

# Hydraulically driven lubrication pump HTL201

with grease follower plate technology and fill level monitoring

Assembly instructions  
acc. to Machinery Directive 2006/42/EC

EN



Version 03  
951-171-044-EN



## EC Declaration of Incorporation acc. to Machinery Directive 2006/42/EC,

### Appendix II Part 1 B

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

Designation:	Hydraulically driven lubrication pump for the feeding of lubricants
Type:	HTL 201
Item number:	642-41380-*
Year of manufacture:	See type plate

with all of the below-listed essential safety and health protection requirements from Machinery Directive 2006/42/EC.

1.1.2 · 1.1.3 · 1.3.2 · 1.3.4 · 1.5.8 · 1.7.1 · 1.7.3 · 1.7.4

at the time of placing on the market.

The specific technical documentation described in Annex VII, Part B of this Directive has been compiled. We undertake to transmit the special technical documents in electronic form to individual national authorities in response to reasoned requests. The Head of Standardization is the authorized representative for technical documentation. See the manufacturer information for the address.

Furthermore, the following Directives and (harmonized) standards were applied in the applicable areas:

Standard	Edition	Standard	Edition
DIN EN ISO 12100	2011	DIN EN 50581	2013
DIN EN 809	2012	DIN EN 60947-5-1	2017
DIN EN 60204-1	2007		
Correction	2011		

The partially completed machinery must not be put into service until the machinery into which it is to be installed has been declared in conformity with the provisions of Machinery Directive 2006/42/EC and all other applicable Directives.

Walldorf, 7/31/2018

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# Masthead

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## Training

SKF conducts detailed training in order to enable the maximum safety and efficiency.

SKF recommends taking advantage of this training. For information, contact the relevant SKF service address.

## Copyright

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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.

## Disclaimer of liability

The manufacturer shall not be held liable for damage resulting from:

- Improper usage, assembly, operation, configuration, maintenance, repair, or accidents
- Improper reaction to malfunctions
- Unauthorized modifications to the product
- Intentional or gross negligence
- Use of non-original SKF spare parts

The maximum liability for loss or damage resulting from the use of our products is limited to the purchase price. Liability for indirect damage of any kind is excluded.

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## Explanation of symbols, signs, and abbreviations

These symbols may be used in the instructions. Symbols within safety instructions indicate the nature and source of the hazard.

	General warning		Risk of electrical shock		Risk of slipping		Hot surfaces
	Being drawn into machinery		Crushing hazard		Pressure injection		Suspended load
	Wear personal protective gear (goggles)		Wear personal protective gear (face mask)		Wear personal protective gear (gloves)		Wear personal protective gear (protective clothing)
	Wear personal protective gear (protective footwear)		Unlock the product		General requirement		Disposal of waste electrical and electronic equipment
	Unauthorized persons must be kept away		CE mark		Disposal, recycling		

	Warning level	Consequence	Probability	Symbol	Meaning
	<b>DANGER</b>	Death, serious injury	Immediate	●	Chronological instructions
	<b>WARNING</b>	Death, serious injury	Possible	○	Bullet list items
	<b>CAUTION</b>	Minor injury	Possible	☞	Refers to other facts, causes, or consequences
	<b>IMPORTANT NOTE</b>	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	pound per square inch
if necessary	if necessary	d	day	sq.in.	square inch
usually	usually	Nm	Newton meter	cu. in.	cubic inch
incl.	including	ml	milliliter	mph	miles per hour
min.	minimum	ml/d	milliliters per day	RPM	revolutions per minute
max.	maximum	ccm	cubic centimeter	gal.	gallon
Min.	minute	mm	millimeter	lb.	pound
etc.	et cetera	l	liter	hp	horsepower
e.g.	for example	db (A)	sound pressure level	kp	kilopound
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 intensity	∅	diameter	Area	1 cm <sup>2</sup> = 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	≈	approximately	Ground	1 kg = 2.205 lbs.
DC	direct current	=	equal to		1 ml = 0.03527 oz.
A	ampere	%	percent	Density	1 kg/cm <sup>3</sup> = 8.3454 lb./gal(US)
Ah	ampere hour	‰	per mil (thousandth)		1 kg/cm <sup>3</sup> = 0.03613 lb./cu.in.
Hz	Frequency (Hertz)	≥	greater or equal	Force	1 N = 0.10197 kp
NC	Break-contact (normally closed)	≤	less or equal	Pressure	1 bar = 14.5 psi
NO	Make-contact (normally open)	mm <sup>2</sup>	square millimeter	Temperature	°C = (°F-32) x 5/9
OR	logical OR	rpm	Revolutions per minute	Power	1 kW = 1.34109 hp
&	logical AND			Acceleration	1 m/s <sup>2</sup> = 3.28084 ft./s <sup>2</sup>
				Speed	1 m/s = 3.28084 fpsec.
					1 m/s = 2.23694 mph

# 1. Safety instructions

## 1.1 General safety instructions

- The operator must ensure that the instructions are read by all persons tasked with working on the product or who supervise or instruct such persons. The operator must also ensure that the staff fully understands the content of the instructions. Putting the products into operation or operating them without having read the instructions is prohibited.
  - Retain the instructions for further use.
  - The products described here were manufactured in accordance with current state-of-the-art technology. Risks may, however, arise from non-compliant usage and may result in personal injury or damage to material assets.
  - Any malfunctions which may affect safety must be remedied immediately. In addition to these instructions, the statutory regulations for accident prevention and environmental protection must be observed.
- ### 1.2 General behavior 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 this manual.
  - 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.
  - Wear personal protective equipment.
  - All safety regulations and in-house instructions relevant to the particular activity must be observed.
  - Responsibilities for different activities must be clearly defined and observed. Uncertainty seriously endangers safety.
  - Protective and safety mechanisms cannot be removed, modified, nor disabled during operation and must be checked for proper function and completeness at regular intervals.
  - If protective and safety mechanisms must be removed, they must be installed immediately following conclusion of work and then checked for proper function.



### 1.3 Intended use

- Any malfunctions that occur must be resolved according to responsibility. The supervisor must be notified immediately in case of malfunctions outside one's individual scope of responsibility.
- Never use any part of the centralized lubrication system as a stand or step or for climbing.

Feed lubricants only in compliance with the specifications, technical data, and limits presented in this manual.

Usage is permitted exclusively in the context of commercial or business activity by professional users.

### 1.4 Foreseeable misuse

Any usage of the product other than as specified in this manual is strictly prohibited. Particularly prohibited are:

- Use outside the specified operating temperature range
- Use of non-specified equipment
- Use without a pressure relief valve

- Use in areas with aggressive, corrosive substances (e.g., high ozone loads)
- Use in areas with damaging radiation (e.g., ionizing radiation)
- Use to feed, forward, or store hazardous substances and mixtures as defined in Annex I Part 2-5 of the CLP Regulation (EC 1272/2008) that are marked with hazard pictograms GHS01-GHS06 and GHS08.
- Use to feed / forward / store gases, liquefied gases, dissolved gases, vapors, or fluids whose vapor pressure exceeds normal atmospheric pressure (1013 mbar) by more than 0.5 bar at their maximum permissible operating temperature.
- Use in an explosion protection zone

### 1.5 Painting

The painting of all plastic components and seals of the products described here is prohibited.

Completely remove or mask affected components before painting the main machine.

### 1.6 Modifications to the product

Unauthorized modifications and changes can have an unpredictable effect on safety. Unauthorized modifications and changes are therefore prohibited.

### 1.7 Prohibition of certain activities

The following activities must be performed only by employees of the manufacturer or authorized persons due to possibly undetectable sources of error or due to statutory requirements:

- Repairs or modifications to the pump body, the pump element, the lubricant reservoir, the reservoir ventilation and the fill level switch.

### 1.8 Inspections prior to delivery

The following tests were performed prior to delivery:

- Safety and functional tests

### 1.9 Referenced documents

In addition to this manual, the following documents must be observed by the respective target group:

- Operational instructions and approval rules
- The safety data sheet (SDS) of the lubricant used and of the hydraulic oil used (oil of the servo drive).

If applicable:

- Project planning documents
- Instructions for other components for setting up the centralized lubrication system

## 1.10 Markings on the product



Warning regarding hot surfaces  
Order No. 291-10133-5



Warning regarding a hazard  
The spring may become detached with powerful force when the pump cap is opened. Hold the cap securely with both hands while opening it."  
Order No. 810-55325-1

Min

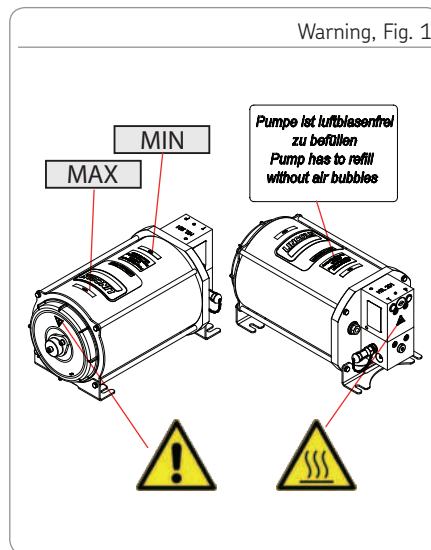
MINimum reservoir filling display  
Order No. 810-55118-1

Max

MAXimum reservoir filling display  
Order No. 810-55117-1



Note on filling without introducing bubbles  
Order No. 810-53919-1



Warning, Fig. 1

## 1.11 Notes on the type plate

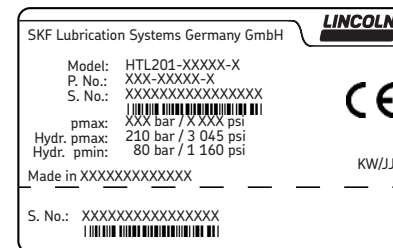
The type plate provides important data such as the type designation, order number, and regulatory characteristics.

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

Model: \_\_\_\_\_

P. No. \_\_\_\_\_

S. No. \_\_\_\_\_



### 1.12 Note on CE marking

The CE marking is based on the requirements of the applied Directives:

- 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

#### Note on Low-Voltage Directive 2014/35/EU

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

#### Note on Pressure Equipment Directive 2014/68/EU

Due to its performance characteristics, the product does not reach the limit values defined in Article 4, Paragraph 1, Subparagraph (a) item (i) and is, pursuant to Article 4, Paragraph 3, excluded from the scope of Pressure Equipment Directive 2014/68/EU.

### 1.13 Authorized persons

#### 1.13.1 Operator

A person competent due to training, knowledge, and experience to execute the functions and activities associated with normal operation. This also includes the avoidance of possible hazards that may arise during operation.

### 1.13.2 Qualified mechanic

A person with appropriate technical training, knowledge, and experience who can recognize and avoid hazards that may occur during transport, assembly, first start-up, operation, maintenance, repair, and dismantling.

#### 1.13.3 Qualified electrician

A person with appropriate technical training, knowledge, and experience who can recognize and avoid hazards that may result from electricity.

### 1.14 Instruction of outside fitters

Before commencing work, the operator must inform outside fitters of the operational safety regulations, applicable accident prevention regulations, and the functions of the main machine and its protective devices.

### 1.15 Provision of personal protective gear

The operator must provide personal protective gear appropriate for the location and intended application.

### 1.16 Operation

The following points must be observed at the time of first start-up and during operation.



- All information within this manual and all information within the referenced documents
- All laws and regulations that the operator must observe

### 1.17 Emergency shutdown

Shut down the product in an emergency by:

- Switching off the main machine in which the product is integrated
- If necessary, pressing the on/off switch on the main machine

### 1.18 Transport, assembly, maintenance, malfunction, repair, shutdown, disposal

	 <b>CAUTION</b>
	<p><b>Risk of injury!</b> Do not open the screw cap until after the lubricant reservoir has been emptied (MINimum level). The spring of the grease follower plate is tensioned when the reservoir filling is above the Min mark (MINimum level). Opening the screw cap can lead to an abrupt removal of pressure on the spring.</p>

- All relevant persons must be informed of the activity prior to the start of the work. Precautionary operational measures and work instructions must be observed.
- Transport only on marked paths using suitable transport and lifting gear.

- Maintenance and repair work can be subject to restrictions at low or high temperatures (e.g., alteration in the flow properties of the lubricant). Maintenance and repair work should therefore preferably be performed at room temperature.
- Prior to performing work, the product and the machine in which the product will be integrated must be depressurized and secured against unauthorized activation.
- Take appropriate measures to ensure that moving, detached parts are immobilized during the work and that no limbs can be pinched by unintended movements.
- Assemble the product only outside the operating range of moving parts, at an adequate distance from sources of heat or cold. Other units of the machine or the vehicle must not be damaged or impaired in their function by the assembly.
- Dry any wet, slippery surfaces or cover appropriately.
- Cover hot or cold surfaces appropriately.
- Work on any additionally attached electrical components may be performed only by qualified electricians. Note possible waiting times for discharge. Work on electrical components may be performed only with voltage-insulated tools.
- Drill required holes only on non-critical, non-load-bearing parts. Use existing boreholes. Do not damage lines or cables when drilling.
- Observe any possible wearing spots. Protect components appropriately.
- All components used must be designed for:
  - The maximum operating pressure
- The maximum/minimum ambient temperature
- The lubricant to be delivered
- The operating and ambient conditions at the place of use.
- No parts may be subjected to torsion, shearing, or bending.
- Check parts for contamination before use and clean if necessary.
- Lubrication lines should be filled with lubricant prior to assembly. This simplifies subsequent bleeding of the system.
- Adhere to the specified torques. Use a calibrated torque wrench when tightening.
- Use suitable hoisting equipment when working with heavy parts.

- |   |  |   |
|---|--|---|
| <ul style="list-style-type: none"><li>○ Avoid mixing up/incorrectly assembling disassembled parts. Label parts.</li></ul> | <p><b>1.19 First start-up, daily start-up</b></p> <p>Ensure that:</p> <ul style="list-style-type: none"><li>○ All safety mechanisms are fully present and functional</li><li>○ All connections are properly connected</li><li>○ All parts are correctly installed</li><li>○ All warning labels on the product are fully present, visible, and undamaged</li><li>○ Illegible or missing warning labels are immediately replaced</li></ul> | <p><b>1.20 Cleaning</b></p> <ul style="list-style-type: none"><li>○ There is a fire hazard from the use of flammable cleaning agents. Use only non-flammable cleaning agents that are suitable for the intended purpose.</li><li>○ Do not use corrosive cleaning agents.</li><li>○ Thoroughly remove residue of cleaning agents on the product.</li><li>○ Cleaning work on any additionally attached conducting components may be performed only by qualified electricians.</li><li>○ Mark wet areas accordingly.</li></ul> |
|---|--|---|

## 1.21 Residual risks in general

Residual risk	Possible in lifecycle										Remedy
Personal injury / property damage due to falling of hoisted parts	A	B	C				G	H	K		Unauthorized persons must be kept away. Nobody is allowed to be present below hoisted parts. Lift parts using suitable lifting gear.
Personal injury / property damage due to tilting or falling product due to non-compliance with specified torques		B	C				G				Adhere to the specified torques. Secure the product only to components with a sufficient load-carrying capacity. If no torques are specified, use those specified for the screw size for screws of strength class 8.8.
Personal injury by contact with possibly hot pump surfaces			C	D	E	F	G	H			Unauthorized persons must be kept away. Wear suitable thermal insulating protective gloves when working on the pump
Personal injury, property damage due to spilled, leaked lubricant	A	B	C	D	E	F	G	H	K		Observe the usual precautionary measures when handling mineral oil products. Wear a suitable face shield and gloves. Be careful when filling the lubricant reservoir and when connecting or disconnecting the lubricant lines. Use only hydraulic screw unions and lubrication lines suitable for the specified pressure. Do not install lubrication lines on moving parts or wearing spots. If this cannot be avoided, use anti-kink coils and/or conduits.
Lifecycles: A = Transport, B = Assembly, C = First start-up, D = Operation, E = Cleaning, F = Maintenance, G = Malfunction/repair, H = Shutdown, K = Disposal											



## 2. Lubricants

### 2.1 General information

Lubricants are used specially for specific applications. To fulfill the task, lubricants must meet various requirements to varying degrees. The most important requirements for lubricants are:

- Reduction in friction and wear
- Corrosion protection
- Noise reduction
- Protection against contamination/ingress of foreign matter
- Cooling (primarily for oils)
- Durability (physical/chemical stability)
- Compatible with as many materials as possible
- Economic and environmental aspects

### 2.2 Selection of lubricants

SKF Lubrication Systems considers lubricants to be an element of system design. The selection of a suitable lubricant should reasonably be made during the design of the machine and forms the basis for planning the centralized lubrication system.

The manufacturer/operator of the machine should preferably make the selection with the supplier of the lubricant on the basis of the requirements profile of the specific task.

If you have no or little experience selecting lubricants for centralized lubrication systems, please contact SKF.

We gladly assist our customers in the selection of suitable components for supplying the selected lubricant and in the planning and design of a centralized lubrication system.

This will spare you potentially costly downtime due to damage to the machine/system and/or damage to the centralized lubrication system.



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



Do not mix lubricants. This can have unpredictable effects on the usability and this function of the centralized lubrication system.

#### IMPORTANT NOTE

Large-sized air bubbles could cause a breakdown of the feed. SKF recommends electrical monitoring of the system for this reason. Take care to ensure air-free filling! The HTL201 must be bled in the event of an error.



Due to the large number of possible additives, individual lubricants that meet the required specifications according to the manufacturer's data sheet are under some circumstances not suitable for use in centralized lubrication systems (e.g., incompatibility between synthetic lubricants and materials). To avoid this, always use lubricants that have been tested by SKF.

### 2.3 Material compatibility

The lubricants must generally be compatible with the following materials:

- Steel, gray cast iron, brass, copper, aluminum
- NBR, FKM (FPM), ABS, PA, PU

### 2.4 Aging of lubricants

In case of extended machine downtime, check before putting back into operation that the lubricant is still suitable for use in terms of chemical and physical signs of aging. We recommend performing this inspection after one week of machine downtime.

In case of doubt regarding the suitability of the lubricant, replace it before putting back into operation and, if necessary, perform an initial lubrication manually.

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

Please contact SKF if you have further questions regarding lubricants.

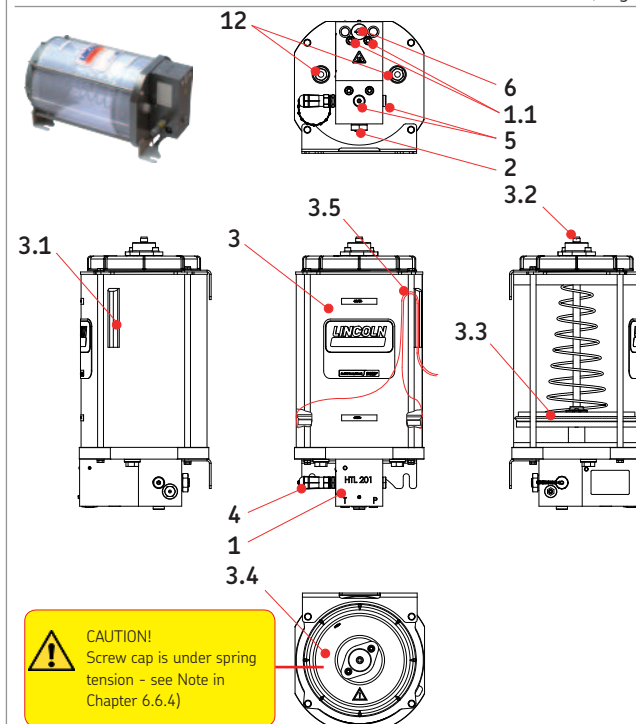
An overview of the lubricants we have tested is available on request.

## 3. Overview, functional description

- See Figure 2 and Fig. 3

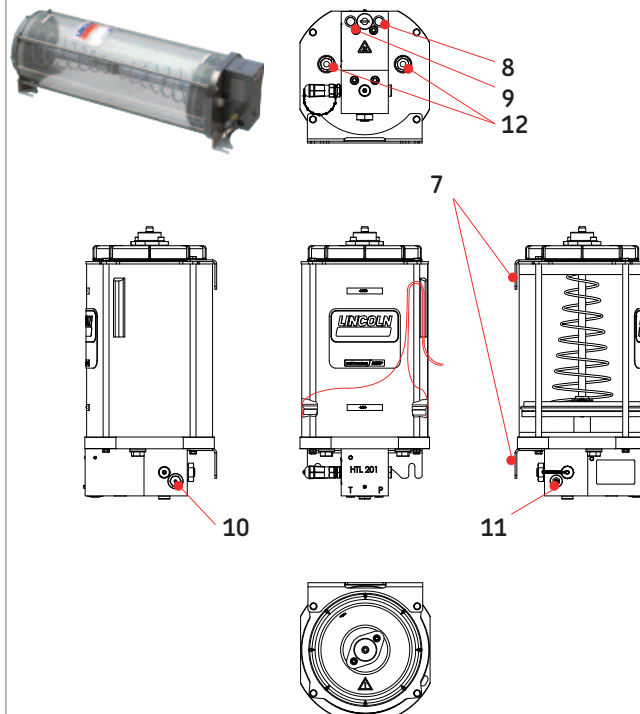
Item	Description	see page
1	<b>Pump body</b> The pump body contains the pump element and the hydraulic drive and conveying equipment.	25/26
1.1	<b>Mounting screws (pump/reservoir) (4x M8)</b>	
2	<b>Pump element</b> The pump element conveys the lubricant into the delivery lines.	22/33
3	<b>Lubricant reservoir</b> The lubricant reservoir with a grease follower plate lying on top of the lubricant stores the lubricant. Reservoir design 8 or 17 liters	25/26
3.1	<b>Lubricant reservoir ventilation</b>	
3.2	<b>Fill level switch</b> (see Fig. 8, port M12x1)	29
3.3	<b>Grease follower plate and tension spring</b>	
3.4	<b>Screw cap (Caution! - See note in Fig. 2)</b>	
3.5	<b>Ventilation hose for the initial filling</b> (2x Ø 1.2 mm, length 800 mm)	49
4	<b>Fill connection with filler coupling</b> Used for filling the HTL201.	30
5	<b>Vent plug (2x)</b> Used for bleeding the lubricant reservoir and the HTL201 pump.	32
6	<b>Adjusting throttle (concealed)</b> The throttle is located in a protected location under a cover screw. The throttle is used to set the delivery rate of the pump.	33

Overview, Fig. 2



Item	Description	see page
7	<b>Holder with assembly holes</b> The pump is secured at the two holders with assembly holes (4 bore holes)	26
8	<b>Pressure port P (G1/4)</b> Used to connect the supply line of the hydraulic system of the main machine.	27
9	<b>Return connection T (G1/4)</b> Used to connect the return line to the hydraulic system of the main machine.	27
10	<b>Pressure relief valve</b> The pressure relief valve protects the pump and the components of the lubrication system against excessive pressure.	21/35
11	<b>Emergency lubrication nipple</b> The emergency lubrication nipple is used to supply the connected supply lines with lubricant, e.g. in the event of failure of the hydraulic system of the main machine.	34
12	<b>Alternative filling inlets</b> (for fill connection ) (M22x1.5)	31

Overview, Fig. 3



## 4. Technical data

### 4.1 Mechanics

Operating temperature of the pump	-10 °C to +60°C
-----------------------------------	-----------------



The specified operating temperature range of the pump requires that the lubricant used be suitable for the specific operating temperature. Using a lubricant not suitable for the specific operating temperature may result in pump failure at low temperatures due to jamming caused by excessive lubricant viscosity.

Lubricants	Lubricating greases up to NLGI 2;
Operating pressure <sup>1)</sup>	120 bar (max. 270 bar)
Operating pressure of the hydraulic carrier system	min. 80 bar / max. 210 bar
Working viscosity of the hydraulic oil	for operating temperatures $\geq 20 - 1\,000\text{ mm}^2/\text{s}$
Pressure port P	G 1/4
Return flow connection T	G 1/4
Lubrication line	G 1/4
Nominal volume of lubricant reservoir	8 liters / 17 liters
Filling	Via fill connection
Number of pump elements (outlets)	1
Sound pressure level	< 70 dB (A)
Weight of the empty pump	8-liter lubricant reservoir approx. 8.6 kg / 17-liter lubricant reservoir approx. 10 kg
Mounting position	Upright (pump body downward or horizontal <sup>2)</sup> )
Purity of the hydraulic oil used	20/18/15 (ISO 4406)
Fill level switch	
Supply voltage	24 VDC
Output signal	4 to 20 mA
Electrical connection	M12x1 (connector plug - see "Accessories" chapter)

### IMPORTANT NOTE

Large-sized air bubbles could cause a breakdown of the feed. SKF recommends electrical monitoring of the system for this reason. Take care to ensure air-free filling! The HTL201 must be bled in the event of an error.

1) The HTL201 is also available with a 270-bar pressure relief valve.

2) Mounting with pump body above / lubricant reservoir below (upside down) is not permitted.

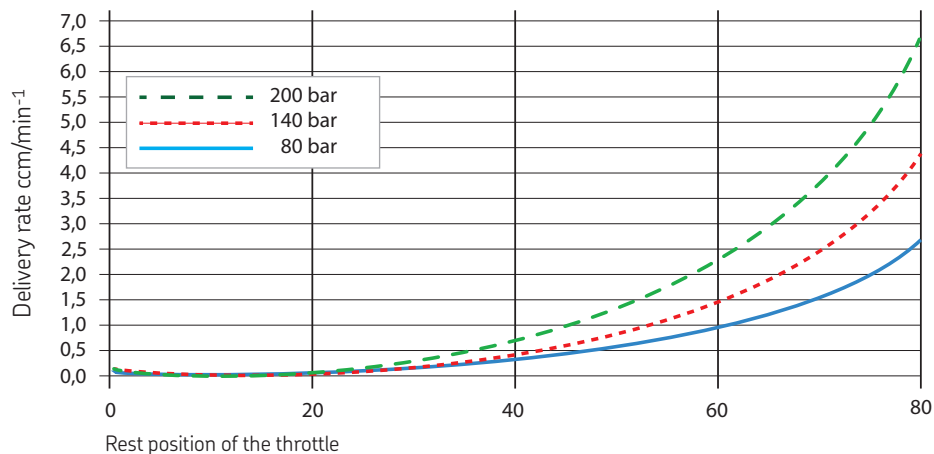
## 4.2 Nominal delivery rates

Pump element C7 or K7

Nominal delivery rate per stroke 0,22 cm<sup>3</sup>

The specifications apply for Class NLGI 2 greases at + 40 °C, 100 bar back pressure and the hydraulic operating pressure specified in the diagram. The throttle can be turned in Plus or Minus direction to increase or decrease the delivery rates accordingly. Setting the delivery rate, see Chapter 6.8.

### 4.2.1 Delivery rate diagram



The pump is set ex works to the maximum delivery rate (notch position 80 of the throttle).

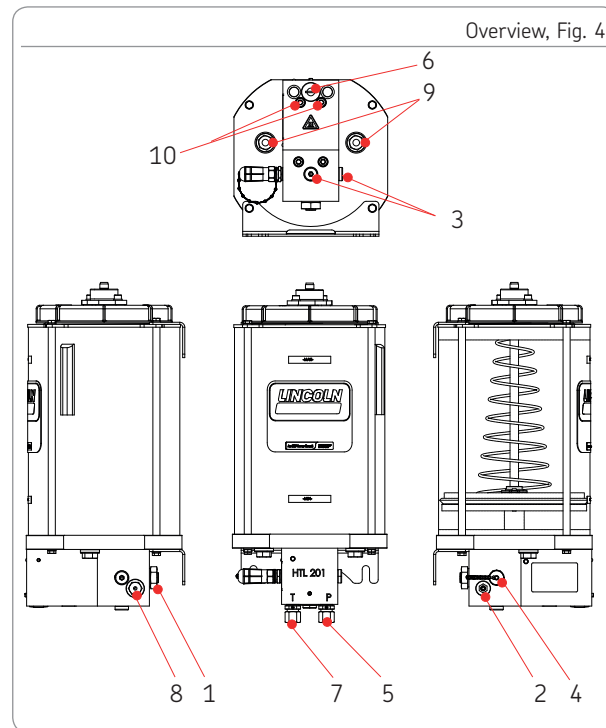
### 4.3 Tightening torques

- See Figure 4

Observe the specified torques.

Item	Component	Torque
1	Pump element with integrated check valve	25 Nm $\pm$ 2.0 Nm
2	Emergency lubrication nipple	14 Nm $\pm$ 1.0 Nm
3	Vent plug	15 Nm $\pm$ 0.1 Nm
4	Filler coupling	15 Nm $\pm$ 1.0 Nm
5	Screw union P (hydraulic system)	20 Nm $\pm$ 2.0 Nm
6	Plug screw throttle	1 Nm $\pm$ 1.0 Nm
7	Screw union T (hydraulic system)	20 Nm $\pm$ 2.0 Nm
8	Pressure relief valve (concealed)	8 Nm $\pm$ 1.0 Nm
9	Alternative filling inlets	20 Nm $\pm$ 2.0 Nm
10	Mounting screws (pump/lubricant reservoir)	15 Nm $\pm$ 1.0 Nm

If no torques are specified, use those specified for screws of strength class 8.8.



## 5. Delivery, returns, storage

### 5.1 Delivery

After receipt of the delivery, it must be inspected for any shipping damage and for completeness on the basis of the shipping documents. Immediately inform the transport carrier of any shipping damage.

The packaging material must be preserved until any discrepancies are resolved. Safe handling must be ensured during on-site transport.

### 5.2 Return shipment

Before return shipment, all contaminated parts must be cleaned and properly packed (i.e., according to the requirements of the recipient country).

The product must be protected from mechanical effects such as impacts. There are no restrictions for land, air, or sea transport.

The following must be marked on the packaging of return shipments:



### 5.3 Storage

The following conditions apply to storage:

- Dry, low-dust, vibration-free, in closed rooms
- No corrosive, aggressive substances at the storage location (e.g., UV rays, ozone)
- Protected against animals (insects, rodents)
- Kept in original product package if at all possible

- Protected from nearby sources of heat or cold
- In case of large temperature fluctuations or high humidity, take appropriate measures (e.g., heating) to prevent the formation of condensation water.
- The permissible storage temperature range corresponds to the operating temperature range (see "Technical data")



Before usage, check products for damage that may have occurred during storage. This applies in particular to parts made of plastic and rubber (due to embrittlement) as well as components pre-filled with lubricant (due to aging).



## 6. Assembly

### 6.1 General information

- See Figure 5 and Fig. 6

Only qualified technical personnel may install, operate, maintain, and repair the products specified in the instructions.

During assembly and especially when drilling, always pay attention to the following:

- Other units must not be damaged by assembly work.
- The product must not be installed within range of moving parts.
- The product must be installed at a sufficiently large distance from sources of heat or cold.
- Maintain safety clearances and comply with statutory regulations for assembly and accident prevention.

- The assembly holes for mounting are to be drilled in accordance with specifications in the corresponding chapter for the variants described.

### 6.2 Mechanical connection

#### 6.2.1 Minimum mounting dimensions

The respective clearance dimensions (Figure 4 to Figure 5) must be maintained in order to ensure sufficient space for maintenance work or clearance for possible disassembly of the product.

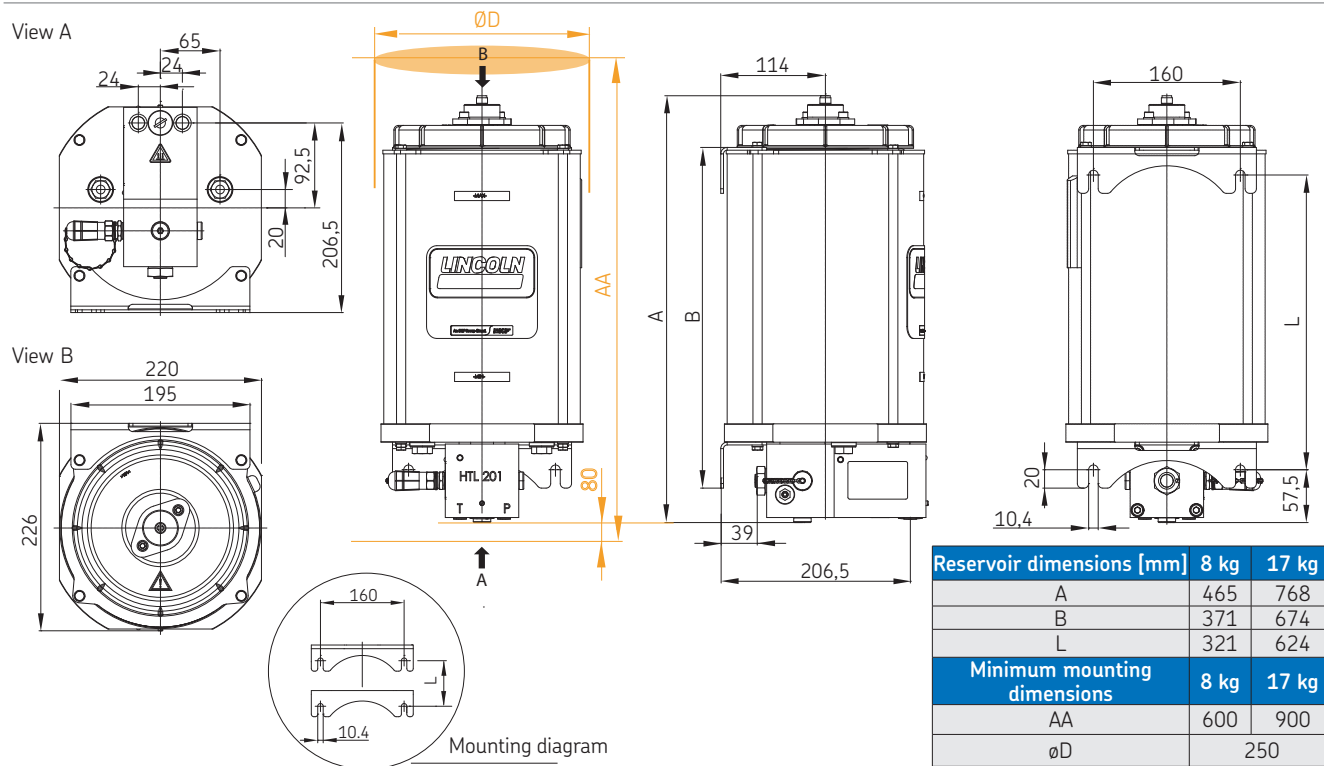
### 6.2.2 Assembling the HTL201

The HTL201 is mounted at the customer site by means of two holders, each of which is mounted to two assembly bore holes which are mounted on the lubricant reservoir.

The mounting takes place with:

- 4x M10 screws (strength class 8.8)  
Example: DIN EN ISO 4017
- 4x M10 hexagon head nuts (if required)  
Example: DIN EN ISO 7040 M10
- 8x washers  
Example: DIN EN 7090-10-200 HV
- The length of the screws is in accordance with the actual installation situation.

HTL201 assembly drawing with 8-liter and 17-liter lubricant reservoir, Fig. 5



### 6.3 Connect hydraulic lines (P) (T)

- See Figure 6

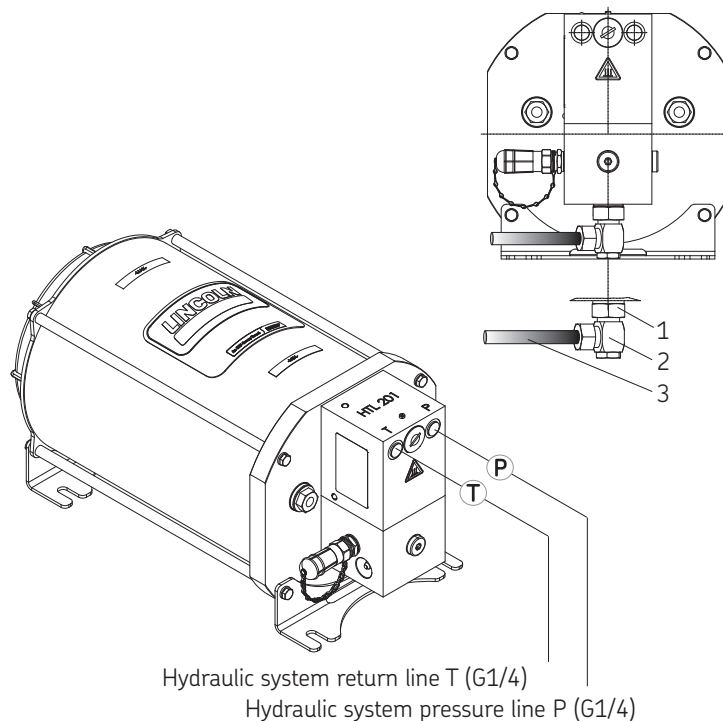
Connect the pump with suitable hydraulic screw unions and hydraulic lines with the pressure port (P) and the return flow connection (T) on the hydraulic circuit of the main machine / of the carrier system.



Do not lose track of which is the pressure port (P) and which is the return flow connection (T). For connection dimensions, see Chapter 6.2.2



- Connect the pressure line of the carrier system to the pump connection (P) with a suitable screw union (G1/4)
- Connect the return line of the carrier system to the pump connection (T) with a suitable screw union (G1/4)

Connect hydraulic lines and lubrication line Fig. 6



## 6.4 Connecting a lubrication line

- See Figure 6

	 <b>CAUTION</b>
	<b>Risk of slipping</b> Exercise caution when handling lubricants. Immediately remove and bind any leaked lubricants.



Connect the lubricant lines in such a way that no forces are transferred to the product (stress-free connection).

All components of the centralized lubrication system must be designed for:

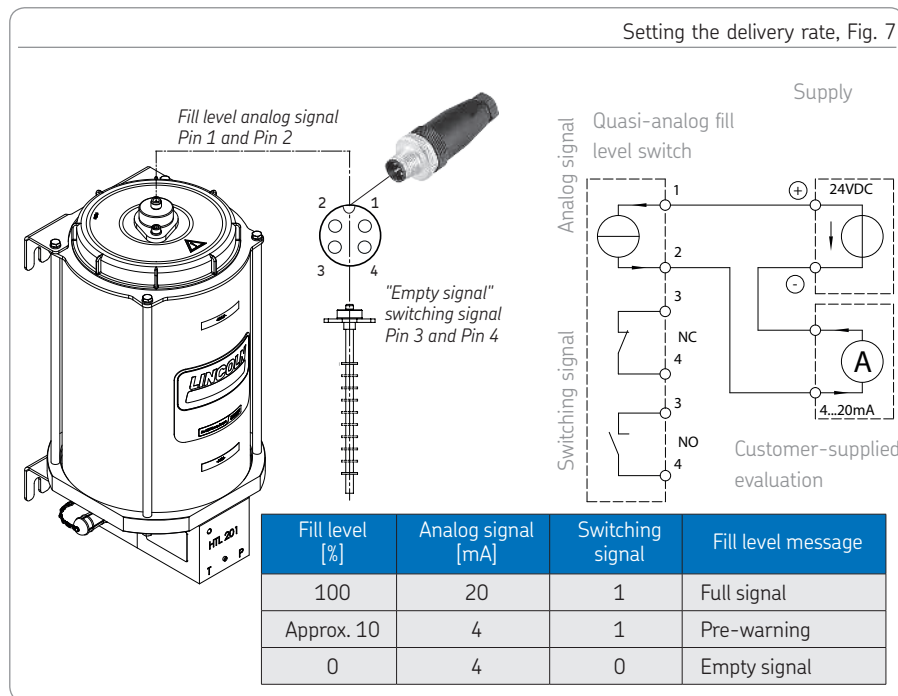
- The maximum operating pressure that occurs
  - The operating temperature range
  - The delivery volume and the lubricant to be fed
- Observe the following mounting instructions for safe and trouble-free operation:**
- Use only clean components and prefilled lubrication lines.
  - The main lubricant line should be arranged ascending and be able to be bled at the highest point. Lubrication lines should always be arranged so that air inclusions cannot form anywhere.
  - Install lubricant metering devices at the end of the main lubricant line such that the outlets of the lubricant metering devices point upwards.
  - If the system configuration requires that the lubricant metering devices be arranged below the main lubricant line, they should not be placed at the end of the main lubricant line.
  - The flow of lubricant should not be impeded by the mounting of sharp bends, angle valves, flap valves, seals protruding inward, or changes in cross-section (large to small). Unavoidable changes in the cross-section in lubrication lines must have smooth transitions.
  - Use a suitable screw union (G1/4) (2) to connect the lubrication line (3) on the pump element (1) of the HTL201
  - Connect the lubrication line with the lubrication point

### 6.5 Connect the fill level switch

- See Figure 7

- Connect the fill level switch according to connection diagram in Figure 8.

The quasi-analog fill level switch has several signal levels which are divided up across the analog signal range of 4 to 20 mA. SKF recommends a customer-supplied evaluation of the lubricant level signal for the purpose of monitoring the lubricant feeding.



## 6.6 Filling with lubricant



The lubricant may be filled into the lubricant reservoir only via one of the fill connections.



Only fill with clean lubricant and an appropriate device. Contaminated lubricants can result in severe system malfunction.



Avoid air inclusions!  
Air inclusions in the lubricant can lead to failure of lubricant delivery. The lubricant reservoir must be filled without introducing bubbles.



To avoid possible air inclusions when filling, SKF recommends switching on the HTL201 during the filling process.



Refilling must be conducted on a regular basis depending on the operating conditions.



The vent plug is not permitted to be opened during the filling process, except at the time of the initial filling. The lubricant would otherwise flow out directly through the vent plug.

### 6.6.1 Initial filling

- See Figure 8

SKF recommends that the initial filling be carried out with the HTL201 in horizontal position. To accomplish this, the pump is to be set down on its back on its two mounting supports.

The filling can take place either through the fill connection (1) or through one of the two alternative fill connections (2).

- Before the filling process, check whether both ventilation hoses (3) are correctly positioned and readily accessible from the lubricant reservoir ventilation system (4) (external)

☞ If this is not the case, see Chapter 12.4

- Connect the transfer pump (see Fig. 9) at the fill connection/filler coupling (1)
- Unscrew both vent plugs (5) (SW6) from the vent boreholes (6) and set them aside on a clean surface while at the same time keeping the screw cap (7) closed
- Switch on the transfer pump, start the filling process and allow it to continue until bubble-free lubricant emerges at the two vent boreholes (6)

- Interrupt the filling process, switch off the transfer pump



Check the packing rings of the two vent plugs for damage, replacing them if necessary (see Chapter 14).

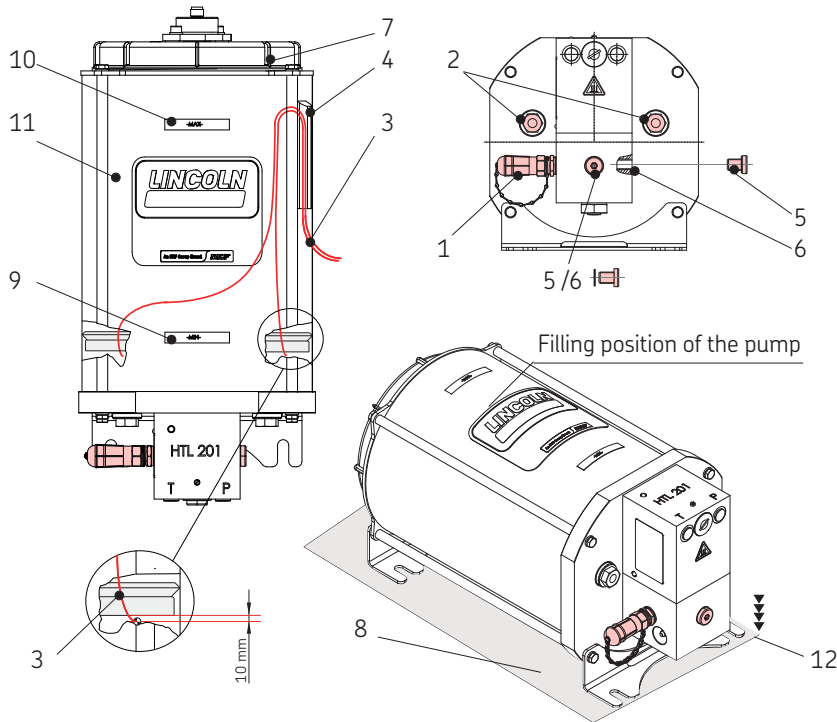
- Screw the two vent plugs (5) into the vent boreholes (6) and tighten them ( $15 \pm 0.1$  Nm)
- Resume the filling process, switch on the transfer pump (see Fig. 9)



Should it happen that the air inclusions in the lower reservoir area are not entirely displaced by the lubricant, the HTL201 can be "burped" lightly on its base (12).

- As soon as the lubricant threatens to escape at one of the ventilation hoses (3), that ventilation hose is to be pulled carefully out of the lubricant reservoir ventilation system (4)

Initial filling Fig. 8



- Resume the filling process until the second ventilation hose can also be removed

☞ At the latest when the fat fog plate is above the MINimum lubrication mark (9) both ventilation hoses are closed remove.

☞ The MAXimum lubrication mark (10) must not be exceeded during the subsequent filling process!

- After the removal of the two ventilation hoses (3), fill the reservoir (11) up to the desired filling
- Disconnect the transfer pump ( see Fig. 9) from the fill connection/filler coupling (1)
- Bleed the pump in accordance with Chapter 6.7 if necessary

- Clean the HTL201 completely of lubricant residue

### 6.6.2 Refilling

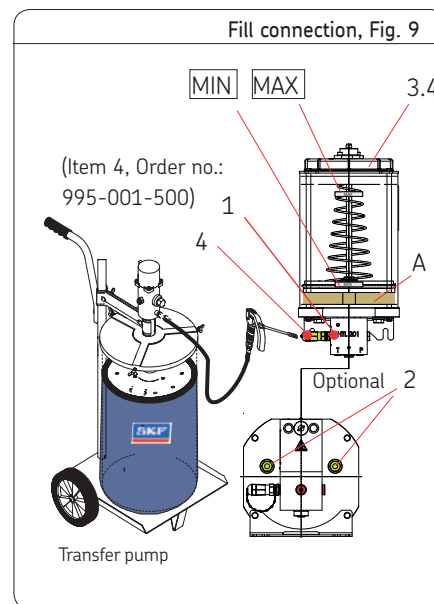
- See Figure 9

The filling can take place either through the fill connection (1) or through one of the two alternative fill connections (2).

- Apply the transfer pump at the filler coupling (4)
- Fill the lubricant reservoir up to the MAXimum mark
- Bleed the pump in accordance with Chapter 6.7 if necessary
- Clean the HTL201 completely of lubricant residue

### 6.6.3 Refill when the level drops below the MINimum mark



- For the procedure - See Chapter 6.6.1, possibly Chapter 12.4.





## 6.6.4 Procedure with overfilling

- See Figure 2 and Fig. 9

 <b>CAUTION</b>
 <p>Risk of injury! Do not open the screw cap until after the lubricant reservoir has been emptied (MINimum level). The spring of the grease follower plate is tensioned when the reservoir filling is above the MIN mark. Opening the screw cap (3.4) can lead to an abrupt removal of pressure on the spring.</p>

Proceed as follows, should the lubricant reservoir have become overfilled to a point above the MAXimum mark:

- Position grease receptacles under the HTL201
- Detach the lubrication line from the pump element

- Allow the HTL201 pump to continue running until the grease follower plate has reached the MINimum mark

- Switch off the HTL201

Optionally:

- Open one of the alternative fill connections (2)
- Allow the lubricant to drain out of the lubricant reservoir
- Close the alternative fill connections
- Disconnect the power lead of the fill level switch (Fig. 2, Item 3.2)
- Once this has been accomplished, carefully loosen and remove the cap of the lubricant reservoir (Fig. 2, Item 3.4) (with fill level switch and spring assembly)

- Remove lubricant above the grease follower plate, clean the spring assembly



Take care to ensure the following during the subsequent assembly: The fill level switch must be inserted correctly through the grease follower plate in the guide bushing located on its bottom side!

- Insert/apply and align the spring assembly, fill level switch and cap in the lubricant reservoir
- Turn the cap securely
- Connect the power lead of the (Fig. 2, Item 3.2) fill level switch
- Fill the HTL201  
- See Chapter 6.6.2 - Refilling

## 6.7 Bleeding the HTL201

- See Figure 10

If air inclusions are visible in the lubricant contained in the lubricant reservoir, then a venting in accordance with Chapter 6.6.1 - Initial Filling is to be carried out.

In the event of function impairment (minimized delivery rate), the pump is to be bled as follows:

- Switch off the hydraulic system of the main machine
- Position oil / grease receptacles under the HTL201
- Apply a hexagon socket screwdriver (SW6) (1) to the vent plug (2)
- Loosen the vent plug (2) until a small amount of bubble-free lubricant emerges.



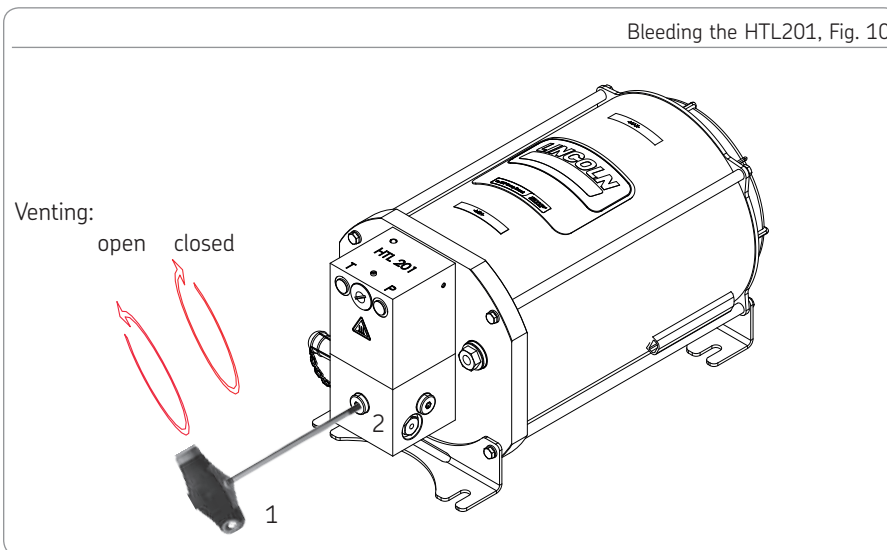
Check the packing rings of the vent plug for damage, replacing them if necessary (see Chapter 14).

- Tighten the vent plug (2).

Tightening torque = 15 Nm ± 0.1 Nm

- Clean the HTL201 completely of lubricant residue

Bleeding the HTL201, Fig. 10



### 6.8 Setting the delivery rate

- See Figure 11



The delivery rate cannot be changed during the operation of the pump.

The pump is set ex works for maximum delivery.

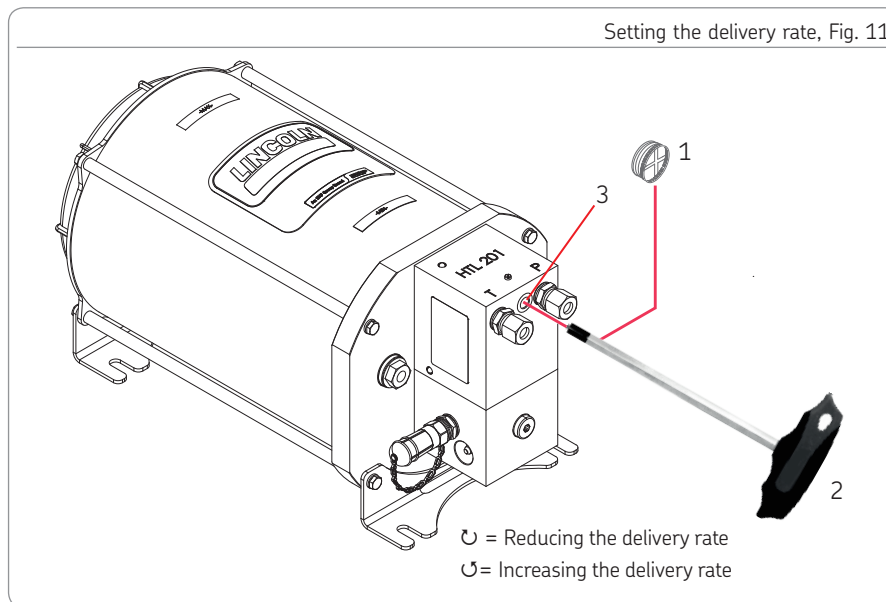
- Switch off the hydraulic system of the main machine / of the carrier system
- Determine the required lubricant volume and the notch position of the throttle on the basis of the specifications contained in the delivery volume chart, Chapter 4.3
- Remove the plug screw (1)
- Apply the hexagon socket screw key (2) to the throttle (3)

- To set the delivery rate, turn the throttle (3) open or shut by the corresponding number of notch positions

- Reinstall the plug screw (1)

Tightening torque Plug screw 1 Nm  $\pm$  0.1 Nm

Setting the delivery rate, Fig. 11

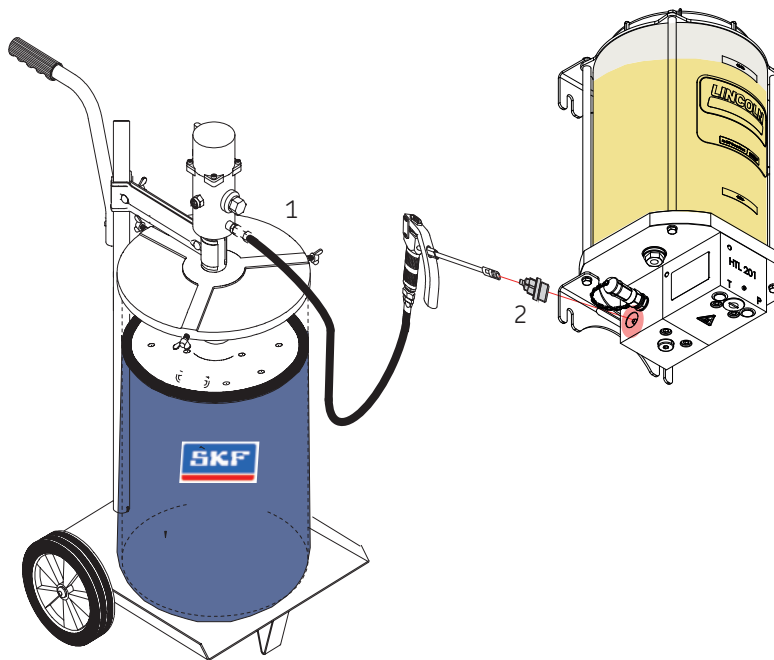


### 6.9 Emergency lubrication

- See Figure 12

- Set the transfer pump (1) with matching counterpart on the emergency lubrication nipple (2).
- Switch on the transfer pump and carry out an emergency lubrication until the connected lubrication points are supplied with sufficient lubricant.
- Switch off the transfer pump and remove it from the emergency lubrication nipple (2) of the pump.

Emergency lubrication nipple of the HTL201, Fig. 12



## 6.10 Type identification code Pump HTL201

Example:		HTL	2	0	1	-	K7	-	17.0	X	M	F	K	-	SV120
Hydraulic Tool Lubrication															
Design 2															
Application 0															
Number of pump elements															
1	= 1 Element														
Pump element, piston diameter 7 mm															
K7	= Standard for grease and oil	C7	= Increased fitting tolerance												
Size of the lubricant reservoir															
17.0	= 17.0 liter	8.0	= 8.0 liter												
Reservoir design															
X	= Reservoir for grease														
Fill level switch															
N	= none	M (NO)	= Quasi-analog fill level switch												
		C (NC)	= Quasi-analog fill level switch												
Follower plate															
F	= With grease follower plate														
Reservoir material															
K	= Plastic reservoir														
Additional specifications															
SV120	= 120 bar	SV270	= 270 bar												

## 7. First start-up

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

Checklist for first start-up

<b>7.1 Inspections before first start-up</b>	<b>YES</b>	<b>NO</b>
Mechanical connection established correctly	<input type="checkbox"/>	<input type="checkbox"/>
Hydraulic connection established correctly	<input type="checkbox"/>	<input type="checkbox"/>
Electrical fill level monitoring connection implemented correctly	<input type="checkbox"/>	<input type="checkbox"/>
The performance characteristics for the aforementioned connections match the specifications in "Technical data"	<input type="checkbox"/>	<input type="checkbox"/>
All components such as lubrication lines and metering devices are correctly installed	<input type="checkbox"/>	<input type="checkbox"/>
Lubricant reservoir completely filled with lubricant. The refill interval was correctly determined based on the throttle setting and the operating pressure of the carrier system (see volumetric flow diagram) and the responsible person is aware of it.	<input type="checkbox"/>	<input type="checkbox"/>
The pump was bled correctly at the vent plugs	<input type="checkbox"/>	<input type="checkbox"/>
No apparent damage, contamination, or corrosion	<input type="checkbox"/>	<input type="checkbox"/>
Any dismantled protective and monitoring equipment is fully reinstalled and functional	<input type="checkbox"/>	<input type="checkbox"/>
All warning labels on the product are present and in proper condition	<input type="checkbox"/>	<input type="checkbox"/>
<b>7.2 Inspections during first start-up</b>		
No unusual noises, vibrations, moisture accumulation, odors present	<input type="checkbox"/>	<input type="checkbox"/>
No undesired discharge of lubricant at connections (leakage)	<input type="checkbox"/>	<input type="checkbox"/>
Lubricant is fed without bubbles	<input type="checkbox"/>	<input type="checkbox"/>
The bearings and friction points requiring lubrication receive the planned lubricant volume	<input type="checkbox"/>	<input type="checkbox"/>

## 8. Operation

SKF products operate largely automatically.

Activities during normal operation are limited essentially to:

- Initial filling with lubricant
  - See Chapter 6.6.1
- Setting the delivery rate
  - See Chapter 6.8
- Refilling with lubricant
  - See Chapter 6.6.2
- Bleeding after filling with lubricant - See Chapter 6.7
- Cleaning/replacing the oil strainer - See Chapter 10.1

## 9. Cleaning



### WARNING

Use steam-jet equipment or high-pressure cleaners only in accordance with the IP protection class of the main machine. Otherwise, electrical components such as the fill level switch could become damaged.

Perform cleaning work only on products that have been de-energized and depressurized. Do not touch cables or electrical components with wet or moist hands.

Cleaning, required personal protective gear, cleaning agents, and equipment are in accordance with the current operating rules of the operator.

### 9.1 Cleaning agents

Only cleaning agents compatible with the materials can be used for cleaning. (See 2.3 for materials)



Always completely remove residue of the cleaning agent on the product and rinse with clear water. This prevents the formation of alkaline deposits.

### 9.2 Exterior cleaning

- Mark and secure wet areas.
- Unauthorized persons must be kept away.
- Thoroughly clean all external surfaces with a moist cloth.



The lubricant reservoir must be kept closed without fail during cleaning.

### 9.3 Interior cleaning

Interior cleaning is not necessary in normal operation/maintenance.

The interior of the product must be cleaned if incorrect or contaminated lubricant is accidentally filled.

An interior cleaning continues to be necessary after overfilling of the lubricant reservoir - See Chapter 6.6.3.



## 10. Maintenance

Careful and regular maintenance is required in order to detect and remedy possibly malfunctions in time.

The specific intervals must always be determined by the operator according to the operating conditions and regularly reviewed and adapted where necessary. If necessary, copy the table for regular maintenance activities.

Maintenance checklist		
Activity to be performed	YES	NO
Mechanical connection established correctly	<input type="checkbox"/>	<input type="checkbox"/>
Hydraulic connection established correctly	<input type="checkbox"/>	<input type="checkbox"/>
Electrical fill level monitoring connection implemented correctly	<input type="checkbox"/>	<input type="checkbox"/>
All components, such as lubrication lines and metering devices, are correctly installed	<input type="checkbox"/>	<input type="checkbox"/>
No apparent damage, contamination, or corrosion	<input type="checkbox"/>	<input type="checkbox"/>
Any dismantled protective and monitoring equipment is fully installed and functional	<input type="checkbox"/>	<input type="checkbox"/>
All warning labels on the product are present and in proper condition	<input type="checkbox"/>	<input type="checkbox"/>
No unusual noises, vibrations, moisture accumulation, odors present	<input type="checkbox"/>	<input type="checkbox"/>
No undesired discharge of lubricant at connections	<input type="checkbox"/>	<input type="checkbox"/>
Lubricant is fed without bubbles	<input type="checkbox"/>	<input type="checkbox"/>
The bearings and friction points requiring lubrication receive the planned lubricant volume	<input type="checkbox"/>	<input type="checkbox"/>

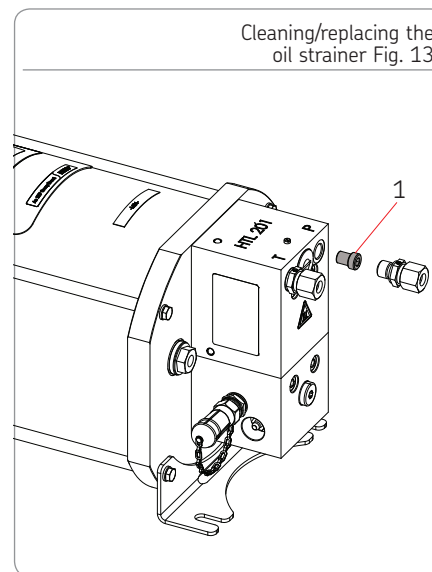
### 10.1 Cleaning/replacing the oil strainer

- See Figure 13



The oil strainer must be cleaned or replaced every 1000 hours of operation.

- Switch off the hydraulic system of the main machine
  - Position oil / grease receptacles under the HTL201
  - Depressurize the supply feed to the hydraulic connection (P)
  - Remove the screw union of the hydraulic connection (P)
  - Unscrew the oil strainer (1) and clean or replace it as required
  - Screw the oil strainer (1) back in and mount the screw union of the hydraulic connection (P)
- Open the supply feed to the hydraulic connection (P)
  - Switch off the hydraulic system of the main machine once again



## 11. Malfunctions, causes, and remedies

Malfunctions table 1

Malfunction	Possible cause	Remedy
Pump is not delivering any lubricant	<ul style="list-style-type: none"> <li>Carrier device's hydraulic system switched off</li> <li>Pressure in the hydraulic system is too low (&lt; 80 bar)</li> <li>Lubricant reservoir empty</li> <li>Pressure line P and return line T switched at the time of assembly</li> <li>Air inclusion in the suction zone</li> <li>The temperature of the hydraulic oil is too low (viscosity is too high). (This malfunction occurs typically only when starting work)</li> </ul>	<ul style="list-style-type: none"> <li>Switch on the hydraulic system</li> <li>Check the hydraulic system</li> <li>Check and, if necessary, fill and bleed</li> <li>Correct the connection of the pump, then bleed the HTL201</li> <li>Allow the main machine to run a few minutes until the hydraulic oil has heated up.</li> </ul>
Pump delivers too little / too much lubricant	<ul style="list-style-type: none"> <li>Throttle is set incorrectly</li> <li>Pressure in the hydraulic system is too low</li> </ul>	<ul style="list-style-type: none"> <li>Set the throttle correctly (see Chapter 6.8)</li> <li>Check the hydraulic system</li> </ul>
Hydraulic oil emerges at pressure line P or return line T	<ul style="list-style-type: none"> <li>Fittings not correctly tightened</li> </ul>	<ul style="list-style-type: none"> <li>Check the fittings and tighten them if necessary</li> </ul>
No signal from the fill level switch	<ul style="list-style-type: none"> <li>Line terminal incorrect or defective</li> <li>Plug is disconnected</li> <li>Grease follower plate is tilted</li> <li>Grease follower plate is jammed</li> </ul>	<ul style="list-style-type: none"> <li>Correct or repair the line terminal</li> <li>Connect the plug</li> <li>Straighten the grease follower plate and secure it to the contact rod</li> <li>Check the lubricant reservoir for dents and remove them if necessary</li> </ul>
Lubricant over grease follower plate	<ul style="list-style-type: none"> <li>Seal on the grease follower plate is leaking</li> </ul>	<ul style="list-style-type: none"> <li>Replace the seal</li> </ul>

Check whether one of the specified faults exists, and remedy it according to responsibility.  
 Faults outside one's own scope of responsibility must be reported to the supervisor for initiation of further measures.  
 Please contact our Customer Service if you cannot determine or resolve the error.

## 12. Repairs



### WARNING



#### Risk of injury

At a minimum, the following safety measures must be taken before any repairs:

- Unauthorized persons must be kept away
- Mark and secure the work area
- Depressurize the product



### WARNING



**Risk of injury** The spring may become detached with powerful force when the pump cap is opened. Hold the cap securely with both hands while opening it - See Chapter 6.6.4.

### 12.1 Replace the pressure relief valve

- See Figure 14



In order to access the pressure relief valve, it may be necessary, depending on the setup at the customer site, to dismount the HTL201 from the surface to which it is mounted.

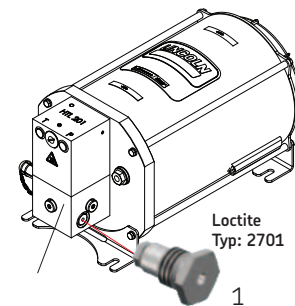
- Switch off the hydraulic system of the main machine / of the carrier system
- Depressurize the HTL201
- Clean the HTL201 of any contamination which may be present
- Loosen and remove defective pressure relief valve (1) (SW17) from the pump body (2)
- Moisten the thread of the new pressure relief valve (1) with Loctite 2701

- Lightly oil/grease the packing ring (2) of the new pressure relief valve
- Afterwards, screw a new pressure relief valve (1) into the pump body.

Tightening torque = 8 Nm ± 1.0 Nm

- Remount the pump once again as needed, (see Chapter 6 "Assembly")

Replacing the pressure relief valve Fig. 14



2

1

## 12.2 Change the reservoir assembly

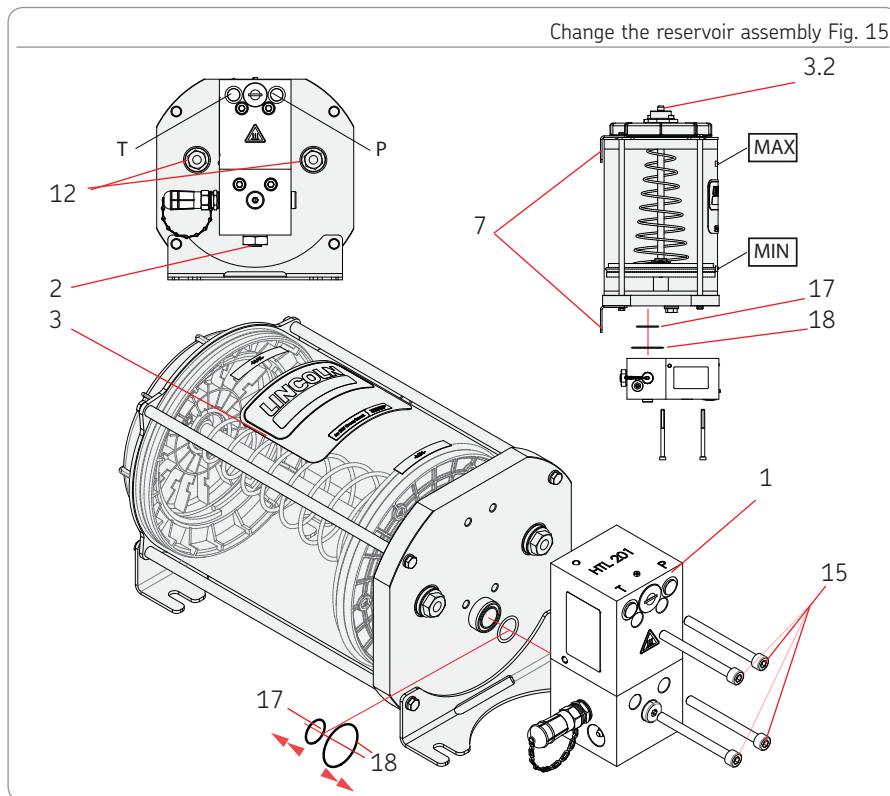
- See Figure 2, Fig. 3 and Fig. 15

Reservoir assembly,

- See spare parts list Chapter 14, Fig. 23

- Switch off the hydraulic system of the main machine / of the carrier system
- Shut off the hydraulic oil supply to the supply feed and return line (P) (T)
- Position oil / grease receptacles under the HTL201
- Open one of the alternative fill connections (12)
- Allow the lubricant to drain out of the lubricant reservoir (3) down to the MINi-mum mark
- Close the alternative fill connection (12)
- Loosen and remove the lubricant line from the pump element (2)
- Disconnect the power lead of the fill level switch (3.2), set the power lead aside
- Loosen and remove the pressure and return lines (P) (T) of the carrier system on the pump connection
- Secure the HTL201 against falling
- Loosen and remove (7) fastening screws (4x) at the two pump supports
- Set the HTL201 down on a clean surface
- Loosen and remove the fastening screws of the pump/lubricant reservoir (15) (4x)
- Carefully detach the lubricant reservoir (3) from the pump body (1), at which time the outer of the two packing rings (18)(large diameter) should remain behind in the pump body
- Set the old lubricant reservoir (3) aside
- Grease the new packing ring (17) of the reservoir assembly and insert it in the groove in the bottom of the reservoir
- Apply the new reservoir assembly at the pump body
- In the pump body (1), insert the fastening screws (15) (4x), applying them at the lubricant reservoir (3) and tightening them slightly
- Tighten the fastening screws (15) evenly crosswise with a tightening torque (15 Nm  $\pm$  1.0 Nm)
- Secure the HTL201 against falling at the installation location
- Use the two pump supports (7) and fastening screws (4x) to remount the HTL201

- Connect and tighten the pressure line (P) and return line (T) of the carrier system at the pump connection
- Connect the lubricant line to the pump element (2)
- Connect the power lead of the fill level switch (3.2) to the fill level switch
- Fill the HTL201 in accordance with Chapter 6.6.1 - "Initial filling"
- Bleed the HTL201 in accordance with Chapter 6.7 if necessary



### 12.3 Change the pump body

- See Figure 2, Fig. 3 and Fig. 16

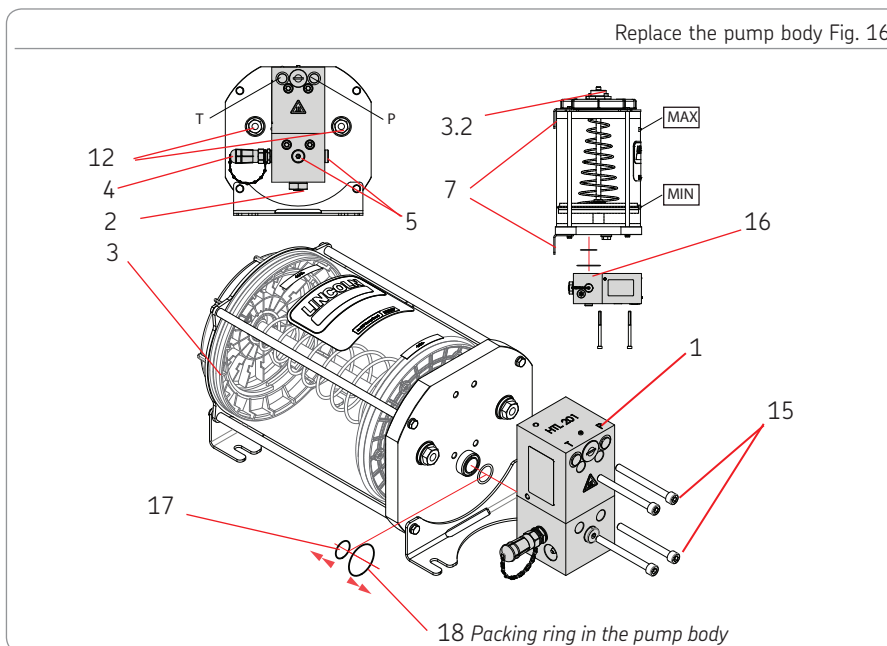
Pump body,

- See spare parts list Chapter 14, Fig. 24

- Switch off the hydraulic system of the main machine / of the carrier system
- Shut off the hydraulic oil supply to the supply feed and return line (P) (T)
- Position oil / grease receptacles under the HTL201
- Open one of the alternative fill connections (12)
- Allow the lubricant to drain out of the lubricant reservoir down to the MINIMUM mark
- Close the alternative fill connection (12)
- Loosen and remove the lubricant line from the pump element (2)
- Disconnect the power lead of the fill level switch (3.2), set the power lead aside
- Loosen and remove the pressure and return lines (P) (T) of the carrier system on the pump connection
- Secure the HTL201 against falling
- Loosen and remove (7) fastening screws (4x) at the two pump supports
- Set the HTL201 down on a clean surface
- Loosen and remove the fastening screws of the pump/lubricant reservoir (15) (4x)
- Carefully disconnect the pump body (1) from the lubricant reservoir (3), at which time the inner of the two packing rings (smaller diameter) should remain behind on the lubricant reservoir (3)
- Set the old pump body (1) aside
- Open both vent plugs (5)
- Fill the new pump body (1) with lubricant through the fill connection (4) until bubble-free lubricant emerges at the pump inlet (16) (bleeding)
- Close both vent plugs (5)
- Grease the existing packing ring (17) of the lubricant reservoir (3) and insert it into the groove in the bottom of the reservoir
- Grease the packing ring (18) in the new pump body
- Carefully apply the pump body (1) at the lubricant reservoir (3)
- In the new pump body (1), insert the fastening screws (15) (4x), applying them at the lubricant reservoir (3) and tightening them slightly

- Tighten the fastening screws (15) evenly crosswise with a tightening torque (15 Nm  $\pm$  1.0 Nm)
- Secure the HTL201 against falling at the installation location
- Use the two pump supports (7) and fastening screws (4x) to remount the HTL201
- Connect and tighten the pressure line (P) and return line (T) of the carrier system at the pump connection
- Connect the lubricant line to the pump element (2)
- Connect the power lead of the fill level switch (3.2) to the fill level switch
- Fill the HTL201 up to the MAXimum mark
- Bleed the HTL201 in accordance with Chapter 6.7 if necessary

Replace the pump body Fig. 16





### 12.4 Insertion of the two ventilation hoses into the reservoir assembly of the HTL201 8 l / 17 l

- See Figure 17 and Fig. 19

The insertion of the two ventilation hoses is necessary after replacing a pump body in order to eliminate air inclusions inside the pump body and inside the reservoir assembly. This also applies in the event of a pump body that is already filled with grease, the air inclusions of which are unable to be eliminated using the bleeding procedure described in Chapter 6.6.



#### CAUTION

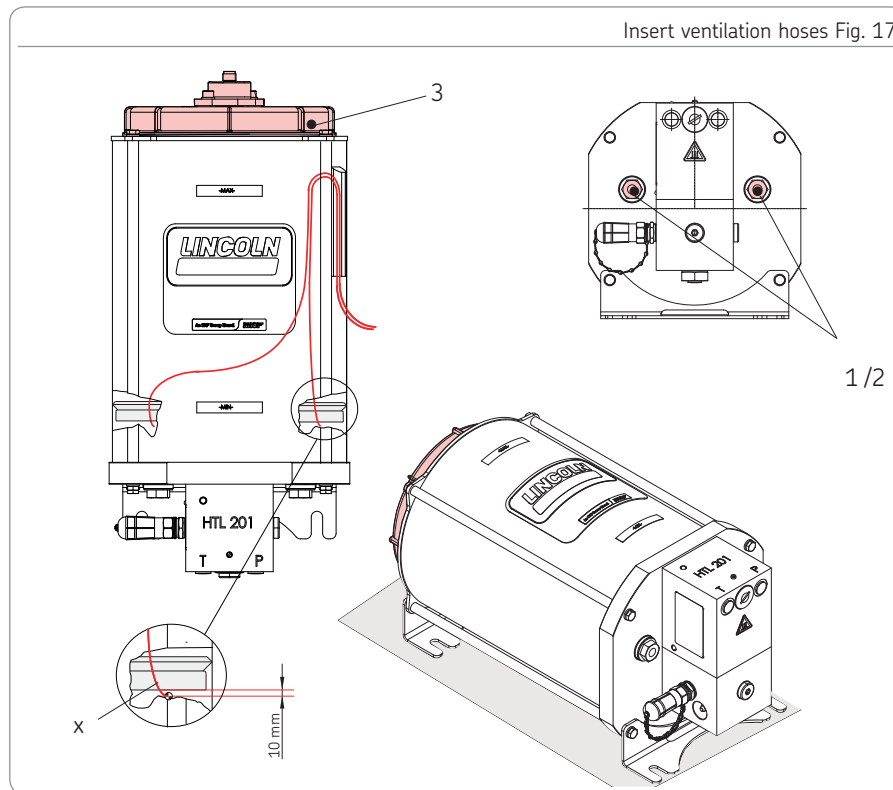


Risk of injury!

Do not open the screw cap until after the lubricant reservoir has been emptied (MINimum level).

The spring of the grease follower plate is tensioned when the reservoir filling is above the MIN mark. Opening the screw cap (3) can lead to an abrupt removal of pressure on the spring.

Insert ventilation hoses Fig. 17



- Completely empty the HTL201 8 l / 17 l pump
- Open one of the two alternative filling inlets (1 or 2) (M22x1.5)
- Carefully loosen and remove the screw cap (3) with switch rod
- Remove the spring assembly (4) from the reservoir

During the following assembly, pay attention to the following:



The blue spacer sleeve (5) underneath the follower plate (6) may not slip against it

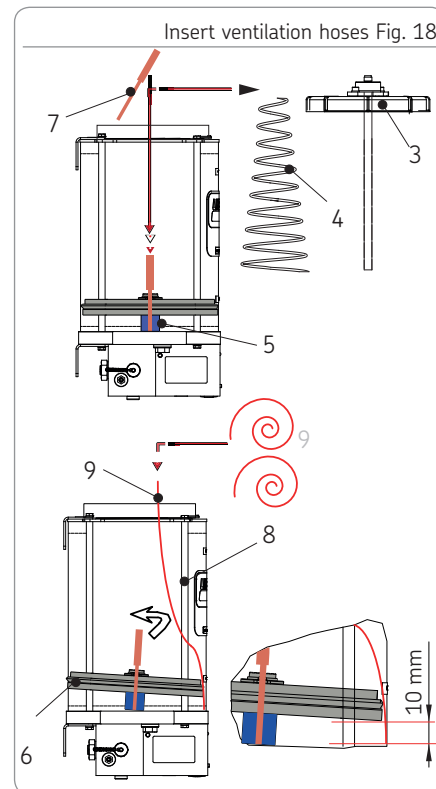
- Secure the blue spacer sleeve (5) with a retaining mandrel (7) (e.g. Ø 4 mm) against slippage (through follower plate (6) and spacer sleeve (5))

- Tilt the follower plate (6) in the reservoir in such a way that a gap is created between the reservoir front side (Lincoln plate on the reservoir) and the follower plate
- In the vicinity of each of the two front support sleeves (8), insert one of the ends of the two ventilation hoses (9) between the reservoir and the follower plate (6)



The two ends of the ventilation hoses should thereby protrude approximately 10 mm underneath the grease follower plate.

- Align the follower plate (6) so that it is once more parallel to the container bottom
- Check the two ventilation hoses (9) for correct seating (in the vicinity of the two front support sleeves (8) and to ensure that the ends of the ventilation hoses are



approximately 10 mm underneath the follower plate (6))

- Thread the other ends (10) of the ventilation hoses (9) through the venting duct (11) of the reservoir and fasten them in place to the exterior side with adhesive tape (12)
- Check the correctness of the position of the blue spacer sleeve (5) with respect to the center of the reservoir
- Carefully pull out the retaining mandrel (7)



During the following mounting of the spring assembly (4), care must be taken to ensure that ventilation hoses (9) do not become pinched between spring (4) and follower plate (6).

- Insert the spring assembly (4) back into the reservoir and align it on the follower plate (6)



The spring assembly of the 17 l pump has an additional guide bushing which also must be threaded onto the switch rod.

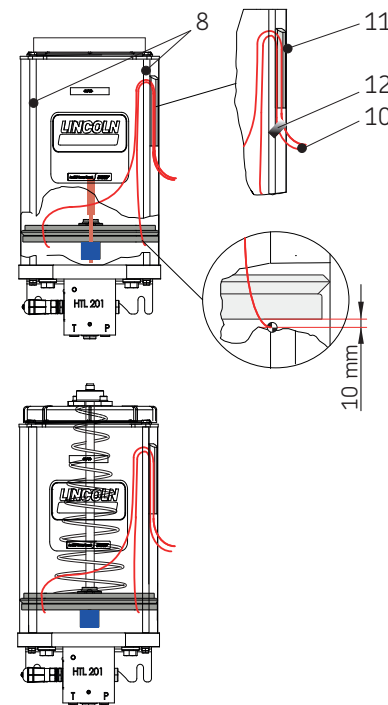
- Place the screw cap (3) with switch rod back on the reservoir, threading the switch rod into the spring assembly (4), the follower plate (6), the spacer sleeve (5) and the bottom of the reservoir while doing so



Observe the correct seating of the spring assembly (4) on the follower plate (6), and to the screw cap (3).

- Tighten the screw cap (3)
- Close the alternative filling inlet (1 or 2) once again
- Fill the HTL201 8 l / 17 l pump in accordance with Chapter 6.6

Insert ventilation hoses Fig. 19



## 13. Shutdown, disposal

### 13.1 Temporary shutdown

Temporary shutdown is performed by:

- Switching off the main machine

### 13.2 Permanent shutdown, disassembly

Permanent shutdown and disassembly of the product must be planned properly by the operator and conducted in compliance with all applicable requirements.

### 13.3 Disposal

#### Countries within the European Union

Waste should be avoided or minimized to the extent possible. The disposal of products contaminated with lubricant must be performed by a recognized waste disposal company in compliance with environmental protection requirements and waste disposal regulations as well as the requirements of local authorities.



The producer of waste is responsible for its specific classification, as the European Waste Catalog provides for different disposal keys for waste that is the same but of different origin.

Dispose of or recycle electrical components in accordance with WEEE Directive 2012/19/EU.



Plastic or metal parts can be disposed of as industrial waste.



#### Countries outside the European Union

Disposal is carried out according to the applicable laws and regulations of the country.

## 14. Spare parts

Designation	Pcs.	Item number
Pressure relief valve, 270 bar	1	235-14343-2
Pressure relief valve, 120 bar	1	235-14343-5
<hr/>		
Designation	Pcs.	Item number
Oil strainer screw G $\frac{1}{4}$ x 17, 100 $\mu$ m	1	447-72394-1
<hr/>		
Designation	Pcs.	Item number
Plug screw M20 x 1.5 for throttle	1	203-10710-1
<hr/>		
Designation	Pcs.	Item number
Packing ring for vent plug	1	508-108

Fig. 20



Fig. 21

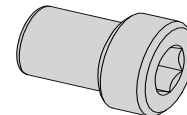


Fig. 22



Fig. 23



Designation	Pcs.	Item number
Emergency lubrication nipple	1	251-14073-9

Designation	Pcs.	Item number
Filler coupling	1	995-000-705

Designation	Pcs.	Item number
Reservoir assembly for 8-liter lubricant reservoir	1	542-60473-1
Reservoir assembly for 17-liter lubricant reservoir	1	542-60474-1

Fig. 23

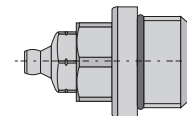


Fig. 24

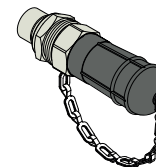


Fig. 25

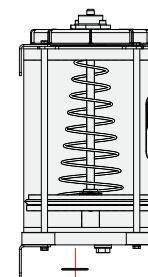
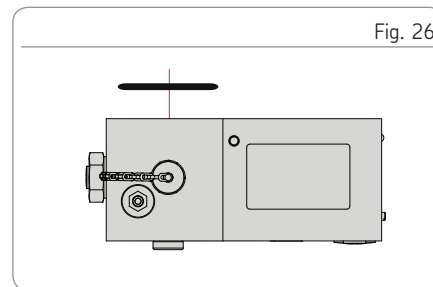


Fig. 26

Designation	Pcs.	Item number
Pump body assy. for K7 pump element and 120 bar pressure relief valve	1	642-41380-1
Pump body assy. for K7 pump element and 270 bar pressure relief valve	1	642-41380-2



Cable sockets M12x1, 4-pin design, without LED

Designation	Order No.	Weight [g]	Figure 27
A Circular connector, straight, without cable Diameter 4–6 mm, max. 0.75 mm <sup>2</sup>	179-990-371	15	
B Circular connector, straight, with 5 m integrally extruded cable, 4x0.25 mm <sup>2</sup> Circular connector, straight, with 10 m integrally extruded cable, 4x0.25 mm <sup>2</sup>	179-990-600	178	
	179-990-603	325	
C Circular connector, angled, without cable, diameter 4–6 mm, Max. 0.75 mm <sup>2</sup>	179-990-372	16	
D Circular connector, angled, with 5 m integrally extruded cable, 4x0.25 mm <sup>2</sup>	179-990-601	182	
For other cable sockets, please refer to brochure No. 1-1730-EN, "Electrical quick disconnect coupling".			

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## EC Declaration of Incorporation acc. to Machinery Directive 2006/42/EC, Appendix II Part 1 B

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

Designation:               Hydraulically driven lubrication pump for the feeding of lubricants  
Type:                       HTL 201  
Item number:             642-41380-\*  
Year of manufacture:     See type plate

with all of the below-listed essential safety and health protection requirements from Machinery Directive 2006/42/EC.

1.1.2 · 1.1.3 · 1.3.2 · 1.3.4 · 1.5.8 · 1.7.1 · 1.7.3 · 1.7.4

at the time of placing on the market.

The special technical documentation described in Annex VII, Part B of this Directive has been compiled. We undertake to transmit, in response to a reasoned request by the national authorities, the special documents for this partly completed machine. The Manager of Technical Standardization is the authorized representative for the technical documentation.

See the manufacturer information for the address.

Furthermore, the following Directives and (harmonized) standards were applied in the applicable areas:

Standard	Edition	Standard	Edition
DIN EN ISO 12100	2011	DIN EN 50581	2013
DIN EN 809	2012	DIN EN 60947-5-1	2017
DIN EN 60204-1	2007		
Correction	2011		

The partially completed machinery must not be put into service until the machinery into which it is to be installed has been declared in conformity with the provisions of Machinery Directive 2006/42/EC and all other applicable Directives.

Walldorf, July 31, 2018

Jürgen Kreutzkämper  
Manager R&D Germany

Stefan Schürmann  
Manager R&D Hockenheim/Walldorf

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