

Operating Instructions

SONOREX TECHNIK

OX oil separator



Valid for:
Oil separator models OX 16, OX 40, OX 75, OX 110, OX 180 and OX 210 with OX 500 basic unit



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1 About these operating instructions

These operating instructions contain information that is necessary and useful in order to use the device safely and efficiently.

- Read these operating instructions before using the device.
- Pay particular attention to Chapter 2 **Safety**.
- If you pass this device on to someone else, provide these operating instructions with it.
- Should these operating instructions leave any questions unanswered, please contact your specialist dealer or BANDELIN. Notes on service can be found in Section **6.4 Repairs**.

In the event that the translation cannot be understood, the German original version of BANDELIN must be followed.

BANDELIN assumes no responsibility or liability for damage caused by improper handling or use.

Illustrations are exemplary and not to scale. Decorations not included with delivery.

2 Safety

2.1 Using the device

Existing SONOREX TECHNIK RM/TM ultrasonic baths can be retrofitted with an oil separator without the need for any modifications.

The oil separator is used to separate floating residues containing oil and grease from aqueous cleaning agents up to a bath temperature of 70 °C. The integrated pump is used to circulate the cleaning agent between the oil separator and the cleaning tank.

The device is controlled via push buttons on the front of the control box.
The oil separator is intended as a floor-standing unit.
Do not allow the unit to run without supervision.

2.2 Keep out of reach of children

Children may not detect hazards emanating from the device. Therefore, keep the device away from children.

2.3 Risk of electric shock

The device is an electrical device. Failure to follow safety rules can result in a life-threatening electric shock.

- Never let the device become wet. Keep the surface and controls clean and dry.
- Do not rinse the device or expose it to splash water.
- Disconnect the device from the mains before any cleaning or maintenance.
- Only connect the device to a socket with an earthed protective contact that matches the protective contact of the mains connector.



WARNING

Please note for devices with type E+F sockets:

Combination with K-type sockets (especially common in Denmark) is not permitted.

- If you discover a defect in the device, unplug it immediately. Do not connect any defective device to the mains.
- Only have repairs carried out by qualified personnel or by the manufacturer. See chapter **6.4 Repairs**.
- Position the device in such a way that it is possible to disconnect the mains connection at any time without difficulty.

2.4 Danger due to noise emissions

The continuous sound pressure level that emanates from the device is < 75 dB(A). Only switch the device on if it is found to have no defects during this check of its overall condition. Inform your supervisor if this check of the overall condition of the device reveals defects.

Note: noise can cause hearing damage at a daytime exposure of 85 dB or more, which can lead to noise-induced hearing loss. Hearing protection must be provided from a level of 80 dB; hearing protection must be worn from a level of 85 dB (source: DGUV – German Social Accident Insurance).

2.5 Preventing damage to the device

- The device may only be operated with aqueous cleaning agents up to 70 °C^{/1}.
- Do not operate the device without liquid.

2.6 Interference with wireless communication

The device may interfere with other wireless communication devices in close proximity, such as:

- mobile phones;
- Wi-Fi devices
- Bluetooth devices

If a wireless device malfunctions, increase its distance from the device.

The device complies with the requirements for Class B devices according to EN 55011.

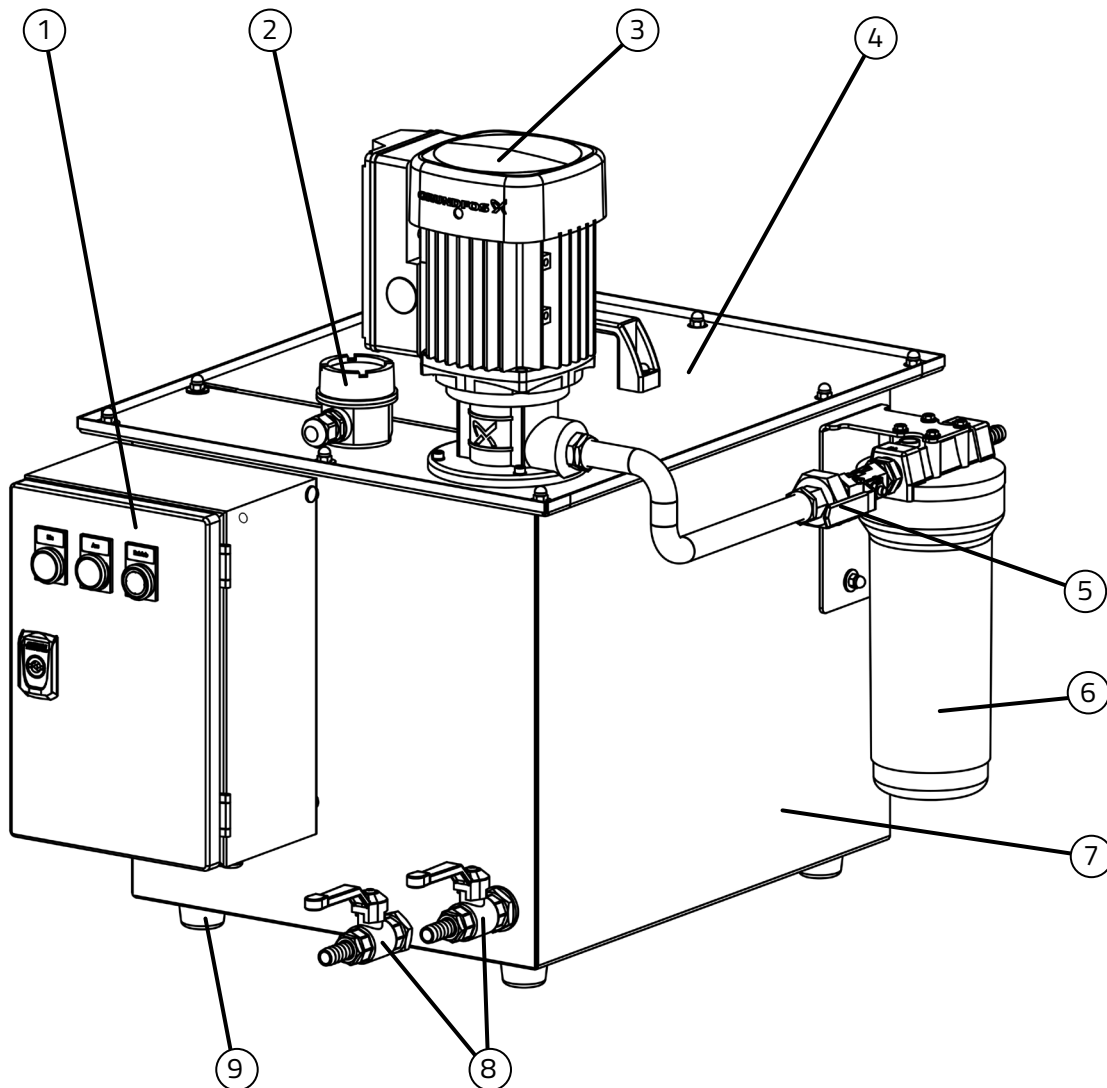
2.7 Safety stickers on the device

- Observe all safety stickers on the device.
- Keep the safety stickers in a readable state. Do not remove them. Replace them when they are no longer legible. Please contact our customer service for this. See chapter **6.4 Repairs**.

^{/1} The maximum permissible operating temperature of the filter cartridges is 70 °C.

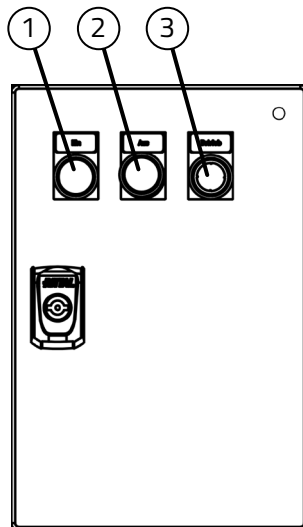
3 Construction and function

3.1 Construction



- 1 Control box with control panel
- 2 Level monitor
- 3 Pump
- 4 Lid
- 5 Ball valve (flow rate)
- 6 Filter
- 7 Housing
- 8 Ball valves (emptying)
- 9 Device feet

3.2 Control box with control panel



- 1 On button
Green pilot lamp; remains permanently lit up during operation
- 2 Off button
Red pilot lamp, for switching off
- 3 Operating button
White pilot lamp

3.3 Function

The electrically operated oil separator enables the continuous separation of floating residues containing oil and grease from the bath surface of the connected ultrasonic bath from the SONOREX TECHNIK RM/TM/ZM bath series. This significantly increases the service life of the ultrasonic cleaning agent.

The basic device consists of 2 chambers with an immersion pump. The filter is used to filter suspended matter.

4 Preparation for operation

4.1 Installation site requirements

The installation site of the device must meet the following conditions:

- The installation surface must be horizontal, firm and dry.
- Its load-bearing capacity must be sufficient for the device. For the weight, see chapter **8.1 Technical specifications**.

4.2 Scope of delivery

Each OX 500 oil separator is supplied with a suitable connection set.
The appropriate connection sets are tailored to match the ultrasonic bath.

- 1 Oil separator/basic unit; see delivery note
- 1 AOX connection set ...
- 1 Operating instructions

Other accessories, depending on the order – see delivery note

Depending on the size of the RM/TM ultrasonic bath to be connected, different oil separators with corresponding connection sets are supplied:

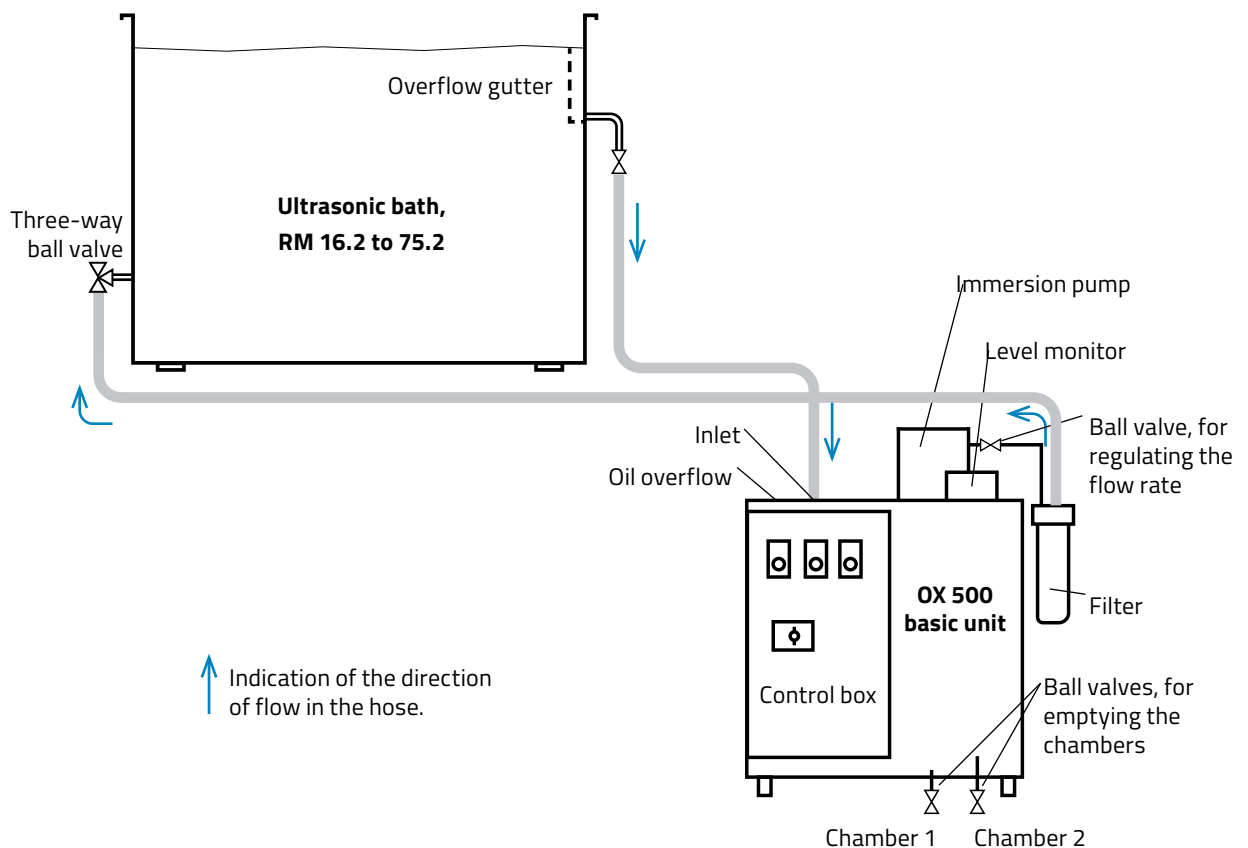
Type	Connection set
OX 16	AOX 16
OX 40	AOX 40/75
OX 75	AOX 40/75
OX 110	AOX 110/180/210
OX 180	AOX 110/180/210
OX 210	AOX 110/180/210

4.3 Set-up and connections

The inlet of the oil separator must be below the overflow of the ultrasonic bath; if necessary, the ultrasonic bath must be set up at a higher level.

The oil separator must be set up in such a way that it is possible to disconnect the mains connection without difficulty.

4.3.1 Connecting the OX 16, OX 40 or OX 75



If necessary, remove the plastic caps from the external threads.

Connect the tank overflow to the inlet to chamber 1 of the basic unit:

1. Screw the G 1 nut onto the overflow stud on the ultrasonic bath.
2. Wrap the stud and all external threads with several layers of Teflon tape.
3. Then screw the G 1 bracket and ball valve to the G 1 hose socket and lock with the G 1 nut.
4. Connect the \varnothing 25 mm hose to the hose socket of the bracket and the inlet of the basic unit and secure with hose clamps.

Connect the tank inlet to the outlet on the G $\frac{1}{2}$ filter housing of the basic unit:

5. Connect the \varnothing 13 mm hose to the G $\frac{1}{2}$ hose socket on the filter housing and secure with a hose clamp.
6. Then connect the \varnothing 13 mm hose to the three-way ball valve of the ultrasonic bath (for the OX 40/75, using a G $\frac{3}{4}$ – G $\frac{1}{2}$ reducer) and secure with a hose clamp.
Additionally for the OX 16:
Insert the triangular nozzle into the inlet on the tank bottom so that the long, straight side of the nozzle points to the front edge of the tank.

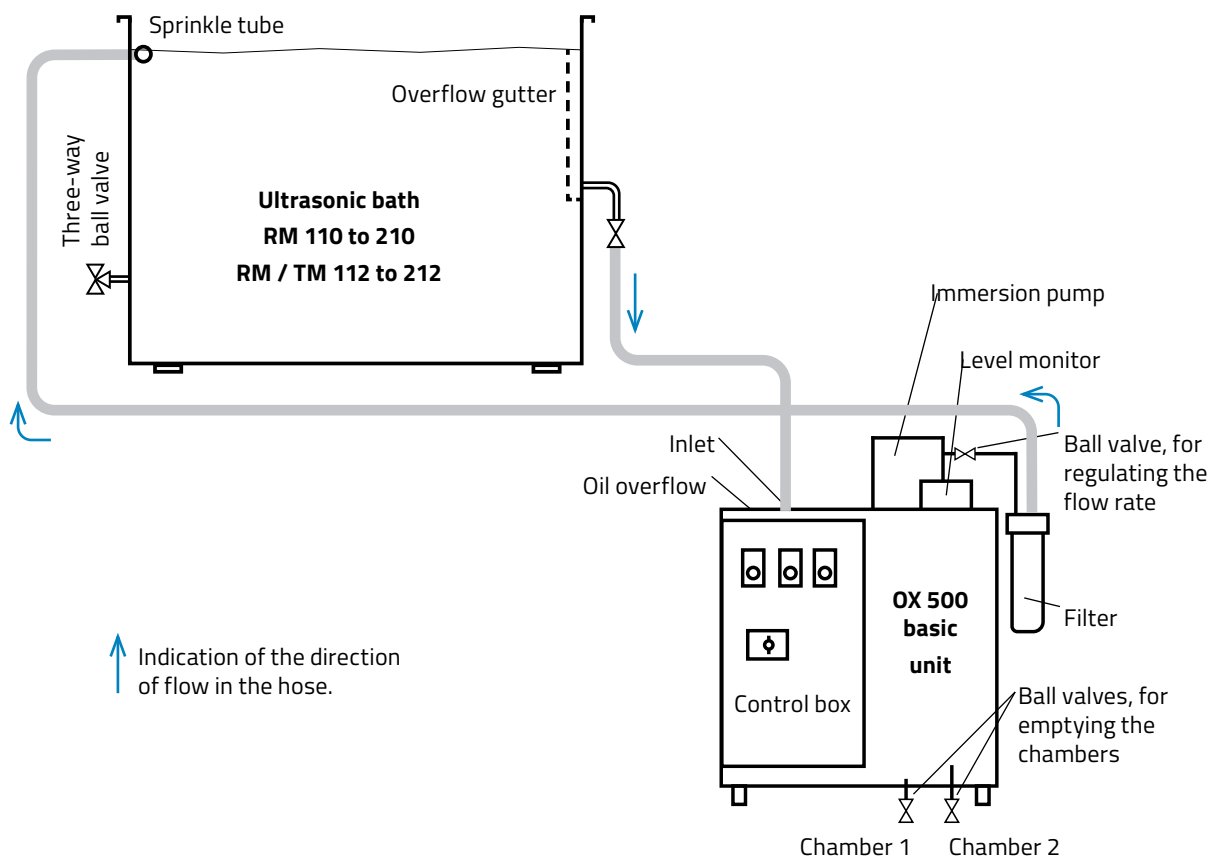
On site, attach a hose to the G $\frac{3}{4}$ oil overflow of the basic unit with a hose clamp and place an oil collecting container underneath.

The G $\frac{1}{2}$ hose sockets are screwed into the ball valves of chambers 1 and 2.

i Information

- If an oil separator (OX) is connected to an ultrasonic bath (RM 16.2–RM 75.2) together with a filtration unit (FA), it should be noted that operation is only possible in alternation – see chapter **10 Connecting the oil separator and filter unit to an ultrasonic bath**.
- When operating with the RM 16.2–RM 75.2 ultrasonic baths, the liquid must be heated on site to reach the desired bath temperature, due to the lower volume.

4.3.2 Connecting the OX 110, OX 180 or OX 210



If necessary, remove the plastic caps from the external threads.

Connect the tank overflow to the inlet to chamber 1 of the basic unit:

1. Screw the G1 nut onto the overflow stud on the ultrasonic bath.
2. Wrap the stud and all external threads with several layers of Teflon tape.
3. Screw on the ball valve and lock with the G 1 nut.
4. Screw the hexagon nipple into the ball valve at the overflow of the ultrasonic bath.
Screw the G 1 bracket and G 1 hose socket onto it.
5. Connect the Ø 25 mm hose to the hose socket of the bracket and secure with a hose clamp.
6. Connect the hose end to the inlet of the basic unit and secure with a hose clamp.

Connect the tank inlet to the outlet on the G ½ filter housing of the basic unit:

7. Connect the Ø 13 mm hose to the G ½ hose socket on the filter housing and secure with a hose clamp.
8. Then connect the Ø 13 mm hose to the G ½ hose socket at the sprinkle tube connection on the cleaning tank and secure with a hose clamp; remove any sealing plugs that may be present.

On site, attach a hose to the G ¾ oil overflow of the basic unit with a hose clamp and place an oil collecting container underneath.

The G ½ hose sockets are screwed into the ball valves of chambers 1 and 2.

5 Operation

5.1 Putting into service

Requirements

- Check whether the hoses are connected without any kinks.
- Check whether there is a filter cartridge in the filter housing; insert one if necessary.
- Check whether there are any foreign objects in the device that could get sucked in.
- The mains plug must be plugged into a grounded socket.

Procedure

- For the RM 16.2 – RM 75.2 devices, open the three-way ball valve on the ultrasonic bath.
- Fully open the ball valve in front of the filter, on the basic unit, and on the overflow gutter.
- Press the On button (green).
- Fill the ultrasonic bath with liquid:
Allow liquid to flow in until its level switches the feed pump in chamber 2 of the basic unit (or "OPERATION" is confirmed) and the pump begins to generate a circuit with the ultrasonic bath.
- Taking into account the additional volume of the basic unit (approx. 60 l), add the required amount of cleaning agent to the ultrasonic bath.
- Regulate the flow rate using the ball valve on the basic unit. It should be ensured that the ball valve is only opened to such an extent that the flow rate of the liquid allows the oils to float, but chamber 1 is not flooded.
- Check the filling level in the ultrasonic bath several times and top up with liquid if necessary.



Information

- Reducing the return flow speed can avoid any whistling noises that may occur in the ultrasonic bath.



WARNING

Risk of damage to the pump

- The pump must not be operated without liquid.
- If the cleaning bath is contaminated with substances that tend to sediment, it must be rinsed with unsoiled cleaning agent prior to the oil separator being switched off. Failure to do so may result in damage to the pump. Switch off the oil separator by pressing the Off button (red). If the oil separator is switched off for a prolonged period, the three-way ball valve on the connected ultrasonic bath must be closed for safety reasons.

NOTICE

Damage to the environment

- When switching off the oil separator, be sure to close the ball valve on the ultrasonic bath's overflow gutter!
For the RM 16.2–RM 75.2 ultrasonic baths, also close the 3-way ball valve!
- Sedimenting particles can settle in the filter, completely filling and clogging the filter housing, which can lead to leaks and thus to damage to the pump. The clogging of the filter is not monitored.

Information

When operating with the RM 16.2–RM 75.2 ultrasonic baths, the liquid must be heated on site to reach the desired bath temperature, due to the lower volume.

Information

When switched off, the oil separator can remain connected to the mains.
It is disconnected from the mains by pulling the mains plug.

Device ON (1)

Pump on – normal operation of the oil separator.

The pump will run when the level in chamber 2 reaches the specified minimum filling level and the built-in level switch has switched. The pilot lamp (white) will light up at the same time.

The ball valve at the tank overflow must be open.

Device OFF (2)

Pump off – the oil separator pump is switched off.

The liquid circuit is interrupted. Close the ball valve at the overflow gutter.

For the RM 16.2–RM 75.2 ultrasonic baths, also close the 3-way ball valve.

OPERATION (3)

When this switch is actuated, the pump will run and the pilot lamp (white) will light up, even if the level in chamber 2 has not yet reached the intended level, provided the minimum level for the pump has been exceeded.

Information

If there is a lack of liquid, the pump will switch off due to level control

Chamber 1:

Separation of oils and fats.

Chamber 2:

With immersion pump and level monitor for collecting and returning the cleaned liquid.

5.2 Troubleshooting

Ser. no.:	Malfunction	Possible cause(s)
1	Oil separator switches off, red pilot lamp lights up.	- Filter is clogged
		- Return flow too restricted
		- Return flow blocked, kinked or pinched
2	Oil separator switches off, pilot lamp does not light up.	- Power failure
		- Defective fuse
3	Oil separator runs, bubbles in the inlet, low or no volume flow in the return flow.	- Tank outlet is closed
		- Inlet blocked, leaking, kinked or pinched
		- Filter is clogged
4	Oil separator runs, hoses filled, but no volume flow.	- Pump blocked.
5	Pump leaking	- Seal defective
6	Pump is stuck or mechanically blocked	- Deposits/sediments in the liquid, dry running

6 Maintenance

In order for the oil separator to enjoy an optimal lifespan, cleaning and care must be carried out regularly.

NOTICE

Danger of damage

- Disconnect the oil separator from the mains before performing any cleaning/maintenance. Do not shower with liquid.

6.1 Cleaning and caring for the device

Cleaning the housing

- Do not use abrasive cleaning agents; only use commercially available care products without abrasive additives.
- Only wipe the housing from the outside; use a suitable surface disinfectant if necessary, then let it dry or rub it dry.
- Each chamber is equipped with a ball valve for emptying.
An additional cleaning opening for chamber 1 is located in the partition between chambers 1 and 2.

6.2 Servicing

- Keep the oil separator clean and dry on the outside.
- Replace used cleaning agents in the ultrasonic bath and in the oil separator; do not refresh them by subsequent dosing.
- The filter cartridge must be changed regularly.
The time at which the filter should be changed depends greatly on the type and amount of contamination in the cleaning bath.

Changing the filter:

Before changing the filter, close the ball valve on the ultrasonic bath's overflow gutter. For the RM 16.2 to RM 75.2, also close the three-way ball valve at the outlet of the ultrasonic bath, otherwise it will run empty!

Filter: Remove and replace depending on the contamination.
Before the new filter cartridge is inserted, the filter housing must be thoroughly rinsed.

NOTICE**Risk of damage to the pump**

- Once a new filter has been inserted and the three-way ball valve has been opened, the liquid level in the ultrasonic bath must be checked and topped up if necessary.
This is especially true for small cleaning tanks = small bath volume.

The oil separator can then be put back into operation via the green On button – the green pilot lamp will light up.

6.3 Storage/safekeeping

If the oil separator is not used for a prolonged period, it must be completely emptied and stored in a cool, dry place.

6.4 Repairs

During the warranty period, contact your specialist dealer or the manufacturer.
Only have repairs carried out by qualified personnel or by the manufacturer.
The manufacturer assumes no liability for unauthorised interventions on the device.



WARNING

Health hazard due to contaminated device

- Decontaminate the device before shipping if it has come into contact with hazardous substances.
-

If the device needs to be repaired, send it to the manufacturer.

Before being returned for inspection/repair, the device and accessories must be cleaned in accordance with the applicable laws and regulations and, if necessary, disinfected with a surface disinfectant that is listed by the Association of Applied Hygiene (VAH).

Please understand that we can only start work once this certificate has been fully completed and is available.

The "Certificate of Decontamination" serves the occupational safety and health of our employees in accordance with the German Infection Protection Act (Infektionsschutzgesetz) and the Accident Insurance Regulations (UVV) of the employers' liability insurance associations.

Download the "Certificate of Decontamination" form here:

<https://www.bandelin.com/downloads>



Fill out the form and attach it so as to be clearly visible on the outside of the packaging. Acceptance will be refused without a completed form.

Send the device to the following address:

BANDELIN electronic GmbH & Co. KG
Heinrichstr. 3–4
12207 Berlin
Germany

+49 30 76880-2674
service@bandelin.com

7 Disposal



WARNING

Health hazard due to contaminated device

- Decontaminate the device before disposal if it has come into contact with hazardous substances.
- Also decontaminate accessories before disposal.

Dispose of the device properly as electrical waste if it can no longer be used. Do not dispose of the device in the household waste. Observe local regulations for the disposal of electrical waste.

Dispose of accessories as metal scrap or as plastic waste according to the material used.



8 Information about the device

8.1 Technical specifications

OX 500 basic unit:

External dimensions (L × W × H):	730 × 580 × 700 mm
Material:	1.4404 stainless steel
Weight, net:	Approx. 70 kg
Mains connection:	230 V~ 50 Hz, 0.25 kW
Cable length:	2 m
Current consumption:	2.05 A
Chamber volume (1 and 2):	60 l
Degree of protection:	IP 54

Filter:

Housing:	PP
Filter cartridge: grade of filtration 25 µm	Disposable wound filter cartridge made of PP,
Filter cartridge size:	9 $\frac{3}{4}$ "

Pump:

Design:	Immersion pump
Connections:	G $\frac{3}{4}$
Operating temperature:	Max. 70 °C
Pressure:	Max. 0.25 bar
Conveying capacity:	1 m ³ /h, H = 2.5 m
Degree of protection:	IP 55

Connection:

Inlet:	G 1
Return flow:	G $\frac{1}{2}$
Ball valves (emptying):	G $\frac{1}{2}$, made of brass, galvanically coated
Oil overflow:	G $\frac{3}{4}$

Connection set (AOX ...):

Hoses made of EPDM,
hose sockets made of brass, galvanically coated

8.2 Ambient conditions

Ambient conditions

Overvoltage category:	II
Degree of contamination:	1
Permissible ambient temperature:	5 to 40 °C
Permissible relative humidity to 31 °C:	80%
Permissible relative humidity to 40 °C:	50%
Altitude:	up to 2000 m above sea level
No dewing.	
For indoor operation only.	

8.3 CE conformity

The device meets the CE marking criteria of the European Union:

- 2014/35/EC – Low Voltage Directive
- 2014/30/EU – EMC Guideline
- 2011/65/EU – RoHS Directive

The declaration of conformity can be requested from the manufacturer, with specification of the serial number.

9 Consumables

Filter cartridges:

EF 1025: 10 fine filters, 9 $\frac{3}{4}$ ", 25 μ m

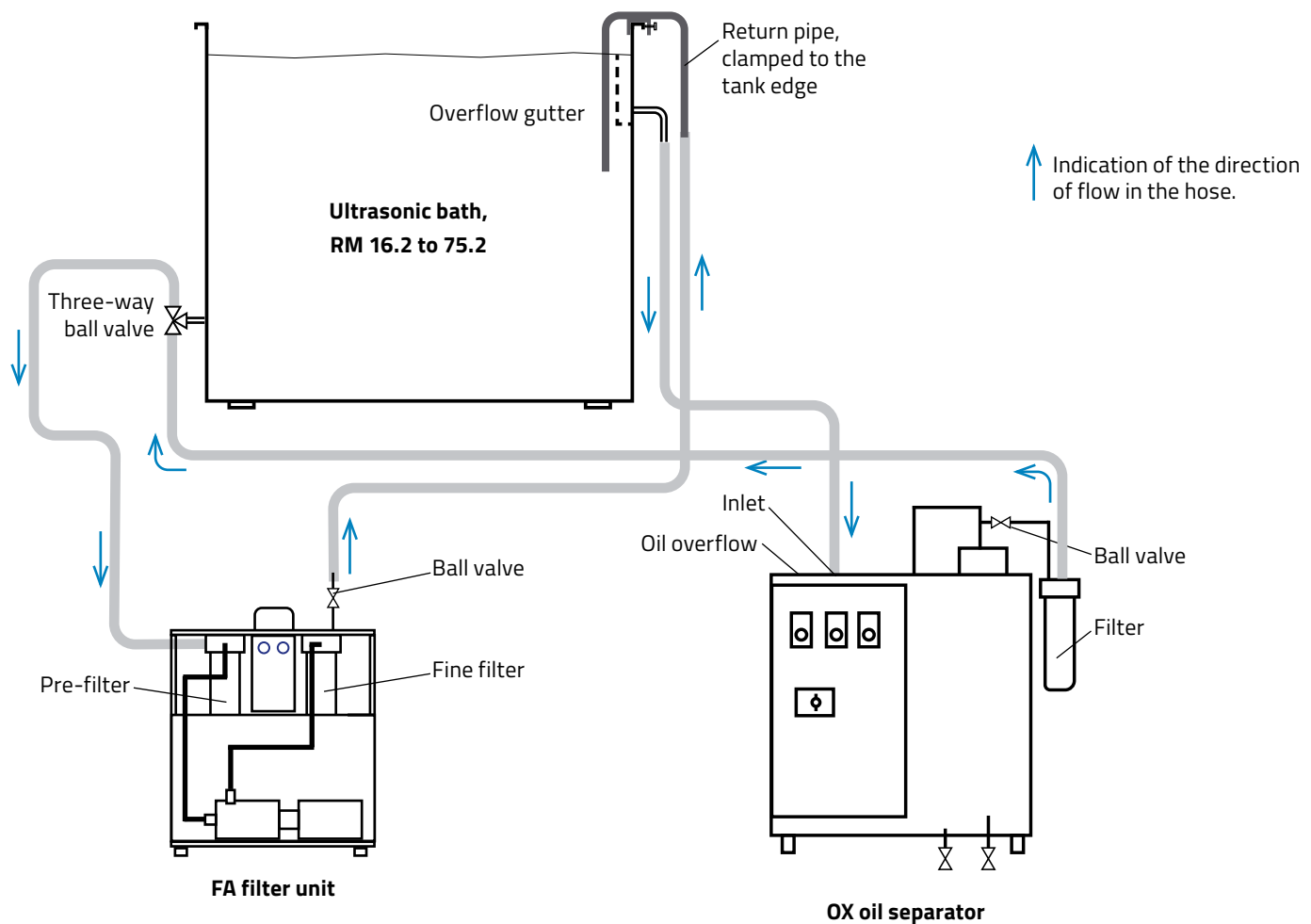


10 Connecting the oil separator and filter unit to an ultrasonic bath

RM 16.2 to RM 75.2

If an oil separator is connected to an ultrasonic bath (RM 16.2–75.2) together with a filter unit, it should be noted that operation is only possible in alternation.

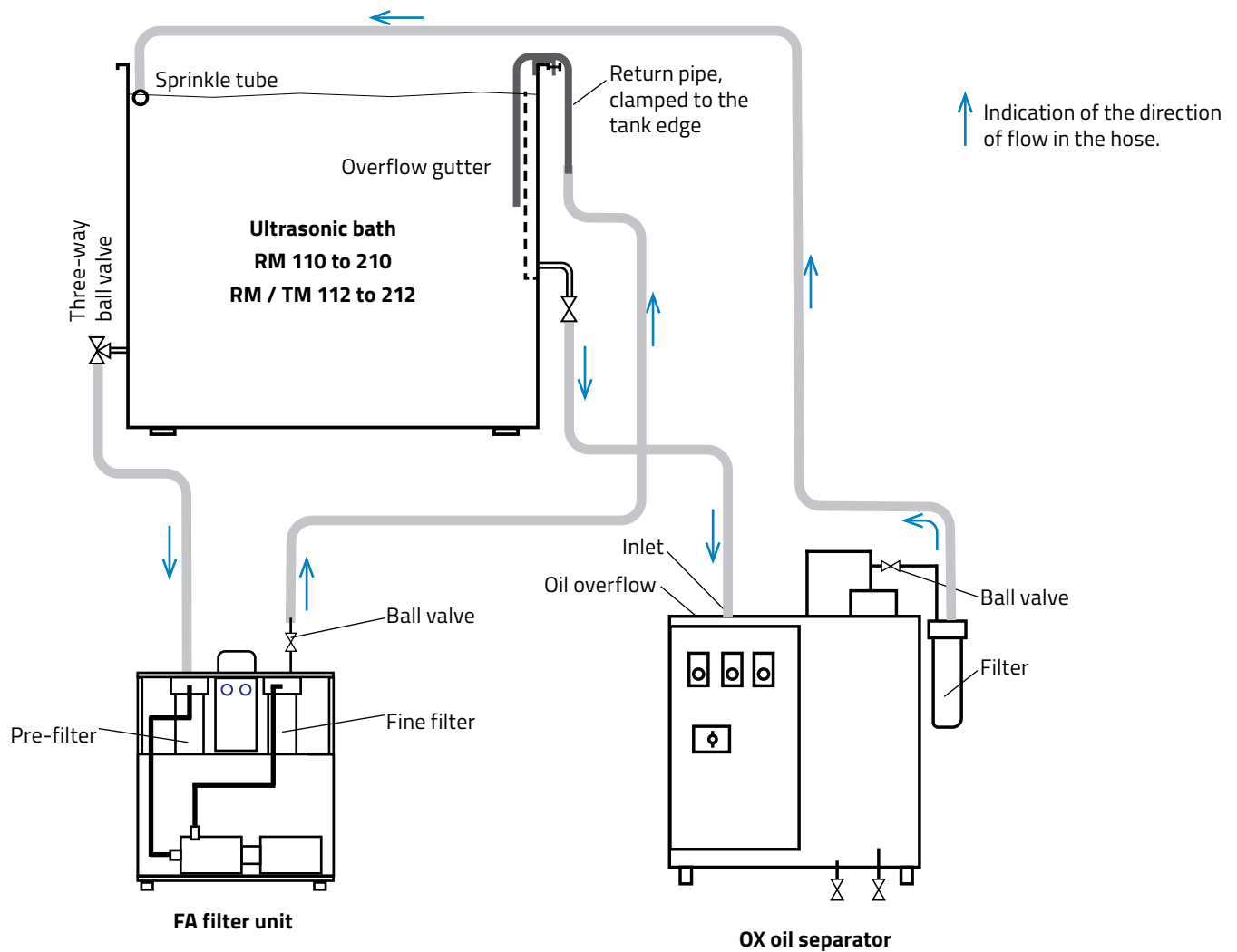
The three-way ball valve must be toggled accordingly.



RM 110 to RM 212 and TM 112 to TM 212

If an oil separator is connected to an ultrasonic bath (RM 110–210 or RM/TM 112–212) together with a filter unit, it should be noted that the return flow from the filter unit with the return pipe comes via the tank edge, while the return flow from the oil separator comes via the sprinkle tube.

Both additional devices can be operated simultaneously.



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