

# Hydraulically driven lubrication pump HTL 201

with grease follower plate technology and fill level monitoring

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

EN



Version 01  
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 machine

Designation:                      Hydraulically driven pump to supply lubricants  
Type:                                HTL 201  
Item number:                      **642-41380-\***  
Year of manufacture:            See type plate

with all essential safety and health protection requirements of 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 technical documentation described in Annex VII, Part B of this Directive has been prepared. We undertake to transmit, in response to a reasoned request by the national authorities, the special documents for this partly completed machinery. The Technical Standardization Manager 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 in 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, 31 July 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 can be used in the instructions. Symbols within safety instructions indicate the type 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>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
incl.	including	s	second	psi	pound per square inch
min.	minimum	d	day	sq.in.	square inch
max.	maximum	Nm	Newton meter	cu. in.	cubic inch
min	minute	ml	milliliter	mph	miles per hour
etc.	et cetera	ml/d	milliliters per day	rpm	revolutions per minute
e.g.	for example	ccm	cubic centimeter	gal.	gallon
kW	kilowatt	mm	millimeter	lb.	pound
U	voltage	l	liter	hp	horsepower
R	Resistance	db (A)	sound pressure level	kp	kilopound
I	current intensity	>	greater than	fpsec	feet per second
V	volt	<	less than	Conversion factors	
W	watt	±	plus minus	Length	1 mm = 0.03937 in.
AC	alternating current	Ø	diameter	Area	1 cm <sup>2</sup> = 0.155 sq.in.
DC	direct current	kg	kilogram	Volume	1 ml = 0.0352 fl.oz.
A	ampere	RH	relative humidity		1 l = 2.11416 pints (US)
Ah	ampere hour	≈	approximately	Mass	1 kg = 2.205 lbs
Hz	Frequency (Hertz)	=	equal to		1 ml = 0.03527 oz.
NC	normally closed contact	%	percent	Density	1 kg/cm <sup>3</sup> = 8.3454 lb./gal(US)
NO	normally open contact	‰	per mil (thousandth)		1 kg/cm <sup>3</sup> = 0.03613 lb./cu.in.
OR	logical OR	≥	greater or equal	Force	1 N = 0.10197 kp
&	logical AND	≤	less or equal	Pressure	1 bar = 14.5 psi
		mm <sup>2</sup>	square millimeter	Temperature	°C = (°F-32) x 5/9
		rpm	Revolutions per minute	Power	1 kW = 1.34109 hp
				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 according to the state of the art. 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 regulating 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.
- 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 Varnishing

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, reservoir bleeding, or lubricant 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
- Safety Data Sheet (SDS) for the lubricant used and the hydraulic oil used (oil for servo drive).

If necessary:

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

## 1.10 Markings on the product



**Warning of hot surfaces**  
Order No. 291-10133-5

**Warning of a hazard**

When opening the reservoir lid, the spring can release with significant force. Hold the lid with both hands when opening.”

Order No. 810-55325-1

Min

**Reservoir fill level MINimum indicator**

Order No. 810-55118-1

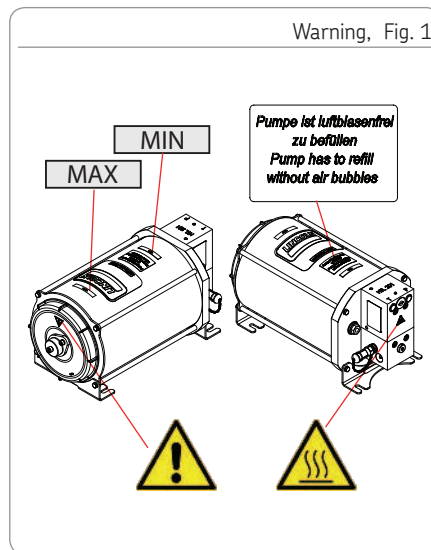
Max

**Reservoir fill level MAXimum indicator**

Order No. 810-55117-1

**“Fill without introducing bubbles” sign**

Order No. 810-53919-1



Warning, Fig. 1

## 1.11 Notes on the type plate

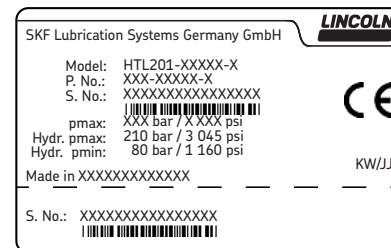
The type plate provides important data such as the type designation, order number, and regulatory characteristics.

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, commissioning, 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 must be observed during commissioning and 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>  <b>Open the screw cap only when the lubricant reservoir is emptied (MINimum level).</b>          Filling the reservoir above the Min mark (MINimum level) places the spring of the grease follower plate under tension. Opening the screw cap can cause abrupt release of the spring's tension.</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 with suitable transport and lifting gear on marked paths.
- Maintenance and repair work can be subject to restrictions at low or high temperatures (e.g., change in lubricant flow properties). 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 their function impaired by the installation.
- Dry any wet, slippery surfaces or cover appropriately.
- Cover hot or cold surfaces appropriately.
- Work on any additional 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, shear, or bending.
- Check parts for contamination before use and clean if necessary.
- Lubrication piping 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.

- |                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>○ Use suitable hoisting equipment when working with heavy parts.</li><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 additional 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 tightening 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 precautions when handling mineral oil products. Wear appropriate face protection and gloves. Be careful when filling the lubricant reservoir and when connecting or disconnecting the lubricant lines. Use only hydraulic screw unions and lubrication piping suitable for the specified pressure. Do not install lubrication piping 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 feeding 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.

#### NOTE

Large air bubbles can cause failure of lubricant supply. SKF therefore recommends electrical monitoring for the system. Ensure filling without introducing air! In case of error, bleed the HTL201.



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 suitability for pumping in centralized lubrication systems (e.g., "bleeding").

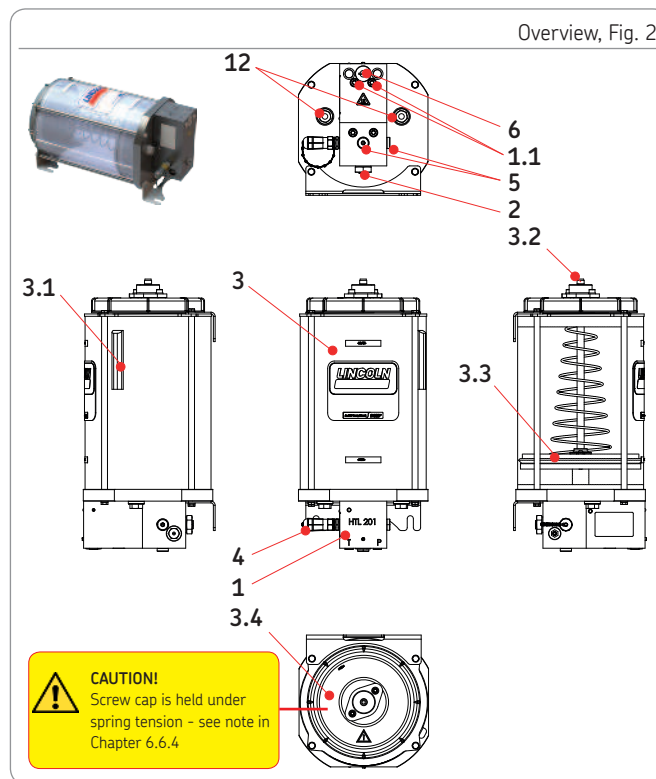
Please contact SKF if you have further questions regarding lubricants.

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

## 3. Overview, functional description

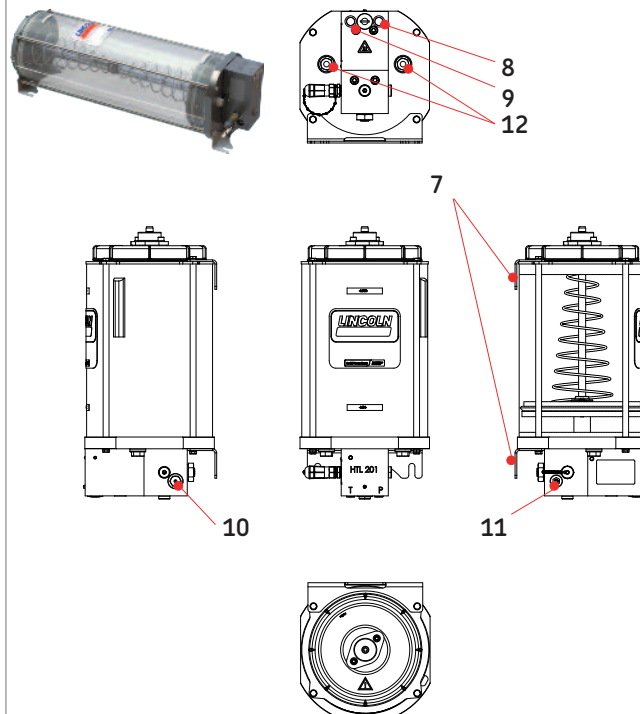
-See Figure 2 and Fig. 3

Item	Description	see page
<b>1</b>	<b>Pump body</b> The pump body contains the pump element and the hydraulic drive and supply devices.	25/26
<b>1.1</b>	<b>Mounting screws (pump/reservoir) (4x M8)</b>	
<b>2</b>	<b>Pump element</b> The pump element deliver the lubricant to the supply line.	22/33
<b>3</b>	<b>Lubricant reservoir</b> The lubricant reservoir, with a grease follower plate over-laying the lubricant, stores the lubricant. Reservoir design 8 or 17 liters	25/26
<b>3.1</b>	<b>Lubricant reservoir bleeding</b>	
<b>3.2</b>	<b>Lubricant level switch</b> (see Fig. 8, port M12x1)	29
<b>3.3</b>	<b>Grease follower plate and tension spring</b>	
<b>3.4</b>	<b>Screw cap (see note on Fig. 2!)</b>	
<b>4</b>	<b>Fill connection with filler coupling</b> Used to fill the HTL 201	30
<b>5</b>	<b>Bleed screw (2x)</b> Used to bleed the lubricant reservoir and the HTL201 pump	32
<b>6</b>	<b>Throttle (hidden)</b> The throttle is protected by a cover screw. The throttle is used to adjust the pump delivery rate.	33



Item	Description	see page
7	<b>Bracket with assembly holes</b> The pump is secured to the two brackets with assembly holes (4 bores).	26
8	<b>Pressure port P (G1/4)</b> Is used to connect the supply line of the main machine's hydraulic system.	27
9	<b>Return flow port T (G1/4)</b> Is 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 lubricant nipple</b> The emergency lubricant nipple is used to feed the connected supply lines with lubricant, for example if the hydraulic system of the main machine fails.	34
12	<b>Alternative filling inlets</b> (for fill connection) (M22x1.5)	31

Overview, Fig. 3



## 4. Technical data

### 4.1 Mechanics

Pump operating temperature range	-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 hydraulic carrier system	min. 80 bar / max. 210 bar
Working viscosity of hydraulic oil	at operating temperature $\geq 20 - 1\,000\text{ mm}^2/\text{s}$
Pressure port P	G 1/4
Return flow port 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 empty pump	8-liter lubricant reservoir approx. 8.6 kg / 17-liter lubricant reservoir approx. 10 kg
Mounting position	Vertical (pump body downwards or horizontal <sup>2)</sup> )
Purity level of hydraulic oil used	20/18/15 (ISO 4406)
<b>Lubricant level switch</b>	
Supply voltage	24 VDC
Output signal	4 to 20 mA
Electrical connection	M12x1 (connector plug- see the Accessories chapter)

#### NOTE

Large air bubbles can cause failure of lubricant supply. SKF therefore recommends electrical monitoring for the system. Ensure filling without introducing air! In case of error, bleed the HTL201.

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

2) Installation with the pump body on top/ lubricant reservoir on bottom (upside down) is not permitted.

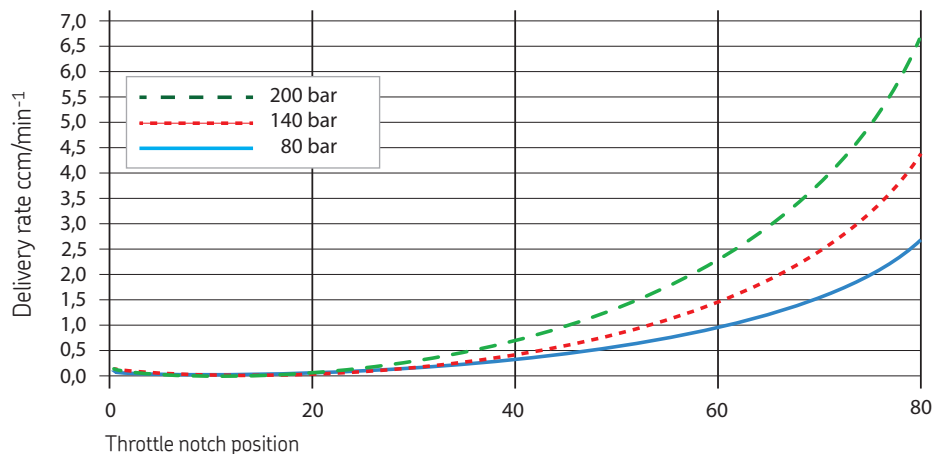
## 4.2 Nominal delivery rates

Pump element C7 or K7

Nominal delivery rate per stroke 0.22 cm<sup>3</sup>

This information applies to NLGI Grade 2 greases at + 40 °C and 100 bar back pressure and the hydraulic operating pressure indicated in the diagram. Delivery rates can be increased or reduced by turning the throttle in the plus or minus direction, respectively. See "Adjusting the delivery rate" in Chapter 6.8.

### 4.2.1 Delivery rate chart



The pump is factory-set to maximum delivery rate (throttle notch position 80).

### 4.3 Tightening torques

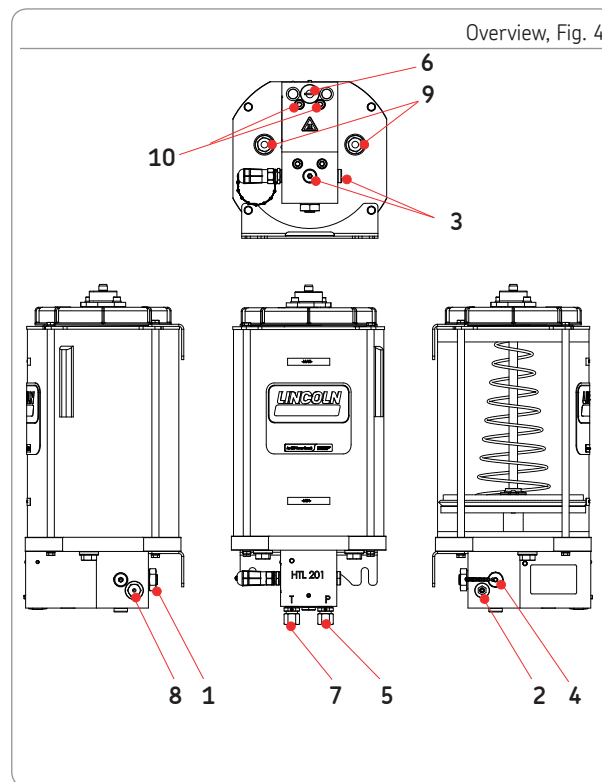
-See Figure 4

Observe the specified tightening torques.

Item	Component	Tightening torque:
1	Pump element with integrated check valve	25 Nm $\pm$ 2.0 Nm
2	Emergency lubricant nipple	14 Nm $\pm$ 1.0 Nm
3	Bleed screw	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 for throttle	1 Nm $\pm$ 1.0 Nm
7	Screw union T (hydraulic system)	20 Nm $\pm$ 2.0 Nm
8	Pressure relief valve (hidden)	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 tightening torques are specified, use the tightening torques for screws of strength class 8.8.

Overview, Fig. 4



## 5. Delivery, returns, storage

### 5.1 Delivery

After receipt of the supply, it must be inspected for any shipping damage and for completeness according to the shipping documents. Immediately inform the transport carrier of any shipping damage.

The packaging material must be preserved until any discrepancies are resolved. 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)
- If possible, keep in the original packaging

- 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 embrittlements) 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.

- Drill the assembly holes for mounting as specified in corresponding chapter for the described version.

### 6.2 Mechanical connection

#### 6.2.1 Minimum mounting dimensions

To ensure enough space for maintenance work or clearance for possible disassembly of the product, make sure to maintain the respective clearance dimensions (Figures 4 and 5).

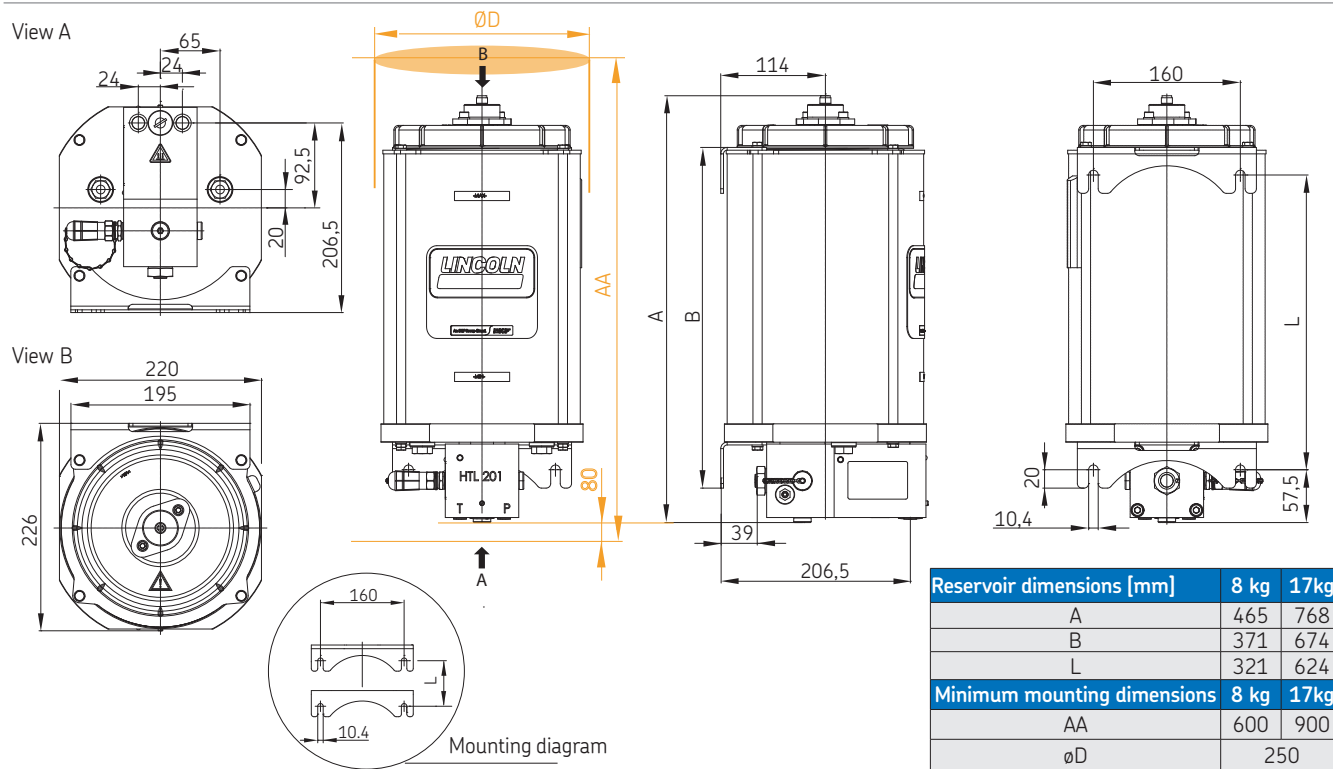
### 6.2.2 Assembly of the HTL201

The HTL 201 is secured by the customer using two brackets, each with two assembly holes on the lubricant reservoir.

It is secured using:

- 4x screws M10 (strength class 8.8) Example: DIN EN ISO 4017
- 4x hexagon nuts M10 (if necessary), example: DIN EN ISO 7040 M10
- 8x washers, example: DIN EN 7090-10-200 HV
- The length of the screws depends on the specific installation conditions.

Assembly drawing HTL201 with 8- and 17-liter lubricant reservoirs, Fig. 5



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

-See Figure 7

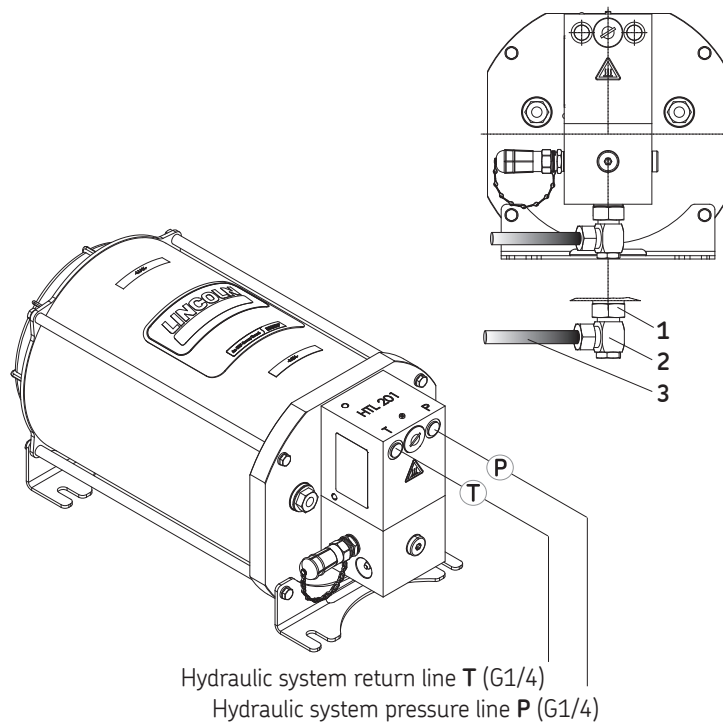
Use suitable hydraulic screw unions and lines to connect the pump with the pressure port **(P)** and the return flow port **(T)** to the hydraulic circuit of the main machine / the carrier system.



Do not mix up the pressure port **(P)** and the return flow port **(T)**.  
For port dimensions, see Chapter 6.2.2



- Use a suitable screw union (G1/4) to connect the pressure line of the carrier system to the pump port **(P)**.
- Use a suitable screw union (G1/4) to connect the return line of the carrier system to the pump port **(T)**.

Connecting hydraulic lines and the lubrication line, Fig. 7



## 6.4 Connecting a lubrication line

-See Figure 7

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



Connect the lubricant piping 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:

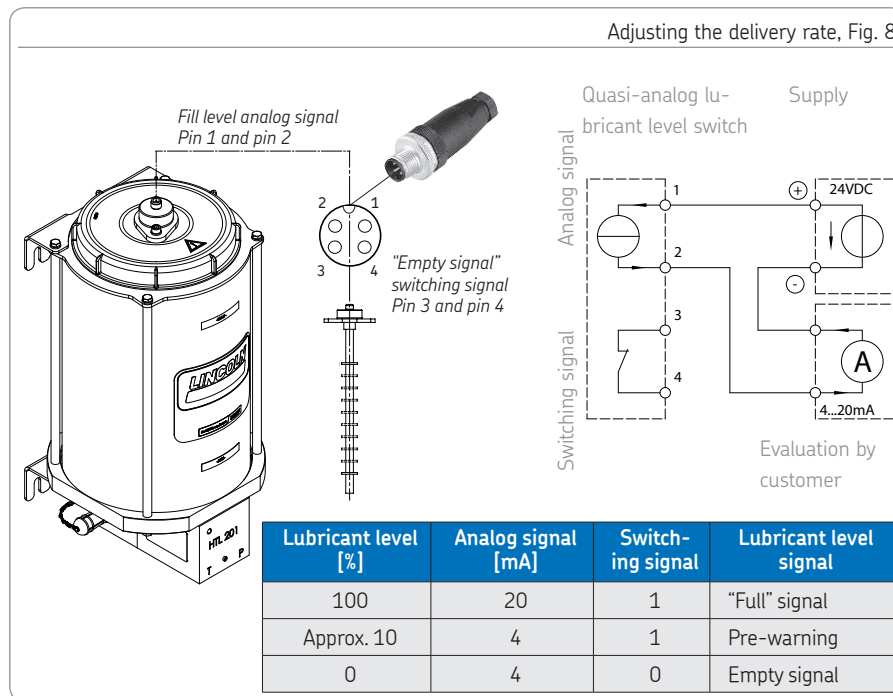
- The maximum operating pressure that occurs
  - The operating temperature range
  - The delivery volume and the lubricant to be fed
- Observe the following assembly information for safe and trouble-free operation:**
- Use only clean components and prefilled lubrication lines.
  - The main lubricant line should be arranged ascending and be bleedable at the highest point. Lubrication lines should always be arranged so that air pockets cannot form anywhere.
  - Install lubricant feeders at the end of the main lubricant line such that the outlets of the lubricant feeders point upwards.
  - If the system configuration requires that the lubricant feeders 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 incorporation of sharp bends, angle valves, flap valves, seals protruding inward, or changes in cross-section. 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)** to the pump element **(1)** of the HTL 201.
  - Connect the lubrication line to the lubrication point.

### 6.5 Connecting the lubricant level switch

-See Figure 8

- Connect the lubricant level switch according to the terminal diagram, Figure 8.

The quasi-analog lubricant level switch has multiple signal levels divided across the analog signal range from 4 to 20 mA. SKF recommends that the customer evaluate the lubricant level switch to monitor lubricant feeding.



## 6.6 Filling with lubricant



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



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



### Avoid air pockets!

Air pockets 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 bleed screw must not be open during filling, except for initial filling. Otherwise, the lubricant would flow out directly through the bleed screw.

### 6.6.1 Initial filling

-See Figure 2 to Fig. 3 and Fig. 9



Filling can optionally be performed via the fill connection (Figure 2, item 4) or either of the alternative fill connections (Figure 3, item 12).

- Place the transfer pump (Fig. 9) on the fill connection/filler coupling (4).
  - Open the bleed screw (5).
  - Start and continue the filling process until bubble-free lubricant discharges at the bleed screw (5).
  - Close the bleed screw (5).
  - Open alternative fill connections (12) (2x).
- ☞ During the subsequent filling process, do not exceed the **MAX**imum lubricant mark.



#### 6.6.4 Procedure when overfilled

–see Figure 2 and Fig. 9

	<b>CAUTION</b>
	<p><b>Risk of injury!</b>  <b>Open the screw cap only when the lubricant is emptied (MINimum level).</b>          Filling the reservoir above the MIN mark places the spring of the grease follower plate under tension. Opening the screw cap (3.4) can cause abrupt release of the spring's tension.</p>

Proceed as follows if the lubricant reservoir is accidentally filled above the **MAX**imum mark:

- Place the grease receiver tank under the HTL201.
- Disconnect the lubrication line from the pump element.

- Run the HTL201 pump until the grease follower plate reaches the **MIN**imum mark.
- Switch off the HTL201.

#### Optionally:

- Open one of the alternative fill connections (**12**).
- Let lubricant drain from the lubricant reservoir.
- Close alternative fill connections.
- Disconnect the power lead of the lubricant level switch (**3.2**).
- Only then, carefully loosen and remove the lid of the lubricant reservoir (**3.4**) (with lubricant level switch and spring assembly).

- Remove lubricant above the grease follower plate and clean the spring assembly.



When reinstalling, pay attention to the following:

The lubricant level switch must be correctly inserted through the grease follower plate and into the guide bushing in its base.

- Insert/place the spring assembly, lubricant level switch, and lid into the lubricant reservoir and align.
- Twist the lid tight.
- Connect the power lead (**3.2**) of the lubricant level switch
- Fill the HTL201.  
– See Chapter 6.6.2, “Recharging”



### 6.7 Bleeding the HTL201

-See Figure 10

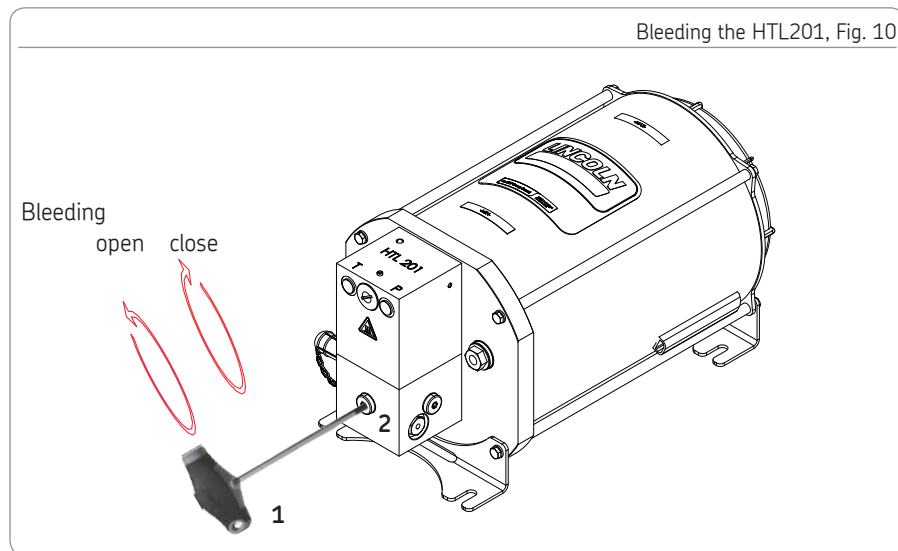
If air inclusions are visible in the lubricant, bleed as described in Chapter 6.6.1, "Initial filling."

In case of functional impairment (reduced delivery rate), bleed the pump as follows:

- Switch off the hydraulic system on the main machine.
- Place an oil or grease receiver tank under the HTL201.
- Apply the hexagon socket screwdriver (WAF 6) (1) to the bleed screw (2).
- Loosen the bleed screw (2) until a small amount of bubble-free lubricant discharges.
- Securely tighten the bleed screw (2).

Torque = 15 Nm  $\pm$  0.1 Nm

- Clean all lubricant residue from the HTL201.



## 6.8 Setting the delivery rate

-See Figure 11



The delivery rate cannot be changed while the pump is running.

By default, the pump is set to maximum delivery.

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

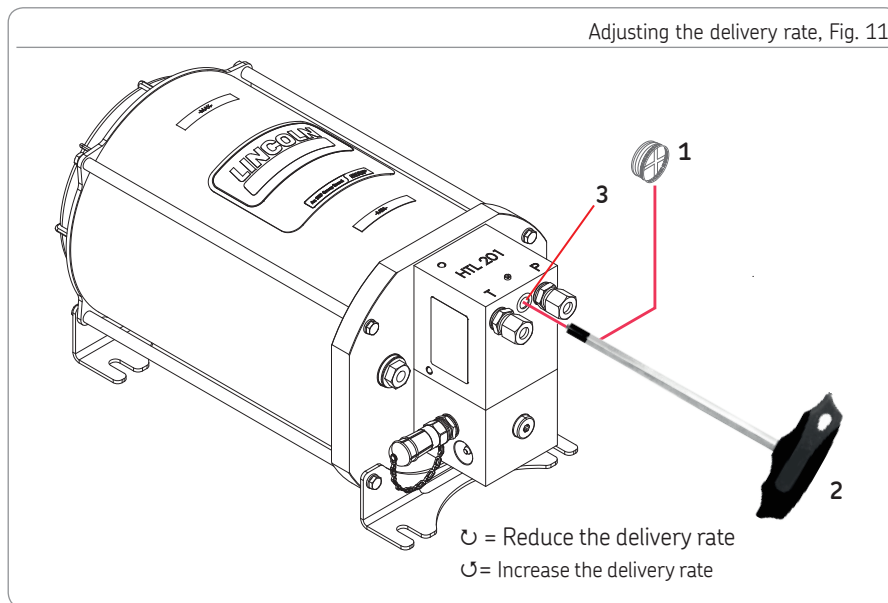
- To adjust the delivery rate, turn the throttle (3) in or out by the corresponding number of notch positions.

- Re-install the plug screw (1).

Plug screw tightening torque

1 Nm  $\pm$  0.1 Nm

Adjusting the delivery rate, Fig. 11

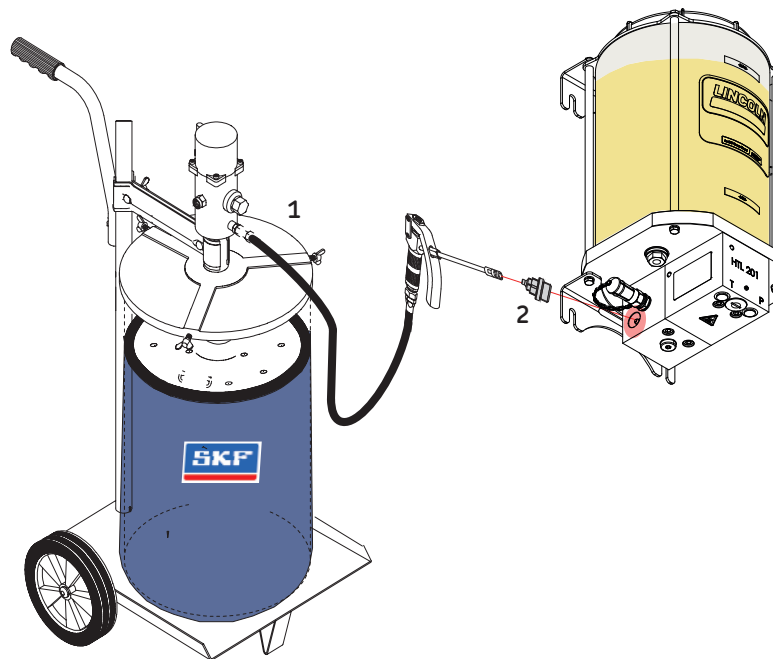


### 6.9 Emergency lubrication

-See Figure 12

- Place the transfer pump (1) with matching mating part on the emergency lubrication nipple (2).
- Switch on the transfer pump and perform emergency lubrication until the connected lubrication points are sufficiently supplied with lubricant.
- Switch off the transfer pump and remove it from the pump's emergency lubrication nipple (2).

Emergency lubrication nipple of the HTL201, Fig. 12



## 6.10 Type identification code for the HTL201 pump

<i>Example:</i>		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 elements, piston diameter 7 mm															
K7 = Standard for grease and oil		C7 = Increased fitting tolerance													
Capacity of lubricant reservoir															
17.0 = 17.0 liter		8.0 = 8.0 liter													
Reservoir design															
X = Grease reservoir															
Lubricant level switch															
N = none		M = Quasi-analog lubricant level switch													
Follower plate															
F = With follower plate															
Reservoir material															
K = Plastic reservoir															
Additional details															
SV120 = 120 bar		SV270 = 270 bar													

## 7. First start-up

To ensure safety and functionality, the person specified by the operator is required to perform 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

7.1 Inspections before first start-up	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 connected 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 distributors are correctly mounted	<input type="checkbox"/>	<input type="checkbox"/>
Lubricant reservoir completely filled with lubricant. The refill interval was correctly determined based on the throttle position and the operating pressure of the carrier system (see delivery rate chart) and the responsible person is aware of it.	<input type="checkbox"/>	<input type="checkbox"/>
The pump was bled correctly at the bleed screws 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"/>
7.2 Inspections during first start-up		
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.

The activities required during normal operation are limited primarily to:

- Initial filling with lubricant  
-See Chapter 6.6.1
- Adjusting the delivery rate  
-See Chapter 6.8
- Recharging 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 lubricant level switch may be 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 the 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 during cleaning.

### 9.3 Interior cleaning

The interior does not need to be cleaned during normal operation/maintenance.

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

Interior cleaning is required after overfilling 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 connected correctly	<input type="checkbox"/>	<input type="checkbox"/>
All components such as lubrication piping and feeders are correctly mounted.	<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

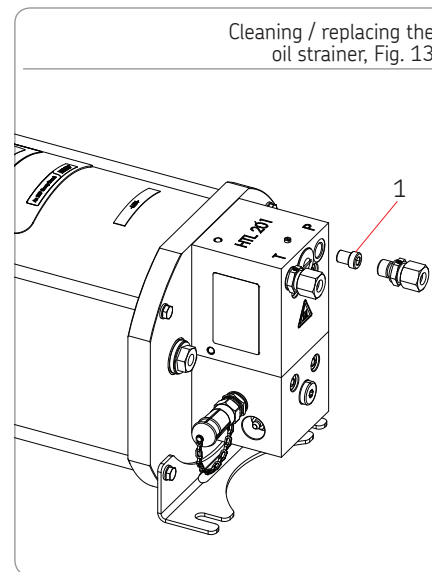
-See Figure 13



The oil strainer must be cleaned or replaced every 1,000 hours of operation.

- Switch off the hydraulic system on the main machine.
- Place an oil or grease receiver tank under the HTL201.
- Depressurize the supply line to the hydraulic port (P).
- Remove the screw union of the hydraulic port (P).
- Unscrew the oil strainer (1) and clean or replace it.
- Screw the oil strainer (1) back in and install the screw union of the hydraulic port (P).
- Open the supply line to the hydraulic port (P).
- Switch the hydraulic system on the main machine on again.

Cleaning / replacing the oil strainer, Fig. 13



10

## 11. Malfunctions, causes, and remedies

Malfunctions table 1

Malfunction	Possible cause	Remedy
Pump is not supplying 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 mixed up during installation</li> <li>Air inclusion in suction area</li> <li>Temperature of hydraulic oil is too low (excessive viscosity) (this fault typically occurs only at the start of 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 pump's connection, then bleed the HTL 201</li> <li>Run the main machine for several minutes until the hydraulic oil has warmed up</li> </ul>
Pump is supplying not enough / too much lubricant	<ul style="list-style-type: none"> <li>Throttle is set incorrectly</li> <li>Inadequate pressure in the hydraulic system</li> </ul>	<ul style="list-style-type: none"> <li>Correctly set the throttle, (see Chapter 6.8)</li> <li>Check the hydraulic system</li> </ul>
Hydraulic oil discharges 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 fittings and re-tighten if necessary</li> </ul>
No signal from lubricant level switch	<ul style="list-style-type: none"> <li>Cable connection 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 cable connection</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>
<p>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.</p>		

## 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

When opening the reservoir lid, the spring can release with significant force. Hold the lid with both hands when opening. - see Chapter 6.6.4.

### 12.1 Replacing the pressure relief valve

-See Figure 14



Depending on the customer's installation, reaching the pressure relief valve may necessitate removal of the HTL201 from its installation surface.

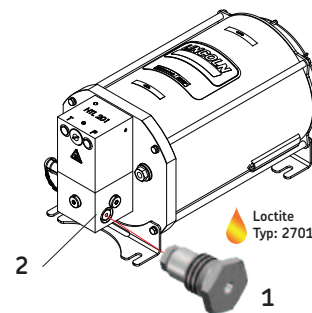
- Switch off the hydraulic system of the main machine / the carrier system.
- Depressurize the HTL201.
- Clean any contamination from the HTL201.
- Loosen and remove the defective pressure relief valve (1) (WAF 17) from the pump body (2).
- Wet the thread of the new pressure relief valve (1) with Loctite 2701.

- Gently oil/grease the sealing ring (2) of the new pressure relief valve.
- Then screw the new pressure relief valve (1) into the pump body.

Torque = 8 Nm + 1.0 Nm

- Re-install the pump if applicable, (see Chapter 6, "Assembly")

Replacing the pressure relief valve, Fig. 14



## 12.2 Replacing the reservoir assembly

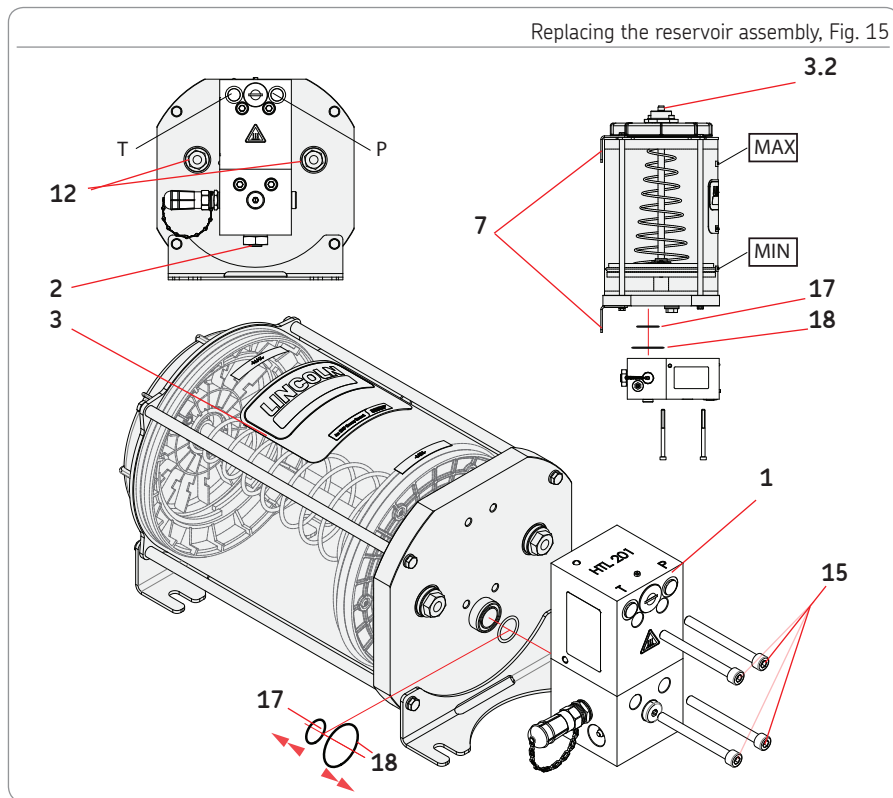
-See Figure 2, Fig. 3 and Fig. 15

### Reservoir assembly,

See spare parts list, Chapter 14, Fig. 22

- Switch off the hydraulic system of the main machine / the carrier system.
- Shut off the hydraulic oil supply to the supply and return lines **(P) (T)**.
- Place an oil / grease receiver tank under the HTL201.
- Open one of the alternative fill connections **(12)**.
- Let lubricant drain out of the lubricant reservoir **(3)** down to the **MIN**imum mark.
- Close the alternative fill connection **(12)**.
- Loosen and remove the lubricant line from the pump element **(2)**.
- Disconnect the power lead of the lubricant level switch **(3.2)** and place the power lead aside.
- Loosen and remove the pressure and return lines **(P) line (T)** of the carrier system from the pump port.
- Secure the HTL201 against falling.
- Loosen and remove the fixing screws **(4x)** on both pump supports **(7)**.
- Place the HTL201 on a clean surface.
- Loosen and remove the pump/lubricant reservoir fixing screws **(15) (4x)**.
- Carefully remove the lubricant reservoir **(3)** from the pump body **(1)**, leaving the outer of the two sealing rings **(18)** (larger diameter) in the pump body.
- Place the old lubricant reservoir **(3)** aside.
- Grease the new sealing ring **(17)** of the reservoir assembly and insert it in the groove in the reservoir bottom.
- Place the new reservoir assembly on the pump body.
- Insert the fixing screws **(15) (4x)** into the pump body **(1)**, apply them to the lubricant reservoir **(3)** and tighten gently.
- Evenly tighten the fixing screws **(15)** crosswise with a torque of  $15 \text{ Nm} \pm 1.0 \text{ Nm}$ .
- Secure the HTL201 at the location against falling.
- Re-install the HTL201 using the two pump supports **(7)** and fixing screws **(4x)**.
- Connect the pressure line **(P)** and return line **(T)** of the carrier system to the pump port and tighten.

- Connect the lubricant line to the pump element (2).
- Connect the power lead of the lubricant level switch (3.2) to the lubricant level switch.
- Fill the HTL201 in accordance with Chapter 6.6.1 - "Initial filling."
- If necessary, bleed the HTL201 as described in Chapter 6.7.



### 12.3 Replacing the pump body

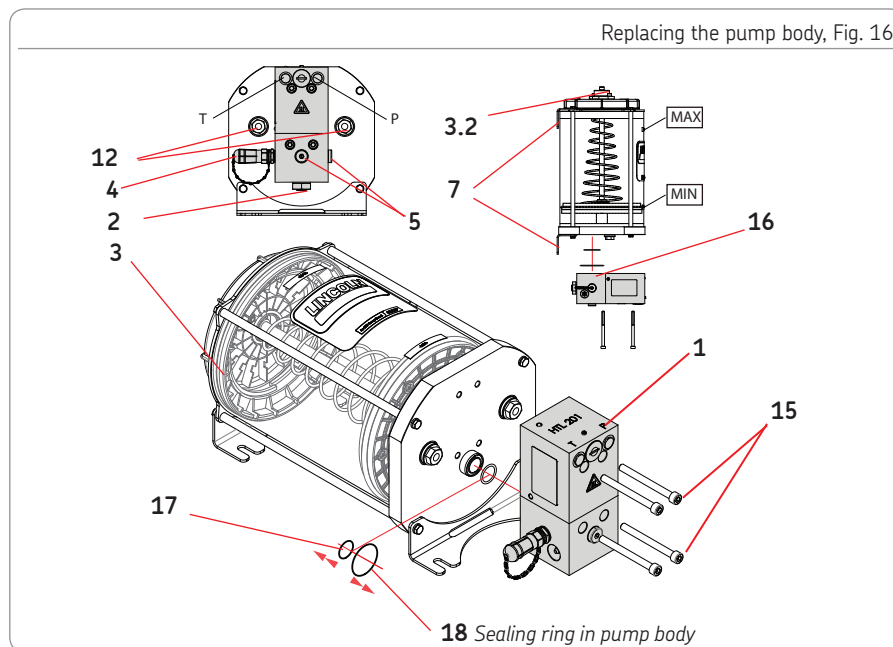
-See Figure 2, Fig. 3 and Fig. 16

#### Pump body,

-See spare parts list, Chapter 14, Fig. 23

- Switch off the hydraulic system of the main machine / the carrier system.
- Shut off the hydraulic oil supply to the supply and return lines **(P) (T)**.
- Place an oil / grease receiver tank under the HTL201.
- Open one of the alternative fill connections **(12)**.
- Let lubricant drain out of the lubricant reservoir down to the **MIN**imum mark.
- Close the alternative fill connection **(12)**.
- Loosen and remove the lubricant line from the pump element **(2)**.
- Disconnect the power lead of the lubricant level switch **(3.2)** and place the power lead aside.
- Loosen and remove the pressure and return lines **(P) line (T)** of the carrier system from the pump port.
- Secure the HTL201 against falling.
- Loosen and remove the fixing screws **(4x)** on both pump supports **(7)**.
- Place the HTL201 on a clean surface.
- Loosen and remove the pump/lubricant reservoir fixing screws **(15) (4x)**.
- Carefully separate the pump body **(1)** from the lubricant reservoir **(3)**; the inner of the two sealing rings (smaller diameter) should remain on the lubricant reservoir **(3)**.
- Place the old pump body **(1)** aside.
- Open both bleed screws **(5)**.
- Fill the new pump body **(1)** via the fill connection **(4)** with lubricant until bubble-free lubricant discharges at the pump inlet **(16)** (bleeding)
- Close both bleed screws **(5)**.
- Grease the existing sealing ring **(17)** of the lubricant reservoir **(3)** and insert it in the groove in the reservoir bottom.
- Gently grease the sealing ring **(18)** in the new pump body.
- Carefully place the pump body **(1)** on the lubricant reservoir **(3)**.
- Insert the fixing screws **(15) (4x)** into the new pump body **(1)**, apply them to the lubricant reservoir **(3)** and tighten gently.

- Evenly tighten the fixing screws (**15**) crosswise with a torque of  $15 \text{ Nm} \pm 1.0 \text{ Nm}$ .
- Secure the HTL201 at the location against falling.
- Re-install the HTL201 using the two pump supports (**7**) and fixing screws (**4x**).
- Connect the pressure line (**P**) and return line (**T**) of the carrier system to the pump port and tighten.
- Connect the lubricant line to the pump element (**2**).
- Connect the power lead of the lubricant level switch (**3.2**) to the lubricant level switch.
- Fill the HTL201 up to the **MAX**imum mark.



## 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

Designation	Pcs.	Item number
Oil strainer screw G <sup>1</sup> / <sub>4</sub> x 17, 100 µm	1	447-72394-1

Designation	Pcs.	Item number
Plug screw M20 x 1.5 for throttle	1	203-10710-1

Fig. 17

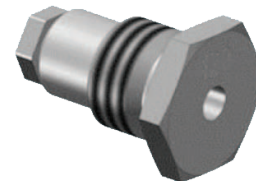


Fig. 18

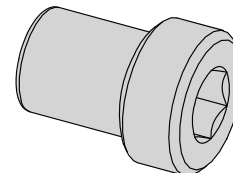


Fig. 19



Designation	Pcs.	Item number
<b>Emergency lubricant nipple</b>	1	<b>251-14073-9</b>

Designation	Pcs.	Item number
<b>Filler coupling</b>	1	<b>995-000-705</b>

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

Fig. 20

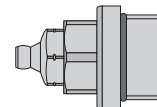


Fig. 21

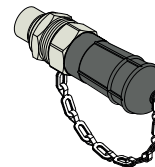
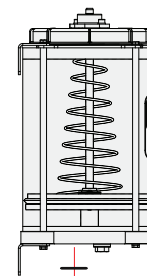
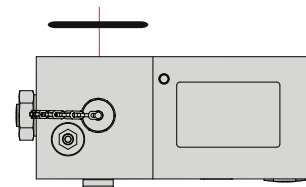


Fig. 22







Designation	Pcs.	Item number
<b>Pump body, complete</b> , for K7 pump element and 120 bar pressure relief valve	1	<b>642-41380-1</b>
<b>Pump body, complete</b> , for K7 pump element and 270 bar pressure relief valve	1	<b>642-41380-2</b>

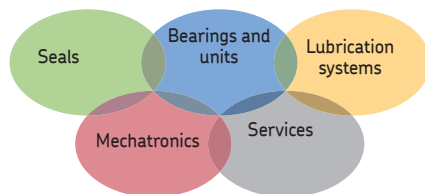
Fig. 23



#### Cable sockets M12x1, 4-pin design, without LED

Designation	Order No.	Weight [g]	Figure 24
<b>A</b> <b>Circular connector, straight</b> , without cable Diameter 4–6 mm, max. 0.75 mm <sup>2</sup>	<b>179-990-371</b>	15	
<b>B</b> <b>Circular connector, straight</b> , with 5-m integrally extruded cable, 4x0.25 mm <sup>2</sup>	<b>179-990-600</b>	178	
	<b>179-990-603</b>	325	
<b>C</b> <b>Circular connector, angled</b> , without cable, diameter 4–6 mm, Max. 0.75 mm <sup>2</sup>	<b>179-990-372</b>	16	
<b>D</b> <b>Circular connector, angled</b> , with 5-m integrally extruded cable, 4x0.25 mm <sup>2</sup>	<b>179-990-601</b>	182	

For other cable sockets, please refer to brochure No. 1-1730-EN, "Electrical quick disconnect coupling."



### The Power of Knowledge Engineering

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Our five fields of competence are: Bearings and bearing units, seals, mechatronics (combining mechanical and electronic components to improve the performance of classic systems), and extensive services from 3-D computer stimulations and modern condition monitoring systems for high reliability to system management SKF is a leading global company and guarantees its customers uniform quality standards and global product availability.

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