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USER MANUAL

„Lourdes“

Hydrogen Water Generator

euro
multi
media



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Manual chapters „Lourdes“ Hydrogen Generator

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3 Hydrogen – The fundamental concepts

„I run on Hydrogen“. To see **Hydrogen cars**, out of which no emissions are emitted and only clear water drips out, is still seldom in our smog-laden cities. Yet there is no doubt that Hydrogen gas presents the most interesting form of alternative energies of the future. For 1 kg of hydrogen brings 33,33 kWh/kg onto the road. Neither petrol (12 kWh/kg) nor natural gas (max. 13,1 kWh/kg) can keep up. Hydrogen, with the H symbol that stands for Hydrogenium (“The Water Producer”). Many say this is the beginning of the “Hydrogen Age”. Hydrogen-Water-Generators like the “Lourdes” were developed when the possible medicinal meaning of Hydrogen Water came into public discussion. One speaks of HRW or “Hydrogen Rich Water”. The HRW-global market was at approx. 20 billion € in 2017.

Hydrogen is the most common element in the universe. It makes up 75% of the total mass of our solar system. **Yet on our planet Earth it is more of a scarce good.** Only 0.12% of the total mass consists of hydrogen. Most of it is H_2O which has bonded as “energy-less” water in our oceans. **Water, H_2O is hydrogen gas H_2 which has been combusted by oxygen.** This occurs, for example, with sugar which is converted from food into energy. So hydrogen doesn't only provide energy for fuel cells for cars, but also for the cells in the body. The H Hydrogen atom is made up of one positively charged nucleus, the proton, which is orbited by a negatively charged electron. The smallest of all atoms is also called “nascent” hydrogen: That means “hydrogen in its birth phase”, for an H-atom does not stay alone for long, it bonds with a second H-atom to make what we usually call hydrogen, H_2 ... A further description for this hydrogen atom is “hydrogen radical”.

Often hydrogen gas H_2 is confused with the **Hydrogen ion H^+** . This corresponds to an H-atom without an electron, in short it is a single proton. Positively charged hydrogen ions are the measure of “acidity”. They occur by the splitting off of a hydroxide ion (OH^-) from water (H_2O). If there are more hydroxide ions in an aqueous solution, it is alkaline, if there are more H^+ ions (protons), then it is acidic.

Negatively charged Hydrogen ions (Hydride ions) theoretically also exist. Yet they are so unstable that they only occur as compounds.



04 "Lourdes" - A word in advance

Under the name "Lourdes", hydrogen generators are supplied by various manufacturers from the Far East, which are technically very similar. They are water ionizers with a PEM membrane, which means that the two electrodes necessary for water electrolysis are applied directly to a membrane that is only permeated by protons in one direction (PEM = proton exchange membrane). The main function, **the saturation of drinking water with molecular hydrogen**, takes place in a non-pressure sealed glass container and therefore allows only a saturation with significantly less than the atmospheric maximum saturation of 1.6 mg / l. In the best of cases you can reach 1.2 ppm. This meets the minimum therapeutic requirement of 0.5 mg per day accepted by most scientists when drinking 0.33 liters daily.



Even if one may believe the most optimistic statement about the "holy" water in the **Lourdes pilgrim site**, although it is scientifically unproven, this water at the source (not in the shipping canister!) contains 0.08 mg / l of dissolved hydrogen gas. So you would need to drink 6.25 liters of it to reach a minimum therapeutic level. **Naming it "Lourdes" is therefore just a publicity stunt and is based on a well-kept myth.**

There are similar myths in the water scene about **"miracle waters"**, such as the waters of **Nordenau (Hochsauerland), Tlacote (Mexico), and Hita (Japan)**, which have at least been scientifically studied for hydrogen. However, here too there is no doubt that the **content of hydrogen** is, first, insignificant and **barely detectable after being bottled**. If you want to drink hydrogen water with a minimum content of 0.5 mg / liter, you must produce it and drink it fresh.

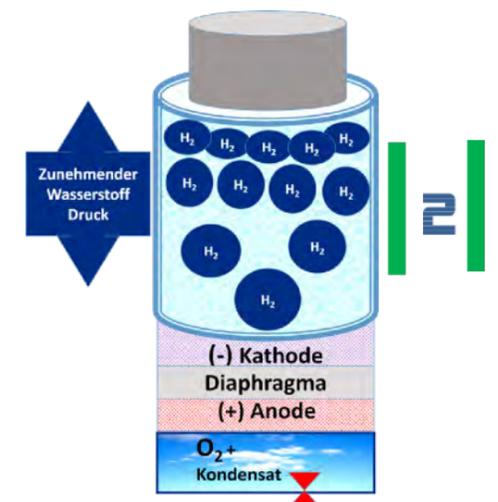
05 How is hydrogen water produced?

When it was discovered that only dissolved hydrogen was critical to a specific antioxidant effect of water, an industry was developing that was pressurizing H₂ gas into multi-layered **water bags**. This is unfortunately expensive and causes big problems with transportation and waste.

Also **chemically** one can produce hydrogen water by having e.g. metallic magnesium react with an acid in the water to release hydrogen gas. On the one hand, such hydrogen fizzy tablets release alkaline ions into the water, on the other hand, the pH must be kept **well below pH 7** by the acid components, for hydrogen to be generated. These tablets are not available in many countries because of licensing problems, yet with individual cases they also reach levels above 3 mg / liter. Depending on the dosage, magnesium can cause side effects that are not known in other types of hydrogen water.

Hydrogen-rich water has until recently been produced primarily with stationary electrolytic water ionizers. Depending on the design, these hydrogen values reach from 0.5 to 2.8 mg / L in the flow process and at the same time increase the pH value. The "**Lourdes**" hydrogen generator, on the other hand, **does not change the pH** due to its PEM membrane and also cannot dissolve more than 1.2 mg / L of hydrogen gas in the water. **Yet it is cheaper to buy than a strong water ionizer, but also doesn't have a built-in water filter** and should therefore only be operated with already filtered water. Even reverse osmosis water with low conductivity can be used.

Hydrogen dissolves in water rather reluctantly, unless under high pressure. That's exactly what hydrogen boosters do. These types of devices also work with a PEM cell, but does not allow the hydrogen to easily escape from the water by means of a pressure-resistant closure and forces it to dissolve more easily than in an open device such as the Lourdes. Such Boosters are currently available only as battery-powered small devices for on the go, whilst the "Lourdes" as a stationary batch ionizer which can function at a 3 times higher electrolysis voltage.

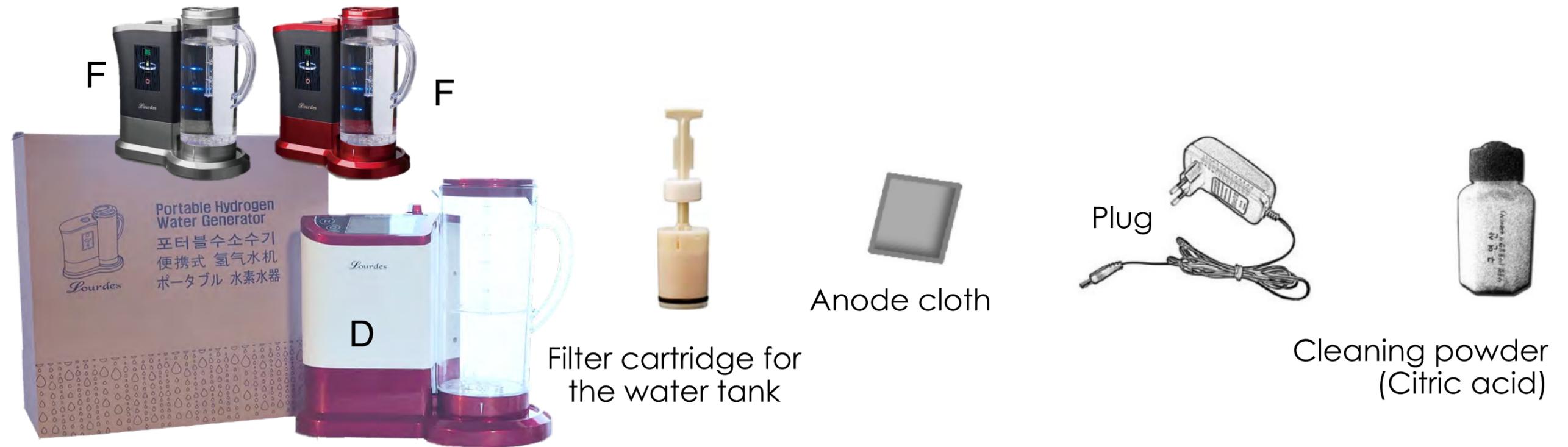


06 General safety instructions

- ✓ Operate the device only when you have read the instruction booklet and have understood it.
- ✓ Before switching the device ON, the water container has to be filled with water. Otherwise the electrolysis cell can get damaged and the guarantee claims become void.
- ✓ You cannot fill it with water over 60 degrees C.
- ✓ Only operate the device with 220 Volts.
- ✓ Please ensure that children and pets do not have access to the device.
- ✓ Never place the device under water. A moist cloth is enough for cleaning it. Do not use chemical cleaning agents.
- ✓ Never drop the device.
- ✓ Preferably use cold water (under 20° C)
- ✓ Never place the device in direct sunlight or subject it to temperatures under 0 degrees or over 50 degrees Celsius.
- ✓ Stop the device if water leaks from it during production.
- ✓ Never place the device in moist or polluted, dirty rooms.
- ✓ Do not place your device outdoors.
- ✓ Do not plug it in if the cable is damaged or bent.
- ✓ Do not place heavy or pointed objects on the cable.
- ✓ Do not touch the plug with moist or wet fingers.
- ✓ Only use water of the best drinking quality if you want to drink the water afterwards.
- ✓ You cannot use fizzy, carbonated, sparkling water.
- ✓ Do not open the adapter or the device and do not try to repair it. If it is defect then unplug the device and inform your dealer.

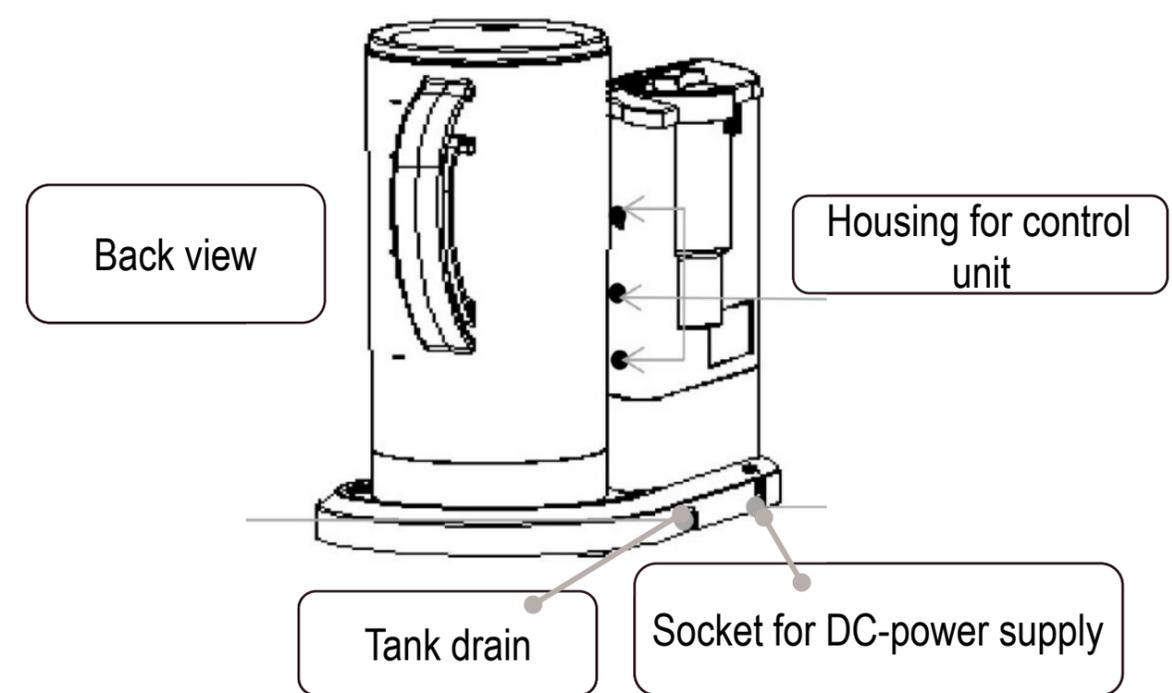
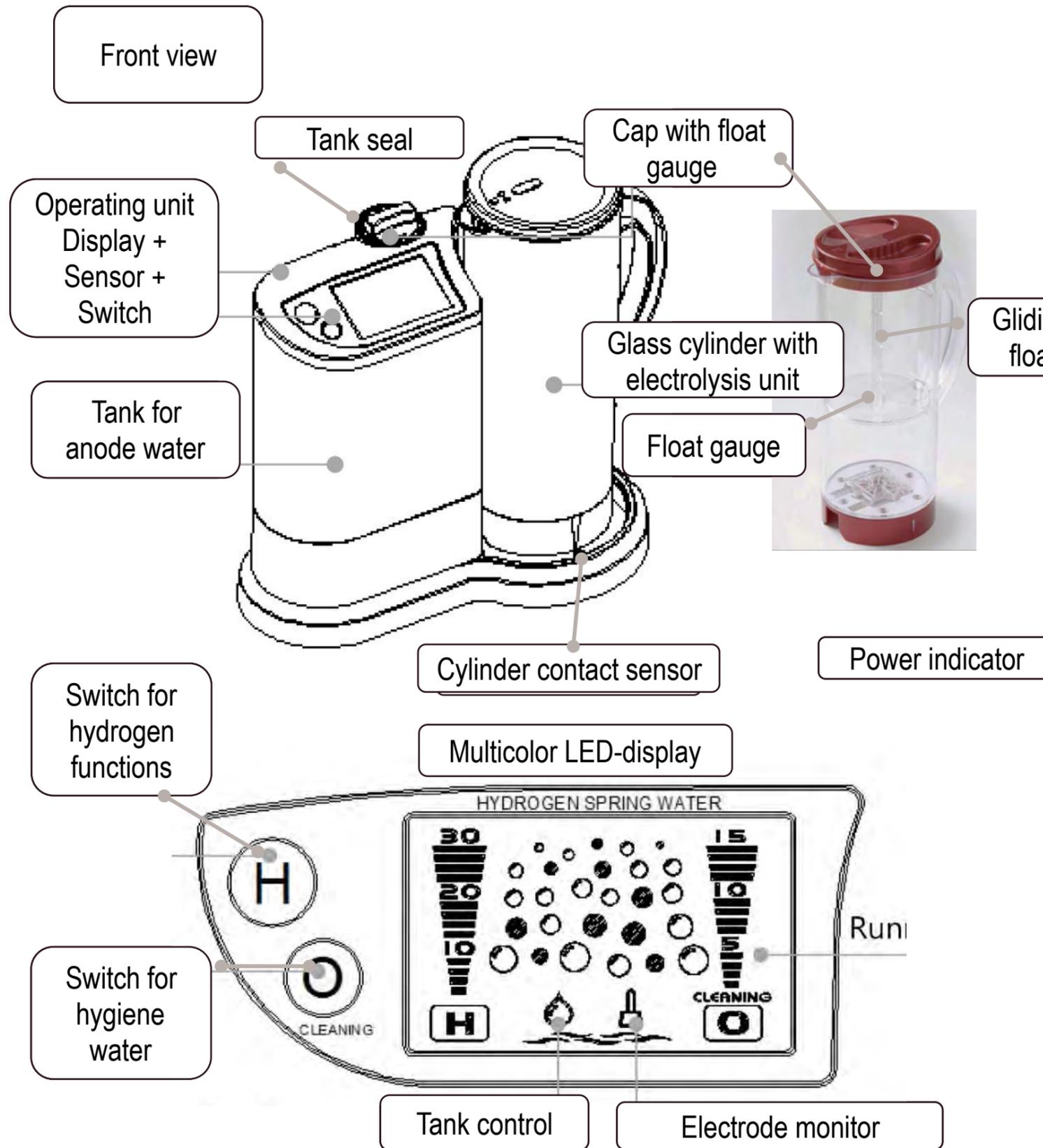
07 Scope of delivery „Lourdes“ Hydrogen-Water Generators*

*) In this manual we describe Lourdes devices of different producers. Therefore images of the device and details can be slightly different to the model you have purchased.

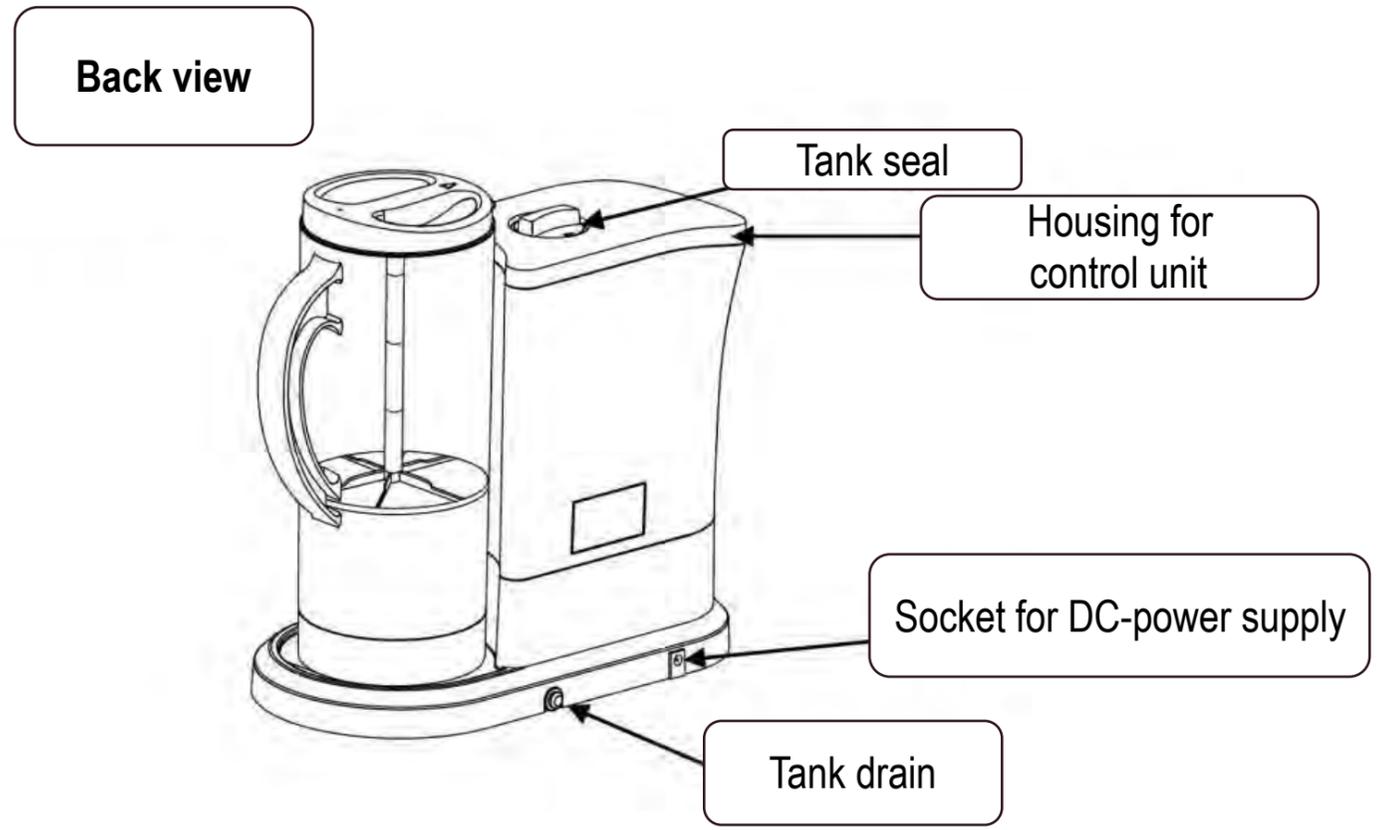
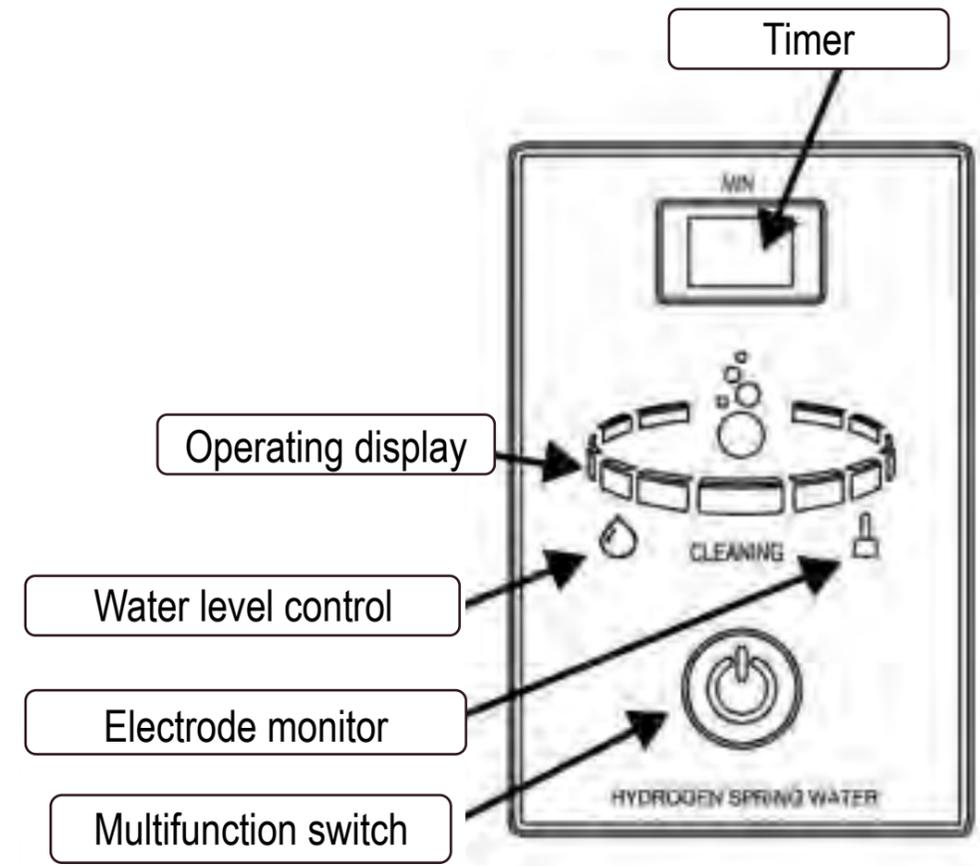
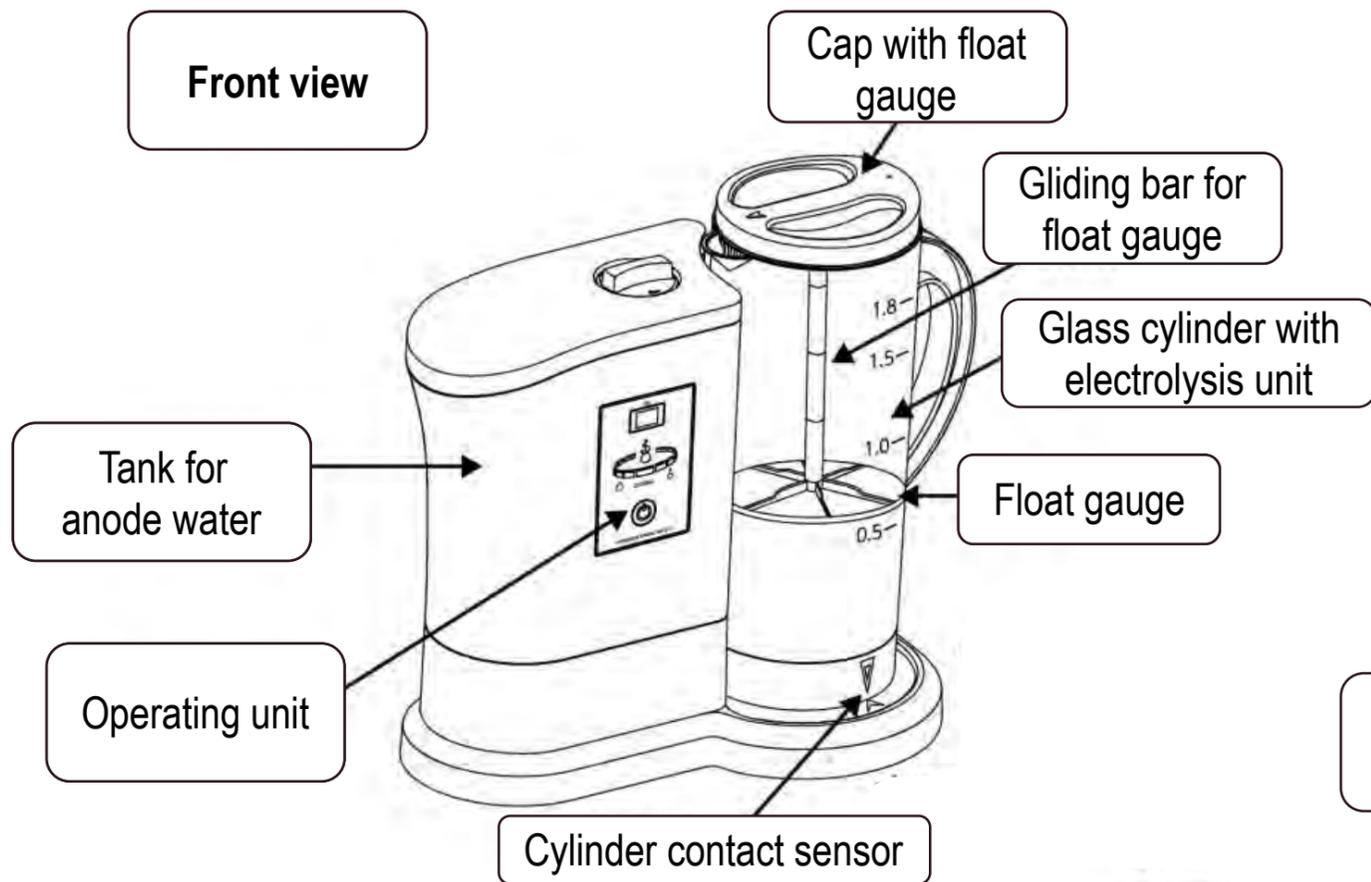


- **Model D** with display on top
 - **Model F** with operating button in front
- Please check after unpacking the device that everything is included. Ask your dealer in case something is missing. Be sure that the plug complies with your mains voltage.
 - Read this user manual before operating the device. If you are unsure about anything please consult your supplier before using the device.
 - If more people will use the device, they should be schooled by you on how to use it or also read this user manual.
 - Keep this user manual close at hand for any necessary inspection.
 - For any possible repairs or inspections, send the device in its original box to the address given by your supplier.

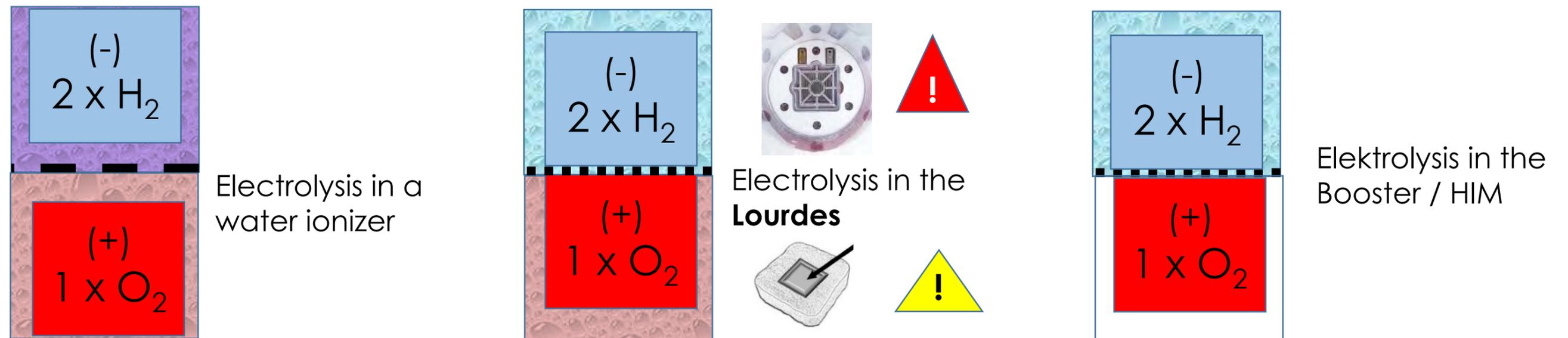
08 Overview Model D



09 Overview Model F



10 Understanding the „Lourdes“



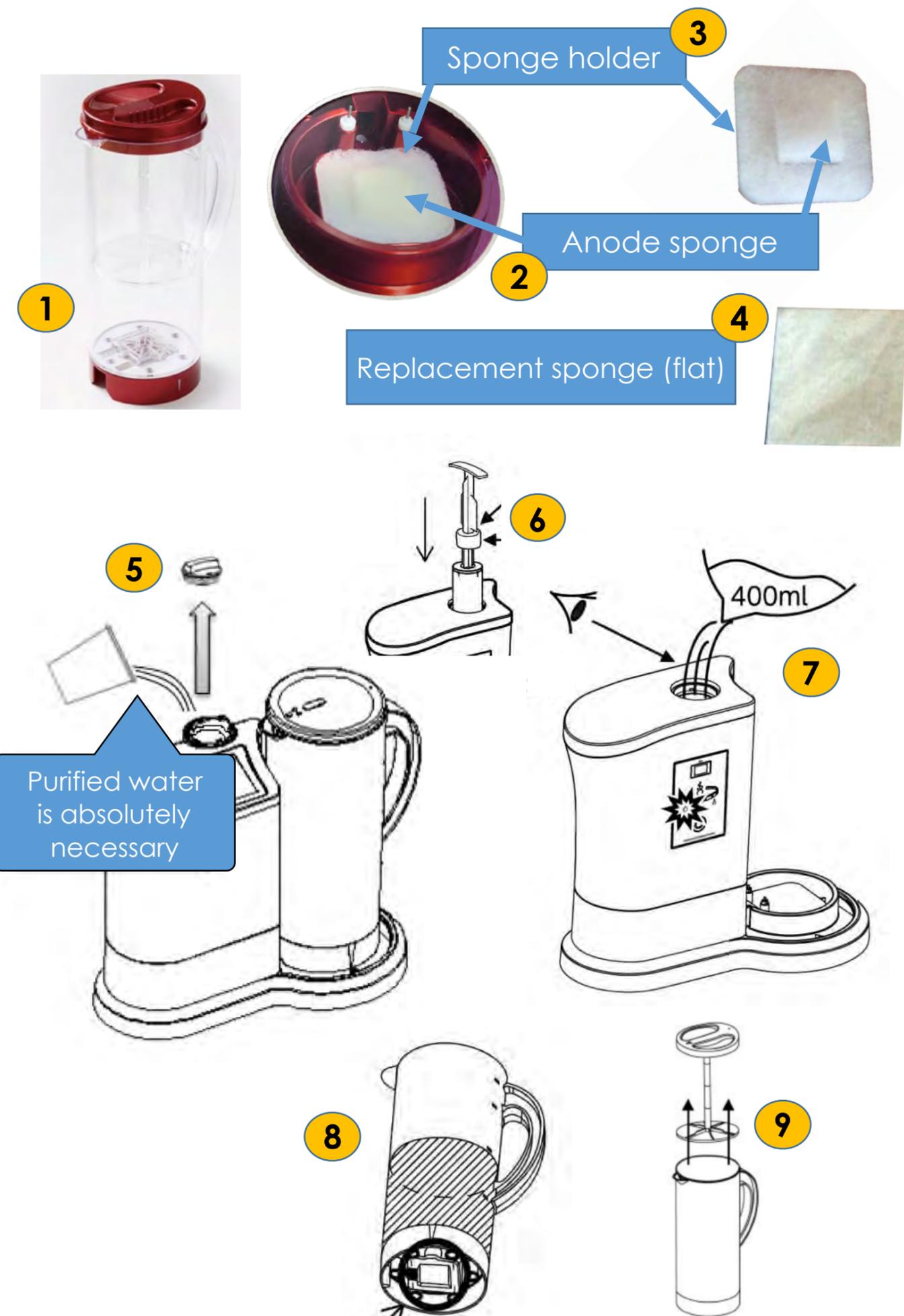
The graph above shows the differences from other electrolytic hydrogen generators. Hydrogen is also produced in water ionizers, hydrogen boosters, or Hydrogen Infusion Machines (HIMs) through the use of direct current to electrolyze (split) water molecules (H_2O). At the end of the electrolysis process, the divided water molecules produce the two gases hydrogen (H_2) and oxygen (O_2) separated by a membrane in a ratio of 1: 2. There are different methods for this:

- **Water ionizer:** Both electrodes in water away from the membrane. The membrane has large pores. The hydrogen water above becomes alkaline, below acidic.
- **Lourdes:** Both electrodes in the water directly on the membrane ("zero distance electrolysis" or SPE = Solid Polymer Electrolyte). The membrane has small pores and allows only protons to go through (PEM = proton exchange membrane). The H_2 -water above remains in the same pH range, below it becomes acidic. **The sensitive membrane at the bottom of the jug should not be touched or cleaned mechanically. An empty jug should always stand on the wet anode sponge to prevent the membrane from drying out.**
- **Booster / HIM:** Both electrodes directly on the PEM membrane, but only the upper one in the water. Hydrogen water above remains the same in pH. Oxygen escapes into the air.

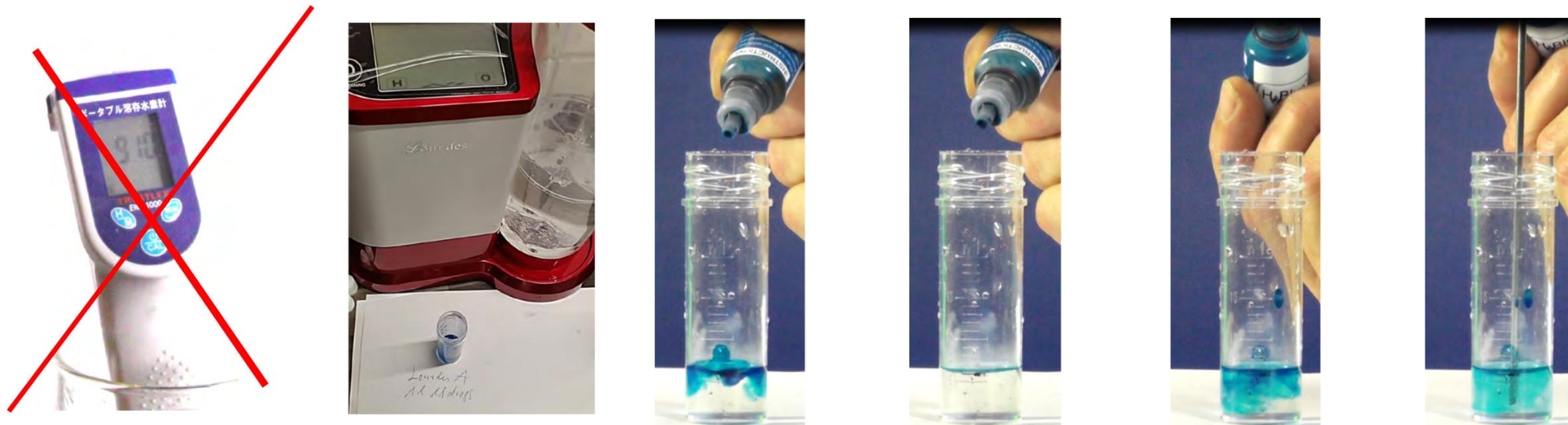


11 Preparing the device

1. Remove the glass jug (1) and clean it inside and out with clean, warm water. **Never use a detergent! Never place in the dishwasher!**
2. Check that the anode sponge (2) is in the sponge holder (3). If necessary, replace the sponge (4). When dry, it is flat and later absorbs water.
3. Open the tank cap (5) and check that the filter (6) is correctly inserted. If necessary, insert the replacement filter.
4. Then slowly (7) add 400 ml of water to the tank and screw its lid back on. This water is for electrolysis only and is not to be drunk. You should use mineral poor, clean water, such as distilled water for irons or reverse osmosis water.
5. Wait until the sponge (2) is completely soaked. After putting the jug down it must touch its visible anode and moisten it with the water from the tank from below.
6. Remove the lid with the float gauge **vertically** and fill the glass jug with 1 - 1.8 l of drinking water. If in doubt about drinking water quality, use mineral water or externally filtered water.



13 Hydrogen measuring drops



Testing the amount of molecular hydrogen is carried out immediately after production with the optional H2 Blue® Kit. A water sample of 6 ml is filled carefully into the measuring cup and one drop of the blue measuring liquid is added. **Each drop that discolours means 0,1 ppm (=100 ppb) dissolved hydrogen gas.** If a drop does not discolour automatically one can stir gently.

If the liquid still does not discolour, then the last drop does not count. With the “Lourdes” Hydrogen Generator depending on the production time, amount of water, type of water, air pressure, and temperature can a hydrogen water be produced with 300 to 1200 ppb (=0,3 to 1,2 ppm). Electronic hydrogen measuring devices without a water electrode, like the widespread Trustlex ENH 1000, which only displays a fictitious hydrogen value, is unsuitable for assessing hydrogen water. More to that in the book by Randy Sharpe www.euromultimedia.de

Do not drink the test liquid and keep out of reach from children!

When testing use protective gloves and a wipeable surface and watch out for clothing. The drops contain methylene blue, a very intensive dye.

14 Hygiene function

Water is known to be the "element of life" and also attracts bacteria. Therefore, it is important to regularly sterilize the jug from which you drink. The Lourdes doesn't need an external disinfectant, for it produces oxygen and ozone itself which provides complete sterilization. In the electrolysis unit in the bottom of the jug, normally hydrogen gas is produced which rises upwards, whilst on the bottom oxygen and ozone are generated. So the sponge unit is germ-free below the jug. But if you want to sterilize the inside of the jug, the electricity current must flow in the opposite direction whilst water is inside the jug. This is done by pressing a button:

- **For model D** press the button "O" (Cleaning). Thereupon if the display color changes to red, oxygen and ozone bubbles are now rising in the device and on the right side of the display above the "O" the remaining disinfection time (1) is displayed. The produced **hygienic water is not suitable for drinking**. Finally, the jug must be rinsed with clear water.
- **For model F** the control knob is pressed for more than 3 seconds until the word "CLEANING" starts to flash. Above is the remaining disinfection time (2) displayed in red, The produced **hygienic water is not suitable for drinking**, After completion the jug has to be rinsed with clean water.
- After 15 minutes of cleaning you will hear an acoustic signal.
- The cleaning water can be used for household hygiene purposes. By adding 1/4 teaspoon salt (full jug) you can increase the quality of disinfection (clear chlorine smell).



15 Changing the water and refilling the tank

The water in the closed 400 ml tank of the device serves to keep the sponge permanently moisturized and is gradually consumed by electrolysis. As soon as the **water drop signal** (1) or (2) starts to flash, the tank must be refilled. The fuel cap opens by turning it to the left! **Filtration through the filter can take up to 10 minutes.** It is best to use distilled or reverse osmosis water (steam iron water). Make sure that the tank does not overflow because leaking water could damage electronic components. After refilling the warning light should go out and the re-inserted sponge should be well moistened in the water.

If you are transporting the Lourdes or do not want to use it for more than a week (holidays etc.) you should change the tank water (and of course the water in the jug) before the next time it is used.

To empty the tank, first remove the jug and sponge holder with the sponge. Unplug the power plug. Then open the tank cap and place the unit over a water spout. Finally, pull the plug of the drainage hole and drain the water.

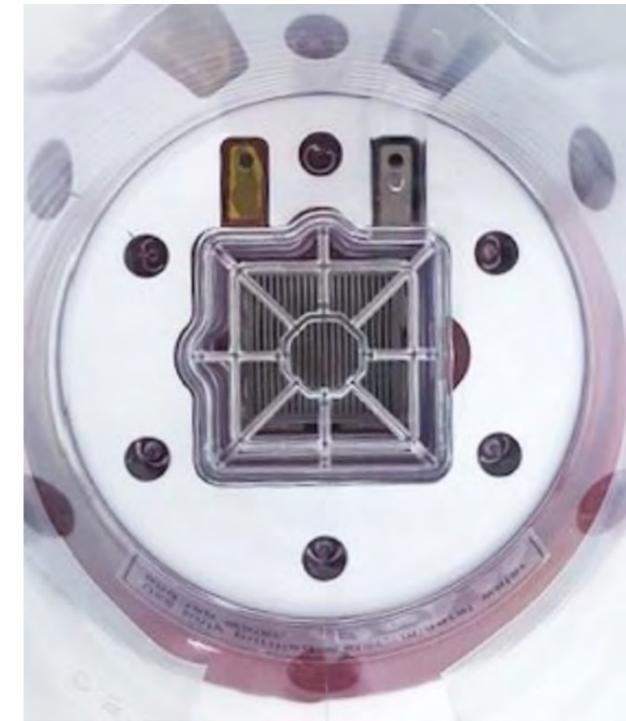
Attention: During the procedure, make sure that you do not lose the sponge or the very small drainage plug and replace it after emptying.

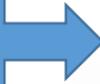


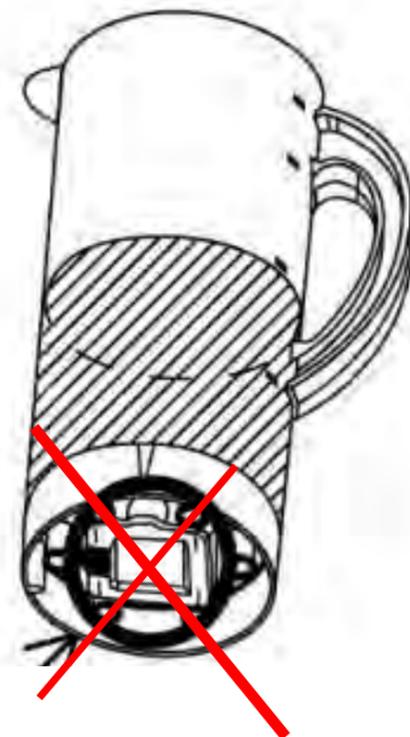
16 Interior cleaning glass jug / cathode

The inside of the production glass jug and the grid-shaped negative electrode (cathode) that produces the hydrogen **must be cleaned with visible traces of limescale on the electrode grid** with 1 teaspoon of citric acid dissolved in 0.5 liters of warm (max. 60 degrees C) water. The citric acid solution should be allowed to act for 1 hour and then rinse the container and the electrode several times with warm water.

Important: The platinized electrodes adhere directly to the highly sensitive membrane and must not be touched or even brushed. Avoid touching the electrodes or the membrane both on the top (inside) and on the bottom (outside), so as not to damage them, otherwise the whole glass pot has to be replaced at an extra cost.



Don't touch! 



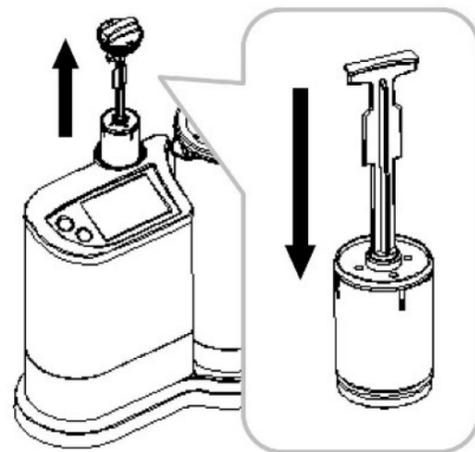
Citric acid
1 teaspoon /
0,5 Liter 

17 Exterior cleaning / sponge / contacts / tank filter

- Wipe the exterior of the jug with a **lightly moistened soft cloth or microfiber cloth**. Do not use detergents.
- The sponge and the sponge holder may discolor over time due to the oxygen and ozone-containing water, but remain hygienically flawless due to the constant oxidation. The sponge usually lasts about 1 year and should then be replaced. The replacement sponge is very thin in the dry state and expands only when in contact with water to full size.



- The two pins for electrical contact with the electrodes can be **gently** cleaned when visibly dirty with a soft cloth. Deposits may affect the function because the electrodes in the jug then no longer get power. The contacts on the bottom of the glass jug should also be wiped off gently if they are dirty or rusty. Attention: **Never touch the electrodes or the membrane** in the bottom of the jug. **The glass jug including the electrodes is an expendable material and has to be changed every 3 - 5 years with an average daily use of 6 liters.**



- The **filter in the tank housing** is not a drinking water filter, but serves technical purposes. If distilled water or reverse osmosis water (steam iron water) is used, it must be replaced once **the tank has been emptied (p.15)** once a year. To do this, open the tank cap by turning it to the left, replace the filter as shown on the left, fill with 400 ml of new water (attention: takes up to 10 minutes with a new filter) and screw the tank cap back on. **Dispose of the old filter as residual waste.**

18 Technical data. Troubleshooting 1

Lourdes		Technical data
Dimensions	360 x 160 x 270 mm (L x W x H)	
Production jug	Fill with maximum 1,8 Liter drinking water	
Dissolved H ₂	0,3 to 1,2 ppm	
Production time H ₂ water	Optional 10, 20 or 30 minutes	
Production time Hygiene water	15 minutes	
Redox potential (ORP)	Up to (-) 407 mV (CSE) with high purity water.	
Power supply	AC 100–240 V, 50/60 Hz. Output.: DC 24 V, 1A – 1,2 A	
Problem	Please check	Solution
Lights don't shine	<ul style="list-style-type: none"> • Electricity failure? • Cable connected at both ends? • Cable damaged? 	<ul style="list-style-type: none"> • Check electricity mains • Connect both ends • Replace cable
Blinking drop symbol	<ul style="list-style-type: none"> • Tank empty? 	Refill tank with ca. 400 ml
Electrode monitoring blinks	Contact pins and surface	Gently clean
Low bubble formation	Brand new jug? Rust on the contact pins?	<ul style="list-style-type: none"> • Full capacity after 2 hours • Gently clean with a soft cloth
Strange sounds	Bubble formation	Temporary resonance phenomenon

19 Troubleshooting 2

Problem	Please check	Solution
Water does not smell good	<ul style="list-style-type: none"> Water in the jug is contaminated Inadvertently drinking hygiene water? 	<ul style="list-style-type: none"> Replace hygiene water (P.14) Replace water in the jug. Produce hydrogen water
Drop symbol blinks	<ul style="list-style-type: none"> Tank empty? 	Refill tank (P.15)
Water leaks out of the device or base	Unplug the device	Device must be repaired
Low bubble formation	Brand new jug? Rust on the contact pins?	<ul style="list-style-type: none"> Full capacity after 2 hours Gently clean with a soft cloth
Please write down the phone number of your Lourdes dealer here:		
You may also like to email the author of this manual for a solution to a problem not listed here.	Mr Asenbaum can be reached per email:	info@euromultimedia.de

20 Legal notice and disclaimer



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Author and copyright: Karl Heinz Asenbaum. Email: info@euromultimedia.de

Important notes:

This instruction book contains important information. Read the whole book and if necessary repeatedly. Do not throw it away in case you wish to read it again! You can and should ask questions and queries. The contact address is shown above. No responsibility is taken for improper handling, mounting and/or operation.

Disposal instructions

The device cannot be disposed of with your household waste. Often you receive a parcel label or voucher from the sales point or the producer for returning it for the cost-free disposal or recycling. Please don't pollute your environment. Many of the parts of this high end device can be used again.

EXCLUSION OF LIABILITY

Molecular Hydrogen is a naturally and continually occurring gas in the human body, produced amongst other things in the intestinal flora. Risks and side effects from consuming Hydrogen Rich Water have not been mentioned in scientific literature. Therefore, we do not assume liability for medicinal claims or articles about the effect of ionized water, hydrogen water and/or electrolyte water.

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