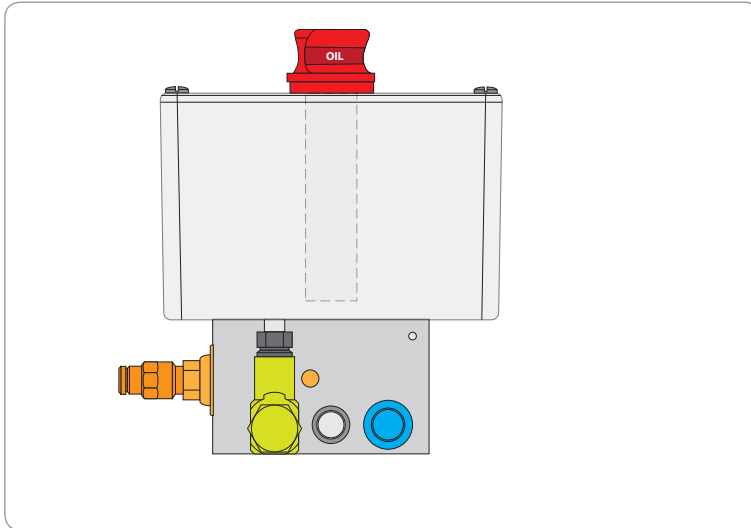


# Injection oiler for metering minimum lubricant quantities 501-301-310-S1



951-170-236-EN

Version 01

24/05/2019

## Legal notice

### Manufacturer

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### Training courses

In order to provide a maximum of safety and economic viability, SKF carries out detailed training courses. It is recommended that the training courses are attended. For more information please contact the respective SKF Service address.

### 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

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

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

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

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## Explanation of symbols, signs and abbreviations

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





























	General warning		Dangerous electrical voltage		Risk of falling		Hot surfaces
	Unintentional intake		Crushing hazard		Pressure injection		Suspended load
	Electrostatically sensitive components		Potentially explosive atmosphere		Keep unauthorized persons away		
	Wear personal protective equipment (goggles)		Wear personal protective equipment (face shield)		Wear personal protective equipment (gloves)		Wear personal protective equipment (protective clothes)
	Wear personal protective equipment (safety shoes)		Disconnect product from mains		General obligation		
	Protective conductor (protection class I)		Protection y double or reinforced insulation (protection class II)		Protection by extra low voltage (protection class III)		Safe galvanic isolation (protection class III)
	CE marking		Disposal, recycling		Disposal of waste electrical and electronic equipment		
	Warning level	Consequence	Probability	Symbol	Meaning		
	<b>DANGER</b>	Death, serious injury	imminent	●	Chronological guidelines		
	<b>WARNING</b>	Death, serious injury	possible	○	Lists		
	<b>CAUTION</b>	Minor injury	possible	☞	Refers to other facts, causes, or consequences		
	<b>NOTICE</b>	Property damage	possible				

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

# 1. Safety instructions

## 1.1 General safety instructions

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

## 1.2 General behaviour when handling the product

- The product may be used only in awareness of the potential dangers, in proper technical condition, and according to the information in these instructions
- Familiarize yourself with the functions and operation of the product. The specified assembly and operating steps and their sequences must be observed
- Any unclear points regarding proper condition or correct assembly/ operation must be clarified. Operation is prohibited until issues have been clarified
- Keep unauthorized persons away
- Wear personal protective equipment always
- Precautionary operational measures and instructions for the respective work must be observed
- Responsibilities for different activities must be clearly defined and observed. Uncertainty seriously endangers safety
- Safety-related protective and safety equipment must not be removed, modified or affected otherwise in its function and is to be checked at regular intervals for completeness and function
- If protective and safety equipment has to be dismantled, it must be reassembled immediately after finishing the work, and then checked for correct function
- Remedy occurring faults in the frame of responsibilities. Immediately inform your superior in the case of faults beyond your competence
- Never use parts of the product as standing or climbing aids

### 1.3 Intended use

Supply of lubricating oil within the specifications, technical data and limits for the provision of lubrication points and oiling of surfaces in the metal-cutting production as well as the forming and joining technology. Usage is allowed exclusively for professional users in the frame of commercial and economic activities.

### 1.4 Foreseeable misuse

Any usage differing from the one stated in these Instructions is strictly prohibited, particularly a usage:

- outside the indicated ambient temperature range
- outside the stated compressed air quality, the stated pressure range and the volume flow
- with non-specified means of operation
- without adequate pressure control valve
- in areas with aggressive or corrosive materials (e.g. high salt concentration)

- of plastic parts in areas with high ozone levels or in areas with harmful radiation (e.g. ionising radiation)
- to supply, transport, or store hazardous substances and mixtures in accordance with annex I part 2-5 of the CLP regulation (EG 1272/2008) or HCS 29 CFR 1910.1200 marked with GHS01-GHS06 and GHS08 hazard pictograms
- to feed, forward, or store gases, liquefied gases, dissolved gases, vapours, or fluids whose vapour pressure exceeds the normal atmospheric pressure of 1013 mbar by more than 0.5 bar at the maximum permissible operating temperature.
- in an explosion protection zone

### 1.5 Modifications of the product

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



### 1.6 Painting of plastic parts

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

### 1.7 Reference on Pressure Equipment Directive 2014/68/EU

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

### 1.8 Inspections prior to delivery

The following inspections were carried out prior to delivery:

- Safety and functional tests

### 1.9 Other applicable documents

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

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

Where appropriate:

- Project planning documents
- Additional information on special versions. You will find these in the special system documentation
- Documentation of other components

### 1.10 Markings on the product

None



Further to the findings of the workplace risk evaluation the operating company has to attach additional markings (e. g. warnings, signs giving orders, prohibition signs or labelling as specified by GHS), where appropriate.

### 1.11 Persons authorized to operate the pump

#### 1.11.1 Operator

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

#### 1.11.2 Specialist in mechanics

Person with appropriate professional education, knowledge and experience to detect and avoid the hazards that may arise during transport, installation, start-up, operation, maintenance, repair and disassembly.

#### 1.11.3 Specialist in electricians

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

### 1.12 Briefing of external technicians

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

#### 1.13 Provision of personal protective equipment

The operator must provide suitable personal protective equipment for the respective location of operation and the purpose of operation.

### 1.14 Operation

The following must be observed during commissioning and operation:

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

#### 1.15 Emergency stopping

In case of an emergency stop the pump station by:

- Interrupting the compressed air supply
- Where appropriate, using measures determined by the operator, such as actuating the emergency stop switch of the superior machine

### 1.16 Transport, installation, maintenance, malfunctions, repair, shutdown, disposal

- All relevant persons must be informed of the activity prior to starting any work. Observe the precautionary operational measures and work instructions
- Carry out transport using suitable transport and hoisting equipment on suitable ways only
- Maintenance and repair work can be subject to restrictions at low or high temperatures (e.g. changed flow properties of the lubricant). Therefore, where possible, try to carry out maintenance and repair work at room temperature.
- Prior to performing work, the product and the machine, into which the product will be integrated, must be depressurized and secured against unauthorized activation
- Ensure through suitable measures that movable or detached parts are immobilized during the work and that no limbs can be caught in between by inadvertent movements
- Assemble the product only outside of the operating range of moving parts, at an adequate distance from sources of heat or cold. Other units of the machine or vehicle must not be damaged or impaired in their function by the installation
- Dry or cover wet, slippery surfaces accordingly
- Cover hot or cold surfaces accordingly
- Work on electrical components must be carried out by electrical specialists only. Observe any waiting periods for discharging, if necessary
- Carry out works on electrical components only while the system is depressurized and use voltage isolated tools suitable for electrical works only
- Undertake drilling at non-critical, non-load bearing parts only. Use any available boreholes. Do not damage lines and cables when drilling.
- Observe possible abrasion points. Protect the parts accordingly

- All components used must be designed according to the maximum operating pressure and the maximum respectively minimum ambient temperature
- No parts of the centralized lubrication system may be subjected to torsion, shear, or bending
- Check all parts prior to their usage for contamination and clean, if necessary
- Lubricant lines should be primed with lubricant prior to installation. This makes the subsequent ventilation of the system easier
- Avoid mixing up or wrong assembly of dismantled parts. Mark these parts accordingly

### 1.17 Initial commissioning / daily start-up

Ensure that:

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

### 1.18 Cleaning

- Risk of fire and explosion when using inflammable cleaning agents Only use non-flammable cleaning agents suitable for the purpose
- Do not use aggressive cleaning agents
- Thoroughly remove residues of cleaning agents from the product
- Do not use steam jet and high pressure cleaners
- Mark damp areas accordingly

1.19 Residual risks

Residual risk	Possible in life cycle											Prevention/ remedy	
Personal injury/ material damage due to falling of raised parts	A	B	C					G	H	K			Keep unauthorized persons away. No people may remain under suspended loads. Lift parts with adequate lifting devices.
Personal injury/ material damage due to tilting or falling of the product because of non-observance of the stated tightening torques		B	C					G					Observe the specified tightening torques. Fix the product to components with adequate load-bearing capacities only. If no tightening torques are stated, apply tightening torques according to the screw size characteristics for 8.8 screws.
Personal injury/ damage to material due to spilled or leaked lubricant		B	C	D		F	G	H	K				Be careful when filling the reservoir and when connecting or disconnecting lubricant feed lines. Always use suitable hydraulic screw connections and lubrication lines for the stated pressures. Do not mount lubrication lines to moving parts or friction points. If this cannot be avoided, use spring coils respectively protective conduits.
<p>Life phases:                      A = transport, B = installation, C = initial start-up, D = operation, E = cleaning, F = maintenance, G = fault, repair, H = shutdown, K = Disposal</p>													

## 2. Lubricants

### 2.1 General information

Lubricants are used specifically for certain application purposes. In order to fulfil their tasks, lubricants must fulfil various requirements.

The most important requirements for lubricants are:

- Reduction of abrasion and wear
- Corrosion protection
- Noise minimisation
- protection against contamination or penetration of foreign objects
- Cooling (primarily with oils)
- longevity (physical/ chemical stability)
- economic and ecological aspects

### 2.2 Selection of lubricants

SKF considers lubricants to be an element of system design. A suitable lubricant is selected already when designing the machine and forms the basis for the planning of a centralized lubrication system.

The selection is made by the manufacturer or operator of the machine, preferably together with the lubricant supplier based on the requirement profile defined.

Should you have little or no experience with the selection of lubricants for centralized lubrication systems, please contact SKF.

If required we will be glad to support customers to select suitable components for feeding the selected lubricant and to plan and design their centralized lubrication system.

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

### 2.3 Material compatibility

Lubricants must generally be compatible with the following materials:

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

### 2.4 Temperature characteristics

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

### 2.5 Ageing of lubricants

After a prolonged downtime of the machine, the lubricant must be inspected prior to re-commissioning as to whether it is still suitable for use due to chemical or physical ageing. We recommend that you undertake this inspection already after a machine downtime of 1 week.

If doubts arise as to a further suitability of the lubricant, please replace it prior to re-commissioning and, if necessary, undertake initial lubrication by hand.

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

Please contact SKF if you have further questions regarding lubricants.

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



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



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



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



Due to the multitude of possible additives, individual lubricants, which according to the manufacturer's data sheets fulfil the necessary specification, may not, in fact, be suitable for use in centralized lubrication systems (e. g. incompatibility between synthetic lubricants and materials). In order to avoid this, always use lubricants tested by SKF.

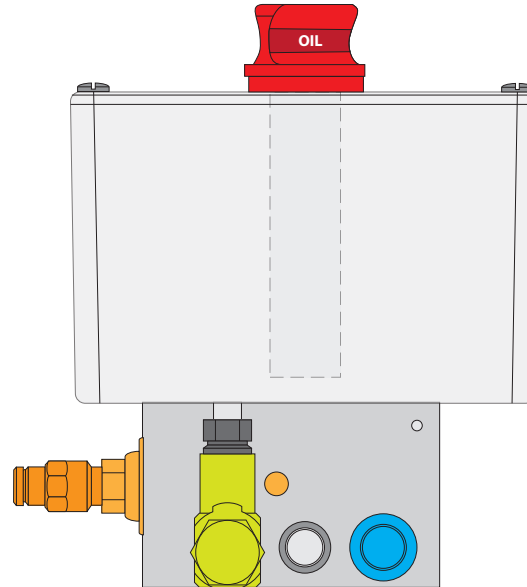
### 3. Overview, functional description

The injection oilers described in these instructions are pneumatic piston pumps that dispense lubricating oil in an unchangeable quantity.

Corresponding to the variant of the injection oiler, the lubricating oil is supplied either from the installed reservoir or from a lubricant feed line to be connected by the operator.

After each activation the injection oilers must be relieved from pressure to allow the piston to return into its initial position. The compressed air is controlled by a way valve to be provided by the operator.

Fig. 2 Overview, functional description - injection oiler





**Reservoir lid (9)**

Serves to fill the reservoir with suitable clean lubricant and as a protection against contamination of the lubricant.

**Strainer insert (10)**

The strainer insert (500 µm) prevents severely contaminated lubricating oil from being filled into the reservoir accidentally.

**Reservoir (8)**

The lubricant is stored in the reservoir.

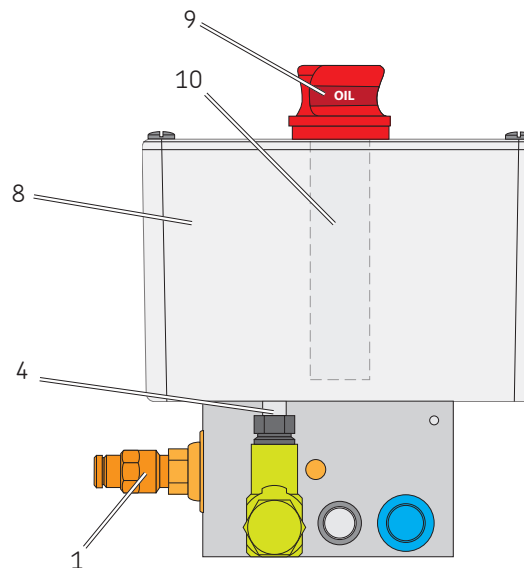
**Vent line (4)**

Vents the metering element during the filling procedure.

**Connection of the lubrication line (1)**

Serves to connect the lubrication line Connection is realized via a push-in type connector (Ø 4 x 0,85)

Fig. 3 Overview, functional description - injection oiler with reservoir



**Venting of the spring chamber (3)**

Serves to ventilate the spring chamber during a piston stroke.

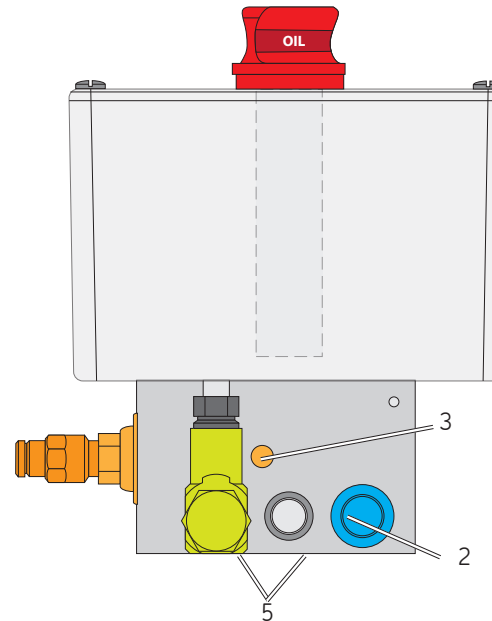
**Compressed air connection (2)**

Serves to connect the compressed air line.

**Fastening bores (5)**

The fastening bores on the bottom side (also see minimum installation dimensions) of the metering element serve to fasten the injection oiler to variants without mounting plate.

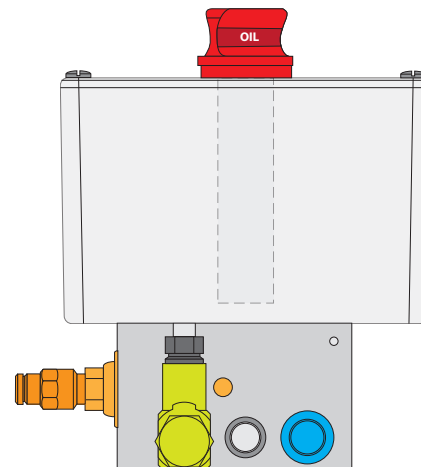
Fig. 4 Overview, functional description of injection oiler with reservoir



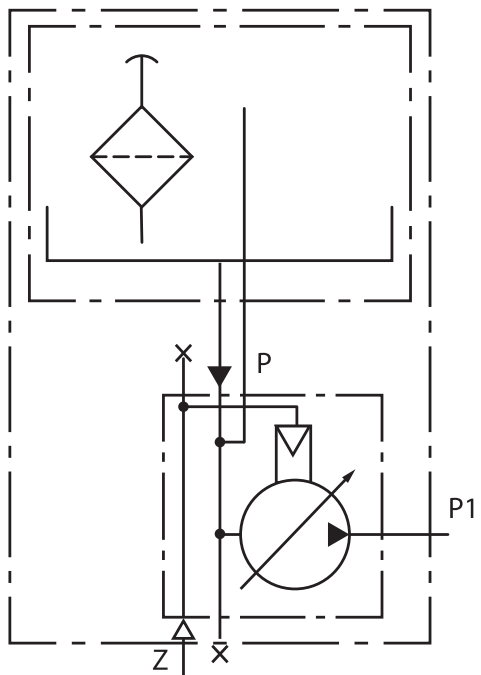
## 4. Technical data

### 4.1 General technical data

Ambient temperature	-20 °C to +80 °C
Operating viscosity	20 - 1100 mm <sup>2</sup> /s
Inlet air pressure	3 - 8 bar
Volumetric flow rate	max. 200 l per minute at 6 bar
Protection against too high pressures	Pressure control valve 10 bar
Compressed air quality according to ISO 8573	≤ Class 5
Air inlet	G1/8
sound pressure level	< 70 dB (A)
Output volume	3.0 mm <sup>3</sup> / stroke ± 20 %
Adjustable flow rate	NO
Number of outlets	1
Number of lubrication pulses	max. 120 per minute
Installation position	Reservoir on top, as illustrated
Nominal volume of reservoir	0.25 l
Empty weight	0.48 kg



## 4.2 Hydraulic connection diagram



## 5. Delivery, returns, and storage

### 5.1 Delivery

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

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

### 5.2 Returns

Clean all parts and pack them properly (i.e. following the regulations of the recipient country) before returning them.

Protect the product against mechanical influences such as impacts. There are no restrictions for land, sea or air transport.

Mark returns on the packaging as follows.



### 5.3 Storage

SKF products are subject to the following storage conditions:

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





Before application inspect the products with regard to possible damages occurred during their storage. This particularly applies for parts made out of plastic (embrittlement).

### 5.4 Storage temperature range

- corresponds to the admissible ambient temperature range

## 6. Installation

### 6.1 General information

 <b>CAUTION</b>
 <p><b>Risk of falling</b> Exercise care when dealing with lubricants. Bind and remove spilled or leaked lubricants immediately.</p>

Only qualified technical personnel may install the products described in these Instructions. During assembly pay attention to the following:

- Other units must not be damaged by the assembly
  - The product must not be installed within the range of moving parts
  - The product must be installed at an adequate distance from sources of heat and coldness
  - Adhere to safety distances and legal prescriptions on assembly and prevention of accidents
- Observe prescriptions in chapter Technical data regarding the installation position
  - The line towards the lubrication point should be as short as possible
  - The compressed air line may only be connected to the injection oiler via a maintenance unit.
  - The lubricant feed line should possibly be installed inclining in order to allow good venting

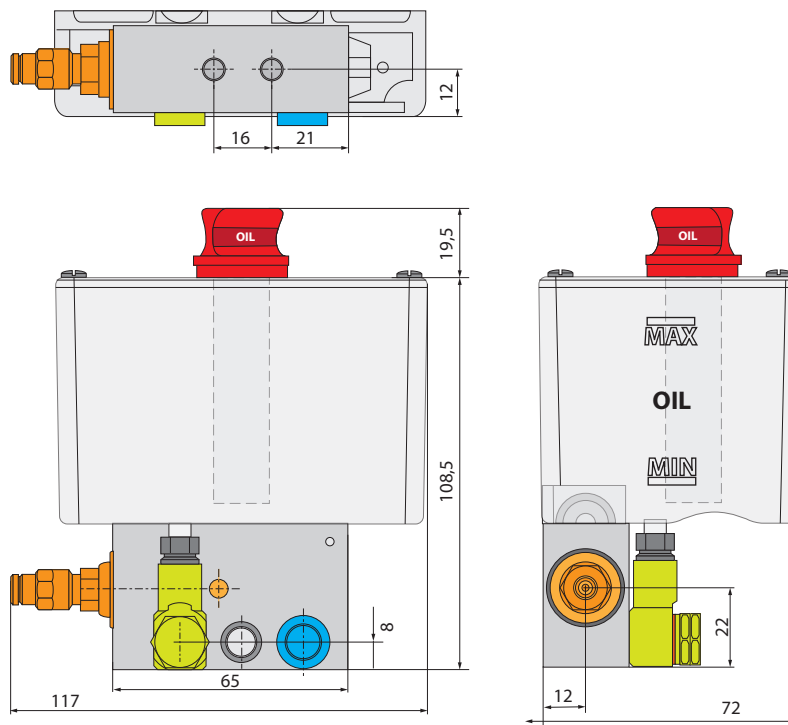
### 6.2 Place of installation

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

### 6.2.1 Minimum assembly dimensions

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

Fig. 5 Minimum assembly dimensions



### 6.2.2 Installation bores

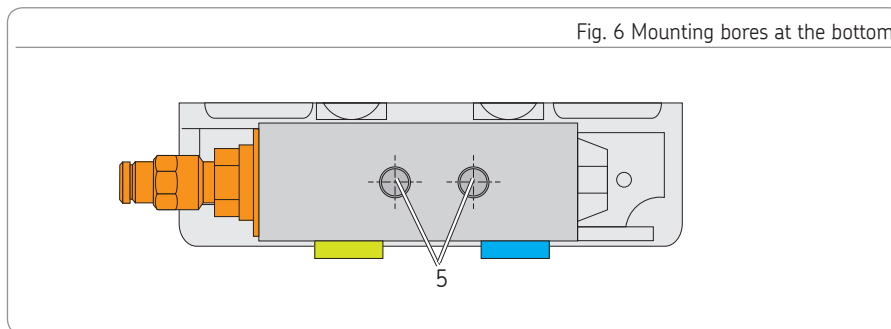
Fastening is done by means of:

2 x Screws M6 x 8 (8.8)

2 x Washer 6 at the two bores (5) on the bottom of the pump housing



The depth of the fastening bores is 8 mm. This should be taken into account when selecting the fastening screws.

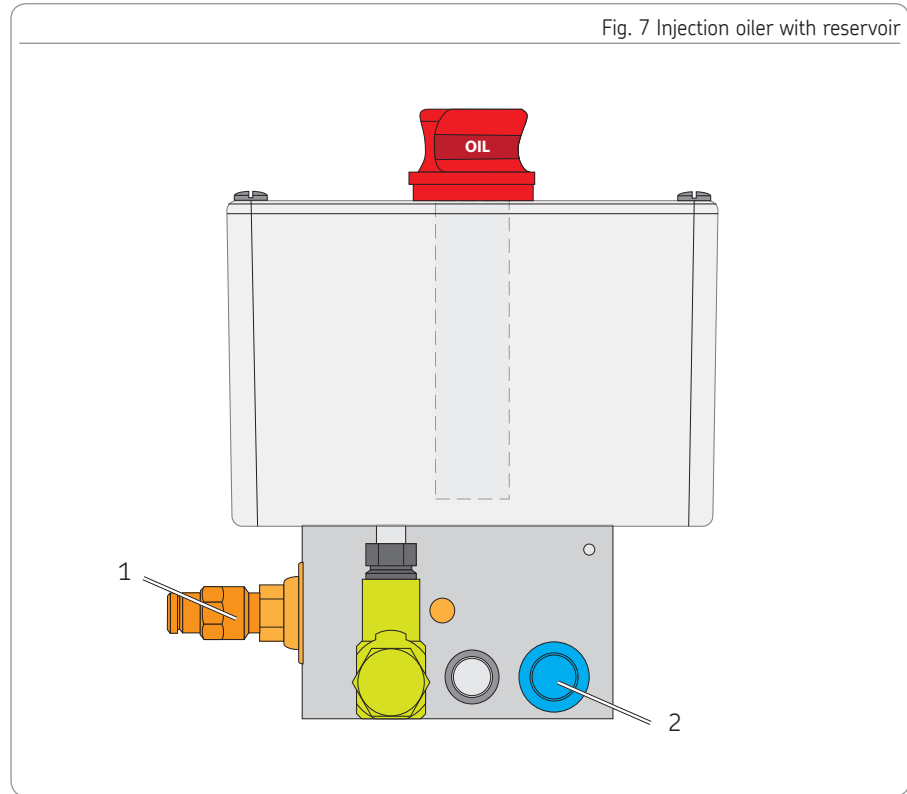




### 6.2.3 Injection oiler with reservoir

- Connect the compressed air line to the compressed air inlet (2)
- Connect the lubrication line. Connection of the lubrication line is realized via the push-in type connector (1) for tube 4 x 0.85

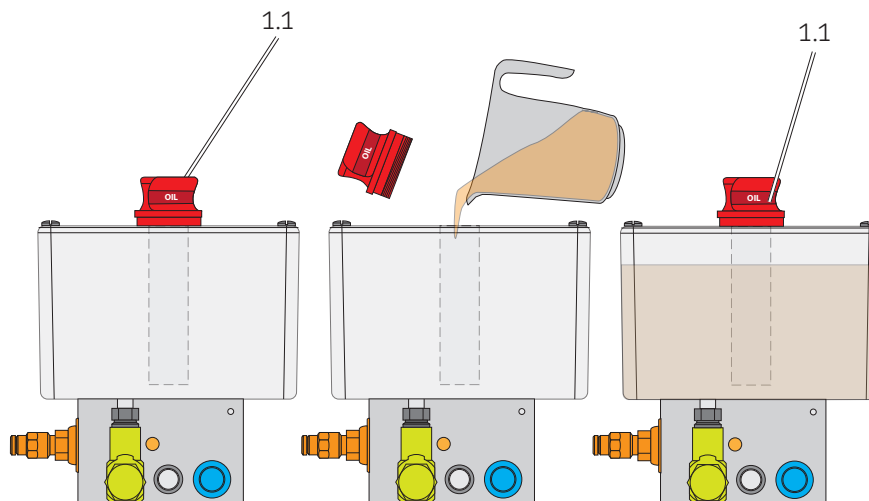
Fig. 7 Injection oiler with reservoir



### 6.3 Fill the reservoir

- Remove the reservoir lid (1.1) from the reservoir and put it in a clean place. The inside of the reservoir lid must not be contaminated. Remove possible contaminations
- Fill the reservoir from the top through the strainer insert up to the - MAX - marking. Make sure to fill in the lubricant without air inclusions, if possible
- Reinstall the reservoir lid (1.1)

Fig. 8 Fill the reservoir



## 7. Initial start-up

### Injection oiler with reservoir

Complete venting is a prerequisite for proper system operation. For initial commissioning, several lubrication pulses should be triggered by actuating the way valve to fill the lubrication line. Due to the low flow rate, it may take some time to fill a long supply line. Connect the filled supply line to the lubrication point.

In order to warrant safety and function, a person assigned by the operator must carry out the following inspections. Immediately eliminate detected deficiencies. Deficiencies may be remedied by an authorized and qualified specialist only.

Fig. 9 Start-up check list

7.1 Inspections prior to initial start-up	YES	NO
Pneumatic connections carried out correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Air pressure, volume flow and purity correspond to the technical data	<input type="checkbox"/>	<input type="checkbox"/>
System protected with adequate pressure control valve	<input type="checkbox"/>	<input type="checkbox"/>
Mechanical connection carried out correctly	<input type="checkbox"/>	<input type="checkbox"/>
All additional components, e.g. lubrication lines, are correctly installed	<input type="checkbox"/>	<input type="checkbox"/>
No visible damage, contamination and corrosion	<input type="checkbox"/>	<input type="checkbox"/>
Possibly dismantled protective and monitoring devices of the superior machine have been reassembled and checked for correct function	<input type="checkbox"/>	<input type="checkbox"/>
7.2 Inspections during initial start-up		
No unwanted escape of lubricant (leakages) from connections	<input type="checkbox"/>	<input type="checkbox"/>

## 8. Operation

SKF products operate automatically to the greatest possible extent.

Basically, activities during standard operation are limited to the control of the filling level and the timely refilling of lubricant.

## 9. Cleaning



### WARNING



Personal injury due to falling, pressure injection and contact with cleaning agents



Performance of cleaning, required personal protective equipment, cleaning agents and devices following the valid operational regulations of the operator.



### 9.1 Cleaning agents

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



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

### 9.2 Exterior cleaning

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



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

### 9.3 Interior cleaning

Normally, interior cleaning is not required. Should incorrect or contaminated lubricant have been filled, inside cleaning of the product will be required.

## 10. Maintenance

Regular and appropriate maintenance is a prerequisite to detect and clear faults in time. The specific time lines have to be determined, verified at regular intervals and adapted, if necessary, by the operator based on the operating conditions. If needed, copy the table for regular maintenance activities.



	<b>WARNING</b>
	<p><b>Personal injury</b> Before carrying out any work, the system must be depressurized and secured against being switched on again.</p>

Fig. 10 Maintenance check list







Activity to be done	YES	NO
Pneumatic connections carried out correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Check the injection oiler, all lines and fittings for damage and leakage.	<input type="checkbox"/>	<input type="checkbox"/>
Filling level control for injection oilers with reservoir	<input type="checkbox"/>	<input type="checkbox"/>
Check the air pressure, volume flow rate and purity of the compressed air	<input type="checkbox"/>	<input type="checkbox"/>
Product protected with adequate pressure control valve	<input type="checkbox"/>	<input type="checkbox"/>
Check the function of the pressure control valve and, if necessary, the check valve	<input type="checkbox"/>	<input type="checkbox"/>

## 11. Troubleshooting

Fig. 11 Fault table 1

Fault	Possible cause	Remedy
Injection oiler does not supply, nor built up pressure	Reservoir empty (if any)	Refill suitable lubricant only.
	No lubricant in the lubricant feed line or in the supply system (for injection oilers without reservoir)	Check the lubricant feed line / supply system
	Air pockets in the lubricant feed line	Vent the lubricant feed line. Determine cause and eliminate it.
	No compressed air supply / air pressure too low	Check the pressure supply
	Missing pressure relief of the compressed air line	Check the way valve
	Contaminated or defective outlet valve	Replace sealing washer
	Incorrect lubricant filled in	Replace lubricant / fill in fresh lubricant
	Actuator of the injection oiler defective	Replace / exchange injection oiler
Injection oiler does not supply and actuator is oily	Seal of the supply piston is defective	Replace the injection oiler
Lubricant permanently leaks from the outlet towards the lubrication point.	Contaminated or defective check valve	Clean or replace check valve

## 12. Repairs

 <b>WARNING</b>	
	<b>Risk of injury</b> Before carrying out any repair work, take at least the following safety measures:
	<ul style="list-style-type: none"><li>○ Keep unauthorized persons away</li></ul>
	<ul style="list-style-type: none"><li>○ Mark and secure work area</li></ul>
	<ul style="list-style-type: none"><li>○ De-pressurize the product</li></ul>
	<ul style="list-style-type: none"><li>○ If necessary, disconnect neighbouring live parts and protect or cover them against being switched on again</li></ul>



## 13. Shutdown and disposal

### 13.1 Temporary shutdown

Temporarily shut the system down by:

- Switching off the superior machine
- Interrupting the compressed air supply

### 13.2 Final shutdown and disassembly

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

### 13.3 Disposal

#### Countries within the European Union

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



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

#### Plastic or metal parts

can be disposed of with the commercial waste.

#### Countries outside the European Union

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

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