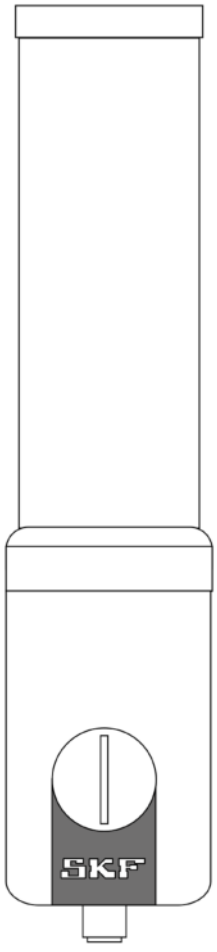
Lubricator TLMR 101/201



Created on:	25.06.2025
Document no.:	951-181-001-EN
Version:	08

Read these instructions before installation or start-up of the product and keep them readily available for later consultation!

Original EC Declaration of Conformity in accordance with Directive 2006/42/EC, Appendix II Part 1 A

The manufacturer hereby declares under its sole responsibility conformity of the machinery with the essential health and safety requirements of the Machinery Directive 2006/42/EC at the time of placing on the market. The technical documentation described in Annex VII, Part A has been compiled. We undertake to transmit the technical documentation in electronic form in response to a reasoned request by the national authorities. The authorized representative for the compilation of the technical documentation is the manufacturer.

Designation: Electrically operated lubricator for supplying lubricants from specialized SLF cartridges in interval operation
Type / item number: TLMR 101 / TLMR 201

Furthermore, the following directives and standards were applied in the respective applicable areas:
2006/42/EC: Machinery Directive
2014/30/EU: Electromagnetic Compatibility
2011/65/EU: RoHS II
EN ISO 12100:2010 EN 809:1998+A1:2009+AC:2010 EN 61000-6-4:2007+A1:2011 EN 61000-6-2:2005+AC:2005
EN IEC 63000:2018

Walldorf, 20.10.2025
Wilhelm Burger 2025.10.20
Head of Lubrication Sales & Operations, EMEA

Martin Zverina
Factory Manager Chodov

Manufacturer: SKF Lubrication Systems Germany GmbH, Heinrich-Hertz-Str. 2-8, 69190 Walldorf, Germany

Original UK Declaration of Conformity pursuant to the Supply of Machinery (Safety) Regulations 2008 No. 1597, Annex II, section 1 A

The manufacturer hereby declares under its sole responsibility conformity of the machinery with the essential health and safety requirements of the *Supply of Machinery (Safety) Regulations 2008 No. 1597* at the time of placing on the market. The technical documentation described in Annex VII, Part A has been compiled. We undertake to transmit the technical documentation in electronic form in response to a reasoned request by the national authorities. The authorized representative for the compilation of the technical documentation is SKF (U.K.) Limited, 2 Canada Close, Banbury, Oxfordshire, OX16 2RT, GBR.

Designation: Electrically operated lubricator for supplying lubricants from specialized SLF cartridges in interval operation
Type / item number: TLMR 101 / TLMR 201

Furthermore, the following regulations and standards were applied in the respective applicable areas:
Supply of Machinery (Safety) Regulations 2008 No. 1597

- Electromagnetic Compatibility Ordinance 2016 No. 1091
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 No. 3032

EN ISO 12100:2010 EN 809:1998+A1:2009+AC:2010 EN 61000-6-4:2007+A1:2011 EN 61000-6-2:2005+AC:2005
EN IEC 63000:2018

Walldorf, 20.10.2025
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Manufacturer: SKF Lubrication Systems Germany GmbH, Heinrich-Hertz-Str. 2-8, 69190 Walldorf, Germany

Masthead

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Authorized local distributors
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2 Canada Close, Banbury, Oxfordshire,
OX16 2RT, GBR.

- North America -
SKF Lubrication Business Unit
Lincoln Industrial
5148 North Hanley Road, St. Louis,
MO. 63134 USA

- South America -
SKF Argentina Pte. Roca 4145,
CP 2001 Rosario, Santa Fe

Warranty
The instructions contain no statements regarding the warranty or liability for defects. That information can be found in our General Terms of Payment and Delivery.

Training
We conduct detailed training in order to enable maximum safety and efficiency. We recommend taking advantage of this training. For further information, contact your authorized SKF dealer or the manufacturer.

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Safety alerts, visual presentation, and layout

While reading these instructions, you will encounter various symbols, illustrations, and text layouts intended to help you navigate and understand the instructions. Their meaning is explained below.

Safety alerts:
Activities that present specific hazards (to life and limb or possible damage to property) are indicated by safety alerts. Always be sure to follow the instructions given in the safety alerts.

⚠ DANGER
These safety alerts indicate an imminent danger. Ignoring them will result in death or serious injury

⚠ WARNING
These safety alerts indicate potentially imminent danger. Ignoring them could result in death or serious injury

⚠ CAUTION
These safety alerts indicate potentially imminent danger. Ignoring them could result in minor injury

NOTICE
These safety alerts indicate a potentially harmful situation. Ignoring them could result in damage to property or malfunctions

Illustrations:
The illustrations used depict a specific product. For other products, they may have the function of a diagram only. This does not alter the basic workings and operation of the product.

Text layout:
- **First-order bulleted lists:** Items on a bulleted list start with a solid black dot and an indent.
  - **Second-order bulleted lists:** If there is a further listing of subitems, the second-order bulleted list is used.

1 **Legend:** A legend explains the numbered contents of an illustration, presented as a numbered list. Items in a legend start with a number (with no dot) and an indent.
  - **Second-order legend:** In some cases, the numbered contents of an image represent more than just one object. A second-order legend is then used.

1. **Instruction steps:** These indicate a chronological sequence of instruction steps. The numbers of the steps are in bold and are followed by a period. If a new activity follows, the numbering starts again at "**1.**"
  - **Second-order instruction steps:** In some cases, it is necessary to divide up a step into a few substeps. A sequence of second-order instruction steps is then used.

1. Safety instructions

1.1 General safety instructions

- Putting the products into operation or operating them without having read the instructions is prohibited. The operator must ensure that the instructions are read and understood by all persons tasked with working on the product or who supervise or instruct such persons. Retain the instructions for further use.
- The product may only be used in awareness of the potential dangers, in proper technical condition, and according to the information in this manual.
- Any faults that could affect safety must be remedied according to responsibility. The supervisor must be notified immediately in case of malfunctions outside one's individual scope of responsibility.
- Unauthorized modifications and changes can have an unpredictable effect on safety and operation. Unauthorized modifications and changes are therefore prohibited. Only original SKF spare parts and SKF accessories may be used.
- Any unclear points regarding proper condition or correct assembly/operation must be clarified. Operation is prohibited until issues have been clarified.
- The components used must be suitable for the intended use and the applicable operating conditions, e.g. max. operating pressure and ambient temperature range, and must not be subjected to torsion, shear, or bending.

1.2 General electrical safety instructions

- Electrical devices must be kept in proper condition. This must be ensured by periodic inspections in accordance with the relevant applicable standards and technical rules. The type, frequency, and scope of the inspections must be determined in accordance with the risk assessment to be carried out by the operator. Work on electrical components may be performed only by qualified electricians. Connect the electrical power only in accordance with the valid terminal diagram and in observance of the relevant regulations and the local electrical supply conditions.
- Work on electrical components may be performed only in a voltage-free state and using tools suitable for electrical work. Do not touch cables or electrical components with wet or moist hands.
- Fuses must not be bridged. Always replace defective fuses with fuses of the same type.
- Ensure proper connection of the protective conductor for products with protection class I. Observe the specified enclosure rating.
- The operator must implement appropriate measures to protect vulnerable electrical devices from the effects of lightning during use. The electrical device is not furnished with a grounding system for the dissipation of the respective electric charge and does not have the voltage strength necessary to withstand the effects of lightning.

1.3 General behaviour when handling the product

- Familiarize yourself with the functions and operation of the product. The specified assembly and operating steps and their sequences must be observed.
- Keep unauthorized persons away.
- Wear personal protective equipment always.
- Precautionary operational measures and instructions for the respective work must be observed.
- In addition to these Instructions, general statutory regulations for accident prevention and environmental protection must be observed.
- Precautionary operational measures and instructions for the respective work must be 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 centralized lubrication system or of the machine as standing or climbing aids.

1.4 Intended use

Supply of lubricants.
Use is only permitted within the scope of commercial or economic activity by professional users, in compliance with the specifications, technical data, and limits specified in this manual.

1.5 Persons authorized to use the product

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.

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

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.

1.6 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 consumables
- Use in continuous operation
- With refilled lubricant cartridges
- With batteries other than those supplied by the manufacturer
- Use in areas with aggressive, corrosive substances (e.g., high ozone loads)
- Use in areas with damaging radiation (e.g., ionizing radiation)
- Use to supply, forward, or store hazardous substances and mixtures as defined in Annex I Part 2-5 of the CLP Regulation (EC 1272/2008) that are marked with hazard pictograms GHS01-GHS06 and GHS08
- Use to supply, forward, or 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

1.7 Referenced documents

In addition to this manual, the following documents must be observed by the respective target group:
- Company instructions and approval rules

If applicable:
- Safety data sheet of the lubricant used
- Project planning documents
- Supplementary information regarding special designs of the pump. This you will find in the special system documentation.
- Instructions for other components for setting up the centralized lubrication system.

1.8 Prohibition of certain activities

- Alterations to the control circuit board beyond the adjustment of lubrication times and pause times

1.9 Painting plastic components and seals

The painting of any plastic components and seals of the products described is prohibited. Completely mask or remove plastic components before painting the main machine.

1.10 Safety markings on the product

No safety markings on the product

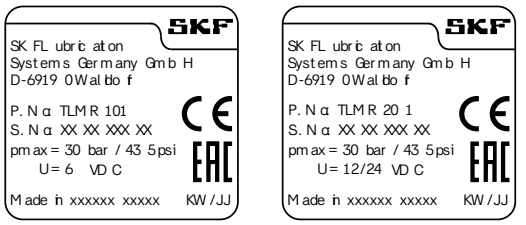
NOTE

In accordance with the results of the workstation risk assessment, additional labels (e.g., warnings, safety signs, prohibition signs, or labels in accordance with CLP/GHS) are to be attached by the operator if necessary.

1.11 Note on the type plate

The type plate provides important data such as the type designation, order number, and sometimes regulatory characteristics. To avoid loss of this data in case the type plate becomes illegible, it should be entered in the manual.

Fig. 1



Type plate for TLMR 101 / TLMR 201

P.No.: _____
Series: _____
pmax: 30 bar / 435 psi

1.12 Notes on CE marking

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

- 2006/42/EG Machinery Directive
- 2014/30/EC Electromagnetic Compatibility
- 2011/65/EU Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS II)

1.13 Note on Low Voltage Directive

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

1.14 Note on Pressure Equipment Directive

Due to its performance characteristics, the product does not reach the limit values defined in Article 4, Paragraph 1, Subparagraph (a) (ii) and is excluded from the scope of Pressure Equipment Directive 2014/68/EU in accordance with Article 1, Paragraph 2 Subparagraph (f).

1.15 Note on UKCA marking

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

1.16 Note on EAC marking

The EAC conformity marking confirms the product's conformity with the applicable legal provisions of the Eurasian customs union.

1.17 Note on China RoHS mark

The China RoHS mark confirms that there is no danger to persons or the environment from the regulated substances contained within for the intended period of use (year number shown in the circle).

1.18 Emergency shutdown

This is done by a course of action to be defined by the operator.

1.19 Instructions for handling lithium-ion batteries

⚠ WARNING

Improper handling of batteries
Electrolyte leakage



Do not charge or short-circuit batteries, or heat them to more than 85°C, or allow them to come in contact with water. Do not drop, puncture, or deform batteries.
Electrolyte can leak out if the batteries are damaged. Observe the safety data sheet from the battery manufacturer

The conditions listed below must be complied with when storing and handling lithium-ion batteries.

- Store in the original packaging if possible
- Protect the battery poles from short circuits.
- Store different types of batteries separately.

1.20 Assembly, maintenance, fault, repair

Prior to the start of this work, all relevant persons must be notified of it. At a minimum, the following safety measures must be taken before any work is done:

- Unauthorized persons must be kept away
- Mark and secure the work area
- Cover adjacent live parts
- Dry any wet, slippery surfaces or cover them appropriately
- Cover hot or cold surfaces appropriately

Where applicable:

- Depressurize
- Isolate, lock and tag out
- Check to ensure live voltage is no longer present
- Ground and short-circuit

The product should be protected as much as possible from humidity, dust, and vibration, and should be installed so that it is easily accessible. Ensure an adequate distance from sources of heat or cold. Any visual monitoring devices present, such as pressure gauges, min./max. markings, or oil level gauges must be clearly visible. Observe the mounting position requirements.

Drill required holes only on non-critical, non-load-bearing parts of the operator's infrastructure. Use existing holes where possible. Avoid chafe points. Immobilize any moving or detached parts during the work. Adhere to the specified torques.

If guards or safety devices need to be removed, they must be reinstalled immediately following conclusion of work and then checked for proper function.

Check new parts for compliance with the intended use before using them.

Avoid mixing up or incorrectly assembling disassembled parts. Label parts. Clean any dirty parts.

1.21 First start-up, daily start-up

Ensure that:

- All safety devices are fully present and functional
- All connections are properly connected
- All parts are correctly installed
- All warning labels on the product are fully present, visible, and undamaged
- Illegible or missing warning labels are immediately replaced

1.22 Residual risks

Table 1

Residual risks

Residual risk	Possible in lifecycle	Avoidance / 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. Mount the product only on components with a sufficient load-carrying capacity. If no torques are specified, use those specified for the screw size for screws of strength class 8.8.
Personal injury / property damage caused by electric shock resulting from power lead damage	B C D E F G H	Inspect power leads for damage prior to initial use and then at regular intervals. Do not install cables on moving parts or chafe points. If this cannot be avoided, use anti-kink coils and/or conduits.
Personal injury, property damage due to spilled, leaked lubricant	B C D F G H K	Be careful when filling the reservoir and then connecting or disconnecting the lubricant lines. Use only hydraulic screw unions and lubrication lines suitable for the specified pressure. Do not mount lubrication lines on moving parts or chafe points. If this cannot be avoided, use anti-kink coils and/or conduits.

Lifecycle phases: 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 selected specifically for the respective application. The selection is made by the manufacturer or operator of the machine, preferably together with the lubricant supplier. Should you have little or no experience with the selection of lubricants for lubrication systems, please contact us. We will be pleased to support you in the selection of suitable lubricants and components for the construction of a lubrication system optimized for the respective application. Please observe the following points when selecting/using lubricants. You will avoid possible downtimes and damages to your machine or the lubrication system.

2.2 Material compatibility

Lubricants must generally be compatible with the following materials:

- Plastics: ABS, CR, FPM, NBR, NR, PA, PET, PMMA, POM, PP, PS, PTFE, PU, PUR

Metal steel, grey iron, brass, copper, aluminium

2.3 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 not be exceeded in case of low temperatures nor fall below specification in case of high temperatures. Specified viscosity, see chapter Technical data.

2.4 Ageing of lubricants

Depending on the experience with the lubricant used, it should be checked at regular intervals to be determined by the operator whether the lubricant needs to be replaced due to ageing processes (bleeding). If there is any doubt as to the further suitability of the lubricant, it must be replaced before recommissioning. If you have no experience with the lubricant used, we recommend testing after only one week.

2.5 Avoidance of malfunctions and hazards

To avoid malfunctions or hazards, please observe the following:

- When handling lubricants, observe the relevant safety data sheets (SDS) and hazard designations on the packaging, if any.
- Due to the large number of additives, individual lubricants which meet the requirements for pumpability specified in the instructions may not be suitable for use in centralized lubrication systems.
- Always use SKF lubrication greases, if possible. These are optimally suited for use in lubrication systems.
- Do not mix lubricants. This may have unforeseeable effects on the characteristics and on the usability of the lubricant.
- The ignition temperature of the lubricant must lie at least 50 K over the maximum surface temperature of the components.

2.6 Lubricants for the food and beverage industry

When using for the first time with lubricants for the food and beverage industry (Hx), the lubricant filled at the factory must always be removed. To do so, put the TLMR in the bleed position and run at least 22 delivery cycles.

3. Overview, functional description

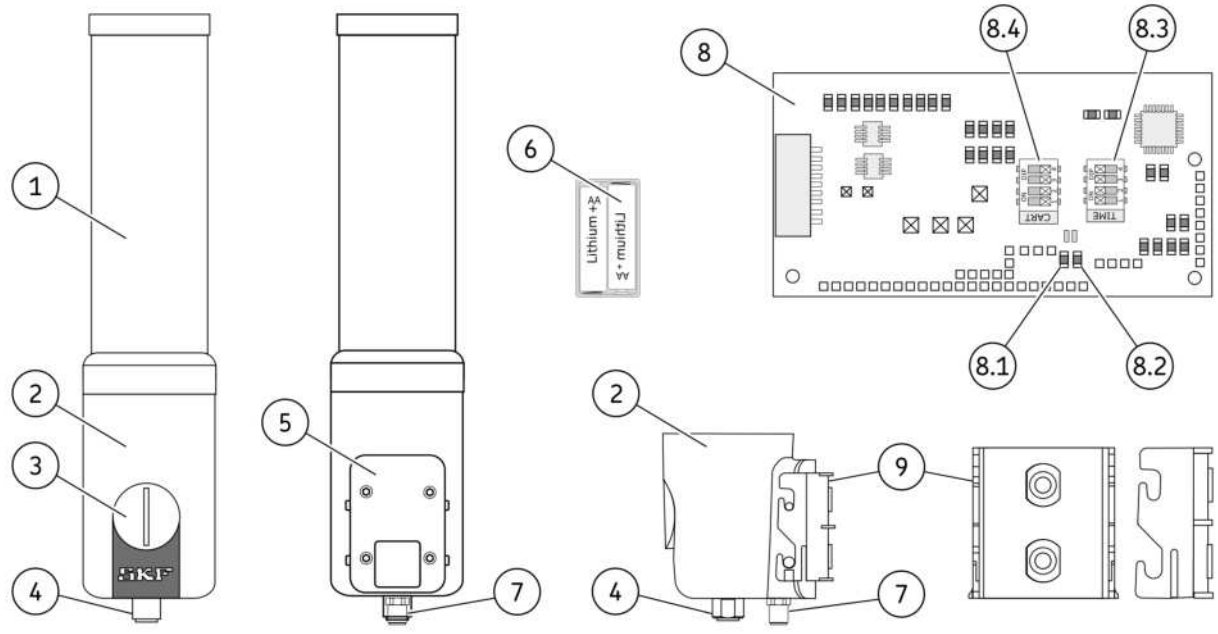
The TLMR is a compact, powerful, electric lubricator that supplies lubricant from specialized non-refillable SKF cartridges, in interval operation. The delivery piston of the drive unit carries out a delivery cycle (a complete upward and downward movement) at regular intervals.

The lubricator comes in both a 12/24 VDC version (TLMR 201), and a battery-powered version (TLMR 101) which is independent of the power grid. In areas where low temperatures are predominant, we recommend using the 12/24 VDC version.

The amount of lubricant needed at the lubrication point can be easily adjusted according to the applicable requirements by selecting the cartridge size and by adjusting the dispensing time (the consumption time of the cartridge).

The dispensing time can be set to between 1 and 24 months.

Fig. 2



Overview, functional description

Legend to Figure 2

1 Cartridge
120 ml and 380 ml cartridges are available with various different lubrication greases.
2 Drive unit, complete
3 Bayonet closure for the access to the DIP switches (8.3 / 8.4) on the control circuit board (8).
4 Lubricant outlet
5 Battery compartment (TLMR 101 only)
6 Battery holder (TLMR 101 only)
The battery holder (6) is in the battery compartment (5) under the cover and must be loaded with 4 batteries.
7 Connection socket for M12 connectors (TLMR 201 only)
8 Control circuit board
With green LED (8.1) and red LED (8.2) to indicate operational and fault states, and the two DIP switch blocks TIME (8.3) and CART (8.4). The control circuit board is in the drive unit (2) and can be accessed by removing the bayonet closure (3).
9 Bracket
The bracket is bolted to the machine/vehicle. The drive unit (2) clicks into the bracket.

4. Technical data

4.1 Mechanical system

Table 2

Mechanical system

Designation	Value
Operating temperature range	-25 °C to +70 °C
Lubricants	Lubrication grease NLGI 000 up to and including NLGI 3
Operating pressure	Max. 30 bar
Mounting position	Discretionary [1)]
Protection class	IP 6K9K
Lubricant outlet	G1/4
Delivery rate per cycle	Approx. 0.12 ml
Total delivery capacity	≥ 12 cartridges (380 ml each)
Weight of the drive unit	Approx. 0.8 kg

[1)] Rotary installation is also possible, as in wind turbines for example. Maximum speed and maximum distance to the rotational axis can be specified on request.

4.2 Electrical system

Table 3

Electrical system

Designation	Value	
Input/motor	TLMR 101	TLMR 201
Supply voltage	4x 1.5 V (AA)*	12/24 V DC
Max. current consumption	380 mA	< 1 A
SELV safety class		

* Suitable batteries are supplied with every cartridge. The batteries must be changed every time the cartridge is changed. Then a reset must be carried out.

4.3 Delivery rates

Table 4

Delivery rates

Dispensing time	120 ml cartridge		380 ml cartridge	
1 month	4.00	ml/d	N/A	ml/d
2 months	2.00	ml/d	6.30	ml/d
3 months	1.30	ml/d	4.20	ml/d
6 months	0.60	ml/d	2.10	ml/d
9 months	0.40	ml/d	1.40	ml/d
12 months	0.30	ml/d	1.00	ml/d
18 months	0.20	ml/d	0.70	ml/d
24 months	0.15	ml/d	0.50	ml/d

4.4 Factory settings

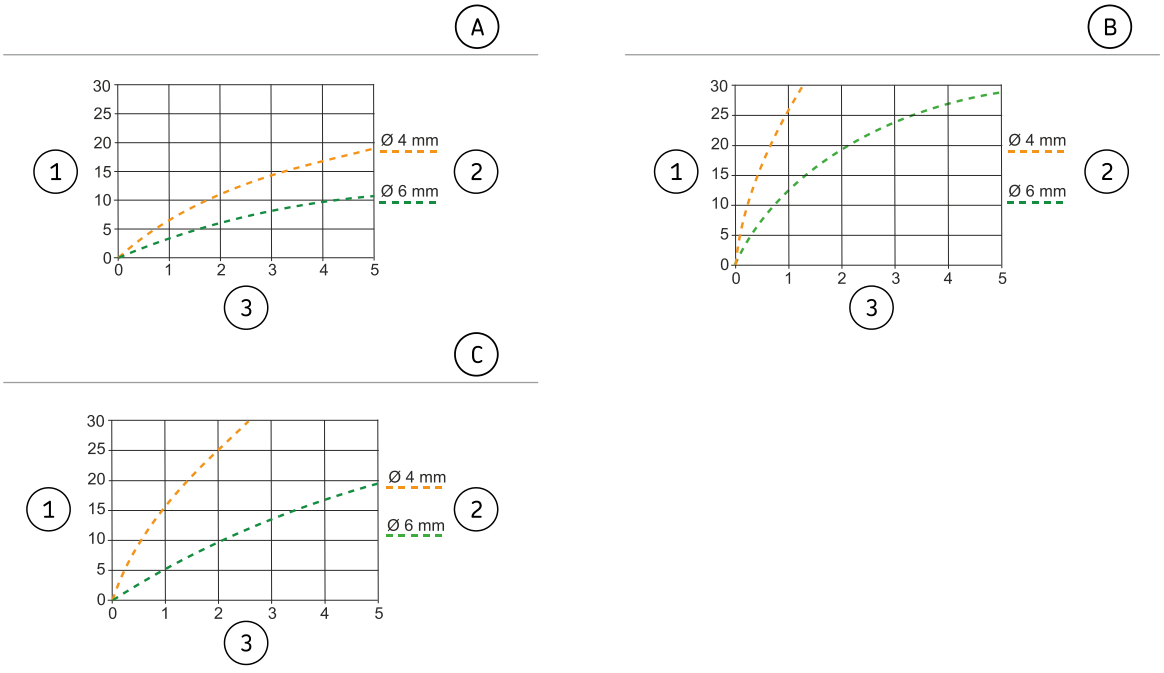
Table 5

Factory settings

TLMR	With 120 ml cartridge	Without cartridge
Dispensing time	3 months	6 months
Cartridge size	120 ml	380 ml
Reset	OFF	OFF
Activated	OFF	OFF

4.5 Delivery pressure as a function of the line length, the line diameter, and the temperature

Fig. 3



Delivery pressure as a function of line length, line diameter, and temperature

Legend to Figure 3

A Pressure chart + 20 °C
B Pressure chart - 10 °C
C Pressure chart ± 0 °C

1 Pressure in bar at the lubricant outlet
2 Nominal diameter of the lubrication line
3 Length of the lubrication line in meters

NOTE

The pressure values given in the charts are mean values from measurements with SKF lubrication greases of NLGI Grade 2. These values should be viewed as approximate values. Besides the relationship shown between temperature/line length/nominal diameter and the resulting pressure, it is possible at low temperatures that the delivery rate could be reduced due to deterioration of the suction characteristics of the lubricant. This should be borne in mind when designing the system. The maximum TLMR delivery pressure of 30 bar must not be exceeded.

5. Delivery, returns, storage

5.1 Delivery

After receipt of the shipment, 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.

5.2 Return shipment

Before return shipment, all contaminated parts must be cleaned. If this is not possible or practical, e.g. if it would impede fault detection in the case of complaints, the medium used must always be specified. In the case of products contaminated with hazardous substances as defined by GHS or CLP regulations, the safety data sheet (SDS) must be sent with the product and the packaging must be labelled in accordance with GHS/CLP. There are no restrictions for land, air, or sea transport. The choice of packaging should be based on the specific product and the stresses to be expected during transport (e.g., necessary anti-corrosion measures in the case of shipment by sea). In the case of wooden packaging, the applicable import regulations and the IPPC standards must be observed. Required certificates must be included in the shipping documents. The following information, as a minimum, must be marked on the packaging of return shipments.

Fig. 4



Marking 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 product packaging
- Protected from nearby sources of heat or cold
- In the case of large temperature fluctuations or high humidity, take appropriate measures (e.g., heating) to prevent the condensation of water
- Before usage, check products for damage that may have occurred during storage. This applies in particular to parts made of plastic (due to embrittlement).

5.4 Storage temperature range

For parts not filled with lubricant, the permitted storage temperature is the same as the permitted ambient temperature range (see “Technical data”).

5.4.1 Lithium batteries

Lithium batteries may only be shipped in undamaged condition. If lithium batteries are shipped separately, the contacts must be protected against short circuit (e.g. by masking). Lithium batteries must not move in the packaging. For air transport, the respective valid IATA regulations regarding packaging, labelling, quantity limits and declaration of the shipment must be observed.

5.5 Declaration of decontamination

If the product came in contact with harmful substances, make sure to thoroughly clean the product before returning it to us. Due to statutory provisions and for the safety of our employees and operation facilities we further need a fully completed and signed “Declaration of decontamination”.

6. Assembly

6.1 General

Only qualified technical personnel may install the products named in the instructions.

During installation, pay attention to the following:

- Other units must not be damaged by installation 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.
- Observe the IP protection class of the product.
- Maintain safety clearances and comply with statutory regulations for assembly and accident prevention.

6.2 Installation location

The product should, to the extent possible, be protected from humidity and vibration, and should be installed so that it is easily accessible. This simplifies further installation and maintenance work.

6.3 Operation with PLC control

For special applications, the TLMR can also be operated with an external control (PLC).

The following rules apply when operating the TLMR with a PLC control:

- The TLMR must be switched on at the “ON” DIP switch.
- The power supply is switched on and off by the PLC control.
- All the DIP switch settings can be used except for “Air bleed” and “RESET”.
- The TLMR can be switched on no more than 2x per minute.
- In normal operation, no more than 2 delivery cycles per hour may be activated by the PLC control.
- When bleeding, such as after changing a cartridge, a higher number of delivery cycles is possible (e.g., 10 delivery cycles).

6.4 Sequence to follow when installing and configuring the TLRM 101 and TLMR 201 at first start-up

NOTE

The following sequence for installation and configuration of the TLMR 101 and TLMR 201 is intended only as a simplified overview of the actions required. You still need to read and follow the detailed instructions for each step. You can find these detailed instructions in the specified sections of this instruction manual.

Table 6

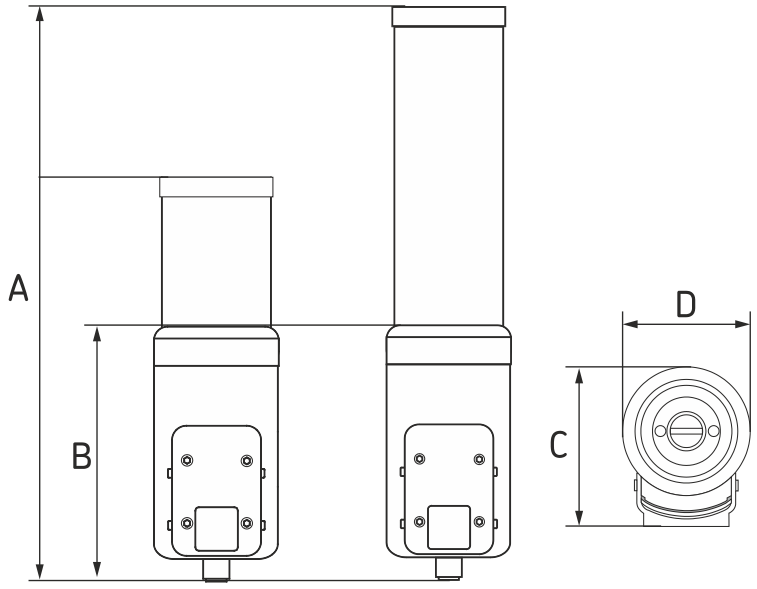
Sequence

Action	Section
1. Mount the bracket in a suitable location	6.4.2 Installing the TLMR bracket
2. TLMR 101: Insert the batteries into the battery compartment TLMR 201: Connect to the power source	6.4.3 Inserting/changing the TLMR 101 batteries 6.4.4 Connecting the power for the TLMR 201
3. Insert the TLMR into the bracket	6.4.5 Inserting the TLMR in its bracket
4. Install the cartridge	6.5 Cartridges
5. Connect the lubricant lines	6.6 Lubrication line connection
6. Remove the plug screw for circuit board access	6.6.1 Access to the control circuit board/DIP switches
7. Switch on the TLMR	6.7.1 Activating/deactivating the TLMR
8. Carry out a reset	6.7.2 Carrying out a reset
9. Set the cartridge size	6.7.3 Setting the cartridge size
10. Bleed the TLMR	6.7.4 Air bleed / function check
11. Adjust the dispensing time	6.7.5 Adjusting the dispensing time
12. Install the plug screw for circuit board access	6.6.1 Access to the control circuit board/DIP switches

6.4.1 Minimum mounting dimensions

In order to have sufficient space for maintenance work or for the attachment of additional components for the construction of a centralized lubrication system on the pump, a clearance of at least 100 mm should be provided for in every direction in addition to the specified dimensions (see also the following figure).

Fig. 5



Minimum mounting dimensions

Table 7

Cartridge size		
Dimension	120 ml	380 ml
A	300 mm	400 mm
B	172 mm	172 mm
C	110 mm	110 mm
D	90 mm	90 mm

6.4.2 Installing the TLMR bracket

NOTICE

Possible damage to the bracket

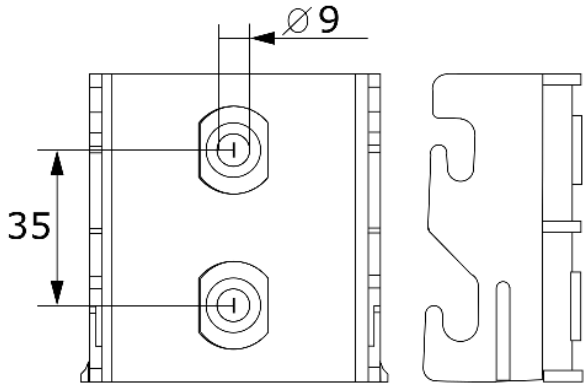
The bracket must be fully flat against the supporting surface in the area of the assembly holes. If not, the bracket would be warped and damaged.
Install the bracket only on a flat surface. If installing it on a hollow structural section, suitable shims must be used under the bracket.

See also Figure 6

Install the bracket using the stainless steel fastening hardware supplied together with the TLMR.
- 2 x countersunk head bolt M 6 x 20 EN ISO 10642
- 2 x washer EN ISO 7089 125 A6.4
- 2 x nut M 6 A2

- Drill the assembly holes according to the hole pattern and the conditions of the installation surface.
- Tightening torque = 4 Nm + 0.5 Nm

Fig. 6



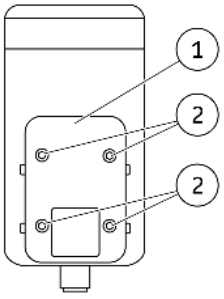
Installing the TLMR bracket

6.4.3 Inserting/changing the TLMR 101 batteries

NOTE
The screws (Fig. 7/2) of the battery compartment cover are installed with screw locking. Do not use excessive force or power tools to unscrew them.

1. Undo the screws (Fig. 7/2) of the battery compartment cover (Fig. 7/1) (hexagon socket screw key size 4).
2. Remove the battery holder (Fig. 8/1) and insert/change the batteries.
3. Re-insert the battery holder (Fig. 8/1). Make sure that the batteries and the battery holder are aligned correctly. Make sure that the wires are not pinched when installing.
4. Check the seal (Fig. 9/1) and replace it if damaged.
5. Put the battery compartment cover (Fig. 7/1) back in place. Tightening torque = 1.9 + 0.1 Nm
6. Collect used batteries separately in a sealable, airtight plastic bag and dispose of them in an environmentally friendly manner.

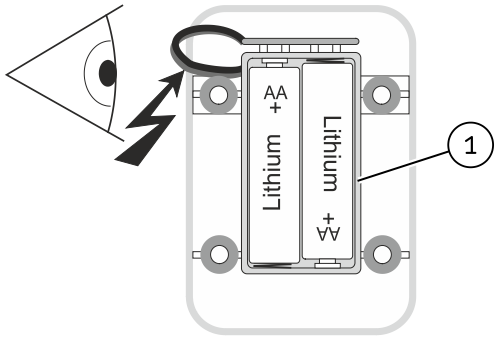
Fig. 7



Battery compartment cover

Legend to Figure 7
1 Battery compartment cover
2 Screws

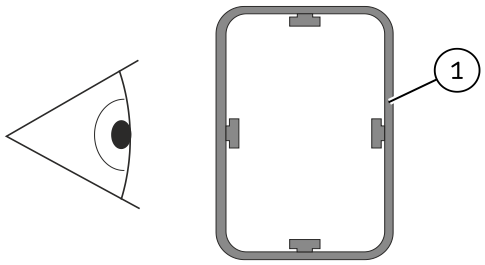
Fig. 8



Checking the wires

Legend to Figure 8
1 Battery holder

Fig. 9



Checking the seal

Legend to Figure 9
1 Seal

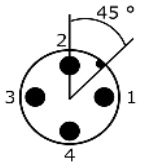
6.4.4 Connecting the power for the TLMR 201

NOTE
Connect the M12 connector in such a way that no mechanical forces are transferred to the product.

⚠ WARNING
Electric shock
Work on electrical components may be performed only by qualified electricians.
At a minimum, the following safety measures must be taken before any work on electrical components is done:
- Isolate, lock and tag out
- Check to ensure the absence of voltage
- Ground and short-circuit the product
- Cover any live parts in the surrounding area

1. Set the M12 connector on the respective socket and turn it to fasten it.
2. Connect the cable to a suitable local power source.

Fig. 10



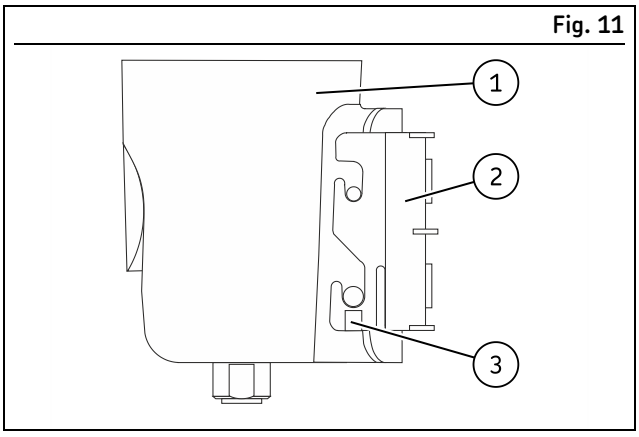
Pin assignment of M12 connector

Legend to Figure 10
Pin description:
1 = positive
3 = negative
The connector is A-coded

6.4.5 Inserting the TLMR in its bracket

Push the drive unit (Fig. 11/1) down into the bracket (Fig. 11/2) from above and press it down until it locks securely into place (it has a snap lock with catch).

Fig. 11



TLMR inserted in its bracket

Legend to Figure 11
1 Drive unit
2 Bracket
3 Tabs

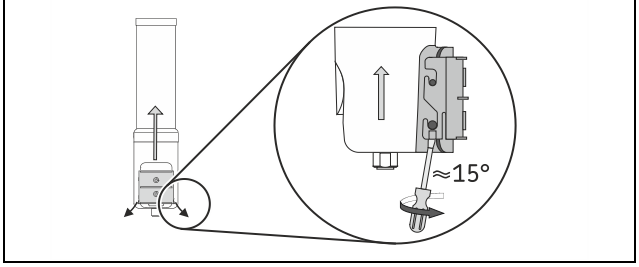
6.4.6 Removing the TLMR from its bracket

NOTICE

Do not bend the tabs too far apart
Possible damage to the bracket
Do not bend the tabs on the holder too far apart.
Observe the angle specified on the figure shown here.
In low temperatures, installation may be more difficult due to increased rigidity of the plastic.

1. Using a screwdriver, carefully bend the tabs (see section 6.4.5 Inserting the TLMR in its bracket, Fig. 1/3) of the holder (see section 6.4.5 Inserting the TLMR in its bracket, Fig. 1/2) outward.
2. Push the drive unit (see section 6.4.5 Inserting the TLMR in its bracket, Fig. 1/1) up and out of the holder.

Fig. 12



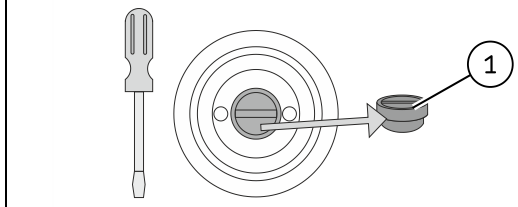
Removing the TLMR from its bracket

6.5 Cartridges

6.5.1 Installing a new cartridge

1. Remove the protective screw (Fig. 13/1) from the lubricator and store for later use.
2. Remove the cap screw (Fig. 14/2) on the cartridge.
3. Remove any contamination in the cartridge/grease inlet area on the drive unit (Fig. 15).
4. Manually screw the cartridge (Fig. 14/1) all the way into the TLMR.

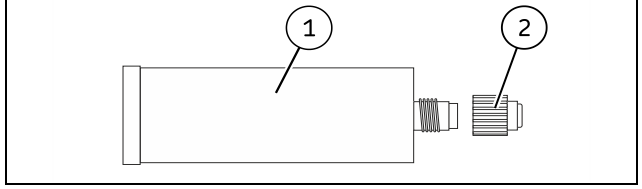
Fig. 13



Removing the protective screw

Legend to Figure 13
1 Protective screw

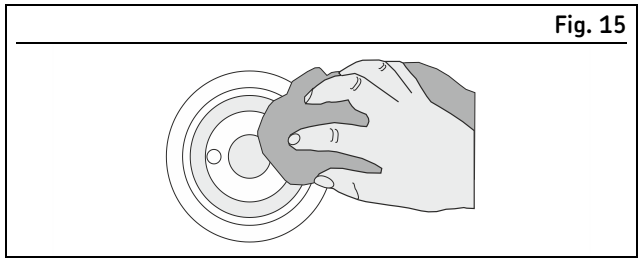
Fig. 14



Removing the cap screw

Legend to Figure 14
1 Cartridge
2 Cap screw

Fig. 15



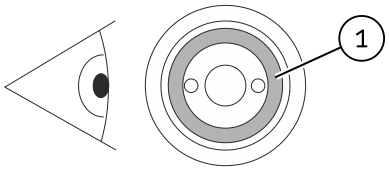
Removing contamination

6.5.2 Removing a used cartridge

1. Unscrew the used cartridge (see section 6.5.1 Installing a new cartridge, Fig. 2/1) counterclockwise out of the TLMR.
2. Check the packing ring (Fig. 16/1). If the packing ring is defective, replace it.
3. Screw in a new cartridge as described above, or insert a protective screw (see section 6.5.1 Installing a new cartridge, Fig. 2/2) into the lubricator.

4.Dispose of the empty cartridge properly.

Fig. 16



Checking the packing ring

Legend to Figure 16
1 Packing ring

6.6 Lubrication line connection

⚠ CAUTION



Risk of slipping

Exercise caution when handling lubricants. Immediately remove and bind any leaked lubricants.

NOTE

Connect the lubricant lines in such a way that no tensile forces are transferred to the product.

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

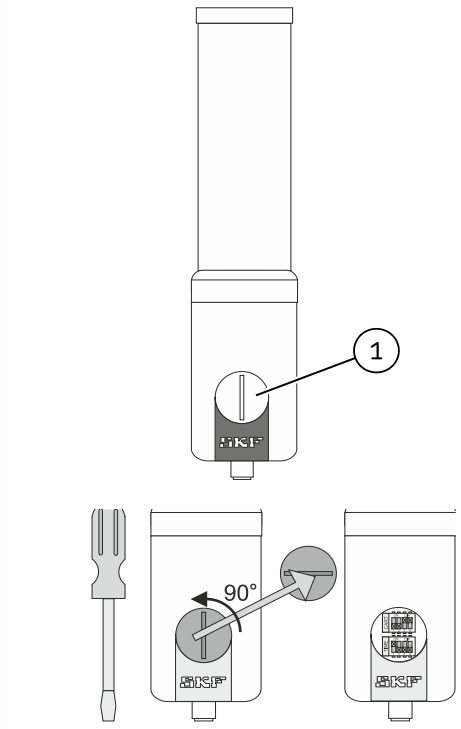
Observe the following installation instructions for safe and trouble-free operation.

- Use only clean components and prefilled lubrication lines.
- The main lubricant line should be routed on a rising gradient and should be able to be bled at the highest point. Lubrication lines should always be routed so that air inclusions cannot form anywhere.
- The flow of lubricant should not be impeded by the presence of sharp bends, angle valves, flap valves, seals protruding inward, or changes in cross-section (large to small). Unavoidable changes in the cross-section in lubrication lines must have smooth transitions.

6.6.1 Access to the control circuit board/DIP switches

1.Turn the bayonet closure (Fig. 17/1) 90° counterclockwise.
2.Remove the bayonet closure (Fig. 17/1) with its seal (Fig. 18/1).
When the work is completed:
1. Re-install the bayonet closure (Fig. 17/1) with its seal (Fig. 18/1). Make sure that the seal (Fig. 18/1) is undamaged.
2.After configuration, be sure to re-install the bayonet closure (Fig. 17/1) correctly.

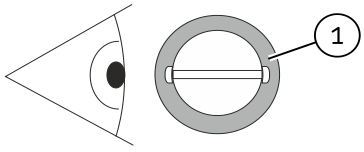
Fig. 17



Access to the control circuit board

Legend to Figure 17
1 Bayonet closure

Fig. 18



Checking the seal

Legend to Figure 18
1 Seal

6.7 Configuring the TLMR

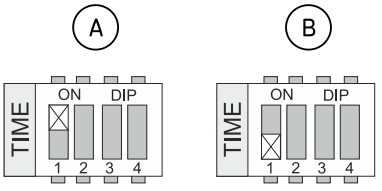
The TLMR has two rows of DIP switches, one marked TIME and the other marked CART. All the settings to be made by the user are made on these two rows of DIP switches.

NOTE
To configure a function, put the DIP switches in the position shown. DIP switches not required for that particular function are not shown

In the following, you can find all the settings of the TLMR that can be made using the DIP switches.

6.7.1 Activating/deactivating the TLMR

Fig. 19

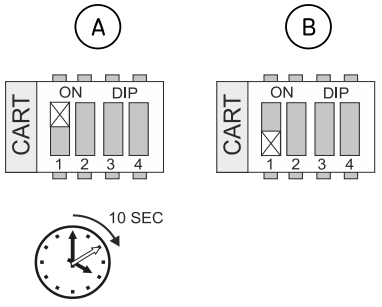


Activating/deactivating the TLMR

Legend to Figure 19
A ON
B OFF

6.7.2 Carrying out a reset

Fig. 20



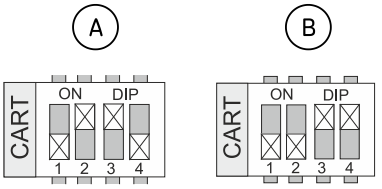
Carrying out a reset

Legend to Figure 20
A Reset ON
B Reset OFF

NOTE
Carry out a reset after every cartridge change. Otherwise, the low-level signal will not function correctly (for more about the low-level signal, see section 11.).
The reset must be carried out for at least 10 seconds. If the reset is successful, the red and green LEDs on the control circuit board will light up at the same time. After the reset, be sure to set the correct cartridge size again.

6.7.3 Setting the cartridge size

Fig. 21



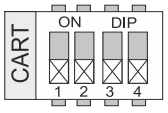
Setting the cartridge size

Legend to Figure 21
A 120 ml
B 380 ml

NOTE
If the cartridge size is not set correctly, this causes over- or under-lubrication and the low-level signal function will not work or will work incorrectly.

6.7.4 Air bleed / function check

Fig. 22



TLMR in bleed position

NOTE
Without correct bleeding after a cartridge change, the pump could fail to work, due to poor or non-existent suction.

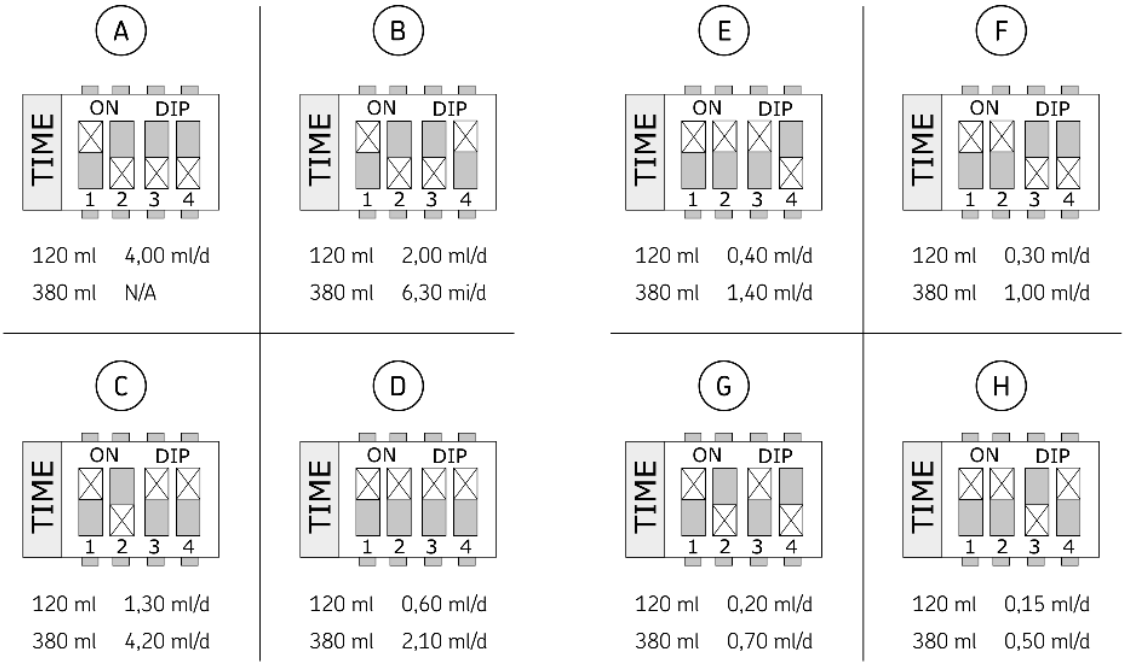
NOTE
Use the bleed position only for a short time, until lubricant comes out at the outlet. Continuous operation in this position shortens the service life of the drive unit.

6.7.5 Adjusting the dispensing time

NOTE

The set dispensing time, together with the set cartridge size, determines the volume of lubricant supplied daily. To prevent damage from under- or over-lubrication, the values must match the projected lubricant requirement of the lubrication points to be supplied.

Fig. 23



Adjusting the dispensing time

Legend to Figure 23

A 1 month
B 2 months
C 3 months
D 6 months
E 9 months
F 12 months
G 18 months
H 24 months

7. First start-up

7.1 First start-up

To ensure safety and functionality, the person specified by the owner-operator is required to perform the following activities and 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.

7.1.1 Inspections before first start-up

Table 8

Checklist for first start-up

Activity to be performed	YES	NO
Electrical connection established correctly	☐	☐
The bayonet closure and (if applicable) the battery compartment are closed correctly	☐	☐
Mechanical connection established correctly	☐	☐
All components, such as lubrication lines and metering devices, are correctly installed	☐	☐
No apparent damage or contamination	☐	☐
The size of the cartridge is suitable for the intended use	☐	☐
The lubricant in the cartridge is suitable for the intended use	☐	☐
A reset and (if applicable) a battery change were carried out	☐	☐
The TLMR was bled correctly	☐	☐
The correct dispensing time is set	☐	☐
The shelf life of the cartridge is still enough for the intended duration of use	☐	☐

7.1.2 Inspections during first start-up

Table 9

Checklist for first start-up

Activity to be performed	YES	NO
Activate the TLMR (set the corresponding DIP switch to the ON position): see section 6.6.1 Access to the control circuit board/DIP switches	☐	☐
No unusual noises, vibrations, moisture accumulation, or odors present	☐	☐
No undesired discharge of lubricant at connections (leakage)	☐	☐
Lubricant is fed without bubbles	☐	☐
The bearings and friction points requiring lubrication receive the planned lubricant volume	☐	☐

8. Operation

8.1 Operation

SKF products operate largely automatically.

Activities during normal operation are limited essentially to:

TLMR 101

- Checking the cartridge and batteries and replacing them in good time.
- Carrying out a reset after changing the cartridge and batteries.
- Bleeding after the reset.

TLMR 201

- Checking the cartridge and replacing it in good time.
- Carrying out a reset after changing the cartridge.
- Bleeding after the reset.

9. Maintenance and repair

Careful and regular maintenance is required in order to detect and remedy possible faults in time. The operator must always determine the specific intervals according to the operating conditions, review them regularly, and adjust them where necessary. If necessary, copy the table for regular maintenance activities.

9.1 Maintenance

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

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

Table 10

Maintenance checklist

Activity to be performed	YES	NO
TLMR 12/24 V DC version is correctly connected to the electrical power	☐	☐
All the seals on the TLMR are in proper working condition	☐	☐
The bayonet closure the TLMR is in proper working condition	☐	☐
The holder bracket of the TLMR is in proper working condition	☐	☐
The drive unit is in proper working condition	☐	☐
All components, such as lubrication lines and lubricant metering devices, are correctly installed	☐	☐
No unusual noises, vibrations, moisture accumulation, or odors present	☐	☐
No undesired discharge of lubricant at connections (leakage)	☐	☐
In the case of TLMR 101: the battery cover is properly installed and is not damaged.	☐	☐
The bearings and friction points requiring lubrication receive the planned lubricant volume	☐	☐

10. Cleaning

10.1 Basics

Cleaning should be carried out in accordance with the operator's own company rules, and cleaning agents and devices and the personal protective equipment to be used should likewise be selected in accordance with those rules. Only cleaning agents compatible with the materials may be used for cleaning. Completely remove any cleaning agent residue left on the product and rinse with clear water. Unauthorized persons must be kept away. Use signage to indicate wet areas.

10.2 Interior cleaning

The interior normally does not need to be cleaned. The interior of the product must be cleaned if incorrect or contaminated lubricant accidentally enters the product. Please contact our Service department.

10.3 Exterior cleaning

Do not allow any cleaning fluid to enter the interior of the product during cleaning.

⚠ WARNING

Electric shock



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.
Use steam-jet equipment or high-pressure cleaners only in accordance with the IP enclosure rating of the pump. Otherwise, electrical components may be damaged.
Cleaning, required personal protective gear, cleaning agents, and equipment are in accordance with the current operating rules of the operator.

- Mark and secure wet areas.
- Keep people away.
- Thoroughly clean all external surfaces with a damp cloth.

10.4 Cleaning agents

⚠ WARNING



Serious injury from contact with or inhalation of hazardous substances







Wear personal protective equipment. Observe the safety data sheet (SDS) of the hazardous substance. Avoid contaminating other objects or the environment during cleaning.

Only cleaning agents compatible with the materials can be used for cleaning. (For more about the materials, see section 2. Lubricants)

NOTE

Completely remove any cleaning agent residue left on the product and rinse with clear water.

11. Faults, causes, and remedies

Table 11

Fault table

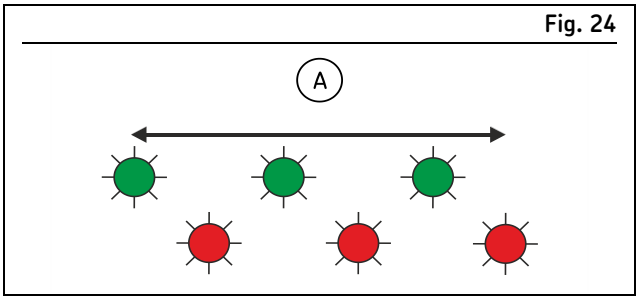
Fault	Possible cause	Remedy
The TLMR is not running	ON/ OFF DIP switch in OFF position	Set the DIP switch to the ON position. The program memory check begins (10 sec).
	The supply voltage is not applied (TLMR 201)	Connect the TLMR to the correct supply voltage
	Batteries empty (TLMR 101)	Replace the batteries
	Memory check fault	Switch the TLMR on again. The program memory check must finish completely, meaning that the LEDs flash for about 10 seconds in the pattern of the switch-on procedure
	Overcurrent fault (2 hours pause)	Red LED flashes in the pattern for “Pause after overcurrent”
	TLMR stalling fault	Red LED flashes in the pattern for “Pause after stalling”
TLMR is running but not supplying lubricant	Air in the lubricant supply line	Detach the supply line, put the DIP switches in the bleed position. Run the TLMR until the lubricant is supplied free of bubbles.
	Cartridge is empty	The red and green LEDs flash in the pattern for “Pre-empty signal” Replace the cartridge and (if applicable) the batteries

11.1 Indications of operational and fault states by the LEDs on the control circuit board

Switch-on procedure
During every switch-on procedure, the program memory is checked for faults

LED indications:
The green and red LEDs briefly light up in alternation for 10 seconds

Fig. 24



LED indications

Legend to Figure 24
A 10 seconds

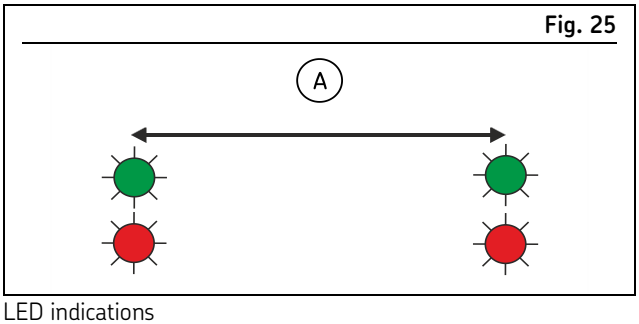
If a fault occurs during the memory check, the check is terminated and both the LEDs go off before the end of the 10 seconds

Operation
During operation of the TLMR, both the LEDs are off

Low-level signal (10% volume remaining)
When the number of metering strokes assigned to the cartridge size is reached, a pre-empty signal is indicated

LED indications:
The green and red LEDs briefly light up at the same time every 8.5 seconds

Fig. 25



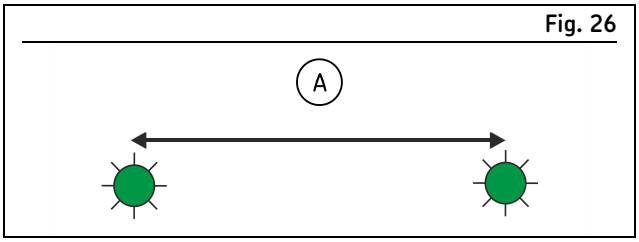
LED indications

Legend to Figure 25
A 8.5 seconds

Pause
A pause after lubricant metering is indicated as follows.

LED indications:
The green LED briefly lights up every 8.5 seconds.

Fig. 26



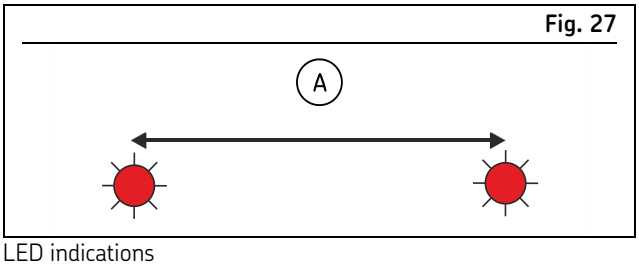
LED indications

Legend to Figure 26
A 8.5 seconds

Stalling/signal fault/overcurrent
A pause (2 hours) after stalling/signal/overcurrent is indicated as follows.

LED indications:
The red LED briefly lights up every 8.5 seconds. Stalling/signal fault: for 80 ms, overcurrent: for 500 ms.

Fig. 27



LED indications

Legend to Figure 27
A 8.5 seconds

12. Shutdown, disposal

12.1 Temporary shutdown

Temporary shutdowns should be done by a course of action to be defined by the operator.

12.2 Permanent shutdown, disassembly

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

12.3 Disposal

The waste producer/operator must dispose of the various types of waste in accordance with the applicable laws and regulations of the country in question.

13. Spare parts

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

13.1.1 Battery compartment cover, complete

Fig. 28



Table 12

Battery compartment cover, complete

Designation	Pcs.	Item number
Battery compartment cover consisting of: Battery compartment cover including seal and screws	1	TLMR 1-2

13.1.2 TLMR bracket, complete

Fig. 29

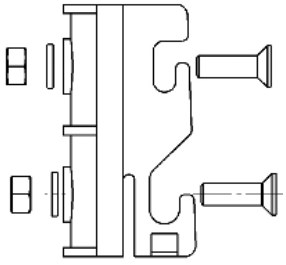


Table 13

TLMR bracket, complete

Designation	Pcs.	Item number
TLMR bracket, complete consisting of: Bracket, fastening hardware (stainless steel) 2 x countersunk head bolt M6 x 20, EN ISO 10642 2 x washer 6.4 EN ISO 7089 2 x hexagon nut M6 A2	1	TLMR 1-3

13.1.3 Plug screw, complete

Fig. 30

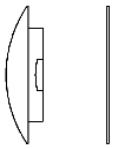


Table 14

Plug screw, complete

Designation	Pcs.	Item number
Plug screw, complete consisting of: Plug screw and seal	1	TLMR 1-4

13.1.4 Packing ring for cartridges

Fig. 31

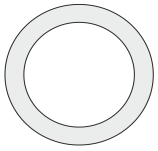


Table 15

Packing ring for cartridges

Designation	Pcs.	Item number
Packing ring for installing a cartridge	1	TLMR 1-5

13.1.5 Battery holder

Fig. 32

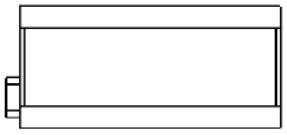


Table 16

Battery holder

Designation	Pcs.	Item number
Battery holder	1	TLMR 1-6

13.1.6 Lubricant cartridges

Fig. 33

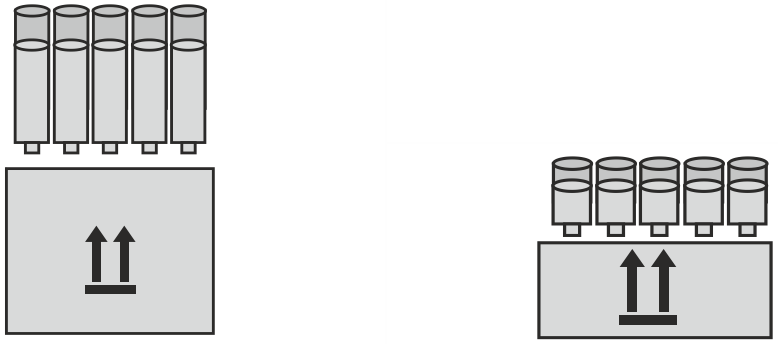


Table 17

Lubricant cartridges

Designation	Size ml	Pcs.	Item number TLMR 101[1)]	Item number TLMR 201
LGWM 1	380	10	LGWM 1/MR380B	LGWM 1/MR380
LGWM 2	380	10	LGWM 2/MR380B	LGWM 2/MR380
LGWA 2	120	10	LGWA 2/MR120B	LGWA 2/MR120
LGWA 2	380	10	LGWA 2/MR380B	LGWA 2/MR380
LGMT 3	380	10	LGMT 3/MR380B	LGMT 3/MR380
LGHQ 2	380	10	LGHQ 2/MR380B	LGHQ 2/MR380
LGHB 2	380	10	LGHB 2/MR380B	LGHB 2/MR380
LGFG 2	380	10	LGFG 2/MR380B	LGFG 2/MR380
LGEV 2	380	10	LGEV 2/MR380B	LGEV 2/MR380
LGEP 2	380	10	LGEP 2/MR380B	LGEP 2/MR380
LF001 (Divinol Lithogrease 00)	380	10		LF001/MR380
LF002 (Tribol 320/1000-000)	120	10		LF002/MR120
LF002 (Tribol 320/1000-000)	380	10		LF002/MR380

[1)] The cartridge is supplied with batteries

14. Appendix

14.1 China RoHS Table

Table 18

部件名称 (Part Name)	有毒害物质或元素 (Hazardous substances)					
	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
用钢和黄铜加工的零件 (Components made of machining steel and brass)	X	0	0	0	0	0

本表格依据SJ/T11364的规定编制 (This table is prepared in accordance with the provisions of SJ/T 11364.)

0：	表示该有毒有害物质在该部件所有均质材料中的含量均在GB/T 26572 规定的限量要求以下。 (Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.)
X：	表示该有毒有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572标准规定的限量要求。 (Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.)

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