



Maxwell

Tankless Electric Water Heater MS-C2PSU Series



Installation and Instructions Manual

Keep this Instructions Manual in a safe place once your unit is installed. You may need to refer to it for general instructions or future maintenance.

Thank you for purchasing a quality Maxwell tank-less electric water heater.
 To enjoy your new shower at its best, please take time to read this manual thoroughly
 and having done so keep it handy for future reference.

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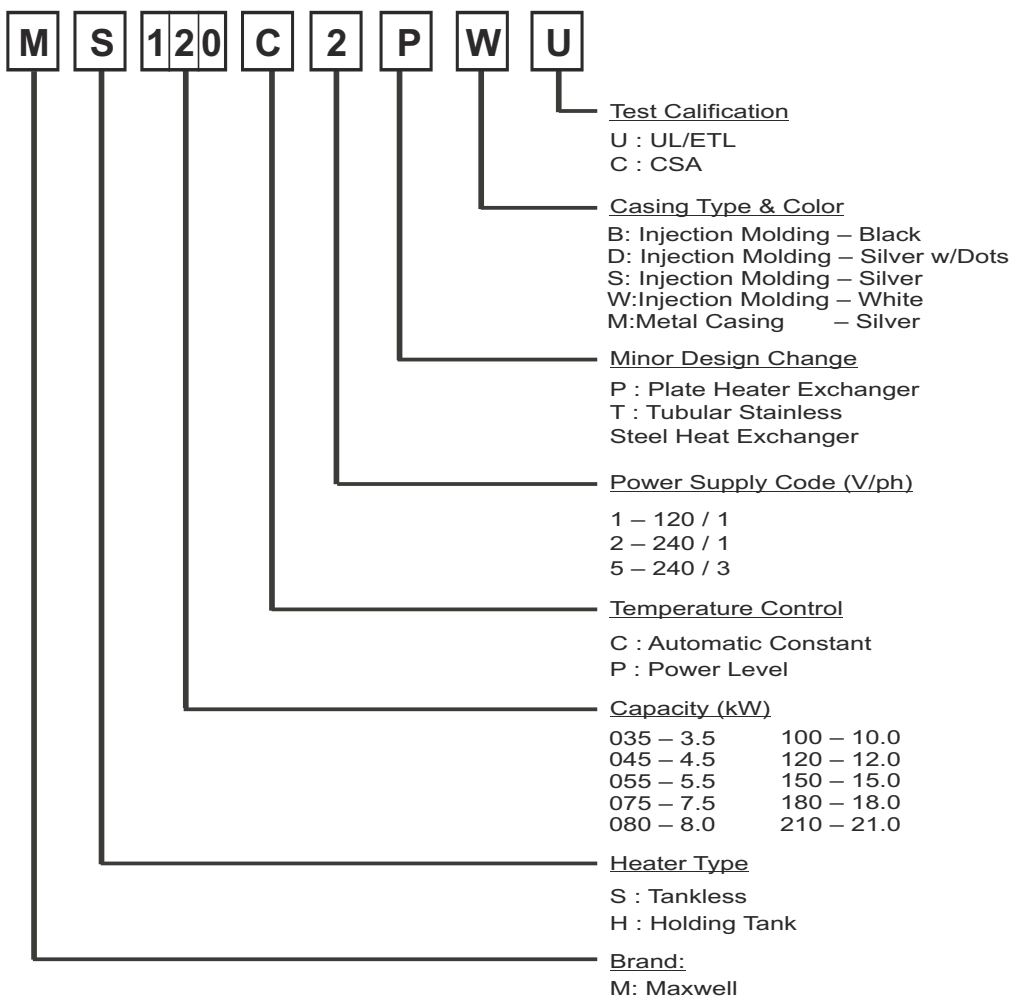
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MODEL NUMBER NOMENCLATURE



This Klimaire nomenclature supercedes all previously issued (06/07/2011)

PUB: M9SH1102

WARNINGS

This is not a do-it-yourself project. Failure to have this appliance installed by a licensed plumber and electrician will void all warranties.

Under no circumstances should you attempt to install, repair or disassemble the Maxwell tankless electric water heater without first shutting off all power to the unit directly at the circuit breaker box.

Installation of this product is restricted to indoor locations only by licensed plumbing or electrical contractors.

Installation of this product is restricted to indoor locations by licensed plumbing or electrical contractors only. By installing this product you acknowledge the terms of manufacturer's warranty and your authorized dealers return policy. Water heaters that have been installed cannot be returned. If you plan to install your water heater on a second floor/above ground or in a heated attic space you must follow all code requirements for installation in your area. It is highly recommended to install a drip pan connected to a safe drain as per code requirements, below the water heater to avoid property damage in case of eventual leaks, and / or install an active water leak detector and shut off valve to turn off your water supply in the event that a leak is ever detected.

■ Important Safety Instructions

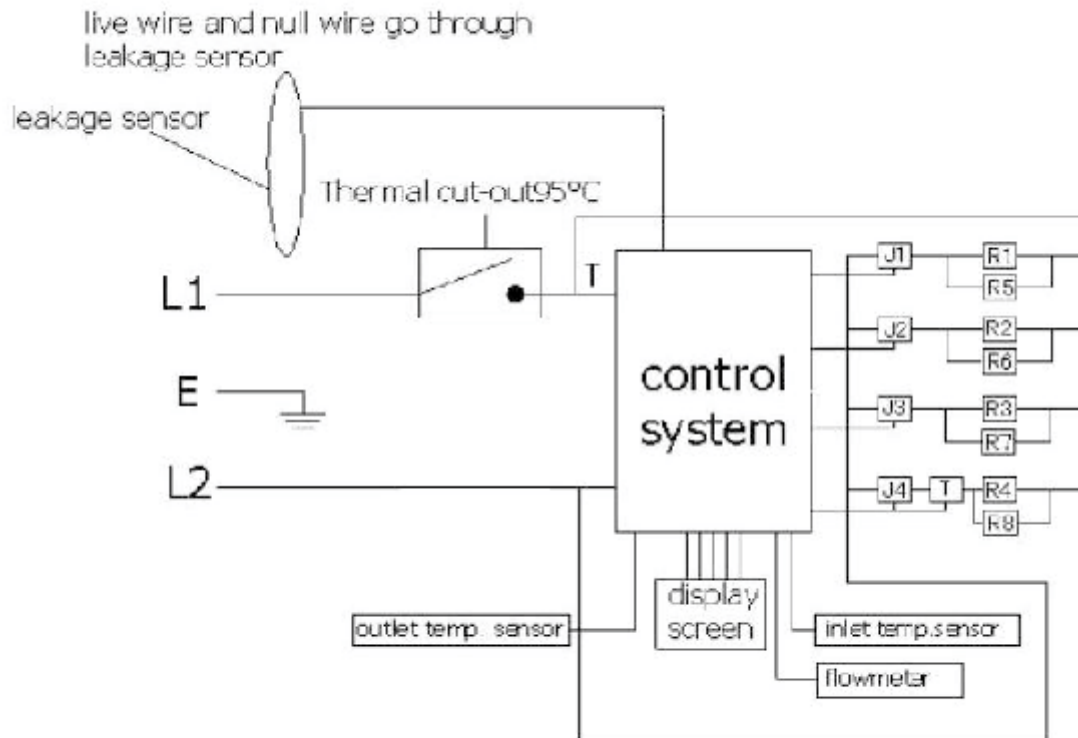
1. The installation must be in compliance with the National Electrical Code, your local electrical and plumbing codes.
2. This appliance must be **GROUND**ED.
3. All wiring and installation jobs must be supervised by a qualified electrician.
4. **CAUTION:** This product has more than one power-supply connection point. Disconnect all power supplies before servicing.
5. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
6. This appliance **MUST** be permanently connected to a fixed circuit breaker and it must be installed vertically. **DO NOT** install this appliance near flammable substances or near a strong magnetic field place.
7. It is **forbidden** to switch on this appliance if you think it may be frozen, as this could result in serious damage to the unit. Wait until you are sure that it has completely thawed out before switching it on.
8. Please check the hot water temperature with your hand to make sure it is at a comfortable temperature before taking a shower to avoid getting scalded.
9. Before connecting pipes to the water heater hoses, it is extremely important to **FLUSH** the pipes to wash away all plumbing paste or residue in the pipes.
10. The heating chamber is treated with composite nano-insulation material; it is natural there might be a bit of smell or green blue smoke when the unit is used for the first time.
11. If there is damage to the wire, you must contact a qualified electrician to replace it with an approved wire.
12. **CAUTION: FOR HOUSEHOLD AND INDOOR USE ONLY**
13. Combustible materials should be kept at least 2 ft away from your water heater and output water pipe.
14. **AFTER TIGHTENING BOTH FITTINGS AT THE WATER HEATER OPEN SEVERAL HOT WATER FAUCETS AND ALLOW WATER TO RUN THROUGH THE WATER HEATER FOR AT LEAST 3 MINUTES. THIS PROCESS PURGES ALL AIR FROM THE WATER LINES AND HEATER. HIS PROCESS MUST BE PERFORMED PRIOR TO TURNING ON THE POWER OF THE WATER HEATER. FAILURE TO FOLLOW THIS STEP CAN CAUSE PERMANENT DAMAGE TO THE HEATING ELEMENT.**

■ Product Features

The **Maxwell** tank-less electric water heaters are made with multi-safety devices patented technology. Additionally, the unit has the following features.

1. Tank-less, instantaneous heating on demand. No pre-heating. No stand-by heating loss energy-saving.
2. Micro-computer control, adopting patented heating technology. Water is completely separated from electricity by multi-layers of composite nano insulation material.
3. Over-heating thermal cut-off. When the outlet water temperature reaches over 140°F/60°C, the electricity will be cut off automatically to avoid getting scalded and the screen beeps and displays E1.
4. Creepage protection. If the unit detects electricity leakage, the electricity will be cut off within mil seconds by the creepage protector and the screen displays E2.
5. Malfunction sensor- when the temperature sensor malfunctions, the heater stops working and displays E3
6. Conversion between Fahrenheit degrees and Celsius degrees.
7. This product does not require venting.

Electrical Diagram (MS035, MS045, MS070, MS080, MS100, MS120)



remark: J: relay R: heating system T: triac

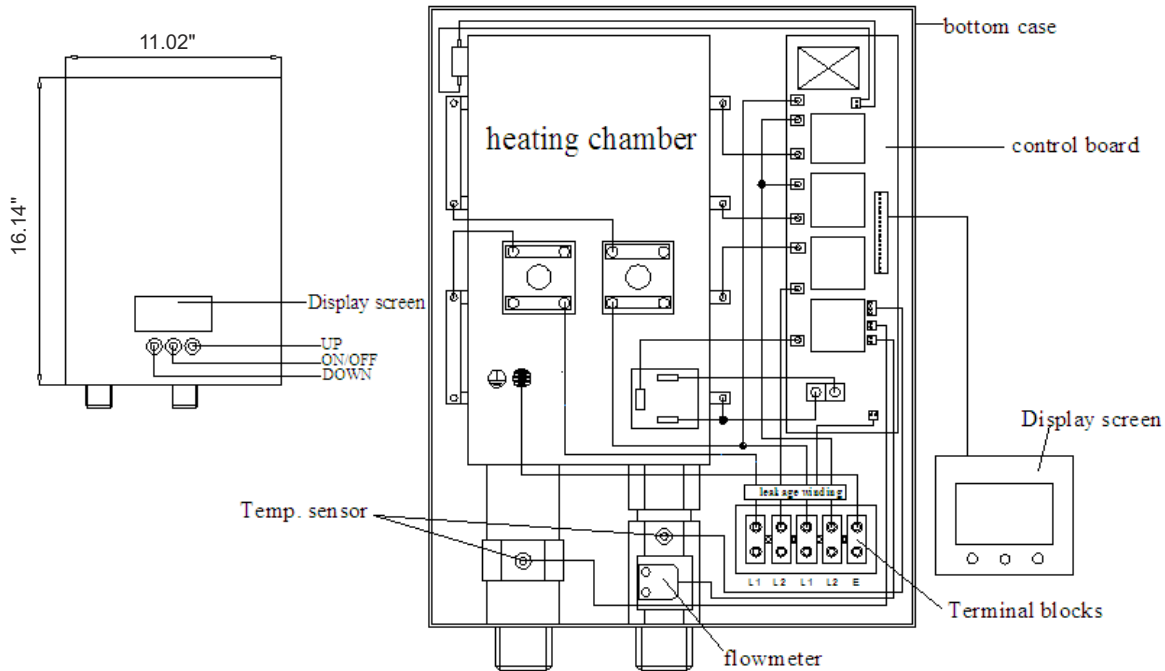
AC 240V/60Hz

■ Technical Data

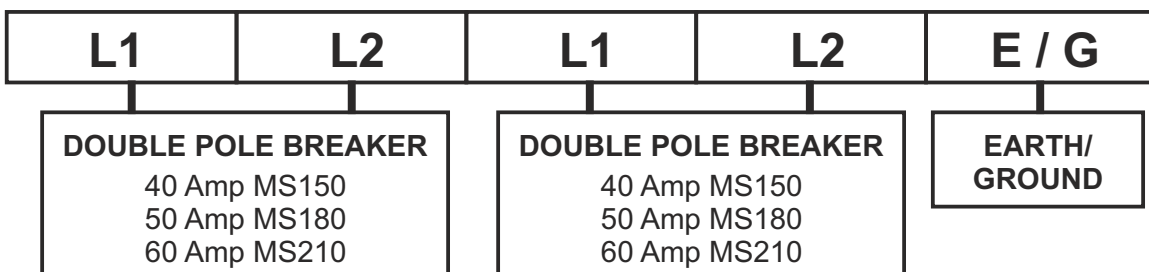
Model	MS80C2P_U	MS100C2P_U	MS120C2P_U	MS150C2P_U	MS180C2P_U	MS210C2P_U
Phase	1	1	1	1	1	1
Voltage/Freq	V 240 V/60Hz	240 V/60Hz	240 V/60Hz	240 V/60Hz	240 V/60Hz	240 V/60Hz
Wattage	kW 8kw	10kw	12kw	15kw	18kw	21kw
Max. amp.load	A 34	42	50	63	75	88
Min. required circuit breaker* A	45	60	60	2 X 40	2 X 50	2 X 60
Min. wire size	AWG cooper 8	6	6	2 X 8	2 X 8	2 X 8
Min. water flow to activate GPM / L/min.	0.53 / 2	0.53 / 2	0.53 / 2	0.85 / 3.2	0.85 / 3.2	0.85 / 3.2
Working pressure	PSI/bar Max.150/10					
Weight	lb 7.7 kg 3.5	7.7 3.5	7.7 3.5	12.1 5.5	12.1 5.5	12.1 5.5
Product Dimensions	mm 385x260x93 in 15.2"x10.2"x3.7"	385x260x93 15.2"x10.2"x3.7"	385x260x93 15.2"x10.2"x3.7"	385x260x93 15.2"x10.2"x3.7"	385x260x93 15.2"x10.2"x3.7"	385x260x93 15.2"x10.2"x3.7"
Water connections	NPT 1/2"	1/2"	1/2"	3/4"	3/4"	3/4"

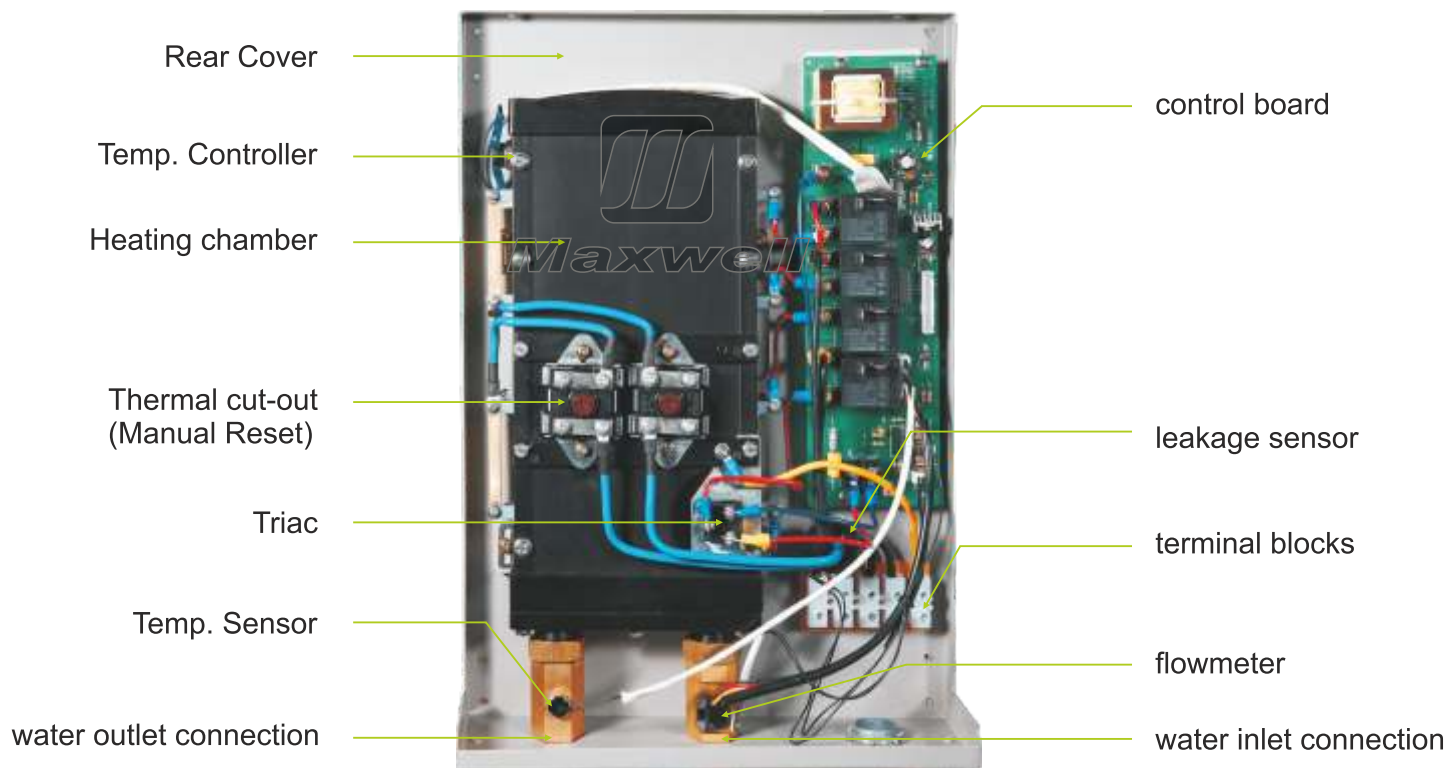
Note: *suitable recognized strain relief means shall be provided when the product installed.

■ Product Inner Structure (MS150, MS180, MS210)



WIRE CONNECTIONS TO BREAKERS (MS150, MS180, MS210)





PATENTED HEATING TECHNOLOGY

PATENT NO.: ZL2008 2 0081568.0

1. High temperature insulating ceramic layer.
2. Macromolecule heatconducting insulating layer.
3. High temperature heating plate.
4. Macromolecule heatconducting insulating layer.
5. High temperature insulating ceramic layer.



■ Installation Guideline

The installation must be in compliance with the National Electrical Code, your local electrical and plumbing codes.

1. Make sure the appliance is intact, and the fittings are complete.
2. Please make sure the main power supply, water pressure, grounding condition, ammeter and wires meet the standard of installation requirements.
3. The appliance must be connected to properly ground dedicated branch circuits of proper voltage rating. Ground must be brought to the “ground” at the circuit breaker panel.
4. This appliance **MUST** be permanently connected to the fixed circuit breaker. If you don't use the heater, please switch off the circuit breaker.
5. **DO NOT** install this appliance near to tinder or strong magnetic field places. The unit must only be mounted in VERTICAL position near by the water fittings. Please electrify try the machine after getting through waterway.

■ Installation Method

● Fixed installation on the wall

MS-PSU Series

Locate an appropriate place on a section of wall as above mentioned.

Fig 1 → Front and back of the appliance

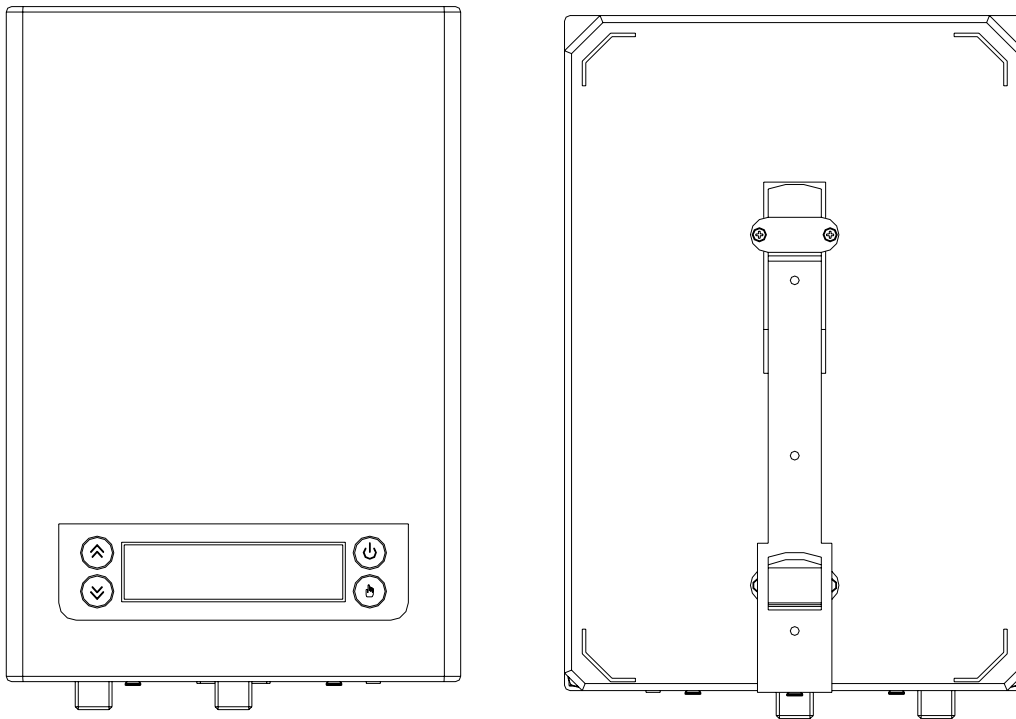


Fig 2 → Remove screw which fixed the bracket on back of the appliance.

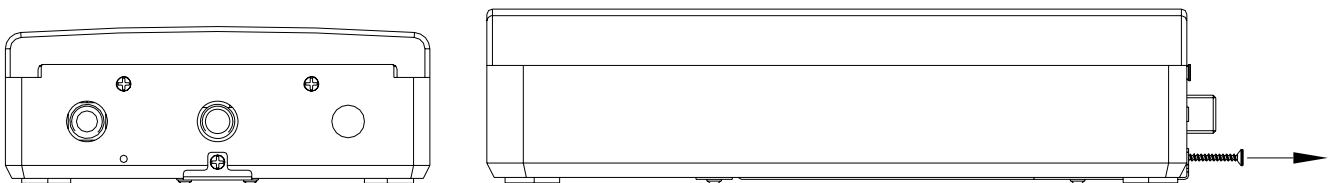


Fig 3 → Remove the bracket from the appliance

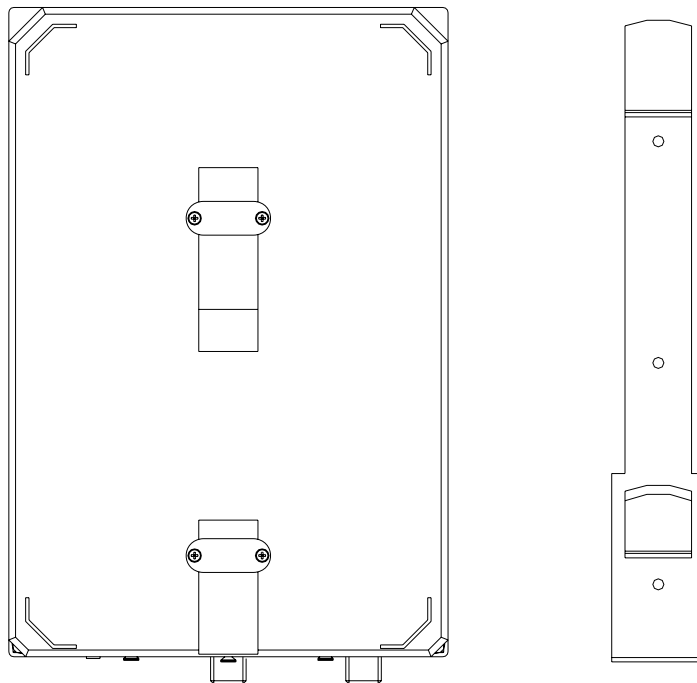


Fig 4 → Hold the back bracket hanger in position against the wall and mark the three mounting holes. Drill three holes of 6.00mm diameter, the distance between every two holes is 100mm. (Put plastic anchor in the hole, fix the bracket on the wall, and secure the hanger using the screws supplied or an appropriate alternative method)

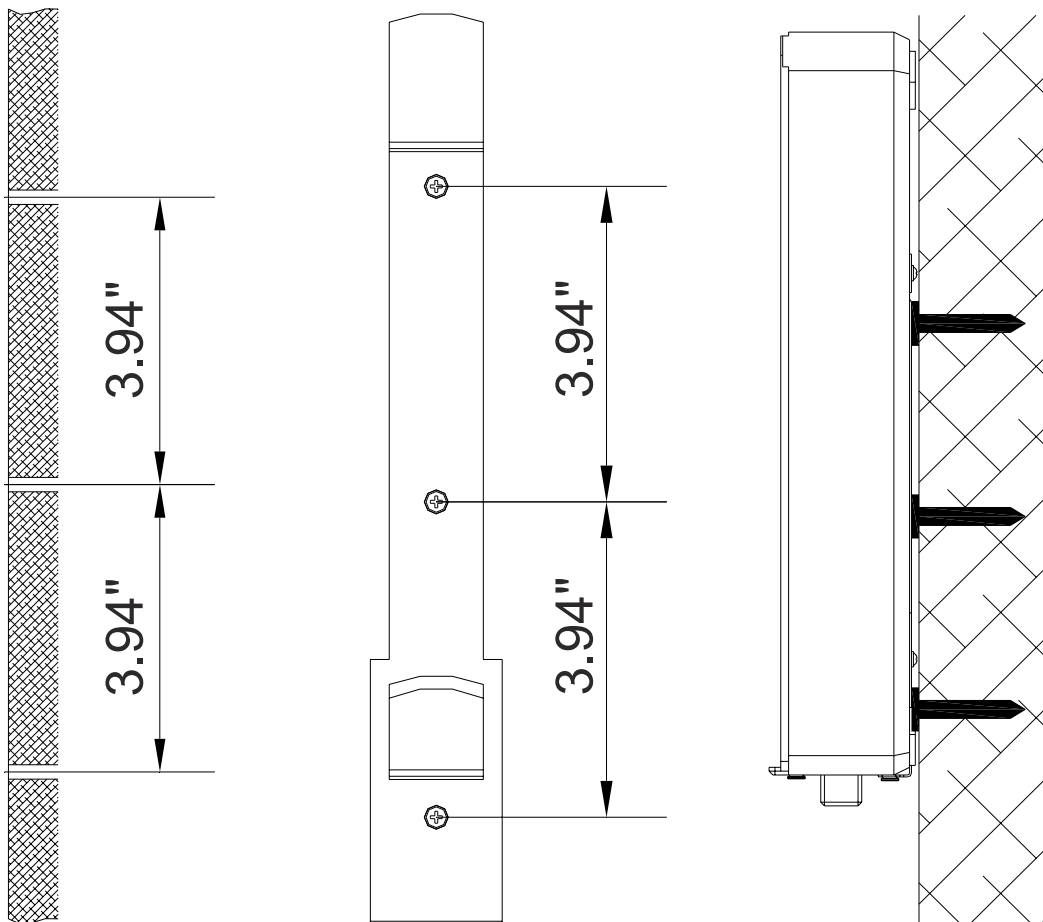


Fig 5 → Uninstall screws on appliance to remove the front cover. Please pull out carefully by hand the screen row line plug before removing the front cover.

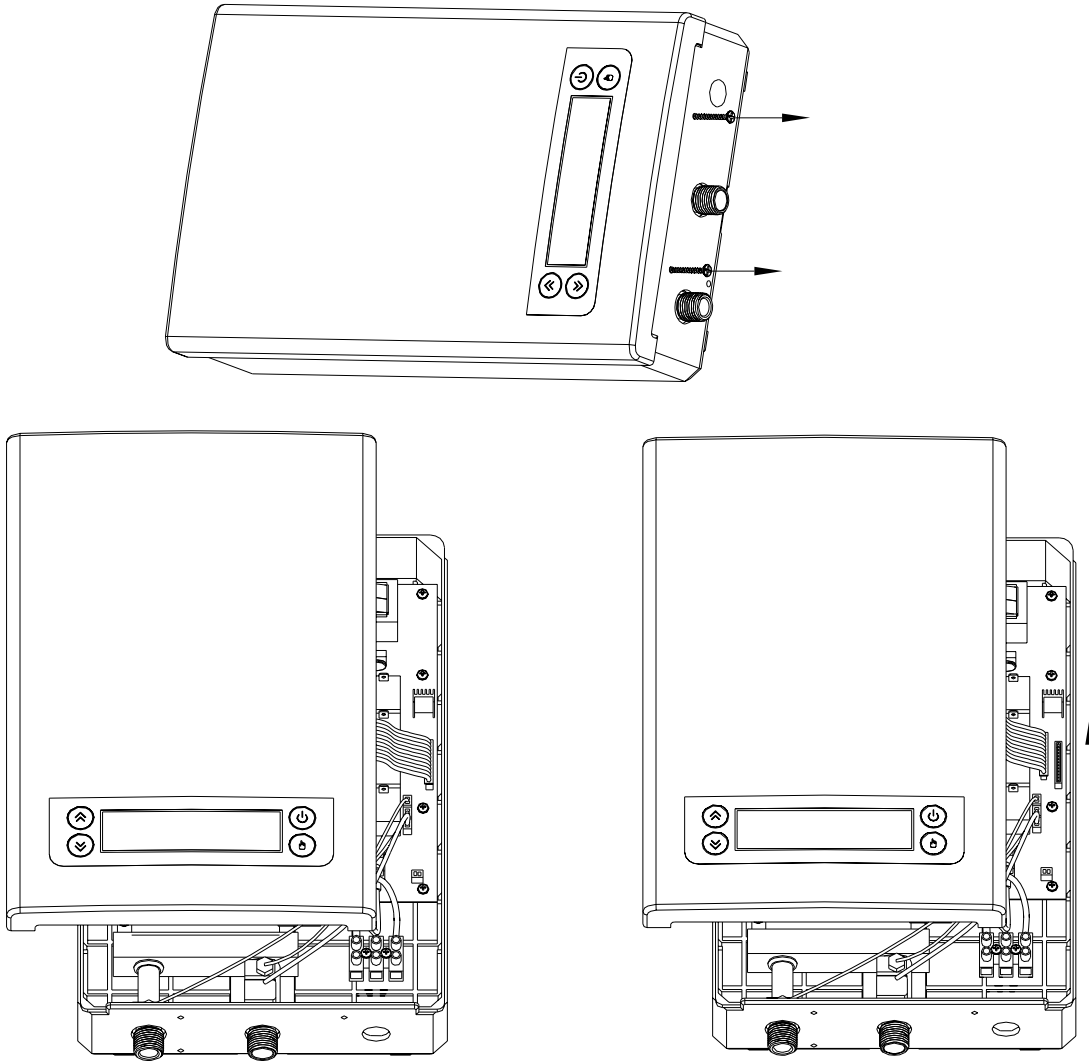


Fig 6 → Fix the appliance to the bracket which was nailed to the wall, Make sure the unit fits onto the back metal hanger correctly

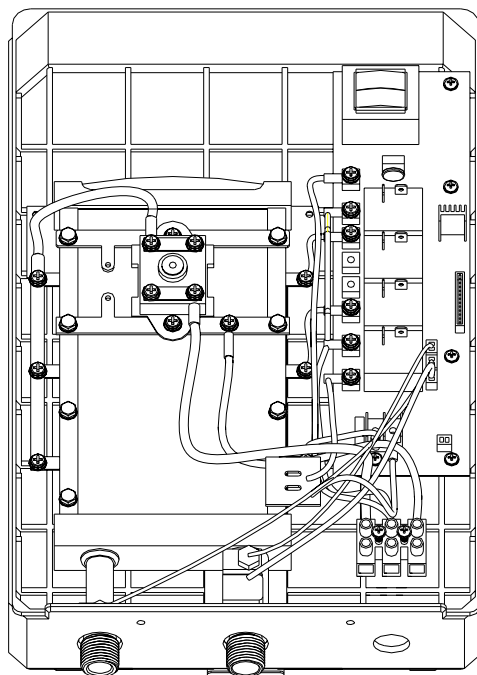


Fig 7 — Connect the cable to the terminal blocks, please notice the guidance logo below the terminal blocks. MS080C2PSU, MS100C2PSU, MS120C2PSU will be connected to one circuit breaker, MS150C2PSU, MS180C2PSU, MS210C2PSU will be connected to two circuit breakers.

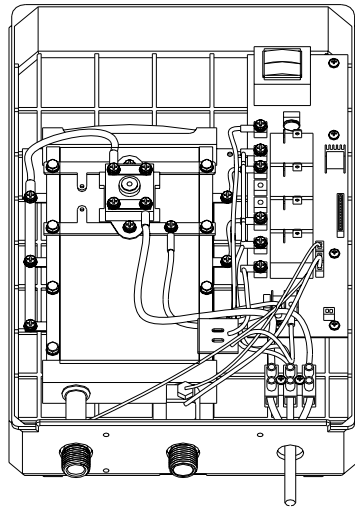


Fig 8 — Fix the front cover on appliance, before that, please plug in the screen row line plug. Then nail the screws to fix the cover.

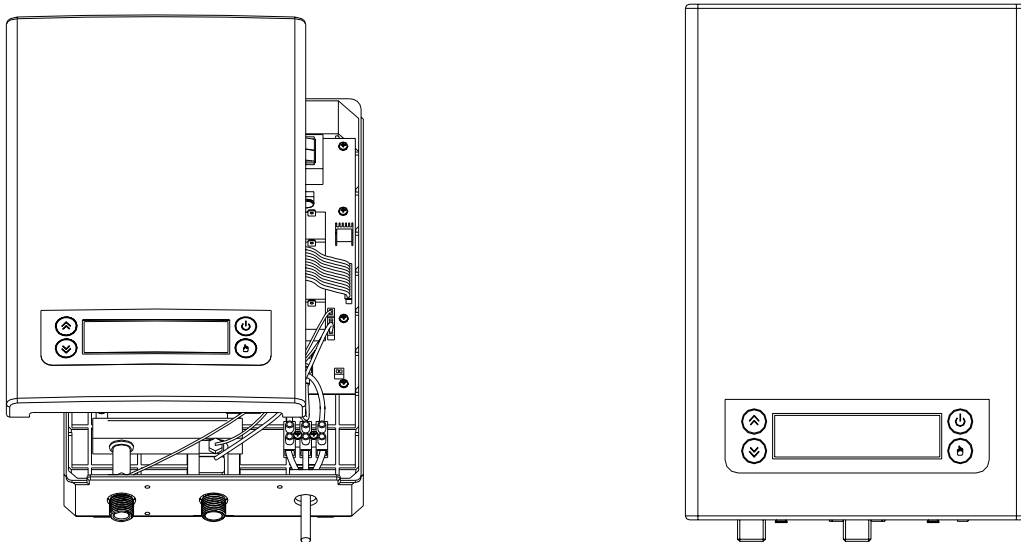
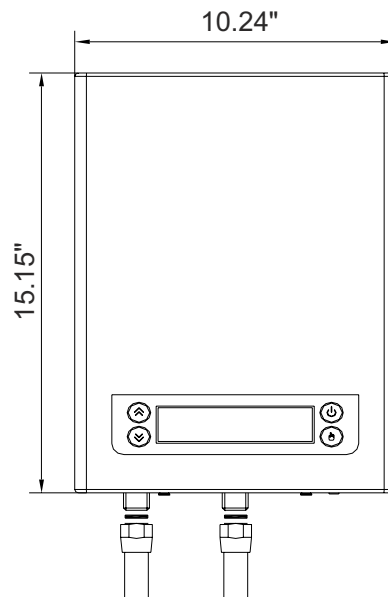


Fig 9 — Connect the water pipe to the water inlet and water outlet connections, please remember to install the rubber seal ring.



● Water connections





1. All water pipe must comply with national and applicable state and local water pipe codes.
2. A pressure relief valve must be installed if the cold water supply pressure exceeds 150PSI (1Mpa)
3. The unit should be connected directly to the main water supply. Flush pipe with water to remove any debris or loose particles
4. It is required to use 1/2"NPT water connections to fit the models MS080C2PSU, MS100C2PSU, MS120C2PSU; use 3/4"NPT water connections to fit the models of MS150C2PSU, MS180C2PSU, MS210C2PSU, MS150C2PMU, MS180C2PMU, MS210C2PMU.
5. Please remember to install the rubber seal o' rings at the connections. When all water connections are completed, check for leaks and take corrective action before proceeding.

● Electrical connection

1. All electrical work must comply with national and applicable state and local electrical codes.
2. All units must be connected to a properly grounded dedicated branch circuit of proper voltage rating.
3. MS080C2PSU, MS100C2PSU, MS120C2PSU can be connected to a single circuit, use a supply cable protected by a double pole breaker. MS150C2PSU, MS180C2PSU, MS210C2PSU require two independent circuits. Use two supply cables protected by two separate double pole breakers.
4. While connecting the cables to terminal the blocks, please make sure the metal wire ends and the terminal blocks to touch completely. Then tighten the screws up to make sure the current can go through.
5. Before beginning any work on the electric installation, be sure that main panel breaker switch is OFF to avoid any danger of electric shock, all mounting and plumbing must be completed before proceeding with electrical hook-up.

■ Operation Instructions

MS-PSU Series

1. Turn on the circuit breaker to bring electrical power to the unit.
2. Open water faucet for a few minutes until water flow is continuous and all air is purged from water pipes. The unit must be operated after the breakers are turned on.
3. After the unit is powered, a beep sound can be heard and a LED lights for 2 seconds, no other display, the appliance keeps standby.
4. Press "⏻" to turn ON/OFF the appliance. When the unit is ON, LED displays actual water temperature of the outlet. When the appliance stops working, the screen switches to the screen saver after 5 seconds. The display screen light will be off. If the screen is touched, it will be lighted again.
5. Press  and  to adjust the outlet temperature. Temperature setting range is 30—53 °C / 82-127 °F .
 - ⌘ If the unit has been paused, you may initially get a short burst of very hot water while you turn it on again. Please run the water through for a few seconds to let the temperature settle down. Please check water temperature with your hand before taking a shower.
 - ⌘ If the unit will not be used in winter, drain out water completely so that the heater will not be frozen.
 - ⌘ Please periodically clean inlet strainer and the shower to keep a free water flow.
6. Press  then press  to convert the temperature display between Fahrenheit degree and Celsius degree.
7. There is an automatic memory function to avoid repetitive operation, while you turn on the appliance, the default set temperature will be the same as set last time.

■ Trouble-shooting

Problems	Possible Causes	Corrective Actions
1. Inlet and outlet fittings leaking	A. Fittings not tight B. Rubber washer worn-out	A. Tighten fittings. B. Change rubber washer.
2. LED no signal	A. Power not connected. B. LCD damaged.	A. Connect power to the unit. B. Change LCD.
3. Functional keys not working	A. No water out from shower. B. Water pressure too low. C. Key or PCB damaged.	A. Open valve to get water. B. Open valve to get pressure. C. Change key or PCB.
4. Water too hot	A. Temperature set too high B. Water flow too small.	A. Set a lower temperature. B. Increase valve opening.
5. Water too cold	A. Low temperature set. B. Too much water flow.	A. Set a higher temperature. B. Reduce water flow.
6. Outlet gets less and less water.	Inlet strainer or shower clogged.	Clean strainer and shower.
7. LED displays E1	Outlet temp. is over 60°C/140°F	A, Reduce the temperature B, Increase the water flow
8. LED displays E2	There is electricity leakage	Please contact your local dealer
9. LED displays E3	Temperature sensor failure	Please contact your local dealer
10. Display overload	Inlet water flow is too big.	Reduce the inlet water flow

7, 8 and 9 should only be performed by a qualified electrician. The person who initially installed the unit is the best one to contact for help.

■ Normal Maintenance

Note: Do not attempt to repair this water heater yourself. Call a service person for assistance. Always turn off the power supply before servicing your unit.

It is not required any regular maintenance. However, to ensure consistent water flow, the following maintenance is recommended.

1. Periodically remove scale and dirt that may build up at the aerator of the faucet or in the shower head.
2. There is a built in filter screen at the inlet connection which should be cleaned from time to time. Please turn off the water flow before doing this.

■ ACCESSORIES



1/2" and 3/4" water connection Ball valve

- For heaters with 1/2" inlet water connections for models ranging 3.3kW-, 12kW (including)
- For heaters with 3/4" inlet water connections for models 15 kW and over



24 inch (60cm) stainless steel, with 1/2" and 3/4" water connection Flexible hose

- For heaters with 3/4" water connections for models 15 kW and over
- For heaters with 1/2" water connections for models ranging 3.3kW-, 12kW (including)

Required Wire Gauge & Breaker Size @ 230 Volt

Capacity kW	Required Breaker (Amp.)**	Required Wire Gauge (AWG)	Max Power* (Amp.)
8	45	8	35
10	60	6	44
12	60	6	52
15	2 x 40	2 x 8	66
18	2 x 50	2 x 8	78
21	2 x 60	2 x 6	92

* Maximum power (Amp.) based on 230 V. For 240 V application see specification table on page 4.

** All above breakers are of the double pole type.

* Maximun Power (Amp.) based on 230 V. Check your local electrical code requirements for different voltage applications.

Heater Sizing Guide

	Summer					Winter			
Inlet Water Temp. Model N°	77° F	72° F	67° F	62° F	57° F	52° F	47° F	42° F	37° F
MS080C2P_U	1.9 gpm	1.5 gpm	1.3 gpm	1.0 gpm					
MS100C2P_U	2.5 gpm	2.3 gpm	2.0 gpm	1.8 gpm	1.5 gpm	1.2 gpm	1.0 gpm		
MS120C2P_U	2.7 gpm	2.4 gpm	2.2 gpm	2.1 gpm	1.8 gpm	1.5 gpm	1.3 gpm	1.2 gpm	1.1 gpm
MS150C2P_U	3.5 gpm	3.2 gpm	2.6 gpm	2.5 gpm	2.3 gpm	2.0 gpm	1.7 gpm	1.5 gpm	1.3 gpm
MS180C2P_U	4.0 gpm	3.6 gpm	3.2 gpm	3.0 gpm	2.7 gpm	2.5 gpm	2.3 gpm	2.1 gpm	1.8 gpm
MS210C2P_U	5.0 gpm	4.5 gpm	3.8 gpm	3.5 gpm	3.2 gpm	2.7 gpm	2.4gpm	2.2 gpm	2.1 gpm

Shower (1.5 gpm) — Sink Faucet (1.0 gpm)

All data above are based on water leaving temperature 105° F (40° C). 1.5 gpm showerhead flow rate; 1.0 gpm sink faucet flow rate, and adequate water pressure @ 60 psi. Actual performance may be altered by variations from these parameters. For voltages less than 240 V the heating capacities will vary and it would be necessary to consider a higher capacity model.

Warning: It is recommended to use restrictors for showers and faucets to prevent excessive water consumption.





Maxwell



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