

Weight Saver

USER AND INSTALATION MANUAL

Version: 1-2003

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1. WEIGHT SAVER OPERATION

1.1 The principle

The Weight Saver works on the ultrasonic principle (see figure 1). Using electronics, a ceramic vibrating plate (the transducer) which is fitted in an easily dismantled screw top (transducer mounting head) is made to vibrate at a specific frequency. Because of this vibration, water above the vibrating plate is also made to vibrate and microscopically small water droplets are flung upwards, high above the surface of the water. The transport air is led through these droplets by a fan and this carries these droplets with it. In addition, the electronics control the level of water in the reservoir. This is set in the factory to open the water valve for 2 seconds every 45 seconds. Because of this the water is sprayed into the reservoir via 2 injection heads. The excess water disappears via the neck into the water seal and then via the overflow to the drain connection.

1. Transport air input
2. Rinse water overflow
3. Water seal
4. Transducer mounting head
5. Transducer;
6. Injection head
7. Cone of droplets
8. Oversized droplet
(falls back into reservoir)
9. Moisturized air output

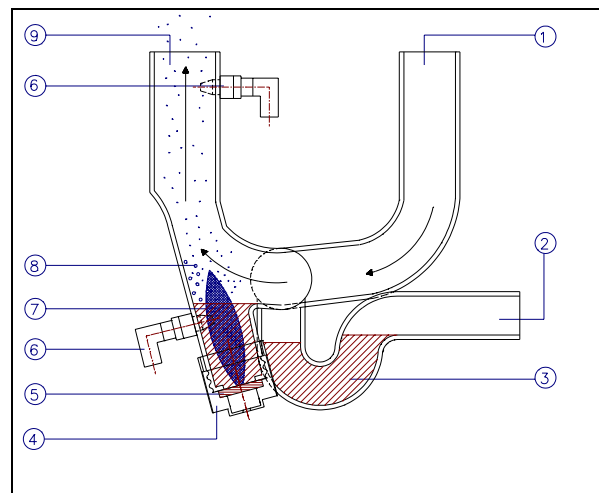


Figure 1: Schematic drawing of the pipe system

Level sensors check if the minimum required quantity of water is present in the pipe system. When this is not the case the electronics stop driving the vibrating plate and the “level” indicator lights up.

The Weight Saver is suitable for connection to the normal drinking water supply. The factory settings are based on an average water mains pressure of 4 Bar. The pulse and pause time can be adjusted for a higher or lower pressure. This is covered in more detail in the “Adjustments on the panel” service manual. The maximum permissible water mains pressure on the equipment is 10 bar. If the hardness level of the drinking water is higher than 8 German degrees a decalcifier should be fitted, do not, however, decalcify further than ± 3 German degrees. Further information about this can be obtained from Smeva Products.

1.2 Installation

The unit must be installed in a horizontal place (level) above the level of the drip tray. On Smeva Products extra mounting brackets are fitted in the display case for this.

The unit must be connected to a drinking water pipe system. Ground water may not, therefore, be used for humidifying.

The connection to the drain cannot be a permanent connection. Discharge of the drain water must occur via a drip tray, a so-called “open” drain connection. There may be no contact between the drain and the unit.

The connection hose between the unit and the distribution system must be smooth. There should be no kinks in the hose. This can lead to a water seal.

A steam pipe has been fitted in the housing for the distribution of the humidified air in the display case. The maximum length of the steam pipe is 5 meters. For each external corner in the housing the maximum length will be reduced by 0.5 meters.

For the purpose of cleaning and service, the pipe is not glued and has been fitted in open clamping brackets so that it can be detached.

There are output openings in the steam pipe. The output openings should be pointed diagonally downward at approx. 7 o'clock to drain condensation.

The feed of humidified air has an overpressure and will decrease over the length of the steam pipe. Optimal distribution of the humidified air can be obtained by fitting the yellow sealing caps (supplied separately) in the output openings. Distribution depends on the length. Additionally, the layout of the goods to be displayed in the display case can be humidified more or less as required.

The electrical connection must be made in accordance with the instructions for operating the display case. Switching on and off must be done via the display case's control panel.

Depending on the position of the steam pipe in the housing (“warm” or “cold” section) a self-regulating heating cable will be fitted in the steam tube, if necessary, to prevent freezing. The electrical connection must be made in accordance with the instructions for operating the display case. Switching on and off must run parallel with the humidifying programme.

Periodical Cleaning

1.3.1 The Weight Saver's internal pipe system

The humidifier has the following design features to limit the consequences of any silting up, or the growth of algae in the pipe system, to a minimum:

- The choice of material and design of the pipe system is such that a minimum of algal and bacterial growth can occur.
- The walls of the reservoir are rinsed clean by the movement of the water in the reservoir created by the vibrating plate.
- The reservoir and pipe system are regularly filled with clean tap water at 2 locations and the pipe system is given an additional rinse once every four hours. Because of this, the water temperature remains low, which gives algae no chance to grow the reservoir.

Smeva Products advises cleaning the internal pipe system once each year. The unit can be removed from the housing and can be cleaned over a sink using a round brush. Normal tap water is sufficient for this purpose. Never use alkaline cleaners (soap)! Soap remnants have a negative effect on vapour formation.

1.3.2 Distribution system in the display case

Smeva Products advises cleaning the steam tube at least twice a year.

The inside of the distribution steam pipe can be cleaned using a spray head which can be obtained from Smeva Products. This is fitted to a 6 mm hose which, in its turn, can easily be connected to the display case's water supply.

If the spray head is not to hand, rinsing the system using a water hose will suffice.

- Turn off the water supply and disconnect the 6 mm water supply hose from the unit.
- Loosen the flexible output hose that connects the unit to the distribution system;
- Slide the spray head into the steam tube and turn on the water supply;
- Catch the dirty wastewater!
- The steam tube can be removed for thorough cleaning. This is not glued and is fitted in open clip brackets so that it can be detached.

2. ELECTRONIC CONTROL UNIT

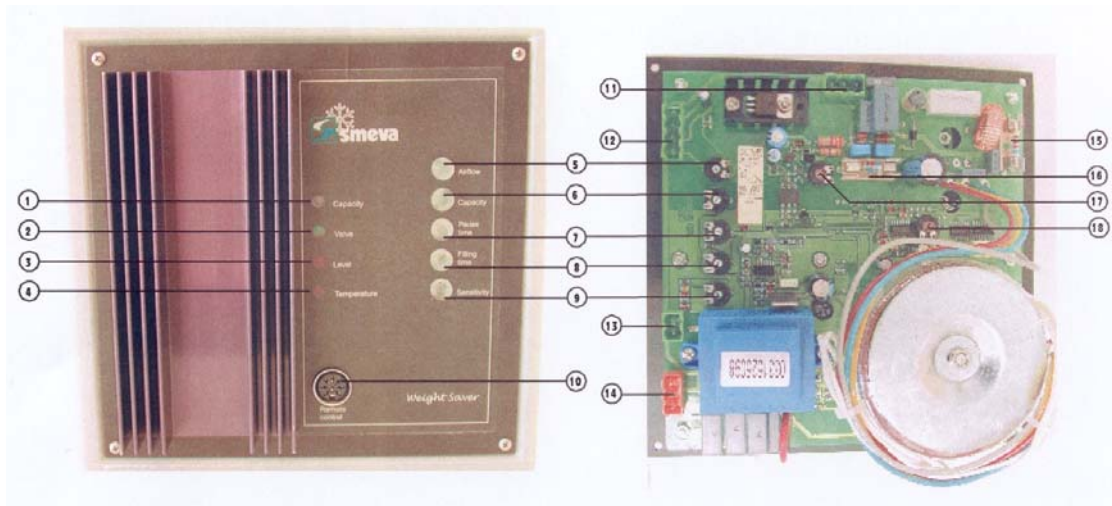


Figure 2: Front of pcb

Figure 3: Rear of pcb

Explanation of figure 2.

1. Capacity, vapour capacity indicator;
2. Valve, filling time indicator;
3. Level, water level indicator;
4. Temperature, temperature alarm indicator;
5. Airflow, air speed setting;
6. Capacity, vapour capacity setting;
7. Pause time, pause time setting;
8. Filling time, filling time setting;
9. Sensitivity, water level safeguard sensitivity setting.
10. Remote control, DIN plug connection for external control.

Explanation of figure 3.

11. Transducer connection plug;
12. Connection plug for fan and water supply valve;
13. Connection plug for water level safeguard;
14. Supply voltage connection plug;
15. Fuse – vibrating plate, 1A quick;
16. Fuse – water valve / fan 1A quick;
17. Current intensity potentiometer
18. Temperature safeguard potentiometer

Setting the electronics should only be carried out by skilled personnel in accordance with the guidelines in the Service manual.

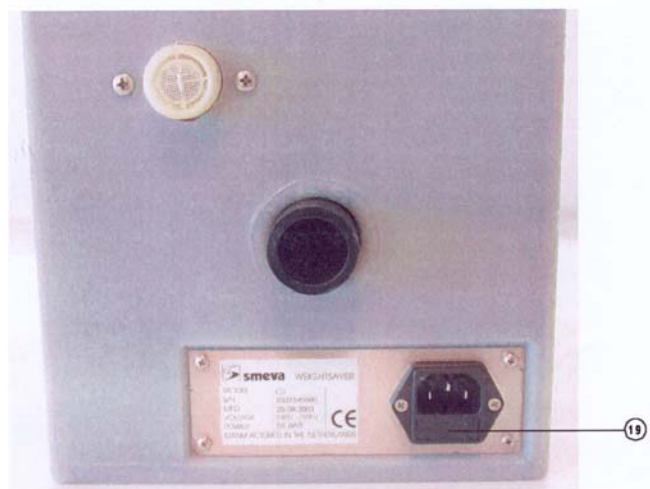


Figure 4: Rear

Explanation of figure 4.

19. Power supply external fuse – 1A slow.

2.1 ELECTRONIC CONTROL UNIT INDICATORS

Capacity

Capacity indicator. During normal operation the blue LED will glow brighter as the capacity is set higher.

Valve

Pulse time indicator. The green LED will light up during pulse time (water valve is open).

Level

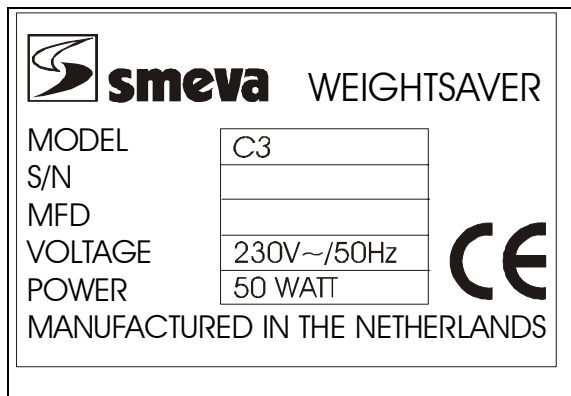
Indicates that the water level in the reservoir is too low. If there is too little or even no water at all in the reservoir the red LED will light up from flashing to a strong glow.

Temperature

Indicates temperature too high. When the temperature of the main transistor is too high, the red LED lights up and the oscillator circuit is switched off

3. TECHNICAL SPECIFICATIONS

Type plate



Type: Weight Saver
 S/N: Serial number
 MFD: date of manufacture

Technical details:

Power supply:	230 V / 50 – 60 Hz
Power	50 Watt
Capacity:	500 gram / hour
External fuse:	1A Slow

Operating conditions

- Maximum hardness of drinking water:	6-8 German Degrees (demineralised water is recommended. Conductivity of the water should, however, be > 50µs.
- Water operating pressure:	1 - 10 bar
- Temperature	10 – 35 °C
- Humidity	20 – 80 % rL