



## Lubricators

CONCEPT1

User Manual



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# 1 About the manual

This manual is part of the product and contains important information. Read the manual thoroughly prior to use and follow the instructions precisely.


The original language of the manual is German. All other languages are translations from the original language.

## 1.1 Symbols



The warning and hazard symbols are defined in accordance with ANSI Z535.6-2011.

### 1 Warning and hazard symbols

#### Signs and descriptions

 <b>WARNING</b>	In case of non-compliance, death or serious injury may occur.
<b>NOTICE</b>	In case of non-compliance, damage or malfunctions in the product or the adjacent construction may occur.

### 2 Pictograms

	Grease
	Oil

## 1.2 Legal guidelines

The information in this manual reflects the status at the time of publication.

Unauthorised modifications to or improper use of the product are not permitted. Schaeffler accepts no liability in these cases.

The lubricator CONCEPT1 is certified in accordance with the ATEX directive and with IECEx. Changes to the product or the use of accessories that are not certified in accordance with this directive or standard will invalidate this certification.

## 2 General safety regulations

If the lubricator is put into operation without being opened, or the lubricant ducts are blocked, the pressure in the lubricator can build to approx. 5 bar. At a pressure of approx. 6 bar, the lubricator ruptures at the predetermined breaking point between the housing and funnel. The pressure behind the piston is relieved and grease or oil can escape at the predetermined breaking point.

When filling the lubricator, please be mindful that it may be destroyed as a result of the maximum pressure achievable with hand-lever presses (400 bar), if pressure continues to build when the lubricator is full.

Malfunctions can occur if unsuitable lubricants (greases or oils) are used.

- Only use lubricants that have been approved by Schaeffler for use in CONCEPT1 lubricators.
- With greases, ensure good stability of the base oil against bleeding and a low consistency grade ( $\leq$  NLGI 2).
- If external lubricants are used, observe the necessary marking of safety instructions.

If the CONCEPT1 lubricator is filled by the customer and filling is not carried out correctly, or lubricants are used that have not been approved by Schaeffler for these lubricators, any warranty or other claims made by the customer against Schaeffler in connection with a failure or malfunction of the lubricator will be disregarded. In case of doubt, please consult Schaeffler.

Only accessories with certification, which covers the requirements governing explosion protection for the respective application, may be used.

### 2.1 Usage for the intended purpose

CONCEPT1 automatic lubricators are used for the lubrication of rolling and plain bearings, chains, guidance systems and open gearboxes.

### 2.2 Hazards

#### **WARNING**



Electrostatic discharges or propagating brush discharges on the surface of the lubricator in an explosive atmosphere

Risk of explosion

- a) Clean the lubricator with a damp cloth only.
- b) Do not expose the lubricator to any air flow that may result in electrostatic charging of the lubricator.

### 3 Product description

☞ 1 CONCEPT1



☞ 2 CONCEPT1 components



001AAC0F

1	Drive unit	2	Scale
3	Cover	4	Housing
5	Pressure chamber	6	Piston
7	Lubricant	8	Outlet

## 4 Commissioning

The maximum permissible length of the connection cables is 0,5 m, the recommended inside diameter is 6 mm to 8 mm. Constrictions and acute angles are not permitted, line resistance should be minimised.

A lubricator may only be used to supply **one** lubrication point. Branching is not permissible.

Where strong vibrations or high accelerations occur, the mounting support (#16) should be used.

4

### 4.1 Prefilled dispenser

- ▶ Fill the lubrication point and any supply lines with the same lubricant that is contained in the lubricator.

#### 3 Filling the lubrication point



001AAE31

- ▶ Enter the next replacement date on the label.

#### 4 Entering the date on the label



001AAE41

- ▶ Activate the lubricator by setting the dispensing time. Use a screwdriver or coin to set the dispensing time on the drive unit in accordance with the data in the tables ▶12 | 3 ▶12 | 4.

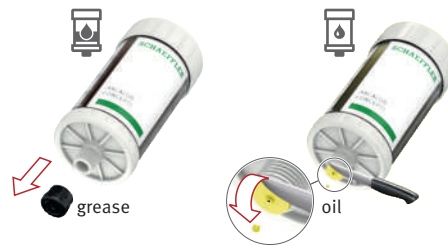
#### 5 Setting the dispensing time



001AAE51

- ▶ Open the lubricant outlet. For grease-filled lubricators, this involves removing the sealing cap. For oil-filled lubricators, only cut off the protruding nipple until a small black dot becomes visible.

#### 6 Opening the lubricant outlet



001AAE61

- ▶ Screw in the lubricator at the lubrication point. Use accessories if necessary.

#### 7 Screwing in the lubricator



001AAE71

## 4.2 Initial filling with grease

- ▶ Using a plastic rod, for example, push the piston all the way forwards towards the outlet opening.

#### 8 Pushing the piston in the direction of the outlet opening



001AAE81

- ▶ Screw-mount the filling adapter (#26) on the fill nozzle of the drum pump ▶9|9.
- ▶ Place the empty lubricator on the refill nipple ▶9|9.

### NOTICE



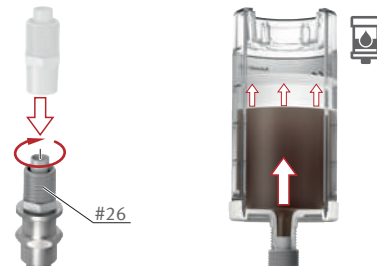
#### Pressures above 6 bar

Destruction of the lubricator

- When the lubricator is completely full, stop the filling process immediately and do not increase the pressure any further.
- ▶ Press the grease into the lubricator until the piston has been completely pushed back, ensuring that there are no air pockets in the lubricant.



### 9 Filling the lubricator with grease



001AAE91

- ▶ Close the lubricator with the sealing cap.

### 10 Closing the lubricator



001AAEA1

- ▶ Ensure that the O-ring is seated correctly and insert the drive unit into the lubricator housing.

### 11 Checking the O-ring and inserting the drive unit



001AAF8B

- ▶ Screw in the drive unit, tightening torque: 1,5 Nm to 2 Nm.

### 12 Fitting the drive unit



001AAC4F

- ▶ Align the "0" marking on the scale with the arrow head of the drive unit and press the scale on by hand ▶10 | 13.
- ▶ Press the cover on by hand.

### 13 Pressing on the scale and cover



001AAEFB

- ▶ Record the lubricant name, lubricant batch and fill date on the label.

### 14 Recording the lubricant data on the label



001AAFOB

## 4.3 Initial filling with oil

- ▶ Using a plastic rod, for example, push the piston all the way back towards the drive unit.

### 15 Pushing the piston towards the drive unit



001AAFB

- ▶ With the aid of a funnel, fill with oil up to the lower edge of the outlet opening.

### 16 Filling with oil




001AAF2B

- ▶ Insert the yellow check valve plug.

 17 Inserting the check valve plug

001AAF3B

- ▶ Mount the drive unit, scale and cover, and mark the label: as for initial filling with grease, from ▶9 |  11.

## 5 Operation

### 5.1 Setting the dispensing time

The dispensing time and thus the dispensing quantity are set in accordance with the ambient temperature on the drive unit.

▣3 ARCALUB-C1-60

Temperature	Dispensing time in months				
	1	3	6	9	12
	Dispensing quantity in cm <sup>3</sup> /d				
	2	0,67	0,33	0,22	0,17
°C	Setting				
-20	+	2	4	6,5	8
+4	+	2,5	5,5	8	10,5
+20	1	3	6	9	12
+40	1	3	6,5	9,5	-
+55	1	3,5	7	10,5	-

+ Use ARCALUB-C1-125.

- Smallest possible dispensing quantity reached.

▣4 ARCALUB-C1-125

Temperature	Dispensing time in months				
	1	3	6	9	12
	Dispensing quantity in cm <sup>3</sup> /d				
	4,17	1,39	0,69	0,46	0,35
°C	Setting				
-20	+	2	4	6,5	8,5
+4	+	2,5	5,5	8	10,5
+20	1	3	6	9	12
+40	1	3	6,5	9,5	-
+55	1	3,5	7	10	-

+ Use a 2-way adapter.

- Use ARCALUB-C1-60.

The values were calculated under laboratory conditions with unrestricted discharge. The dispensing time is notably influenced by the resistance and back pressure in the pipe system, the ambient temperature and the viscosity of the lubricant.

The dispensing time can be adjusted during operation, or the lubricator can be switched off completely.

The lubricator must be replaced at the end of the dispensing time, even if it is not yet completely empty.

### 5.2 Start-up time

The start-up time is the period between activation and the initial emergence of grease. This period is dependent on the set dispensing time and the ambient temperature.

At an ambient temperature of +20 °C and a set dispensing time of 12 months, for example, the start-up time will be one week. At -20 °C, the start-up time is doubled.

To reduce the start-up time, the dispensing time can be set initially (for one to two days) to one month and only afterwards to the required duration.

### 5.3 Refilling with grease or oil

- ▶ Remove the cover.
- ▶ Dismantle the scale and drive unit and dispose of these in accordance with regional regulations.

#### **WARNING**



#### Electrostatic charge during cleaning of the lubricator

Risk of explosion due to electrostatic discharge from the lubricator in an explosive atmosphere

- a) Clean the lubricator with a damp cloth only.
- ▶ Clean the lubricator and check for possible damage.
  - ▶ When refilling with oil: lay a new check valve plug out ready (used plug may not be reused).
  - ▶ Further procedure: as for initial filling.

### 5.4 Lubricant overview

Pre-filled lubricators are filled with high-performance Arcanol lubricants from Schaeffler.

#### 5 Lubricants

Lubricant	Use
Arcanol MULTI2	Multi-purpose grease for ball bearings up to an outside diameter of 62 mm
Arcanol MULTITOP	Multi-purpose grease for ball bearings and roller bearings (expanded temperature range)
Arcanol LOAD150 <sup>1)</sup>	Grease for increased loads
Arcanol LOAD220	Grease for high loads
Arcanol LOAD400	Grease for very high loads (NLGI 2)
Arcanol LOAD460 <sup>1)</sup>	Grease for very high loads (NLGI 1)
Arcanol TEMP110	Grease for high temperatures
Arcanol FOOD2	Grease for the food industry
Arcanol CHAIN-OIL	Chain oil
Arcanol FOOD-OIL	Chain oil for the food industry

<sup>1)</sup> For ARCALUB-C1-125 only

- Calculating the recommended dispensing setting:
  - <https://greaseapp.com/app>
- Lubricant safety data sheets:
  - <https://www.schaeffler.de/sds>
- Lubricant technical data sheets:
  - <https://www.schaeffler.de/std/1F42>

If there is any uncertainty regarding whether a lubricant is suitable for the lubricator, please consult Schaeffler: [support.is@schaeffler.com](mailto:support.is@schaeffler.com)

## 6 Disposal

**WARNING**



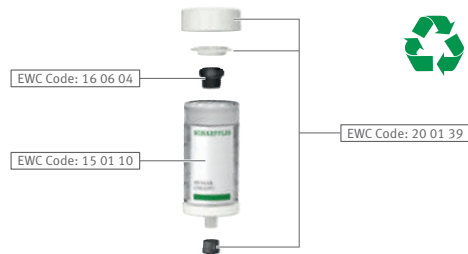
**Incorrect disposal**

Risk of explosion

- a) Never expose the drive unit to naked flames or excessive heat.

Disposal must be carried out in accordance with locally applicable regulations.


### 18 Disposing of the CONCEPT1 lubricator



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## 7 Technical data

### 6 Technical data

Feature	Value	
Drive system	Hydrogen gas development cell (dry element)	
Operating pressure	≤ 5 bar	
Dispensing time (steplessly adjustable)	1 month up to 12 months	
Operating temperature	-20 °C up to +55 °C (environment)	
Protection class	IP68	
Explosion protection classification	Certificate	DEKRA 20ATEX0032X IECEx DEK 21.0038X
		II 1G Ex ia IIC T6 G
		II 1D Ex ia IIIC T <sub>200</sub> 80°C Da
		I M1 Ex ia I Ma
Storage period	3 a (years) from date of production	
Storage temperature	+15 °C to +25 °C	
Mass (unfilled)	60 cm <sup>3</sup>	≈ 65 g
	125 cm <sup>3</sup>	≈ 80 g
Mass (filled)	60 cm <sup>3</sup>	≈ 115 g
	125 cm <sup>3</sup>	≈ 190 g

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### 7.1 Declaration of Conformity

#### 19 EU Declaration of Conformity

**SCHAEFFLER**

**EU Conformity Declaration**

**The manufacturer:** Schaeffler Technologies AG & Co. KG  
Georg-Schäfer-Str. 30  
D-97421 Schweinfurt

hereby declares that, based on its design and type and also on its marketed version, the product specified below complies with the relevant safety and health requirements of the following EU directives:  
Directive 2014/34/EU of the European Parliament and the Council on the harmonization of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres.


The manufacturer bears sole responsibility for issuing this conformity declaration.

**Product designation:** Lubrication system  
**Product name:** ARCALIB  
**Type:** C1-60 / C1-125

**Applicable harmonized standards:**  
EN IEC 60079-0:2018 Explosive atmospheres (General requirements)  
EN 60079-11:2012 Explosive atmospheres (protective systems)  
EN 60303:2000 Category M1 equipment

**Notified Body:** DEKRA Certification B.V.  
NL-8825 MJ Arnhem  
Identification number: 0344  
Certificate: DEKRA 20ATEX0032 X

**Name and address of the person authorized to compile the technical documents:**  
Schaeffler Technologies AG & Co. KG  
Georg-Schäfer-Str. 30  
D-97421 Schweinfurt

  
**Peter Schuster**  
Head of Mechatronics

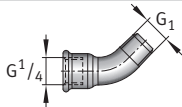
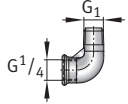
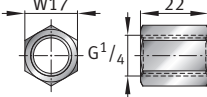
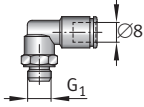
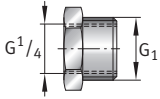
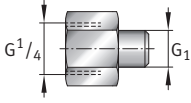
**Place, date:**  
Schweinfurt, 7/31/2020

This declaration certifies compliance with the directives specified above; however, it does not involve any guarantee of specific features. The safety information in the operating instructions must be followed.  
Schaeffler Technologies AG & Co. KG - Georg-Schäfer-Str. 30 - D-97421 Schweinfurt - Tel. +49 9721 91-0

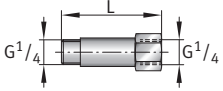
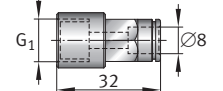
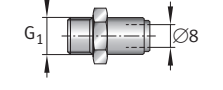
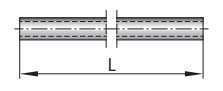
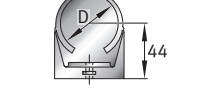
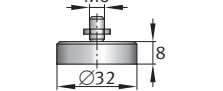
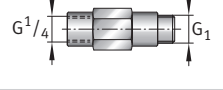
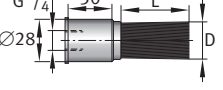
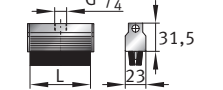
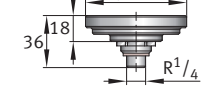
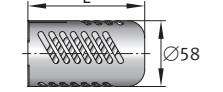
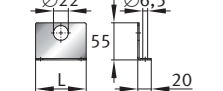
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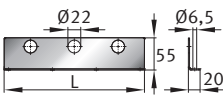
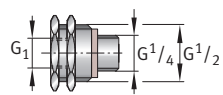
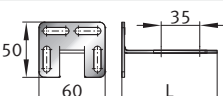
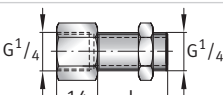
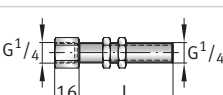
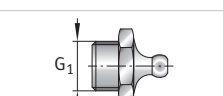
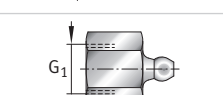
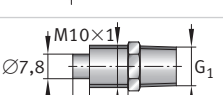

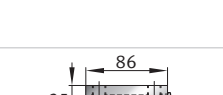
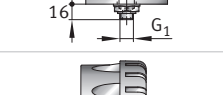

## 8 Accessories


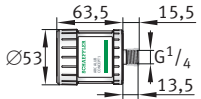
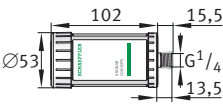
### 7 Accessories

#1		$G_1 = R 1/4$ 095285393-0000-10 ARCALUB-C1.CONNECT-45-G1/4-IA
#2		$G_1 = R 1/4$ 095285407-0000-10 ARCALUB-C1.CONNECT-90-G1/4-IA
#3		095291598-0000-10 ARCALUB-C1.CONNECT-G1/4
#4		$G_1 = G 1/8$ 083654577-0000-10 ARCALUB-X.TUBEFIT-G1/8-SAT188W
		$G_1 = G 1/4$ 083654623-0000-10 ARCALUB-X.TUBEFIT-G1/4-SAT148W
#5		$G_1 = G 3/8$ 095285806-0000-10 ARCALUB-C1.NIPPLE-G3/8-G1/4
#6		$G_1 = G 1/8$ 095285792-0000-10 ARCALUB-C1.NIPPLE-G1/8-G1/4
		$G_1 = G 1/4$ 095285784-0000-10 ARCALUB-C1.NIPPLE-G1/4-G1/4
		$G_1 = M6$ 095286071-0000-10 ARCALUB-C1.NIPPLE-M6-G1/4
		$G_1 = M8$ 095286080-0000-10 ARCALUB-C1.NIPPLE-M8-G1/4
		$G_1 = M8 \times 1$ 095301585-0000-10 ARCALUB-C1.NIPPLE-M8X1-G1/4
		$G_1 = M10$ 095286101-0000-10 ARCALUB-C1.NIPPLE-M10-G1/4
		$G_1 = M10 \times 1$ 095286721-0000-10 ARCALUB-C1.NIPPLE-M10X1-G1/4
		$G_1 = M12$ 095286730-0000-10 ARCALUB-C1.NIPPLE-M12-G1/4
		$G_1 = M12 \times 1,5$ 095286748-0000-10 ARCALUB-C1.NIPPLE-M12X1,5-G1/4
		$G_1 = UNF 1/4$ 095286756-0000-10 ARCALUB-C1.NIPPLE-UNF1/4-G1/4



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#8		<p><math>G_1 = G 1/4</math> 095287051-0000-10 ARCALUB-C1.TUBEFIT-G1/4I-SAT148G</p>
#9		<p><math>G_1 = G 1/8</math> 083654534-0000-10 ARCALUB-X.TUBEFIT-G1/8-SAT188G</p> <p><math>G_1 = G 1/4</math> 083654607-0000-10 ARCALUB-X.TUBEFIT-G1/4-SAT148G</p>
#10		<p>L = 5000 mm 095285750-0000-10 ARCALUB-C1.HOSE-8X6-PA12-5M</p>
#11		<p>D = 50 mm 095285377-0000-10 ARCALUB-C1.CLAMP</p>
#12		<p>095285385-0000-10 ARCALUB-C1.CLAMP-MAGNET</p>
#13		<p><math>G_1 = G 1/4</math> 095287515-0000-10 ARCALUB-C1.CONNECT-OIL-VALVE-G1/4</p>
#14		<p>D×L = 25 mm×45 mm 095285334-0000-10 ARCALUB-C1.BRUSH-25MM-G1/4-G</p>
#15		<p>L = 40 mm 095285342-0000-10 ARCALUB-C1.BRUSH-40MM-G1/4-G</p> <p>L = 70 mm 095285350-0000-10 ARCALUB-C1.BRUSH-70MM-G1/4-G</p> <p>L = 100 mm 095285369-0000-10 ARCALUB-C1.BRUSH-100MM-G1/4-G</p>
#16		<p>095285768-0000-10 ARCALUB-C1.MOUNT-SUPPORT-R1/4</p>
#17		<p>L = 105 mm 095285717-0000-10 ARCALUB-C1.COVER</p>
#18		<p>L = 75 mm 095285741-0000-10 ARCALUB-C1.FIXING-ANGLE</p>

#19		L = 240 mm 097881317-0000-10 ARCALUB-C1.FIXING-ANGLE-TRI
#20		$G_1 = R \frac{1}{4}$ 096691620-0000-10 ARCALUB-C1.FIXING-SCREW-G1/2-R1/4
#21		L = 84 mm 097880906-0000-10 ARCALUB-C1.FIXING-ANGLE-LONG
#22		L = 25 mm 097880884-0000-10 ARCALUB-C1.CONNECT-25-G1/4-IA
#23		L = 60 mm 097880892-0000-10 ARCALUB-C1.CONNECT-60-G1/4-IA
#24		$G_1 = R \frac{1}{4}$ 095248196-0000-10 ARCALUB-C1.NIPPLE-REFILL-R1/4
#25		$G_1 = G \frac{1}{4}$ 095248170-0000-10 ARCALUB-C1.NIPPLE-REFILL-G1/4
#26		$G_1 = R \frac{1}{4}$ 095248161-0000-10 ARCALUB-C1.NIPPLE-REFILL-GREASE-R1/4
		$G_1 = R \frac{3}{8}$ 095248137-0000-10 ARCALUB-C1.NIPPLE-REFILL-GREASE-R3/8
#27		$G_1 = G \frac{1}{4}$ 095285326-0000-10 ARCALUB-C1.ADAPTER-TWIN
#28		095287043-0000-10 ARCALUB-C1.SEAL-CAP
#29		095286780-0000-10 ARCALUB-C1.PLUG-OIL-VALVE
#30		095286802-0000-10 ARCALUB-C1.SEAL

#31		095287523-0000-10 ARCALUB-C1.DRYCELL-KIT-60 095287540-0000-10 ARCALUB-C1.DRYCELL-KIT-125
#32		095166050-0000-10 ARCALUB-C1-60-REFILLABLE
#33		095166076-0000-10 ARCALUB-C1-125-REFILLABLE

#### 8 Description of accessories

#1	Connecting piece, 45°
#2	Connecting piece, 90°
#3	Connecting piece, between fill nozzle of drum pump and filling adapter #26 (not required for Schaeffler drum pumps)
#4	Hose connector part, rotatable
#5	Connecting nipple
#6	Reducing nipple
#7	Extension
#8	Hose connector part, for hose Ø 8 mm
#9	Hose connector part, for hose Ø 8 mm
#10	Hose, unfilled, transparent
#11	Retaining clamp, for lubricator
#12	Magnetic base, for retaining clamp or fixing angle
#13	Check valve, G 1/4
#14	Brush, round, 25 mm
#15	Brush for the food industry, connector on top
#16	Mounting support, for lubricator
#17	Protective cover, for lubricator
#18	Fixing angle, for mounting support (#16) or fixing nipple (#20)
#19	Fixing angle, 3-way, for mounting support (#16) or fixing nipple (#20)
#20	Fixing nipple
#21	Fixing angle with slot, for bulkhead fitting (#22 or #23)
#22	Bulkhead fitting, 25 mm, for fixing angle with slot (#21), with 1 nut
#23	Bulkhead fitting, 60 mm, for fixing angle with slot (#21), with 2 nuts
#24	Lubrication nipple, for lubricating and filling the grease ducts
#25	Refill nipple, for filling the lubricator by grease gun
#26	Refill nipple, for filling the lubricator by drum pump
#27	2-way adapter, for doubling the dispensing quantity or dispensing time
#28	Sealing cap, plastic
#29	Check valve plug, plastic
#30	Sealing ring, plastic
#31	Refilling set, containing drive unit, scale, sealing cap and new adhesive label
#32	Automatic lubricator, 60 cm <sup>3</sup>
#33	Automatic lubricator, 125 cm <sup>3</sup>

**Schaeffler Technologies AG & Co. KG**

Georg-Schäfer-Straße 30

97421 Schweinfurt

Germany

[www.schaeffler.de/en/services](http://www.schaeffler.de/en/services)

Technical support:

[www.schaeffler.de/en/technical-support](http://www.schaeffler.de/en/technical-support)

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