
Signature:
(for printed version)

Date:

Issue No. 0
Page 1 of 3


Certificate history:
Issue No. 0 (2016-03-10)

Three-phase and single phase motors, brake motors
Type AC/AB...T...; DCHC...T...; size 63 – 315

Ex d IIC/IB T3...T4...T5...T6 Gb. or
Ex d e IIC/IB T3...T4...T5...T6 Gb. and/or
Ex tbc IIC/IB T150 C...T155 C...T125 C... T100°C... T85°C Db


Ex d; Ex t; Ex tbc

Certificate issued by:
Agencija za prostore ugrožene eksplozivnom atmosferom (Ex-
Agencija)
Industrijska 25
HR-10431 Sveta Nedelja
Croatia



1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Declaration of conformity of motor make CEMP

		IECEx Certificate of Conformity	
Certificate No:	IECEX EXA 16.0006X	Issue No: 0	
Date of Issue:	2016-03-10	Page 2 of 3	
Manufacturer:	CEMP Srl via Piemonte 16 I-20030 Senago (MI) Italy		
Additional Manufacturing location(s):			

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standards list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2007-04 Edition:6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2008 Edition:1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2008-07 Edition:4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"



*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:	HR/EXA/ETR/4.0008/01	HR/EXA/ETR/4.0008/02
Quality Assessment Report:	IT/CES/QAR07.0002/10	

Declaration of conformity of motor make CEMP



IECEx Certificate
of Conformity

Certificate No:
IECEX_EXA_16.0006X

Issue No: 0

Date of Issue:
2016-03-10

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The three-phase and single phase asynchronous motors series AC/AB...T... sizes 63-71-80-90-100, 112-132-160; 180-200-225-250; 280-315 are made of cast iron with separate compartments: motor enclosure and terminal box for supply and auxiliary circuits connection. Motor enclosure is designed in Ex d type of protection, while terminal box can be Ex d or Ex e type of protection.

The motor enclosure satisfies also Ex tb type of protection, mechanical protection IP6X. The motors can be equipped with auxiliary devices: heaters, thermal detectors, encoders etc.

The flamepaths are specified in the manufacturing drawings. For information regarding the dimensions of the flameproof joints the manufacturer shall be contacted.

CONDITIONS OF CERTIFICATION: YES as shown below:

The flame paths are specified on the manufacturer's drawings. For information regarding the dimensions of the flameproof joints the manufacturer shall be contacted.

In special cases the flameproof system is not in compliance to thickness limit indicated for gas group IIC. In order to minimize risk of hazards caused by electrostatic charges, clean motor only with a wet rag or by non-frictional means.

For use with non-sinusoidal or variable frequency supplies the motor is fitted with thermal protection in the form of one PTC or PT100 with thermal protection class in the drive end stator winding overhang. These are to be connected to a protection circuit so as to limit the stator temperature to:

- 120°C for T4/T125°C
- 130°C for T4/T135°C
- 140°C for T3/T150°C

The cable temperature of motors (temperature class T4 or T3) intended for ambient temperatures :

50°C at the entry point is greater than 70°C and at the branching point is greater than 80°C , therefore connection for those motors shall be provided with cable of thermal stability not less than 90 °C .

The motor when provided with the cables permanently connected shall have these cables protected against the risk of damage due to mechanical stresses.

The end connections shall be made according to one of the types of protection indicated in the IEC 60075-0 standard and in accordance with the installation rules in force in the site of installation.

Annex


[IECEX_EXA_16_0006X_ANNEX.pdf](#)

Declaration of conformity of terminal box make Bartec

BARTEC VARNOST
 BARTEC Varnost d.o.o.
 Cesta 9, Augusta 59
 1410 Zagorje ob Savi
 Slovenia

EU Konformitätserklärung
 EU Declaration of Conformity
 Declaration UE de conformité

Nº VS-02 02 099G

Wir	We	Nous
BARTEC Varnost d.o.o., declare under our sole responsibility that the product		
erklären in alleiniger Verantwortung, dass das Produkt	Junction Box	attestons sous notre seule responsabilité que le produit
Abzweig- und Verbindungskasten Typ: 07-5103-***, 07-5105-***, 07-5106-*** and 07-5107-*** auf das sich diese Erklärung bezieht den Anforderungen der folgenden Richtlinien (RL) entspricht	Junction Box ATEX-Directive 2014/34/EU RoHS-Directive 2011/65/EU Machinery Directive 2006/42/EC EMC Directive 2014/30/EU nicht zutreffend (nach Artikel 1, Absatz 3)	Boîtes de dérivation et coffrets de jonction se réfèrent à cette attestation correspond aux dispositions des directives (D) suivantes ATEX-Directive 2014/34/UE RoHS-Directive 2011/65/UE Directive Européenne de l'Équipement 2006/42/CE Directive CEM 2014/30/UE non applicable (selon l'article 1, paragraphe 3)
und mit folgenden Normen oder normativen Dokumenten übereinstimmt	and is in conformity with the following standards or other normative documents EN 60079-0:2012+A11:2013 EN 60079-1:2007 EN 60079-11:2012 EN 60079-31:2014	et est conforme aux normes ou documents normatifs ci-dessous EN 60528:1991 +A1:2000+ A2:2013
Kennzeichnung  II 2G Ex e IalIb IIA, IIB, IIC T6, T5 Gb II 2G Ex IalIb IIA, IIB, IIC T6, T5 Gb II 2D Ex tb IIC T80°C, T95°C Db IP66 II 2D Ex IalIb IIC T80°C, T95°C Db IP66	Marking II 2G Ex e IalIb IIA, IIB, IIC T6, T5 Gb II 2G Ex IalIb IIA, IIB, IIC T6, T5 Gb II 2D Ex tb IIC T80°C, T95°C Db IP66 II 2D Ex IalIb IIC T80°C, T95°C Db IP66	Marquage II 2G Ex e IalIb IIA, IIB, IIC T6, T5 Gb II 2G Ex IalIb IIA, IIB, IIC T6, T5 Gb II 2D Ex tb IIC T80°C, T95°C Db IP66 II 2D Ex IalIb IIC T80°C, T95°C Db IP66
Verfahren der EU-Baumusterprüfung / Benannte Stelle	Procedure of EU-Type Examination / Notified Body PTB 08 ATEX 1064 0102 PTB, Bundesallee 100, 38116 Braunschweig, D	Procédure d'examen UE de type / Organisme Notifié PTB 08 ATEX 1064 0102 PTB, Bundesallee 100, 38116 Braunschweig, D
Zagorje, den 21.03.2017 Janez Gajski Technical Manager		

VS-02 02 099G (10/2014 A 11) - EU (April 2016)

Seite 1 page 1 page 1 vers 1 of 1

Declaration of conformity of capacitive sensor make Turck

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

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
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 20. 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 Beauftragten /
Name, function and signature of authorized person





EU-Konformitätserklärung EU Declaration of Conformity Déclaration UE de Conformité


Wir erklären in alleiniger Verantwortung, dass die Produkte, auf die sich diese Erklärung bezieht, die grundlegenden Anforderungen der angegebenen Richtlinie(n) erfüllen und basierend auf den aufgeführten Norm(en) bewertet wurden.

We declare under our sole responsibility that the products to which the present declaration relates comply with the essential requirements of the given directive(s) and have been evaluated on the basis of the listed standard(s).

Nous déclarons sous notre seule responsabilité que les produits auxquels se réfère la présente déclaration sont conformes aux exigences essentielles de la directive/ des directives mentionnée(s) et ont été évalués sur la base de la norme/ des normes listée(s).

Hersteller Manufacturer Fabricant	Baumer A/S
Bezeichnung Description Description	Füllstandsschalter Level switch Commutateur de niveau
Typ(en) / Type(s) / Type(s)	LBFS-2xxxx.x LBFS-4xxxx.x
LBFS-1xxxx.x LBFS-3xxxx.x	

x = beliebige Zahl oder Buchstabe / any figure or letter / n'importe quel nombre ou lettre

Richtlinie(n) Directive(s) Directive(s)	2014/30/EU, 2014/34/EU, 2011/65/EU
Norm(en) Standard(s) Norme(s)	EN 61326-1:2013, EN 60079-0:2012+A12:2013, EN 60079-11:2012, EN 60079-15:2010, EN 60079-31:2014
Konformitätsbewertungsstelle: Conformity assessment center Centre d'évaluation et de mise en conformité	TÜV Nord 0044 Am TÜV 1 30519 Hannover
EU-Baumusterprüfbescheinigung: EU type examination certificate Attestation d'examen UE de type	TÜV 11 ATEX 076877 X TÜV 11 ATEX 076879 X
Ort und Datum Place and date Lieu et date	Aarhus, 31.01.2018
Unterschrift/Name/Funktion Signature/name/function Signature/nom/fonction	 Ib V. Pedersen Managing Director

Baumer_LBFS_DE-EN-FR_Occ_81081891_06.docx/

Baumer A/S Rundtårnen 19 DK-8210 Aarhus V CVR: DK25275071 VAT No.: DK11841813	Baumer A/S DK Phone: +45 8931 7611 SE Phone: +46 (0) 36 13 9430 sales.dk@baumer.com sales.se@baumer.com www.baumer.com	Danske Bank: SWIFT: DABADKKK (DKK) Konto: 4387-36279852 (EUR) IBAN: DK023000361702102* (SEK) Bankgiro: 5220-9632
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A full-page view of a blank sheet of graph paper. The grid consists of thin, light gray horizontal and vertical lines forming small squares across the entire page. There are no margins, text, or other markings on the paper.

SKF Lubrication Systems Germany GmbH
Walldorf Facilities
Heinrich-Hertz-Str. 2-8
DE - 69190 Walldorf
Phone: +49 (0) 6227 33-0
Fax: +49 (0) 6227 33-259
e-mail: Lubrication-germany@skf.com
www.skf.com/lubrication

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