Original operating instructions

SmartFiller

Type: Liquidtool SmartFiller
Product number: LTF-1-01-XXXXXX
Year of manufacture: 2023

Follow these instructions for proper and safe use.
Keep for future reference.

LT-S01-0012 , Print status 03/2023, English

TABLE OF CONTENTS

Table of contents **2**

Purpose of the operating instructions **4**

Orientation in the operating instructions **4**

1 Identification **6**

1.1 Product labeling 6
1.2 Manufacturer information 6
1.3 Conformity 6
1.3.1 FCC 6
1.3.2 ISED 6
1.4 Nameplate 7
1.5 Declaration of Conformity 8

2 Basic safety instructions **9**

2.1 Duty of care of the operator 9
2.2 General occupational safety 9
2.2.1 Personnel qualification 9
2.2.2 Authorized personnel 10
2.3 Residual hazards 10
2.3.1 Hazards due to electrical energy 10
2.3.2 Magnetism hazards 10
2.3.3 Hazards due to leakage and hose lines 11
2.3.4 Hazards due to cooling lubricant (KSS) 12
2.4 Safety instructions of the SmartFiller 13
2.5 Emergency information 13

3 Description, structure and function **14**

3.1 Intended use 14
3.2 Reasonably foreseeable misapplication 14
3.3 Conversions and modifications 14
3.4 Technical data 14
3.5 Location requirements 15
3.6 Structure 15
3.7 Function and system description 16
3.8 LED status light 16
3.9 Interfaces 17

4 Transport, installation and storage **18**

4.1 Introductory notes on safety 18
4.2 Packing 18
4.3 Transportation 18
4.4 Delivery 19
4.4.1 Scope of delivery 19
4.4.2 Inspection for transport damage 19
4.5 Download app 20
4.6 Storage 20

5 Commissioning **21**

5.1 Introductory notes on safety 21
5.2 Lineup 21
5.3 Notes on connecting the SmartFiller 22
5.4 Connection 23

6 Operation ... 27
6.1 Introductory notes on safety ... 27
6.2 Switch on SmartFiller ... 27
6.3 Switch off SmartFiller ... 27
6.4 Operation ... 27
7 Decommissioning ... 28
7.1 Introductory notes on safety ... 28
7.2 Dismantling ... 28
7.3 Cleaning ... 31
8 Service and maintenance ... 31
8.1 Troubleshooting ... 31
9 Disposal ... 32
9.1 Introductory notes on safety ... 32
9.2 Dismantling ... 32
9.3 Proper and environmentally compatible disposal ... 32
9.4 Disposal points ... 32

PURPOSE OF THE OPERATING INSTRUCTIONS

Before operating the SmartFiller for the first time or if you are assigned to perform other work on the SmartFiller, you must read the operating instructions.

The use and handling of the SmartFiller described below are not self-evident and are explained in detail in the accompanying technical documentation.

Pay particular attention to chapter "2 Basic safety instructions".

Operating instructions

The operating instructions will help you to use the SmartFiller properly, effectively and safely in accordance with its intended purpose. Therefore, read the following chapters carefully and attentively. If necessary, always refer to the information that is important to you.

Residual risks

The operating instructions inform and warn you of residual risks against which risk reduction by design and protective measures is not or not completely effective.

ORIENTATION IN THE OPERATING INSTRUCTIONS

Representation of general information symbols

These operating instructions contain the following general information symbols to guide you, the reader, through the operating instructions and to provide you with important information.

Pictogram	Meaning
	Caution possible property damage This pictogram indicates that material damage to the SmartFiller may occur during an action if the action specifications are not correctly observed and carried out.
	Important information This pictogram indicates important additional information that includes a warning of a hazard.
	Personnel qualification This pictogram indicates which personnel (target group) are allowed to perform the actions in the respective chapter.
	Instruction for action This pictogram indicates an instruction for action and always precedes an active action to be performed by the user.

Tab. 1: General pictograms and their meaning

Possible symbols in an instruction manual

Warning symbols warn of danger spots, risks and obstacles.

Danger point warning

Magnetic field warning

Warning of crushing hazard

Warning of trip hazards

Warning of flammable substances

Slip hazard warning

Warning against substances harmful to health

Environmental damage warning

Commandment symbols are used for accident prevention at the workplace

General bid symbol

Wear safety shoes

Wear protective gloves

Wear appropriate work clothes

Wear safety goggles

Read instruction

Prohibition symbols contribute to more safety.

General prohibition symbol

Prohibition for persons with pacemaker

Prohibition of food and beverages in the workplace prohibited

Prohibition of open fire and ignition sources

1 IDENTIFICATION

1.1 Product labeling

Type: Liquidtool SmartFiller
Product number: LTF-1-01-XXXXXX
Year of manufacture: 2023

1.2 Manufacturer information

Headquarters	Liquidtool Systems AG
	Winterseistrasse 22
	3415 Hasle-Rüegsau
	Switzerland
Email:	support@liquidtool.com
Internet:	www.liquidtool.com

Tab. 2: Manufacturer's data

1.3 Conformity

1.3.1 FCC

Class A tested device for industrial use only.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device contains the radio module FCC ID: 2AL6KBL-M8821CU1

This is a mobile device to be used in such a way that normally a distance of at least 20 cm is maintained between the radiating structure(s) of the RF source and the body of the user or nearby persons.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

1.3.2 ISED

This device incorporates license-exempt transmitter/receivers that comply with Innovation, Science and Economic Development Canada's license-exempt RSS. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

This device contains the radio module IC: 28504-BLM8821CU1

1.4 Nameplate

The SmartFiller is clearly identified by the nameplate and the product information on the product.

The nameplate of the SmartFiller is located on the back of the product

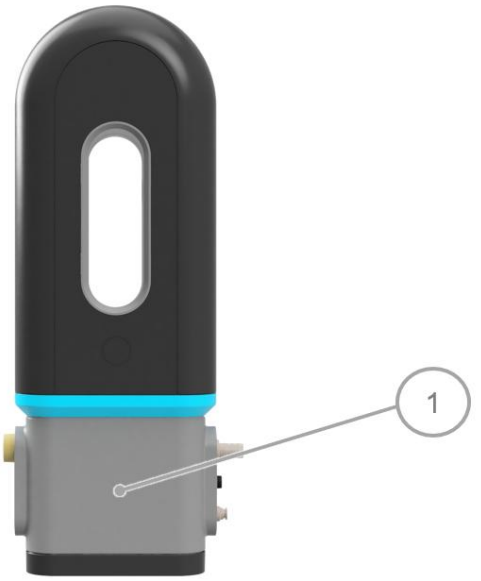


Fig. 1: Attachment location

1 Nameplate

Fig. 2: Nameplate

1 Company address

2 For EU member states only: Disposal notice for electrical appliances

3 Year of manufacture indication

1.5 Declaration of Conformity

EC Declaration of Conformity

The manufacturer / distributor
Liquid Tool Systems AG
Winterseistrasse 22
3415 Hasle-Rüegsau
Switzerland

hereby declares that the following product

Product name:	Smart Actuator
Model name:	SmartFiller
Type designation:	Liquidtool SmartFiller
Serial number:	LTF-1-00-XXXXXX
Year of manufacture:	2023

Description:
Smart mixing device for cooling lubricant

complies with all relevant provisions of the applied legal regulations (hereinafter) - including their amendments in force at the time of the declaration. The sole responsibility for issuing this declaration of conformity lies with the manufacturer. This declaration refers only to the machine in the condition in which it was placed on the market; parts added and/or interventions made subsequently by the end user are not taken into account.

The following legislation was applied:
Machinery Directive 2006/42/EC
Radio Equipment Directive 2014/53/EU
RoHS Directive 2011/65/EU

The protection goals of the following other legal regulations were met:
Low Voltage Directive 2014/35/EU

The following harmonized standards have been applied:

EN 60204-1:2006/AC:2010	Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2005 (Modified))
EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
EN ISO 19353:2016	Safety of machinery - Fire prevention and protection (ISO 19353:2015)
EN ISO 20607:2019	Safety of machinery - instruction handbooks - General principles for design (ISO 20607:2019)

Name and address of the person authorized to compile the technical documentation:
Manfred Schneeberger
Liquid Tool Systems AG
Winterseistrasse 22
3415 Hasle-Rüegsau
Switzerland

Location: Hasle-Rüegsau
Date: 19.04.2023

(Signature)
Head of Research and Development

Liquidtool Systems AG
Winterseistrasse 22
CH-3425 Hasle-Rüegsau
Switzerland

Fig. 3: Declaration of conformity

2 BASIC SAFETY INSTRUCTIONS

2.1 Duty of care of the operator

Technical condition of the SmartFiller

The following requirements are placed on the technical condition of the SmartFiller and must be ensured by the operator:

- The SmartFiller may only be used as intended
- The SmartFiller must always be checked for its perfect technical condition before it is switched on
- The safety devices must be checked regularly for proper functioning
- The safety and warning notices attached to the SmartFiller must not be removed and must be regularly checked for legibility and replaced if necessary
- No unauthorized conversions, manipulations or changes may be made to the SmartFiller
- The operating instructions must always be available in legible condition and complete at the place of use of the SmartFiller; this also applies to the instructions from suppliers.

2.2 General occupational safety

2.2.1 Personnel qualification

Important information about personnel qualification

All activities on the SmartFiller may only be performed by instructed, trained and authorized persons.

⚠ WARNING	
	Danger due to insufficient personnel qualifications There is a risk of serious injury and considerable damage to property if unqualified personnel are present in the danger zone or carry out work on the SmartFiller. ➢ Operating personnel must meet the specified qualification. ➢ Unqualified personnel must be kept away from the hazardous area.

Trained, instructed operating personnel

A trained/instructed person is a person who has been instructed and, if necessary, trained about the tasks assigned to him/her and the possible dangers in case of improper behavior. He/she has also been instructed about the necessary protective equipment and protective measures.

Personnel to be trained, instructed or undergoing general training may only work under the constant supervision of an experienced person. The personnel has read and understood the operating instructions.

Specialist

A specialist is defined as a person who has successfully completed vocational training. The specialist must also have knowledge of the relevant standards and regulations. They must be able to assess the work assigned to them and, on the basis of their professional training and work experience, must be able to recognize and avoid potential hazards on their own.

Electrician

The electrician is a person in the sense of a specialist with special knowledge in the field of electrical engineering (training in a recognized training profession as a journeyman/skilled worker, master craftsman, industrial foreman, state-certified technician, graduate engineer, bachelor or master).

2.2.2 Authorized personnel

Life phase/chapter	Personnel qualification
Transport, installation and storage	• Trained, instructed operating personnel
Commissioning	• Trained, instructed operating personnel • Specialist • Qualified electrician for work on electrical systems or equipment
Operation	• Trained, instructed operating personnel
Decommissioning	• Trained, instructed operating personnel • Specialist • Qualified electrician for work on electrical systems or equipment
Service and maintenance	• Trained, instructed operating personnel • Specialist • Qualified electrician for work on electrical systems or equipment
Disposal	• Trained, instructed operating personnel • Specialist • Qualified electrician for work on electrical systems or equipment
Troubleshooting	• Specialist • Qualified electrician for work on electrical systems or equipment

Tab. 3: Authorized personnel

Instruction

The personnel working on the SmartFiller must be regularly trained and instructed by the operator.

2.3 Residual hazards

2.3.1 Hazards due to electrical energy

The SmartFiller is connected to the power supply via a 24 volt power supply unit. When connecting the power supply to the SmartFiller, check that the cable is seated correctly.

Before maintenance work or disassembly, disconnect the mains plug and thus disconnect the SmartFiller from the power supply.

The electrical equipment of the SmartFiller must be checked at regular intervals. Defects, such as loose connections, rubbed or scorched cables, must be rectified immediately by a qualified electrician.

The SmartFiller must be switched off immediately in the event of faults in the electrical power supply.

2.3.2 Magnetism hazards

Hazards due to strong magnets

The SmartFiller is attached to surfaces by powerful magnets. These magnets cause electromagnetic fields that can affect pacemakers and similar devices. This can lead to malfunctions in pacemakers. The electromagnetic field affects devices in the immediate vicinity,

the perimeter is about 0.5 meters around the SmartFiller. Persons with pacemakers should not stay in this field.

⚠ WARNING	
	Danger from strong magnets The magnets cause strong, electromagnetic fields that can affect and interfere with electronic devices such as pacemakers. Malfunctions of pacemakers can cause death or serious injury to the persons affected. ➢ Persons with pacemakers must not be in the vicinity of the SmartFiller. ➢ Persons with pacemakers must not perform any activities with the SmartFiller. ➢ Check this warning notice on the SmartFiller or on the machine tool at regular intervals. Replace damaged warning labels immediately.

The hazard exists even when the SmartFiller is switched off; the magnets are always active. Persons with pacemakers must therefore not carry out any activities with the SmartFiller (neither transport, commissioning, disposal or maintenance and servicing).

In addition, regularly check the warning signs attached to the machine tool for damage. Only these pictograms can warn and protect uninvolved third parties from the magnets. For this purpose, comply with the information in the maintenance plan.

Risk of crushing due to magnets

The SmartFiller is attached to surfaces such as drums or machine housings by strong magnets. During installation, the magnetic effect can instantly pull the SmartFiller to the surface. If the fitter does not pay attention to his fingers during this process, they can be crushed as a result. This can result in slight bruising of individual fingers or fingertips. To protect against bruising, the SmartFiller should always be held by the upper part of the housing. Together with appropriate care, the SmartFiller can be fixed without risk.

Falling SmartFiller

The SmartFiller is attached to surfaces by means of magnets. If the magnetic adhesion of the surface is too low or non-existent, the SmartFiller can fall down. Falling down can crush the installer's feet. If the SmartFiller falls to the floor, it can be damaged.

Test the magnetic effect of the surface by carefully moving the SmartFiller towards it. Observe the magnetic effect and hold the SmartFiller by the upper part of the housing to prevent your fingers from being crushed. Then try to move the SmartFiller to see if it moves and threatens to fall off. If the SmartFiller moves even when a slight force is applied, a different surface must be selected for mounting or the supplied wall mount must be used.

2.3.3 Hazards due to leakage and hose lines

Leakage and defective hose lines

The SmartFiller is connected to the water supply and the cooling lubricant tank via hose lines. If these lines are not laid properly or if damaged lines are used, this will lead to leaks and cooling lubricant will escape.

Escaping cooling lubricant can cause injuries (e.g. by slipping). Therefore, lay the hose lines carefully and free of tripping hazards. Check the assembly of the hose lines before commissioning. Observe the information in the maintenance plan for regular checks.

Risk of tripping due to cables

The SmartFiller is connected to the water supply and the cooling lubricant tank via hose lines. These hose lines must be laid carefully to prevent the risk of tripping. Persons who trip over hose lines can fall and injure themselves. In addition, the lines or the connections on the SmartFiller can be damaged and cooling lubricant can escape in an uncontrolled manner.

2.3.4 Hazards due to cooling lubricant (KSS)

Hazard due to cooling lubricants (KSS)

Depending on the cooling lubricant used, there may be various hazards and risks. Therefore, be sure to read the data sheet of the cooling lubricant!

⚠ WARNING

Damage to health due to cooling lubricant

Direct contact of cooling lubricant with the skin can lead to illness and damage to health.

Direct eye contact with cooling lubricant can cause severe irritation of the eyes.

Inhalation of the vapors or aerosols may cause irritation and respiratory diseases.

Escaping and/or splashing cooling lubricant can contaminate food or drink.

- ➢ Observe the data sheet of the cooling lubricant.
- ➢ Wear protective gloves.
- ➢ Wear protective goggles.
- ➢ During maintenance, servicing, cleaning and disposal, note that residues of the cooling lubricant are present in the lines and in the unit even after it has been switched off.
- ➢ Eating and drinking in the vicinity of cooling lubricant is prohibited!
- ➢ Contact a doctor immediately if you experience any discomfort.

Spilled cooling lubricant must be wiped up and disposed of immediately. There is a danger of slipping! Persons could slip in it and injure themselves. Therefore, also check the lines regularly for leaks (see maintenance schedule).

NOTE

Environmental damage due to leaking cooling lubricant

Escaping cooling lubricant damages the environment and can be the trigger for further hazards.

- ➢ Observe the data sheet of the cooling lubricant.
- ➢ Regularly check pipelines for leaks.
- ➢ Remedy any leaks discovered immediately.
- ➢ Dispose of cooling lubricants in accordance with regulations.
- ➢ During maintenance, servicing, cleaning and disposal, note that residues of the cooling lubricant are present in the lines and in the unit even after it has been switched off.
- ➢ Notify the appropriate environmental agency in the event of large spills.

Drinking water contamination

The connection to the drinking water line must be made via a system separator type: BA, not included in the scope of delivery, suitable for the liquid categories: 1, 2, 3, 4, according to DIN EN 1717.

2.4 Safety instructions of the SmartFiller

The SmartFiller is supplied with several pictograms and warning notices as stickers. Due to the small size of the product, these cannot be attached to the SmartFiller. During assembly, they must instead be affixed in the vicinity of the SmartFiller, e.g. on the housing of the machine tool. These stickers must be checked regularly. Damaged stickers must be replaced immediately.

Fig. 4: Safety instructions near the SmartFiller(example)

1

⚠ WARNUNG

Gesundheitsschäden durch Kühlschmierstoff

Der direkte Kontakt von Kühlschmierstoff mit der Haut kann zu Erkrankungen und gesundheitlichen Schäden führen.

Direkter Augenkontakt mit Kühlschmierstoff kann zu heftigen Reizungen der Augen führen.

Das Einatmen der Dämpfe oder Aerosole kann zu Reizungen und Erkrankungen der Atemwege führen.

Austretender und/oder spritzender Kühlschmierstoff kann Essen oder Trinken kontaminieren.

- Beachten Sie das Datenblatt des Kühlschmierstoffes.
- Tragen Sie Schutzhandschuhe.
- Tragen Sie eine Schutzbrille.
- Beachten Sie während der Wartung, Instandhaltung, Reinigung und Entsorgung, dass Rückstände des Kühlschmierstoffes in den Leitungen und im Gerät auch nach Abschaltung vorhanden sind.
- Essen und Trinken in der Nähe von Kühlschmierstoff sind verboten!
- Kontaktieren Sie bei Beschwerden sofort einen Arzt.

2

⚠ WARNUNG

Gefährdung durch starke Magnete

Die Magnete verursachen starke, elektromagnetische Felder, die elektronische Geräte wie Herzschrittmacher beeinflussen und stören können. Fehlfunktionen von Herzschrittmachern können bei den betroffenen Personen zu Tod oder schweren Verletzungen führen.

- Personen mit Herzschrittmachern dürfen sich nicht in der Nähe der LTS SensorBox aufhalten.
- Personen mit Herzschrittmachern dürfen keine Tätigkeiten mit der LTS SensorBox durchführen.
- Kontrollieren Sie regelmäßig das Warnhinweis auf dem Produkt. Ersetzen Sie beschädigte Warnhinweise umgehend.

3

⚠ VORSICHT

Quetschgefahr durch starke Magnetkräfte

Die Magnete des Sensors sind stark und werden schnell an die metallische Oberfläche gezogen. Gelangen Finger zwischen die Magnete und die metallische Oberfläche, können sie gequetscht werden.

- Halten Sie den Sensor so, dass Ihre Finger in der Griffmulde sind.

2.5 Emergency information

Behavior in an emergency

In the event of an emergency on the SmartFiller, it must be put out of operation by disconnecting the power plug. It must be checked whether there are any injured persons.

SAFETY NOTE	
	In case of malfunction or emergency, immediately pull out the mains plug! This disconnects the SmartFiller from the power supply, thus shutting it down immediately.

Important information for your safety

You are responsible!

In any case, the safety instructions in chapter "2 Basic safety instructions" and the locally applicable safety regulations must be observed and complied with.

Important information in the data sheet of the cooling lubricant

There are different cooling lubricants which can have different effects on health.
In case of emergencies, observe the data sheet of the cooling lubricant!

3 DESCRIPTION, STRUCTURE AND FUNCTION

3.1 Intended use

The SmartFiller may only be used for mixing cooling lubricant. The cooling lubricant must be water emulsifiable. To mix the emulsion, the SmartFiller requires fresh water and cooling lubricant concentrate. The cooling lubricant is transported to the cooling lubricant tank of a machine tool by means of hose lines. The app belonging to the SmartFiller collects corresponding data for filling.

The SmartFiller may only be used if:

- This is in technically perfect condition
- The personnel has the necessary safety and hazard awareness
- The instructions in the operating manual are followed

3.2 Reasonably foreseeable misapplication

The SmartFiller is not intended for any purpose other than the intended use listed here.

In principle, any use other than the intended use is considered improper use. This means that safe operation is no longer guaranteed. The operator, and not the manufacturer, is responsible for all personal injury and damage to property resulting from improper use.

Foreseeable misapplication also includes:

- Improper installation, commissioning, operation and maintenance of the SmartFiller
- Operating the SmartFiller in a faulty state
- Operating the SmartFiller without protective covers
- Setting up or operating the SmartFiller in potentially explosive atmospheres
- Use of operating materials that are not approved by the manufacturer

3.3 Conversions and modifications

For safety reasons, conversions and modifications to the SmartFillers are only permitted after consultation with the manufacturer.

The use of non-original spare parts may invalidate liability for any resulting consequences. Therefore, always use only the specified spare parts, this applies in particular to safety-relevant components.

3.4 Technical data

Mass and weight

	Value	Unit
Length/Depth	94	mm
Wide	180	mm
Height	503	mm
Weight	6.8	kg

Tab. 4: Mass and weight

Connected loads and power - electricity

	Value	Unit
Voltage	24	VDC
Power	max. 2.5	A
Mains connection	External power supply with 100-240V / 50-60Hz AC | 5 connection adapters (ILC type A, C, G, I)	
Protection class	Dust and splash water protected	

Tab. 5: Connected loads and power - electricity

Interfaces

Communication / Interfaces
Bluetooth
WLAN
NFC

Tab. 6: Interfaces

Emission values

	Value
Sound power level	<75 dB(A) A-weighted equivalent continuous sound pressure level is below 70 dB(A)

Tab. 7: Emission values

3.5 Location requirements

To ensure trouble-free operation of the SmartFiller, the following location and installation conditions must be met.

Temperature

The ambient temperature must be between +5 °C and +40 °C to ensure smooth operation. The environment must be frost-free, dry and protected against corrosion.

Network

The device is intended for operation on a protected company network. It initiates all connections itself and does not need to be reachable from the internet. Operation behind a router or firewall managed by the operating company is recommended; a direct connection to the internet is not permitted.

3.6 Structure

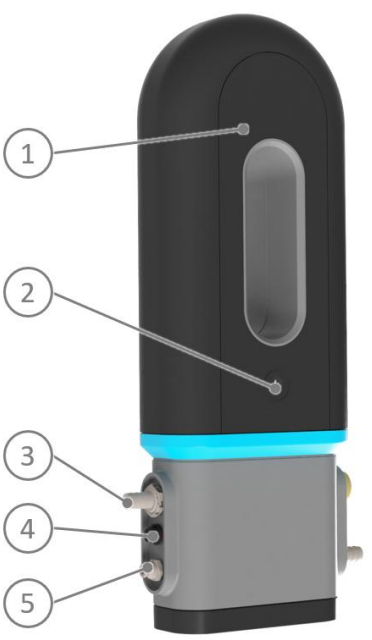


Fig. 5Structure of the SmartFiller (diagonal left view)

1 Housing
2 Capacitive probe
3 Concentrate inlet (hose nozzle Ø 13mm)
4 Connection power supply
5 Concentrate level measurement connection coupling

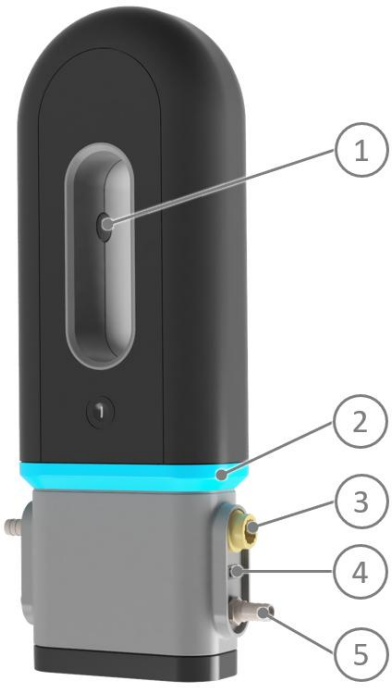


Fig. 6: Structure of the sensor (rear view)

1 Concealed connection (1x RJ45 network)

2 Lighting

3 Water inlet (G ¾)

4 Main switch

5 Emulsion outlet (hose nozzle Ø 16mm)

3.7 Function and system description

The SmartFiller is part of the Liquidtool AutoPilot solution. It is connected to a fresh water line and a container with cooling lubricant concentrate and mixes an emulsion with the desired concentration based on measured values. The information about the filling is transmitted to the Liquidtool Manager and stored there.

3.8 LED status light

There is an LED in the capacitive button on the front of the product. This lights up in different colors to indicate the status of the product. You can find more information about this in our Liquidtool app.

Color	State	Description/meaning
White	lights up permanently	No internet connection
Green	Lights up permanently	The product is ready for operation
Blue	Lights up permanently	The SmartFiller is paired via Bluetooth
Blue	flashing	The SmartFiller is in Bluetooth pairing mode
Orange	Lights up permanently	Warning
Red	Lights up permanently	Fault/Error

Tab. 8LED for status indication

3.9 Interfaces

The SmartFiller has the following interfaces:

- W-LAN adapter
- Status LED
- Capacitive probe
- Power switch
- Plug connection (power supply)
- Concentrate connection
- Water connection
- Connection for level measurement of the concentrate
- Emulsion outlet
- Concealed connections:
  - 1x RJ45 network

4 TRANSPORT, INSTALLATION AND STORAGE

4.1 Introductory notes on safety

Personnel qualification

The following personnel are authorized for "transport, installation and storage":

- Trained, instructed operating personnel

Important information for your safety

You are responsible!

In any case, the safety instructions in chapter "2 Basic safety instructions" and the locally applicable safety regulations must be observed and complied with.

Wear the required protective equipment (PPE).

SAFETY NOTE	
	Important information about transport If the SmartFiller has already been used, you must decommission it before transport. Follow the instructions in the relevant chapter. ➢ Information on decommissioning can be found in chapter "7 Decommissioning" on page28 .

⚠ WARNING	
	Danger from strong magnets The magnets cause strong, electromagnetic fields that can affect and interfere with electronic devices such as pacemakers. Malfunctions of pacemakers can cause death or serious injury to the persons affected. ➢ Persons with pacemakers must not be in the vicinity of the SmartFiller. ➢ Persons with pacemakers must not perform any activities with the SmartFiller. ➢ Regularly check the warning label on the SmartFiller or the machine tool. Replace damaged warning labels immediately.

4.2 Packing

The SmartFiller is packed in cardboard boxes. Unpack all parts and dispose of the packaging in an environmentally friendly manner.

4.3 Transportation

Due to its light weight, you can carry the SmartFiller in its packaging to your installation site.

4.4 Delivery

4.4.1 Scope of delivery

Included in delivery are:

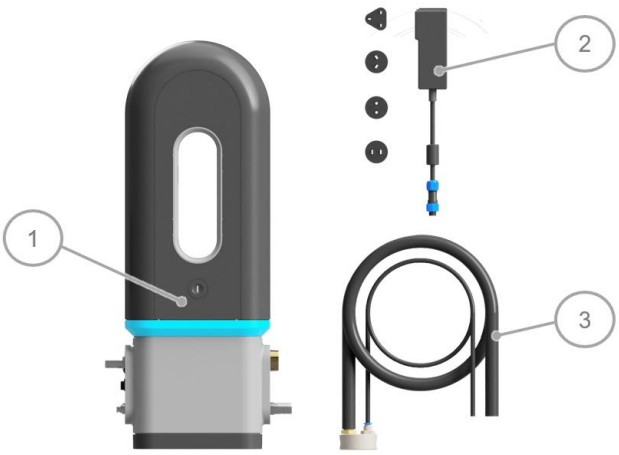


Fig. 7: Scope of delivery

1 SmartFiller

2 Power cable with power supply unit, 4 plug adapters to the power supply unit

3 Hose line with barrel connection

4 Safety and warning instructions (not shown)

4.4.2 Inspection for transport damage

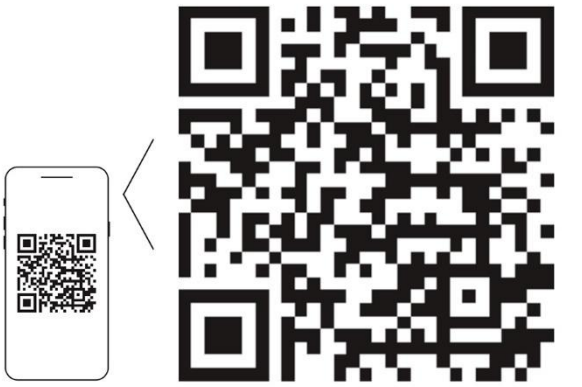
Check the SmartFiller for transport damage immediately after delivery to the installation site. If there is any transport damage, it must be reported to the manufacturer immediately. It is recommended to document the transport damage with photos.

4.5 Download app

The SmartFiller is controlled and used via a specially developed app (Liquidtool Manager). The app can be downloaded and installed via smartphones or tablets.

To download the app, do the following:

1. Scan the QR code below with an appropriate app/camera on your smartphone.



LIQUIDTOOL App
https://download.liquidtool.com/apps

Fig. 8QR code for downloading the app

   - ➢ Your smartphone will ask you if you want to open the link.
2. Open the link.
   - ➢ Depending on the device you are using, you can access the App Store or Google Play.
3. Download the app from the respective store and install it.
   - ✓ The app download is complete. The app is ready to use.

4.6 Storage

If the SmartFiller is to be stored, the following criteria must be observed:

- Store in a dry and cool place
- up to 95% relative humidity

5 COMMISSIONING

5.1 Introductory notes on safety

Personnel qualification

The following personnel are approved for "Commissioning":

- Trained, instructed operating personnel
- Specialists for special work on the machine tool, the cooling lubricant tank or the electrical system

Important information for your safety

You are responsible!

In any case, the safety instructions in chapter "2 Basic safety instructions" and the locally applicable safety regulations must be observed and complied with.

Wear the required protective equipment (PPE).

5.2 Lineup

Set-up diagram

The SmartFiller must be set up according to the set-up diagram. An installation example is shown schematically below.

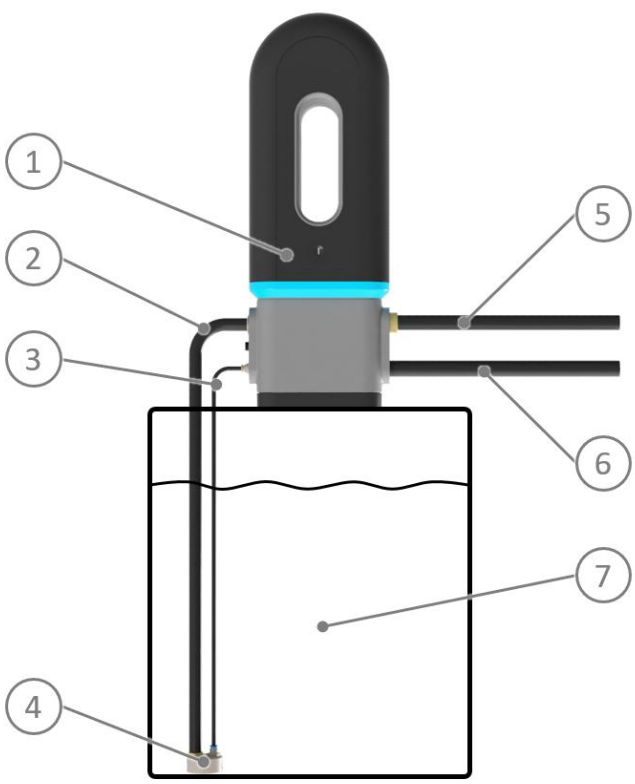


Fig. 9: Arrangement diagram

1 SmartFiller 01
2 Connection line concentrate
3 Measuring line concentrate level
4 Hose connection
5 Connection pipe water
6 Connection line emulsion
7 Cooling lubricant concentrate

Site

The following criteria are required of the SmartFiller installation site and must be met:

- Near the cooling lubricant concentrate
- Do not install in potentially explosive atmospheres
- Attach in vertical arrangement (SemartFiller not lying, i.e. do not attach).
- Working range around the SmartFiller should be 1m
- Lay connections (cables and hose lines) between parts without tripping hazards

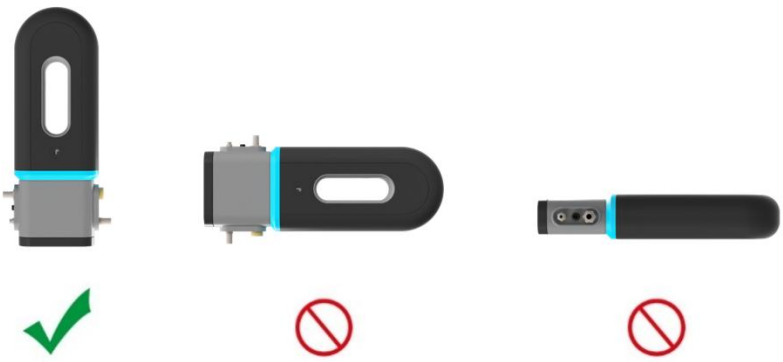


Fig. 10: Mounting position

5.3 Notes on connecting the SmartFiller

The SmartFiller must be mounted near the cooling lubricant concentrate and put into operation. The SmartFiller is mounted via magnets on the underside of the product. Accordingly, a magnetic surface is required. Alternatively, the SmartFiller can be mounted using the wall bracket supplied. It is essential to observe the instructions in the following chapters.

5.4 Connection

Prerequisite:

- The connection instructions have been read and understood
- There is 1 copy each of the individual warning and safety instructions

To connect the SmartFiller, proceed as follows:

4. Connect the supplied power cord to the SmartFiller. The connection is located on the right side.

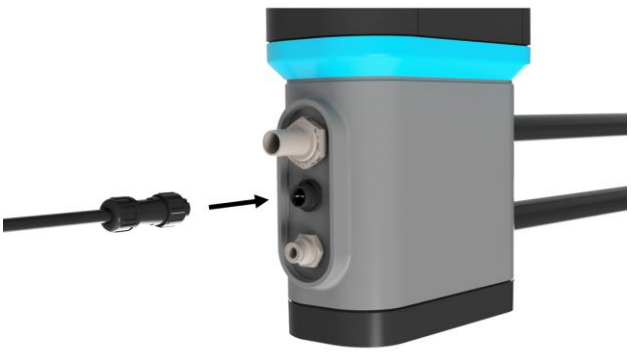


Fig. 11: Connecting the power cable

5. Connect the supplied connection cables to the SmartFiller.
   - ➢ The upper connection is for the connection line for the cooling lubricant concentrate. The lower connection is for the level measurement

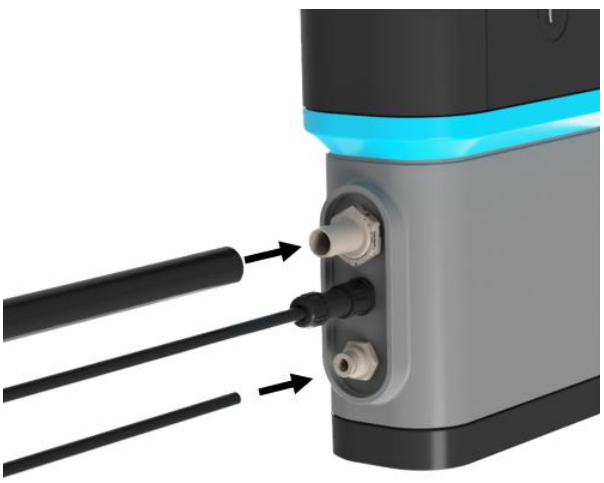


Fig. 12: Connecting the connection lines

6. ⚠ **CAUTION!** Risk of crushing due to strong magnetic forces. The magnets of the SmartFiller are strong and are quickly drawn to the metallic surface. If fingers get between the magnets and the metallic surface, they can be crushed. Hold the SmartFiller so that your fingers are in the recessed grip.

7. Guide the bottom of the SmartFiller to a magnetic surface near the cooling lubricant concentrate. We recommend placing the SmartFiller directly on the drum.

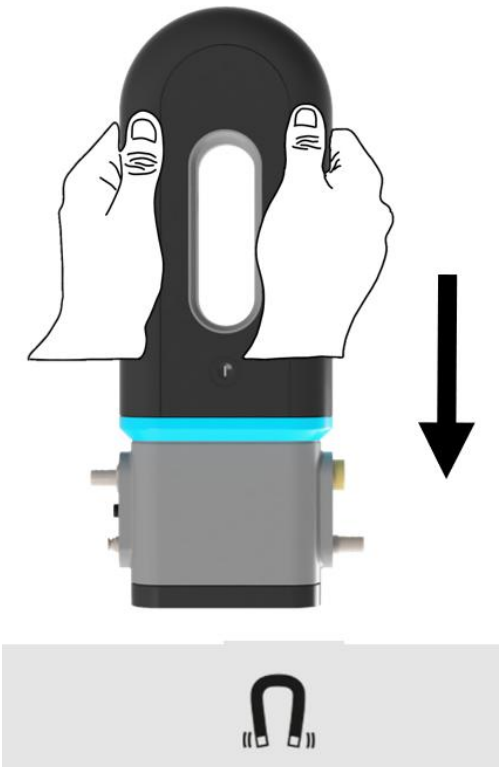


Fig. 13: Attach sensor to surface

➢ You notice whether the magnets of the SmartFiller hold or not.

8. If the magnets do not hold, the surface is not suitable for attachment. Find another surface and repeat the previous step.

➢ ⚠ **CAUTION!** Risk of injury due to SmartFiller falling down! Pull lightly on the SmartFiller so that you can see whether it is threatening to tip over or is moving. Reach for the SmartFiller if it threatens to tip over. In this way, you can prevent slight injuries to your feet and damage to the SmartFiller.

➢ The magnets of the SmartFiller are strong and hold it in place.

9. Attach the supplied warning and safety notices near the SmartFiller.

Fig. 14: Attaching warning labels (example)

10. Insert the two connection lines into the cooling lubricant concentrate.

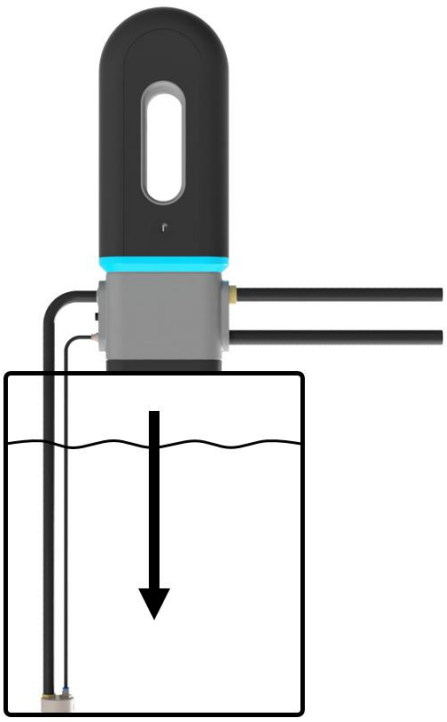


Fig. 15: Connection lines in the cooling lubricant tank

11. Check the length of the connection lines. There must be a maximum distance of 1.5 meters between SmartFiller and the surface of the cooling lubricant concentrate. Also note a lower liquid level here!

12. Check the hose connection of the suction line. This must be at the bottom to ensure complete emptying and accurate level measurement.

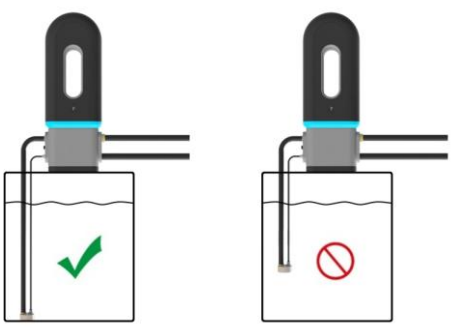


Fig. 16: Correctly laid connection lines

13. Connect the emulsion line to the machine and secure it with a hose clamp

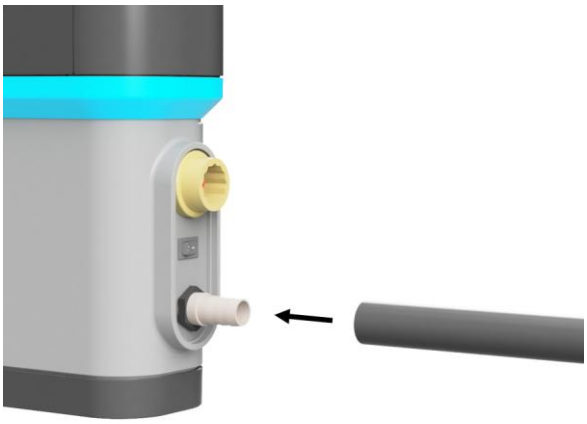


Fig. 17: Connecting the emulsion line

14. Connect the water supply line to the SmartFiller.
    The connection to the drinking water line must be made via a system separator type: BA not included in the scope of delivery, which prevents contamination of the drinking water with cooling lubricant.

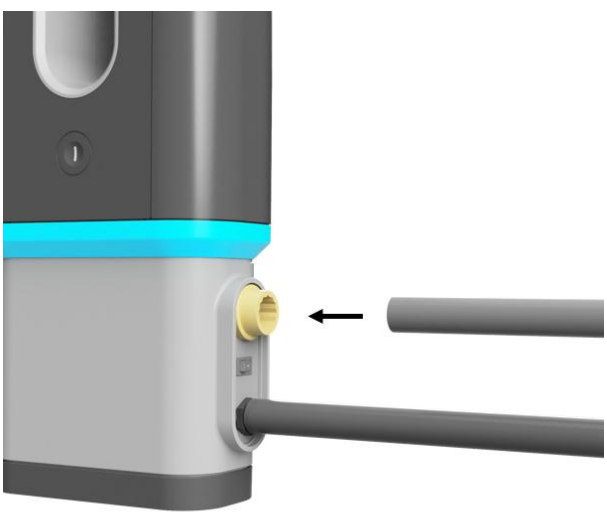


Fig. 18:Connecting the water pipe

15. Insert the power plug into a suitable power outlet.
    ✓ The connection of the SmartFiller is complete. Now download the app.

6 OPERATION

6.1 Introductory notes on safety

Personnel qualification

The following personnel are approved for "operation":

- Trained, instructed operating personnel for the use of the SmartFiller within the scope of its intended use

Important information for your safety

You are responsible!

In any case, the safety instructions in chapter "2 Basic safety instructions" and the locally applicable safety regulations must be observed and complied with.

Wear the required protective equipment (PPE).

6.2 Switch on SmartFiller

Prerequisite:

- The SmartFiller is connected

To switch on the SmartFiller, proceed as follows:

16. Make sure that the SmartFiller is connected as described in chapter "5.5 Connection" on page23 is connected.
17. Press the power switch on the right side of the SmartFiller to the "I" position.

    ➢ The illumination in the center of the device lights up.

    ✓ The SmartFiller is switched on.

6.3 Switch off SmartFiller

Prerequisite:

- The SmartFiller is switched off

To switch off the SmartFiller, proceed as follows:

18. Press the power switch on the right side of the SmartFiller to the "O" position.

    ➢ The illumination goes out.

    ➢ The status light on the front panel flashes white and also goes out after a few seconds.

    ✓ The SmartFillerr is switched off.

6.4 Operation

The SmartFiller is operated via the associated app (Liquidtool Manager). Download the app as described in chapter "4.5 Downloading the app" on page20

For more information on operation, see the app.

7 DECOMMISSIONING

7.1 Introductory notes on safety

Personnel qualification

The following personnel are authorized for "Decommissioning":

- Trained, instructed operating personnel for activities on the SmartFiller.
- Specialists for special work on the machine tool, cooling lubricant tank or electrical system.
- All electrical work may only be carried out by instructed and authorized electricians

Important information for your safety

You are responsible!

In any case, the safety instructions in chapter "2 Basic safety instructions" and the locally applicable safety regulations must be observed and complied with.

Wear the required protective equipment (PPE).

⚠ CAUTION	
	Risk of slipping due to leaking cooling lubricant After switching off the SmartFiller, residues of the cooling lubricant remain in the lines and in the SmartFiller itself. These can escape during decommissioning and collect in puddles on the floor. People step into these puddles, slip and injure themselves. ➢ In case of leaking cooling lubricant, observe the manufacturer's data sheet. ➢ Remove puddles and leaked cooling lubricant immediately. ➢ Inform other people about the danger.

7.2 Dismantling

Prerequisite:

- The instructions for decommissioning have been read and understood
- The SemartFiller is switched off
- Wear the required protective equipment (PPE)
- Consider the data sheet of the cooling lubricant
- Absorbent paper

To dismantle the SmartFiller, proceed as follows:

19. Turn off the water supply to the Smartfiller
20. ⚠ **WARNING!** If the water line is still under pressure when loosening, it will spray out.
21. Remove the water pipe
22. Unplug the power cord from the power outlet.
23. Place the plug within your field of view. This prevents third parties from reconnecting the SmartFiller.
24. ⚠ **WARNING!** Danger of short circuit! Make sure that the plug of the power cable is not connected to a socket. If the electrically connected SmartFiller falls into the cooling lubricant tank, a short circuit may occur.
25. ⚠ **WARNING!** Risk of injury due to contact with cooling lubricant. Although the SmartFiller is switched off, residues of the cooling lubricants may still be present on or in lines or in the product. Direct contact of cooling lubricant with the skin can lead to illness and damage to health. Inhalation of the vapors or aerosols may cause irritation and respiratory diseases. Wear the required protective equipment and follow the instructions on the data sheet of the cooling lubricant.

26. Remove the connection lines on the SmartFiller. Use the absorbent paper to collect escaping cooling lubricant concentrate.

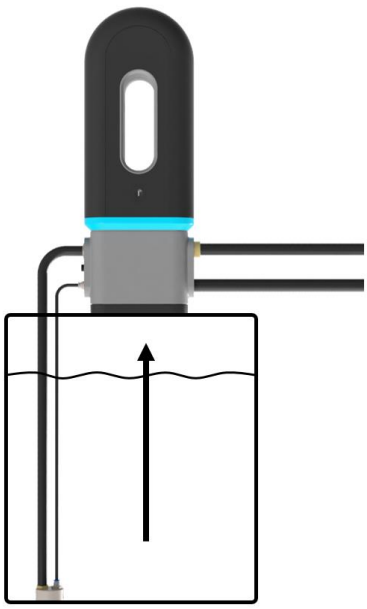


Fig. 19: Remove connection cable

27. Now also slowly remove the connection lines from the cooling lubricant concentrate. Allow the concentrate in the lines to drain off.

28. Pull the SmartFiller from the surface. It is only attached with magnets and can be pulled off with the appropriate force.

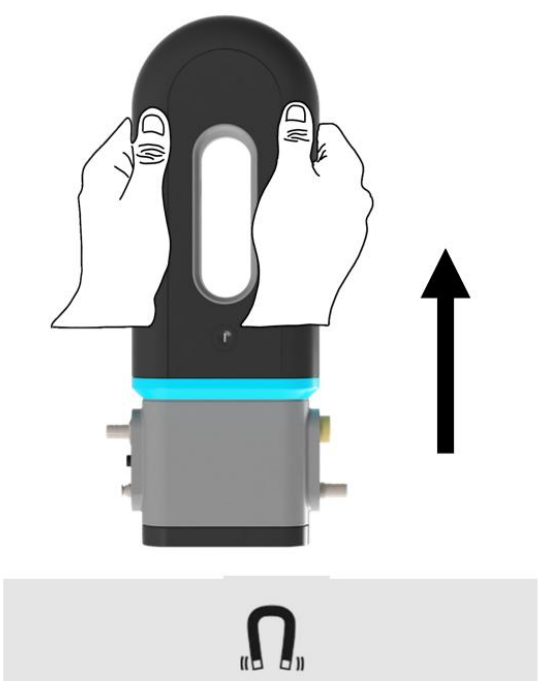


Fig. 20Remove SmartFiller from surface

1. ⚠ **CAUTION!** Risk of injury from escaping cooling lubricant and cooling lubricant concentrate. Residues of the cooling lubricant may still be present in the lines. These can leak out and pose a slip hazard. Remove leaked cooling lubricant immediately. Carry out the cleaning immediately. Wear the required protective equipment and follow the instructions on the data sheet of the cooling lubricant.

✓ The SmartFiller is dismantled and can be cleaned.

7.3 Cleaning

Prerequisite:

- The SmartFiller is switched off
- Wear the required protective equipment (PPE)
- Consider the data sheet of the cooling lubricant

External cleaning of the SmartFiller:

- Clean the surfaces of the SmartFiller with a slightly damp cloth with soapy water
- No moisture must get into the SmartFiller during cleaning, therefore do not place or spray the SmartFiller in a cleaning liquid or water

8 SERVICE AND MAINTENANCE

Activity/area	Description	Interval
Checking the connection lines	on trip-free laying on leakage	Weekly Weekly
Safety and warning notices on the product or in the immediate vicinity	Check for completeness Replace if damaged	Monthly Monthly

Tab. 9: Maintenance schedule

SmartFiller is maintenance-free

The product has been designed to be maintenance-free. No maintenance work is required on the SmartFiller.

8.1 Troubleshooting

If the SmartFiller does not function properly, there is a malfunction. Use the help function in our Liquidtool app to solve the malfunction.

9 DISPOSAL

9.1 Introductory notes on safety

Personnel qualification

The following personnel are approved for "disposal":

- Trained, instructed operating personnel
- All electrical work may only be carried out by instructed and authorized electricians

Important information for your safety

You are responsible!

In any case, the safety instructions in chapter "2 Basic safety instructions" and the locally applicable safety regulations must be observed and complied with.

Wear the required protective equipment (PPE).

9.2 Dismantling

Important information for dismantling

The SmartFiller may only be dismantled by trained and authorized personnel.

9.3 Proper and environmentally compatible disposal

Important information

The aim is to ensure proper and environmentally compatible disposal. During individual maintenance work or when dismantling the SmartFiller, waste materials may be produced which must be disposed of. Recommendations are given by the appropriate authorities.

The recommendations for the disposal of waste materials are derived from the regulations in force at the place and time of the preparation of these instructions. As the operator and user of the SmartFiller, you have the obligation to inform yourself about the waste disposal regulations applicable to your region and to proceed according to them.

9.4 Disposal points

Please refer to your region for the appropriate disposal points.