



AQUAVOLTA®

good water smart



AquaVolta® Water Tractor

Professional water filter
with electric and electrochemical water ionizer

Operating instructions

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3 - Purpose

The AquaVolta Water Tractor is a multifunctional water filter with two high performance filters, two big, independent electrolysis cells and an electrochemical dosage unit.

With that it clearly offers more options than a normal water ionizer for the household. This also makes it suitable for professional purposes, for example for doctors, naturopaths, in gastronomy, agriculture and with further uses for high sanitary requirements.

The increase of options is made possible by the supply of salt water from a Sole-Tank, something known from the greatly distributed Kangen® water devices made by the company Enagic®.

With help from the experienced producers Ionia® in Seoul, Korea, was the Munich company Aquacentrum and AquaVolta® successful in developing a more efficient device that complies with all European conditions, which due to usually very high water hardnesses demands special technological requirements.

Because of the **strict separation of electric and electrochemical units and to protect the consumer and to increase the durability of the appliance**, has a bigger device been designed than the distributed Kangen® - water devices. For the IONIA® design fulfils European tastes better. The AquaVolta Water Tractor® fits very well into a designer kitchen.



4 - Multifunctionality

- Removal of residual pollutants in tap water with an effective combination of an activated carbon filter and a hollow fibre membrane filter.
- Production of light alkaline, hydrogen saturated electrolyte water (activated water) for daily drinking. Has a pH value of 8,5 - 9,5* and a hydrogen content from 1,2 to 1,4 ppm*.
- Production of alkaline, hydrogen saturated activated water pH 9,6 - 11 with a hydrogen content of 1,5 to 1,8 ppm to refresh foods by soaking and spraying them, to mix with juices, concentrates, powder nourishment and cosmetics, for cooking and hot drinks.
- Production of light acidic, oxygen saturated electrolyte water (activated water/beauty water) for skincare and haircare, for pets and mild plant care with a pH value of 4,5 to 6,5.
- Production of pH neutral hydrogenated and oxygenated electrolyte water (HRW "Hydrogen Rich Water") for daily consumption with a pH value of 6,5 to 8,4 and a hydrogen content up to 0,8 ppm.
- Production of strong alkaline, hydrogen saturated electrolyte water (catholyte, hydrogen content 1,6 ppm) for cleaning purposes and an enrichment of hydrogen on aged foods with a pH value from 10 - 12.8
- Production of strong acidic, oxygen and active chlorine electrolyte water (anolyte) for hygiene purposes, for disinfection and crop protection with a pH value of 2,4 - 3.
- Production of pH neutral hygiene water (neutral anolyte) which is skin friendly and has a sufficient amount of active chlorine for disinfecting purposes.

*The values presented in this instruction booklet refer to tap water in a European metropolis with over 1 million inhabitants. Depending on the regional water composition or with a chosen water flow can the measured values differ.

5 - Features



- Intelligent separation: The 7 electrode cell engages itself with the production of drinking water - The separate 5 electrode cell produces function water.
- Computer and sensor controlled electrolysis system to operate as a drinking - and function - water ionizer
- Water flow control with a sturdy turn dial
- Multilingual voice prompter for operating guidance when drawing water and during the automatic self-cleaning process
- Automatic interval control for changing both high performance filters

KFDA
식품·의약품 안전청
의료기기제조업허가제610호

IAF
환경/품질 경영체제 인증

UL
미국안전인증

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전자파 장애 시험필

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유럽안전인증

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일본안전인증

GMP
KGM(의료기기 제조업 허가제) 제정

독허증(제0308448호)
자동세정장치 특허

독허증(제0370510호)
이온수전환밸브 특허

유럽중소기업선정



6 - Features / 2



- Despite professional, multifunctional usage possibilities: a modern design, even for the aesthetically sophisticated kitchen



- The colour changing LCD display indicates the current operating mode



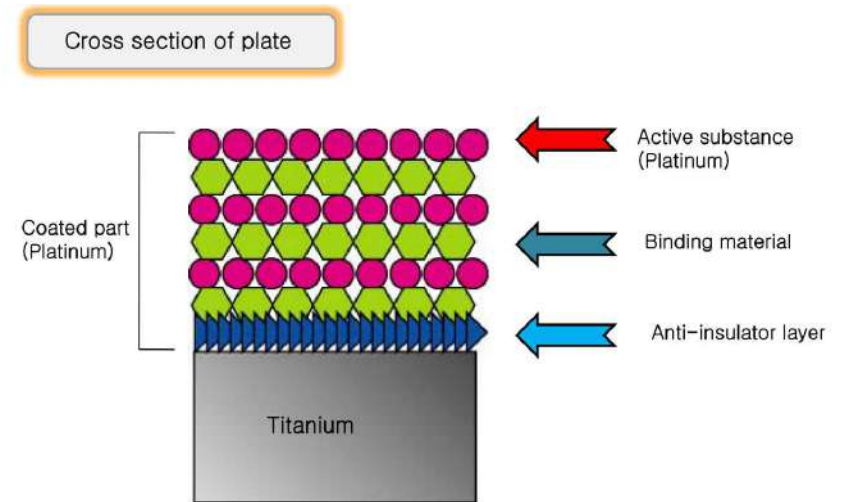
- The finely tuned double filter system before the electrolysis cell removes 99,99% of most pollutants in the drinking water. At the push of a button can filtered water also be obtained which has not been treated electrolytically.



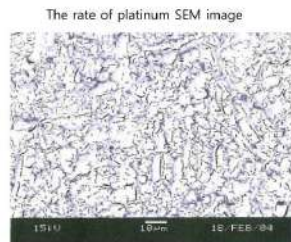
- The modern SMPS power supply consumes less electricity compared to the older transformer technology and runs permanently stable. No electromagnetic “smog” occurs which could affect the water negatively.

7 – Revolutionary electrodes

- 2 independent electrolysis cells with 12 completely newly developed 3-layer electrodes which are much more efficient than the usual platinum galvanised or baked electrodes. They allow the separate production of activated water for drinking and function water types such as: acidic water, anolyte, neutral anolyte and catholyte.
- With this polymer ion mesh method is a clearly stronger coarseness and denser platinum surface made compared to the previous galvanising methods. Most layer gaps show this, which can be clearly seen in the microscopic images.



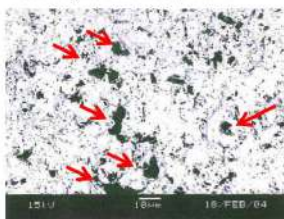
X 1000 (Platinum rate)



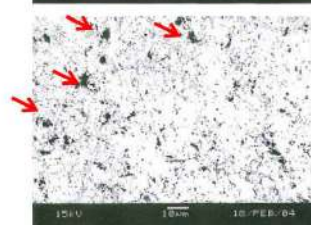
IONIA plate
(coated platinum)

Our plates are covered entirely in platinum with a spray

Not enough to attach the platinum

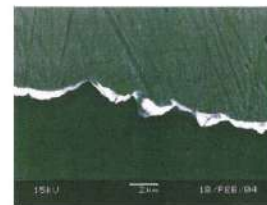


K company
Dipping method



H company
Dipping method

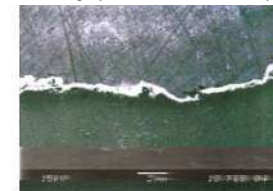
X 7000 (Cross section)



IONIA plate
(coated platinum)

The plate surface is very rough so the rate of area very large better than other plates.

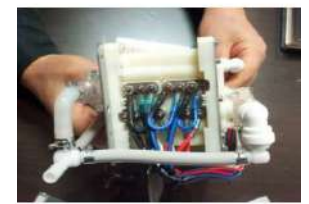
The plate is flat. So the surface area small.
Also, not enough platinum to cover the plate.



K company
Dipping method



H company
Dipping method



8 - General safety instructions

- Operate the device only when you have read the instruction booklet and have understood it.
- Only operate the device with 220 Volt.
- The device has a 5 Amp fuse. Other fuses can lead to explosions or destruction of the device.
- Please ensure that children do not have access to the device.
- Never place the device under water. A moist cloth is enough for cleaning it.
- Never let the device fall.
- Always try to use cold water (under 30° C)
- Do not place the device in direct sunlight or subject it to temperatures over 50 degrees Celsius.
- Never place the device in moist or polluted, dirty rooms.



- Do not place your device outdoors
- To produce function water, only use pure common salt (NaCl) without additives.
- Only use water of the best drinking quality if you want to drink the water afterwards.
- Do not use metal or semimetal containers for storing acidic activated water, or for anolyte or neutral anolyte water. You could get oxidised because of that.
- Only clean the device with a wet cloth or a microfibre cloth.

9 - What role does the water composition play?

Water contains more or fewer dissolved particles, for example minerals which can be measured in PPM-particles per million as a TDS conductance (Total Dissolved Solids). Example: Aachen tap water 160 ppm, Munich 246 ppm, Berlin Kreuzberg 375 ppm, Würzburg 820 ppm. The TDS limit of the drinking water ordinance in Germany lies at 1785 ppm. Very different to central Europe, where the average values of 500 ppm prevail, is in the countries that produce water ionizers, Korea and Japan, where the average values are under 100 ppm. There the following applies:

- Soft water: up to 17 ppm
- Slightly hard water: 17,1 – 60 ppm
- Medium hard water: 60,1 – 120 ppm
- Hard water: 120,1 – 180 ppm
- Very hard water: Over 180 ppm



The more dissolved particles a water ionizer has to treat, the more efficient and powerful it has to be. Since all water ionizers from the Far East are designed for relatively mineral poor water, must the manufacturers' instructions be viewed in relation to the reachable pH values, ORP and water contents (these are the parameters of activated water). Figuratively speaking, a water ionizer in Central Europe has to mostly be on full power. This means especially with mineral rich tap water:

- Use a preferably slow water flow
- As a rule, set to the highest level

With the Aquavolta® Water Tractor, the most powerful flow-through ionizer on the global market, can water with up to 750 ppm be ionized and a good pH value of 9 to 9,5 of alkaline activated water can be reached. Already with a pH value of 10,7 does an ORP result with up to - 735 mV (CSE) with a saturation of 1591 ppb (1,591 ppm - respectively milligram/l) of dissolved hydrogen. (Example: Munich tap water. Can vary depending on water source). For catholyte water are super saturated results achieved with a pH value of 11,8.

10 - Scope of delivery

The AquaVolta® Water Tractor is packed into one (1) cardboard box with all accessories. Please keep this cardboard box after unpacking the device should a service be necessary and you send it to us for inspection. The device (2) is already equipped with both filter cartridges inside the casing.



Only the stainless steel outlet hose has to be screwed in. To do this you have to remove the rubber stopper (3a) above on the rotating outlet and screw the flex-hose in (3b)

Further accessories are included:

- Bag with ¼ inch hose for the water supply and a thicker hose for draining the waste water (4)
- Adapter set (5a) for connecting the diverter valve with aerator (5b)
- ¾ inch angle shut off valve with regulating lever (6) to connect the angle valve. (Other thread sizes are available on request by exchange)
- Small pH indicator bottle with pipette and colour scale (7) to control the pH value
- Replacement fuse (8) and bag with table salt (9) for producing function water

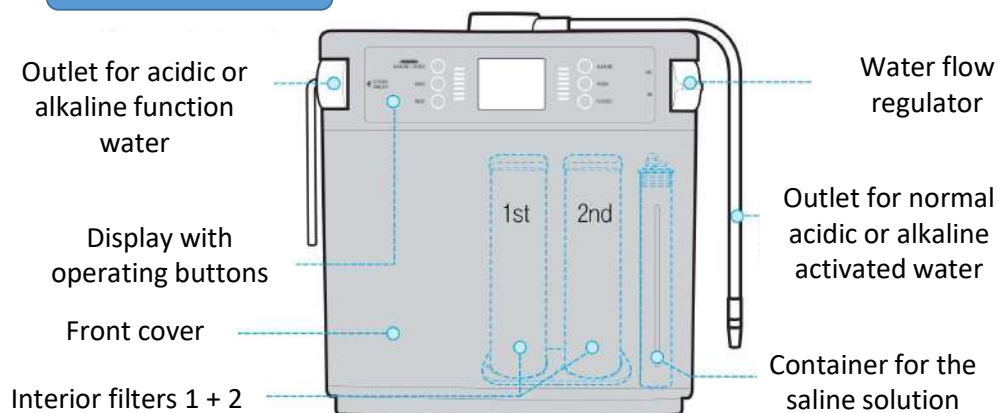


- A decalcifying pump (10) is separately delivered with connection hoses and 1 bag of citric acid (11)
- Also included is a ¼ inch ball valve (12) for regulating the water flow

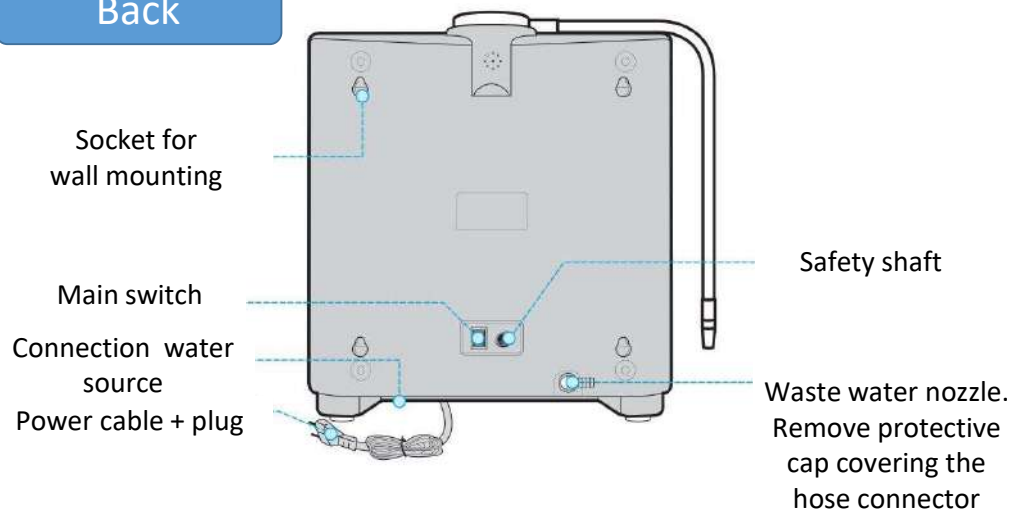


11 - Device overview

Front



Back



Control panel



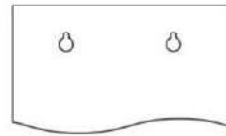
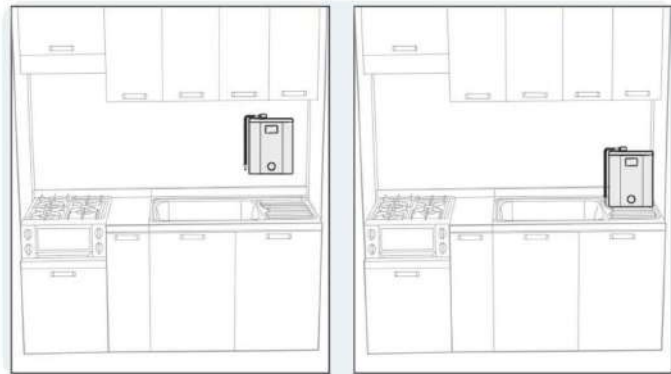
- a Selection button for alkaline water
- b Selection button for acidic water
- c Selection button for filtered, non ionized water
- d Selection button for anolyte (strong acidic) or catholyte (strong alkaline) water with automatic saline addition
- e Volume control for voice prompt
- f Button for programme mode

Display



- 1 LED for water ionizer use. Water flows out of flex hose
- 2 LED for function water operation. Water flows out of left outlet
- 3 Indicator of remaining service life: filter 1
- 4 Indicator of remaining service life: filter 2
- 5 Indicator of chosen function
- 6 Indicator of total water flow in Liter/Minute

12 - Positioning and preparation of the device



Wet the drilling diagram stencil with water and position it parallel to the wall at the desired height.

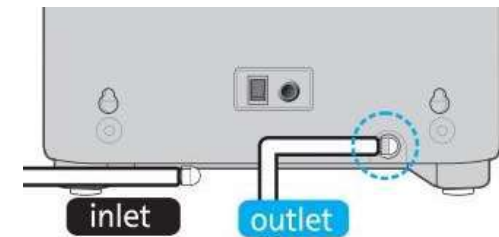
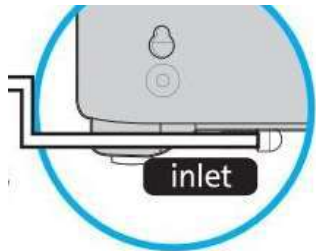


Place the nails or screws at the intended position. The head should protrude 1 cm.

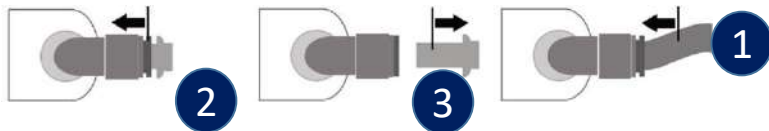


Hang the device on the mount.

You can place the device aptly next to or behind the sink. In case you mount it on the wall use the hanging slits on the back cover.



Connect the $\frac{1}{4}$ inch hose (1) (delivered white) tightly to the Tap water inlet on the bottom of the device.



The hose can be disconnected if you press the inner ring that encompasses it inwards (2). Also, rubber drip-stoppers (3) can be removed like this.

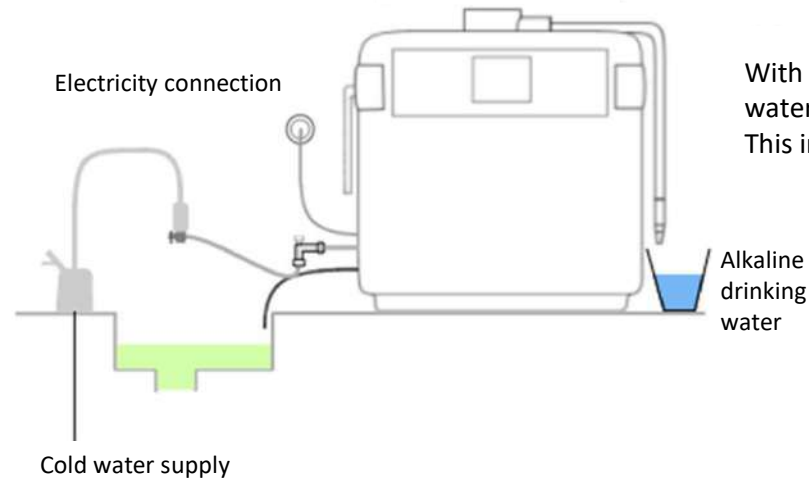
Remove the rubber stopper (red) from the acidic water outlet.

With the thicker delivered hose cover the outlet spigot tightly.

The length of both hoses can be shortened with scissors to the desired length. Do this before you have connected the device to the water tap or the angle valve.

Attention: **the acidic water hose should be at least 40 cm long.**

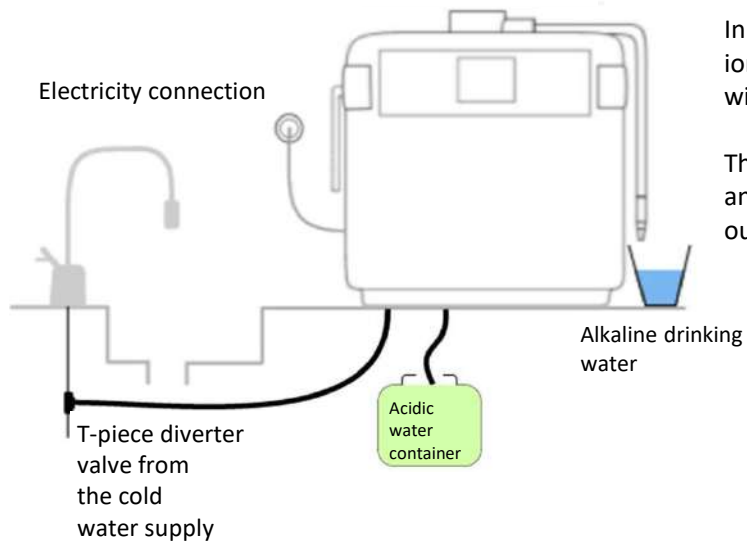
13 - The two connection options of the device



With the easiest method is the ionizer connected to the water tap, as you can see left in the diagram. This installation can be carried out by anyone.



Attention: The installation is not possible with a diversion from the cold water tap if the tap is connected to a low pressure boiler. Fitted adapters are usually supplied by your distributor. Send your distributor a photo of your tap.

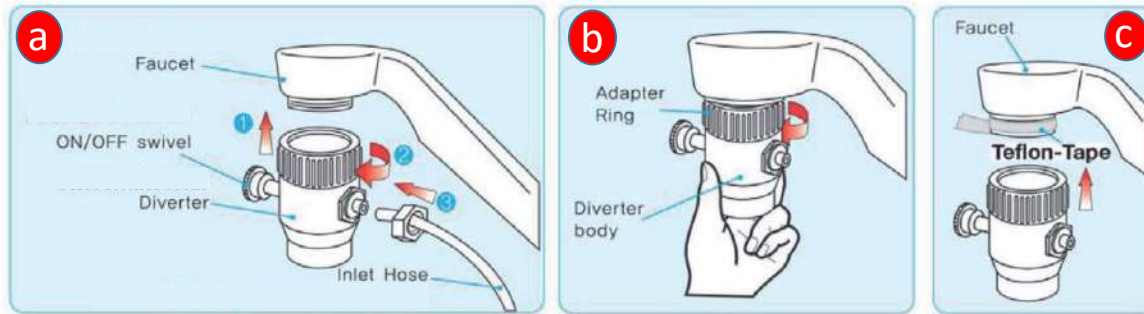


In the case of a permanent installation is the water ionizer connected directly to the cold water supply with the delivered T-piece.

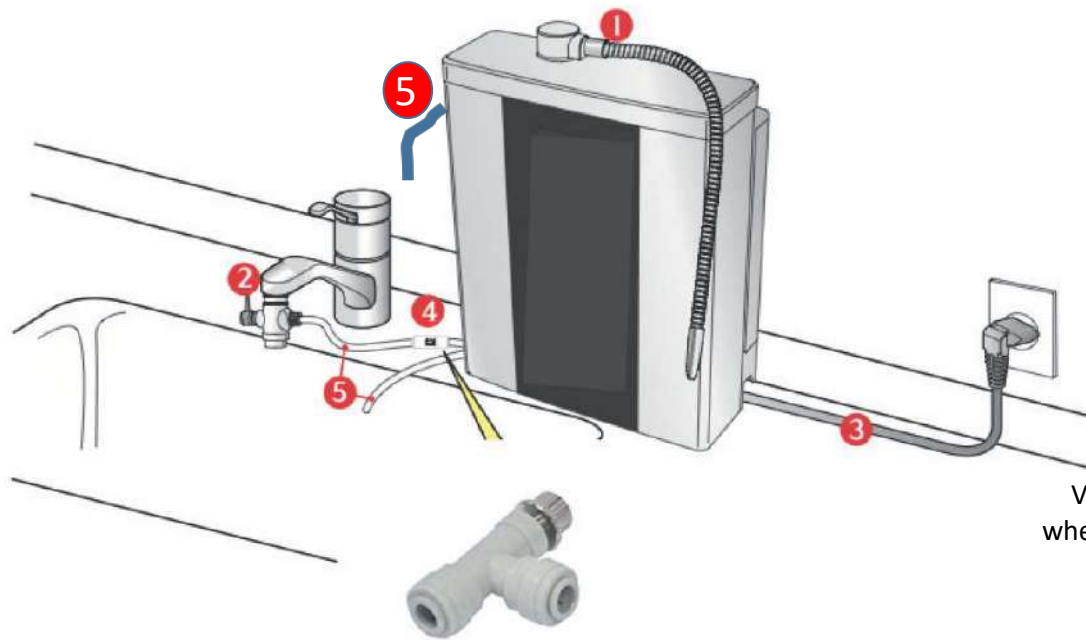
The acidic water outlet is, in rare cases, diverted to an acidic water container under the sink. Usually the outlet hose is placed in the sink.

Attention: The installation to the angle valve should be done by a plumber. A hole has to be drilled into the kitchen counter and usually a ¼ inch hose is attached.

14 - Connection diagram for the faucet



After removing the aerator from the faucet can an adapter ring, if required, with a rubber seal be screwed into the tap (a) and the diverter body (b) is screwed off. To seal it, if necessary, can teflon tape also be used (c).



- The water flow regulator (4) should be inserted in between the supply hose (5) and the ionizer. When in the position 2a can the faucet be used normally. When in 2b and the cold water is turned on full is the water pressure diverted to the ionizer.
- Ensure that the outlet hose of the function water (5) is pointing to the sink.
- When you have checked that all connections are watertight, then you can plug the ionizer in (3).

Valve setting when using the faucet

2a



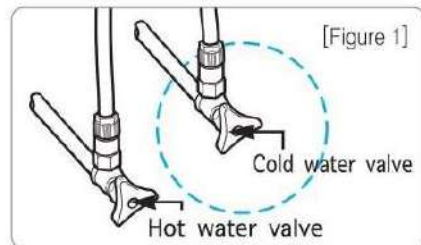
2b

Valve setting when using the ionizer

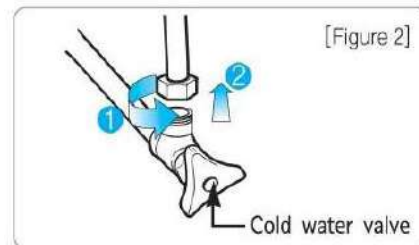
1. Flexible outlet hose
4. Water flow regulator

2. Diverter valve with aerator
5. Cold water supply hose from the tap to the water ionizer

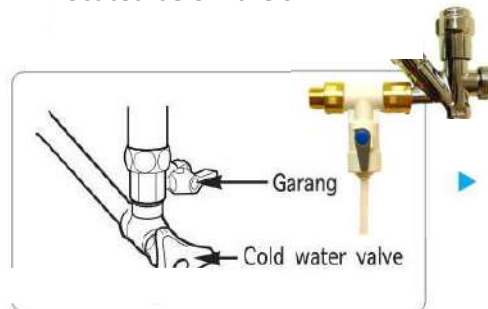
15 - Connection diagram for the angle valve



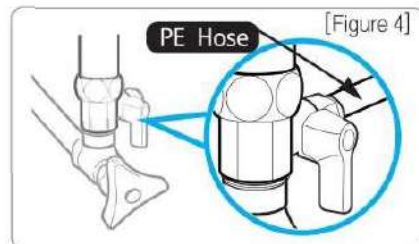
01 Close the cold water valve located below the sink.



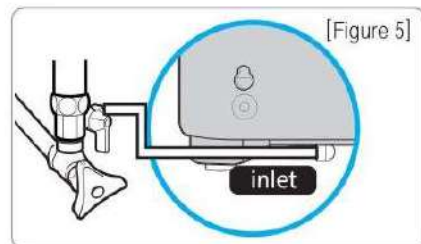
02 Loosen the nut of the cold water valve.



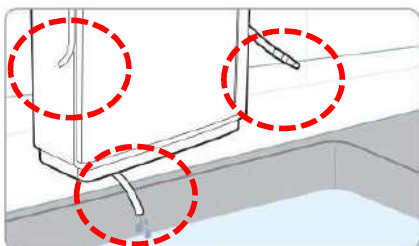
03 Insert the 3/8 inch Garang valve (white/gold) in between the angle valve and the cold water valve.



04 Connect the 1/4 inch hose (PE Hose), which leads downwards from the ionizer, tightly to the T-diverter.



05 After you have connected the ionizer and the cold water tap with the angle shut-off valve to the water supply, can you open the water supply at the angle valve.



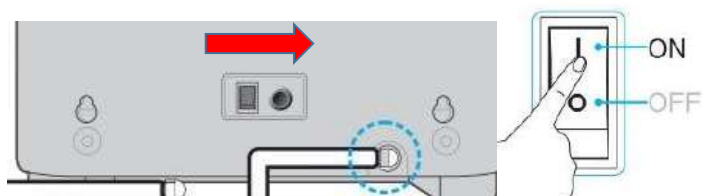
06 Please ensure that the acidic and alkaline water hoses drain into the sink.



16 - Setting for initial operation



For the initial operation of the device it has to be plugged in and the main switch at the back (I) has to be switched on.

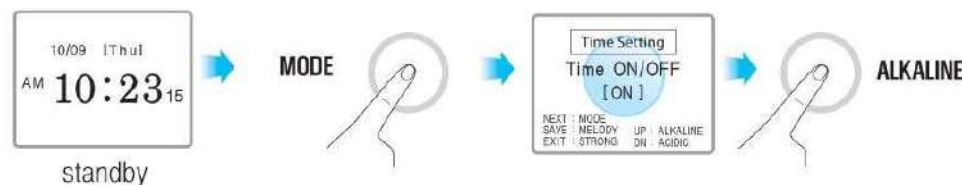


When starting up the system a welcoming picture is shown in the display.



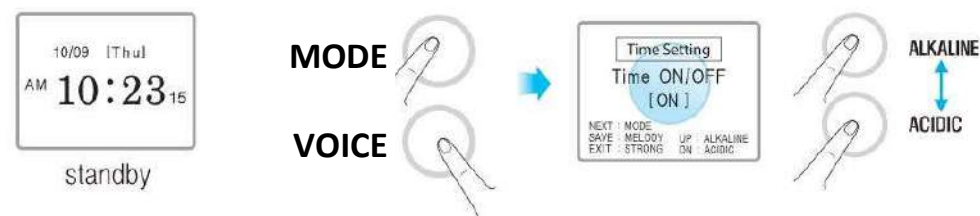
STANDBY function setting

When in Standby press the MODE button and the ALKALINE button to switch the standby mode on (ON, 3 Watt) or off (OFF, no date or time). To finish you have to press the VOICE button.



Setting date and time

Press the MODE button until the Time Setting mode appears. With the ALKALINE and ACIDIC keys you can set the year. By pressing the MODE button you also get to month, day, hour and minutes. To conclude just press the VOICE key.



17 - pH-value measurement and optimal rate of flow

pH 0	10.000.000	0,0000001
pH 1	1.000.000	0,000001
pH 2	100.000	0,00001
pH 3	10.000	0,0001
pH 4	1.000	0,001
pH 5	100	0,01
pH 6	10	0,1
pH 7	1	1
pH 8	0,100000000000	10
pH 9	0,010000000000	100
pH 10	0,001000000000	1.000
pH 11	0,000100000000	10.000
pH 12	0,000010000000	100.000
pH 13	0,000001000000	1.000.000
pH 14	0,000000100000	10.000.000
H ⁺ (H ₃ O) - Ionen		OH ⁻ (Hydroxid) - Ionen

1. The pH value indicates the amount of H₃O⁺-ions found in the water. The fewer the water contains, the more alkaline it is. Alkaline activated water should be about 100 times more alkaline than tap water (pH 7). It is therefore 10.000 times more alkaline than coffee or a fizzy mineral water and 1 million times more alkaline than a lemonade.
2. Optimal drinking has been proven to be at a pH value between 9 and 9.5, these are the top limits of the German drinking water ordinance. When starting your device you have pH indicator drops with a colour scheme for you to measure and obtain the desired pH level with your chosen water. If necessary, you can adjust the flow rate/per minute when measuring the pH. This is applied especially when you have set the highest alkaline level and the desired pH values cannot be reached.
3. Even though there is no exact predictability of the ionizer results, because each type of water has a different composition, as a thumb rule it is said to the achievement of a drink with a pH of 9-9,5:

- soft water up to dH hardness 9: Flow amount approx. 2,3 L/Min
- medium hard water dH 10 – 15: Flow amount approx. 1,9 L/Min
- hard water dH 16 – 19: Flow amount approx. 1,6 L/Min.
- very hard water dH 20 - 24: Flow amount approx. 1,4 L/Min
- extremely hard water over dH 24: Flow amount approx. 1,2 L/Min



The desired water flow you can regulate with the flow regulator at the supply hose to the water tap or with the small grey lever at the angle shut off valve under the sink.

- You only have to do the test once for each water type, unless in your region you have strong seasonal hardness fluctuations. You receive information about this from your water supplier.

It is easy to carry out the test: (Do not drink the test liquid and keep it away from children!)

- Draw a small amount, as pictured and add 2 drops of the indicator fluid.
- Compare the desired value with the colour scheme and adjust the water flow with the grey lever at the angle shut off valve under the sink.

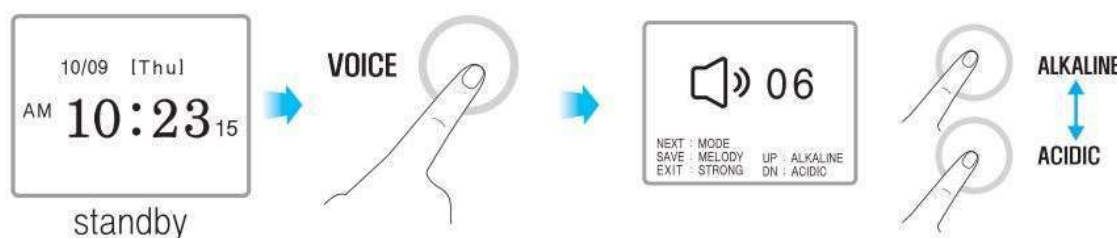
18 - Settings during operation



The many available languages of the user guidance announcements are a good safety feature for people with impaired vision. Yet sometimes these can be annoying. Especially if they have been set very loudly and you would like a glass of water at night or in the morning and the rest of the household is wanting to sleep. The volume can be adjusted so that it is silent and does not bother anymore.

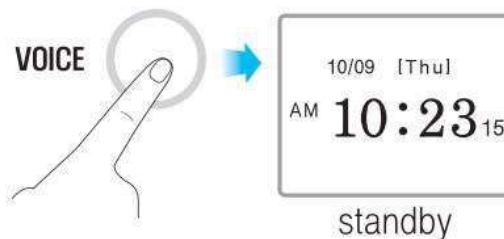
Volume of the announcements

- 01** When in Standby mode, press the VOICE button for 2-5 seconds until the speaker symbol shows up. With the ALKALINE and ACIDIC buttons you can adjust the volume from 0 to 20.



- 02** To save your setting press the VOICE button.

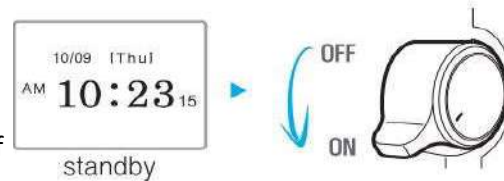
If you do not press anything the setting is automatically saved after 10 seconds and the device changes in the Standby mode.



19 - Dispensing alkaline activated water

- Alkaline activated water for drinking. Maximum pH value 9,5.
- Alkaline activated water for cooking and refreshing foods. Level 4 alkaline

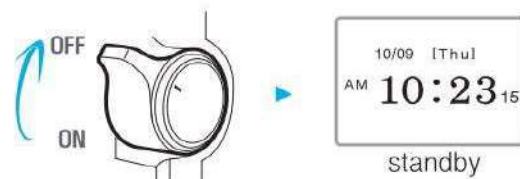
01 Once you turn the water switch ON, water flows through the device. 2/3 of the water comes out of the upper outlet, 1/3 out of the wastewater hose



02 By pressing the ALKALINE button repeatedly can you set the desired alkaline level from 1 - 4. You will hear a voice prompt.



Wenn you switch the lever back to OFF, water stops flowing through the device and it sets itself back to the Stand-by mode.



When you switch the device back on, it will automatically set itself to the last used alkaline level.



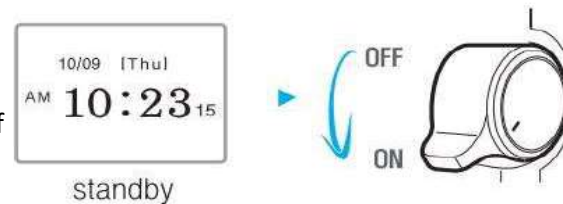
Only use tap water which complies to the drinking water standards of your country.



20 - Dispensing acidic activated water (beauty-water)

- This function allows you to dispense greater amounts of weak acidic activated water for skin and haircare. Also for pets, for cleaning, as a bath additive and to water the plants.

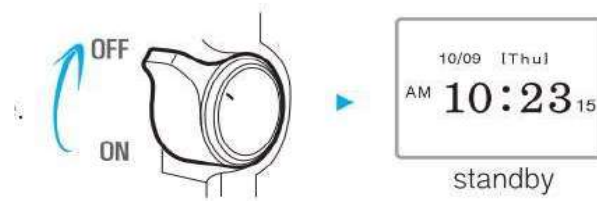
01 Once you turn the water switch ON, water flows through the device. 2/3 of the water comes out of the upper outlet, 1/3 out of the wastewater hose



02 By pressing the ACIDIC button repeatedly can you set the desired acidic level from Acidic 1 to Acidic 2. You will hear a voice prompt.



Wenn you switch the lever back to OFF, water stops flowing through the device and it sets itself back to the Stand-by mode.



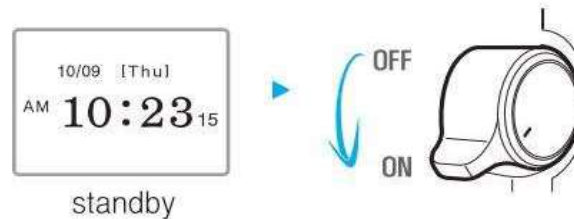
When you switch the device back on, it will automatically set itself to Alkaline level 3, so that you don't drink acidic water by accident.



21 - Dispensing filtered water

- The FILTERED function only removes existing pollutants. Water is not ionized with this function.
- Some medication should fundamentally only be taken with filtered water. Ask your therapist, doctor or chemist.

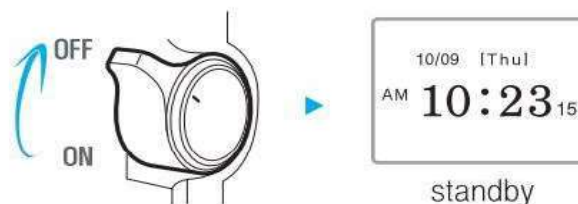
01 Once you turn the water switch ON, water flows through the device. 2/3 of the water comes out of the upper outlet, 1/3 out of the wastewater hose



02 By pressing the FILTERED button, water ionising stops. No electricity flows through the electrolysis cell. A voice prompt follows. The water that flows out of the wastewater hose is during this setting also filtered. Only drink it if the wastewater hose is in a perfect hygienic condition.



Wenn you switch the lever back to OFF, water stops flowing through the device and it sets itself back to the Stand-by mode.



When you switch the device back on, it will automatically set itself to Alkaline level 3.

22 - Dispensing anolyte and catholyte (strong acidic + alkaline water)

- When using the left water spout, unfiltered tap water is enriched with the saline solution from the salt water tank. Then it flows directly to the 9 electrode electrolysis cell on the left. This is called an “electrochemical” water activation.
- **Important:** Ensure the room is well ventilated when using this function. It can lead to, for example, a harmful chlorine gas leak. The amounts are minimal, yet in the worst of cases it can lead to health problems.
- Before using this function you have to fill the tank for the saline solution in the following way.

Not drinking water! Only use under therapeutic supervision

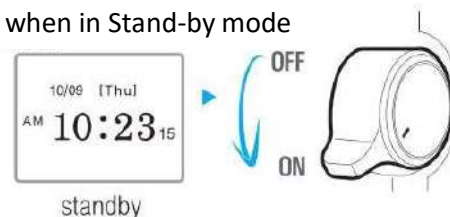
Saline solution preparation (electrolysis booster)

Open the front flap of the device, remove the tank and fill it with 440 ml of de-ionized or distilled water. Add the 20 g of pure salt delivered with the device. After the salt has dissolved, place the tank back into its position.



Switching ON when in the function water mode

01 Turn the water switch ON when in Stand-by mode



23 - Dispensing anolyte and catholyte / 2

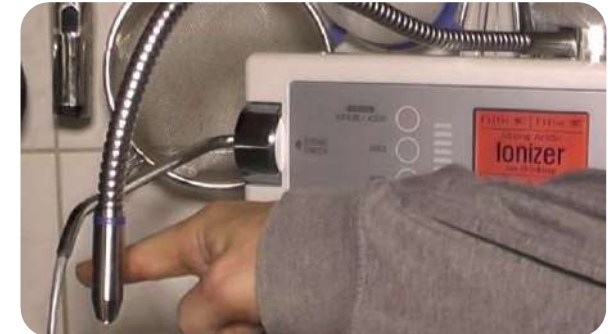
Switching over to function water mode / 2

Not drinking water! Only use under therapeutic supervision

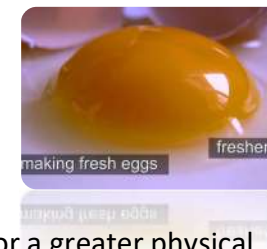
- 02 When water flows through the device and you press the STRONG ALKALINE/ACIDIC button, water flows out of the stainless steel outlet on the left side. By pressing again on the button you can change to Strong Alkaline or Strong Acidic water.



Before, or respectively, after producing function water, the device carries out a 35 second cleaning process (CLEANING). The remaining time is displayed. Only siphon this water once the process has completed. Do not interrupt the cleaning process!



24 - Alkaline activated water - not just a drink



- Daily drink up to 0,3 l per 10 kg bodyweight of water with a pH value from 8,5 to 9,5. Drink more with high temperatures or a greater physical effort.
- Lay fruit, salad, raw eggs and vegetables for 15-30 minutes in fresh alkaline activated water. It can also be water with a pH value of 9,6 to 11. Do not use catholyte water for this. Such foods will freshen up by absorbing hydrogen, which even passes through eggshells. The absorption of hydrogen lowers the ORP of the foods. This is a sign of higher food quality according to Dr. Manfred Hoffmann.* *Hoffmann, M. et al.; Lebensmittelqualität und Gesundheit (Foods and health), Schwerin 20007. And Hoffmann, M. Hrsg. Vom Lebendigen in Lebensmitteln (Life in foods), Bad Dürkheim, 1997
- Mix milk powders, diet powders, fitness powders, etc with alkaline activated water. Dissolve mineral and vitamin mixes in it. The ORP also sinks favourably because of the dissolved hydrogen.
- Buy juice concentrates - preferably an organic brand. Like this you avoid carrying and environmental pollution from beverage containers. No brand can deliver a juice with a better ORP. See: Asenbaum, K. H., Electroactivated Water, Munich 2016, P. 42 ff.
- Cook vegetables with alkaline activated water, taste and colour are preserved, bitter tastes are softened.
- Defrost frozen foods in alkaline activated water.
- If you make sticky rice for Sushi for example, then wash and cook it in alkaline activated water.
- Seedlings sprout faster if you soak them in alkaline activated water. For example soya, alfalfa, mung beans, lentils, etc.
- Soak legumes in alkaline activated water - cooking them will be quicker.
- Meat and fish can be soaked for 10 minutes before cooking in alkaline activated water. It will be more tender.
- Mix alcoholic drinks with hydrogen rich alkaline water. It becomes more mild, the taste can be more appreciated. Make ice-cubes out of alkaline activated water.
- After alcohol indulgence drink 2 glasses in the evening and 2 glasses the next morning on an empty stomach.
- Give your pets (cats, dogs ...) hydrogen rich alkaline activated water to drink and see how the fur and general health changes positively.



25 - Use of strong acidic function water (anolyte)

- After washing your hair with shampoo, rinse it with anolyte instead of with a chemical conditioner. Your hair will get soft and your scalp will be disinfected. This will eliminate the basis of dandruff.
- Wash impure skin with acne and blackheads first with catholyte. Then spray acne and blackheads with anolyte.
- Before cleaning your teeth, rinse your mouth with anolyte and use as a mouthwash. It disinfects and protects your gums and teeth. Rinse and gurgles if you have a mild throat and tonsil infection. Clean your toothbrush with this.
- Soak perspiring feet regularly in warm anolyte water. Sweaty socks can be washed more gently in it.
- Use anolyte or neutral anolyte, depending on skin type, after shaving. It has a skin smoothing effect and is astringent.
- Use anolyte or neutral anolyte, depending on skin type, as a deodorant.
- Use anolyte to combat bacteria, viruses and fungi on foods. Within 5 minutes is sterility produced. Afterwards you refresh the food by soaking it for a longer period of time in alkaline activated water.
- Clean your fridge, rinse your sink and your toilet with anolyte and renounce the use of strong chemicals.



Disinfect dishcloths, chopping boards, knives, pots, pans and other kitchen utensils that come into contact with germs with anolyte. A quick rinse of the hands also does no harm. Yet soak your hands no longer than 3 minutes since the hypochlorous acid can cause a mild bleaching effect.

26 - Use of strong alkaline function water (catholyte)

- Catholyte is not suitable for drinking, unless this has been approved by a licensed therapist. For example in the course of a so called “swing therapy” for stimulation therapy, by alternately drinking anolyte and catholyte in small amounts.
- Wash impure skin with acne and blackheads first with catholyte. Then spray acne and blackheads with anolyte.
- If you want to bathe in catholyte or use it as a bath additive is the bathing time strictly limited to 10 minutes.
- A quick hand wash also doesn't harm your hands. They should not be washed for more than 10 minutes since the hypochlorous acid can cause a mild bleaching effect.
- Greasy smears are dissolved in a good and environmentally friendly manner. It is very suitable for wiping, cleaning the oven and dishwashing. It can be disposed of down the drain.



- Whether it can be used to soak and revitalise foods because of its high hydrogen content is controversial. Due to its high grease removal power and its sodium and hydroxide ion content, it also attacks cells made of lipid layers. This is also the reason for its slow disinfecting effect, because it destroys the cell membranes of single celled organisms. The author Karl Heinz Asenbaum dissuades people from using it in his book “Electrically Activated Water” (ISBN: 978-3-981-120431) and recommends using only alkaline activated water without a salt addition with a maximum pH value of 11 to refresh foods.
- This is explained in greater detail on the next page with an example of tomatoes.

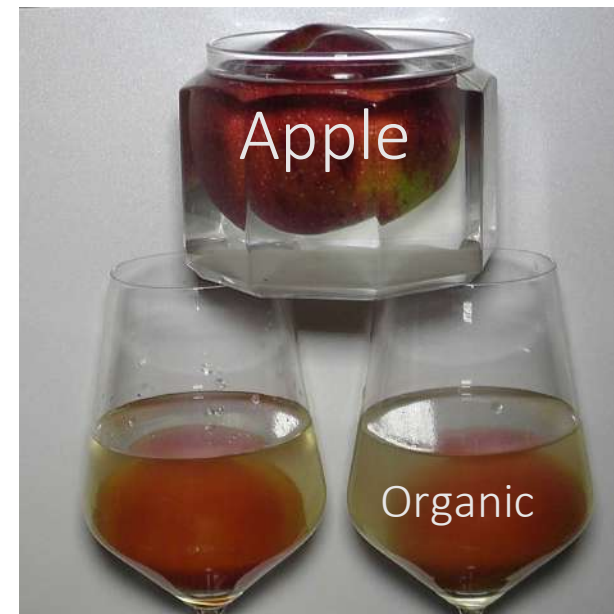
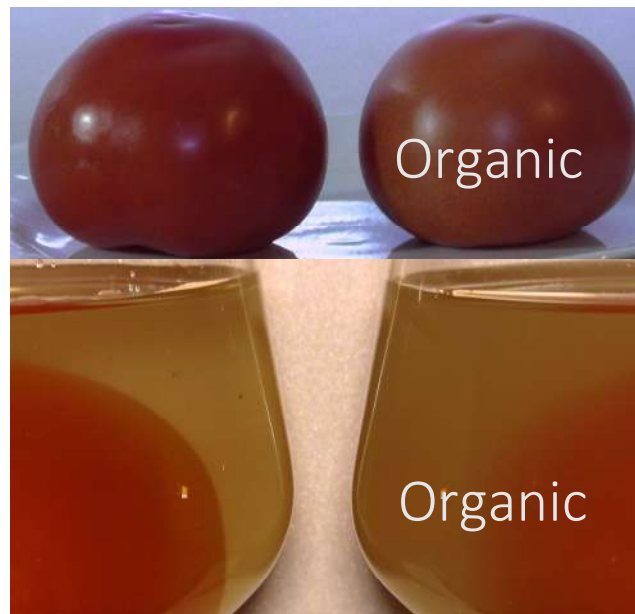
27 - The tomato fairy tale

In sales events for so-called Kangen water® devices are pictures often showed of tomatoes which are laid in catholyte. Soon the water turns a discoloured carrot yellow. The sales people of these devices claim falsely that: when growing tomatoes the used pesticides and toxic substances that sit in the skin are dissolved like this.

In fact, not the pesticides but valuable nutrients are dissolved from the tomato skin, as shown by the example below. A conventional tomato grown with plant protection products and a tomato grown organically are placed simultaneously for an hour in catholyte from a Kangen water device. The discolouring of the water claimed to be from the pesticides is greater with the organic tomato which has been certified and was not treated with products.

What happened? The tomato colouring is carotenoid lycopene, one of the best antioxidant active ingredients that exists since it is not destroyed when boiled, unlike other antioxidants. Yet since lycopene is fat soluble, it is extracted from the tomato and discarded with the alleged decontamination water.

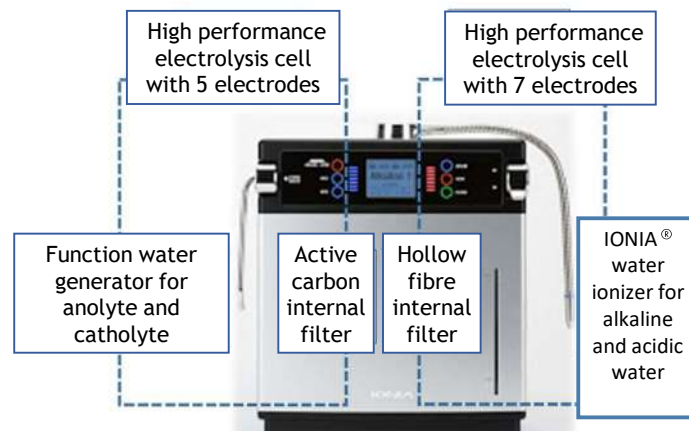
On the other hand a conventionally grown apple with pesticides does not discolour the catholyte water at all, since it does not contain any fat solubles in its skin.





Enagic Leveluk® SD 501:
1 pre-filter & 1 electrolysis cell (7 electrodes)

AquaVolta® Water Tractor:
2 pre-filters & 2 electrolysis cells (7 + 5 electrodes)

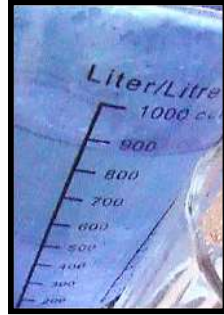


28 - Comparison: ECA devices

ECA-devices
have a saline solution
tank for electrochemical
activation

Other water ionizers
only activate
electrically.

29 – Performance of the Leveluk® SD 501 vs. the AquaVolta® Water Tractor



The performance comparison of both ECA-water ionizers was determined, with the water flow speed of the Leveluk® SD 501 with Munich tap water to obtain the desired 9,5 pH value for drinking. This had to be determined manually since that device does not display the flow rate. It was 0,9 Liters/minute.

The obtained results were:

pH: 9,54
Dissolved hydrogen: 0,9 ppm
ORP (Redox Potential):-434 mV (CSE)

The flow rate displayed by the AquaVolta® water tractor does not show the amount of alkaline activated water, but the total water flow including acidic activated water. Therefore it was also manually determined, with how much total flow rate 0,9 litres of alkaline activated water is produced. It was indicated at 1,6 l/minute.

The obtained results were:

pH: 10,9
Dissolved hydrogen: 1,6 ppm
ORP (Redox Potential):- 737 mV (CSE)

The new AquaVolta® device, developed thanks to an initiative of Aquacentrum, is incontestably superior to the previous market leader Enagic, from Japan.

This is especially noticeable with water types that are difficult to ionize, which hardly exist in Japan. Japanese manufacturers are more worried about the soft water there because the devices could produce too high values. This limits their export possibilities drastically. South Korea has a more global vision and devices are built according to the customers wishes.



30 – Function water - performance of the AquaVolta® Water Tractor



Also in the function water mode does the AquaVolta® Water Tractor show outstanding results with anolyte as well as with catholyte.

We have not seen a flow through ionizer in the last 12 years that produces similarly strong results with the difficult to ionize Munich tap water.

In detail:

Anolyte (strong acidic)

pH: 2,4
ORP (Redox Potential): 1076 mV (CSE)

Anolyte never contains dissolved hydrogen.

Catholyte (strong alkaline)

pH: 11.8
ORP (Redox Potential): -808 mV (CSE)
Dissolved hydrogen: 1,7 ppm



31 - Production of neutral anolyte or catholyte

- Depending on the water composition does catholyte have fat dissolving properties from a pH value of 10,5. It can emulsify fats in water, like a lye. It however hardly contains so called "caustic residues" next to the extraordinarily high content of hydroxide ions, so it only for example can attack the skin after a bath that is over 10 minutes long. Nevertheless: since all our body cells are protected by a fat layer in the cell membrane, can the cell membrane also be attacked so it should only be applied under strict medical supervision under certain indications. Drinking this water is only allowed under therapeutic instruction.
- Catholyte with a pH value > pH 11 is due to its properties, being able to emulsify cell membranes, also deadly to most types of germs. It disinfects significantly slower than anolyte, which thanks to its very fast and fierce oxidation by means of chlorine compounds acts as a disinfectant. The hygiene industry, especially in Russian speaking countries, use a mix of anolyte and catholyte, the so called NEUTRAL ANOLYTE...
- For neutral anolyte, which quite rightly can be also be labelled neutral catholyte, can disinfect almost as quickly and as thoroughly as anolyte because of its hypochlorous acid. Yet it doesn't have the anolyte side effects (low pH value and "chlorine bleach"), nor the catholyte ones (strong emulsion force).

To produce neutral anolyte and catholyte, various industrial and household devices were developed, which distinguish themselves in the following ways:

- "Neutral anolyte" industrial ionizers produce this acidic anolyte water (made with a table salt addition in a diaphragm ionizer) following a cathodic electrolysis. Like this it is pH neutral, contains alongside the original chlorine compounds also hydroxide ions and dissolved hydrogen.
- "Neutral anolyte" and "neutral catholyte" household devices (both based on a salt addition) ionize water with a table salt addition in an electrolysis cell without a separating diaphragm.

"Neutral catholyte" is produced after catholyte (produced with a salt addition in a diaphragm ionizer) has undergone anodic electrolysis. Since catholyte does not contain a chlorine compound is a neutral hydrogen and sodium rich water made. Since it does not taste good and few uses have been found for it, is it hardly used.

The AquaVolta Water Tractor can produce neutral anolyte as well as catholyte.

1. For NEUTRAL CATHOLYTE you make the same amount of STRONG ACIDIC and STRONG ALKALINE in succession and mix these 1:1. The pH value lies between pH 8 and 8,5.



&
1:1



2. For NEUTRAL ANOLYTE do the previously separated water types have to be united under the setting "STRONG ACIDIC" and mix the water from the function water outlet as well as the water from the wastewater hose. The pH value lies between pH 5 and 7.

Neutral catholyte has a stronger cleansing effect and fat solubility than neutral anolyte. It is very useful for cleaning windows or glasses. Neutral anolyte disinfects faster. It is very interesting for many skin problems.



32 - Storage of activated water and function water

Drinking, cooking and refreshing with alkaline activated water. Next to its alkaline properties is the most important advantage of alkaline activated water the maximum amount of dissolved hydrogen. Hydrogen is a very volatile gas and because of its minimally small molecule size can only very dense materials like glass and stainless steel impede it from escaping water in a few hours. Always watch out when filling or decanting, that the containers are filled to the brim and no air bubbles remain. After opening, the contents should be drunk quickly and the rest decanted into smaller containers which also should be filled to the brim.

- Cool temperatures favour the continuity of hydrogen in water. We recommend horizontal storage in the fridge. Apart from the practical 2 liter bottle are for example, swing top bottles very suitable. The colour of the glass hardly makes a difference. Decisive is the thickness of the glass and the horizontal storage.
- Very suitable when on the go are double walled thermos flasks made of stainless steel. They keep the water cool even without refrigerating it. By being able to screw the cap on can all air bubbles be pressed out of the water. Like this is a very long storage life assured.

Acidic activated water can hold up to 2 months if the container is closed. It should not be stored in a metal container. Because of its light acidic pH value is it very suitable for skin, hair, pet and plant care.

Catholyte (Strong Alkaline) function water can be stored up to 3 months in a closed container. Since it draws fat soluble vitamins and attacks cell membranes, even with its richness of dissolved hydrogen is it not suitable for drinking or for placing your foods in. You can wash foods **shortly** with it and it does not attack your hands. To store it please follow the instructions described above under “alkaline activated water”.

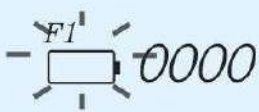
Anolyte (Strong Acidic) function water does not attack your hands. It can be kept up to 2 years. Due to its active chlorine content should it be kept out of reach of children and is best stored in glass or HD polyethylene. Metal containers and metal screw caps should not be used since they would corrode.



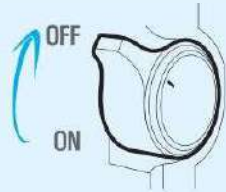
33 - Internal filters: cartridge exchange

It is generally safer to exchange each water filter at least every 6 months, even if the capacity indicated by the manufacturer has not been reached. The built in filter cartridges in your water ionizer are electronically monitored, independent of their operating life which has been calculated at 20 l/day. Once the remaining capacity of the filter has been reached this will be transmitted with visuals and sound. The filter capacity of both cartridges is different, since the second filter receives fewer contaminants. You see the remaining flow capacity in liters permanently on the display and you can obtain replacement filters punctually.

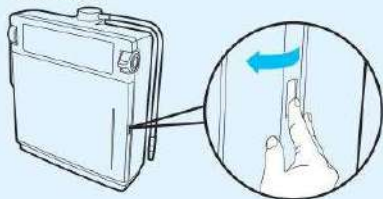
01 After exhausting the filter capacity, the display will show ,0000'. Time to change the indicated filter.




02 Turn the switch OFF



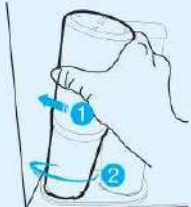
03 Open the front cover by pressing the clip button on the right.



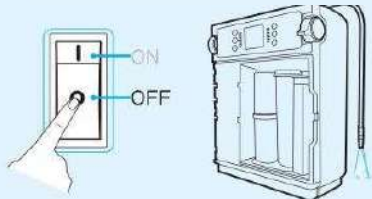
04 Pull and twist the filter anticlockwise out.



05 Press and turn the new filter clockwise into the round slot in the filter compartment.

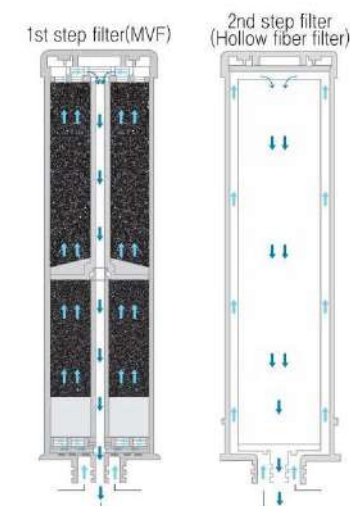


06 Main switch off. Open water regulator for 3 minutes to test impermeability. Place front cover on. Done.



Finally, you have to reset the display of the replaced filter. To do this, press the STRONG Alkaline / ACIDIC button for 5 seconds and then reset filter 1 by pressing and holding the ALKALINE button. Filter 2 also with the ACIDIC key. You can end the reset process with the VOICE button.

Filter scheme

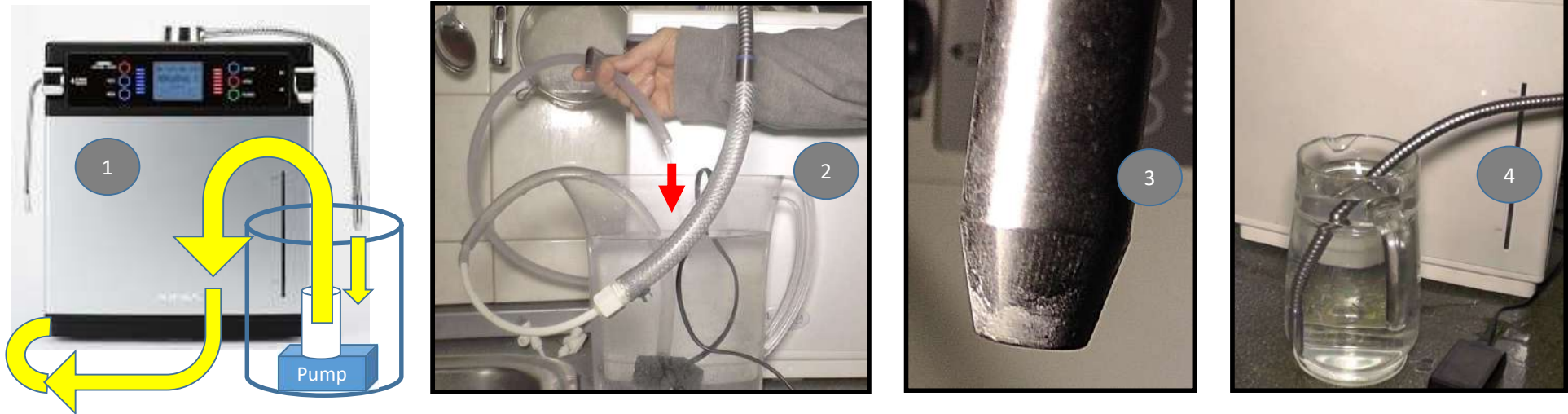


Whilst Filter 1 deals with organic and chemical water problems, does Filter 2 retain the pollutants of a fine nature, for example heavy metals, viruses, fungus, etc.

If because of its lower capacity you only change Filter 1, is it necessary to remove all air and to avoid a vacuum. So after installing the new filter you flush the device with a minimal flow of ca. 0,5 l/min for 5 minutes.

With very contaminated water can a more frequent filter change be needed. Please watch out if the water smells bad or even if with high pressure the filter only allows little water to flow through.

34 - Manual decalcifying of the activated water system



The decalcifying procedure is for cleaning and disinfecting the water outlet system. This has to be followed for both outlet hoses. It is necessary when the usual water flow from the flex hose for activated water or the stainless steel outlet for function water is reduced over time because of calcium deposits. The decalcifying accessories consist of an electric decalcifying pump with a soft hose, different hoses to connect and a decalcifying powder (citric acid), which you can purchase as an organic decalcifier at any chemist's. You will also need a container (i.e.: a 1 liter measuring jug) for the decalcifying powder and the pump. The decalcifying cycle can be viewed in the schematic diagram (1).

1. From the pump, connect the soft hose - like pictured (2) - and then connect the thicker hose over the stainless steel flex hose.
 2. The acidic water outlet hose must be placed in the decalcifying container, as shown in picture 2.
 3. Prepare the descaling agent by dissolving 3 tablespoons of citric acid in a liter of warm (max. 50 degrees Celsius) water.
 4. After you have filled the measuring jug/container, turn the ionizer ON and allow water to flow out of the flex hose so that the hose has no air.
 5. Then plug the pump in (220 V) and wait until the pump produces a cycle. The descaling agent will flow into the device from the acidic water outlet hose.
 6. After 1 hour unplug the pump. Rinse the container and the pump thoroughly with cold water and allow to dry. Before you draw activated water, let the ionizer run in the PURE mode for about 5 minutes, to remove any remaining descaling agents.
 7. If the flex hose of activated water is visibly calcified on the outside, then unscrew it and place it in the remaining decalcifying liquid until it is clean.
- Frequency:** With water up to hardness dH 10 ➤ 6 months. dH 11-16 ➤ 4 months. Up to dH 17 ➤ 3 months. Like this you prolong the durability, performance and efficiency of your device.

35 - Manual decalcifying of the function water system



Manual decalcifying of the function water system is not necessary when running normally, since there the most used anolyte is itself a good descaler. Yet catholyte also removes limescale over time. You could have a water flow interference if you produce much more catholyte than anolyte. If you notice that too little water flows out of the function water outlet, then let 20 liters of anolyte (Strong Acidic) flow through. If no improvement is noted, a special decalcifying procedure must take place with the pump. This is pictured in the schematic diagram (1) above. For this you must use the thinner connecting hose of the pump.

1. Connect the end of the soft hose with the pump - as pictured (2) - and the function water outlet. If necessary use the rubber hose adapter (3) if needed to connect to the pump.
 2. Place the acidic wastewater hose into the decalcifying container, as seen in picture 2.
 3. Prepare the descaling agent by dissolving 3 tablespoons of citric acid in a liter of warm (max. 50 degrees Celsius) water.
 4. After you have filled the container, turn the ionizer ON and set it for 5-10 seconds to STRONG ACID/ALKALINE so that the hose has no air. Then switch the water supply off immediately.
 5. Then plug the pump in (220 V) and wait until the pump produces a cycle. The descaling agent will flow into the device from the acidic water outlet hose.
 6. After 1 hour unplug the pump. Rinse the container and the pump thoroughly with cold water and allow to dry. Before you draw activated water, let the ionizer run in the PURE mode for about 5 minutes, to remove any remaining descaling agents.
 7. If the function water outlet is visibly calcified on the outside, clean it with a coarse sponge which has been immersed in the decalcifying agent.
- Attention:** Please use dishwasher gloves.

36 – Further operating instructions

Care and cleaning

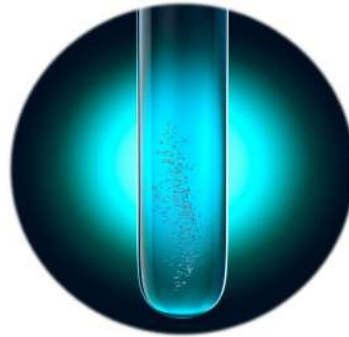
The outside of the device can be cleaned with a cloth or a micro-fiber cloth. Do not allow water into the base of the electrolysis unit.

Attention! Important for validating your guarantee:

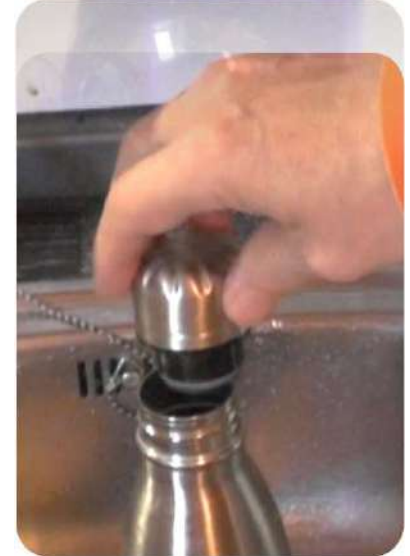
- Only use drinking water in the device. Other drinks can lead to a malfunction.
- You should not put other highly conductive substances like metals or powders in the device.
- Only use water at a temperature between 5 and 35 degrees C.
- The device, even without water, cannot be subjected to temperatures outside of the indicated range.
- An infringement of these clauses will lead to the termination of the guarantee claims.

37 – Storage of activated water

1. Next to its alkaline properties is the most important advantage of alkaline activated water the maximum amount of dissolved hydrogen. Hydrogen is a very volatile gas and because of its minimally small molecule size can only very dense materials like glass, HD Polyethylen or stainless steel impede it from escaping water in a few hours. Always watch out when filling or decanting, that the containers are filled to the brim and no air bubbles remain. After opening, the contents should be drunk quickly and the rest decanted into smaller containers which also should be filled to the brim.



2. Cool temperatures favour the continuity of hydrogen in water. We recommend horizontal storage in the fridge. Apart from the practical 2 liter bottle are for example, swing top bottles very suitable. The colour of the glass makes a slight difference. Decisive is the thickness of the glass and the horizontal storage.
3. Very suitable when on the go are double walled thermos flasks made of stainless steel. They keep the water cool even without refrigerating it. By being able to screw the cap on can all air bubbles be pressed out of the water. Like this is a very long storage life assured.
4. **Acidic activated water and anolyte keep for weeks. Both should not be kept in metal containers.**



38 - Service and Guarantee



Guarantee



Your responsible contact person for guarantee services is your dealer. This applies, in particular, to commitments which have surpassed the two-year legal warranty. All guarantee assurances will be listed on your dealers purchase receipt (invoice).

Manufacturer (main importer and service centre):

Aquacentrum, Owner: Yasin Akgün, Münchener Str. 4A,
85748 Garching b. München, Germany.

www.aquacentrum.de

www.aquacentrum.com

EG-Konformitätserklärung		CE
Fa. Aquacentrum Inh. Dipl. Ing. TU München Yasin Akgün Fraunhoferstraße 13 80469 München		
erklärt hiermit, dass folgendes Produkt:		
Produktbezeichnung:	AquaVolta Water Tractor	
Typenbezeichnung:	ECA fähiger Wasserionisierer	
Baujahr:	ab 2016	
allen einschlägigen Bestimmungen der Richtlinien Elektrische Betriebsmittel (2006/95/EG) und Elektromagnetische Verträglichkeit (2006/42/EG) entspricht.		
Folgende harmonisierte Normen wurden angewandt:		
DIN EN 55014-1:2000+A1+A2:2002		
DIN EN 55014-2:1997+A1:2001		
DIN EN 61000-3-2		
DIN EN 61000-3-3	München,	12:2006
DIN EN 61335-1:2	01.05.2016	
DIN EN 61000-3-4		
DIN EN 50366:2007		
München, 1.2. 2013		
	Dipl. Ing. (TU München) Yasin Akgün Inhaber Aquacentrum	

39 – Legal disclaimer, imprint

An instruction book by Euromultimedia publishers. 80798 Munich. Georgenstrasse 110. info@euromultimedia.de

Author: Karl Heinz Asenbaum
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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 installation, handling and/or operation.

Exclusion of liability

Even though electrolytic water ionizers are certified in Korea and Japan as medicinal devices, can these certificates and the associated claims for legal reasons not be transferred to our European conditions. Therefore we do not assume liability for medicinal claims or articles about the effect of alkaline ionized water or acidic disinfecting water made by the producers of the valid legal parameters in Korea and Japan.

Likewise, like with other preventive measures, should you consult your doctor or alternative practitioner before using electrically activated water regularly. This applies in particular if you are under constant medical treatment or continuously take medication.

We recommend drinking alkaline water between pH 8 and 9,5. Author, publisher and producer do not bear liability for decisions and practices made by someone because of the statements made in this publication. Never use this publication as the sole source for health related measures. With health related complaints please seek advice from an accredited doctor or therapist.

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Further literature can be found on the website www.wasserfakten.com

Please send questions for the authors to info@euromultimedia.de

General questions about water ionizers you will find under www.support.wasserfakten.info

