

SGLZAIMA

SOLUÇÕES DE AQUECIMENTO A BIOMASSA

# Instruction Manual and Warranty Certificate

English

## Backboiler Fires for Central Heating

**ZAIMA | DOMUS 100 | DOMUS 100A | ECOFOGO | MYTHO  
| ACQUA | ACQUA Porta Vertical**

This product is an equipment for central heating and water heating, so you should read carefully the Instruction Manual before using your new equipment

**Thank you for purchasing a SOLZAIMA unit.  
Please read this manual carefully and keep it for future reference.**

- \* All our products fulfil the requirements of the European Regulation (Reg UE 305/2011) and have been certified with the **CE** conformity trademark;
- \* SOLZAIMA disclaims responsibility for damages to the unit if it is installed by non-qualified personnel;
- \* SOLZAIMA disclaims responsibility for damages to the unit if the rules for installation and use described in this manual are not followed;
- \* All local regulations, including those referring to national and European standards, should be complied with when installing the stove;
- \* Our Backboiler Fires for Central Heating have been tested according to standards EN 13229:2001 + EN 13229:2001/AC:2003 + EN 13229:2001/A1:2003 + EN 13229:2001/A2:2004 + EN 13229:2001/AC:2006 + EN 13229:2001/A2:2004/AC:2006 + EN 13229:2001/A2:2004/AC:2007;
- \* Technical support is normally provided by SOLZAIMA, except in exceptional cases to be determined by the installer or support technician;
- \* Whenever you need assistance, you should contact your stove supplier or installer. You should provide its serial number, which is on the identification plate located on the left side of the ash drawer, as well as on the label on the back cover of this manual.

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# Solzaima

Solzaima's vision has always been to provide a clean, renewable and more cost-effective energy. This is why we've been dedicating ourselves for more than 35 years to the manufacturing of biomass heating equipment and solutions.

As a result of the persistence and unconditional support from our partner network, Solzaima is today a leading player in the production of biomass heating solutions, best illustrated by our backboiler fires for central heating.

Annually we equip more than 20.000 homes with biomass heating solutions, sign that the consumers are aware of more ecological and more economic solutions. Nowadays, wood is the most economical and sustainable form to heat up your home.

Solzaima is the only manufacturer in Portugal with ISO 9001 quality certification and ISO14001 environmental certification – we believe we are a role model in this respect.

## Technical Specifications

**Backboiler Fires for Central Heating** are designed to heat their surroundings and heat water for central heating systems and domestic hot water. They require pre-installation of a central heating system and accumulator with heat exchanger (if you wish to use it for domestic hot water).

### \* Technical specifications across this range:

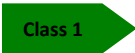
- \* CE certified
- \* Maximum pressure: 3 bar
- \* Recommended pressure: 0.5 to 2 bar
- \* Maximum operating temperature: 194°F (90°C)
- \* Maximum fuel capacity: 26.6 pounds (12.1kg)
- \* Energy Class 
- \* Average reloading time: 45 minutes
- \* Fuel: Dry firewood
- \* Recommended fuel size: 19.6 inches (500mm) in length

Table 1 – Technical Specifications for each Unit

W – Width; H – Height

	Acqua		Acqua P.V.		EcoFogo		Mytho		Zaima		Domus 100		Domus 100A	
Dimensions	W	H	W	H	W	H	W	H	W	H	W	H	W	H
Front (inches/mm) normal ring	42,7/ 1085 <sup>1</sup>	24,8/ 630	41,9/ 1065	24,8/ 632	30/ 760	22,5/ 572	32/ 825	22/ 562	30/ 765	23/ 580	30/ 765	23/ 580	30/ 765	23/ 580
Casing (inches/mm)	39,6/ 1007	39,4/ 1003	40/ 1017	43/ 1094	27/ 680	43,8/ 1115	28/ 712	43,8/ 1115	28/ 700	39/ 985	28/ 700	39/ 985	28/ 700	39/ 985
Total Depth (inches/mm)	25,5/650		26,4/672		21,6/541550		21,3/541		25,6/651		26,1/665		26,1/665	
Flue Ø (inches/mm)	Ø 7,8/Ø 200 int.		Ø 9,8/Ø 250 int.		Ø 7/Ø 180 int.		Ø 7/Ø 180 int.		Ø 7,8/Ø 200 int..		Ø 7,8/Ø 200 int.		Ø 7,8/Ø 200 int.	
Overall rated output (kW)	30,1		28,1		28,5		28,5		27,7		27,7		27,7	
Water rated output (kW)	16,8		17,2		20,1		20,1		20,5		20,5		20,5	
Air rated output (kW)	13,3		10,9		8,4		8,4		7,2		7,2		7,2	
Efficiency (%)	80		75,1		71		71		70,1		70,1		70,1	
CO Emissions (13%O <sub>2</sub> ) (%)	0,80		0,33		0,56		0,56		0,56		0,56		0,56	
CO <sub>2</sub> Emissions (%)	13,9		11,3		10,6		10,6		10,5		10,5		10,5	
Average combustion temperature (°F/°C)	629,6/332		640/338		660/349		660/349		696/369		696/369		696/369	
Combustion flow (g/s)	17		22		26		26		25		25		25	
Power output <sup>2</sup> (kW)	21,0 - 39,1		19,7 - 36,5		20 – 37,1		20 – 37,1		19,4 – 36		19,4 – 36		19,4 – 36	
Firewood consumption <sup>3</sup> (pounds/kg / h)	14,1/6,4 – 26,2/11,9		14,1/6,4 – 26/11,8		14,9/6,8 – 27,7/12,6		14,9/6,8 – 27,7/12,6		14,1/6,4 – 26,2/11,9		14,1/6,4 – 26,2/11,9		14,1/6,4 – 26,2/11,9	
Water volume (litres)	45		43		30		30		40		40		40	
Weight (pounds/kg)	485/220		617/280		440/200		460/209		460/209		465/211		465/211	
Maximum heated volume (m <sup>3</sup> )	886		829		843		843		818		818		818	

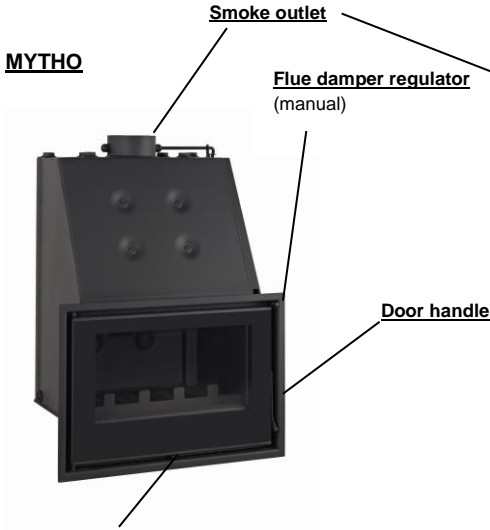
<sup>1</sup> Medida com aro

<sup>2</sup> Power output is calculated by taking into account a variation of ± 30% in relation to the rated output.

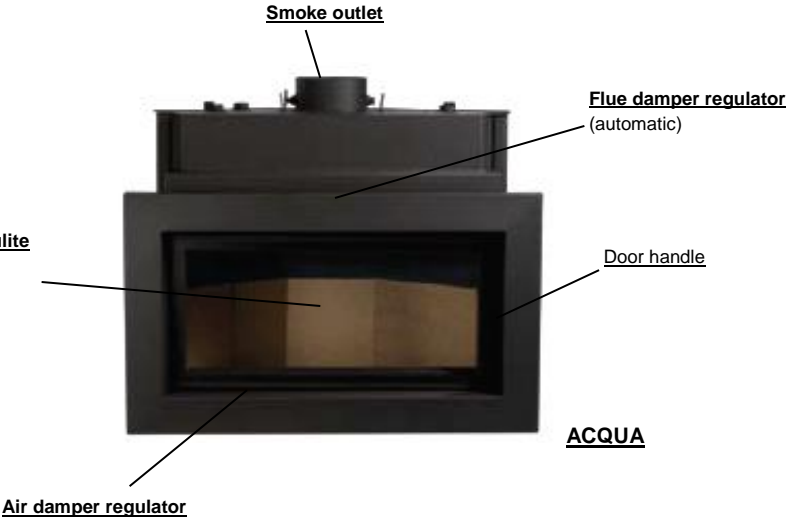
<sup>3</sup> Consumption of firewood, taking into account the range of power outputs.

# Your Unit

## MYTHO



## Vermiculite panels



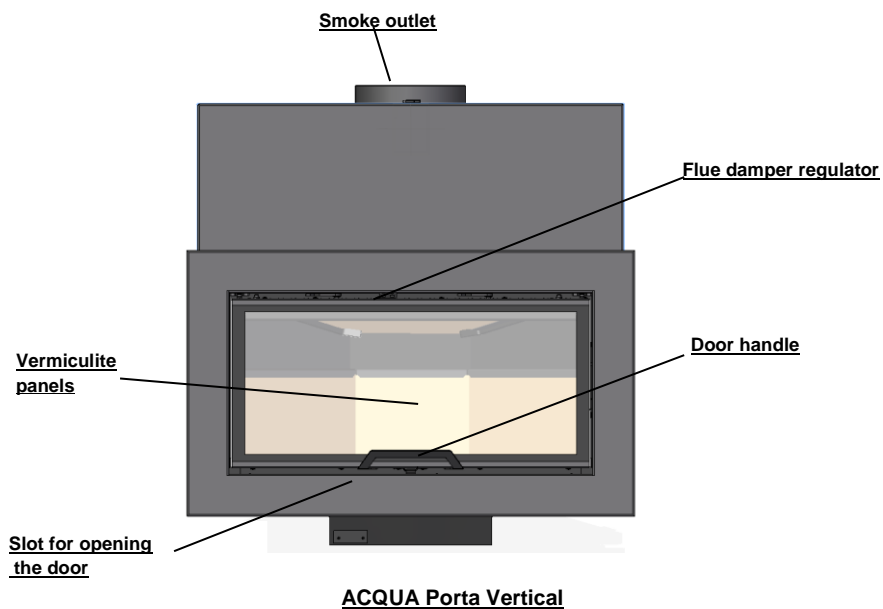


Fig. 1 – Mytho, Zaima, Acqua and and Acqua Porta Vertical (Vertical Door) model



## Components

- \* This unit's casing is made of top-quality carbon steel plate, with a thickness of 0.1 inches (5mm).
- \* On the ECOFOGO model, the door and ash drawer use 0.019 inches (1.5mm) and 0.07 inches (2mm) plates, the door of the ACQUA and Acqua Porta Vertical is manufactured of tubing 0.07 inches (2mm) thick and the door of the MYTHO is of steel plate with serigraphy vitroceramic glass;
- \* The casing of the ACQUA Porta Vertical model is made of galvanized steel plating, with a thickness of 1mm;
- \* The front, door and drawer panel of the DOMUS and ZAIMA models are made of cast iron;
- \* The combs, as well as the ash pan grates of the ACQUA units, are made of 12mm-thick carbon steel plating;
- \* Heat-resistant ceramic glass. Can withstand temperatures of up to 1382°F (750°C) in continuous use;
- \* All threaded parts are made of steel, measuring between  $\frac{3}{4}$  and 1 inch;
- \* Heat-resistant paint for temperature peaks up to 1652°F (900°C) and operating temperatures in the order of 1112°F (600°C);
- \* In the ACQUA and ACQUA Porta Vertical models, the combustion chamber is coated with heat-resistant material. The bottom side insulation, the combustion bed and the deflector plate are made of vermiculite, a hydrous mineral classified as a phyllosilicate, which is resistant to temperatures of around 1100°C. Vermiculite's insulating properties ensure a more effective use of the heat

produced, thus increasing the temperature inside the chamber and producing cleaner combustion (by reducing the CO content). These same insulating properties also help protect the steel plating of the combustion chamber, extending the life span of your unit;

## Installation

**Attention:** ***all European and local** regulations and standards must be complied with when installing this unit.*

*Immediately upon receiving the unit, please check to confirm if the product is complete and in good condition. Any defects identified should be reported before installing the unit.*

**\* For the ACQUA Porta Guillhotina (Guillotine Door) model, the following steps should be taken before starting the installation procedure:**

a) Before assembling the unit, remove all transport safety items in place – i.e. the counterweight locking screws (Fig. 1) and the door locking screw (Fig. 2);

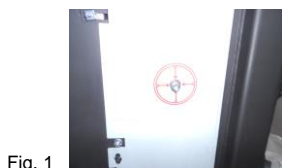


Fig. 1



Fig. 2

b) Check that all parts are working properly before proceeding with the installation;

c) Check that the exhaust outlet gauge is working properly (Fig. 3)



Fig. 3

d) Slide the door vertically, up and down, using the key provided (Fig. 4 and 5);

Fig. 4



Fig. 5



e) In cleaning mode, open the door out towards you, using the key provided (Fig. 6 and 7);

Fig. 6



Fig. 7



f) Check to confirm the deflector plate is correctly mounted.

Fig. 8



For the plate mounting or replacing procedure, please see the following figures:

- Insert the deflector plate through the door diagonally and pull it up fitting it on the supporting brackets, laying down one side first and then the other.

Fig. 9



Fig. 10



Fig. 11



- Finally, check to confirm if the deflector plate is properly supported along the lateral and front support brackets (see Figure 8).

# **1. Combustion air and gas circulation**

## **1.1 Theoretical notions for chimney installations**

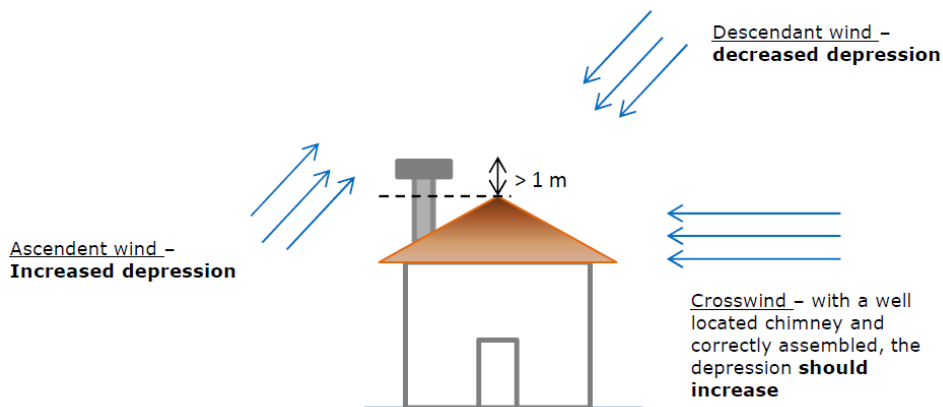
There are some existing factors that can cause significant changes in the depression created in your chimney and consequently on the smoke draft that will have on your equipment.

The combustion created in your equipment, generally increases greatly the temperature at the beginning of your chimney in view of the exterior temperature. This fact causes low pressure in the inner part of your chimney (near the stove) which conjugated with a superior pressure on the outdoor air to chimney creates the strength that causes a natural movement of the flue gases through the chimney flue, which we name of natural draft or “chimney effect”, which also generates the inlet of air necessary for combustion inside the stove. The taller your chimney is, the greater the difference of pressures and therefore the greater the natural suction or chimney effect. This effect has on it's base a physical measuring that indicates that the minimum height of the chimneys must not be inferior to 4 metres, in relation to an average altitude of the land, to average ambient temperature differences, and to average temperatures of the stove functioning. However, this measurement is not compulsory, once there can be chimneys functioning well with less height and other chimneys with superior height functioning worse. In order to install efficient chimneys the reasons for this phenomenon must be understood. Beyond these geographic factors (altitude, exposure to the sun, direction) and of atmosphere (rain, fog, snow) that influences the chimney draft and it's depression as well as the ability to draw the smoke from the stove, there is still another factor to consider that in many cases is crucial – the wind.

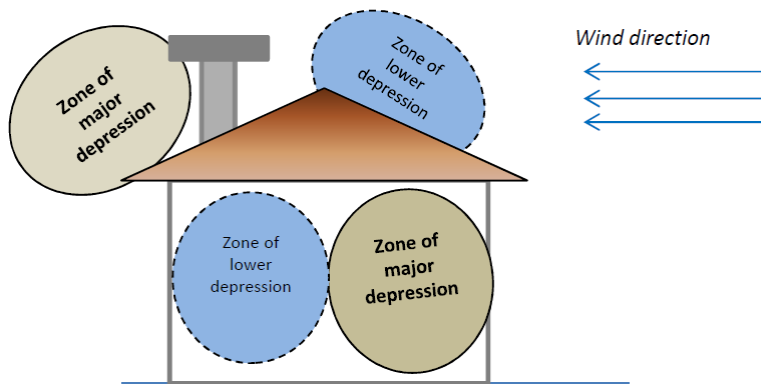
In fact, the predominant wind (which depends many times on the land morphology and house implanting zones) can cause many relevant changes to the depression created in a chimney, that is, wind with a predominant arising flow, causes an increase of depression on the chimney and that justifies better drafts. Contrary, a predominant descendant wind causes decrease of the

depression effects, which means that it eliminates the capacity and extraction of chimneys. A predominant crosswind has an effect that depends on how the chimney is installed. For one to understand this effect, we can evince that a descendant wind at 45° with a velocity of 8 m/s (on a wind beaufort scale from 0 (calm) to 12 (hurricane), corresponds to a wind of 5 (fresh breeze) causes a pressure increase effect about 17 Pa, which can eliminate the effect that a chimney has, for example a normal depression of 12 Pa.

Besides the direction and force of the wind and surrounding land morphology, the location and form of installing the chimney in relation to the residency is also a factor to consider.



The differences of depression caused by exterior wind, are also felt inside the house and the installation of stoves on the zone exposed directly to wind can increase the depression on the chimney, fact that competes with the depression caused by the wind on the house exterior, that functions inversely, that is, the minor depression zone will be the zone directly exposed to the wind. Generally, this isn't a problem and the depression caused by the height of the chimney eliminates this effect, but everytime that this situation is verified, it can be compensated by installing the chimney in a zone least exposed, increasing the capability of the chimney depression.

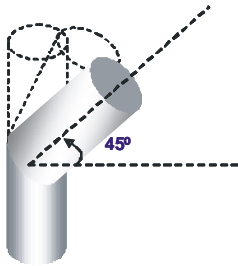


## 1.2 Installation advices

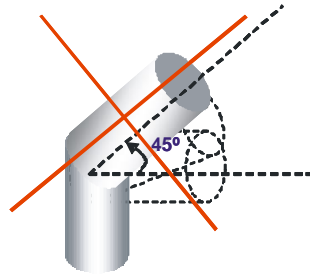
- \* This type of unit should be installed in a well-ventilated area. Any air intake grilles should be placed in locations that are not liable to become blocked, so that the place of installation has sufficient air in the order to avoid a poor draft;
- \* The combustion air enters the unit through a system that controls the burn intensity. This flow should be kept clear at all times;
- \* The ventilators that extract air from the room where the stove is installed, must not be used;
- \* Use of this unit at the same time as other heating devices that require an air supply may necessitate additional air inlets. The installer should assess the situation in light of total air flow requirements;
- \* For your unit to function in normal conditions the combustion gas draft must create a draught of 12 Pa one metre above the throat of the flue.

For proper installation, at least 78.7 inches (2 metres) of metal rigid flue tube with the same diameter as the unit's smoke outlet should be fitted vertically above the unit. If this not achieved on your chimney, your unit might not function correctly, leading to smoke to the exterior or excess of wood consumption. After this section, sections of tubing with a maximum angle of 45° may be used (in this

case the chimney should be cleaned once a year); the following figure illustrate correct and incorrect angles for installing a bend.



Correct angle for bends

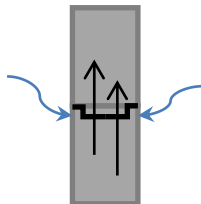
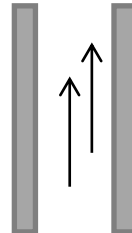


Incorrect angle for bends

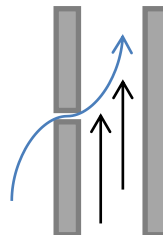
- \* A single-walled tube installed on the outside of a building or in areas subject to thermal variations, results in the condensation of water vapour in the combustion gases. Instead, use of a double-walled, insulated tube is recommended;
- \* The tube unions must be well sealed to prevent air entering through possible gaps;



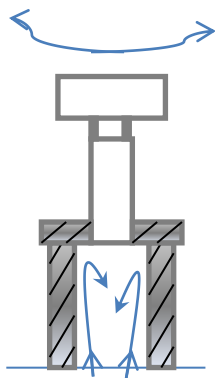
Correct sealing



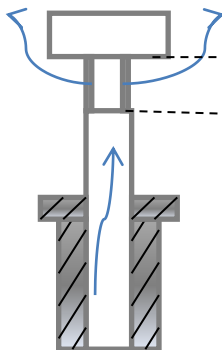
Incorrect sealing



- \* The tube unions must not allow strangulation, therefore the inner walls must be perfectly smooth and free of obstacles. The caps must be placed correctly so as to avoid a difficult draft;



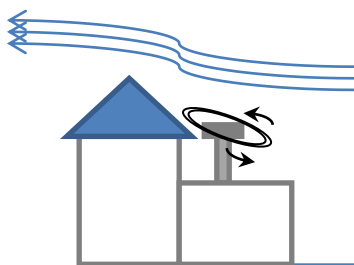
**Incorrect**



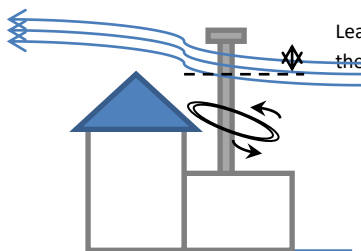
**Correct**

Distância mínima  
igual ao diâmetro  
do tubo

\* The flue outlet should allow for good air circulation and be placed at least 1m above the top of any obstacle located within a distance of 9.8 feet (3m); if case of a better draft is required, the height of the chimney should be increased



**Incorrect**



**Correct**

Least 1 m above  
the highest point

\* The same flue should not be used for more than one unit or open fireplace. With shared chimneys, each flue should reach its outlet independently and these should be at the same level to ensure that the air circulation expels the gases;

\* Brick chimneys should not be too wide, as the smoke will cool as it disperses, reducing the draught. In case of draught problems, a revolving chimney cowl can be installed or place a metallic tube in the inner part to improve the draft.

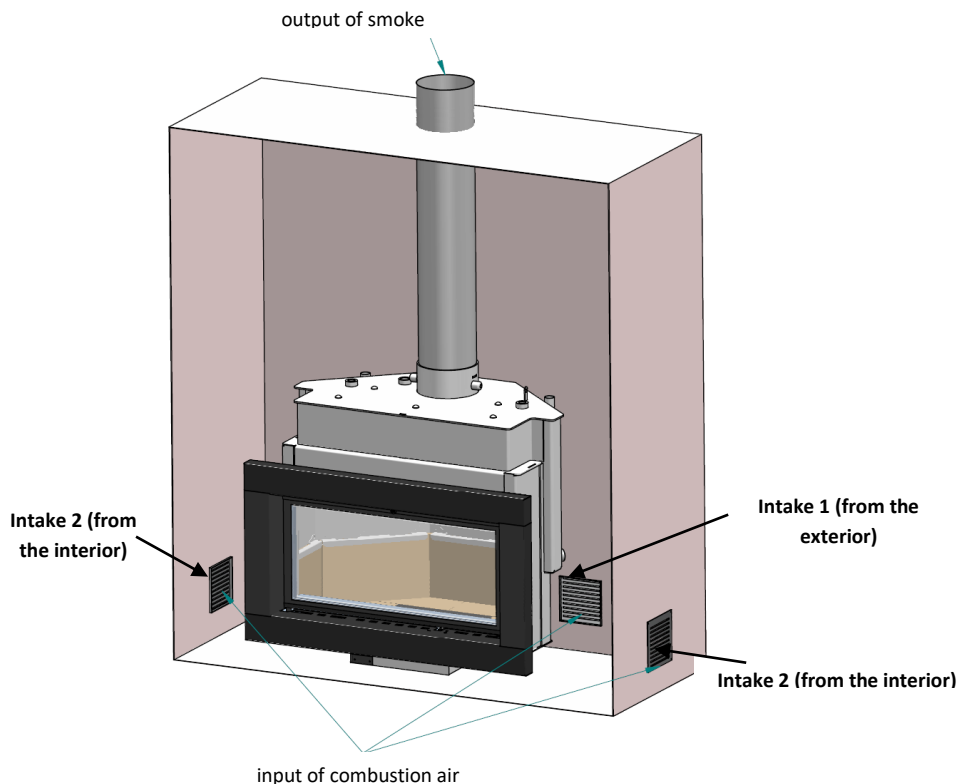


## **2. Installation location requirements**

- \* The floor on which the unit will stand must be able to support a permanent load of 2.2 pounds (1kg)/cm<sup>2</sup>. If the load capacity of the floor is insufficient, a solid plate can be used to distribute the load over an area larger than the unit's base;
- \* Combustible materials must not be installed close to the walls of the unit;
- \* The space into which the unit is inserted must allow 5.9 inches (15cm) between the sides of the unit and the walls on either side, and 1.9 inches (5cm) between the back of the unit and the wall behind it;
- \* If there is significant and undesired heat exchange through the walls of the space into which the unit is inserted, we recommend installing heat insulation to minimise these losses. The rated outputs for “water” and “air” can only be achieved if the walls are insulated from the unit;
- \* There should be a gap of around 0.19 inches (5mm) between the unit and ornamental stones, to allow room for the metal to expand. These should also be installed so as to allow the unit to be removed without causing damage, if the need arises;
- \* Materials/objects placed in front of the unit should be able to withstand the heat radiated from the glass, so should not be combustible;
- \* Refractory cement or other refractory material should be applied on the chimney walls.
- \* The use of wood finishings may increase the risk of fire. Therefore, we recommend the use of adequate insulation or that wood not be used at all.
- \* In order to assure a good functioning of your stove, the air intake to the insertion zone of the stove must be made by following the sketch bellow (ex. Installation of Acqua).

The intake 1, from the exterior of the residence must always be guaranteed and must have an area at least 100 cm<sup>2</sup> and without obstacles in such a way that the air intake is sufficient for a good function; in case this situation isn't possible, you

will have to contemplate in the installation air inlet for the combustion (intake 2) from the interior of the residence, bearing mind the isolation degree of your residence and proximity of other devices that consume air for it's functioning (ex. Kitchen exhaust fans or bathroom) making the functioning of your equipment difficult on the combustion and draft.



Note: in this figure is not shown the hydraulic circuit

### 3. Plumbing installation

- \* Part 8 (installation diagrams) illustrates the possible setups for central heating, with or without domestic hot water;
- \* The minimum temperature that switches on the circulation pump should be 140°F (60°C), to avoid condensation on the inside of the stove;

- \* In the open tank setup, the return pipe to the boiler should not have a diameter of less than 0.78 inches (20mm). No vent should be installed;
- \* The circulation pump must be applied on the return circuit of the radiators, where the temperature is below;
- \* The thermostat must be an emersion one, and like the combustion regulator must be applied on the output of the radiators;
- \* If you opt to install a closed tank system, this should have a minimum capacity of 25 litres and 3-bar safety valves should be used (appropriate for use up to 194°F (90°C)). We advise that you also install a pressure and temperature safety valve (3 bar / 194°F (90°C)).
- \* A tap should be installed on one of the drainage outlets at the bottom of the unit on the side;
- \* The heat transfer fluid should be water, with a non-toxic anti-corrosion product added in the quantity recommended by the manufacturer of the product;
- \* The automatic combustion regulator prevents the temperature of the water inside the unit becoming too high if the heat extracted is less than the heat produced. It does this by restricting the primary air intake and thus reducing the combustion rate. This is an important protective safety mechanism, which prevents the water boiling and/or the pressure getting too high and activating the emergency safety devices. The regulator should be placed on the threaded housing indicated on the diagram. It should be adjusted to close the primary air intake damper at 176°F (80°C) – **in order for any referred stove in this manual to function well, an automatic regulator must be installed;**
- \* If there is a risk of freezing in the area where the unit is installed, or in the fluid pipes, the installer should add an anti-freeze to the circulating fluid in the quantity recommended by the manufacturer to avoid freezing at the predicted minimum temperature.
- \* Never light the fire if the hydraulic circuit isn't full of liquid and functioning.
- \* It is fundamental for you to access to the several components of your hydraulic installation during it's useful life, so that you can perform it's regular maintenance and intervene or replace the necessary components over time.

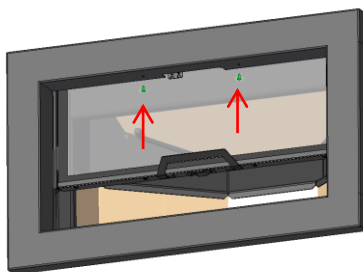
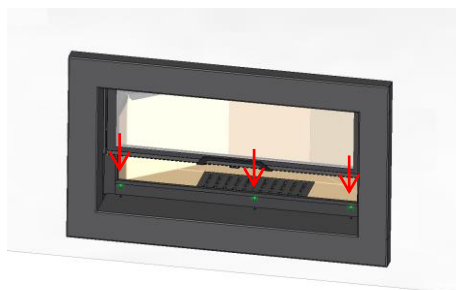
## 4. Installing the front bezel frame

When installing the frontal bezel frame on ACQUA or ACQUA Porta Vertical units, please proceed as illustrated in the following figures:

- a) Fit the front bezel frame into place



- b) Tighten the screws located along the upper and lower edges of the frame.



# Instructions for Use

*Attention: **all** regulations and standards must be complied with when installing this stove.*

## 1. Fuel

\* Only dry firewood should be used in this type of unit. It may not be used as an incinerator, nor should other materials such as coal, painted wood, varnishes, thinners, liquid fuels, glues or plastics be used. Also avoid burning common combustible materials such as cardboard and straw.

\* The firewood should have a low water content (less than 20%) in order to ensure efficient combustion and avoid creosote build-up in the smoke duct and on the glass and minimize rusting of the stove;

\* See Table 2 (on the next page), which lists some of the types of wood that can be used in these units;

Table 2 – List of types of firewood that may be used in SOLZAIMA fires, their geographical distribution and calorific value/reactions.

Common Name	Scientific name	Distribution (total: 18 districts)	Characteristics				
			Smoke	Heat	Lighting	Combustion Speed	Hardness
Pine	Pinus	Europe, except Finland; Northern Sweden and Norway.	Little	High	Easy	Fast	Soft
Cork Oak (+)	Quercus suber	Southern Europe	Little	Very High	Easy	Regular	Hard
Eucalyptus	Eucalyptus	Mediterranean Region	Lot	Regular	Difficult	Slow	Hard
Holm Oak (+)	Quercus ilex	Southern Europe	Little	Very High	Difficult	Slow	Hard
Olive tree	Olea	Mediterranean Region	Little	Very High	Difficult	Slow	Hard
Oak	Quercus	Across Europe	Little	High	Difficult	Slow	Hard
Ash	Fraxinus	Across Europe	Regular	High	Difficult	Slow	Hard
Birch	Betula	Across Europe	Little	Very High	Easy	Fast	Soft
Beech	Fagus	Europe, except Iberian Peninsula and Northern Europe, including United Kingdom.	Little	High	Difficult	Slow	Hard
Elm	Ulmus	Across Europe	Regular	High	Difficult	Slow	Hard
Maple	Acer	Across Europe	Little	Regular	Regular	Slow	Soft
Poplar	Populus	Across Europe	Little	High	Easy	Fast	Soft
Chestnut	Castanea	Across Europe	Regular	High	Difficult	Slow	Hard

(+): most availability from firewood sellers

(+): maior oferta a nível de madeireiros

## **1.1 Power**

The power of your stove indicates its heating capacity, i.e. the energy your stove transfers from the firewood to your home (usually measured in kW) and is directly related to the amount of firewood that you place in it.

The rated output is the measure of a standard load of firewood when tested in laboratories during a certain amount of time.

The power output is a manufacturer's recommendation from tests to the equipment with firewood loads within a reasonable operation range. This power output range will present different firewood consumptions per hour.





## **1.2 Energy Efficiency and Performance Ratings**

Implementing solutions that seek to achieve greater energy efficiency allows for substantial reductions in energy needs, and thus reduces our current dependence on fossil fuels and other non-renewable sources of energy.

Energy efficiency enables you to make large savings from both an economic and an environmental point of view.

As a result of Solzaima's commitment towards the equipment's efficiency, most of our products are classified as efficiency class 1, i.e., with an efficiency rate equal to or greater than 70%.

A 70% efficiency rate means that 70% of the energy contained in the firewood is used to warm your home or, in other words, you are able to produce the same amount of energy with a lot less firewood.

EFFICIENCY RATING*	EFFICIENCY RATE* (fire door closed)
	$\geq 70 \%$
	$\geq 60\% < 70 \%$
	$\geq 50\% < 60 \%$
	$\geq 30\% < 50 \%$

\*in accordance with EC classification standards for insert fires.

A Solzaima 5kW unit with an efficiency rate of 75%, i.e. efficiency class 1, will consume approximately 3.5 pounds (1.6kg) of firewood per hour to warm a 389 sq ft room (35m<sup>2</sup>).

Typically, a traditional fireplace has an efficiency rate of approximately 10%, which means it will consume about 26.5 pounds (12kg) of firewood to produce the same 5kw necessary to warm the same 389 sq ft room (35m<sup>2</sup>).



**FIREWOOD CONSUMED IN ONE HOUR TO WARM  
APPROXIMATELY 389 SQ FT (35 M<sup>2</sup>) WITH A 5kw UNIT**



A traditional fireplace with an efficiency rate of 10% consumes 26.5 pounds (12kg) of firewood



A fireplace equipped with a simple fire (class 4) and providing an efficiency rate of 30% consumes 8.8 pounds (4kg) of firewood



A fire with an efficiency rate of 50% (class 3) consumes 5.3 pounds (2.4kg) of firewood



A Solzaima fire with an efficiency rate of 75% (class 1) consumes only 3.5 pounds (1.6kg) of firewood

## **2. First Use**

\* Ask the installer to light the unit to ensure that all is functioning correctly;

\* The stove's paint is cured by the heat when it is first used, which may give rise to additional smoke. If this happens, you should air the room by opening external windows and doors.

### 3. Normal Use

**\* Lighting:**

a) Open the flue damper completely (where applicable);

b) Place some pine cones (preferably) on the ash grate;

c) Place some kindling wood on top, piled horizontally;

d) If required to make lighting easier, open the ash drawer (where applicable) by 0.39 or 0.78 inches (1 or 2 cm) to allow the inflow of additional air; on Ecofogo, Mytho and Acqua models, you can open the secondary air intake damper;

e) The lighting period is over when the unit has reached a constant temperature. You should then close the flue damper (where applicable) and ash drawer, so that the air intake can be regulated automatically;

\* The air for combustion is drawn from the surrounding room, consuming oxygen. You should check that ventilation grilles and other devices for allowing air to enter from outside remain unobstructed;

\* Using this unit at the same time as other appliances which require an air supply may require additional air intakes in the room. You should make sure that nothing can obstruct the ventilation required for all the appliances in operation;

\* You must open the flue damper (where applicable) before reloading the stove with firewood. First, open the flue damper completely, then wait a little while to allow a good draught, and only then open the door slowly; with ACQUA stoves, the flue damper opens automatically when you open the door, but you should still open the door slowly to ensure that smoke is properly drawn through the flue (see point 3.1 – Adjustment of the flue damper regulator - Acqua);

\* You should only open the door during reloading. Normal conditions of use require the door to remain closed;

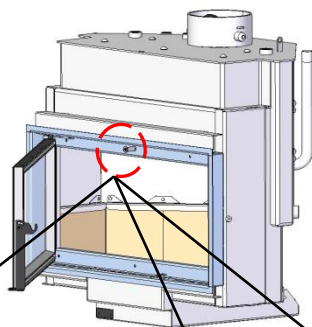
\* Reload with a maximum of 22 pounds (10kg) to 33 pounds (15kg) of firewood. The recommended load is approximately 26.4 pounds (12kg). Reload before the previous load has burnt completely, in order to make it easier for the combustion to continue. Once combustion and the ambient temperature have stabilised and the unit is working under normal operating conditions – flue damper and secondary air intake closed – combustion is slow and reloading may not be required for several hours.

\* Under the aforementioned conditions, the unit's rated output is an average from a range that varies by 30% either side of this value. Smaller ranges can be achieved by reloading more often with smaller quantities of firewood;

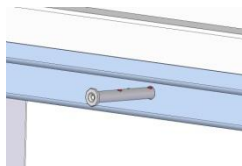
\* Use of the stove is not recommended when weather conditions are so bad that the draught is seriously affected (particularly when there are very strong winds).

### **3.1. Adjustment of the flue damper regulator - Acqua**

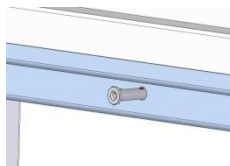
As previously mentioned, the register stack of Aqua opens automatically when you open the door, this mechanism can be adjusted according to the needs of burns and as exemplified below:



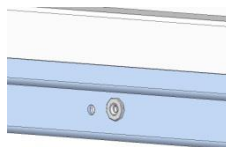
### **Adjustment of the flue damper regulator:**



Adjustment on position 1

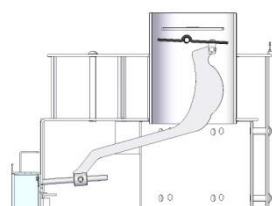


Adjustment on position 2

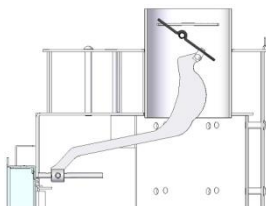


Adjustment on position 3

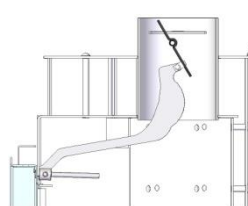
### **Damper position with the door closed:**



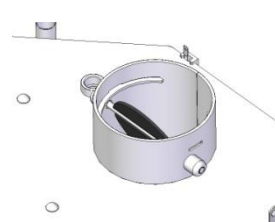
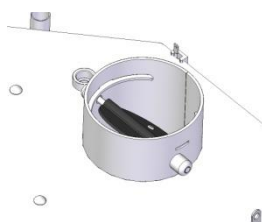
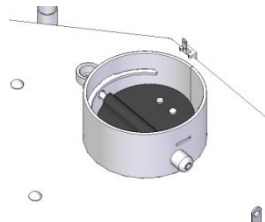
Damper closed (1)



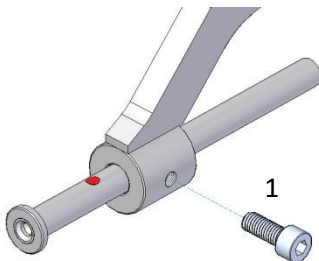
Damper semi-opened (2)



Damper opened (3)



To adjust the flue damper please follow the following steps:



1<sup>o</sup>) Loosen the screw (use an hexagon 6mm socket screw key);

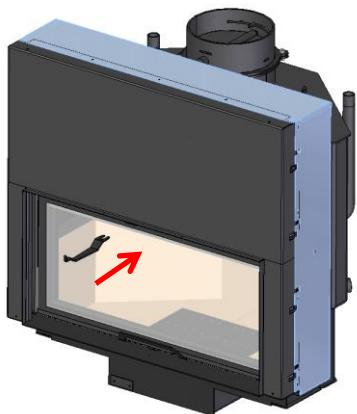
2<sup>o</sup>) Place the spindle on desired position (**1, 2 or 3**);

3<sup>o</sup>) Tighten the screw 1

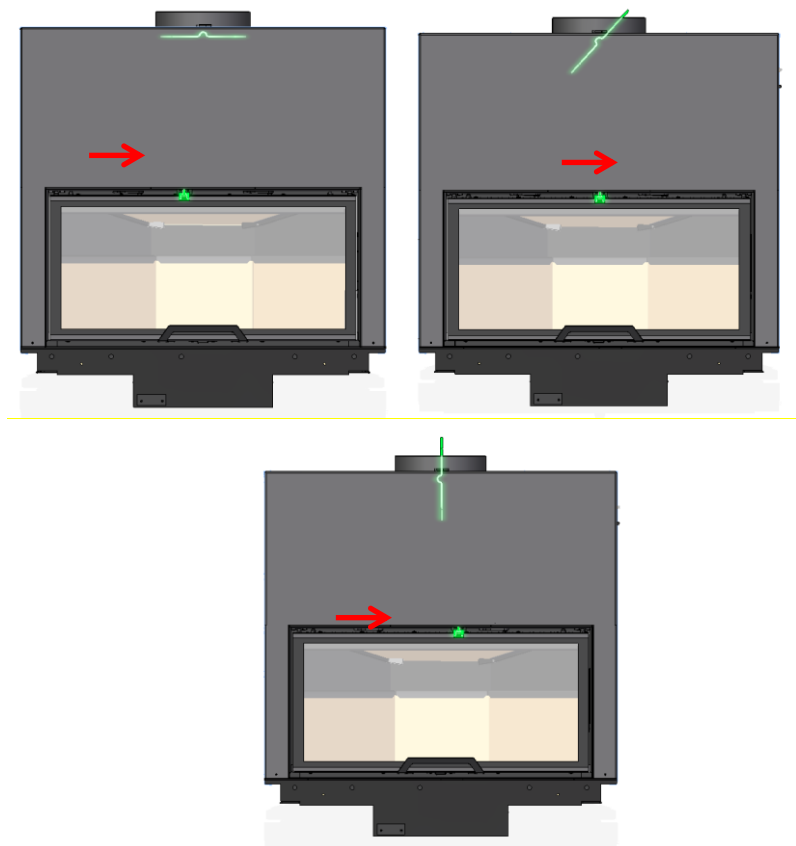
### **3.2. ACQUA Porta Vertical – regulating the butterfly valve**

To open or close the butterfly valve controlling the fume outlet in the ACQUA Porta Vertical model, use the key provided to manoeuvre the regulator located above the door.

a) Insert the key into the regulator



- b) Slide the regulator to the **right to open the butterfly valve**, to allow for a greater flow of fumes, or slide it to the **left to close the valve**, to decrease the flow.



## 4. Safety

- \* The exposed metal parts reach high temperatures. Do not touch the hotter areas;
- \* Each time you need to place wood or touch the stove while operating, you must use a resistant heat glove or other protection so to avoid heat transmission;
- \* In case of **fire in the flue, immediately close the door, flue damper (where applicable) and secondary air intake;**
- \* In order to avoid activating the safety devices, the energy extracted from the unit should be, on average, identical to the energy produced. **If you only use the unit to heat domestic water, you should use a quantity of firewood to match the energy required. We recommend no more than 1.1 pounds (0.5kg) /h per kW of “water” energy extracted;**
- \* If energy is no longer extracted from the system when the unit is fully fired (for example, the power supply to the circulation pumps is cut off), the automatic combustion regulator reacts first, by closing the primary air intake. Although highly unlikely, a fault in this device or in the mechanism that closes the air intake will activate the emergency safety devices. In order to avoid this, try to remove the firewood (if possible) or even put out the flame using a small fire extinguisher.

## 5. Cleaning and Maintenance

- \* You should remove ash from the drawer on a regular basis (after the stove is switched off), so that the combustion air is not prevented from entering through the ash grate;
- \* The glass should only be cleaned when completely cold;
- \* The glass should be cleaned with a suitable product,<sup>(\*)</sup> by following the instructions for use and not allowing the product to come into contact with the sealing ring and painted metal parts, which could trigger oxidation. The sealing ring is glued, so should not be moistened with water or cleaning products. If it becomes detached, it can be reattached with contact glue after cleaning the groove with fine sandpaper;
- \* You should not clean the cast or plate iron parts with detergent or water, but rather with just a dry cloth to remove the dust, otherwise the metal elements may oxide. You may treat the cast iron parts with a special polish if you so require;<sup>(\*)</sup>
- \* From time to time, the wood combustion causes dirtiness leaving wastes on the chimney flue, so the holder must clean periodically at least once a year, the conduct elements as well as the chimney throat in order to remove build up and prevent fires; to clean the chimney throat and the rest of the tubes, you must remove the baffle plate out of the equipment so that it can also be cleaned.;
- \* If you do not use the unit for a prolonged period, check to make sure that the flue pipes are clear before lighting it. Also check the hydraulic circuit and the safety mechanisms of the hydraulic circuit.

(\*) Seek advice from your supplier/installer.



# Troubleshooting

Problem	Solution
Glass gets dirty	<ul style="list-style-type: none"><li>. Check moisture of firewood</li><li>. Increase burn intensity by opening the secondary air regulator slightly</li><li>. Open flue damper (where applicable)</li></ul>
Excessive draught	<ul style="list-style-type: none"><li>. Check if the ash drawer is open. If so, close it and check the combustion air intake damper is sufficiently open</li><li>. Contact the installer</li><li>. Close flue damper regulator</li></ul>
Weak draught, causing smoke to be expelled into the room	<ul style="list-style-type: none"><li>. Check that the flue is clear of obstructions</li><li>. Clean the flue</li><li>. There may be exceptional weather conditions</li><li>. Contact the installer</li></ul>
Weak fire	<ul style="list-style-type: none"><li>. Check moisture of firewood</li><li>. Check air intake</li></ul>

## **End of Life**

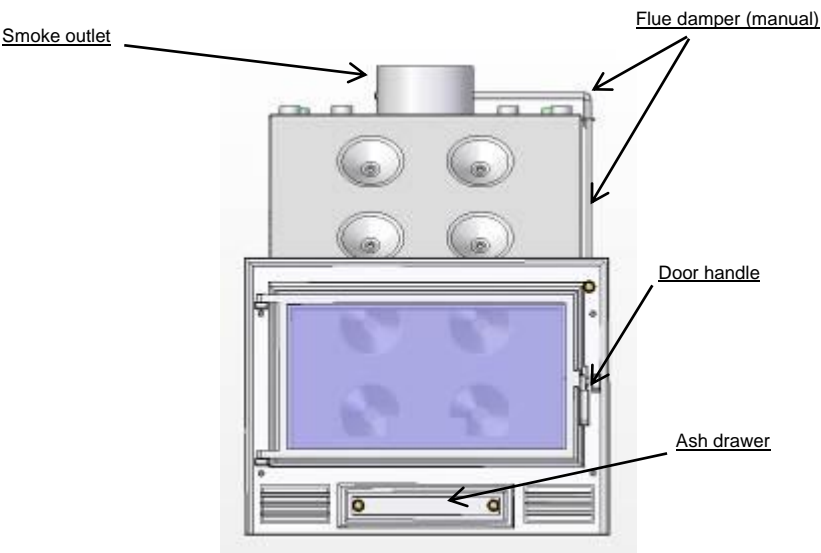
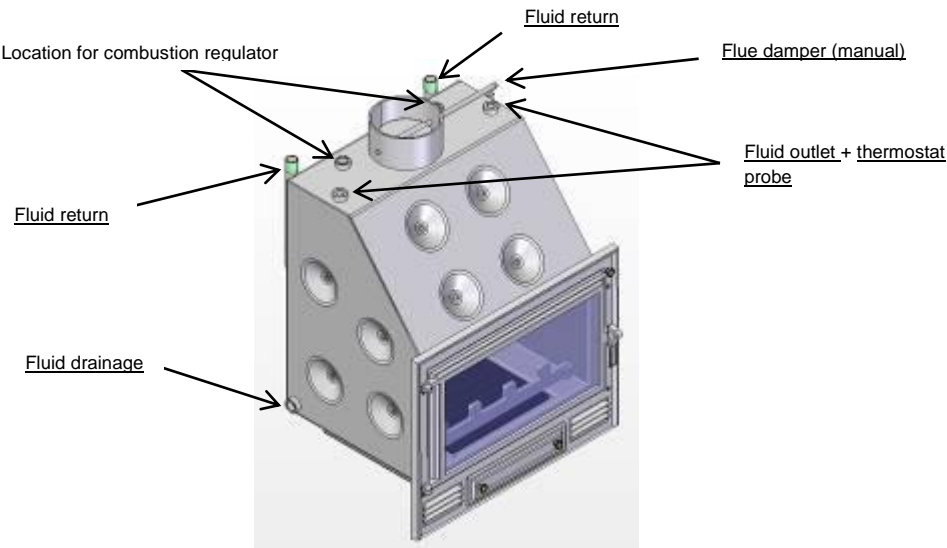
- \* Around 90% of the materials used in the manufacture of these units are recyclable, thus helping to reduce environmental impact and contributing to the sustainable development of the planet;
- \* End-of-life units should be taken to licensed waste operators. We advise you to contact your local council for collection.

## **Sustainability**

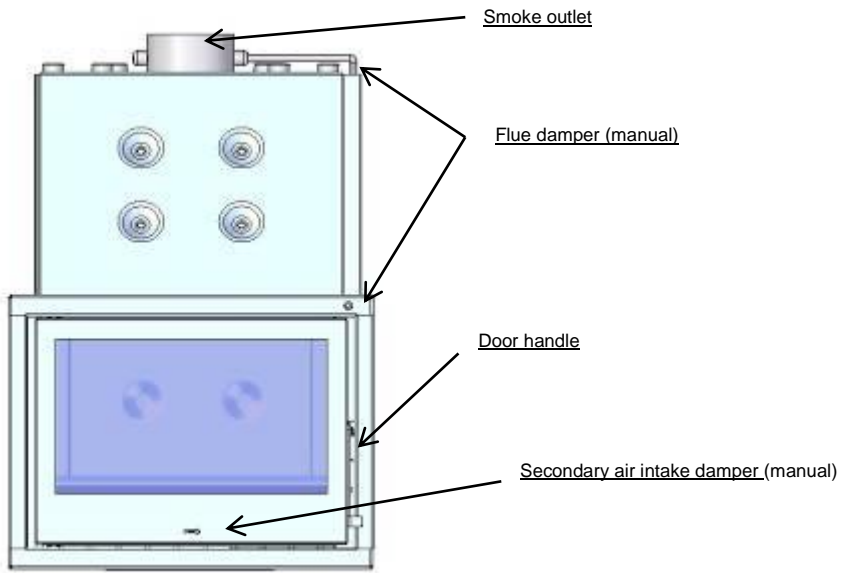
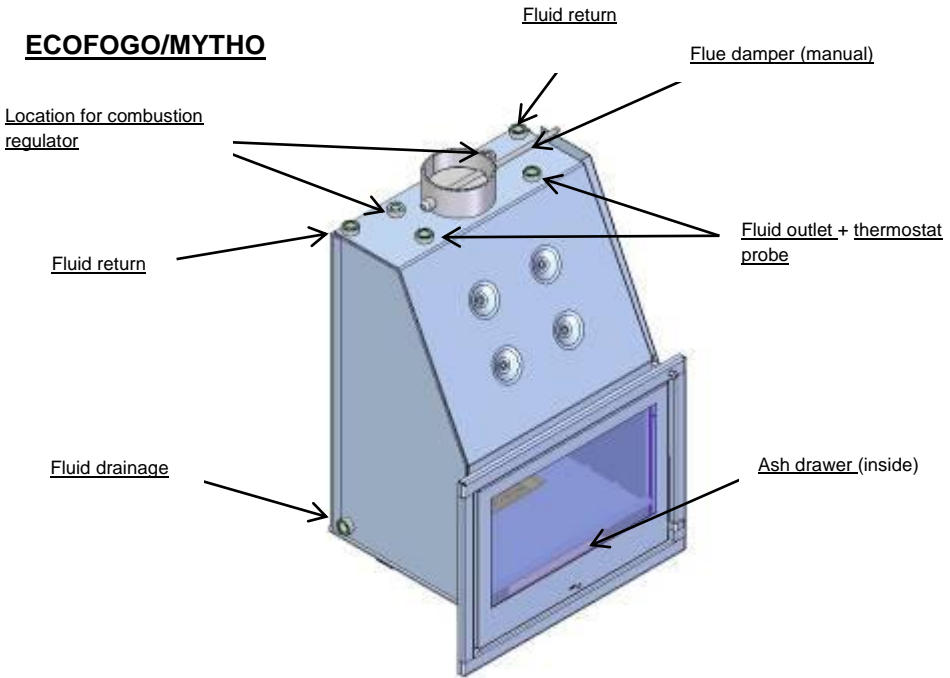
- \* Solzaima designs solutions and equipment "moved" by biomass as their primary energy source. This is our contribution for the sustainability of our planet – an economically viable and environmentally-friendly alternative, following environmental best management practices to ensure an efficient carbon cycle management.
- \* Solzaima cares about being up to date with and assessing the existing forest area while efficiently responding to energetic demands, with a constant watch on biodiversity and natural wealth, critical aspects to the quality of life in our planet.

# Main components

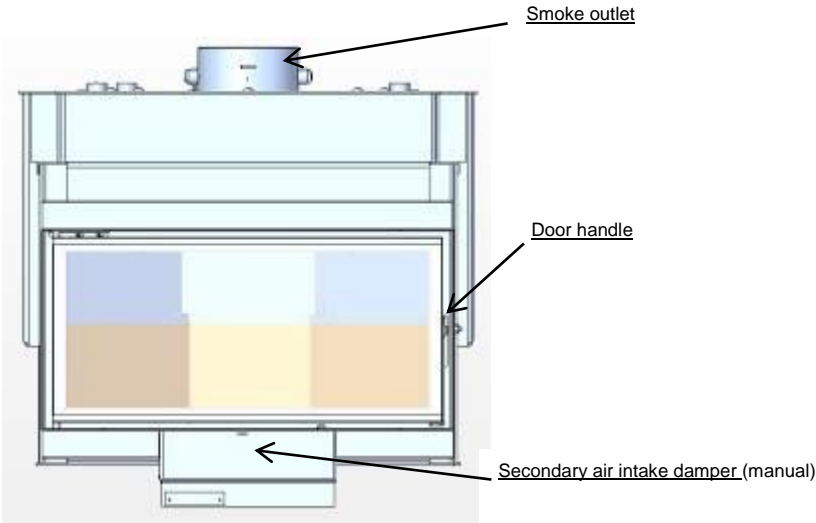
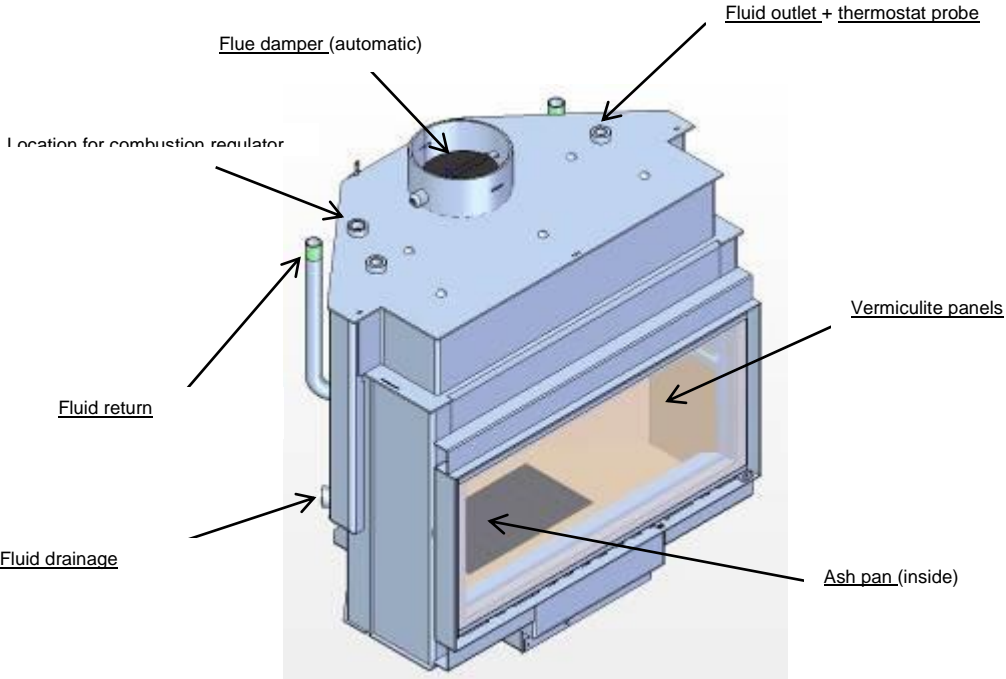
ZAIMA | DOMUS 100 | DOMUS 100-A



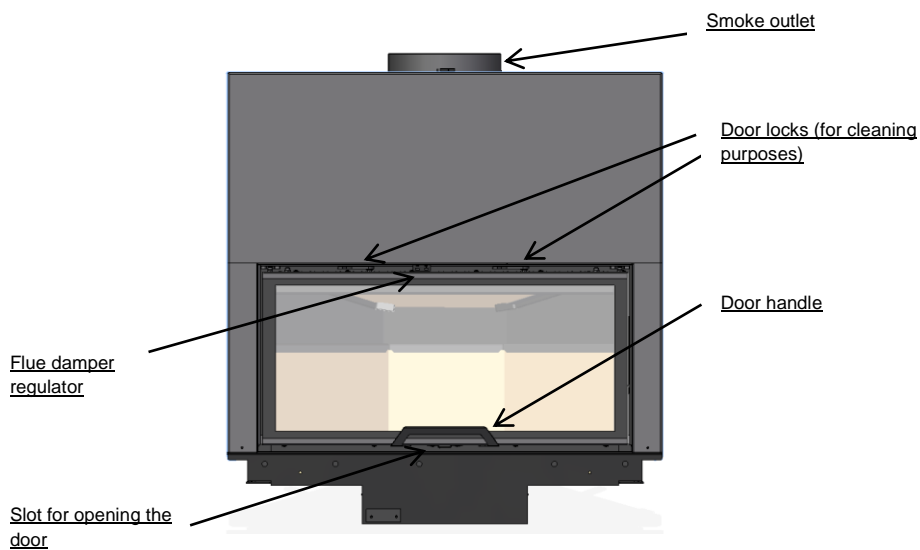
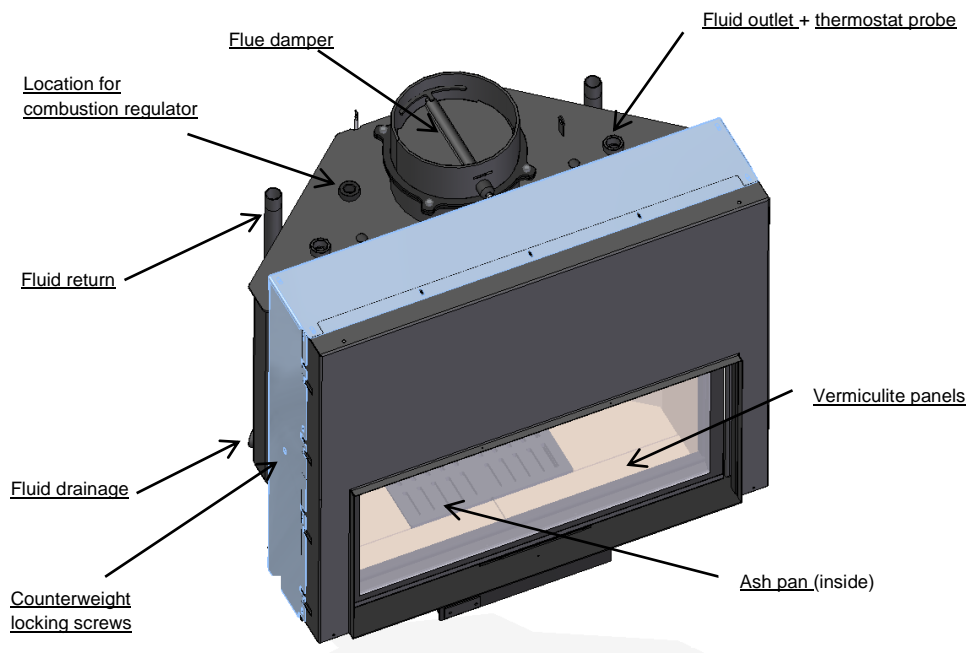
**ECOFOGO/MYTHO**



**ACQUA**



**ACQUA Porta Vertical**



# Installation diagrams

The following illustrations are for the Acqua model, but the system is identical for all models in the Backboiler Fire for Central Heating range.

## Illustration 1 – Installation diagram for Central Heating (CH) with Open Expansion Tank (OT) or Closed Expansion Tank (CT)

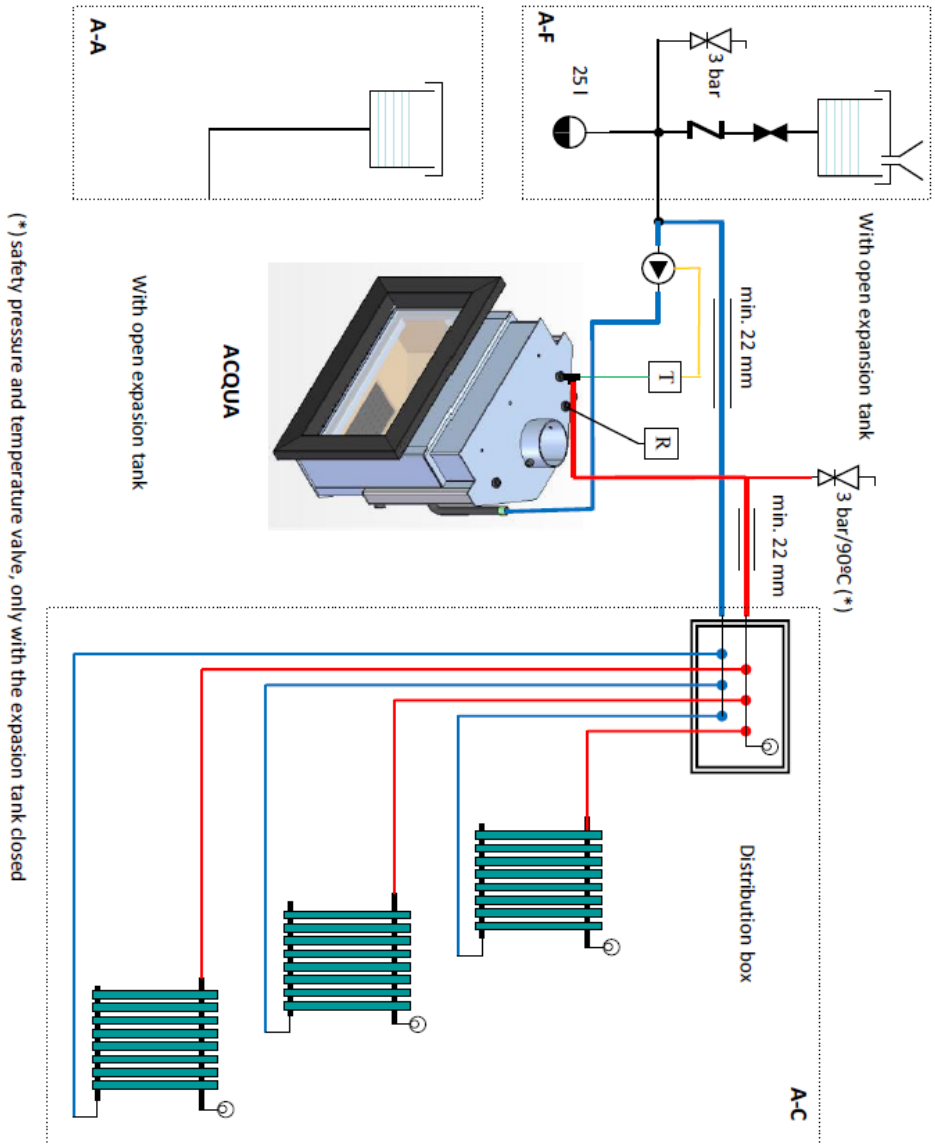
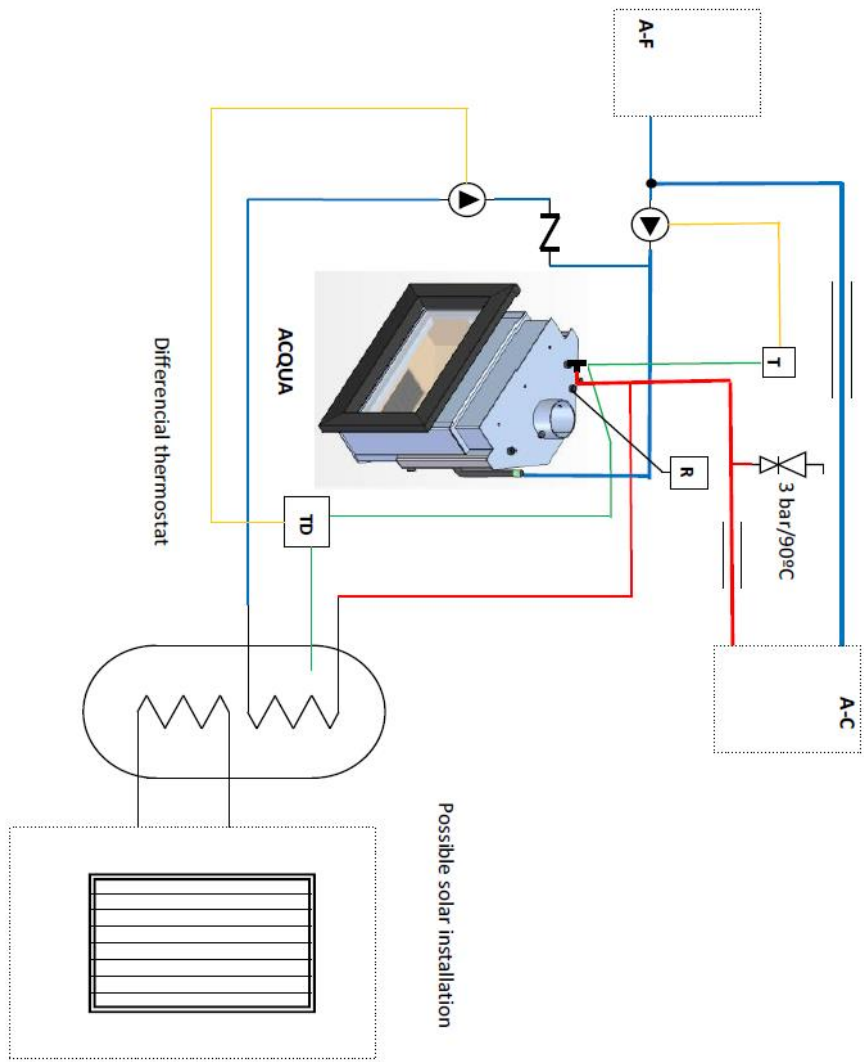
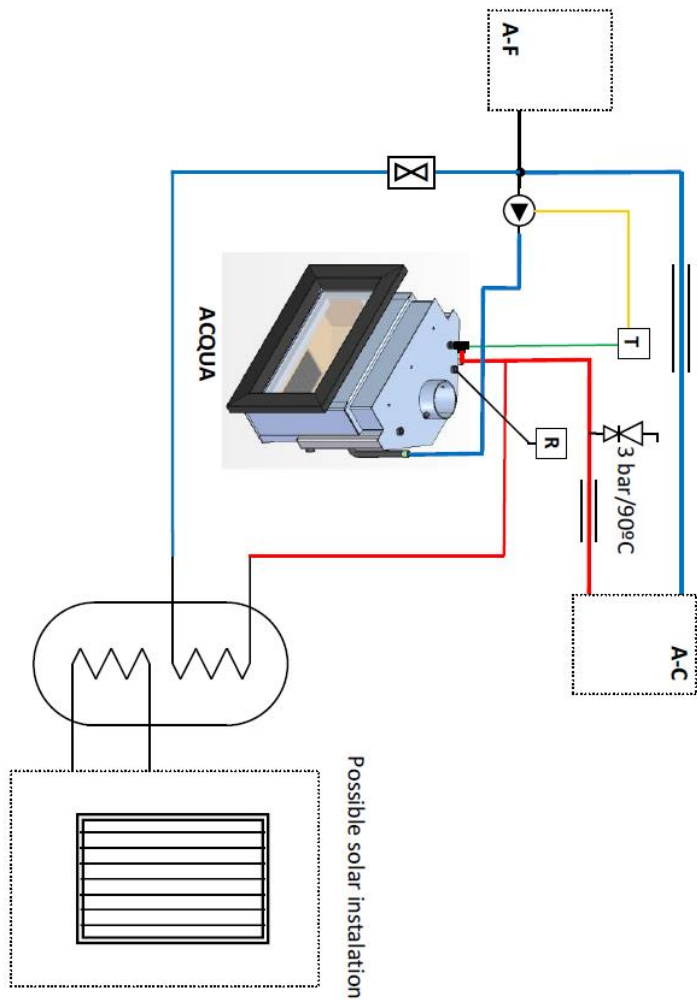


Illustration 2 – Installation diagram for Central Heating (CH) and Domestic Hot Water (DHW) with Accumulator and two Circulation Pumps (recommended)



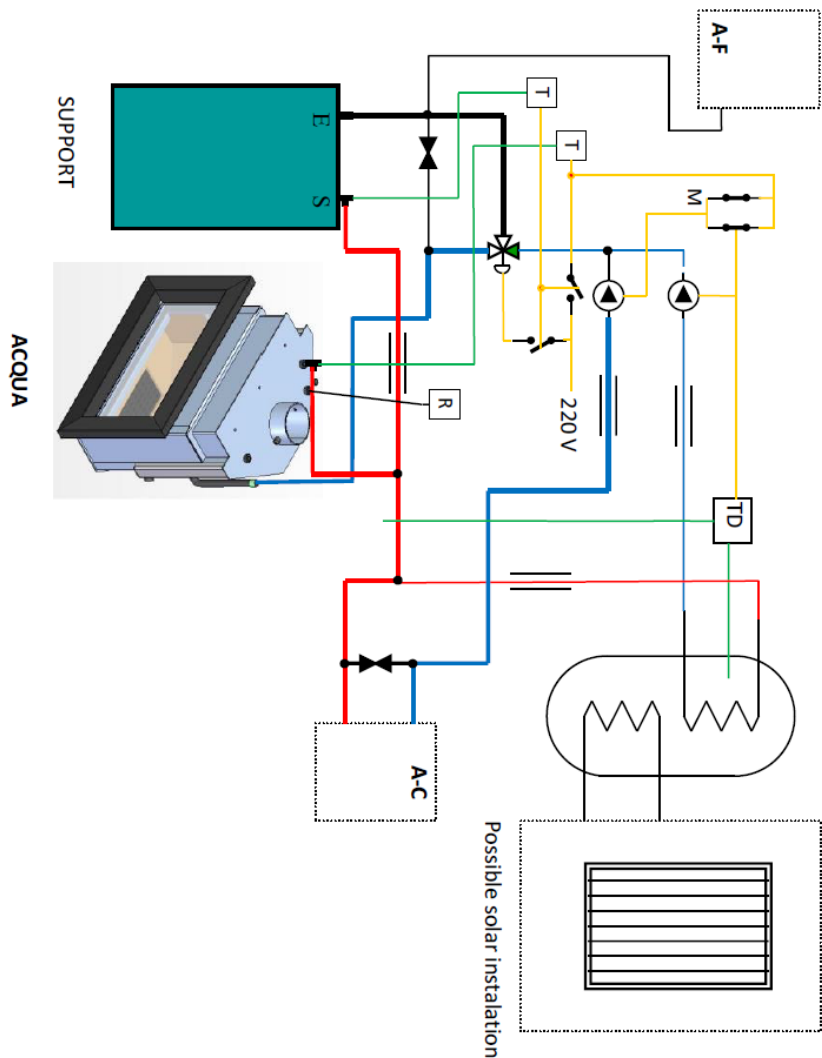


**Illustration 3 – Installation diagram for Central Heating (CH) and Domestic Hot Water (DHW) with Accumulator and one Circulation Pump**



\* **Note:** in this type of setup, the flow in the accumulator coil is difficult to control, especially if the load loss in the central heating circuit is variable. In addition, the fluid circulates through the accumulator even if not required. For these reasons, we recommend against this setup and it should only be used when the above problems are seen to be of little consequence.

**Illustration 4 – Installation diagram for Central Heating (CH) and Domestic Hot Water (DHW) with Accumulator and Supporting Appliance**

























**Operation:**

- \* The three-way valve is normally open to the ACQUA, so the thermostat activates the CH pump whenever the manual switch M is off.
- \* If the support appliance is working, the thermostat activates the three-way valve and pump through an auxiliary contactor.

\* The differential thermostat switches on the DHW pump whenever the temperature in the common line (to the two heating units) is higher than in the upper section of the accumulator.

\* If you want to switch off the CH pump when the DHW pump is working, you can use the manual switch M (priority for domestic hot water). By switching on the DHW pump, the CH pump is switched off by a contactor.

## Symbols

	Circulation pump		Accumulator
	Thermostat		Motorized 3 way valve
	Diferencial Thermostat		Flow control valve
	Valve normally closed		Switch normally opened
	Combustion regulator		Hot water pipes
	Closed expansion tank		Cold water pipes
	Non-return valve		Cold water pipes
	Safety valve		Pipes usually with thermal isolation
	Filling and expansion tank (open)		
	Automatic extractor		Sensor lines
	Heat exchanger		Feed Lines (220V)

# Glossary

- \* **bar**: unit of pressure equal to exactly 100,000 Pa. This pressure is very close to standard atmospheric pressure.
- \* **cal** (calorie): equal to the amount of heat required to increase the temperature of one gram of water by one degree centigrade.
- \* **Groove**: housing for the sealing ring.
- \* **cm** (centimetres): unit of measurement.
- \* **CO** (carbon monoxide): Lightly flammable, colourless, odourless and very dangerous gas, due to its toxicity.
- \* **CO<sub>2</sub>** (carbon dioxide): Gas needed by plants on the one hand for photosynthesis, and emitted into the atmosphere on the other, contributing to the greenhouse effect.
- \* **Combustion**: a process that releases energy. Combustion is basically a chemical reaction that requires three things in order to take place: fuel, oxidant and ignition temperature.
- \* **Oxidant**: chemical substance that feeds combustion (essentially oxygen) and is essential for it to take place.
- \* **Fuel**: anything that can undergo combustion, in this case wood.
- \* **Creosote**: chemical compound created by combustion. This compound is sometimes deposited on the glass and flue of an insert fire.
- \* **Energy Efficiency**: capacity to generate large quantities of heat with the least amount of energy possible, causing the least environmental impact and reducing the energy budget.
- \* **CO Emissions**: emission of carbon monoxide gas into the atmosphere.
- \* **CO Emissions (13% O<sub>2</sub>)**: carbon monoxide content emitted into the atmosphere.
- \* **kcal** (Kilocalorie): multiple unit of measurement of calories. Equivalent to 1,000 calories.
- \* **kW** (Kilowatt): Unit of measurement equal to 1,000 watts.
- \* **l/h**: litres per hour.

- \* **mm** (millimetres): unit of measurement.
- \* **Pa (Pascal)**: standard SI unit of pressure and tension. This unit is named after Blaise Pascal, eminent French mathematician, physicist and philosopher.
- \* **Calorific Value**: also known as specific combustion heat. Represents the quantity of heat released when a certain quantity of fuel is completely burned. Calorific value is expressed in calories (or kilocalories) per unit of weight of fuel.
- \* **Inch**: unit of length under the British Imperial system. 1 inch equals 2.54 centimetres or 25.4 millimetres.
- \* **Rated output**: Electric power consumed by an energy source. Measured in watts.
- \* **Nominal heat output**: heating capacity, i.e. the heat energy the unit transfers from energy present in the firewood – measured for a standard load of firewood over a given period of time.
- \* **Power output**: a manufacturer's recommendation from tests on the equipment with firewood loads within a reasonable operating range. This power output range will present different firewood consumptions per hour.
- \* **Efficiency**: expressed as a percentage of “useful energy” that can be extracted from a given system, taking into account the “total energy” of the fuel used.
- \* **Ignition temperature**: temperature above which the fuel can enter into combustion.
- \* **Heat-resistant**: resistant to high temperatures and thermal shock.
- \* **Ceramic glass**: Highly resistant ceramic material produced through controlled crystallisation of vitreous materials. Used widely in industrial applications.
- \* **W (Watt)**: SI unit of power.

## Warranty

\* All SOLZAIMA units have a 2 (two) year warranty from the date the invoice was issued. In order for your warranty to be valid, you must keep the invoice or receipt of purchase throughout the warranty period

\* The warranty applies only to defects in materials or manufacture;

\* SOLZAIMA is happy to replace defective elements free of charge, following analysis and verification by a qualified agent/installer or company technician.

### \* **Exclusions:**

\* Fracture of the glass due to misuse of the unit does not fall within the scope of this warranty. The chances of natural fracture of the glass are minimal, as this would only be possible due to overheating. The glass can withstand temperatures of 1382°F (750°C) in constant operation, as well as temperature peaks of 1562°F (850°C) – temperatures which are never reached during normal operation;

\* The type of fuel used and how the unit is handled are not within SOLZAIMA's control, so the parts and the pieces in direct contact with the flame – as well as the vermiculite support, the ash grate, comb and baffle plate – are not covered by this warranty;

\* The vermiculite panels and sealing ring are not included in the warranty;

\* The installer bears full responsibility for all problems and/or defects resulting from the installation process;

\* Costs associate with moving, transport, labour, packaging, disassembly and immobilisation of the unit incurred during warranty operations shall be borne by the purchaser;

\* Any malfunctioning caused by mechanical or electrical parts not supplied by SOLZAIMA and which are prohibited under the instructions governing heating appliances are not covered by this warranty;

\* SOLZAIMA bears no responsibility for damage caused by the use of any fuel other than dry firewood with less than 20% moisture content.

# Declarations of Performance

## DÉCLARATION DE PERFORMANCE

Nº DD-003

1. Unique identification code of the product type

ACQUA – EAN 05600990400054

2. Number of type, batch or serial product

See back over of this Instructions Manual

3. Intended use

HEATING OF RESIDENTIAL BUILDINGS WITH POSSIBILITY OF HOT WATER SUPPLY

4. Name, registered trade name and contact address of the manufacturer

SOLZAIMA, SA

RUA DOS OUTARELOS, Nº111

3750-362 BELAZAIMA DO CHÃO – ÁGUEDA – PORTUGAL

5. System of assessment and verification of constancy of the product

SISTEMA 3

6. Harmonized standard

EN 13229

7. Name and identification number of the notified body

CEIS – CENTRO DE ENSAYOS INOVACION Y SERVICIOS

NB: 1722

8. Test report

CEE/0060/09

9. Declared performance

Essencial characteristics	Performance	Harmonized technical specifications
Fire safety	OK. According to the test report <b>CEE/0060/09</b>	According to the requirements 4.2, 4.3, 4.7, 4.8, 4.10, 4.11, 4.15, 5.2, 5.5, 5.6, 5.9, 5.10, 6.11 (EN13229)
Emission of combustion products	OK. Nominal heat output–CO: <b>0,8%</b>	Nominal heat output–CO < 1%
Release of dangerous substances	OK. According to the test report Selons le rapport d'essai <b>CEE/0060/09</b>	According to the Annex ZA.1 (EN13229)
Surface temperature	OK. According to the test report <b>CEE/0060/09</b>	According to the requirements 4.2, 4.13, 5.2, 5.3, 5.6, 5.10 (EN13229)
Maximum working pressure	OK. <b>3 bar</b>	According to the requirements 4.2, 5.7, 5.8 (EN13229)
Mechanical strength	OK. According to the test report Selons le rapport d'essai <b>CEE/0060/09</b> Every 10 m of the flue should be placed a load support tous les 10 m de conduit de fumée doit être placé un support de charge	According to the requirements 4.2, 4.3(EN13229)
Energy efficiency	OK. <b>80%</b>	≥ 30% for rated thermal input nominale

10. Performance of the product stated in points 1 and 2 is consistent with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Name and title

Belazaima do Chão, 28/06/2013

# **DÉCLARATION DE PERFORMANCE**

Nº DD-004

1. Unique identification code of the product type

ECOFOGO – EAN 05600990400016      MYTHO – EAN 05600990400061

2. Number of type, batch or serial product

See back over of this Instructions Manual

3. Intended use

HEATING OF RESIDENTIAL BUILDINGS WITH POSSIBILITY OF HOT WATER SUPPLY

4. Name, registered trade name and contact address of the manufacturer

SOLZAIMA, SA

RUA DOS OUTARELOS, Nº111

3750-362 BELAZAIMA DO CHÃO – ÁGUEDA – PORTUGAL

5. System of assessment and verification of constancy of the product

SISTEMA 3

6. Harmonized standard

EN 13229

7. Name and identification number of the notified body

CEIS – CENTRO DE ENSAYOS INOVACION Y SERVICIOS

NB: 1722

8. Test report

CEE/0036/08

9. Declared performance

Essencial characteristics	Performance	Harmonized technical specifications
Fire safety	<b>OK.</b> According to the test report <b>CEE/0036/08</b>	According to the requirements 4.2, 4.3, 4.7, 4.8, 4.10, 4.11,4.15, 5.2, 5.5, 5.6, 5.9, 5.10, 6.11 (EN13229)
Emission of combustion products	<b>OK.</b> Nominal heat output– <b>CO:</b> <b>0,56%</b>	Nominal heat output – <b>CO &lt; 1%</b>
Release of dangerous substances	<b>OK.</b> According to the test report <b>CEE/0036/08</b>	According to the Annex ZA.1 (EN13229)
Surface temperature	<b>OK.</b> According to the test report <b>CEE/0036/08</b>	According to the requirements 4.2, 4.13, 5.2, 5.3, 5.6, 5.10 (EN3229)
Pression de service maximale	<b>OK.</b> <b>3 bar</b>	According to the requirements 4.2, 5.7,5.8 (EN13229)
Mechanical strength résistance   Resistenza meccanico	<b>OK.</b> According to the test report <b>CEE/0036/08</b> Every 10 m of the flue should be placed a load support	According to the requirements 4.2, 4.3(EN13229)
Energy efficiency	<b>OK.</b> <b>71%</b>	<b>≥ 30%</b> for rated thermal input

10. Performance of the product stated in points 1 and 2 is consistent with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4

Name and title | Nom et titre | Nome e titolo

Belazaima do Chão, 28/06/2013



**DÉCLARATION DE PERFORMANCE**

Nº DD-005

1. Unique identification code of the product type

DOMUS 100 – EAN 05600990400023      DOMUS 100A – EAN 05600990400030  
ZAIMA – EAN 05600990400047

2. Number of type, batch or serial product

See back over of this Instructions Manual

3. Utilização prevista | Uso previsto | Intended use | Utilisation prévue | Destinazione d'uso

HEATING OF RESIDENTIAL BUILDINGS WITH POSSIBILITY OF HOT WATER

4. Name, registered trade name and contact address of the manufacturer

SOLZAIMA, SA  
RUA DOS OUTARELOS, Nº111  
3750-362 BELAZAIMA DO CHÃO – ÁGUEDA – PORTUGAL

5. System of assessment and verification of constancy of the product

SISTEMA 3

6. Harmonized standard

EN 13229

7. Name and identification number of the notified

CEIS – CENTRO DE ENSAYOS INOVACION Y SERVICIOS  
NB: 1722

8. Test report

CEE/0017/08

9. Declared performance

<b>Essencial characteristics</b>	<b>Performance</b>	<b>Harmonized technical specifications</b>
Fire safety	<b>OK.</b> According to the test report <b>CEE/0017/08</b>	According to the requirements 4.2, 4.3, 4.7, 4.8, 4.10, 4.11, 4.15, 5.2, 5.5, 5.6, 5.9, 5.10, 6.11 (EN13229)
Emission of combustion products	<b>OK.</b> Nominal heat output– <b>CO:</b> <b>0,56%</b>	Nominal heat output– <b>CO &lt; 1%</b>
Release of dangerous substances	<b>OK.</b> According to the test report <b>CEE/0017/08</b>	According to the Annex ZA.1 (EN13229)
Surface temperature	<b>OK.</b> According to the test report <b>CEE/0017/08</b>	According to the requirements 4.2, 4.13, 5.2, 5.3, 5.6, 5.10 (EN13229)
Maximum working pressure	<b>OK.</b> <b>3 bar</b>	According to the requirements 4.2, 5.7, 5.8 (EN13229)
Mechanical strength	<b>OK.</b> According to the test report <b>CEE/0017/08</b> Every 10 m of the flue should be placed a load support	According to the requirements 4.2, 4.3 (EN13229)
Energy efficiency	<b>OK.</b> <b>71%</b>	<b>≥ 30%</b> for rated thermal input

10. Performance of the product stated in points 1 and 2 is consistent with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4

Name and title

Belazaima do Chão, 28/06/2013

Nuno Sequeira (Director Geral | CEO)

## DECLARATION OF PERFORMANCE

Nº DD-030

1. Unique identification code of the product type

ACQUA PORTA VERTICAL– EAN 05600990425590

2. Number of type, batch or serial product

See back over of this Instructions Manual

3. Intended use

HEATING OF RESIDENTIAL BUILDINGS WITH POSSIBILITY OF HOT WATER SUPPLY

4. Name, registered trade name and contact address of the manufacturer

SOLZAIMA, SA

RUA DOS OUTARELOS, Nº111

3750-362 BELAZAIMA DO CHÃO – ÁGUEDA – PORTUGAL

5. System of assessment and verification of constancy of the product

SISTEMA 3

6. Harmonized standard

EN 13229

7. Name and identification number of the notified body

CEIS– CENTRO DE ENSAYOS INOVACION Y SERVICIOS

NB: 1722

8. Test report

CEE/0169/14-1

9. Declared performance

Essencial characteristics	Performance	Harmonized technical specifications
Fire safety	<b>OK.</b> According to the test report <b>CEE/0169/14-1</b>	According to the requirements 4.2, 4.3, 4.7, 4.8, 4.10, 4.11, 4.15, 5.2, 5.5, 5.6, 5.9, 5.10, 6.11 (EN13229)
Emission of combustion products	<b>OK.</b> Nominal heat output– <b>CO:</b> <b>0,33%</b>	Nominal heat output– <b>CO &lt; 1%</b>
Release of dangerous substances	<b>OK.</b> According to the test report <b>CEE/0169/14-1</b>	According to the Annex ZA.1 (EN13229)
Surface temperature	<b>OK.</b> According to the test report <b>CEE/0169/14-1</b>	According to the requirements 4.2, 4.13, 5.2, 5.3, 5.6, 5.10 (EN13229)
Maximum working pressure	<b>OK.</b> <b>3 bar</b>	According to the requirements 4.2, 5.7, 5.8 (EN13229)
Mechanical strength	<b>OK.</b> According to the test report <b>CEE/0169/14-1</b> Every 10 m of the flue should be placed a load support	According to the requirements 4.2, 4.3(EN13229)
Energy efficiency	<b>OK.</b> <b>75,1%</b>	<b>≥ 30%</b> for rated thermal input

10. Performance of the product stated in points 1 and 2 is consistent with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Name and title

Belazaima do Chão, 13/01/2015

Nuno Sequeira (Director Geral | CEO)



**Please read this Instruction Manual carefully and keep it for future reference.**

**All Solzaima wood products come with a 2-year warranty.**

SOLZAIMA

SOLUÇÕES DE AQUECIMENTO A BIOMASSA

**APPROVED PRODUCT**