Installation and operation instruction
WATEX
MC and CTC 8/9/10/12/13/14
WATER FILTRATION EQUIPMENT

Before installation and operation, carefully read the instruction!

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INTRODUCTION

We hope that the water treatment technology we offer will provide you with the comfort of clean water, help you save money, and reduce problems caused by dirty water. The WATEX MC and WATEX CTC series combine the latest technological solutions. Moreover, the equipment is easy to operate, as it does not require special monitoring. The unit will perform its functions if the requirements specified in this technical manual are followed.

TECHNICAL DESCRIPTION OF THE EQUIPMENT

WATEX MC and WATEX CTC series activated carbon filters are installed in private homes, apartment buildings, hotels, guesthouses, to improve the central water quality - reduce turbidity, neutralize odors and improve the taste.
Activated carbon filters also are widely used in various industries as breweries, beverage plants, food processing plants, wastewater treatment, etc.

Activated carbon is a natural product, made from coal, wood or coconut. Activated carbon filters can purify water from chlorine, chlorine dioxide, phenols, organic solvents, pesticides, odors, organics, etc.

The unit consists of a column and an automatic control unit. The column is filled with filtering material.

The MC an CTC models are filled with quartz sand of various fractions and activated carbon.

The Clack TC1 automatic control unit provides backwashing of the filtering material and removal of accumulated sediments after a preset programmed time.

The frequency and duration of backwashing depend on the level of contamination.
It is recommended to install pressure gauges before and after the unit to monitor pressure loss.
If there is excessive pressure loss, perform a filter backwash.

Prerequisites for normal operation of the equipment:
- Drainage connection
- Water pressure above 2.5 bar
- Room temperature above 0°C
- Water temperature up to 25°C
- Correct system connection

MC ACTIVATED CARBON FILTER TECHNICAL DATA

Technical parameters of equipment	Unit	Model			
		MC10	MC12	MC13	MC14
Flow rate* Q_{nom}	m^3/h	0.6	0.8	1.0	1.2
Flow rate** Q_{max}	m^3/h	1.2	1.7	2.1	2.4
Minimum flow rate for rinsing	m^3/h	1.2	1.8	2.1	2.5
The amount of water for regeneration ***	m^3	0.2	0.3	0.4	0.4
Tank size (diameter)	inches	10	12	13	14
	mm	250	300	330	360
Tank capacity	liters	64	85	110	145
The amount of filtering material in the tank	liters	43	57	73	97
Total size of					
Length	m	1.06	1.21	1.29	1.37
Width	m	0.25	0.30	0.33	0.36
Height	m	1.53	1.48	1.53	1.85
Connection in/exit/can.	inches	1″	1″	1″	1″
Filtration		turbidity, odour, color etc.			
Filter tank material		Composite - Fiberglass, PP			
Filtering material		Activated carbon, quartz sand 0,4 x 0,8 mm, 1x3 mm, 3x5 mm,			
Assembly connection pipes		PVC			
Operating pressure	bar	2-6			

* Filtration speed 12 m/h
** Filtration speed 24 m/h
*** Backwash 10 min

CTC ACTIVATED CARBON FILTER TECHNICAL DATA

Equipment technical specifications	Unit	Model					
		CTC8	CTC9	CTC10	CTC12	CTC13	CTC14
Flow rate* Q_{nom}	m^3/h	0.6	0.82	1.00	1.46	1.70	2.00
Minimum backwash intensity	m^3/h	0.7	0.8	1.0	1.5	1.7	2.0
Tank size (diameter)	inches	8	9	10	12	13	14
	m	0.20	0.23	0.25	0.30	0.33	0.36
Tank volume	liters	25	32	64	85	110	145
Amount of filtering media in the tank	liters	15	25	40	55	70	100
Total dimensions of the equipment							
Length	m	0.20	0.28	0.28	0.30	0.46	0.46
Width	m	0.20	0.28	0.28	0.30	0.46	0.46
Height	m	1.01	1.31	1.53	1.48	1.53	1.85
Water connection inlet/outlet/drain	inches	1”					
Filtration capabilities		Turbidity, odor, taste, organic substances					
Tank material		FRP (fiberglass) with PE inner lining					
Filter media		Granular activated carbon, quartz sand 0.4 x 0.8 mm, 1 x 3 mm, 3 x 5 mm					
Operating pressure	bar	2.5 – 6.0					

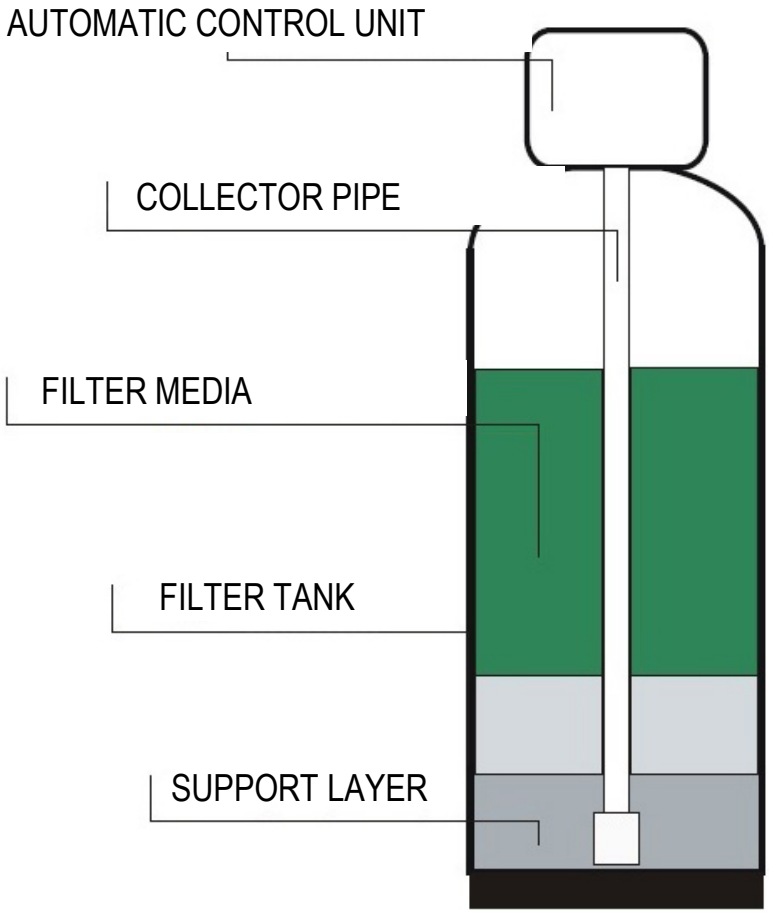
*** Filtration rate 20 m/h**

TRANSPORTATION

Note that the water treatment unit is heavy and fragile; the fiberglass tank cannot withstand mechanical impacts.
Any mechanical impact can affect the unit’s operation.
It is not recommended to shake, rock, or turn the unit upside down, as this can mix the layers of filtering material inside, causing some of the filtering material to flow out to consumers and the unit to malfunction.
The unit may only be moved in a horizontal (lying down) position.
Move the unit with a hand truck! If that is not possible, move it manually with two people.
When moving by hand, it is recommended to hold it at the top by the control unit housing (where the control unit connects to the tank) and at the bottom by the blue fiberglass tank.

SYSTEM OPERATION

Main Components of the System



The water purification system consists of three main basic components: a filter media tank, the filter media itself, and a control unit.
The filter tank is made of polyethylene and is externally reinforced with fiberglass winding to withstand pressure up to 10 atm. The tank is filled with gravel fractions of different sizes as a support layer. At the bottom, there is specially designed gravel for filters with a fraction size of 3.0x5.0 mm, followed by gravel with a fraction size of 1.0x3.0 mm. These layers primarily serve as support for the filter media to prevent it from entering the water supply system after filtration. During backwash, they help evenly distribute the water flow to fluidize the filter media across the entire filter bed.
The tank also contains a collector pipe, whose lower part is equipped with a screen of specific mesh size to prevent filter media from entering the water supply system. Through the collector pipe, the purified water is delivered from bottom to top to the control unit and then to the consumers.

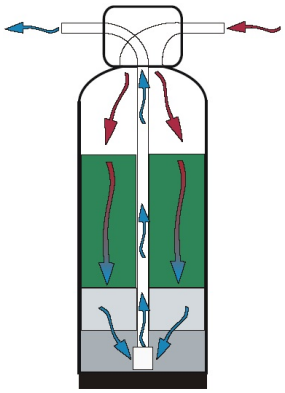
WATER FILTER CONTROL UNIT

The device has an automatic control unit mounted on the filter tank, which manages the backwashing of the filter media and the discharge of accumulated impurities to the sewage system. The control unit is made of plastic alloy. The front part houses the control panel, while the back part contains the connection ports for the water supply and sewage.
The control unit operates on electrical power from a 220 V outlet. It contains a motherboard where all the parameters of the backwash process are stored and regulated. When a backwash cycle is required, the motherboard supplies power to the built-in motor, which shifts the cylindrical mechanism inside the unit to a specified position.
The backwash algorithm is time-controlled.
The device is programmed before delivery to the customer. The customer can adjust the backwash frequency according to their consumption, water quality, and pressure loss.

SYSTEM OPERATION

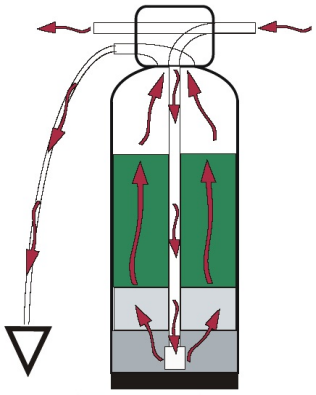
The operation of the device consists of three main basic cycles – service cycle, backwash cycle, and rinse cycle.

Service Cycle



During the service cycle, water enters the control unit through the untreated water inlet, then flows from the top into the filter tank, passes through the filter media to purify the water, and finally returns through the collector pipe back to the control unit, from where it flows out through the treated water outlet to the consumers.

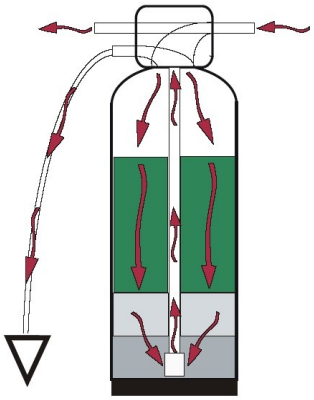
Backwash Cycle



The system requires a backwash cycle to remove accumulated substances (iron, manganese, turbidity, sand, clay particles, etc.) from the filter and to restore the filtering media's ability to clean contaminants. The frequency of backwashing is determined by the operator based on daily observations.
It is recommended to install pressure gauges before and after the filter to monitor pressure loss and to initiate backwashing accordingly.

The cycle duration is 8 minutes.

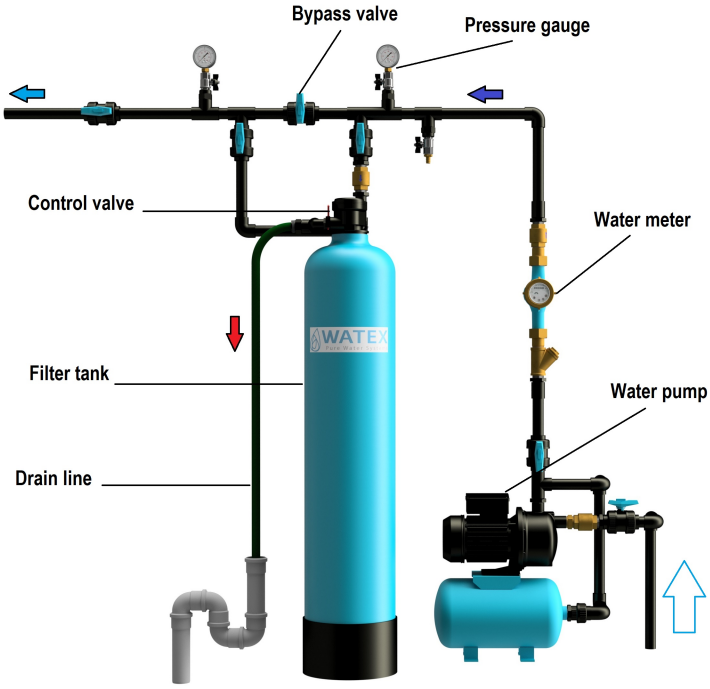
Rinse



Rinse flow is necessary to allow the filter media fractions to settle into layers (filtration mode) and to flush excess turbidity from the filter tank to the drainage system. In the filter tank, water flows from the top to the bottom, then through the collector pipe upwards and out to the drainage. The flow rate is regulated by the rinse seal (DLFC) installed in the bend of the drainage connection.

The cycle duration is 4 minutes.

RECOMMENDED ASSEMBLY DIAGRAM FOR THE MC KIT

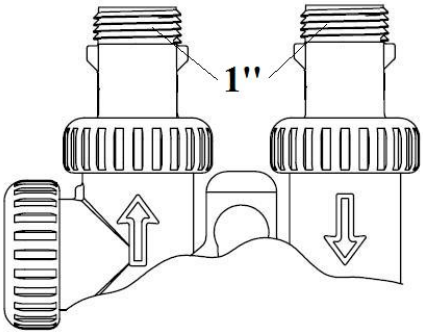


General Conditions

The tank must be placed on a flat, level surface.
The control unit and connection fittings are not designed to bear the weight of the water supply system.
All sanitary and technical work must be carried out in accordance with applicable legislation.
The device must ensure continuous water supply with water quality variation not exceeding 30% and pressure within the range of 2.5 to 6.0 bar. The device must not be subjected to negative pressure (vacuum).
Ensure that water entering the device does not exceed a temperature of +40°C.
The ambient temperature must not be lower than +2°C or higher than +45°C.

Do not use petroleum jelly, oils, hydrocarbon greases, or aerosol silicone on the device's connections. Silicone grease may be used on the black O-ring seals, but it is not required.
Nuts and ferrules are designed to be tightened or loosened by hand. If it is necessary to loosen tightly fastened nuts or ferrules, pliers may be used carefully to avoid damaging plastic parts. Do not use a pipe wrench for tightening or loosening nuts or ferrules.
Do not place a screwdriver into the ferrule openings or strike them with a hammer! Place the water filter so that the distance between the sewage outlet and the filter is as short as possible.
Perform general preventive maintenance of the device at least once a year.

Water Supply Connection Sewer Connection

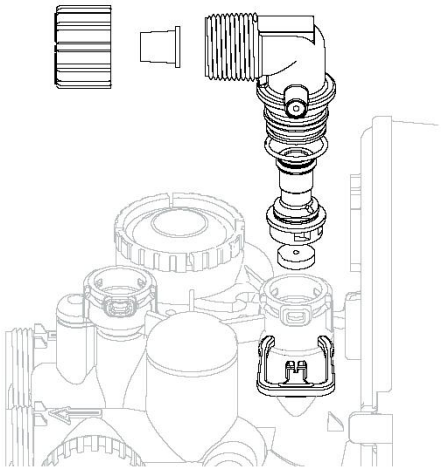


The water purification device has water pipe connection points on its back side. Each connection is marked with arrows indicating the inlet and outlet. When facing the device from the front, the inlet is on the right side and the outlet on the left side. The external thread size for the water pipe connections to the device is 1 inch for the inlet, outlet, and sewage connection. The plastic threaded fitting is a screw-type and can freely rotate while maintaining a seal. Therefore, it is not necessary to tighten the connections to the control unit housing very tightly (hand-tightening is sufficient). Teflon tape must be used on the plastic threads.
The type of piping material used to connect to the device is not critical. The main point is that the device should not bear the weight of the water supply system.
The device can be connected using fusion-welded, glued, or threaded plastic pipes. It can also be connected with flexible metal pipes or brass soldered pipes.
Note: *Soldering of the solderable pipes must be done before connecting them to the control unit's plastic fittings. Failure to do so may cause internal damage to the plastic fittings and compromise the seal.*
The soldered fittings should be allowed to cool before connection. Avoid getting soldering flux on any part of the connection fittings.
It is recommended to install a bypass valve on the water filter, as shown in the diagram, as well as valves before the inlet and outlet.

During normal operation, the bypass valve is closed, while the inlet and outlet valves are open. If preventive maintenance or repairs are required, it is possible to supply untreated water directly to the consumers.
It is also recommended to install sampling valves before and after the device to monitor water quality of untreated and freshly treated water. Additionally, pressure gauges should be installed before and after the device to monitor pressure loss.

Sewer Connection

The system requires a connection to the drainage to ensure regular flushing. During the flushing process, accumulated impurities (turbidity, iron, sand, clay, etc.) are discharged from the system.



We recommend using a garden hose to direct the flushing water from the system to the main drainage system.
Important: *Ensure that the drainage pipe does not come loose during flushing. Secure it firmly!*
Important: *Ensure that the garden hose does not bend or get compressed, as this will reduce the flushing water flow and may cause incomplete flushing of the system, potentially leading to poor water quality supply.*

The sewage pipe can be connected to the main sewer approximately 0.5 meters higher than the control unit, but during the first flushing cycles, it is necessary to monitor whether the equipment is flushing properly.
If proper flushing does not occur, consult the technical center of SIA "WATEX".
Important: The sewage drainage pipe must not be smaller than D40.
Important: Never insert the discharge pipe directly into the sewer or receiver. Always allow air access between the discharge pipe and the tank to prevent backflow.
Important: To prevent sewer odors and bacterial contamination of the filter, it is recommended to install a water trap or siphon before connecting to the sewage system.

Electrical Connection

The equipment set includes a power transformer designed for 220 V voltage. The power supply to the unit must be continuous. The transformer is intended for dry locations only.
Note: All electrical connections must be carried out in accordance with local legislation.
Ensure continuous power supply located no further than 2 meters from the water filter.
The transformer cable ends with a rectangular connector that must be connected inside the control block to the motherboard. To do this, follow these steps:

1. Remove the front button panel from the control block.

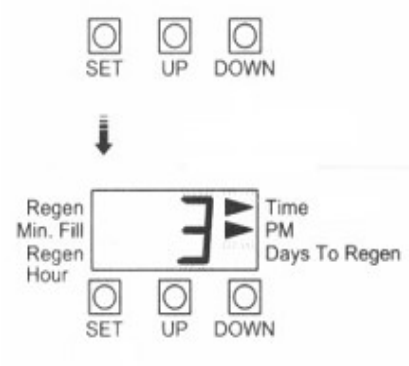
2. At the top, release the middle locking tab that holds the motherboard frame in the control block.
3. On the right side of the plastic wall of the control block, there is an opening through which the transformer end cable must be pulled out.
4. Connect the cable end to the terminal pins at the lower right part of the motherboard.
5. Pull the rest of the cable along the side of the motherboard frame behind the specially designed clamps.
6. Push the motherboard frame back until the locking tab clicks and secure it in the initial position.
7. Put the front button panel back on.

It is possible that the unit already has a transformer connected to the control block's motherboard.

PROGRAMMING

Setting the Time

If the time needs to be reset or there has been a power outage, the correct time must be set. For this control unit, both hours and minutes need to be set. All other information will be retained in memory regardless of the duration of the power outage. To set the time, proceed as follows:



1. To start setting the time, press and hold "SET" for 4 seconds until the hour digits start blinking.
2. Use the "UP Δ" and "DOWN ∇" buttons to set the current hour.
3. Press "SET" and use the "UP Δ" and "DOWN ∇" buttons to set the current minutes.
4. Press "SET" to finish the setup and return to normal operation mode. The display will show the set time, which will no longer blink.

Setting the Backwash Days and Time

Press and hold the "SET" button and the up arrow Δ simultaneously for 4 seconds until:

1. In the lower left corner, an arrow and the number “2” will start blinking. This indicates the start time of the regeneration cycle at 2:00 AM. Use the “UP Δ” and “DOWN ∇” buttons to set the desired regeneration start hour. Press “SET” and use the “UP Δ” and “DOWN ∇” buttons to set the desired minutes.
2. Press “SET” and in the lower right corner, an arrow and the number “4” will start blinking. This indicates the rinse interval (number of days). Use the “UP Δ” and “DOWN ∇” buttons to set the desired rinse interval (how often the filter performs regeneration in days).
3. Press “SET” to finish the setup and return to normal operation mode. The display will show the current time.

Configuring rinse days and times (weekly cycle)

Press and hold the "SET" button and the Δ arrow simultaneously for 4 seconds until:

1. In the lower left corner, an arrow and the number "2" will start blinking. This indicates the start time of the regeneration cycle at 2:00 AM. Use the "UP Δ" and "DOWN ∇" buttons to set the desired regeneration start hour. Press "SET" and use the "UP Δ" and "DOWN ∇" buttons to set the desired minutes.

2. Press "SET" and the symbol DAY1 (or DAY1–DAY7) will appear. This indicates the current day. The table shows the meaning of each day's symbol.

D1	**Monday**
D2	**Tuesday**
D3	**Wednesday**
D4	**Thursday**
D5	**Friday**
D6	**Saturday**
D7	**Sunday**

Use the "UP Δ" and "DOWN ∇" buttons to change the current day and confirm by pressing "SET".

3. The display shows D1. At this point, you program on which days the device will perform regeneration. Use the "UP Δ" and "DOWN ∇" buttons to change the mode. If an arrow appears next to the word "Regen" on the display, regeneration will be performed on that day. So, if there is an arrow next to D1, the device will regenerate on Monday night at the pre-set time.
4. Press "SET" and D2 appears. Again, use the "UP Δ" and "DOWN ∇" buttons to change the mode. If an arrow appears next to "Regen" on the display, regeneration will be performed on that day.
5. Press "SET" and set the desired parameter for all days up to D7.
6. After programming, the control unit returns to the state where the current time is displayed. Thus, the setup cycle is complete and all settings are saved.

Manual Backwash

Sometimes it is necessary to perform regeneration earlier than the system determines it is needed. This is usually called manual regeneration. It may happen that there was a period when more water was used than usual, for example, when guests were visiting or more laundry was done, etc.

To start manual regeneration at the preset delayed regeneration time, press and hold the ∇ and Δ buttons simultaneously and release them. Then an arrow will appear on the display next to the word "Regen," indicating that the system will start regeneration at the preset regeneration time (2:00 AM).

If you accidentally pressed the ∇ and Δ buttons, pressing them again will cancel the request.

To start manual regeneration immediately, press and hold the ∇ and Δ buttons for 4 seconds. The system will start regeneration immediately. This request cannot be canceled.
When the system begins regeneration, the display will change to show information about the current regeneration cycle. The system will automatically go through the regeneration steps, and when the regeneration is complete, it will set itself to water treatment mode.

INITIAL START-UP

Initial Start-Up Procedure of the Equipment:

1. Perform installation work of the water supply and sewer pipes.
2. Place the equipment in its designated location.
3. Before start-up, the outlet water valve must be closed.
4. Slowly open the valve installed before the filter to fill with water and equalize pressure.
5. Turn on the filter in washing mode by simultaneously pressing the up and down arrow buttons.
6. Slowly open the incoming water valve, observing the sewer outlet to ensure no filter media is being washed out.
7. Wait until the filter completes the Backwash and Flowwash cycles.
8. Open the outlet water valve.

Please note that initially, the water from the tap may appear white or black. These are dust particles from the filter media being flushed out.

We wish you pleasant use of clean water!

PROBLEMS AND SOLUTIONS

Problem	Possible Causes	Solution
1. The timer does not display the time.	a. Transformer pulled out	a. Connect the power supply
	b. No electricity in the socket	b. Repair the socket or use a different socket
	c. Damaged transformer	c. Replace the transformer
	d. Damaged electronic board	d. Replace the electronic board
2. The timer does not show the correct time.	a. Socket has been turned off	a. Reset the time
	b. Power outage	b. Reset the time
	c. Damaged electronic board	c. Replace the electronic board
3. The control unit performs regeneration at the wrong time.	a. Power outages have occurred	a. Set the correct time on the control unit
	b. Incorrect time set	b. Set the correct time
	c. Incorrect regeneration time	c. Reset the regeneration time
	d. Control unit set for immediate regeneration	d. Check the control unit installation procedures for the regeneration time option
4. Error with code number: 1001 or E1 – Unable to recognize the start of regeneration. 1002 or E2 – Unexpected stop. 1003 or E3 – Motor runs too long, trying to adjust to reach the next regeneration cycle position. 1004 – Motor runs too long, trying to adjust to reach the initial position. If any other code appears, please contact SIA WATEX	a. Control unit has just been serviced	a. Press and hold SET and ∇ for 3 seconds or unplug the power cord and plug it back in to reset the control unit
	b. Something stuck in the control unit	b. Check the plunger and spacer block for any jams
	c. High drive pressure pushing on the plunger	c. Replace plunger(s) and spacer block components
	d. Control unit plunger not in home position	d. Press and hold SET and ∇ for 3 seconds or unplug the (black) power cord and plug it back in to reset the control unit
	e. Motor not fully engaged to reach drive gear, motor wires damaged or disconnected, motor failure	e. Check the motor and wiring. Replace the motor if necessary
	f. Drive mechanism label damaged or dirty, mechanism missing or broken	f. Replace or clean the drive mechanism
	g. Drive base incorrectly inserted into the plate	g. Thoroughly check the drive bracket

staff.	h. Electronic board damaged or defective	h. Replace the electronic board
	i. The electronic board is improperly connected to the drive base	i. Make sure the electronic board is securely connected to the drive bracket
5. The control unit has stopped during regeneration	a. The motor is not working	a. Replace the motor
	b. No electricity in the socket	b. Repair the socket or use a different socket
	c. Damaged transformer	c. Replace the transformer
	d. Damaged electronic board	d. Replace the electronic board
	e. Damaged drive mechanism or drive cover component	e. Replace the drive mechanism or drive cover component
	f. Damaged plunger holder	f. Replace the plunger holder
	g. Damaged main plunger or regeneration plunger	g. Replace the main plunger or regeneration plunger
6. The control unit does not perform regeneration automatically	a. Transformer has been unplugged	a. Plug the transformer into the socket
	b. No electricity in the socket	b. Repair the socket or use a different socket
	c. Damaged drive mechanism or drive cover component	c. Replace the drive mechanism or drive cover component
	d. Damaged electronic board	d. Replace the electronic board
7. The time is blinking: appears and disappears	a. Power outage lasted longer than 2 hours, transformer was unplugged and then plugged back in, transformer plug was unplugged and then reconnected to the board to reset the control unit	a. Reset the time

8. Deterioration of water quality	a. Insufficiently backwashed filter media	a. Check the backwash intensity
	b. Activated carbon capacity (resource) exhausted in the CTC model	b. Replace the filter media
	c. Incoming water quality has changed	c. Check the water quality, send water samples for laboratory testing
9. Condensation on the tank	Cold water in the tank and warm air in the room cause condensation to form on the surface of the filter tank.	Install condensation insulation, which can be purchased from the WATEX online store

RECOMMENDATIONS

It is recommended to perform maintenance of the system once a year.
The frequency of replacing the filter media depends on the quality of the incoming water.
If the quality of the incoming and outgoing water remains unchanged, it is the right time to check the quality and replace the filter media.
For questions and consultations, please contact the specialists at SIA Watex.

WARRANTY TERMS AND CONDITIONS

The warranty period specified by the manufacturer for the equipment you purchased is 24 (twenty-four) months.
The equipment must undergo regular maintenance at least once a year.
Warranty obligations are provided in accordance with the manufacturer's warranty terms stated in the product's technical manual and the supplier's conditions outlined below.
The supplier provides a technical manual with each product – in the original language, unless otherwise requested. The buyer is responsible for adhering to the technical specifications of the product and for its proper use.
Warranty obligations apply only in cases where the product has defects caused by the manufacturer and the user has used the product in accordance with the instructions specified in the technical manual. In such cases, defects are remedied at the supplier's expense, i.e., by SIA WATEX.

Warranty obligations do **not** apply in the following cases:

1. The product is mechanically damaged or the manufacturer's labels are tampered with;
2. The product is kept in unsuitable conditions;
3. User rights have been violated, e.g., the product has been disassembled or repaired by the user;
4. The product is damaged as a result of force majeure: such conditions include circumstances beyond the control of the buyer and supplier, which they could not foresee and cannot prevent through reasonable actions (these include fires, floods, earthquakes, acts of war, monetary reforms, etc.);
5. If the product was not installed by the supplier, then during the warranty period the defective product must be delivered by the buyer to the SIA WATEX office; if the product was delivered, installed, adjusted, and commissioned by an official representative of SIA WATEX, the warranty is provided on-site at the customer's location.

For warranty-related matters, please contact the responsible persons at SIA WATEX.