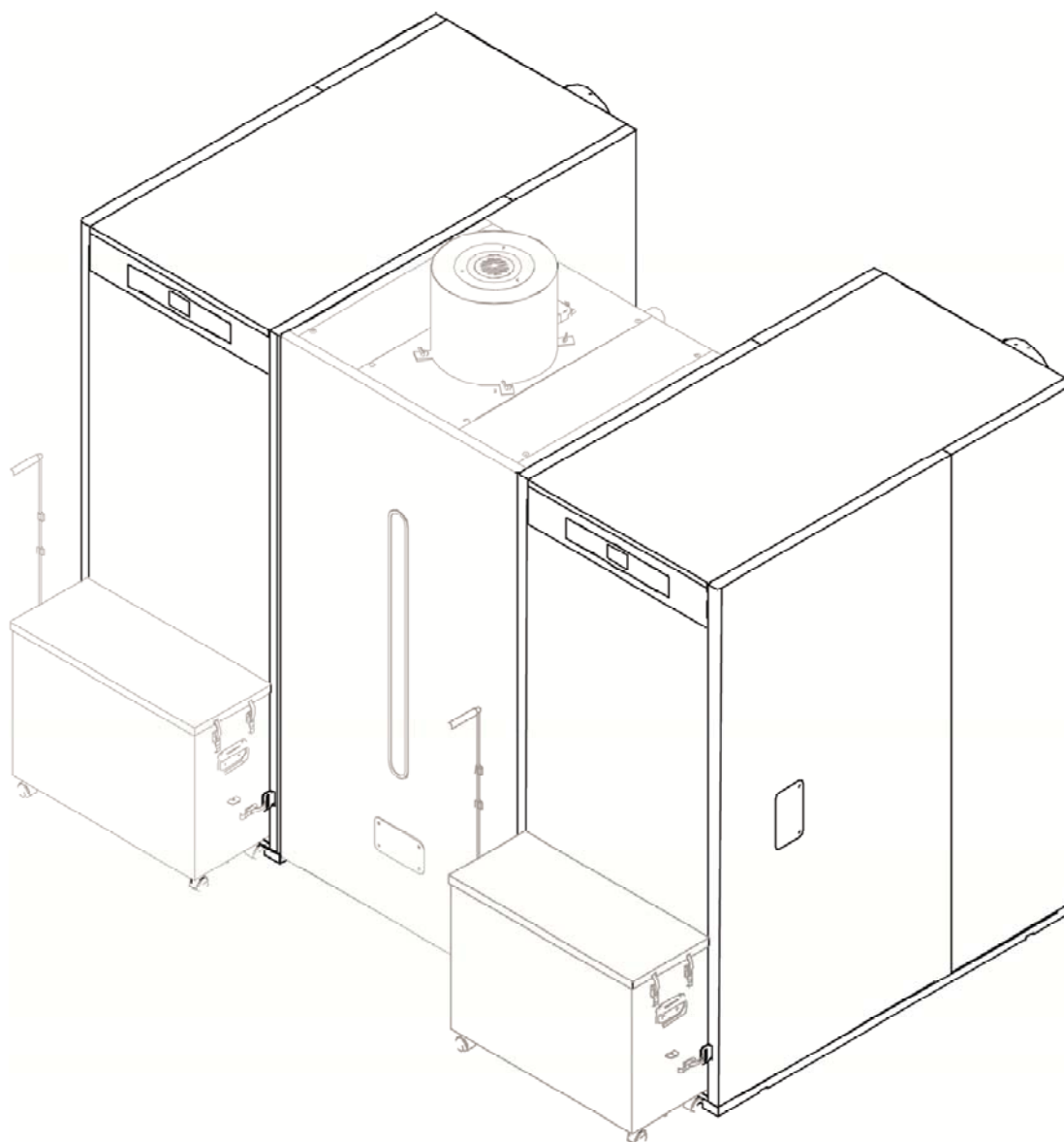


INSTALLATION AND OPERATING INSTRUCTIONS

↳ BIOCLASS HC



DOMUSA
T E K N I K

Thank you for choosing a **DOMUSA TEKNIK** heating boiler. Within the product range offered by **DOMUSA TEKNIK** you have chosen **BioClass HC** model. This is a set of two boilers capable of providing the ideal comfort level for your heating and / or domestic hot water, always accompanied by a proper hydraulic system and fueled by wood pellets.

This manual forms an essential part of the product and it must be given to the user. We recommend you read the warnings and recommendations in the manual carefully, as they contain important information on the safety, use and maintenance of the installation.

These boilers must be installed by qualified personnel only, in accordance with the legislation in force and following the manufacturer's instructions.

Commissioning of these boilers and any maintenance operations must only be carried out by **DOMUSA TEKNIK's** Authorised Technical Assistance Services.

Incorrect installation of these boilers could result in damage to people, animals or property, and the manufacturer will hold no liability in such cases.

DOMUSA TEKNIK informs all parties concerned that, in compliance with section 1 of the first additional provision of Law 11/1997, the responsibility for delivering packaging waste or used packaging for its proper environmental management will be that of the final owner of the product (Article 18.1 Royal Decree 782/1998). At the end of its useful life, the product must be taken to a selected collection point for electrical and electronic equipment or must be returned to the distributor at the time of purchasing a new equivalent appliance. For more detailed information on the collection schemes available, contact either the collection facilities of the local authority or the distributor where the purchase was made.

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BioClass HC

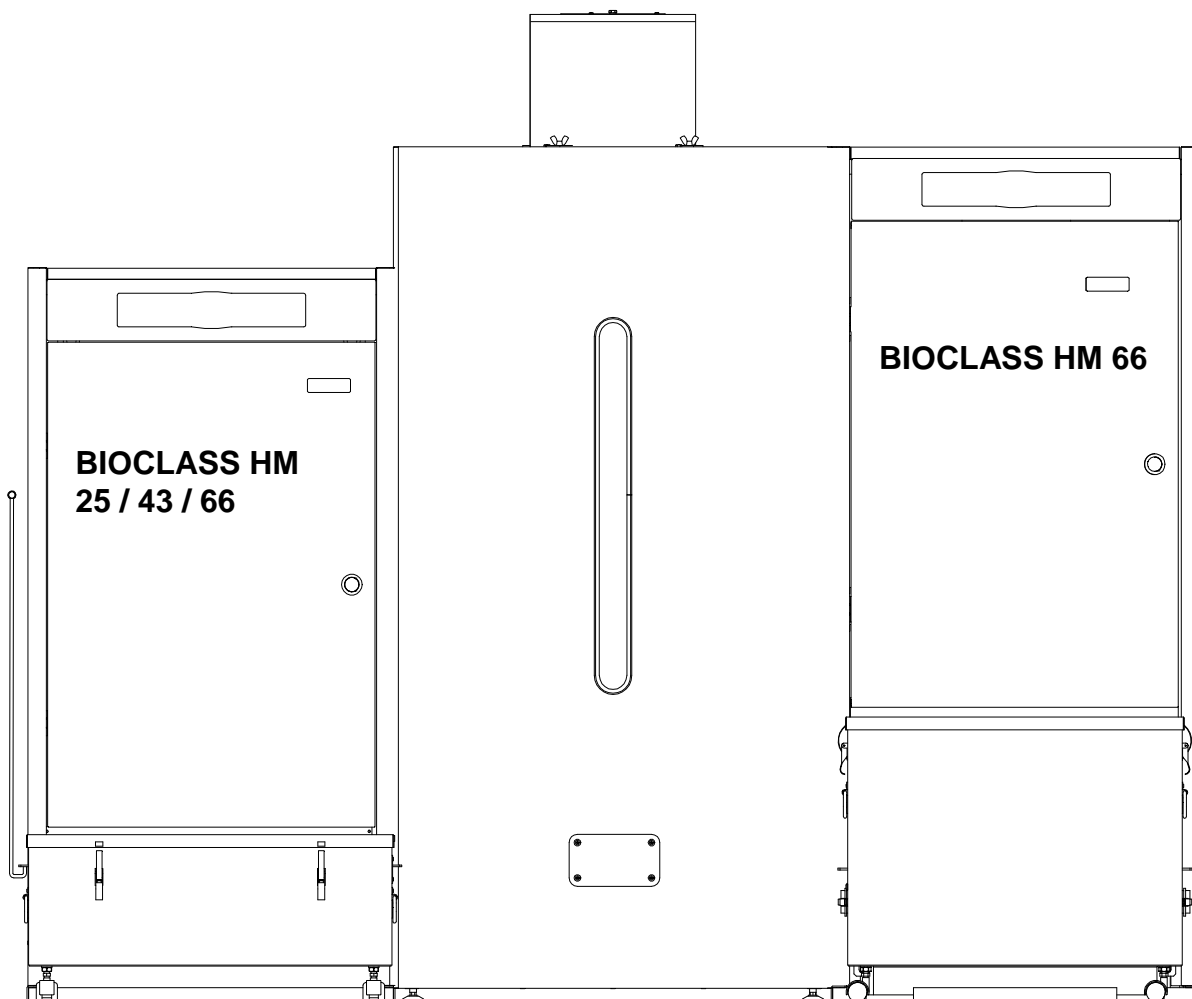
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1 GENERAL DESCRIPTION

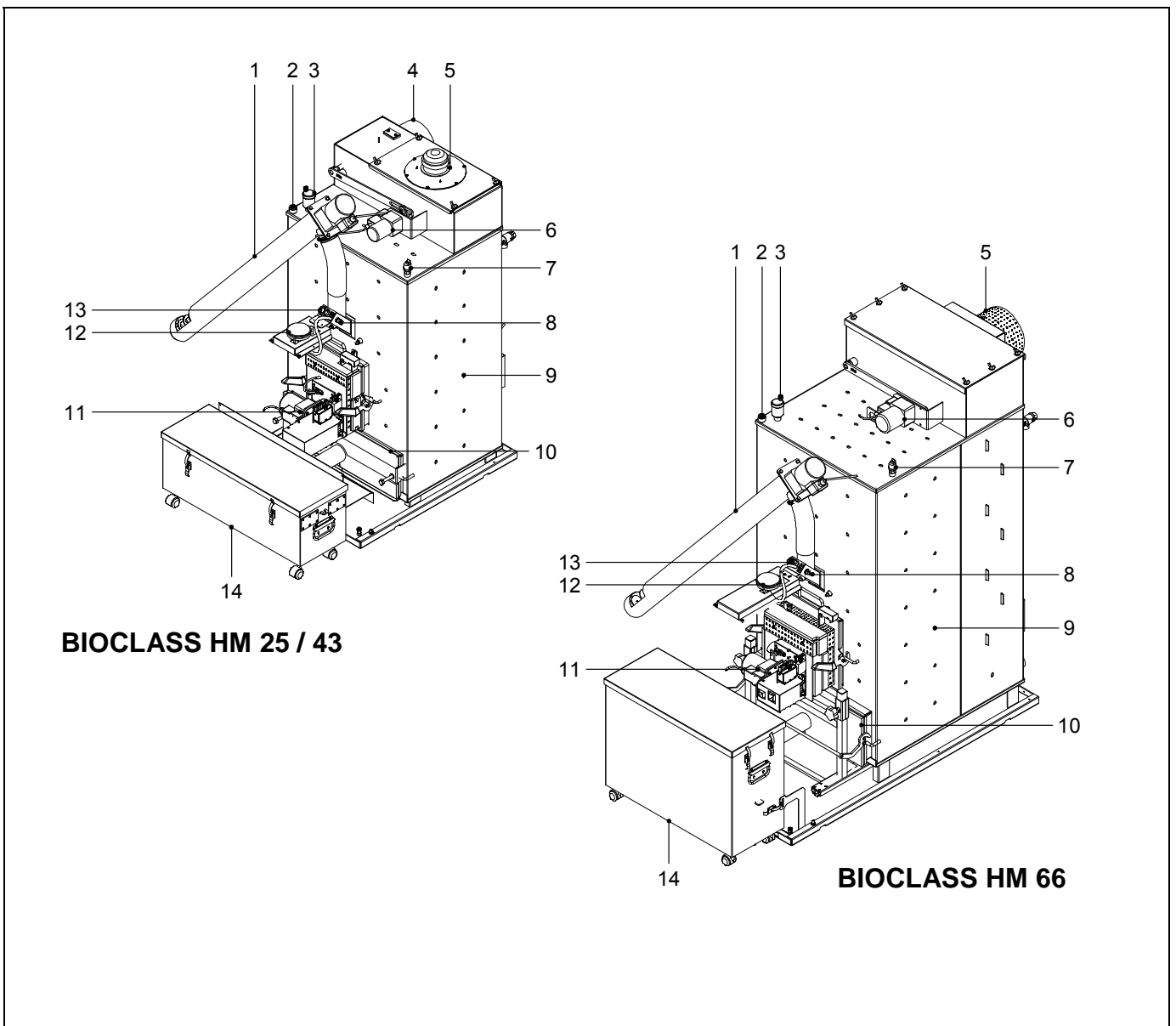
The **BioClass HC** system combines 2 **BioClass HM** pellet boilers in cascade. In a cascade configuration the heating boilers are hydraulically connected and turn on and off based on the increase or decrease in the demand for heating. The main advantages of distributing the total heating value required between two boilers are:

- A wider range of power modulation.
- Maximum adaptation to the demand for energy between winter (heating) and summer (Domestic Hot Water).
- Easy to maintain without interrupting the operation of the heating system.
- Smaller sized system accessories (flue, circulation pumps, etc.).
- Easy to introduce boilers in the boiler room and reduction in space occupied because they share the pellet reserve tank and the fuel suction system.

In the **BioClass HC** configuration, the two boilers are fed from the same reserve tank. In addition, this reserve tank is fitted with a fuel suction system.



2 LIST OF COMPONENTS



1. Feed auger.

2. Sensor housing.

3. Automatic Air vent.

4. Flue gas outlet

5. Fan

6. Heat exchanger cleaning system

7. Water pressure sensor

8. Fuel entrance safety thermostat

9. Boiler body

10. Ash drawer

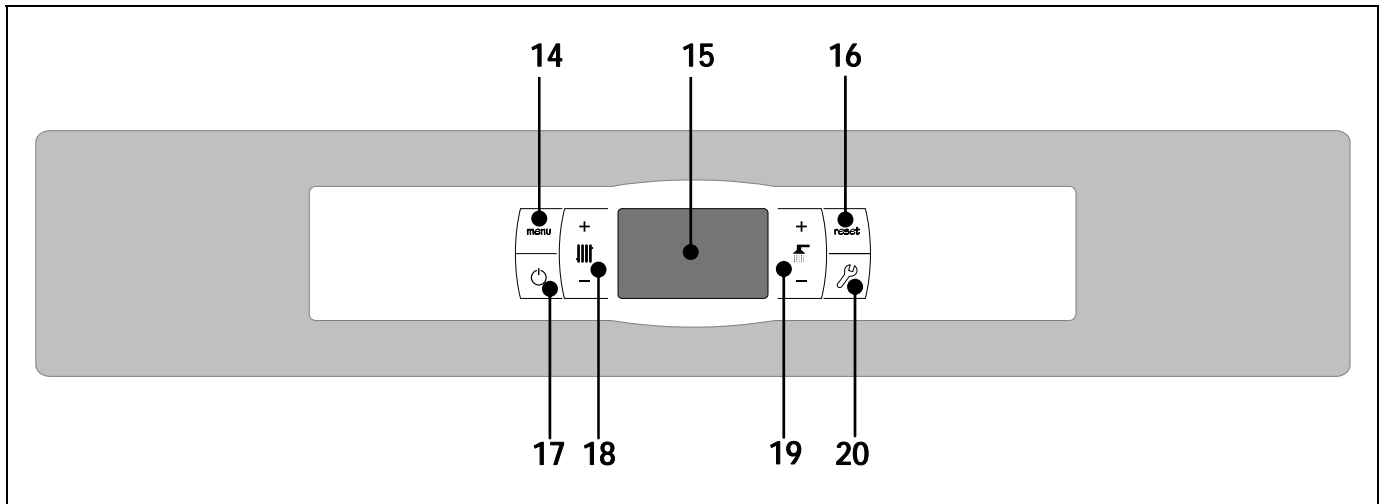
11. Burner

12. Air pressure sensor

13. Peephole

14. External ash box

3 CONTROL COMPONENTS



14. MENU touch button:

This button is used to access and browse through the "User Menu".

15. Digital display:

It is the main boiler functioning display, on which all the operating information, settings and values appear. This display is also used to access the appliance's user and service settings. In standard operating mode (default display), the actual boiler temperature is shown. If malfunction occurs, an alarm code will appear on the digital display instead of the temperature.

16. RESET touch button:

This button is used to restore functioning of the boiler after a lock-out situation. Also it is used to exit from any of the menus or parameters of the boiler without saving it and to return to the previous menu level.

17. ON touch button:

This button switches on and off the boiler.

18. Boiler temperature select touch button:

This button is used to select the boiler set point temperature. It is also used to disable the hot water function. In parameter menus, it's used for navigate through the parameters.

19. Setting touch button:

It is used to set different parameters of the boiler.

20. SET touch button:

This button is used to access and browse through the "Setup menu". Touch this button to access the settings options.

BioClass HC

4 INSTALLATION INSTRUCTIONS

The boiler must be installed by personnel authorised by the Ministry of Industry, in compliance with the applicable laws and regulations.

This boiler is suitable for heating water to a temperature below boiling point at atmospheric pressure. It must be connected to a heating installation and/or a domestic hot water distribution network, which must always be compatible with its performance and power.

This appliance must only be used for the purpose for which it has been expressly designed. Any other use is considered unsuitable and therefore hazardous. The manufacturer shall not be considered liable under any circumstances for damage caused by unsuitable, erroneous or irrational use.

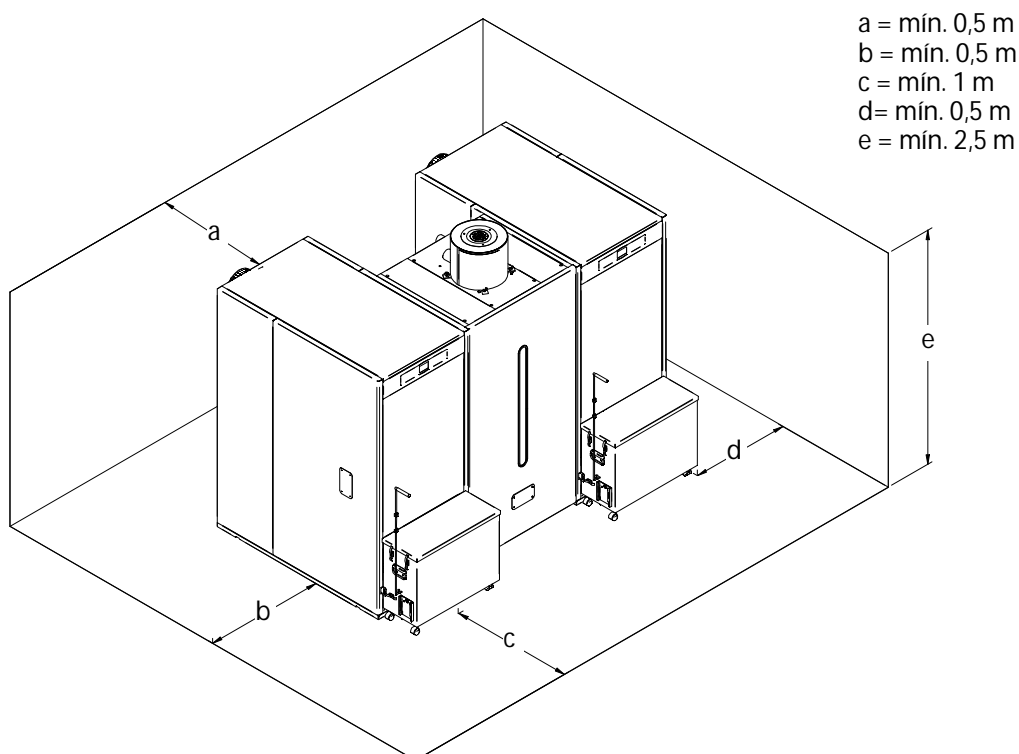
Remove all the packaging and check the contents are complete. In case of doubt, do not use the boiler. Contact your supplier. Keep the packaging elements out of reach of children, as they can be dangerous.

Be aware that the base of the boiler **BioClass HC** is fixed to the wooden pallet with four screws.

When you no longer wish to use the boiler, disable the parts that could be a potential source of hazard.

4.1 Location

The boiler must be installed in a sufficiently ventilated site, away from humidity. It must be located so that the air grilles on the premises are not obstructed and normal boiler maintenance is possible even if it is placed between items of furniture. Respect the spaces indicated in the following picture.



4.2 Hydraulic installation

The hydraulic installation must be made by qualified personnel. The applicable installation legislation is to be complied with, and the following recommendations should also be taken into account:

- **It is essential to install the external circulation kit (back in protection Kit)** with the **BioClass HM 66** boiler, to prevent any water condensation in the heat exchanger. If this requirement is not complied with, **DOMUSA TEKNIK**'s guarantee of the appliance will automatically be null and void.
- The inside of the installation piping should be thoroughly cleaned before switching on the boiler.
- We recommend inserting cut-off valves between the installation piping and the boiler to simplify maintenance tasks.
- Leave a free space around the boiler for carrying out any maintenance and repair operations.
- Drain valves and suitable devices for correctly bleeding the air from the circuit during the boiler filling stage should be fitted.
- Install all the necessary safety elements (expansion vessel, safety valve, etc.) to comply with the applicable regulations for the installation.
- If the boiler is installed at a lower height than the heating installation, it is recommendable to create a siphon at the boiler outlet, to prevent the installation from heating up due to natural convection when heating is not required.

4.3 Cascade circuit control and regulation

The **BioClass HC** boiler is not fitted with a hydraulic regulation and control circuit in cascade. The control must be carried out using an external controller (optionally supplied by **DOMUSA TEKNIK**).

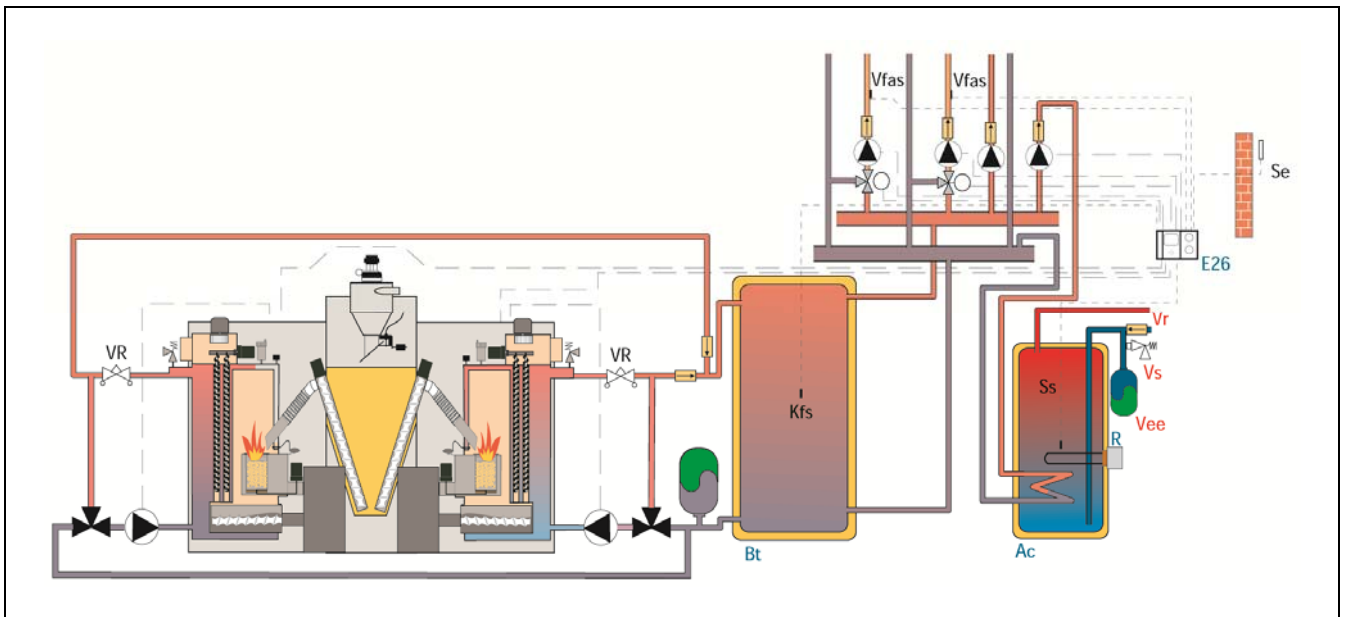
The controller of the hydraulic circuit manages the activation of the boiler through the **(TA1)** connectors of such boiler. Each boiler has a terminal strip **J6** where the controller is connected **(TA)** (see "*Connections diagram*"). The **J6** borne is equipped with a jumper which is removed to connect the controller.

The following figures show an example of a hydraulic layout for a **BioClass HC** boiler system with an inertia tank or hydraulic separator regulated by an E26 controller (optionally supplied by **DOMUSA TEKNIK**).

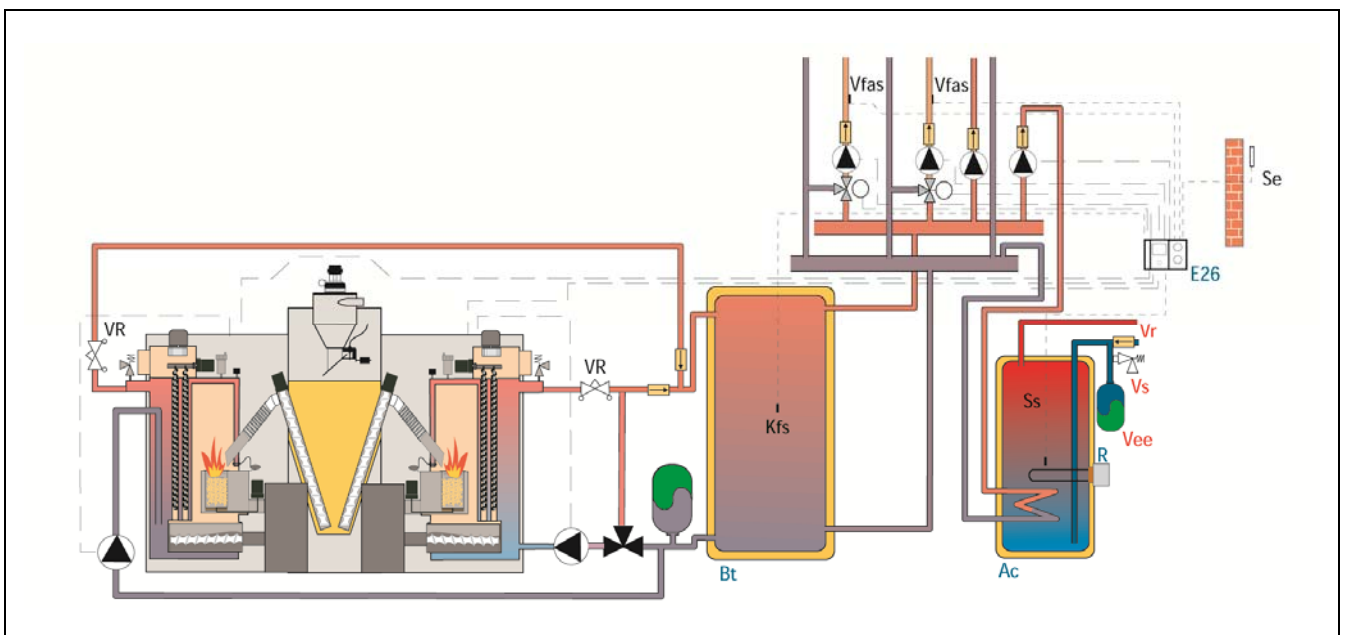
BioClass HC

4.3.1 Example of an installation with a buffer tank

BioClass HC 66/66



BioClass HC 25/66 or BioClass HC 43/66

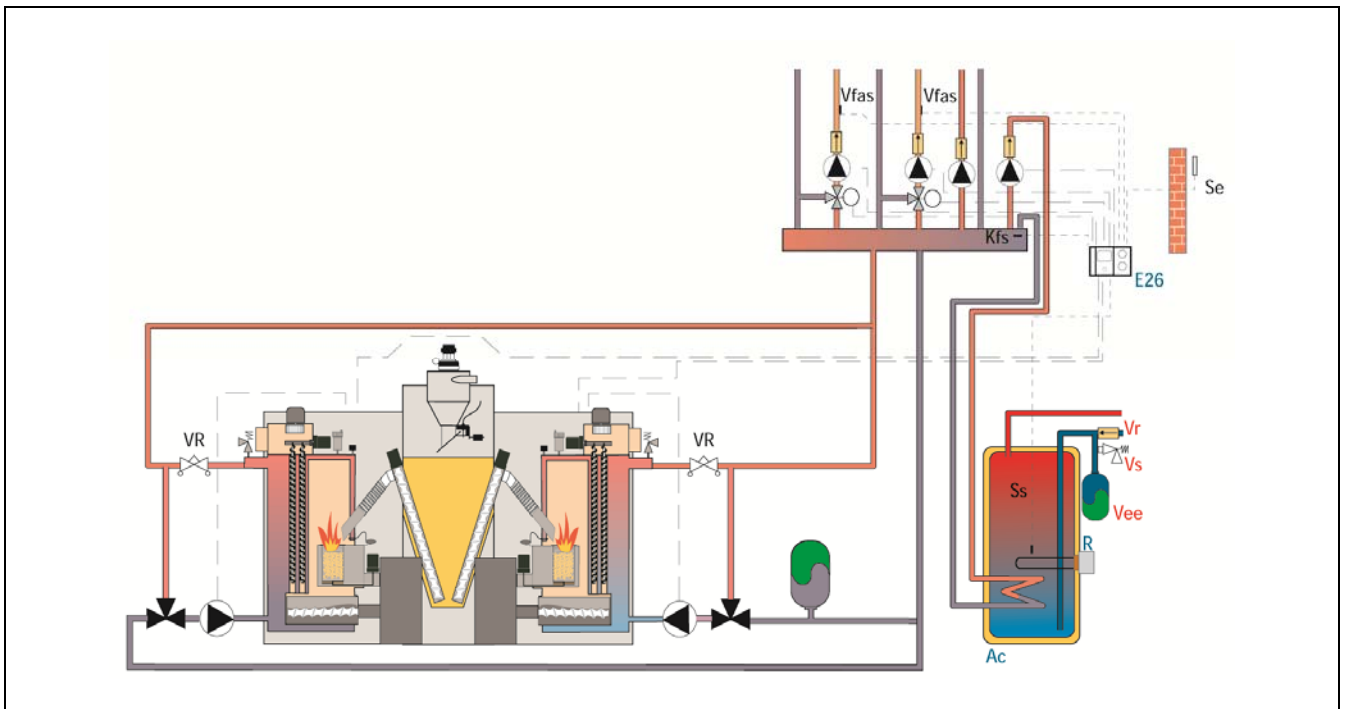


Kfs: Boiler sensor
Ss: DHW sensor.
Bt: Buffer tank.
Ac: DHW tank
Vr: Non-return valve.

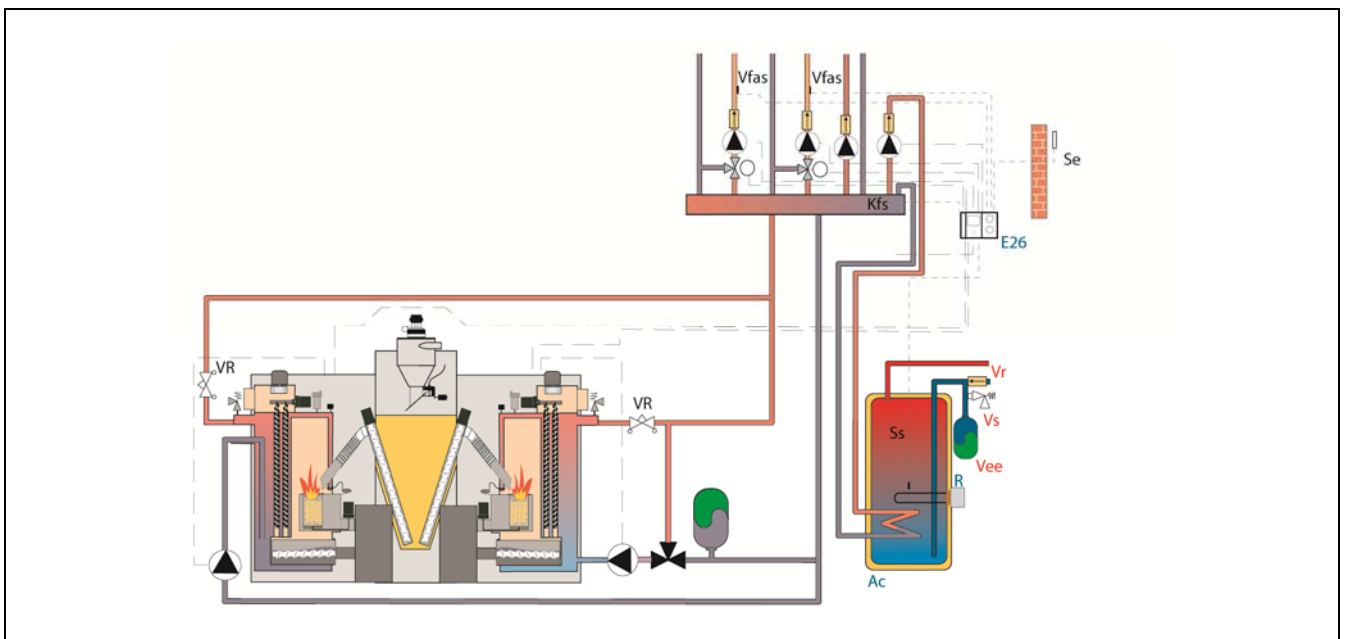
Vs: Security valve.
Vee: DHW expansin vessel.
Vfas: Flow sensor.
VR: Equilibrating valve
Se: Weather compensation sensor.

4.3.2 Example of installation with hydraulic separator

BioClass HC 66/66



BioClass HC 25/66 or BioClass HC 43/66



Kfs: Boiler sensor

Ss: DHW sensor.

Bt: Buffer tank.

Ac: DHW tank

Vr: Non-return valve.

Vs: Security valve.

Vee: DHW expansion vessel.

Vfas: Flow sensor.

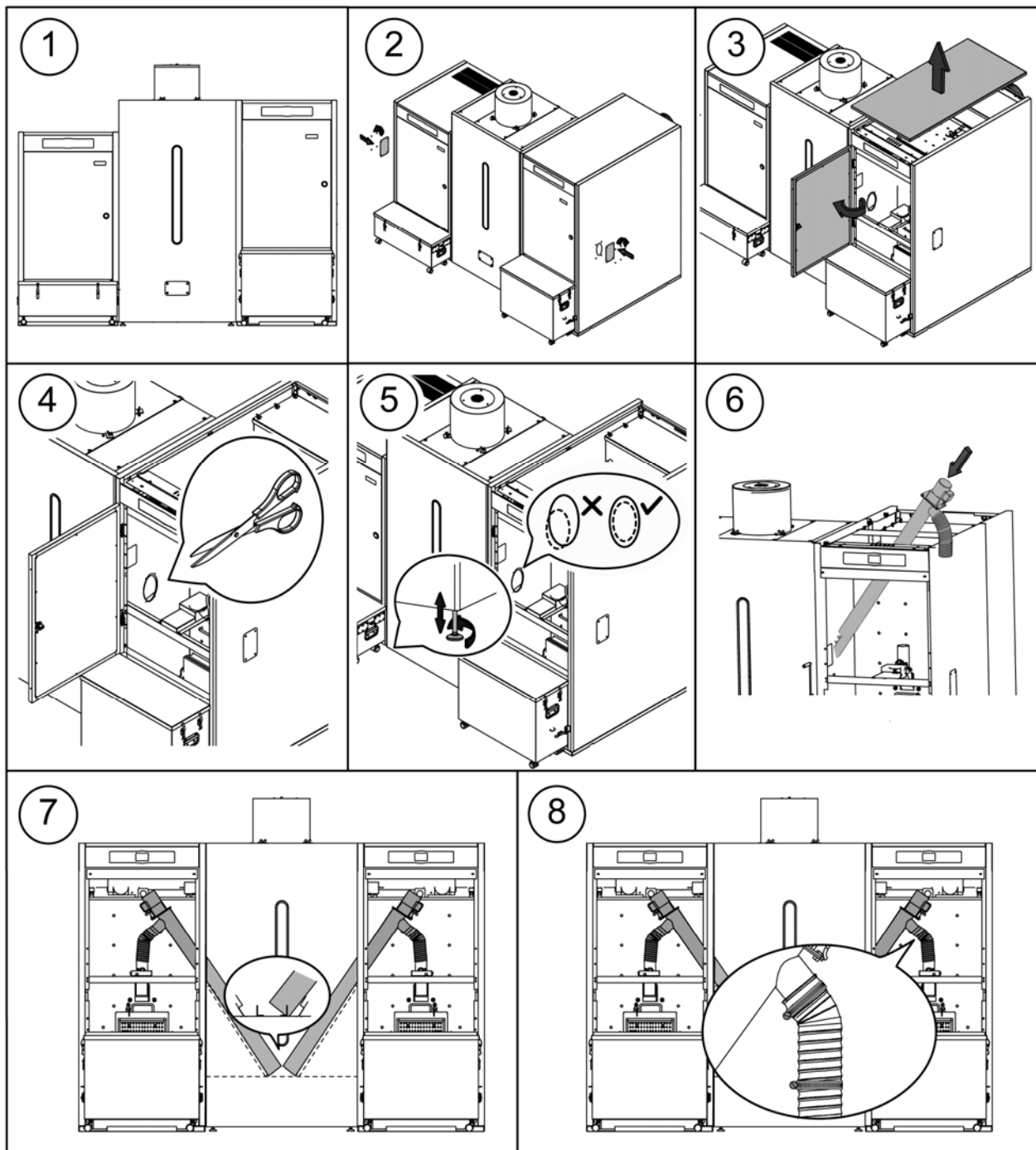
VR: Equilibrating valve

Se: Weather compensation sensor.

BioClass HC

4.4 Installing the hopper

DOMUSA TEKNIK supplies a reserve tank with the boilers, with an fuel suction system for the transport and storage of pellets. Given that the tank is reversible, there is the choice to locate the boiler on the left or on the right. It is also equipped with adjustable feet for height regulation.



IMPORTANT: Ensure the height of the elliptical holes on the sides of the boiler and on the hopper coincide, for correct insertion of the feed auger. To do this, make the necessary adjustments for height (using the adjustment feet) and depth (correctly positioning the hopper).

4.5 Electrical Connection

Both boilers are equipped for connection to 230 V ~ 50 Hz. **The socket should have an appropriate earth connection.**

The terminal strip **J2** includes terminals for connecting the feed auger, whereas the terminal strip **J3** includes terminals for connecting the circulation pump of the boiler (**BC**) and the 3-way diverter valve (or circulation pump) for the optional DHW circuit. The terminal strip **J7** includes terminals for connecting a sensor for the optional DHW circuit. This sensor must be supplied by **DOMUSA TEKNIK**.

The fuel suction system must be connected to one of the boilers of the system by the two cables supplied with the fuel suction system ($\boxed{+A -B}$ and $\boxed{1 \frac{1}{2} 2}$ connectors). Follow the instructions notice of the fuel suction system to a correct connection.

IMPORTANTE: Before carrying out any work on the boiler's electrical installation, always ensure it is disconnected from the mains.

4.6 Fuel

BioClass HC boiler must be fuelled by **EN Plus-A1** or **DIN PLUS** certified wood pellet. The **DIN PLUS** or **EN Plus-A1** certificate assures that the fuel's humidity levels and calorific value are ideal for optimum boiler functioning. If this requirement is not complied with, **DOMUSA TEKNIK's** guarantee of the appliance will automatically be null and void.

The following points should be taken into account for correct fuel storage:

- The stored pellets should be kept dry all year round.
- The applicable legislation in each country for correct fuel storage must be complied with.

BioClass HC

4.7 Combustion product removal

The **BioClass HC** boiler is an assembly of two **BioClass HM** boilers and it is essential that each boiler is connected to a flue, i.e. a smoke duct able to create a pressure drop (which in this case should be between 0.10 and 0.20 mbar), in compliance with the applicable laws to this regard.

The combustion product exhaustion ducts must be installed by qualified personnel and must comply with the regulations in force. For the flue to create a pressure drop, the following recommendations should be taken into account:

- It should be suitably insulated.
- It should be vertical, avoiding any angles greater than 45°.
- It should always have the same diameter. It is recommendable for it to be circular, and never any narrower than the boiler outlet.
- **It is obligatory to install a fume inspection plate with condensation collection, to remove the condensation generated in the flue.** Otherwise, the condensation may reach the inside of the boiler and cause irreparable damage, **which would not be covered by DOMUSA TEKNIK's guarantee. The condensation pipe should lead to a drain outlet**, as a large amount of water may be generated. This connection must be made in compliance with the regulations for draining off condensation water to the drain network.
- **It is recommended to install a draught stabiliser** to prevent any pressure drop variations in the flue due to atmospheric conditions, which could affect correct boiler combustion. **This draught stabiliser must be installed below the fume inspection plate to prevent any leakage of combustion gases.**
- It is recommended to connect each boiler to an independent chimney to avoid possible revokes.

5 COMMISSIONING OF THE BOILER

5.1 Prior warnings

Repair and maintenance of the boiler must be carried out by a qualified professional, authorised by **DOMUSA TEKNIK**. For optimum functioning and conservation of the boiler, it should be serviced annually.

Carefully read this instruction manual and keep it in a safe, easily-accessible place. **DOMUSA TEKNIK** will not be liable for any damages caused by failure to follow these instructions.

Before any servicing, **disconnect the boiler from the mains**.

5.2 Electrical Connection

Both boilers should have independent electrical power connections. Special attention must be paid to the maximum consumption of the two-boiler assembly (2875 W) in the event that they are both powered from the same socket, as it must be able to support such use.

Both boilers are equipped for connection to 230 V ~ 50 Hz. **The socket should have an appropriate earth connection.**

5.3 Filling the installation

The hydraulic installation must include a fill valve, drain valves and the necessary hydraulic components for correctly filling the installation.

To fill the installation, open the fill valve until the parameter *"Water pressure"* of *"User Menu"* shows a pressure of 1 - 1.5 bars. The installation must be filled slowly, bleeding the air from the water circuit using the drain valves provided on the same. Close the fill valve after filling.

BioClass HM boiler has a pressure sensor for controlling the pressure of the installation. If the installation does not have the minimum pressure set at **P.19** parameter of *"Technical Menu"* (by default 0.5 bar), a low pressure alarm will appear (**"E-19"**).

IMPORTANT: Switching on the boiler with no water inside could result in serious damage.

5.4 Initial calibration of the feed auger

BioClass HC boiler is equipped with a feed auger to supply the fuel. Follow the instructions described in *"Installing the hopper"* section to install it correctly. Due to diversity of feed augers and the range of different hoppers, it is needed to calibrate the feed auger minimum twice to assure the correct running.

During the commissioning, after filling the installation, (**"E-25"**) alarm code is displayed. It isn't possible to switch on the boiler before calibrating the feed auger. Follow the instructions described in *"Feed auger calibration"* section of *"Setup menu"* to assure a correct calibration. Once the calibration is finished, (**"E-25"**) alarm would disappear and it will be possible to switch on the boiler.

BioClass HC

5.5 Commissioning

In order for the **guarantee to be valid**, the boiler must be commissioned by **personnel authorised by DOMUSA TEKNIK**. Before beginning the commissioning, the following must be complied with:

- The boiler must be plugged in to the mains.
- The installation must be filled with water (the pressure must be between 1 and 1.5 bar).
- The hopper must be filled with fuel.

The commissioning sequence is as follows:

- Check the flue is correctly installed using a condensation inspection tap and a draught stabiliser.
- Check the hopper and the feed auger are correctly installed. **The feed auger must be calibrated for a correct boiler functioning** (See *"Calibrating the feed auger"*). Check the right type of fuel is being used (wood pellet must be **DIN PLUS**).
- If the installation has flow and return valves, check they are open.

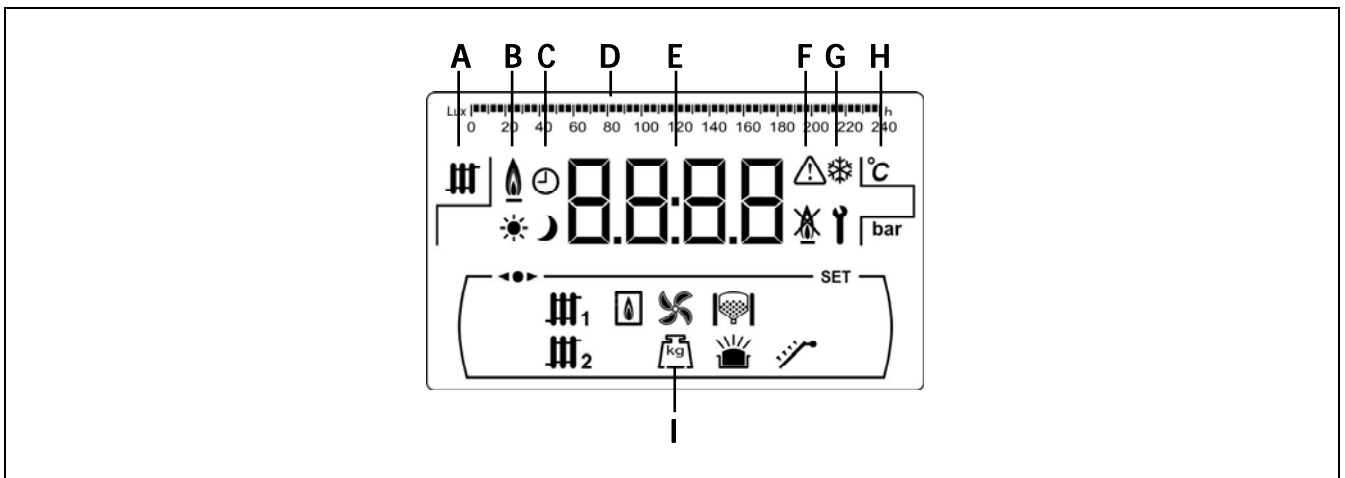
5.6 Installation delivery

After commissioning, the Technical Assistance Service will explain to the user how the boiler functions, making any observations they consider relevant.

The installer is responsible for clearly explaining to the user the functioning of any control or regulation device forming part of the installation but not supplied with the boiler.

6 DIGITAL DISPLAY

BioClass HM boiler is equipped with a digital touch display for viewing and adjustment of the different boiler settings. The display has various display areas where different icons and numbers appear to indicate the different status of the boiler.





A Boiler status:  Heating function enabled.

B Icon for flame detection:  Flame detected.

C Timer icons:

 It is displayed when the real time is inside "ON" programmed period.

 It is displayed when actual time is inside "OFF" programmed period.

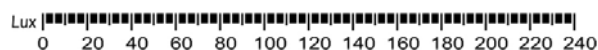
 When any screen is displayed it relates to the display of actual time, programming, etc.

D Scale marking bar: The meaning can change depending on the parameter displayed:

Time scale: Used to indicate values or settings related to the time and/or time programming:




Lux scale: Used to indicate the lux level read by the flame sensor:



Ash Scale: Used to indicate the level of ash:



E Numerical digits.


F Alarm icons:  Warning.

 Boiler lock-out.

BioClass HC

G Special functions icons:

 **Anti-frost function:** This icon blinks when the boiler's anti-frost function is activated.


 **Technical icon:** It is displayed when any of the boiler's technical parameter on the "Technical Menu" or "Setup menu" is displaying or modifying.


H Auxiliary icons.


 Value or setting related to a temperature is shown by the numerical digits.


bar Value or setting related to the boiler water pressure is shown by the numerical digits.


I Operating mode icons:


 It is displayed when the direct heating circuit n° 1 demand is activated or when a value or setting related to this circuit is shown by the numerical digits.


 It is displayed when the direct heating circuit n° 2 demand is activated or when a value or setting related to this circuit is shown by the numerical digits.


 It is displayed when any value or setting **related to the boiler and/or the burner** is shown by the numerical digits.


 It is displayed when a value or setting related to boiler's fan is shown by the numerical digits.


 It is displayed when a value or setting related to weight, calibration, fuel consumption, etc. is shown by the numerical digits.

 It is displayed when a value or setting related to the **Fuel suction system** is shown by the numerical digits.

 It is displayed when a value or setting related to the burner's ash cleaning system or boiler's ashtray (either manual or compressor) is shown by the numerical digits.

 It is displayed when a value or setting related to the ashtray overflowing is shown by the numerical digits.

 It is displayed when the feed auger is switched on and it is displayed blinking when it is in manual operation mode.

 It is displayed when any of the "Menu" is in browse mode.

SET It is displayed when the parameter shown by the numerical digits is adjustable and it is displayed blinking when the parameter is in adjustment mode.

7 OPERATION

BioClass HC boiler is an assembly of two **BioClass HM** heating boilers. For a correct running, it has to be connected to a cascade regulation controller.

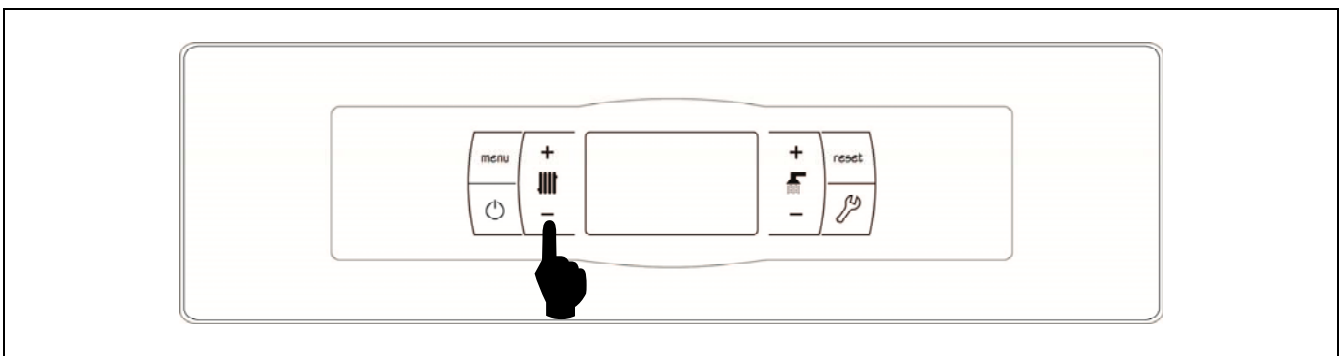
7.1 Boiler operation

The activation of the **BioClass HM** boilers is managed by the controller connected in the **(TA1)** strip of each boiler.

It is needed to set a temperature for each boiler in order to start the boiler up. When the controller switches on the **(TA1)** strip, the burner will start running to heat the water of the boiler. When the temperature of the boiler overtakes 60 °C, the heating pump is switched on to heat the water of the installation. The burner modulates the heat output level to maintain the set point temperature until the controller switches of the **(TA1)** strip. When the temperature in the boiler overtakes 4 °C the boiler set point temperature, the burner stops until the temperature decreases 10 °C behind the set point temperature, in this moment the burner is switched on again.

It is possible to disable the heating service by setting to "**oFF**" the boiler temperature set point.

7.2 Boiler temperature set point selection



Boiler temperature set point selection is made by the tactile selector shown in the picture. Press "+" and "-" buttons to increase or decrease the set point desired. Few seconds after the desired set point temperature is adjusted the display returns to main position. The range of values for boiler temperature set point is OFF, 65 - 80 °C.

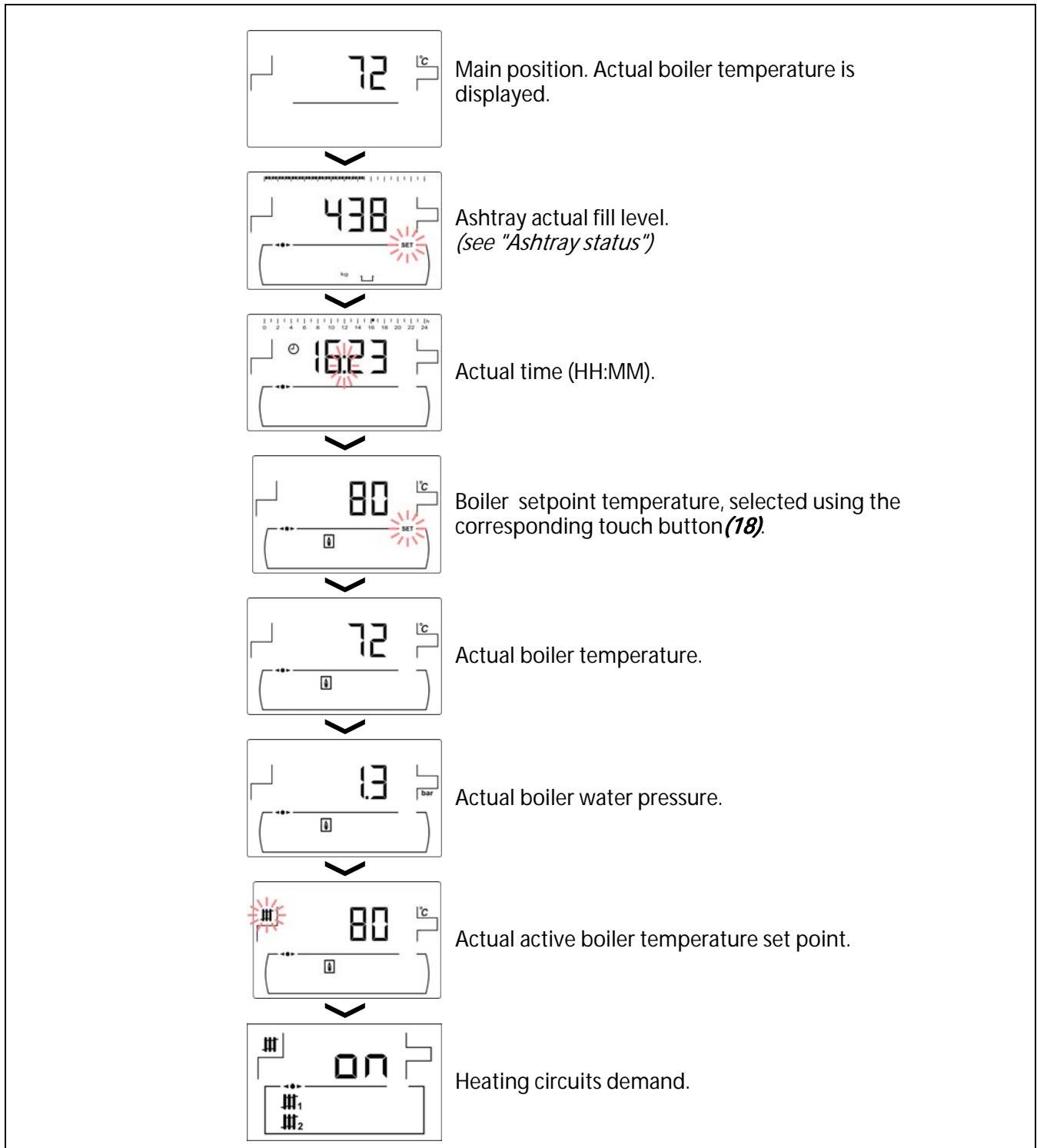
It is also possible to set boiler temperature set point browsing through the "User Menu" by pressing **MENU** button. When parameter "Boiler set point temperature" is displayed, the boiler temperature set point is set by pressing "+" and "-" buttons.

It is possible to disable the heating service of the boiler by setting to "**oFF**" the boiler temperature set point by pressing "-" symbol for heating **(18)**.

8 USER MENU

"User Menu" shows the settings related to boiler functioning on the digital display.





To access this menu press MENU; press this button repeatedly to browse through the different settings available. When one of the options is displayed, after 20 seconds the display returns to main position. In the following table are listed all the settings of "User Menu":



8.1 Ashtray status




When "Ashtray Empty Warning" function is activated (see *"Setup menu"*), the boiler warns about the ashtray is full and must be emptied. The parameter *"Ashtray status"* allows checking the fill level and the screen shows the ash scale bar which indicates the fill level of the ashtray. When it is full, an *"Empty the ashtray"* warning is activated. Whenever the ashtray is emptied, it is necessary to set the *"Ashtray status"* parameter to "0" by pressing "-" for DHW **(19)**.

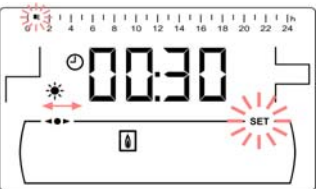
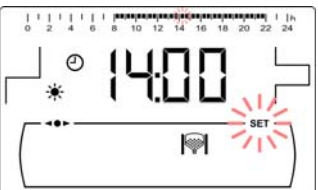
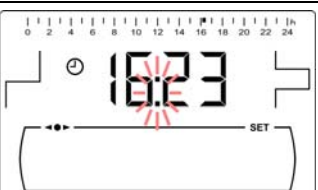


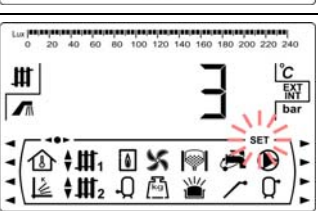
The display of the notices is as follows:

-  : Ashtray fill level between 0 and 75 %.
-  flashing: Ashtray fill level between 75 and 100 %.
-  and  flashing: Ashtray fill level more than 100 %.

9 SETUP MENU


"Setup menu" consists of operating parameters of the boiler which can be adjusted by the user (Ashtray empty warning, timer programming, time setting, ...)

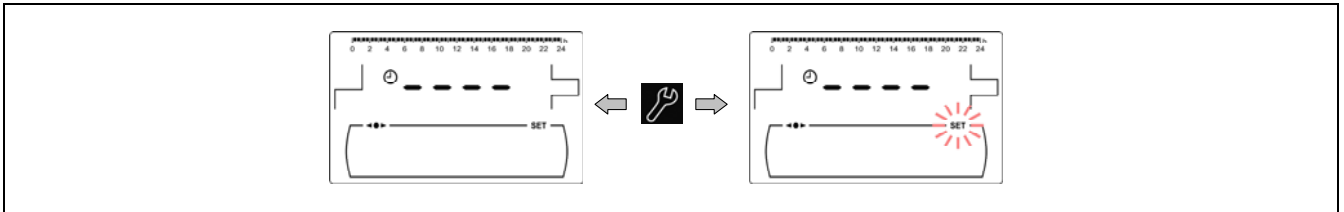
To access to the "Setup menu" press . Browse through the menu by pressing the symbols "+" or "-" of heating (18). When a parameter is displayed, press  to access and set it. When the parameter has been set, press  again, the new value will be saved and the display will return to "Setup menu". Press RESET any time to go back without recording any value. In the following table are listed all the parameters of "Setup menu".

Nº.	Parameter	Display
1	Boiler timer programming.	
2	Fuel suction system timer programming.	
3	Time setting.	
4	Ashtray empty warning function.	
5	Manual setting of feed auger calibration.	
6	Screen contrast setting.	

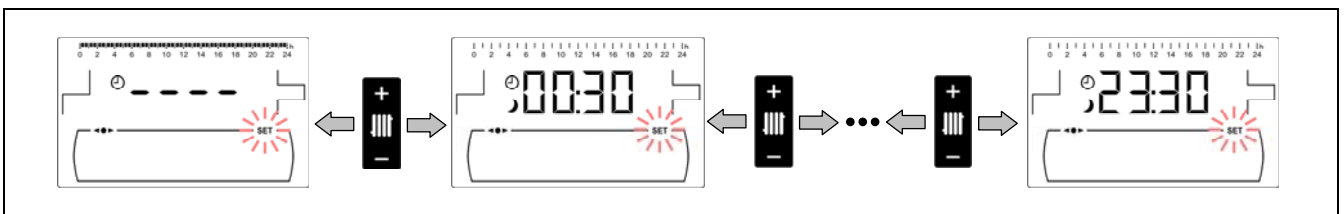
9.1 Timers programming process



BioClass HM boiler allows setting 2 different timers: boiler timer and fuel suction system timer. The default setting for the timers is disabled ("- - - -"), so the functioning that is regulated by each timer will operate 24 hours. The programming process is the same for any timer.

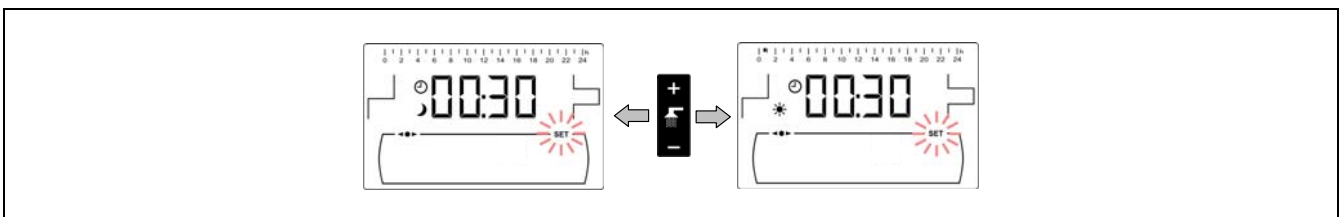
When the desired timer is displayed, press  to access. SET symbol blinks to start the setting process:



Select the time periods (30 minutes periods) by pressing "+" o "-" of heating **(18)**.




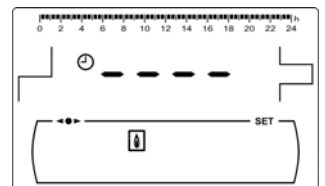
When the period desired is selected, change it state by pressing "+" o "-" of DHW **(19)**. The function will be switched off if symbol  is displayed and it will be switched on if symbol  is displayed.




After setting all the periods desired, press  to save and return to "Setup menu" level.

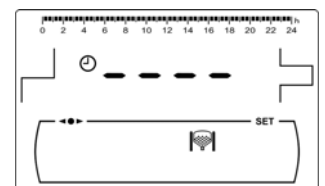
9.2 Boiler timer programming

This timer is used to adjust the switching on and off periods of the boiler functioning. To disable the timer, select boiler timer programming  and set it to "- - - -" by pressing "-" of the boiler temperature touch button **(18)**. The boiler timer will be cancelled and it will be switched on permanently.




9.3 Programming the Fuel suction system

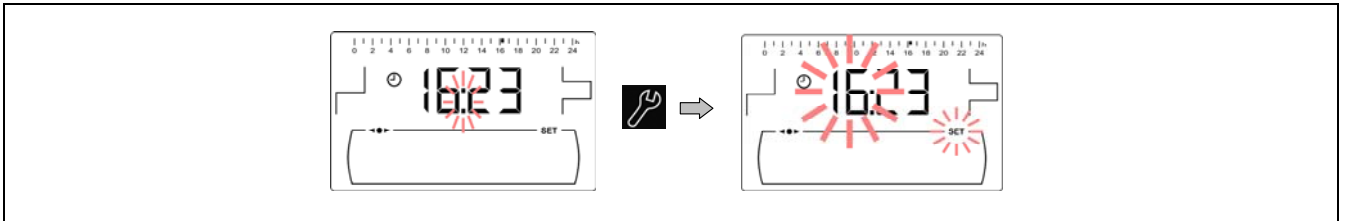
This programme displays the status of the fuel suction system. This process is used to adjust the periods during which the operation of the pellet suction system will be enabled or disabled. To disable the timer, select the **Fuel suction system** timer programming  and set it to "- - - -" by pressing "-" of the boiler temperature touch button **(18)**. timer will be cancelled and it will be switched on permanently.




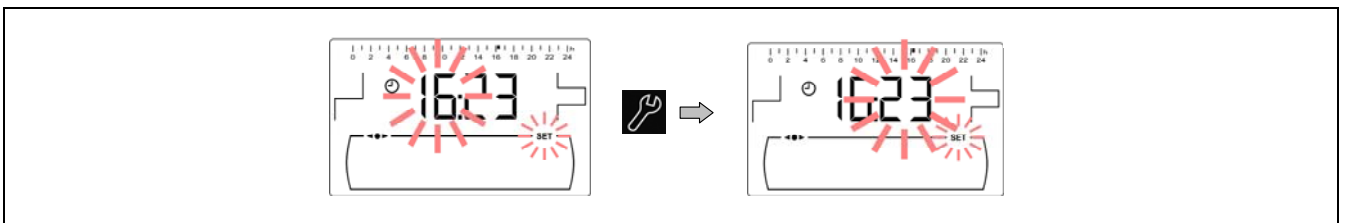
BioClass HC


9.4 Time setting

When "Time setting" parameter of "Setup menu" is displayed, press  to access. The first two digits of numerical digits blinks (hours) and setting process begins:



Set the hour value by pressing "+" or "-" of DHW (19). Pressing  the value is saved and the minutes digits blinks to set them.



Set the minutes value by pressing "+" or "-" of DHW (19). Pressing  the value is saved and it returns to "Setup menu" level.

9.5 Empty ash box notice

With this function activated, the boiler lets us know when the boiler ash box is full, so that we proceed with its emptying. The parameter "Ashtray status" of "User Menu" allows checking the actual fill level. When it is full, an "Empty the ashtray" warning is activated..

By default, the ash box reminder function is supplied activated and is set to indicative fuel consumption values which, depending on the quality and type of fuel, will have to be adjusted for each system. Below shows the default number of kilograms at which the boiler notifies you to empty the ash drawer:

Boiler model	kg
BioClass HM 66	6000 kg
BioClass HM 43	1350 kg
BioClass HM 25	1000 kg

These values must be updated in the models **BioClass HM 25** and **BioClass HM 43**, with the values from the table below and following the instructions in the paragraph "Ashtray empty notice" on the boiler manual.

Boiler model	Kg Pellets
BioClass HM 25	2800 kg
BioClass HM 43	4000 kg

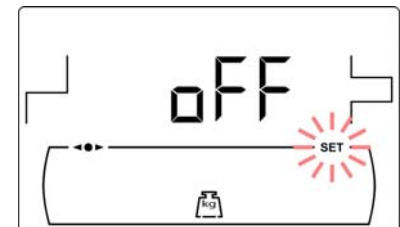
Select "Ashtray empty warning" (🔥) parameter of "Setup menu" and press 🔧 to access. The value is set by pressing "+" and "-" symbols of setting (19). It is possible to deactivate this function by setting the value of this parameter to "OFF".



NOTE: Each time a new value is set for this parameter, the ashtray must be emptied.

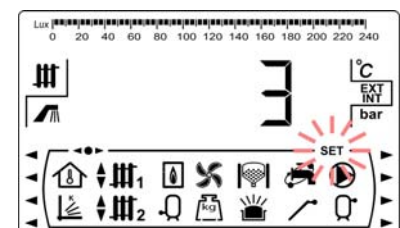
9.6 Manual setting of feed auger calibration

When this parameter is displayed (📊) on "Setup menu", press 🔧 to access and set the value desired by pressing "+" or "-" of setting (19). The range of values selectable is OFF, 0.500 - 5.000 kg.







9.7 Screen contrast setting




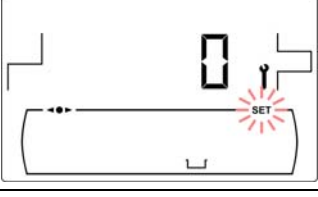

When this parameter of the "Setup menu" is displayed, press 🔧 to access and set the value desired by pressing "+" or "-" of setting (19). The range of values selectable is 1 - 5.



10 CALIBRATION MENU

"*Calibration Menu*" consists of a number of processes and parameters that allow the correct set up of the boiler.

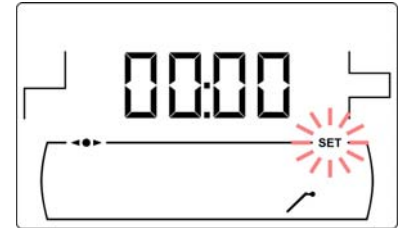
To access the "*Calibration Menu*", the boiler must be switched off by pressing  tactile button. After having switched off the boiler press  for 5 seconds to access to the menu. Browse through the menu by pressing the symbols "+" or "-" of heating (18). When the desired parameter is displayed, press  to access and set it. When the parameter or process has been set, press  again, the value will be saved and the display will return to "*Calibration menu*". Press RESET any time to go back without recording any value. In the following table are listed all the parameters and processes included in "*Calibration menu*".

Nº.	Parameter	Display
1	Feed auger filling	
2	Feed auger calibration	
3	Manual setting of feed auger calibration	
4	Manual ash cleaning activation	
5	Manual circulation pumps activation	

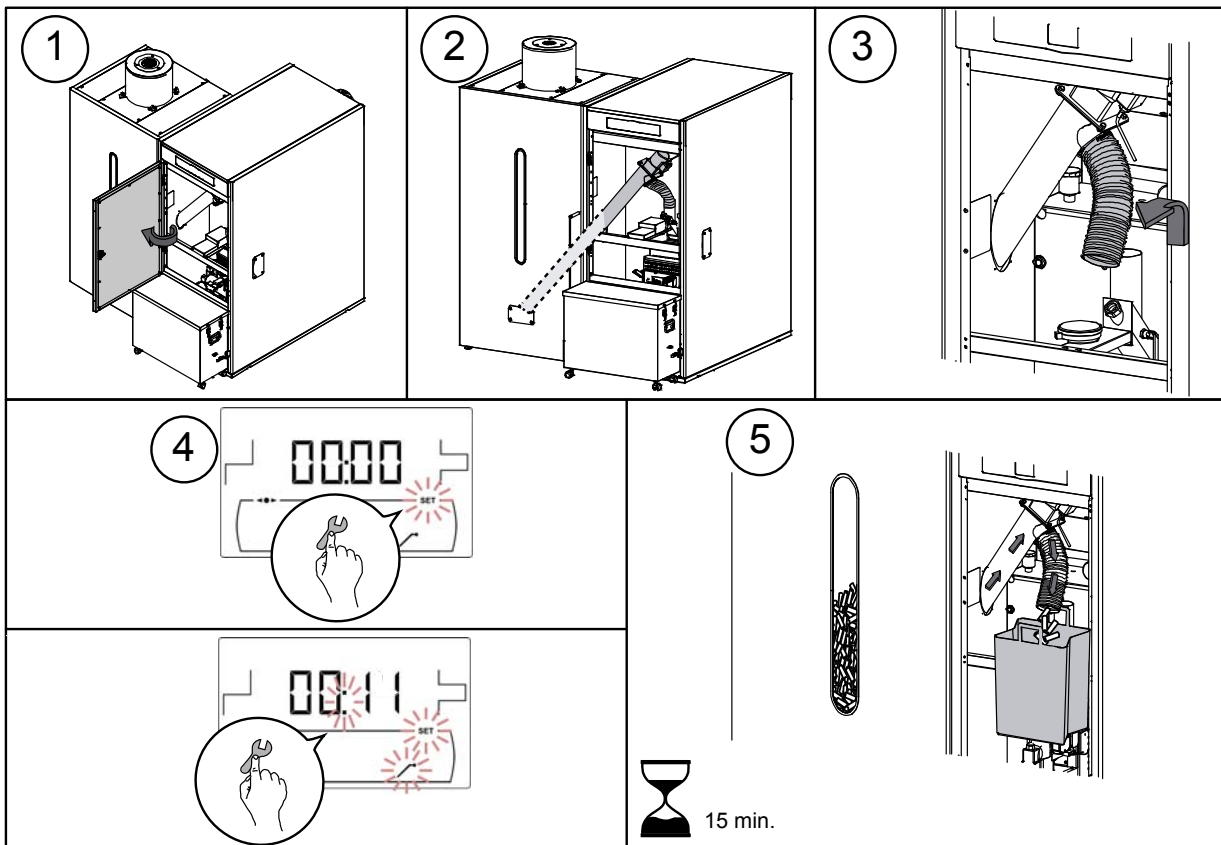
10.1 Feed auger filling

During the commissioning of the boiler, before calibrating the feed auger or if the hopper runs out of fuel, **it is compulsory** to fill of fuel the feed auger. By means of this parameter the feed auger will be filled of fuel, process required for a correct boiler functioning.

When "Feed auger filling" parameter is displayed (🔧) on "Calibration Menu", press 🔧 to access. SET symbol blinks and pressing 🔧 again it will be activated filling procedure. The feed auger will be activated and a count up to 15 minutes (maximum) will be displayed. During the process by pressing 🔧 the feed auger could be stopped at any time and by pressing RESET the filling procedure could be finished and return to "Calibration Menu" at any time.



To ensure a complete filling of boiler feed auger it is recommended to make a complete 15 minute procedure of filling, at least once. Follow the steps shown in the following pictures for a correct filling of the feed auger:



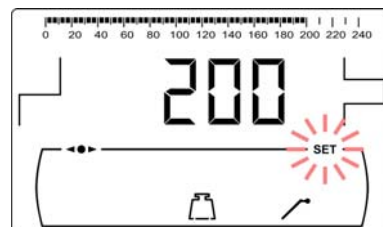
IMPORTANT: It is compulsory to fill each feed auger during the commissioning or when the hopper runs out of fuel.

BioClass HC

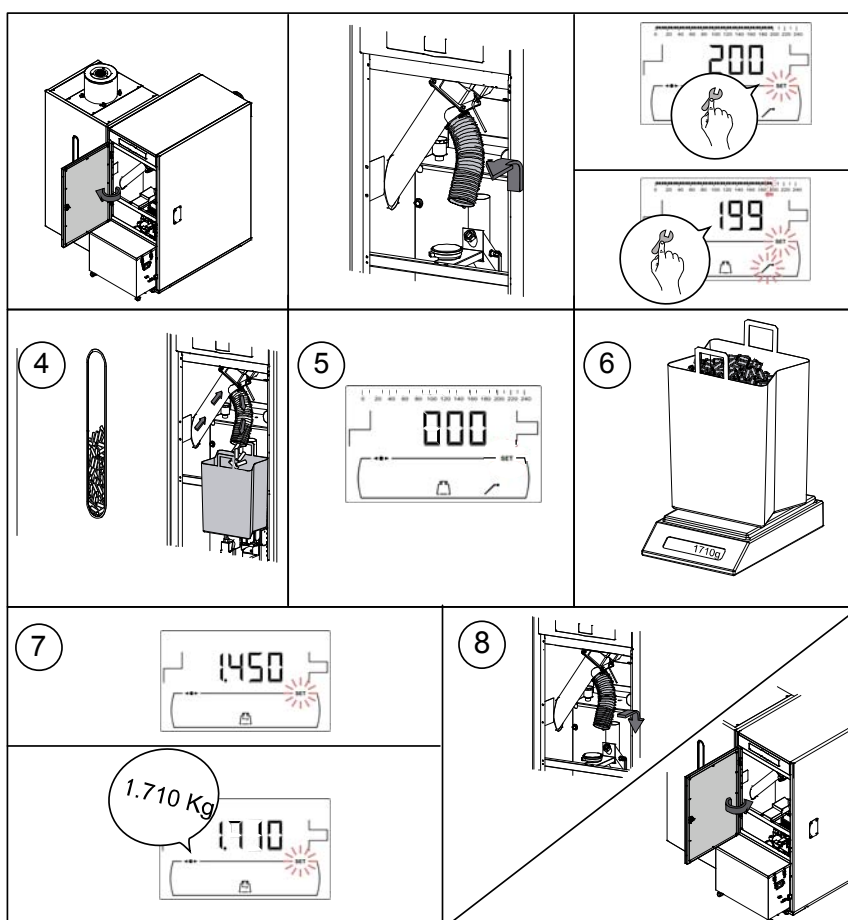
10.2 Feed auger calibration

By means of calibrating the feed auger the electronic controller of the boiler adjusts the optimum amount of fuel required to supply the burner and to produce the correct heat output and combustion. By means of this parameter the feed auger calibration procedure will be made, process required for a correct boiler functioning. **In any case the hopper is empty or it runs out of fuel, it is compulsory to fill the feed auger before carrying out the calibration process. It is compulsory to calibrate the feed auger on commissioning and whenever the fuel supplier is changed** (not all suppliers provide fuel of the same quality and size).

When "Feed auger calibration" parameter is displayed (🔧) on "Calibration Menu", press 🔧 to access. SET symbol blinks and pressing 🔧 again it will be activated calibration procedure. The feed auger will be activated and a countdown from 200 doses will begin. When the countdown finishes current calibration value will be displayed, press 🔧 to adjust the new value obtained during the procedure by pressing "+" or "-" symbols of setting (19). Finally pressing 🔧 the value will be saved and it will return to Calibration Menu level.





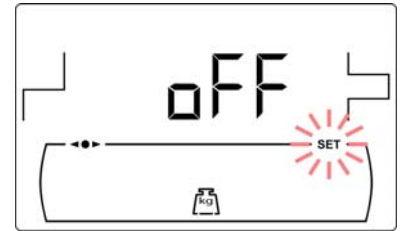
This process must be carried out at least twice to ensure the correct amount of fuel has been added. Follow the steps shown in the following pictures for a correct calibration of the feed auger:







IMPORTANT: Calibrate the feed auger during commissioning of the boiler or whenever the fuel supplier has been changed.

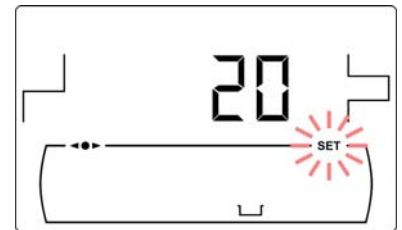
10.3 Manual setting of feed auger calibration

By means of this parameter the weight obtained in the feed auger calibration procedure can be set manually. When "Manual setting of feed auger calibration" parameter is displayed () on "Calibration Menu", press  to access and set the value desired by pressing "+" or "-" of DHW (19). The range of values selectable is OFF, 0.500 - 5.000 g.







10.4 Manual ash cleaning activation

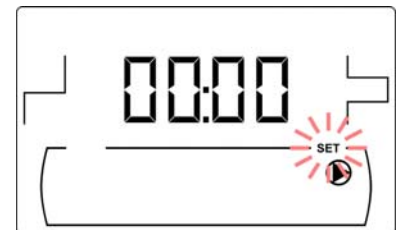
By means of this parameter the burner ash cleaning device can be switched on manually up to a maximum of 20 cleaning cycles. When "Manual ash cleaning activation" parameter is displayed () on "Calibration Menu", press  to access. SET symbol blinks and pressing  again it will be activated the cleaning system. A countdown of 20 cycles will be displayed. When the countdown is finished the cleaning device will stop. By pressing  the cleaning procedure can be stopped at any time and by pressing RESET it will return to "Calibration Menu" level.



10.5 Manual circulation pumps activation



By means of this parameter the circulation pumps can be switched on manually. When "Manual circulation pump activation" parameter is displayed () on "Calibration Menu", press  to access. SET symbol blinks and pressing  again the circulation pumps will be activated for a period of not more than 20 minutes.

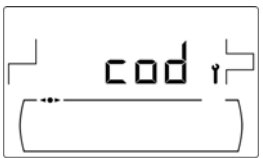
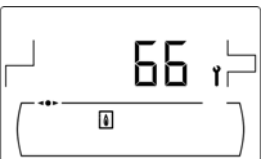
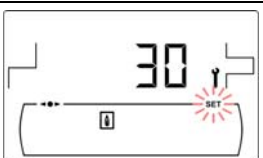
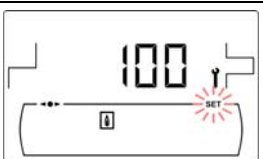
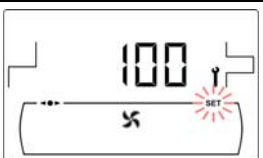
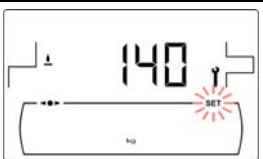

By pressing  the circulation pumps can be stopped at any time and by pressing RESET it will return to "Calibration Menu" level.

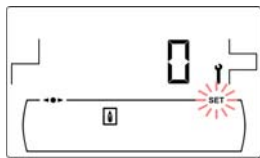
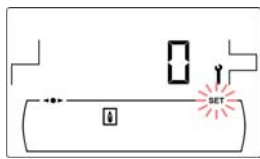

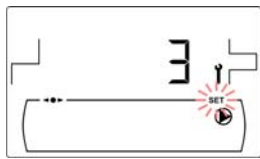
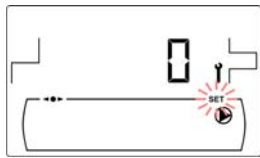

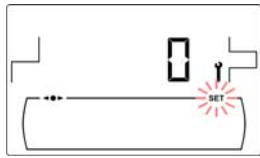
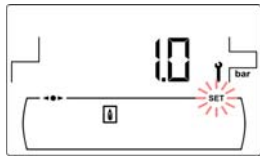


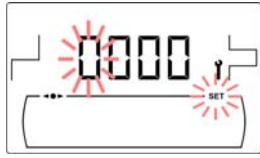


11 TECHNICAL MENU


"*Technical Menu*" consists of a number of technical operating parameters that only have to be modified by a person with sufficient technical knowledge of the meaning of each parameter. Any inappropriate setting of a parameter of "*Technical Menu*" can cause a serious malfunctioning of the boiler and could cause damages to people, animals or things.

To access the "*Technical Menu*" press MENU and RESET tactile buttons together for 5 seconds. Access code ("cod") request will be displayed (see "*Entry and set the access code*"). After entering the correct code, the first parameter of "*Technical menu*" will be displayed. Browse through the menu (**P.01**, ..., **P.25**) by pressing the symbols "+" or "-" of heating (**18**). When the desired parameter is displayed, press  to access and set it by pressing the symbols "+" or "-" of DHW (**19**). When the parameter has been set, press  again, the value will be saved and the display will return to "*Technical menu*". Press RESET any time to go back without recording any value. The following table lists these parameters and they are described in detail in the following sections of the manual:


N°	Parameter	Display
Cod	Access code (by default 1234)	
P.01	Boiler model	
P.02	Minimum boiler heat output (%)	
P.03	Maximum boiler heat output (%)	
P.04	General fan speed factor (%)	
P.05	Fuel for ignition (g)	
P.06	Fuel consumption (kg/h)	

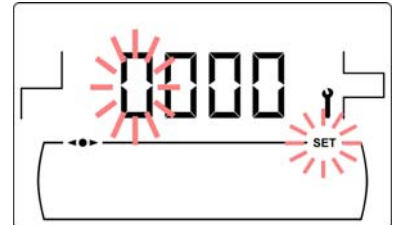
N°	Parameter	Display
P.07	Fuel type <i>(Not available for BioClass HC)</i>	
P.13	Boiler minimum temperature mode	
P.14	Minimum boiler temperature (°C)	
P.15	Heating pump post-circulation time (min)	
P.18	Boiler's pump operating mode (BC)	
P.19	Minimum boiler water pressure (bar)	
P.20	Multifunction relay	
P.21	Automatic water filling pressure(bar) <i>(P.20 = 3 option only)</i>	
P.22	Fuel suction system cycle time (s) <i>(Only for the boiler which is connected to the Fuel suction system)</i>	
P.24	Reset default values	
P.25	Set access code	

BioClass HC

N°	Parameter	Display
P.26	Auxiliary parameter for fuel selection <i>(Not available for BioClass HC)</i>	

11.1 Entry and set the access code ("cod", P.25)

When the access code request is displayed or to set a new one (P.25), press  to access. SET symbol blinks and it would be possible to enter the code or set it. Press the "+" o "-" for heating symbols (18) to browse trough the digits and press the "+" o "-" for DHW symbols (19) to set each digit. By default, the access code is "1234". The P.25 parameter allows to set a new access code.



12 BOILER'S SETUP PARAMETERS

The following parameters in the "*Technical Menu*" allow to adjust the boiler to each installation. They only may be modified by a person with sufficient technical knowledge of the meaning of each parameter. Any inappropriate setting of a parameter of "*Technical Menu*" can cause a serious malfunctioning of the boiler and could cause damages to people, animals or things.

12.1 Boiler Model (P.01)

Parameter **P.01** displays the model of the boiler set at DIP-switch on the electronic board.

P.01 = 25 => BioClass HM 25

P.01 = 43 => BioClass HM 43

P.01 = 66 => BioClass HM 66

12.2 Boiler heat output (P.02, P.03)

BioClass HM boiler is configured to modulate between a minimum and a maximum burner heat output. By means of parameters **P.02** and **P.03** the minimum and maximum heat output of the burner may be set at desired value.

12.3 General fan speed factor (P.04)

By means of parameter **P.04** the fan speed percentage may be set, in order to increase or decrease the combustion air quantity and ensure a correct combustion. Changing its value affects the fan speed percentage for the entire modulation curve. If it is set below 100 % the air quantity will decrease and if it is set a higher value the air quantity will increase. The range of values selectable is 0 - 200 % (by default 100%).

12.4 Fuel for ignition (P.05)

By means of parameter **P.05** the amount of fuel for burner ignition procedure may be set at desired value. The range of values selectable is 0 - 900 g.

12.5 Fuel consumption (P.06)

By means of parameter **P.06** the amount of fuel consumed by the boiler at 100% heat output may be set, in kilograms per hour. The range of values selectable is 1.00 - 30.00 kg/h.

12.6 Fuel type (P.07)

By default **BioClass HM** boiler is configured to burn wood pellets. No other fuel combustion is allowed and, therefore, the **P.07** parameter is not valid for this model.

12.7 Auxiliary parameter for fuel selection (P.26)

By default **BioClass HM** boiler is configured to burn wood pellets. No other fuel combustion is allowed and, therefore, the **P.26** parameter is not valid for this model.

BioClass HC

12.8 Boiler minimum temperature mode (P.13, P.14)

By means of parameters **P.13** and **P.14** a different mode of temperature managing may be set (by default **P.13 = 2**), if heating or/and DHW services are enabled. When parameter **P.13** is set to 0, by parameter **P.14** the minimum temperature can be selected as desired, between 30 and 60 °C. The following regulation modes of minimum temperature can be selected:

P.13 = 0 => Maintains the minimum temperature set at **P.14** parameter.

P.13 = 1 => Maintains the boiler temperature set point.

P.13 = 2 => Does not maintain any boiler temperature.

13 HEATING CIRCUIT'S SETUP PARAMETERS

BioClass HM is equipped with an electronic controller to manage efficiently the automatic functioning of the boiler. It also has the following additional parameters to regulate the heating circuit connected. They only may be modified by a person with sufficient technical knowledge of the meaning of each parameter. Any inappropriate setting of a parameter of "*Technical Menu*" can cause a serious malfunctioning of the boiler and could cause damages to people, animals or things.

13.1 Heating pump post-circulation time (P.15)

This function keeps the heating pump (**BC**) running for a period of time after deactivating the heating service, to avoid the overheating due to the temperature inertias of the heating installation. By means of parameter **P.15** the period of time that the pump continues to operate may be set. The range of values selectable is 0 - 40 minutes (by default 3 minutes).

13.2 Boiler's pump operating mode (P.18)

The electronic controller allows to select between two operating modes of boiler's circulating pump (**BC**) by means of **P.18** parameter of the "*Technical Menu*". The following operating modes can be selected:

- P.18 = 0** => Standard mode: The circulation pump will be run depending if the heating demand is activated or not.
- P.18 = 1** => Continuous mode: The pump continues to run provided that the heating mode is enabled (boiler temperature set point different to OFF). If there is room thermostat or remote control connected to the boiler, the electronic controller will regulate the burner functioning according to the heating demand, keeping the pump running continuously.

13.3 Minimum boiler water pressure (P.19)

BioClass HM is equipped with a water pressure sensor that makes possible to know the pressure of the boiler. If the pressure descends below the value set at **P.19** parameter, the electronic controller locks out the functioning of the boiler and **E-19** alarm code is displayed (see "*Safety lock-outs*"). The range of values selectable is 0.1 - 0.5 bar (by default 0.5 bar).

13.4 Maximum heating flow temperature of mixed circuits (P.27)

The electronic controller allows to select the maximum heating flow temperature for mixed circuits installed in the boiler with an optional Bio Hydraulic Kit. By means of parameter **P.27** the maximum heating flow temperature may be set. The range of values selectable is 45 - 80 °C (by default 45 °C for mixed circuits)).

14 ADDITIONAL FUNCTIONS

BioClass HM boiler includes the following additional control functions. They only may be modified by a person with sufficient technical knowledge of the meaning of each parameter. Any inappropriate setting of a parameter of *“Technical Menu”* can cause a serious malfunctioning of the boiler and could cause damages to people, animals or things.

14.1 Time of the automatic pellet feeding cycle

In the boiler connected to the fuel suction system, using the **P.22** parameter, the activation cycle time of the system can be adjusted.

14.2 Reset default values (P.24)

In case any parameter is wrongly set or if the boiler works incorrectly, all the original values of the parameters can be reset automatically by selecting "Yes" in **P.24** parameter.

14.3 Pumps anti-lock function

This function prevents the boiler circulating pumps from locking if they have been out of use for a long period of time. This system remains enabled while the boiler is plugged into the mains.

14.4 Anti-frost function

This function protects the boiler from freezing during cold weather periods. If the boiler temperature drops below 6 °C, the heating pump will start running until the boiler temperature reaches 8 °C. If the boiler temperature continues to drop below 4 °C, the burner will start running, in order to heat the installation. It will continue working until the boiler reaches 15 °C. This system remains on standby while the boiler is plugged into the mains.

14.5 Boiler pressure sensor function

This function prevents boiler failure caused by a low or high water pressure level in the boiler. The pressure is detected by a pressure sensor and its value appears on the control panel display (in the *“User Menu”*). When the pressure drops below the pressure set at **P.19** parameter (by default 0.5 bar), the electronic controller locks out the boiler functioning and displays **E-19** alarm code on the screen. When the boiler pressure exceeds 2.5 bar, **E-28** alarm code is displayed on the screen, warning about the excess of pressure. When it occurs repeatedly it is recommended calling the nearest **Technical Assistance Service** and draining the boiler water until the pressure is between 1 and 1.5 bar.

15 MULTI-FUNCTIONAL RELAY (P.20)

BioClass HC is equipped with an auxiliary relay output that may be used to select a series of additional functions that increase the boiler performance, features and comfort of the installation.

Several operating modes may be set at **P.20** parameter of the *“Technical Menu”* to define the *“multi-functional relay”* function. The default value of this parameter is 0 (disabled). The following sections describe the functions that could be set.

15.1 Boiler alarms external signal (P.20 = 1)

When this function is selected (**P.20 = 1**) if the boiler shows an error or an operating alarm code the multi-functional relay output will be activated, supplying voltage (230 V~) between terminals no. **4**: **“NO”** and **N** of the terminal strip **J3**, where any external alarm signalling device may be connected to warn of boiler malfunctioning.

When the boiler lockage is reset, the multi-functional relay output will supply voltage again (230 V~) between terminals no. **3**: **“NC”** and **N** of the terminal strip **J3**.

15.2 Automatic water filling function (P.20 = 3)

BioClass HC boiler may be connected to an automatic water filling system which can be activated or deactivated by **P.20** parameter.

It will be required to install a motorised valve to filling the water between the distribution water and the primary circuit of the boiler. This valve has to be connected in the multi-functional relay output between the terminals No **4 (NO)** and **N** of the terminal strip **J3** (see *“Connections diagram”*). The hydraulic installation and electrical connection of the automatic water filling system must be made by qualified personnel.

If the function is enabled (**P.20 = 3**) the electronic controller of the boiler will activate the multi-functional relay output supplying voltage (230 V~) between the terminals No **4 (NO)** and **N** of the terminal strip **J3** (see *“Connections diagram”*) that activates the connected filling valve to refill the primary circuit up to the pressure set at **P.21** parameter. If the boiler pressure drops below the minimum pressure set at **P.19** parameter the boiler will automatically fill up again until the filling pressure value is reached.

16 SAFETY LOCK-OUTS

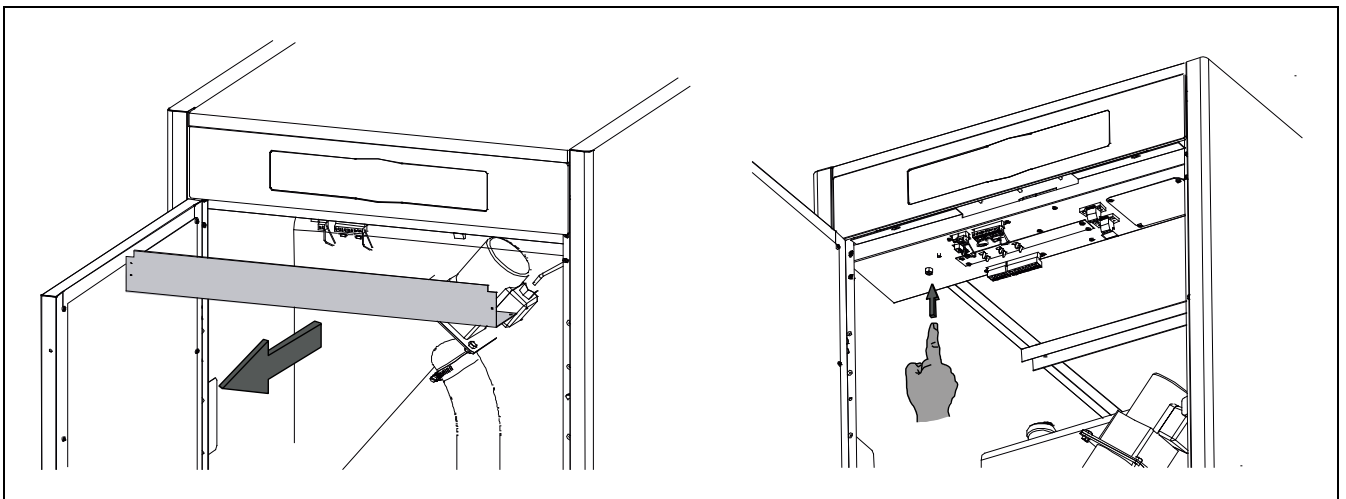
The boiler's electronic controller may activate the following safety lock-outs to stop the boiler functioning in order to prevent serious damages. When any of these lock-outs occur, the boiler will switch off and an alarm code will be displayed on boiler's screen.

IMPORTANT: If any of the safety lock-outs described below should occur repeatedly, switch off the boiler and put in contact with the nearest official Technical Assistance Service.

16.1 Water overheat safety lock-out (E-11)

When this lock-out occurs "E-11" alarm code (temperature alarm) will appear on the screen. The burner will switch off and stop heating the installation.

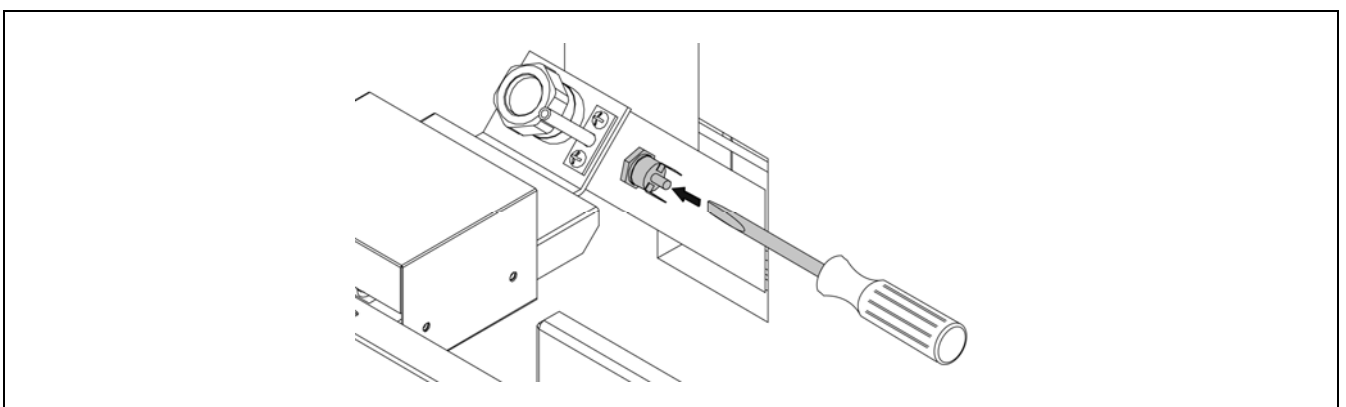
This lock-out occurs when the temperature of boiler's water exceeds 110 °C. To unlock it, wait until the temperature drops below 100 °C and press the button of the safety thermostat, located underside of the electrical case of the boiler, after having removed the button cover:



16.2 Fuel entrance tube overheat safety cut-out (E-05)

When this lock-out occurs "E-05" alarm code will appear on the screen. The burner will switch off and stop heating the installation.

This lock-out occurs when the temperature of the fuel entrance tube exceeds 80 °C. To unlock it, wait until the temperature drops and press the button on the safety thermostat using a screwdriver or a pen as is shown in the picture below:




16.3 Low pressure lock-out

When this lock-out occurs, **"E19"** alarm code will appear on the digital display. The burner and the boiler's circulation pumps will switch off, cutting off the heating and water flow to the installation.

This lock-out occurs when the pressure of boiler's water drops below the value set at **P.19** parameter of *"Technical menu"* (by default 0.5 bar), preventing the boiler from functioning when the water is drained from the installation, due to either leakage or maintenance operations. To unlock this alarm, fill the installation again (see *"Filling the installation"*) up to 1 or 1.5 bar, displayed on *"Water pressure"* parameter of *"User menu"*.

17 SHUTTING DOWN THE BOILER

Press  during 1 second to shut down the boiler. When the boiler is shut down the heating and DHW services are switched off but anti-frost and pumps anti-lock functions continue activated whereas the boiler is kept connected to the power supply and fuel installation.

Unplug the boiler from the power supply and cut out the fuel supply to shut down the boiler completely.

18 EMPTYING THE BOILER

Use the drain cock located on the bottom of the backside of the boiler to empty it of water. Before opening it, connect a flexible pipe leaded to a sewer. After finishing the procedure, close the cock and remove de flexible pipe.

19 BOILER MAINTENANCE

Various maintenance operations should be carried out at different intervals of time to keep the boiler in perfect working order. The yearly maintenance operations should be carried out by personnel authorised by **DOMUSA TEKNIK**.

19.1 Frequency of maintenance of the boiler and chimney

The most important aspects to be checked are as follows:

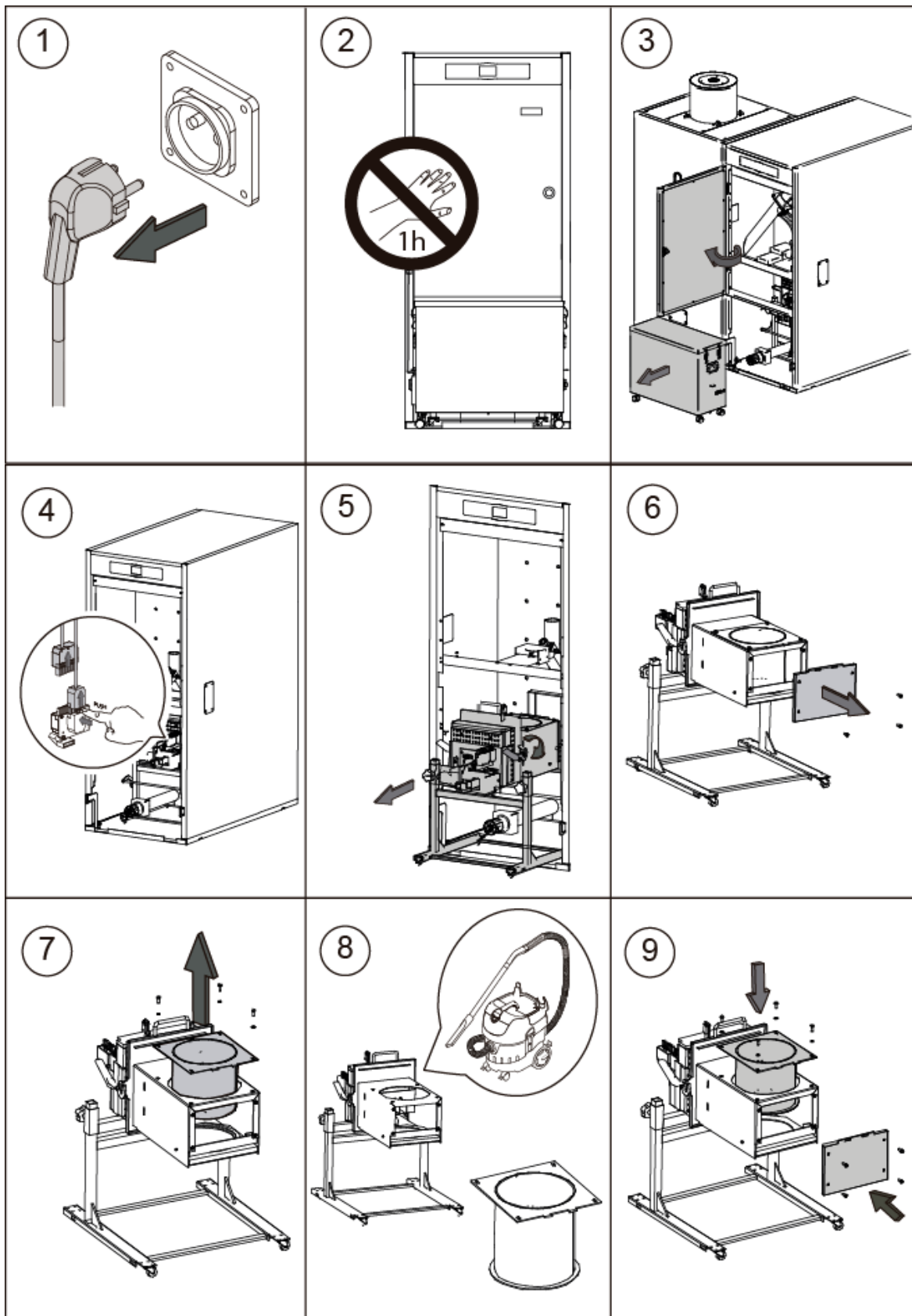
Nº	Operation	Frequency
1.	Check the fuel storage.	weekly
2.	Clean the ash in the ash box and ash drawer.	as required
3.	Check the boiler visually.	weekly
4.	Check if the feed auger is correctly calibrated.	as required
5.	Check and clean the boiler fume circuit.	yearly
6.	Check and clean the chimney. The chimney must be free of any obstacles and have no leaks.	yearly
7.	Clean the burner.	yearly
8.	Check the expansion vessel. It must be full, according to its data plate.	yearly
9.	Check the seal between the burner and the boiler.	yearly
10.	Check if the hydraulic circuits are correctly sealed.	yearly
11.	Check the brushes of the suction turbine	yearly
11.	Check the water pressure of the boiler. When the installation is cold , it should be between 1 and 1.5 bar.	yearly

NOTE: Depending on the fuel type and weather conditions, it may be necessary to clean the combustion chamber of the burner at a bigger frequency.

19.2 Burner cleaning procedure

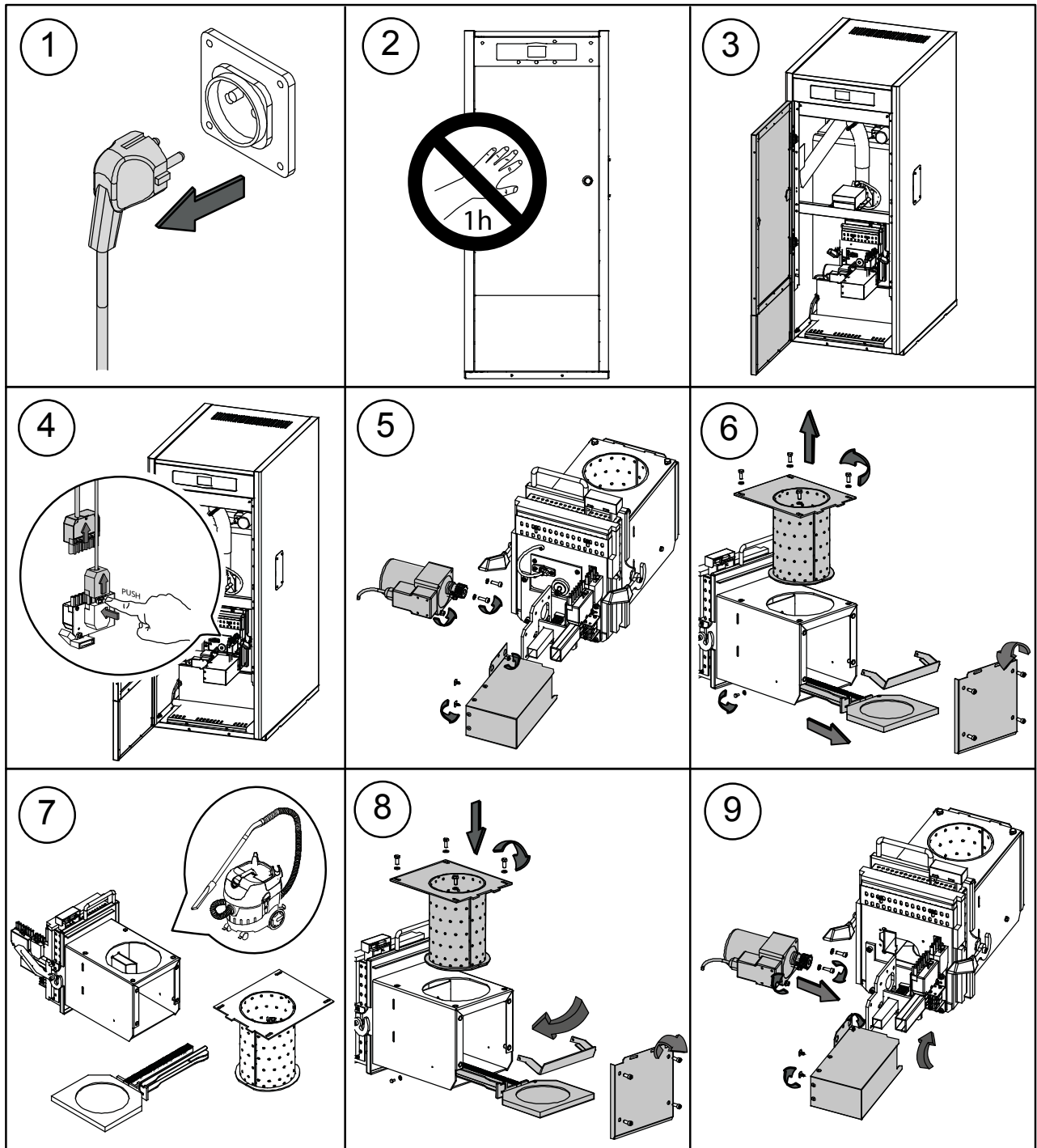
The following procedure is recommended for a correct cleaning of the burner:

BioClass HM 66



BioClass HC

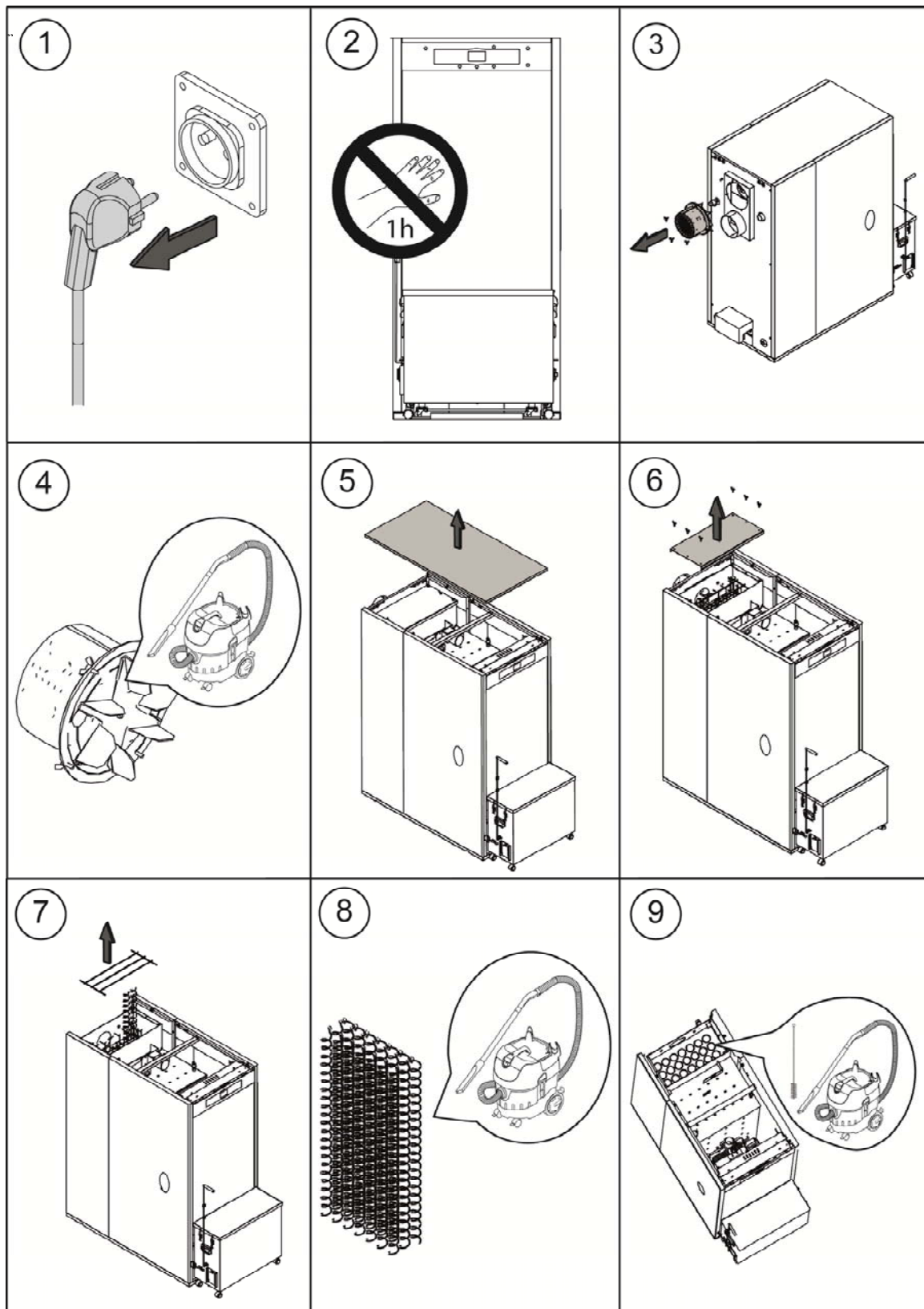
BioClass HM 25 y 43



19.3 Heat exchanger cleaning procedure

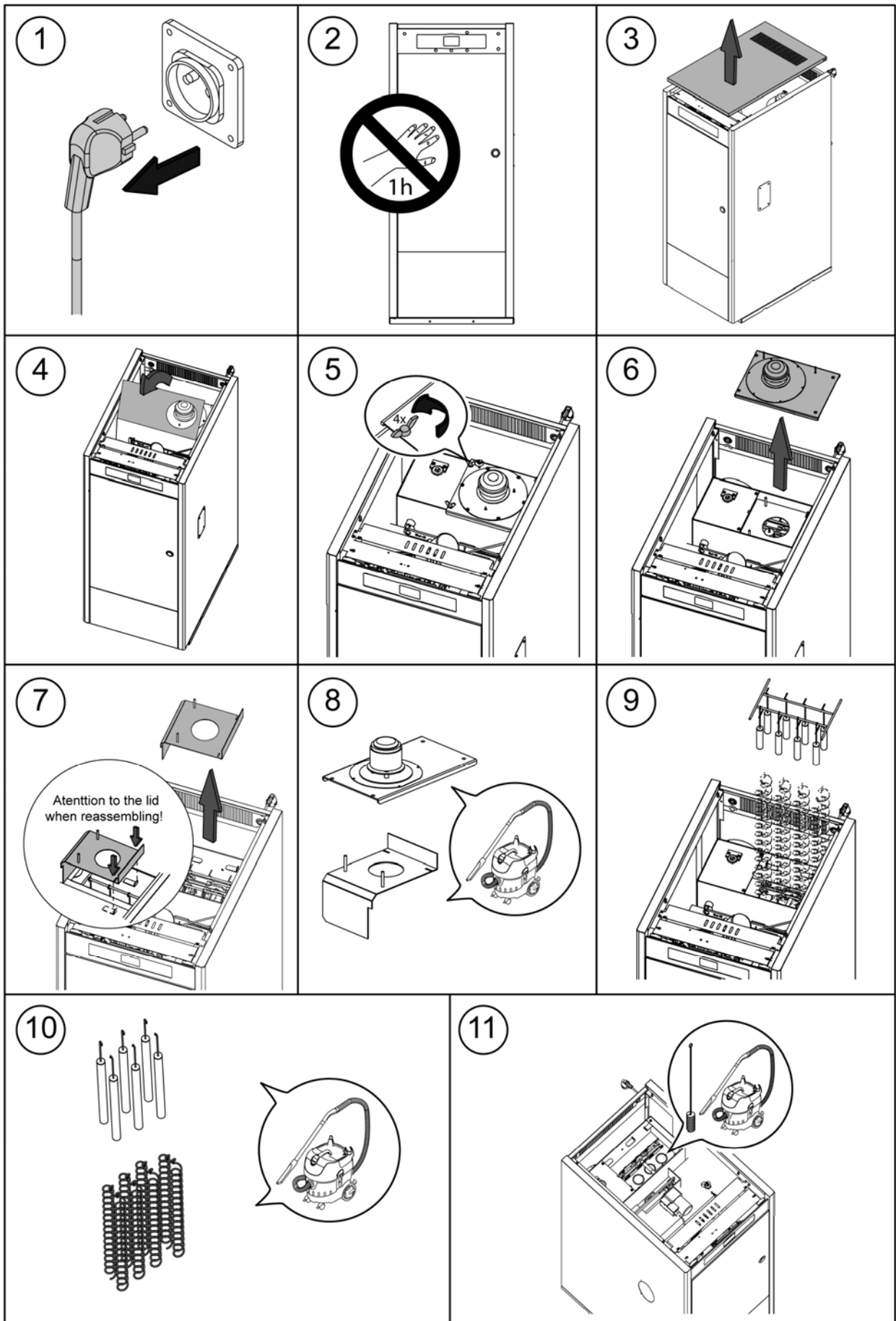
The following procedure is recommended for correctly cleaning the heat exchanger:

BioClass HM 66



BioClass HC

BioClass HM 25 and 43



19.4 Draining the condensate water

The draining device to take out the condensate water from the chimney should not be altered in any way and it must be kept free of obstructions.

19.5 Boiler water characteristics

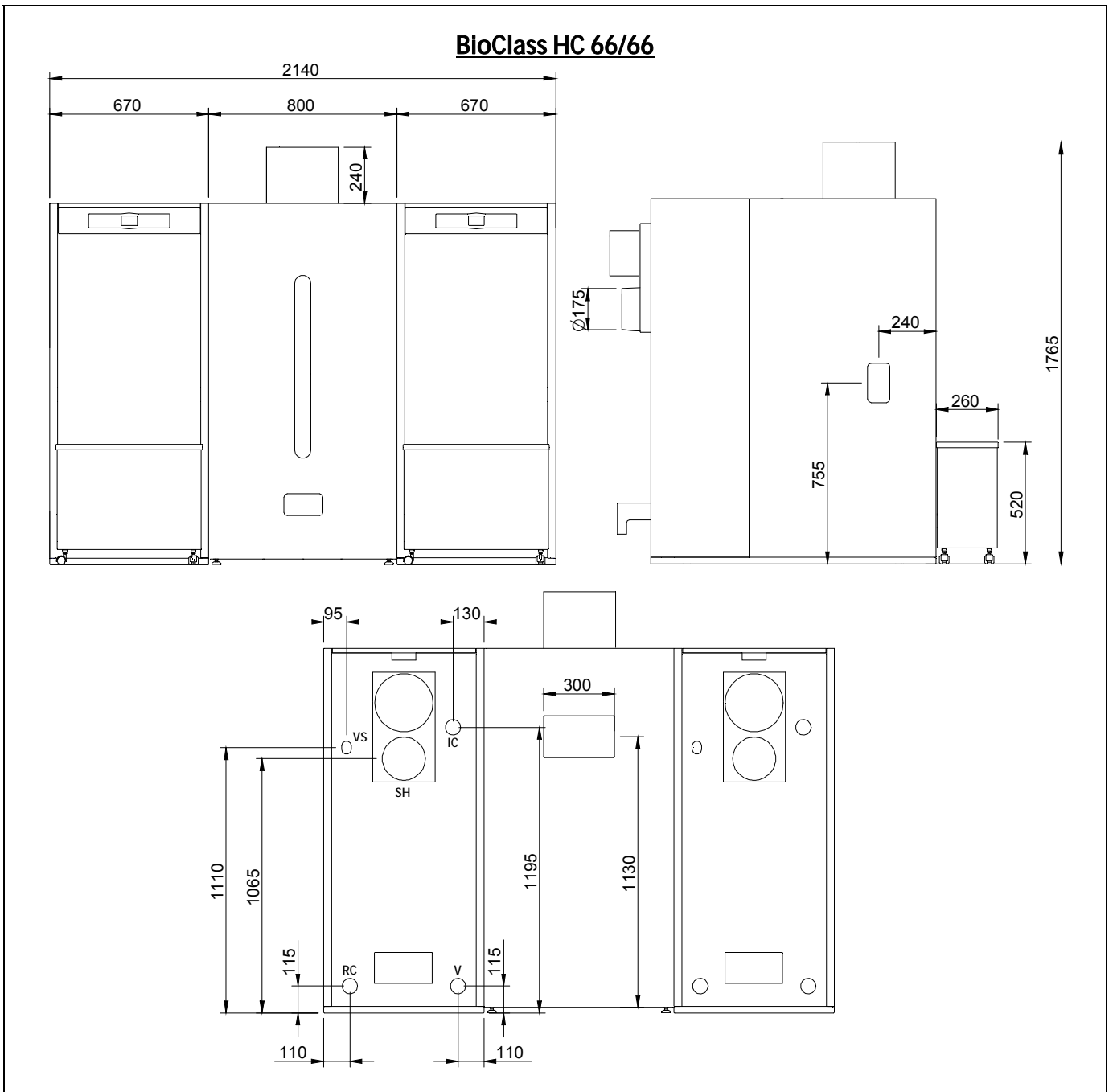
In areas with water hardness of over 25-30 °fH, treated water must be used in the heating installation to avoid any scale deposits on the boiler. It should be noted that even a few millimetres of scale will greatly reduce the boiler's heat conductivity, causing a major drop in performance.

Treated water must be used in the heating circuit in the following cases:

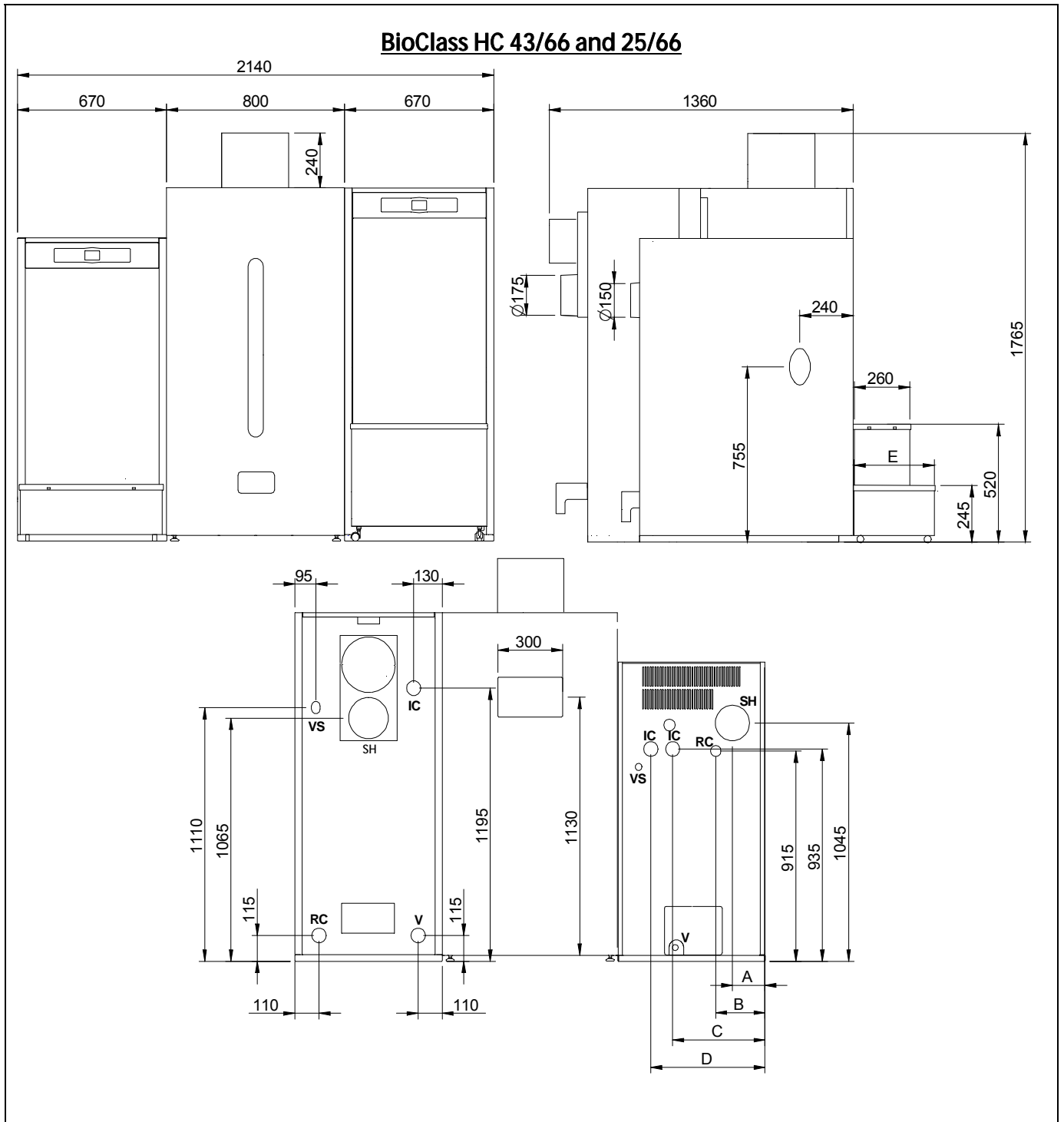
- Very large circuits (containing a large amount of water).
- Frequent filling of the installation.

If it is necessary to drain partially or totally the water of the installation very often, we recommend filling it with treated water.

20 DIAGRAMS AND MEASUREMENTS



- IC:** Heating flow 1 1/4" F
- RC:** Heating return 1 1/4" F
- SH:** Fume outlet.
- V:** Drainage cock.
- VS:** Pressure relief valve, 1/2" F

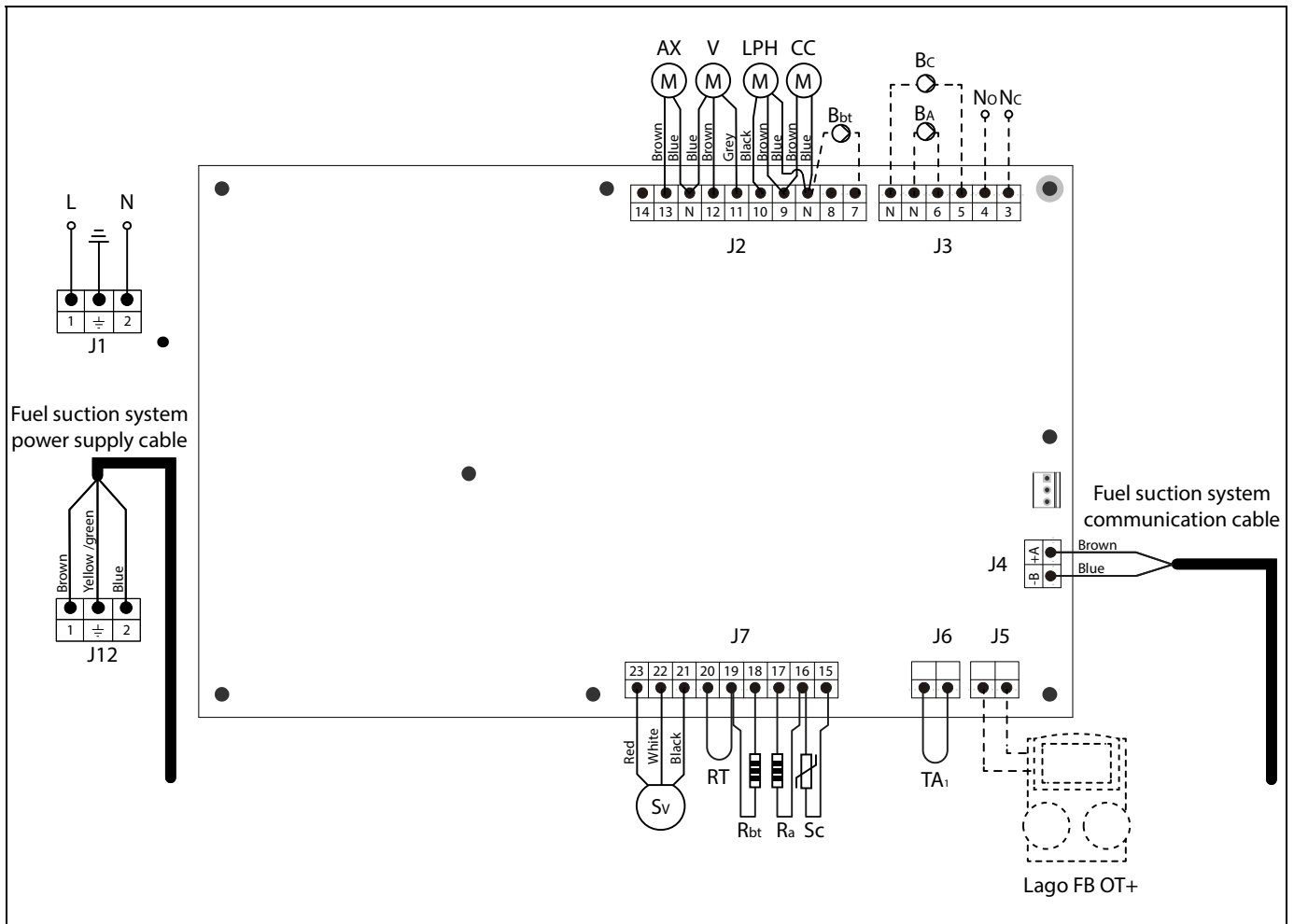


IC: Heating flow 1 ¼" F
RC: Heating return 1 ¼" F
SH: Fume outlet.
V: Drainage cock.
VS: Pressure relief valve, 1/2" F

	Dimensions (mm)				
	A	B	C	D	E
25 / 66	145	235	415	515	230
43 / 66	150	240	420	520	330

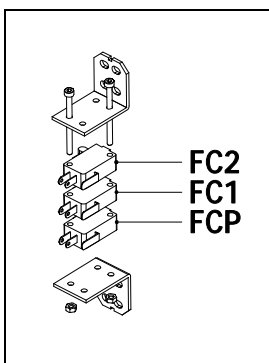
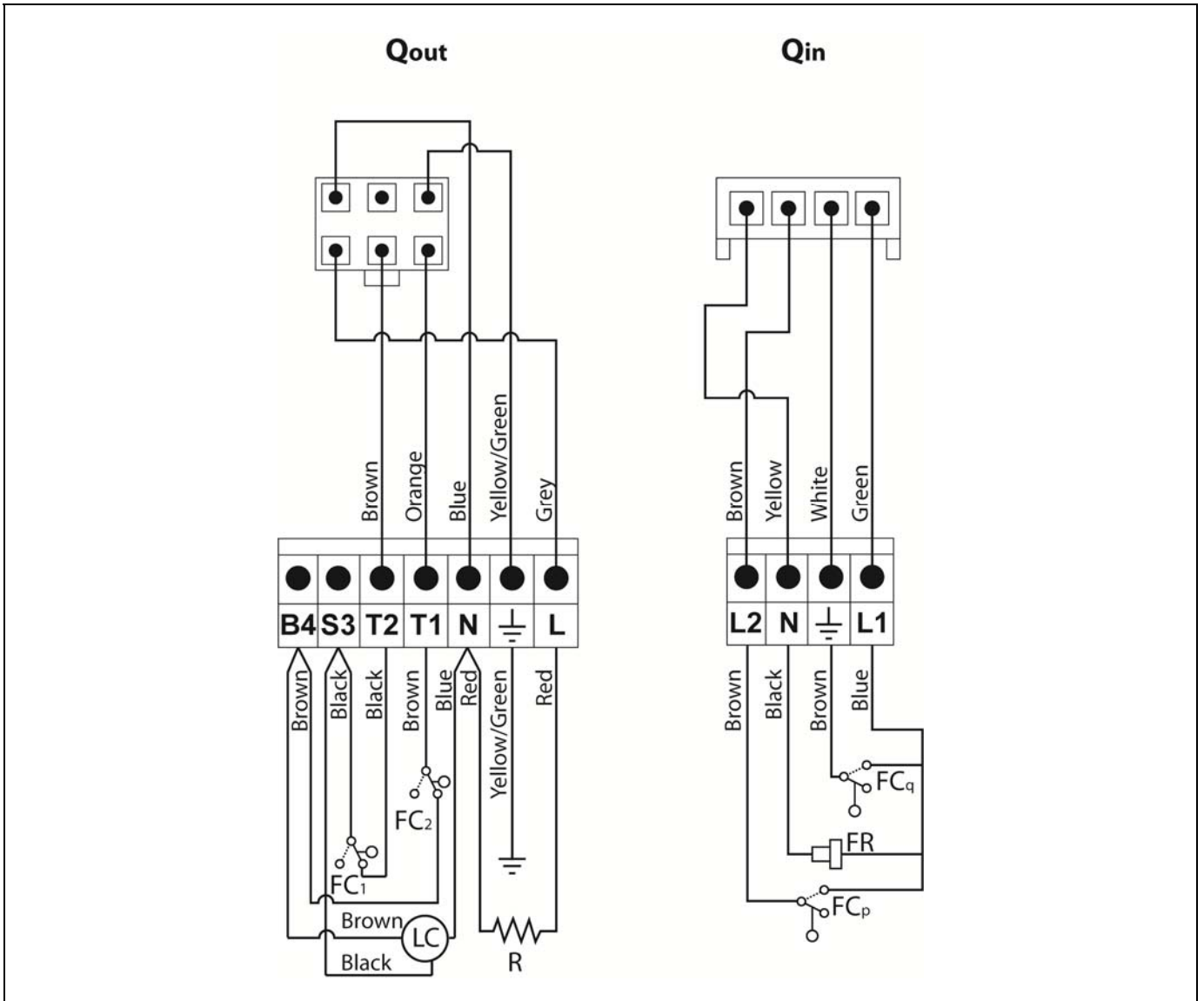
21 CONNECTIONS DIAGRAM

21.1 Boiler



- L:** Phase.
- N:** Neutral.
- AX:** Feed auger.
- V:** Fan.
- LPH:** Heat exchanger cleaning device.
- BC:** Boiler pump.
- NO:** Multi-functional relay.
- NC:** Multi function relay.
- TA:** Cascade control.
- Sc:** Boiler temperature sensor.
- Rbt/Ra:** Resistance.
- RT:** Remote relay.
- Sv:** Fan speed sensor.
- J1:** Power supply connector.
- J2:** Component connector.
- J3:** Component connector.
- J4:** Communication connector.
- J5:** **LAGO FB OT+** remote control connector.
- J6:** Cascade connector.
- J7:** Sensors connector.

21.2 Burner



Qout: Burner outputs connector.

R: Ignition heater.

LC: Burner ash cleaning device .

FC₁: Closed switch .

FC₂: Open switch .

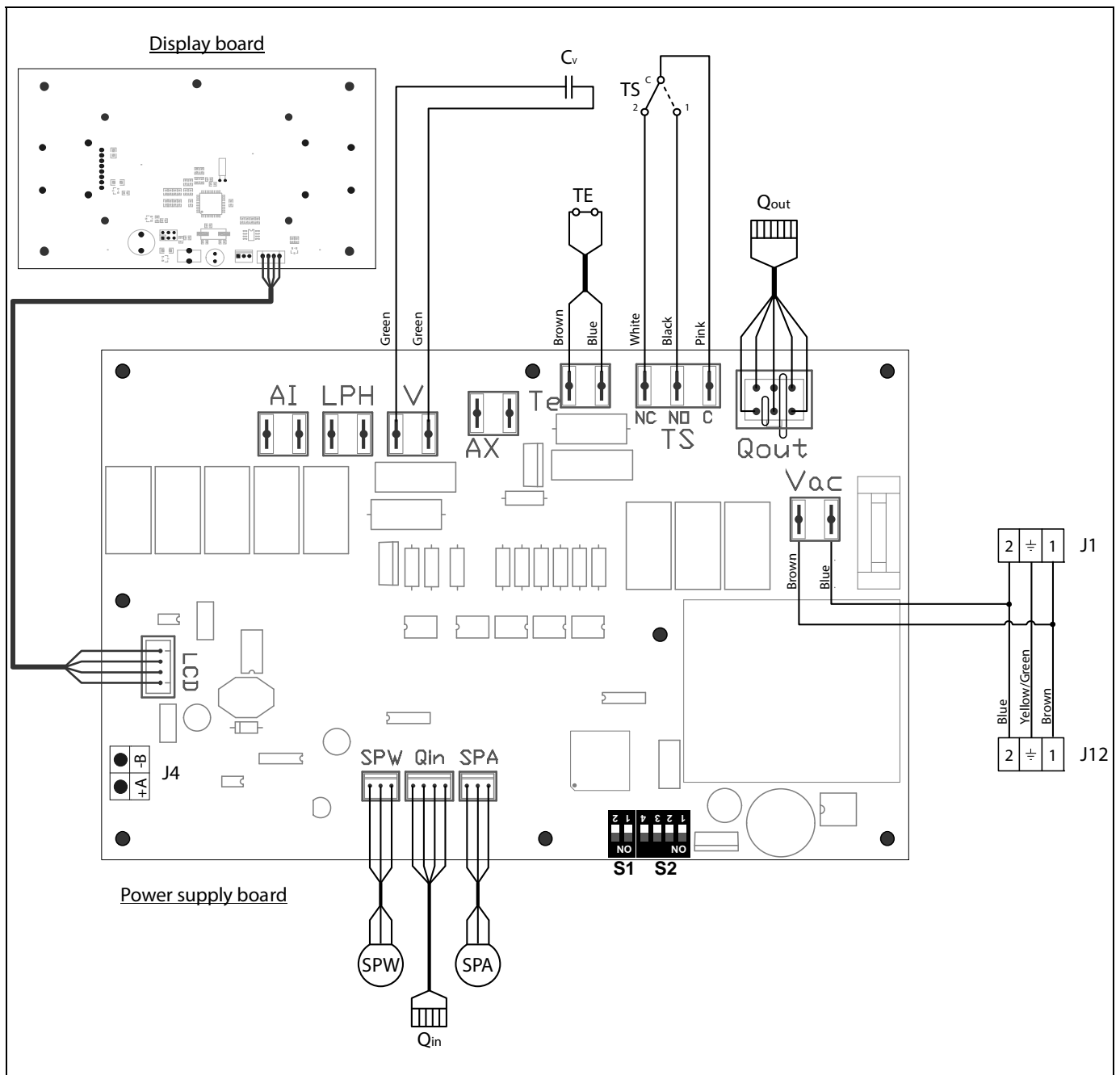
Qin: Burner inputs connector.

FC_q: Burner switch .

FR: Photocell .

FC_p: Ash cleaning device switch .

22 ELECTRICAL DIAGRAM



TS: Safety thermostat.

TE: Fuel entrance safety thermostat.

Cv: Fan capacitor.

SPW: Water pressure sensor.

SPA: Air pressure sensor.

Qout: Burner outputs connector.

Qin: Burner inputs connector.

LCD: Display communication connector.

J4: Communication connector.

S1, S2: Boiler model DIP-switch.

23 TECHNICAL DATA

MODEL		BioClass HC 25	BioClass HC 43	Bioclass HC 66
Rated heat output (P _n)	kW	25,3	45	66,6
Efficiency at maximum heat output	% (NCV)	93,1	94,2	94,9
Minimum heat output (P _p)	kW	7,6	12,8	20
Efficiency at minimum heat output	% (NCV)	93,2	93,1	95,2
CO at maximum heat output (10% O ₂)	mg/m ³	23	87	88
OGC (organic gaseous substances) at maximum heat output (10% O ₂)	mg/m ³	2	2	2
Particles content at maximum heat output (10% O ₂)	mg/m ³	3	19	12
CO at minimum heat output (10% O ₂)	mg/m ³	164	91	34
OGC (organic gaseous substances) at minimum heat output (10% O ₂)	mg/m ³	3	3	1
Boiler class (according to EN 303-5)	-	Clase 5		
Maximum operating pressure	bar	3		
Maximum operating temperature	°C	80		
Maximum safety temperature	°C	110		
Water volume	litros	73	104	154
Minimum flue draught	mbar	0,10		
Maximum flue draught	mbar	0,20		
Electrical supply	-	230 V~, 50 Hz, 2,50 A		
Boiler chimney diameter	mm	150		
Maximum water content of the fuel	%	7		
Minimum return temperature	°C	25 °C		50 °C
Water pressure drop (dT = 20 K)	mbar	140	180	22
Weight (net)	Kg	300	368	486

BioClass HC

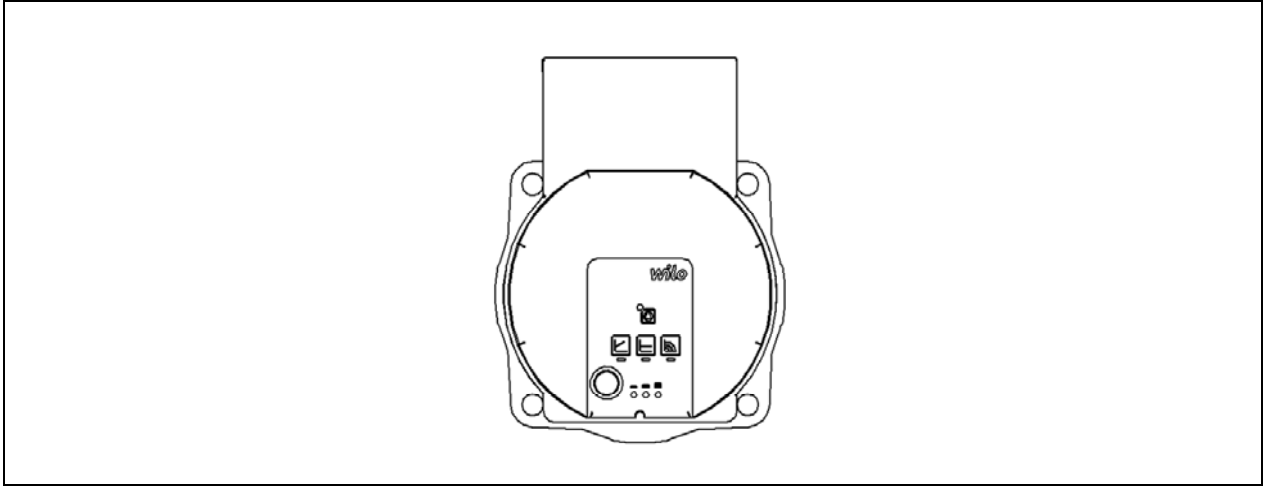
MODEL		BioClass HC 25	BioClass HC 43	Bioclass HC 66	
Rated heat output (P_n)	kW	25,3	45	66,6	
Efficiency at maximum heat output (η_n)	% (GCV)	85,2	86,2	86,9	
Minimum heat output (P_p)	kW	7,6	12,8	20,0	
Efficiency at minimum heat output (η_p)	% (GCV)	85,3	85,2	87,1	
Feeding mode	-	Automatic *			
Condensing boiler	-	No			
Combined boiler	-	No			
Cogeneration boiler	-	No			
Combustible	-	Wood pellet Ø6 - 8 mm. Maximum length 35 mm.			
Seasonal yield (η_s)	%	81	82	84	
Seasonal heating emissions	mg/m ³	mg/m ³	5	19	19
	mg/m ³	mg/m ³	3	3	1
	mg/m ³	mg/m ³	57	91	42
	mg/m ³	mg/m ³	147	160	150
Electricity consumption at nominal power ($e_{l_{max}}$)	kW	0,067	0,077	0,107	
Electricity consumption at 30% nominal power ($e_{l_{min}}$)	kW	0,026	0,029	0,035	
Electricity consumption in standby mode (P_{SB})	kW	0,004	0,004	0,004	
Energy Efficiency Index - EEI	-	120	120	123	

* It is recommended to use the boiler with a hot water storage tank of a minimum volume of 20 x P_n with P_n indicated in kW.

24 CHARACTERISTICS OF THE CIRCULATION PUMP

The characteristics and functionalities of the circulation pump are described below.

24.1 Characteristics of the SC pump



24.1.1 Symbology

Indicator lights (LEDs)



- Signal display:
 - LED is lit up in green in normal operation.
 - LED lights up/flashes in case of a fault.



- Display of selected control mode Δp -v, Δp -c and constant speed.



- Display of selected pump curve (I, II, III) within the control mode.



- LED indicator combinations during the pump venting function, manual restart and key lock.

Operating button



- Press:
- Select control mode.
 - Select pump curve (I, II, III) within the control mode.



- Press and hold
- Activate the pump venting function (press for 3 seconds).
 - Activate manual restart (press for 5 seconds).
 - Lock/unlock button (press for 8 seconds).

BioClass HC

24.1.1 Control modes

1- Constant speed I, II, III (traditional mode):

The pump operates at a constant, pre-set speed.










2- Variable differential pressure ($\Delta p-v$):

The setpoint value of the differential pressure H increases in a straight line between $\frac{1}{2}H$ and H within the permitted flow margin. The differential pressure generated by the pump is adjusted to the appropriate setpoint value of differential pressure.

3- Constant differential pressure ($\Delta p-c$):

The control keeps the set delivery head constant irrespective of the pumped volume flow.

4- Setting the control mode

	LED display	Control mode	Pump curve
1		Constant speed	II
2		Constant speed	I
3		Variable differential pressure $\Delta p-v$	III
4		Variable differential pressure $\Delta p-v$	II
5		Variable differential pressure $\Delta p-v$	I
6		Constant differential pressure $\Delta p-c$	III
7		Constant differential pressure $\Delta p-c$	II
8		Constant differential pressure $\Delta p-c$	I
9		Constant speed	III

Pressing the button for the 9th time returns to the basic setting (constant speed / characteristic curve III).

24.1.1 Functions

Venting

- Fill and vent the system correctly.

If the pump does not vent automatically:

- Activate the pump venting function via the operating button: press and hold for 3 seconds, then release.
- The pump venting function is initiated and lasts 10 minutes.
- The top and bottom LED rows flash in turn at 1 second intervals.
- To cancel, press and hold the operating button for 3 seconds.

However, this function does not vent the heating system.

Lock

- To activate the key lock, press and hold the operating button for 8 seconds until the LEDs for the selected setting briefly flash, then release.
- LEDs flash constantly at 1-second intervals.
- The key lock is activated: pump settings can no longer be changed.
- The key lock is deactivated in the same manner as it is activated.

It protects against undesired or unauthorized adjustment of the pump.

Activating factory setting

The factory setting is activated by pressing and holding the operating button whilst switching off the pump.

- Press and hold the operating button for at least 4 seconds.
- All LEDs flash for 1 second.
- The LEDs for the last setting flash for 1 second.

When the pump is switched on again, the pump runs using the factory settings (delivery condition).

Manual restart

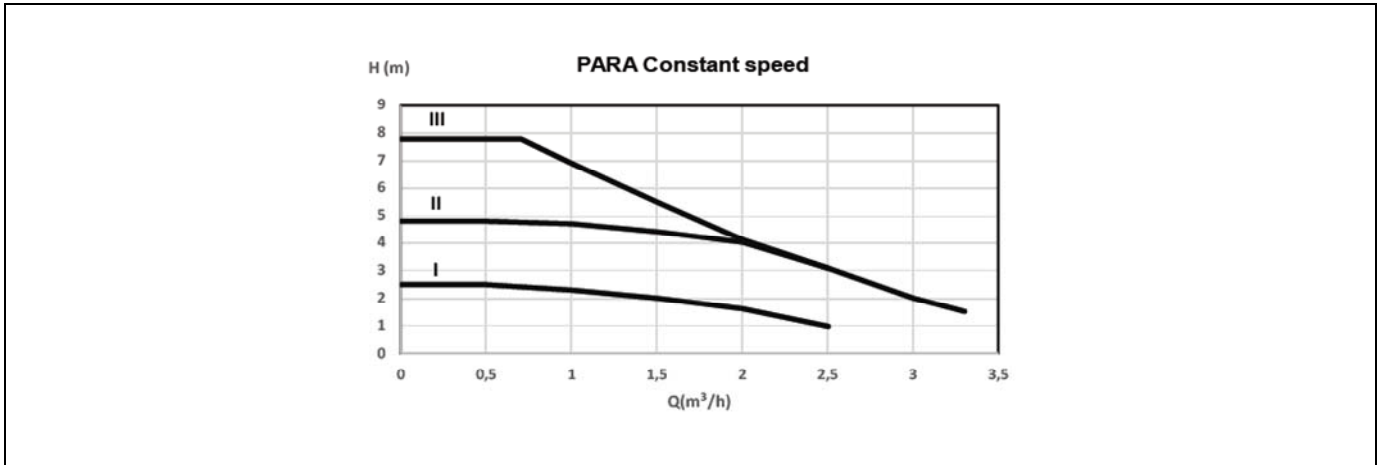
- The pump attempts an automatic restart upon detecting a blockage.

If the pump does not restart automatically:

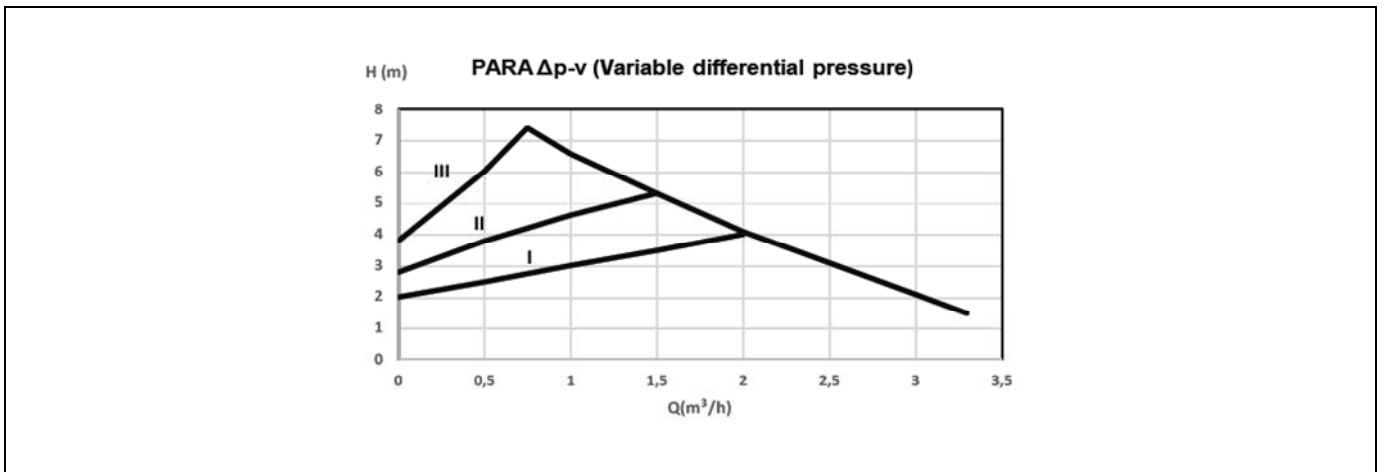
- Activate manual restart via the operating button: press and hold for 5 seconds, then release.
- The restart function is initiated, and lasts max. 10 minutes.
- The LEDs flash in succession clockwise.
- To cancel, press and hold the operating button for 5 seconds.

BioClass HC

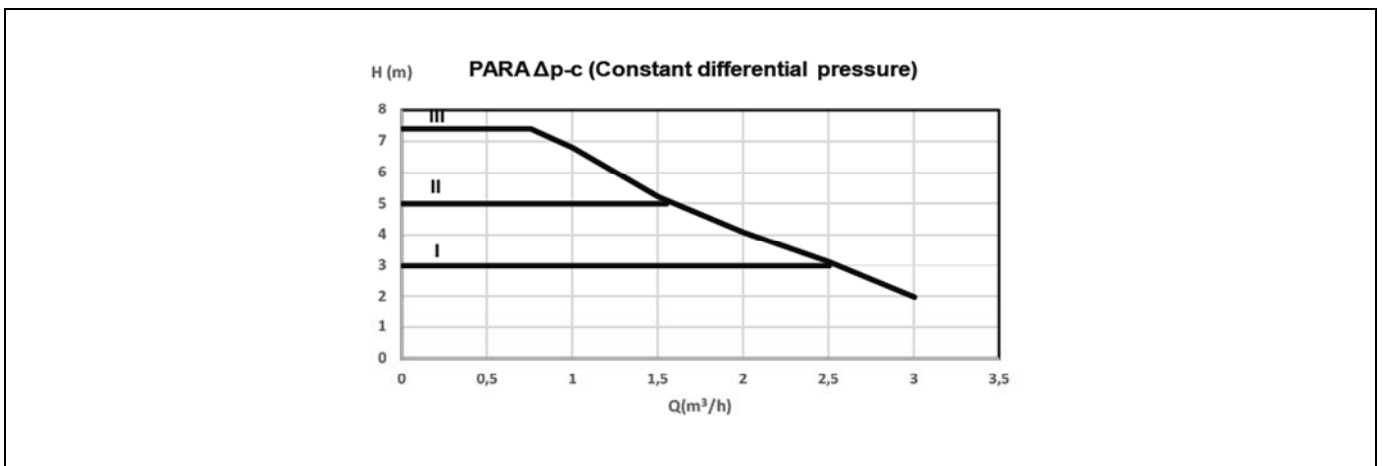
Characteristic curve of the circulation pump for constant speed mode I, II, III:



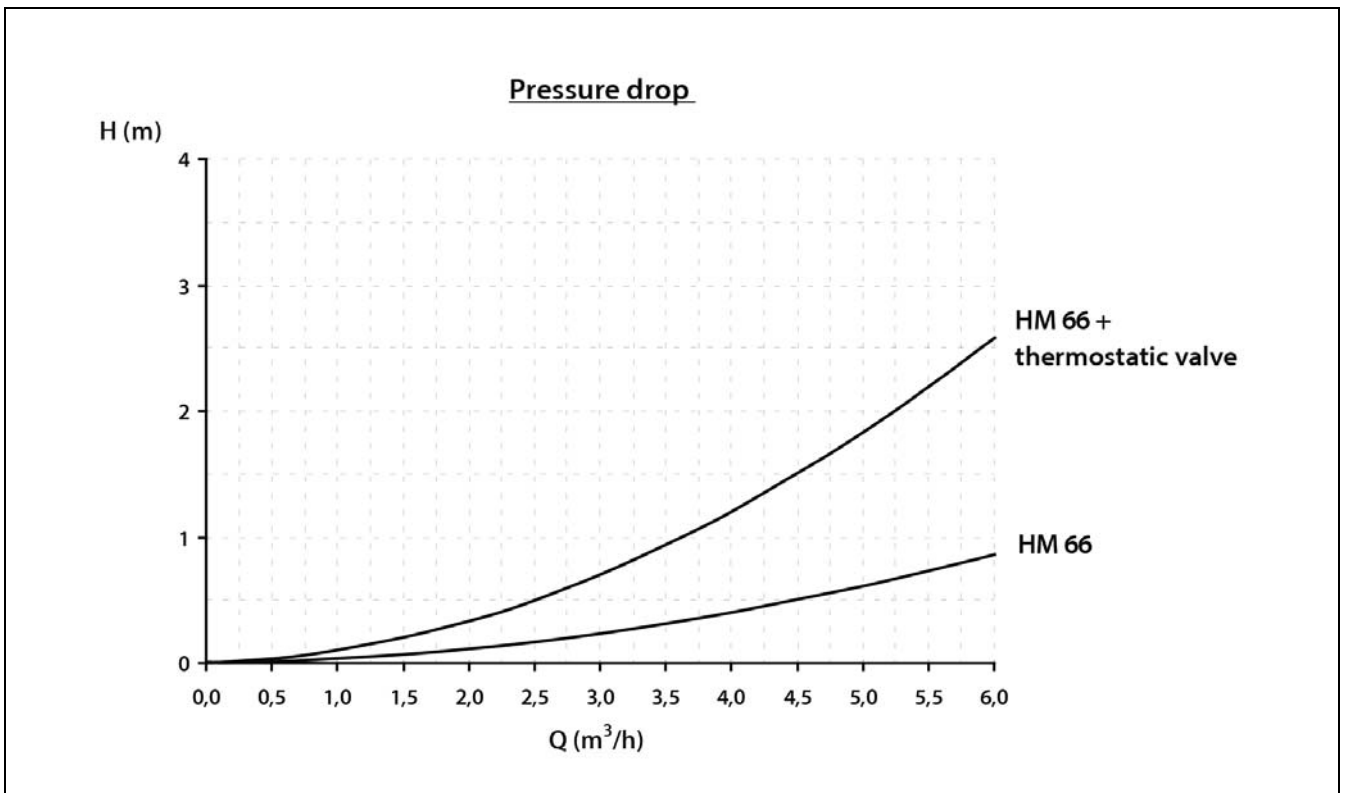
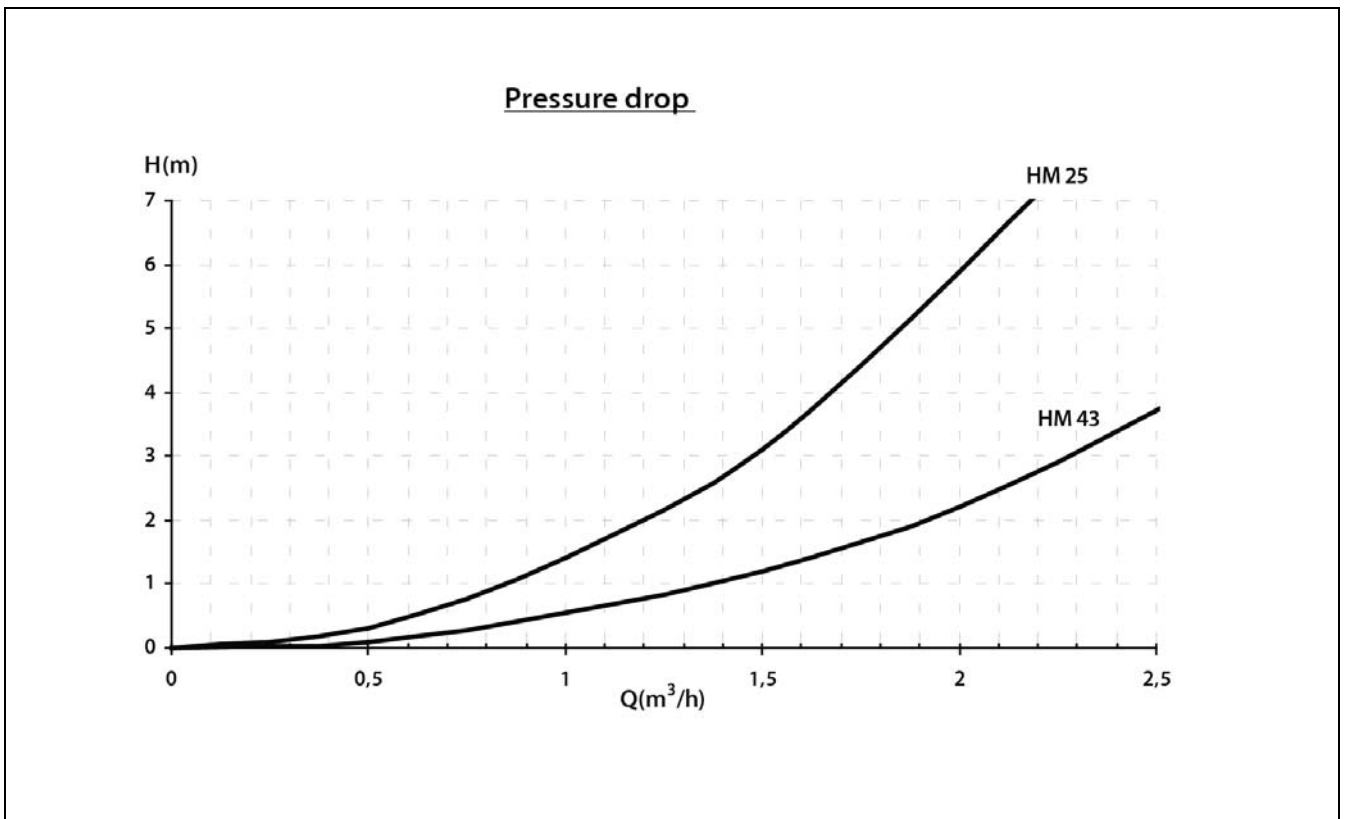
Characteristic curve of the circulation pump for the variable differential pressure mode:



Characteristic curve of the circulation pump for the constant differential pressure mode:



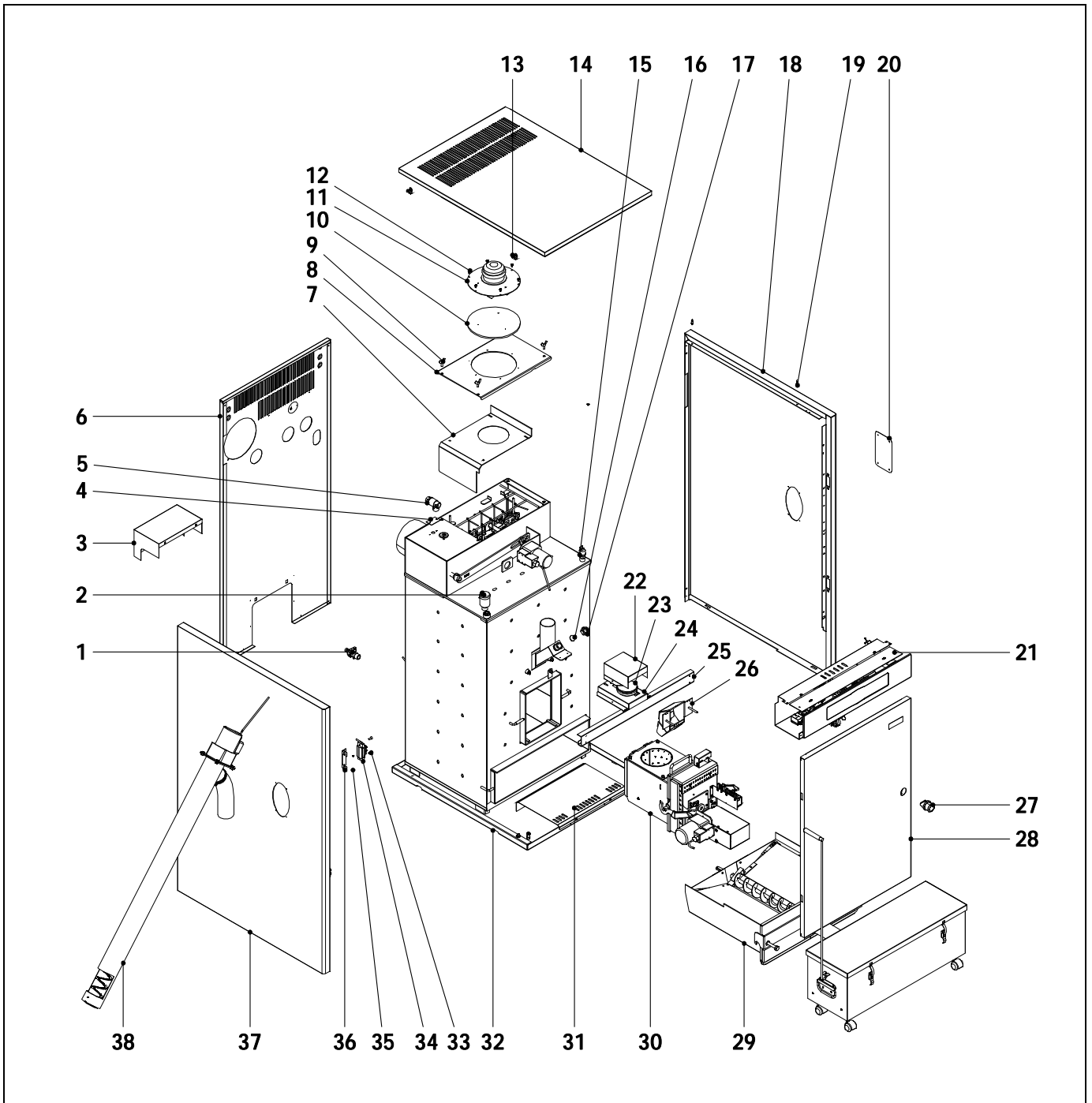
For the appropriate sizing of the hydraulic installation, as well as the pump operation curves, the pressure loss caused by the boiler **BioClass HM 66** and the thermostatic mixing valve should be taken into account. The following graph shows the pressure loss curves for the boiler and for the boiler with the thermostatic valve (anti-condensation):



BioClass HC

25 SPARE PARTS LIST

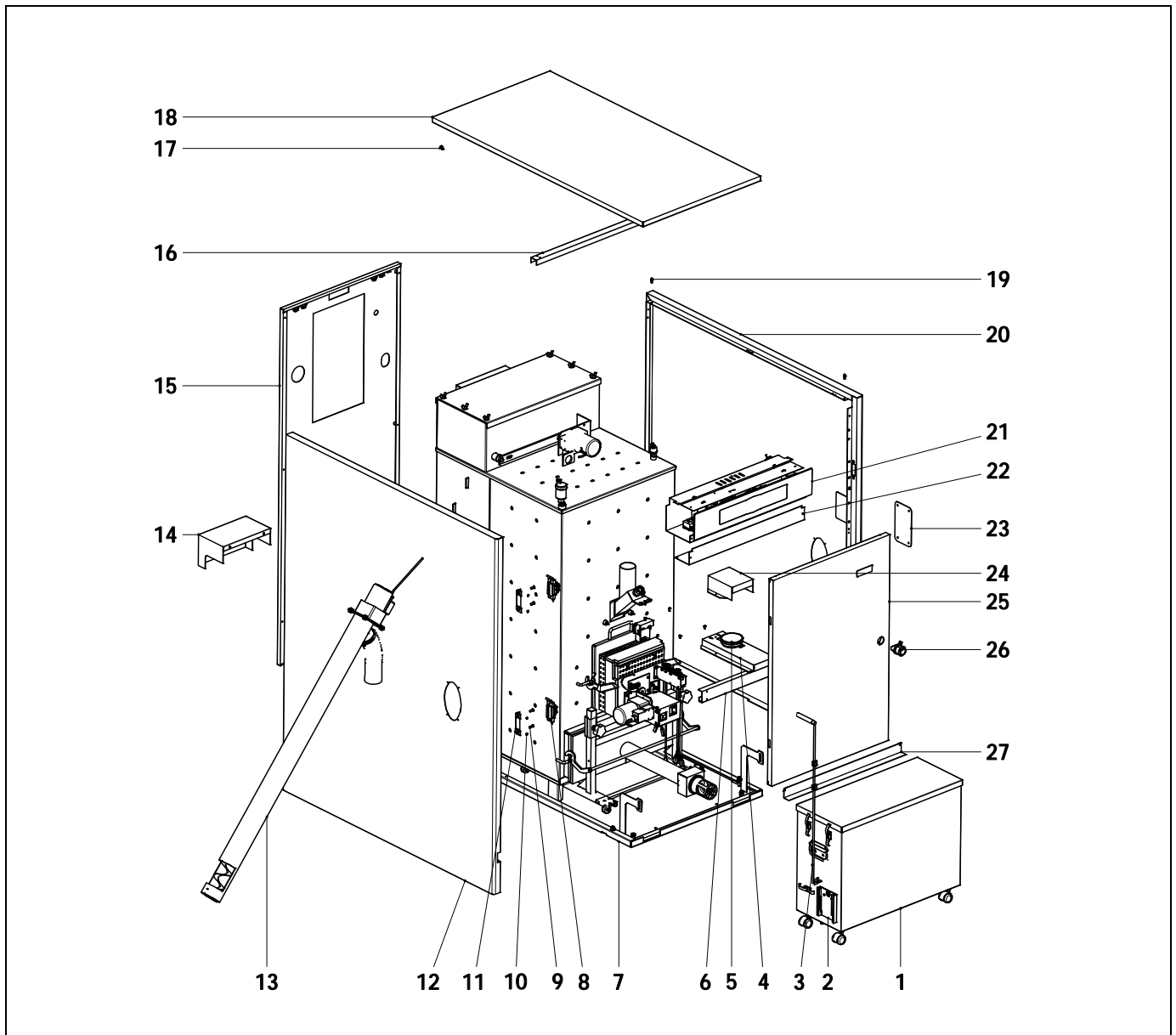
25/43 boiler



Nº.	Code	Description	Nº.	Code	Description
1	CVAL000034	Drain valve	21	RELEBIO010	Electrical board 25
2	GFOV000002	Automatic air vent		RELEBIO012	Electrical board 43
3	SEPO001452	Engine cover	22	SEPO002196	Air pressure sensor protection
4	SCHA009633	Tapa registro de humos	23	CELC000331	Air pressure sensor
5	CVAL000017	Safety valve	24	SEPO002195	Air pressure sensor support
6	SEPO001925	Rear panel 25	25	SEPO002233	Stiffness
	SEPO002218	Rear panel 43	26	RBIO000008	Internal supply line 25
7	SCON000507	Fan deflector 25	27	CFER000220	Latch
	SCON000547	Fan deflector 43	28	RBIO000024	Door
8	SCON000632	Fan cover 25	29	SCON001377	Compressor drawer 25
	SCON000633	Fan cover 43		SCON001378	Compressor drawer 43
9	CTOR000183	Butterfly screw	30	RQUEBIO016	Burner 25
10	SAIS000137	Fan cover insulation 25		RQUEBIO018	burner 43
	SAIS000138	Fan cover insulation 43	31	SEPO002198	Ash drawer chute 25
11	RBIO000005	Fan 25		SEPO002219	Ash drawer chute 43
	RBIO000009	Fan 43	32	RBIO000029	Heat exchanger 25
12	CTOR000016	Fan screw		RBIO000030	Heat exchanger 43
13	CFER000261	Muelle	33	CTOR000253	DIN-7991 M6X16 screw
14	SEPO002205	Top Cover 25	34	CFER000221	Hinge
	SEPO002217	Top Cover 43	35	CFER000286	Black rivet 4X8
15	CELC000252	Pressure transducer	36	SCHA011030	Hinge support
16	COTR000010	Spy hole glass	37	SEPO002206	Left side panel 25
17	CFOL000002	Spy hole nut		SEPO002215	Left side panel 43
18	SEPO002207	Right side panel 25	38	RALMBIO009	Supply line 25
	SEPO002216	Right side panel 43		RALMBIO012	Supply line 43
19	CTOE000355	Pivot			
20	SEPO001430	Cover for oval hole			

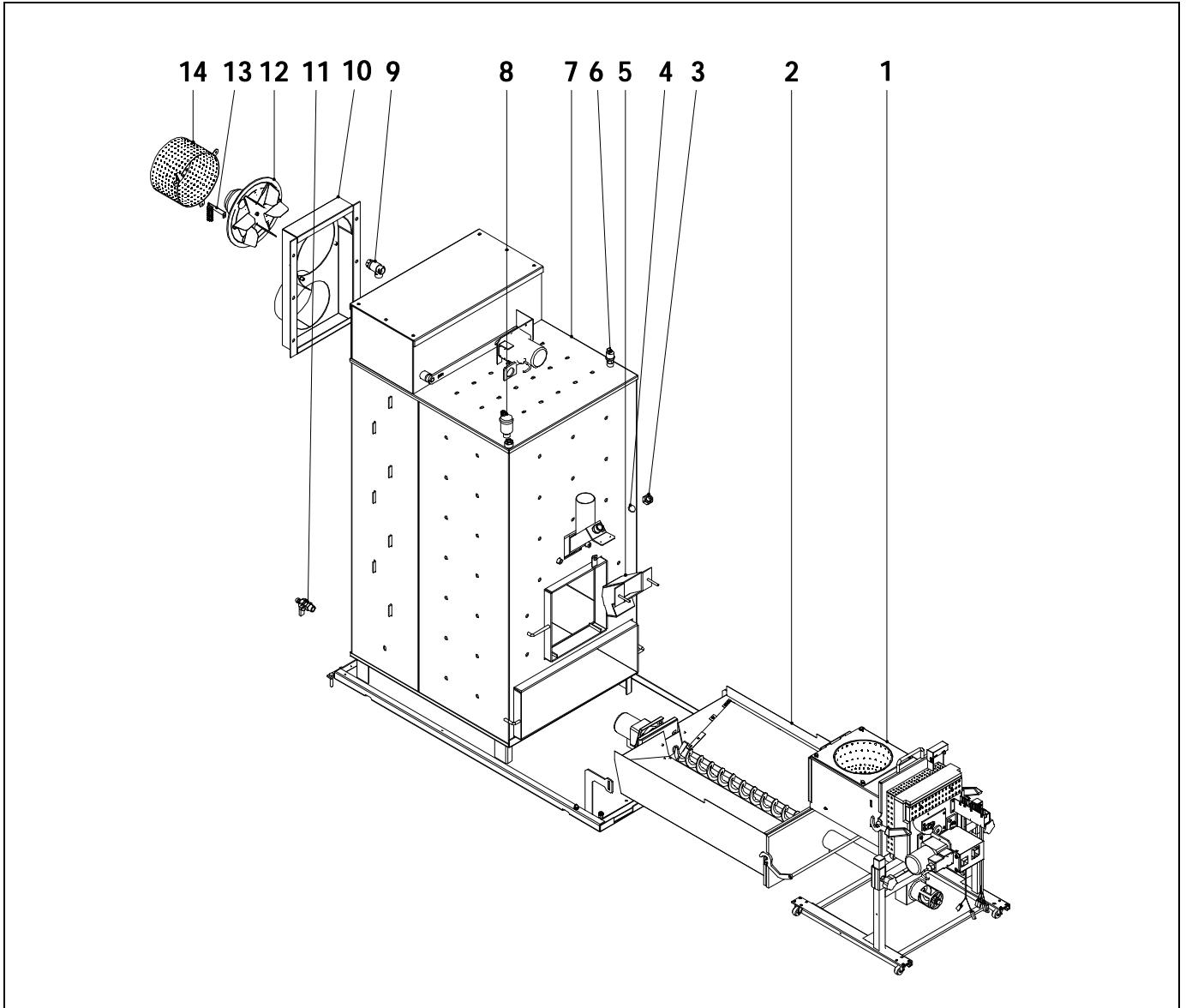
BioClass HC

66 boiler



N°.	Code	Description	N°.	Code	Description
1	SEPO002111	Ash drawer	15	SEPO002098	Rear panel
2	SEPO001451	Flange cover	16	SEPO001799	Stiffness
3	SEPO001497	Transportation handle	17	CFER000261	Spring
4	SEPO002288	Air pressure sensor support	18	SEPO002340	Top Cover
5	CELC000331	Air pressure sensor	19	CTOE000355	Pivot
6	SEPO002233	Stiffness	20	SEPO002285	Right side panel
7	SCUE000013	Heat exchanger	21	RELEBIO016	Electrical board
8	CFER000221	Hinge	22	SEPO002232	Electric board cover
9	CTOR000253	DIN-7991 M6X16 screw	23	SEPO001430	Cover for oval hole
10	CFER000286	Black rivet 4X8	24	SEPO002196	Air pressure sensor protection
11	SCHA011030	Hinge support	25	RBIO000044	Door
12	SEPO002284	Left side panel	26	CFER000220	Latch
13	RALMBIO013	Supply line	27	SEPO002290	Door accessory
14	SEPO001452	Engine cover			

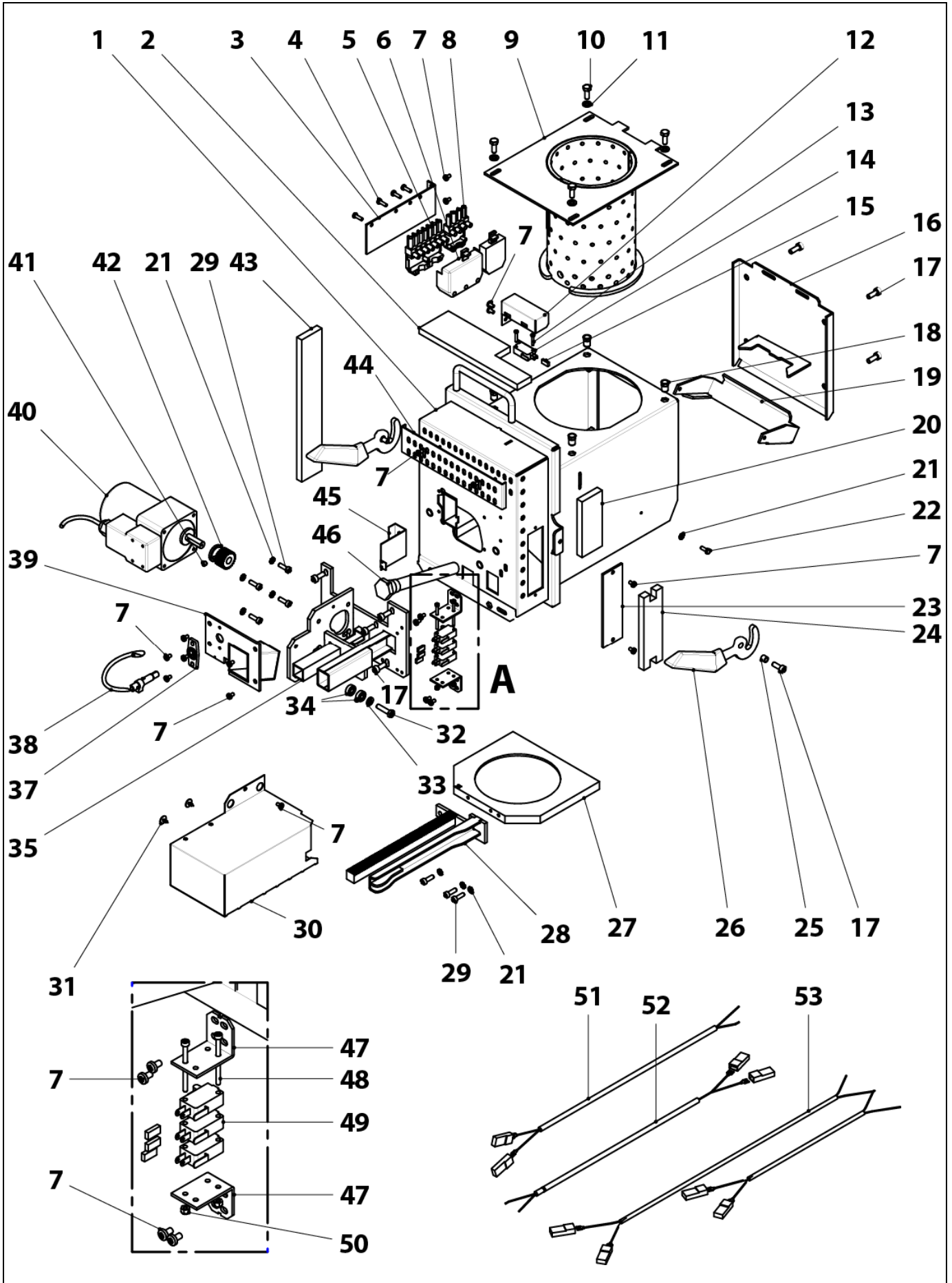
66 boiler



<u>Nº.</u>	<u>Code</u>	<u>Description</u>
1	RQUEBIO029	Burner
2	SCON001127	Compressor drawer
3	CFOL000002	Spy hole nut
4	COTR000010	Spy hole glass
5	RBIO000045	Internal supply line
6	CELC000252	Pressure transducer
7	RBO000022	Heat exchanger
8	CFOV000024	Automatic air vent
9	CVAL000017	Safety valve
10	SCON001081	Manifold box
11	CVAL000034	Drain valve
12	SCON000908	Fan
13	SCON001132	Fan lead
14	SEPO002144	Fan cover

BioClass HC

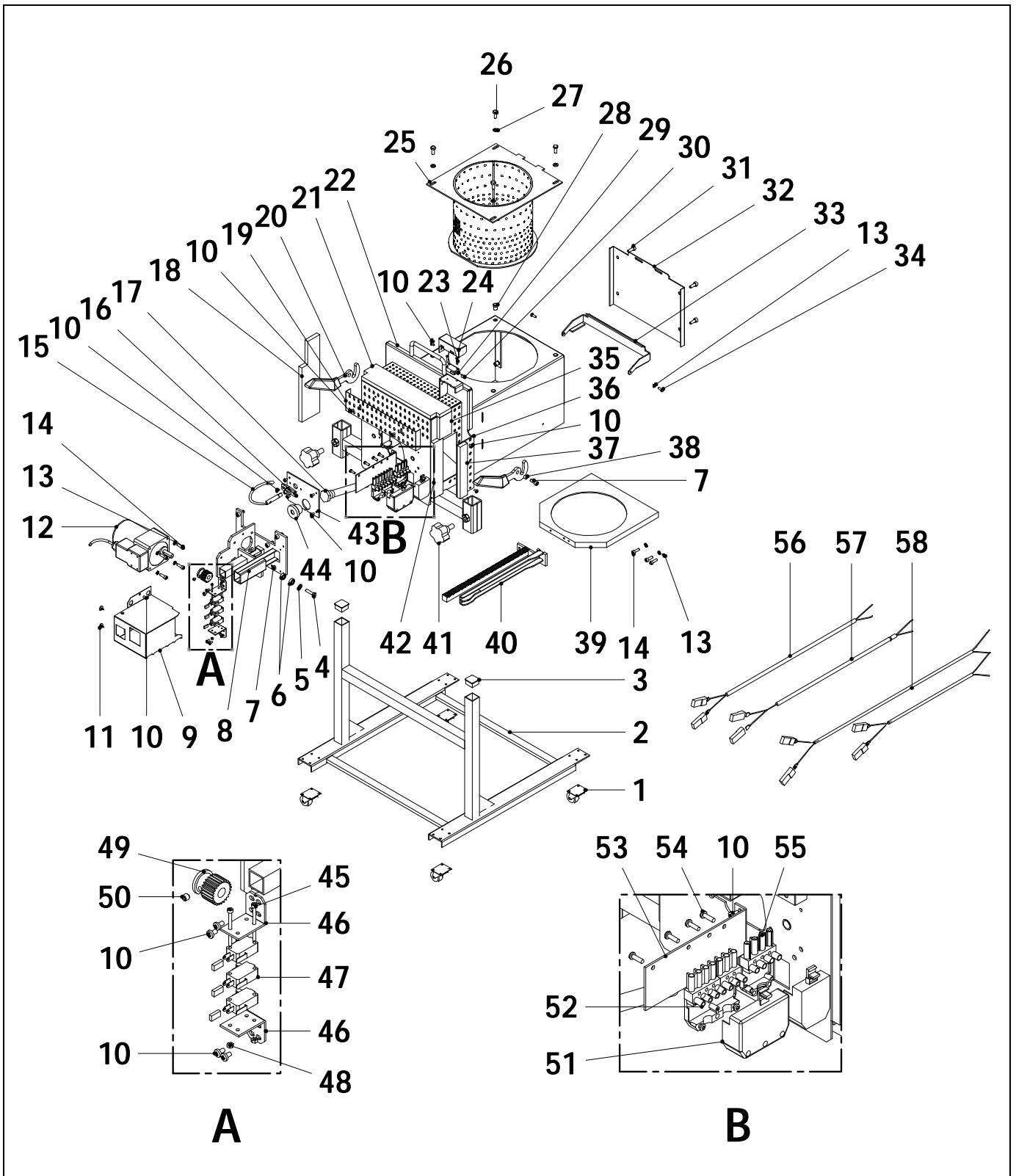
25/43 burner



Nº.	Code	Description	Nº.	Code	Description
1	SCON000935	Burner body25	26	CQUE000177	Lever
	SCON001084	Burner body43	27	CFUR000032	Burner cleaner 25
2	MAIS000162	Top insulation 25		CFUR000033	Burner cleaner 43
	MAIS000163	Top insulation 43	28	RCON000008	Rack sub-unit 25
3	SEPO002175	Connectors support		RCON000009	Rack sub-unit 43
4	CTOR000100	Screw for plastic 4,1x16	29	CTOR000266	DIN-912 M5x16 screw
5	CQUE000042	7-pole connector	30	RBIO000033	Protection cover 25
6	CQUE000135	7-pole connector cover		RBIO000034	Protection cover 43
7	CTOR000242	DIN-7985 M4x7 screw	31	CTOR000214	4,2x13 black screw
8	CELC000303	4-pole connector	32	CTOR000146	DIN-933 M6x25 screw
9	RCON000005	Burning pot 25	33	CTOR000084	DIN-125-A2 M6 washer
	RCON000006	Burning pot 43	34	CFER000129	696 2Z bearing
10	CTOR000222	DIN-933 M6x16 INOX. screw	35	RCON000010	Motor support
11	CTOR000223	DIN-125-A2 M6 INOX. washer	37	CQUE000224	Photocell support
12	SEPO002174	Burner position sensor cover	38	CQUE000220	Photocell
13	CTOR000209	DIN-7985 M3x15 screw	39	SEPO002109	Burner cover
14	CELC000327	Burner position sensor	40	CFOV000147	Motor
15	CELC000352	Cap	41	CTOR000257	DIN-916 M6x6 stud
16	SCON001294	Rear burner cover 25	42	RCON000011	Pinion sub-unit
	SCON001295	Rear burner cover 43	43	MAIS000159	Left side insulation 25
17	CTOR000265	DIN-912 M6x14 screw		MAIS000165	Left side insulation 43
18	CTOR000226	M6 blind rivet nut	44	SEPO001807	Air regulation cover
19	SCON001291	Flap 25	45	SCHA009399	Photocell cover
	SCON001292	Flap 43	46	CRES000035	400 W Electrical resistor
20	MAIS000161	Right side insulation 25	47	SEPO002105	Cleaner sensor support
	MAIS000164	Right side insulation 43	48	CTOR000064	DIN-912 M3x40 black screw
21	CTOR000108	DIN-6798-A M5 washer	49	CELC000332	Cleaner sensor
22	CTOR000102	DIN-933 M4x8 screw	50	CTOR000280	DIN-934 M3 nut
23	SCON001296	Protection cover	51	CELC000357	Cleaner sensor cable (black)
24	MAIS000166	Cover insulation	52	CELC000356	Cleaner sensor cable (brown)
25	CTOE000168	Sleeve bushing	53	CELC000346	Burner harness

BioClass HC

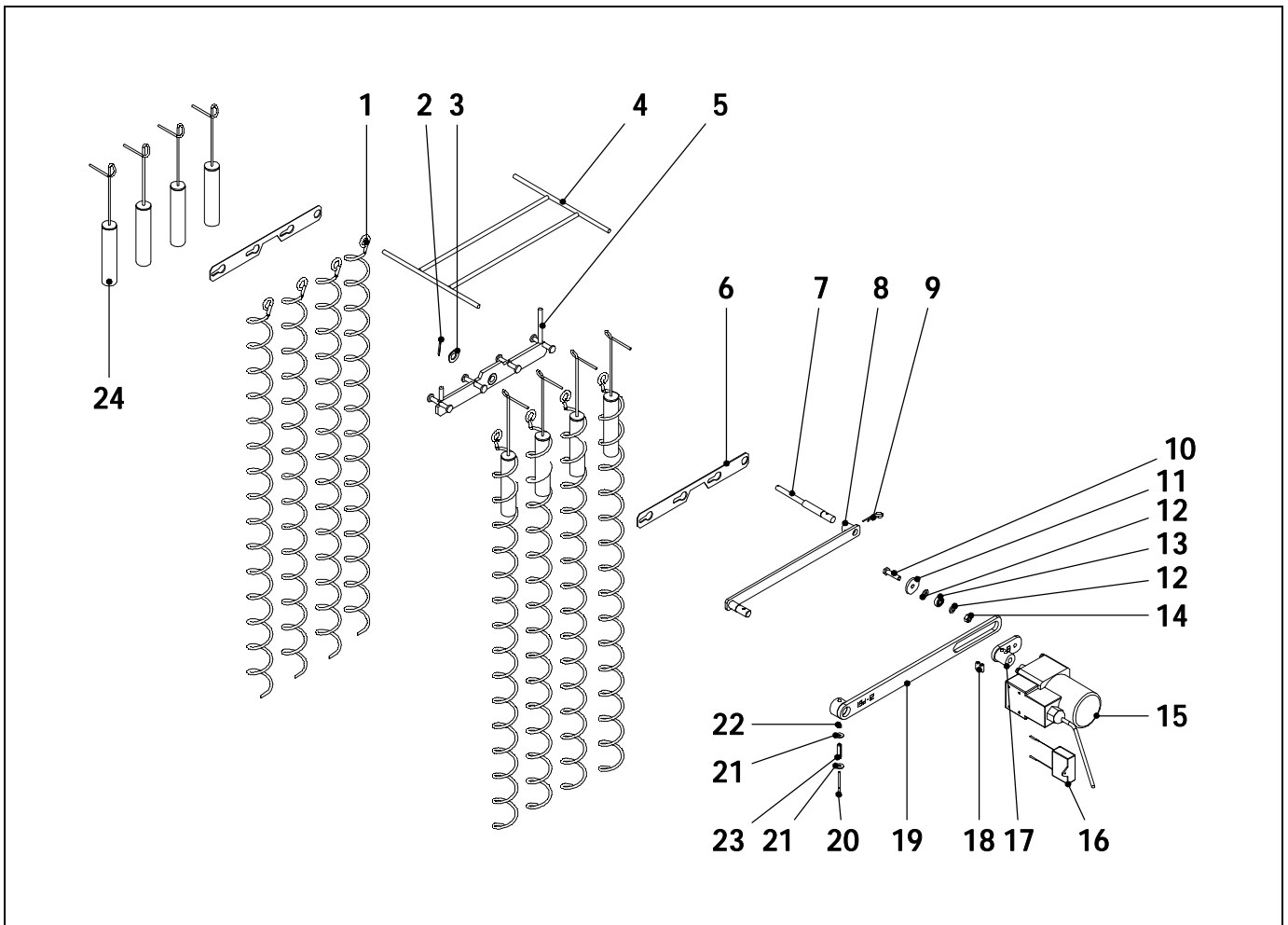
66 burner



Nº.	Code	Description	Nº.	Code	Description
1	CFER000152	Burner structure	30	CELC000352	DIN-912 M6x14 screw
2	SEPO002103	Cover of burner structure	31	CTOR000265	Rear burner cover
3	CTOE000345	DIN-933 M6x25 screw	32	SCON001304	Flap
4	CTOR000146	DIN-125-A2 M6 washer	33	SCON001305	DIN-933 M4x8 screw
5	CTOR000084	696 2Z bearing	34	CTOR000281	Right side insulation
6	CFER000129	DIN-912 M6x14 screw	35	MAIS000145	Burner body cover
7	CTOR000228	Motor support	36	SCON001306	Cover insulating
8	RCON000010	Protection cover	37	MAIS000147	Sleeve bushing
9	RBIO000043	DIN-7985 M4x7 screw	38	CTOE000168	Burner cleaner
10	CTOR000242	4,2x13 black screw	39	CQUE000187	Rack sub-unit
11	CTOR000214	Motor	40	RCON000029	Burner structure fixation
12	CFOV000147	DIN-6798-A M5 washer	41	CTOE000341	Right side insulation
13	CTOR000108	DIN-912 M5x16 screw	42	MAIS000146	Burner cover
14	CTOR000266		43	SEPO002109	Cable duct
15	CQUE000220	Photocell	44	CFER000135	DIN-912 M3x40 black screw
16	CQUE000224	Photocell support	45	CTOR000064	Cleaner sensor support
17	CRES000035	Electrical resistor	46	SEPO002105	Cleaner sensor
18	MAIS000144	Air regulation cover	47	CELC000332	DIN-934 M3 nut
19	SEPO002104	Lever	48	CTOR000151	Pinion sub-unit
20	CQUE000177	Top insulation	49	RCON000011	DIN-916 M6x16 stud
21	MAIS000148	Burner body	50	CTOR000257	7-pole connector cover
22	SCON001371	DIN-7985 M3x15 screw	51	CQUE000135	7-pole connector
23	CTOR000209	Burner position sensor cover	52	CQUE000042	Connectors support
24	SEPO002174	Burning pot	53	SEPO002175	Screw for plastic 4,1x16
25	RCON000028	DIN-933 M6x16 INOX. Screw	54	CTOR000100	4-pole connector
26	CTOR000222	DIN-125-A2 M6 INOX. Washer	55	CELC000303	Cleaner sensor cable (black)
27	CTOR000223	Blind rivet nut	56	CELC000357	Cleaner sensor cable (brown)
28	CTOR000226	Burner position sensor	57	CELC000356	Burner harness
29	CELC000327	Cap	58	CELC000346	Wheel of burner structure

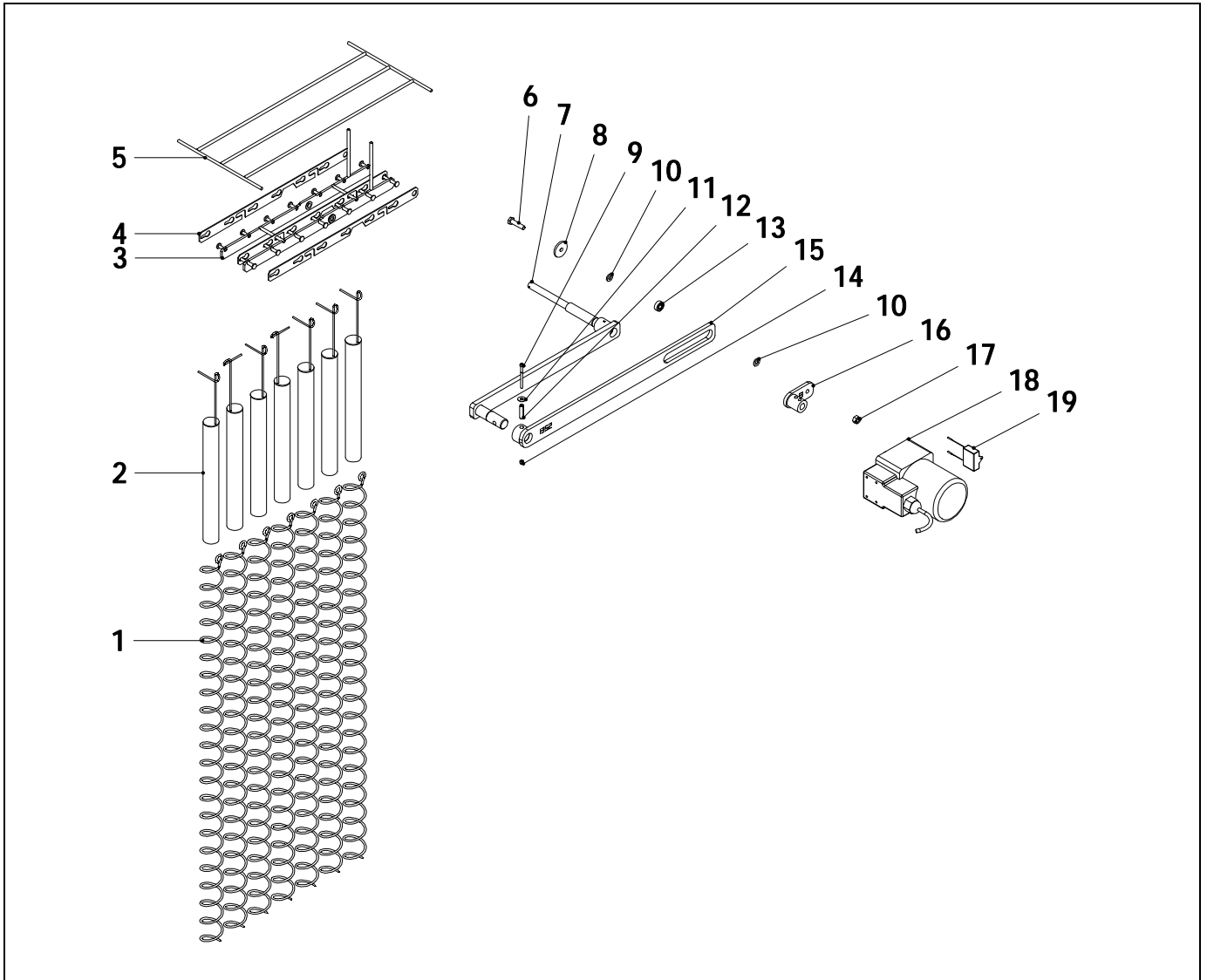
BioClass HC

25/43 heat exchanger camshaft system



N°.	Code	Description	N°.	Code	Description
1	CTOE000242	Deflector coil	12	CTOE000172	Cam system washer
2	CFER000284	Blade pin	13	CFER000129	Bearing
3	CTOR000162	Flat washer	14	CTOR000230	DIN-985 M6 self-locking nut
4	SCON000752	Deflector tube support 25	15	CFOV000134	Engine (25)
	SCON000765	Deflector tube support 43		CFOV000135	Engine (43)
5	SCON000302	Cleaning plate 25	16	CFOV000140	Capacitor (25)
	SCON000331	Cleaning plate 43		CFOV000141	Capacitor (43)
6	SCHA010996	Plate fastener	17	SCON000307	Transmission crank
7	CTOE000289	Inner shaft 25	18	CTOR000218	Allen stud
	CTOE000270	Inner shaft 43	19	SCON000306	Outer plate
8	SCON000303	Inner plate 25	20	CTOR000279	DIN-912 M3x40 screw
	SCON000332	Inner plate 43	21	CTOR000132	DIN-9021 M4 washer
9	CFER000289	Pin	22	CTOR000280	DIC-985 M3 nut
10	CTOR000146	Hex head bolt	23	CFER000292	Elastic pin
11	CTOE000172	Cam system washer	24	SCON000756	Deflector tube

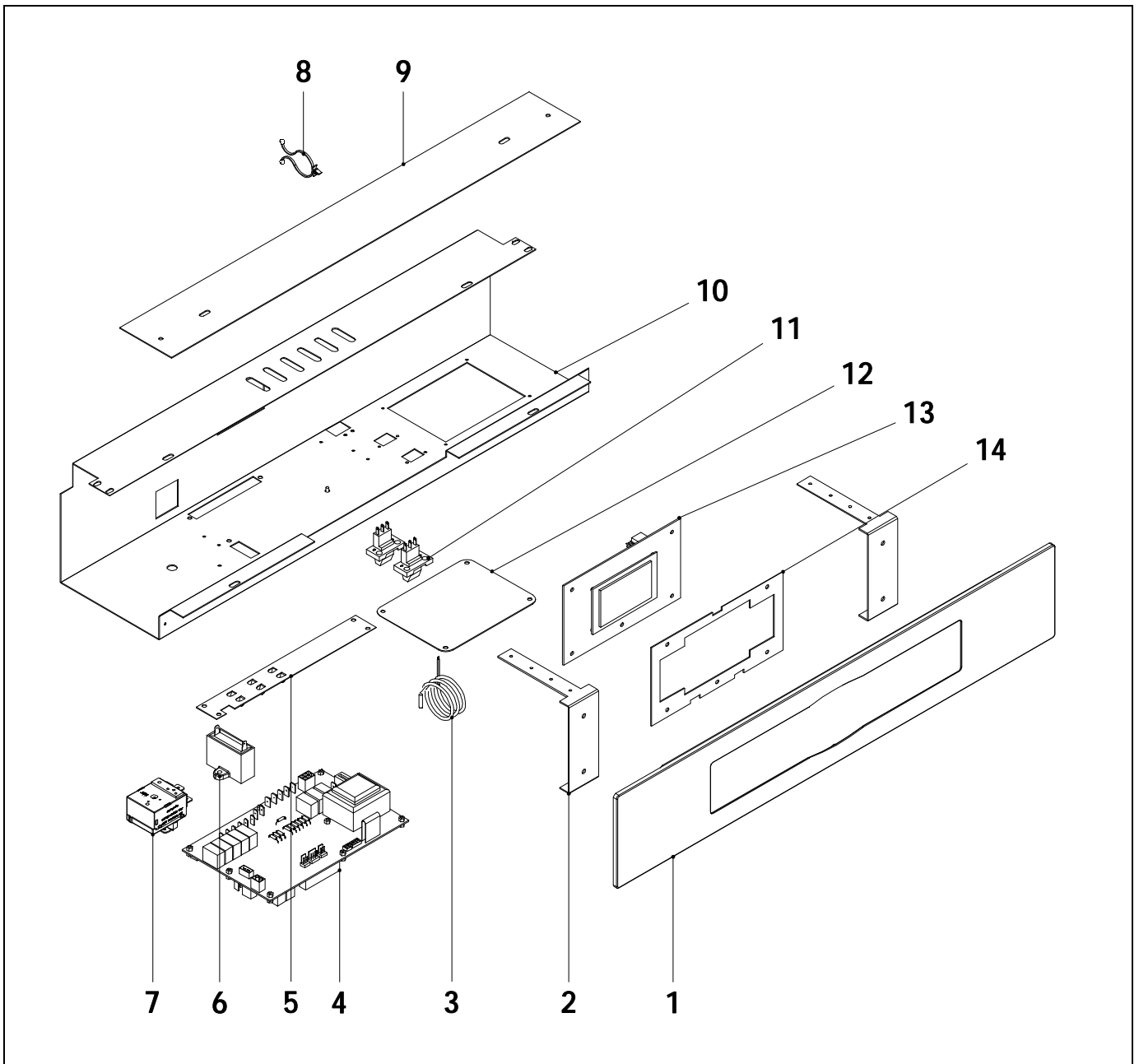
66 heat exchanger camshaft system



Nº.	Code	Description	Nº.	Code	Description
1	CTOE000330	Deflector coil	11	CTOR000132	DIN-9021 M4 washer
2	SCON000756	Deflector tube	12	CFER000292	DIN-7343 6x30 elastic pin
3	SCON000779	Cleaning plate	13	CFER000129	Bearing
4	SCHA011071	Plate fastener	14	CTOR000280	DIN-985 M3 self-locking nut
5	SCON000925	Deflector tube support	15	SCON000306	Outer plate
6	CTOR000146	DIN-933 M6x25 screw	16	SCON000576	Transmission crank
7	SCON000780	Inner plate	17	CTOR000230	DIN-985 M6 Self-locking nut
8	CTOE000172	Cam system washer	18	CFOV000136	Engine
9	CTOR000279	DIN-912 M3x40 screw	19	CFOV000142	Capacitor
10	CTOR000084	DIN-125-A M6 washer			

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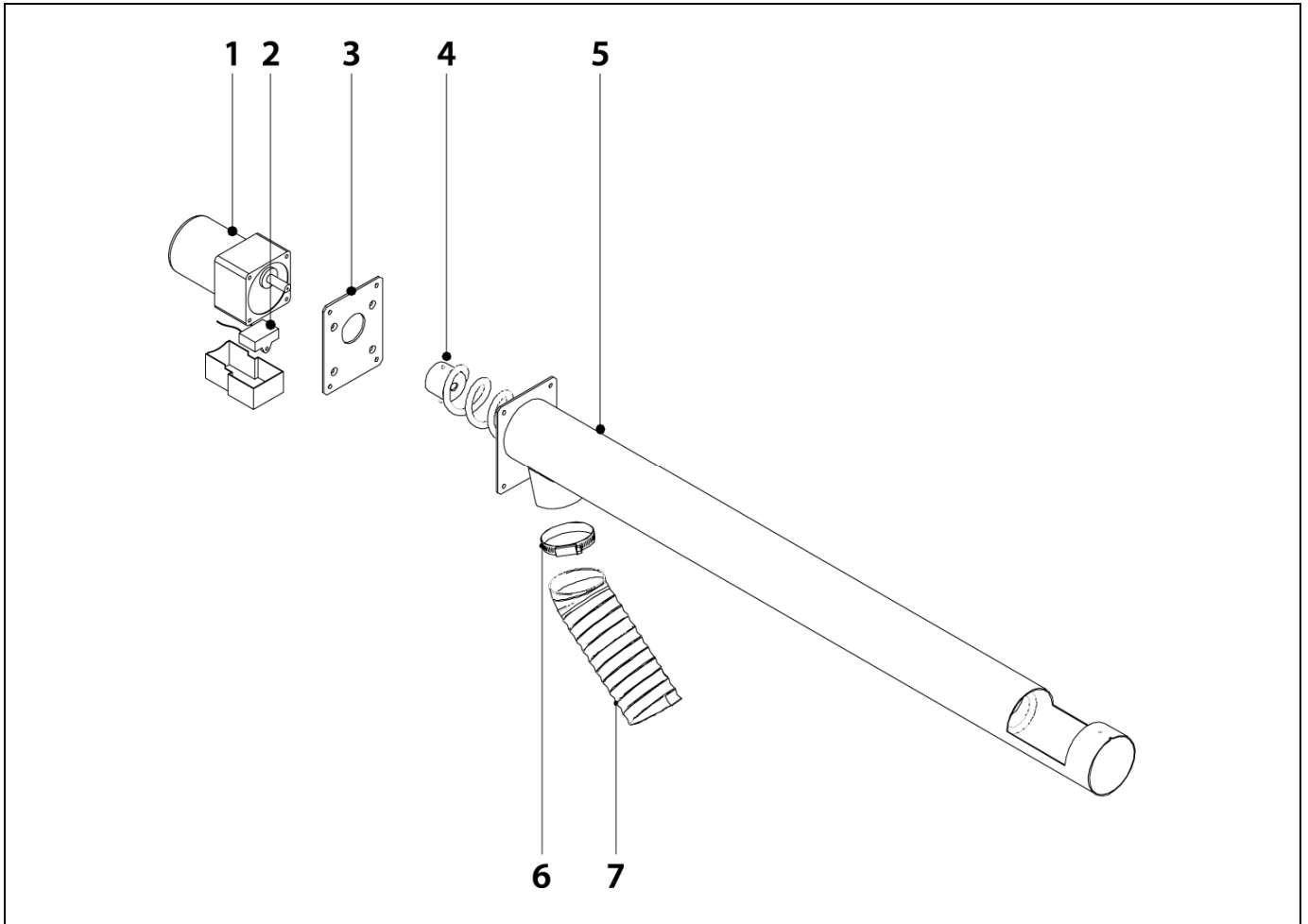
Electrical board



N°.	Code	Description
1	RBIO000032	Electrical board
2	SEPO001303	Panel fastening
3	CELC000234	Boiler sensor
4	REBI335XXX	Supply electronic card
5	SCHA009150	Ground plate
6	CFOV000151	Capacitor
7	CELC000022	Safety thermostat 110°C

N°.	Code	Description
8	CFER000126	Bracket
9	SEPO001787	Drawer cover
10	SEPO002223	Drawer
11	CELC000036	Automatic closure
12	SEPO002333	Cover
13	REBI336XXX	Display card
14	SCHA009564	Display fixing

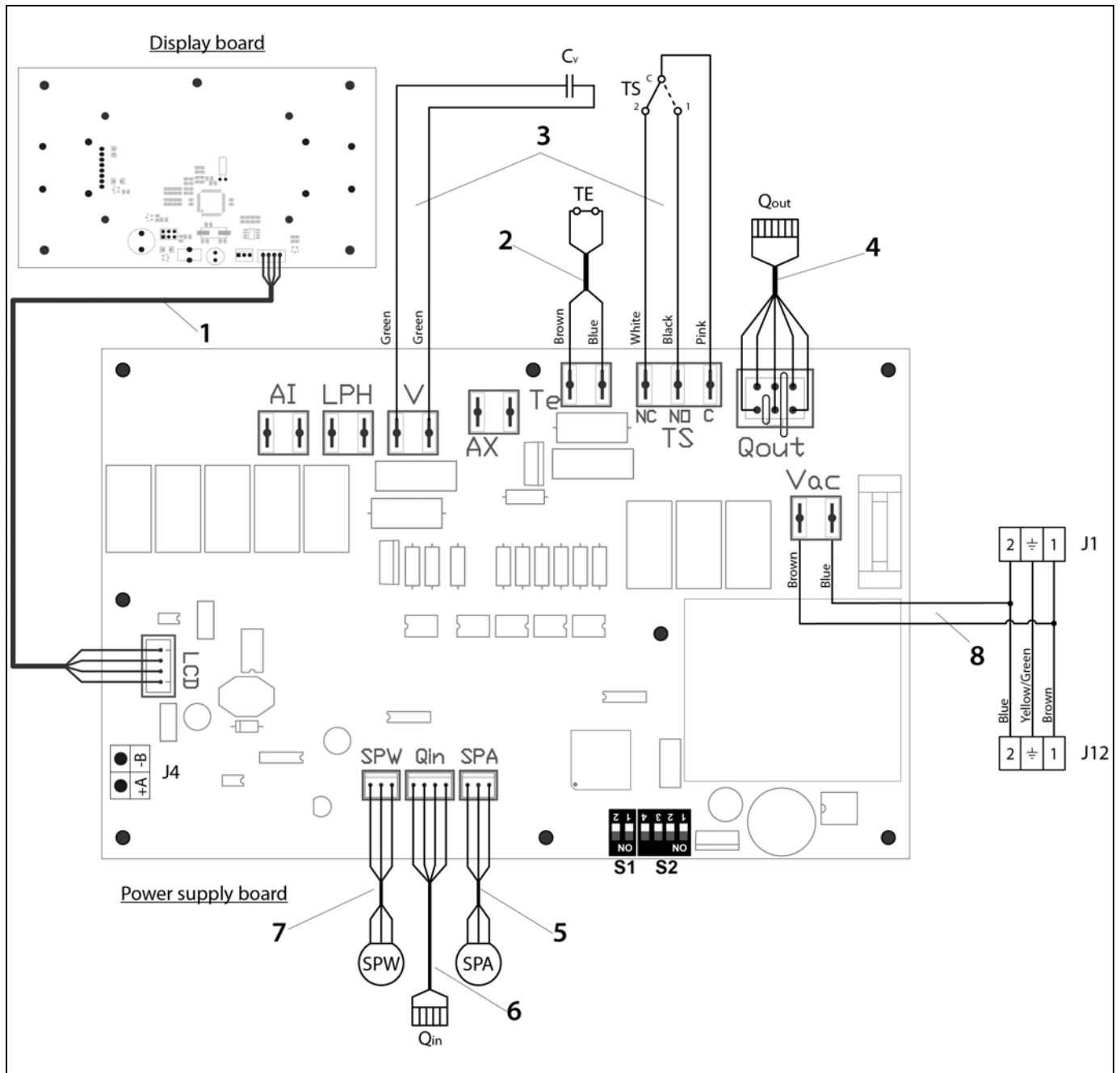
Feed auger



N°.	Code	Description
1	CFOV000136	25W motor transmission 1/180
2	CFOV000142	YN 80 capacitor
3	SEPO001637	Fixing plate
4	SCON000863	Feed Screw 25/43
	SCON000579	Feed Screw 66
5	SEPO002125	Feed tube 25/43
	SEPO001612	Feed tube 66
6	CFER000019	Clamp
7	STUR000004	Polyurethane flex hose 25
	STUR000005	Polyurethane flex hose 43
	STUR000028	Polyurethane flex hose 66

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Mangueras de conexiones eléctricas



Nº.	Code	Description
1	CELC000343	Communication Cable
2	CELC000353	Thermostat cable
3	CMAZ000123	Wiring harness
4	CELC000344	Burner output cable
5	CELC000349	Water pressure sensor cable
6	CELC000348	Burner input cable
7	CELC000345	Air pressure sensor cable
8	CMAZ00141	Power supply link wiring

26 ALARM CODES

BioClass HC boiler is equipped with an electronic controller that performs continuous self-testing to detect any boiler malfunctioning. When it detects a functioning error, this is indicated by an alarm code on the display. The table below shows the list of the alarm codes:

CODE	ALARM	DESCRIPTION
E-01	Boiler temperature sensor open circuit, S_c .	The boiler sensor is damaged or disconnected. Contact your nearest official technical assistance service to have it replaced.
E-02	Boiler temperature sensor short-circuited, S_c .	
E-03	R_a . resistance open circuit	The R_a . resistance is disconnected. Contact your nearest official technical assistance service to have it replaced.
E-04	R_a . resistance short-circuited	
E-05	Overheating in fuel entrance tube, Te .	The security thermostat of fuel entrance tube has exceeded the safety temperature of 80 °C. The boiler will lock out. To unlock the boiler wait the temperature drops, press the button on the safety thermostat and restore by pressing RESET button. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-06	Ignition failure.	Check the fuel content in the hopper or calibrate the feed auger. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-07	Burner ash cleaning system start step error.	These alarms occur when a bad running of the burner ash cleaning system is detected. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-08	Burner ash cleaning system final step error.	
E-09	Burner ash cleaning system switch error, FC_p .	
E-10	Boiler water overheating.	The water in the boiler has exceeded the safety temperature of 100 °C. The boiler will lock out. The boiler will be unlocked automatically when the boiler temperature drops below 90 °C. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-11	Safety thermostat, T_s .	The water in the boiler has exceeded the safety temperature of 110 °C. The boiler will cut out.. To unlock it, wait until the boiler drops below 100 °C and press the button on the safety thermostat. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-12	Burner switch, FC_q .	Check if the burner is correctly fitted to the boiler. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-13	Insufficient air depression.	Check the correct running and connection of the air pressure sensor and that the burner and ashtray are correctly fitted to the boiler. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-14	Air depression fall down.	
E-15	Insufficient air depression during ignition pre-purge step.	
E-18	Water pressure sensor fault.	The water pressure sensor is damaged or disconnected. Contact your nearest official technical assistance service to have it replaced.

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CODE	ALARM	DESCRIPTION
E-19	Low water pressure.	The pressure of water in the installation drops below the minimum pressure set at P.19 parameter of the " <i>Technical Menu</i> " (by default 0,5 bar). The boiler will lock out. To unlock it, fill the installation again up to 1 - 1.5 bar. This alarm occurs when the water is drained from the installation, due to either leakage or maintenance operations. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-20	Safety valve fault.	When the installation pressure exceeds 3.5 bar, this alarm is displayed on the screen. The safety valve is damaged or it doesn't work properly. The boiler will lock out. The boiler will be unlocked, when the pressure drops below 2.5 bar again. Drain the installation up to 1 - 1.5 bar. Contact your nearest official technical assistance service to have it replaced.
E-21	Air pressure sensor fault.	The air pressure sensor is damaged or disconnected. Contact your nearest official technical assistance service to have it replaced.
E-22	Excessive air depression in the combustion chamber.	The air depression measured in the combustion chamber exceeds the limits of the air pressure sensor. The burner will be locked until the depression is correct again. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-23	Excessive air overpressure in the combustion chamber.	The air overpressure measured in the combustion chamber exceeds the limits of the air pressure sensor. The burner will be locked until the depression is correct again. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-25	Wrong calibration data.	The calibration data is wrong or it is set at OFF value. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-26	Communication error with the Fuel suction System .	Communication failure between boiler and fuel suction system. The kit will lock out. When the communication is restored Fuel suction System will be unlocked. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-27	Fuel suction System blockage.	If the level sensor continues to detect no fuel after 8 consecutive cycles, Fuel suction System will lock out. To unlock it press RESET button. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-28	Overpressure of water.	When the boiler water pressure exceeds 2.5 bar, this alarm is displayed on the screen to warn of an excess of pressure in the installation. To restore the normal functioning of the boiler it is recommended to drain the installation again up to 1 - 1.5 bar If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-29	Fuel level sensor error.	Fuel level sensor is damaged or disconnected. Contact your nearest official technical assistance service to have it replaced.
E-30	Underfloor temperature sensor open circuit, Sr1 .	Underfloor temperature sensor is damaged or disconnected. Contact your nearest official technical assistance service to have it replaced.
E-31	Underfloor temperature sensor short-circuited, Sr1 .	

CODE	ALARM	DESCRIPTION
E-32	Underfloor temperature sensor open circuit, Sr2 .	Underfloor temperature sensor is damaged or disconnected. Contact your nearest official technical assistance service to have it replaced.
E-33	Underfloor temperature sensor short-circuited, Sr2 .	
E-34	Outdoor temperature sensor open circuit, Sext .	Outdoor temperature sensor is damaged or disconnected. Contact your nearest official technical assistance service to have it replaced.
E-35	Outdoor temperature sensor short-circuited, Sext .	
E-36	DIP-switch wrongly changed.	DIP-switch selector of the boiler is changed when the boiler is connected to the main supply. The boiler will be locked out until unplug and plug the boiler again.
E-37	Communication error with BIO Hydraulic Kit (not valid for BioClass HC).	Communication failure between boiler and the BIO Hydraulic Kit . If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-38	Lasting insufficient air depression during ignition pre-purge step.	Check the air pressure sensor and that the burner and ashtray are correctly fitted to the boiler. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-39	Insufficient fan speed.	Fan malfunction. If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-40	Fan speed fall down.	
E-41	Lasting fan speed fall down.	
E-42	Communication error with BIO Hydraulic Kit (not valid for BioClass HC).	Communication failure between boiler and the BIO Hydraulic Kit . If this alarm occurs repeatedly contact the nearest official technical assistance service.
E-43	Ashtray full.	Warning that the ashtray is full. The boiler will continue operate normally. To restore warning, the ashtray must be emptied and it is necessary to set the "Emptying ashes" parameter to 0 of the "User menu" (See "Ashtray status").
E-44	Boiler Maintenance.	Notice for maintenance of the boiler. Contact your nearest official technical assistance service to perform periodic maintenance of the boiler.
E-45	R_{bt} . resistance open circuit	R_{bt} . resistance is disconnected. Contact your nearest official technical assistance service to have it replaced.
E-46	R_{bt} . resistance short-circuited	

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DOMUSA TEKNIK reserves the right to make modifications of any kind to its product characteristics without prior notice.



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