

Operating and installation instructions

english

Elmasonic xtra ST accessories

Elma Filter



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Subject to technical and visual modifications.

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1 About this manual

NOTE Please read the manual before using the product. This manual forms part of the contents supplied with the unit. Keep the manual in an accessible place close to the product, and keep it with the product if it is sold on.

Meaning of the symbols used:

- This symbol denotes lists.
- ✓ This symbol denotes requirements.
- 1. Numbers with a dot denote actions.
- This symbol denotes individual actions.
- ⇨ This symbol denotes interim results.
- ➔ This symbol denotes the result of an action.
- 1 Numbers without a dot denote image labels.

1.1 User

In the manual, the term User refers to all persons who transport, set up, connect, operate and maintain the unit. The manual is aimed at persons with appropriate technical knowledge and experience in handling similar units.

The user is at least 16 years old. They must have read and understood the manual and be capable of following all notes and instructions.

All tasks that go beyond the pure operation of the unit within the scope described here must be performed by qualified and authorised specialists.

1.2 CE mark

This unit fulfils CE marking requirements in line with EU (EC/EEC) directives. Details are stated in the EU declaration of conformity that can be obtained from the manufacturer.

Technical changes to the unit must be approved by the manufacturer.

2 Proper use

This product is exclusively intended for connection to the following units produced by Elma Schmidbauer GmbH:

- Elmasonic xtra ST with inflow connection
- Elmasonic xtra ST without inflow connection and without sound-protection cover

The Elma filter must only be used to filter the liquid in the specified ultrasonic units. Using the unit in any other way is considered improper use.

Always follow the guidelines for cleaning agents in the Elmasonic xtra ST ultrasound unit manual.

All parts that come into contact with liquid are made from: Stainless steel, EPDM and PVDF

The product is only intended for use in the commercial sector and must only be operated in inside areas.

Only authorised personnel who are familiar with the operating and installation instructions are permitted to connect, commission and operate this product.

Only use original accessories made for this product.

3 Safety

3.1 The structure of warnings



SIGNALWORD

Type and source of the danger

Possible consequences of the danger if disregarded.

➤ Measures to prevent the danger.

Signal word	Meaning	Consequences if disregarded
DANGER	Immediate danger	Death or serious injury
WARNING	Possible dangerous situation	Death or serious injury
CAUTION	Possible dangerous situation	Slight injuries, damage to components or units
NOTICE	Useful advice or tip	No risk of personal injury, but possible damage to components or units

Table 1: Meaning of the signal words

3.2 Meaning of symbols on the unit



Risk of electric shock



Warning of hot surfaces, vapours and liquids

3.3 Meaning of symbols on the nameplate



Read the manual







Disposal information



Attention



Manufacturer

	Date of production
	Order number
	Serial number
	CE mark

3.4 Safety information on specific types of hazard

Electrical power

Contact with live components can lead to serious injury or death due to electrocution!

- Do not connect the unit to the power supply if the connection cables or other components are visibly damaged.
- Keep the housing and control elements clean and dry.
- Protect the unit against penetrating moisture.
- The mains voltage and the connected load on the nameplate must correspond to the on-site connection conditions.
- Only operate the unit in power circuits that are protected by a fault-current circuit breaker.

Risk of fire and explosion

Critical injuries, burns

- Do not fill the cleaning tank with flammable liquids.
- Only use cleaning agents that are approved for this unit.
- In case of doubt, ask the manufacturer or supplier.

Hot liquids and surfaces

Danger of burns and scalds due to contact with hot fluids or surfaces caused by high operating temperatures or continuous ultrasound operation.

- If work must be performed on hot components, switch off the unit and allow to cool. If necessary, wear suitable protective equipment.

Cleaning agents

Volatile, corrosive or abrasive cleaning agents can cause chemical burns to the skin and respiratory tract.

- Observe the safety data sheet when using cleaning agents.
- Wear the protective equipment stipulated in the safety data sheet.
- Observe the information on cleaning agents. In case of doubt, ask the manufacturer or supplier.

4 Technical data

	Unit	Elma filter ¾"	Elma filter 1"
Mechanical data			
Suitable for xtra ST		300 to 800/1900S	1,400/1,600/2,500
Max. external dimensions (W/D/H)	mm	390/485/745 to 765	
Adjustable feet	mm	30 to 45	
Inflow connection	Inches	1/2	
Outflow connection (pump intake)	Inches	3/4	1
Material casing	–	Stainless steel	
Weight	kg	24.3	
Filter data			
Filter size	Inches	10	
Filter mesh	µm	> 3	
Flow rate	l/h	~350 to 400	
Electrical data			
Mains voltage ±10%	V~	220 to 240	
Mains frequency	Hz	50/60	
Total power consumption	W	90	
Degree of protection	IP	20	
Protection class	–	I	
Ambient conditions			
Temperature (transport)	°C	–15 to +60	
Temperature (operation, storage)	°C	+5 to +40	
Air pressure (transport, storage)	hPa	500 to 1,010	
Permissible relative humidity (operation)	% r. h.	80; non-condensing under fluctuating temperatures	
Permissible relative humidity (transport,	% r. h.	10 – 80, non-condensing	
Max. perm. altitude (operation)	m above sea level	+2,000	
Overvoltage category	–	II	
Degree of contamination	–	2	
Environment	–	Wet	

5 Product contents

IMPORTANT

Check delivery for damage to the packaging. Document any damage immediately (e.g. take a photo), and report it to the manufacturer or dealer.

Check that all parts of the delivery are complete and undamaged.

Never put a damaged unit into operation.

Dispose of packaging materials that are no longer required in an environmentally friendly manner.

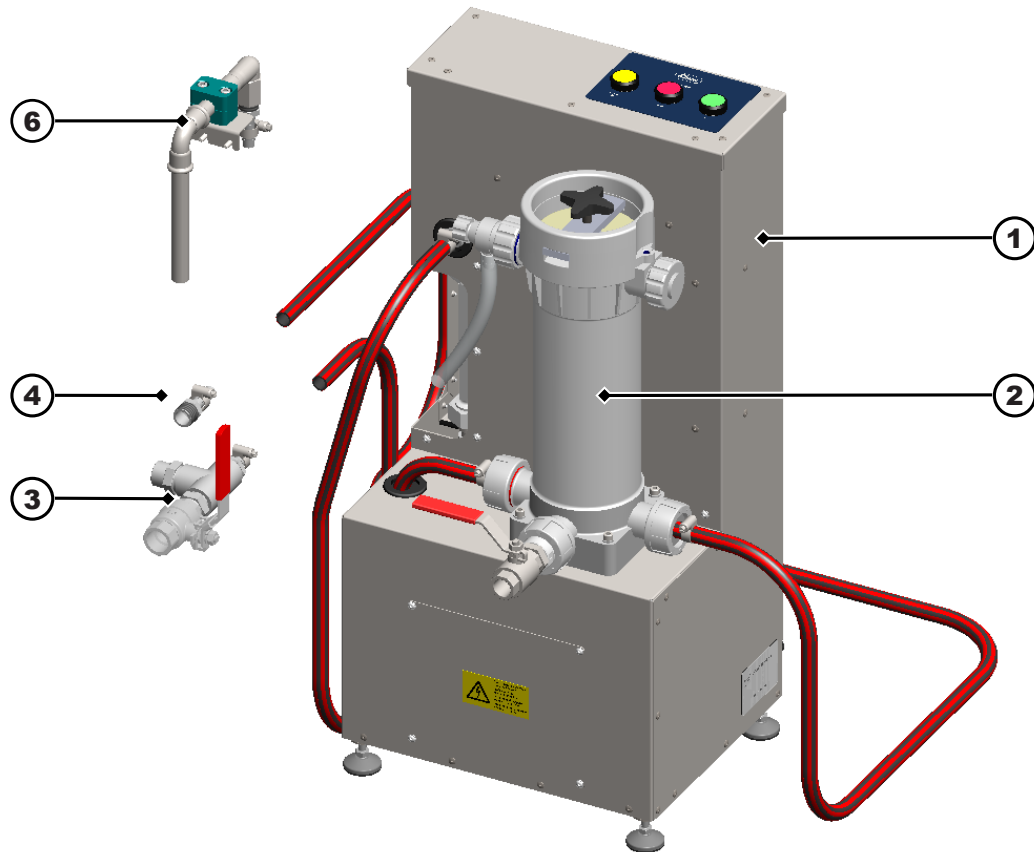


Illustration 1: Product contents

1	Elma filter
2	Filter housing. Insert the filter cartridge into the filter housing (1 unit of 10, 20 or 50 µm)*
3	Connect the inflow fitting set to the outflow (pump intake) of the ultrasonic unit
4	Connect the return line fitting set 1 to the inflow of the ultrasonic unit (for ultrasonic units with inflow connections)
5	Operating and installation instructions (not shown)

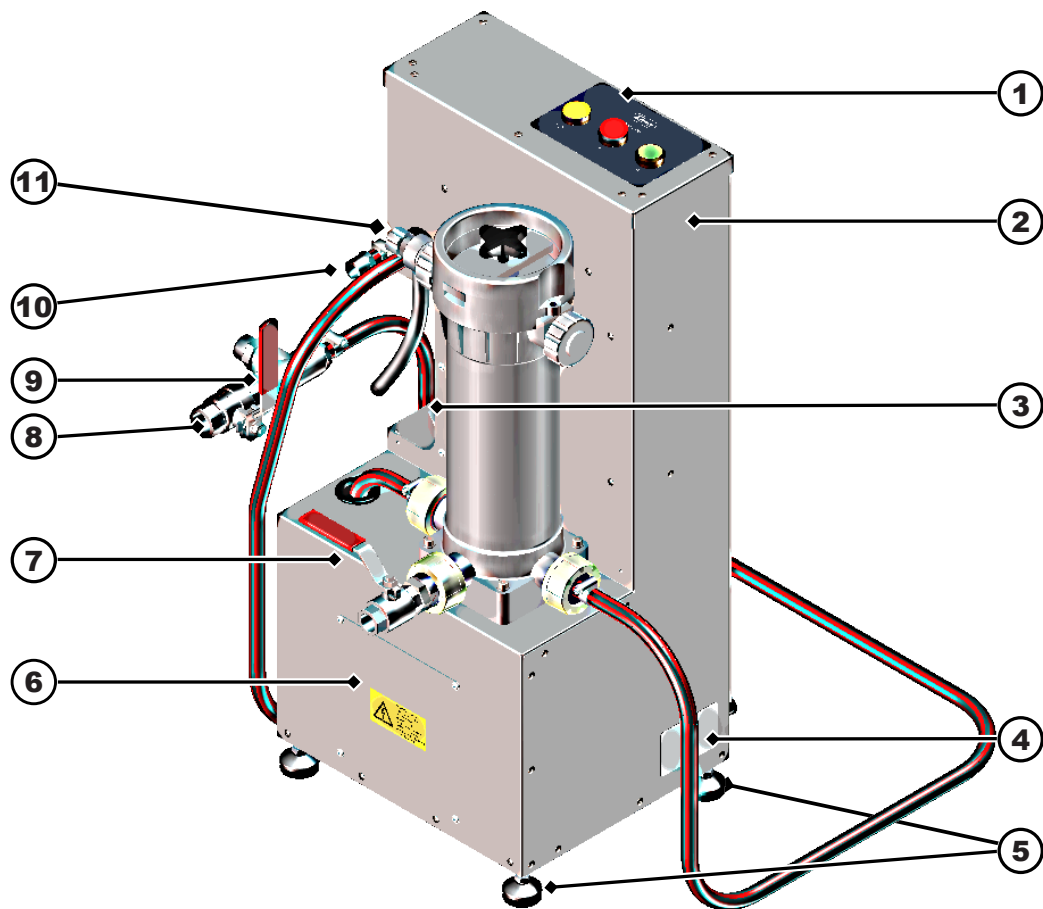
*The Elma filter is also suitable for a 3 µm **filter cartridge** (not included). The filter is not guaranteed to work correctly with finer filter meshes.

Optional accessories:

6	Retrofit fitting set (for ultrasonic units without an inflow connection and without sound-protection covers)
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i NOTE! The Elma filter and tubing may contain liquid residue that has built up during the manufacturer’s test run.

6 Description



- | | |
|---|--|
| 1 Controls (Start, Stop, Change filter) | 2 Stainless-steel housing |
| 3 Flow meter (see also Gemü manual) | 4 Nameplate |
| 5 Adjustable feet | 6 Pump maintenance door
⚠ CAUTION! Must only be opened by service professionals |
| 7 Ball valve for emptying the filter housing | 8 Inflow of Elma pump |
| 9 Ball valve to open/close ultrasonic unit outflow | 10 Return line to the inflow of the ultrasonic unit |
| 11 Valve for bleeding the filter housing | 12 Pump (not pictured, see also Zuwa manual) |
| 13 Power cord (not shown) | |

7 Transport and mount

7.1 Notes on installation site

The unit is designed to be set up in commercially used premises such as laboratories, workshops, etc.

- The installation site must be well ventilated.
- The permissible ambient conditions must be met (see technical specifications).
- The unit must be installed on a sturdy, horizontal, non-slip, moisture-resistant work surface with the following characteristics:
 - There must be sufficient space for maintenance tasks above the unit.
 - Ensure that the ventilation slot on the unit is clear from walls or other spatial objects by ~10 to 15 cm.
- Electrical connection conditions:
 - Splash-proof earthed socket near the unit (see technical specifications for cable length).
 - The power connection must be protected by a fault-current circuit breaker (RCD).
 - Ensure that the power supply required to operate the unit is available (see technical specifications).
- Wastewater connection requirements:
 - There must be a sink, or alternatively a bucket that can hold min. 10 l of liquid, near the installation site.

7.2 Set up the unit



CAUTION

Heavy loads.

Serious injuries to the spine or back muscles.

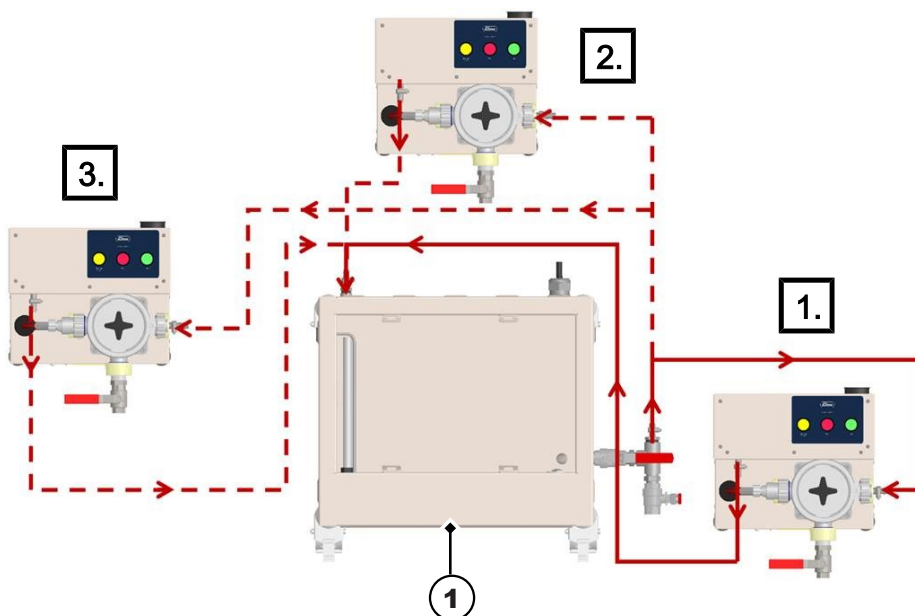
- Comply with the health and safety requirements on lifting heavy loads.

- ✓ The unit has been unloaded by the transport company.
- ✓ The ultrasonic unit (1) is present.
- ✓ It is recommended that two persons install the unit.

i NOTE! Wear cut-resistant protective gloves.

1. Transport the unit to the installation site with a forklift or lifting truck.

⇒ **i NOTE! There are three possibilities for positioning the product:**

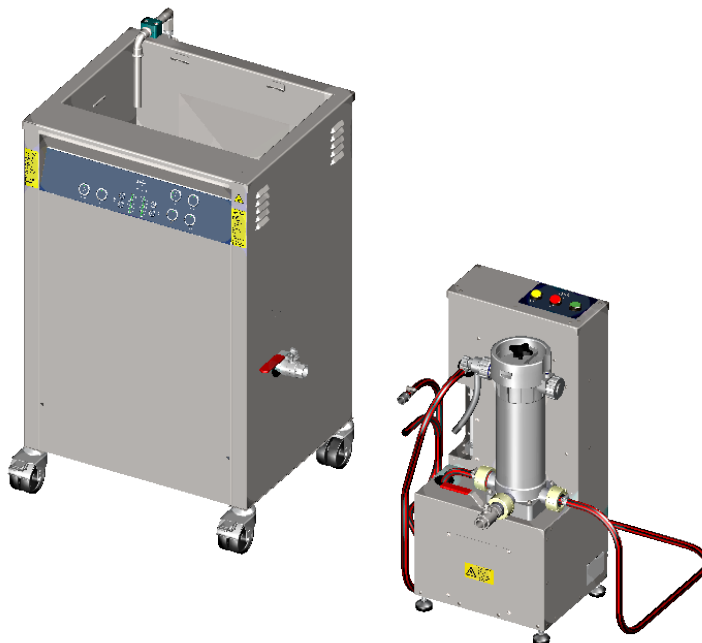


2. Unpack the unit.
3. Check that all the contents are present. Product contents [▶ 8]
4. Check all the parts of the unit for transport damage and defects.

⇒ **i NOTE! Immediately file damage compensation claims related to damage during transport with the transport company and the manufacturer. If transport is the responsibility of the manufacturer, the damage during transport must be immediately described on both the recipient's consignment note and the transport company's consignment note.**



5. Lift the unit from the pallet and set it on its adjustable feet at the installation site. To lift the unit, use the lifting points as shown in the picture (1 and 2). **i NOTE! Controls, such as buttons, ball valves, flow meters and the filter housing must be easy to see and easily accessible.**
6. Set up the unit at the same level as the ultrasonic unit.



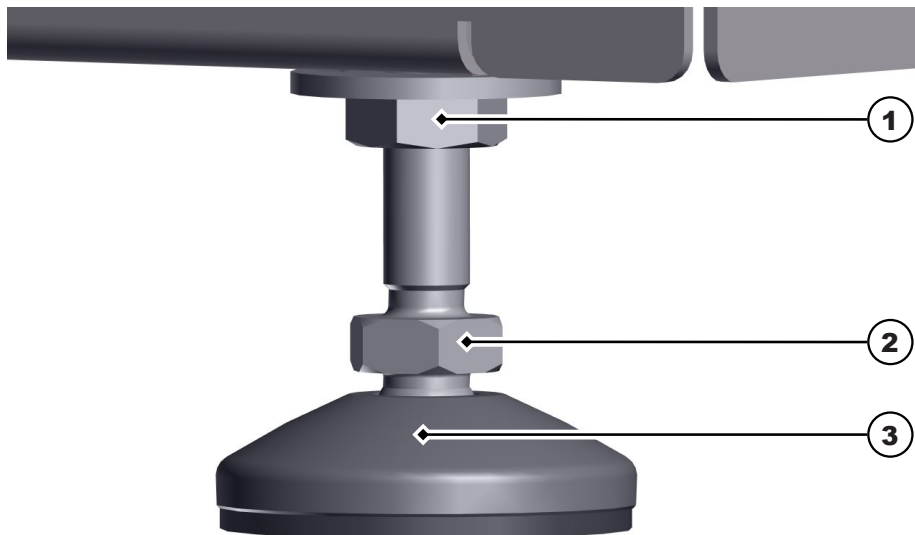
7. Take note of the lengths of the hoses and power cables provided.

→ The unit has been set up.

Align the feet horizontally until level

✓ Tools required: Open-end spanner; spirit level

1. Place the spirit level centrally on the unit.



2. Loosen the nuts (1) to adjust the feet.
 3. Turn the nuts (2) to adjust the height of the feet.
 4. Adjust all four feet to level the unit.
 - ⇒ The unit is level.
 5. Tighten the nuts (1) on all four feet.
- ➔ The unit has been set up and can be connected.

8 Install and connect



NOTICE

Water damage

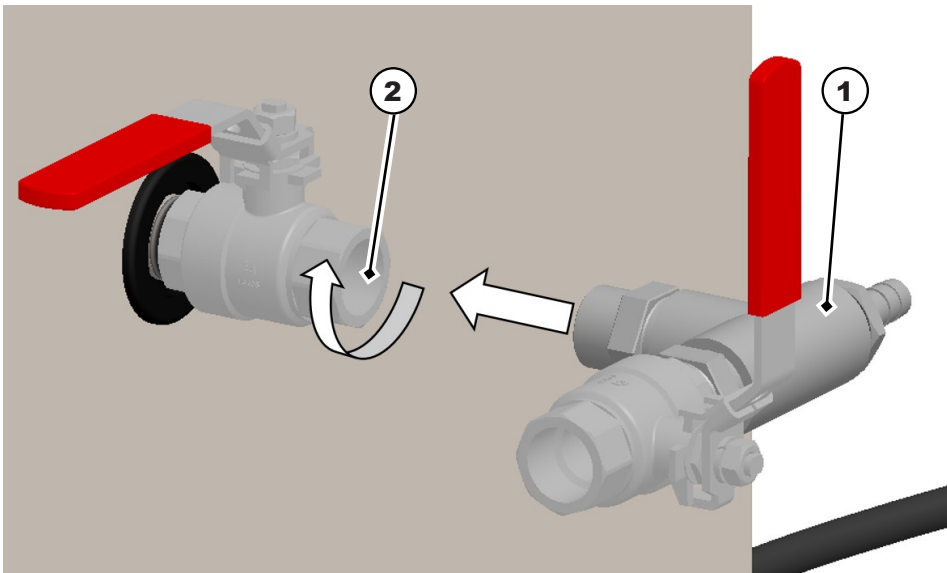
Interchanging the inflow/outflow connections may cause the filter housing to overflow when changing the filter.

8.1 Connect the unit to the inflow connection

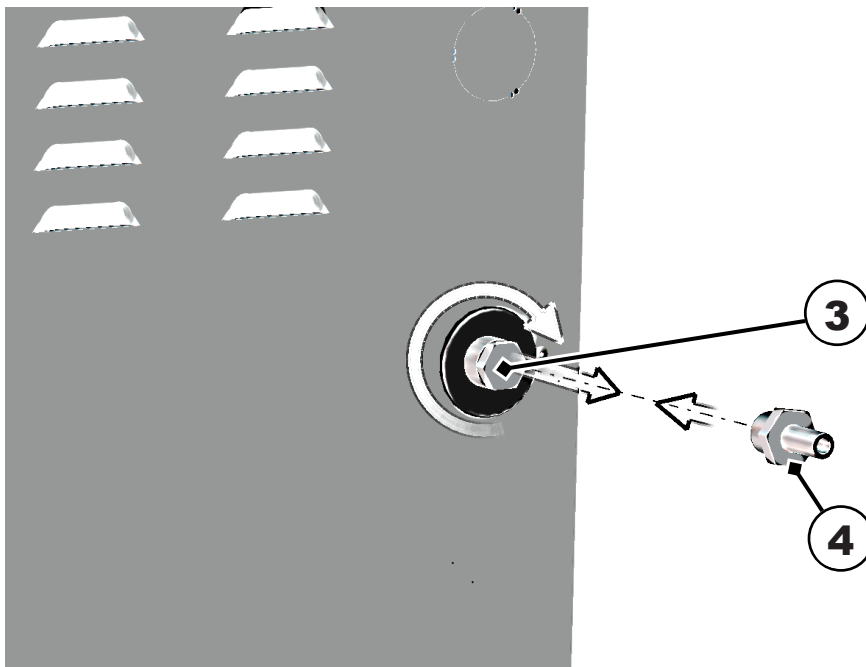
Tools required: open-end spanner or pipe wrench; screwdriver

Personnel qualifications: Fitter

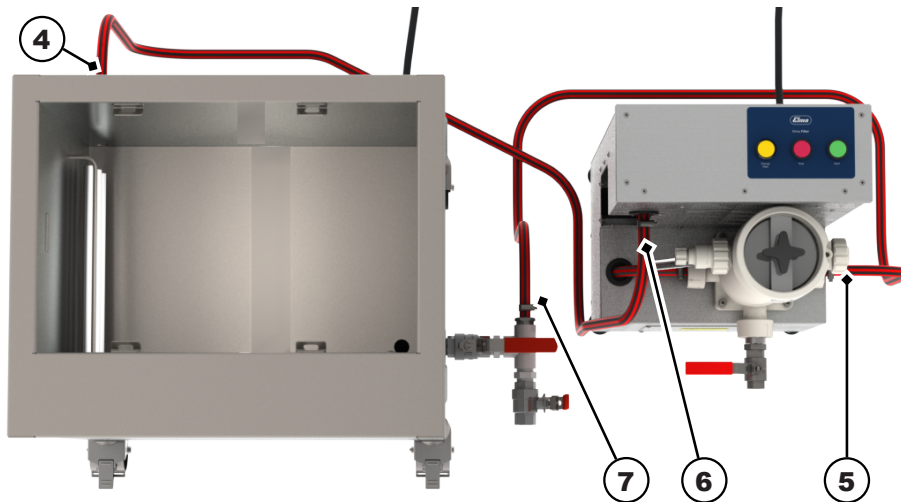
- ✓ The Elma filter is set up and levelled.
 - ✓ The original accessories are present, e.g. inflow fitting set, return line fitting set 1, hoses, hose clamps, etc.
 - ✓ The ultrasonic unit is empty.
1. Screw the thread of the inflow fitting set (1) into the outflow ball valve (2) of the ultrasonic unit and tighten it. **i NOTE! The thread of the connection set is wrapped with Teflon tape to seal the connection.**



⇒ The inflow fitting set is installed.



2. First, unscrew and remove the blank plug (3) from the inflow of the ultrasonic unit.
 3. Then screw the thread of the hose nipple (4) into the unit inflow and tighten. **i NOTE! The thread of the hose nipple is wrapped with Teflon tape to seal the connection.**
- ⇒ The hose nipple is installed.



4. Fit the hose (6) onto the hose nipple of the inflow (4) (rear of unit) and fasten in place using a hose clamp.

⇒ **i** **NOTE!** The hoses must not form any loops or hang down. Trim the hoses if necessary.

5. Fit the suction side of the hose (5) onto the hose nipple of the connection set (7) and fasten in place using a hose clamp.

⇒ **i** **NOTE!** The hoses must not form any loops or hang down. Trim the hoses if necessary.

➔ The Elma filter is connected. **⚠ CAUTION!** Check that the connections are tightly sealed before commissioning. To do so, bleed the Elma filter. Bleed the filter [▶ 22]

See also

📄 Technical data [▶ 7]

8.2 Connect units without inflow connections

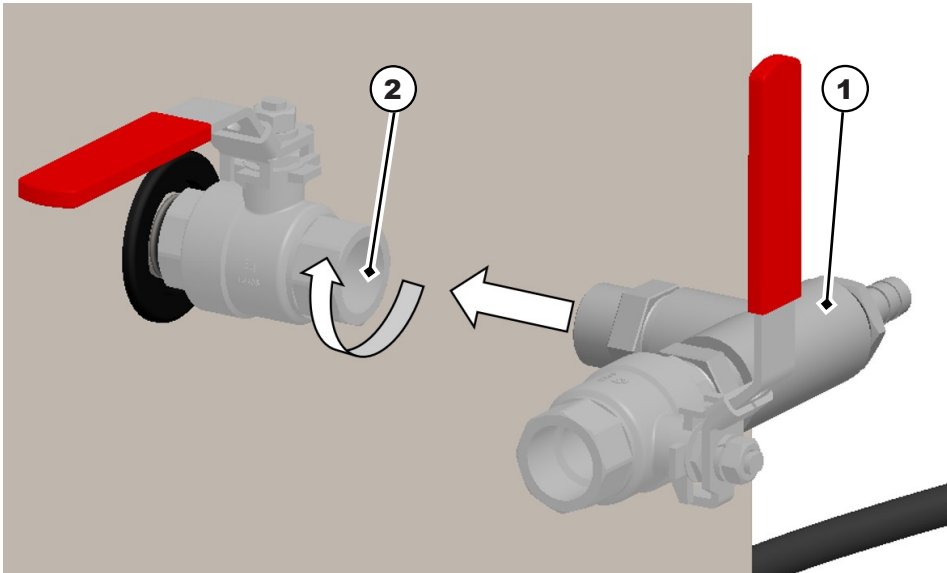
Tools required: Open-end spanner or pipe wrench; screwdriver; hex key

Personnel qualifications: Fitter

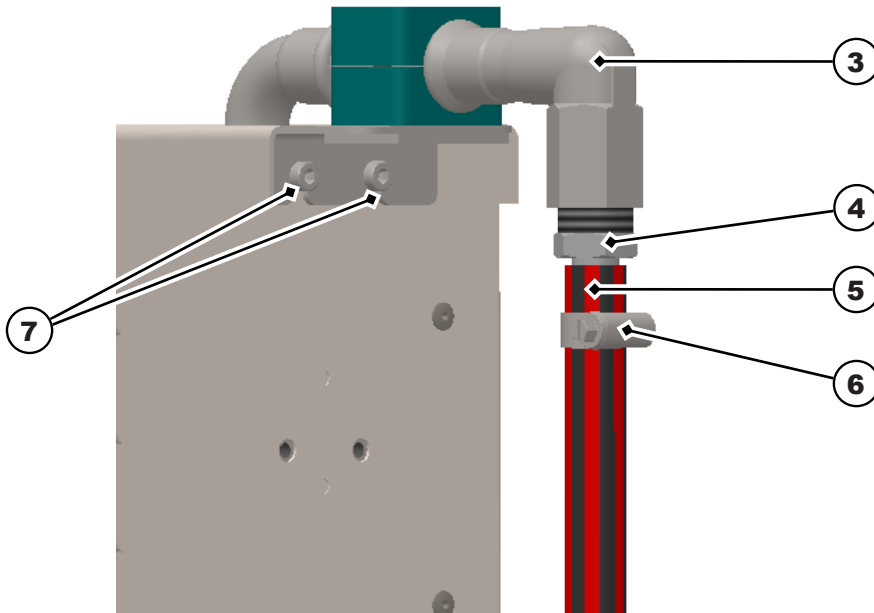
- ✓ The Elma filter is set up and levelled.
- ✓ The original accessories are present, e.g. inflow fitting set (pump intake), return line fitting set 2, hoses, hose clamps, etc.
- ✓ The ultrasonic unit is empty.

1. Screw the thread of the inflow fitting set (1) into the outflow ball valve (2) of the ultrasonic unit and tighten it.

i **NOTE!** The thread of the connection set is wrapped with Teflon tape to seal the connection.

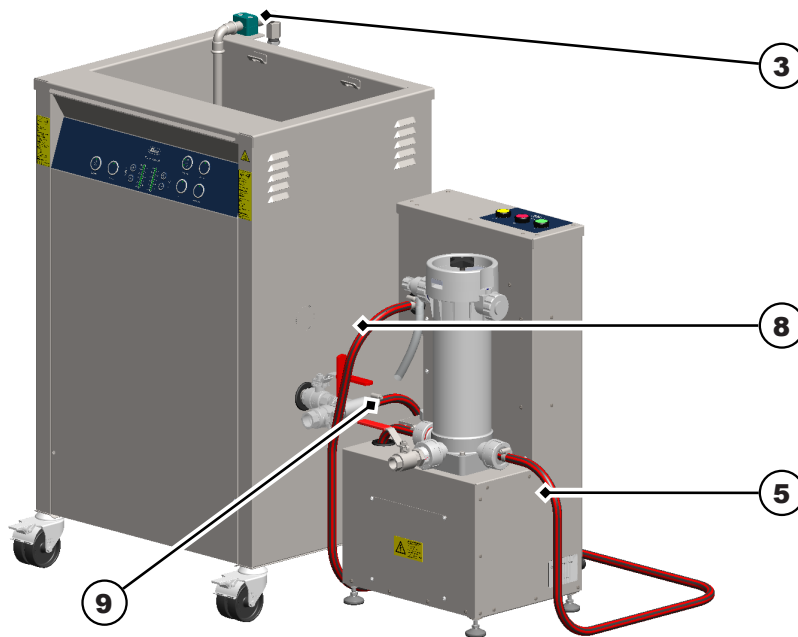


⇒ The inflow fitting set is installed.



2. Screw the return line fitting set 2 (3) tightly onto the holes provided (7) on the back of the ultrasonic unit.
3. Push the hose (5) onto the hose nipple (4) of the return line fitting set 2 and fasten in place using a hose clamp (6).

i NOTE! The hoses must not form any loops or hang down. Trim the hoses if necessary.



4. Push the hose (8) onto the hose nipple of the connection set (9) and fasten in place using a hose clamp.

i NOTE! The hoses must not form any loops or hang down. Trim the hoses if necessary.

→ The Elma filter is connected.

i NOTE! Check that the connections are tightly sealed before commissioning. To do so, bleed the Elma filter. Bleed the filter [▶ 22]

8.3 Connecting the power cord

✓ Ensure that the required power connection is available.

1. Plug the power cord into the IEC connector on the unit.
2. Route the power cord in such a way that it does not pose a tripping hazard, cannot be damaged and is not exposed to moisture. The power cord must not touch the unit housing, as the housing becomes hot during operation.
3. Connect the plug. The plug must be easily accessible to enable it to be disconnected in emergencies.

→ The power supply has been connected.

8.4 Connecting the additional earth cable

WARNING

High leakage current

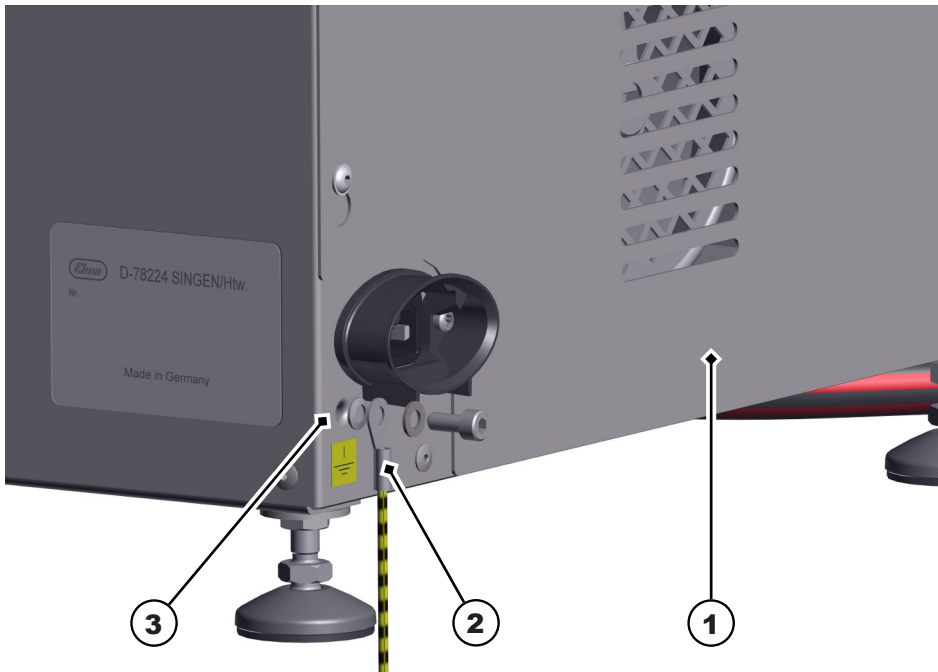
Serious injuries due to electric shock, death.



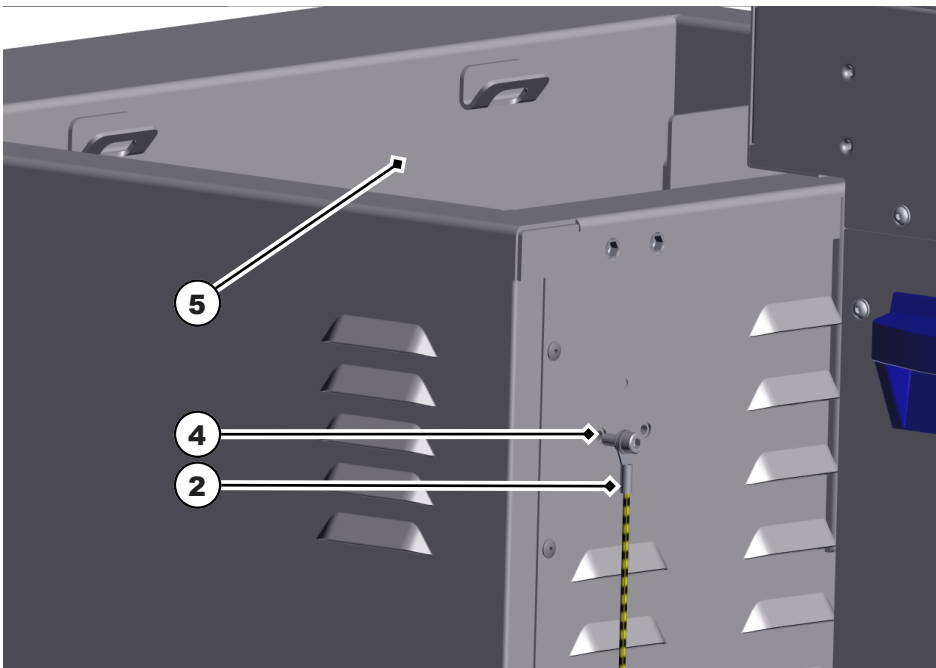
- Connect the connected protective earth conductor to the ultrasonic unit, e.g. to the hinge attachment points or to an existing earthing point outside the Elma filter.
- Failure to do so can lead to a high leakage current flowing to earth via the operator in the event of a fault due to a disconnected protective conductor in the mains connection cable.

✓ The Elma filter (1) has been connected to the ultrasonic unit (5).

1. Connect the earth cable (2) to the earth connection of the Elma filter (3).



2. Connect the other end of the earth cable (2) to the hinge attachment points (4) of the ultrasonic unit (5).



3. Or connect the other end of the earth cable (2) to an existing earthing point outside the Elma filter (not shown) if necessary.

→ The earth cable is connected.

8.5 Checking leak tightness

- ✓ The ultrasonic unit is ready for operation.
- ✓ The Elma filter is connected and ready for operation.
- ✓ The filter has been bled.
- ✓ The inflow ball valve (pump suction) is open
- ✓ The outflow ball valve is closed.
 1. Fill the ultrasonic unit with tap water up to the fill level mark.
 2. Press the Start button for 1 to 3 seconds to start the Elma filter.
 - ⇒ The Start button lights up green and the filter cycle runs.
 3. Check the connections of the inflow fitting set for leaks.
 4. Check the connections of the outflow fitting set for leaks.
 5. If necessary, check the connections of the retrofit set for leaks.
 6. Check the filter housing and Elma filter hoses for leaks.
- ➔ The piping has no leaks, and the unit is ready for operation.
- ➔ If parts of the piping are leaking, proceed as follows:
 1. Press the Stop button to stop the Elma filter.
 2. Re-seal the leaking parts of the piping.
 3. Restart the Elma filter to check for leaks.
- ➔ Do not put the Elma filter into operation until all parts of the piping are free from leaks.

9 Operate

WARNING



Cleaning agents!

Chemical burns to the skin and respiratory tract.

- Observe the safety data sheet when using cleaning agents.
- Wear protective equipment in line with the safety data sheet.

CAUTION



Injuries from hot liquid.

Burns and scalds.

- Allow the liquid to cool.
- Wear suitable protective equipment.

NOTICE



Filter function quality

The Elma filter is suitable for filter cartridges of 3 µm and higher.

- The filter is not guaranteed to work correctly with finer filter meshes.
- The filter is not guaranteed to work correctly with different filters.

See also

- 📄 Insert filter cartridge [▶ 21]

9.1 Controls

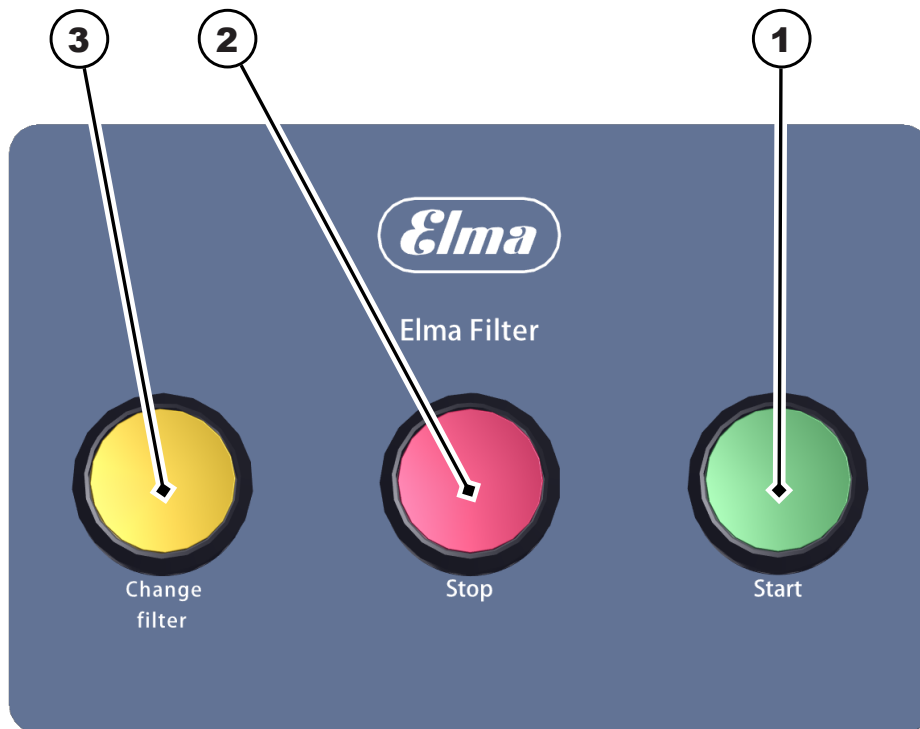


Illustration 2: Controls

- 1 Press the **Start button** for 1 to 3 seconds to start the unit
- 2 Press the **Stop button** to stop the unit
- 3 Press the **Change filter button** to confirm that the filter has been changed
i NOTE! The operating hours counter restarts!

9.2 Start/stop unit

- ✓ The Elma filter is ready for operation.
 - ✓ The connected ultrasonic unit is ready for operation.
 - ✓ A filter cartridge is inserted into the filter housing. Insert filter cartridge [▶ 21]
 - ✓ The filter has been bled. Bleed the filter [▶ 22]
 - ✓ The ball valve of the inflow (pump intake) is open.
 - ✓ The position of the limit indicator on the flow meter is set to ~250 to 300 l/h.
1. Press the Start button for 1 to 3 seconds to start the Elma filter.
 ⇒The Start button lights up green and the filter cycle runs.
 2. Press the Stop button to stop the unit.
 ⇒The filter cycle stops.
- Drain the liquid from the system when the Elma filter is not being used for a prolonged period.
 - Empty the Elma filter if necessary. Empty the Elma filter [▶ 24]
 - The unit has started/stopped.

9.3 Insert filter cartridge

NOTICE

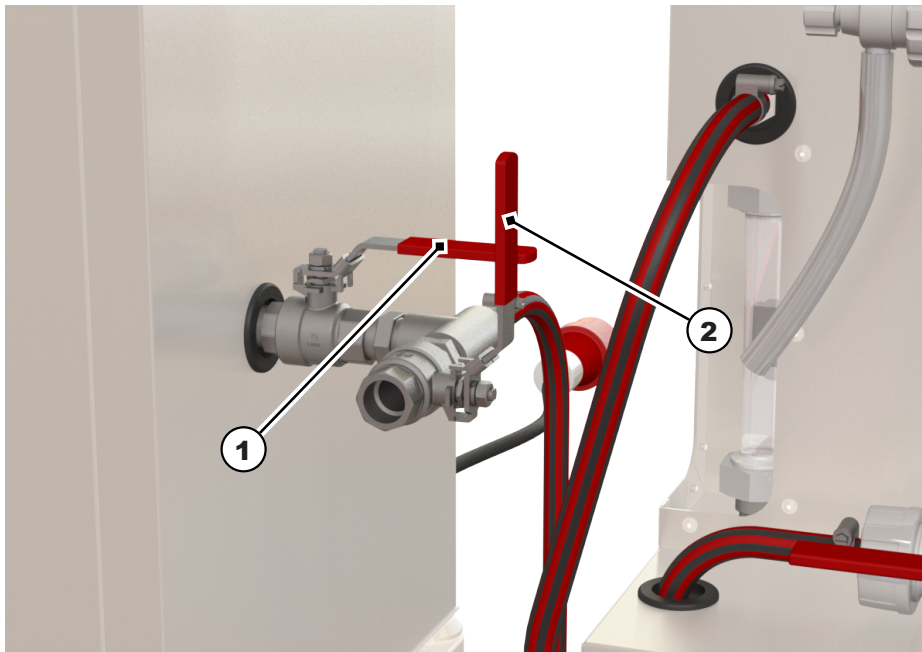


Filter change interval

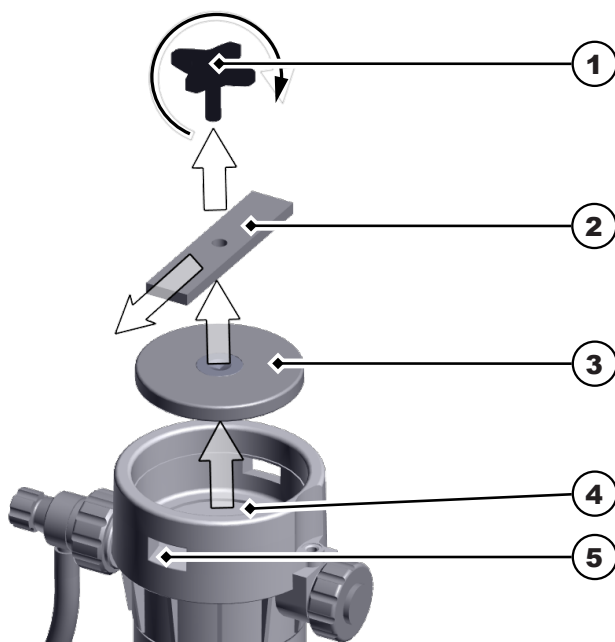
The preinstalled operating hours counter determines the filter change interval.

➤ Pressing the **Change filter** button restarts the operating hours counter.

- ✓ The connected ultrasonic unit is ready for operation.
- ✓ The Elma filter is ready for operation.
- ✓ Before commissioning the filter for the first time, insert a filter cartridge into the filter housing.



1. Close the inflow ball valve (1) in the direction indicated by the arrows.
2. Close the outflow ball valve (2) in the direction indicated by the arrows.



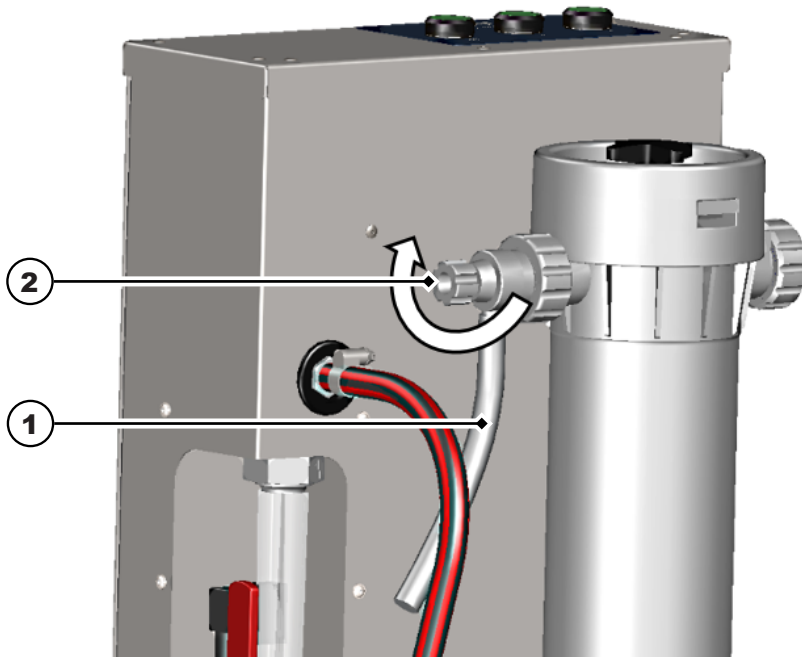
3. Unscrew the threaded star grip (1) to open the filter housing.

4. Lever the bracket (2) out of the opening (5).
 5. Take out the cover (3).
⇒ The filter housing is open.
 6. Insert filter cartridge (4).
 7. Close the filter housing by performing these tasks in reverse order.
 8. Reopen the ball valve (1) (in the direction of the arrow).
 9. Press the **Change filter** button to confirm that the filter has been changed.
⇒ The light in the **Change filter** button will go out.
- The filter has been inserted or changed.

i NOTE! Bleed the Elma filter before operation. Bleed the filter [▶ 22]

9.4 Bleed the filter

- ✓ A filter has been inserted or changed.
 - ✓ The ultrasonic unit is switched off.
 - ✓ The Elma filter is switched off.
 - ✓ Have a suitable vessel ready to catch any liquid that runs out.
 - ✓ The ball valve of the outflow on the ultrasonic unit (pump intake) is open.
1. Put the end of the venting hose (1) into a vessel.



2. Keep the bleeding valve (2) open until liquid comes out of the hose.
 3. After bleeding the filter, close the bleeder valve (2).
- The filter has been bled.

9.5 Change the filter cartridge

NOTICE

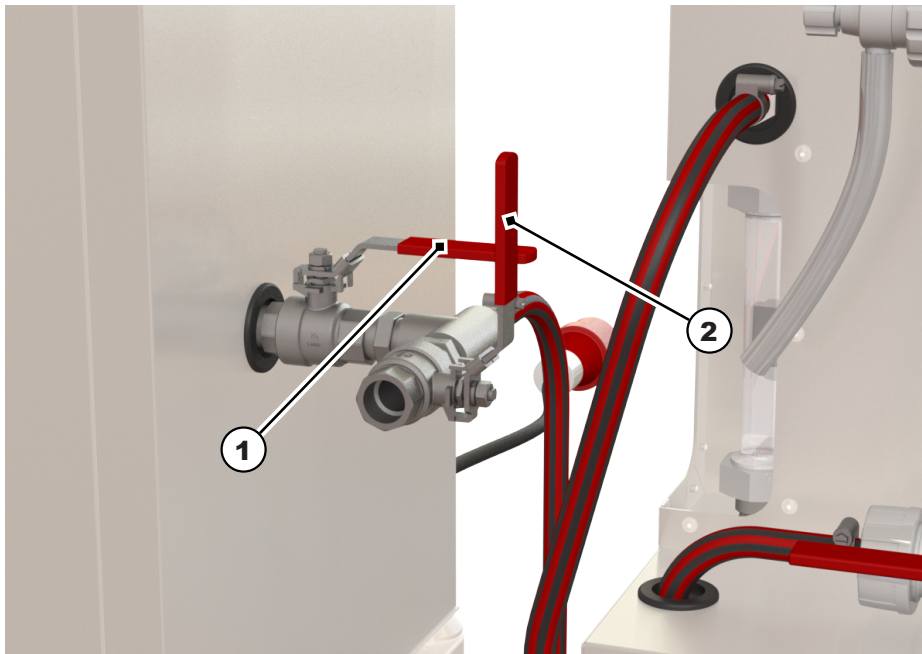


Filter change interval

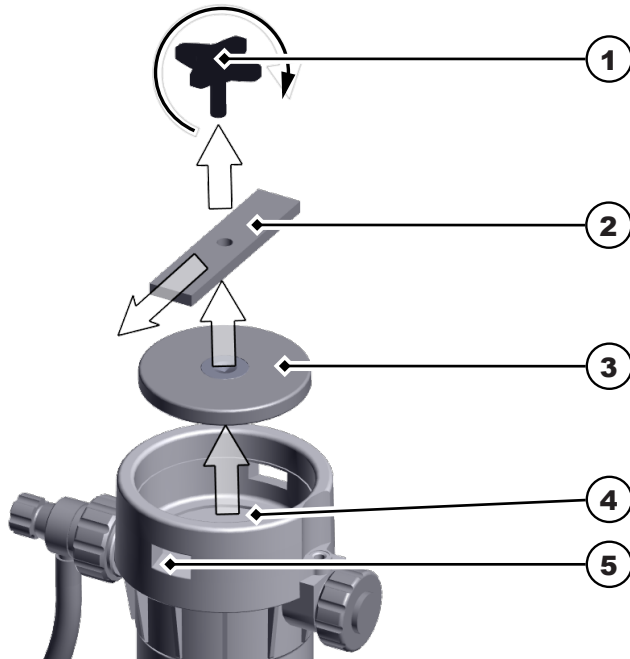
The preinstalled operating hours counter determines the filter change interval.

➤ Pressing the **Change filter** button restarts the operating hours counter.

- ✓ The connected ultrasonic unit is ready for operation.
- ✓ The Elma filter is ready for operation.
- ✓ The **Change filter** button will light up yellow when the filter needs changing.



1. Close the inflow ball valve (1) of the ultrasound unit in the direction indicated by the arrows.
2. Check to see if the outflow ball valve (2) is closed.
⇒ Close the outflow ball valve (2) if necessary.
3. Place a vessel under the outflow ball valve of the filter housing to catch any liquid that comes out
⚠ CAUTION! Wear appropriate protective equipment for the liquid used. Allow the liquid to cool beforehand if necessary.
4. Open the outflow ball valve of the filter housing to empty the liquid into the vessel. See Empty the Elma filter [▶ 24]

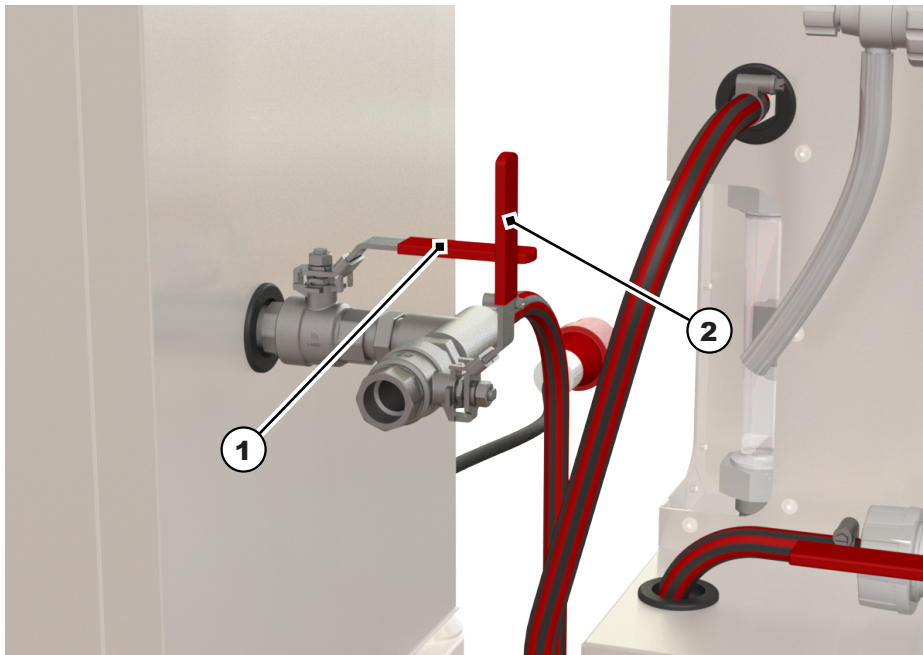


5. Unscrew the threaded star grip (1) to open the filter housing.
6. Lever the bracket (2) out of the opening (5).
7. Take out the cover (3).
⇒ The filter housing is open.
8. Remove the filter cartridge (4) from the filter housing.
9. Insert a new filter cartridge into the filter housing.
10. Close the filter housing by performing these tasks in reverse order.
11. Reopen the ball valve (1).
12. Press the **Change filter** button to confirm that the filter has been changed.
⇒ The light in the **Change filter** button will go out.
→ The filter has been inserted or changed.

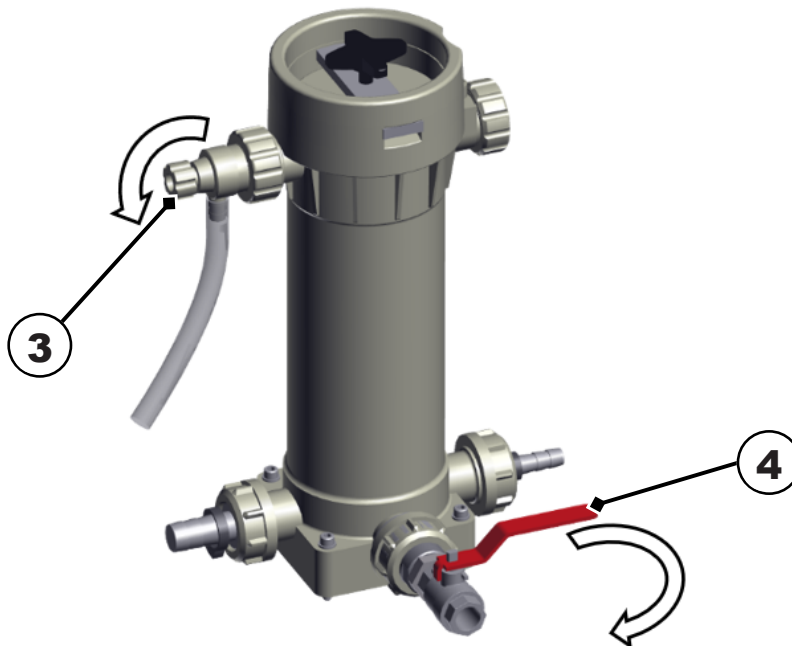
i NOTE! Bleed the Elma filter before operation. Bleed the filter [▶ 22]

9.6 Empty the Elma filter

- ✓ Allow the liquid to cool beforehand if necessary.
- ✓ Have a suitable vessel ready to catch any liquid that runs out.
- ✓ If necessary, connect the drain connection to an on-site drain or place the end of the drain hose in a sink and fix it securely in place.



1. Close the outflow ball valve (1) of the ultrasonic unit to empty the Elma filter.
⚠ WARNING! Wear suitable protective equipment in accordance with the safety data sheet when using cleaning agents.
2. Check to see if the outflow ball valve (2) is closed.
 ⇒ Close the outflow ball valve (2) if necessary.



3. Open the bleeding valve (3) to let air into the system.
 4. Slowly open the outflow ball valve (4) to empty the filter housing.
 ⇒ The liquid from the filter housing will empty into the outflow or a vessel if necessary.
 5. Once the filter housing is emptied, close the outflow ball valves (2, 4).
 6. Close the bleeding valve (3).
- ➔ The Elma filter is empty.

10 Maintenance

10.1 Clean housing

- ✓ The housing is dirty.
 - Wipe all surfaces using a damp cloth.
- ➔ The housing has been cleaned.

10.2 Change pump impeller

Personnel: Service professionals

The pump impeller should be regularly changed to extend the service life of the pump. Please refer to the Elma filter service manual for this.

11 Faults/fault diagnostics

Error	Possible cause	Troubleshooting
Pump switches off	<ul style="list-style-type: none"> • The filter cartridge is full of dirt • The limit indicator is set incorrectly Setting: ~250 to 300 l/h 	<ul style="list-style-type: none"> • Change the filter cartridge • Check the position of the limit indicator, set the specified minimum lower if needed
Pump does not start		
No flow meter flow	The flow meter is blocked or dirty	Refer to Gemü manual!
The pump switches off, the Stop button is red	Motor circuit breaker has tripped	Contact the manufacturer.
The housing is rattling	The unit's adjustable feet are not level	See unit chapter!

12 Disassembly

- ✓ The connected ultrasound unit is empty.
 - ✓ The filter housing is empty. See chapter Empty the Elma filter [▶ 24]
1. Unplug the mains plug.
 - i NOTE! The Stop button will shortly light up red after unplugging the power cord and then the unit will power off.**
 2. If necessary, empty the remaining liquid in the piping parts.
 - ⚠ WARNING! Wear suitable protective equipment in accordance with the safety data sheet when using cleaning agents.**
 3. Remove the filter cartridge from the filter housing. See chapter Change the filter cartridge [▶ 23]
 4. Dismantle the piping (intake and pressure side) on the ultrasonic unit.
- ➔ The Elma filter is disassembled.

13 Disposal

CAUTION

Once the unit has reached the end of its service life, ensure that the unit and accessories are disposed of safely and correctly:



- Clean and disinfect the old device and accessories before disposal.
- Do not dispose of old devices with household waste, but instead at the local collection and disposal points.
- Secure the old device against unauthorised access until removal; if necessary, dispose of the power cable separately.
- Observe regionally applicable disposal directives.
- Data protection notice: The end user is responsible for deleting personal and confidential data from the unit being discarded.