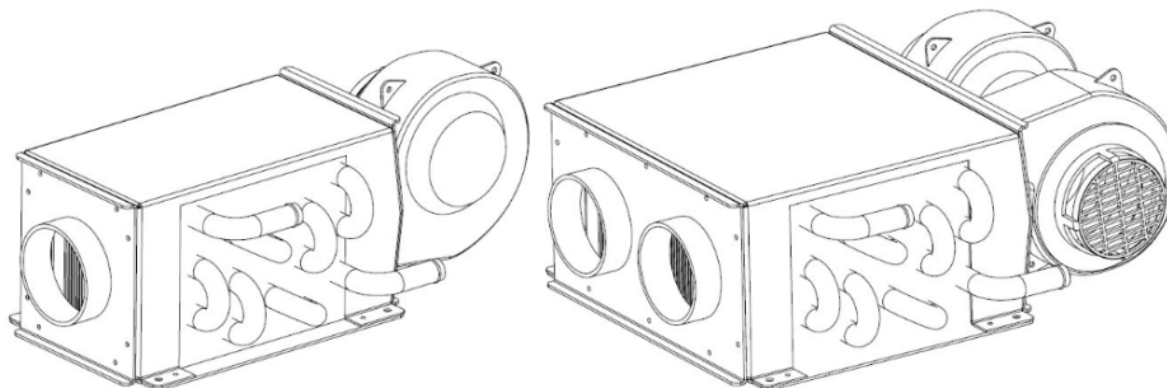

Safety - Safety Instructions for matrix heaters	1
Technical information - Supplies and accessories	2
Technical information - Technical information	4
Technical information - Things to note before Installation	5
Technical information - Heater system dimensioning	6
Installation - Matrix heater	8
Installation - Matrix heater measures	9
Installation - Installation example 1	12
Operation - Device operation	13
Important information - Warranty terms	14
Important information - Disclaimers	15

Safety Instructions for matrix heaters

This manual has information on product safety and instructions to reduce risk of accidents and injuries.

	This heater (hereinafter also referred as "unit" and "device") is designed and intended for recreational use.
	We recommend having a Wallas-Marin professional install our products to avoid improper installation that can cause injury or property damage.
	Installation instructions in this manual and country-specific requirements must be followed.
	It is the responsibility of the owner and the installer to determine which requirements and standards apply to specific installations.
	Wallas-Marin offers a 2+1 year/2000 hour warranty. The warranty is not valid if the unit has not been installed according to the manual or the country-specific regulations have not been followed.
	Do not repair, replace or remove any part of the unit unless specifically recommended in the manual. All other servicing should be done by an authorized Wallas-Marin Distributor or Service Center.
	This unit is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities (that could affect a safe handling of the product), or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for the safety.
	Before touching the heater, make sure that it is completely cooled down and all the hoses and coolant are below 37 °C / 100 F.
	Keep the water temperature above 55 °C (131 F). Heat the water once a week to more than 70 °C (158 F).
	When designing or installing the system, make sure that any possible leakage points (joints, the whole heater, the expansion tank and the hot water accumulator) are installed in such a place that the possible leaks cannot destroy anything.
	Country specific rules must be followed in engine room compartment installations.
	As with any carbon-hydrogen combusted product, the vessel should be properly fitted with a CO detector, tested regularly and replaced as per the manufacturer's schedule. The installer must ensure there is sufficient ventilation into the indoor space for occupants and system operation.
	Wallas-Marin reserves the right to change or improve its products, and to modify appearances and specifications without notice.

Supplies and accessories



Package contents

Matrix heater (7300 or 7400) with power cable
 Extension cable 4 meters
 Accessory bag
 19 mm hose clamp 2 pcs **7319**

List of supplies and accessories

End plate alternatives for 7300

7301 1 x 60 mm end plate for 1,8kw matrix
7302 2 x 60 mm end plate for 1,8kw matrix
7303 3 x 45 mm end plate for 1,8kw matrix
7304 Grill end plate for 1,8kw matrix

End plate alternatives for 7400

7402 2 x 60 mm end plate for 3,6kw matrix
7404 Grill end plate for 3,6kw matrix

3410/3419 Warm air duct ø 75 mm
2410/2419 Warm air duct ø 60 mm
1410 Warm air duct ø 45 mm
3411/3441 Warm air ventilation ø 75 mm
2411/2441 Warm air ventilation ø 60 mm
3413 Warm air 3-way divider
3417 Bulkhead lead through ø 75 mm
2417 Bulkhead lead through ø 60 mm
3418 Duct extension ø 75 mm
2418 Duct extension ø 60 mm
4416 Duct adapter ø 60/75 mm

3738 Installation kit
3730
30018
2448
2468
7719
7126
7519
2410 ??
2411 ??
7319

To get more detailed information about the available supplies and accessories please visit wallas.fi > Part search

<https://wallas.fi/partsearch/index.php?action=unit&l=101>

Technical information

Matrix heater	7300	7400
Output	1800 W	3600 W
Air flow min/max (m³/h)	14 / 222	22 / 353
Current / Power consumption min/max	0,04 / 2,3 A and 0,5 / 27,5 W	0,1 / 5,5 A and 1,2 / 66 W
Dimensions (L x W x H)	420 x 215 x 138 mm (16 17/32" x 8 15/32" x 5 7/16")	420 x 330 x 138 mm (16 17/32" x 12 63/64" x 5 7/16")
Noise		
Weight	3,2 kg / 7,0 lb.	5,2 kg / 11,4 lb.
Pipe connections	19 mm	19 mm

Due to physical laws of thermodynamics, Wallas-Marin announces measured values with 10 % tolerance.

Things to note before Installation

Heater installation

Country specific regulations shall be followed in any installation. The warranty of products is valid only in installations that are done according to this manual. Wallas recommends that the device be installed by an authorized Wallas service shop or professional installer.

Selecting the installation location

The device shall be installed into a dry space in a protected location. The device must be mounted to a solid surface. When installing, please note that the device needs to be removable for servicing. Connections and location should be made so that the device can be easily disconnected for removal.

The device shall be installed in a place where water can not enter the ventilation fan or other components. The ventilation fan must also be protected any other objects from entering.

The installation space must have sufficient air replacement for the ventilation fan air flow.

Select the place of installation to allow a minimum amount of bending in the hoses / ducting.

Installation of pipes, hoses and cables

Power cables and coolant hoses must be protected in locations where they are susceptible to mechanical damage due to sharp edges or heat. All cables and hoses should have a fluid precluding "drip loop" to prevent water or other fluids from following wires or hoses to the device. Ensure that the cable connections are not strained.

It's forbidden to install the heater to a space which may contain gasoline fumes!



When designing or installing the system, make sure that any possible leakage points (joints, the whole heater and the expansion tank) are installed in such a place that the possible leaks cannot destroy anything. It is recommended to build a spill reservoir which can hold the coolant used in the system.

Following sections of manual are presenting important basic installation information but if you have any questions please be free to contact purchasing/local distributor point for more information.

Heater system dimensioning

Matrix heater and/or radiator size calculations

The following input data are needed for dimensioning the appropriate matrix heater

- dimensions of the space to be heated (m or ft)
- intended use (type) of the space (salon, sleeping etc.)

Calculation A (resulting W) Formula: $L \times W \times H \times 0,8 \times \text{Factor A} = \text{_____ W}$	
L	Length of the space (m)
W	Width of the space (m)
H	Height of the space (m)
0,8	Adjustment factor
Factor A selection table	
80	Small spaces like heads or working rooms
100	Sleeping spaces
120	All other spaces
150	High use spaces like salon
Example: A space 4 m long, 3 m wide and 2 m high that is a salon (high use) would require $4 \times 3 \times 2 \times 0,8 \times 150 = 2\,880\text{ W}$ matrix heater or radiator	

Calculation B (resulting BTU) Formula: $L \times W \times H \times 0,8 \times \text{Factor B} = \text{_____ BTU/h}$	
L	Length of the space (ft)
W	Width of the space (ft)
H	Height of the space (ft)
0,8	Adjustment factor
Factor B selection table	
8	Small spaces like heads or working rooms
10	Sleeping spaces
12	All other spaces
15	High use spaces like salon
Example: A space 10 feet long, 12 feet wide and 6,5 feet high that is a salon (high use) would require $10 \times 12 \times 6,5 \times 0,8 \times 15 = 9\,360\text{ BTU/h}$ matrix heater or radiator	

Example matrix (m³ / Factor A / W)					Example matrix (ft³ / Factor B / BTU/h)				
Space m³	Factor A				Space ft³	Factor B			
	80	100	120	150		8	10	12	15
10	640	800	960	1 200	350	2 240	2 800	3 360	4 200
20	1 280	1 600	1 920	2 400	700	4 480	5 600	6 720	8 400
50	3 200	4 000	4 800	6 000	1600	10 240	12 800	15 360	19 200
100	6 400	8 000	9 600	12 000	3600	23 040	28 800	34 560	43 200

For more detailed information please contact the local Wallas distributor or Wallas sales.



Do not over radiate the system.

If the temperature of the coolant does not rise to the target temperature, the built coolant system is over radiating. This means that there is a risk of condensation in the burner. Condensation water may cause soot and caulking into the burner / heat exchanger.

Signs of the over radiation:

- Coolant never reaches the target temperature and the heater power has remained 100%. E.g. target 55 °C coolant temperature have raised to 45 °C but does not rise from that.
- Exhaust leadthrough drips water

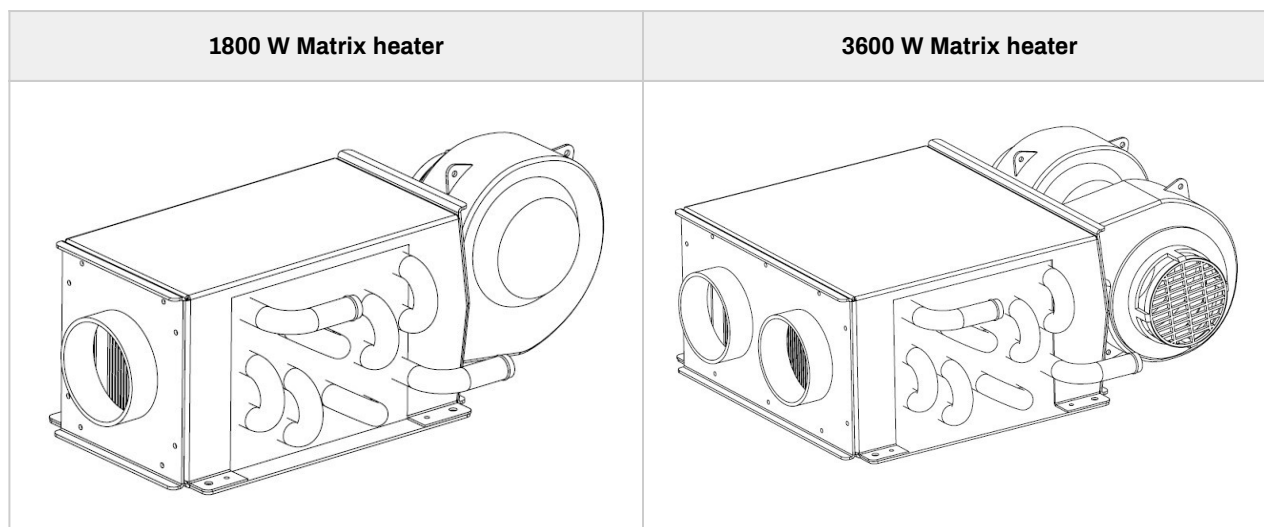
To prevent the over radiation:

Use 55 °C / 131 F normally-open-switches (thermostats) in matrix heater's fan motor power wire.

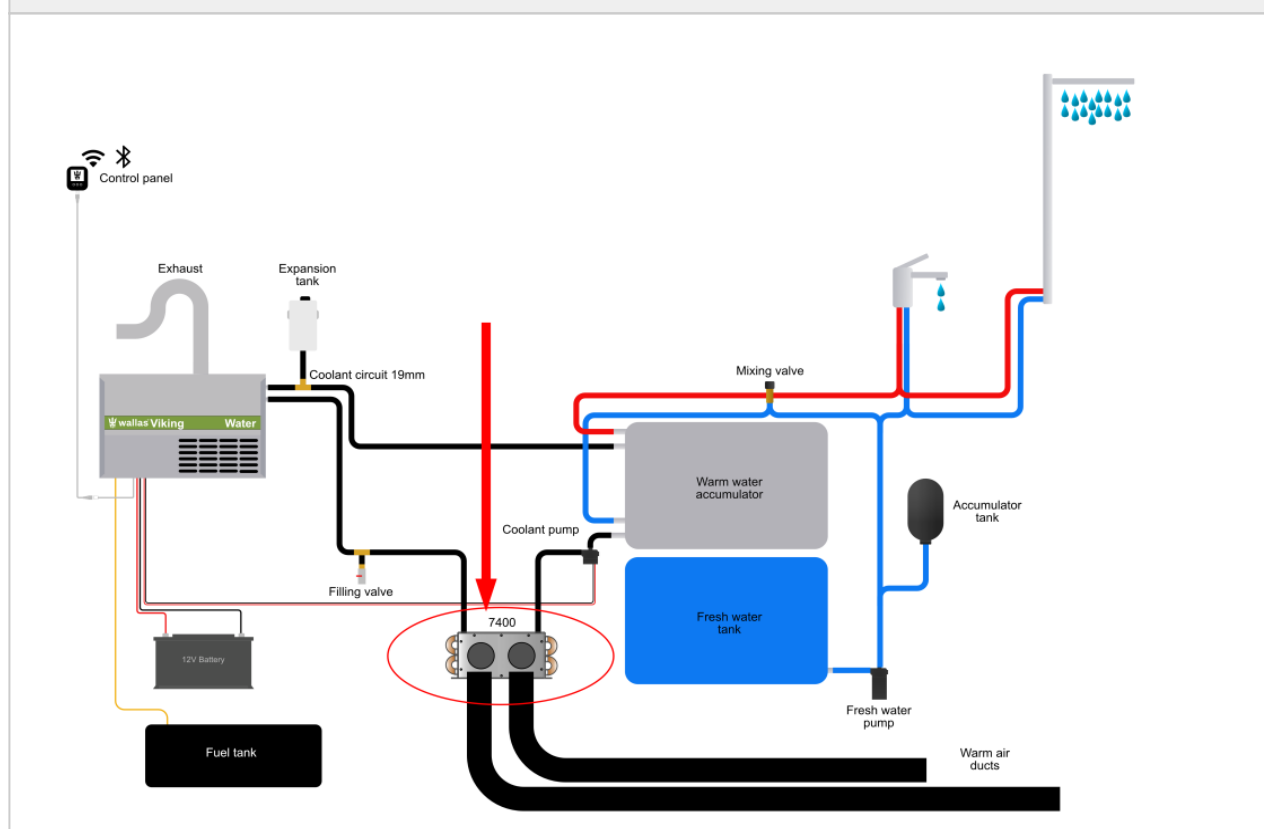
Example of the normally-open-switch (thermostat)	Installation example
	

Matrix heater

There are two different sizes of Wallas matrix heaters available; 1800 W and 3600 W.



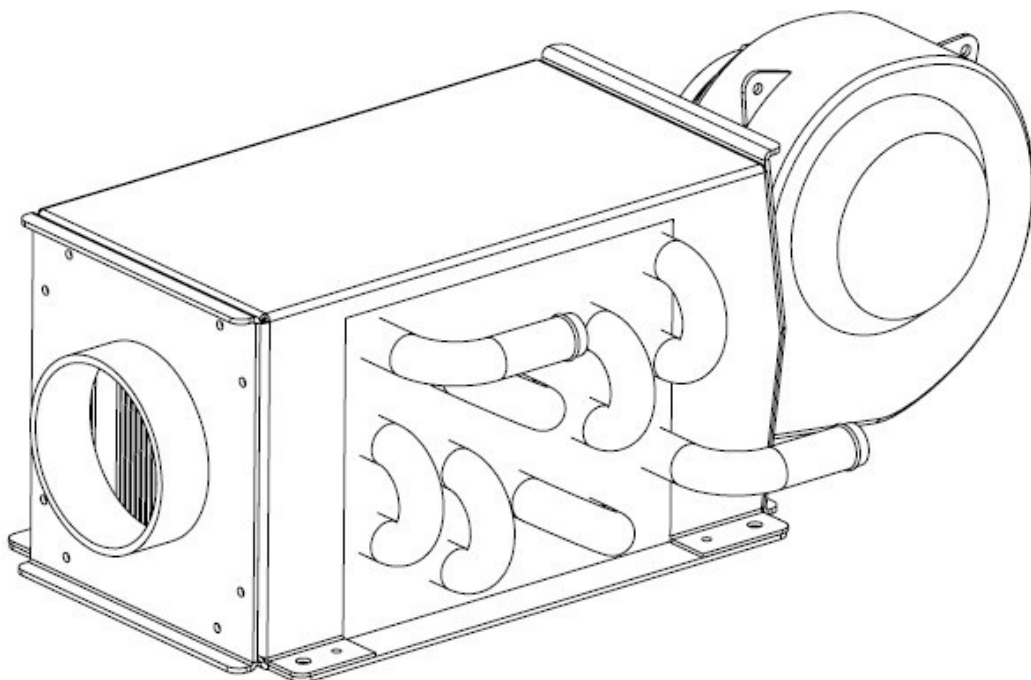
Matrix heater in the water system installation



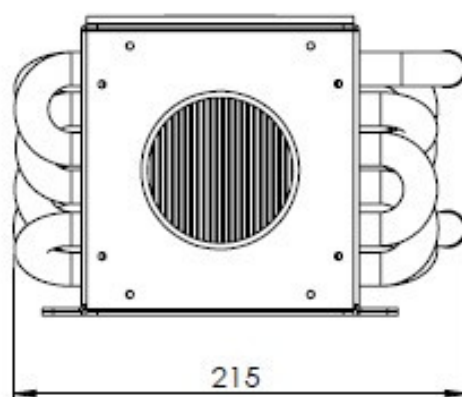
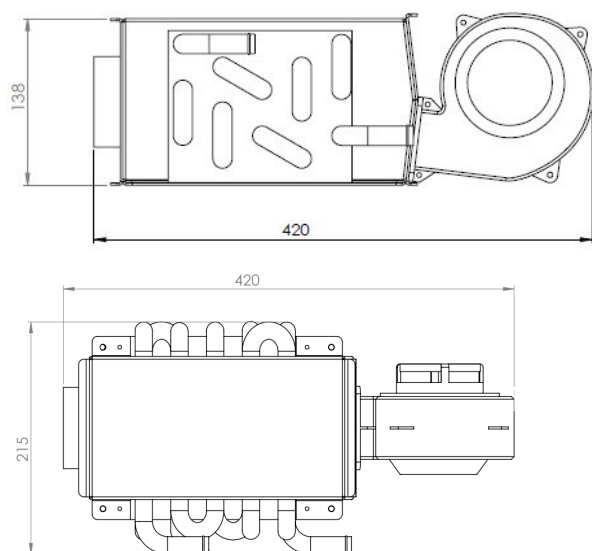
Matrix heater measures

There are two different sizes of Wallas matrix heaters available; 1800 W and 3600 W.

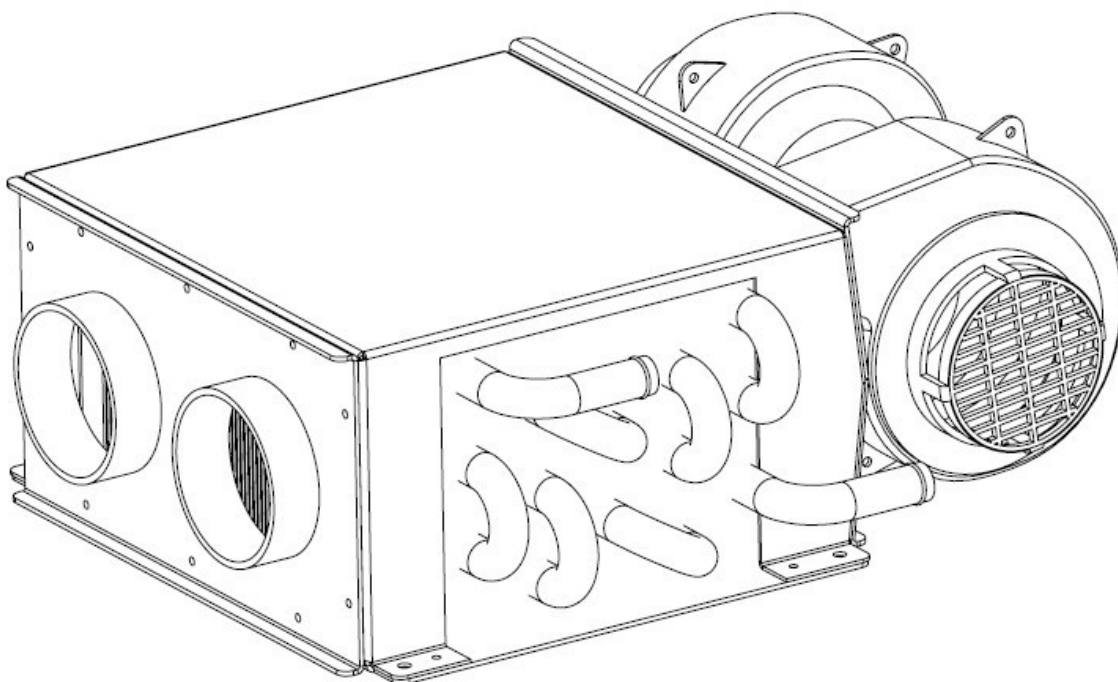
1800 W matrix heater (7300)



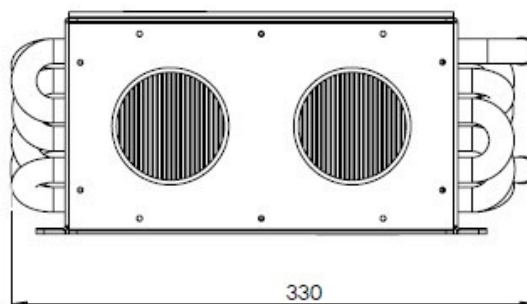
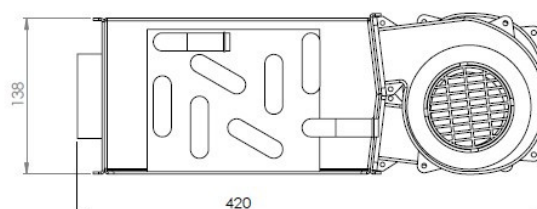
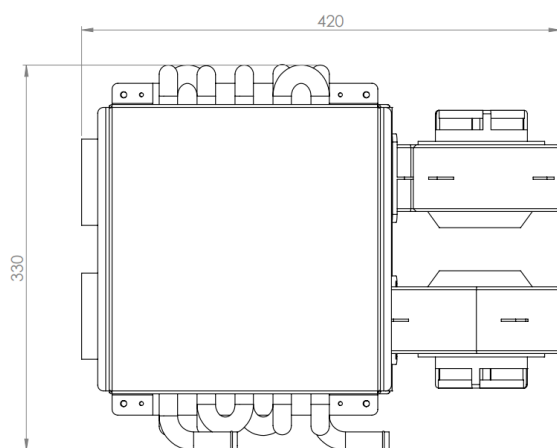
1800 W matrix heater measures (7300)



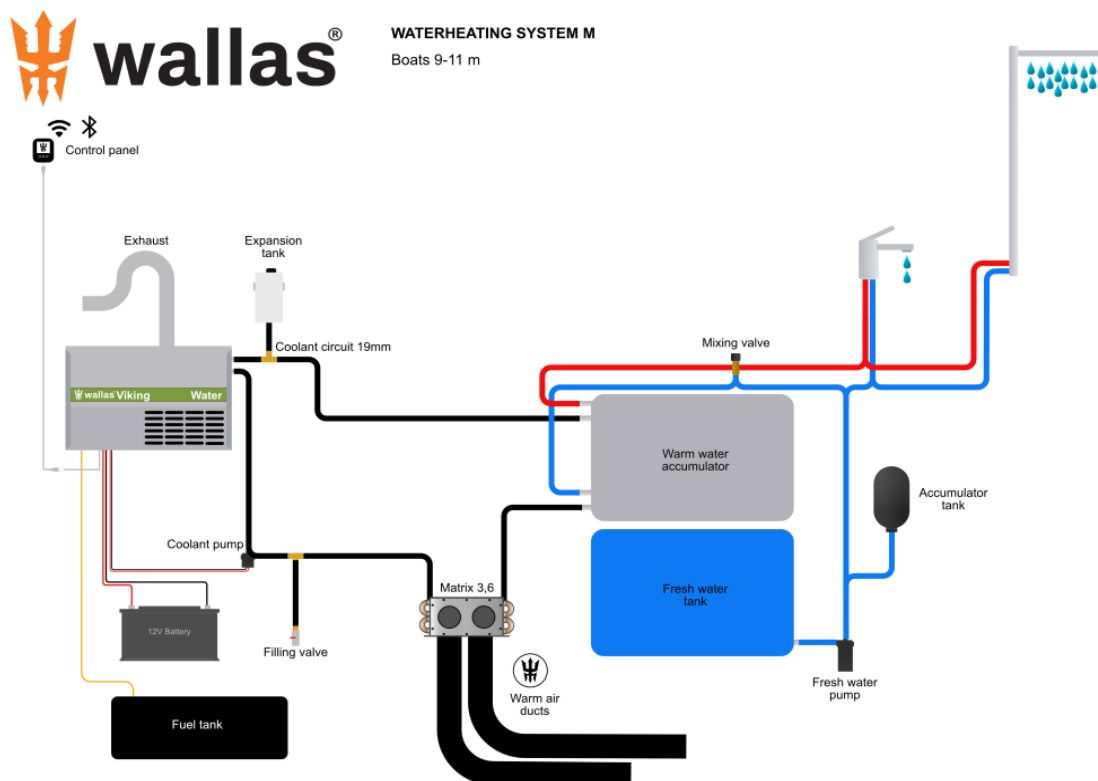
3600 W matrix heater (7400)



3600 W matrix heater measures (7400)



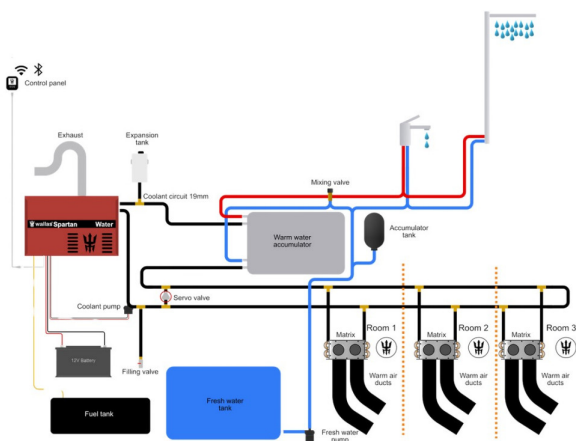
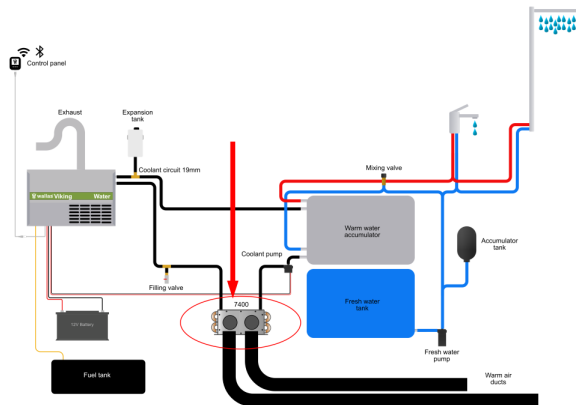
Matrix heater in the water system installation



Matrix heaters can be installed near the heater, which shortens the coolant hoses. In this case, the air hoses are routed to the desired location and are longer. The Matrix heater can also be placed farther from the heater, making the coolant hoses and electrical wires longer and the air hoses shorter.

Installation example 1

Matrix master installation examples (with Wallas on-demand hot water accumulator)



The MatrixMaster can be installed in series or parallel. Series installation is viable option if the coolant line goes around the vehicle. Parallel installation is viable option when there are more than one MatrixMaster, and the coolant lines are long.

Device operation

Matrix masters

Starting

To start the matrix heater, the water heater must be turned on. The MatrixMaster will turn on automatically, when the coolant reaches 40 °C, and if the room target temperature is above the actual room temperature.

Operation

The matrix heaters are a part of the water heating system. The MatrixMaster allows one to heat up the vehicle. MatrixMasters are in the coolant circulation of the heating system. As the coolant flows through the copper pipes of the heat exchanger and air is pushed through by the fan, the air absorbs heat energy from the hot coolant. The hot air is led to living space via hot air ducting.

The Fan on the MatrixMaster is controlled by the temperature target of the room. The logic behind the control is the following:

Target room temperature °C	Room temperature °C	Temperature difference °C	Fan power %
22°C	17 °C	-5 °C	100 %
22°C	18 °C	-4 °C	85 %
22°C	19 °C	-3 °C	68 %
22°C	20 °C	-2 °C	51 %
22°C	21 °C	1 °C	34 %
22°C	22 °C	0 °C	17 %
22°C	23 °C	1 °C	0 %
22°C	24 °C	2 °C	0 %

The fan is RPM-controlled, which means the fan will spin according to the pre-determined logic shown above.

If the coolant is under 40 °C, the MatrixMasters fans will not turn, due to no heating capability.

Adjusting the heat

The heating can be adjusted on the 3008 Advanced control panel or via the Wallas Application. After setting the target temperature, the MatrixMaster will follow the logic to reach the target temperature.

Shutdown

The MatrixMasters can be turned off with the control panels Summer mode-button. This will allow the Water heater to keep the coolant temperature up, but won't turn the matrix heaters on.

Warranty terms

Wallas-Marin Oy (the “Manufacturer”) warrants their heaters, stoves, and ovens (hereinafter referred to as the “Product”), against defects in material and workmanship for two (2) years or 2,000 operating hours in normal use (whichever comes first) effective at the time of sale to the Original End-User under the conditions provided herein.

Wallas-Marin heating systems are designed and intended for recreational use. Use for commercial, live-aboard or unattended use will result in elevated operating hours requiring maintenance and repair not covered by product warranty.

1)	This warranty is made only to the first purchaser/customer (“Original End-User”), who acquires the Wallas-Marin Product for their own use.
2)	This warranty will be in effect for two (2) years or 2,000 operating hours (whichever comes first) from the date of purchase by the Original End-User. A copy of the dated receipt of the sale should be retained as evidence of the date of purchase. The warranty period may be extended by an additional 12 months by registering the Product within three (3) months of the Product being sold to the Original End-User. Registration must be done online at www.wallas.fi/takuu . Despite the extended warranty period, coverage is limited to 2,000 operating hours for all Products. Repairs carried out during the warranty period do not renew or alter the original warranty period.
3)	The intent of this warranty is to protect the Original End-User of the Product from defects and provide repair and replacement of defective parts. Warranty repair service must be administered by an authorized Wallas-Marin distributor or an authorized Wallas-Marin Service Center in accordance with the Wallas-Marin warranty policy.
4)	Notification of the defect must be given in writing immediately to the authorized Wallas-Marin distributor, that sold the product (the “Seller”) by the Original End-User, if possible, but no later than two (2) months after the defect occurred. If the warranty period has expired and no notice was given in writing while the warranty was still valid, the defect will not be covered.
	The notification must include: • Description about the issue • Description about the installation, when, where, and by whom it was done (photographs may be included) • Product name, serial number, place and date of purchase
5)	For repairs under warranty, the Original End-User must take or package and ship the product to an authorized Wallas-Marin Distributor or to an authorized Wallas-Marin Service Center. The best location for repairs is determined by the importer after the Original End-User has notified the Seller about the issue. Once the Wallas-Marin Distributor/Service Center has examined the returned Product and if it is found that it was defective in material and/or workmanship, the Distributor/Service Center shall repair the product. If the distributor/Service Center determines that repairs must be made, only authorized Wallas-Marin parts will be used.
6)	This is a Return to Base Warranty, which does not cover costs accumulated from the removal and re-installation of the Product, or transportation costs if the Product has been shipped for repairs, or any damage occurred in transit.
7)	This warranty does not cover consumable or wear parts, which include glow coil/plug, bottom mat or wick, fuel filter, seals.
8)	This warranty does not limit the rights specified in the consumer protection legislation.

9)	This warranty does not cover indirect damages arising from a defective Product, property damage, loss of revenue, injury or loss of life as a result of system failure, or conditions unrelated to the material and workmanship of the Wallas-Marin Product. Such unrelated conditions include, but are not limited to: a) The Product has not been installed according to the Wallas-Marin Product User Manual or the country-specific regulations have not been followed. b) Damage or failure caused by installation of accessories or components not manufactured or approved by Wallas-Marin and/or modification of the Product structure without the consent of the Manufacturer. c) Failure to follow the operation or maintenance instructions in the Product User Manual. d) Damage caused by inappropriate storage or transport. e) Fault resulted by an accident or damage of which Wallas-Marin had no control over (force majeure). f) Damage or failure caused by improper handling, use of unsuitable fuel, low voltage, excess voltage, dirt, water penetrating the Product, galvanic corrosion, electro chemical corrosion or damages due to stray current. g) The Product has been dismantled or opened without the explicit permission of the Manufacturer/Importer. h) Non-Wallas components or spare parts have been used in the repair of the Product. i) Repair was done by an unauthorised service provider. j) Installation error when possible leaking water or leaking coolant can enter the boat/vehicle/RV/building structures.
10)	Wallas-Marin is not responsible for any damages to a boat/vehicle/RV/building or property due to Wallas unit is/is not working properly whatsoever.
11)	Wallas-Marin reserves the right to change the design of any Wallas-Marin Product without notice and with no obligation to make corresponding changes in Wallas-Marin products previously manufactured.

	When making a warranty claim, the Original End-User must provide proof that the maintenance and safety instructions have been thoroughly followed. This warranty does not apply to defects which have risen due to carelessness in following installation, operation, and maintenance instructions.
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Disclaimers

The manufacturer is not liable for damage caused by improper use or incorrect operation or installation. Failure to comply with the installation, operation and service instructions makes the warranty null and void and this leads to the exclusion of any liability of Wallas-Marin Oy.
The manufacturer does not cover any indirect damages arising from a Product, property damage, loss of revenue, injury or loss of life, or conditions unrelated to the material and workmanship of the Wallas-Marin Product. Such conditions include, but are not limited to: colder-than-expected weather or instances where the Product fails to maintain the temperature, leading to frozen water pipes and subsequent leaks, ruining the property of the user.