

STREBEL ATI SPX Direct Fired Water Heaters

Models 220 - 300 - 400

Installation, Operating & Maintenance Manual



Please read and understand before commencing installation and leave the manual with the customer for future reference.

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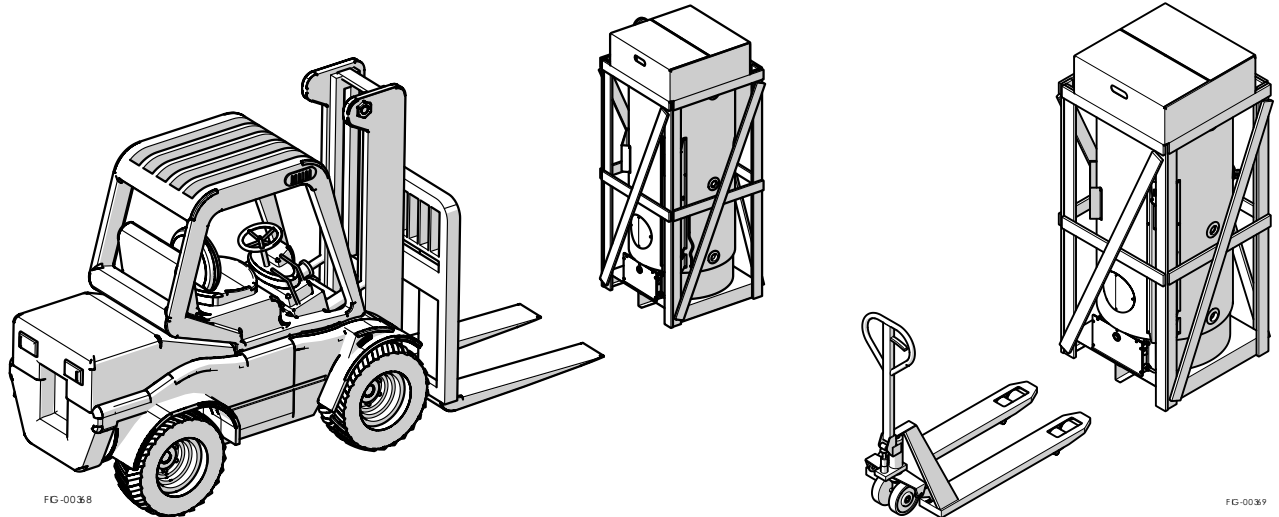
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1. GENERAL WARNINGS

- ⚠ THIS MANUAL IS AN INTEGRAL PART OF THE APPLIANCE AND ESSENTIAL AND MUST BE KEPT WITH CARE IN THE VICINITY OF THE APPLIANCE ITSELF FOR FUTURE CONSULTATION. IT CONTAINS IMPORTANT INFORMATION REGARDING SAFETY, INSTALLATION, OPERATION AND MAINTENANCE.
- ⚠ THE APPLIANCE HAS BEEN BUILT FOR THE PRODUCTION OF HOT WATER - ANY OTHER TYPE OF USE IS TO BE DEEMED NOT SUITABLE AND DANGEROUS.
- ⚠ THE APPLIANCE SHOULD NOT BE INSTALLED IN A DAMP LOCATION, IT MUST BE PRESERVED BY JETS, JETS OF WATER OR OTHER LIQUIDS TO AVOID TROUBLE TO ELECTRICAL AND THERMAL.
- ⚠ INSTALLATION MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED PERSONNEL RESPONSIBLE FOR COMPLIANCE WITH THE CURRENT SAFETY STANDARDS. INCORRECT INSTALLATION, WITHOUT FOLLOW THE INSTRUCTIONS GIVEN BY THE MANUFACTURER MAY CAUSE DAMAGE TO PERSONS, ANIMALS OR THINGS, FOR WHICH THE MANUFACTURER IS NOT RESPONSIBLE.
- ⚠ PARTS OF THE PACKAGING (PLASTIC BAGS, POLYSTYRENE, WOOD, CLIPS, ETC.) MUST NOT BE LEFT TO THE REACH OF CHILDREN AS DANGEROUS.
- ⚠ THE APPLIANCE CAN BE USED BY CHILDREN AND PERSONS WITH REDUCED PHYSICAL, SENSORY OR MENTAL, OR LACK OF EXPERIENCE OR KNOWLEDGE REQUIRED, PROVIDED UNDER SURVEILLANCE OR AFTER THAT THEY WILL GET ALL INSTRUCTIONS "SAFE USE OF THE APPLIANCE AND UNDERSTANDING HAZARDS" RELATING TO IT.
- ⚠ CHILDREN SHOULD NOT PLAY WITH THE APPLIANCE.
- ⚠ CLEANING AND MAINTENANCE TO BE PAID BY THE USER, MUST NOT BE MADE BY CHILDREN WITHOUT SUPERVISION.
- ⚠ IF THE APPLIANCE SHOULD BE SOLD OR TRANSFERRED TO ANOTHER OWNER, MAKE SURE THAT THIS MANUAL STAYS WITH THE UNIT, SO AS TO BE CONSULTED BY THE NEW OWNER AND / OR INSTALLER.
- ⚠ TO AVOID RISK OF DAMAGE DUE TO FROST IN THE EVENT REQUIRES TO LEAVE THE EQUIPMENT STORED FOR A LONG PERIOD IN AN ENVIRONMENT NOT HEATED, IT IS RECOMMENDED DRAINED COMPLETELY. THE MANUFACTURER IS NOT RESPONSIBLE FOR FAILURE OR BROKEN PARTS DUE TO FROST AND RELEASE OF WATER IN THE SYSTEM.
- ⚠ TO GET THE BEST RESULTS AND RECOGNITION OF WARRANTIES WE RECOMMEND YOU FOLLOW THE INSTRUCTIONS BELOW AND ONLY USE ORIGINAL SPARE PARTS AND KIT PROVIDED BY THE MANUFACTURER.
- ⚠ MORE APPLIANCES IN THE SAME ROOM FOR A TOTAL THERMAL CAPACITY HIGHER A 35 KW, ARE HEATING PLANT AND ARE SUBJECT TO THE PROVISION OF THE CIRCULAR # 68 firemen.
- ⚠ ABSOLUTELY NO TAMPERING WITH ANY DEVICE SETTINGS AND FACTORY SEALED BY THE MANUFACTURER.
- ⚠ THE EQUIPMENT SHOULD BE PERIODICALLY CHECKED AND VERIFIED BY A COMPETENT PERSON ACCORDING TO THE LAW OF THE COUNTRY WHERE THE UNIT IS INSTALLED.
- ⚠ POSSIBLE REPLACEMENT COMPONENTS OF OPERATIONS TO BE PERFORMED BY AUTHORIZED BY THE MANUFACTURER.

2. TRANSPORTATION, STORAGE AND RECYCLING

- The appliance must be transported and stored dry and protected from frost.
- The appliance must be stored, transported, and used at a temperature between +10 and +40 ° C and at a humidity between 40% and 80%.
- The appliance must not be handled and / or laid horizontally. It is only and exclusively in the vertical can carry it.
- Use, handling, a lift truck or a manual trans pallet. As shown in the figure below, enter the parallel arms of the carriage in the lower part of the appliance.



- Remove the packing 4 by unscrewing the screws at the bottom corners of the appliance, then pull upwards the packaging for whole, taking care not to damage the appliance.

3. CORRECT DISPOSAL OF THIS PRODUCT

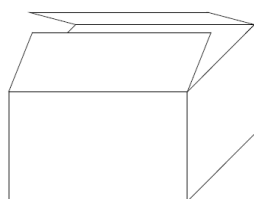
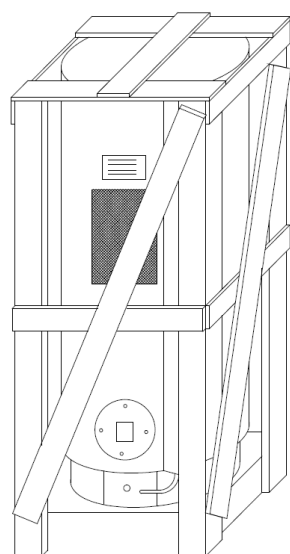


PRODUCT IN COMPLIANCE WITH EU DIRECTIVE 2012/19 / EU-D.Lgs.49 / 2014 pursuant to art. 26 of Legislative Decree 14 March 2014, n. 49 "Implementation of Directive 2012/19 / EU Waste Electrical and Electronic Equipment (WEEE)" (Applicable in the European Union countries and countries with separate collection systems)

The marking on the product or its literature indicates that the product should NOT be disposed of with other household waste at the end of the life cycle. To prevent possible harm to the environment or human health from uncontrolled waste disposal, the user is encouraged to separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where you purchased the product or their local government office, for details on separate collection and recycling for this type of product. Business users should contact their supplier and check the terms and conditions of the purchase agreement.

4. CONTENT, WEIGHT AND DIMENSIONS OF PACKAGE

The appliance is delivered packaged in a wooden box with appropriate protection. See table below for size.



	SPX 220	SPX 300	SPX 400
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Width	780	780	780
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Depth	780	780	780
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Height	1410	1760	2110
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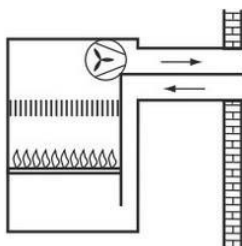
Weight with packaging	210	260	300
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Dimensions in mm: mm - Weight in kilograms: Kg

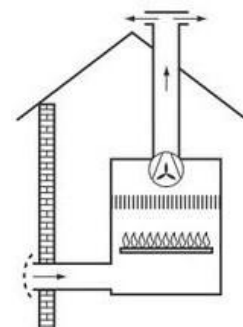
5. CATEGORIES OF APPLIANCE

These appliances are classified as: "Warm water condensing gas accumulation."

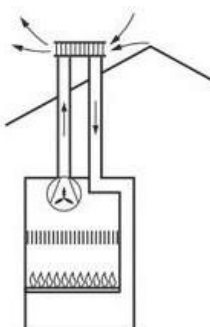
C12 The air intake and evacuation of the combustion products takes place by means of a horizontal coaxial duct or with openings close enough so that they can be considered in the same wind conditions.



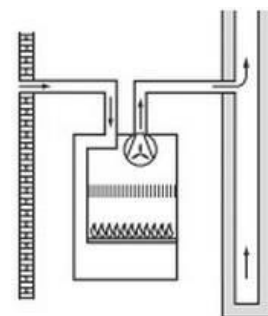
C52 The openings of the air intake duct and evacuation of the combustion products must be located in different pressure conditions.



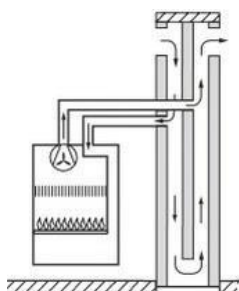
C32 The air intake and evacuation of the combustion products takes place by means of a vertical conduit coaxial.



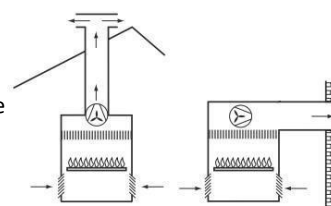
C82 The air intake takes place through a suction terminal while the evacuation of the combustion products using a connector to an individual or collective chimney.



C42 An apparatus connected to a collective duct system consists of a duct for combustion air supply and a conduit for evacuation of the combustion products. The orifices of this system are concentric or close enough to be exposed to wind conditions comparable.



B52 appliance designed for connection to own exhaust evacuation to the outside with air intake from the same environment in which the appliance is placed



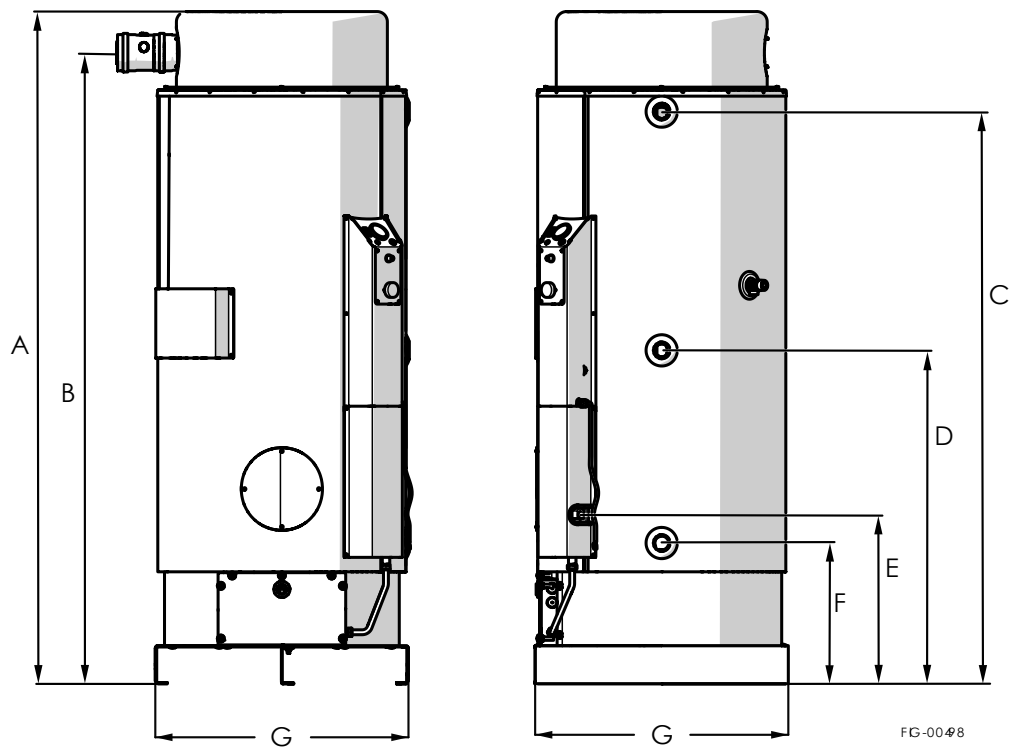
6. TECHNICAL DATA

		ATI SPX 220	ATI SPX 300	ATI SPX 400
Energy Efficiency Class	Unit	B	B	B
Load Profile		XXL	XXL	XXL
Storage Capacity	Litres	220	300	400
Nominal Power Input	KW	22	23	23
Nominal Power Output	KW	20	20.7	21.6
Efficiency (BS EN 89)	%	95	96	97
Gas Consumption – G20 Natural Gas	m3/h	2.3	2.4	2.4
Gas Consumption – G31 LPG	Kg/h	1.7	1.8	1.8
Continuous Output at 50c DT	l/h	340	360	370
Single Draw off Capacity at 50c DT	Litres	264	360	480
Recovery Time at 50c DT	Min	38	51	65
Flue Gas Temperature	° C	92	70	64
NOx Emission Rating	mg / kWh	50	50	30
Maximum Working Pressure	Bar	6	6	6
Electrical Protection Class	IP	20	20	20
Nominal Power Consumption	W	67	67	67
Power Supply	V / Hz	230~50	230~50	230~50

7. DESTINATION COUNTRIES AND GAS CATEGORIES

Country (EN ISO 3166-1):	Category:	gas / pressure type (EN 437):
TO THE	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
AT	I2H	G20 - 20 mbar
CH	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
CY	I2H	G20 - 20 mbar
CZ	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
DK	I2H	G20 - 20 mbar
EE	I2H	G20 - 20 mbar
ES	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
FI	I2H	G20 - 20 mbar
GB	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
GR	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
HU	I2H	G20 - 25 mbar; G31 - 37 mbar
IE	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
IT	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
LT	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
LV	I2H	G20 - 20 mbar
MK	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
MT	I2H	G20 - 20 mbar
NO	I2H	G20 - 20 mbar
PT	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
RO	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
SELF	I2H	G20 - 20 mbar
YES	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
SK	I2H, II 2H3P appliance	G20 - 20 mbar; G31 - 37 mbar
TR	I2H, II 2H3P appliance	G20 - 20 mbar

8. DIMENSIONS



FG-0048

	ATI SPX 220	ATI SPX 300	ATI SPX 400
A - HEIGHT	1563	1913	2263
B - FLUE CONNECTION	1446	1796	2146
C - HOT WATER OUT	1278	1628	1978
D - RECIRCULATION	952	952	952
E - GAS	481	481	481
F - INLET	404	404	404
G - DIAMETER	720	720	720

Dimensions in millimeters: mm

9. GAS / WATER CONNECTION SIZES

	ATI SPX 220	ATI SPX 300	ATI SPX 400
C - HOT WATER OUT	G 1 ¼"	G 1 ¼"	G 1 ¼"
D - RECIRCULATION	G 1 ¼"	G 1 ¼"	G 1 ¼"
E - GAS	G ½"	G ½"	G ½"
F - INLET	G 1 ¼"	G 1 ¼"	G 1 ¼"

10. DESCRIPTION AND CONSTRUCTION

The function of this device is to generate hot water through the heat exchange between the combustion products of the burner and the water present in the storage tank.

The combustion takes place in a completely sealed with respect to the device that contains, by withdrawing the air required for combustion from either the plantroom or directly outside via an air intake flue system and discharging the products of combustion itself always outside.

The sealed combustion chamber is placed in the lower part of the appliance.

WATER TANK

Is built with a sturdy sheet and ensures a remarkable resistance to pressure. It 'also subjected internally to a cryolite glass treatment. To allow for the inspection of the inner part and the cleaning is provided a Ø120 flange.

BURNER COMPARTMENT

Is at the bottom of the appliance and contains: the burner manifold, injectors. The chamber is sealed off from the environment in which the appliance is installed.

FLUE HOOD / FUMES EXTRACTION

A fan located in the top cap provides both the air supply and the evacuation of the combustion products. The cap can be rotated 360°. In case of abnormal operation of the fan or obstruction of the ducts, a pressure cut off the gas flow to the burner.

KIT EXHAUST FUMES (Required to install the kit provided by the manufacturer)

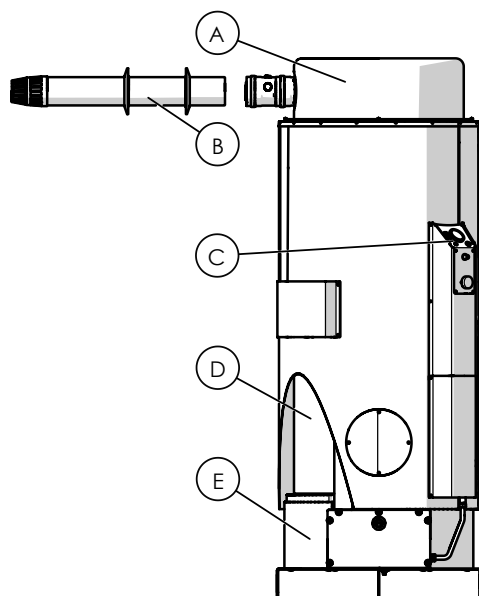
To be selected from those estimated by the installation requirements. It allows the connection of the combustion chamber with the outside, to bring the combustion air to the burner and to allow the discharge of the fumes.

INSTRUMENT PANEL

It contains everything you need to control and regulate the normal functioning: regulating thermostat, ignition switch, button unlock bright, bright operation indicator, thermometer.

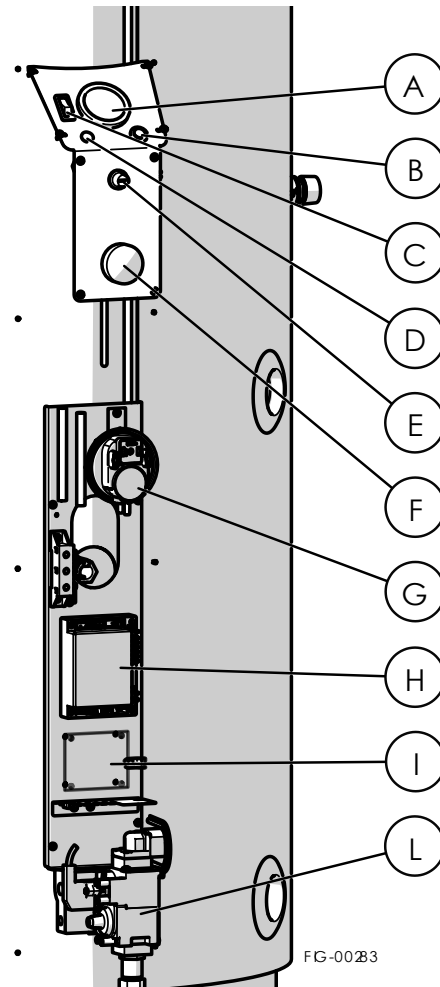
MAGNESIUM ANODE

To protect the device from galvanic currents that can corrode the interior of the device, there are installed two magnesium anodes series, one in the inspection flange and one in the upper part of the appliance.



- A. FLUE HOOD
- B. KIT EXHAUST FUMES
- C. CONTROL PANEL
- D. BOILER
- E. BURNING ROOM

11. COMPONENTS OF THE APPLIANCE



A. THERMOMETER

Measure the temperature inside the tank.

B. RED LIGHT BLOCK

Report device lock, to unlock, hold down the button for 3 seconds.

C. SWITCH

It allows switching on and off.

D. LIGHT GREEN POWER

Confirmation of burner ignition. Comes into operation when the combustion chamber is fed.

E. SAFETY THERMOSTAT

When the device temperature rises above the maximum threshold, the safety thermostat comes into operation by blocking the appliance. To unlock it, unscrew the lid and hold the reset button for 3 – 5 seconds.

F. THERMOSTAT

Used to adjust the internal temperature of the tank.

G. AIR PRESSURE SWITCH

It is used to verify and monitor the correct operation of the air blower, placed on top of the appliance.

H. CONTROL UNIT

The control unit has the purpose of controlling, handle the electrical devices and appliance gas.

I. PCB CONNECTIONS

The connection card is used to centralize the user control devices with the controller interface.

L. GAS VALVE

The gas valve allows to manage and control the gas inlet to the combustion chamber.

12. LOCAL REGULATIONS, AND INSTALLATION OF SAFETY

LOCAL REGULATIONS

In the installation the local regulations must be observed regarding:

- △ Fire fighters.
- △ Gas Company.
- △ Power Company.
- △ Office hygiene and health.

SAFETY RULES

- Do not perform any cleaning or maintenance work without turning off the water heater and interrupting power supply.
- It is absolutely forbidden to operate the water heater with protection of electrical parts or disassembled safety equipment excluded. It is absolutely forbidden to remove or tamper with safety devices.
- In case of failure and / or malfunction switch off the appliance, close the gas valve and do not attempt to repair it but contact an authorised service centre.
- In case of fire should be used in powder extinguishants: not direct jets of water directly against the heaters as they may cause short circuits.
- Inspect all tools and / or equipment manuals and / or electrical for use; they are in good condition and used properly.
- Make sure that ladders and / or any rolling ladders are positioned securely, that are appropriate and that the steps are intact and not slippery, that they are not moved when someone climbs them and ensure someone supervises.

INSTALLATION INSTRUCTIONS

- Make sure, for installation and maintenance work at height (generally with higher altitude to two meters), which are used in scaffolding standards and the space below is free during the eventual fall of tools and objects.
- Make sure that, in case of installation and maintenance, the workplace has adequate hygienic conditions with regards to lighting, aeration and solidity.
- Wear during installation and maintenance, clothing, and adequate personal protective equipment.
- Do not take any action without a prior assessment of the absence of gas leaks using special detector.
- The appliance must be connected to a hot water distribution network compatible with its performance and its power. Make sure the installation site and any systems to which it must connect the device comply with the current regulations.
- Since the C-type unit, this unit can be installed in any type of location but ensure that there is suitable ventilation for cooling.
- Before each installation, maintenance, or repair, remove the power supply. Protecting tubes and external connection cables in such a way as to prevent them from being damaged.
- The device is to be installed on the floor surface, leaving a suitable distance from the side walls to allow the gas and water connections, as well as any maintenance interventions. Furthermore, the appliance must be installed on a solid floor, not subject to vibration, not uneven or non-planar.
- Reseal the openings used to make the readings of the exhaust emission values.
- The operations inside the unit must be performed with caution so as to avoid abrupt contact with sharp parts.
- Do not take any action without a prior assessment of the absence of an open flame or ignition sources.
- If you detect a smell of burning, see the smoke out exit from the apparatus, or is felt strong smell of gas, remove the power supply, close the gas valve, open the windows and notify the authorized service centres nearest

IN ANY SITUATION AND ALWAYS REMEMBER THAT COMMON SENSE IS THE BEST SECURITY AGAINST ANY AND / OR INJURY.

13. INSTALLATION

OPERATION CARRIED OUT BY A QUALIFIED

Warning! The installation of the residential ventilation system must be performed only by qualified personnel in order to avoid damage or injury.

Before installing the appliance, ensure that the nominal supply voltage is 220 / 240V - 50 / 60Hz.

- Make sure that the electrical system is adapted to deliver, in addition to the operating current required by the unit, also the necessary current for powering appliances and equipment already in use.
- Make the electrical connections in accordance with national laws and regulations.
- Upstream of the unit to provide a single-pole switch with a minimum distance of 3.5 mm contacts.

The installation of the device is divided into 6 distinct phases, listed below, to be followed with attention and respecting the order.

1. Positioning device
2. Fume extraction flue hood Installation
3. Installing flue
4. Water connections
5. Connection gas circuit
6. Electrical connection

You should always make the grounding of the unit. Check that the power cord is in perfect condition. Under no circumstances must repair the cable, possibly damaged, with tape or clamps. If the power cord is damaged, it must be replaced by service agent or a similarly qualified person in order to avoid a hazard.

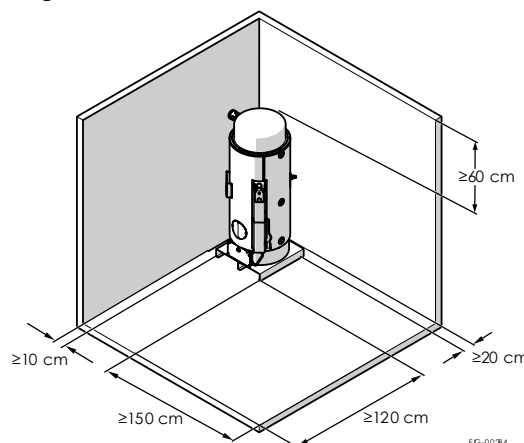
Incorrect installation can cause damage to people and things for which the manufacturer cannot be held responsible.

14. POSITIONING APPARATUS

The location of the device must be chosen bearing in mind the maximum length allowed for each type of discharge, gas and electrical connection. The device has been designed to have the water connections, electrical and gas to the right of the appliance and the flue above: it is recommended to place the heater in such a way as to facilitate the installation and maintenance operations.

Since the C-type unit, this unit can be installed in any type of location but ensure that there is suitable ventilation for cooling.

Refer to the clearances required as in the figure below.



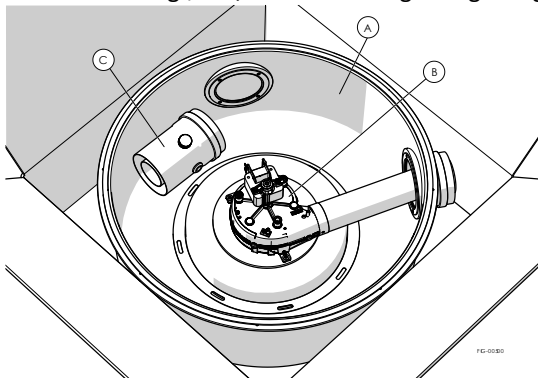
The front and right of the appliance must be easily accessible, in order to facilitate proper installation and periodic maintenance. To prevent possible infiltration of water during a thunderstorm, we recommend a slight downward slope of the drainpipe and air suction.

IMPORTANT: FOLLOW THE EXTENT TO INSTALL NATIONAL STANDARDS.

15. INSTALLATION OF FLUE HOOD / FUME EXTRACTION

The fume hood box, delivered separately, contains:

- A. Cap in black painted aluminium
- B. Fan Group
- C. Coaxial fitting Ø 60/100 with Flue gas bag fixing screws



Place the fan assembly on the appliance with the flue gas outlet Ø 60 in the desired direction, and fix with the screws supplied.

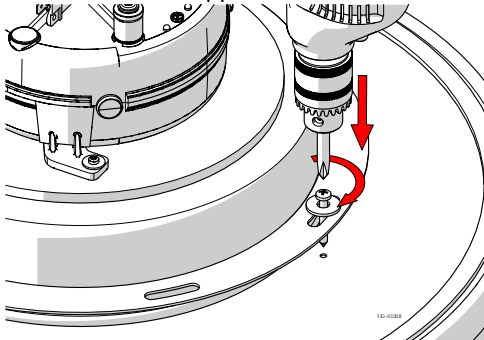


Figure for model SPX 160

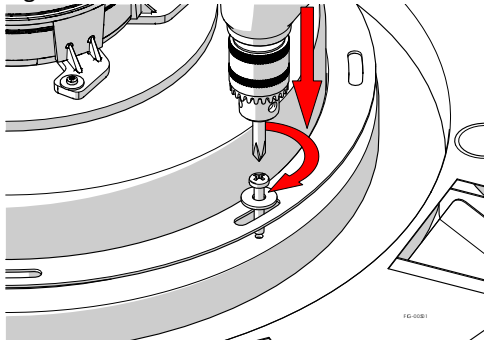
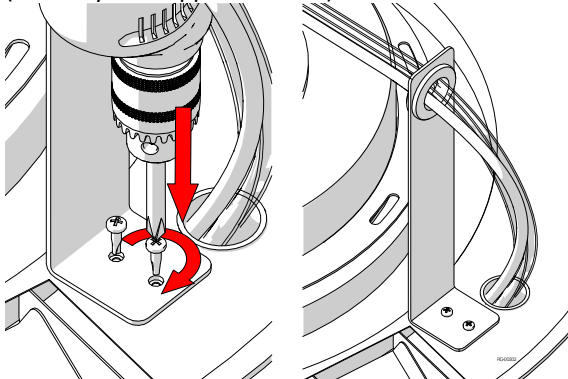
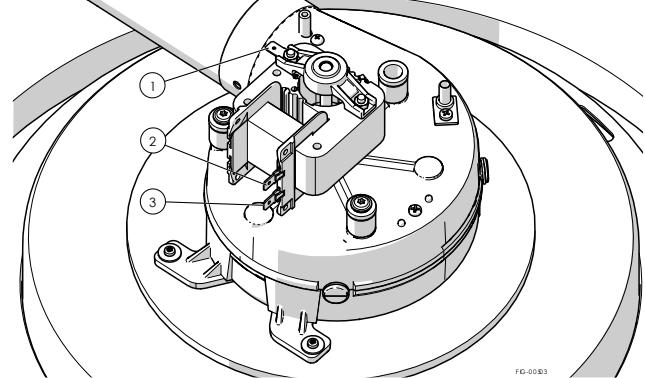


Figure for all other models

Fix the cable holder bracket in the vertical position (Use only the supplied screws)



Connect the motor supply cables, position 2 and 3.
Connect the ground cable, position 1.

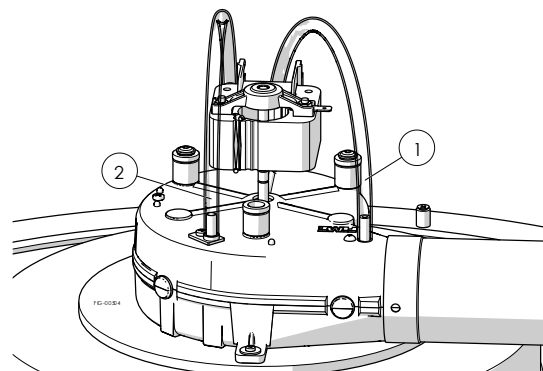


Connect the two rubber hoses to the pressure taps.

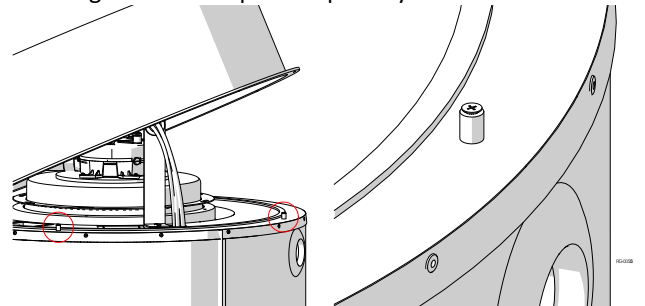
IMPORTANT:

pink rubber hose: socket 2 (metal)

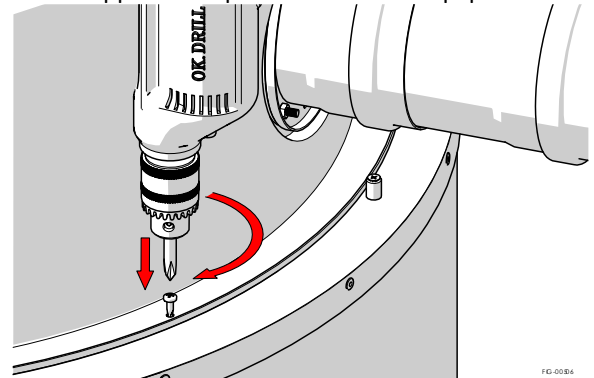
neutral rubber hose: socket 1 (plastic)



Place the cap on the device in black aluminium, centring between 4 spacers specially crafted



Fix the appliance cap with the screws equipment

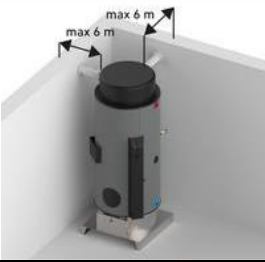
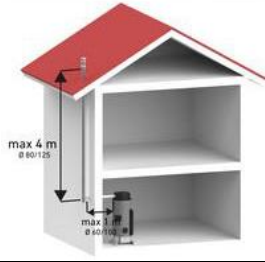


16. FLUE EXHAUST FUMES

The installation of the exhaust terminals must comply with local regulations.

However, they must comply with any provisions laid down by municipal, provincial, or sectoral. You must not convey the flue gases of several boilers within the same flue outlet: each boiler must have its own separate exhaust duct.

The boiler is supplied without drain kit series. The following table illustrates the kit available for this unit. Use only the original kit (purchased separately depending on the type of waste to be realized) provided by the manufacturer.

KIT EXHAUST FUMES	PREVIEW	LIMITS	INSTALLATION
AKIT21 Coaxial horizontal discharge Ø60 / 100 Material: White aluminium		C1 Min 1m Max 3m	
AKIT22 Horizontal split exhaust Ø80 / 80 Material: White aluminium		C4, C5, C8 Min 1m+1m Max 6m+6m	
AKIT23 Coaxial vertical discharge Ø60 / 100 Material: White aluminium		C3 Max 1m	
AKIT24 Coaxial vertical discharge Ø80 / 125 Material: Stainless steel		C3 Min 1m vertical Max 4m vertical Min 0m horizontal Max 1m horizontal	
AKIT25 Single wall horizontal discharge Ø80 Material: Stainless steel		B5 Min 1m horizontal Max 6m horizontal	
AKIT26 Double wall vertical discharge Ø80 / 130 Material: Stainless steel (inside) Black aluminium (outside) Insulation: Rockwool		B5 Min 0.25m horizontal Max 6m horizontal Min 1m vertical (terminal included) Max 5m vertical (terminal included)	

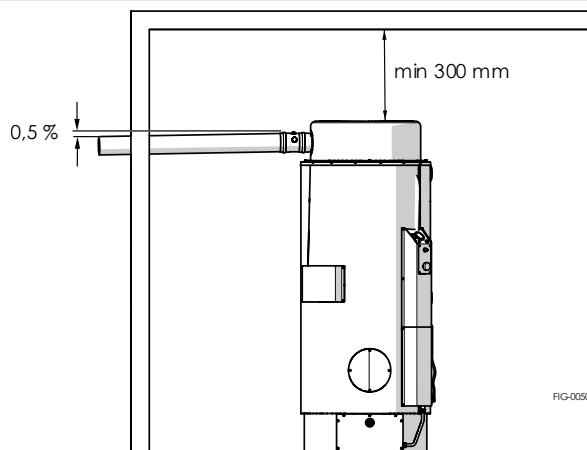
To increase the discharge length is necessary to purchase special extensions proposals in the following table. The maximum supported extension is shown in the table above. Each 45 degree bend adopted is equivalent to 0.5 metre in the overall length & each 90 degree bend adopted is equivalent to 1 metre in the overall length. For C5 applications: Terminals for the supply of oxidizing air and for the evacuation of combustion products must not be installed on opposite walls of the building. The possibility of a solution rather than another, as well as technical issues, of course has to do with regulations into account.

FLUE EXHAUST KIT	DESCRIPTION	P/N
AKIT21 <i>Coaxial horizontal Terminal Ø60 / 100</i>	Coaxial Extension Ø60 / 100 L = 500	AIPC05
	Coaxial Extension Ø60 / 100 L = 1000	AIPC10
	Bend Coaxial Ø60 / 100 at 45°	AICC45
	Bend Coaxial Ø60 / 100 at 90°	AICC90
AKIT22 <i>Horizontal split exhaust Ø80 / 80</i>	Extension Ø80 L = 250	AIPR802
	Extension Ø80 L = 500	AIPR805
	Extension Ø80 L = 1000	AIPR80
	Bend Ø80 at 45°	AICV804
	Bend Ø80 at 90°	AICV809
AKIT24 <i>Coaxial Vertical Discharge Ø80 / 125</i>	Coaxial Extension Ø60 / 100 L = 1000	AIPC10
	Bend Coaxial Ø80 / 125 at 45°	AKIT24-01
	Extension Ø80 / 125 L = 500	AKIT24-02
	Extension Ø80 / 125 L = 1000	AKIT24-03
AKIT25 <i>Single wall Horizontal Discharge Ø80</i>	Wall bracket	AKIT24-04
	Extension Ø80 L = 500	AKIT25-01
	Extension Ø80 L = 1000	AKIT25-02
	Bend Ø80 at 45°	AKIT25-03
AKIT26 <i>Double wall Vertical Discharge Ø80 / 130</i>	Bend Ø80 at 90°	AKIT25-04
	Extension Ø80 L = 500	AKIT25-01
	Extension Ø80 L = 1000	AKIT25-02
	Coaxial Extension Ø80 / 130 L = 500	AKIT26-01
	Coaxial Extension Ø80 / 130 L = 1000	AKIT26-02
	Bend Ø80 / 130 at 45°	AKIT26-03
	Wall bracket	AKIT26-04

Make sure you have guaranteed the mechanical stability of the duct.

The hole for the passage through the wall of the exhaust pipe and air suction, should not be cemented: The flue gas must be free to slide through the hole in such a way that it can subsequently detach.

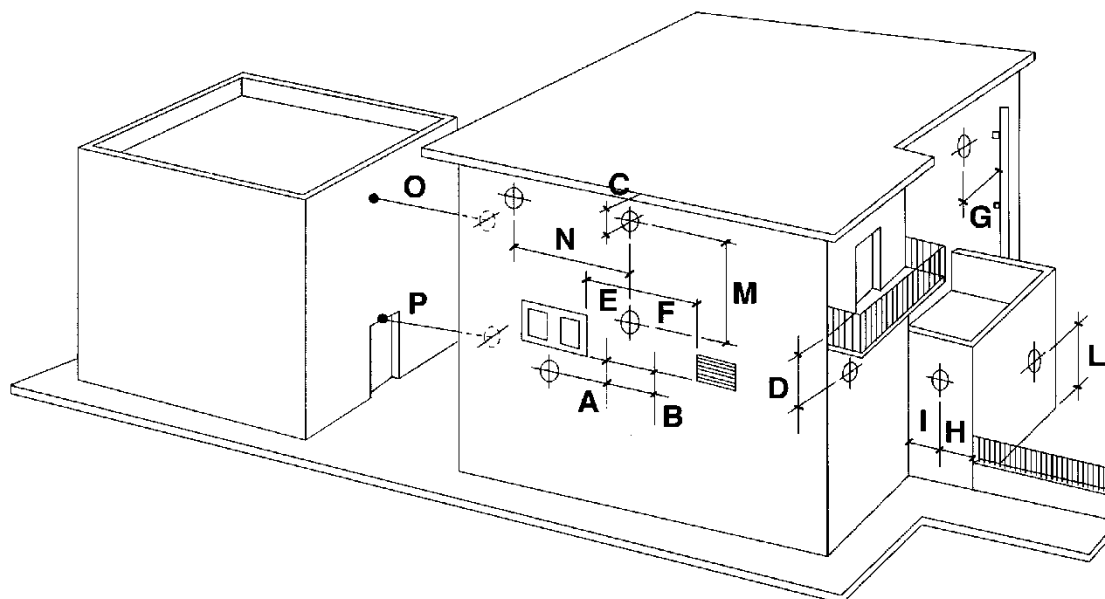
For this purpose, you can use the rosettes cover-wall supplied with the fumes exhaust kit to cover the empty space of the hole.



IMPORTANT:

LEAVE A SPACE ABOVE THE APPLIANCE NOT LESS THAN 30 CM TO ALLOW ANY MAINTENANCE TO THE TOP. LEAVE A SPACE OF 15CM BETWEEN THE BASE OF THE TERMINAL AND THE WALL TO ALLOW FRESH AIR TO BE PULLED IN BY THE TERMINAL. TO AVOID POSSIBLE DURING INFILTRATION WATER LIGHTNING STORMS ARE ADVISED A SLIGHT SLOPE DOWN THE DRAINPIPE AND AIR INTAKE.

ATI SPX FLUE TERMINAL POSITIONING



Dimension	Minimum Distances from the Flue Terminal	(mm)
A	Directly below an opening window	300
B	Directly below an air vent	300
C	Below gutters, soil pipes or drainpipes	75
D	Below a Balcony	200
E	Horizontal from a window or door on the same wall	300
F	Horizontal from an air vent on the same wall	300
G	From vertical drainpipes and soil pipes	75
H	From external corners	300
I	From internal corners	300
J	Below eaves	200
L	Above ground level (If less than 2000mm, a terminal guard is required)	300
M	Vertical from a terminal on the same wall	1500
N	Horizontal from a terminal on the same wall	300
O	From a surface facing a terminal	600
P	From a terminal facing a terminal	1200

REQUIRED VENTILATION

As a type B & C gas appliance, the following ventilation is required for cooling air (B & C) and combustion air (Type B only) when installed within a plant room – not an enclosure / compartment:

Type B (Not Room Sealed)

When the ATI SPX unit is installed as a single wall fan assisted exhaust only flue system, ventilation is required for combustion and cooling air as listed below direct to outside air.

Model	Direct to Outside Air	
	High Level	Low Level
ATI SPX 220	88	176
ATI SPX 300	92	184
ATI SPX 400	92	184

ALL FREE AREAS GIVEN IN CM²

Type C (Room Sealed)

When the ATI SPX unit is installed as a room sealed unit, ventilation is required for cooling as listed below direct to outside air.

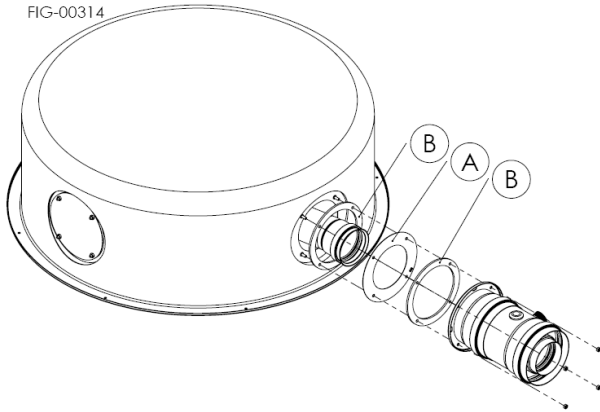
Model	Direct to Outside Air	
	High Level	Low Level
ATI SPX 220	88	88
ATI SPX 300	92	92
ATI SPX 400	92	92

ALL FREE AREAS GIVEN IN CM²

IMPORTANT: The diaphragm supplied within the flue terminal kits **MUST** be fitted in accordance to the below!

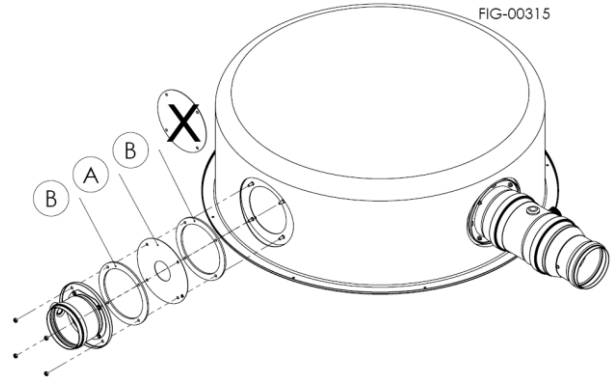
Mounting Air Restrictor Diaphragm AKIT21 & AKIT24

FIG-00314



Mounting Air Restrictor Diaphragm AKIT22

FIG-00315



For a correct operation of the unit, install the suction pipe the diaphragm A contained in exhaust kit together with the additional seal B.

According to the model and the length of the suction duct, install the diaphragm shown in the table.

	AKIT21			AKIT22						AKIT24				
	1 m	2 m	3 m	1 m	2 m	3 m	4 m	5 m	6 m	1 m	1m H + 1m V	1m H + 2m V	1m H + 3m V	1m H + 4m V
ATI SPX 220	Ø82	Ø86	-	Ø42	Ø46	Ø46	Ø48	Ø50	-	Ø82	Ø84	Ø84	Ø90	Ø92
ATI SPX 300	Ø82	Ø86	-	Ø45	Ø45	Ø45	Ø45	Ø45	-	Ø82	Ø84	Ø83	Ø84	Ø84
ATI SPX 400	-	-	-	Ø48	Ø48	Ø52	Ø56	Ø56	-	-	-	-	-	-

Mounting Air Restrictor Diaphragm AKIT25 & AKIT26

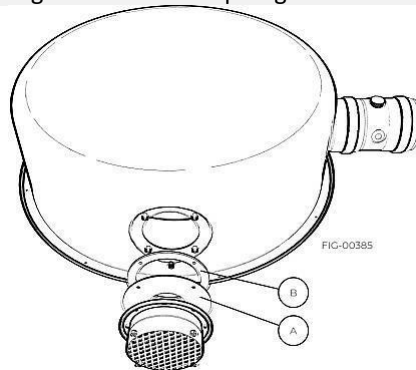
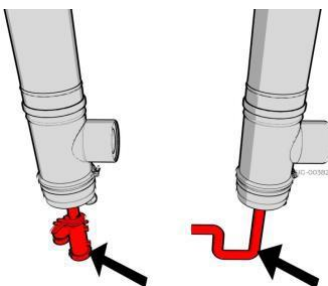


FIG-00385

	AKIT25						AKIT26							
	1 m	2 m	3 m	4 m	5 m	6 m	+0.25m H +5m V	+1,5m H +5m V	+3m H +5m V	+6m H +1m V	+6m H +2m V	+6m H +3m V	+6m H +4m V	+6m H +5m V
ATI SPX 220	Ø46	Ø46	Ø48	Ø48	Ø48	Ø48	Ø48	Ø48	Ø48	Ø52	Ø52	Ø52	Ø52	Ø52
ATI SPX 300	Ø48	Ø48	Ø50	Ø50	Ø50	Ø50	Ø48	Ø50	Ø52	Ø52	Ø52	Ø52	Ø52	Ø52
ATI SPX 400	Ø50	Ø50	Ø50	Ø52	Ø52	Ø54	Ø52	Ø54	Ø54	Ø54	Ø54	Ø54	Ø54	Ø54

IMPORTANT: DURING THE INSTALLATION OF AKIT24 & AKIT26, IT'S REQUIRED TO CONNECT A DRAIN-TRAP UNDER THE TEE.

When completed, make a full check of all the flue system.

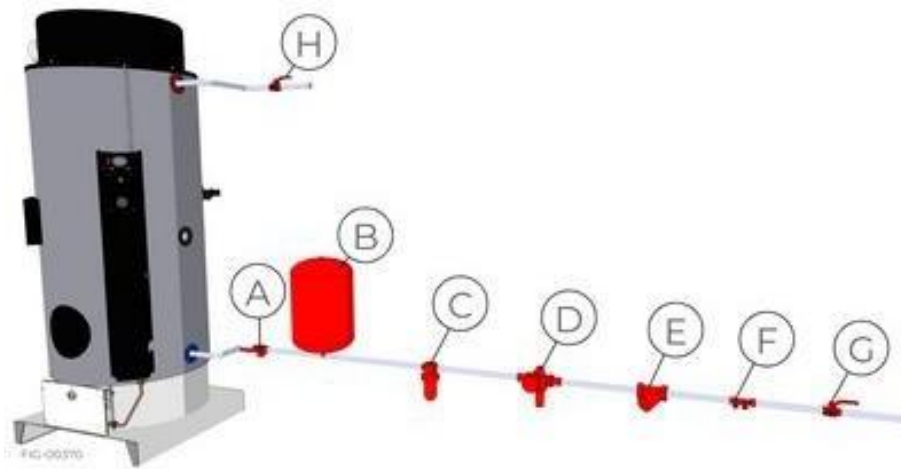


17. HYDRAULIC CONNECTIONS

The connection to the water network to be achieved by tube G 1-1 / 4" all of the models. The cold water inlet is identified by "blue" ring, while the hot water outlet is marked "red" ring.

HYDRAULIC COMPONENTS TO BE INSTALLED (NOT INCLUDED)

- A. Drain Tap T.
- B. Expansion vessel capacity of not less than 10% of the content of the device.
- C. Water softening.
- D. Pressure reducing valve (for waters with inlet pressure ≥ 6 Bar) and a 6bar safety valve.
- E. Filter to remove water impurities.
- F. Check valve.
- G. Shut-off valve.
- H. Shut-off valve.



Comply with the following domestic water parameters:

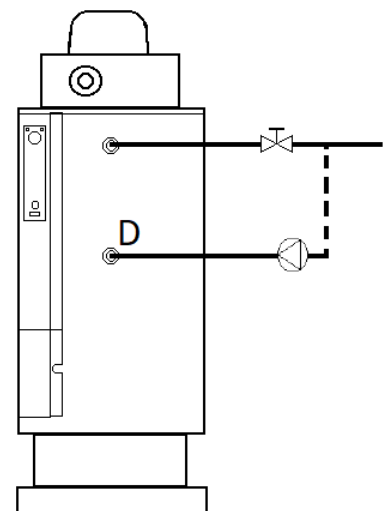
1. **Total hardness:** between 10 and 25 °f
2. **PH:** between 6 and 8
3. **Chlorides:** maximum value 200 mg/l
4. **Conductivity:** maximum value 2500 $\mu\text{S/cm}$

SAFETY VALVE

It discharges the tank water in the presence of a higher internal pressure to 6.5 ± 0.5 bar. The valve is sealed by the manufacturer and may not be tampering in case of tampering your warranty will not be recognized. In case the valve is put into operation by releasing water, it will be necessary to reduce the inlet pressure of water in the appliance.

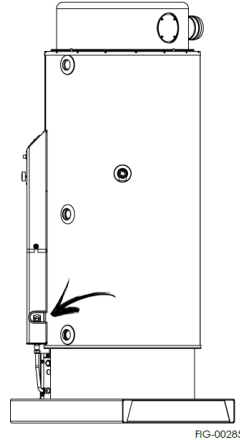
SECONDARY RETURN PUMP (NOT INCLUDED)

To ensure correct flow through the ATI SPX cylinder on the DHW (secondary) side, a DHW bronze pump is required to be fitted to the secondary return connection on the cylinder (D) as shown in the drawing to the right.



18. GAS CONNECTION

Connect the gas supply line of the thread, present on the appliance, by means of a removable rigid connector: the pipe must exit through the slot of the appliance. The gas connection is G 1/2 ": it is recommended to mount along the pipe, in the vicinity of the generator and in an easily accessible location, a faucet interception manual gas. See in the figure below, the gas attack and the slot of the tube passage.



Check the tightness of the gas pipe and make sure that it has been performed in accordance with regulations on gas system (SEE LOCAL REGULATIONS, AND INSTALLATION OF SAFETY).

19. ELECTRICAL CONNECTIONS

The machine is sold without mains plug : CPU must be mounted to the first installation.

Connect electrically to a power network at 230V-50Hz, single phase, and to an effective grounding. You will need to perform a polarized connection. The appliance cable is composed of three distinct colours cables (refer to the table below to identify the correct polarization). Connect the power cord of the appliance, taking care to comply with the electrical standards of the country in which the appliance is installed. If the power cord is damaged, it must be replaced by a technical service centre authorized by the manufacturer, or by a similarly qualified person in order to avoid a hazard. For the eventual stopping of the appliance, in the feeding of the same network is necessary to provide a disconnect device (not supplied) with an opening distance of the contacts that allows complete disconnection in the conditions dictated by the overvoltage category III

LINE AND NEUTRAL PLUG TO BE THE SAME AS LINE AND NEUTRAL THE ELECTRICAL OUTLET.



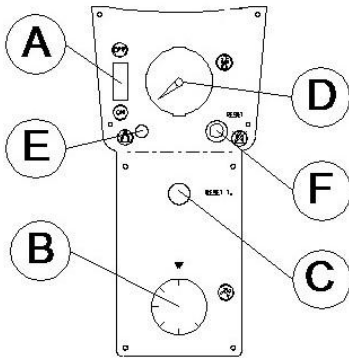
Assemble the apparatus in the vicinity of an isolating switch for the eventual general stopping of the appliance. This disconnect device must be incorporated in the supply system in accordance with installation rules. Connect the power cord of the appliance, taking care to comply with the electrical standards of the country in which the appliance is installed. In case of replacement of the electric power cable, use only a cable with the same characteristics (cable H05 VV-F - 3x0.75).

Warning: The device has no protection against the effects caused by lightning. Before accessing any electrical part of the appliance, remove the power supply using the bipolar switch.

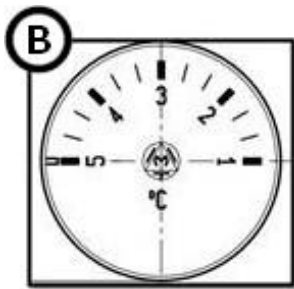
INSTALLATION AND 'FINISHED, THE UNIT AND' READY TO BE LIT AND REGULATED.

20.IGNITION AND TEMPERATURE CONTROL

POWER AND CONTROL THERMOSTAT



- A. On / Off Switch.
- B. Control Thermostat 44c – 68c.
- C. Thermostat Safety Limit – Set to 90c (Manual Reset).
- D. Temperature Gauge.
- E. Bright Green Light Operation.
- F. Red Lock Out Light / Reset Button.



- 1 = 44°C Storage Temperature.
- 2 = 50°C Storage Temperature.
- 3 = 56°C Storage Temperature.
- 4 = 62°C Storage Temperature.
- 5 = 68°C Storage Temperature.

1. Press the switch in position "I."
2. Turn the thermostat setting index B on the desired water temperature value.
3. Check that the red light button F lock is turned off. If it is on, this means that the control apparatus is located in a state of "block". In this case push the same button to unlock the control apparatus. The button's light goes out.
4. After the ignition of the burner, indicated by the green light And, it starts the step of heating water. The burner will operate until the water temperature set on the thermostat.

From that moment on the generator power cycle. The depression exerted by the operation of the fume extraction fan (under proper conditions the state of the combustion circuit) ago closes the differential pressure switch contacts, and the control unit starts the pre ventilation in the combustion chamber (the pre ventilation duration: 30 sec.). At the end of the pre-ventilation phase they are controlled at the same time the opening of the gas valve and the action of the electrode for the spark ignition of the burner. When the power of the burner the flame must be detected from the special ionization probe within the safety time (10 sec), otherwise the control apparatus goes into a locked state. This is reported dell ' switching on of the red light of the button. This can easily happen in a new plant, where it can still be present air in the gas pipe. In this case, wait about a minute, unlock the device by pressing the illuminated button and start again a new cycle. Repeat until the residual air has been purged and the ignition is regular.

SHUTDOWN

To turn off the generator for a short period to rotate the control thermostat knob on the minimum value and press the switch to position "0". To turn off the generator for a long time:

- Turn the thermostat knob on the minimum value.
- Press the switch to position "0."
- Disconnect the electrical supply to the appliance at the main switch.
- Close the gas shut-off valve.
- If it is expected to leave the unit unused for a long period in an environment not heated and with the possibility of frost, it is advisable to empty it completely.

PREVENTION AGAINST FREEZING.

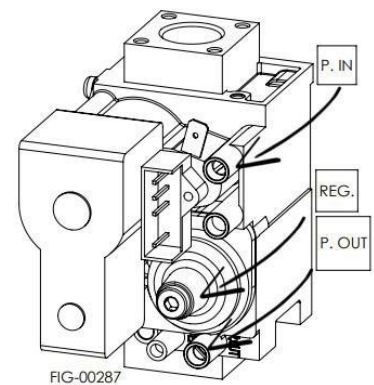
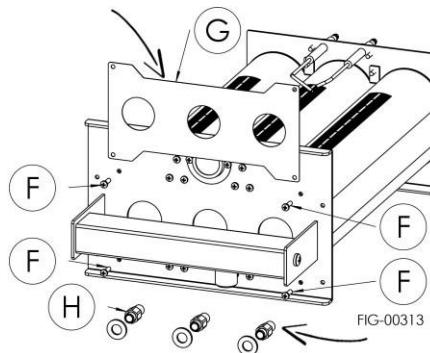
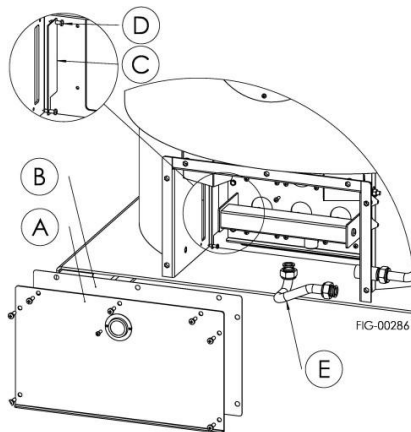
If the machine is switched off and exposed to very low temperatures, it will be necessary to empty the water tank to prevent freezing risks.

21. GAS CHANGE

For gas transmission proceed installing the kit indicated in the table and following the instructions below.

	Device	ATI SPX 220	ATI SPX 300	ATI SPX 400
G20	kit No.	AKMETSX220	AKMETSX300	AKMETSX400
	P. input	20 mbar	20 mbar	20 mbar
	Outbox	12.5 mbar	12.5 mbar	12 mbar
G31	kit No.	AKPROSX220	AKPROSX300	AKPROSX400
	P. entry	37 mbar	37 mbar	37 mbar
	Outbox	25 mbar	27.5 mbar	27.5 mbar

ATI SPX 220, 300, 400



- 1) Switch off the appliance, close the gas interception valve and disconnect the power supply
- 2) Remove the burner door (A) and the insulating material (B)
- 3) Unscrew the gas pipe (E)

CONVERSION OF GAS SUPPLY TO PROPANE G31

- 4) SPX 300 / 400 models only: unscrew the screws (D) and replace the two slot closing plates (C) with those present in the gas conversion kit. The opening must remain in the lower part.
- 5) Unscrew the 4 screws (F), position the mask (G) in front of the burners and tighten the screws (F).

CONVERSION OF GAS SUPPLY TO NAT GAS G20

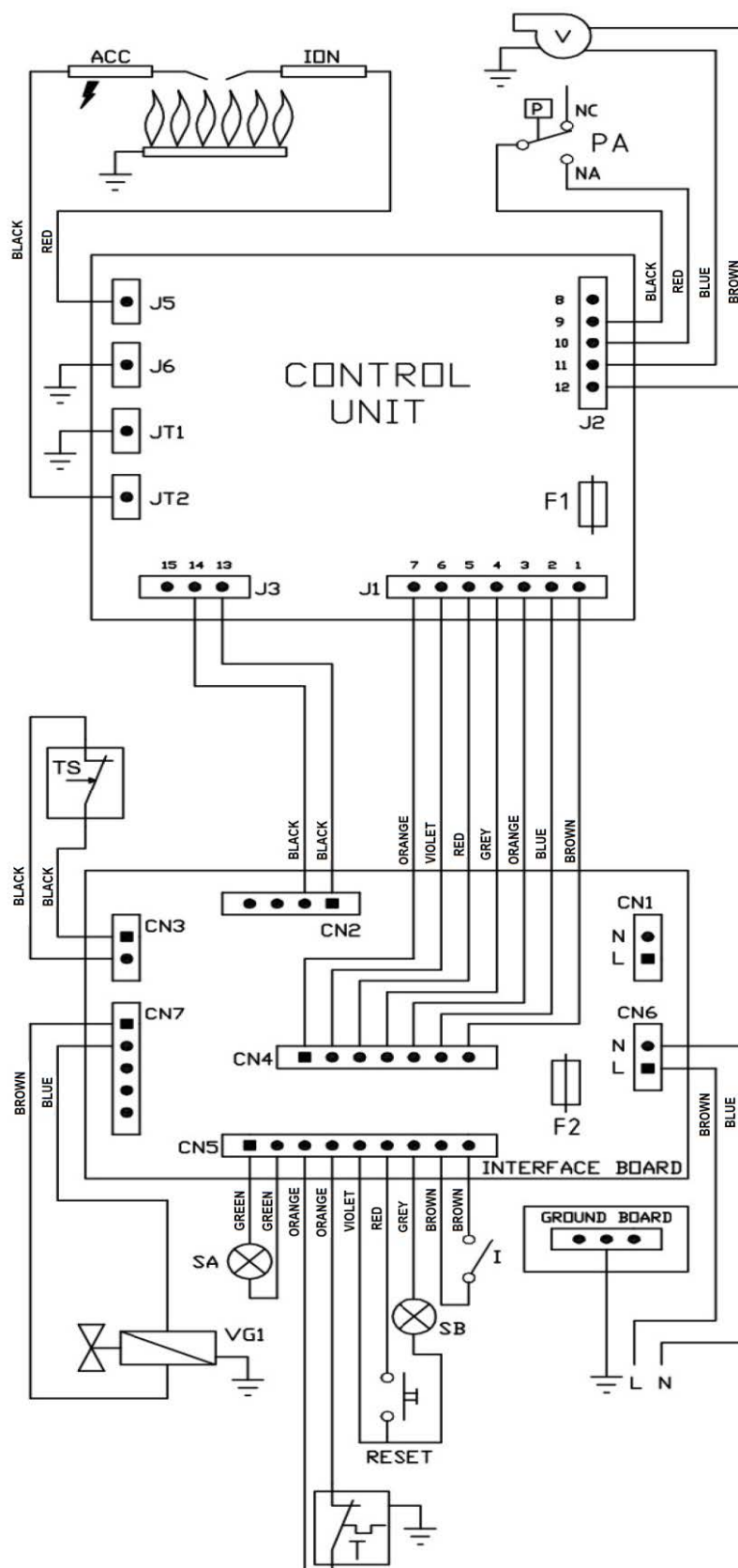
- 4) SPX 300 / 400 models only: unscrew the screws (D) and replace the two slot closing plates (C) with those present in the gas conversion kit. The opening must remain in the lower part.
- 5) Unscrew the 4 screws (F), remove the mask (G) in front of the burners and tighten the screws (F).

- 6) Replace the injectors (H). Be careful not to lose the sealing washers
- 7) Connect the gas pipe (E)
- 8) Start the appliance and check the tightness of the gas circuit with a special spray
- 9) Adjust the burner pressure, according to the indicated value, using the REG screw on the gas valve. The P.OUT pressure point can be used to check the value
- 10) Put the burner door (A) and the insulating material (B) back in their original positions and tighten with the fixing screws.
- 11) Attach the label contained in the kit to indicate the new type of gas supply.

IMPORTANT:

CHECK THE SEALING OF THE GAS PIPES, SCREWS AND JOINTS BEFORE TURNING THE APPLIANCE ON. THE WORN GASKETS MUST NOT BE REUSED, IT IS COMPULSORY TO REPLACE THEM WITH NEW PARTS SUPPLIED WITH THE CONVERSION KITS.

22.WIRING



THE: Line

N: Neutral

THE: Switch

SB: red lock lamp

RESET: reset button

T: Control thermostat

SA: Power indicator

VG1: Gas Valve

TS: Water Safety thermostat

ACC: Ignition electrode

ION: Detection electrode

V: Frequency Ventilator

AP: Air pressure

F1: Fuse 4 A fast type 250 V

F2: Fuse 2 A quick type 250 V

RECOMMENDATION:

We recommend not to install a time clock / controller inline to the power supply of the ATI SPX water heater. These units should be left on 24/7 with a permanent power supply connected.

A time clock / controller should only be installed to control a DHW secondary pump

23.COMMISSIONING

BEFORE FIRING UP THE BURNER

Before commissioning the appliance, please ensure the installation is completed to manufacturers instructions:

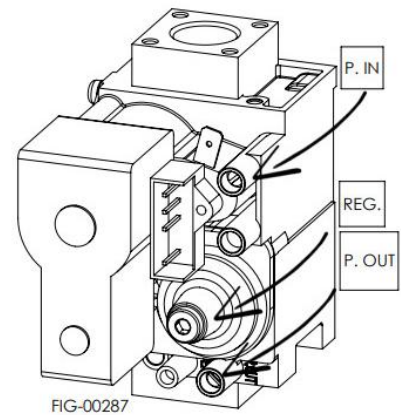
- Positioning of the ATI SP water heater – chapter 14.
- Installation of the fan flue hood including the white coaxial adaptor – chapter 15.
- Installation of the flue, this includes the flue run being within limits & the correct air restrictor ring fitted – chapter 16.
- All water connections being connected with no leaks present – chapter 17.
- Gas pipework is connected, purged, soundness tested and if on LPG make sure the LPG conversion kit is fitted – chapters 18 & 21.
- The electrical supply is connected and available to the appliance – chapters 19 & 22.

FIRING UP THE BURNER

To fire the ATI SP water heater follow steps 1 to 4 as shown in chapter 20.

ADJUSTING GAS VALVE

1. Verify inbound and outbound pressures using the opposite measuring sockets P.IN and P.OUT.
2. Remove the protective cap REG.
3. Tighten the screw to increase the output gas pressure. Unscrew the screw to reduce the outgoing gas pressure.
4. Adjust the pressure according to the values shown in the table below depending on the type of gas used.
5. Close to seal the screws and the protective cap.



REQUIRED GAS PRESSURE SETTINGS

	Model	ATI SPX 220	ATI SPX 300	ATI SPX 400
G20	P. IN	20 mbar	20 mbar	20 mbar
	P. OUT	12.5 mbar	12.5 mbar	12 mbar
G31	P. IN	37 mbar	37 mbar	37 mbar
	P. OUT	25 mbar	27.5 mbar	27.5 mbar

RECORDING COMBUSTION SETTINGS

After completing the gas pressure settings, turn the ATI SP water heater back on using the on/off switch.

IMPORTANT: Once the burner has fired, **you must wait until there is thermal equilibrium and the DHW temperature is above 57°C** before inserting the flue analyser into the appliances test point so an accurate operating measurement can be recorded. If the flue analyser is inserted before the tank is up to 60°C temperature, the CO PPM value will be inaccurate and potentially be as high as 600ppm.

After the purging process has completed the combustion will reduce down to the following ranges:

G20 Supply – Natural Gas

Model	ATI SPX 220	ATI SPX 300	ATI SPX 400
CO (ppm)	20 to 200	30 to 200	30 to 200
CO ₂ (%)	5.0 o 6.0	5.0 to 6.0	5.0 o 6.0

G31 Supply – LPG

Model	ATI SPX 220	ATI SPX 300	ATI SPX 400
CO (ppm)	5 to 30	5 to 60	5 to 50
CO ₂ (%)	6.0 o 7.0	5.5 to 6.5	5.5 o 6.5

If the combustion settings are found not to be within the ranges as shown, you will need to double check that the correct air restrictor has been used and is fitted correctly. If it is found to be all correct, adjustments on the gas valve using the REG screw can be made to change the gas pressure at the P.OUT point.

Below is the allowed minimum and maximum gas pressure at P.OUT for all models:

G20 Supply

- ATI SPX 220 to 400 = 12.0 – 13.0mbar.

G31 Supply

- ATI SPX 220 to 400 = 25.0 – 27.5mbar.

Please ensure if the gas pressure settings are changed and are different to the settings stated within the table under “Required Gas Pressure Settings” that it is mentioned clearly on the report and the unit for future maintenance visits.

24.ANNUAL MAINTENANCE

To ensure the safety and prolong its life, you are required to have it checked at least once a year by an authorized service centre, which will act as follows:

- Replacing the magnesium anode.
- Internal inspection of the boiler and possible calcium deposited on the bottom cleaning.
- Verification of the gas pipe sealing.
- Burner maintenance.
- P.OUT pressure and combustion check, adjust if required as shown within the commissioning chapter.

25.PREVENTION AGAINST FROST

If the appliance is switched off and exposed to very low temperatures, it will be necessary to empty the water tank to prevent the risk of freezing.

26. POSSIBLE OPERATING FAULTS

Any parts replacement work must be carried out by personnel authorized by the manufacturer.

The control device will lock out without controlling the ignition.

- The control apparatus flame detection circuit is faulty and the control self-test does not allow the continuation of the cycle.
- The flame detection electrode has a leakage to ground.

At the end of the pre-ventilation phase, the ignition electrode does not spark and the control device will lock out.

- The ignition transformer is faulty.
- The electrode connection of power to the terminal apparatus is interrupted.

At the end of prepurge the ignition electrode gives spark, but the flame is not formed and the apparatus goes into block.

- It lacks the feed gas or air is present inside the pipe.
- The gas valve does not open because the coils are malfunctioning or their electrical connection is interrupted.

At the end of prepurge the ignition electrode gives spark, the flame is formed, but the device will lock.

- The flame does not stabilize properly for lack of gas pressure.
- The detection electrode is not correctly positioned and is not in contact with the flame.
- The detection electrode electric connection is interrupted.

The device will lock during normal operation.

- The gas supply has been interrupted, even if at the moment: the equipment, not by detecting the presence of flame, has gone in block.
- It has occurred, during an intermittent operation cycle, one of the cases of the previous point.

The generator runs for short intermittent periods, even if the thermostat is working properly and is in heat demand position.

- The regulating thermostat is defective and does not properly reveals the water temperature.
- The pressure switch stops the burner because the flow rate of the fan is not correct, due to obstruction of the ducts or excessive length of the same.

The control apparatus is not blocking but the unit does not go through its firing sequence.

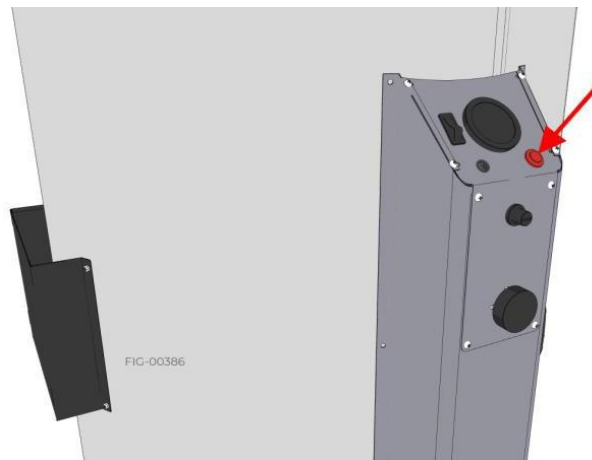
- The differential pressure does not give consent to continue the cycle because the fume extraction ducts or air intake are clogged.
- The pressure switch does not give consent to continue the cycle because the fan does not operate and does not exert sufficient pressure.
- The differential pressure does not give consent because it is faulty or its electrical connection is interrupted.
- The differential pressure does not give consent because the tube of the pressure outlet is obstructed or the silicone hose is disconnected or broken.

The control apparatus is not blocking but the cycle does not start.

- During the initial part of the apparatus occurs by the pressure switch contacts have been found in the closed position (because glued or effect of incorrect calibration of the pressure switch itself) and consequently is not given the consent to the continuation of the cycle.
- Check if it jumped the printed circuit fuse.

27. DIAGNOSTIC TOOL

The red light in the reset button is able to indicate the type of error. The light switches on intermittently according to the type of burner ignition impediment, with a series of pulses and a pause of 2 seconds between one series and the next.



ERROR DIAGNOSTIC TABLE	
Type of Signal	Error
0 ON	There are no errors
2 ON ••	The ignition cycle does not occur due to failure to close the air pressure switch
3 ON •••	The ignition cycle does not occur due to aps already closed (closed without fan)
Steady on	Water heater blocked due to burner ignition failure

To solve problems related to intermittent signals, check the fan and the pressure switch.

To unblock the appliance for the fixed light, check the gas and / or burner circuit and press the reset button for 2 seconds to unlock the appliance and repeat the ignition cycle.

28. VALIDATION OF THE WARRANTY

The ATI SPX range is offered with a 2 year standard warranty on the heat exchanger and vessel. 1 year on other parts and labour from the date of commissioning being carried out by a Strebel engineer assuming that the commissioning date is no less than 12 weeks after the delivery date of the appliance.

If the ATI SPX water heaters are not commissioned by a Strebel engineer or 12 weeks after delivery of the heater then the above warranty will start from the delivery date.

All warranty claims are subject to the water heaters being maintained as per chapter 22.

IMPORTANT: And 'Do not tamper with any device, set and sealed at the factory by the manufacturer.

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Strebel Ltd
Unit 10, Invincible Industrial Estate,
Invincible Road, Farnborough,
Hampshire, GU14 7QU.

T	01276 685422
F	01276 685405
E	salesoffice@strebel.co.uk
I	www.strebel.co.uk



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