

# SKF Compact Greaser of the product series ETP

for fluid grease and grease of NLGI classes 0 to 2

Original installation instructions following machinery  
directive 2006/42/EC  
for incomplete machines with corresponding operating instructions

EN



Version 02



## EC Declaration of incorporation following machinery directive 2006/42/EC, annex II, part 1 B

The manufacturer SKF Lubrication Systems Germany GmbH, Berlin Facilities, Motzener Straße 35/37, DE - 12277 Berlin hereby declares the correspondence of the partly completed machinery

Designation: **SKF Compact Greaser**  
Type: **ETPx-...924 and ETPxWZ-...+924**

Year of construction: See type identification plate  
complies with the following basic safety and health requirements of the EC machinery directive 2006/42/EC at the time when first being launched in the market.

1.1.2, 1.1.3, 1.3.2, 1.3.4, 1.5.1, 1.5.6, 1.5.8, 1.5.9, 1.6.1, 1.7.1, 1.7.3, 1.7.4

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

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

2011/65/EU		RoHS II					
20014/30/EU		Electromagnetic compatibility		Industry			
Standard	Edition	Standard	Edition	Standard	Edition	Standard	Edition
DIN EN ISO 12100	2011	DIN EN ISO 50581	2013	DIN EN 61000-6-2	2006	DIN EN 61000-6-3	2011
Amendment	2013			Amendment	2011	Amendment	2012

The partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of machinery directive 2006/42/EC and any other applicable directives.

Berlin, January 29, 2016

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## Legal disclosure

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

### Warranty

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

### Copyright / Integration of the instructions

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## Explanation of symbols and signs

You will find these symbols, which warn of specific dangers to persons, material assets, or the environment, next to all safety instructions in these operating instructions.

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

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

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

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

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

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

### Abbreviations and conversion factors

#### Abbreviations

re.	regarding
approx.	approx.
°C	degrees Celsius
s	second
dB (A)	Sound pressure level
i.e.	that is
etc.	et cetera
poss.	possibly
<	less than
±	plus or minus
>	greater than
e.g.	for example
if appl.	if applicable
etc.	et cetera
a.a.r.	as a rule
∅	diameter
incl.	including
K	Kelvin
kg	kilogram
rh	relative humidity
kW	kilowatt
l	litre
min	minute
max.	maximum
min.	minimum
mm	millimetre
ml	millilitre
N	Newton
Nm	Newtonmeter

#### Conversion factors

length	1 mm = 0.03937 in.
Area	1 cm <sup>2</sup> = 0.155 sq.in
Volume	1 ml = 0.0352 fl.oz.
	1 l = 2.11416 pints (US)
Mass	1 kg = 2.205 lbs
	1 g = 0.03527 oz.
Density	1 kg/cm <sup>3</sup> = 8.3454 lb./gal (US)
	1 kg/cc = 0.03613 lb./cu.in.
Force	1 N = 0.10197 kp
speed	1 m/s = 3.28084 fpsec.
	1 m/s = 2.23694 mph
	1 m/s <sup>2</sup> = 3.28084 ft./s <sup>2</sup>
acceleration	
Pressure	1 bar = 14.5 psi
Temperature	°C = (°F-32) x 5/9
output	1 kW = 1.34109 hp

# 1. Safety instructions

## 1.1 General safety instructions

The owner must ensure that the installation instructions / operating instructions have 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.

The installation instructions / operating instructions must be kept at hand together with the product for future reference.

The installation instructions / operating instructions are part of the product and must accompany the product when selling it.

The described product was manufactured according to the state of the art.

Risks may, however, arise from its usage and may result in harm to persons or damage to material assets.

Any malfunctions which may affect safety must be remedied immediately. In addition to the installation instructions / operating instructions, general statutory regulations and other regulations for accident prevention and environmental protection must be observed.

## 1.2 General behaviour when handling the product

o The product may only be used in awareness of the potential dangers, in proper technical condition, and according to the information in these instructions.

o Technical personnel must familiarize themselves with the functions and operation of the product. The specified assembly and operating steps and their sequences must be observed.

o Any unclear points regarding proper condition or correct assembly / operation must be clarified. Operation is prohibited until issues have been clarified.

o Keep unauthorized persons away from the product.

o Observe all relevant precautionary operational measures and instructions for the respective work.

o Clearly define and observe responsibilities for different activities. Uncertainty seriously endangers safety.



## 1. Safety instructions

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### 1.3 Qualified technical personnel

- o Safety-related protective and emergency devices must not be removed, modified or affected otherwise in their function and are to be checked at regular intervals for completeness and function.  
If protective and safety equipment has to be dismantled, it must be reassembled immediately after finishing the work, and then checked for correct function.
- o Remedy occurring faults in the frame of responsibilities. Immediately inform your superior in the case of faults beyond your competence.
- o Wear personal protective equipment always.
- o When handling lubricants or operating materials, adhere to the respective safety data sheets.

Only qualified technical personnel may install, operate, maintain, and repair the products described in this document.



Such persons are familiar with the relevant standards, rules, accident prevention regulations, and assembly conditions as a result of their training, experience, and instruction. They are qualified to carry out the required activities and in doing so recognize and avoid any potential hazards. The definition of qualified personnel and the prohibition against employing non-qualified personnel are laid down in DIN VDE 0105 and IEC 364. Relevant country-specific definitions of qualified technical personnel apply for countries outside the scope of DIN VDE 0105 or IEC 364.

The operator of the final product is responsible for assigning tasks and areas of responsibility and for the responsibility and monitoring of the personnel.



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

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



## 1.4 Electric current hazard

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

## 1.5 Hazard from system pressure or hydraulic pressure

	 <b>WARNING</b>
	<p><b>System pressure  Hydraulic pressure</b>  Lubrication systems are pressurized during operation. They must be depressurized before starting assembly, maintenance, modification or repair works.</p>

## 1.6 Hazard from spring pressure

	 <b>WARNING</b>
	<p><b>Spring pressure</b>  <b>In case of a fully mounted Compact Greaser the cartridge reservoir is spring-preloaded.</b>  Before changing the lubricant cartridge the pressure spring must be relieved from pressure. This is done by the bayonet lock of the cartridge reservoir. Carefully position and press your palm onto the cartridge reservoir, then open the cartridge reservoir by turning it to the left by about 20° - see chapter 7.2, page 42.</p>

## 1.7 Operation

The following must be observed when working on the product.

- o All information within these instructions and the information within the referenced documents.
- o All laws and regulations to be complied with by the user.

## 1.8 Assembly, maintenance, malfunctions, shutdown, disposal

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

Observe the precautionary operational measures and work instructions.

- o 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.
- o Assemble the product only outside of the operating range of moving parts, at an adequate distance from sources of heat or cold.
- o Prior to performing work, the product and the machine or system in which the product is or will be integrated must be depressurized and secured against unauthorized activation.
- o Carry out all works on electrical components using voltage insulated tools only.

o Fuses must not be bypassed. Always replace fuses by such of the same type.

o Ensure proper grounding of the product.

o Undertake drilling at non-critical, non-load bearing parts only.

o Other units of the machine or vehicle must not be damaged or impaired in their function by the installation of the centralized lubrication system.

o Parts of the centralized lubrication system must never be subjected to torsion, shearing or bending.

o Avoid mixing up or wrong assembly of dismantled parts. Mark these parts accordingly.

### 1.9 Intended use

The SKF Compact Greasers of product series ETPx / ETPxWZ are used for lubrication of bearing points with micro and small-scale lubricant requirements.

The lubrication of linear guides and rolling bearings in machines and mechanical equipment are typical fields of application. They supply greases of NLGI classes 000 to 2, which are compatible with plastic and NBR elastomers. When using synthetic or biodegradable fluid greases or oils, prior approval by SKF is required.

Lubricant supply is effected via exchangeable lubricant cartridges.

The admissible operating temperature is between +15 and +40 °C.

Unless separately stated SKF Compact Greasers of the product series ETPx / ETPxWZ are not suitable for a use in explosive atmospheres.

Any other or exceeding use is considered to be improper use.

### 1.10 Foreseeable misuse

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

It is expressly forbidden:

- o In a different, more critical potentially explosive atmosphere, provided it is used as an ATEX product.
- o to supply, transport, or store hazardous substances and mixtures in accordance with annex I part 2-5 of the CLP regulation (EC 1272/2008).
- o to supply, transport, or store gases, liquefied gases, dissolved gases, vapours, and fluids whose vapour pressure exceeds normal atmospheric pressure (1013 mbar) by more than 0.5 bar at the maximum admissible operating temperature.

### 1.11 Disclaimer of liability

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

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

### 1.12 Referenced documents

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

- o Operational instructions and release provisions.
- o Instructions of the suppliers of purchased parts.
- o Safety data sheet of the lubricant or material used.

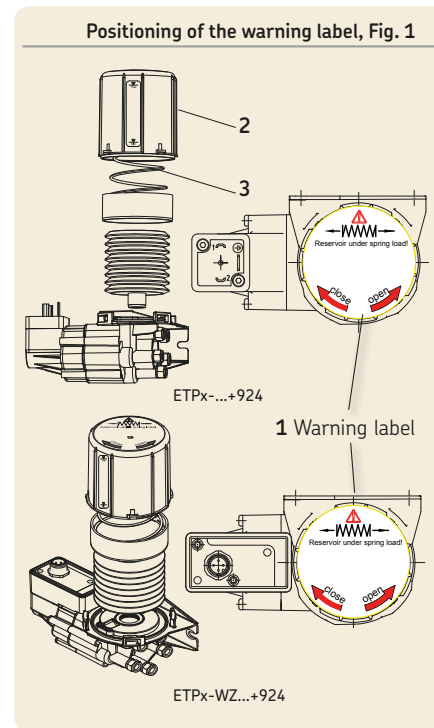
The operator must supplement these documents with the relevant applicable national regulations of the country of use. If the product is sold or transferred, any associated documents must be passed on to the subsequent operator as well.

### 1.13 Warning label on the product

☞ see Fig. 1

The following warning label (1) is attached to the product. It contains the information that when closed the cartridge reservoir (2) is subject to spring tension (3). Before the start-up of the system, verify the presence and integrity of the warning label. Illegible or missing warning labels are to be replaced without delay. Until then the Compact Greaser must not be put into service.

	Order number
<b>Description</b>	<b>Order no.</b>
Warning label	951-111-209



### 1.14 Residual risks

Residual risks	Remedy
<b>Installation life cycle</b>	
People slipping due to floor contamination with spilled or leaked lubricant.	<ul style="list-style-type: none"> <li>• Exercise caution when connecting the product's hydraulic connections.</li> <li>• Bind and remove leaked or spilled lubricant immediately with a suitable agent.</li> <li>• Follow the operational instructions for handling lubricants and contaminated parts.</li> </ul>
Tearing or damaging of lines when installed on moving machine parts.	<ul style="list-style-type: none"> <li>• If possible, do not mount onto movable parts. If this cannot be avoided, use flexible hose lines.</li> </ul>
<b>Life cycle - commissioning, operation</b>	
When detaching the cartridge reservoir, observe the spring pre-load condition of the reservoir.	<ul style="list-style-type: none"> <li>• Carefully open the cartridge reservoir to replace the lubricant cartridge. After release of the compression spring, the compression spring with follower plate and the lubricant cartridge can be taken out of the reservoir.</li> </ul>
Lubricant spraying out due to incorrect screw connection of components or lines.	<ul style="list-style-type: none"> <li>• Tighten all parts manually or with the appropriate tightening torques. Use suitable hydraulic screw connections and lines for the stated pressures. Check these prior to commissioning for correct connection and damage.</li> </ul>
<b>Life cycle - setting, modification</b>	
People slipping due to floor contamination with spilled or leaked lubricant	<ul style="list-style-type: none"> <li>• Exercise caution when disconnecting or connecting the product's hydraulic connections</li> <li>• Bind and remove leaked or spilled lubricant immediately with a suitable agent</li> <li>• Follow the operational instructions for handling lubricants and contaminated parts.</li> </ul>

Residual risks	Remedy
Life cycle - fault, troubleshooting Life cycle - servicing and maintenance	
<p>When detaching the cartridge reservoir, observe the spring pre-load condition of the reservoir.</p> <p>People slipping due to floor contamination with spilled or leaked lubricant.</p>	<ul style="list-style-type: none"> <li>• Carefully open the cartridge reservoir to replace the lubricant cartridge. After release of the compression spring, the compression spring with follower plate and the lubricant cartridge can be taken out of the reservoir.</li> <li>• Exercise caution when disconnecting or connecting the product's hydraulic connections</li> <li>• Bind and remove leaked or spilled lubricant immediately with a suitable agent.</li> <li>• Follow the operational instructions for handling lubricants and contaminated parts.</li> </ul>
Life cycle - shutdown, disposal	
<p>Contamination of the environment with lubricant and wetted parts</p>	<ul style="list-style-type: none"> <li>• Dispose of contaminated parts following the relevant legal and operational regulations.</li> </ul>
<p>People slipping due to floor contamination with spilled or leaked lubricant.</p>	<ul style="list-style-type: none"> <li>• Exercise caution when disconnecting the product's hydraulic connections</li> <li>• Bind and remove leaked or spilled lubricant immediately with a suitable agent.</li> <li>• Follow the operational instructions for handling lubricants and contaminated parts.</li> </ul>

## 2. Lubricants

### 2.1 General information

#### ATTENTION

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

Intended use is the use of the products to lubricate bearings and friction points with lubricants within the physical limits that can be found in the relevant product documentation, e.g. operating instructions and product descriptions, e.g. technical drawings and catalogues.

Particular attention is called to the fact that hazardous materials of any kind, especially those materials classified as hazardous by CLP Regulation EC 1272/2008 may only be filled into SKF centralized lubrication systems and components and delivered and/ or distributed with such systems and components after consulting with and obtaining written approval from SKF.

All products manufactured by SKF are not admitted for use in combination with gases, liquefied gases, dissolved gases, vapours, or fluids whose vapour pressure exceeds normal atmospheric pressure (1013 mbar) by more than 0.5 bar at the maximum admissible operating temperature.

Other material which is neither lubricant nor hazardous substance may be fed only after consultation with and written approval by SKF.

SKF considers lubricants to be an element of system design that must always be factored when selecting components and designing a centralized lubrication system. The lubricating properties of the lubricants are critically important when making these selections.

### 2.2 Selection of lubricants

#### ATTENTION

Observe the instructions from the machine manufacturer regarding the lubricants to be used.

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

Selection of a lubricant suitable for the lubrication task is made by the machine or system manufacturer and/or the operator of the machine or system in cooperation with the lubricant supplier.

When selecting a lubricant, the type of bearings or friction points, the expected load during operation, and the anticipated ambient conditions must be taken into account. All



economic and environmental aspects must also be considered.

### ATTENTION

If required, SKF Lubrication Systems Germany GmbH can help customers to select suitable components for supplying the selected lubricant and to plan and design their centralized lubrication system.

Please contact SKF if you have further questions regarding lubricants. It is possible for lubricants to be tested in the company's laboratory for their suitability for being pumped in centralized lubrication systems (e.g. "bleeding"). You can request an overview of the lubricant tests offered by SKF from the company's service department.

### ATTENTION

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

### 2.3 Approved lubricants

### ATTENTION



Only lubricants approved for the product may be used in SKF lubricant cartridges. Unsuitable lubricants can lead to a failure of the product and to property damage.

### 2.4 Lubricants and the environment

### ATTENTION

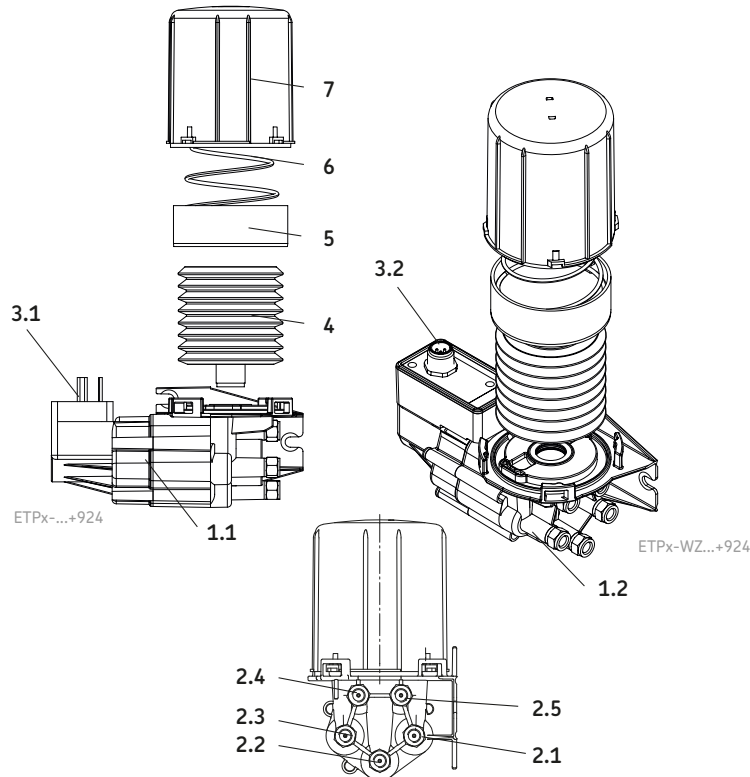
Lubricants may pollute ground and waters. Lubricants have to be handled and disposed of properly. Observe the regional laws and prescriptions regarding disposal of the lubricants.

### 2.5 Lubricant hazard

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

## 3. Overview

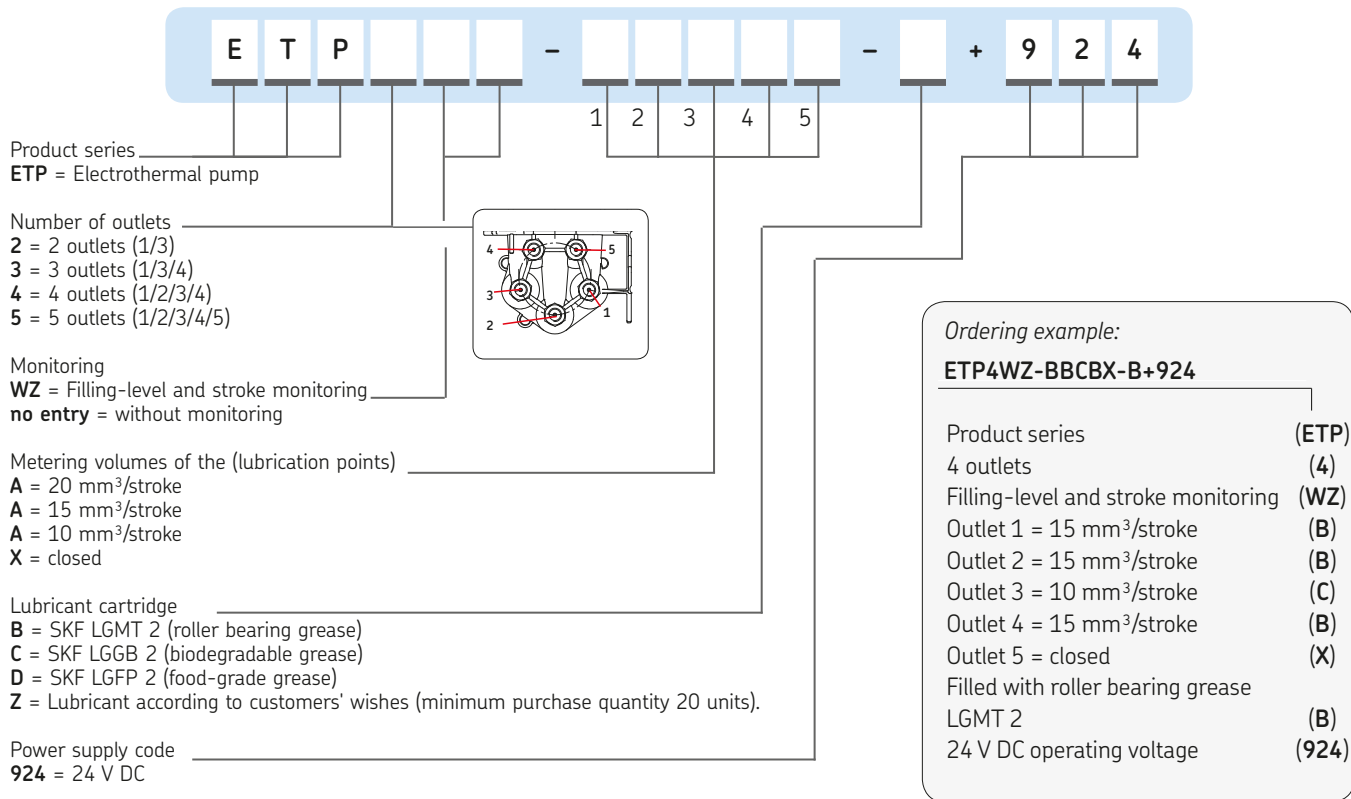
Overview, Fig. 2



Legend of Fig. 2

Item	Description
<b>1</b>	<b>Mini piston pump unit</b>
1.1	ETPx-...+924
1.2	ETPx-WZ...+924
<b>2</b>	<b>Lubricant outlets (max. 5)</b>
2.1	Lubricant outlet No. 1
2.2	Lubricant outlet No. 2
2.3	Lubricant outlet No. 3
2.4	Lubricant outlet No. 4
2.5	Lubricant outlet No. 5
<b>3</b>	<b>Electrical connection</b> (Connection sockets - see chapter Accessories, page 50)
3.1	Connection of line socket following DIN EN 175301-803A Power supply 24 V DC
3.2	Connection of line socket M12x1 Power supply 24 V DC with filling-level and stroke monitoring
<b>4</b>	<b>Lubricant cartridge</b>
<b>5</b>	<b>Grease follower plate</b>
<b>6</b>	<b>Compression spring</b>
<b>7</b>	<b>Cartridge reservoir</b>

## 3.1 Order code



## 4. Assembly

### 4.1 General information



Only qualified technical personnel may install, operate, maintain, and repair the SKF compact greaser of the ETPx product series. Qualified technical personnel are persons who have been trained, assigned, and instructed by the operator of the final product, into which the described product shall be integrated.

Such persons are familiar with the relevant standards, rules, accident prevention regulations, and operating conditions as a result of their training, experience, and instruction. They are qualified to carry out the required activities and in doing so recognize and avoid any potential hazards.

The definition of qualified personnel and the prohibition against employing non-qualified personnel are laid down in DIN VDE 0105 and IEC 364.

Before erection and assembling of the SKF compact greaser the packaging material as well as possible transport locking devices (e. g. closure plugs) must be removed.

Keep the packaging material until any discrepancies are resolved.



		<b>CAUTION</b>
	<p><b>Risk of slipping</b> Centralized lubrication systems must be absolutely leakproof. Leaking lubricant is hazardous due to the risk of slipping and injury. During assembly, operation, maintenance and repair of centralized lubrication systems watch out for leaking lubricant. Leaks must be sealed immediately.</p>	

### ATTENTION

For any installation works observe the owner's respective operation and maintenance regulations as well as the regional accident prevention regulations. Technical data (see chapter 10).



## 4.2 Set-up and attachment



The SKF compact greaser of the ETPx product series shall be installed protecting it against humidity and vibration. Install the product in an easily accessible position to ensure all other installations can be carried out without any problem. Ensure sufficient air circulation to avoid inadmissible heating up of the compact greaser and its lubricant cartridge. The SKF compact greaser has to be mounted horizontally always.

	 <b>CAUTION</b>
	<p><b>Personal injuries and damage to property</b> Provide mounting bores in such way that no lines, units or moveable parts are damaged or impaired in their function. Adhere to safety distances and legal prescriptions on assembly and prevention of accidents.</p>

During assembly and particularly during any drilling work always pay attention to the following:

- o Existing lines must not be damaged.
- o Other units must not be damaged.
- o The product must not be installed within the range of moving parts.
- o The product must be installed at an adequate distance from sources of heat or cold.
- o Adhere to safety distances and legal prescriptions on assembly and prevention of accidents.

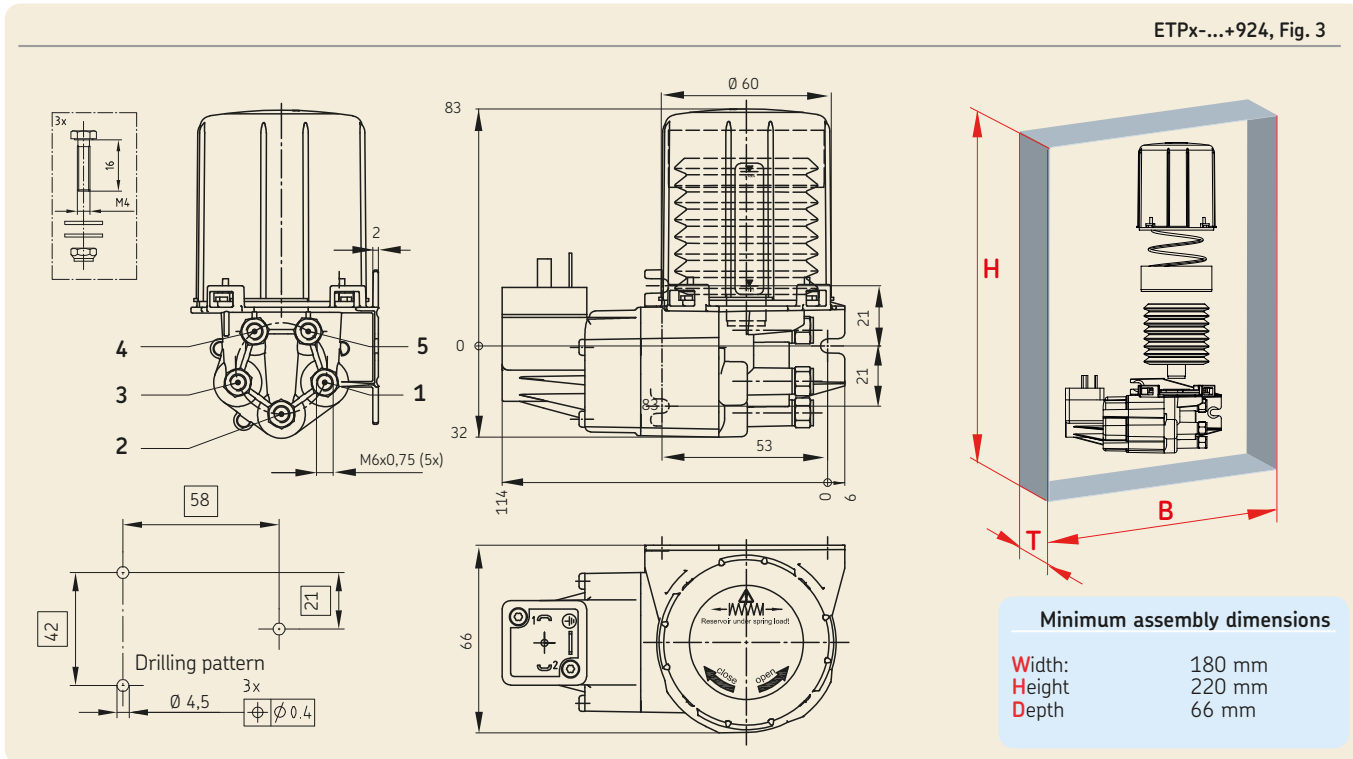
	 <b>CAUTION</b>
	<p><b>Supply lines or moving components</b> When drilling the mounting bores make sure to consider possibly existing supply lines or other units as well as further sources of hazard, e. g. moving components. Adhere to safety distances and regional prescriptions on assembly and prevention of accidents.</p>

	 <b>WARNING</b>
	<p><b>DANGER</b> Secure machine provided by the customer against being switched on.</p>

### 4.3 Assembly of the SKF Compact Greaser

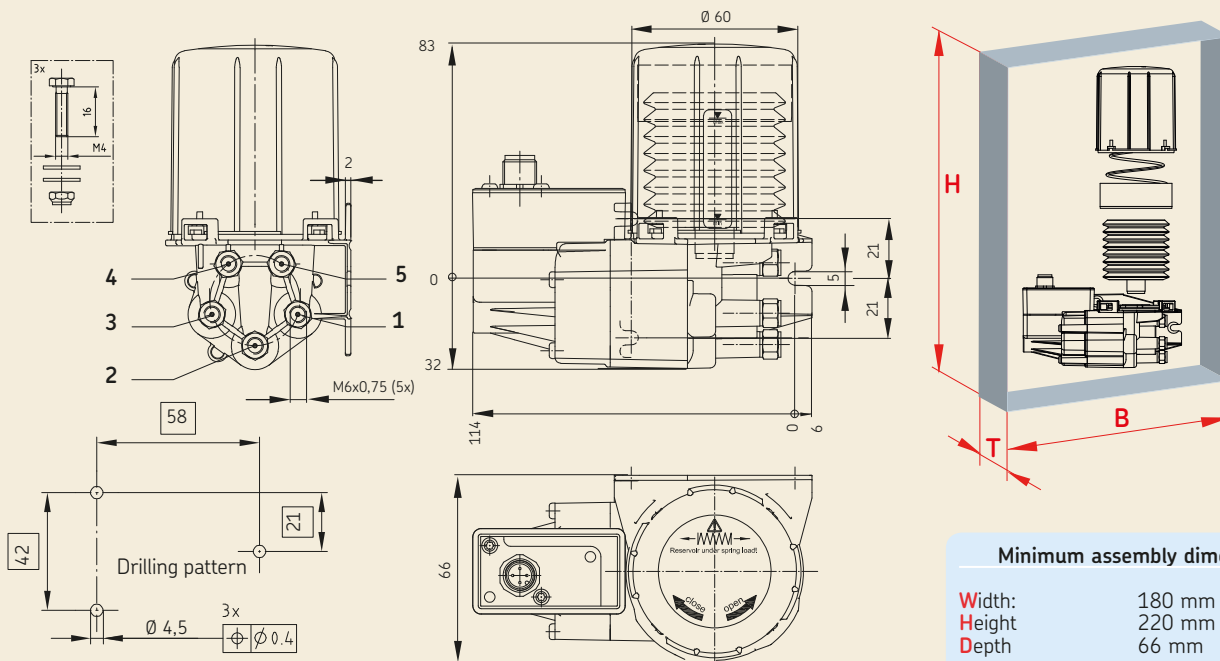
#### 4.3.1 ETPx-...+924, connection dimensions, mounting bores and minimum assembly dimensions

ETPx-...+924, Fig. 3



## 4.3.2 ETPx-...+924, connection dimensions, mounting bores and minimum assembly dimensions

ETPx-WZ...+924, Fig. 4



### 4.3.3 Minimum assembly dimensions

☞ see Fig. 3 and Fig. 4

Ensure sufficient space for maintenance work or for a possible disassembly of the product by observing the minimum assembly dimensions (Figures 3 and 4).

### 4.3.4 Assembly of the SKF Compact Greaser

☞ see Fig. 3 and Fig. 4

The SKF Compact Greaser is mounted to the mounting flange on the pump side with three fixing points.

The delivery scope includes:

- o Hexagon screws M4 x 16 (3x)
- o Washers (6x)
- o Self-locking M4 nuts

- Mounting bores to be provided by the customer (recommended diameter 4.5 mm) according to the assembly drawing and the mounting conditions on the mounting surface
- Clean the mounting surface from drilling chips
- Position the SKF Compact Greaser on the mounting surface
- Position the hexagon screws (3x) and the washers (3x) through the bores of the SKF Compact Greaser and the fixing bores provided by the customer
- Set the washers (3x) and the self-locking nuts (3x) onto the screws
- Align the SKF Compact Greaser without mechanical stress
- Tighten the screws evenly with a tightening torque of  $2^{\pm 0,2}$  Nm

### 4.3.5 Installation of the lubrication lines

☞ see Fig. 5

Please note that depending on the version of the SKF Compact Greaser, the lubricant outlets and thus the lubricant volumes can be determined differently.

The fittings of the lubricant outlets are marked with code letters for the output volume as follows:

- o Code letter **A** (20 mm<sup>3</sup>/stroke)
- o Code letter **B** (15 mm<sup>3</sup>/stroke)
- o Code letter **C** (10 mm<sup>3</sup>/stroke)
- o Code letter **X** (no output volume)

It is **not possible** to change the output volume of the lubricant outlets by changing the outlet fittings. Should a change of an outlet volume on a lubricant outlet become necessary, consultation with the service department of SKF Lubrication Systems Germany GmbH is required.



**ATTENTION**

**Unneeded lubricant outlets must not be closed during assembly, as otherwise the function of the SKF Compact Greaser cannot be guaranteed.**

The lubricant outlets of the SKF Compact Greaser dispose of a counterbore M6 x 0.75 for connection of a non-soldered tube fitting for plastic tube diameters of 2.5 mm. For the connection of lubrication lines SKF recommends SKF fittings for non-soldered tube fittings, so called taper cutting rings.

For connection of a plastic tube to an SKF Compact Greaser the following fittings are required:

**Assembly material of lubrication line,  
Table 2**

Qty.	Designation	Order no.
1	Push-in sleeve	402-603
1	Taper cutting ring	402-611
1	Compression nut	402-612
1	Plastic tube WVN715-R02.5x0.5	

The diameter provided for the lubricant tube lines made of plastic is 2.5 mm x 0.5 mm, the maximum length of the lines is 1.5 m.

If longer lengths are needed, consultation with the service department of SKF Lubrication Systems Germany GmbH is required. Always connect lubrication lines to the lubrication unit in such way that no forces are transferred to the mounted lubrication unit (tension-free connection).

**ATTENTION**

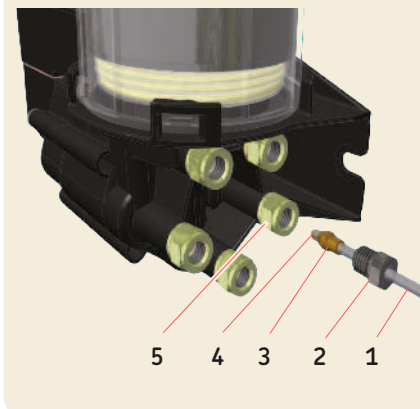
The fittings used for the lubrication line connection have to be laid out for the maximum operating pressure of the SKF Compact Greaser (25 bar). Otherwise the lubrication line system must be protected against inadmissibly high pressure by means of an overpressure safety valve.

**Assembly**

- ☞ The lubrication lines must be filled with the same type of lubricant as is filled in the lubricant cartridge.
- The lubrication lines must be filled with lubricant prior to connecting them to the lubricant outlets
- ☞ Primed lubrication lines are available as accessories at SKF Lubrication Systems Germany GmbH.

- Insert push-in sleeve (4) in the plastic tube (1)
  - Push the plastic tube (1) through the compression nut (2) and the taper cutting ring (3)
  - Position the plastic tube (1) at the corresponding lubricant outlet (5)
  - Screw the compression nut hand-tight into the lubricant outlet (5)
- ☞ When tightening the compression nut (3) secure the hexagon of the lubricant outlet against twisting (5) by means of a fork wrench (AF 9).
- Position the fork wrench (AF 9) at the lubricant outlet (5)
  - Use a second fork wrench (AF 7) to tighten the compression nut (2) by a maximum of  $1\frac{1}{2}$  turns

Installation of a lubrication line, Fig. 5



#### 4.3.6 Laying of lubrication lines

When laying the lubrication lines, observe the following information in order to warrant a trouble-free function of the entire centralized lubrication system:

Dimension the lubrication line according to the maximum pressure and the output volume of the SKF Compact Greaser used. Starting from the Compact Greaser the lubrication line should be laid preferably rising with a possibility to vent it at the highest point of the lubrication line system.

The tube lines, hoses, shut-off and way valves, fittings, etc. to be used have to be laid out according to the maximum operating pressure of the SKF Compact Greaser, the admissible temperatures and the lubricants to be supplied. Furthermore, the lubrication line system must be protected against inadmissibly high pressure. Before the assembly thoroughly clean all components of the lubrication line system

like tube lines, hoses, shut-off and way valves, fittings, etc. In the lubrication line system no seals should protrude towards the inside, as the lubricant flow could be impeded and contaminations could enter the lubrication line system.

Lubrication lines shall generally be laid in such way that there can never be created air pockets at any point.

Avoid changing the cross sections of the lubrication line from smaller to larger cross sections in the flow direction of the lubricant. Design cross section transitions as smooth as possible.

The lubricant flow in the lubrication lines should not be impeded by the installation of sharp elbows, angle valves and check valves. Provide unavoidable changes of the cross sections in the lubrication lines with as smooth transitions as possible. Avoid sudden changes of direction, if possible.



### ATTENTION

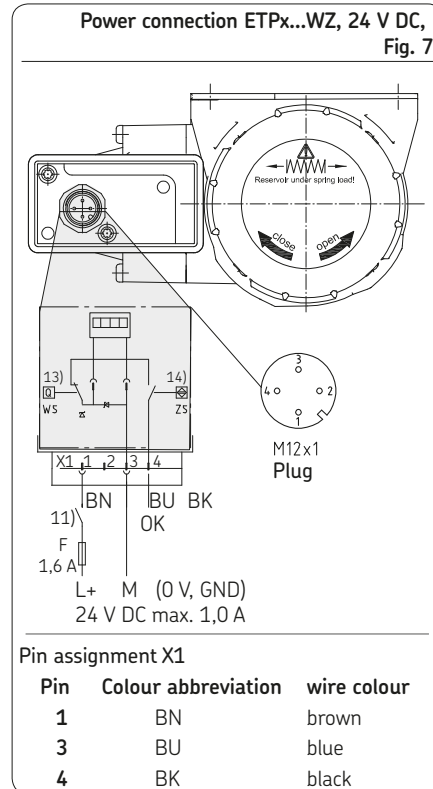
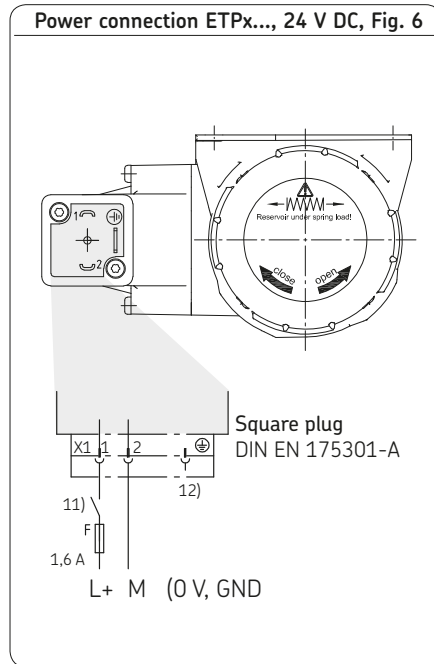
#### Environmental pollution

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

### ATTENTION

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

#### 4.4 Electrical motor connection



#### Legend to Fig. 6 and Fig. 7

##### Item Description

- L+** Potential of the supply voltage  
(*machine main switch "ON"*)
- M** Minus potential of the supply voltage  
(*0 V, GND Ground*)
- X1** Push-in connection of the supply  
voltage
- F** Fuse (*conductor connection*)
- 11)** External control unit  
(*Relay contact "Pump ON"*)
- 12)** Pin without internal connection
- 13)** Schematic of contacts "Filled reservoir"
- 14)** Schematic of contacts "De-energised  
condition" (*idle position*)

**ATTENTION**

The SKF Compact Greaser is equipped with a reverse polarity protection. When connecting the supply voltage, ensure correct polarity. In case of reverse polarity no function will be available.

#### 4.5 Venting of the centralized lubrication system

For the venting procedure of the centralized lubrication system it is helpful:

Prerequisites:

- o The SKF Compact Greaser must already have been mounted (chapters 4.3 to 4.3.4).
  - o The main tube lines must already have been connected to the SKF Compact Greaser and must have been laid and filled with lubricant without air inclusions up to the lube points (chapters 4.3.5 to 4.3.6).
  - o The electrical connection of the SKF Compact Greaser must already have been provided (chapter 4.4).
- Switch on the SKF Compact Greaser
  - Open the ends of the main tube lines until lubricant emerges free from bubbles

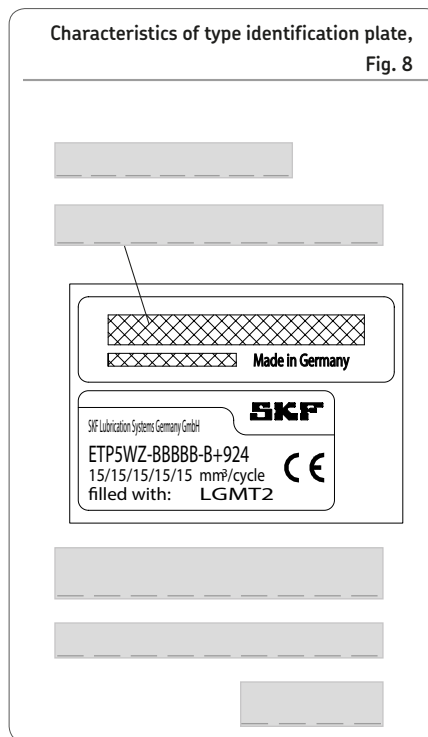
- Connect the ends of the main tube lines to the respective lubrication points

#### 4.6 Notes related to the type identification plate

☞ see Fig. 8

The type identification plate states important characteristics such as type designation, order number, barcode serial number, etc. To ensure that the loss of data due to an illegible type identification plate is avoided, the above mentioned characteristics should be entered in the following Figure 8.

- Enter the characteristics of the type identification plate in the following Fig. 8:



#### 4.7 Notes related to the CE marking

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

- o 2014/30/EU Electromagnetic compatibility
- o 2011/65/EU (RoHS II) Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Reference on Pressure Equipment Directive 2014/68/EU

Because of its performance data the product does not achieve the limit values defined in Article 4 (1) (a) (i) and is therefore excluded from the scope of application of Pressure Equipment Directive 2014/68/EU following Article 4 (3).







# **SKF Compact Greaser of the product series ETP**

for fluid grease and grease of NLGI classes 0 to 2

**Operating instructions belonging  
to the assembly instructions**

## 1. Safety instructions

### 1.1 General information

#### ATTENTION

The owner of the product described must ensure that any persons entrusted with the installation, operation, maintenance and repair of the product have read and fully understood the instructions.

In addition to the installation instructions, general statutory regulations and other regulations for accident prevention and environmental protection must be observed.

## 2. Lubricants

#### ATTENTION

The lubricant information listed in the assembly instructions, chapter 2 Lubricants, applies without restrictions also for these operating instructions.

The owner of the product described must ensure that any persons entrusted with the assembly, operation, maintenance and repair of the product have read and fully understood the instructions.

In addition to the installation instructions, general statutory regulations and other regulations for accident prevention and environmental protection must be observed.


## 3. Delivery, returns, and storage

### 3.1 Checking the delivery

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

### 3.2 Returns

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

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



SKF products are subject to the following storage conditions:

### 3.3 Storage

#### 3.3.1 Lubrication units

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

#### 3.3.2 Electronic and electric devices

Dry and dust-free surroundings, storage in well ventilated dry area.

- o storage time: 24 months max.
- o Relative humidity: < 65%.
- o Storage temperature: + 10 - +40 °C.
- o avoid direct sun or UV exposure
- o shield product from nearby sources of heat and coldness.

#### 3.3.3 General information

- o The product(s) can be wrapped in plastic film to provide low-dust storage.
- o Protection against ground moisture by storing on a shelf or wooden pallet.
- o Protect bare metal surfaces by corrosion protection agents. Check corrosion protection every 6 months and renew, if necessary.
- o Protect the SKF Compact Greaser against mechanical damage.

## 4. Assembly

### 4.1 General notes related to assembly

Assembly of the product has been described in detail in chapter 4 of the assembly instructions belonging to these operating instructions.

## 5. Design and function

### 5.1 General information

The SKF Compact Greasers are used for the lubrication of bearing points with micro and small-scale lubricant requirements. The lubrication of linear guides and rolling bearings in machines and mechanical equipment are typical fields of application.

SKF Compact Greasers have been designed for greases of NLGI classes 000 to 2. The SKF Compact Greasers are supplied with a lubricant cartridge filled with EP grease of NLGI class 2 as a standard.

Other lubricants are available on request depending on the field of application.

SKF Compact Greasers are available as versions with filling-level and stroke monitoring (ETPxWZ) and without filling-level and stroke monitoring (ETP...).

In addition, the versions differ with regard to the output volumes per lubricant outlet (10 to 20 mm<sup>3</sup>/stroke) and the number of lubricant outlets (2 to max. 5).

With regard to the number of lubricant outlets and their output volumes the SKF Compact Greasers are fabricated in accordance with the ordered version (see page 19).

### ATTENTION

After delivery nor the number of lubricant outlets nor the metering volume can be changed.

## 5.2 Design of the SKF Compact Greaser

The SKF Compact Greaser consists of a housing with 2 to maximum 5 lubricant outlets.

A lubrication line is connected to reach lubricant outlet.

The output volume per lubricant outlet can be chosen differently depending on the type of application. Unneeded lubricant outlets (code letter X) come already closed. Later changes are no more possible.

The fittings of the lubricant outlets are marked with code letters for the output volumes as follows:

- o Code letter **A** (20 mm<sup>3</sup>/stroke)
- o Code letter **B** (15 mm<sup>3</sup>/stroke)
- o Code letter **C** (10 mm<sup>3</sup>/stroke)
- o Code letter **X** (no output volume)

### ATTENTION

Provided but unneeded lubricant outlets (code letters **A, B, C**) must not be closed during assembly, as otherwise the function of the SKF Compact Greaser cannot be guaranteed.

The lubrication line diameter is 2.5 mm, the maximum lengths of the lubrication lines is 1.5 m.

Other lengths are available on request.

The cartridge reservoir integrated in the Compact Greaser contains a follower plate that provides a supporting spring pre-tension by means of a compression spring.

## 5.3 Function of the SKF Compact Greaser

☞ see Fig. 9 and Fig. 10

SKF Compact Greasers have been designed to dispense a metered amount of lubricant to a minimum of 2 and a maximum of 5 lubrication points.

The lubricant supply starts as soon as a supply voltage of 24 V DC is applied to the electrical connection.

A stroke movement supplies the lubricant in the metering chambers via metering pistons to the lubrication lines and further to the lubrication points.

After switching off the supply voltage the metering pistons return to their initial position by spring force.

This causes a vacuum which sucks the new lubricant from the lubricant cartridge into the metering chambers. The follower plate of the lubricant cartridge supports this procedure by spring force.

The metering pump with lubricant cartridge is ready for the next lubrication cycle. The timing of the control of the supply voltage is shown in Fig. 9.

The monitored version (WZ) of the SKF Compact Greaser includes a filling-level switch for an automatic filling-level control as well as stroke control switch for an automatic stroke control of the metering pistons. For this purpose there have been provided reed switches that are switched by neodymium magnets.

When idle and provided the filling level of the lubricant cartridge is sufficient, the contact of the filling-level switch is closed and the contact of the stroke control switch is open. During operation and provided the filling level of the lubricant cartridge is sufficient, the contact of the filling-level switch remains closed.

As soon as the metering pistons reach their correct final position, the stroke control switch contact is closed and an electrical signal is given to the machine control unit via the electrical circular connector.

The electrical signal can be evaluated as "*OK = lubrication performed*" by the machine control unit.

With regard to the stroke monitoring please consider that the final position of the metering pistons is reached only 7 minutes after switching on the supply voltage of 24 V DC,

### ATTENTION

The lubrication cycle takes at least 7 minutes. During this time no switch-off signal must be released.

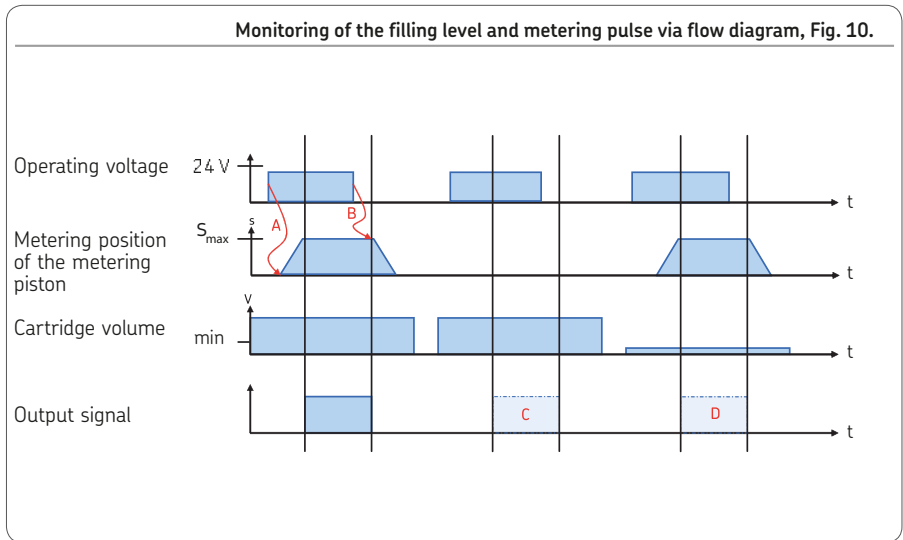
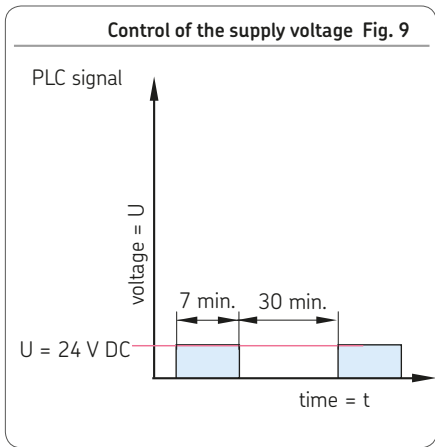
Within these 7 minutes the query of the control signal by the machine control unit shall take place. If available, it shall be evaluated as "*OK = lubrication performed*". Should no signal be present after 7 minutes, a fault can be assumed.

The time delay of 7 minutes is required because of the functioning principle of the metering pump and has to be considered when programming the machine control unit.

When the minimum filling level is reached in the lubricant cartridge, the contact of the filling-level switch opens and the electrical signal fails to appear, even though the stroke control switch is closed by the metering pistons reaching their final position. The missing electrical signal can be evaluated by the machine control unit as "*not OK = lubrication not performed*".

From this moment onwards a small lubricant reserve is available only. The lubricant cartridge has to be replaced immediately. If despite a sufficient filling level of the lubricant cartridge (filling-level switch is closed) the stroke control switch is not switched within the lubrication cycle of 7 minutes, this means there has not been performed any stroke nor lubrication.

The missing electrical signal can also be evaluated as "*not OK = lubrication not performed*" by the machine control unit.



**Legend of Fig. 10**

- A = Delayed dispensing / heating
- B = Delayed piston movement, cooling
- C = No output signal, fault due to the absence of a metering movement
- D = No output signal, fault due to level falling below the minimum

## 6. Start-up

### ATTENTION

Observe the machine manufacturer's instructions regarding the lubricants to be used.

### ATTENTION

Use clean lubricant only. Contaminated lubricants result in system failures.

### ATTENTION

#### **Material damage due to mixing of different lubricants**

It is recommended that an indication of the lubricant in use be attached to the lubricant reservoir in order to prevent accidental mixing of lubricants.

### ATTENTION

Air inclusions in the lubricant cartridge or in the SKF Compact Greaser impair the lubricant supply. During operation the lubricant cartridge must not be emptied fully, as otherwise there is the danger that air enters the SKF Compact Greaser and the centralized lubrication system. Otherwise the lubrication point may not receive sufficient lubrication, which can lead to damage and failure of the bearing point.

Should the lubricant cartridge have been emptied fully during operation, the SKF Compact Greaser as well as the entire centralized lubrication system have to be purged from air again.

### 6.1 Initial start-up

Before the initial start-up of the SKF Compact Greaser verify all electrical connections and lubrication line connections for proper seating.

Before starting the machine activity the customer should trigger a lubrication cycle. This lubrication cycle ensures that the respective lubricant outlets are completely filled with lubricant already.

- Determine lubrication intervals and program them into the machine control unit
- Trigger an additional lubrication
- ☞ Lubricant may be supplied free from air bubbles only. Air inclusions in the lubricant impair the equipment function and affect safe lubricant supply, which can cause damage to the bearing points to be lubricated.
- Start the machine



## 7. Operation, shutdown and disposal

### ATTENTION

Observe the machine manufacturer's instructions regarding the lubricants to be used.

### ATTENTION

Use clean lubricant only. Contaminated lubricants result in system failures.

### ATTENTION

#### Material damage due to mixing of different lubricants

It is recommended that an indication of the lubricant in use be attached to the lubricant reservoir in order to prevent accidental mixing of lubricants.

### ATTENTION

Air inclusions in the lubricant cartridge or in the SKF Compact Greaser impair the lubricant supply. During operation the lubricant cartridge must not be emptied fully, as otherwise there is the danger that air enters the SKF Compact Greaser and the centralized lubrication system. Otherwise the lubrication point may not receive sufficient lubrication, which can lead to damage and failure of the bearing point.

Should the lubricant cartridge have been emptied fully during operation, the SKF Compact Greaser as well as the entire centralized lubrication system have to be purged from air again.

### 7.1 General information

☞ see Fig. 11

SKF Compact Greasers operate automatically. Still the lubricant transport in the lubrication lines should undergo a regular visual check.

- The SKF Compact Greasers of the ETPx... series have to undergo a regular visual check regarding the lubricant filling level in the cartridge reservoir/ lubricant cartridge.
- Change the lubricant cartridge in case of a too low lubricant filling level (MIN marking).

6

7

## 7.2 Changing the lubricant cartridge

☞ see Fig. 11

### ATTENTION

#### Material damage due to incorrect un-locking of the cartridge reservoir.

During operation the cartridge reservoir of the SKF Compact Greaser is spring-loaded. Therefore before starting assembly, maintenance, modification and repair works on the system, the compression spring must be relieved from the spring load by removing the cartridge reservoir.

### ATTENTION

Air inclusions in the lubricant cartridge or in the SKF Compact Greaser impair the lubricant supply. This can result in poor lubrication and thus in damage and failure of the bearing point.

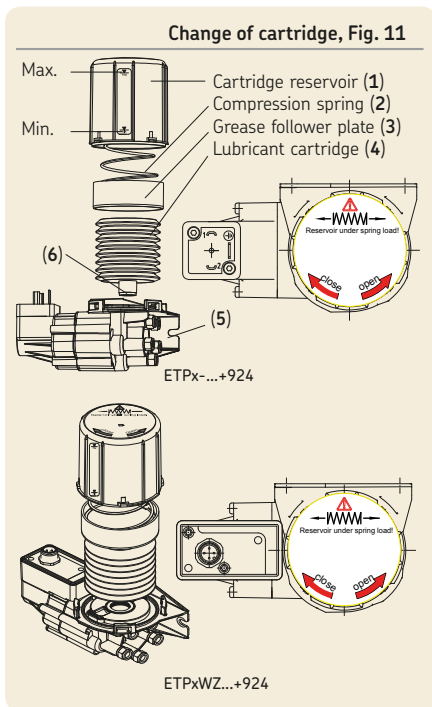
### ATTENTION

When changing the cartridge use only original grease cartridges made by SKF Lubrication Systems Germany GmbH. Refilling of an empty grease cartridge is prohibited as it bears the risk of air inclusions, contaminations and/or mixing up with residual lubricant.

The SKF Compact Greaser is filled with lubricant by renewing the lubricant cartridge in the cartridge reservoir.

- Unlock the bayonet lock by turning the cartridge reservoir to the left **(1)** by about 20°
- Take off the cartridge reservoir **(1)** together with the compression spring **(2)** and the follower plate **(3)**

- Remove empty lubricant cartridge **(4)** from the housing of the SKF Compact Greasers **(5)**
- Remove the closure plug **(6)** of the new lubricant cartridge **(4)**
- ☞ The following procedure ensures that no air will enter the SKF Compact Greaser and the centralized lubrication system.
- Press lubricant (metering volume about 7 mm ) out of the lubricant cartridge's outlet
- Insert a new lubricant cartridge **(4)** into the housing port of the SKF Compact Greaser **(5)**
- ☞ If air entered the SKF Compact Greaser or the centralized lubrication system by accident (visible air inclusions in the lubrication lines), the centralized lubrication system must be vented following chapter 4.5 of the installation instructions.



### 7.3 Temporary shutdown

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

For restarting the product observe the instructions given in the chapter "Installation" in the Installation Instructions.

### 7.4 Shutdown and disposal

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

**Dispose of the cartridge in an environmentally sound manner**





#### Environmental pollution

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

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

## 8. Maintenance

### 8.1 General information

	 <b>WARNING</b>
	<p><b>System pressure</b> Lubrication systems are pressurized during operation. Therefore, they must be depressurized before starting assembly, maintenance, modification or repair works.</p>

<b>ATTENTION</b>
<p><b>Material damage due to incorrect unlocking of the cartridge reservoir.</b> During operation the cartridge reservoir of the SKF Compact Greaser is spring-loaded. Therefore before starting assembly works its compression spring must be relieved from pressure – see chapter 7.2, page 42.</p>

The maintenance requirements of the SKF products are extremely low. To ensure proper functioning, all connections should be checked for firm seating at regular intervals.

The product may be cleaned with mild, material-compatible cleaning agents (no soap, not alkaline) as necessary.

For safety reasons, disconnect the product from the power grid before cleaning it. Make sure that no cleaning agents get inside the product.

Normally, inside cleaning of the product is not necessary.

Should incorrect or contaminated lubricant have been filled, inside cleaning of the product will be required.

Prior to doing so, contact the SKF Service Department.

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

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

SKF Lubrication Systems Germany GmbH accepts no liability for damages to the product resulting from improper installation, maintenance and repair works.

## 9. Troubleshooting

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

### ATTENTION


Disassembly of the product is not admissible and will result in the voiding of any warranty.

Defective products must be replaced.

Repairs may be carried out by SKF Service personnel only.

### ATTENTION

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

	<b>WARNING</b>
	<p><b>System pressure</b></p> <p>Lubrication systems are pressurized during operation. Therefore, they must be depressurized before starting assembly, maintenance, modification or repair works.</p>

### ATTENTION

#### Spring load

**In case of a fully mounted Compact Greaser the cartridge reservoir is spring-loaded.**

Before changing the lubricant cartridge the compression spring must be relieved from pressure. This is done by the bayonet lock of the cartridge reservoir. Carefully position and press your palm onto the cartridge reservoir, then open the cartridge reservoir by turning it to the left by about 20° - see chapter 7.2, page 42.

### 9.1 Before starting the troubleshooting

Air inclusions in the lubrication lines may result in a poor lubricant supply of a correctly configured SKF Compact Greaser that has been filled with a lubricant cartridge. Other reasons may be improperly routed (kinked) lubricant feed lines.

Therefore the SKF Compact Greaser as well as the lubricant feed lines should be checked for air inclusions before starting the troubleshooting. Furthermore, air inclusions should be avoided already when routing the lubricant feed lines.

### 9.2 Start-up, product and system failures

Fault	Cause	Remedy
The SKF Compact Greaser does not supply lubricant, in case of the ETPxWZ-...+924 no collective signal is given	o Lubricant cartridge is empty	<ul style="list-style-type: none"> <li>• Replace the lubricant cartridge; vent the SKF Compact Greaser and the lubricant feed lines, see chapter 4, Installation.</li> </ul>
	o Connection cable (electrically) interrupted	<ul style="list-style-type: none"> <li>• Replace the connection cable</li> </ul>
	o Air inclusions in the housing of the SKF Compact Greaser	<ul style="list-style-type: none"> <li>• Vent the SKF Compact Greaser following chapter 4.5</li> </ul>
	o Gaskets on metering piston are worn	<ul style="list-style-type: none"> <li>• Consult the SKF Service Department and, if necessary, return the gaskets.</li> </ul>
o Drive of the metering pump is defective		
Single lubricant outlets do not dispense lubricant	o Gaskets on metering piston are worn	<ul style="list-style-type: none"> <li>• Consult the SKF Service Department and, if necessary, return the gaskets.</li> </ul>
Permanent lubricant leakage from one or more lubricant outlets	o Contaminated or defective outlet valve	

## 10. Technical data

### 10.1 General technical data

#### Characteristic values, version

SKF Compact Greaser	Unit	ETPx-...+924	ETPxWZ-...+924
Output <sup>1)</sup>	mm <sup>3</sup> /stroke	10, 15 (standard), 20	10, 15 (standard), 20
Number of lubricant outlets		2-5	2-5
Max. backpressure	bar	25	25
Ambient temperature	°C	+15 to +40	+15 to +40
Activation period	min.	7	7
Minium Pause time	min.	30	30
Type of protection following DIN EN 60529	IP 55	IP 55	
Contents of lubricant cartridge	cm <sup>3</sup>	80	80
Lubricant NLGI grade		000, 00, 0, 1, 2	000, 00, 0, 1, 2
Lubrication tube line Ø	mm	2.5 x 0.5	2.5 x 0.5
Max. length of line	m	1.5	1.5
Electrical connection		DIN EN 175301-803A	M12x1. 4-pole
Material of pump housing		PA612	PA612
Material of pump lid		PPA	PPA
Material of cartridge reservoir		PA6I	PA6I
Material of fittings		galvanized steel	galvanized steel
Weight	g	360	410

1) During the installation and the acceptance test when delivered with a grease-filled cartridge, the SKF Compact Greaser is vented. But with regard to the physical characteristics of grease, air particles in the microstructure of the grease cannot be avoided completely and may thus impact the accuracy of the grease metering. The metering volume also depends on the type of grease that is used, its viscosity and the ambient temperature. The stated metering volumes are average values based on SKF standard grease and metered over 10 strokes. In individual cases a deviation of the metering volume is possible. For certain applications the customer-specific grease must be tested before the order.

## Characteristic values, version

SKF Compact Greaser	Unit	ETPx-...+924	ETPxWZ-...+924
<b>Lifting element</b>			
Rated voltage	V DC	24VDC +/-10%	24VDC +/-10%
Power consumption	W	24	24 <sup>2)</sup>
Switch-on current	A	1	1 <sup>2)</sup>
<b>Filling level switch</b>			
Rated voltage	V DC	-	24
Max. switching current	A	-	0.5
Max. switching capacity	VA	-	10
<b>Stroke control switch</b>			
Rated voltage	V DC	-	24
Max. switching current	A	-	0.5
Max. switching capacity	VA	-	10

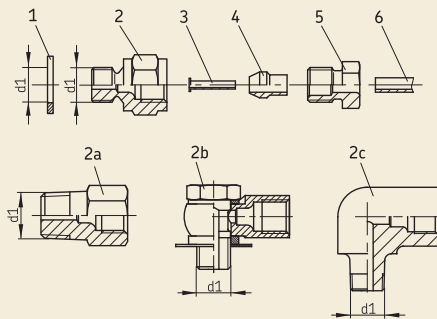
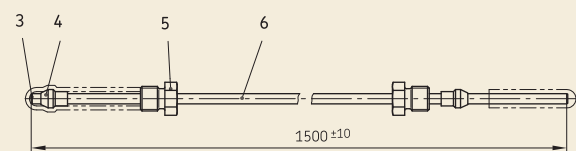
2.) plus output load PIN4



## 11. Accessories

Lubricant feed lines and line connections, Fig. 12

Pre-assembled plastic tube  
fully assembled

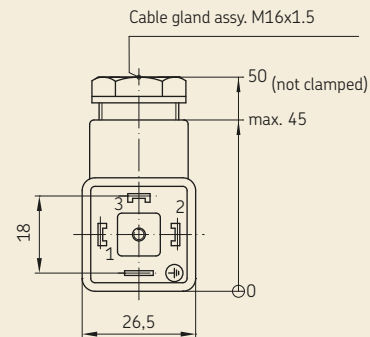


Legend of Fig. 12

Description	Order no.		
<b>Pre-assembled plastic tube</b>			
- filled with roller bearing grease type SKF LGMT2	<b>995-001-197-B</b>		
- filled with biodegradable grease type SKF LGGB2	<b>995-001-197-C</b>		
- filled with food-grade grease SKF LGFP2	<b>995-001-197-D</b>		
Item	Description	d1	Order no.
1	Sealing ring	M6 M8	DIN7603-A6×10-CU DIN7603-A8×11,5-CU
2	Connecting piece	M6 M6x0.75 M8x1	402-004 402-003 402-006
2a	Taper connecting piece	M6x0.75 M8x1 M10x1	402-003K 402-06K 402-008K
2b	Swivelling screw-fitting knee-shape	M6 M6x0.75 M8x1	502-161 502-101 502-102
2C	Knee piece	M6	502-206K
3	Push-in sleeve		402-603
4	Taper cutting ring		402-611
5	Compression nut		402-612
6	Plastic tube		WVN715-R02.5×0.5
Other fittings and accessories - see brochure 1-0103-EN			

**Square plug**

Order number	Designation
<b>179-990-147</b>	Line socket following DIN EN 175301-803A line diameter 4.5 - 7 mm

**179-990-147****179-990-147****Round plug M12x1**

Order number	Designation
<b>179-990-381</b>	Line socket straight, with mould-on cable (5 m, 3x0.25 mm <sup>2</sup> ) (A)
<b>179-990-382</b>	Line socket angled with mould-on cable (5 m, 3x0.25 mm <sup>2</sup> ) (B)
<b>179-990-371</b>	Line socket straight (C)
<b>179-990-372</b>	Line socket angled (D)

**Round plugs****A****B****C****D**

### 11.1 Order code SKF lubricant cartridge



Order code

F K O O 8 - [ ]

Product series

**FK008** = grease cartridge 80 cm<sup>3</sup>

Lubricant

**B** = SKF LGMT 2 (roller bearing grease)

**C** = SKF LGGB 2 (biodegradable grease)

**D** = SKF LGFP 2 (food-grade grease)

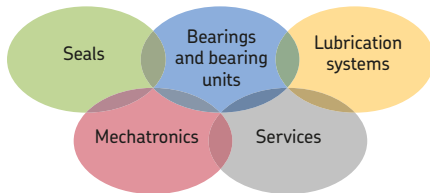
**Z** = Lubricant according to customers' wishes (minimum purchase quantity 20 units). *The desired lubricant must be supplied in 400 g standard cartridges (DIN1284). For the venting and testing procedures the number of the 400 g cartridges to be supplied must be calculated according to the following equation:  $1+(X/2)$  (X = ordered quantity). The lubricant supplied must be accompanied by the safety data sheet. To be able to assign the delivery to the product, the repackaging must be provided with the order number and the marking "Lubricant for ETP filling".*

Ordering example:

**FK008-B**

Grease cartridge 80 cm<sup>3</sup> (**FK008**)

Filled with roller bearing grease type SKF LGMT 2 (**B**)



### The Power of Knowledge Engineering

Drawing on five areas of competence and application-specific expertise amassed over more than 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry worldwide.

These five areas of competence include bearings and bearing units, seals, lubrication systems, mechatronics (combining mechanics and electronics into intelligent systems), and a wide range of services, from 3-D computer modelling to advanced condition monitoring and reliability and assessment management systems. A global presence provides SKF customers uniform quality standards and worldwide product availability.



#### Important information on product usage

**All products from SKF may be used only for their intended purpose** as described in this brochure and any instructions.

Not all lubricants are suitable for use in centralized lubrication systems. SKF does offer an inspection service to test customer supplied lubricant to determine if it can be used in a centralized lubrication system. SKF lubrication systems or their components are not approved for use with gases, liquefied gases, pressurized gases in solution and fluids with a vapor pressure exceeding normal atmospheric pressure (1013 mbar) by more than 0.5 bar at their maximum permissible temperature.

Hazardous materials of any kind, especially the materials classified as hazardous by CLP Regulation EC 1272/2008, annex 1, parts 2-5, may be filled into SKF centralized lubrication systems and components and delivered and/or distributed with the such systems and components only after consulting with and obtaining written approval from SKF.

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