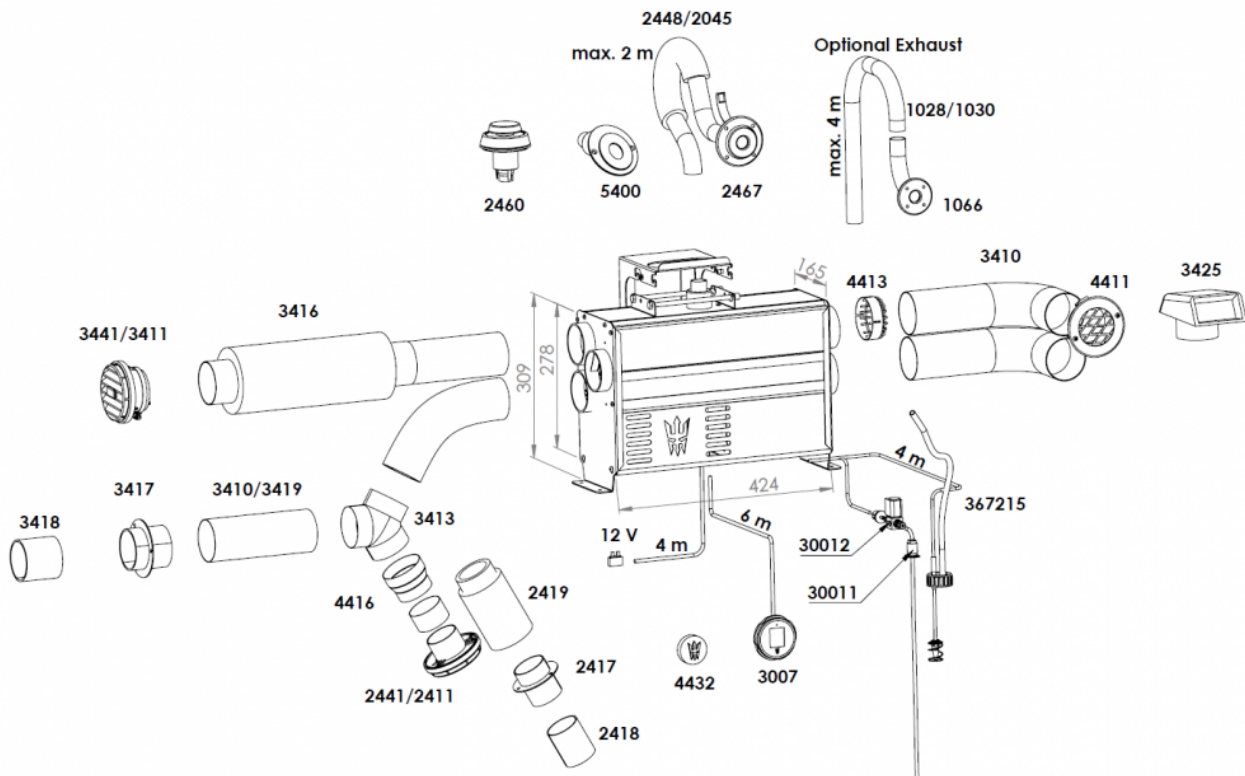


Technical information - Accessories and measures	2
.....	2
Technical information - Technical information	3
.....	3
Technical information - Operation description	4
.....	4
Technical information - Things to note before Installation	5
.....	5
Installation - Fastening the device	6
.....	6
Installation - Electrical connections	9
.....	9
Installation - Electrical connections B	9
.....	9
Installation - Warm air ducting	12
.....	12
Exhaust gas connections - Exhaust gas connections coaxial	13
.....	13
Exhaust gas connections - Side lead-through 2467	15
.....	15
Exhaust gas connections - Closable lead-through 2460	16
.....	16
Exhaust gas connections - Stern lead-through 5400	17
.....	17
Exhaust gas connections - Insulation kit	17
.....	17
Fuel connections - Fuel connections	18
.....	18
Fuel connections - Fixed tank connection 30011	19
.....	19
Fuel connections - Separate tank connection	20
.....	20
Fuel connections - Solenoid valve	21
.....	21
Fuel connections - Tank external filters	22
.....	22
Operation - Device operation	23
.....	23
Control Panel functions for 3007 and 3008 - Control Panel basic features.	25
.....	25
Control Panel - Software update	29
.....	29
Control Panel - Wallas Remote application and Control Panel connection	30
.....	30
Installation and initial start-up - Installation and initial start-up	34
.....	34
Maintenance - Maintenance recommendations	36
.....	36
Warranty terms - Warranty terms	37
.....	37
Back cover - Wallas - Spartan Air	38
.....	38

Accessories and measures



- **2467** Coaxial / Duplex hull exhaust lead-through 28 / 45 mm
- **5400** Stern exhaust lead-through, 28 / 45 mm
- **2448** Coaxial / Duplex exhaust hose 28 / 45 mm
- **1066** Single hull lead-through 28 mm
- **1028** Single exhaust hose 28 mm
- **1030** Single exhaust insulation sock 30 mm
- **3410** Warm air duct \varnothing 75 mm
- **3419** Insulated warm air duct 75 mm
- **2460** Sealable deck lead-through
- **3416** Silencer 75 mm
- **30012** Magnetic valve 12V/0,5 A
- **30011** Tank fitting / diesel
- **367215** Tank feed through, diesel
- **3413** Warm air 3-way divider 75 mm
- **3411** Warm air ventilation grill \varnothing 75 mm
- **3441** Warm air ventilation grill \varnothing 75 mm, white
- **3417** Bulkhead lead through 75 mm
- **3418** Duct extension 75 mm
- **4414** Duct adapter \varnothing 60/75 mm
- **2419** Insulated warm air duct d 60 mm
- **2410** Warm air duct, 60 mm
- **2441** Warm air ventilation \varnothing 60 mm, white
- **2411** Warm air ventilation \varnothing 60 mm
- **2417** Bulkhead lead through 60 mm
- **3007** Advanced control panel for XP400
- **3425** Water protected inlet grill 75mm
- **4413** Inlet grill 75mm
- **4411** Intake grill 75mm
- **4432** Bluetooth temperature beacon

Technical information

Fuel	Diesel oil, light furnace oil, HVO-fuel (Renewable fossil free fuel) HVO EN 15940, B10 EN 16734, D20/30 EN 16709
Operating voltage	12 V DC
Fuel consumption	0,16 l/h - 0,46 l/h
Heating power	1,4 kW-4,5 kW
Power consumption	0,7A-4,5A (9A during start up, 4 to 8 min)
Dimensions (L x H x W)	165x424x309 mm
Weight	15 kg
Maximum permitted length of exhaust pipe	2 m coaxial (2448), 4 m single (1028)
Maximum permitted length of fuel hose	8 m
Maximum permitted length of outlet air duct	8 m for upper and middle ones, 5 m for lower outlet
Maximum permitted length of inlet air duct	2 m for each
Minimum area of the replacement air opening	200 cm ²
Warm air connection	3x75 mm Spartan Air 2x75 mm Spartan Twin
Fresh air connection	3x75 mm Spartan Air 2x75 mm Spartan Twin
Connections	Solenoid valve Remote control
Suitable Exhaust gas lead-throughs	Recommended: 2467, 2460, 5400 With consultation from salespoint: 1066, 5400, 2466
Recommended usage temperature	-15 – +30 Celcius Mandatory: Check your local fuel tolerance for freezing temperatures.

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

The values are defined in Wallas-reference measurement point with maximum ducting lengths. All tubes include four 90° bends.

Operation description

The heater is a forced air diesel heater without an exposed flame. Heater take's combustion air from outside the boat through the outer coaxial exhaust gas pipe and blow their exhaust out through the inner coaxial pipe. The coaxial pipe connects to a common through hull fitting that allows both inlet air and exhaust to pass separately. This process improves efficiency, wind resistance and lowers the minimum power level, while cooling the exhaust system.

For all these models, fresh makeup air is taken from desired areas with air intake ducting, e.g. from outside of the boat or inside the cabin or blended. This enables good air circulation and/or cabin air replacement. Diesel engine compartment installations are supported by the separate makeup air intake ducts, quarantining the makeup air away from any smells or noxious engine fumes. The heating power can be adjusted freely between high and low output settings by manual control or by thermostat. In hot and/or humid conditions, these heating units can be used for simple fresh air ventilation and circulation.

When starting the device, the glow plug ignites the pumped fuel in the burner bowl. The glow/start and shut down sequences are factory programmed, so - starts and stops are automatically controlled. The fuel pump inside the heater case regulates the fuel feed and the system electronics control the fuel and air mixture to maintain the ideal clean burning process. The temperature sensor inside the burner feels the ignition and lights up the control panel flame indicator to indicate a successful start. When stopping the device, an automatic after cooling process takes place. This process cleans the burner, purging any unburned fuel.

Wallas heaters are built out of the finest corrosion resistant materials to withstand marine conditions.

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. For maintenance, it is recommend (not mandatory) to leave 200 mm (7 7/8") empty space below the heater for the removal of the bottom cover of the heater.

The heater should be installed vertically level when the boat is on an even keel. The static inclination must not exceed 5°. While the device will tolerate being temporarily tilted to a steep angle (even for some hours), the burner will not yield optimal performance if it is constantly inclined.

Select the place of installation to allow a minimum amount of bending in the warm air ducting. Avoid installing the heater and control panel in the immediate vicinity of any potential water intrusion. If possible, install the control panel on a vertical surface.

Installation of pipes, hoses and cables

Power cables, warm air and fuel 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 heater.

Installation space

The device can be installed within the heated space or outside of it. If located in an unheated area, heating performance can be improved by installing the an intake air tube to the heated space (warm return air). If located inside the heated area, air refreshing performance can be improved by installing the an intake air tube to the outside air (cold, dry fresh air to be heated). A blend of return air and fresh air for makeup air is usually optimal.

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

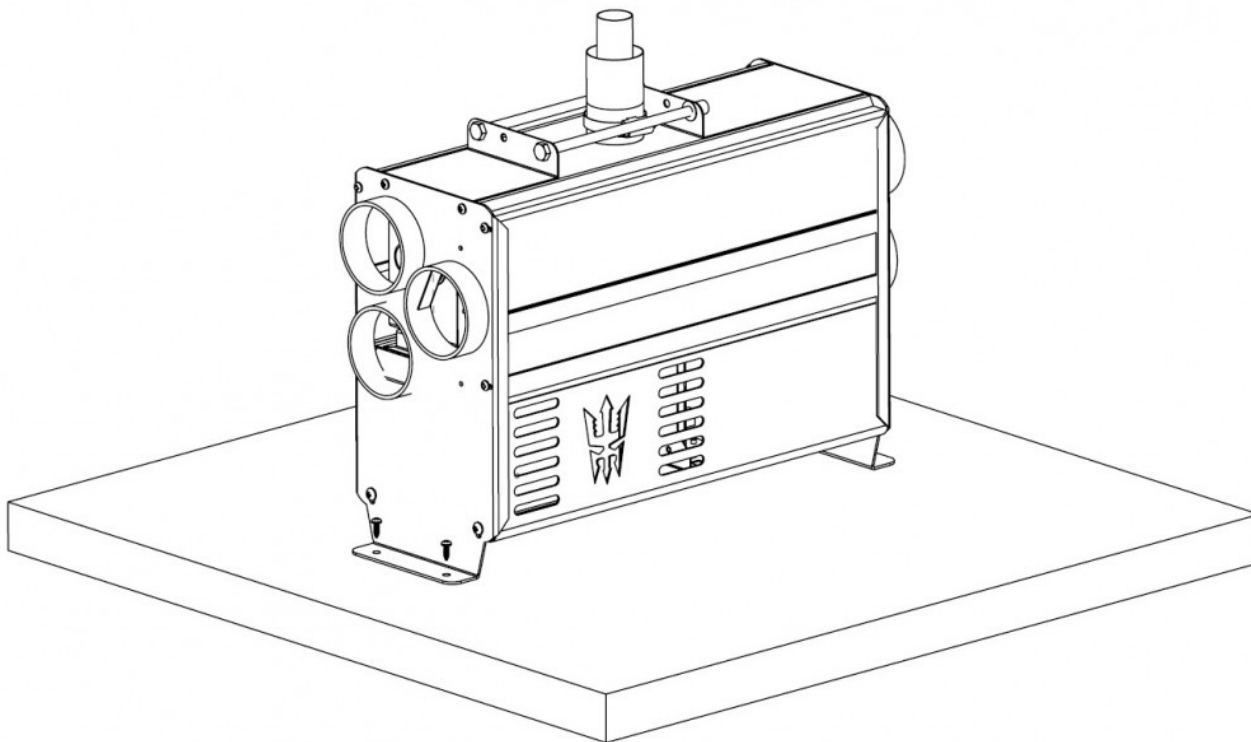
Following sections of manual are presenting important basic installation information but if you have any questions please be free to contact purchasing/local distributor point for more information.

Fastening the device

There are two different ways to install the heater: Floor mounting installation and wall mounting installation.

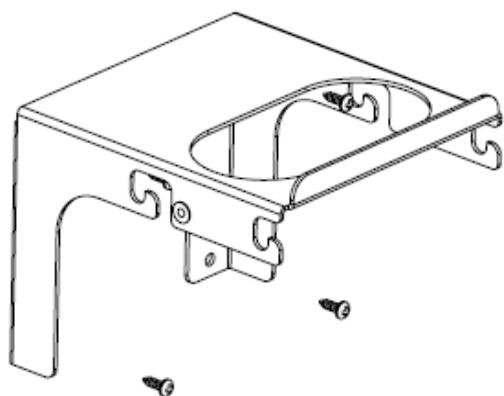
Floor mounting the device

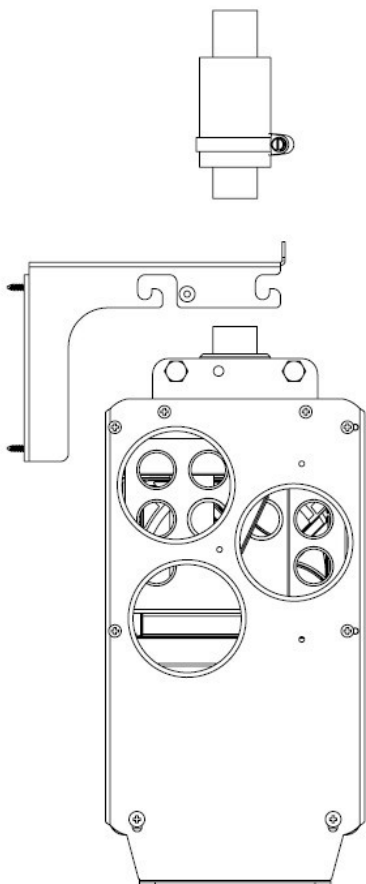
The heater has "legs" with two screw holes in each leg. Screw the screws to the solid stable and plane and not over 5 degree angle from horizontal plane. The screws are in the accessory bag. Keep in mind, the heater weights 15 kilograms, so it must be well fastened to withstand vessel accelerations in all directions.



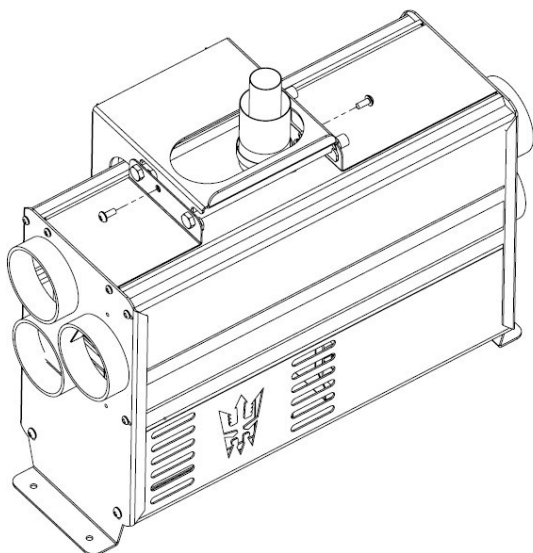
Wall mounting the device

Fix the mounting plate with screws to a suitable place and check that the bottom of the heater is in horizontal position.



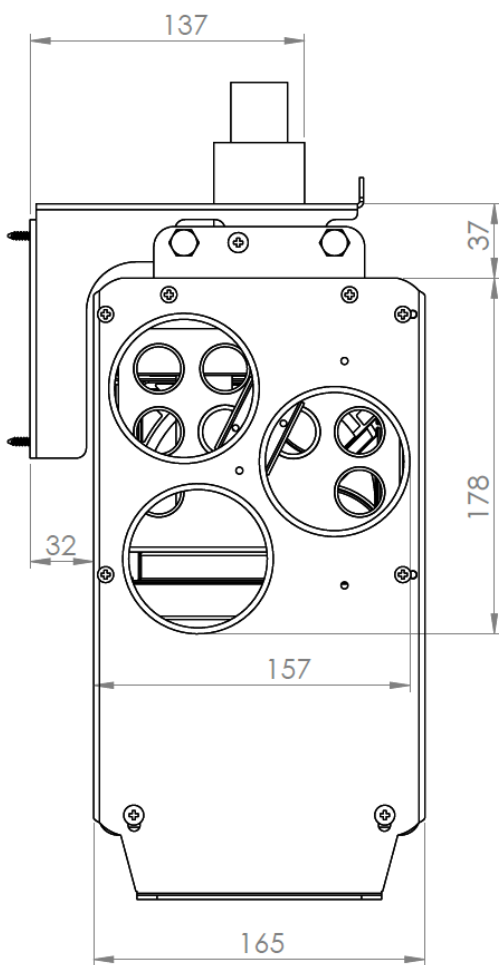
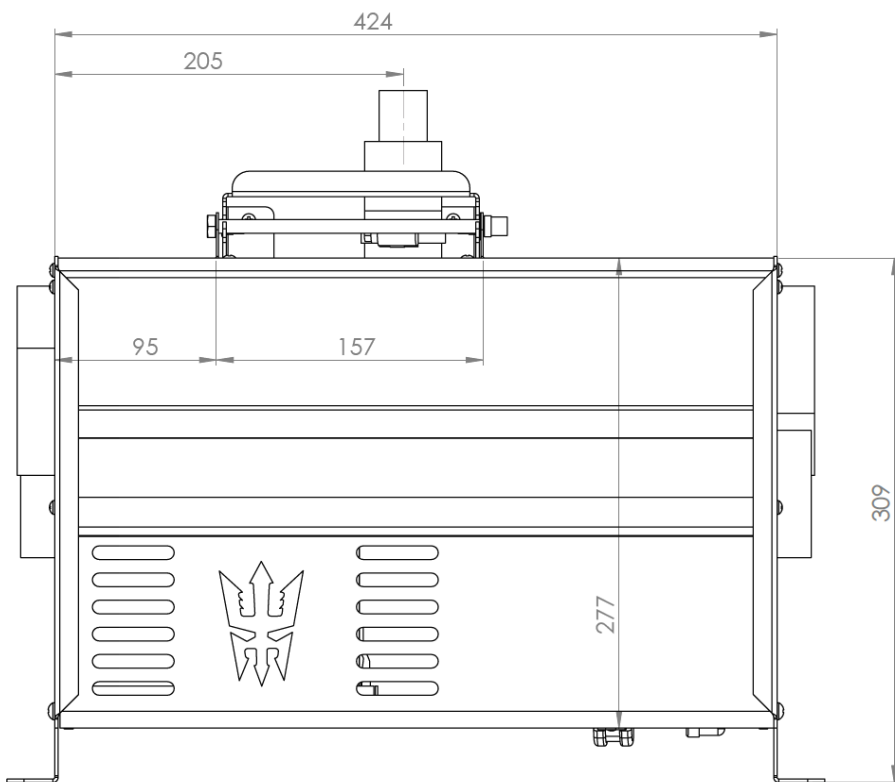


Lift the heater into the installation plate.



And lock the device with the mounting bolts.

Measures:



Electrical connections

Safety instructions for wiring the heater:

- Make sure that electrical cables are not damaged. Avoid: chafing, kinking, jamming or exposure to heat.
- Electrical connections and ground connections must be free of corrosion and firmly connected.

Things to note about the connections

All connections must be arranged in the craft so that they can function perfectly under normal operating conditions. Insulate unused cable ends.

The device uses 12 V (nominal) direct current voltage. To minimize current losses, make the power cable as short as possible and avoid joining. The cross-sectional area of the cable is dependent on the length of the power cord. The cross-sectional area of the cable must be consistent all the way from the stove to the battery. The maximum length of the power cord is 10 m, based on 6 AWG cable.

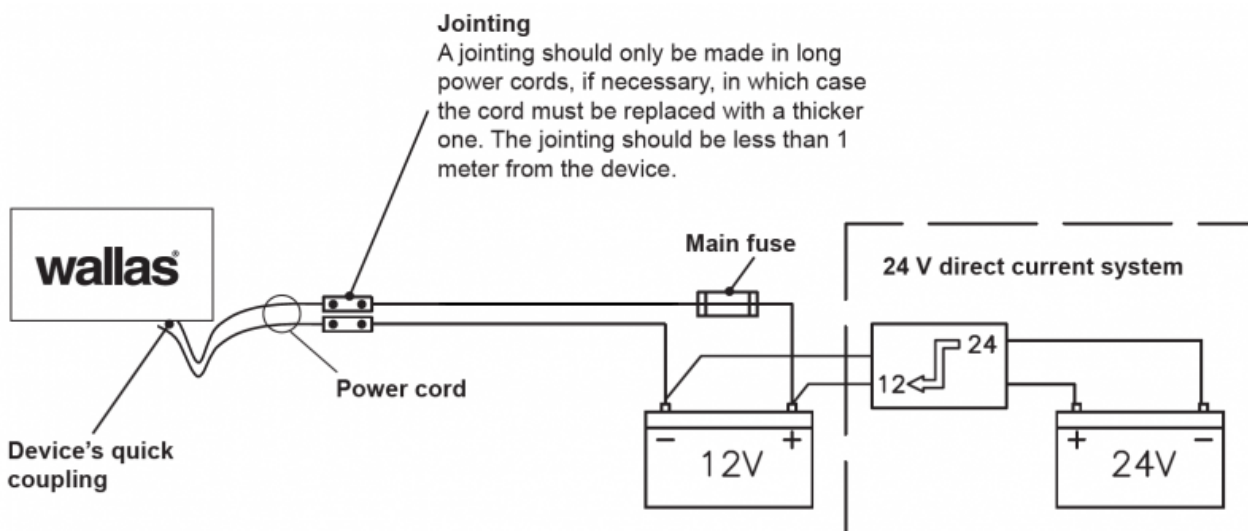
The cross-sectional area of the cable

Total length of the power cord (m)	Minimum cross-sectional area of the cable in square mm (US Gauge)
0-4	4 (12 or 11 AWG)
4-6	6 (9 or 8 AWG)
6-10	10 (7 or 6 AWG)

If a thicker cable is required, make a separate joint in the power cord. See picture "Electrical connections of the device".

Electrical connections B

Electrical connections from power system:



12 V direct current system

Connect the red wire of the power cord to the plus terminal of the battery and the black or blue wire to the minus terminal. A 15 A main fuse must be installed near the battery on the red plus wire of the power cord. See picture above.

24 V direct current system

If the device is to receive power from a 24 V system, always connect a charging voltage reducer and a 12 V battery before connecting the device.

Without the battery most voltage voltage reducers will not be enough on its own as it cannot generate the large amount of current the glow plug requires.

After the 12 V battery, the connection is the same as in a 12 V system. Note, if using remote wire, the remote wire also needs 12V, not 24V.

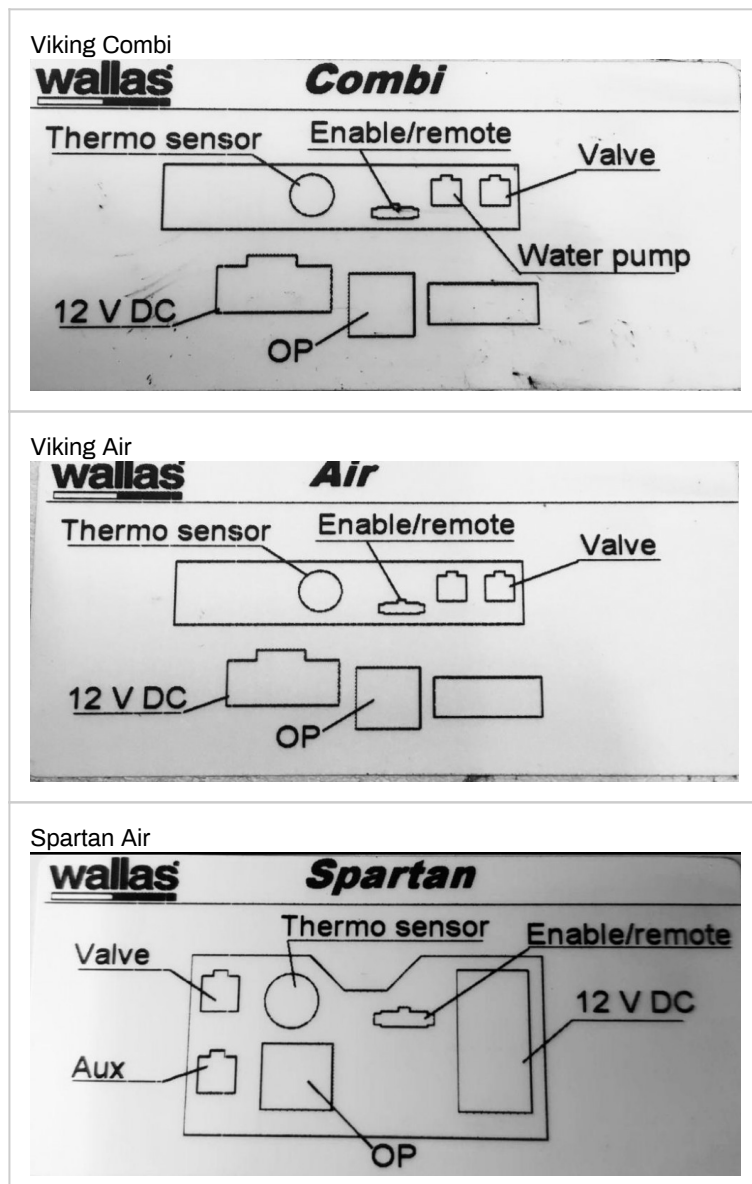
For DC DC 24/12 converter ask recommendation from your local dealer. There are major differences between them.

Checking the connection

The device consumes most power when it is started up (glowing). At this point voltage losses are also at their highest. During the glowing phase, the voltage must be at least 10 V measured at the quick coupling. See picture. If the voltage is lower than this, the device may not start.

All wires needs to be mounted with smooth bending and equipped with strain relief.

Connections of the device:



Standard package comes with Control panel(OP), Power cables(12VDC) and Wired Thermostat sensor(Thermo sensor) and you need to connect all of them to the unit according to below presented pictures.

Control panel cable connection point is OP.

Power cable connection point is 12VDC.

Wired Thermostat sensor connection point is Thermo sensor.

And for Spartan Combi unit you should connect Water Circulation pump to Water Pump location.

Accessory installation:

For installations(see page "Solenoid Valve") with solenoid valve(Wallas code 30012) cable connection point is "Valve".

Connecting Main Switch to Turn Off the Device - Blue Wire 363640 (sold separately and see under)



If the heater is needed to be shut down from the boat's main switch, use the remote wire **363640** to the heater, and connect the other end of the wire to the main switch. The heat will not start without turning the switch **ON**, and it will perform a controlled shut down when the switch has been turned **OFF**.

Please consult your local distributor or this additional manual:



<https://www.wallas.fi/index.php?id=246> --> Go to "Misc section" and click: Connecting Main Switch to Turn Off the Device - Blue Wire

Warm air ducting

Warm air ducting of the heater

It is important to plan the proper routing of the duct and the locations of the air registers. It is good to locate the heater as near as possible to the area being heated. Avoid the use of sharp bends in the ducting and keep overall bends to a minimum.

Outlet ducting

Heated air is distributed through the boat with **3410** ø 75mm duct. Multiple outlets can be installed by adding **3413** ø 75mm "Y" fittings leading to various locations. All duct to "Y" and duct to register connections should be clamped.

The **3411** air registers are adjustable for direction and flow and located at each duct termination point. It is important that sufficient flow is allowed by the installed registers to maintain (limit) the heater temperature. To ensure this for some applications, the adjustment flap of the register in the bigger heated space, will be removed. Too much resistance in the ducting (too many flaps closed) and the heater may overheat and shut down.

If the heater will be used mainly with thermostat control, the control panel should be located in the largest heated area. To minimize the loss of heat energy, any longruns and/or runs in areas that do not require heating can be insulated using **3412** insulation. Insulation nearer the heater will be more effective than insulation at the far ends of duct runs.

Inlet ducting and makeup air

The heater can take air for heating (makeup air) from either the heated area (return air) or from outside the boat (fresh air). In most cases, a mixture of both is the best choice. The upper of the intake air ducts should be installed to take fresh air from outside and the lower return air from inside of the boat. Intake air grilles **4411** should be installed into the head of the inlet ducts to preclude foreign objects from entering the heater. Protect the outside grill from splash water, spray etc. If the makeup air will be taken from the same space where the heater is installed, there is no need for the inlet air ducts, but **4413** protective grills should be present. There has to be minimum 200 cm² (32 square inches) ventilation/cooling air opening in the space where the heater is installed.

Make sure that intake hoses are installed so that there is no possibility to suck exhaust- or other fumes to the heater, it may lead carbon monoxide poisoning which has severe consequences to health or may lead to death.

Silencers

There are available silencers **3416** (75mm) and **4421** (90mm) for the air hoses. Especially if the inlet hose is taking air from inside from the sleeping space, and/or warm air outlet is blowing the air to the sleeping space the silencer is recommended to use to maximize comfort.

Silencers reduce the sound level 50-75%.



Exhaust gas connections coaxial

Exhaust gas lead-throughs

It is important to choose right part for right purpose. Coaxial exhaust gas lead-throughs **2467**, **5400** and the closable model **2460** are recommended for Wallas unit. The \varnothing 28/45 mm lead-throughs fit the exhaust gas hose **2448**, providing maximum wind tolerance.

Optionally, in special cases, the Wallas unit can be run using singular exhaust hose **1028** with **1030** insulation sock and the **1066** exhaust lead-through. In these special cases consult your with your purchasing location about installation.

All exhaust gas lead-throughs are stainless steel.

General instructions for exhaust gas connections

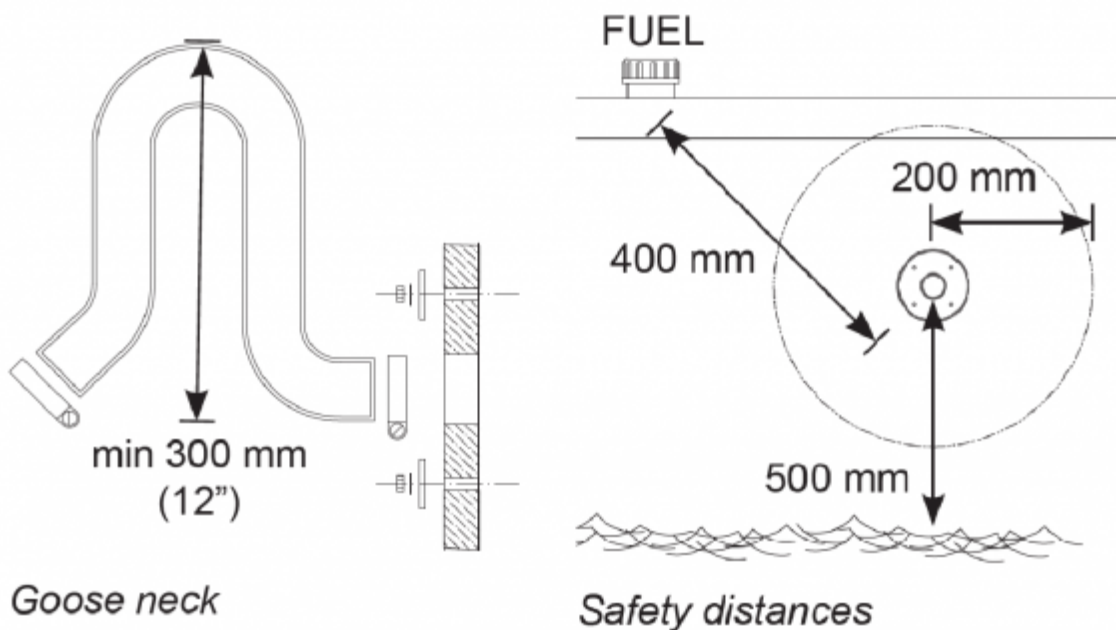
LOCATION

Air must always flow freely past the lead-through. Install the lead-through on a flat surface. Avoid corners or recessions where wind pressure can disturb the functioning of the device.

The minimum distance of the lead-through from the fuel tanks filler hole is 400 mm (16").

The minimum distance of the side lead-through from the surface of the water is 500 mm (20"). Especially in sailboats it should be noted that the lead-through must never be submerged for more than 5 seconds.

It is recommended to place the lead-through in the side as far back as possible or directly in the transom.



INSTALLATION

When preparing the installation cut-out for the lead-through, it is a good idea to use the lead-through as a model for the cut-out. Seal the installation cut-out with silicone in addition to the lead-through seal. **Note! Do not use silicone on a wooden boat.** The side lead-through must always be equipped with a "goose neck" section. The goose neck will effectively prevent splash water from getting to the device. The highest point of the goose neck must always be above the surface of the water. The device will go out, if the exhaust gas lead through is submerged for more than 5 seconds.

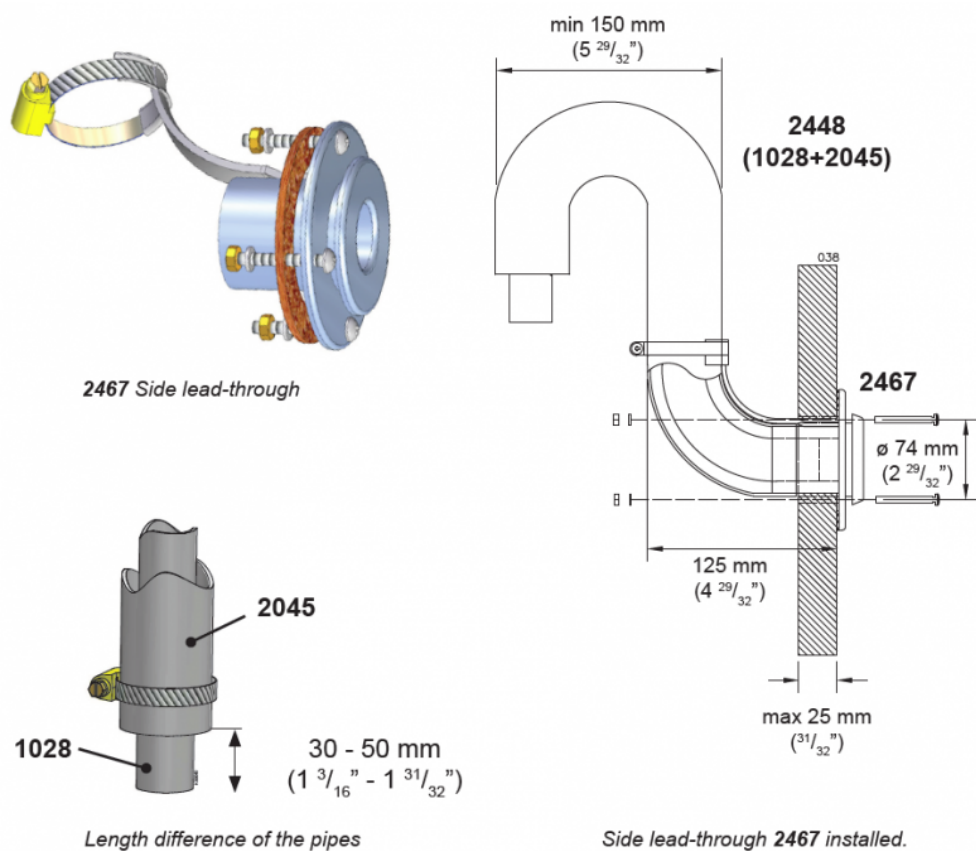
OTHER THINGS TO NOTE

Exhaust gas is hot. Always ensure that there is nothing that is susceptible to heat damage within 200 mm (8") of the effective area of the exhaust gases (e.g. ropes, fenders or the side of another boat). All lead-through's raise the temperature of their surroundings. A wooden deck, in particular, may dry due to the heat. Remember that the surface of the lead-through is hot during use.

Singular exhaust hose **1028** with a length of more than 2 meters (7') has to be equipped with a drainage lock **602293** (condense water) located to the lowest point of the tube. With coaxial exhaust hose **2045** drill app. 2 mm (3/32") hole to the lead-through or to the exhaust pipe to get the water out.

The exhaust gas pipe must be made of stainless steel. If necessary, seal the connections between the exhaust gas pipe and the lead-through with heat-resistant silicone. When installing the lead-through to the stern side or to otherwise leaning position, be sure that the water do not stuck the exhaust.

Side lead-through 2467



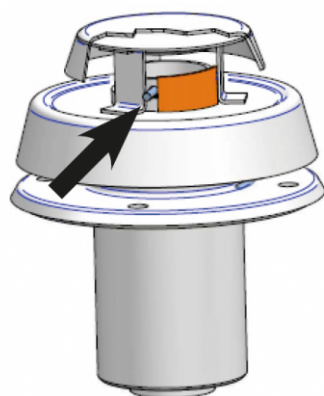
*Side lead-through 2467 installed.
The installation cut-out is Ø 50 mm
(1 31/32") and the screw holes are 4
x Ø 6 mm.*

A side lead-through is installed in the side of the boat or in the transom. In sailboats it is recommended to install it in the transom. The installation always requires a so-called goose neck. Make the necessary installation cut-outs and spread a suitable sealing agent on both sides of the seal and on the screw holes. This will ensure that the connection is waterproof.

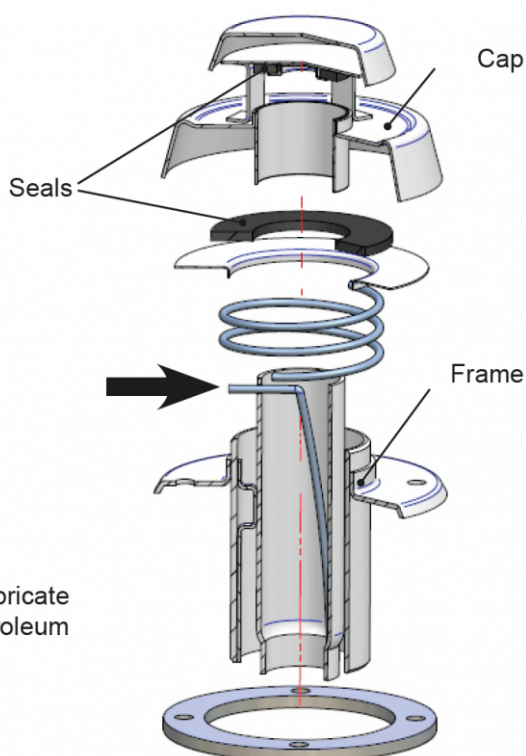
The **1028** exhaust gas pipe must be 30-50 mm (1 3/16" - 1 31/32") longer than the **2045** inlet pipe. This way the exhaust gas pipe will stay in place in the lead-through more firmly. The measurement depends on the overall length of the piping.

2467 package contents		
1 pcs	Side lead-through	
1 pcs	Accessory bag 17679	
	4 pcs	Fastening screw M5 x 40 mm
	4 pcs	Nut M5
	4 pcs	Washer 5,3 x 10 mm
	1 pcs	Hose clamp 32 - 50 mm
	1 pcs	Gasket

Closable lead-through 2460



2460
Closable lead-through.



Maintenance

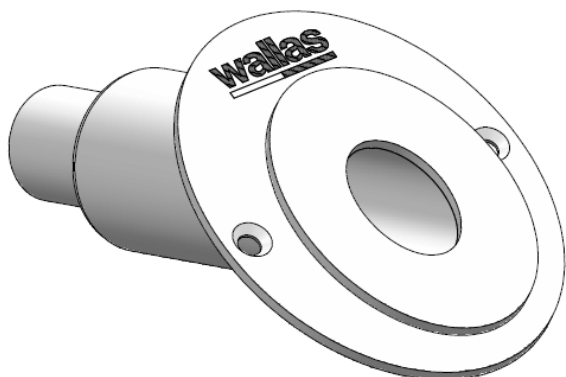
To keep the seals from hardening, lubricate them yearly with a heat-resistant petroleum jelly.

The cap of the closable lead-through must be detached for installation and seal maintenance by pressing the spring indicated by the arrow in with, for instance, a screwdriver. Take care not to let the screwdriver slip as the spring is very stiff. Hold the cap with your other hand when pressing in the spring. When the spring is down, pull the cap gently out of the frame. When assembling the lead-through, ensure that the order of the parts is correct. Also make sure that the spring goes in the correct hole in the cap. Otherwise, the lead-through cannot be closed.

Check that closable fitting is open before starting the device.

2460		
1 pcs	Closable lead-through	
1 pcs	Accessory bag 17676	
	4 pcs	Fastening screw M5 x 85 mm
	8 pcs	Nut M5
	4 pcs	Washer 5,3 x 15 mm
	4 pcs	Washer 5,3 x 10 mm
	1 pcs	Hose binder 32 - 50 mm
	1 pcs	Gasket

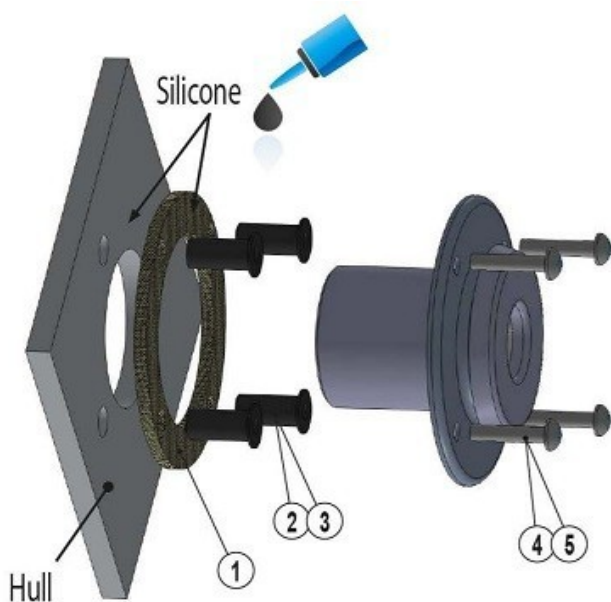
Stern lead-through 5400



Exhaust lead through for negative transom. Designed especially for sail boat's stern.

Follow instruction from coaxial lead trough.

Insulation kit



An insulation kit (**2461**) must be used to insulate the lead-through from the boat's metal hull. The insulation kit insulates the exhaust gas lead-through and the device from each other. In fault situations the insulation kit prevents electric circuit running between the metal hull and the device. This could result in the oxidation or malfunctioning of the device's circuit board and the circuit board would be damaged.

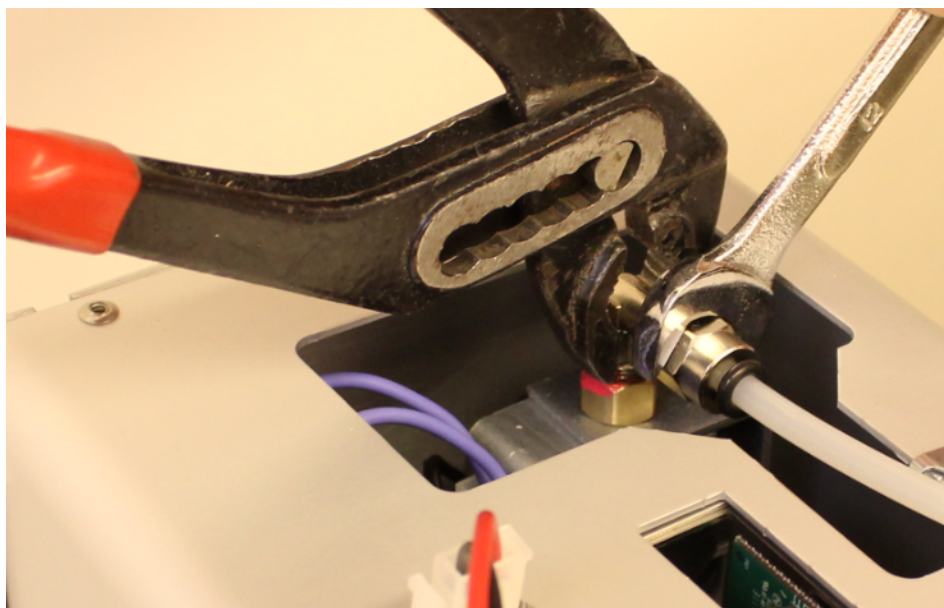
Fuel connections

The standard length of the fuel hose is 4 m (max 8 m). Cut the fuel hose to a length suitable for installation.

The lift height of the pump should be less than 2 m; preferably 0.5-1 m. The fuel pipe must always have a Wallas filter. The fuel filter can be installed either near the device, near the tank, or in another location where it can be easily checked and replaced, when necessary.

Diesel engine fuel filters and/or separators are not approved for use. All soft connections should be made with rubber or silicone hose which is resistant to fuel. When joining with rubber connectors, tubing ends should butt against each other.

Connection to a heater



Use pliers to hold the pump inlet elbow steady, while you tighten the 12 mm fuel line nut. The joint has to be very tight to prevent air leaks.

Tightening torque is 19Nm(14ft/lbs).

Country-specific requirements

The standard fuel hose is plastic. Please observe country-specific requirements with regard to the material of the fuel hose/pipe and the fuel filter. The inner diameter of a new replacement hose should be equal to the inner diameter of the plastic hose. Copper pipe **300692** and metal filters **30016** are available as accessories. Ask local requirements from your distributor.

Fuel feed

If the lift height exceeds 2 m, the fuel feed must be checked and, if necessary, adjusted.

The fuel feed must also always be checked, if parts of the fuel system, such as the pump or the electronics card, have been replaced. Fuel system adjustments are device specific. These adjustments should only be carried out by an authorized service shop.

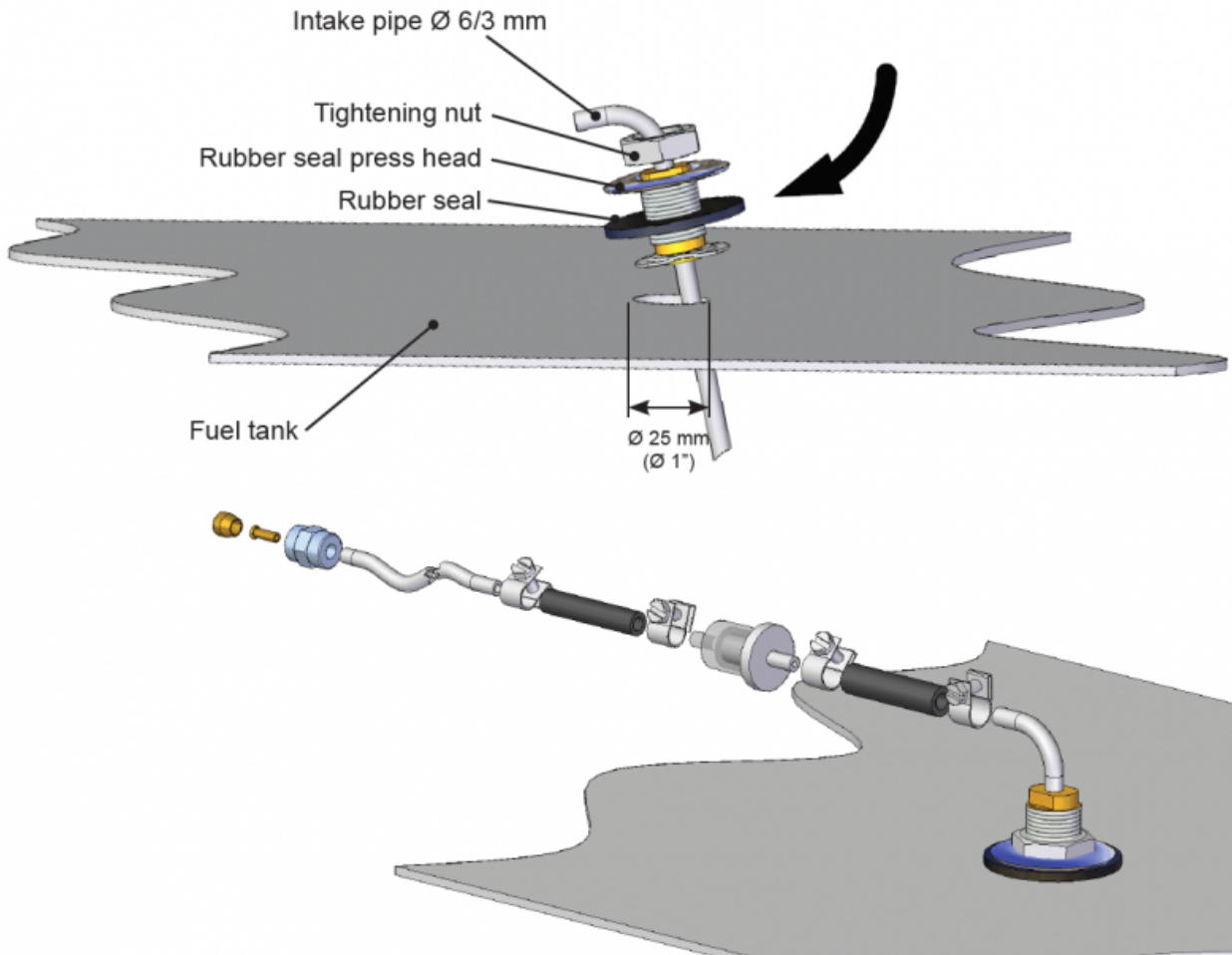
Connection to a fixed tank

The device must have a dedicated connection with a fuel filter outside the tank.

Connection to a separate tank

Cap run-throughs and sintered filters are used on plastic tanks. The fuel tank should be mounted securely.

Fixed tank connection 30011

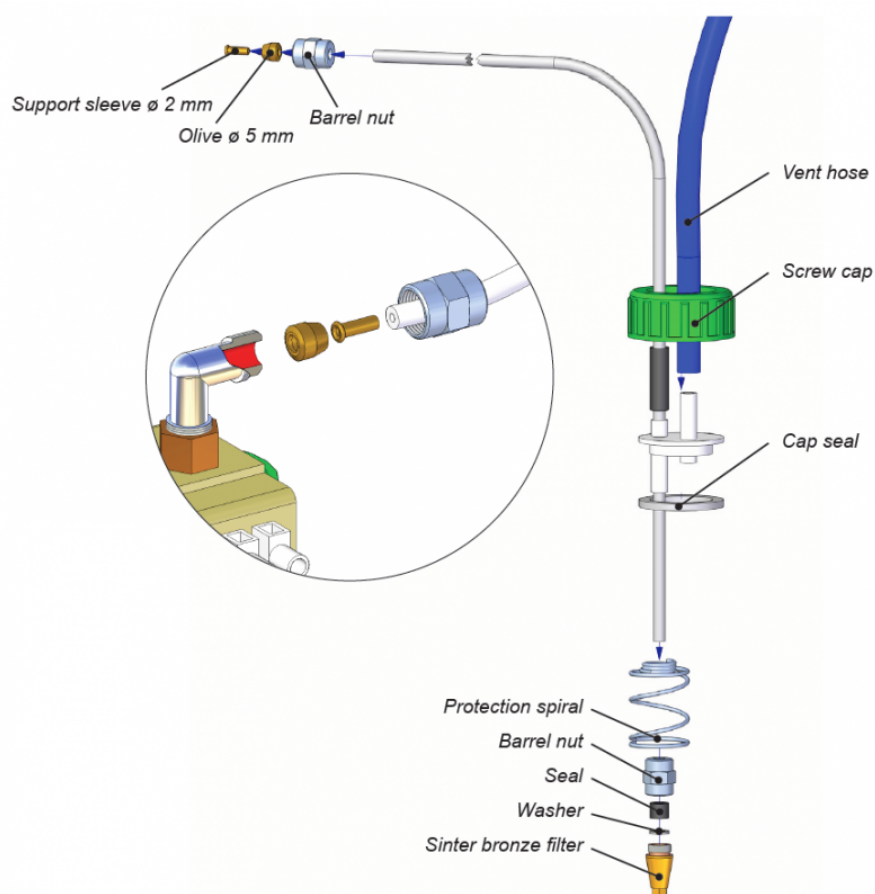


Installation instructions for Tank connection 30011

- You will need to make a \varnothing 25 mm (1") hole in the upper surface of the fuel tank. Choose the location of the hole so that when the fuel tank tilts the end of the intake pipe will stay in the fuel even if the tank is not full. If the end of the intake pipe does not reach the fuel, the device will quickly choke on the air in the fuel system and that can cause malfunction to the system.
- Cut the fuel intake pipe (\varnothing 3.2/0.8 mm) to the appropriate length. The end of the pipe must not touch the bottom of the tank in order to keep water and sediment from the system. It is recommended to cut the pipe short enough to leave the engine intake pipe at a lower level. This way the device cannot empty the tank.
- Install the pipe straight end first and angle the two "ears" below the threaded barrel inside the hole and then align the threaded barrel vertically so the ears are hooked on the underside of the tank top. Carefully slip the rubber washer over the bent pipe end and over the threaded barrel, followed by the metal washer and the nut. Thread the nut to the threaded barrel and tighten, sealing the fitting to the top surface of the tank.

Separate tank connection

Installation instructions for separate tank connection



If the fuel will be taken from a separate Wallas day tank, you must install a tank connection **367215** (4 m) or **367216** (6 m).

- Tighten the barrel nut tightly to the fuel pump connector at the device end of the fuel system. Keep the parts and the hose clean and ensure that the connection is tight, because an air leak in the connector will stop the device from functioning.
- Install the tank connection in the tank.
- The joint has to be very tight to prevent air leaks. Tightening torque is 19Nm.

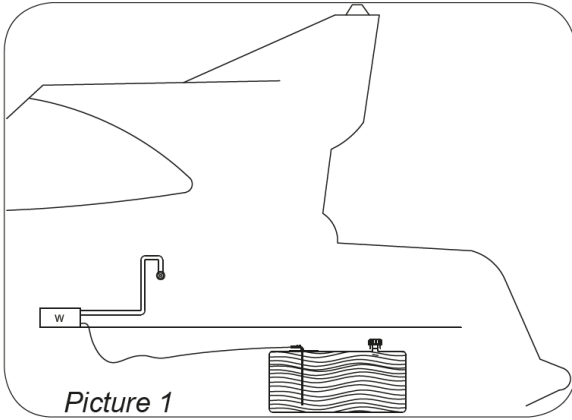
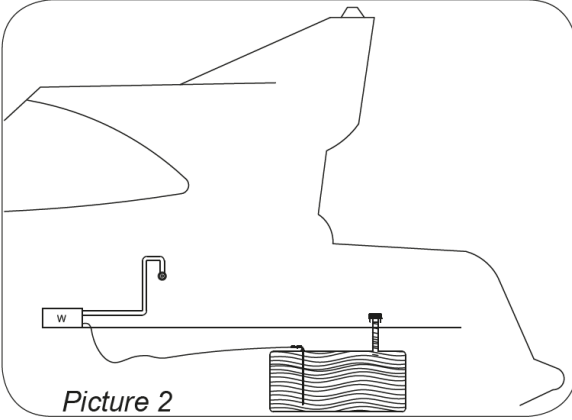
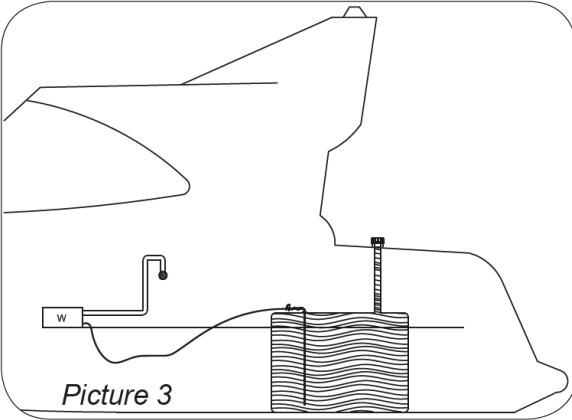
Wallas fuel tanks

Volume	Length x height x width	WALLAS code	
5 l	200 x 300 x 130 mm	2024	(accessory)
10 l	380 x 195 x 210 mm	2027	(accessory)
33 l	500 x 230 x 350 mm	4030	(accessory)
130 l	800 x 400 x 600 mm	4130	(accessory)

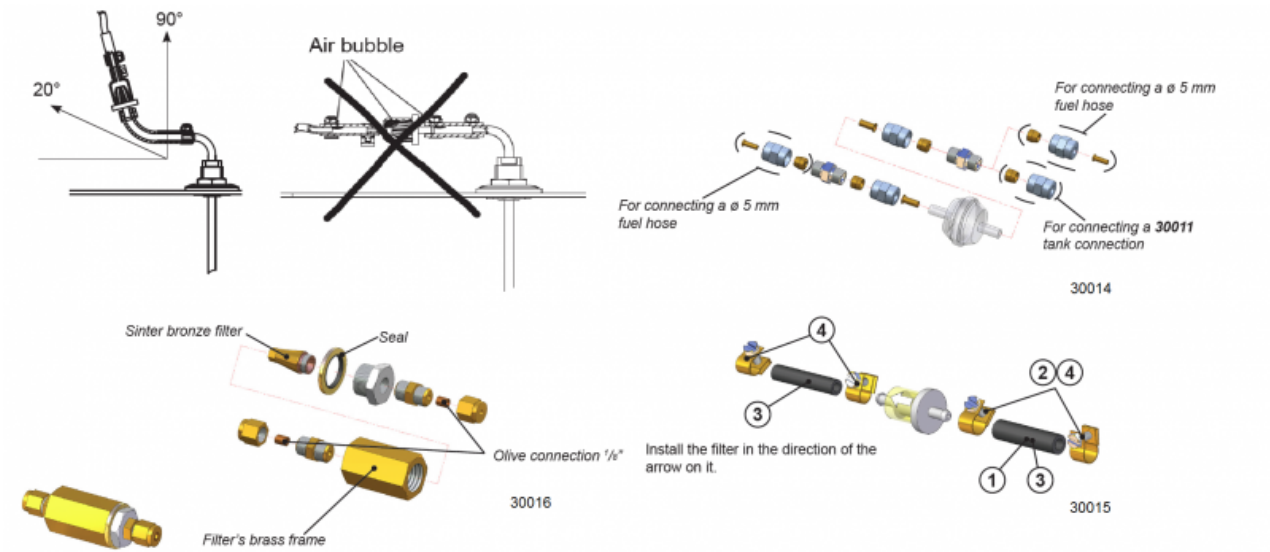
Solenoid valve

The solenoid valve **30012** (available as accessory) prevents the tank from emptying in case the fuel line breaks. The fuel filter should be installed before the solenoid valve.

Our recommendations in the following installation scenarios:

<p>1. Fuel level is below the heater/stove. Picture 1.</p> <ul style="list-style-type: none"> • Recommended installation scenario • No special accessories required 	 <p><i>Picture 1</i></p>
<p>2. Fuel level may temporarily rise above the heater/stove (e.g. in the fuel tank filler pipe or when the boat tilts). Picture 2.</p> <ul style="list-style-type: none"> • No special accessories required but solenoid valve 30012 is recommended. 	 <p><i>Picture 2</i></p>
<p>3. Fuel level is above the heater/stove. Picture 3.</p> <ul style="list-style-type: none"> • Non-recommended installation scenario • Possible siphon problem • Solenoid valve 30012 must be installed in the fuel hose near the tank. 	 <p><i>Picture 3</i></p>

Tank external filters



Filters can be installed in a $\varnothing 5$ or $\varnothing 6$ mm plastic tubing or $1/8$ " metal pipe. Ensure that the fuel pipes are clean before installing the filter. There must be no debris or impurities between the pump and the filter as they will clog the pump. The filter type must be selected according to the operating conditions and country-specific requirements.

Fuel filter 30015

The filter can be installed directly in the **30011** tank connection by using a $\varnothing 6$ mm rubber hose (1) and 10 mm hose binders (2). Alternatively, the filter can be installed between two $\varnothing 5$ mm fuel hoses with $\varnothing 5$ mm rubber hose (3) and $\varnothing 8$ mm hose binders (4).

Fuel filter 30016

Used in countries where a metallic fuel transfer system is required. A $1/8$ " metal pipe is used for the installation.

Device operation

Ignition

The start-up process and heating is automatic.

The heater will ignite when the heaters starting icon is(3) selected and long pressed. A heating indicator text "starting will, indicating that the heating is on.

A orange flame indicator light(1) will be lit when the burner flame has been ignited and the combustion has stabilised after about five minutes after the ignition. The whole process takes about 11 minutes.

First start-up

After installation or maintenance, if the fuel line is empty, the heater may not start at the first attempt. Start-up phase with empty fuel line is longer than normally and might take about 15 minutes. If the heater doesn't ignite the orange combustion indicator light will not appear and panel gives error information. Turn off the heater. The device cannot be restarted until the cooling phase is completed. When the cooling phase is finished, switch the heater on again. If the device does not start after two attempts, it cannot be started again: the heater will lock itself shows and shows lock icon. Find out the reason why the unit didn't start and follow error solving instructions. After locating the fault, release the locking (instructions in the maintenance section) and start-up the unit. Depending on the length of the fuel hose, the heater may have to be started up several times during priming. Keep an eye on how the fuel travels in the fuel hose while starting up the heater.

Adjusting the heat

Adjustment of temperature can be done by using thermostat mode (recommended use) or manual mode. The desired mode is chosen by choosing thermostat- or to manual mode in control panel when unit is in off-mode. When thermostat mode is chosen temperature, degrees is shown. In settings you can choose Celsius or Fahrenheit. In manual mode there is only number from 1-6. Note! the heater will remember it's last mode ie. if it is shut down in thermostat mode next time when ignited it will start in the same mode ie. thermostat mode.

Thermostat mode:

Temperature is controlled by the thermostat (recommended use) The device starts when the heating switch (3) is pressed in continuously for at least 2 seconds, after which the yellow power indicator light (9) lights to indicate that the power is on. The orange combustion indicator light(1) will be lit, when the burner flame has been ignited and combustion has stabilized. The starting phase will complete after about 11 minutes. After this phase, the heater will run according to set power, adjustable by selecting temperature. After the heater has passed the ignition phase, you can adjust the thermostat temperature by selecting desired temperature (2).

Pause mode:

The pause mode pauses the device automatically, if the temperature rises above the requested temperature, for example, due to sunlight. The temperature must rise over +2 °C above the set value for a half an hour. If the device has been paused, "pausing" text will appear to the screen. Pause-mode can be turned off by rising target temperature. Heater will start automatically from pause mode when temperature has fallen over 2 degrees under target level.

Manual use

The power can be adjusted manually. To enable this function select thermo-mode from main menu when heaters is off. After the heater has been started up, the power can be adjusted smoothly by pressing right or left with buttons. From manual mode to thermostat mode you can go by shutting down the unit, selecting thermostat mode, and by starting unit.

Air boost:

The air boost is meant to be used when you need higher air volume, for example to remove moisture. When the heater is running, the air boost can be activated by selecting and pressing the ventilation fan icon by buttons(7). The heating continues according the set effect. The air boost is indicated by arrows and orange color in ventilation fan icon. When you press the icon second time shortly, the air volume goes to normal and color changes to the

white.

Ventilation:

Fresh air ventilation activates by selecting ventilation mode in main menu and pressing long start button. Ventilation is indicated with light in ventilation mode and orange light on/off icon. Ventilation is deactivated by pressing long the on/off button. On/off icon will change to white which indicates that unit is off. The ventilation can be adjusted smoothly by selecting power level from 1 to 6(most powerfull).

Shutdown:

You can shut down the heater by pressing the central button over 4 seconds. White color in on/off indicates that unit is shut down.

Remote control :

The heater can be controlled with IOS or Android WALLAS REMOTE APP in local network or over the WLAN network. Read instructions from APP manual.

Control Panel basic features.

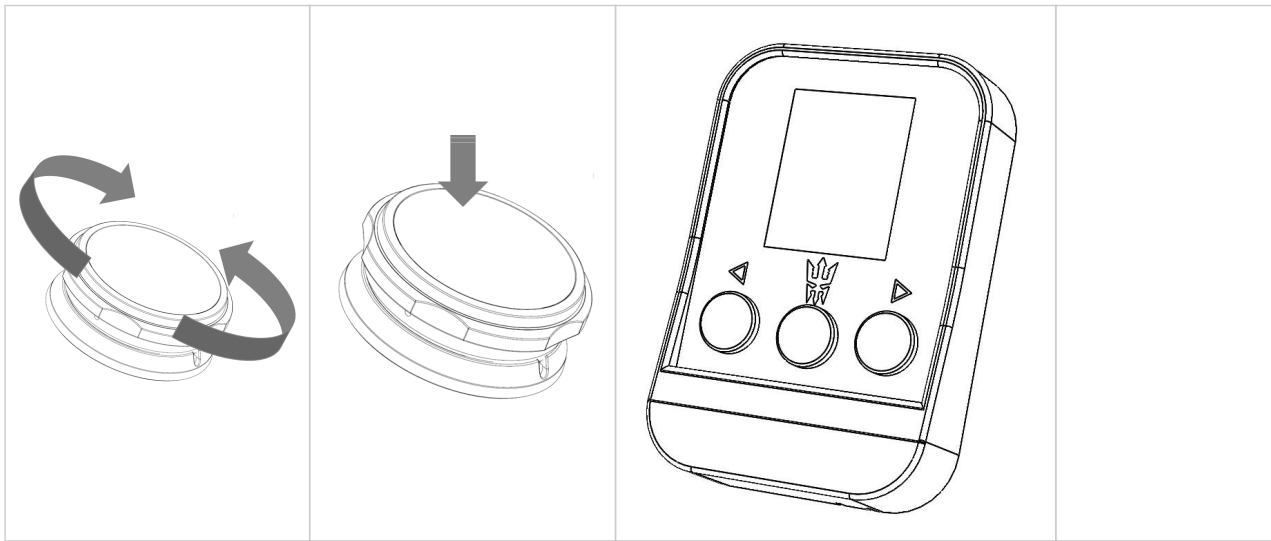
Intelligent Control Panel

There are two different control panel models : 3007 and 3008.

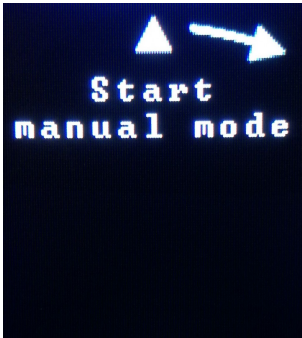
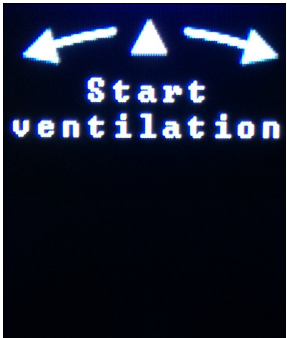

3007 Control Panel is operated by rotating the Control Ring and making selection by pressing the button in the top of the display.

3008 Control panel have buttons.

At first, make sure that the Intelligent Control Panel is assembled correctly with the assembly plate (see assembly instructions from sales package). And connected into the Wallas unit. This manual refers to Control panel SW 1.2.75. And heater SW 1.6.64




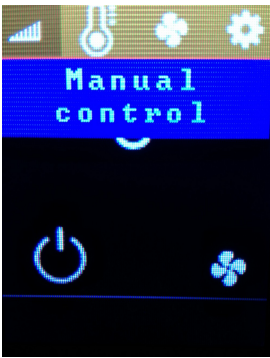
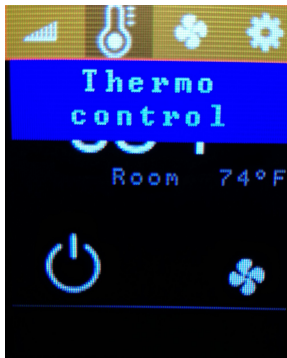
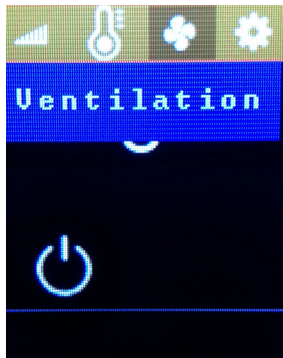
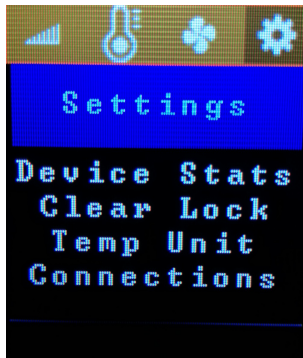
After powering the panel for the first time, turn the control ring or press buttons and your display will appear similar to the images below.

			
<p>View modes by rotation control ring/or pressing buttons to right or left side.</p>	<p>Select a function by pressing the button</p>	<p>Last mode is settings (gear) when selected this displays is shown.</p>	

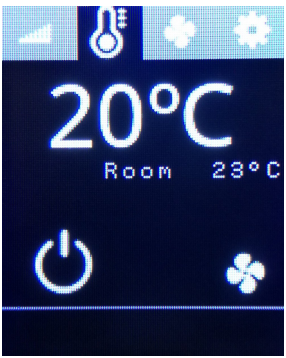

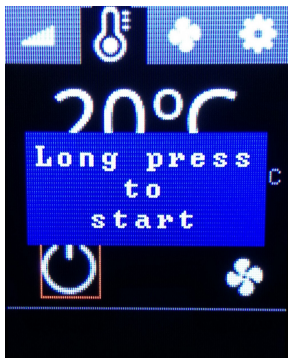
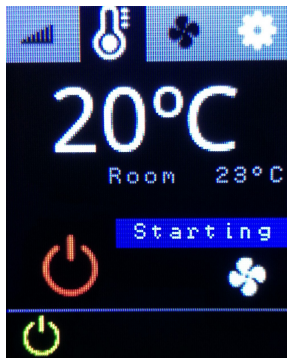
Note: Wallas unit's starting procedure will take few minutes (5-8 minutes). To get familiar with the Control Panel's functionality, select Settings Menu (gear icon).

By pressing the button again it will open the main menu displays.


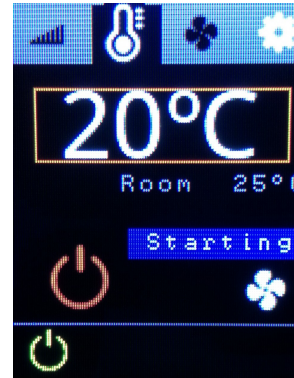
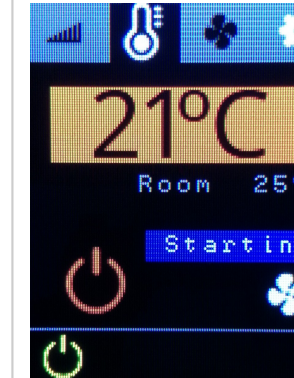
Display areas:		Main menu (selectable)
		Temperature target (selectable)
		Room Temperature
		Heater status, indicates heater state.(starting, stopping, etc..)
		ON/OFF and ventilation fan boost (selectable)
		Info bar : On/Off , flame, info, lock, heater power %

			
<p>Manual control</p> <ul style="list-style-type: none"> - heater power is manually controlled - power levels 1-6 (6 is highest) 	<p>Thermo control</p> <ul style="list-style-type: none"> - set the desired target temperature - heater controls the power level automatically 	<p>Ventilation</p> <ul style="list-style-type: none"> - ventilation fan speed is set - speed levels 1-6 (6 is highest) 	<p>Settings</p> <ul style="list-style-type: none"> - See details below

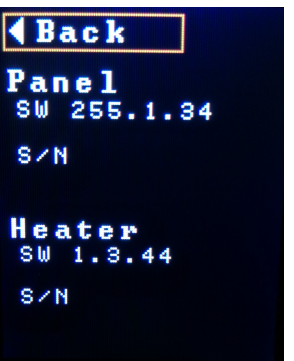

Example: start heater in thermo control mode.

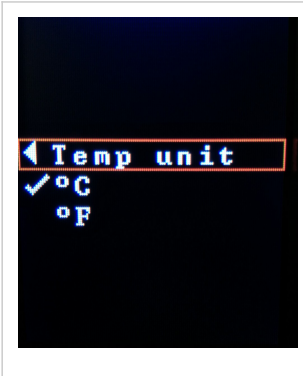
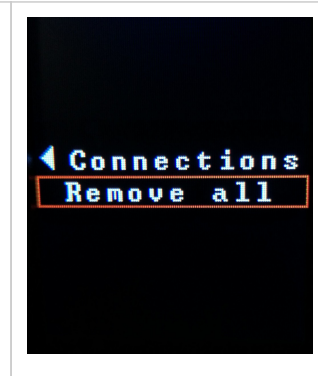
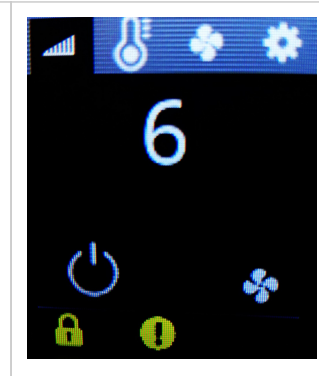

			
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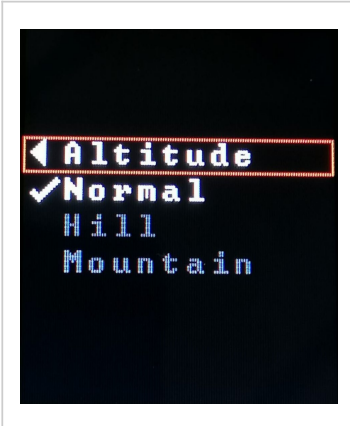

<p>Select thermo control mode from the top menu.</p>	<p>Rotate to set the orange selection square around the start icon and select.</p>	<p>Confirm selection with long press on top of panel. (long press is for child safety)</p>	<p>Device is started and <i>starting</i> indication text is shown. Device is stopped by selecting Start/stop icon again and long press. (Pressing select button more than 6 seconds will stop the heater)</p>
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<p>After few minutes heater is ignited and flame indicator is shown. Heater will start increasing power.</p>	<p>Scroll the selection square around the temperature target and press the button.</p>	<p>When temp selection is active and you can change temperature target setting by rotating the Control Ring.</p>	

Settings:

			
<p>Settings menu - you can scroll and select the row. For example, select " Temp Sensor".</p>	<p>Temp sensor -wired is sensor hardwired to heater unit. - wireless sensors are listed by sensor address. -when wireless sensor is selected it gets running number ID.</p>	<p>Device Info - shows you heater software versions.</p>	<p>Device Stats - shows you heater statistics. - heater voltage - last error message</p>

			
<p>Temp Unit - select temperature unit Celcius / Fahrenheit.</p>	<p>Connections - clear all bonded mobile phone devices.</p>	<p>Lock is safety feature. - if error message "Device locked" is shown and lock indicator is displayed. - CHECK the heater for any fuel leaks or other problems and fix them before removing locked state by selecting "Clear Lock"</p>	<p>Remove safety Lock by selecting "Clear Lock" from settings menu.</p>

			
<p>High altitude switch. Heater operation can be optimized to different altitudes.</p>	<p>ERROR message - If something goes wrong, there are many error messages, and they are shown immediately when error happens. - If there are three errors in a row the Wallas unit will be Locked for safety reasons.</p>		

Software update

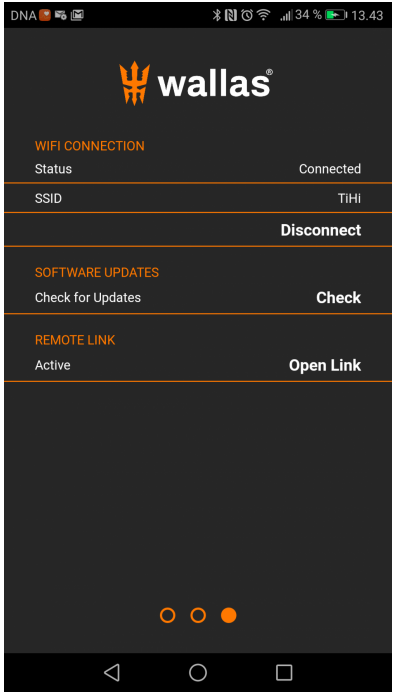
Software updates are recommend to check and do annually to ensure optimal heater performance.

Before software update:

- check that unit and cell phone have sufficient level of power in battery
- check the WiFi and internet connection
- be prepared to disconnect control panel cable, or heater power to make master reset to the system.

SW update is a complicated process, and something may happen during the update, example :sudden network failure, which can effect to you boat heating.

Therefore it is forbidden to start SW update for control panel if the Wallas heater is the only heat source and being unable to start heater would create a danger.

	<p>For SW update make sure you have strong and reliable wifi signal. Wifi HotSpot name (SSID) is visible in application page and status is "Connected".</p> <p>It is advised to turn the heater "OFF" before starting the update. Update may take up to 6 minutes, depending on network and connection.</p>	<p>If new SW version is available "Update link" will appear into display. Select update. Do not close application or heater power while update in ongoing. Control panel display will close and start a few times during the update. After the update is done, control panel will start and application will reconnect to panel. Note in some phone model you may have to re-bonding after SW update again.</p>	<p>Wait 5 minutes update to finish.</p> <p>If update is not succesfull, file error: - start update again after few minutes</p> <p>If update is stopped during download (% count is no 100%) -close application -restart you device BT. - start update again.</p> <p>if update is not able to finish: - find different place, where wifi signal is better or wifi hotspot has better connection.</p> <p>If control panel is jammed during update , disconnect panel cable and try again after few minutes.</p>
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Wallas Remote application and Control Panel connection

Local Connection

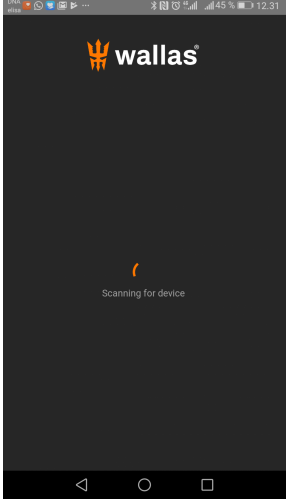
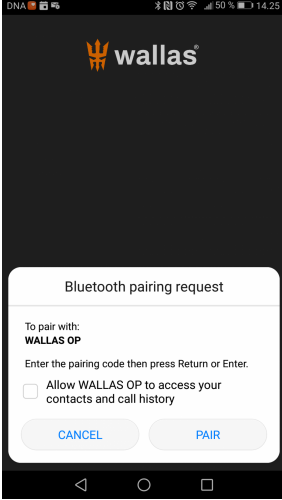
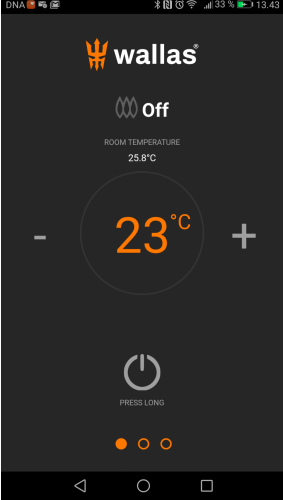
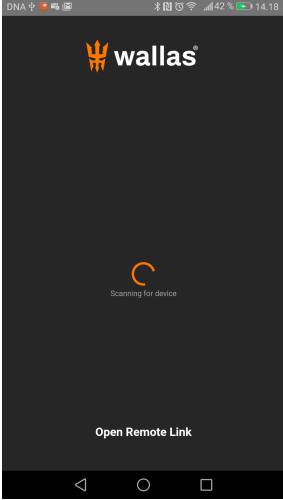
Control Panel can be connected into mobile application with local connection.

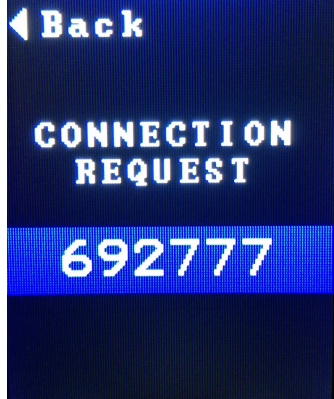
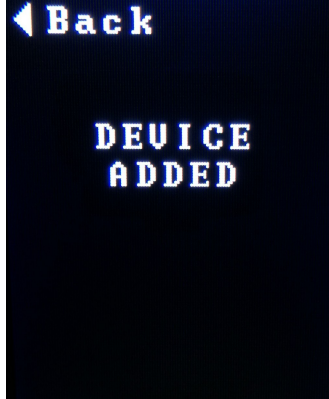
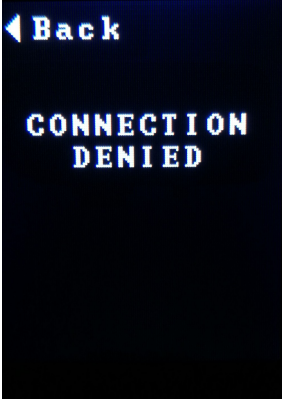
You can then operate you heater with the "**Wallas Remote**" application.

First you need to download the Wallas Remote application to your mobile device from your application store.

When you start **Wallas Remote** first time it will search if there is a Wallas heater with intelligent Control Panel in range.

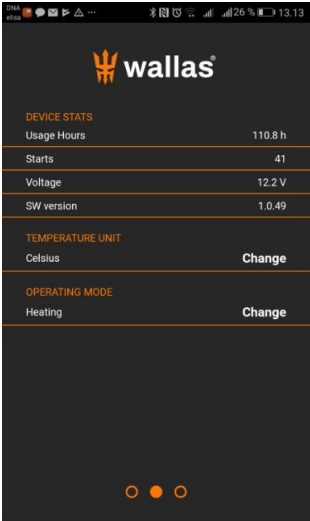
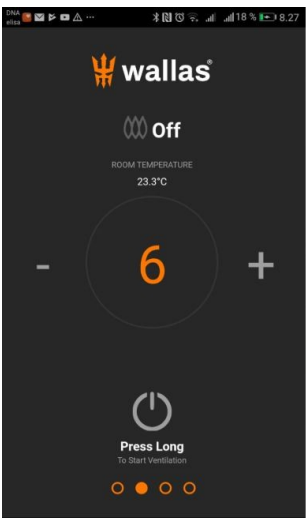
When it locates the heater it will start heater and application bonding process.

			
<p>First time connected application search for near by heater.</p>	<p>When heater is found : -fill PINCODE from Control Panel display. **</p>	<p>After connection is ready: -Set room temperature target. -Start heater.</p>	<p>When you start application and heater is not in range you can operate heater by opening the "remote link". Note: your heater must be connected to the internet.</p>

		
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<p>- Control panel will display pin code. **</p> <p>- you need to give this pin code into your mobile device.</p>	<p>Control panel will tell when bonding was successful.</p>	<p>- If connection is not free (someone else is already using the connection) remove old connection first from Control Panel . (settings / connections/ remove)</p>
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After pairing mobile application and control panel will remember connection when you re-enter into operating range.

			
<p>Heater OPERATING MODE can be selected from application. Select: "Heating" or "Ventilation".</p>	<p>Application ventilation power can be adjusted 1 to 6 (highest). Note . Heater must be stopped before changing operation mode from ventilation to heating.</p>		

WiFi Connection

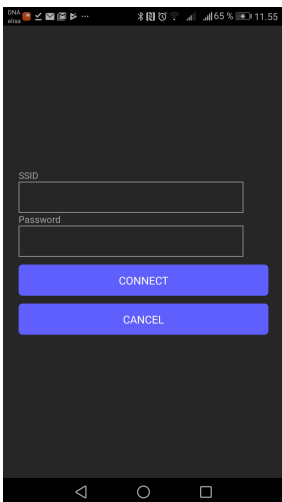
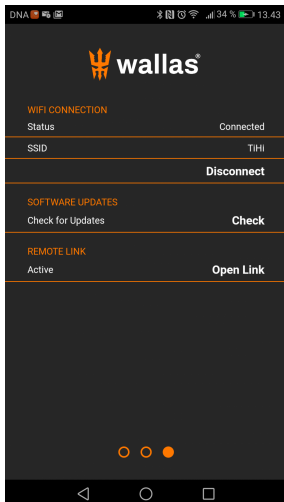
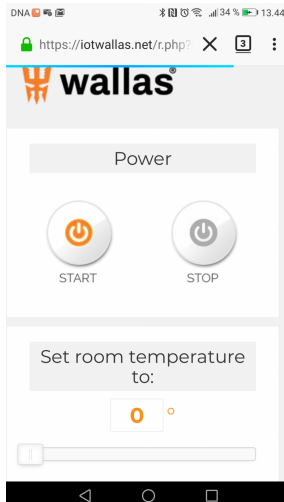
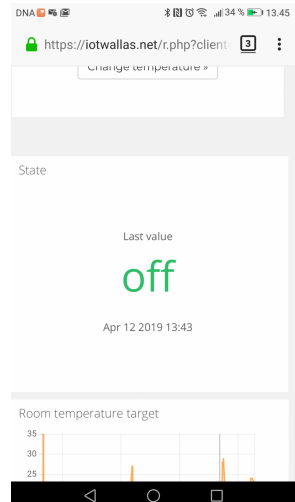
Control panel can be connected to the internet with WiFi connection.


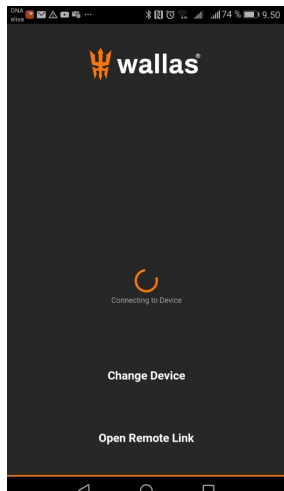
You can then operate your heater with the "**Wallas Remote**" application through Internet.

Wifi connection is created through Wallas Remote application . (Local connection between application and Control Panel must be available before setup)

When you first time select connecting, application will ask SSID and Password. Application will share this information with Control Panel.

NOTE! If you sell heater or give it away you need to clear Wifi settings. (SSID="empty", password="empty") . You should remove wallas application from your device.

			
<p>Feed your internet connection details.</p>	<p>When internet connection is finalized status will be "connected" After few minutes "REMOTE LINK" will appear .</p>	<p>"REMOTE LINK " display will connect to internet panel. You can : - set room temperature target - start /stop your heater Note: heater start and stop takes several minutes.</p>	<p>You can see when heater was last connected into internet, and what is the heater state. You can see some statistics of your heater. Available graphs will vary depending of your heater model.</p>

			
<p>Note! Before you can operate heater, you need to read safety warnings and agree.</p>	<p>When you start application and heater is not in range you can operate heater by opening the "Remote Link". If heater is not found after several attempts " Change Device" link appears. Change Device link will clear heater pairing information from application, and you may connect application into other Wallas heater.</p>		

Wallas-Marin reserves right to develop application useability and features.

Connections tips:

1. Read your mobile device user guide how connections and Wifi connections are managed in your device.
2. Make sure your mobile device local connections and WIFI is allowed in you mobile device . (flight mode is OFF)

-
3. Your mobile device is not in power save mode and location permission is given to Wallas application.
 4. Check that heater is connected into power and Control panel is connected into heater. (Rotate panel control ring , lights on)
 5. Distance between Mobile device and Control Panel is not too long.
 6. Control Panel is not in use by other person, (only one local connection can operate panel at time.)
 7. If your mobile device has already connection into heater it can not create new before old connection is removed from your device. In some phone models this has to be made manually. Remove "WALLAS OP" from your phones paired BT devices list (note there might be several OP pairings in mobile device list, remove all) and restart Bluetooth before new pairing is possible. This may be the case if control panel pairing code only blinks fast and your mobile device is repeating the connection requests.
 8. Change connection to other Wallas heater.
 - close Wallas remote application .
 - remove old connections from your mobile device bluetooth paired devices list. Restart your devices bluetooth.
 - if there is no other users for new Wallas heater you can select Control panel menu Settings/ Connections/remove all
 - Restart application. When/if "Change Device " link appears (30-60 sec) press the link.
 - Wait connection procedure to finalize. Note in some phone models Pairing request will open in background info window. (See your mobile devices user guide.)

Installation and initial start-up

Installation check list before test-run

Installation

- Read manual and use only official Wallas parts
- Ensure that the boat/cottage/location is sufficiently ventilated.
- In boat heaters the exhaust pipe outlet must be at least 400mm(16") away from the opening for filling fuel or tank breather.
- We recommend installing the control panel on a vertical surface where liquids are not able to leak into the switch and it is out of reach of children.

Fuel system

- Fuel for the device comes through a separate tank fitting, not via a manifold or connection shared by the engine or other device.
- Install the filter to the fuel hose before you install the device, in an accessible location for filter changes.
- Fasten the fuel hose couplings tightly. Always use a sleeve joint on the hose (olive ring).
- Make sure that the surfaces of the couplings are clean before fastening them.
- The hoses must be kept clean during installation.
- If the surface of the fuel tank is above the device, a magnetic valve must be installed into the fuel hose close to the tank.
- Cut the fuel hoses to the appropriate length when installing them.

Electrical installation

- The nominal voltage of the device is 12 VDC.
- Current for the device is taken directly from the battery terminals using cables that are as short as possible.
- Put the main fuse of c. 15 A on the + cable close to the battery.

Exhaust fumes

- When choosing the outlet location, note that exhaust fumes are hot.
- In boat heaters use a goose-neck in exhaust pipe to prevent splash water entering.
- If your installation location is a boat with metal hull, the device and outlet must be insulated from the hull to prevent electrochemical corrosion.
- The exhaust pipe must not come into contact with combustible materials. Insulate the exhaust hose, if necessary.

Warm air outlet(Spartan and Viking models only)

- If your heater has air hosing, do not reduce air hosing too much. Recommendation of \varnothing 75 mm outlet is to divide it to two \varnothing 60 mm outlets.
- It is recommended to insulate the warm air hoses to save energy.
- Note! All warm air vents are not allowed to be closed at the same time.

Initial start-up

- The device usually does not start the first time after it has been installed. It may take several starts (c. 4-6) for the fuel hoses to fill up enough for the fuel to reach the burner.
- Watch the hoses as they fill up as you start the device.
- After two unsuccessful start-ups, the device will lock.
- Follow the instruction for unlocking the device and try again.
- When the device starts, look for possible leaks in the exhaust and fuel connections.
- Run the device for c. ½ hour to allow possible installation and manufacturing greases to burn off. Make sure there is enough ventilation.
- Remember to carefully read the instructions for installing, operating and servicing each device before installation.

**Test-run performed**

Serial number	
Company	
Installer	
Installation date	
Signed	

Maintenance recommendations

Maintenance procedure	Maintenance interval	Carried out by
First inspection of basic functions	Inspection after first 500 hours of use or the first season of use	Authorised Wallas service shop
Cleaning the burner	The service shop recommends a suitable maintenance interval after performing the inspection of basic functions.	Authorised Wallas service shop

Special recommendations

Occasional (monthly) use of the device will increase reliability by purging old fuel.

Observe fuel provider recommendation with regard to the fuel type, fuel life length, additives and moisture removal.

If the device has a separate tank:

When selecting the fuel type, take note of the temperature limits of each particular fuel.

Winter storage

If the device uses the same tank as the engine:

- Change the fuel filter.
- Perform measures recommended by the boat/engine manufacturer to be performed before winter storage.

If the device has a separate tank:

- Drain the fuel tank in the autumn.
- Clean the tank and change the fuel filter.
- Fill the fuel tank with fresh and clean fuel in the spring.

For the device itself, you do not need to do anything.

Spare parts

Spare parts list, www.wallas.com

An anti-freezing agent for diesel vehicles may increase the forming of scale at the bottom of the burner and therefore shorten the maintenance interval.

Warranty terms

Wallas-Marin Oy (the manufacturer) shall be liable for any defects in the raw material or manufacture of the products and items sold by the importer for 2,000 operating hours or 24 months from the date of sale (whichever comes first) under the conditions noted below. Calendar term of the Warranty can be extended by an additional 12 months by registering the product in the website of Wallas-Marin Oy (www.wallas.fi) within three (3) months of the unit being sold to the end customer.

1. In the event of a defect:

- Look at the check list on the website or installation / usage manual (www.wallas.fi) to make sure the defect in question is not related to use. A simple problem might not be covered by the warranty water in diesel or unit requires a service.
- Notification of the defect must be given in writing immediately, if possible, but no later than two (2) months after the appearance of the defect. After the warranty period ends, a referral back to a notification at the time of the warranty period is not valid unless the notification was made in writing. A valid receipt or another reliable official document of the time of purchase is required for proof of warranty eligibility.
- For repairs under warranty, the customer must take the product to the place of purchase (the seller is responsible for handling units with warranty issues), to an authorized repair shop or to Wallas-Marin Oy factory service. Warranty service must be done by authorized Wallas repair personnel. The warranty does not cover costs for the removal and reinstallation of the device or for any damage in transit of a device that has been sent for repair. Warranty does not include any transport costs. (Wallas is a return to base warranty).

The customer must provide the following information in writing for warranty service:

- description of the problem.
- a description of where and how the device was installed (photographs of the installation may help)
- product type and serial number, place and date of purchase

2. This warranty is not valid in the following cases when:

- failure occurs as a result of components, which are not approved by the manufacturer, have been added to the device, and/or, it's structure has been modified without the consent of the manufacturer.
- the instructions for installation, operation or maintenance have not been followed according to this manual.
- storage or transport has been inappropriate.
- a problem has resulted from an accident or damage, which Wallas has had no control over (force majeure).
- the product has suffered from improper handling, unsuitable fuel, low voltage, excess voltage, damage due to dirt, water penetrating in to the unit or corrosion
- the device has been opened without the explicit permission of the factory/importer
- components, other than original Wallas spare parts or components, have been used in the repair of the device.
- repair by unauthorized service company

3. Warranty does not cover consumable or wear parts, which include: glow coil/plug, bottom mat or wick, fuel filter, seals.

4. Repairs carried out during the warranty period do not renew or alter the original warranty period.

5. Indirect damages arising from a defective product are not covered by this warranty.

6. This warranty is only valid for products used, installed and maintained according to this manual.

7. This warranty does not limit rights specified in consumer protection legislation.

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

Wallas - Spartan Air

Wallas-Marin Oy

Kärriykatu 4

20780 Kaarina

Finland

<https://www.wallas.fi/>

service@wallas.fi

Oikeudet muutoksiin pidätetään.

Vi behåller rätten att göra ändringar.

We reserve the right to changes.

Änderungen vorbehalten.

Nous nous réservons le droit de faire des changements.

Wij behouden ons het recht voor deze te wijzigen.

Ci riserviamo il diritto di apportare modifiche.

Vi reserverer oss retten til endringer.

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