Mobile filler pump GTP-C

to supply lubricants out of separate grease containers

Original operating instructions
following directive 2006/42/EC

EN

Version 03

LINCOLN®

SKF

EC declaration of conformity following machinery directive 2006/42/EC, Annex II Part 1 A

The manufacturer— SKF Lubrication Systems Germany GmbH, Walldorf Facilities, Heinrich-Hertz-Str. 2-8, DE - 69190 Walldorf — hereby declares that the machinery

Designation: **Mobile filler pump to supply lubricants out of separate grease containers**
Type: **GTP-C**
Part number: 24-1560-3600 / 24-1560-3602
Year of construction: See type identification plate
complies with the following basic safety and health requirements of the EC machinery directive 2006/42/EC at the time when first being launched in the market.

The special technical documents were prepared following Annex VII part A of this directive. Upon justifiable request, these special technical documents can be forwarded electronically to the respective national authorities. The person empowered to assemble the technical documentation on behalf of the manufacturer is the head of standardization, See manufacturer's address.

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

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

Standard	Edition
DIN EN ISO 12100	2011
DIN EN ISO 809	2012
DIN EN 60204-1	2007
Amendment	2010
DIN EN ISO 50581	2013

Standard	Edition
DIN EN 60947-5-1	2010
DIN EN 61131-2	2008
Amendment	2009
DIN EN 60034-1	2015
DIN EN 61000-6-1	2007

Standard	Edition
DIN EN 61000-6-2	2006
Amendment	2011
DIN EN 61000-6-3	2011
Amendment	2012

Standard	Edition
DIN EN 61000-6-4	2011
DIN EN 60947-5-1	2010

Walldorf, 2015/20/02

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Legal disclosure

The original operating instructions following machinery directive 2006/42/EC are part of the described product and must be kept at an accessible location for further use.

Other language versions
For other language versions of these instructions see: *www.skf.com/lubrication*

Warranty

The instructions do not contain any information on the warranty. This can be found in the general terms and conditions. This can be found on:
www.skf.com/lubrication.

Copyright/ Integration of the instructions

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Explanation of symbols and signs

Activities which generate actual hazards (to life and limb or possible damage to the material) are marked by warnings.

Please read these instructions thoroughly and heed all instructions aswell as the warning and safety notes.

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

Information symbols within treatises	
Symbol	**Meaning**
●	Prompts an action
○	Used for itemizing
☞	Refers to other facts, causes, or consequences
→	Provides additional information within procedures

Possible symbols	
Symbol	**Meaning**
	Note
	Hazard from electric shock
	Slipping hazard
	Hazard from hot surfaces
	Hazard from unintentional intake
	Crushing hazard
	Hazard from suspended load
	Pressure injection hazard
	Explosion-protected component
	Electrostatically sensitive components
	Wear personal protective equipment (goggles)
	Protect (lock) the machine against unintentional activation
	Environmentally sound disposal

Notes attached to the unit, machine or system, e.g.:

- o Directional arrow
- o Warnings
- o Markings of the fluid connections must be observed and kept in fully legible conditions.

Abbreviations and conversion factors

Abbreviations

re.	regarding
approx.	approx.
°C	degrees Celsius
s	second
dB (A)	sound pressure level
i.e.	that is
etc.	et cetera
poss.	possibly
<	less than
±	plus or minus
>	greater than
e.g.	for example
if appl.	if applicable
etc.	et cetera
a.a.r.	as a rule
Ø	diametre
incl.	including
K	Kelvin
kg	kilogram
rh	relative humidity
kW	kilowatt
l	litre
min	minute
max.	maximum
min.	minimum
mm	millimetre
ml	millilitre
N	Newton
Nm	Newtonmeter
oz.	Ounce
psi	pounds per square inch
hp	horse power
lb.	pound
sq.in.	square inch
kp	kilopond
cu.in	cubic inch
mph	miles per hour
fpsec	feet per second
°F	degrees Fahrenheit
fl.oz.	fluid ounce
in.	inch
gal.	gallon
pt	Pint

Conversion factors

Length	1 mm = 0.03937 in.
Area	1 cm^2 = 0.155 sq.in
Volume	1 ml = 0.0352 fl.oz.
	1 l = 2.11416 pt (US)
Mass	1 kg = 2.205 lbs
	1 g = 0.03527 oz.
Density	1 kg/cm^3 = 8.3454 lb./gal (US)
	1 kg/cm^3 = 0.03613 lb./cu.in.
Force	1 N = 0.10197 kp
Speed	1 m/s = 3.28084 fpsec.
	1 m/s = 2.23694 mph
Acceleration	1 m/s^2 = 3.28084 $ft./s^2$
Pressure	1 bar = 14.5 psi
Temperature	°C = (°F-32) x 5/9
Output	1 kW = 1.34109 hp

1. Safety instructions

1.1 General safety instructions

The owner must ensure that any persons entrusted with works on the product or persons who supervise or instruct the before-mentioned group of persons have read and fully understood the instructions.
In addition, the owner must also ensure that the relevant personnel are fully familiar with and have understood the contents of the instructions.
The instructions must be kept at hand together with the product for future reference.
The instructions are part of the product and must accompany the product when selling it.
The described product was manufactured according to the state of the art.
Risks may, however, arise from its usage 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 the installation / operating instructions, general statutory regulations and other regulations for accident prevention and environmental protection must be observed.

1.2 General behaviour when handling the product

- The product may only be used in awareness of the potential dangers, in proper technical condition, and according to the information in these instructions.
- echnical personnel must familiarize themselvers 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 installation / operation must be clarified.
- Operation is prohibited until issues have been clarified.
- Keep unauthorized persons away.
- Observe all relevant precautionary operational measures and instructions for the respective work.
- Responsibilities for different activities must be clearly defined and observed. Uncertainty seriously endangers safety.
- Safety-related protective and emergency devices must not be removed, modified or affected otherwise in their function and are to be checked at regular intervals for completeness and function.

- If protective and safety equipment has to be dismantled, it must be reassembled immediately after finishing the work, and then checked for correct function.
- Remedy occurring faults in the frame of the responsibilities. Immediately inform your superior in the case of faults beyond your competence.
- Wear personal protective equipment always.
- When handling lubricants, adhere to the respective safety data sheets.

1.3 Qualified technical personnel

Only qualified technical personnel may install, operate, maintain, and repair the products described in this document.
Such persons are familiar with the relevant standards, rules, accident prevention regulations, and assembly conditions as a result of their training, experience, and instruction. They are qualified to carry out the required activities and in doing so recognize and avoid any potential hazards. The definition of qualified personnel and the prohibition against employing non-qualified personnel are laid down in DIN VDE 0105 and IEC 364. Relevant country-specific definitions of qualified technical personnel apply for countries outside the scope of DIN VDE 0105 or IEC 364.
The operator of the final product is responsible for assigning tasks and areas of responsibility and for the responsibility and monitoring of the personnel.
The core principles of these country-specific qualification requirements for technical personnel must not be below those of the two standards mentioned above.

The personnel must be trained and instructed, if they do not possess the required knowledge.

Product training can also be performed by SKF in exchange for costs incurred.

1.4 Electric current hazard

WARNING

Electric shock
Assembly, maintenance, and repair works may be performed by qualified and authorized personnel.
Prior to performing work, the product must be disconnected from the power supply.
Thereby the local connection conditions and legal prescriptions (e.g. DIN, VDE) have to be observed.

1.5 Hazard from system pressure or hydraulic pressure

WARNING

System pressure
Hydraulic pressure
Lubrication systems are pressurized during operation. They must be depressurized before starting assembly, maintenance, modification or repair works.

1.6 Operation

The following must be observed when working on the product.

- All information within these instructions and the information within the referenced documents.
- All laws and regulations to be complied by the user.
- Information on explosion protection according to directive 1999/92/EC (ATEX 137), if applicable.

1.7 Assembly, maintenance, malfunctions, shutdown, disposal

All relevant persons (e.g., operating personnel, supervisors) must be informed of the respective activity prior to starting any work. Observe the precautionary operational measures and work instructions.

- 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.
- Prior to performing work, the product and the machine or system in which the product is or will be integrated must be depressurized and secured against unauthorized activation.
- Carry out all works on electrical components using voltage insulated tools only.
- Fuses must not be bypassed. Always replace fuses by such of the same type.
- Ensure proper grounding of the product.

- Drill mounting holes on non-critical, non-load bearing parts only.
- Other units of the machine or vehicle must not be damaged or impaired in their function by the installation of the centralized lubrication system.
- Parts of the centralized lubrication system must never be subjected to torsion, shearing or bending.
- Use adequate lifting tools when working with heavy components.
- Avoid mixing up or wrong assembly of disassembled parts. Mark these parts accordingly.

1.8 Intended use

The GTP-C filler pump is a compact, mobile and powerful electric pump to supply lubricants out of separate grease containers. It is used to fill the lubricant reservoir of a lubrication pump following the technical data (chapter 4) and the specifications made in these instructions.

1.9 Foreseeable misuse

Any usage of the product differing from the aforementioned conditions and stated purpose is strictly prohibited. It is expressly forbidden:

- to lift additional load on the transport brackets of the pump (e.g. grease reservoir)
- to directly feed centralized lubrication systems
- to supply, transport, stockpile pressure-dependent explosive lubricants
- with hydraulic hoses different from those stated in these Instructions
- the use in an explosive atmosphere
- to supply, transport, or store hazardous substances and mixtures in accordance with annex I part 2-5 of the CLP regulation (EC 1272/2008)
- the supply, transport, and stockpiling of gases, liquefied gases, dissolved gases, vapours, and fluids whose vapour pressure exceeds normal atmospheric pressure (1013 mbar) by more than 0.5 bar at the maximum admissible operating temperature

more than 0.5 bar over the normal atmospheric pressure (1013 mbar).

1.10 Disclaimer of liability

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

- non-observance of these instructions
- using lubricants or material not suitable for the type of unit.
- contaminated or inappropriate lubricants.
- the installation of non-original SKF components or spare parts.
- inappropriate usage.
- faulty assembly, setting, or filling.
- improper or late response to malfunctions.
- non-compliance with maintenance intervals.
- unauthorized modification of system components.

1.11 Referenced documents

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

- Operator's explosion protection document.
- Operational instructions and release provisions.
- Instructions of the suppliers of purchased parts.
- Instructions of the insulation measuring device.
- Safety data sheet (MSDS) of the lubricant or material used.
- Project planning documents and other relevant documents.

The operator must supplement these documents with the relevant applicable national regulations of the country of use. If the product is sold or transferred, any associated documents must be passed on to the subsequent operator as well.

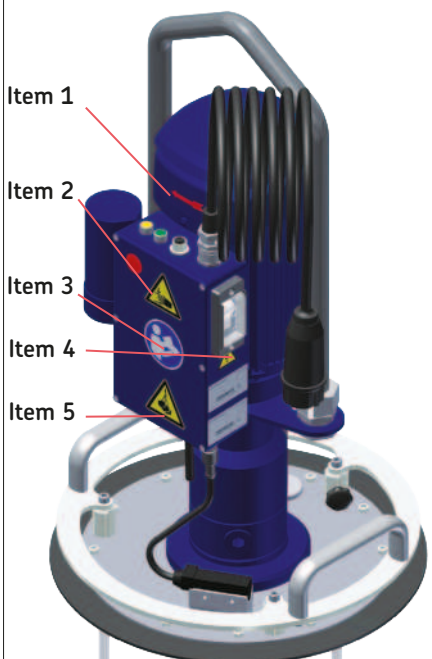
1.12 Warning label on the product

The following warning labels are attached to the product. Before the start-up of the system, verify the presence and integrity of the warning labels. Illegible or missing warning labels are to be replaced without delay. Until then the product must not be put into service. Order number and position, see positioning plan.

Chart 1

Item	Warning label or sign		Order no.:
1		**Observe rotational direction (arrow direction) of the motor**	MS-WN1021.038
2		**Warning risk of crushing between:** - Pump and frame - Frame and grease reservoir - Grease follower plate and grease reservoir - Grease follower plate and transportation drum	44-1826-3096
3		**Observe the operating instructions.**	44-1826-3097
4		**Warning of electric shock**	44-1826-2850
5		**Warning of suspended load**	44-1826-3107

Positioning of the warning labels Fig. 1



1.13 Residual risks

Residual risks	Remedy
Installation life cycle	
Electric shock due to defective connection cable or power plug	• Before starting the product verify the connection cable and power plug for damages
People slipping due to floor contamination with spilled or leaked lubricant	• Exercise caution when disconnecting or connecting the product's hydraulic connections • Bind and remove leaked or spilled lubricant immediately with a suitable agent • Follow the operational instructions for handling lubricants and contaminated parts
Tearing or damaging of lines when installed on moving machine parts	• If possible, do not mount on moving parts If this cannot be avoided, use flexible hose lines
Life cycle - commissioning, operation	
Electric shock due to defective connection cable or power plug	• Before starting the product verify the connection cable and power plug for damages
Lubricant spraying out due to incorrect screw connection of components or lines.	• Tighten all parts manually or with the appropriate tightening torques Use suitable hydraulic screw connections and lines for the stated pressures. Check these prior to commissioning for correct connection and damage.
Life cycle - setting, modification	
People slipping due to floor contamination with spilled or leaked lubricant	• Exercise caution when disconnecting or connecting the product's hydraulic connections • Bind and remove leaked or spilled lubricant immediately with a suitable agent • Follow the operational instructions for handling lubricants and contaminated parts

Residual risks	Remedy
Life cycle - malfunctions, troubleshooting, repair, maintenance	
Electric shock due to defective connection cable or power plug	• Before starting the product verify the connection cable and power plug for damages
Electric shock in case of open electric motor or active live parts	• Make sure to disconnect the product from the power supply before carrying out works on electric parts (voltage interruption) • Exercise caution when winding and unwinding the connection cable and when activating the product
strong heating up of the electric motor due to a motor blockade or permanent operation	• Switch off the pump motor and let it cool down Eliminate the cause.
People slipping due to floor contamination with spilled or leaked lubricant	• Exercise caution when disconnecting or connecting the product's hydraulic connections • Bind and remove leaked or spilled lubricant immediately with a suitable agent • Follow the operational instructions for handling lubricants and contaminated parts
Life cycle - shutdown, disposal	
People slipping due to floor contamination with spilled or leaked lubricant	• Exercise caution when disconnecting the product's hydraulic connections • Bind and remove leaked or spilled lubricant immediately with a suitable agent • Follow the operational instructions for handling lubricants and contaminated parts
Contamination of the environment with lubricant and wetted parts	• Dispose of the parts following the relevant legal and operational regulations

2. Lubricants

2.1 General information

ATTENTION

All SKF products may be used for their intended purpose and in accordance with the instructions only.

The intended use of the GTP-C filler pump is to fill lubrication pump reservoirs. The lubrication pumps serve to lubricate bearings and friction points with lubricants within the physical limits that can be found in the relevant product documentation, e.g. operating instructions and product descriptions, e.g. technical drawings and catalogues.
Particular attention is called to the fact that hazardous materials of any kind, especially those materials classified as hazardous by CLP Regulation EC 67/548 annex I, part 2-5 may only be filled into SKF centralized lubrication systems and components and delivered and/ or distributed with such systems and components after consulting with and obtaining written approval from SKF.

All products manufactured by SKF are not admitted for use in combination with 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 admissible operating temperature.
Other material which is neither lubricant nor hazardous substance may be fed only after consultation with and written approval by SKF.
SKF considers lubricants to be an element of system design
that must always be factored when selecting components and designing a centralized lubrication system. The lubricating properties of the lubricants are critically important when making these selections.

2.2 Selection of lubricants

ATTENTION

Observe the instructions from the machine manufacturer regarding the lubricants to be used.
The amount of lubricant required at the lube point is specified by the bearing or machine manufacturer.
It must be ensured that the required lubricant volume is provided to the lubrication point. Otherwise the lubrication point may not receive adequate lubrication, which can lead to damage and failure of the bearing.

Selection of a lubricant suitable for the lubrication task is made by the machine or system manufacturer and/or the operator of the machine or system in cooperation with the lubricant supplier.
When selecting a lubricant, the type of bearings or friction points, the expected load during operation, and the anticipated ambient conditions must be taken into account. All economic and environmental aspects must also be considered.

2.3 Approved lubricants

ATTENTION

If required, SKF can help customers to select suitable components for feeding the selected lubricant and to plan and design their centralized lubrication system.

Please contact SKF if you have further questions regarding lubricants. 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").
You can request an overview of the lubricant tests offered by SKF from the company's service department.

ATTENTION

Only lubricants approved for the product may be used. Unsuitable lubricants can lead to failure of the product and to property damage.

ATTENTION

Different lubricants must not be mixed. Doing so may cause damage and require costly and complicated cleaning of the product or lubrication system.
It is recommended that an indication of the lubricant in use be attached to the lubricant reservoir in order to prevent accidental mixing of lubricants.

The product described here can be operated using lubricants that meet the specifications in the technical data. Depending on the product design, these lubricants may be fluid greases or greases.
Mineral, synthetic, and/or rapidly biodegradable oils and base oils can be used. Consistency agents and additives may be added depending on the operating conditions.

Note that in rare cases there may be lubricants whose properties are within permissible limit values but whose other characteristics render them unsuitable for use in centralized lubrication systems. For example, synthetic lubricants may be incompatible with elastomers.

2.4 Lubricants and the environment

ATTENTION

Lubricants may pollute ground and waters. Lubricants have to be handled and disposed of properly. Observe the regional laws and prescriptions regarding disposal of the lubricants.

It is important to note that lubricants are environmentally hazardous, flammable substances that require special precautionary measures during transport, storage, and processing. Consult the safety data sheet from the lubricant manufacturer for information regarding transport storage, processing, and environmental hazards of the lubricant that will be used.

The safety data sheet of a lubricant may be requested from the lubricant manufacturer.

2.5 Lubricant hazard

WARNING

Lubricants
The products must be leakproof. Leaking lubricant is hazardous due to the risk of slipping and injury. During assembly, operation, maintenance and repair of centralized lubrication systems watch out for leaking lubricant. Leaks must be sealed immediately.

Leaking lubricant constitutes a considerable potential risk. Leaking lubricant may result in harm to persons or damage to material assets.

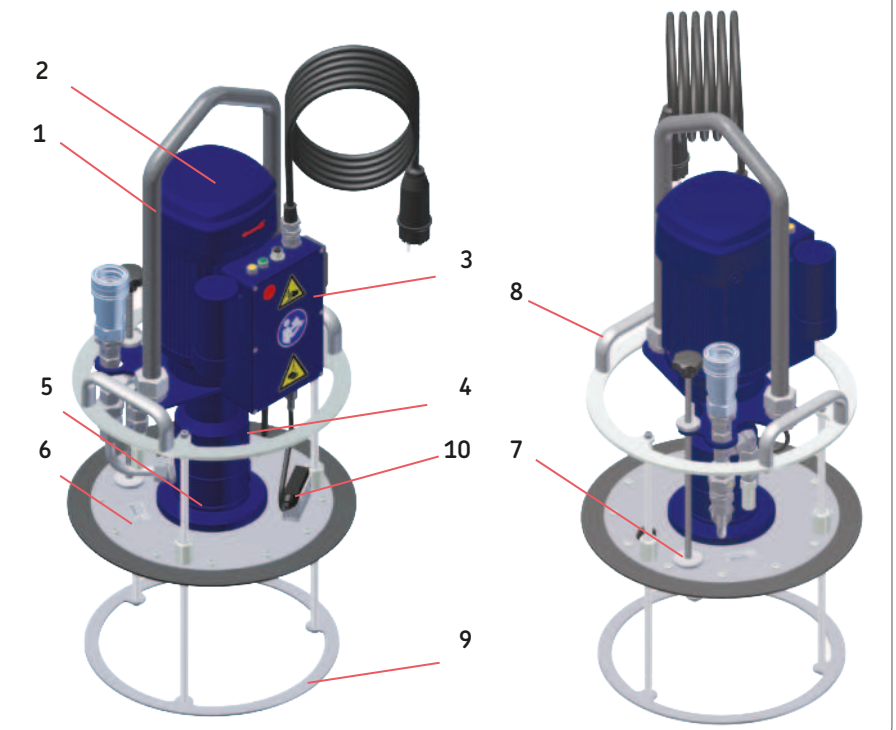
ATTENTION

Adhere to the respective safety instructions in the lubricant safety data sheet.

3. Overview, functional description

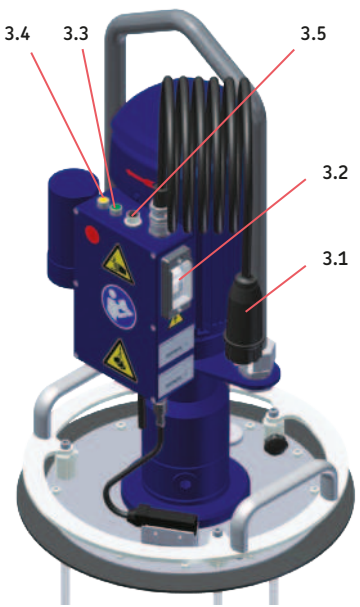
Item	Description
1	Transport bracket
2	Electric motor
3	Electrical terminal box (see page 20)
4	Gear
5	Annular gear pump
6	Grease follower plate with fixation (see page 21)
7	Venting (see page 21)
8	handles
9	Pump frame
10	Limit switch for low level indicator (optional)
	Filling hose (see page 23)
	Filling hose (see page 21)
	Transportation drum for transport and storage (see page 44)

Overview Fig. 2

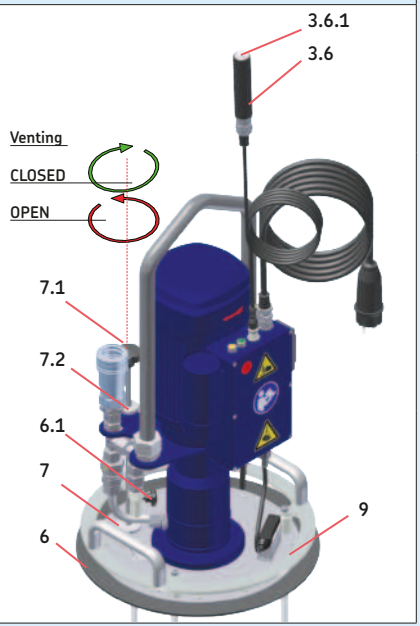


3.1 Operating and control elements

Overview Fig. 2.1

Item	Designation / function	Diagram
3.1	**Power connection** Serves to electrically connect the pump to a 230 V AC/ 50 Hz power grid.	
3.2	**ON/OFF switch thermal switch** Serves to switch the pump on or off. When the thermal switch of the motor has been triggered, the pump must be switched on by actuating the switch again. Observe the cooling time.	
3.3	**Green LED** is lit when the pump is switched on and the correct supply voltage is applied.	
3.4	**Yellow LED** is lit when the pump is switched on and the signal by the limit switch (Fig. 2 Pos. 10) is applied. Flashes in case of a low level indication or a missing signal of the limit switch.	
3.5	**Electrical connection of the cable remote control** Serves to connect the cable remote control (Fig. 2.2 Pos. 3.6)	

Overview Fig. 2.2

Pos.	Designation / function	Diagram
3.6	**Cable remote control** Serves to start or stop the filling procedure. To start the filling procedure, press the button (**3.6.1**). To stop the filling procedure, release the button (**3.6.1**). The start delay between 2 motor starts is 5 seconds.	
7	**Venting** Serves to vent the grease reservoir. Venting is required when changing the reservoir or putting the system into operation. To vent the system turn the vent valve on the handle (**7.1**) by 3 - 4 revolutions anti-clockwise. To close the vent valve, proceed in the reverse order and additionally turn the locking (**7.2**) downward until it stops.	
6.1	**Fixation** The fixation is used to fasten the grease follower plate (**6**) to the pump frame (**9**). Venting is required when changing the reservoir, putting the system into operation, or transporting the pump. To fix the grease follower plate in the upper position, clockwise turn the fixation (**6.1**) in by hand until it firmly sticks to the pump frame.	

3.2 Operating principle of the product

☞ see Fig. 3

The GTP-C filler pump (**1**) is a compact, mobile and powerful electric pump to fill lubricant reservoirs of lubrication pumps, preferably in the wind energy sector.
The GTP-C filler pump consists of the following main components: electric motor (**2**) and controller (**3**) with cable remote control (**4**), gear (**5**) and annular gear pump (**6**).
The GTP-C is switched on via a thermal switch (**7**).
Should the filler pump consume excessive current due to a blockade or a defect, the thermal switch will be triggered thus switching the pump off.
The thermal switch must not be blocked, bridged or otherwise manipulated!
Actuating the pushbutton (**4.1**) on the remote control (**4**) will trigger a supply process. The electric motor (**2**) drives the annular gear pump (**6**) via the downstream gear (**5**). The pump supplies the lubricant through the connected filling hose (**8**) to the lubrication pump provided by the customer.

As long as the pushbutton (**4.1**) remains actuated lubricant is supplied continuously.

A check valve attached to the pump impedes the pressurized lubricant from being pressed back.
A pressure reducing valve protects the filler pump and the hose line against overpressure. If the factory-set pressure is exceeded, the pressure reducing valve opens and protects the filler pump against overload.
The valves must not be removed or manipulated otherwise!

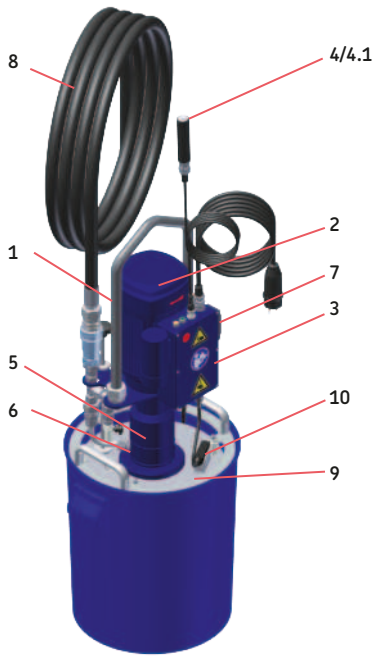
The more lubricant the GTP-C supplies, the more the follower plate (**9**) sinks down in the grease container together with the pump.
In case of the GTP-C version without low level indication the filler pump must be switched off via remote control or thermal switch, as soon as the minimum filling level is reached in the grease reservoir.

If the GTP-C is not switched off, it will continue to operate and take in air instead of grease.

In case of the GTP-C version with low level indication (**10**) the pump switches off automatically when reaching the minimum filling level in the grease reservoir. This prevents the pump from pumping air into the lubricant reservoir provided by the customer.

To avoid overload the filler pump is switched off automatically after 15 minutes of continuous operation. The pump can be restarted by activating the pushbutton on the remote control again.
A starting delay of 5 seconds has been set between two motor runs.

GTP-C filler pump Fig. 3

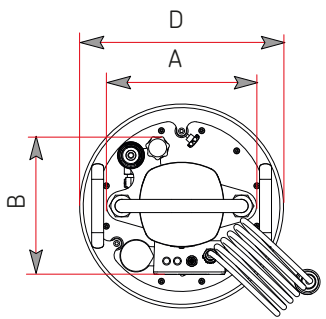


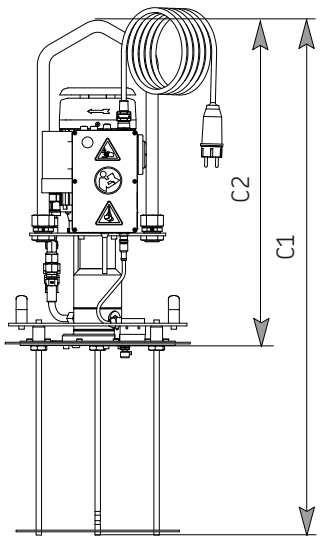
3.3 Minimum assembly dimensions

☞ see Fig. 4

Ensure sufficient space for the operation of the GTP-C filler pump by adhering to the stated minimum free space dimensions.

Minimum free space dimensions Fig. 4





Minimum free space dimensions

A	=	Pump width:	250 mm	+	100 mm
B	=	Pump width:	240 mm	+	100 mm
C1	=	Height (extracted):	950 mm	+	100 mm
C2	=	Height (extended):	620 mm	+	100 mm
D	=	Diametre:	330 mm	+	100 mm

4. Technical data

4.1 General technical data

Technical data, chart 1

Electric motor	
Supply voltage	220 - 240 VAC
Frequency	50 Hz ± 10 %
Line fuse	C 10 A or B 16 A
Max. current consumption	approx. 9 A
Power	0.37 kW
Motor speed	1400 rpm^{-1}
Operating mode	S1
Insulation class	F
Design	B 14
Starting delay	5 seconds between 2 motor starts
Automatic disconnection	15 minutes after the last motor start reconnection by actuating the cable remote control (switch off)
Electrical connection	
Connect the GTP-C pump only to a power grid with protective earth (PE). Rubber hose line 3 m/ 3 x 1.5 mm^2 (H07RNF)	
Types of protection	
IP type of protection	IP 54
Pump	
Pump	Annular gear pump
Gear	Planetary gear i = 4:1
Admissible operating pressure	100 bar maximum
Pressure reducing valve	150 bar (firmly adjusted)
Operating temperature	-10 °C maximum + 50 °C
Operating position	upright, deviation ± 5°
Sound pressure level	< 70 dB(A)
Nominal output	1.0 l/min (+ 20 °C and 50 bar counterpressure, tested with Fuchs Gleitmo 585 k)
Weight	approx. 24.5 kg (without accessories like grease reservoir, filling hose, transportation drum)
GTP-C without frame	19.5 kg
Frame for 25 kg/ 30 l reservoir	5.1 kg

Technical data, chart 2

Filling hose	
Specification	High-pressure hose KP 120 (1SC) G3/4“ NW 19
Transport/ storage	Bending radius 180 mm minimum Do not kink!
Weight	15 m/ 8.5 kg
	10 m/ 6.0 kg
	05 m/ 4.5 kg
Lubricants	
Consistency class	NLGI 1 or NLGI 2
Flow pressure	700 mbar maximum
Solids content	5 % maximum
Material compatibility with:	Steel, brass, copper, aluminium, NBR, FKM, PU
Approved lubricants	
SKF	LGWM 2
Klüber	Klüberplex BEM 41-132
Fuchs	Gleitmo 585 K
	RENOCAL FN 745/94
Mobil	SHC 460 WT (transportable up to – 5 °C)
Grease reservoir sizes	
Capacity	25 kg/ 30 l
Inner diameter maximum	≤ 339 mm
Inner diameter minimum	≤ 302 mm
Height	≤ 400 mm
Form	cylindrical/ conical

Other grease reservoir sizes on request

4.2 Notes related to the type identification plate

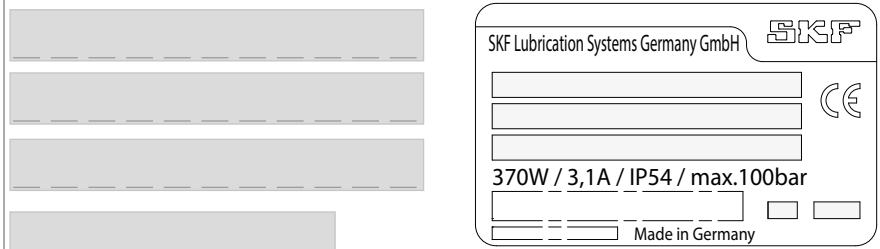
☞ see Fig. 5

The type identification plate states important characteristics such as type designation, order number, barcode serial number, etc.

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

- Enter the characteristics of the type identification plate in the following Fig. 5

Characteristics of the type identification plate, Fig. 5



4.3 Notes related to the CE marking

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

- o 2014/30/EC Electromagnetic compatibility
- o 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 I (1.5.1) of Machinery Directive 2006/42/EC.

Notes related to the 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) (i) and is therefore excluded from the scope of application of Pressure Equipment Directive 2014/68/EU following Article 4 (3).

5. Delivery, returns, and storage

5.1 Checking the delivery

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

5.2 Returns

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

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

SKF products are subject to the following storage conditions:

5.3 Storage

5.3.1 Lubrication units

- dry and dust-free surroundings, storage in well ventilated dry area
- storage time: 24 months max.
- Relative humidity: < 65%.
- storage temperature: + 10 - +40 °C.
- avoid direct sun or UV exposure
- shield product from nearby sources of heat and coldness.

5.3.2 Electronic and electric devices

- dry and dust-free surroundings, storage in well ventilated dry area
- storage time: 24 months max.
- Relative humidity: < 65%.
- storage temperature: + 10 - +40 °C.
- avoid direct sun or UV exposure
- shield product from nearby sources of heat and coldness.

5.3.3 General information

- The product(s) can be wrapped in plastic film to provide low-dust storage.
- Protection against ground moisture by storing on a shelf or wooden pallet.
- Protect bare metal surfaces by corrosion protection agents. Check corrosion protection every 6 months and renew, if necessary.
- Protect motors against mechanical damage. Do not store motors on the fan cover.

6. Commissioning / operation

6.1 Notes related to commissioning and operation

When starting up the GTP-C filler pump consider and adhere to the following information.

- Other units of the machine or vehicle must not be damaged or impaired in their function by starting up and operating the GTP-C filler pump.
- Carry out installation works only after depressurizing and disconnecting the filler pump from the power grid.
- Do not touch cables or electrical components with wet or damp hands.
- Before the electrical connection check the power cable for damages. Connection only to undamaged protective contact socket and within the allowed specifications.
- 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.
- Position the GTP-C filler pump only outside of the operating range of moving parts at an adequate distance from sources of heat or cold.
- When assembling the grease reservoir do not reach between the rim of the reservoir and the grease follower plate. Risk of crushing hands and fingers! Make sure to carry out the assembly of the grease reservoir with 2 persons.
- Immediately bind and remove any lubricant leaked or spilled during assembly of the grease reservoir with a suitable binding agent. Observe the legal or company regulations on dealing with oils and greases and contaminated parts.
- If necessary, secure the pump with adequate means (e.g. chain, hooks, ropes) against tilting, e.g. due to pulling the filling hose extremely.
- Avoid damages to the filling hose. When operating the filling hose, do not move it over sharp edges or chafing points. Check the filling hose for damage at regular intervals.
- Regularly check that:
  - All protection and safety devices are completely available and functional.
  - All connections are correctly connected.
  - All parts are correctly installed.
  - All warning labels on the machine are completely available, highly visible and undamaged.
  - Illegible or missing warning labels are replaced without delay.

6.2 Inspections prior to initial start-up

☞ see Fig. 6 and Fig. 7

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

- o Loose/ missing items, smoke or smouldering spots
- o Contaminations and corrosion
- o Unusual accumulation of moisture
- o Damages, deformations, or cracks of the filling hose
- o Leakages of lubricant at connections and from lines.

6.3 Installation of a bridge in case of pumps without low level indication

☞ see Fig. 6

ATTENTION

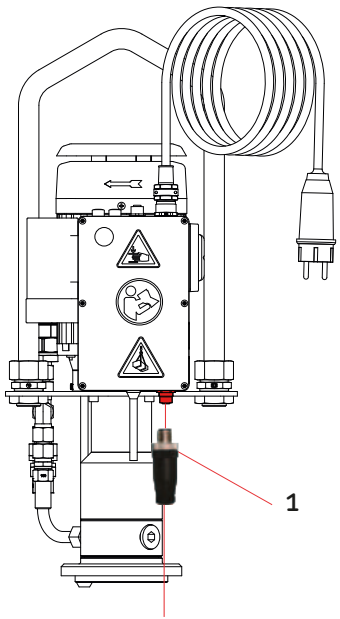
In case of filler pumps without low level indication the bridge has already been factory-fit.

In case of pumps without low level indication there must be installed a bridge (**1**). To do so, proceed as follows:

- Remove the plug from the bottom side of the electrical terminal box and screw the bridge (**1**) to the low level port.

☞ Disassemble the bridge in the reverse order. For example, when modifying the pump to a version with low level indication.

Installation of the bridge, GTP-C without low level indication, Fig. 6



Bridge for low level indication
Order no. **24-6882-0079**

6.4 Transport of the filler pump to the place of use

☞ see Fig. 7

Normally, transportation of the GTP-C filler pump to the place of use is realized in a transportation pump with two handles. **The handles have not been designed to fix any lifting tools on them**. This is the transport bracket's task, which is attached to the pump. Securing the transportation drum on the handles with ropes (against falling), however, is allowed.
The transportation drum may be loaded with the GTP-C filler pump only, excluding the grease reservoir and the filling hose. All parts must be secured against falling,

WARNING

Personal injuries and damage to property
Do not tilt nor throw the product.

ATTENTION

Technical data (see chapter 9).

WARNING

Danger to life
Do not stay below the lifted pump. Keep unauthorized persons away. Only use tested lifting tools and load-carrying devices of sufficient load-carrying capacity. When lifting the pump on the transport bracket, make sure not to lift any further loads (e.g. grease container) with it. Check the transport bracket and transportation drum for damages at regular intervals.

6.4.1 Lifting by means of the transport bracket

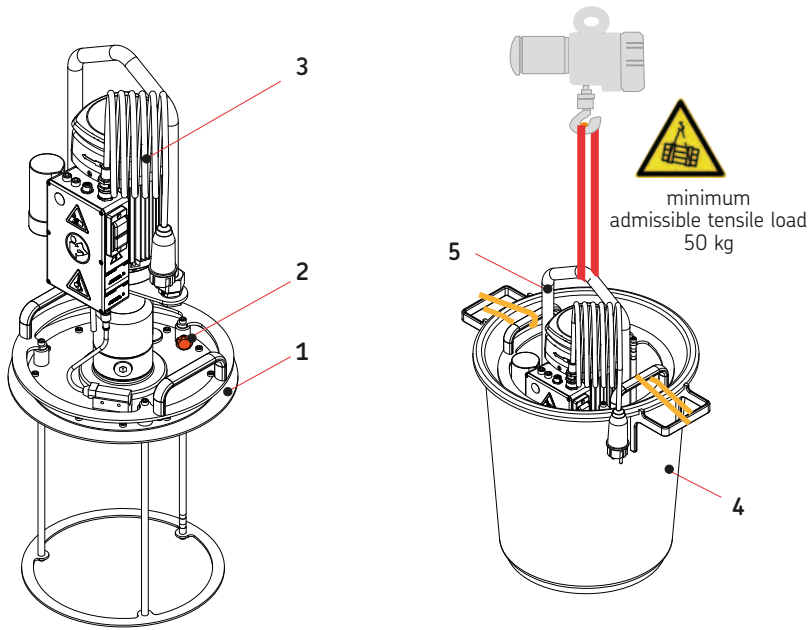
☞ see Fig. 7

- Secure the grease follower plate (**1**) by means of the fixing screw (**2**)
- Make sure that the GTP-C filler pump (**3**) has been fully lowered into the transportation drum (**4**)
- Attach suitable lifting tools to the transport bracket (**5**) of the GTP-C filler pump (**3**)
- When lifting the transportation drum (**4**) make sure to secure it with ropes on the GTP-C filler pump against falling
- Slowly lift the GTP-C filler pump (**3**)
- Do not attach further load

In case of wind turbine generators:

- Observe the maximum wind speed when lifting it outside of the mast.

Lifting on the transport bracket, Fig. 7



6.5 Inserting the GTP-C filler pump in a grease reservoir

☞ see Fig. 8

WARNING

Risk of crushing hands and fingers
When inserting the pump into a grease reservoir, never reach between the rim of the reservoir and the grease follower plate.

WARNING

Slipping hazard
due to leaking lubricant.
Bind and remove leaked or spilled lubricant immediately with a suitable agent. If necessary, warn other persons. Inhibit the access to the areas concerned.

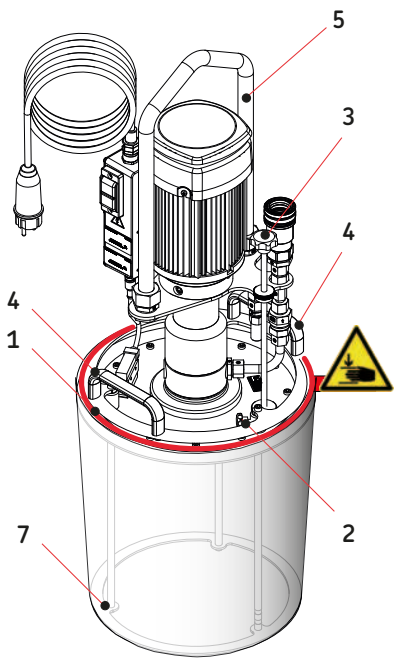
Before inserting the GTP-C filler pump in the grease reservoir check whether the grease reservoir is suitable for the grease follower plates - see chapter 4 ,Technical data / Grease reservoir sizes.

- Lock the grease follower plate (**1**) by means of the fixation (**2**) on top of the pump frame.
- Open the vent valve (**3**).
- Remove the lid of the grease reservoir.
- Lift the pump on the handles (**4**) or on the transport bracket (**5**) and insert it straight into the grease reservoir.
- Lower the pump frame (**7**) entirely into the grease reservoir by pressing down the handles (**4**). The pump frame must be placed on the bottom of the grease reservoir.
- Open the fixation (**2**).

☞ The grease follower plate (**1**) sinks down onto the grease level of the grease reservoir.

- Close and lock the vent valve (**3**), as soon as the grease follower plate has been lowered down entirely (minor leakage from the vent valve).

Insert the GTP-C filler pump Fig. 8



6.6 Installation of the cable remote control

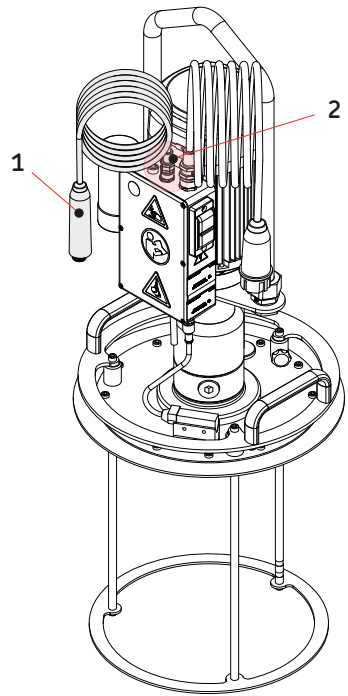
☞ see Fig. 9

The cable remote control represents a fix part of the pump, which does not run without the remote control.

- Check the cable remote control (**1**) for damages.
- Transport the cable remote control to the GTP-C filler pump.
- Connect the plug (**2**) of the cable remote control to the counterpart on the GTP-C filler pump.

☞ Disassemble the cable remote control in the reverse order.

Installation of the cable remote control Fig. 9



6.7 Installation of the filling hose to the GTP-C filler pump

☞ see Fig. 10

WARNING

Hydraulic pressure

Before assembly check the filling hose with regard to damage or contamination. Do not mount defective filling hose! Remove any contamination before the assembly.

6.7.1 Installation of the filling hose by means of a quick coupling

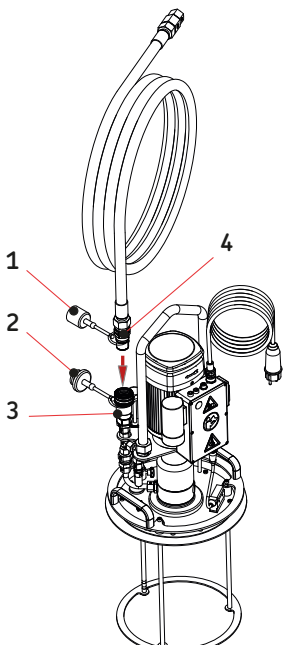
- Remove the protective cap (**1**) of the hydraulic sleeve on the GTP-C filler pump
- Remove the protective cap (**2**) of the hydraulic plug on the filling hose
- Pull the hydraulic sleeve (**3**) downward and connect it to the hydraulic plug (**4**)

6.7.2 Installation of the filling hose with connection thread

- Tighten the filling hose on the M30 x 2 thread by hand until it is firmly seated. Then tighten it with a flat wrench by another quarter of a turn.

☞ Disassembly of the filling hose is done in the reverse order.

Installation of the filling hose Fig. 10



6.8 Installation of adapters to the lubrication pump provided by the customer as well as to the filling hose of the GTP-C

6.8.1 Lubrication pumps of the SKF series KFG and P203 with G1/4 adapter

☞ see Fig. 11, also see chapter 10 - Spare parts and accessories

Mount the filler coupling sleeve to the filling hose of the GTP-C filler pump

☞ If necessary, remove the existing adapter from the filling hose

- Mount filler coupling sleeve (**1**) to the filling hose (**2**)

Mount the adapter to the lubrication pump provided by the customer

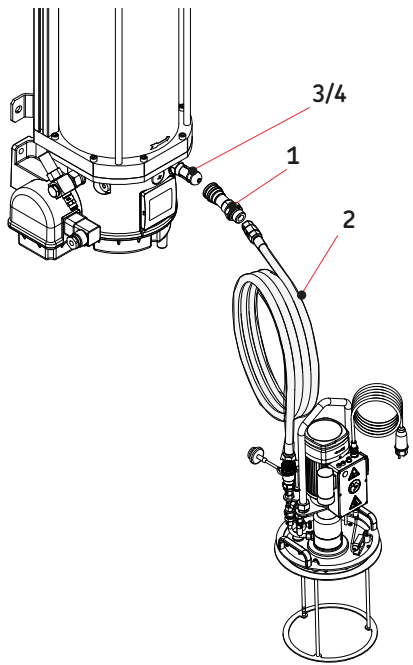
- Remove closure screw G1/4 from the KFG pump housing
- Instead of the closure screw mount a coupling plug (**3**) into the KFG pump housing

or

- Remove closure screw M22x1.5 from the P203 pump housing
- Instead of the closure screw mount a coupling plug (**4**) into the KFG pump housing

Pos.	Description	Order no.
1	Filler coupling sleeve assy.	24-0159-2111
2	Filling hose	224-1868-4337 to 4-1868-4342
3	KFG coupling plug G1/4	995-000-705
4	P203 filling connection assy. G1/4	540-31800-1

Installation of the G1/4 adapter, Fig. 11



6.8.2 Lubrication pumps of the SKF series KFG with adapter 20 x 1.5

☞ see Fig. 12, also see chapter 10 - Spare parts and accessories

Mount the coupling G1/2 to the filling hose of the GTP-C filler pump

☞ If necessary, remove the existing adapter from the filling hose

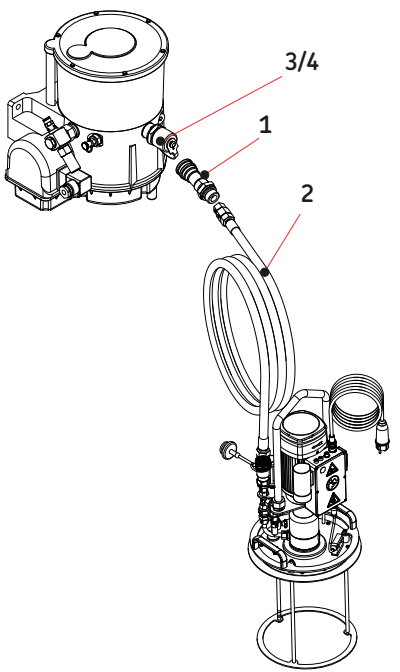
- Mount filler coupling sleeve (**1**) to the filling hose (**2**)

Mount the adapter to the lubrication pump provided by the customer

- Remove closure screw G1/4 from the KFG pump housing
- Instead of the closure screw mount straight filling connection (**3**) or (**4**) into the KFG pump housing

Pos.	Description	Order no.
1	Filler coupling sleeve assy.	24-0159-2113
2	Filling hose	224-1868-4337 to 4-1868-4342
3	Filling connection M20 x 1.5, short	169-000-174
4	Filling connection M20 x 1.5, long	169-000-170

Installation of adapter 20 x 1.5, Fig. 12



6.8.3 Lubrication pumps of the SKF series P203, P223, P233, P243, P603 and P653

☞ see Fig. 13, also see chapter 10 - Spare parts and accessories

Mount the connection sleeve to the filling hose of the GTP-C filler pump

☞ If necessary, remove the existing adapter from the filling hose

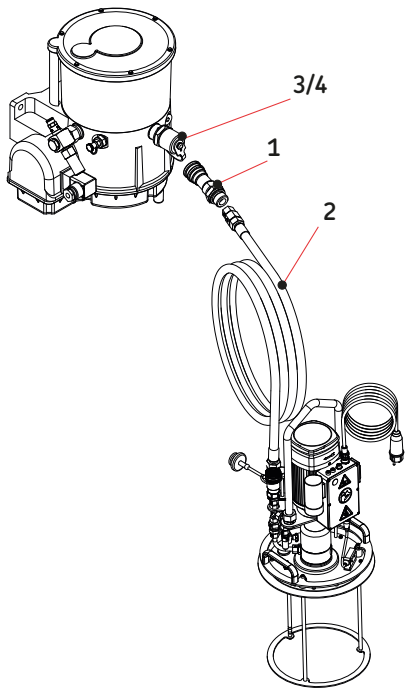
- Mount the connection sleeve (**1**) to the filling hose (**2**)

Mount the adapter to the lubrication pump provided by the customer

- Remove closure screw M22x1.5 from the pump housing
- Instead of the closure screw mount the desired filling connection (**3**) to (**6**) into the pump housing

Pos.	Description	Order no.
1	Connecting sleeve	24-0159-2110
2	Filling hose	224-1868-4337 to 4-1868-4342
3	Straight filling connection M22 x 1.5	538-36763-1
4	Straight filling connection M22 x 1.5, long	538-36763-5
5	90° Filling connection	538-36763-2
6	90° Filling connection, long	538-36763-4

Installation of adapter 22 x 1.5, Fig. 13



7. Operation, shutdown and disposal

WARNING

Electric shock
Do not touch cables or plugs of the GTP-C with wet or damp hands. Connect the GTP-C pump only to a power grid with protective earth (PE).

CAUTION

Risk of falling or tripping
When working pay attention to the position of the filling hose. Upon completion of the work, position the filling hose outside of the pathway.

ATTENTION

Bursting hazard
Do not overfill the lubrication pump reservoir. Otherwise the reservoir could be damaged. Always observe the filling procedure!

7.1 Initial startup

☞ see Fig. 14

The mobile GTP-C filler pump has been factory-tested with test oil for proper functioning. Therefore the following has to be observed when starting the pump up for the first time:

- Insert the filler pump into the grease reservoir following chapter 6.5
- If necessary, connect the filling hose (**1**) and the cable remote control (**2**) to the pump
- Connect the power plug (**3**) to the power grid provided by the customer
- Turn the thermal switch (**4**) on
- Place the filling hose (**1**) into a drip pan
- Keep the pushbutton on the cable remote control (**2**) pressed until lubricant instead of test oil leaks from the filling hose (**1**)

Due to the nature of the system the first start-up or longer downtimes of the pump may result in pumping problems. If so, vent the pump following chapter 9.3.

7.2 Operation of the GTP-C filler pump

☞ see Fig. 14

- Insert the filler pump into the grease reservoir following chapter 6.5
- If necessary, connect the filling hose (**1**) and the cable remote control (**2**) to the pump
- Connect the pump with the cable to the power grid (**3**) provided by the customer
- Switch on the power supply of the pump on the thermal switch (**4**)
- Route the filling hose to the pump to be filled and couple it to the pump
- Press the pushbutton on the cable remote control and fill the lubrication pump reservoir

Do not overfill the reservoir! Always observe the filling procedure!
In case of GTP-C without low level signal, observe the filling level of the GTP-C!

- When reaching the maximum filling level release the pushbutton of the cable remote control (**2**)
- If necessary, repeat the filling procedure on the next lubrication pump
- Upon completion of the work, switch the pump off with the thermal switch (**4**)

7.3 Temporary shutdown

A temporary shutdown is done by disconnecting the electrical and hydraulic supply connections. Note the instructions given in chapter "Operation".
When shutting the product down for a longer period of time, additionally observe the instructions given in chapter "Transport, delivery and storage".

7.4 Shutdown and disposal

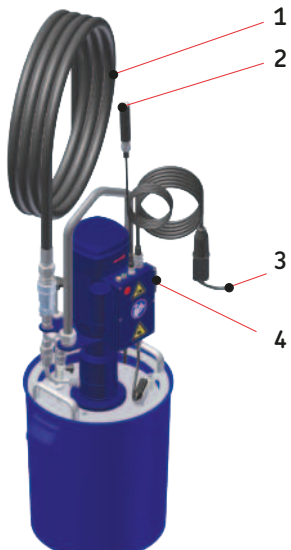
In case of final shutdown follow the applicable rules and regulations on the disposal of contaminated parts or means of operation.

ATTENTION

Environmental pollution
The filling lines must be absolutely leakproof. Lubricants may pollute ground and waters. Lubricants have to be handled and disposed of properly. Observe the regional laws and prescriptions regarding disposal of the lubricants.

The product can also be returned for disposal to SKF Lubrication Systems Germany GmbH, in which case the customer is responsible for reimbursing the costs incurred. The parts are recyclable.

Operation of the GTP-C filler pump Fig. 14



8. Maintenance

8.1 General information

WARNING

Electric shock
Prior to performing work, the product must be disconnected from the power supply.
Electrical connection of the product may be carried out only by commissioned and qualified electricians authorized by the owner.
Thereby the local connection conditions and legal prescriptions (e.g. DIN, VDE) have to be observed.

The maintenance requirements of the SKF products are extremely low. To ensure proper functioning, all connections should be checked for firm seating at regular intervals. The product may be cleaned with mild, material-compatible cleaning agents (no soap, not alkaline) as necessary.
For safety reasons, disconnect the product from the power grid before cleaning it. Make sure that no cleaning agents get inside the product.
Inside cleaning of the product is not necessary.
Should incorrect or contaminated lubricant have been filled, inside cleaning of the product will be required.
Prior to doing so, contact the SKF Service Department.

ATTENTION

Execution, required protective clothes, cleaning agents and devices following the valid operational regulations of the operator.

Disassembly of the product or of single components of the product within the legal warranty period is not admissible and will result in the voiding of any warranty.

ATTENTION

Only original SKF spare parts may be used. Unauthorized modification as well as a use of non-original SKF spare parts and auxiliary means is not allowed and results in the loss of the statutory warranty.

ATTENTION

Supply clean grease only. The service life of the pump and the lubricated machine components
significantly depends on the purity of the lubricants used.

8.2 Maintenance schedule

Inspections

Type of maintenance or inspection	Inspections
Regularly recurring inspection	• Regularly recurring inspection
Special inspection after certain incidents o Accidents, collisions, exceptional natural events o Changes to the machine/ installation of a new filling hose o Longer downtimes	• Immediately, at the latest before recommissioning

9. Troubleshooting

9.1 General information

The following charts give an overview over possible malfunctions and their causes. If it is not possible to remedy the malfunction, please contact the SKF Service Department.

ATTENTION

Disassembly of the product is not admissible and will result in the voiding of any warranty.
Defective products must be replaced. Repairs may be carried out by SKF Service personnel only.

ATTENTION

Only original SKF spare parts may be used. The unauthorized modification of the product and the use of non-original SKF spare parts and auxiliary means are not allowed.

ATTENTION

Execution, required protective clothes, cleaning agents and devices following the valid operational regulations of the operator.

9.2 Troubleshooting

Troubleshooting	
Cause	**Remedy**
No lubricant supply	
o Grease reservoir empty (yellow light flashing) Only in case of pumps with low level signal	• Replace grease reservoir
o Pump does not run	• Switch the pump on • Plug in the mains plug • Check the fuse of the mains supply • Check and switch on the thermal circuit breaker
o Pump takes in air o Grease follower plate is stuck	• Unlock grease follower plate • Vent grease reservoir • Close and lock vent valve
o Pump with low level signal o Plug of low level signal not installed correctly or sensor defective (yellow light flashing)	• Check and, if applicable, mount the sensor correctly or replace it
o Pump without low level signal o Bridge not installed correctly (yellow light flashing)	• Check and, if applicable, mount the sensor correctly or replace it
o Electric connection of cable remote control not mounted correctly	• Check and, if applicable, mount the sensor correctly or replace it
o Defective cable of cable remote control	• Replace cable remote control
o Defective pusbutton of cable remote control	• Replace cable remote control

Troubleshooting	
Cause	**Remedy**
Too low lubricant supply	
o Grease follower plate is stuck	• Check whether fixation of the grease follower plate is fully open • Check and, if applicable, went the grease reservoir
o Air bubbles in the lubricant	• Vent grease reservoir
If the fault cannot be determined and remedied, please contact our Customer Service.	

9.3 Venting the pump

☞ see Fig. 15

Due to the nature of the system the first start-up or longer downtimes of the pump may result in pumping problems. If so, vent the pump immediately.
To avoid operating errors during the venting procedure, such as loosening the fitting and actuating the cable remote control at a time, this work may be carried out by one person only.

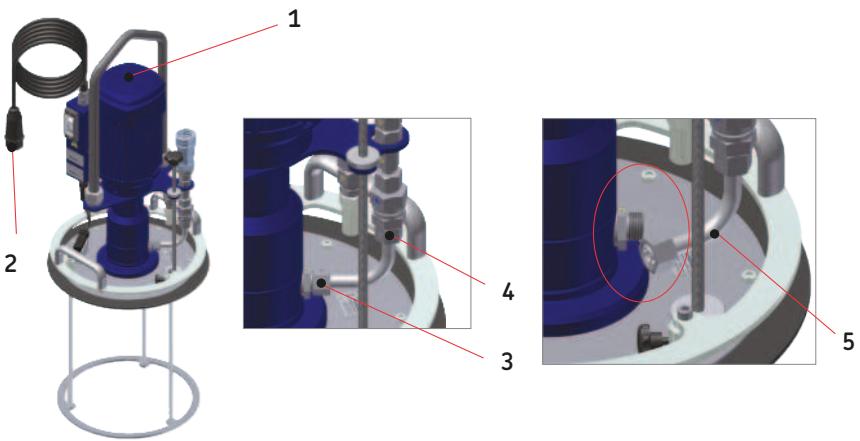
WARNING

Hydraulic pressure
When switching the pump on, air and/or lubricant may leak from the loosened fitting.

Proceed as follows:

- Exclude other sources of faults
- Close pump (**1**) down
- Disconnect power plug (**2**) from the grid
- Loosen coupling nut (**3**/**4**)
- Turn tube elbow (**5**) sidewards
- Connect pump to the power grid
- Let pump (**1**) run shortly
- As soon as bubble-free lubricant leaks from the pump, switch off the pump (**1**)
- Disconnect power plug (**2**) from the grid
- Turn tube elbow (**5**) back
- Tighten coupling nut (**3**/**4**), then retighten it at 30° to 60°

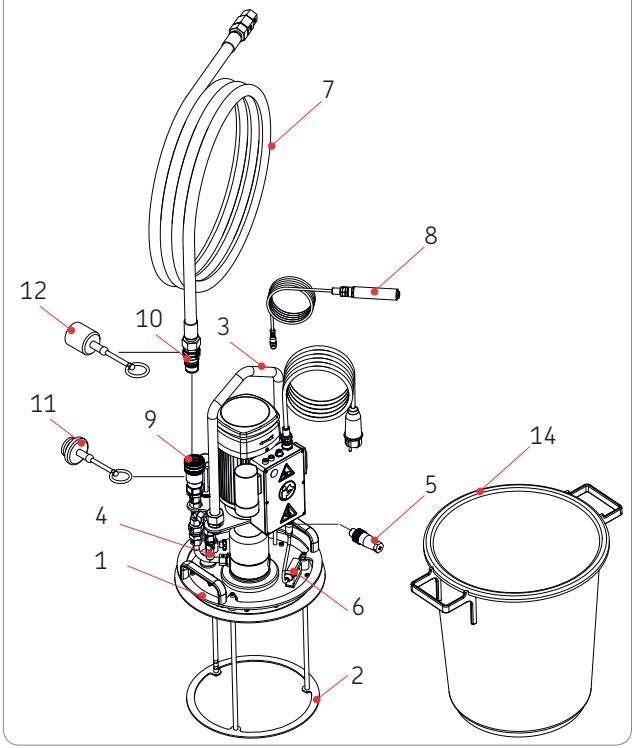
Fig. 15



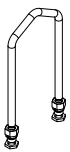
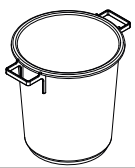
10. Spare parts and accessories

10.1 Spare parts

Fig. 15



Spare parts, Legend 1 of 3 to Fig. 15

Spare parts GTP-C			
Pos.	**Fig.**	**Description**	**Order number**
3		Transport bracket	**24-9909-0263**
6		Limit switch low level indication assy.	**24-9909-0261**
13		Venting assy.	**24-9909-0262**
14		Transportation drum	**44-2160-0002**

Spare parts, Legend 2 of 3 to Fig. 15

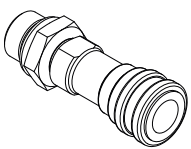
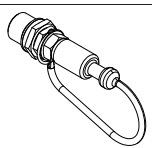
Pos.	Designation					
	A = Quick coupling B = Transport bracket C = Pump frame D = Low level signal					
		A	B	C	D	
	Pump GTP-C mobile assy.	YES	YES	YES	YES	**799-000-3109**
	Pump GTP-C mobile assy.	YES	YES	YES	NO	**799-000-3111**
	Pump GTP-C mobile assy.	NO	NO	YES	NO	**799-000-3110**
	Pump GTP-C stationary assy.	NO	NO	YES	YES	**799-000-3112**
	Pump GTP-C mobile	YES	YES	-	-	**24-1560-3600**
	Pump GTP-C stationary	NO	NO	-	-	**24-1560-3602**
1	Pump frame with grease follower plate	-	-	-	YES	**24-1722-2557**
1	Pump frame with grease follower plate	-	-	-	NO	**24-1722-2559**
2	Lower steel ring of pump frame					**44-0226-5116**
3	Transport bracket assy.					**24-9909-0263**
4	Pressure reducing valve					**995-001-884**
5	Bridge for low level indication					**24-6882-0079**
6	Limit switch for low level indication assy.					**24-9909-0261**
7	Filling hose assy. 5 m with plug-in coupling and outlet G1/2					**24-1868-4337**
	Filling hose assy. 10 m with plug-in coupling and outlet G1/2					**24-1868-4338**
	Filling hose assy. 15 m with plug-in coupling and outlet G1/2					**24-1868-4339**
	Filling hose assy. 5 m with connection M 30 x 2 and outlet G1/2					**24-1868-4340**
	Filling hose assy. 10 m with connection M 30 x 2 and outlet G1/2					**24-1868-4341**
	Filling hose assy. 15 m with connection M 30 x 2 and outlet G1/2					**24-1868-4342**

Spare parts, Legend 3 of 3 to Fig. 15

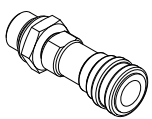
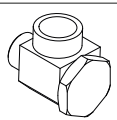
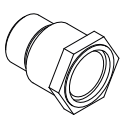
Pos.	Designation	
8	Cable remote control assy. 5 m	**24-6077-0099**
	Cable remote control assy. 10 m	**24-6077-0100**
	Cable remote control assy. 15 m	**24-6077-0101**
9	Coupling sleeve G3/4 DN 19 (to pump)	**24-1020-2604**
10	Coupling sleeve G3/4 DN 19 (to pump)	**24-1020-2605**
11	Protective cap for sleeve	**44-1860-2086**
12	Protective cap for plug	**44-1860-2087**

10.2 Accessories for the SKF pump series KFG

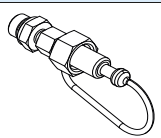
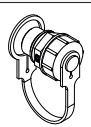
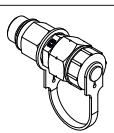
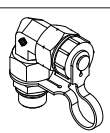
Accessories, chart 1 of 4

SKF lubrication pump KFG and SKF lubrication pump P 203, connection G 1/4			
Installation to the filling hose			
Pos.	**Fig.**	**Description**	**Order number**
1		Filler coupling sleeve assy.	**24-0159-2111**
Installation to the pump provided by the customer			
2		KFG filler stud G 1/4	**995-000-705**
3		P203 filler coupling G 1/4	**540-31800-1**

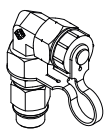
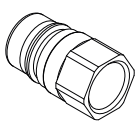
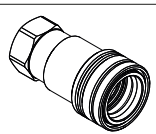
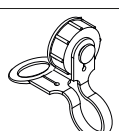
Accessories, chart 2 of 4

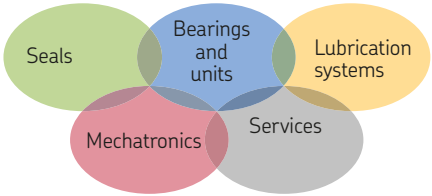
SKF lubrication pumps KFGS/KFGL/KFGC for wind turbine generators			
Installation to the filling hose			
Pos.	**Fig.**	**Description**	**Order number**
4		G1/2“ for filling connection Positions 5 and 6	**24-0159-2112**
5/ 6		Straight filling connection M20 x 1.54	**169-000-174**
		Straight filling connection (short) M20 x 1.5	**169-000-170**
7		Swivelling screw-fitting 2 x M20 x 1.5 Positions 5 and 6	**405-541-411**
8		Connection piece (extension) 2 x M20 x 1.5 Positions 5 and 6	**853-950-010**

Accessories, chart 3 of 4

Connection to SKF lubrication pump types P 203/ P 223/ P 233/ P 243/ P 603/ P 653			
Installation to the filling hose			
Pos.	**Fig.**	**Description**	**Order number**
9		Coupling stud assy.	**24-0159-2110**
Installation to the pump provided by the customer			
10		Straight filling connection M22 x 1.5 (P 203, 2 l)	**538-36763-1**
11		Straight filling connection M22 x 1.5 long (P 203 FL, 4l, 8l, 15l)	**538-36763-5**
12		90 ° filling connection M22 x 1.5 (P 203, 2 l)	**538-36763-2**

Accessories, chart 4 of 4

Connection to SKF lubrication pump types P 203/ P 223/ P 233/ P 243/ P 603/ P 653			
Installation to the pump provided by the customer			
Pos.	**Fig.**	**Description**	**Order number**
13		90 ° Filling connection, long (for 2 l flat, 4 l, and 8 l reservoirs)	**538-36763-4**
14		Coupling plug G1/2 for installation on pump P 603 (filling from the top) in combination with pos. 4 on the filling hose of the GTP-C pump	**504-33395-1**
15		Coupling sleeve G1/2 for installation to filling hose of the GTP-C pump	**24-0159-2113**
16		Protective plug for items 10 to 13	**233-13124-8**



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Drawing on five areas of competence and application-specific expertise amassed over more than 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry worldwide. These five competence areas include bearings and bearing units, seals, lubrication systems, mechatronics (combining mechanics and electronics into intelligent systems), and a wide range of services, from 3-D computer modelling to advanced condition monitoring and reliability and asset management systems. A global presence provides SKF customers uniform quality standards and worldwide product availability.

Important information on product usage
All products from SKF may be used only for their intended purpose as described in this brochure and any instructions. If operating instructions are supplied with the products, they must be read and followed.
Not all lubricants are suitable for use in centralized lubrication systems. SKF does offer an inspection service to test customer supplied lubricant to determine if it can be used in a centralized lubrication system. SKF lubrication systems or their components are not approved for use with gases, liquefied gases, pressurized gases in solution and fluids with a vapour pressure exceeding normal atmospheric pressure (1 013 mbar) by more than 0.5 bar at their maximum permissible pressure.
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