

Operation Manual

Reverse Osmosis (RO) System NW-RO50-C1/C1-1/G1/G1-1/A2UV/A1/NP35/H/E2/D1

50808, 50809, 50915, 51078, 51079, 51080–51085, 51110, 51783



Illustration similar, may vary depending on model

Read and follow the operating instructions and safety information before using for the first time.

Technical changes reserved!

Due to further developments, illustrations, functioning steps and technical data can differ insignificantly.

Updating the documentation

If you have suggestions for improvement or have found any irregularities, please contact us.

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Even though, the WilTec Wildanger Technik GmbH has undergone biggest possible efforts to ensure that the operating manual is complete, faultless and up to date, mistakes cannot be entirely avoided.

If you should find a mistake or wish to make a suggestion for improvement, we look forward to hearing from you.

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Introduction

Thank you for purchasing this quality product. **To minimize the risk of injury we urge that our clients take some basic safety precautions when using this device. Please read the operation instructions carefully and make sure you have understood its content.**

Keep these operation instructions safe.

General instructions

This manual describes the Usage of all our RO systems.

Please note that some parts of this manual are intended for certain systems. Usually the arrangement of the filter stages is always the same. The number of filter stages depend on the model that you have bought, between 1 and 6.

For RO-Systems without pump: If you use a pressure tank, the input water pressure should be higher than 85 psi.

Operation principle

The RO system adopts U.S. high-tech reverse osmosis technology. This automatic reverse osmosis system is composed of five filtration stages: First, the raw water is filtered by three pre positive cartridges.

The **first stage**: The PPF cartridge removes suspended substance and other substances up to 5 micron in raw water.

The **second stage**: Granular activated carbon cartridge.

The **third stage**: High density activated carbon cartridge to remove odor, chlorine and its outgrowth in raw water.

After above three stages of filtration, the filtered water is pushed into the **fourth stage**: the reverse osmosis (RO) membrane with a high-pressure pump. Since the aperture of the RO membrane is only 0.0001 μ , bacteria and filterable virus can pass the RO membrane only if the bacteria would be reduced in size 4000 times, and filterable virus would be reduced in size more than 200 times. Consequently, any super fine impurities, harmful soluble solid, bacteria and virus in water is blocked by the high density RO membrane. The RO membrane can also filter other impurities and contamination from the filtered water. The harmful substance is automatically removed by means of a waste water outlet. The water filtered through the RO membrane enters a pressure tank for storage.

When the user turns on the goose-neck water-tap, the purified water will go through the **fifth stage**: post positive bacteriostatic activated carbon filtration and

into the **sixth stage**: UV light to kill e. g. bacteria, virus, or mineral balls to re-introduce minerals into the water.

The system controls the water purification process automatically. When the pressure of raw water is too low or the water storage tank is full, the system will stop the purification machine automatically; when the water pressure returns to the normal level, the purification machine will turn on automatically.

The water purified by the RO system is pure drinking water without bacteria and impurities, rich in oxygen, tasty and excellent for your health.

The different filter stages

Filter	Materials	Functions	Material life in average
1 st stage	PP 5 micron	Un-dissolved contaminants removal, i. e. sand, silt, rust, etc.	About 10 months
2 nd stage	Activated carbon	Activated carbon germicidal adhesion removal of chlorine, organic fertilizer, agricultural chemical, insecticide	About 10 months
3 rd stage	Block carbon	Same as 2 nd stage, but re-filtration again	About 10 months
4 th stage	RO membrane	Heavy metal removal: particles, heavy	About 2 years

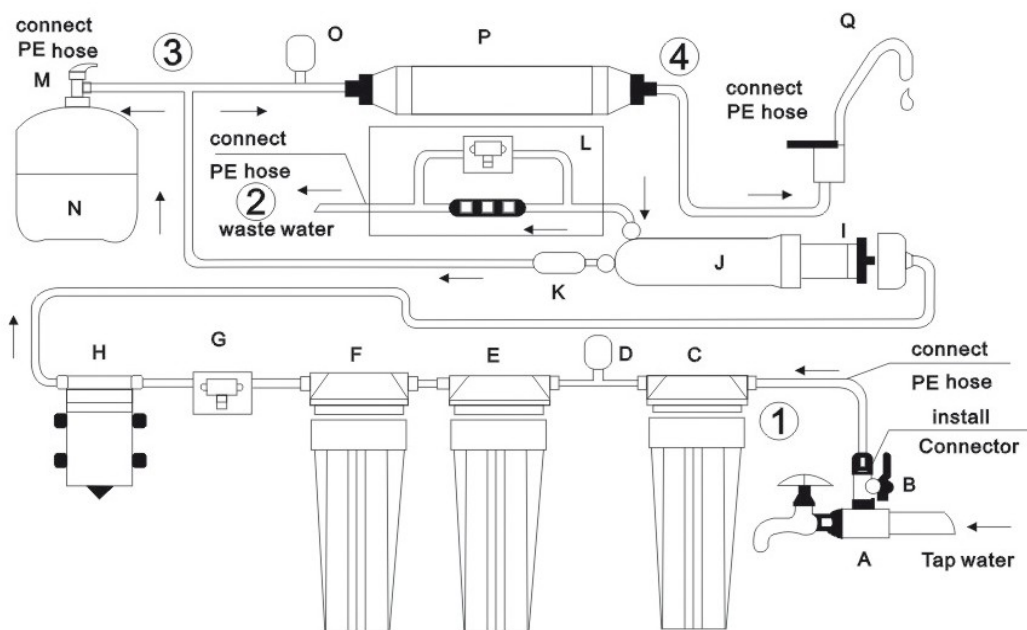
		metal, ray, bacteria. etc.	
5 th stage	In-line carbon	Adsorbs odour and taste and makes water delicious	About 1 year
6 th Stage	UV light	Kills virus and bacteria	About 1 year
7 th Stage	Mineral ball	Puts minerals into the water	About 10 month

Technical process

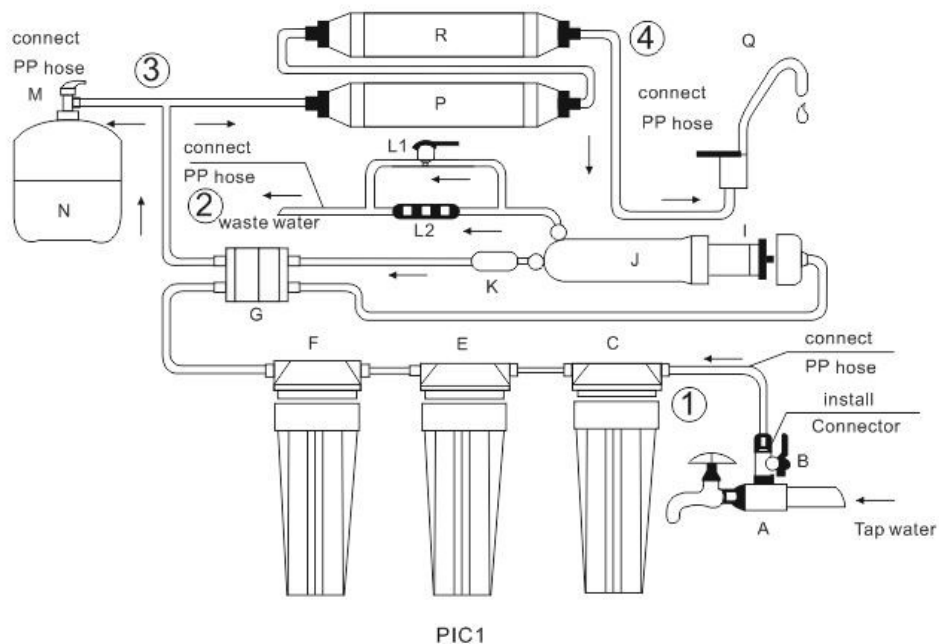
Tap Water

→ PPF filter	→ RO-System
→ Low pressure switch	● Waste water outlet
→ Granular activated carbon	→ High pressure switch
→ High density activated carbon	→ Postpositive bacteriostatic activated carbon
→ Booster pump	→ Sixth filter stage
→ 4 way valve	→ Purified water
	→ Flow out from goose neck water-tap
	● Pressure tank

RO system structure



A	3 way feed water connector	B	Ball valve
C	PP sediment cartridge	D	Low pressure switch
E	Activated carbon	F	Activated carbon block
G	Flow-in valve	H	Booster pump
I	RO membrane	J	Membrane housing
K	Check valve	L	Drain restrictor and flush valve
M	Tank valve	N	Pressure tank
O	High pressure switch	P	Gourmet filter
Q	Goose neck water-tap	1, 2, 3, 4	Connect plastic hose



A	3 way feed water connector	B	Ball valve
C	PP sediment cartridge		
E	Activated carbon	F	Activated carbon block
G	Flow-in valve		Booster pump*
I	RO membrane	J	Membrane housing
K	Check valve	L1+L2	Drain restrictor and flush valve
M	Tank valve	N	Pressure tank
O	High pressure switch	P	Gourmet filter
Q	Goose neck water-tap	R	Mineral ball / UV light**
1, 2, 3, 4 connect plastic hose			

* In Pic. 1, the booster pump is missing. Usually it is between the third filter stage and the RO membrane, like it is in the technical drawing on the page before.

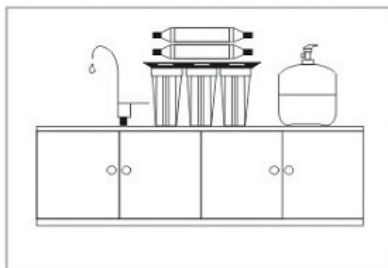
** Please note that availability of a sixth filter stage is depending on the type of system.

Technical Data

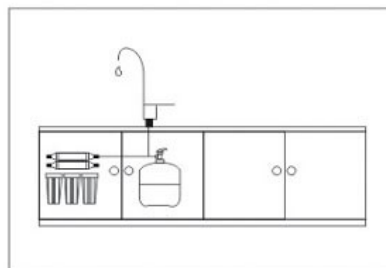
	RO-50-XX / RO-BX-XX	RO-400-XX
Purified water output	500 gpd / 190 l/day (25°C)	400 gpd / 1500 l/day (25°C)
Tank capacity	3 gallons	
Raw water temperature	4–42°C	
Raw water pressure	1–3.5 bar / 0.1–0,35 MPa	
Clean water content relative to raw water	15–20%	
Water supply	Tap water or ground water TDS 1000 ppm less	

Installation

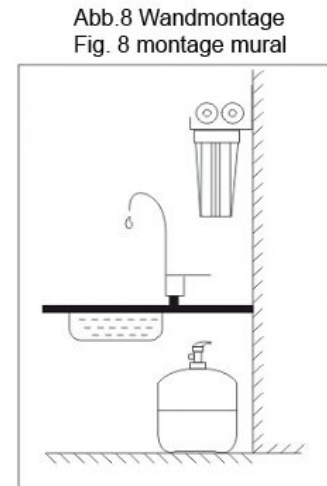
The system installation method should be determined in accordance with the layout of your kitchen. Please refer to the installation maps as follows. If the RO unit would be suspended on the wall, it should be fixed with two M6 swelling screws or two concrete steel nails according to the aperture on the RO unit hanger plate



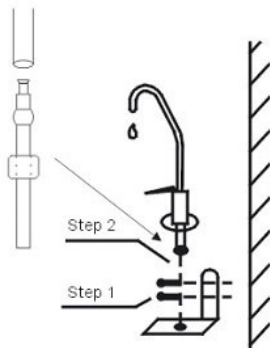
PIC6. On the countertop
Abb.6 auf der Arbeitsfläche
Fig.6 sur le surface de travail



PIC7. Under the countertop
Abb. 7 unter der Arbeitsfläche
Fig. 7 en dessous de la travail



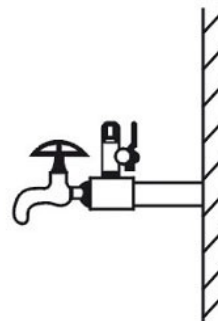
PIC8. Mount on the wall



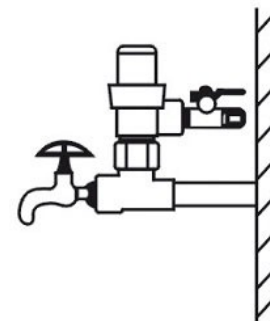
PIC9. Faucet on the wall
Abb. 9 Wandarmatur
Fig. 9 Robinette mural



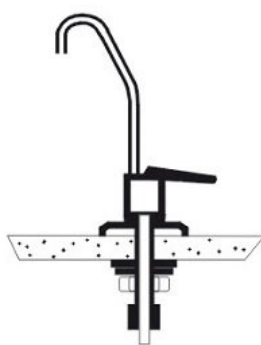
PIC10. Three way connector
Abb.10 3-Wege Verbinder
Fig. 10 Connecteur à 3 voies



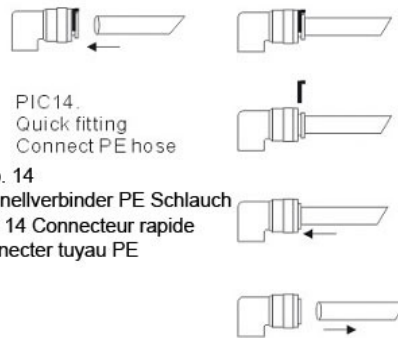
PIC11. Ball valve
Abb. 11 Kugelventil
Fig. 11 Vanne à bille



PIC12. Reduce valve
Abb. 12 Reduzierventil
Fig. 12 Soupape de détente

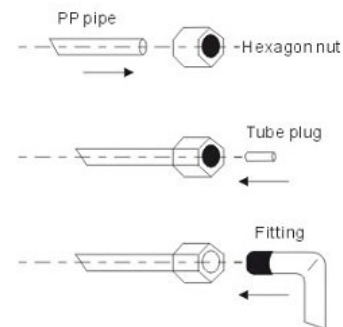


PIC13. Faucet on the countertop
Abb. 13 Armatur auf der Arbeitsfläche
Fig. 13 Robinette sur le surface



PIC14.
Quick fitting
Connect PE hose
Abb. 14
Schnellverbinder PE Schlauch
Fig. 14 Connecteur rapide
connecter tuyau PE

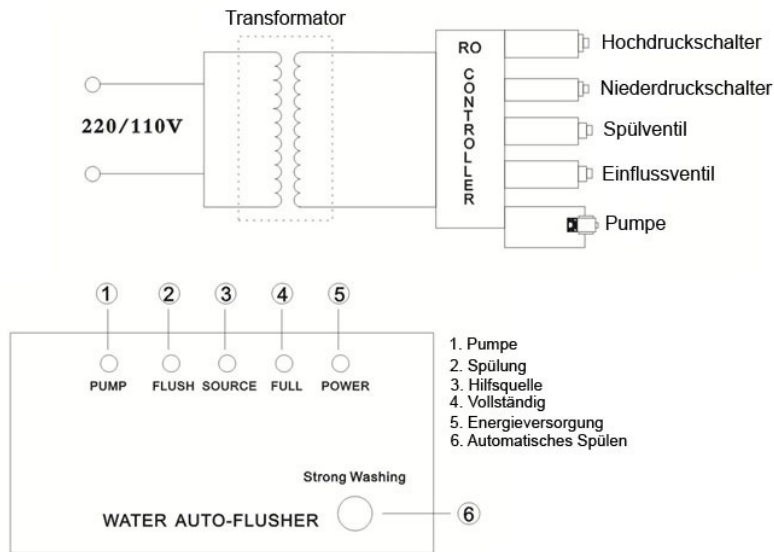
PIC15 Quick Fitting Disconnect PE Hose
Abb. 15 Schnellverbinder PE-Schlauch Trennen
Fig. 15 Connecteur rapide déconnecter tuyau PE



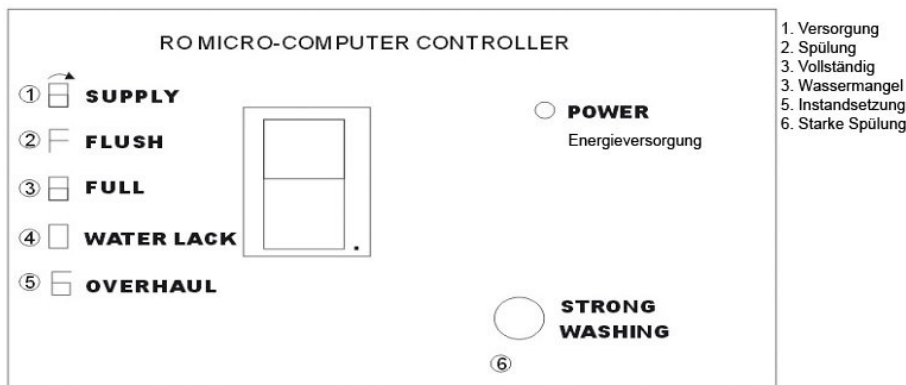
PIC16 Quick Fitting Connect PE Hose
Abb. 16 Schnellverbinder PE-Schlauch
Fig. 16 Connecteur rapide connecter tuyau PE

- To install the ball valve, fit a three way feed water connector **(A)** and place the ball valve **(B)** on the three way feed water connector **(A)**, then connect the water-tap with three way feed water connector (Pic. 1, 7 and 8).
- To install the RO membrane: screw off the cap of RO housing **(J)**, put the one end with two sealing rings of RO membrane **(I)** first into the RO housing, screw on the cap tight.
- The goose-neck water-tap **(Q)** should be positioned for good aesthetics, function and convenience; it connects to the outlet fitting of the mineral ball filter by means of the white plastic hose.
- To install the plastic hose at following positions according to technological process. There are marks numbered 1, 2, 3, 4, on the **Reverse osmosis system layout and components** chart (Pic. 1). **You can also find these marks on the RO machine.**
 - Mark 1:** Between water tap and PPF filter **(C)** with white plastic hose.
 - Mark 2:** Installing a drain tubing white plastic hose linking to the off let of drain restrictor and flush valve. Put the drain tubing to sewer or connect with a container for usual washing.
 - Mark 3:** Between the valve outlet **(M)** on water storage tank **(N)** and the Tee in front of post bacteriostatic activated carbon filter **(P)** with white plastic hose.
 - Mark 4:** Between the goose-neck water-tap **(Q)** and the post bacteriostatic activated carbon filter or mineral ball filter if available.
- Method of connecting plastic hose with fittings
Cut a plastic hose after measuring.
Place the plastic hose into hexagon nut (Pic. 12).
Place white tube plug into the nozzle of plastic hose push the tube plug to the plastic hose end by hand or tools (Pic. 12).
Place the plastic hose into the fittings (Pic. 12).
Screw on the hexagon nut tightly.
- Method of connecting plastic hose with quick fittings (Pic. 10)
Cut a plastic hose after measuring.
Insert plastic hose deep into the quick fitting
- Method of disconnecting the plastic hose from the quick fittings (Pic. 11)
Remove the small part
Press the round part until it touches the main body of quick fitting.
Pull the plastic hose.
- Power cord.
This system is equipped with a transformer which uses single-phase power supply of 220 V (see transformer voltage). To use it, please plug the power cord of transformer into power supply socket.

Functional principle

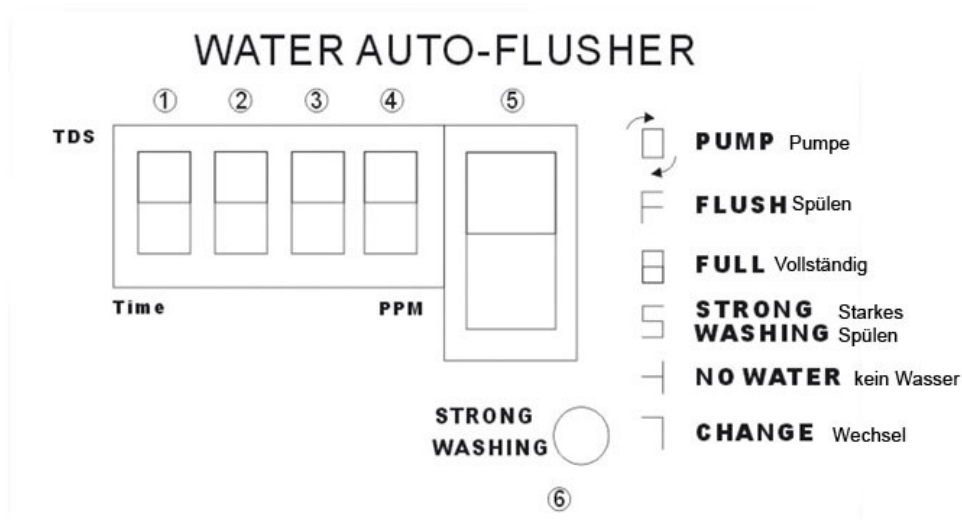


- Once the system is turned on, it will flush for 30 seconds.
- After two hours of cleaning the water, it flushes again for 30 seconds.
- After five seconds, the system responds to the low pressure switch.
- If the high pressure switch operates, the system stops after 20 seconds.
- If the key (6) "Strong Washing" is pressed, the system purges for 20 seconds.
- The LEDs (1), (3), (5) switched on mean that the system produces pure water.
- The LEDs (3), (4), (5) switched on mean that the pressure tank is full.
- The LEDs (2), (3), (5) switched on mean that the system is flushed.

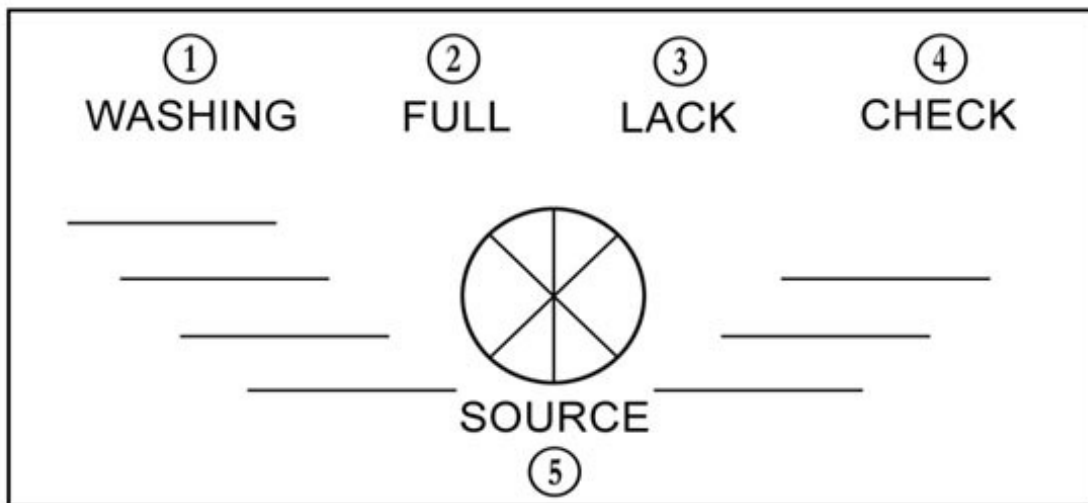


- If the system is turned on, it flushes for 30 seconds, the display being as **(2)**.
- After having been rinsed, pure water is produced, the display being as **(1)**.
- When the pressure tank is full, the system stops, the display being as **(3)**.
- A warning buzzer will be shown if the water supply lacks or the water supply pressure is too low, the display being as **(4)**.
- After two hours of pure water production, there is again a 30 second rinse.
- In the event of the system working for an unusually long time, it is automatically switched off, in which case a warning buzzer is activated, the display being as **(5)**.
- If you press the button **(6)** for strong flushing (“Strong Washing”), the system is rinsed for 30 seconds.

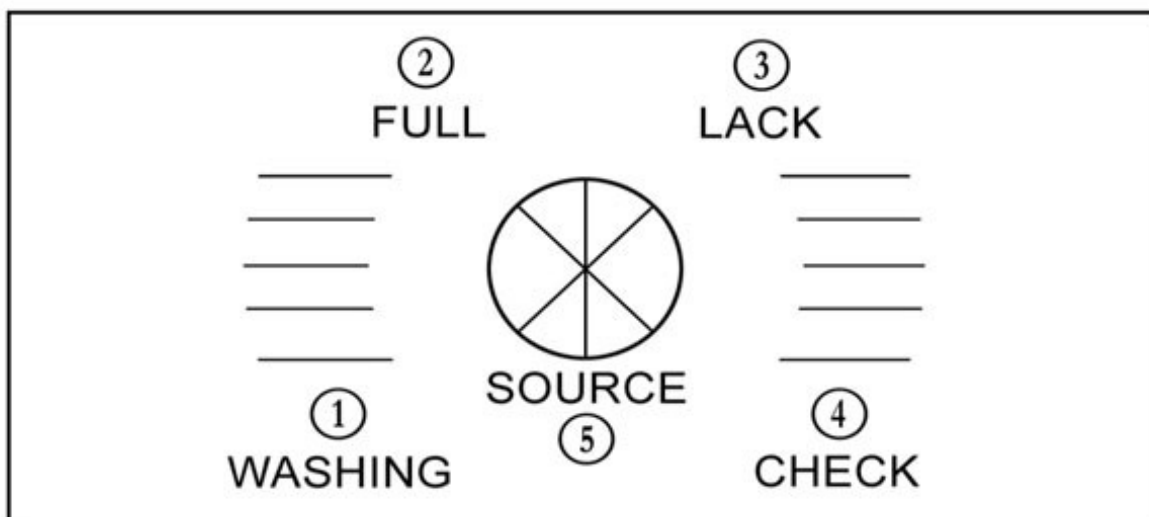
RO controlbox



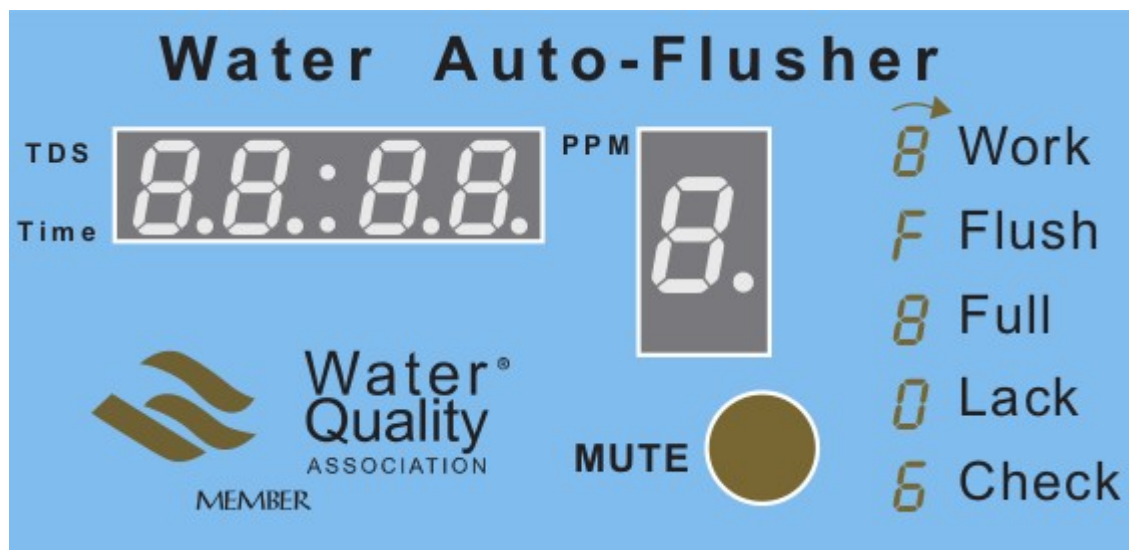
1. Digit diode **(1)**: two indicator options: “E” = control beeps, “P” = control is silent
The function can be changed by pressing for 2 seconds the “STRONG WASHING” button **(6)**.
2. The Digit diodes **(2)**, **(3)**, **(4)** show the TDS value. If the system flushes, the digit diodes **(3)**, **(4)** show the remaining seconds for rinsing
3. The digit diode **(5)** shows the system operating state. The explanation can be found on the right controller side.
4. Press the button **(6)** to flush the system






1. Spülen 2. Vollständig 3. Wassermangel 4. Prüfen 5. Hilfsquelle



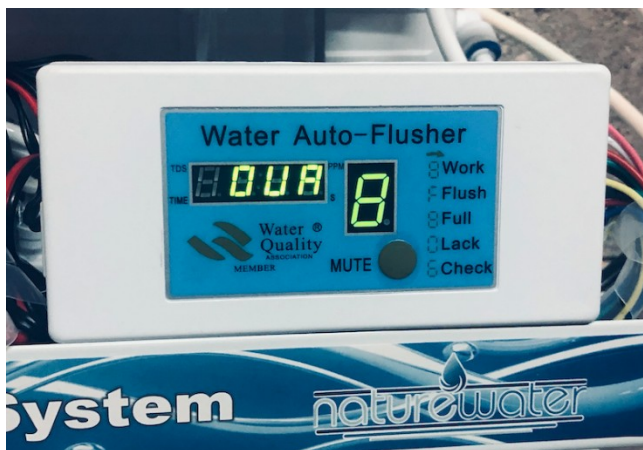
- The system, after having been turned on, is rinsed for 30 seconds, the display being as **(1)**.
- After having been flushed, the system starts to produce pure water, the display being as **(5)**.
- Once the pressure tank is full, the system stops, the display being as **(2)**.
- A buzzer indicates if feed water lacks or the water supply pressure is too low, the display being as **(3)**.
- After two hours of pure water preparation, the system is rinsed for 30 seconds, the display being as **(1)**.
- When the system has worked for an unusually long time, it is automatically stopped and at the same time there is a warning buzz, the display being as **(4)**.



	<ol style="list-style-type: none"> 1. When the high pressure switch determines that the water pressure inside the tank is lower than the preset value, the system starts operation. 2. The two last digits show the actual TDS value. The TDS value upper limit is 100 ppm. If the value exceeds 100 ppm, the symbols 100 and TDS flash one after another. 3. If the TDS value is higher than 50 and if the buzzer mode (E) is activated, a buzzer sounds. 4. The first digit shows “E” for the buzzer mode and P for the mute mode, the last which can be activated by pressing the “MUTE” button. 5. Both the probe and the control unit regulate possible deviations in the measuring range; do not combine the system with other devices. 6. The TDS measurement can easily be perturbed. Ensure that the probe has been introduced to as sufficient depth inside the pipe to guarantee accurate measuring results. 7. The presence of air bubbles inside the tubing system can influence on the accuracy of the TDS measurement. Purge the pipes before using the system. (The high pressure pump works, the inlet valve opens, the outlet valve closes.)
	<ol style="list-style-type: none"> 1. The system is activated and is rinsed for 30 seconds. 2. Cumulative water production for 6 hours; do not rinse the system during that time, it will afterwards be rinsed automatically for 30 seconds. 3. Automatic rinsing for 30 seconds after the lack of water programme having been finished. 4. The last two digits show the remaining back-flushing time, the clock symbols flushes once per second. 5. The first digit shows “E” for the buzzer mode and “P” for the mute mode, the last of which can be activated by pressing the “MUTE” button. 6. Rinse the system for 5 seconds before the water production and the water tank filling. (The high pressure pump works, the inlet valve opens, the outlet valve closes.)
	<ol style="list-style-type: none"> 1. When the high pressure switch determines that the water pressure inside the water tank has reached to preset value, the water production is stopped. 2. Shows the last measured TDS value during the water production or rinsing. When the system does not produce any water, there is no

	TDS measuring. (The high pressure pump works, the inlet valve opens, the outlet valve closes.)
0 Lack	<ol style="list-style-type: none"> 1. When the low pressure switch determines that the raw water pressure is beneath the preset value, the water filtering system changes to the lack of water programme, and a buzzer sounds. 2. Neither the TDS value is measured nor it is indicated. (The high pressure pump works, the inlet valve opens, the outlet valve closes.)
8 Check	<ul style="list-style-type: none"> • If after 12 successive hours there is not any water inside the system tank yet, the system changes to the maintenance mode. In that case, contact an expert. • Neither the TDS value is measured nor it is indicated. (The high pressure pump works, the inlet valve opens, the outlet valve closes.)

Error message



This error message means that the TDS value is higher than 100 ppm. The controller setting limit is at 100 ppm precisely. If the value is beyond this limit, the controller cannot determine the value any longer, and the OVA message is showed.

The normal value is between 10 and 20 ppm.

There are several alternatives that lead to this error:

- When the system is reinstalled, water contaminations can cause a high TDS value to be indicated. We recommend to thoroughly rinse the osmosis system. The TDS value should normalize by rinsing the system.
- Check if the RO membrane has been correctly installed. It may lack or have been incorrectly set into the housing. Thus the water cannot be purified, and this leads to a high TDS value.
- If the RO membrane is newly set in, you have to repeat the rinsing for otherwise the TDS value can become too high.
- The TDS controller may be dirty. Check the controller condition and clean it if necessary.



Operation

After the installation, wash the filters of each stage before using the system for the first time. The steps are as follows: turn on the water-tap tubing ball valve **(B)**, turn off the tank valve **(M)** of the water tank **(N)**, turn on the goose-neck water-tap **(Q)**, open the flush valve **(L1)**. Now plug the power cord into the power supply socket, and the high pressure pump **(H)** starts up automatically, the dirt water outlet begins to drain, filters of each stage are washed automatically.

After having washed the tank, turn on the tank valve **(M)** of the water tank **(N)** and turn off the goose-neck water-tap **(Q)**, the reverse osmosis filter then begins to purify the water. When you use this system for the first time, let the purified water flow out from the full water tank twice, then the purified water is suitable for drinking.

Notes:

- A) When you use the system for the first time, turn on the goose-neck water-tap to drain the water. (There could be a little bit of black water flowing out from water-tap, continue washing to drain it.)
- B) When you use the system for the first time, TDS test data may be a bit high, please continue washing until the TDS test data normalizes.
- C) When you use the system for the first time, the purified water is not drinkable until steps A and B are done. The concentrated dirt water used for the water purifying process cannot be used for drinking.

After the installation and the adjustment, the system begins to automatically produce purified water. Usually, turn off the goose-neck water-tap **(Q)**, turn on the tank valve **(M)** of water storage tank, let the purified water flow into the tank. When the water storage tank is full of purified water, the system automatically stops. Turn on the goose-neck water-tap **(Q)** to use the purified water.

Maintenance

It is highly recommended to replace filters periodically to keep the high water quality. This helps to take full advantage of the filters and guarantee the water quality standard. If one takes care of the filters and replaces them periodically, the water purifier system could have a longer lifetime. The period of filter replacement depends on the raw water quality and its impurity quantity. Based on empirical statistics a family of four persons usually consumes 10 l (10 kg) of purified water each day.



Rinsing the RO membrane

When the RO membrane purifies the water, there is impurity and bacteria left on the surface of the membrane, which may affect the quality and volume of the purified water. Thus the RO membrane must be cleaned periodically. In our system, the RO membrane is automatically washed. One may manually wash the membrane by turning on the flush valve **(L1)** for 2–3 minutes once a week.

Note: In order to guarantee the efficient work of your system, please use the specified filters, provided by the same vendor of the osmosis system.

Warning

1. Do not drink the water of first two tank contents; let it drain or use it for other purposes upon installation. Test the RO unit for about 2 hours until the above operations is completed successfully. Clean the remaining contaminants and sediment inside the unit. Check if the unit works normally and without water leakage.
2. Do not take apart the parts of system. Any wrong operation may lead to water leakage and system failure/damage.
3. Do not apply the system to purify hot water.
4. Do not place air valve discharged on the pressure tank.
5. To ensure the quality of purified water, please replace the first and the second filters after 10 months.
6. Please check the power supply and make sure it has a suitable voltage.
7. Keep the RO unit away from sunshine.
8. When the system is not used for a long time, please turn off the power and shut off the ball valve.
9. Follow the initial operation before reusing the system after a long time of non-use.

Trouble Shooting

If the following problems occur, please check as follows:

Problem	Solution
No operation of the pump to generate purified water	<ul style="list-style-type: none"> • Check if the water supply pressure is high enough to work. The RO controller box does not start the pump under low pressure. • Check if either high pressure switch or flush valve works. • Check if the fuse on transformer is burned; if so, then check if post in-line carbon filter (T33) or PP cartridges is blocked, it may cause the pump to be overloaded.
No operation at all	<ul style="list-style-type: none"> • Check if power supply is normal. • Check if the water supply ball valve has been turned on (check if water pressure is normal). • Check if the water storage tank is full of water.
No automatic operation	<ul style="list-style-type: none"> • Check if there is any wrong operation. • Check if the high and low pressure valve is normal.
Pump head leakage	<ul style="list-style-type: none"> • Check if post in-line carbon filter (T33) or PP cartridges are blocked, which may cause the leaking. Sometimes the leakage may be caused by the increased water pressure inside the pump head that cannot be released. If so, replace all the carbon cartridges and send the pump for repair. • Either a weakened membrane or the blocked scale could cause the leaking as well. • The water cannot flow out due to the blocked RO membrane, which is caused by a blocked flow restrictor. This causes the pump head to be filled with high pressure water that can cause a leak. Improve the relevant components.
No water purifying with pump normally working	<ul style="list-style-type: none"> • Maybe the RO membrane is blocked or the pump is out of pressure. If the RO membrane is blocked, replace it. If the pump has no pressure, check if it is due to either the pump having operated for too long or the filtering materials being blocked and the adequate maintenance not having been done, which may cause the pump structure to weaken. Send in the pump for repairing.
Lack of purified water outlet with filled tank	<ul style="list-style-type: none"> • The cause may be a lack of air inside the tank. Please recharge the air (7 psi) and check if tank has air leakage. If it does, please replace the tank. • If the post in-line carbon filter is blocked, replace the filter.
Continued dirt water discharging with the tap closed	<ul style="list-style-type: none"> • Check if flush valve is operating normally; otherwise, replace it. • The input water valve was damaged.
No complete stop or restart of RO system with filled tank	<ul style="list-style-type: none"> • High-pressure switch is out of work. Please repair or replace it. • Check if valve is releasing pressure and is not stuck. Please replace it.
Too little purified water volume	<ul style="list-style-type: none"> • Check if the filters are dirty or have served for too long. If the RO membrane is dirty or has not regularly been flushed, replace it. • Check if the water is too cold.
Water supply pressure quality beneath that of the new system	<ul style="list-style-type: none"> • Please replace the pump.

Disposal regulations

EU guidelines regarding the disposal of scrap electric appliances (WEEE, 2012/19/EU) were implemented in the law related to electrical and electronic equipment and appliances.

All WilTec electric devices that fall under the WEEE regulations are labelled with the crossed-out wheeled waste bin logo. This logo indicates that this electric equipment must not be disposed with the domestic waste.

The company WilTec Technik GmbH has been registered in the German registry EAR under the WEEE-registration number DE45283704.

Disposal of used electrical and electronic appliances (intended for use in the countries of the European Union and other European countries with a separate collection system for these appliances).

The logo on the article or on its packaging points out that this article must not be treated as normal household waste but must be disposed to a recycling collection point for electronic and electrical waste equipment. By contributing to the correct disposal of this article you protect the environment and the health of your fellow men. Environment and health are threatened by inappropriate disposal.



Materials' recycling helps reduce the consumption of raw materials.

Additional information on recycling this article can be provided by your local community, municipal waste disposal facilities or the store where you purchased the article.

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