SEPAMAT E

Installation and user manual

WATER, WE'RE IN OUR ELEMENT

www.intewa.com

1. Introduction and scope of application

Congratulations on purchasing your **SEPAMAT E** (Short name, *SMT E*).

The *SMT E* is designed as a separation unit, for use with small volume flows.

The DVGW certified, fully automatic and ready-to-connect separation unit fulfills the separation of drinking water from category 5 liquids according to DIN EN 1717.

The integrated pump supplies water on-demand from the separation chamber to the users. The water level in the separation chamber is controlled by a floating valve. The drinking water supply and emergency overflow are connected to the separation chamber.

The user connection point can be a maximum of 10 m above the *SMT E*.

2. Safety instructions

The live components have to be installed only by a qualified electrician. In case of failure of the electronic device, the product has to be repaired by a qualified electrician before being operated again. There is a risk of electric shock!

The outlet circuit used for the device has to be secured through a circuit breaker protected (16 A in several countries). If unavailable, an FI switch with maximum operating current of 30 mA has to be connected.

These installation and operating guidelines have to be read carefully before installing the product. The instructions mentioned have to be followed strictly. Modifications to the product are not permitted, otherwise the warranty becomes void.

The following points have to be strictly observed during the installation and operation:

- Check the product before installation for any visible defects. If defects are present, then the product must not be installed. Damaged products can be dangerous.
- Installations at the fresh water pipeline system have to be only performed by a qualified installation firm.
- A floor drain has to be provided near the installation site, which can collect inadvertent water discharge (such as with pump defect, pipe breakage etc.) and prevent water damage inside the building. The brickwork behind the water-carrying system must be protected from water (such as with water-resistant paint).
- The wall material behind the water-handling system should be protected against water damage (ie. water-tight coating).
- Make sure that the existing emergency overflows are connected and adequately sized.
- Remove the mains plug if you will be away for more than 24 hours.
- Lock the fresh water line at the inlet of the device if you will be away for more than 24 hours.

- All products must be regularly inspected to maintain proper condition. The minimum inspection interval is mentioned in the maintenance manual.
- Electric devices may be hazardous for children. Therefore children always have to be kept away from the product. Do not let children play with the product.
- Do not install the water-carrying products in locations where the temperature may drop below 0 °C.
- Do not install any electric products in flood-prone areas.
- The operator is responsible for adherence of the safety and installation guidelines.

3. Scope of delivery

Separation unit SEPAMAT E

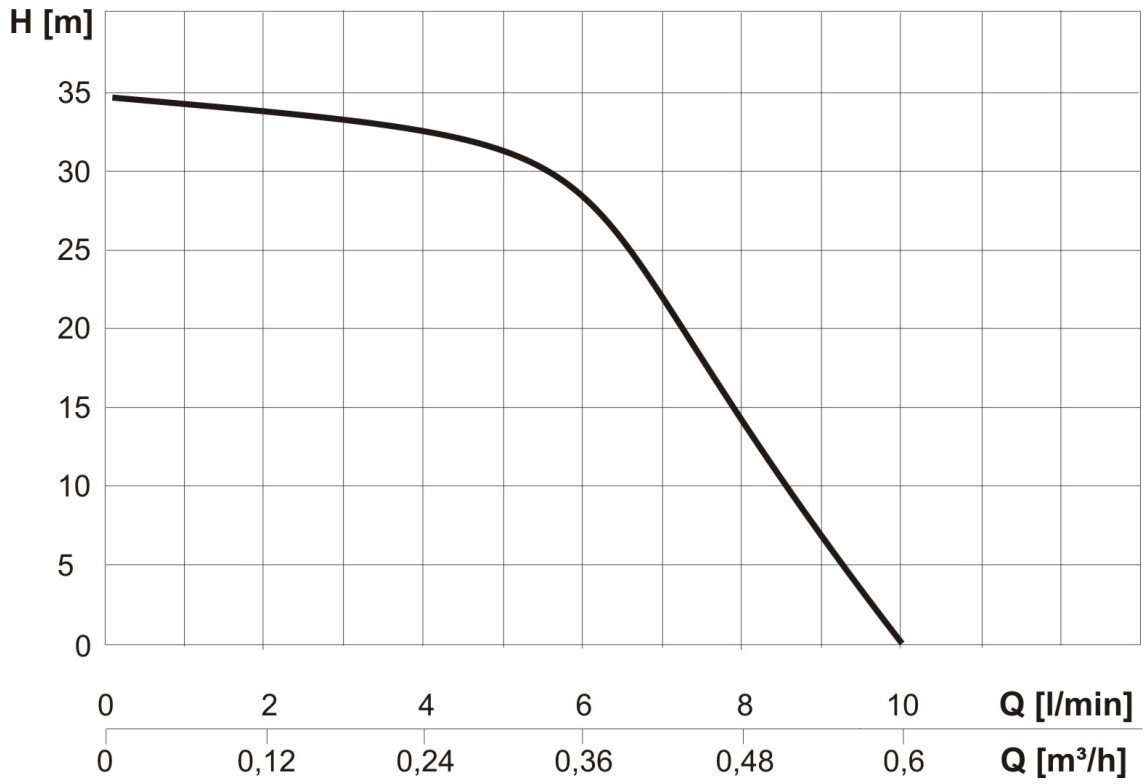
Accessory A
(mains water connection):

Accessory B
(pressure line set):

Accessory C
(wall mounting material)

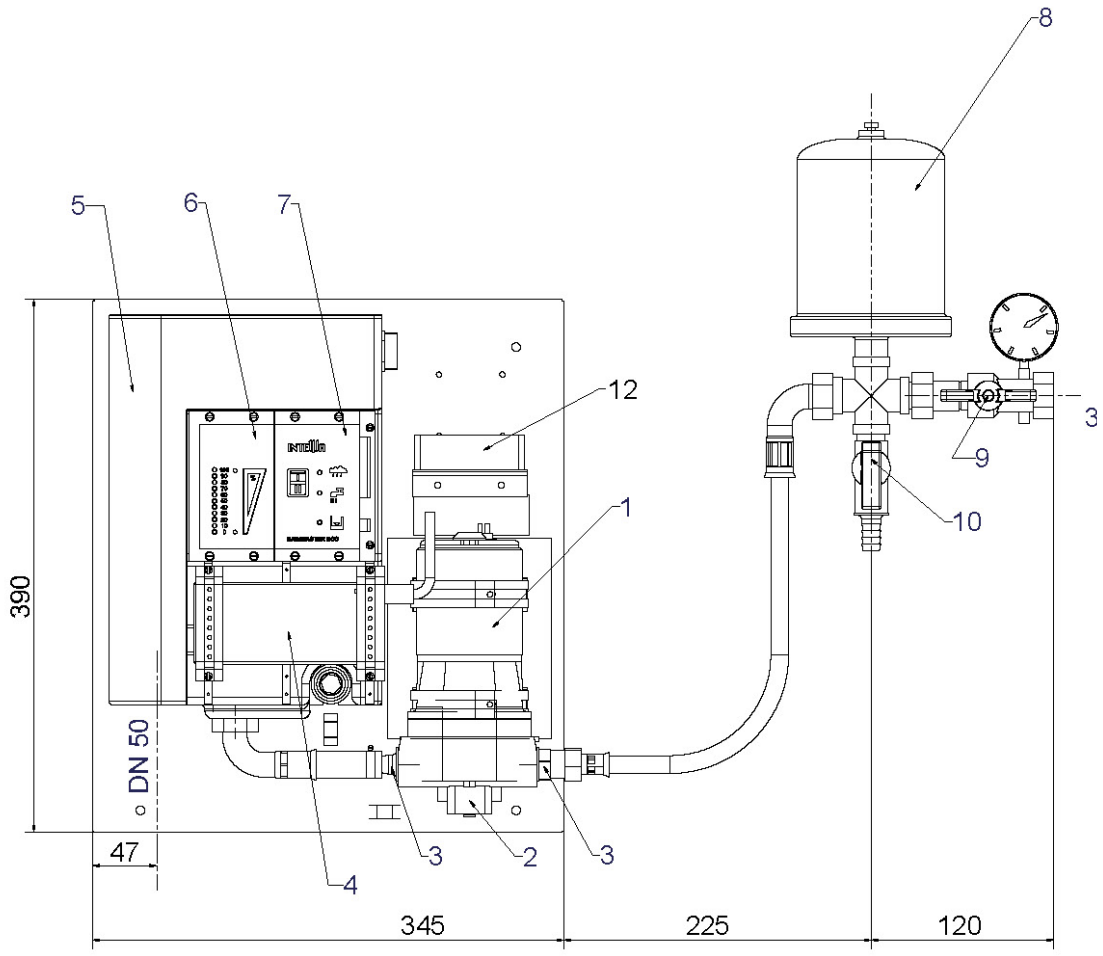
4. Technical data

	SEPAMAT E
Dimensions (H x W x D) / Weight:	398 x 353 x 200 mm / 8kg
Switching power supply input:	110-230 V AC / 50-60 Hz
Switching power supply output:	24 V DC ± 5%
Basic controller input:	22-28 V DC
Power consumption:	90 W
Max. operating pressure:	3.5 bar
Max. flow rate:	10 l/min
Pump start-up pressure:	ca. 2.4 bar
Noise level:	ca. 50-56 dbA
Permitted mains water pressure:	2.5 - 6 bar
Max. height to the user:	10 m
Mains water connection:	½" female
Pressure line connection:	¾" female, union nut
Suction line connection:	¾" male
Emergency overflow connection	DN50 (Ø55mm)
Protection class:	IP 44

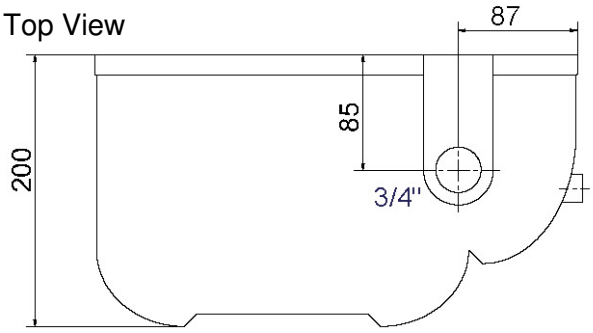


Performance curve for *SEPAMAT E*

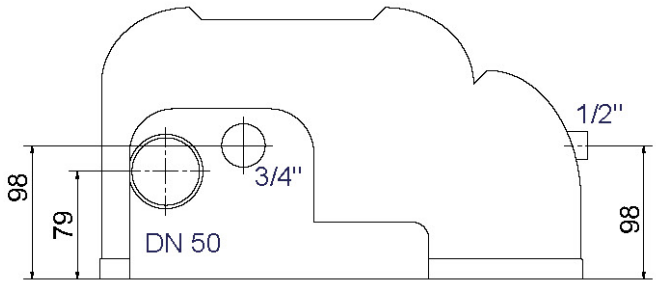
4.1 Device overview and dimensions



Top View



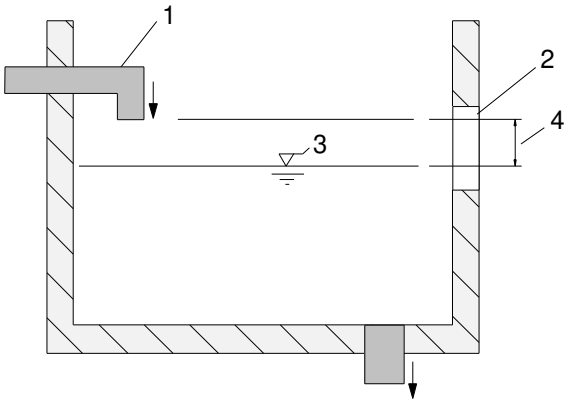
Bottom View



[1] Diaphragm pump
[2] Pressure switch
[3] Pump connection (Suction/Pressure)
[4] Switching power supply
[5] Separation chamber
[6] Place holder for fill status indicator (not for SMT-E)
[7] Basic controller
[8] Expansion tank
[9] Pressure shut-off valve (1/2“ female)
[10] Vent cock
[12] Fan

4.2 Standards, directives, tests

The *SMT E* meets the DIN 1989-4 “Components for Control and Supplemental Supply“ standard for rainwater harvesting systems. The DVGW mark of approval confirms the presence of the mandatory “air gap“ (as per DIN EN1717) for secure separation of processed water from the mains water line, which is integrated into the *SMT E*.



1. Mains water inlet, separation chamber
2. Emergency overflow, separation chamber
3. max. possible water level (due to failure)
4. Air gap between inlet and max. possible water level = secure separation of drinking water from user water

Mains water supplemental supply device, Type AB as per DIN EN 1717

The power is supplied via a TÜV GS-certified switching power supply. All components of the *SMT E* are run on 24 V DC low voltage technology.

The above mentioned device corresponds with the basic safety and health requirements of the EC directives for machines. Any modification of the device not coordinated by INTEWA will void the warranty.

This equipment specifically fulfills the requirements of the following EU directives:

CE

EC directives for machines (89/392/EWG) in accordance with 91/368/EWG
EC Low voltage directives (73/23/EWG)
EG Directives for electromagnetic compatibility (89/336/EWG) in accordance with 93/31/EWG

The conformity of the equipment with the above mentioned directives is confirmed by the CE symbol.

Applied harmonized EU standards:
EN 60335-1: 1194/A1/A11/A12/A13/A14, EN 60335-2-41: 1996

Applied standards and technical specifications:
DIN 1988-2, DIN 1989-4, DIN EN1717, DIN EN 13077, BGA KTW

Tests/Monitoring:

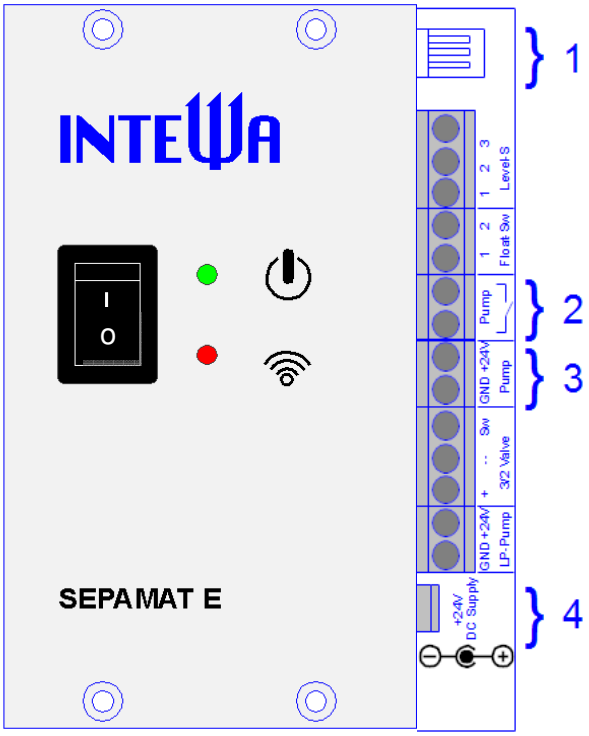
Certification separation device according to EN 1717 and DIN EN 1717 Safety category 5	DVGW CERT Anschlusssicher W 540 · BELGAQUA · SVGW SSIGE
Mains water separation valve: WRAS mark certified	WRAS Water Regulations Advisory Scheme

Switching power supply: TÜV Rheinland, TÜV GS approved	

5. Overview of components

The *SMT E* has a modular design. Each component can be separately changed.

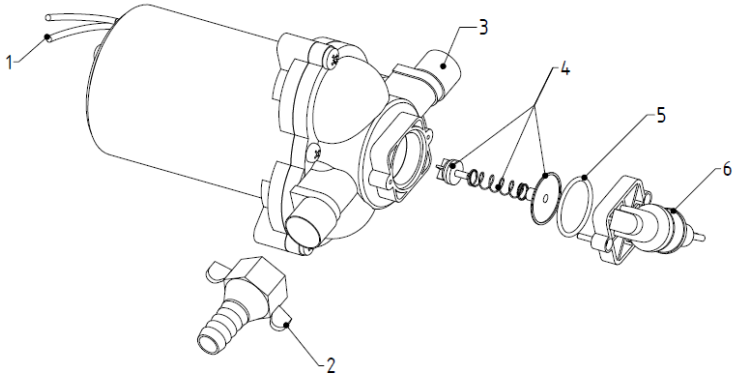
5.1 Components of basic controller



Pos.	Description of required connections
1	Fan plug/connector
2	Pump pressure switch (no polarity) Cabel (blue) Cabel (blue)
3	Diaphragm pump/Fan +24 V (red) GND (black)
4	Switching power supply 24 V DC - TS connector Ø 5.5, center positive

5.2 Components of diaphragm pump

5.2.1 Diaphragm pump

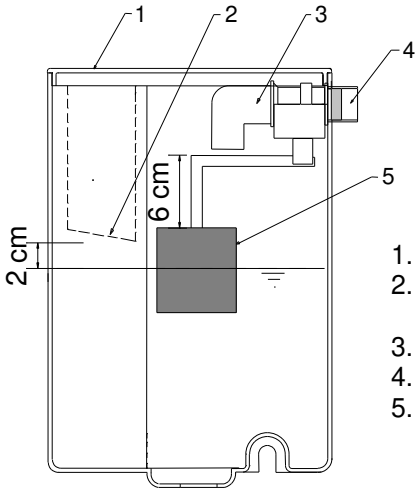


1. Supply cable (red/black)
2. Suction connection (union nut/grommet)
3. Pressure connection (fix)
4. Non-return valve
5. O-ring
6. Pressure switch with fastener

5.2.2 Fan

The fan cools the pump by a uniform air flow. If no continuous operation is provided, the fan can be disconnected electronically. This saves about 6W power. Nevertheless, if the pump is operating continuously (without fan) with high back pressure and the pump is getting too hot, the internal pump temperature sensor will stop the pump. After cooling down the pump starts automatically again.

5.3 Components of the supplemental supply chamber



1. Lid
2. Emergency overflow rim
3. Floating valve
4. Protective sieve
5. Floating body

The floating valve keeps the water level constant in the separation chamber. The maximum water level should be approx. 2-3 cm below the overflow rim when the floating valves closed (backside of the container).
The correct distance of the float (5) to the horizontal lever is factory set at 6 cm.

Note: If an overflow occurs due to continuous dripping from the valve, the valve must be decalcified (see section 9).
The floating valve incorporates a protective sieve.

5.4 Components of the pressure line set

The pressure line set contains an expansion tank, which is necessary to ensure the silent operation of the system. A pre-pressure of 2.0 bar is preloaded at manufacture. The expansion tank ensures that the vibration created by the operation of the pump is not transmitted through the piping system.

Procedure for pre-pressure inspection / preparation:

1.) Disconnect the mains power to the *SMT E*.

2.) Close the pressure shut-off valve.

3.) Open the vent cock to drain till the system pressure is 0 bar.

4.) Check the air pressure through the air valve with an air pump and gauge (i.e. a bicycle or car tire pump).
If the pressure is too low, use the air pump to increase it back to the necessary 2.0 bar.

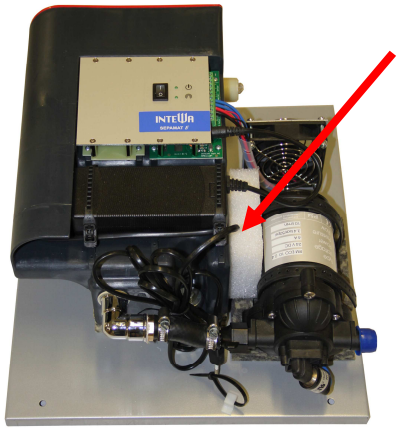
5.) Reconnect the mains power to start the unit again and drain the water, via the vent cock, until bubble free water gushes out.

6.) Close the vent cock and open the pressure shut-off valve.

The system is now ready to use.

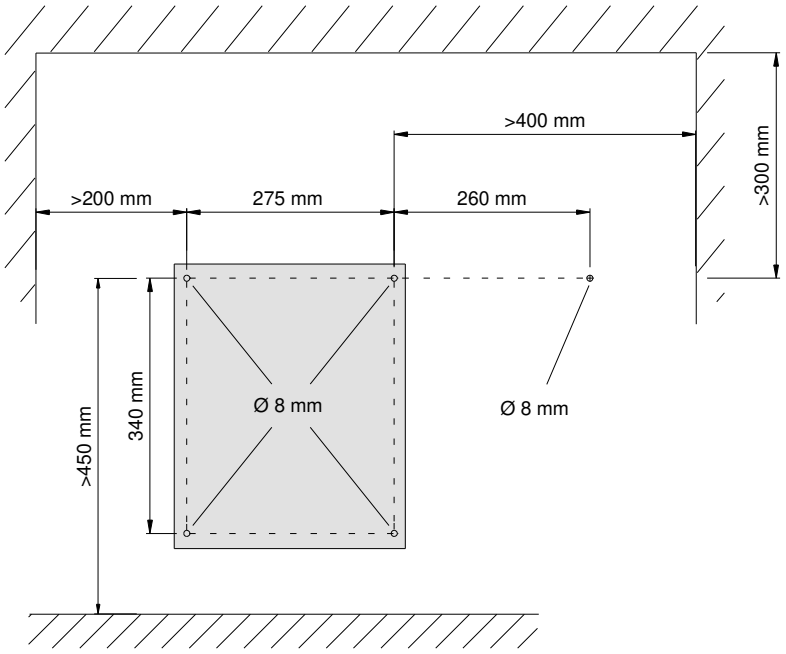
6. Installation instructions

The foam pieces between the chamber and pump are for transport safety and must be removed before installation and start up!



6.1 Wall mounting

The *SMT E* is mounted on the wall using the mounting material provided. The lid, bottom and lateral distances indicated should be adhered to when mounting to provide clear maintenance access.



The *SMT E* is fixed horizontally with of Ø8 mm raw plugs and screws. An additional hole is also drilled 260 mm top and right of the upper mounting holes for connection of the expansion tank mounting bracket.

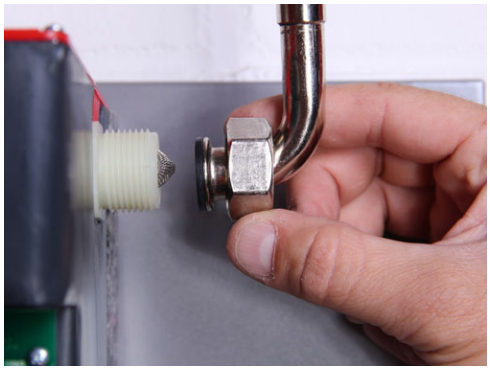
In order to avoid vibrations, the *SMT E* must be fixed with all four screws.

6.2 Connection to the mains water line

The connection to the mains water line is done with the provided flexible hose with stopcock.

Note:
The flexible hose must not be mounted with tension, since the internal float valve is pressed against the inner wall from here.
All provided flexible hoses have gland screws with flat seals. The rubber seals must be present. Additional sealing material must not be used at gland nuts!

Screw the gland screw into the chamber connection and carefully tighten with a 30 mm fixed wrench.

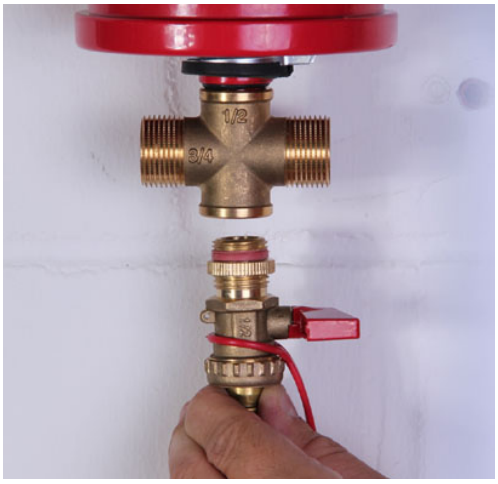


Screw the gland screw on the other end of the flexible pipe into the stopcock mounted in the main water line.

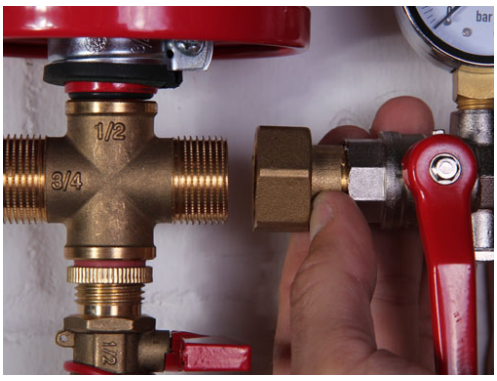
6.3 Installation of the pressure line set

The pressure line set (see section 3) establishes the connection between the pump and pressure line system.

The expansion tank is fixed to the wall with the pipe clamps provided. The vent cock is equipped with a gasket ring so that it can be screwed directly into the T-piece without additional gaskets.



The pressure shut-off valve, incorporating the pressure gauge, is then connected into the line by screwing the flat sealing gland screw into the expansion tank T-piece.



The flexible hose connects the pump pressure line to the other side of the expansion tank T-piece. These line connections are made with flat sealing gland screws.

The expansion vessel pressure must be checked (see section 5.4).

6.4 Connecting the emergency overflow

The *SMT E* has an emergency overflow line (DN 50) which must be connected to the waste drainage system of the building. The drainage line must be of a size to accommodate a maximum volume flow rate of 20 l/min.

The position of the backwater level must be taken into consideration while connecting to a drainage system, in order to prevent backflow of drainage water from the open sewer line (design according to the DIN EN 1717) entering the *SMT E*.

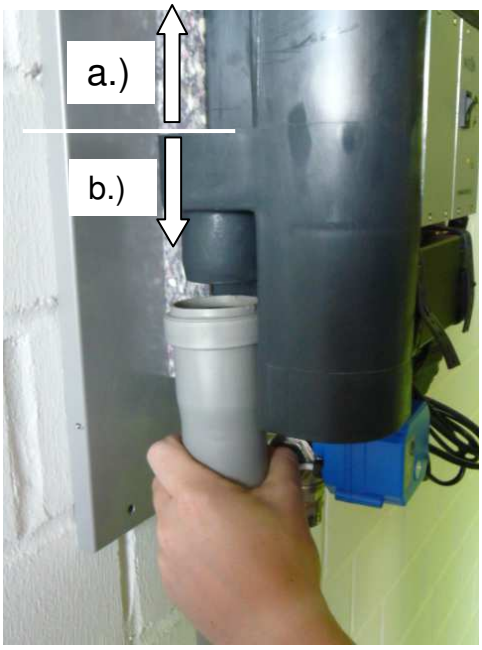
The position of the backwater level determines the type of line:

a) Backwater level **above** the emergency overflow drainage height of the supplemental supply container:

   Connection of the emergency overflow must be done by a lifting system.

b) Backwater level **below** the emergency overflow drainage height of the supplemental supply container:

   Connection of the emergency overflow to a ventilated channel line (DN 50) is done via a siphon.



7. Start up and operation modes

7.1 Start-up

1.) Check that all lines are connected.
Select mode = Switch position I.
Open the mains water line stopcock so that the separation chamber is filled with water.

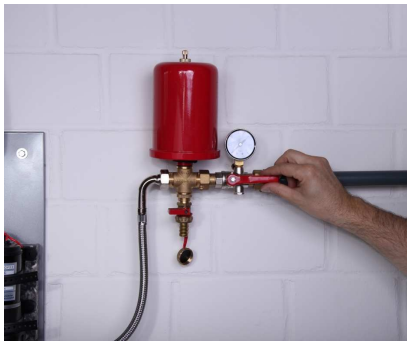
2.) Close the pressure shut-off valve.

3.) Open the air vent (hold a bucket of water under the air vent) and start the pump by plugging in the mains power.
Let the water run from the air vent into the water bucket until there is no more sign of bubbles (a clear stream).

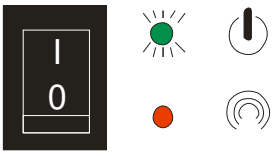
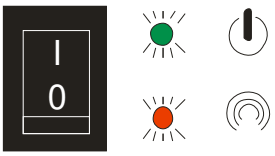
4.) Close the air vent.

5.) Open the pressure shut-off valve and release the air from the (house) line (e.g. by flushing the toilet several times).

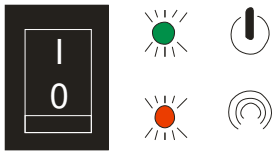
Close the pressure shut off valve. The pump will automatically switch off when the maximum system pressure is reached.



7.2 Operation modes

 *Unit ON (Normal operation)*	When the unit is switched on, the green LED lights up and the pump will start if the pressure is below 2 bar.
 *Fault indication*	An emergency shutdown of the unit is indicated by the flashing red fault LED. The pump is then deactivated. The pump can only be started again by a RESET (see section 8).

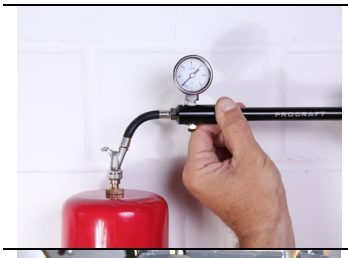
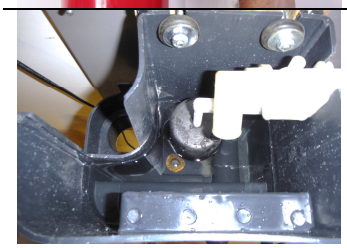
8. Trouble-shooting

Description of error	Cause	Solution
The pump is not starting and all LEDs are flashing 	The pump has shut down after running non-stop (2 hours continuous operating) due to: a) Anti-dry running protection - Air in intake line, as float switch has not registered an empty tank and did not switch to mains water mode - Air in intake line because of a leakage b) Continuous use by connected fixture	a) - Check the functioning and position of the float switch (see chapter 6.3.4). After this restart - Seal connection points and the intake line and restart b) Avoid continuous use of more than two hours
Restart from an Emergency Stop: - RESET by pulling out the mains plug for at least 5 seconds until all the LEDs have gone out. - Plug in the mains plug. (Should there no longer be water in the line and/or no pressure is built-up, then air has entered the intake line. The air must be evacuated from the air vent as described in section 7.2.		

Description of error	Cause	Solution
Pump does not start and no LED is shining	No power	Check mains supply
Pump does not start but LED display is o.k.	a) Temperature protection switch, pump is overloaded due to continuous use or pulsating working mode b) Defective pressure sensor c) Carbon brushes have worn out or are defective	a) The pump will automatically restart if motor is cooled. Find out the reason for overload and fix it b) Change pressure sensor c) Change pump
Pump does not turn off	a) Power- off pressure is not obtained (< 3 bar) because of air in the system b) Power- off pressure has exceeded (> 6,0 bar/90psi) as pressure switch is defective	a) Evacuate air from the pipeline system (see section 7.2) b) Exchange pressure switch.

Pump is running continuously	a) non-sealed leaky fixture b) withdrawal of water is too low at the fixture	a) Fix leakage b) Check fixture
Pump ticks and the LED light flashes ON/OFF regularly	The power consumption of the pump is too high (protection switching of the power supply is activated), because: a) the pressure switch is defective (pressure > 6 bar/90psi) b) Pumping motor is blocked	a) Change pressure switch (see section 5.2) b) Change pump
Pump does not attain the maximum pressure of 3 bar	Air in the system	Evacuate air from the line system (see section 7.1)
The flow rate is too low or the pump does not feed any water	Not enough or no water in the unit's separation chamber	Check pre-pressure of mains water, clean filter sieve in the entry of mains water valve (see section 5.4)
The pump can be heard through the walls of the building	a.) Silencer is not working in the expansion tank b) Pump connection or piping is touching the unit cover	a) Reset the expansion tank's pre-pressure to 2.0 bar (see section 5.5) b) avoid allowing contact between the unit cover and the pump and piping
Separation chamber is blocked (water spills into the overflow)	Mains water valve is calcified	Decalcify mains water valve for 24 hrs. (see section 9)

9. Maintenance

	Description	Maintenance interval
	Pre-pressure of the expansion tank: For a description for the inspection and preparation of the pre-pressure see section 5.4	6 months
	Mains water valve: If the mains water valve continuously drips, then this must be decalcified. Therefore, remove the entire valve from the tank and place it in a decalcifying solution (citric acid) so that the inlet and outlet are fully submerged. Move the floating arm several times so that the decalcifying solution penetrates the valve diaphragm chamber as well (24 hours exposure time). If the dripping continues after maintenance, then the valve must be replaced.	6 months

10. Spare parts

Article description	Figure no. (see section,4.1)	Order name
Diaphragm pump RM Eco 10, inclusive pressure switch	[1]+[2]	RM ECO P10
Pressure switch	[2]	RM ECO PD
Switching power supply 24 VDC, 4 A for RM Eco 10	[4]	RM ECO N10
Supplemental supply container	[6]	RM ECO B
Floating valve	[3] see section 5.3	RM ECO NSP
Basic controller	[8]	RM ECO BPL
Expansion tank RM Eco 10 (1 litre)	[10]	RM ECO AG1

11. Guarantee

INTEWA GmbH guarantees this unit for 24 months from the date of purchase. Kindly keep the sales receipt as proof of purchase.

Within the guarantee period, INTEWA GmbH reserves the right to either repair or replace faulty parts at its own discretion.

The warranty does not cover any damage due to improper use, wear and tear, or intervention by third parties. The warranty does not cover any defects which may only minutely affect the value or usability of the device.

12. Contact / Device number

For customers in Germany:
For any queries, ordering of spare parts, as well as in case of service, kindly contact INTEWA GmbH directly, quoting your product‘s model and identification numbers and the purchase invoice details, at:

INTEWA GmbH
Auf der Hüls 182
52068 Aachen

Tel.: 0049-241-96605-0
Fax: 0049-241-96605-10
Email: info@intewa.de
Internet: www.intewa.de

For customers in other countries:
For any queries, ordering of spare parts, as well as in case of service, kindly contact your installer or the authorised importer, quoting your product‘s model and identification numbers, and the purchase invoice details.
Your *SEPAMAT E* identification number is displayed on the right hand top side of the back mounting plate. The unit’s main housing must be removed to see this.