ALARKO

SERADENS SUPER PLUS

SSP 20/24/28/36 PREMIX DOUBLE CONDENSING BOILER

INSTALLATION AND OPERATING INSTRUCTIONS



ENGLISH

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1. GENERAL INFORMATION

Thank you for choosing ALARKO brand.

This booklet covers ALARKO branded premix double condensing SSP 20/24/28/36 model combi boilers in SERADENS SUPER PLUS product range, suitable for natural gas or LPG use. Keep this booklet on hand to consult to whenever you may need.

You will be informed about combi boiler use by authorized dealers after they mount the boiler on its position and set the connections, and by authorized service people after they take the boiler into operation. You can ask any unclear points again. Our experts will be glad to answer your questions.

For long-term, safe and economical use of the boiler, please read this booklet carefully before using the boiler, obey the safety rules and warnings carefully.

Start-up of the boiler by authorized service is free of charge and it is required for the product guarantee to be valid.

1.1 General Notifications

⚠ **Professionally qualified personnel in accordance with current laws and standards and in line with the manufacturer's instructions must install the appliance.**

⚠ **With 'Professionally qualified personnel' is intended a personnel with technical knowledge in the field of installation and maintenance of components for central heating and domestic hot water production systems for domestic and industrial use.**

⚠ **The appliance must be used solely for the purpose for which it has been designed and manufactured: central heating and domestic hot water production. Any other use is deemed as improper and as such dangerous. Under no circumstances will the manufacturer be held responsible for damage or injury to persons or animals caused by errors in the installation and/or use of the appliance, or through non-compliance with current local and national standards and/or the manufacturer's instructions.**

⚠ **The installation, operation and maintenance manual forms an integral and essential part of the product and must be kept near the appliance always.**

⚠ **This manual must be kept in a safe place and made available for any future reference. If the appliance is sold or transferred to a different owner, this must follow the appliance to be read by the new owner and/or installer.**

⚠ **The warnings contained in this chapter have been written for the appliance user, the installer and the service engineer.**

⚠ **The user manual must be read carefully as it provides information on the operation and the operating limits of the appliance.**

⚠ **This appliance must be used exclusively in a pressurized central heating system.**

⚠ **Children should not play with the device. Cleaning and user maintenance should not be made by children without supervision.**

⚠ **This appliance can be used by children aged 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children should not play with the device. If cleaning and user maintenance will be done by children, it must be done under supervision.**

- After the removal of all the packaging, check that the appliance has not been damaged. In case of doubt, do not attempt to use the product but refer to the supplier. Packing materials (cardboard box, wooden crate, nails, staples, plastic bags, polystyrene, etc.) must not be left within reach of children in that these items represent a potential hazard and must be disposed of in a responsible manner.
- Before carrying out any cleaning or maintenance operations, disconnect the appliance from the mains electricity supply by switching off at the main switch and/or any other isolating device.
- Do not obstruct the air intake or flue exhaust grills.
- Do not obstruct the air intake or flue exhaust terminals.
- In the case of a fault and/or malfunction in the appliance, shut down the system. Do not interfere with or attempt any repairs. Call for professionally qualified technical assistance only.
- Any warranty repairs to the appliance must be carried out exclusively by the manufacturer's authorized service centre using original spare parts. Non-compliance with the above requirements may compromise the safety of the appliance and invalidate the warranty. In order to guarantee the efficiency of the appliance and its correct operation, it must be serviced regularly by professionally qualified personnel in line with the manufacturer's instructions.
- When the appliance is no longer required for use, any parts that may constitute potential sources of danger must be rendered harmless.
- Only original accessories or optional extras (including electrical parts) must be used with the appliance.
- As dictated by current legislation, this appliance must be installed exclusively by qualified personnel. Before starting the boiler for the first time, make sure that it is connected to a water supply and central heating system compatible with its performance characteristics.

- The room must be ventilated by means of an air intake protected with a grill. Make sure the grill does not reduce the passage section.
- The air intake from adjacent rooms is allowed providing that those rooms are in depression with respect to the atmosphere and that there are not fireplace or fan installed. When the appliance is installed outdoor, i.e. on balcony or terrace, make sure it is not directly exposed to atmospheric agents to prevent any damage to components which would lead to a warranty invalidation. It is recommended to provide the boiler with a protective casing/box against bad weather conditions.
- **Check the technical data reported on the packing and on the type label stuck inside boiler. Also check that the burner is appropriate for the type of gas to burn.**
- **Make sure that the pipes and fittings used for the gas service are perfectly tight and that there are no gas leaks.**
- Prior to start-up, the central heating pipes should be flushed to remove any residues that could compromise the operation of the appliance.
- The appliance can be regarded as being electrically safe when it has been connected to an efficient earth system installed in accordance with the requirements of current safety standards. This fundamental safety requirement must be checked and verified. In case of doubt, have the electrical system checked by a qualified electrician. The manufacturer will not be held liable for any damage or injury caused as a result of an ineffective or non-existent earth system.
- The domestic power supply must be checked by a qualified electrician to ensure that it can support the maximum power absorption of the appliance, as indicated on the type label (stuck inside boiler). In particular, make sure that the cable ratings are adequate for the power absorbed.
- Do not use adapters; multiple sockets or extension leads to connect the appliance to the mains power supply.
- The appliance must be connected to the mains power supply through an appropriate electrical isolator in accordance with the current wiring regulations.

When using an electrical appliance, a few fundamental rules must be observed:

- Do not touch the appliance with damp or wet parts of the body or when barefoot.
- Do not pull on the electric wires.
- Do not leave the appliance exposed to atmospheric elements (rain, sun, etc.).
- Do not allow the appliance to be used by children or anyone unfamiliar with its operation.

- The user must not replace the power supply cable.
- If the cable is damaged in any way, switch off the appliance and have the cable replaced by a suitably qualified electrician.

1.2 Product Conformity

ALARKO

Carrier

CE

AT UYGUNLUK BEYANI — **EC DECLERATION OF CONFORMITY**

ALARKO – CARRIER SAN. VE TİC. A.Ş.

GOSB – Gebze Organize Sanayi Bölgesi, Şahabettin Bilgisu cad. 41480
Gebze – KOCAELİ / TURKEY

Alarko Carrier San. ve Tic A.Ş. tanımlanmış olan ürünlerin aşağıda bahsedilen yönetmelikler ve standartlara uyum sağladığını beyan eder.

Bu beyan ürünün teslimat durumundaki son şekliyle geçerlidir. Ürün üzerinde yapılacak herhangi bir modifikasyonda, bu beyan geçerliliğini yitirmiş olacaktır.

Ürün, insan sağlığına zararlı "Asbest" maddesi içermez ve imalatında kullanılmamıştır.

Ürün, insan sağlığına zararlı "PCB(Poliklorürlü bifenil)" maddesi içermez ve imalatında kullanılmamıştır.

Ürün, insan sağlığına zararlı "Cıva" maddesi içermez ve imalatında kullanılmamıştır.

ÜRÜN TANIMI :

Gaz Yakan Kombi Cihazları

MARKASI:

Alarko

MODEL / TİP :

Seradens Super Plus 20 kW (SSP 20)

Seradens Super Plus 24 kW (SSP 24)

Seradens Super Plus 28 kW (SSP 28)

Seradens Super Plus 36 kW (SSP 36)

YÖNETMELİKLER :

2016/426/AB: Gaz Yakan Cihazlara Dair Yönetmelik

92/42/AT: Sıvı ve Gaz Yakıtlı Sıcak Su Kazanlarının Verimlilik Gereklerine Dair Direktif

2014/35/AB: Alçak Gerilim Yönetmeliği

SGM: 2018/3 – Mahal Isıtıcıları ve Kombine Isıtıcılar ile İlgili Çevreye Duyarlı Tasarım Gereklerine Dair Tebliğ

SGM: 2018/1 – Mahal Isıtıcıları, Kombine Isıtıcılar, Sıcaklık Kontrolü ve Güneş Enerjisi Cihazı Paketlerinin Enerji Etiketlemesine Dair Tebliğ

2014/30/AB (EMC) - Elektromanyetik Uyumluluk Direktifi

UYGULANAN UYUMLAŞTIRILMIŞ STANDARTLAR :

EN 15502-1+A1, EN 15502-2-1+A1, TSEN60335-1,

TS EN 60335-2-102, EN 13203-2, EN 55014-1

EN 55014-2, EN 61000-3-2, EN 61000-3-3

AD_SOYAD – NAME_SURNAME
GÖREV – POSITION
YER / TARİH – PLACE / DATE
İMZA – SIGNATURE

Alarko Carrier San. ve Tic A.Ş. deciares that the described products are in conformity with the below mentioned directives and standards.

This declaration refers to the product in delivery status. Any modifications of the product will invalidate this declaration.

The product does not contain "Asbestos" material harmful to human health and was not used in its manufacture.

The product does not contain any "PCB (Polychlorinated biphenyl)" substance that is harmful to human health and has not been used in its manufacture.

The product does not contain "Mercury" harmful to human health and was not used in its manufacture.

PRODUCT DESCRIPTION :

Gas Fired Combi Boilers

BRAND:

Alarko

MODEL / TYPE :

Seradens Super Plus 20 kW (SSP 20)

Seradens Super Plus 24 kW (SSP 24)

Seradens Super Plus 28 kW (SSP 28)

Seradens Super Plus 36 kW (SSP 36)

DIRECTIVES :

2016/426/EU: Regulation on Gas Burning Devices

92/42/EEC: Directive on the Efficiency Requirements of Liquid and Gas Fired Hot Water Boilers

2014/35/EU: Low Voltage Regulation

SGM: 2018/3 - Communiqué on Environmentally Ecodesign Requirements for Space Heaters and Combined Heaters

SGM: 2018/1 - Communiqué on Energy Labeling of Space Heaters, Combined Heaters, Temperature Control and Solar Energy Device Packages

2014/30/EU (EMC) - Directive on the harmonisation of the laws of the Member States relating to electromagnetic compatibility

APPLIED HARMONIZED STANDARDS :

EN 15502-1+A1, EN 15502-2-1+A1, TSEN60335-1,

TS EN 60335-2-102, EN 13203-2, EN 55014-1

EN 55014-2, EN 61000-3-2, EN 61000-3-3

: Murat Çopur
: Genel Md. Yrd./Fabrikalar – Vice President/Factories
: Gebze – Kocaeli / 23-05-2025
:

1.3 Gas Safety

Gas appliances must be installed only by informed and authorized people in accordance with rules of local gas distribution institutions. Gas conversion processes must also be performed by authorized people.

This appliance is produced and certified to operate with natural gas or mix LPG under gas inlet pressures specified in Section 3.1, Technical Specifications Table. Operation under any different gas conditions is not allowed.

Adjusted gas type of your boiler is written on type label stuck in the boiler, unless it is converted to another gas by an authorized person. Make sure that the boiler is not used with a different gas, other than which it is adjusted for or it is finally converted to.

1.4 Premix Condensing Technology

The temperature of flue gas generated by the combustion for conventional (non-condensing) combi boilers with copper or titanium exchanger is about 120-150°C regardless of the operating temperature of the boiler. With this high temperature, energy and fuel cost on the water vapor inside the flue gas just flies away, too. However, for premix, i.e. full condensing combi boiler with gas-air pre-mixing feature, flue gas temperature are lowered under 55°C while generating flow water temperature at about 50°C and lower thanks to the exchangers with much wider heat transfer surface. For flue gas temperatures under 55°C, the water vapour inside the flue gas condenses, i.e. transforms to liquid from gas form. Thus, energy is captured before going out the flue, and transferred to the water inside the exchanger. This is called concealed heat energy. By regeneration of energy inside the water vapour, it is possible to save up to %30 from fuel costs.

Therefore, set the heating temperature to maximum 50°C in order to get maximum efficiency from your combi boiler with minimum cost.

As the condensate water is acidic, main exchangers to premix full condensing combi boilers shall be made of stainless steel or aluminum alloy resistant to acidic condensate water. Alarko Seradens Super Plus condensing combi boilers use main exchanger with very high resistance against condensate water.

Combustion is always performed ideally with the premix system, i.e. premixing of gas and air at the ideal ratio of 1:10 before combustion. This is ensured by the modulating fan which adjusts its speed as per the capacity requirement and the venturi which mixes the gas taken by the drawing of the fan from the modulating gas valve and air in the ideal ratio.

Premix condensing boilers do not perform condensing while generating domestic hot water. However in Seradens Super Plus double condensing boiler models, the domestic hot water entering the boiler is passed through the full condensing stainless steel exchanger coils integrated in addition to the main exchanger, and thus both pre-heating and condensing are achieved. Flue gas temperatures are reduced up to 18°C while generating domestic hot water for these models. This proves how efficiently the appliance operates.

2. USER INSTRUCTIONS

2.1 Introduction

Following the installation and commissioning, authorized service technician will inform you about the combi boiler use and maintenance. Our technician will be glad to answer any question coming from you. Commissioning of the appliance done by authorized service is free of charge.

Before starting to use your combi boiler, read this booklet carefully. While using the appliance, follow the safety instructions and warnings stated in this booklet. In this way, you have the chance to use your combi boiler with optimum lifetime, safety and economy. In this section, some additional technical information is also given to introduce the appliance.

2.2 Course of Action In Case Of Gas Leakage

- Be calm.
- EXTINGUISH any flame.
- OPEN all the doors and windows to vent the room.
- CLOSE gas valves of any appliance
- CLOSE gas valves at the building and apartment inlet.
- DO NOT LIGHT anything and do not SMOKE.
- DO NOT TOUCH electric buttons, DO NOT SWITCH from on to off or off to on position.
- DO NOT ATTACH OR PULL OUT electric plugs.
- DO NOT RING the bells.
- DO NOT USE the telephone where the gas smell exists.
- CONTACT YOUR GAS SUPPLIER AND FIRE BRIGADE and explain the situation.

2.3 Warnings!

- This appliance must only be used for the intended purpose of manufacture. Alarko Carrier Sanayi ve Ticaret A.Ş. does not take any responsibility for the damage or injury on persons, animals or objects caused by incorrect installation, service or maintenance, use except for the intended purpose or disobeying any of the warnings within this booklet.
- Spaces allowed for installing a gas-fired boiler are defined by international and/or local regulations and rules of gas distribution companies. You can supply detailed information about those limitations from your installer. For your own safety, do not ask the installer to install your boiler to prohibited

spaces.

- Before gas installation, a suitable gas installation project has to be prepared and approved according to the requirements of local gas distribution organization. After approval of local gas distribution organization and precise application of installation, have your boiler commissioned by an Authorized Service. Commissioning is a free service.
- Do not let unauthorized people to interfere or service the boiler.
- Gas conversion process (from natural gas to LPG or from LPG to natural gas), if necessary, must be made by an authorized service only. Conversion is paid by the end-user.
- Keep flammable and combustible objects, either liquid or solid, away from the boiler.
- Do not use any spray, chemical solvent, chlorinated cleaner, paint or adhesive near the boiler.
- Do not place cooker near the appliance and protect the boiler from direct vapor. The boiler is to be connected to an earthed 230 V 50 Hz electric supply.
- To enable the frost protection function in winter when the weather temperature might fall below 0°C, do not turn the boiler off. This function is active only if the combi boiler and gas valve are in ON condition. Manufacturer does not take any responsibility for the damage caused by neglecting this rule.
- Filter must be installed at the water inlet of the boiler to protect the pump and the filter must be cleaned periodically. Apply the authorized service to take more information about this process.
- If you charge the central heating system with hard water, this may cause blockage of DHW heat exchanger. Domestic hot water should not exceed 17,5 French hardness value.
- Domestic hot water circuit does not need a pressure safety valve. On the other hand, pressure should not exceed 10 bar. In case of doubt, a pressure regulator should be fitted. Consult your installer on this issue.

2.4 Terms and Conditions of Guarantee and Service

Your boiler is 3 (three) years guaranteed by Alarko Carrier for material and production defects provided that the principles, warnings and standards mentioned in installation and operating instructions are obeyed.

Guarantee is not valid under below conditions:

Installation by unauthorized company and people.

Damages due to service by unauthorized people.

Damages due to any natural disaster, war or terror activity.

Damages due to bad weather conditions, especially frost, unless instructions in this booklet are obeyed.

Damaged or modified serial number of boiler.

Incorrect installation, use and maintenance with respect to the instructions and the regulations in force.

Boilers produced for display and exhibition purposes.

Absence of Guarantee Form.

The transportation risks belong to the customer if boiler is sent to service by customer and belongs to the service if boiler is taken by service.

2.5 Control Panel

1. Operating mode setting knob (Summer / Winter / Heating Only / Off). In case of error, this button functions as reset button.
2. Info menu entry button.
3. Domestic hot water (DHW) temperature increase button.
4. Domestic hot water (DHW) temperature decrease button.
5. Heating water temperature increase button
6. Heating water temperature decrease button
7. LCD display for temperature, error codes and operating mode.
8. Terminal board for external wiring of room thermostat and outside temperature sensor*.
9. Economy (ECO) mode on/off button.

** Room thermostat and outside temperature sensor is optional.*

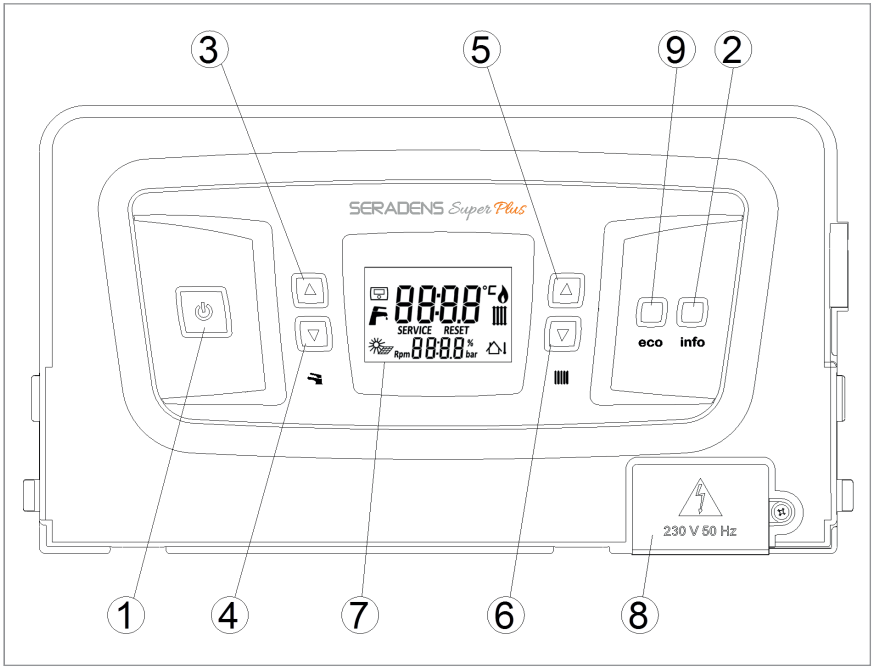


Figure 1. Control panel

2.6 Additional Digit Area on Display

There is a smaller digit area positioned under basic digit area on Seradens Super Plus display, which share some extra information continuously or alternately with user. As factory setting, central heating water pressure is shown in additional number area. If ECO mode is on or any pre-heating function(s) is on, related info is shared alternately with user.

Additional digit area can be changed to any of below items with a change on parameter settings.

1. Nothing shown
2. Central heating water pressure
3. Instant capacity of burner as percentage
4. External temperature (If there is outside temperature sensor)

2.7 User Info Menu

The info menu is used to display the value of some variables or parameters according to customer needs. This menu is usable even if the boiler is in OFF position.

You can activate the user info menu simply pressing the Info key (2) (Figure 1) for a time period of 2 seconds. You can see many information and values alternately in the user info menu. To display sequentially all the other variables supported, press the DHW temperature increase (3) and decrease (4) keys.

The following is a list of information you can display in the user info menu:

1. Heating water pressure (Basic digits display pressure value, additional digits display -0-. **bar** symbol continuously lights.)
2. Heating water sensor temperature (Basic digits display temperature value, additional digits display -1-. Radiator ( ) symbol continuously lights.)
3. Domestic hot water (DHW) sensor temperature (Basic digits display temperature value, additional digits display -2-. Tap ( ) symbol continuously lights.)
4. External temperature (It is shown only if the outside sensor is connected. (Basic digits display temperature value, additional digits display -3-. Outside temperature sensor ( ) symbol continuously lights.)
5. DHW pre-heating condition. If pre-heating function is on, “PhE” symbol which stands for “Pre Heating Enabled” is shown. If this function is off, then “**Phd**” symbol which stands for “Pre Heating Disabled” is shown. (Basic digits display the pre-heating condition, additional digits display -4-.)

The system comes back to the default menu if no key is pressed within a time-out period corresponding to 30 sec. Alternatively, you can close user info menu by pressing Info key (2) for time period of 2 seconds.

ATTENTION!

Water pressure in heating circuit must be checked during operating period. System must be filled with 1.2 bar pressured water. (An external manometer must be used at start-up) Filling operation must be done while the boiler is cold and in OFF condition.

2.8 Filling the System

Pressure sensor is included in Seradens Super Plus combi boilers. After all connections (electric, fittings and flue) are completed, system could be filled by means of filling tap (F) which is positioned at left-bottom side of the boiler (Figure 2). Before filling the system, press user info key (2) for 2 seconds and see pressure value on basic digit area. Filling operation must last until “1.2 bar” value is displayed on the screen. If the user info menu is closed before the intended value is reached (it is closed after 30 seconds), enter the user info menu again by pressing key (2) for 2 seconds in order to be sure of that sufficient amount of water is filled to the system.

If the water pressure falls down under a certain value, E04 error is seen on the screen. In order to increase the pressure value, open the filling tap (F) in Figure 2. Check the pressure value from the screen to avoid filling the system excessively. Keep filling the system until the pressure reaches 1.2 bar, then close the filling tap.

Excessive filling of the heating system leads to E47 error, this is a precaution to avoid uncontrolled discharge of excess water from 3 bar safety valve. If you see E47 error on the screen due to excess pressure, discharge the proper amount of water by means of drainage tap (D) (Figure 2) or follow the instructions given in “Water Pressure Errors” in Section 2.10.

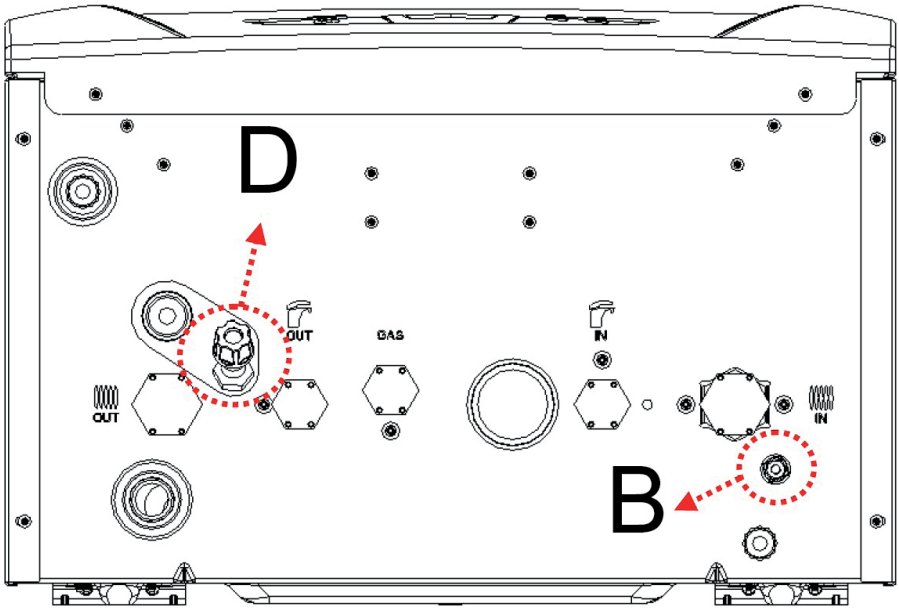


Figure 2. Bottom view of Seradens Super Plus combi boiler

ATTENTION!

Pressure of heating system increases due to heated water. Filling the system with cold water of 2.3-2.4 bar may lead to E47 error when the system is heated. In order to avoid such a condition, be sure that system pressure is 1.2 bar while the water is cold (at room temperature or lower).

2.9 Operating Modes and Start-Up

“OFF” Mode

In this mode, the boiler is OFF. The boiler doesn’t operate in case of any domestic hot (DHW) or heating (CH) water need. However, pump locking protection and freeze protection functions are active in order to protect combi boiler from unsafe situations. The user info menu is usable even if in off mode for monitoring water pressure during filling operation.

“SUMMER” Mode

Press key **(1)** (Figure 1) to operate your boiler in “SUMMER” mode and see only the tap symbol ( ) continuously shown on the display. At this mode combi boiler only operates for the domestic hot water (DHW) system. The automatic ignition system lights the burner every time if there is a demand for DHW. The existence of the flame is shown with a flame symbol ( ) on the display. During DHW usage, the tap symbol ( ) on the display blinks.

“WINTER” Mode

In order to operate the combi boiler in “WINTER” mode, press key **(1)** (Figure 1) and see tap symbol ( ) and radiator symbol ( ) continuously shown on the display. At this mode combi boiler operates for the domestic hot (DHW) and heating (CH) systems. The automatic ignition system lights the burner every time there is a demand for both. The existence of the flame is shown with flame symbol ( ) on the display. In this case, the tap symbol ( ) on the display blinks when system operates for DHW and radiator symbol ( ) blinks when system operates for CH.

“ONLY HEATING” Mode

In order to operate the combi boiler in “ONLY HEATING” mode, press key (1) (Figure 1) and see only radiator symbol ( ) continuously shown on the display. At this mode combi boiler only operates for heating (CH) system. The automatic ignition system lights the burner every time there is a demand for CH system. The existence of the flame is shown with flame symbol ( ) on the display. In this case, radiator symbol ( ) blinks when system operates for CH.

ATTENTION!

If there is no room thermostat in the system (bridged), pump runs without stopping in “WINTER” and “ONLY HEATING” modes, therefore radiator symbol consistently blinks.

Economy (ECO) Mode

The appliance can also be operated in economy mode, whose conditions are previously defined. When the user pushes ECO key (9) (Figure 1), system sets the heating water temperature to 50°C automatically, this is the optimum value between condensing and room temperature comfort. If the appliance's parameter settings were done in reference to low temperature range (underfloor heating), then heating water temperature in ECO mode is 38°C. Domestic hot water outlet temperature is set to 45°C for both low and normal temperature ranges.

When ECO mode is active, user observes "ECO ON" symbol on the display for 2 seconds. During operation in ECO mode, pressure value (if parameter setting is done to show pressure) and "ECO" word are shown successively on additional digit area. In order to switch off ECO mode, ECO key (9) must be pushed one time or a new heating or DHW temperature value setting must be done. If either activity is done, "ECO OFF" symbol is observed on the display for 2 seconds and the successive demonstration on additional digit area is finished.

Starting-up Boiler

- Open the gas isolation valve located in your house and make sure that gas is supplied to the appliance.
- When electricity is supplied to the appliance, "OFF" word can be seen on the display. Pushing mode button (Figure 1) leads to change the operating mode, every push changes mode sequentially between SUMMER-WINTER-ONLY HEATING-OFF.
- When operating mode is selected as Winter or Only Heating Mode, the combi boiler lights automatically if there is a heat demand (A room thermostat must be connected or connection must be bridged). If Summer Mode is selected, a hot water tap must be turned on in order to light the boiler.
- Check that there are no flashing numbers on the display **(7)** (Figure 1) (also see Section 2.10). If code E04 appears on the display **(7)** this denotes that there is no water in the boiler. Consequently, fill the system as described in Section 2.8.

Setting Heating (CH) Temperature

The heating temperature is regulated by using keys **(5)** and **(6)** (Figure 1).

- Pushing key **(5)** will increase the CH set point temperature.
- Pushing key **(6)** will decrease the CH set point temperature.

The range of set temperature for the CH varies from a minimum of 30°C to a maximum of 85°C, in case of reduced range operation, temperature range is from a minimum of 30°C to a maximum of 45°C.

When display backlight is off, pushing key number **(5)** or **(6)** once leads to set temperature value to be shown on the display. Pushing info key **(2)** leads to the instant temperature value to be shown on the display.

Setting Domestic Hot Water (DHW) Temperature

DHW temperature is regulated by using keys **(3)** and **(4)** (Figure 1).

- Pushing key **(3)** will increase the DHW set point temperature.
- Pushing key **(4)** will decrease the DHW set point temperature.

The range of set temperature for DHW varies from a minimum of 30°C to a maximum of 60°C.

When display backlight is off, pushing key number **(3)** or **(4)** once leads to set temperature value to be shown on the display.

ATTENTION!

If hot water taps are not used for a long time in “Winter” and “Only Heating” modes, temperature of the stationary DHW remaining in the main heat exchanger may reach up to the set temperature of CH water. If you set CH temperature above 50°C, let the hot water to drain off the tap for a time certainly.

2.10 Diagnostics – Error Codes

This paragraph contains a list of error codes that the boiler may generate on the display **(7)** (See Figure 1) together with the relative indications and the operations that the user can carry out to reset the boiler.

⚠ If the problem re-occurs after the following actions have been taken or if you see another error code that is not listed below, please call an authorized Service Centre.

E01 **No Flame or Spurious Flame**

This error code appears if there is no flame (ionization current) sensed on the burner. In this case code **E01** lights on the display continuously.

- Check that the gas valve on the boiler and gas meter are open and make sure that there is gas in the mains supply (or in the tank).
- Turn off and then turn on the appliance using button **(1)** (Figure 1) on the control panel. Let the system ignite by itself, if **E01** error remains, retry to turn off and turn on the appliance once again. This action is taken in order to be sure if the gas in the pipes reached to the appliance.
- When the error code on the display disappears, the boiler will restart. If the problem persists, call the Service Centre.

This error may occur on the appliances in which gas supply is cut off for long time period. In general, when gas is supplied to the appliance and after some number of ignition trials, system starts by itself.

E02 **Limit Thermostat Error**

E02 code lights on the display continuously. Call the Service Centre.

E03 **Flue Fuse or Safety Fuse Malfunction**

E03 code lights on the display continuously. Call the Service Centre.

E04/E46/E47 **Water Pressure Errors**

These errors occur related to the low/high pressures on heating (CH) system or a fault in pressure sensor.

If **E04 Low Heating Water Pressure Error** code lights on the display continuously,

- Check the water pressure in the CH circuit by using info menu (See Section 2.7 for details).
- Fill the system with water until pressure value reaches to 1.2 bar.
- The boiler will restart automatically. If the problem persists, call the Service Centre.

If **E46 Pressure Sensor Error** code lights on the display continuously,

Reset the system by pressing key **(1)** for 2 seconds, if the error persists call the Service Centre.

If **E47 High Heating Water Pressure Error** code lights on the display continuously,

- Check the water pressure in the CH circuit by using info menu.
- Evacuate sufficient amount of water from the system until pressure value decreases to 1.2 bar.
- The boiler will restart automatically. If the problem persists, call the Service Centre.

In order to discharge water from CH system;

1. Close domestic hot water (DHW) inlet valve under the appliance.
2. Open a HOT water tap in the kitchen or WC (Prefer closest tap to the appliance)
3. Open filling tap located under the appliance. If filling tap opens in these conditions, water in the CH system evacuates from HOT water tap. Check pressure value via info menu and decrease CH pressure to 1.2 bar.
4. When you see desired pressure value on the screen; close the hot water tap, close filling tap on the appliance and open main DHW inlet tap under the appliance.

E05 **Heating Water Flow Temperature Sensor Error**

E05 code lights on the display continuously. Call the Service Centre.

E06 **Domestic Hot Water (DHW) Temperature Sensor Error**

E06 code lights on the display continuously. Call the Service Centre.

E16 **Fan Error**

E16 code lights on the display continuously. Call the Service Centre.

E22 **Electronic Card Microprocessor Error**

E22 code lights on the display continuously. Call the Service Centre.

E31 **Remote Control Error**

E31 code lights on the display continuously. Check the battery condition and cable of the remote controller. If the error persists call the Service Centre.

E32 **Main Board Communication Error**

E32 code lights on the display continuously. Call the Service Centre.

E35 **Flame Detection Error**

E35 code lights on the display continuously. Call the Service Centre.

E62 **LCD Card Communication Error**

E62 code lights on the display continuously. Call the Service Centre.

E98 **Main Power Error**

E98 code lights on the display continuously. Call the Service Centre.

E99 **Internal Safety Error**

E99 code lights on the display continuously. Call the Service Centre.

- - - **Main Power Supply Error**

- - - lights on the display continuously. Call the Service Centre.

Note: If the boiler will not be used for a long time, user must do one of the following:

- If the combi boiler will not be used for a long time in summer (summer holiday etc.): Unplug the connection. Close the gas supply valve. Close the domestic hot water (DHW) mains inlet valve.
- If the combi boiler will not be used for a long time in winter: Leave your boiler in standby position, electrical and gas connections connected and thus freeze protection in active condition.

2.11 Automatic Control Devices (Optional)

Using one of the following automatic control devices is recommended on the purpose of comfort and fuel economy.

• Room Thermostat

You can use “room thermostat” with your boiler to maintain desired room temperature. Analog and digital models are available. These models are nonprogrammable.

• Weekly Programmable Room Thermostat

This device is used to set your boiler to run at desired time intervals and temperatures during the week.

• Wireless RF / Wired Remote Control

This device is used to set your boiler to run at desired time intervals and temperatures during the week. You can set and see all the operating modes, heating and domestic hot water temperatures and error codes of combi

boiler on remote control display. If an outside sensor is connected, you can also see outside temperature on remote control display. There are models having a cable and wireless models. In case of using with telephone interface card you can operate combi boiler from a distance by telephone.

• Smart Combi Boiler Thermostat Set

You can control your combi boiler inside your home by using your smart thermostat or you can control from anywhere in the world by using your smart phone or tablet. You can access and change instant temperature settings or time programs. For all these, it is enough to download the free application to your phone or tablet.

• Phone Control Interface Devices

These devices enable you to simply turn on/off your combi boiler by your phone. There are two models, one works with fixed lines and the other with GSM lines.

• Outside Temperature Sensor

This sensor activates boiler according to the weather conditions. It can be used either with above controller and thermostats or single.

All these automatic control devices are optional. For the safety of your boiler, contact the authorized installers or services to buy any of these options. Do not forget to ask for user manual of the device. You can get more detailed information from our web site (www.alarko-carrier.com.tr).

2.12 Automatic Operation of the Boiler In Accordance With Weather Temperature (Optional)

If you use outside sensor with your boiler, you can manage the appliance with one of below options:

- In case of “remote controller + outside sensor” use, weather compensation curve is set by the remote controller itself (see remote control installation and operating manual).
- In case of only outside sensor use, weather compensation curve is set from parameter menu of electronic card only by authorized services. Parameter settings are only done by authorized services.

While outside sensor is connected, central heating flow temperature is set between 30-85°C range in the systems including radiators. As for floor heating systems, this range is between 30-45°C. If ECO mode is active and outside sensor is used, working range is 30-50°C for the systems with radiators and 30-38°C for underfloor heating systems.

2.13 Domestic Hot Water (DHW) Pre-heating Function

Quick hot water supply is possible in Seradens Super Plus combi boilers by means of pre-heating function in DHW. This function is set active on demand by authorized service.

When this function is active; if DHW temperature falls 15°C than set value, the appliance operate at minimum capacity for a while. It stops operating while DHW temperature reaches 5°C below set value. This is enough for DHW temperature to reach set value.

It is obligatory to use room thermostat for pre-heating function's turn to come in winter and only heating modes. Otherwise, pre-heating function is never active because software always thinks as though there is always demand for heating. In summer mode, water in DHW heat exchanger is pre-heated for the next DHW need.

This feature is set closed as default due to the additional consumption it causes. This feature can be set as active only on demand and only by an authorized service.

2.14 Solar Connection Set (Optional)

By taking advantage of solar energy, it is possible to get domestic hot water more economically with Seradens Super Plus combi boilers. Only thing needed to achieve this is to connect the solar collector and hot water tank to the Solar Connection Set which can be supplied as accessory with Seradens Super Plus. There is no need for any electronic control system. Schematics of a working system is shown in Figure 3, Solar Connection Set is shown in Figure 4.

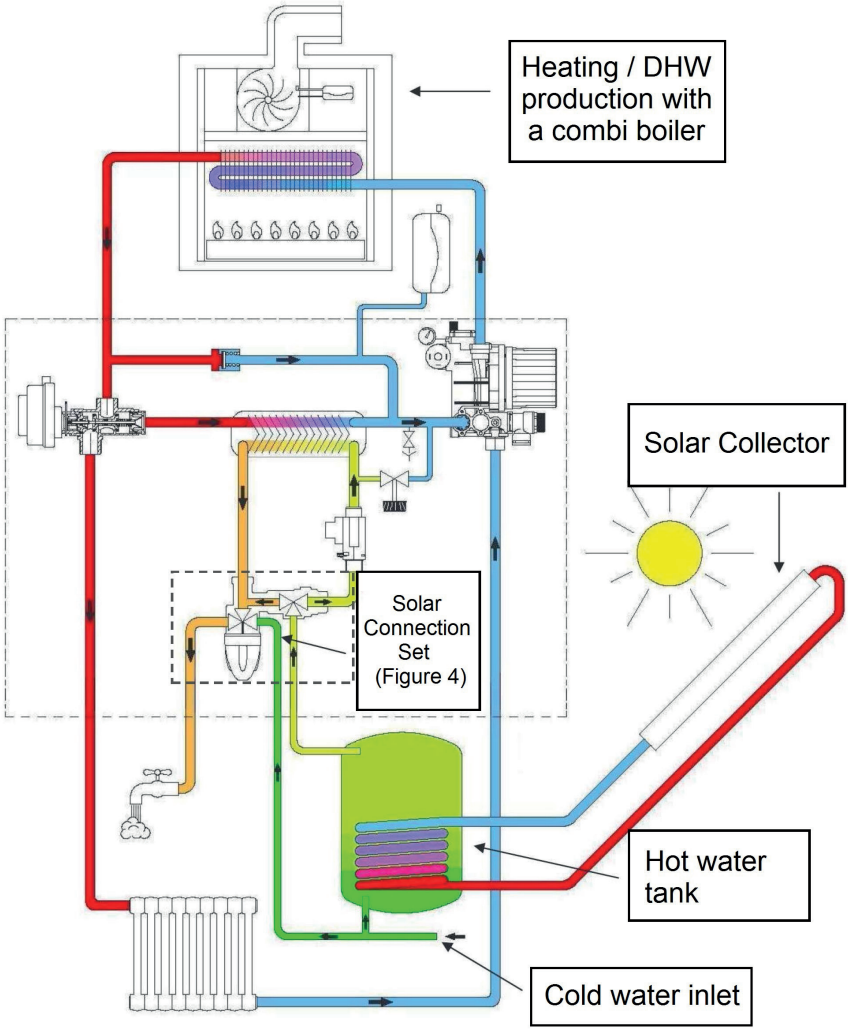


Figure 3. Solar connection set

If water temperature in the hot water tank is above 48°C, diverting valve positioned in Solar Connection Set (Figure 4) leads water directly to mixing valve. Thermostatic mixing valve mixes water with cold water and sends to the taps at fixed temperature of 40°C, this phenomenon prevents people from boiling. If water temperature in the hot water tank is below 48°C, diverting valve sends domestic hot water to the combi boiler to be heated to demanded temperature. Temperature of domestic hot water coming from combi boiler is also set before being sent to the taps. Setting temperature of thermostatic valve can be set between 25-60°C. Solar Connection Set is composed of a Solar Connection Set body and the pipes shown in Figure 4.

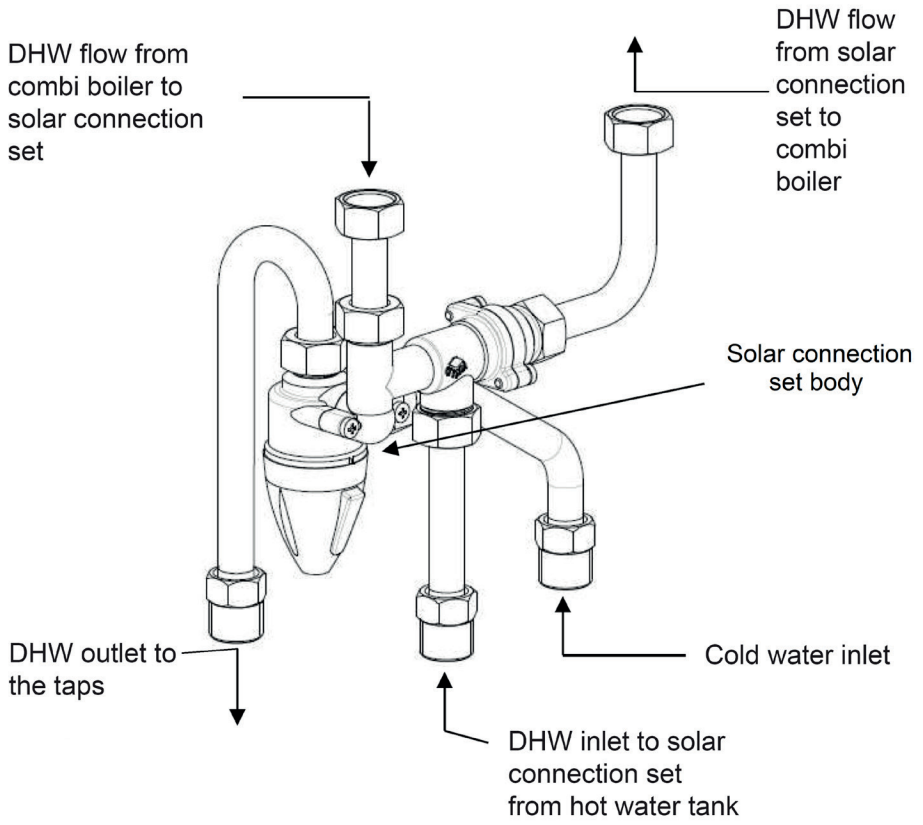


Figure 4. Solar connection set

2.15 Use with LPG

Your combi boiler can be used with LPG. The boiler must be adjusted to work with LPG by authorized service. The boiler is suitable to work with LPG bottles for only if they are connected to the boiler via a special “collector kit” manufactured by Alarko Carrier. In cold environments, the use of a heater kit is recommended for economic and safe use. In case thermostatic hot water buckets are used to heat up the LPG bottles, water temperature should not exceed 22°C.

Do not place the boiler and the LPG bottles in the same cabinet.

Use certified bottles only.

Do not shake or lay the bottles.

Only use a certified 30 mbar regulator at every bottle exits.

If you smell gas, turn the bottles off and follow the instructions in Gas Safety section.

WARNING! The boiler must be adjusted to work with LPG by the Authorized

Service.

The boiler will be out of guarantee unless 30 mbar certified regulators and the collector kit made by Alarko Carrier are used with the boiler.

3. TECHNICAL CHARACTERISTICS

3.1 Technical Data

MODEL	UNIT	SERADENS SUPER PLUS			
		SSP 20	SSP 24	SSP 28	SSP 36
CE Certficate		1312CR6123			
Appliance Category		II_{2H3P}			
Central Heating Technical Specifications					
Seasonal Space Heating Energy Efficiency Class		A	A	A	A
Seasonal Space Heating Energy Efficiency (η_s)	%	91	91	91	92
Useful Efficiency at 30% of Nominal Heat Output (η_1) (50-30°C)	%	97,3	97	97	97,6
Useful Efficiency at Nominal Heat Output (η_4) (80-60°C)	%	88	87,9	88	88
Rated Heat Output (P_{rated}) (80-60°C)	kW	20	23	27	34
Nominal Heat Output (P_4) (80-60°C)	kW	19,6	22,5	27,4	34,2
Minimum Heat Output (80-60°C)	kW	3,5	4,4	5,4	5,7
Nominal Heat Output (50-30°C)	kW	21,8	25,1	30,4	38,1
30% of Nominal Heat Output (P_1) (50-30°C)	kW	6,1	7,3	8,3	10,7
Minimum Heat Output (50-30°C)	kW	4,1	5	6,1	6,3
Auxiliary Electrical Consumption at Full Load (el_{max}) (80-60°C)	kW	0,08	0,081	0,084	0,093
Auxiliary Electrical Consumption at Part Load (el_{min}) (80-60°C)	kW	0,033	0,034	0,035	0,055
Annual Energy Consumption (Q_{HE})	GJ	36	43	52	62
Central Heating Temperature Setting Range (Min. - Max.)	°C	30 - 85 (Radiator Heating) / 30 - 45 (Underfloor Heating)			
Central Heating Operating Pressure (Min. - Max.)	bar	0,5 - 3			
Domestic Hot Water Technical Specifications					
Water Heating Energy Efficiency Class		A	A	A	A
Water Heating Energy Efficiency (η_{WH})	%	91	92	90	90
Water Heating Load Profile		XL	XL	XXL	XXL
DHW Flow Rate at ΔT:30K	lt/min	12	15	17	21
Maximum DHW Flow Rate	lt/min	12	17	17	22
Daily Electrical Power Consumption (Q_{elec})	kWh	0,191	0,173	0,181	0,176
Annual Electricity Consumption (AEC)	kWh	42	38	40	39
Daily Gas Consumption (Q_{fuel})	kWh	21	21	27	27
Annual Fuel Consumption (AFC)	GJ	16	16	21	21
DHW Temperature Setting Range (Min. - Max.)	°C	30 - 60			
DHW Operating Pressure (Min. - Max.)	bar	0,5 - 10			
General Technical Specifications					
NOx Class		6	6	6	6
Emissions of Nitrogen Oxide (NO_x)	mg/kWh	34,763	47,259	36,212	33,666
Sound Power Level, Indoors (L_{WA})	dB	39	40	40	42
Auxiliary Electrical Consumption in Standby Mode (P_{SB})	kW	0,004	0,004	0,004	0,004
Standby Heat Losses (P_{stby})	kW	0,065	0,084	0,061	0,075
Ignition Burner Energy Consumption (P_{ign})	kW	0	0	0	0
Flue Gas Temperature (50-30°C, Min. - Max.)	°C	34-52	35-44	35-48	36-48
Flue Gas Temperature (80-30°C, Max.)	°C	64	60	68	66
Gas Consumption (Natural Gas - LPG)	m^3/h - kg/h	2,01-1,19	2,39-1,51	2,68-1,83	3,48-2,27
Electrical Power Consumption	W	125	132	134	140
Physical Properties					
Flue Connection Types		B23-B33-C13-C13(x)-C33-C33(x)-C43-C43(x)-C53-C53(x) -C63-C63(x)-C83-C83(x)-C93-C93(x)			
Standard Horizontal Concentric Flue System - Max. Length	ø - m	60/100 - 6		60/100 - 5	60/100 - 8
Vertical Concentric Flue System - Max. Length	ø - m	60/100 - 6		60/100 - 5	60/100 - 8
Twin Flue System - Max. Length	ø - m	80/80 - 50			
Dimensions (Width x Height x Depth)	mm	437x640x 302	437 x 640 x 366		
Weight (Net)	kg	33	35		36
Expansion Tank Capacity	lt	8			10
Central Heating Flow - Return Diameters	ø	3/4"			
Cold Water Inlet - DHW Outlet Diameters	ø	1/2"			
Gas Inlet Diameter	ø	3/4"			
Gas Inlet Pressure (Natural Gas - LPG)	mbar	20 - 30			
Power Supply	V/Hz	230/50			
Protection Class	IP	X4D			

3.2 Product Fiche

The product data presented below complies with the requirements of EU regulations 811/2013 and 813/2013.

Models		**SSP 20**	**SSP 24**	**SSP 28**	**SSP 36**
Space heating - Temperature application		Medium	Medium	Medium	Medium
Water heating - Declared load profile		XL	XL	XXL	XXL
Seasonal space heating energy efficiency class		A	A	A	A
Water heating energy efficiency class		A	A	A	A
Rated heat output	kW	20	24	28	36
Annual fuel consumption	GJ	16	16	21	21
Annual electricity consumption	kWh	42	38	40	39
Seasonal space heating energy efficiency	%	94	93	94	94
Water heating energy efficiency	%	91	92	90	90
Sound power level L_{WA} indoors	dB	39	40	40	42

Model/s:			**SSP 20**				
Condensing Boiler/s:			Yes				
Low Temperature (**) Boiler/s:			No				
B11 Boiler/s:			No				
Cogeneration Space Heater:			No	**Equipped with a supplementary heating system:**			No
Combination Heater:			Yes				
Item	**Symbol**	**Value**	**Unit**	**Item**	**Symbol**	**Value**	**Unit**
Nominal heat output	**P_{rated}**	**20**	**kW**	Seasonal space heating energy efficiency	**η_s**	**93,760**	**%**
				Energy efficiency class		A	
For boiler space heaters and boiler combination heaters: Useful heat output				*For boiler space heaters and boiler combination heaters: Useful efficiency*			
At nominal heat output and high-temperature regime (*)	P_4	19,553	kW	At nominal heat output and high-temperature regime (*)	η_4	88,034	%
At 30% of nominal heat output and low-temperature regime (**)	P_1	1,967	kW	At 30% of nominal heat output and low-temperature regime (**)	η_1	98,419	%
Auxiliary electricity consumption				*Other items*			
At full load	el_{max}	0,080	kW	Standby heat losses	P_{stby}	0,065	kW
At part load	el_{min}	0,034	kW	Ignition burner energy consumption	P_{ign}	2,952	kW
In standby mode	P_{SB}	0,004	kW	Sound power level, indoors	L_{WA}	39	dB
For boiler combination heaters:							
Declared load profile:	**XL**			**Domestic hot water production efficiency**	**η_{WH}**	**91,254**	**%**
				Energy efficiency class		A	
Daily electrical power consumption	Q_{elec}	0,191	kWh	Daily gas consumption	Q_{fuel}	20,824	kWh
Annual electricity consumption	AEC	41,958	kWh	Annual fuel consumption	AFC	16,493	GJ
Contact information	ALARKO CARRIER SAN. TİC. A.Ş., GOSB - Gebze O.S.B., Şahabettin Bilgisu Cad., 41400, Gebze/Kocaeli/Turkey						

(*) High temperature regime means 60 °C on return and 80 °C on flow.

(**) Low temperature regime means 30 °C for condensing boilers, 37 °C for low-temperature boilers and 50 °C for for other appliances on return temperature.

Model/s:			SSP 24				
Condensing Boiler/s:			Yes				
Low Temperature (**) Boiler/s:			No				
B11 Boiler/s:			No				
Cogeneration Space Heater:			No	Equipped with a supplementary heating system:			No
Combination Heater:			Yes				
Item	**Symbol**	**Value**	**Unit**	**Item**	**Symbol**	**Value**	**Unit**
Nominal heat output	P_{rated}	24	kW	Seasonal space heating energy efficiency	η_s	93,099	%
				Energy efficiency class		A	
For boiler space heaters and boiler combination heaters: Useful heat output				*For boiler space heaters and boiler combination heaters: Useful efficiency*			
At nominal heat output and high-temperature regime (*)	P_4	22,449	kW	At nominal heat output and high-temperature regime (*)	η_4	87,890	%
At 30% of nominal heat output and low-temperature regime (**)	P_1	2,278	kW	At 30% of nominal heat output and low-temperature regime (**)	η_1	97,666	%
Auxiliary electricity consumption				*Other items*			
At full load	el_{max}	0,081	kW	Standby heat losses	P_{stby}	0,084	kW
At part load	el_{min}	0,038	kW	Ignition burner energy consumption	P_{ign}	3,358	kW
In standby mode	P_{SB}	0,004	kW	Sound power level, indoors	L_{WA}	40	dB
For boiler combination heaters:							
Declared load profile:	**XL**			**Domestic hot water production efficiency**	η_{WH}	**91,717**	%
				Energy efficiency class		A	
Daily electrical power consumption	Q_{elec}	0,173	kWh	Daily gas consumption	Q_{fuel}	20,746	kWh
Annual electricity consumption	AEC	37,989	kWh	Annual fuel consumption	AFC	16,431	GJ
Contact information	ALARKO CARRIER SAN. TİC. A.Ş., GOSB - Gebze O.S.B., Şahabettin Bilgisu Cad., 41400, Gebze/Kocaeli/Turkey						

(*) High temperature regime means 60 °C on return and 80 °C on flow.

(**) Low temperature regime means 30 °C for condensing boilers, 37 °C for low-temperature boilers and 50 °C for for other appliances on return temperature.

Model/s:			SSP 28				
Condensing Boiler/s:			Yes				
Low Temperature (**) Boiler/s:			No				
B11 Boiler/s:			No				
Cogeneration Space Heater:			No	Equipped with a supplementary heating system:			No
Combination Heater:			Yes				
Item	**Symbol**	**Value**	**Unit**	**Item**	**Symbol**	**Value**	**Unit**
Nominal heat output	P_{rated}	28	kW	Seasonal space heating energy efficiency	η_s	93,789	%
				Energy efficiency class		A	
For boiler space heaters and boiler combination heaters: Useful heat output				*For boiler space heaters and boiler combination heaters: Useful efficiency*			
At nominal heat output and high-temperature regime (*)	P_4	27,354	kW	At nominal heat output and high-temperature regime (*)	η_4	87,971	%
At 30% of nominal heat output and low-temperature regime (**)	P_1	2,755	kW	At 30% of nominal heat output and low-temperature regime (**)	η_1	98,435	%
Auxiliary electricity consumption				*Other items*			
At full load	el_{max}	0,084	kW	Standby heat losses	P_{stby}	0,061	kW
At part load	el_{min}	0,036	kW	Ignition burner energy consumption	P_{ign}	3,081	kW
In standby mode	P_{SB}	0,004	kW	Sound power level, indoors	L_{WA}	40	dB
For boiler combination heaters:							
Declared load profile:	**XXL**			**Domestic hot water production efficiency**	η_{WH}	**90,309**	%
				Energy efficiency class		A	
Daily electrical power consumption	Q_{elec}	0,181	kWh	Daily gas consumption	Q_{fuel}	26,711	kWh
Annual electricity consumption	AEC	39,761	kWh	Annual fuel consumption	AFC	21,155	GJ
Contact information	ALARKO CARRIER SAN. TİC. A.Ş., GOSB - Gebze O.S.B., Şahabettin Bilgisu Cad., 41400, Gebze/Kocaeli/Turkey						

(*) High temperature regime means 60 °C on return and 80 °C on flow.

(**) Low temperature regime means 30 °C for condensing boilers, 37 °C for low-temperature boilers and 50 °C for for other appliances on return temperature.

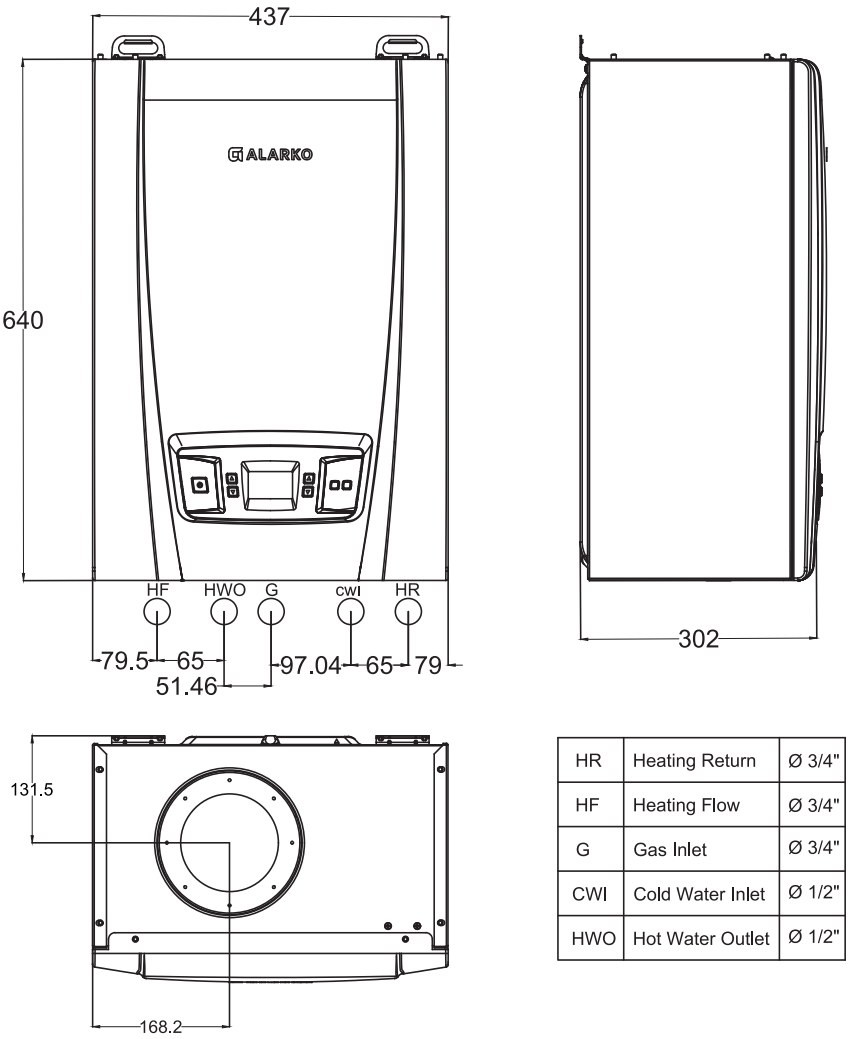
Model/s:			SSP 36				
Condensing Boiler/s:			Yes				
Low Temperature (**) Boiler/s:			No				
B11 Boiler/s:			No				
Cogeneration Space Heater:			No	Equipped with a supplementary heating system:			No
Combination Heater:			Yes				
Item	**Symbol**	**Value**	**Unit**	**Item**	**Symbol**	**Value**	**Unit**
Nominal heat output	P_{rated}	36	kW	Seasonal space heating energy efficiency	η_s	93,512	%
				Energy efficiency class		A	
For boiler space heaters and boiler combination heaters: Useful heat output				*For boiler space heaters and boiler combination heaters: Useful efficiency*			
At nominal heat output and high-temperature regime (*)	P_4	34,187	kW	At nominal heat output and high-temperature regime (*)	η_4	87,957	%
At 30% of nominal heat output and low-temperature regime (**)	P_1	3,269	kW	At 30% of nominal heat output and low-temperature regime (**)	η_1	98,110	%
Auxiliary electricity consumption				*Other items*			
At full load	el_{max}	0,093	kW	Standby heat losses	P_{stby}	0,075	kW
At part load	el_{min}	0,040	kW	Ignition burner energy consumption	P_{ign}	3,944	kW
In standby mode	P_{SB}	0,004	kW	Sound power level, indoors	L_{WA}	42	dB
For boiler combination heaters:							
Declared load profile:	**XXL**			**Domestic hot water production efficiency**	η_{WH}	**89,718**	%
				Energy efficiency class		A	
Daily electrical power consumption	Q_{elec}	0,176	kWh	Daily gas consumption	Q_{fuel}	26,902	kWh
Annual electricity consumption	AEC	38,676	kWh	Annual fuel consumption	AFC	21,306	GJ
Contact information	ALARKO CARRIER SAN. TİC. A.Ş., GOSB - Gebze O.S.B., Şahabettin Bilgisu Cad., 41400, Gebze/Kocaeli/Turkey						

(*) High temperature regime means 60 °C on return and 80 °C on flow.

(**) Low temperature regime means 30 °C for condensing boilers, 37 °C for low-temperature boilers and 50 °C for for other appliances on return temperature.

3.4 Dimensions

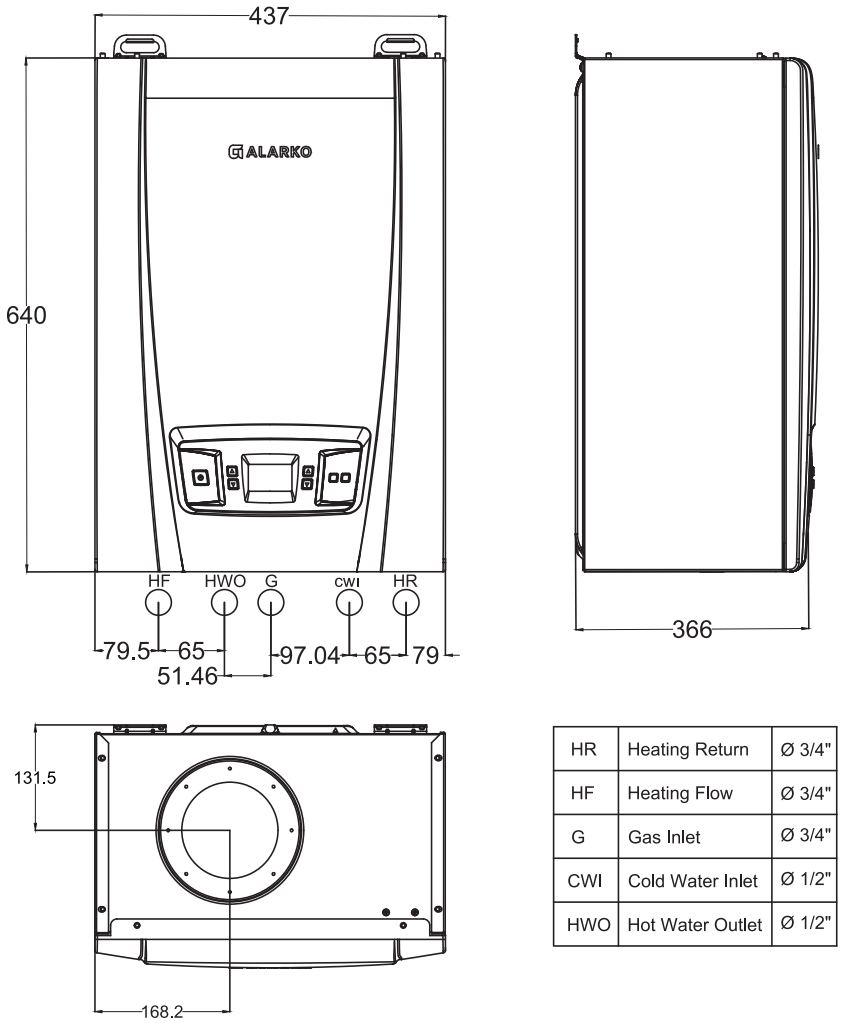
SSP 20



HR	Heating Return	Ø 3/4"
HF	Heating Flow	Ø 3/4"
G	Gas Inlet	Ø 3/4"
CWI	Cold Water Inlet	Ø 1/2"
HWO	Hot Water Outlet	Ø 1/2"

Figure 5. SSP 20 dimensions

SSP 24/28/36



HR	Heating Return	Ø 3/4"
HF	Heating Flow	Ø 3/4"
G	Gas Inlet	Ø 3/4"
CWI	Cold Water Inlet	Ø 1/2"
HWO	Hot Water Outlet	Ø 1/2"

Figure 6. SSP 24/28/36 dimensions

3.5 Internal Parts of Boiler

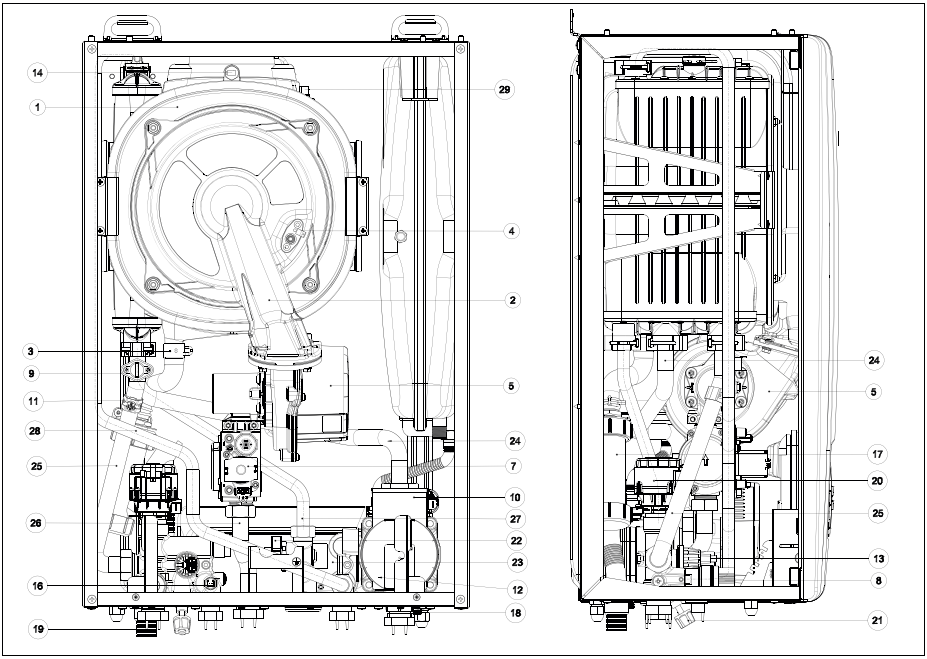


Figure 7. Main parts of the boiler

1. MAIN CONDENSING HEAT EXCHANGER
2. PREMIX BURNER UNIT (GAS MANİFOLD + BURNER)
3. SIPHON INLET PIPE
4. IONIZATION AND IGNITION ELECTRODE
5. FAN
6. VENTURI
7. ELECTRONIC GAS VALVE
8. 3 BAR PRESSURE SAFETY VALVE
9. LIMIT THERMOSTAT
10. AUTOMATIC AIR VENT
11. HEATİNG WATER FLOW TEMPERATURE SENSOR
12. PUMP
13. PRESSURE SENSOR
14. FLUE FUSE
15. EXPANSION TANK
16. DOMESTIC HOT WATER (DHW) TEMPERATURE SENSOR
17. SIPHON
18. DRAINAGE TAP
19. CONDENSATE DRAIN PIPE
20. 3 WAY VALVE MOTOR
21. WATER FILLING TAP
22. ELECTRONIC FLOW SENSOR
23. DOMESTIC HOT WATER (DHW) PLATE EXCHANGER
24. HEATING RETURN PIPE
25. HEATING FLOW PIPE
26. GAS INLET PIPE
27. DHW PRE-HEATING INLET PIPE
28. DHW PRE-HEATING OUTLET PIPE
29. HEAT EXCHANGER SENSOR

3.6 Water Circuit

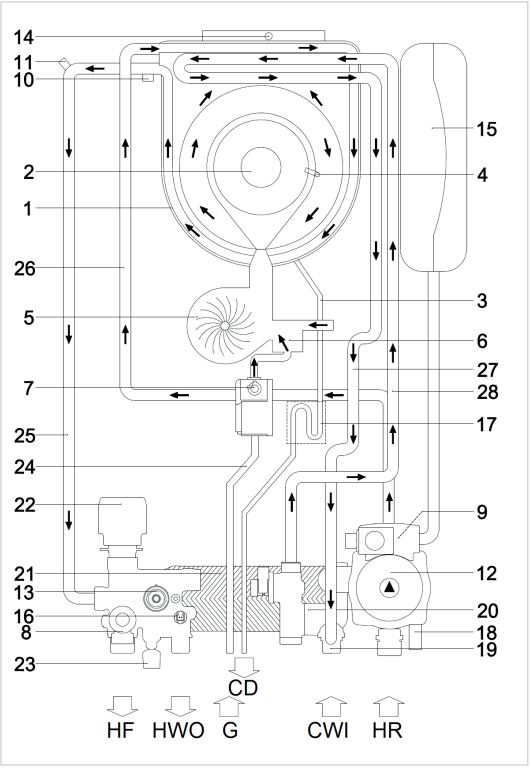


Figure 8. Water circuit schematic diagram

HR	HEATING RETURN
HF	HEATING FLOW
G	GAS
CWI	COLD WATER INLET
HWO	HOT WATER OUTLET
CD	CONDENSATE DRAIN

1. MAIN CONDENSING HEAT EXCHANGER
2. PREMIX BURNER UNIT (GAS MANIFOLD + BURNER)
3. CONDENSATE DRAINAGE PIPE
4. IONIZATION AND INGITION ELECTRODE
5. FAN
6. VENTURI
7. ELECTRONIC GAS VALVE
8. 3 BAR PRESSURE SAFETY VALVE
9. AUTOMATIC AIR VENT
10. LIMIT THERMOSTAT
11. HEATING WATER FLOW TEMPERATURE SENSOR
12. PUMP
13. PRESSURE SENSOR
14. FLUE FUSE
15. EXPANSION TANK
16. DOMESTIC HOT WATER (DHW) TEMPERATURE SENSOR
17. SIPHON
18. DRAINAGE TAP
19. FLOW LIMITER
20. ELECTRONIC FLOW SENSOR
21. DOMESTIC HOT WATER (DHW) PLATE EXCHANGER
22. 3 WAY VALVE MOTOR
23. WATER FILLING TAP
24. GAS INLET PIPE
25. HEATING FLOW PIPE
26. HEATING RETURN PIPE
27. DHW PRE-HEATING INLET PIPE
28. DHW PRE-HEATING OUTLET PIPE

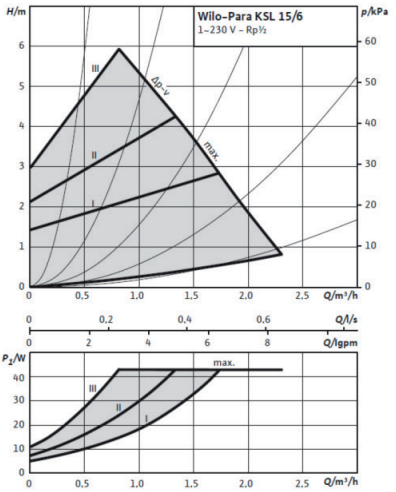
3.7 Circulation Pump

High efficiency and ErP ready (EEI≤ 0,23) circulation pumps are used on SRS condensing boilers. Control mode and delivery head (differential pressure) are adjustable. EEI value of this modulating circulation pump is ≤ 0,20.

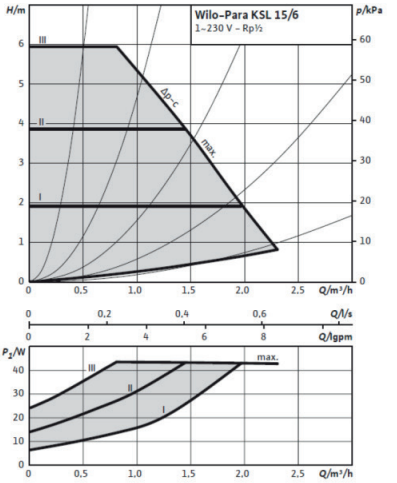
Circulation Pump Performance Chart

SSP 20/24/28

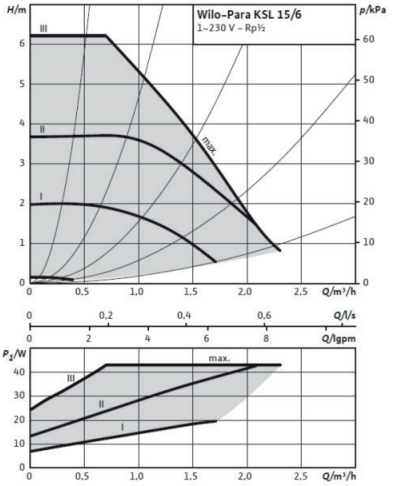
Vairable Differential Pressure Curve (Curve 1)



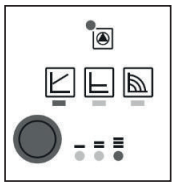
Constant Differential Pressure Curve (Curve 2)



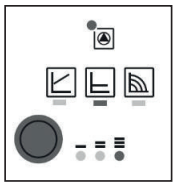
Constant Speed (3-Stages) Curve (Curve 3)



Curve 1 setting



Curve 2 setting



Curve 3 setting

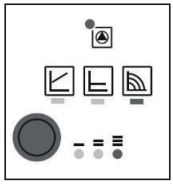
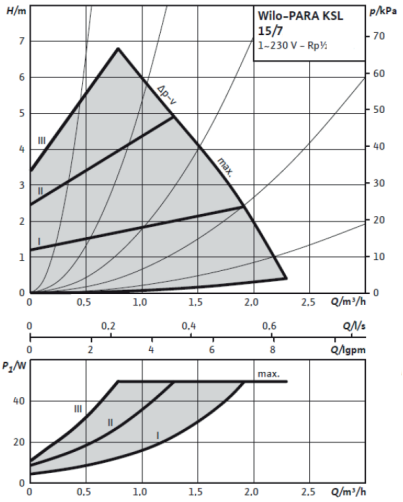


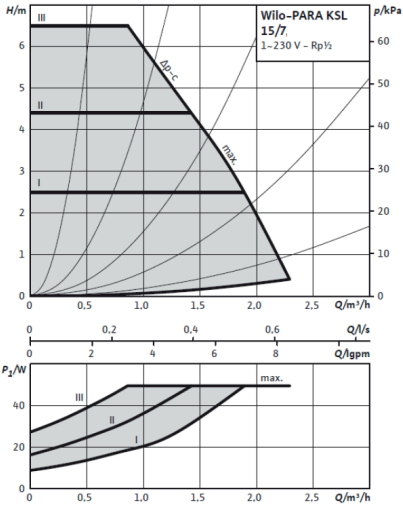
Figure 9. SSP 20/24/28 pump performance chart.

SSP 36

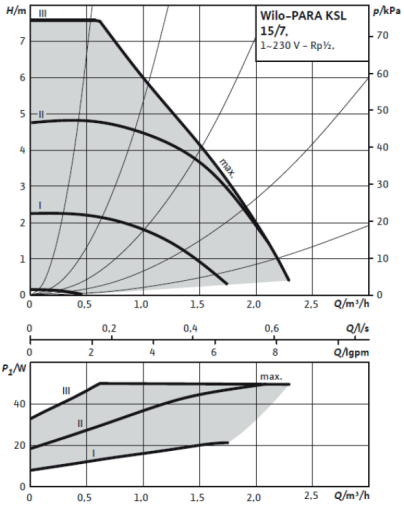
Vairable Differential Pressure Curve (Curve 1)



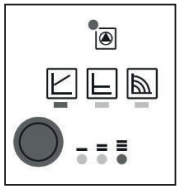
Constant Differential Pressure Curve (Curve 2)



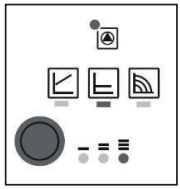
Constant Speed (3-Stages) Curve (Curve 3)



Curve 1 setting



Curve 2 setting



Curve 3 setting

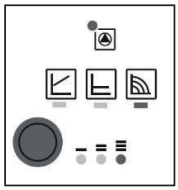


Figure 10. SSP 36 pump performance chart.

3.8 Electronic Ignition and Control Board – MIAB 3005

Technical Characteristics

Below interventions which necessitate any adjustment/selection is only interfered by service personnel.

- User info menu
- Continuous flame modulation during CH and DHW cycles
- Compatible both for radiator and underfloor heating systems thanks to the standard (30/85°C) or reduced (30/45°C) central heating temperature selection
- Initial power increase time (ramp time) in CH cycle
- Activation delay period setting on CH cycle
- Anti-freeze function on CH and DHW cycles
- Chimney sweeper function
- Timed pump overrun function on CH and DHW cycles (CH,CH antifreeze, DHW, DHW antifreeze, chimney sweeper cycles)
- Parameters programming function
- External temperature compensation function (if outside sensor is used)
- Circulation pump anti-locking function
- 3 way diverting valve anti-locking function
- Remote controller communication channel (Opentherm protocol)
- Automatic flame control system
- Domestic hot water pre-heating function
- Gas type selection
- Economy (ECO) mode
- Service info menu
- Demo mode (on the purpose of demonstration on showrooms)
- Central heating circuit low water pressure protection
- Central heating circuit high water pressure protection (two stepped)
- Failure reporting with error codes.

User settings

- Summer / Winter / Only Heating / Off
- Activating/deactivating Economy (ECO) mode feature
- CH temperature setting between 30-85°C (standard regime) or between 30-45°C (reduced regime)
- DHW temperature setting between 30-60°C.

Basic Symbols on LCD Display

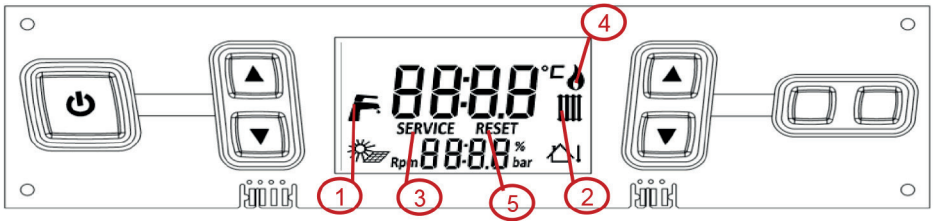


Figure 11. LCD display

Icon 1: DHW mode enabled (Icon 1 blinks when domestic hot water is in use)

Icon 2: CH mode enabled (Icon 2 blinks when central heating and pump is in use)

Icon 3: Icon 3 lights while parameter and service info menu is used

Icon 4: Icon 4 lights when flame exists in system.

Icon 5: Reset

When the boiler is switched off at the switch on the control panel, the word OFF appears on the display. The DHW and central heating frost protection system, nevertheless, remain enabled. If the boiler was previously on, it is switched off and the post-ventilation, pump overrun, circulation pump and three-way valve inactivity protection functions are enabled.

The remote control, where fitted, remains active and illuminated.

4. INSTALLATION

4.1 Reference Standards

This appliance meets the requirements of:

- EN 15502-1:2021: GAS FIRED HEATING BOILERS – PART 1: GENERAL REQUIREMENTS AND TESTS.
- EN 15502-2-1:2022: GAS-FIRED CENTRAL HEATING BOILERS - PART 2-1: SPECIFIC STANDARD FOR TYPE C APPLIANCES AND TYPE B2, B3 AND B5 APPLIANCES OF A NOMINAL HEAT INPUT NOT EXCEEDING 1000 kW.
- EN 60335-1, HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES -

SAFETY - PART 1: GENERAL REQUIREMENTS.

- EN 60335-2-102, HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES - SAFETY - PART 2-102: PARTICULAR REQUIREMENTS FOR GAS, OIL AND SOLID-FUEL BURNING APPLIANCES HAVING ELECTRICAL CONNECTIONS.

- EN 13203-2, GAS-FIRED DOMESTIC APPLIANCES PRODUCING HOT WATER - PART 2: ASSESSMENT OF ENERGY CONSUMPTION.

IPX4D – CLASSIFICATION FOR ELECTRICAL DEVICES

Gas fired boilers also comply with the following directives and regulations:

2016/426/EU, REGULATION ON APPLIANCES BURNING GASEOUS FUELS,

92/42/EEC, BOILER EFFICIENCY DIRECTIVE

2014/35/EU, LOW VOLTAGE DIRECTIVE

Electromagnetic compatibility tests of combi boilers were performed according to the following standards:

- EN 55014-1: ELECTROMAGNETIC COMPATIBILITY - REQUIREMENTS FOR HOUSEHOLD APPLIANCES, ELECTRIC TOOLS AND SIMILAR APPARATUS - PART 1: EMISSION

- EN 55014-2: ELECTROMAGNETIC COMPATIBILITY - REQUIREMENTS FOR HOUSEHOLD APPLIANCES, ELECTRIC TOOLS AND SIMILAR APPARATUS PART 2: IMMUNITY - PRODUCT FAMILY STANDARD

- EN 61000-3-2: ELECTROMAGNETIC COMPATIBILITY (EMC) - PART 3-2: LIMITS - LIMITS FOR HARMONIC CURRENT EMISSIONS (EQUIPMENT INPUT CURRENT LESS THAN OR EQUAL TO 16 A PER PHASE)

- EN 61000-3-3: ELECTROMAGNETIC COMPATIBILITY (EMC) – PART 3-3: LIMITS – LIMITATION OF VOLTAGE CHANGES, VOLTAGE FLUCTUATIONS AND FLICKER IN PUBLIC LOW-VOLTAGE SUPPLY SYSTEMS, FOR EQUIPMENT WITH RATED CURRENT ≤ 16 A PER PHASE AND NOT SUBJECT TO CONDITIONAL CONNECTION

Current gas safety regulations state that all gas appliances must be installed by a competent person in accordance with the regulations and rules in force in the countries of destination.

These appliances must be installed in accordance with relevant national and local rules and regulations in force. The manufacturer's instructions must not be taken, in any way, as overriding to statutory obligations.

To ensure that the installation will perform to the highest standards, the system and components should also conform to any relevant national and/or local standards in addition to those mentioned in the instructions.

4.2 Boiler Location

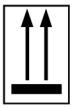
This appliance may be installed in any room provided that attention is drawn to the requirements of the relevant national and local rules, standards and regulations in force in the countries of destination.

4.3 Packaging and Transportation

The boiler is packaged in a cardboard box. Warning signs are to be observed during transport and storing.



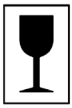
Do not step on the box.



When the boxes are placed on the floor, arrows should point upwards.



Maximum four boxes can be placed on top of each other.



Do not drop the box.



Do not let the box get soaked.

Figure 12

- The boiler can be carried by two people by uplifting it through the two holes on both sides.
- The boiler should be stored in a place free of dust and moisture and should not be taken out of its package until it is to be installed.
- When stored, maximum four boxes can be placed on top of each other.
- Boilers can be installed following the completion of water and electric systems.

Opening the Package

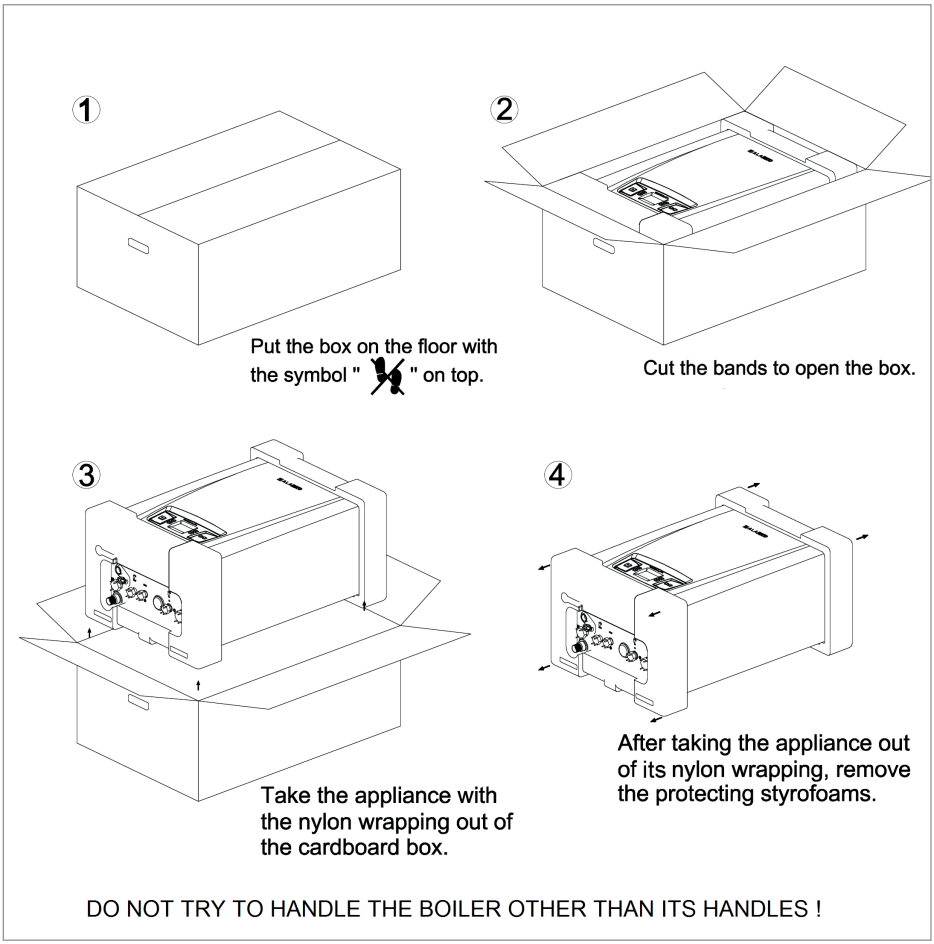
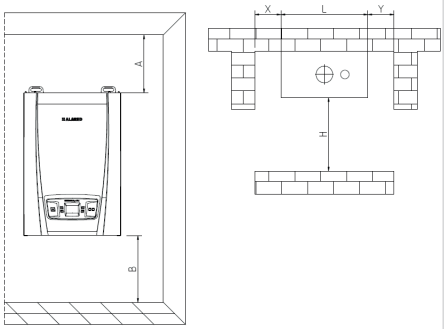


Figure 13. Opening the package

4.4 Installation of the Boiler

- The appliance must be installed exclusively on a flat vertical solid wall capable of supporting its weight.
- The boiler should be fitted within the building unless protected by a suitable enclosure in an open area such as garage, balcony.

  In this manner, the boiler can be fitted inside a cupboard. Contact Alarko Carrier for proper cupboard dimensions.
- If the boiler is sited in an unheated enclosure then it is recommended to leave the power on to give frost protection. Frost protection is active even if the appliance is in OFF position.



Unit of measurement in the table is mm.

X	Y	L	H	A	B
60	60	437	1000	200	300

Figure 14. Minimum installation clearances

- If the boiler is installed in a room containing a bath or shower, reference must be made to the national standards and local requirements.

  In order to allow access to the interior of the boiler for maintenance purposes, it is important that the necessary clearances indicated in Figure 14 are respected.

  For mounting the appliance, it is required to follow the below instructions (Figure 15). Determine the right position for the boiler with respect to the required clearances for servicing and the position of the flue.

  Firstly, mark the fitting points on the wall by means of mounting template located in packaging box and a spirit level (Figure 15 – Step 1). Mount the L screws together with wall plugs from the marked points. Finally, hang the boiler from L screws (Figure 15 – Step 2).

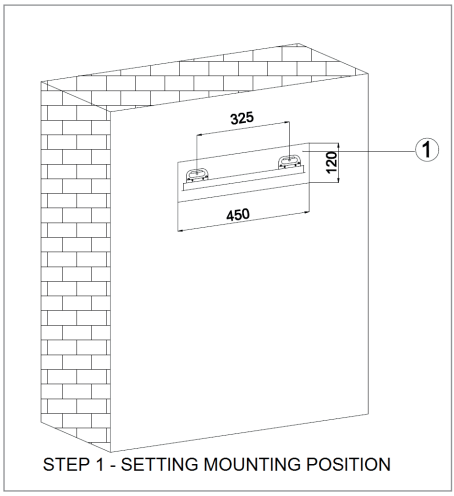


Figure 15. Mounting instructions

No	Part name	Pieces	Note
1	Template	1	To be used as guide.
2	Wall plug	2	-
3	L screw	2	

4.5 Water Connections

⚠ **In order to safeguard the heat exchanger and circulation pump, especially in case of boiler replacement, it is recommended that the system is hot-flushed to remove any impurities (especially oil and grease) from the pipes and radiators.**

⚠ **Make sure that the domestic water and central heating pipes are not used to earth the electrical system. The pipes are totally unsuitable for this purpose.**

⚠ **Isolation valves must be installed on the Heating and DHW circuits. This will facilitate all maintenance and service operations where boiler needs to be drained.**

⚠ **The fitting placed under pump (Figure 16-A and Figure 16-B – see Detail A) must be tightened with torque of maximum 18 Nm in case of rubber gasket use. This value is 30 Nm in case of cylinder head gasket use.**

- To prevent vibration and noise coming from the system do not use pipes of reduced diameter, short radius elbows or severe reductions in the cross sections of the water passages.

Domestic hot water circuit

- In order to prevent scaling and eventual damage to DHW heat exchanger, the mains water supply must not have a hardness rating of more than 17,5 French hardness. It is nevertheless advisable to check the properties of the water supply and install the appropriate treatment devices where necessary.

The cold water supply pressure at the inlet to the boiler must be between 0.5 and 10 bar.

In areas with higher water inlet pressure, a pressure reducing valve must be fitted before the boiler.

The frequency of the heat exchanger coil cleaning depends on the hardness of the mains water supply and the presence of residual solids or impurities, which are often present in the case of a new installation.

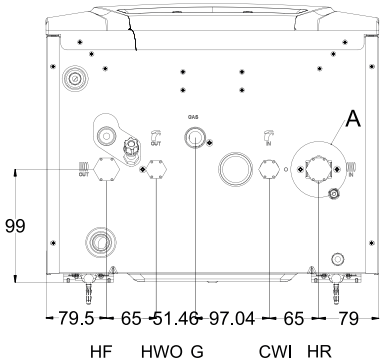


Figure 16-A. Water connections SSP 20

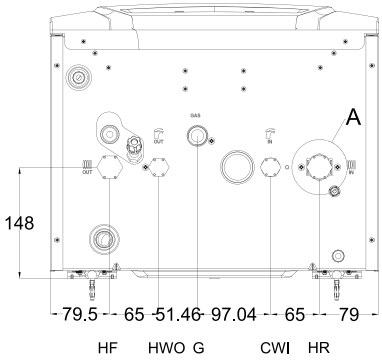


Figure 16-B. Water connections SSP 24/28/36

If the characteristics of the mains water supply are such that require it to be treated, then the appropriate treatment devices must be installed, while in the case of residues, an in-line filter should be sufficient.

All DHW circuits, connections, fittings, etc. should be fully in accordance with relevant standards and water supply regulations.

Central Heating Circuit

In order to prevent scaling or deposits in the main heat exchanger, the mains supply water to the Heating circuit must be treated according to the requirements of local standards. This treatment is indispensable in the case where the circuit is frequently topped-up or when the system is often either partially or fully drained.

The outlet connection of the boiler safety valve must be connected to a discharge trap. The manufacturer will not be held responsible for flooding caused by the operation of the safety valve in the case of system overpressure.

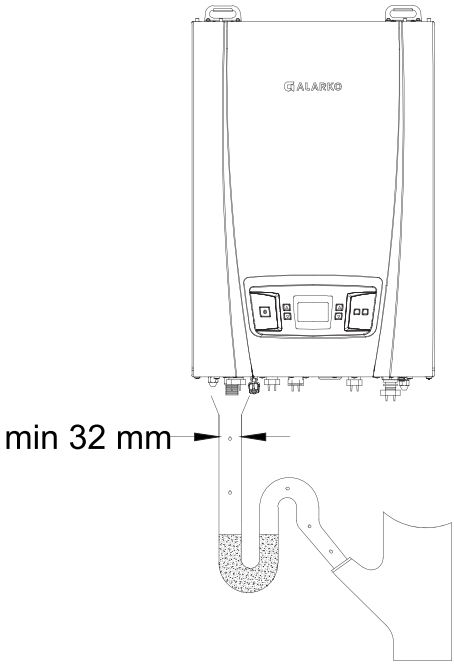


Figure 17. Drain pipe and connection to sewage drain

Condensate Drain

The condensate drain flexible pipe supplied with the boiler is connected to the siphon. The condensate discharge into the drainage system is allowed by means of siphon. Condensate drain pipe must be connected to sewage drain as open connection at boiler side to prevent interruption in flow and as including U form in pipe to prevent smelling. Diameter of plastic connecting pipe must be minimum 32 mm (Figure 17).

Any condensate drain pipe work external to the building (or in an unheated part of it) must be insulated to protect against frost. If condensate water is connected to the rain water drain pipes, there is a risk of freezing. Before switching the boiler On, check the correct condensate drain.

4.6 Appropriate Central Heating Pipes

For combi boiler not to be affected from electro cell, plumbing mud and biocide (green colored bacterium which originates in water), use of oxygen barrier pipes in accordance with DIN 4726 (a pipe having oxygen diffusion value lower than 0.1 g/m3.day at 40°C) is highly recommended.

ATTENTION!

Every covered underfloor heating pipe is not oxygen barrier pipe.

Systems Which Have Plastic Pipes without Oxygen Barrier

- These systems are not recommended to use.
- In case of use, plumbing mud can be formed in boiler and system due to the oxygen absorption to the pipes. This condition may cause the heat exchanger to be obstructed. Moreover, it may also lead to electro cell formation (cell effect) due to the change in water characteristics (especially PH value), and finally heat exchanger may be punctured.
- To prohibit above consequences, inhibitors (additives) must be added to piping water (Sentinel X 100 etc.).

Underfloor Heating Systems without Oxygen Barrier

- These systems are not recommended to use.
- In case of use, oxygen absorption to underfloor heating system may happen and green colored biocide bacterium may propagate and accumulate as colony at low water temperature. This condition causes change in water characteristics and increase its viscosity, and finally heat exchanger and pump obstructions may occur.
- To prohibit above consequences, biocide and electro cell preventive inhibitors (additives) must be added to piping water (Sentinel X700+X100 etc.).

Piping System Obstructions

- Piping system obstructions are generally encountered just after commissioning at old systems with iron pipes.
- In case of encountering piping system obstructions, inhibitors must be added to piping water (Sentinel X 400 etc.).

4.7 Gas Connection

The connection to the gas supply must be carried out by professionally qualified personnel in accordance with relevant standards.

When connecting the boiler to the gas supply pipe, only use appropriate washers and gas fittings.

Before installing the boiler, check the following:

- The pipe work must have a section appropriate for the flow rates requested and the pipe lengths installed, and must be fitted with all the safety and control devices provided for by current standards.

- The gas supply line must have an uninterrupted supply from meter to boiler and comply with current standards and regulations.
- Check the internal and external seals of the gas supply system.
- A gas shut-off valve must be installed upstream of the appliance.
- Before starting up the boiler, make sure that the type of gas corresponds to that for which the appliance has been set-up (see gas type label inside the boiler).
- The gas supply pressure must be between the values reported on the rating plate (see gas type label inside the boiler).
- Prior to installation, it is good practice to ensure that there are no machining residues on the gas supply pipe.
- Conversion of the appliance from natural gas to LPG or vice versa must be carried out by qualified personnel.

4.8 Electrical Connections

⚠ **The connection to the mains power supply must be carried out by professionally qualified personnel, registered in accordance with current legislation and authorized by Alarko Carrier.**

⚠ **Always check to make sure that the appliance has an efficient earth system. This requirement is only satisfied if it has been properly connected to an efficient earth system installed in accordance with the requirements of current safety standards and carried out by professionally qualified personnel. This basic safety measure must be checked, verified and carried out by professionally qualified personnel.**

In case of doubt, have the electrical system checked by a qualified electrician. The manufacturer will not be held liable for any damage or injury caused as a result of an inefficient or inexistent earth system.

- The boiler functions with an alternating current of 230 V and 50 Hz and has maximum power absorption of 125/132/134/140 Watt for SSP 20/24/28/36 in sequence. The appliance should be protected by a 3 A fuse. Make sure that the positions of the live and neutral wires correspond to the wiring diagram.
- Ensure the domestic power supply is checked by a qualified electrician to ensure that it can support the maximum power absorption of the appliance, as indicated on the rating plate. In particular, make sure that the cable sizes are adequate for the power absorbed by the appliance.

- The power supply cable must not be replaced by the user. if the cable is damaged in any way, switch off the appliance and have the cable replaced by a suitably qualified electrician.
- When replacing the power supply cable, only use cables of the same characteristics.

When using an electrical appliance, a few fundamental rules must be observed:

- Do not touch the appliance with damp or wet parts of the body or when barefoot.
- Do not pull on the electric wires.
- Do not leave the appliance exposed to atmospheric elements (rain, sun, etc.) unless these conditions have been expressly provided for.
- Do not allow the appliance to be used by children or anyone unfamiliar with its operation.

Outside Sensor, Remote Control, Room Thermostat Connections

Outside sensor, remote control and room thermostat cables must be connected to terminal board. These cables must be taken into the boiler after passing through PG7 cable gland positioned bottom side of the boiler. The position of this cable gland is shown in Figure 18.

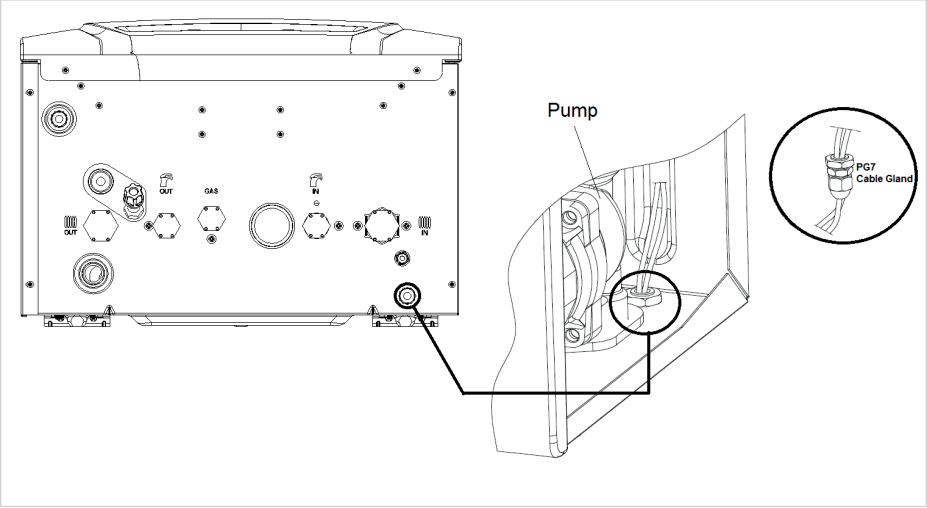


Figure 18. Cable grand and its location for outside sensor, remote control and room thermostat cables

Make outside sensor, remote control and room thermostat connections to terminal board as follows:

a. Switch off the power supply at the main switch.

b. Remove the front case panel of the boiler.

c. Slacken the screws and remove the protective cover positioned right-bottom part of the plastic panel (see detail A in Figure 19).

d. With the cover removed, connect remote control, room thermostat and outside sensor wires as shown in Figure 19 detail A.

   Note: Room thermostat is in bridged condition as factory setting. If room thermostat will not be used, certainly it must be left as bridged.

e. When the wires have been connected, place the protective cover and then front case panel again.

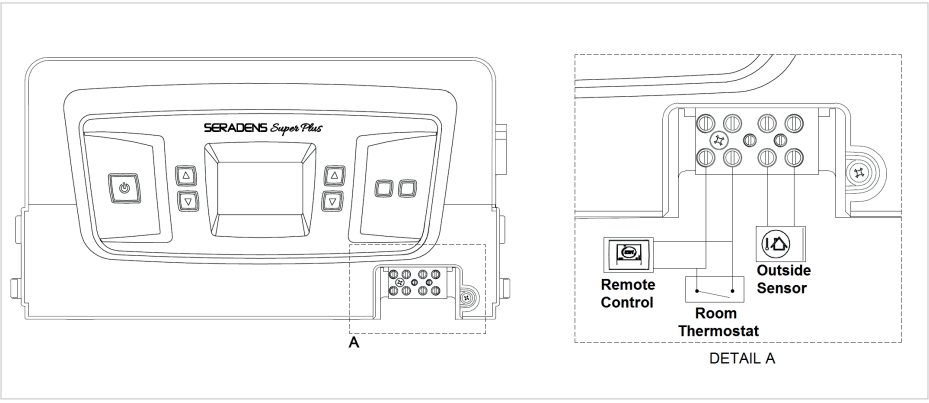


Figure 19. Electrical connections

4.9 Flue Connections

⚠ **In order to ensure that the appliance functions correctly and efficiently, the flue connection between the boiler and the flue terminal must be made using original components specifically designed for condensing boilers.**

⚠ **Traditional flue components cannot be used for conveying exhaust fumes from condensing boilers, nor vice versa.**

- Below suggestions must be taken into consideration for flue installation:

- Horizontal air intake pipes must slope downwards by 3° at the wall towards atmosphere to prevent the entry of rain water, dust or impurities to the pipe. For horizontal flue gas pipes, situation is different. Flue gas pipes must slope upwards by 3° to facilitate the flow of condensate water in flue back to combustion chamber, to prevent the stalactite formation by freezing in winter and the risk of drop and hurting to walking people (Figure 20). In case of horizontal concentric flues, flue gas pipe (inner pipe) must slope upwards whereas air intake pipe (outer pipe) must slope downwards. Horizontal concentric flue set must be installed parallel to floor. After installation horizontally, flue gas pipe stands slopped upwards by itself as a result of special design (Figure 21).

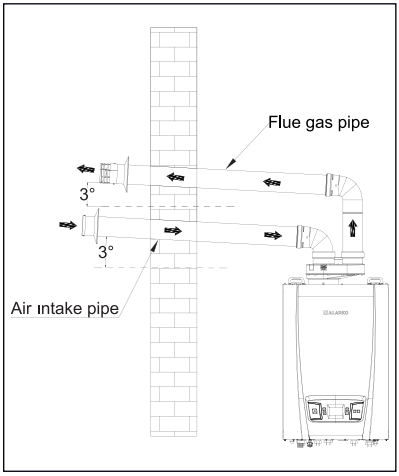


Figure 20. Angles of air ıntake and flue gas pipes

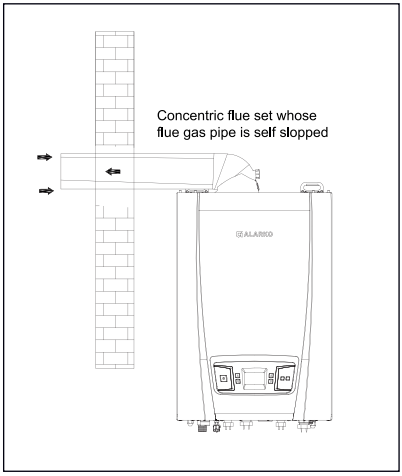


Figure 21. Concentric flue set angles

- In case of a vertical flue pipe installation, a condensate trap is fitted at the base of the flue installation and connected into drainage system (see Figure 22).

Shaft Connection

Connect the flue to the shaft according to the following specification:

- Do not allow the flue gas to protrude inside the shaft; instead terminate it before it reaches the shaft.
- The flue gas must be perpendicular to the opposite wall of the shaft (see Figure 23).

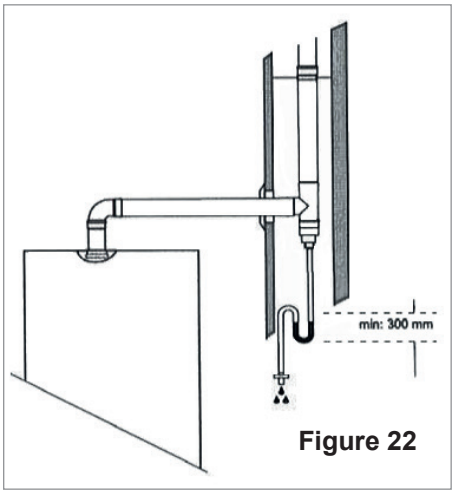


Figure 22

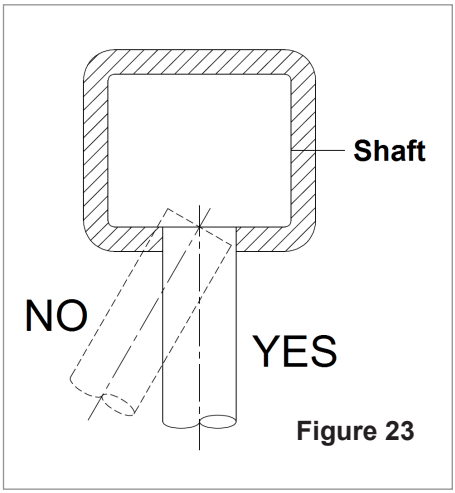


Figure 23

Flue Application Options

Flue application options are C13, C33, C33(x), C43, C43(x), C53, C53(x), C63, C63(x), C83, C83(x), C93, C93(x), B23 and B33. You can find explanations in Table 4.1 and visual application examples in Figure 24.

Table 4.1. Flue Types

Flue Type	Description
B23	Flue gas pipe through the shaft, combustion air directly from the location through the device (open type).
B33	Flue gas pipe through the shaft, combustion air from the location, with horizontal concentric connection (open type).
C13(x)	Horizontal combustion air intake and flue gas discharge through side face or from the roof. Outlets are close to each other, at the same pressure area.
C33(x)	Combustion air intake and flue gas discharge with vertical outlet. Outlets are close to each other, at the same pressure area.
C43(x)	Combustion air and flue gas connections connected to multiple air-flue gas shaft system.
C53(x)	Combustion air intake and flue gas discharge with different lines. Outlets are at different pressure areas.
C63(x)	Connection design as per appliances where combustion air intake and flue gas discharge cannot be measured.
C83(x)	Flue gas installation is independent or with multiple connections (under pressure) and intake of independent combustion air from external environment.
C93(x)	They are the type of chimneys where combustion air intake is sucked from a building shaft and flue gas is discharged from the roof. The air suction pipe enters the shaft horizontally and ends by bending up with an elbow. The flue gas pipe goes up to the roof. It can operate up to a total linear length of 50 meters including standard horizontal concentric flue length (1 meter) with Ø60 / 100 mm flue system in all types.

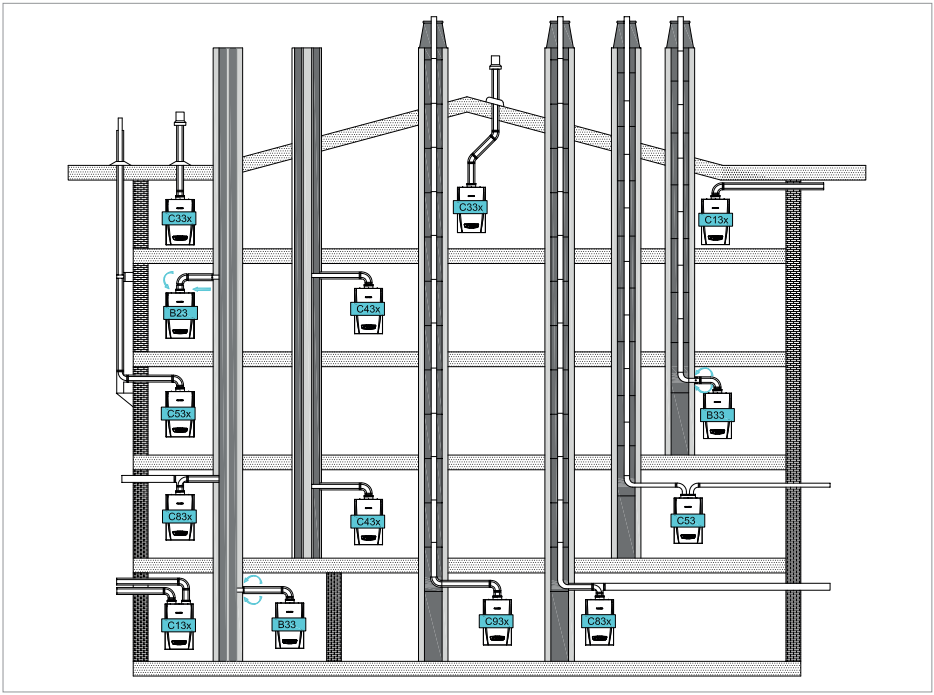


Figure 24. Flue applications

Ø60/100 Horizontal Concentric Flue Set (SSP 20/24/28/36)

Horizontal concentric flue set is Ø60/100 mm dimensioned and adjustable through 360°, it also has a polypropylene inner pipe proper to condensing. It discharges exhaust fumes and draws air from atmosphere.

This set is suitable for condensing boilers only.

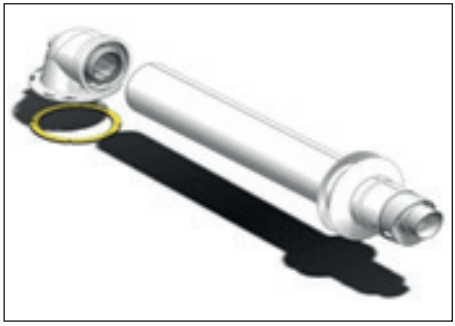


Figure 25. Ø60/100 mm horizontal flue set

Discharges exhaust gases and draws combustion air by means of two concentric pipes. The external Ø100 mm pipe draws the combustion air while the Ø60 mm plastic inner pipe discharges the exhaust fumes.

The flue gas pipe can be connected directly to the outside or can be connected to a suitable combined flue system.

MAXIMUM FLUE LENGTH: SSP 20: 6 m / SSP 24: 6 m / SSP 28: 5 m / SSP 36: 8 m

The maximum flue length (linear equivalent) is obtained by summing the length of linear pipe and the equivalent lengths of each elbow fitted.

The linear equivalent is intended as being the total length of the pipe from the connection with the combustion chamber of the appliance, excluding the first elbow.

The linear equivalent of additional elbows is as follows:

Ø 60/100 x 90° elbow = 0.8 m.

Ø 60/100 x 45° elbow = 0.5 m.

NOTE: Only Alarko Type-Approved piping systems must be used to intake combustion air and discharge waste gases. For all waste gas piping connections, maximum one pipe clamp per each meter of the entire pipline length should be used to fix the pipes to the ceilings or walls to reinforce strength and prevent sagging. In case the waste gas pipe is guided through the wall or ceiling, the gap between the pipe and the wall/ceiling must be filled with mortar, plaster etc. filling material. If guided through a window, the gap between the glass and pipe must be filled with gasket, silicone insulation material etc. to avoid air passage through the gap. All flue connections must be equipped with original sealing gaskets with high heat resistance.

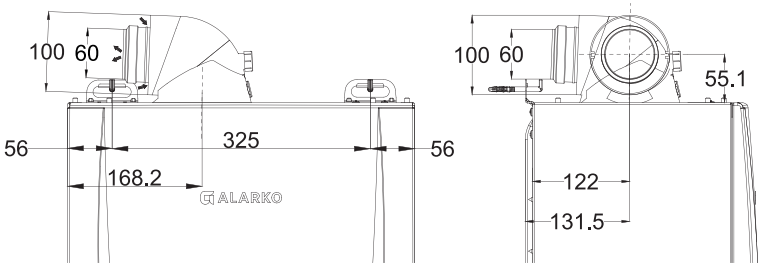


Figure 26. Ø60/100 mm horizontal flue set dimensions

Ø80+80 Twin Flue Set (SSP 20/24/28/36)

Horizontal twin pipe flue set has Ø80+80 mm dimensions, is adjustable through 360° and made of polypropylene. The dual pipe system discharges exhaust fumes by means of one pipe and draws air from atmosphere by means of the other pipe.

This set is suitable for condensing boilers only.

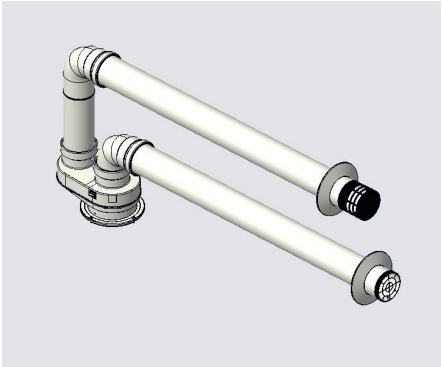


Figure 27. Twin flue set

Discharges exhaust gases and draws combustion air through two separate pipes.

MAXIMUM FLUE LENGTH:

Ø 80+80 : 50 m

The maximum flue length (linear equivalent) is obtained by summing the length of linear pipe and the equivalent lengths of each elbow fitted.

The linear equivalent is intended as being the total length of the pipe from the connection with the combustion chamber of the appliance, excluding the first elbow.

The linear equivalent of additional elbows is as follows:

Ø 80 x 90° elbow = 1.5 m.

Ø 80 x 45° elbow = 1.2 m.

NOTE: Only Alarko Type-Approved piping systems must be used to intake combustion air and discharge waste gases. For all waste gas piping connections, maximum one pipe clamp per each meter of the entire pipline length should be used to fix the pipes to the ceilings or walls to reinforce strength and prevent sagging. In case the waste gas pipe is guided through the wall or ceiling, the gap between the pipe and the wall/ceiling must be filled with mortar, plaster etc. filling material. If guided through a window, the gap between the glass and pipe must be filled with gasket, silicone insulation material etc. to avoid air passage through the gap. All flue connections must be equipped with original sealing gaskets with high heat resistance.

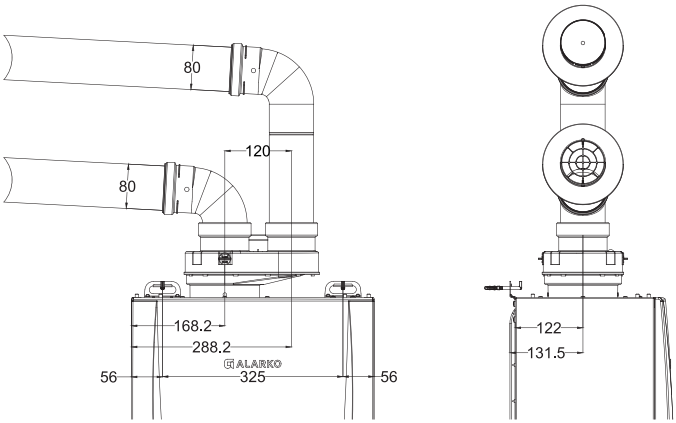


Figure 28. SSP 20/24/28/36 twin flue set dimensions

Ø60/100 Vertical Concentric Flue Set (SSP 20/24/28/36)

Vertical concentric flue set is Ø60/100 mm dimensioned and adjustable through 360°, it also has a polypropylene inner pipe proper to condensing. It discharges exhaust fumes and draws air from atmosphere.

This set is suitable for condensing boilers only.

Discharges exhaust gases and draws combustion air by means of two vertical concentric pipes. The external Ø100 mm pipe draws the combustion air while the Ø60 mm plastic inner pipe discharges the exhaust fumes.

MAXIMUM FLUE LENGTH:

SSP 20: 6 m / SSP 24: 6 m

SSP 28: 5 m / SSP 36: 8 m

The maximum flue length (linear equivalent) is obtained by summing the length of linear pipe and the equivalent lengths of each elbow fitted.

The linear equivalent is intended as being the total length of the pipe from the connection with the combustion chamber of the appliance, excluding the first elbow.

The linear equivalent of additional elbows is as follows:

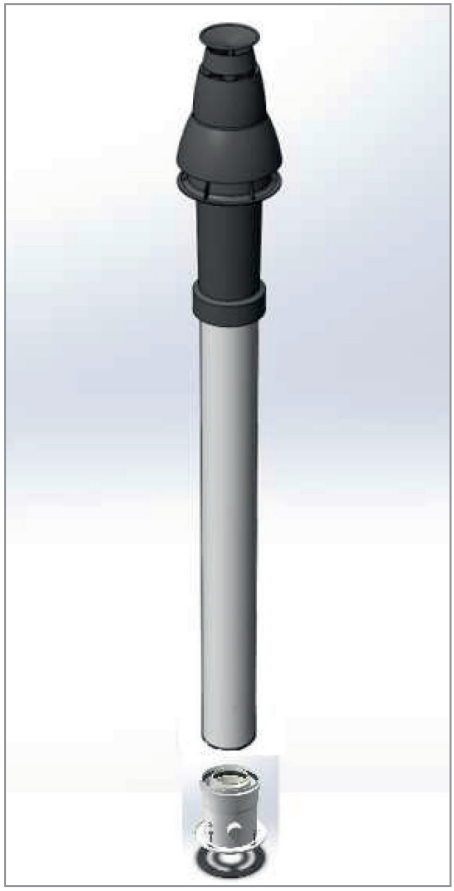


Figure 29. Vertical flue set SSP 20/24/28/36

Ø 60/100 x 90° elbow = 0.8 m. / Ø 60/100 x 45° elbow = 0.5 m.

NOTE: Only Alarko Type-Approved piping systems must be used to intake combustion air and discharge waste gases. For all waste gas piping connections, maximum one pipe clamp per each meter of the entire pipline length should be used to fix the pipes to the ceilings or walls to reinforce strength and prevent sagging. In case the waste gas pipe is guided through the wall or ceiling, the gap between the pipe and the wall/ceiling must be filled with mortar, plaster etc. filling material. If guided through a window, the gap between the glass and pipe must be filled with gasket, silicone insulation material etc. to avoid air passage through the gap. All flue connections must be equipped with original sealing gaskets with high heat resistance.

5. COMMISSIONING THE APPLIANCE

⚠ **The following operations must be carried out by professionally qualified personnel, registered in accordance with current legislation.**

⚠ **Commissioning of the appliance by an unauthorized company or unauthorized people invalidates the guarantee.**

⚠ **Alarko Carrier does not take any responsibility for the damage or injury on persons, animals or objects caused by commissioning by unauthorized people.**

6. PERIODIC MAINTENANCE AND CLEANING

6.1 Periodic Maintenance of the Combi Boiler (Authorized Service)

During and also after guarantee period you must keep taking maintenance once a year (before winter) to provide safe use, fuel saving and long service life.

⚠ **All maintenance operations must be carried out by professionally qualified personnel, authorized by Alarko Carrier.**

⚠ **In order to guarantee the long life of the appliance and in accordance with the current gas safety regulations, only use original spare parts.**

⚠ **Alarko Carrier does not take any responsibility for the damage or injury on persons, animals or objects caused by maintenance by unauthorized people or service.**

6.2 Maintenance Content

Maintenance includes below points:

- Main heat exchanger cleaning
- Control of burner and electrode
- Fan motor balance control and fin cleaning
- Control of thermostat and sensors
- Cleaning of siphon
- Control of condensate water drain
- Control of expansion tank pressure, filling if low
- Control of flue leak proofing

- Flue gas analysis and combustion control
- Leakage control of pipe and venturi lines after gas valve with detector or detergent foam
- Cleaning of dirt separator
- Cleaning of filters
- Control of accurate operating of the appliance
- Filling the authorized service form

6.3 Cleaning of the Combi Boiler (User)

Wipe the outer case of the appliance with soft, humid fabric. Don’t use hard, abrasive cleaning materials.

Note: Manufacturer reserves the right to change any product specifications without notice.

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