

SOL LINE SOL 60 | 70 | 80 | 90 ENERGY SAVING FIREPLACE



INSTALLATION & USER MANUAL



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1. ARTE® FIREPLACE - A GREEK QUALITY PRODUCT

Thank you for buying an ARTE® fireplace - we believe that you will have as much pleasure from our product as we have.

Your ARTE® fireplace is made in such a way, to extract the maximum possible energy from the wood with the minimum possible emissions, using the most innovative technology and the most robust design - made in Greece!

These instructions contain interesting and informative facts and all you need to know about the subjects of heating, wood, and operating your ARTE® fireplace. Please read these instructions carefully before using your fireplace for the first time and keep them in a safe place.



The manuals which are enclosed with the product must be kept throughout the product's entire service life.

2. FACTS ABOUT WOOD AND THE ENVIRONMENT

2.1. Why use wood?

With proper forest management, burning wood does not deplete the earth's resources. Heating with wood usually does not contribute to global warming. The young trees that replace the trees in your fireplace absorb carbon dioxide from the air. Burning firewood releases only as much CO2 as the tree has absorbed from the atmosphere during its growth. Wood rotting in the forest generates the same amount of CO2 as the same wood burning.

Besides being environmentally friendly, the heat from a fireplace warms you like the warming rays of the sun during the sunny winter days. It is the radiated heat that transmitted by electromagnetic waves in the infrared range. Even when the air is very cold you can feel the warm rays of the sun on your skin.

Another advantage to wood is that it is produced locally, which creates local employment, and more tax revenues stay in the province.

2.2. Buying firewood

Where can I get my firewood?

Regenerated ready-to-burn firewood can be purchased from dealers:

- Tireplace ready, stored for at least two years
- ① Pre-dried, stored for one year
- Fresh from the forest

Whether you have cut your own wood or bought it, the important thing is: the wood should be dried for at least two years before it is burned.



The ideal residual moisture is 12 - 15% and should be no higher!

2.3. Storing your wood

The full potential for heat will not be realized if you neglect the simple chore of piling and protecting your wood. Proper storage is essential to avoid moisture, bacteria, and insect problems in your home.

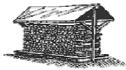
To avoid problems with insects and moisture, store the wood as far from your house as is practical. Do not store wood in your basement; one cord of wood can give off more than 500 liters of water. The basic rule is to hide the wood from water, but not from the sun or wind (Pic. 2.3.1 & 2.3.2) Green wood will dry slowly or not at all if unprotected, while seasoned wood left unprotected may become unseasoned.

There are three basic rules to follow when storing wood:

- $\ensuremath{\textcircled{1}}$ Allow air circulation by piling one tier wide if possible
- ① Protect wood from rain and snow by covering with a tarp or woodshed roof.
- $\ensuremath{\textcircled{1}}$ Pile wood off the ground on scrap lumber or wooden pallets.

The time-honored way to cure wood is to buck, split, and stack wood off the ground for one full year. How-ever, wood can generally be reduced to 20 per cent moisture content in two to three months. The ideal 10% to 15% may take longer (almost 18 months).









Pic. 2.3.2







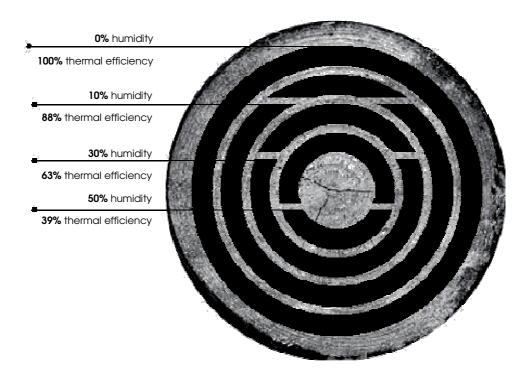
2.4. Wood types and calorific value

A wood's efficiency does not depend only on its type, but also on its humidity, as well as the temperature of the combustion chamber.

For more efficient and longer burning, without emission of hazardous substances, woods must be dry. Ideally, their humidity percentage must not exceed 10% to 15%.

If this percentage is over 20%, the wood is not burned properly, whereas if the piece of wood has been cut recently, the humidity is over 60% making it unsuitable for burning. The reason for that is that the fire will be weak and pale and will produce dense smoke, unburned tar and creosote, soiling the ceramic glass and the flu.

It is preferable to get your wood supplies during the summer months and store them, to ensure better combustion quality during the winter.



Useful tips

- Always choose dry firewood.
- ① Avoid wood that pops (chestnut, conifers such as cedar, spruce and pine), as they may damage your fireplace or the flue.
- ① Pay attention to the size of the logs. Good firewood must have been cut at least twice.
- ① You should prefer oak, beech, olive wood, which is hard wood with high density since they will burn for longer.

Briquettes

They ignite very easily, and burn slowly. They are economically advantageous because you will burn smaller quantities compared to common firewood and they are easily stored. Also, you have less quantity of ashes vs. to wood.

Rirch

It's a soft wood that ignites easily with great thermal energy production. It produces less smoke and ash compared to other wood and burns silently. The same characteristics apply for lime and chestnut.



Beech

Hard wood is ideal for firewood but requires a high temperature to ignite. It weights a lot; it is dense and burns with a calm and long fire for a longer time. Best when well seasoned. The same applies for oak, but seasoned for 2-3 years.

The various wood types have various calorific values

Wood type	Thermal capacity (Kcal/h-1Kg)
Briquette	5.000
Birch	4.800
Walnut	4.731
Oak	4.619
Beech	4.578
Fir	4.588
Common Oak	4.548
Pine	4.457
Olive	4.100
Poplar	4.022



Table 2.4.1

860Kcal/h = 1 kW/h

The values are based on 15% residual wood moisture.



An ARTE® fireplace can be fired with all of the above wood types

2.5. Determining the heat output

There is not a specific rule that enables the calculation of the required heat output. This depends on the amount of space that is required to be heated and mostly on its insulation. In average the required heat output for a properly insulated room and with external temperature of 0° is 40 kCal/h per m³.

Taking into account that 1kW equals 860 kCal/h an equivalent of $50W/m^3$ can be used. For example, to heat a 50 m^3 room ($10 \times 6 \times 2.5\text{m}$) in an insulated residence, the output required is $150\text{m}^3 \times 50W/m^3 = 7500W$ or 7.5 kW.

So for the main heating, a 10kW appliance is enough.

		Indicative com with efficie		Required amount relative to 1kg dry wood	
Fuel	Unit	kCal	kW		
Firewood (moisture 15%)	kg	3600	4.2	1.00	
Firewood (moisture 50%)	Kg	1850	2.2	1.95	
Wood briquettes	Kg	4000	5.0	0.84	
Coal briquettes	Kg	4800	5.6	0.75	
Coal	Kg	7700	8.9	0.47	
Coke	Kg	6780	7.9	0.53	
	m³	7800	9.1	0.46	
Diesel	L	8500	9.9	0.42	
Electricity	kW/h	860	1.0	4.19	

Table 2.5.1

3. ENDORSEMENTS & CERTIFICATIONS

3.1. Endorsement

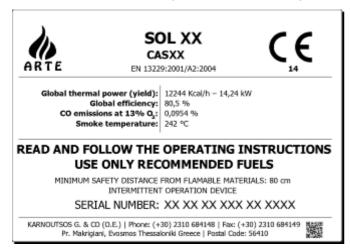
The ARTE® fireplace you chose has been tested according to EN13229.

3.2. Declaration of Performance CE

The constructor G. Karnoutsos & Co. declares that ARTE® fireplaces meet the requirements of the standard **EN 13240**, also the product's performance according to the quality specifications are monitored on a permanent basis.

3.3. Features marking plate

ARTE® fireplace's feature marking plate is located on the right side of the appliance.

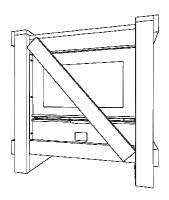


4. PACKAGING

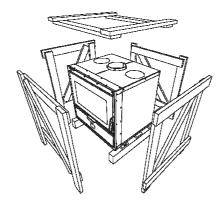
ARTE® is devoted in protecting the environment, so we use as much recyclable materials as possible and the least amount of packaging materials without compromising the secure transfer of our products.

4.1. Unpacking

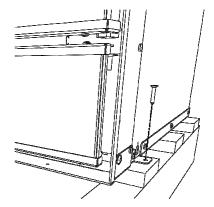
- 1. The product will be delivered on a wooden palette which is lined with wooden side panels and top panel. (Pic. 4.1.1)
- 2. Remove the individual parts of the packaging, starting from the top and then the front, side and finally the back panel. (Pic. 4.1.2)
- 3. Carefully remove the plastic membrane and the waterproof plastic film and also all the polystyrene on the outside and inside of the product.
- 4. Unscrew the 2 screws located on either side of the product, in order to release the fireplace from the palette. (Pic. 4.1.3)
- 5. Carefully pick up the product and place it on the installation point, making sure that the floor can withstand the weight of the device. If the existing construction cannot withstand the weight of the device, a load distributing plate is necessary. Also, make sure you provide proper insulation in case the floor is built using flammable materials.







Pic. 4.1.2



Pic. 4.1.3

5. ASSEMBLY

5.1. Door opening side change

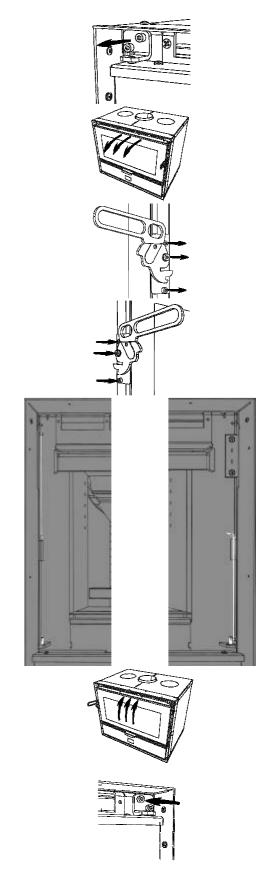
ARTE® SOL fireplace is delivered with the combustion chamber door opening on the left, still you have the potential to change it in order to open on the right.

To change the opening direction of the combustion door, please follow the steps below:

- Remove the hinge from the top left corner of the door, by unscrewing the two hexagonal head screws.
- Open the handle and tilt the door slightly to the front in order to remove the rebound spring located on the left side of the door and then remove the door.
- Remove the handle along with the safety plate by unscrewing the three hexagonal head screws.
- Move and install the handle along with the safety plate on the left side of the door by screwing the three hexagonal head screws.

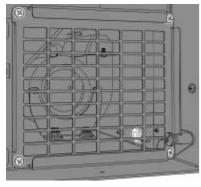
- 5. Unscrew the door support pin using the hole on its body and install it on the right side of the fireplace, along with the washer.
 - Then remove the rebound spring from the upper left side of the fireplace and install it inversely opposite on the lower right side, next to the hinge.

- 6. Support the door on the lower right pin you installed and place the loose end of the rebound spring on the corresponding hole on the center of the right side of the door. Place a 3mm spacer between the door and the pin support point (on the lower left side) and push the top side of door towards the fireplace until you can close the handle.
- 7. Install the hinge along with its washer on the upper right corner of the door by screwing the two hexagonal head screws, as you push the upper right corner of the door towards the fireplace. Pay intense attention on keeping the hinge parallel to the door!





5.2. Electrical installation



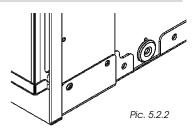
Pic. 5.2.1

ARTE® SOL fireplace is constructed in way that it supports the installation of the power connections to the control panel on either side of it. In order to install the power cord you must follow these steps.

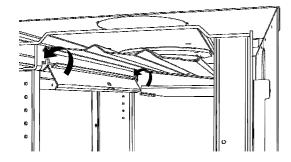
Λ

The electrical installation must NECESSARILY be made by qualified personnel

- 1. Open the control panel door.
- 2. Remove the air intake filter.
- Unscrew the four screws of the ventilator protective panel. (Pic. 5.2.1)
- 4. Within the accessories delivered along with the fireplace, you will find an elastic gasket and a power cord which comes preinstalled with a quick lock jack.



Insert the gasket on the exit hole (Pic. 5.2.2) and once you connected the jack to the corresponding end of the control panel, pass the power cord through the gasket from the inside out. In order to facilitate the installation, dribble 1-2 drips of lubricant on the power cord.

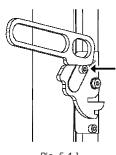


Pic. 5.3.1

5.3. Revolving buffer installation

For safety reasons, ARTE® SOL fireplaces are delivered with the revolving buffer not installed. It is essential that you install it prior to lighting the fireplace. In order to do so you must insert the protruding pins on the left and right of the buffer in the corresponding hooks that are located on the inside of the air curtain. (Pic. 5.3.1)

5.4. Fixing the handle



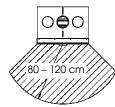
Pic. 5.4.1

ARTE® SOL fireplaces gives you the option to fix the handle on the opening mechanism. In order to do so, you are provided with a hexagon head M5x6 screw, which you screw on the designated place. (Pic. 5.4.1)

6. FIRE SAFETY

It is OBLIGATORY to respect the National and European rules and local regulations concerning building matter and fireproof rules.

The installation MUST be inspected by a qualified auditor, prior to lighting the fireplace. Also the appropriate local authorities must be informed.



6.1. Safe distances

The combustion chamber opening must be AT LEAST 80cm away from any flammable materials that are inside the heat radiation zone.

6.2. Wooden beams protection

Given its properties, heat is transmitted through radiation. In case there are any wooden beams inside the radiation zone or in the way of the hot air, the MUST be properly insulated because the continuous exposure in high temperatures can make them deteriorate faster or even cause self ignition. Use proper insulation materials that are in accordance with European rules or, in case of high thermal stress you can also use metal linings.



6.3. General security instructions

- ① Never leave children alone or without supervision near the fireplace when it is lit.
- ① Teach children how to operate the fireplace correctly and safely.
- ① Never touch the external surfaces of the fireplace or the glass when it is lit. There is a high risk of burns!
- ① Due to the self closing door, you have to be extra careful when you are filling the fireplace.
- ① It is forbidden to use the fireplace as a waste incinerator.
- ① Don't use burned or used wood as fuel.
- ① Remove the ash only after it has completely cooled off.
- ① Ash should be placed outdoors or be disposed in a place where there is no risk of ignition.
- ① Immediately inform your specialized local supplier if you find any malfunction.
- ① Don't use chemicals or liquids as fire starters.
- ① Do not use ANY fuel other than the recommended



Follow the operating instructions supplied with the product to help prevent fire and protect the environment.

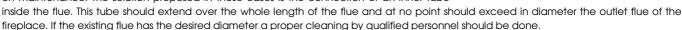
6.4. Flue security instructions

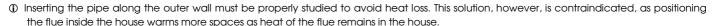
Prior to installing the fireplace ARTE® the chimney sweep or a qualified technician should check the condition and operation of your chimney in accordance with the standards EN13384-1 & EN13384-2.

This way you ensure the best conditions for heating without issues.

6.4.1. Basic requirements for proper flue operation

- ① The internal section of the flue must preferably be circular. In a case of square or rectangular flue, the internal corners should have a radius of at least 20mm. In case of rectangular flue, the ratio of the sides should be at maximum 1: 1.5
- ① The flue must be properly insulated and waterproof and constructed of materials with thermal resistance and resistance to combustion products and any deposits.
- ① The flue must have no constrictions; it must have a vertical path and it should not change in direction that exceeds 45°. (Pic. 6.4.1.1)
- ① In case of an existing flue the construction material should be checked. Materials such as cement with lime, galvanized steel and rough or porous materials are contraindicated as they create issues in the correct operation of the fireplace. Also, a proper study for the flue size must be conducted because often old flues have quite large diameters. This means that the amount of air draft is not proportional to the heat generated by the fireplace and by extension means that you consume more wood than necessary and will spend more time on maintenance. The solution proposed in these cases is the connection of an inner tube institute the flue. This takes the solution to the state that the flue and the solution proposed.





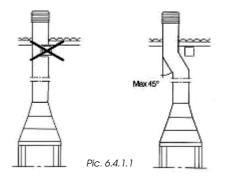


The placement of the chimney on the roof is a particularly decisive factor in the convection of the fireplace.

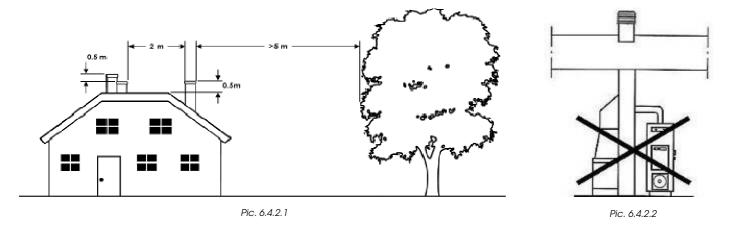
An incorrectly fitted chimney may generate reimbursement of exhaust into the heating space due to down flow of the air.

Follow the instructions below to ensure proper dissipation of smoke. (Pic. 6.4.2.1)

- ① The ending of the chimney must be at least 50cm above the top of the roof.
- 1 If there is more than one chimney on the roof, they must be positioned at least 2m apart.
- ① If there are two adjacent chimneys, their ends must be at least 50cm apart.
- ① If there is a tall building or tree next to the house, then you should place the chimney at a distance greater than 5m from the obstacle.
- ① It is prohibited to connect several devices to the same chimney. Every chimney should be autonomous. (Pic. 6.4.2.2)







① In case of an inclined roof, the height of the chimney is defined depending on the inclination and the distance of the chimney from the ridge according to the following table. (Pic. 6.4.2.3)

Inclination	RIDGE – CHIMNEY DISTANCE	MIN HEIGHT ABOVE THE RIDGE		
a°	A (m)	H (m)		
15°	< 1,85 m	0,50 m OVER THE RIDGE		
15°	> 1,85 m	1,00 m OVER THE ROOF		
30°	< 1,50 m	0,50 m OVER THE RIDGE		
30°	> 1,50 m	1,30 m OVER THE ROOF		
45°	< 1,30 m	0,50 m OVER THE RIDGE		
45°	> 1,30 m	2,00 m OVER THE ROOF		
60°	< 1,20 m	0,50 m OVER THE RIDGE		
000	> 1,20 m	2,60 m OVER THE ROOF		

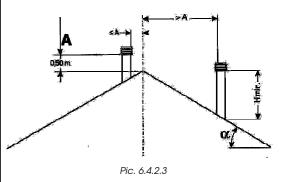


Table 6.4.2.1

6.4.3. Chimney cap

The chimney draft depends broadly on the adequacy of the cap.

So, in case the chimney is built, its exhaust diameter should be at least twice the inside diameter of the chimney. Knowing that it is necessary to protrude from the ridge of the roof, the cap must ensure the proper smoke dissipation in case of strong wind.

A chimney cap must meet the following requirements:

- $\ensuremath{\textcircled{1}}$ Internal diameter must be equal to the diameter of the chimney.
- ① Exhaust diameter be at least twice the inside diameter of the chimney.
- 1 It should be constructed in such a way as to avoid the entrance of rain, snow and any foreign body in the chimney
- ① It can be checked, maintained and cleaned easily.

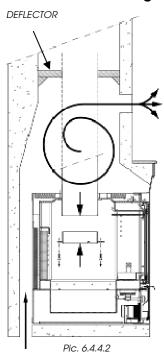






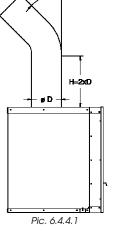
Cap with deflector. It leans according to the wind and it provides very good smoke dissipation.

6.4.4. Connecting the fireplace with the flue



It is necessary that the flue gas tube is connected to a certified conduit with the same diameter as the fireplace, by following the dimensions of the adjacent image. (Pic. 6.4.4.1) For fireplaces SOL 60/70 the diameter of the flue is 150mm, while on SOL 80/90 is 180mm. The flue must be properly insulated with stone wool with thickness of 4cm with external aluminum foil. Do not use fiberglass or paper based insulation. Also, do not use flexible thin walled metallic tubes or asbestos tubes. This tube should be perfectly sealed and well insulated throughout its length.

To install the flue, you must first remove the two baffles (stainless and vermiculite) from the top of the combustion chamber. Then you must remove the mounting flange by unscrewing the five stainless steel screws that secure it to the chassis. Then you will need to enter the flue in the combustion chamber where once you cover it with sealant, you must connect it to the mounting flange and the connection to be secured with a clamp. Finally you should place the gasket on the chassis and tighten the five screws again.



Before installing a SOL fireplace in a wall you must ensure that there is a front opening of at least 635/735/835/935x565mm, according to the type of the device.

In case you are installing a SOL fireplace on an existing fireplace you must close the inner part of the flue with a deflector with an appropriately drilled plate or other refractory material that can withstand high temperatures without damage.

The space extending around and over the device up to the deflector must be ventilated continuously. For this reason you must allow cool air from a lower spot, for example, the bottom and the outlet of the hot air from above. (Pic. 6.4.4.2)

These openings must remain free and not able to be covered. The must also have a minimum surface of 300cm², for example, a grille with size 30x10cm.

This way you achieve:

- greater security
- ① Increase on the heat of the room, due to the air circulating around the device.

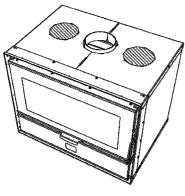
The hot air extract grille must be placed on top of the trunk approximately 20cm from the ceiling. The grille must always be installed, as its purpose is to allow, the heat that builds up inside the trunk to be released in the room and also to relieve the pressure created.

6.4.5. Air supply to adjacent rooms

ARTE® SOL fireplaces have an option for connecting air tube and provide hot air in adjacent rooms. At the top of the device there are two holes in which you can connect said conductors.

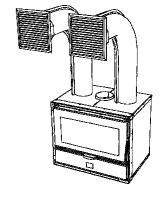
To install the conductors you must follow the procedure below:

- 1. Configure appropriately the adjacent walls or drywall to install air ducts, with maximum diameter of 150mm, which must be properly insulated and do not exceed a horizontal displacement of 7m. When calculating the distance keep in mind that if the tube changes course by 90° you should calculate a horizontal path of 1m and if it changes 45° you should calculate 0.5m.
- 2. Remove the hole covers by using a hammer. (Pic. 6.4.5.1)
- 3. Install the collars with diameter of 150mm on the holes and bend the mounting strips. (Pic. 6.4.5.2)
- 4. Mount the air ducts to the collars by using clamps. (Pic. 6.4.5.3)



Pic. 6.4.5.1

PIG 6452

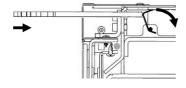


Pic. 6.4.5.3

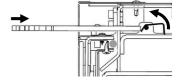
- ① The air ducts must be properly insulated to avoid noise and heat loss.
- ① The output of the air ducts must be at least 2m above the floor so that the hot air is not directed straight on humans.

ARTE® SOL fireplaces enable the control of the air supply quantity on the front. This is achieved by using two adjustable flaps which are regulated by using the handle and allow four different combinations.

- 1. Fully open
- 2. Left OFF Right ON
- 3. Left ON Right OFF
- 4. Fully closed



Opening the flap



Closing the flap

The use of adjustable flaps enables the user to be able to change the amount of air both locally and on the air ducts that provide hot ait on adjacent rooms.

In case tubes over 7m are used, you must also install ventilators on the end of the tube in order to propel the air. To prevent smoke transfer in an adjacent room, the use of an additional component placed in the air outlet at the top of the device is required. (Pic. 6.4.5.4)



6.4.6. Malfunction - Secure fireplace shutdown

Pic. 6.4.5.4

In rare occasions even a test fire may not cause sufficient draft in the flue. In this case contact your chimney sweep. Under no circumstances should you try to light a larger fire. If smoke escapes from the fireplace, ventilate the room immediately and contact your chimney sweep. DON'T LIGHT THE FIREPLACE!

7. OPERATING INSTRUCTIONS

7.1. Before initial use of an ARTE® SOL fireplace

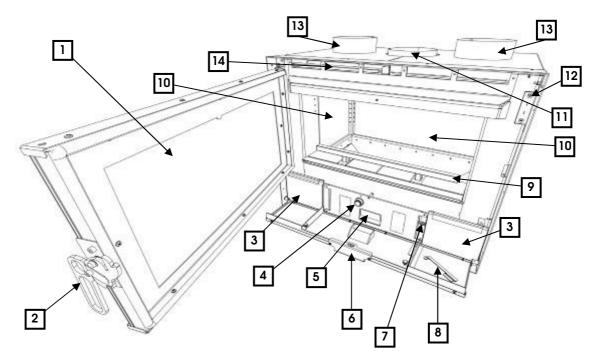
One of our qualified dealers has already given you instructions on how to operate the ARTE® SOL fireplace you just bought.

In the guidelines below there are detailed instructions on the steps to follow so you do not encounter any issues during the operation of the fireplace.

The qualified dealer in your area is at your disposal to answer any of your questions. The ARTE® SOL fireplace is equipped with the following control systems:

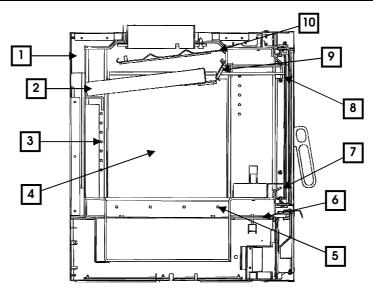
7.2. About ARTE® SOL fireplace

The fireplace you just received is a device designed to offer excellent heating with very high efficiency. It is Insert type, which means that it can be installed in an existing fireplace and thus upload the thermal rate of your room.



1	Main door with double ceramic glass	8	Opening handle storage location
2	Detachable main door opening handle	9	Log rolling guard
3	Air intake filters	10	Vermiculite panels
4	Automatic combustion air regulator	11	Flue
5	Automatic ventilator control panel	12	Sensors access slot
6	Control panel door opening handle	13	Air outtakes for adjacent rooms
7	Control panel door micro switch	14	Main front air outtake

Table 7.2.1



1	Hot air circulation space	6	Combustion air intake regulator
2	Vermiculite baffle	7	Lower air curtain
3	Secondary air intake	8	Upper air curtain
4	Combustion chamber	9	Stainless steel rotating baffle
5	Primary air intake	10	Stainless steel baffle

Table 7.2.2

7.3. General information

7.3.1. When the fireplace paint dries

ARTE ® products are painted in spray booth with as more environmentally friendly and ecological colors as possible. There is although a possibility that the first few times the fireplace is lighted, the paint emits an odor. Let the fire burn with intense convection until all traces of gas disappear and there is no longer a smell. The gas is not toxic, but the room should be well ventilated.

7.3.2. Incineration preparation

Prepare sufficient amount of chopped firewood, kindling and branches or torches. Before using the wood it is recommended to store them in a warm place for a few days.

7.3.3. Combustion air intake



Opening the holes for the combustion air intake is IMPORTANT! In case it is not done, there is serious risk of destroying the fireplace.

ARTE® SOL fireplaces provide two different options for combustion air intake.

1. Use of internal air:

The presence of kitchen hoods, ventilation systems or other heating appliances may affect the operation of the fireplace. When operating more than one device make sure that there is sufficient air intake. The simultaneous operation of a kitchen hood or a ventilation system with the fireplace may draw in hazardous gases from the fireplace towards the interior of the room.



According to the operating regulations, the concomitant use of similar devices may be acceptable only if there is a flue gas control device. When there is a kitchen hood, a ventilation system or other heating appliances in use, at least one window in the room must remain open.



Use a hammer in order to remove the covers.



2. Use of external air:

Although the fireplace uses external air for combustion, make sure that the room is ventilated adequately when the fireplace operates with external fresh air. When you open the door of the combustion chamber for adding firewood there should be no pressure difference between outdoor and indoor air in the room, so it is good to keep the door open for about 1.5cm for 5-6 seconds and then fully open it.



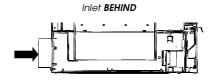
The air inlet must be positioned so as not to allow being covered.

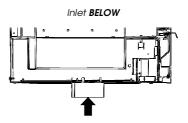
The air inlet must be communicating with the combustion space and

The minimum surface of the air inlet should not be less than ~110cm²

Avoid using air inlets connected with garages, kitchens, bathrooms or boiler rooms.

ARTE® SOL fireplaces allow fresh air from two different inlets:







Use a hammer to remove the cover.

protected by a grille.

If you want to import air from an external source, you must apply the corresponding 100mm diameter collar and clamps to mount a flexible conduit.

7.3.4. Power failure



During a power failure the hot air distribution motors stop, but ARTE ® SOL fireplaces remain safe.

In case of power failure, the automatic air flow regulation device in the combustion chamber is activated and almost immediately reduces the flame intensity in order to reduce the temperature of the fireplace and protect the electrical components from overheating. When the temperature drops to normal levels then the regulator smoothly feeds back air in the combustion chamber and the operation of the fireplace is continued.



Under no circumstance should you operate the fireplace with the main door open. You run a serious risk of destroying the device.

During a power failure you can light and operate an ARTE® SOL fireplace normally. The only difference would be that because the motors are not quickly conferring heat in the room, the overheating safety system does not allow the device to operate at its nominal heat output but at a lower. That is why ARTE® suggests using an uninterruptible power supply unit (UPS) with minimum output of 250W which will ensure the smooth operation of the fireplace for about 2 hours.



In case there is no UPS installed, you can leave the control panel door open and remove the air filters in order for the air to circulate freely and thus distribute the heat in the room. When the power returns, after a while, the ventilators will start again.

7.3.5. Heating during seasonal change or in adverse weather conditions

When there is high humidity or fog, with temperatures ≥15 ° C, but also during the transitional period between seasons, it is recommended to light a test fire before normally lighting the fireplace. This will displace the cold, heavy air that is inside the flue and create the right conditions for optimum smoke dissipation.

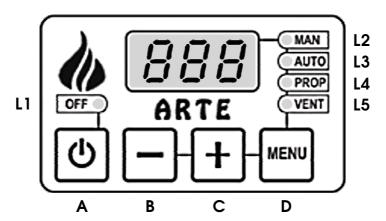


7.4. Use of the electronic control panel

ARTE® SOL fireplaces incorporate two ventilators with total power output of 420m³/h, which are used for heating the air and redistribute it in the room, which drastically increases the heating capability of the fireplace.

The motors are controlled by an electronic board which settings you can change using the control panel that is located beneath the control panel door.

To turn the panel ON or OFF, press key A. The state ON/OFF is indicated through LED light L1.



> Operation MODES

1. MANUAL mode (indication MAN - LED light L2)

The ventilator operates at the selected speed regardless of the temperature of the sensor.

 $\textbf{2.} \ \, \text{AUTOMATIC mode (indication } \textbf{MAN} - \text{LED light } \textbf{L3})$

The ventilator operates at the selected speed when the sensor temperature is higher than that in which the thermostat is set (45°C).

3. PROGRESSIVE mode (indication PROP - LED light L4)

The ventilator automatically increases its speed according to the temperature of the sensor (starting from 45°C). In case you neglect to turn on the thermostat before lighting the fireplace (it remains in OFF) and the sensor temperature exceeds 100°C, the ventilators are automatically activated (ON) and start to operate in MANUAL mode, for 10 seconds and then it automatically switches to PROGRESSIVE mode until the temperature drops to 90°C, in which case it switches back to MANUAL mode. This process is repeated continuously until you choose another mode.

4. ALARM mode

If the temperature of the sensor exceeds 130°C, then a sound alarm is activated. You can turn that off for 5 minutes by pressing any key. After five minutes, and if the problem is not yet restored, the alarm is activated again

> Main MENU

1. Mode selection

Press the **MENU** key (**D**) to view the selected mode, which is indicated on the screen and the corresponding LED light. By pressing the same key again, you can choose one of the three operating modes appearing consecutively on the screen and are indicated by the corresponding LED light. The setting is automatically stored in memory after 4 seconds. LED light **L5** indicates the state of the ventilators.

2. Operation speed selection

By pressing keys **B** or **C** you can view or change the current ventilation speed.

- (i) P0 = OFF (only for MANUAL mode)
- (i) P1 = Lowest speed setting
- (i) P10 = Highest speed setting

This function is not available in PROGRESSIVE mode.

In AUTOMATIC mode you can choose speed settings $\textbf{P1} \sim \textbf{P10}$

> FAILURE or ALARM signals

The control panel can indicate possible sensor failures. In these cases it may display the following on the LCD screen:

- ① LO: indicates low temperature (temperature lower than 0°C): The sensor is open or disconnected
- ① HI: indicates high temperature (temperature higher than 180°C): The sensor has a short circuit

8. LIGHTING THE FIREPLACE

8.1. Traditional method of lighting

Every time you light the fireplace, it initially requires large volumes of air. When the fireplace is cold, leave the door slightly open or secure the handle (Table 7.2.1, Line 2) at the first stop in order for air to circulate around the door for the first few minutes and turn the automatic combustion air regulator (Table 7.2.1, line 4) on position 9.



Don't leave the fireplace unattended as long as the door remains open.

Due to the self-closing door you should be very careful for any accidents during the fueling of the fireplace.

To form an adequate layer of ash at the base of the fireplace, use 1-2 kg of dry kindling the first time you light it. If it is possible, constantly maintain a layer of ash with thickness of 2-3 cm at the base of the combustion chamber for added insulation.

- 1. Place 2-4 kindling tablets or 7-10 wrapped newspaper sheets beneath 1-2 kg dry kindling.
- 2. Turn the automatic combustion air regulator (Table 7.2.1, line 4) on position 9.
- 3. After the the ignition of the tablets/wrapped sheets, leave the door slightly open or secure the handle (Table 7.2.1, Line 2) at the first stop, in order to ensure an adequate convection of the flue.
- 4. Once you ensure the flue is warm enough (after 5-10 minutes), close the door. If all required conditions are met, after 15-20 minutes a thick layer of cinder will be formed in the combustion chamber and the temperature will rise, which is essential for the continuation of combustion.
- 5. Once the requirement described in point 4 is met, place 2-3 logs with overall weight of 1.5-4.8kg, depending on the size of the fireplace, on the cinder, with a distance of about 1cm from one another.
- **6.** Open the air supply to the maximum level and close the door. The wood will begin to burn within 2-3 minutes. If not, open the door slightly in order for enough air for combustion to enter. Close the door again once the wood ignites.
- 7. Lower the automatic combustion air regulator (Table 7.2.1, line 4) between positions 5 to 7, so that the combustion continues seamleassly and ensure there is adequate air supply (oxygen) to maintain the flame clear and powerful when you reduce the amount of combustion air and after.
- 8. As soon as the fire leaves a thick layer of cinder, you can add more firewood by repeating steps 5-7, every 45-55 minutes according to the type of the device.



To avoid covering the glass with soot, it is important not to let logs lean against it.

8.2. Lighting without CO emissions (FROM TOP TO BOTTOM)

- 1. Turn the automatic combustion air regulator (Table 7.2.1, line 4) on position 9. If needed, leave the door slightly open or secure the handle (Table 7.2.1, Line 2) at the first stop, in order to ensure an adequate convection of the flue.
- 2. Place 2-3 logs with overall weight of 1.5-4.8kg and 30-60cm, depending on the size of the fireplace.
- 3. Place 2-3 kindling tablets or 5-8 wrapped newspaper sheets between the logs.
- 4. Add a few twigs (1-2 kg) on the top in zigzag arrangement.
- 5. Finally, place a medium log on top of the stack and light the tablets/wrapped sheets.



The openings of the secondary air supply should not be covered by firewood.

- 6. Once you ensure the flue is warm enough (after 5-10 minutes), close the door.
- 7. Lower the automatic combustion air regulator (Table 7.2.1, line 4) between positions 5 to 7, so that the combustion continues seamleassly and ensure there is adequate air supply (oxygen) to maintain the flame clear and powerful when you reduce the amount of combustion air and after.
- 8. As soon as the fire leaves a thick layer of cinder, you can add more firewood, every 45-55 minutes according to the type of the device...

Feed the fireplace often but with small amounts of firewood, at most 1.5-4.8kg, depending on the size of the fireplace, each time. If the fireplace is overly full, the generated heat may cause excessive strain on the flue. The supply of firewood should be done in moderation.





The fire should be vigorous and the smoke exiting from the flue must be almost

The fire should not be smoldering because it is causing more pollution.

If the door remains slightly open, fire gases and flames may escape from the opening of the fireplace causing a risk of fire or asphyxiation. We recommend installing a smoke detector in the room where the fireplace is located.

Under no circumstance should you operate the fireplace with the main door open. You run a serious risk of destroying the device.

DO NOT OVERHEAT THE FIREPLACE! There is risk of fire or permanent damage. If any part of the fireplace starts glowing, then the device is overheating.

Wood combustion rules

- ① If you want less heat, put a smaller quantity of wood in the fireplace and reduce the amount of air. It is however important to maintain an adequate layer of cinder.
- (i) Less heat = Less wood = Less air.
- (i) More heat = More wood = More air.
- ① When the fireplace operates at excessively low power or if the wood is not sufficiently dry, soot might deposit on the glass.

9. TERTIARY COMBUSTION (PATENTED)

The three combustion points

The combustion of wood requires a process of primary, secondary, and tertiary combustion to be efficient.

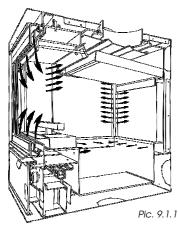
1. Primary combustion

Primary combustion is the initial wood burning at relatively low temperatures. During the primary combustion, large amounts of soot, creosote and gas are produced due to the existence of water in the wood. Creosote, in primary combustion, contains 60% of the potential energy of wood, but it is deposited in the form of soot inside the fireplace and the flue without imparting any heating.

2. Secondary combustion

The combustion chamber is insulated so as to increase the temperature of the core and by providing just the right amount of oxygen necessary to 600°C, the creosote ignites spontaneously. This creates a chain reaction that increases the temperature inside the fireplace from 600°C to about 870°C without having to add any more fuel. This is the secondary combustion.

Thereby, the more proper secondary combustion is achieved the higher temperatures are produced and the less residue is left (gas and particles). The vast majority of secondary combustion is only done in the upper part of the chamber near the outlet of the flue. Thus a large part of the heat that is achieved, is discharged directly through the draft of the flue to the exterior and not in the heating area.

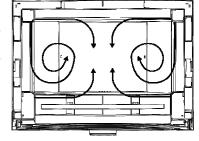


ARTE's® patented chamber manages to provide the maximum secondary combustion performance. An automatic air intake regulating system in cooperation with four or five vertical ducts and the combustion space having openings, in such a way as to insert the appropriate amount of hot air through the entire length of the pipeline, onto the calcined side of the combustion space and the aircurtains of the

ceramic glass (Pic. 9.1.1), results in the fire receiving the right amount of preheated oxygen throughout the combustion chamber (Pic. 9.1.2). This way the whole area of the chamber is converted in a secondary combustion chamber, not only the upper part, and thus its performance dramatically increasies and inversely gas residue reduces.

3. Tertiary combustion

The tertiary combustion occurs when the coal that remains on the bottom burns in a proper and coordinated way. Coal contains a large amount thermal energy that when used provides a large amount of heat. Proper air flow directly on the



Pic. 9.1.2

coals within such a hot room, results in almost complete consumption and minimizing the amount of ash that collects on the bottom.

10. CLEANING & MAINTAINING THE FIREPLACE



When performing maintenance on the fireplace, always protect yourself, using safety goggles and gloves

10.1. External maintenance

The fireplace surface is painted with heat-resistant paint. It is best kept clean by vacuuming with a soft brush attachment or by wiping with a lint-free cloth. Over a period of time, the painted surface may become slightly grey. A canister of touch-up ARTE® spray paint should be available from your fireplace supplier. This can be applied - in accordance with the instructions - in just a few minutes. When first firing, after touching up, the fireplace will give off a slight smell as the paint cures. Make sure to ventilate the room well during this phase.

10.2. Internal maintenance

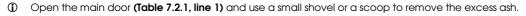


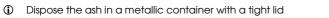
Due to the self-closing door you should be very careful for any accidents during the maintenance of the fireplace

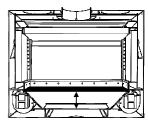
10.2.1. Ash disposal

Empty the excess ash as often as necessary in order for the level to remain below the appropriate (**Pic. 10.2.1.1**). ARTE® SOL fireplace is designed to produce the least amount of ash, almost 1Kg for every 100Kgs of firewood. It is recommended to constantly maintain a layer of ash with thickness of 2-3 cm at the base of the combustion chamber for added insulation.

Dispose the ash by following these steps:







Pic. 10.2.1.4

The closed container with the ash should be placed on a nonflammable floor or on the ground, away from flammable materials until the final disposal of the ash. The ash must be stored in a closed container until cooled down, or buried on the ground or dispersed somewhere.



Never empty a fireplace while in use.

Never use your household or shop vacuum cleaner to remove ash from the fireplace.

Always remove and dispose of the ash properly.

10.2.2. Glass

ARTE® SOL fireplace has a double ceramic glass in the window of the combustion chamber in order to the phenomenon of pyrolysis to appear much faster. If the fireplace is generally operated at the correct temperature, there should be little or no soot on the glass. If it does settle during lighting, most will burn off as temperature increases.

For normal cleaning, moisten a paper towel with warm water and add some ash from the combustion chamber. Rub it over the glass and then clean the glass with clean water and dry it well. For heavier deposits that cannot be cleaned, use glass cleaner, applied when the glass is cold, in accordance with the instructions.

Never use abrasive cleaners on the glass surface.

Reasons for the presence of dirt on the glass

- Firewood is too wet
- ① Logs are too large or not split
- ① Combustion temeratures are too low



To reduce the risk of breaking the glass, avoid striking the glass or slamming the door.

Replace broken glass IMMEDIATELY.

Do not operate the fireplace if the glass in the door is damaged.

If there is a need to replace the glass, it should be replaced with the high temperature ceramic glass supplied by ARTE®. For more information, please contact your local ARTE® dealer.



10.2.3. Gasket

The gasket around the perimeter of the door may harden over a period of time. It should be replaced if it becomes difficult to close the door or if air starts to leak in around the perimeter of the doors, causing the fire to become a little less controllable. An ARTE® rope gasket kit is available on your local ARTE® dealer.

10.2.4. Internal parts that need maintenance

The components that are in the flame route - consisting of the vermiculites, the ceramic glass, flue collar and stainless stell baffle - are subject to extreme stress beacause of the heat produced by the fire. Occasionally, some of these parts may have to be replaced as part of routine maintenance.



Components in the flame route, the gasket and the paint finish are not covered by the warranty.

All of these service parts can be bought from your ARTE® dealer, and we recommend that damaged parts are replaced as soon as possible to avoid consequential damage.

Should the baffle be distorted by overheating, the fireplace will still function, although its efficiency may be compromised. Please replace it as soon as possible.

Internal wear accelerating factors

- (i) Regular overheating
- ① Accumulated soot and ashes

10.3. Cleaning the fireplace and the flue

When wood is burned slowly, it produces tar and other organic vapors, which combine with emitted moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue. As a result, creosote residue accumulates on the flue lining. When ignited this creosote makes an extremely hot fire.

Initially, do a monthly check for the presence of soot above the deflector plate and around the outlet flue. If the fireplace suddenly start operating slowly check for intense presence of soot around the flue collar or in the flue / chimney.



The flue and its connector should be inspected at least once every two months during the operating season to determine if a creosote buildup has occurred. If creosote has accumulated, it should be removed to reduce the risk of a chimney fire

Clean the flue/chimney all the way from the fireplace to the flue end point above the house. A good practice is to clean the flue after each operating season and to inspect it prior to the start to ensure that bird's nests or other blockages have not occurred during the off season.

10.3.1. Chimney sweeping

Inspect the fireplace regularly during the operating season as part of a regular maintenance schedule.

To inspect the chimney, let the fireplace cool completely. Then inspect the chimney through the flue collar by using a mirror. If you cannot inspect the flue system this way, the fireplace must be disconnected to provide better viewing access

Clean the chimney using a brush with the same size and shape as the flue. Run the brush up and down the flue, causing any deposits to fall to the bottom of the fireplace where they can be removed the same way as the ash.

If you cannot inspect or clean the chimney by yourself, contact your local ARTE® dealer or a professional chimney sweep.

If you experience a chimney fire, act promptly and:

- Close the air regulation
- ① Evacuate the house
- Call the Fire Department

10.3.2. Annual maintenance

Before the operating season starts, perform a thorough cleaning, inspection and repair:

- ① Thoroughly clean the chimney and flue connector
- ① Inspect the chimney for damage and deterioration. In case of prefabricated chimney, replace any weak sections. In case of a masonry chimney, have a mason make any needed repairs



- ① Inspect the flue connector and replace any damaged sections
- ① Check the gasket for wear or compression, and replace if necessary
- ① Check the ceramic glass for any cracks and replace if needed
- ① Check the door and handle for tightness. Adjust if needed.

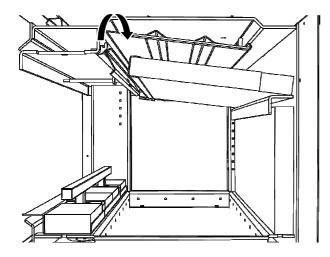
10.3.3. How to clean the inside parts of ARTE® SOL fireplace

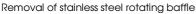
During the annual visit of your local chimney sweep and during the cleaning of internal parts of the fireplace, it is recommended to remove all internal parts of the combustion chamber to be also cleaned. Be careful because the vermiculite panels are porous and thus fragile. (Chapter 10.4)

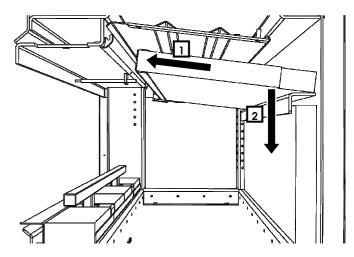


Maintenance on the fireplace must be done ONLY when the device is cold.

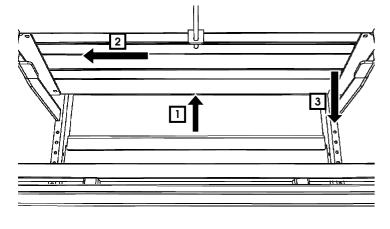
10.4. Internal parts removal



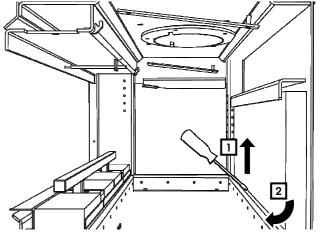




Removal of upper vermiculite panel



Removal of stainless stell baffle



Removal of back and side vermiculite panels

10.5. Inactive fireplace for prolonged periods

IMPORTANT NOTICE: If the fireplace is not used for some time, clean it thoroughly and let the air control layout slightly open in order to let the air circulate. Ensure that the rainwater cannot infiltrate from the flue. Place a chimney cap that does not completely block the flue.

These actions should ensure there is a slight movement of air through the fireplace, and that the body and combustion chamber remain dry, right into the corners.

Ash that remains in the fireplace, when not in use, can absorb moisture like blotting paper. If moisture settles inside the fireplace, it forms rust which expands the more it settles. This can cause excessive pressure on the fireplace joints, thus causing damage.

NOTE: It is recommended to thoroughly clean the fireplace at the end of the operating season Adding desiccant in the combustion chamber, such as cat litter, helps absorb moisture during the summer. Make sure to remove it before the beginning of the operating season.



We hope you enjoy many years of carefree warmth with ARTE® SOL fireplace. Some initial experimentation with loading and operating techniques will help you decide your normal routine. If you have any problems after this short learning period, please contact your local ARTE® dealer. In case, for any reason, they can't help, please contact us in writing at the address on the front of this manual.

11. TIPS & TRICKS FOR RESOLVING ISSUES

The wood does not ignite by lighting the fireplace. The fire just smokes. The fire burns out

- Open the air supply
- You are not using proper kindle
- ① The wood is too wet
- The logs are too thick
- ① The ash is over the appropriate limit

Intense smoking in the combustion chamber, intense soot deposition on the glass

- Open the air supply
- Small quantity of wood
- ① The wood is too wet
- The logs are too thick

There is smoke coming out of the fireplace

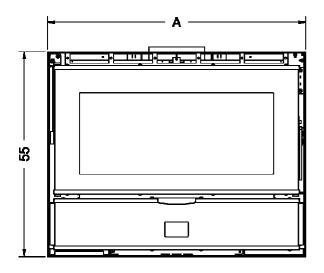
- ① Check if there is adequate draft into the flue, light a test fire
- Make sure there is sufficient air supply

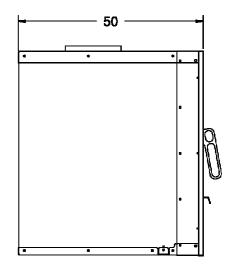


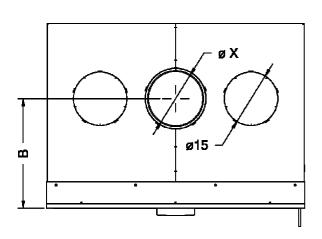
The qualified dealer in your area is available to answer any of your further questions

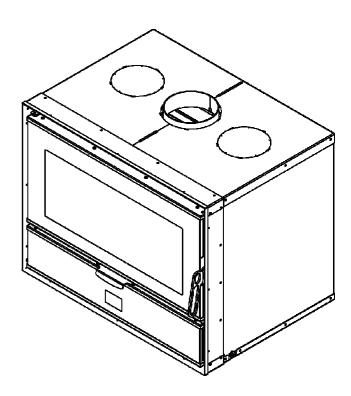


12. DIMENSIONS









DIMENSION	MODEL				
SOL 60		SOL 70 SOL 80		SOL 90	
A (cm)	58.5	58.5 68.5 78.5		88.5	
X (cm)	Ø	15	Ø	18	
B (cm)	2	9	2	8	

Table 12.1



13. TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS	UNITS	SOL 60	SOL 70	SOL 80	SOL 90
*Total heat output	Kcal/h	8600	10320	12040	13760
	kW	10	12	14	16
Recommended hourly consumption of firewood	Kg/h	3.1	3.7	4.3	4.9
Efficiency	%	77	77	77	77
Exhausts temperature	°C	263	264	267	269
CO emissions (by providing O ₂ at 13%)	%	0.090	0.090	0.090	0.090
Yield range (minimum - maximum)	kW	4.3 - 13.1	4.3 - 16.4	4.9 - 19.6	4.9 - 22.9
Fuel	-	Wood, Briquette			
Device dimensions (W x D x H)	cm	59/50/55 69/50/55		79/50/55	89/50/55
Combustion chamber dimensions (W x D x H)	cm	42/27/37 52/27/37		62/27/37	72/27/37
Flue draft	Pa	12(±2)			
Heated area	Kg/h	30 - 100	30 - 120	35 - 140	35 - 160
Weight	m²	95	108	120	132
External air inlet. The section must be increased by 20% for each additional meter after 1 m	kg	Ø 10			
Smoke outlet diameter	cm	Ø 15 Ø 18			
**Minimum flue height	m	4			
Minimum heating area	m²	25	30	35	40

^{*} The fireplace operates with intermittent combustion technology. In this case intermittent combustion means the normal use of the fireplace, e.g. new firewood is added as soon as the previous are burned, forming a sufficient amount of cinder.

Table 13.1

^{**} The internal section of the flue must be increased by 10% per 500m altitude above sea level.

14. WARRANTY

We grant a two year warranty for your new ARTE® SOL fireplace. The warranty period begins on the day the fireplace is installed and tested by a qualified dealer. We also grant a one year warranty for all the electrical parts (if any are installed).

Warranty claims become valid when the purchase price for the fireplace has been paid in accordance with the agreement and the warranty certificate has been completed and returned within thirty days to ARTE® G. Karnoutsos & CO.

If any of these conditions is not fulfilled the minimum warranty of six months applies.

14.1. Warranty terms

- Proper installation by a qualified dealer
- ① The fireplace is operated in accordance with these operating instructions
- No continuous firing
- No overheating
- (1) Regular maintenance / cleaning (at least once a year)
- ① There must be no modifications to the fireplace structure: these can cause malfunctions and permanent damage

14.2. Excluded from the warranty

- (i) Wearing parts like gaskets, vermiculite panels and glass
- Smoke and soot damage
- ① Natural discoloration or deviating colors on the outer cladding
- ① Cracks in the combustion chamber that have no effect on the safe functioning of the ARTE® SOL fireplace
- ① Damage incurred through failure to follow these operating instructions
- ① Damage covered by an insurance policy or other agreement

14.3. Responsibility

Upon delivery of this manual ARTE® declines all liabilities, both civil and penal, for any accidents that may derive from the total or partial failure to comply with the specifications contained in it.

ARTE® also declines all responsibility resulting from an improper use of the appliance, incorrect use by the user, from unauthorized alterations and/or repairs, or the use of non-original or non-specific spare parts for this particular fireplace.

14.4. Emergency maintenance

Emergency maintenance on the fireplace model to which this manual refers, must be carried out by qualified personnel.

14.5. Responsibility for installation

It is not the responsibility of ARTE® to carry out the work needed to install this fireplace. Such works are entirely up to the installer who is requested to check the flue and air intake and to check if the installation solutions proposed are feasible. All applicable standards and local, national and European legislation in force in the country where the fireplace is installed must be respected.

14.6. Usage

Use of the appliance is subject to compliance with all the safety standards established by the relevant laws in force in the place of installation, in addition to the instructions contained in this manual.

14.7. Legal guarantee

The user may only make use of the legal guarantee, as under the EEC directive 1999/44/CE, if he has scrupulously complied with the regulations indicated in this manual, and more specifically:

- ① To work always within the fireplace limits of use
- (i) Maintenance must be constant and careful
- ① Only allow people who are capable and who have been suitably trained to use the fireplace

Failure to comply with the instructions provided in this manual will invalidate the guarantee immediately



In order for the warranty to be applicable, please fill out the form on this manual's last page



Installation & Users Manual FIREPLACE | SOL 60/70/80/90

NOTES



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