

osmobilPRO X



OSMOBIL PRO X

Translation of the original operating instructions in English

**Current version as of January 2023.
All previous versions are replaced by this one.**



OSMOBIL PRO

Technical data:

Permeat per hour	max. 410 l
electrical Connected load	0,375 kW
Total salt content Input water	max. 1000 ppm
Saltrejectionrate	mind. 95%
Ratio	30-50%
Input water pressure	2,0-6,0 bar / 30-90 psi
Inout water temperature	8°C-25°C / 45°F-80°F
Suitable inlet water	Municipal water acc. German Drinking Water Ordinance
Ambient temperature	3°C-40°C / 37°F- 104°F
Mains connection	230 V u. 50 Hz
Dimensions	85x60x55
Weight (dry)	49 kg



EC Declaration of Conformity

We hereby declare that the mobile reverse osmosis system „OSMOBIL PRO X“ complies with the applicable EC directives with regard to its design and construction as marketed by our company.

This declaration becomes invalid if any changes are made to the system that have not been agreed with our company.

Applicable EC Directive:

EC Machinery Directive (2006/42/EC)

Manufacturer: VF Reinigungstechnik
Blankenfohrweg 11
32139 Spenge
Tel. 05225.87198-15

Designation of the plant:
Serial number:

OSMOBIL PRO X
See type plate

Signatories: Tobias Becker (managing partner)

Date/Signature of the manufacturer: 02.12.2022

A handwritten signature in black ink, appearing to read 'Tobias Becker', written over a horizontal line.

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1 Introduction

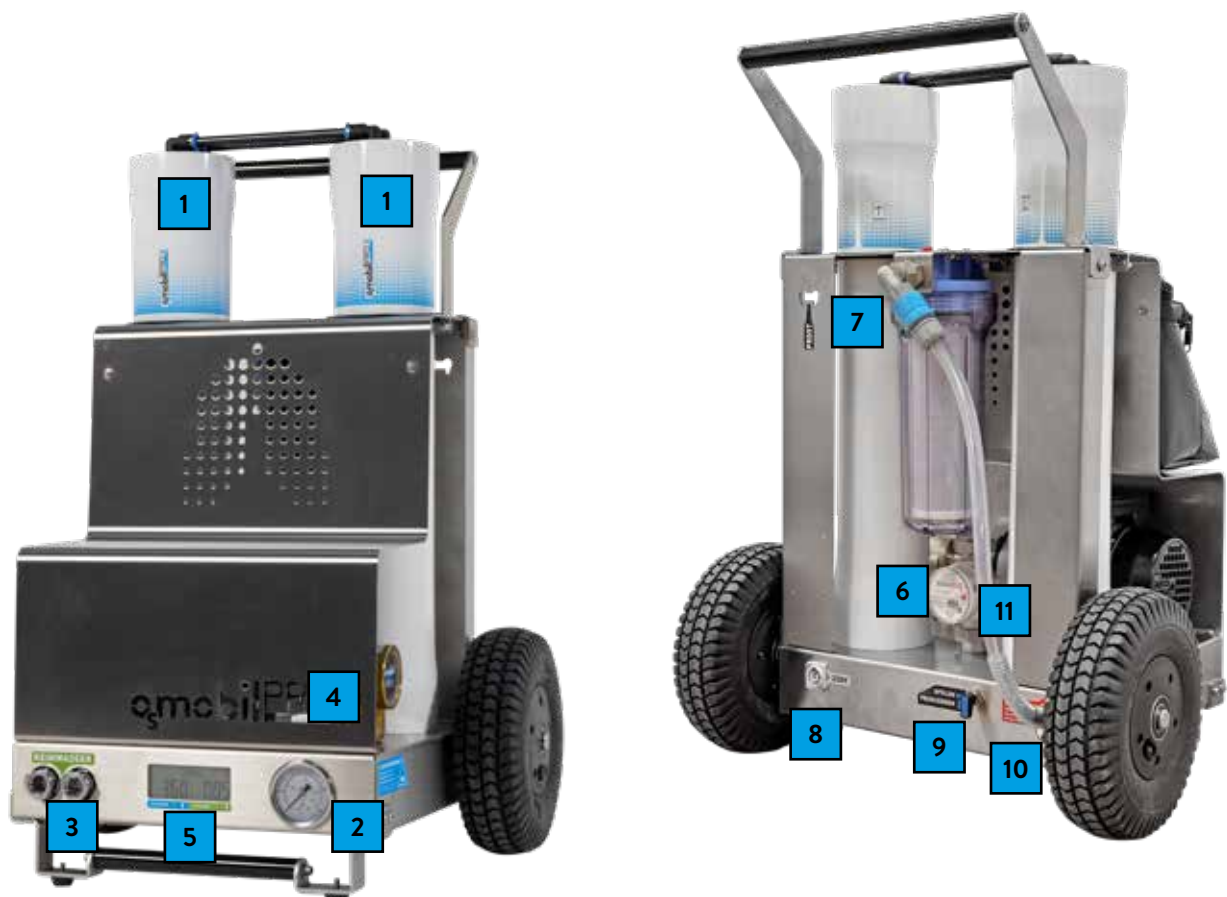
1.1 Introduction

Dear user,

herewith you receive the manual for your new reverse osmosis system „OSMOBIL PRO X“. It describes in simple terms the basic functions and components of the device. In addition, it provides important information for your safety as a user and to avoid misuse and damage to the device or the environment.

Attention: Please read the instructions completely and carefully. This will prevent damage and misuse! The unit may only be operated by competent persons who have read these instructions.

1.2 Overview



- 1: Membrane housing
- 2: Pressure gauge
- 3: Clean water outlet (2x)
- 4: Pump pressure adjustment
- 5: 2-channel TDS meter

- 6: Water meter
- 7: City water inlet
- 8: Power connection (removable)
- 9: Flush valve
- 10: Waste water outlet
- 11: Waste water hose

1.3 Function

The OSMOBIL PRO X is based on two special reverse osmosis membranes. This enables production capacities of a maximum of 410 litres of pure water per hour (depending on the water pipe and water temperature). The unit is designed to produce pure H₂O without an additional buffer tank and with minimal running costs (less than 1,- € per 1.000 litres of ultrapure water). For this purpose, city water is pressed under high pressure (up to 15 bar) through a special membrane which only allows the H₂O molecule to pass. The other components dissolved in the water remain in front of this membrane and are flushed out of the unit with the concentrate. In this way, the produced ultrapure water reaches a quality of approx. 0.5-1% residual salt content (or 99-99.5% salt retention). The only component that needs to be replaced regularly is the pre-filter, which is located in a transparent housing at the front of the unit (please refer to chapter 4 „Maintenance, care and safety“).

1.4 Intended use

The unit has been designed primarily for the following activities:

- Production of pure H₂O for cleaning work

1.5 X-flow system / shut-off and water quantity control

The OSMOBIL PRO X has an X-Flow system. Depending on the maximum possible water flow at the two pure water outlets (permeate), this system controls the respective amount of water that the OSMOBIL PRO X makes available on the pure water side and regulates the pure water amount down to „zero“ if necessary.

This system has two essential meanings:

1.5.1 : X-Flow system for direct connection of a high-pressure pump

Especially for solar and lamella cleaning, high-pressure pumps are often used to drive the water-driven rotating brushes (e.g. from the company Cleantecs).

In this case, the respective pumps (e.g. Kränzle HD 12/130 TS) can be connected directly to one of the two clean water outputs of the OSMOBIL PRO X. Decoupling by means of an additional buffer tank is no longer necessary. This means that high-pressure pumps can also be used which cannot provide suction themselves. In addition, the OSMOBIL PRO X automatically regulates the clean water quantity down to „zero“ if the high-pressure pump does not draw off any water. In this case, the wastewater output (concentrate) continues to run stably. However, the system takes 50% less water from the tap. The concentrate line must always be able to drain freely. This applies fundamentally to the operation of the unit!

1.5.2: X-Flow system during classic work with washing brushes & co.

The X-Flow system permanently checks the clean water outlet and the respective back pressure. As a result, the system always delivers as much water as necessary and as little as possible. In everyday use, this saves up to 25% of the water that the OSMOBIL PRO X draws less from the tap.

2 Production of ultra pure H₂O

2.1 Setting up the work site

First of all, you should organise a city water and electricity supply of sufficient capacity at the respective work site. When doing this, make sure that in later operation vehicles, doors or other conditions do not cause hoses to the unit or away from the unit to be kinked or blocked. This could damage the unit.

Caution: Also, it must be ensured that live parts such as cables or cable reels, sockets, etc. are strictly separate from water-carrying parts (hose, pump, unit, etc.). Despite the built-in personal protection plug, we ask you to observe this for your own safety. In addition, the appliance must not be placed under water or under permanently flowing water.

Also, always choose a location for the unit that is insensitive to leaking water or has a floor drain. It is best to place the appliance outdoors or on a tiled floor with a drain. Alternatively, the unit can be placed in a sufficiently large tub. If, due to improper use, hoses burst, the pressure relief valve on the unit „opens“ or water escapes in any other way, the possible consequential damage can be prevented in this way.

2.2 The right water source

Attention: When choosing the water source, special attention must be paid to the origin of the water to be used for production. In its normal configuration, the OSMOBIL PRO X is only intended for the use of approved city water in accordance with the German Drinking Water Ordinance! The use of other water can cause considerable damage to your OSMOBIL PRO X and primarily to the membrane bodies - and that after only a few litres of production! Therefore, make sure that you only use city water of drinking quality, which complies with the German Drinking Water Ordinance!

If you have no knowledge of the water sources at the respective location, please be sure to talk to people who have knowledge of the local water supply (e.g. your clients, building technicians, etc.) before starting work. If, for example, you use water from a well, a cistern, a rain barrel or something else, your unit may be damaged after just a few minutes! A sudden failure of the water supply (e.g. in agriculture due to animal feeding) can also cause damage to your unit. If there is no drinking water supply on the respective construction site or if you have to work frequently under such conditions, please contact your specialist dealer. Possibly, the respective problem can be solved by additional pre-filters.

2.3 Hoses and couplings

The permanently installed concentrate/waste water line is connected to the city water inlet when the unit is delivered and at rest. In this way, the unit is also directly airtight and no water can escape. First disconnect the waste water hose from the city water inlet if you want to produce pure water. Next, connect the supply water hose to the „city water“ connection on the back of the unit. For this purpose, please use at least hoses with a 3/4“ diameter (or larger). Accordingly, you must first disconnect the concentrate hose from the city water inlet in order to be able to work.

In addition, the waste water (concentrate) from the unit must be discharged via the permanently installed hose. This waste water is not contaminated or „toxic“. It only contains twice as much hardness / minerals as the previous city water.

Please always ensure that the waste water flows freely and do not use any „water stop couplings“ for this, should the original coupling ever be removed. In addition, the waste water pipe may be extended to a maximum of 5 metres!

2.4 Check flush valve and start water supply

Now you should make sure that the „flush valve“ is set to „flush“ (the lever must point to the right at a 90° angle). Then you can first switch on the water supply or turn on the tap. Before doing this, it makes sense to also rinse the line and hoses that are being used without connecting the OSMOBIL PRO X. Rust residues and deposits can be rinsed out in this way and will not enter the unit or the pre-filter.

2.5 Switch on the pump

Then connect the personal protection plug to the mains. Then press the green „RESET“ button on the OSMOBIL PRO X's personal protection plug. Now the pump starts. After a short time, the tanks will have filled up and the water will flow 100% out of the „concentrate“ or waste water outlet („red sticker“ on the back, never connect a telescopic rod or the city water here!).

2.6 Execute flush mode

The mode that is now active is called „flush mode“. This mode is used to clean the system, as residues deposited inside and the remaining „concentrate“ are thus flushed out of the membranes. The flushing mode must always be activated for a few minutes before starting work and after finishing (see below) to ensure a long „life“ of your membranes. It is normal that the pump sometimes „nails“ a little or makes noises when work begins. These will subside during production operation at the latest. Then the pump should work quietly. **Attention: Please always follow the rule for switching on the OSMOBILS PRO X: „First water, then power!“.**

2.7 Production mode

If you now want to start producing water, simply set the flush valve down to „Produce“. The necessary pressure then builds up in the system and provides pure water if required (if at least one „consumer“ is connected to the two water outlets). The pump should run quietly in this state (in flush mode it can sometimes „nail“ a little).

Attention: Please pay attention to the pressure gauge on the machine at the beginning of water production. The machine should run at a maximum of 15 bar in operating mode when pure water is drawn off. This value can be exceeded, especially in industrial objects with extremely strong water pressure, and may possibly cause damage to your machine! Please note that you need a normal pre-pressure (approx. 2-6 bar). If your unit makes loud, nailing noises during the production process, interrupt the operation and look for a solution in the chapter „Troubleshooting“.

If the X-Flow system is active (no removal of clean water while the machine is running), the pressure displayed on the pressure gauge can go up to 18 bar!

2.8 Connecting telescopic poles and co.

Now you can connect one or two „consumers“ (washing brushes, high pressure pump, rotating brush and co.) to the green marked water outlets on the front of the machine and start cleaning. Please use connections in the format „Gardena male“ as couplings here.

2.9 Measuring the water quality of the ultrapure water

Before starting the cleaning work, please read the water quality at the water outlet („Permeate“, green sticker, bottom right on the display of the meter).

The water quality is displayed in „PPM“. This unit means „parts per million“ and refers to the „remaining foreign molecules per 1 mil of water“.

For the water quality required in each case, the following applies approximately:

0-30 PPM - perfect quality for facade, PV and solar cleaning

0-15 PPM - perfect quality for window cleaning

Important for cleaning operations with the produced H₂O: Within the first 30-60 seconds after the unit is switched on, it is not unusual for the water level to be still around 20-30 ppm or higher. This will regulate itself downwards within a short period of time. In addition, with new units or newly installed membranes, it is important to make sure that up to 10,000 litres of water must be produced with the new unit or membrane before the membranes reach their full capacity.

Once the necessary water quality has been achieved, you can start with the desired work. If you do not achieve the required water quality, you will find useful tips in the „Troubleshooting“ section. Important for resting phases of the machine: It is normal for the conductivity to rise during idle phases of the machine and can reach a very high value!

2.10 Ending the work

If you want to finish the work, first set the „rinse valve“ to the position „Flush“. Use the time of flushing to stow hoses and telescopic poles.

Then switch off the pump. To do this, use the test switch on the personal protection plug or simply disconnect the power supply.

Attention: When always follow the rule „First power, then water“! Then stow away the unit.

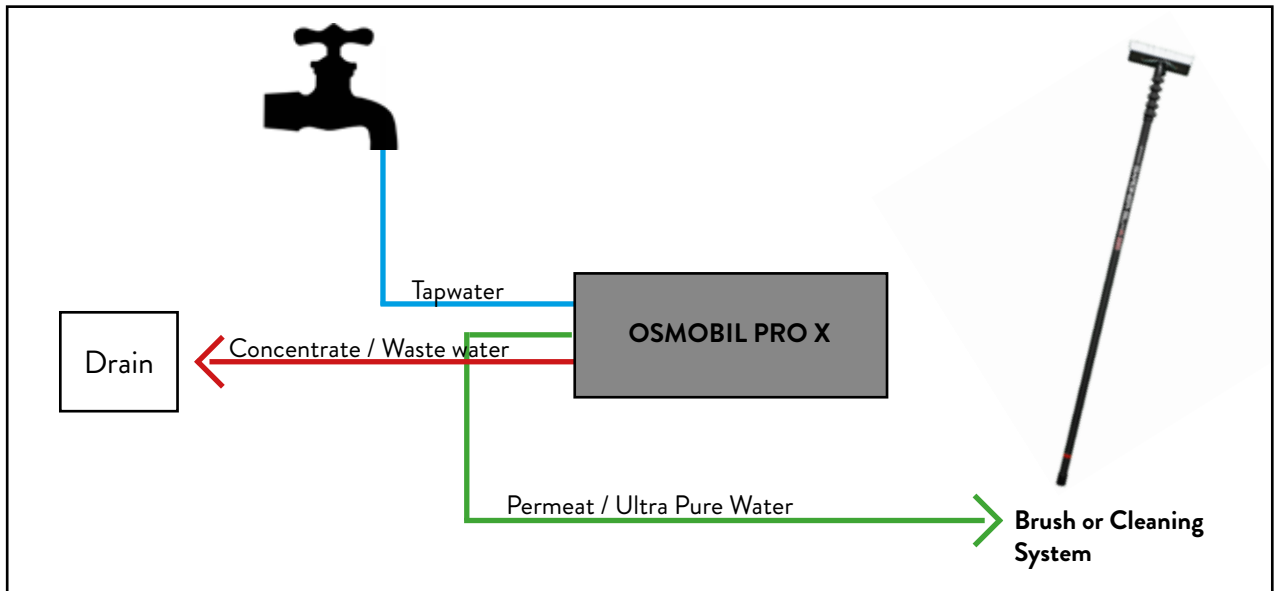
2.11 Video for commissioning

Below you will find a practical video on how to commission the OSMOBIL PRO X:

<https://youtu.be/zLWF9B8oq5w>



2.12 Assembly diagram - cleaning



3 Maintenance, care and safety

3.1 Changing the pre-filter

The only filter or component that needs to be changed regularly on your OSMOBIL PRO X is the pre-filter in the transparent housing at the back of your unit. To change it, unscrew the transparent filter housing counter-clockwise and remove it together with the filter cartridge. If the housing is too tight (this usually only happens if the replacement intervals have not been adhered to), you can obtain a suitable filter spanner from your specialist dealer.

Then pour off the water and remove the filter cartridge. You can now dispose of it and replace it with a new one. Filter cartridges are available from your specialist dealer. Only original OSMOBIL filters should be used. If necessary, you should now clean the filter cup by simply rinsing it out. When inserting the filter cup into the unit, make sure that the filter cartridge is upright and that the filter cup is clean and also turned straight onto the thread.

Caution: With every new filter, two new white sealing plates come with it, which sit on the top and bottom of the short sides of the filter. Sometimes these come loose and stick to the filter cup or the top of the cup. When screwing in a new filter, this can lead to 3 or 4 gaskets being in the filter cup instead of 2 (top and bottom). Then the cup cannot be closed completely and leaks.

3.2 When must the pre-filter be changed?

The capacity of the pre-filter depends on various factors. For this reason, it should be changed when one of the following points applies:

Service life: After 3 months at the latest, otherwise the existing filter may rot and damage the membrane.

Capacity: If your appliance does not deliver enough water.

Flow rate: After 50,000 litres of water flow.

3.3 Replacing the battery on the 2-channel TDS meter

The meter is permanently switched on after initial start-up.

The battery life varies between 6-24 months depending on use.

If the display is off, this is usually due to an empty battery.

Here you can find a video that we created for the exchange of the batteries:

<https://youtu.be/oAVevy1kDdc>



3.4 When do I have to change the membrane?

Basically, the installed membranes run without wear. However, replacement must be expected after 1-2 million litres of water flow. In the course of time, problems with the water value or the water quality or the water quantity may occur due to improper use, damage caused by falling or transport, frost or other events. If this is the case, your dealer will help you find out if your membranes are damaged or if there is another problem. If the membranes need to be replaced, you can open the membrane housings and simply replace the membrane bodies. Your dealer will be happy to explain this to you.

Click here for a video that we have made on how to replace the membranes:

<https://youtu.be/V8LFHziNrL8>



3.5 Annual inspection

In order to maintain the performance and water quality of your osmosis unit in the long term, we recommend an annual inspection by your specialist dealer. During this inspection, your membrane is cleaned, maintained and, if desired, preserved. In addition, the unit is checked for leaks and the electronics are checked for function. If desired, your unit can also be UVV inspection including the corresponding documentation.

3.6 Decommissioning - shutdown in winter for up to 12 weeks

If your unit is not used for a longer period of time during the winter months or for other reasons, you must take care of a few things to protect your membrane from damage:

1. Ensure frost-free storage of the unit.
2. Put a new pre-filter in the unit (important!).
3. Rinse the entire system again with city water for several minutes.
4. Connect the hose from the waste water outlet to the waste water inlet so that your unit is airtight.
5. Repeat steps 2.-4. after 12 weeks at the latest. The switch-on dates should be documented in order to keep track of them.

Caution: If the steps are not followed correctly, the membranes may be damaged during the resting phase! In addition, any previous damage to a membrane (e.g. due to well water) can become more pronounced due to a rest phase.

3.7 General operating instructions and safety

3.7.1 Installation preconditions and protection against water damage

- Only install the unit in areas that are insensitive to water and have a floor drain!
- To avoid puddles, pools of water or damage to meadows and fields, you can extend the waste water hose to a maximum of 5 metres. Here, no couplings or at most Gardena couplings without water stop are to be used at the end of the hose!
- Observe the respective conditions, regulations and guidelines at the place of installation!

3.7.2 General operating instructions

- Hot water must not get into the unit (max. 25°C)!
- Protect your unit from knocks and falls!
- Store your unit frost-free!
- Inform yourself about the water supply!
- Only city water may be fed into the unit!
- Always ensure free water drainage!
- Do not leave the unit running unattended!

3.7.3 Safety instructions and special dangers

- If you discover any damage to cables and hoses or other water- or electricity-carrying components of the unit, these must be repaired immediately by a suitable specialist.
- Before carrying out any maintenance or repair work, always ensure that the power supply to the appliance is disconnected and that all water-carrying parts are depressurised.
- The water produced by the OSMOBIL PRO X is not suitable for drinking!
- Do not touch any electrical components if your hands are wet!

- When using the device, strictly separate the power supply and the water supply from each other.
- Protect the appliance and especially the live parts from rain, splash water or other sources of water.

3.8 Troubleshooting

3.8.1 Your water value is not correct?

- Switch the unit off completely and switch it on again in rinse mode. Wait a few minutes in rinse mode. Then switch to production mode and measure the water level regularly. As a rule, the water level regulates itself after a few minutes.
- Operate the unit for 30 minutes in rinse mode. Then measure the water level again in operating mode.
- Your membrane may be damaged by misuse (well water, unsuitable water source, overpressure, frost). In these cases, please contact your specialist dealer.
- In some cases, if the input water is extremely hard and a membrane has been used for several years, the water value may remain permanently too high. Please contact your specialist dealer. The problem can usually be solved by changing the membrane.

3.8.2 Your machine delivers too little water?

- Replace the pre-filter.
- Check the respective water tap. The water pressure here can vary. The following applies as a general rule: a low inlet water pressure leads to the appliance producing less water.
- Your pump may be incorrectly adjusted. You may have to increase the pressure via the adjustment on the front (but only as far as the pump continues to operate smoothly and does not „nail“). In addition, the system pressure must not exceed 15 bar in operating mode. Please reduce the pressure again after use. If you do not feel confident in handling the pump screw, please contact your specialist dealer!
- In a few cases, very hard incoming water can lead to calcification of the system. Your specialist dealer will be happy to advise you on how to proceed in such cases.
- Please use a hose with a diameter of at least 3/4“ as a supply line to the unit. A thinner hose can restrict the water production and cause the pump to „nail“. Basically, the following applies: „Thick hose towards the OS MOBIL PRO X, thin hose away from the OSMOBIL PRO X“.
- The use of non-approved drinking water can clog („block“) your membrane or cause the pump to „nail“. („blocked“) or destroyed (e.g. by „iron“, „silicic acid“ etc.). Please contact your specialist dealer.

3.8.3 Your pump makes loud noises and „nails“ in production mode?

- Replace the pre-filter.

- Low pre-pressure („too weak a line“) is often the problem.
- Use a thicker hose leading from the tap to the unit.
- Try shortening the supply line from the tap to the appliance.
- Use a different water source.
- Use a pressure booster upstream of the OSMOBIL PRO X. Your specialist dealer will be happy to advise you.
- You may have to reduce the pump's output via the pump pressure adjustment option on the front. If you do not feel confident in handling the pump screw, please contact your specialist dealer!

3.8.4 You are producing too little water?

- Low water temperatures can reduce the performance of your system.
- Your pre-filter needs to be changed.
- The use of unapproved drinking water may have clogged („blocked“) or destroyed („iron, gravel“) your membranes. („blocked“) or destroyed („iron“, „silicic acid“, etc.). Please contact your specialist dealer.
- The respective water source has too low an outlet pressure - see chapter 3.8.2

3.8.5 The pump does not switch on?

- Check the respective power supply.
- In many cases, a defective personal protection plug is to blame if the pump cannot be switched on. This safety component is particularly sensitive to moisture. Changing this plug usually solves the problem. Your specialist dealer will be happy to advise you.

3.8.6 The display of the meter is „frozen“?

- Please remove the battery briefly and insert it again. The meter may have stopped due to temperature fluctuations or long periods of inactivity.
- Replace the batteries.

3.8.7 The display of the meter is off?

- Please replace the batteries according to the video (see chapter 3.3).

4 Warranty

All OSMOBIL water systems are subjected to extensive quality control and testing before delivery and are only supplied to commercial customers. The construction of the units is already designed for unconditional reliability and durability. Should there nevertheless be any problems or a reason for complaint within the warranty period (12 months), please direct the respective claim for replacement to VF Reinigungstechnik. Please note that the warranty only covers units that are structurally unchanged and have been operated strictly according to the specifications in this manual.