

Installation and operation manual

WATEX CMB-10/12/13/14 IRON REMOVAL WATER FILTER



Watch the CMB filter
start-up video:



More information:
<https://veefiltrid.ee/en/watex-cmb10-rauaeraldusfilter>

Read these instructions carefully before use.

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INTRODUCTION

We hope your water filter provides the comfort of clean water, lowers operating costs and reduces problems caused by poor water quality.

The WATEX CMB series combines proven aeration and catalytic-filtration technology.

The filter is easy to operate and requires no routine manual control. It works automatically when installed and operated in accordance with this manual.

TECHNICAL DESCRIPTION

The CMB series removes iron, turbidity and odours from water without added chemicals.

The filter consists of a media tank and an automatic control valve. The tank contains graded quartz sand and catalytic AquaMandix filter media.

The CLACK WS1CI automatic control valve (USA) regenerates the filter by backwashing the media, discharging accumulated sediment and drawing in air. Regeneration can be scheduled by time and treated-water volume.

The electronic controller retains its settings during a power failure. Regeneration time, interval and other operating parameters can be adjusted to suit the installation.

Requirements for correct filter operation:

- Drain connection
- Continuous 220 V power supply
- Water pressure above 2.5 bar
- Room temperature above 0 °C
- Water temperature up to 25 °C
- Correct system installation

KEY FILTER SPECIFICATIONS

SPECIFICATIONS	FILTER MODEL			
	CMB-10	CMB-12	CMB-13	CMB-14
Nominal flow rate (m ³ /h)	0,6	0,9	1,0	1,2
Maximum flow rate (m ³ /h)	3,0	4,0	5,0	5,0
Filter-tank dimensions (cm)	25 x 157	30 x 157	33 x 158	35 x 182
Tank capacity (litres)	50	79	105	145
Filter-media volume (litres)	30	50	70	90
Quartz sand 3 × 5 mm (litres)	5	7	8	
Quartz sand 1 × 3 mm (litres)	5	7	8	
Quartz sand 0.7 × 1.25 mm (litres)	7	9	12	
Quartz sand 0.4 × 0.8 mm (litres)	12	17	20	
AquaMandix (litres)	10	12.5	15	
Backwash flow rate (m ³ /h)	1.2	1.8	2.1	2.4
Water used per regeneration (litres)	~160	~220	~270	~320
Drain-line flow-control washer	053	065	075	090
Injector	Blue	Yellow	Green	Orange
Regeneration cycle – backwash (min)	8	8	8	8
Regeneration cycle – air draw (min)	27	30	35	40
Water connection size (inches)	1"			
Drain connection size (inches)	¾"			
Operating pressure (bar)	2.5 - 6			
Power consumption	10 W			

1. HANDLING AND RELOCATION

The water filter is heavy and must be handled carefully. The fibreglass-reinforced tank can be damaged by impact.

Mechanical impact can impair filter operation.

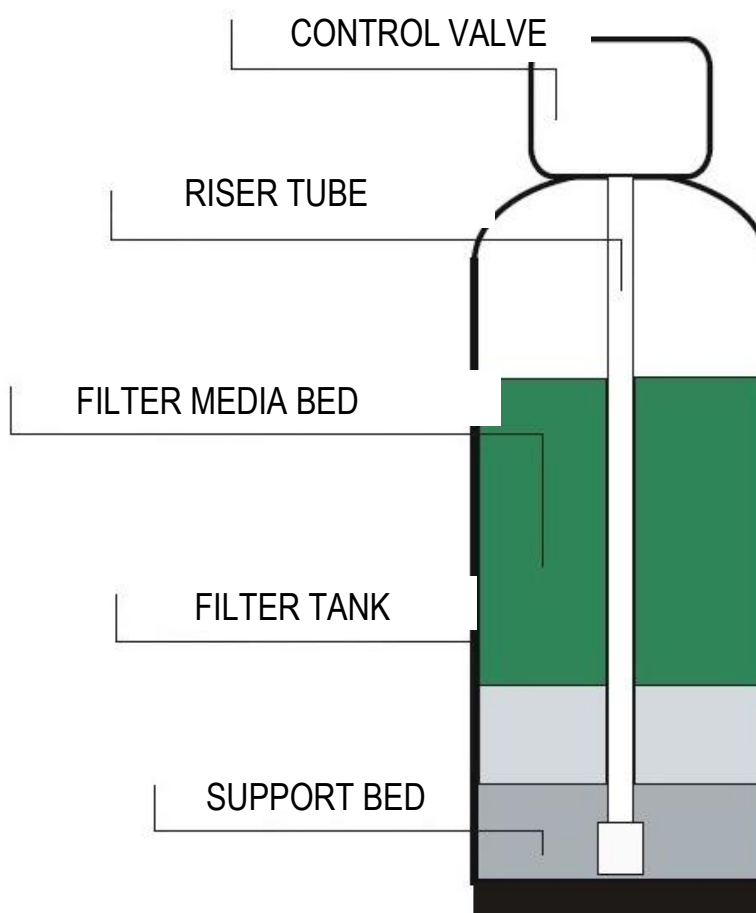
Do not tilt, roll or turn the filter upside down. The media layers can mix, allowing media to enter the water system and preventing correct operation.

Move the filter on a trolley. If this is not possible, two people must carry it.

When carrying the filter, grip the neck below the control valve and the blue fibreglass tank. Never lift it by the black bottom boot; the boot is not fixed to the tank and the filter can fall.

2. SYSTEM OPERATION

2.1. *Basic system components*



The filter has three main components: the media tank, the internal distributor assembly and the control valve.

The polyethylene tank is externally reinforced with fibreglass and is rated for pressure up to 10 atm. Graded support gravel forms the underbed: 3×5 mm gravel at the bottom followed by 1×3 mm gravel. These layers support the filter media and help prevent it from entering the treated-water line. During backwash, the underbed distributes flow evenly through the media bed.

Iron removal uses 0.7×1.25 mm and 0.4×0.8 mm quartz sand together with AquaMandix. The catalytic manganese-oxide surface promotes oxidation of iron, manganese and hydrogen sulphide. An air cushion in the upper part of the tank assists oxidation and odour removal.

A riser tube with a bottom distributor prevents filter media from entering the water system. Treated water flows up the riser tube to the control valve and then to the service line.

2.2. Control valve



A CLACK WS1CI control valve installed on the media tank controls automatic regeneration.

The control-valve body is made of engineered plastic. The control panel is at the front; the water and drain connections are at the rear.

The control valve operates from a 220 V power adapter. Its circuit board stores and controls the regeneration parameters. During regeneration, the board drives the internal motor, which positions the valve piston for each cycle stage.

A built-in meter in the outlet manifold

measures treated-water consumption.

The regeneration programme uses the treated-water volume measured by the built-in meter.

2.3. **SYSTEM OPERATION**

The filter has two operating cycles: service and regeneration.

Service cycle

During service, untreated water enters the control valve, flows downward through the filter media and is treated. It then rises through the distributor and riser tube, returns to the control valve and leaves through the treated-water outlet.

When water is used during service, the display shows “FILTERING”. The display can also show the instantaneous flow rate and remaining treated-water capacity.

Service-cycle duration depends on inlet-water quality and filter-media volume. The built-in meter measures consumption, and the controller permits the treated-water capacity (m³) to be set. After the preset capacity is reached, regeneration starts at the programmed time (factory setting: 2:00 a.m.).

The regeneration start time can be adjusted on the electronic display.

2.4. **Regeneration-cycle stages**

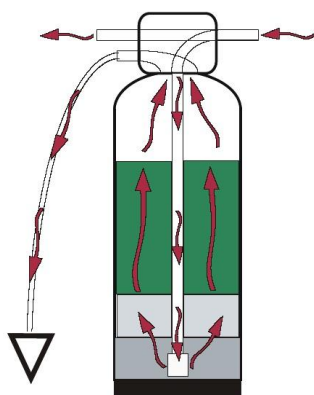
Regeneration removes iron, manganese, silt, sand, clay and other material accumulated in the media and restores filtration capacity. The built-in meter measures treated-water consumption; when the set capacity in m³ is reached, the controller schedules regeneration.

Regeneration takes approximately 35–48 minutes and consists of several stages.

The stage sequence can be changed on the controller; use the factory sequence unless instructed otherwise by WATEX service personnel.

The two main stages are backwash and air draw.

Untreated water remains available during regeneration. Schedule regeneration for a period of low water use, usually at night.



2.4.1. **Backwash stage**

During backwash, flow through the tank is reversed: water rises through the media and is discharged to the drain.

This stage loosens the media bed and removes accumulated contaminants.

Insufficient backwashing reduces treatment capacity and increases pressure loss across the filter.

This stage lasts about 8 minutes. Flow is limited by the drain-line flow-control washer in the drain elbow.

2.4.2. Air-draw stage

During air draw, ambient air enters through the injector and restores the air cushion used to oxidise iron and remove odours. If air is not drawn in, the filter cannot operate correctly.

This is therefore a critical regeneration stage.

This stage lasts approximately 27–40 minutes.

Air injection
check valve



3. INSTALLATION

3.1. General requirements

Place the filter on a flat, level surface.

Install the filter in a suitable plant room. Drain flow can be heard during regeneration, which normally occurs at night, so acoustic separation is recommended.

The control valve and connection fittings must not support the weight of the pipework.

All plumbing work must comply with applicable regulations.

Provide a continuous water supply at 2.0–3.5 bar. Inlet-water quality should not vary by more than 30% from the design basis.

Do not allow water hotter than +40 °C to enter the filter.

Keep the room temperature between +5 °C and +45 °C.

Do not use petroleum jelly, oils, hydrocarbon lubricants or silicone spray on filter connections. Food-grade silicone grease may be used sparingly on black O-rings.

Union nuts and caps are designed for hand tightening or the specified plastic service wrench. Pliers may be used carefully to release a tight union, without damaging plastic parts. Do not use metal spanners or socket wrenches for tightening.

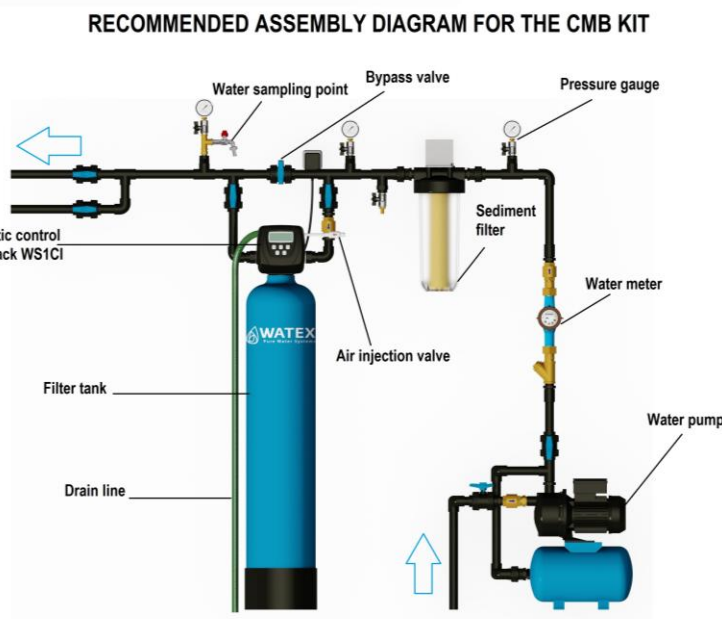
Do not insert a screwdriver into union or cap openings, and never strike them with a hammer.

PTFE tape is not required on the drain and injector connection fittings.

Position the filter as close as practical to the drain point.

Have the system inspected and serviced at least once a year.

Typical installation example



3.2. Water connections

The water connections are at the rear and are marked with flow-direction arrows. Viewed from the front, the inlet is on the right and the outlet on the left. Both ports have 1-inch male threads. The swivelling plastic unions can be aligned without compromising the seal; tighten the union nuts by hand only.

Use PTFE tape on tapered plastic pipe threads where specified.

Compatible metal or plastic pipework may be used. Support all pipework independently so that its weight is not transferred to the filter.

The filter may be connected using threaded metal pipe, solvent-welded or threaded PVC, flexible metal connectors or soldered copper/brass pipework.

Note: Complete all soldering before connecting pipework to the plastic control-valve fittings. Heat can damage the fittings and cause leakage.

Allow soldered fittings to cool completely and keep flux away from all plastic connection parts.

Install a bypass valve as shown, together with isolation and sampling valves upstream and downstream.

During normal operation, the bypass is closed and both isolation

valves are open. During maintenance, the bypass can supply untreated water to the building.

Install sampling valves before and after the filter to compare untreated and treated water.

Upstream and downstream pressure gauges are also recommended for monitoring pressure loss.

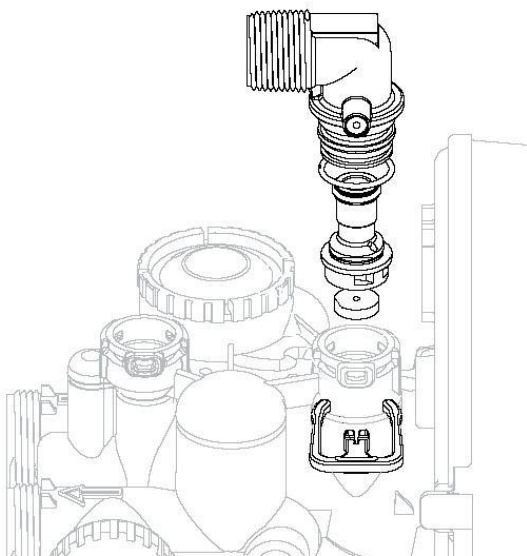
Install an upstream sediment pre-filter to stop borehole sand and other particles from clogging the control valve and internal components.

3.3. Drain connection

A drain connection is required for regeneration. Backwash water carries away the exhausted air cushion and accumulated silt, iron, sand, clay and other contaminants.

The drain connection is at the top of the control valve. Use suitably rated drain tubing to convey regeneration water to the drainage system.

Note: The drain elbow is sealed with an O-ring and can be rotated through 270° to the required direction.



Important: Secure the drain line so that it cannot move or come loose during regeneration.

Important: Do not kink or restrict the drain hose. Reduced backwash flow can prevent complete regeneration and impair water quality.

The drain line may discharge up to approximately 0.5 m above the control valve. During the first regenerations, confirm that full backwash flow is achieved.

If backwash is incomplete, contact WATEX technical support.

Important: A gravity drain receiving pipe must be at least DN40.

Important: Never insert the drain hose directly into a sealed drain. Maintain an air gap between the hose and the drain receptor to prevent backflow.

Important: Use a trapped drain where required to prevent sewer gas and microbiological contamination from reaching the filter.

3.4. Electrical connection

The filter is supplied with a 220 V AC power adapter. The power supply must be continuous. Bond and earth metal pipework as required by local regulations. Use the power adapter in a dry indoor location only.

Note: All electrical work must comply with local regulations. Provide a continuously energised outlet within 2 m of the filter.

The power-adapter lead has a rectangular plug that connects to the circuit board inside the control valve. Proceed as follows:

1. Remove the front cover of the control valve.
2. Release the central upper retaining tab that secures the circuit-board frame.
3. Route the power-adapter plug through the opening in the right-hand wall of the control valve.
4. Connect the plug to the socket at the lower right of the circuit board.
5. Route the remaining cable alongside the circuit-board frame and secure it under the cable clips.

6. Return the circuit-board frame to its original position and engage the retaining tab.
7. Refit the front control-panel cover.

4. FIRST START-UP

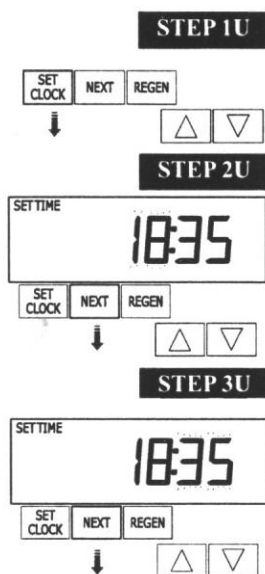
Watch the CMB filter start-up video



All key WATEX CMB operating parameters are normally set by the service centre. At first start-up, only the current time should need to be set.

4.1. *Setting the time*

Set the correct time when the filter is first connected, after a prolonged power failure and when changing between summer and winter time. A flashing time display indicates that the clock must be reset.



STEP 1U – Press SET CLOCK.

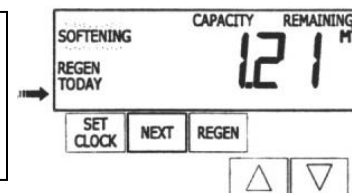
STEP 2U – The hour flashes. Use ▼ and ▲ to set the hour, then press NEXT to continue to Step 3U.

STEP 3U – The minutes flash. Use ▼ and ▲ to set the minutes, then press NEXT to exit.

4.2. *Manual regeneration*

Regeneration may be required before the controller schedules it; this is referred to as manual regeneration.

REGEN TODAY
flashes:
regeneration
tonight.



Water may have been used more heavily than usual, for example because of guests or additional laundry.

To schedule manual regeneration for the programmed regeneration time, press and release REGEN. “REGEN TODAY” flashes on the display. Press REGEN again to cancel the request.

To start regeneration immediately, press and hold REGEN for 3 seconds. Once started, this command cannot be cancelled.

During regeneration, the display shows the current stage and its remaining time. The controller advances through all stages automatically and returns to service when regeneration is complete.

4.3. Setting regeneration stages and capacity

Regeneration-stage durations should be changed only when required for the installation. Proceed as follows:

Press and hold NEXT and the ▽ DOWN button simultaneously for 3 seconds.

- 1) “FILTERING” flashes in the upper-left corner.
- 2) Press NEXT. The first stage, “BACKWASH”, and its duration in minutes are displayed.
Use ▽ and ▲ to adjust the duration.
- 3) Press NEXT. The second stage, “BRINE” (air draw), and its duration in minutes are displayed. Use ▽ and ▲ to adjust it, then press NEXT.

The controller exits the setting mode and saves all changes.

4.4. Setting the regeneration interval and time

Schedule regeneration for a period of low water use, normally while occupants are asleep. If water is used during regeneration, untreated water is supplied.

Press and hold NEXT and the ▲ UP button simultaneously for 3 seconds until the settings screen appears.

- 1) The number “14” flashes in the lower-right corner, indicating regeneration every 14 days. Use ▲ and ▽ to set the interval in days, then press NEXT.
- 2) An arrow and “2” flash in the lower-left corner, indicating a 2:00 a.m. start.

- Set the regeneration start hour **with** Δ **and** ∇ . Press NEXT, then set **the** minutes with Δ **and** ∇ .
- 3) Press **NEXT** to save the settings and return to normal operation. The display shows the current time.

4.5. *Operating display*

During operation, press NEXT to cycle through three displays: current time; days or treated-water volume (m³) remaining before regeneration; and the current treated-water flow rate.

Continue pressing NEXT to return to the time display. If regeneration is scheduled for the programmed time, the display shows “REGEN TODAY”.

5. TROUBLESHOOTING

Problem	Probable cause	Solution
1. The controller does not display the time	a. Power adapter is disconnected	a. Reconnect the power adapter
	b. No voltage at the outlet	b. Repair the outlet or use another live outlet
	c. Power adapter is faulty	c. Replace the power adapter
	d. Circuit board is damaged	d. Replace the circuit board
2. The controller shows the wrong time	a. Outlet connection is interrupted	a. Use another live outlet
	b. Power failure occurred	b. Reset the time
	c. Circuit board is damaged	c. Replace the circuit board
3. "FILTERING" is not displayed while water flows	a. Water is flowing through the bypass	a. Set the bypass to service
	b. Meter cable is disconnected	b. Reconnect the meter to the circuit board
	c. Meter turbine is jammed or stopped	c. Remove the meter and check for foreign material
	d. Meter is damaged	d. Replace the meter
	e. Circuit board is damaged	e. Replace the circuit board
4. The control valve regenerates at the wrong time	a. A power outage occurred	a. Set the correct time on the controller
	b. Current time is set incorrectly	b. Set the correct current time
	c. Regeneration time is incorrect	c. Reset the regeneration time
	d. Immediate regeneration is selected	d. Check the regeneration-time setting
5. An error code is displayed 1001 or E1 – Unable to detect the start of regeneration 1002 or E2 – Unexpected stop 1003 or E3 – Motor runs too long while seeking the next regeneration position 1004 – Motor runs too long while seeking the home position If another code appears, contact WATEX technical support.	a. Control valve has just been serviced	a. Hold NEXT and REGEN for 3 seconds, or disconnect and reconnect the black power lead to reset the valve
	b. Control valve is jammed	b. Check the piston and spacer stack for binding
	c. Excessive drive force on the piston	c. Replace the piston and spacer-stack components
	d. Control-valve piston is not in the <i>home</i> position	d. Hold NEXT and REGEN for 3 seconds, or disconnect and reconnect the black power lead to reset the valve
	e. Motor is not engaged with the drive gear; wiring is damaged or disconnected; or motor is faulty	e. Check the motor and wiring; replace the motor if necessary
	f. Drive position label is dirty or damaged, or the drive mechanism is missing or damaged	f. Clean or replace the drive mechanism
	g. Drive bracket is fitted incorrectly	g. Check and refit the drive bracket
	h. Circuit board is damaged or defective	h. Replace the circuit board
	i. Circuit board is not seated correctly on the drive bracket	i. Seat the circuit board correctly on the drive bracket

6. The control valve stops during regeneration	a. Motor does not run	a. Replace the motor
	b. No voltage at the outlet	b. Repair the outlet or use another live outlet
	c. Power adapter is damaged	c. Replace the power adapter
	d. Circuit board is damaged	d. Replace the circuit board
	e. Drive assembly or drive cap is faulty	e. Replace the faulty drive component
	f. Piston holder is damaged	f. Replace the piston holder
	g. Main or regeneration piston is defective	g. Replace the defective piston
7. The control valve does not regenerate when REGEN is held	a. Power adapter is disconnected	a. Reconnect the power adapter
	b. No voltage at the outlet	b. Repair the outlet or use another live outlet
	c. Drive assembly or drive cap is faulty	c. Replace the faulty drive component
	d. Circuit board is damaged	d. Replace the circuit board
8. The valve regenerates manually but not automatically	a. Water is flowing through the bypass	a. Set the bypass to service
	b. Meter cable is disconnected	b. Connect the meter to the circuit board
	c. Meter turbine is jammed or stopped	c. Remove the meter and check for foreign material
	d. Meter is damaged	d. Replace the meter
	e. Circuit board is damaged	e. Replace the control board
	f. Settings are incorrect	f. Check the control-valve settings
9. The time display flashes	Power was interrupted for more than 2 hours; the power adapter or its circuit-board plug was disconnected and reconnected; or NEXT and REGEN were pressed to reset the controller.	a. Reset the time