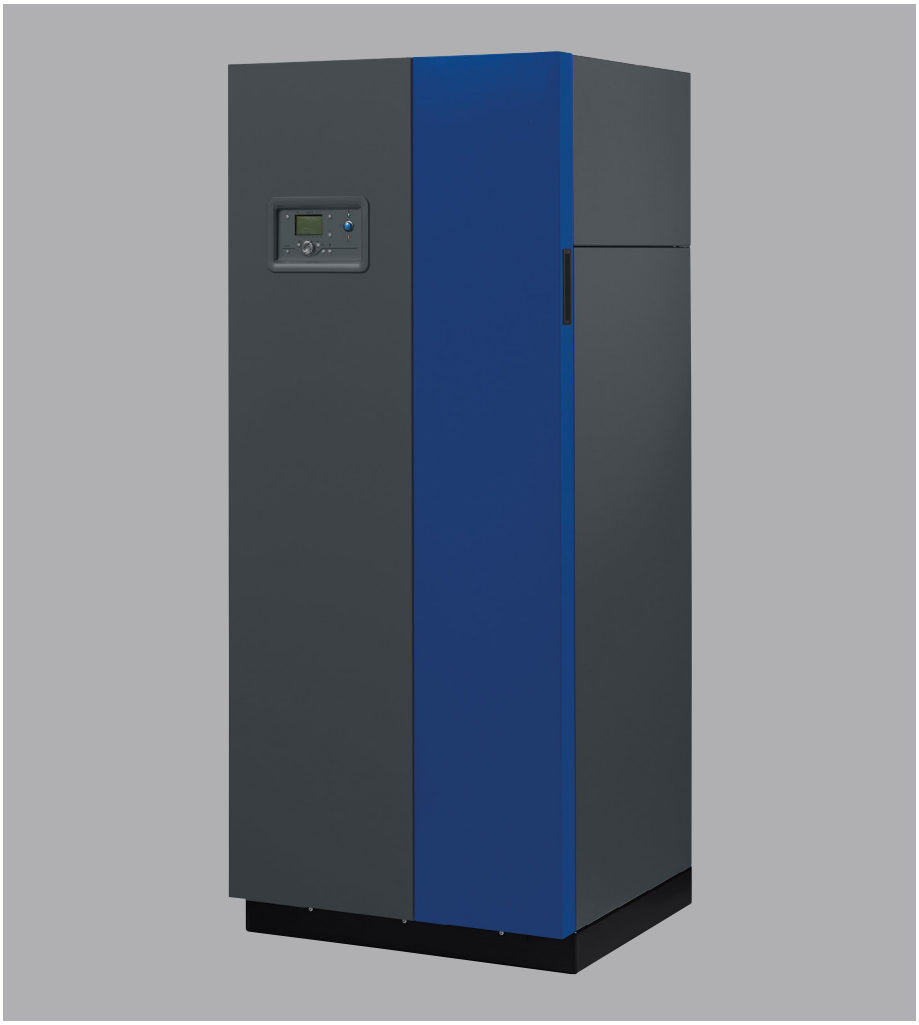
GROUPE ATLANTIC

INSTALLATION, USE AND MAINTENANCE INSTRUCTIONS

CONDENSINOX

Gas condensing boiler 40, 50, 60, 80 or 100 kW with modulating burner for natural gas and propane gas



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For professional.
To be retained by the user for future reference

CONTENTS

1. WARNINGS AND RECOMMENDATIONS

PLEASE READ THIS MANUAL CAREFULLY BEFORE INSTALLING, MAINTAINING OR USING THE BOILER. IT CONTAINS IMPORTANT INFORMATION ABOUT SAFETY.

1.1. Transport and storage

The boiler:

- must be stored vertically in a place where the temperature is between -20°C and +60°C and the relative humidity is between 5% and 95%.
- must not be stacked,
- must be protected against humidity.

1.2. Symbols used in this document

INFORMATION:	This symbol draws attention to comments.
ATTENTION:	Failure to comply with these instructions may cause damage to the installation or to other objects.
DANGER:	Failure to comply with these instructions may cause injury and serious material damage.
DANGER:	Failure to comply with these instructions may cause electrocution.

1.3. Staff qualification for installation, adjustment, use and maintenance

The appliance must be installed, configured and maintained by a qualified, approved professional in accordance with the local and national regulations in force. These operations may require work to be done with the machine powered up and the door panels (on the front of the boiler) open.
The basic operations of use should be performed with the door panels closed.

1.4. Safety instructions

- Always switch off the boiler and close the general gas supply before working on the boiler.
- After all operations on the boiler (maintenance or repair), check the installation for gas leaks.

 **DANGER:**	**If you smell gas:** • **Do not use naked flames, do not smoke and do not activate electrical contacts or switches.** • **Cut the gas supply.** • **Ventilate the room.** • **Trace the leak and repair it.**
 **DANGER:**	**If smoke is released:** • **Switch off the boiler.** • **Ventilate the room.** • **Trace the leak and repair it.**
 **DANGER:**	**The boiler is earthed via connecting cables (green/yellow) and special fixing screws. If the boiler is disassembled, make sure the cables are reconnected properly and ALWAYS reuse the original fixing screws.**

1.5. Water characteristics

The following rules apply once the boiler is put into service and remain valid until the end of life of the product.

1.5.1. Preparing the water system before putting the boiler into service

For any installation (new or renovation), the water system pipes must be thoroughly cleaned. The purpose of this initial cleaning is to eliminate germs and residue that can cause deposits to form.
In new installations in particular, any residues of grease, oxidised metal or copper micro-deposits must be removed.
In renovated installations, cleaning should focus on removing sludge and the products of corrosion formed when the unit was last in operation.
There are two types of methods for cleaning and removing sludge: a high-intensity approach that takes a few hours and a slower, more gradual approach that takes several weeks. This first type of cleaning must be done before connecting the new boiler, and with the second type, a filter should be installed on the boiler return circuit to capture loosened deposits.
The cleaning performed prior to installation improves performance, reduces energy consumption, and resists scaling and corrosion on the unit. A water treatment professional should carry out the cleaning.

1.5.2. Protecting the unit against scaling

Water naturally contains dissolved calcium ions and carbonates that cause scaling (calcium carbonate) to form. To prevent excessive deposits, take precautions with regard to the water used to fill the unit: **hardness < 100 ppm**

Water must be added during the life of the boiler. The new water adds scaling to the water system. The amount of fill water plus the amount of make-up water added during the life of the unit should not be more than three times the water capacity of the heating system. Also, the hardness of the make-up water must be controlled. Make-up water: **hardness < 50 ppm**

Adding a large amount of untreated water always contributes a significant amount of scaling. To monitor this and to detect problems, a system water meter must be installed.
Failure to comply with these guidelines (such that the fill water plus the make-up water is more than three times the water capacity of the heating system) requires a full cleaning (to remove sludge and scaling) to be performed.

Additional precautions are required for operation:

- If a softener is present in the installation, the equipment must be checked frequently to ensure it is not discharging chloride-rich water into the system: the chloride concentration must always remain below 50 mg/litre.
- To prevent the build-up of calcium deposits (such as on exchange surfaces), the unit should be brought into service slowly, starting by operating at a low power with high primary water flow.
- If the water in the system does not have the required qualities (e.g. high hardness), it must be treated. The fill water must be treated, and whenever new water is added, the make-up water must also be treated.
- Installations with multiple boilers require all of the boilers to be brought up simultaneously at minimal power. Doing this prevents the calcium in the water from depositing on the exchange surfaces of the first boiler.
- When working on the unit, avoid draining it completely; only the required parts of the system are to be drained.

The rules listed above are designed to minimise scaling on the exchange surfaces and thus to increase the life of the boilers.
To optimise how the equipment operates, calcium deposits can be removed. This must be done by a specialised company. Also, before putting the unit into service, verify that the heating system is not damaged (e.g. leaks). If it has excessive scaling, the unit's settings for operation and for water treatment must be adjusted.

1.5.3. Protecting steel and stainless steel boilers against corrosion

Corrosion can affect the iron components used in boilers and heating systems, which is directly related to the presence of oxygen in the water heater's water. Dissolved oxygen that enters the unit when it is being filled for the first time reacts with the equipment materials and quickly disappears. If the oxygen is not renewed through significant contributions of water, the unit might not experience any damage whatsoever.
However, it is important to follow the sizing rules and installation guidelines in order to prevent oxygen from continuously flowing into the heating water. These rules include:

- Give preference to an expansion vessel with a membrane rather than an open expansion vessel that allows direct passage.
- Ensure the pressure in the installation is greater than 1 bar when cold.
- Remove leaky (permeable to gas) components and replace with sealed components.

If the guidelines above are followed, the unit's system water has the proper characteristics to last a long time: 8.2 < pH < 9.5 with a dissolved oxygen concentration of < 0.1 mg/l.

If there is a chance that oxygen could enter the unit, you must take additional precautions. Adding an oxygen scavenger (e.g. sodium sulphite) is highly recommended. We recommend directing any water treatment questions to specialists, who can provide:

- The appropriate treatment based on the characteristics of the unit,
- A monitoring agreement with a guarantee as to the results.

In the case of an installation in which the water comes into contact with a variety of materials, e.g. copper and aluminium, appropriate treatment is recommended to ensure the long-term operation of the installation. In most cases, this treatment will involve adding corrosion inhibitors in the form of chemical solutions. We recommend contacting a water treatment specialist.

1.5.4. Unit monitoring

If the recommendations listed above (new installation or renovation) have been followed, the unit monitoring is limited to:

- Checking the amount of make-up water (fill water volume + make-up water volume < 3 times the unit volume).
- Checking the pH (stable or rising slightly).
- Checking the water hardness (stable or falling slightly).

We recommend monitoring these parameters two to three times a year. Note that monitoring the quantity of make-up water is vital to ensure the long-term operation of the installation.
If any of these parameters deviates from the above recommendations, refer to a water treatment specialist to correct the problem.

1.5.5. Setting up a plate exchanger

If the recommendations listed above cannot be met, you can set up a plate exchanger to separate the primary system from the secondary system, which protects the boiler from undesirable effects.

1.5.6. Setting up a filtration system

A filtration system on the boiler return circuit is recommended in order to remove suspended particles from the unit (filter, dirt separator etc.).

2. CERTIFICATION

2.1. Compliance with European Directives

- Low voltage (2014/35/UE)

This appliance is not intended for use by persons (including children) whose physical, sensory or mental abilities are reduced, or persons without experience or knowledge, unless they have been able to benefit, through someone responsible for their safety, from supervision or prior instruction concerning the use of the appliance.
Children must be supervised to ensure they do not play with the appliance.

- Electromagnetic compatibility (2014/30/UE)

- Gas appliances (2016/426/UE)

- Efficiency (92/42/CEE) until 26/09/2015

- Energy labelling (2010/30/EU): from 26/09/2015

In application of the directive and according to the requirements of the EU regulation No. 811/2013 of 18 February 2013, the information on condensation boilers with a power of less than or equal to 70 kW is available in appendix A.

- Eco-design (2009/125/EC): from 26/09/2015

In application of the directive and according to the requirements of the EU regulation No. 813/2013 of 02 August 2013, the technical parameters of condensation boilers with a power of less than or equal to 400 kW are available in appendix A.

- WEEE (2012/19/UE)

Waste Electrical and Electronic Equipment. See chapter 8.

2.2. Regulatory installation conditions

The appliance must be installed by an approved professional in accordance with regulations and current professional practices.

2.3. Gas category

This boiler has been adjusted in the factory to work with **group H natural gas (type G20) with a supply pressure of 20 mbar**.
For an installation on a 300 mbar gas network, place a gas filter and gas pressure regulator upstream of the boiler in accordance with current regulations.
See chapter 4.8 for how to change the gas, and use a qualified professional.

INFORMATION: Any work on a sealed component will lead to loss of the guarantee.

		Categories	
		CH-ES-GB-EI-PT-IT-AT	**CZ-HU-SK-LT-NO-AT-LV-DK-EE-FI-GR-RO-SE-SI**
CONDENSINOX 40-60 kW	**B23 - B23 P**	II_{2H3P}	I_{2H}
	C13 - C33 - C53 C43 - C83	I_{2H}	I_{2H}
CONDENSINOX 50 kW	**B23 - B23 P**	I_{2H}	
CONDENSINOX 80-100 kW	**B23 - B23 P**	II_{2H3P}	I_{2H}
	C13 - C33 - C53 C43 - C83	I_{2H}	I_{2H}

2.4. Gas supply pressures

INFORMATION: **The pressures given below should be measured at the input to the gas valve.**

	H G20 natural gas	**L G25 natural gas**	**G31 propane** (only with B23 and B23P)
Nominal pressure (mbar)	20	25	37
Minimum pressure (mbar)	17	20	25
Maximum pressure (mbar)	25	30	45

3. TECHNICAL SPECIFICATIONS

3.1. Dimensions

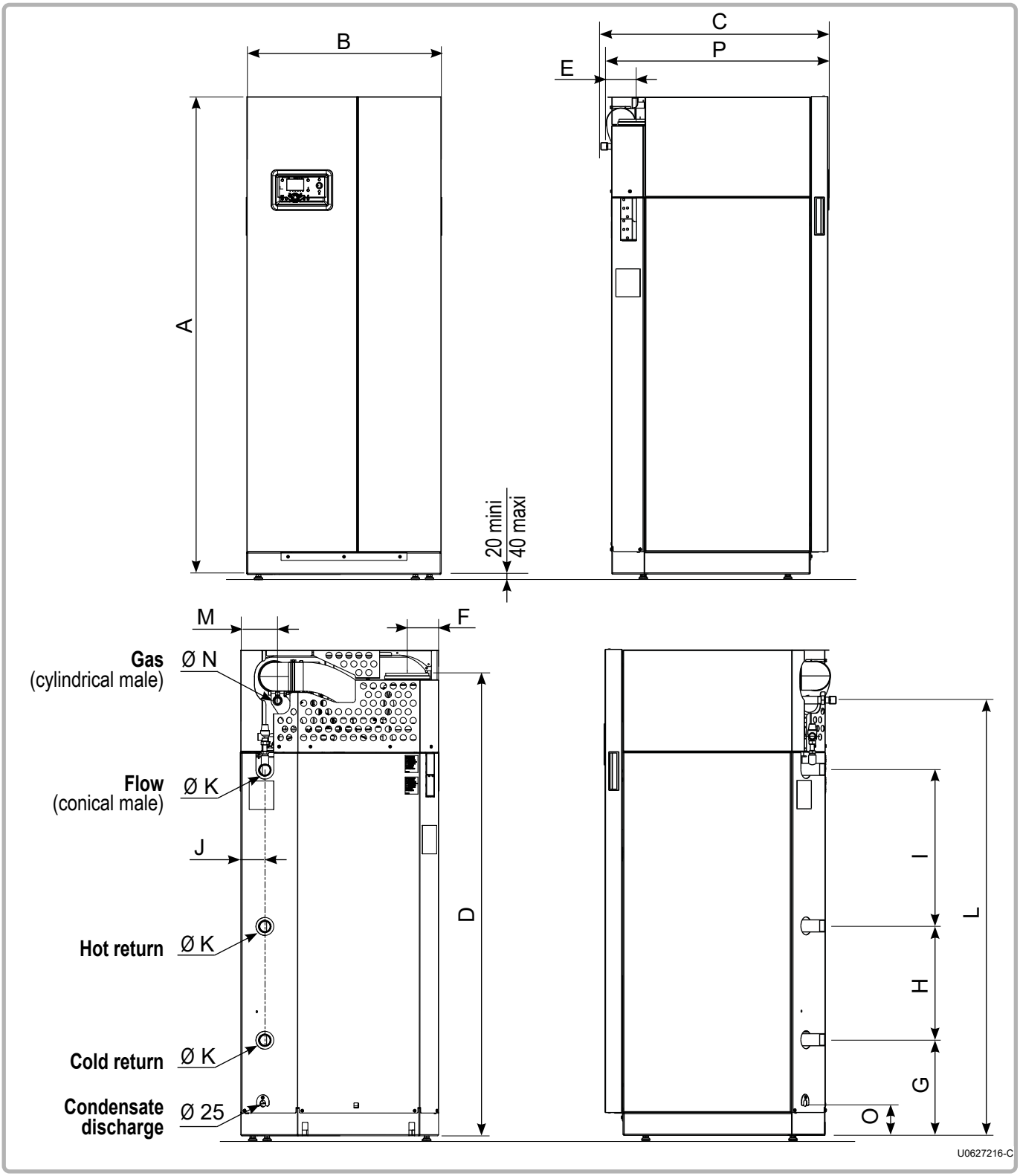


figure 1 - Dimensional characteristics

MODEL	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	Ø K	L (mm)	M (mm)	Ø N	O (mm)	P*
40 - 60	1494	595	708	1449	58	100	336	400	406	76	1"1/4	1354	209	G1/2"	114	670
70 - 80 - 100	1707	695	813	1626	102	110	336	400	550	85	1"1/4	1529	130	G3/4"	114	773

P* : gas connection removed (see paragraph "4.6. Gas connection")

3.2. Combustion at 15°C and 1013 mbar

			MODEL				
			40	**50**	**60**	**80**	**100**
Nominal power Pn (80/60°C)	G20 G25 set up for G20 **	kW	40.0 33.2	49.9 --	60.0 49.8	80.0 65.6	97.0 80.5
Nominal power when condensing Pn (50/30°C)	G20 G25 set up for G20 **	kW	43.8 36.3	54.1 --	65.5 54.4	87.5 71.8	105.5 87.5
Rated heat input Qn	G20 G25 set up for G20 **	kW	41.6 34.5	51.3 --	62.1 51.5	82.7 67.8	100.0 83.0
Min heat input Qmin	G20 / G25 G25 set up for G20 ** G31	kW	8.3 6.9 19.5	12.4 -- --	12.4 10.3 20	16.5 13.5 20.7	19.5 16.2 19.5
Gas flow rate at Pn (15°C)	G20 G25 G25 set up for G20 ** G31 ***	m^3/h	4,4 5,1 4,2 1,7	5,5 -- -- --	6,6 7,6 6,3 2,5	8,8 10,2 8,4 3,4	10,6 12,3 10,2 4,1
Value range of CO_2		%	See paragraph 4.7.1.				
Exhaust mass flow rate at Qn / Qmin (80/60°C) *		g/s	19 / 4.0	28.3 / 5.9	28.3 / 5.9	38.5 / 7.9	46.5 / 9.6
Exhaust mass flow rate at Qn / Qmin (50/30°C) *		g/s	17.8 / 3.5	21 / 5.5	25.3 / 5.5	35.9 / 7.3	43.5 / 8.9
Exhaust temperature at Qn / Qmin (80/60°C) *		°C	74 / 56	67 / 54	85 / 55	76 / 57	82 / 57
Exhaust temperature at Qn / Qmin (50/30°C) *		°C	48 / 29	43 / 34	58 / 30	56 / 30	56 / 30
Exhaust circuit pressure loss at Qn *		Pa	135	130	162	145	140
Exhaust outlet diameter		mm	80	80	80	100	100
Maximum allowable nozzle pressure (B23P) at Qn / Qmin (80/60°C)*		Pa	160 / 6	130 / 1.4	160 / 5	120 / 7	120 / 5
Maximum allowable nozzle pressure (B23P) at Qn / Qmin (50/30°C)*		Pa	129 / 5	--/--	129 / 5	101 / 5	105 / 5
Combustion air flow rate at Qn *		m^3/h	53	66	80	108	131
NOx class			6				
Exhaust removal and air inlet type classifications			B23, B23P C13, C33, C43, C53, C83	B23, B23P	B23, B23P C13, C33, C43, C53, C83	B23, B23P, C13, C33, C53	

* values corresponding to a G20 set-up.
** G25 set up for G20: gas category $I_{2E(S)}$ or $I_{2E(R)}$
*** only for B23 and B23P exhaust evacuation

3.3. Conditions of use

		MODEL				
		40	**50**	**60**	**80**	**100**
Maximum starting temperature setpoint	°C	80				
Max starting temperature	°C	85				
Safe temperature	°C	106				
Max service pressure	hPa (bar)	4000 (4)				
Minimum cold pressure	hPa (bar)	1000 (1)				
Hydraulic pressure loss at ΔT 20	daPa	160	350	350	210	300
Nominal water flow rate (P/20)	m^3/h	1.7	2.15	2.6	3.4	4.2
Maximum water flow rate (P/10)	m^3/h	3.4	4.3	5.2	6.8	8.4
Water capacity	L	94	88	88	136	130
Weight without water	kg	134	140	140	215	225
Room temperature (min/max)	**°C**	5 / 45				
Room relative humidity		5% to 95%				
Level of protection		IP20				
Maximum installation altitude	**m**	2000				

3.4. Electrical connection

		MODEL				
		40	**50**	**60**	**80**	**100**
Electrical power supply	V	230 V AC (+10% -15%), 50Hz				
Electrical power consumption at Qn (excluding accessories)	W	120	142	160	210	280
Electrical power consumption in standby mode	W	5				
Maximum length of sensor cables	m	Hot water sensor: 10 Outdoor sensor: 40 at 0.5 mm² (120 at 1.5 mm²) Room thermostat: 200 at 1.5 mm² Room sensor: 200 at 1.5 mm²				
Terminal output power	V A	230 V AC (+10%, -15%) 5 mA at 1 A				

4. INSTALLATION

4.1. Boiler location

CONDENSINOX boilers must not be installed on an inflammable surface (wooden floor, plastic floor covering etc.).

Recommended clearance from walls and ceiling:
Sufficient clearances must be provided to permit easy maintenance operations on the boilers.
The **minimum** values (in mm) are indicated in figure 2 and the table below.

		A (mm)	B (mm)	C (mm)	H (mm)
MODEL	**40 - 50 - 60**	200	150	200	1750
	80 - 100	500	365	500	1980

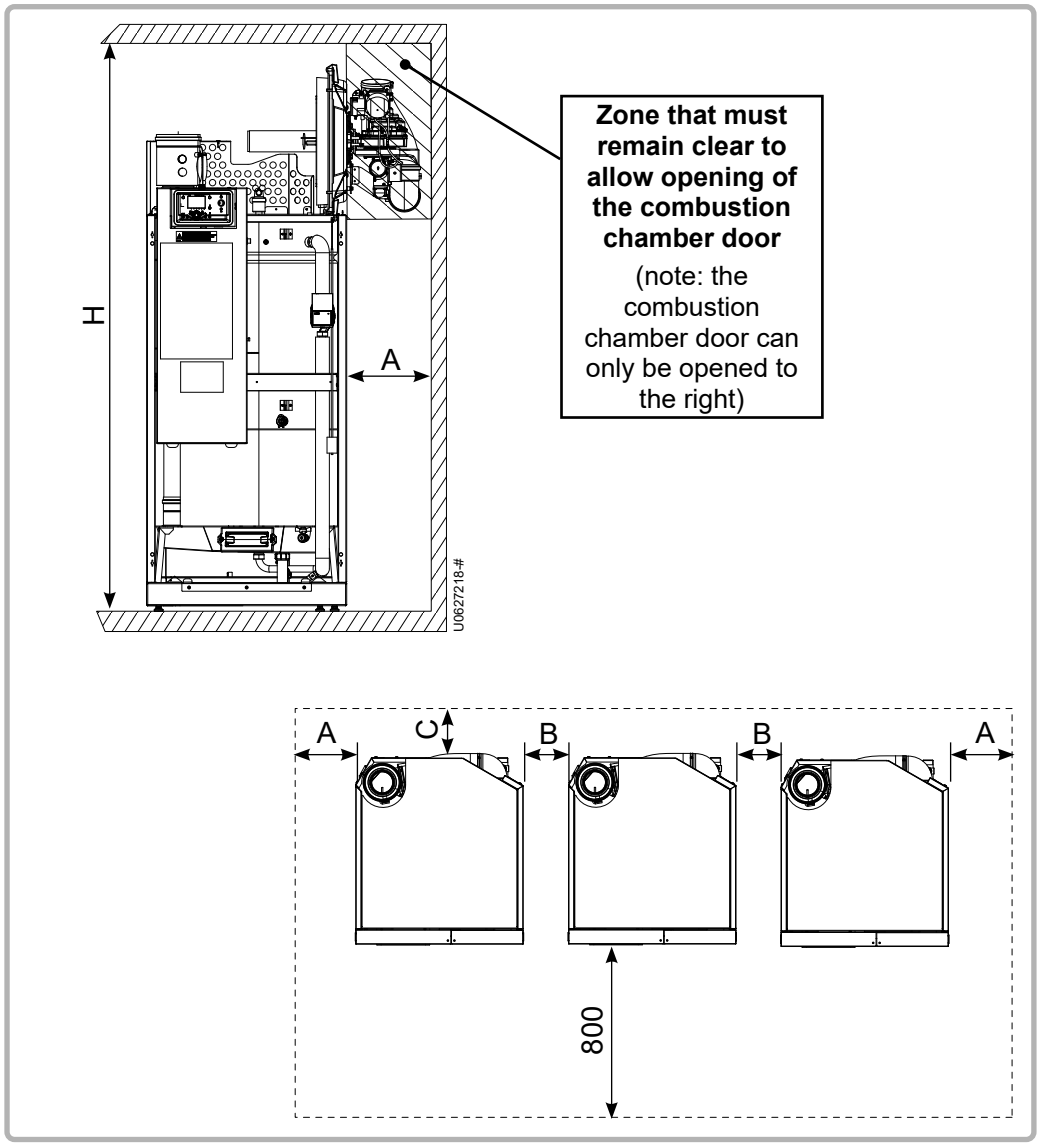


figure 2 - Clearance around the boiler

These values cannot be substituted for the specific regulatory requirements.

ATTENTION: **The boiler must be positioned horizontally using a spirit level to promote effective ventilation of the heat exchanger body (use the plinth as a reference surface).**

To adjust the level, screw or unscrew the 4 adjustable feet as required using a 13 mm wrench.

4.2. Removing / refitting the front panel

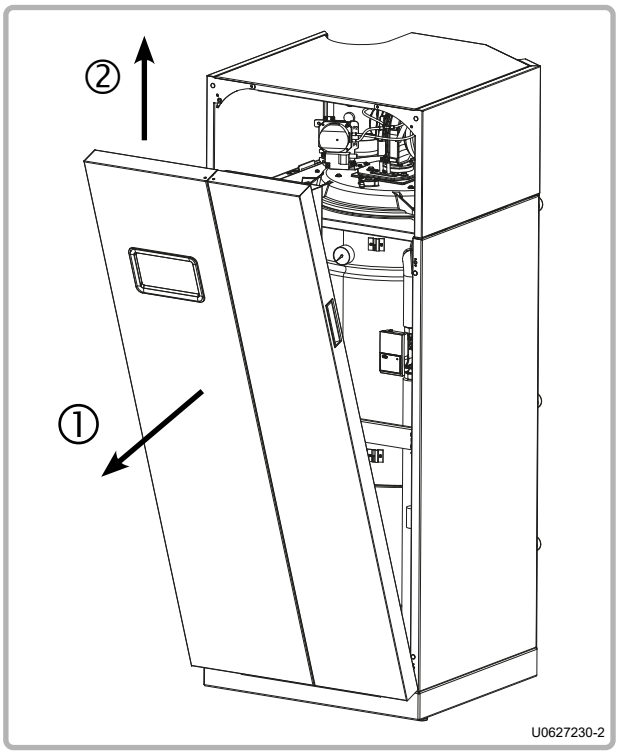


figure 3 - Removing the front panel

1. Tilt the front panel forward (use the handles located on the door thickness).

   Disconnect the earth wire (on the top left of the boiler).

2. Lift the front panel to remove it.

4.3. Removing / refitting the upper cover

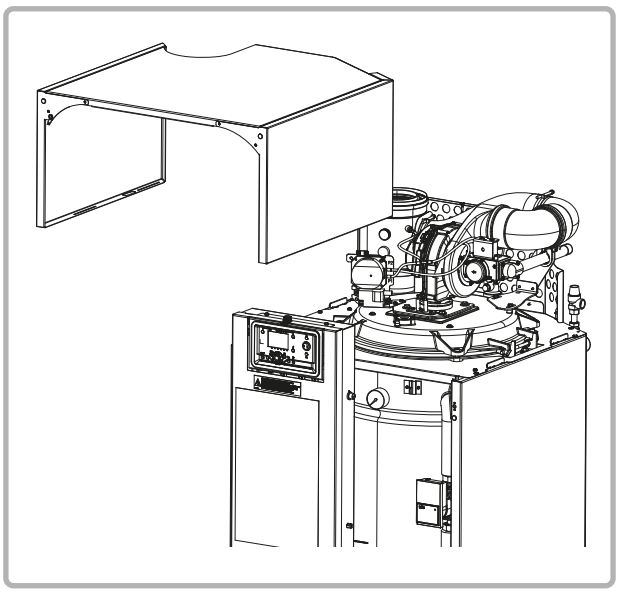


figure 4 - Removing the upper cover

Pull the upper cover forward.

Lift the cover to remove it.

4.4. Exhaust connection

It is essential to comply with the regulations and codes of practice in force in the country where the boiler is installed.

An exhaust temperature sensor guarantees protection for type B and C combustion product evacuation flues.

4.4.1. Connection to a B23 chimney

B23 type connection:
Air from the installation room, gas evacuation through the roof via a natural draft duct.

ATTENTION: **Ensure that the room where the boiler is installed has high and low ventilation outlets in accordance with the regulations in force and that they are not obstructed.**

For the **CONDENSINOX 40-50-60**, the use of the Ø 125 Chimney Adaptor accessory (code 040940) is mandatory to connect a CONDENSINOX boiler to a B23 chimney duct. This kit is suitable for Ø 125 exterior ducts.

For the **CONDENSINOX 80-100**, the use of the Ø 160 Chimney Adaptor accessory (code 041050) is mandatory to connect a CONDENSINOX boiler to a B23 chimney duct. This kit is suitable for Ø 160 exterior ducts.

ATTENTION: **Under no circumstances is use of these mandatory accessories a substitute for checking the dimensioning of the chimney ducts (given a combustion gas pressure at the boiler outlet equal to 0 Pa).**

The exhaust extraction ducts must be made in a material resistant to the condensate that can form when the boiler is operating. These materials must also be capable of supporting exhaust temperatures up to 120°C.

CONDENSINOX boilers are high-performance boilers with very low exhaust temperatures; consequently to retain a favourable draft the ducts must run upwards from the boiler outlet.
Horizontal duct runs must be avoided so as not to cause condensate retention. Use a minimum slope of 3% towards the boiler in the horizontal parts.

IMPORTANT:

If several boilers are connected to the same flue, make sure:

1. **By calculation, that the flue is not under pressure when all the boilers are operating.**
2. **If one of the boilers is operating at minimum power, that the others do not discharge into it.**

	CONDENSINOX				
	40	**50**	**60**	**80**	**100**
Code	040940			041050	
Ø duct	Ø 125			Ø 160	
A (mm)	1690			1925	

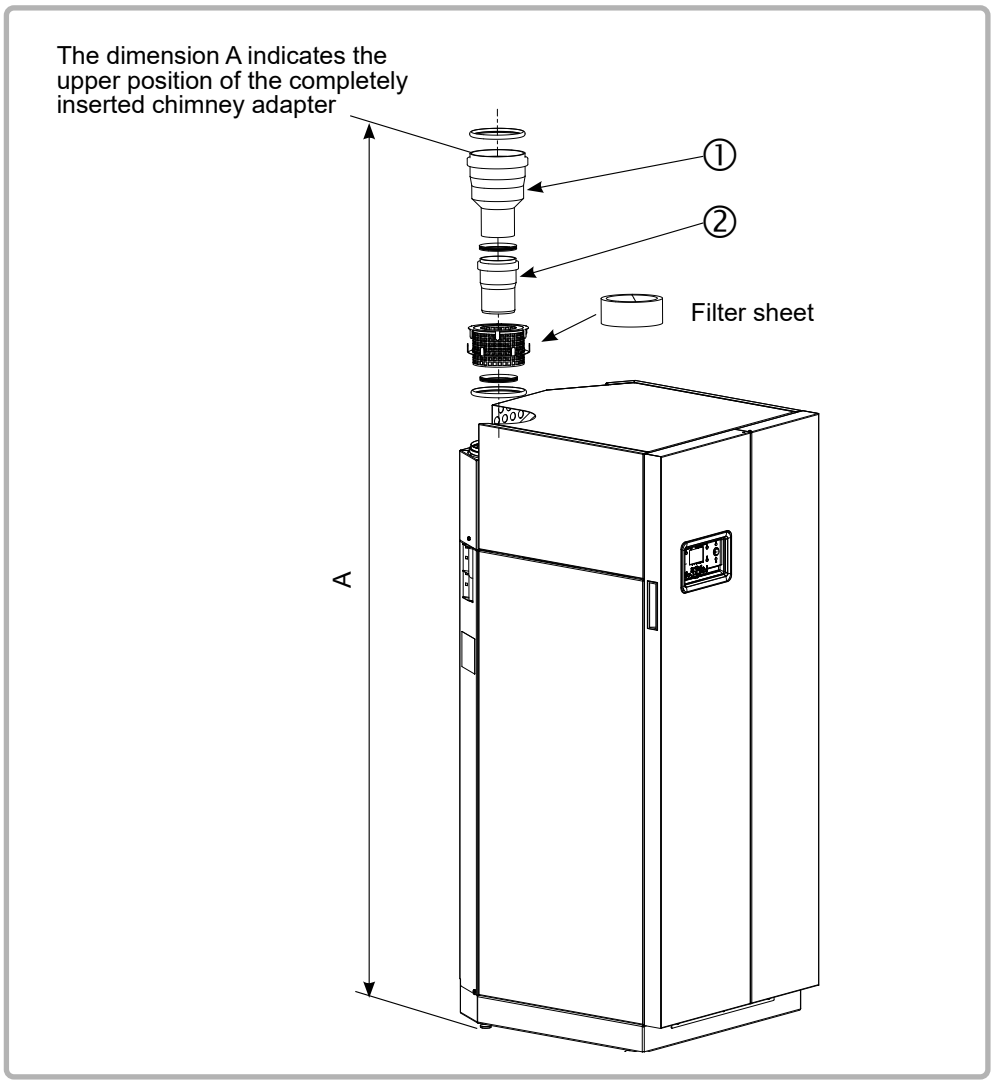


figure 5 - Connection to a chimney

4.4.2. Connection to a B23P chimney

B23P type connection:
Air from the installation room, gas evacuation through the roof via a pressurised duct.

ATTENTION:	**Ensure that the room where the boiler is installed has high and low ventilation outlets in accordance with the regulations in force and that they are not obstructed.**

ATTENTION:	**The use of the "Chimney Adaptor" accessory is mandatory to connect a CONDENSINOX boiler to a B23P chimney duct. The table below represents the accessories available for each boiler type.**

Ø duct	CONDENSINOX				
	40	50	60	80	100
Ø 80	Code 040945 (contains part ②) *			--	
Ø 110	Code 041096 (contains part ①+②) *			Code 041052 (contains part ②) *	
Ø 125	Code 040940 (contains part ①+②) *			Code 041051 (contains part ①+②) *	
Ø 160	--			Code 041050 (contains part ①+②) *	

* See figure 4 on the previous page.

ATTENTION: **For this type of configuration, it is imperative to use an exhaust system with technical evaluation document (ducts under pressure).**

The Ø 80 Chimney Adaptor accessory (code 040945) has an 80 diameter 500 mm long straight component that can be cut to the desired dimension **(195 mm min)**.
The Ø 125 Chimney Adaptor accessory (code 040940) has a 125 diameter outlet that cannot be recut.

Ø duct	Height A (in mm)				
	CONDENSINOX				
	40	50	60	80	100
Ø 80	1605 min / 1910 max			--	
Ø 110	1635			1795	
Ø 125	1690			1910	
Ø 160	--			1925	

A purge tee is not necessary, because condensate recovery is incorporated in the boiler. Use a minimum slope of 3% towards the boiler in the horizontal parts.

To ease fitting coat the joints with liquid soap or an appropriate grease.

4.4.2.1. Single boiler installation case

ATTENTION:

The combustion product extraction duct must be dimensioned by using the parameters set out in the table in chapter 3.2.

Depending on the actual configuration of the duct, a calculation is required to check that the pressures at the boiler outlet do not exceed the maximum allowable values in this table.

Values corresponding to the 50/30°C regime are to be used for this calculation.

4.4.2.2. Cascade installation case

ATTENTION:

The combustion product extraction duct must be dimensioned by using the parameters set out in the table in chapter 3.2.

Depending on the actual configuration of the duct, a calculation is required to check that the pressures at the boiler outlet do not exceed the maximum allowable values in this table.

Values corresponding to the 50/30°C regime are to be used for this calculation.

The installation must be done so that if one of the boilers is stopped or operating at minimum, the others do not discharge into it. Depending on the installation configuration, it may be necessary to install a valve at the boiler outlet.

For this type of connection, the manufacturer offers exhaust connection accessories with duct diameter A = 160 mm for the 40, 50 and 60 kW models and A = 200 mm for the 80 and 100 kW models. These accessories contain a valve for each boiler.

If boilers of different power ratings are being connected, the most powerful models should be closest to the chimney.

NOTE: The manufacturer's accessories do not allow 40/50/60 kW models to be combined with 80/100 kW models.

4.4.4. Rules for installing air vent terminals

Please refer to national standards and regulations.

4.4.3. Connection to a C13 or C33 vent (G20 and G25 only)

C13 type connection:
Air intake and gas evacuation via separate ducts connected to a horizontal concentric terminal (vent).

C33 type connection:
Air intake and gas evacuation via separate ducts connected to a vertical concentric terminal.

IMPORTANT:

The use of the “Horizontal air vent” accessory is mandatory to connect a CONDENSINOX boiler with a concentric C13 vent.
The use of the “Black vertical air vent” or "Ochre vertical air vent" accessory is mandatory to connect a CONDENSINOX boiler with a concentric C33 vent.

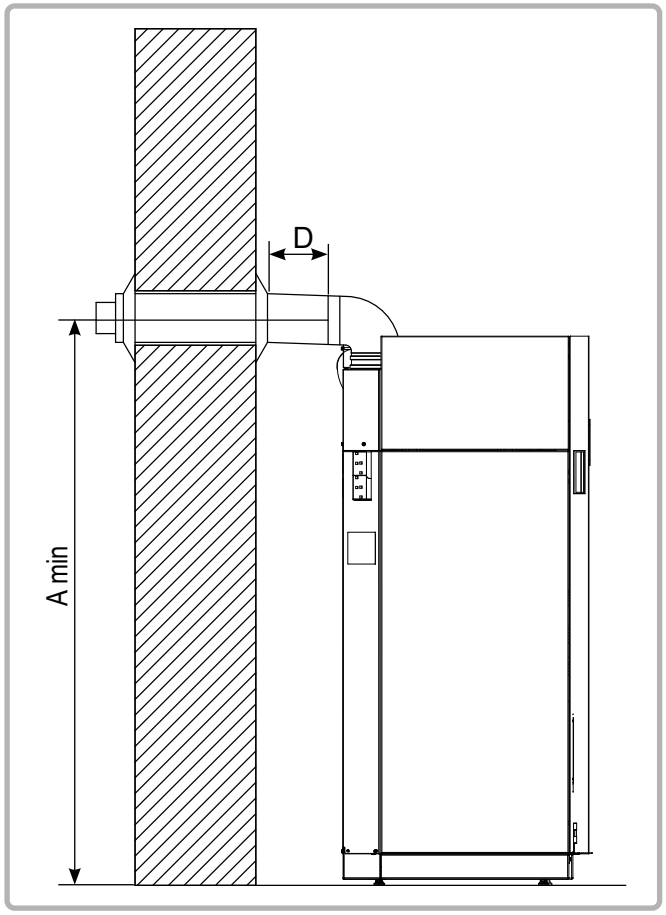
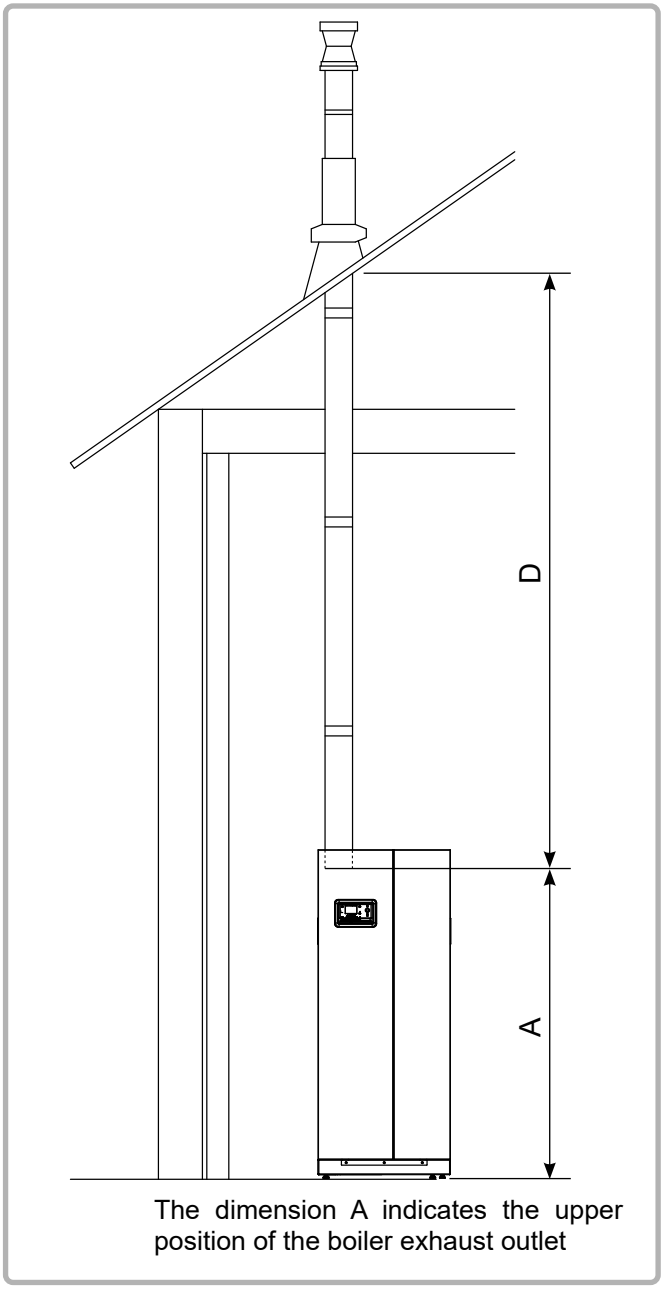


figure 6 - C13 type connection



The dimension A indicates the upper position of the boiler exhaust outlet

figure 7 - C13 type connection

The table below presents the accessories available for each boiler type, the duct diameters and the maximum straight lengths.

The approved ducts are Ubbink Rolux Concentric Condensation ducts.

		CONDENSINOX			
		40	60	80	100
C13 type horizontal air vent	C13 terminal	Code 040946		Code 040987	
	Ø **duct**	Concentric 80/125		Concentric 100/150	
	A min (mm)	1552		1750	
	Lmax	12 m	15 m	10 m	10 m
C33 type vertical air vent	Black C33 terminal	Code 040947		Code 040988	
	Ochre C33 terminal	Code 040948		--	
	Ø **duct**	Concentric 80/125		Concentric 100/150	
	A min (mm)	1469		1645	
	Lmax	12 m	15 m	10 m	10 m

The Lmax lengths indicated exclude the terminal and 90° bend for the C13 type and the terminal for the C33 type.

In addition, in calculating the duct lengths, take the following equivalences into account:

- 90° bend = 1 m of straight duct
- 45° bend = 0.5 m of straight duct

The terminal location must respect the rules in section 4.2.3.

Use a minimum slope of 3% towards the boiler.

For type C13, drill a 150 mm hole in the wall for the 80/125 terminal and a 180 diameter hole for the 100/150 terminal. Seal the air vent terminal into the wall with polyurethane foam to allow for removal if necessary.

To ease fitting coat the joints with liquid soap or an appropriate grease.

4.4.5. Connection to a C53 vent (G20 and G25 only)

C53 type connection:
Air intake and gas evacuation via 2 separate ducts.

IMPORTANT: **The use of the “Black vertical separate air vent” or "Ochre vertical separate air vent" accessory is mandatory to connect a CONDENSINOX boiler with a separate C53 vent.**

The table below presents the accessories available for each boiler type.

	CONDENSINOX			
	40	60	80	100
black C53	Code 040951		Code 040999	
ochre C53	Code 040952		--	

The approved ducts are Ubbink Rolux Separate Condensation 80/80 ducts for 40 and 60 kW models and Ubbink Rolux Separate Condensation 100/100 for 80 and 100 kW models.

The location of exhaust and air terminals must comply with the rules in section 4.2.3.

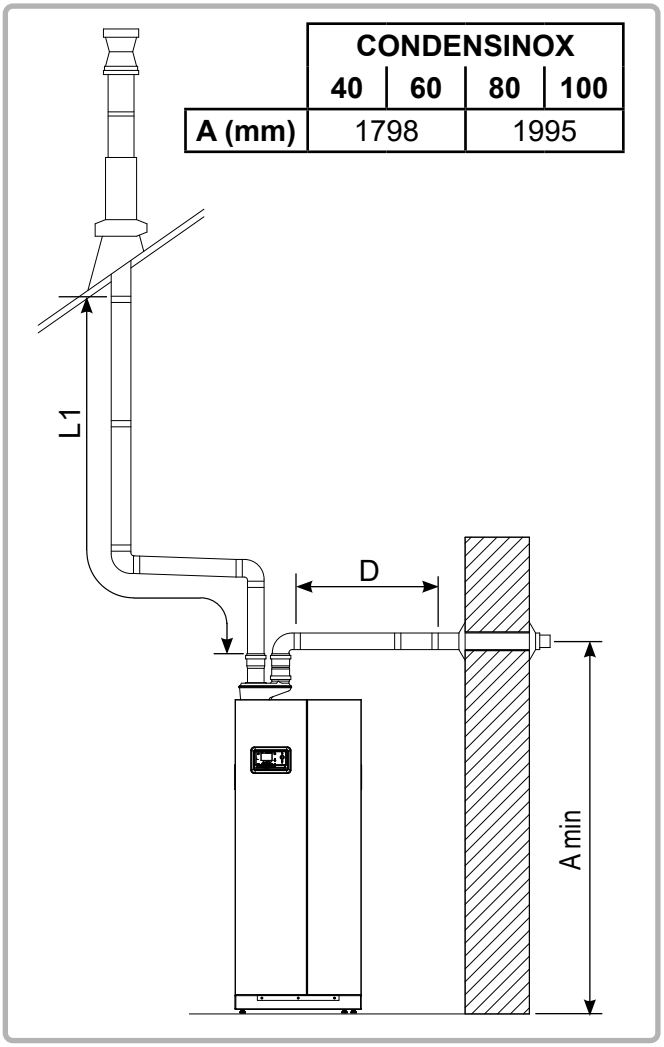


figure 8 - C53 type connection

Maximum straight duct length L + L1 = in the grey zone of the graph below (excluding terminal).

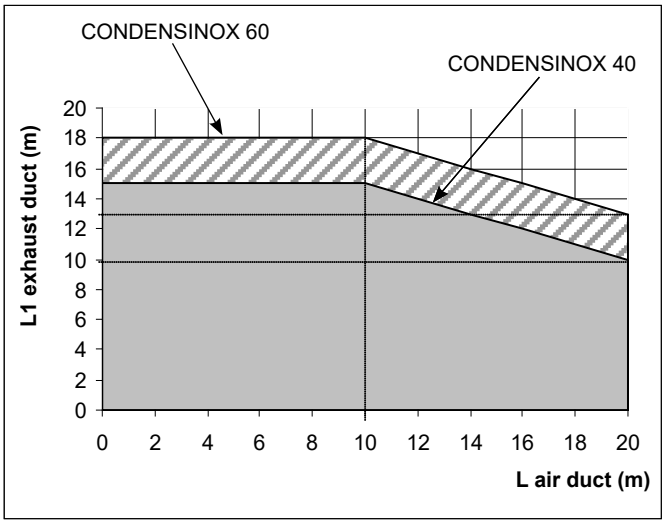


figure 9 - Max length of C53 type ducts - CONDENSINOX 40-60

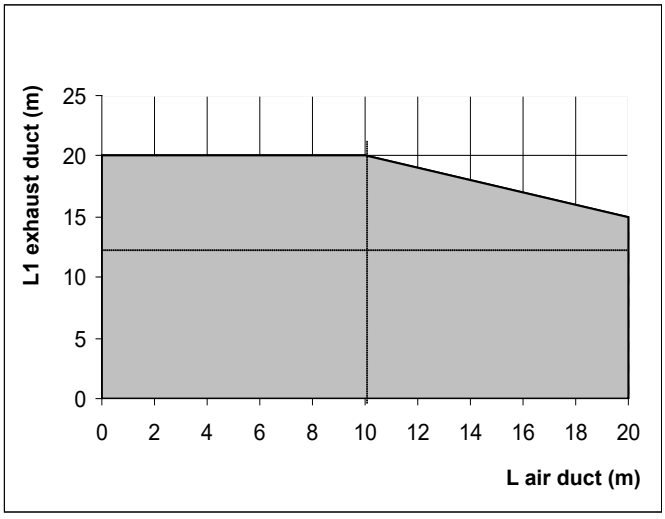


figure 10 - Max length of C53 type ducts - CONDENSINOX 80-100

When calculating the duct length, take the following rules into account:
- 90° bend = 1 m of straight duct
- 45° bend = 0.5 m of straight duct

For the exhaust duct, respect a minimum slope of 3% towards the boiler in horizontal sections.

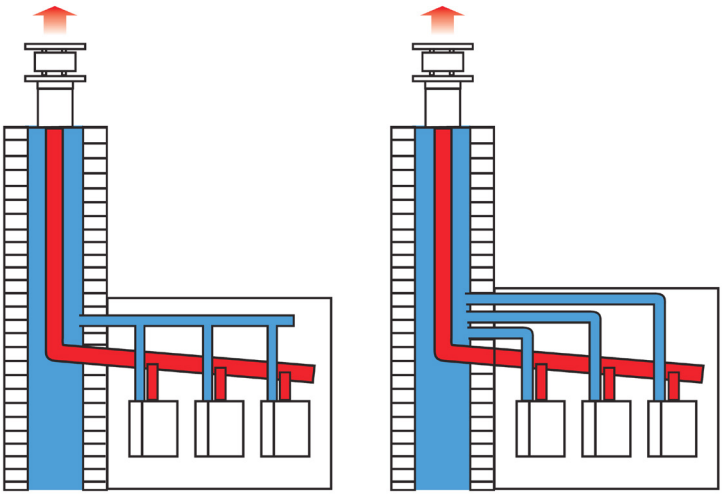
To ease fitting coat the joints with liquid soap or an appropriate grease.

4.4.6. C43 or C83 collective air vent connection

IMPORTANT: **For these connection types, consult us.**

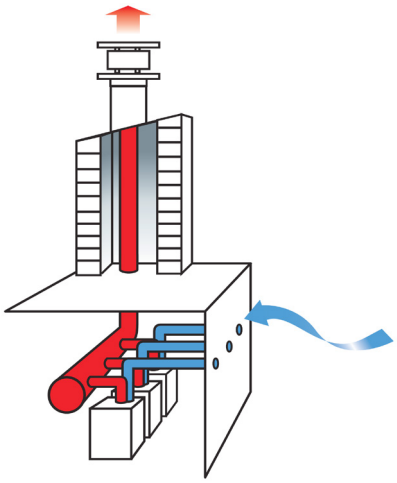
4.4.6.1. Type C43

The boilers are connected to a common duct comprising two ducts connected to a terminal that provides extraction of combustion products and combustion air intake through orifices that are concentric or sufficiently close to operate in similar wind conditions.



4.4.6.2. Type C83

The boilers are connected to a common combustion product extraction duct. The air intake ducts are connected to individual terminals taking air from outside the building.



4.5. Hydraulic connection

The presence of a water pump built into the boiler with intelligent regulation allows optimum operation at up to Pinst/35 (Pinst = instantaneous power expressed in Th/h – 1 Th/h = 1.163 kW).
Below this rate of Pinst/35, the boiler will continue to operate but with a gradual reduction in power (the boiler will stop below Pinst/51).
Care must be taken with the exchanger never to exceed the rates prescribed in paragraph 3.3 (nominal boiler power/7).
The system circulating pump(s) must be sized for the maximum power supplied.

The pipes connecting the boiler to the installation must be specified carefully to minimise pressure losses and so avoid overspecified circulating pumps.
In some cases the diameter of the connection pipes will be greater than the diameter of the boiler tappings. The diameter can then usefully be increased after the union connectors, the stop valves, and/or the hydraulic balancing valves.

The diagram below allows approximate sizing of these pipes: Note that this does not take account of bends, reductions, valves etc. along the way that can have a significant impact on total pressure loss in the ducts.

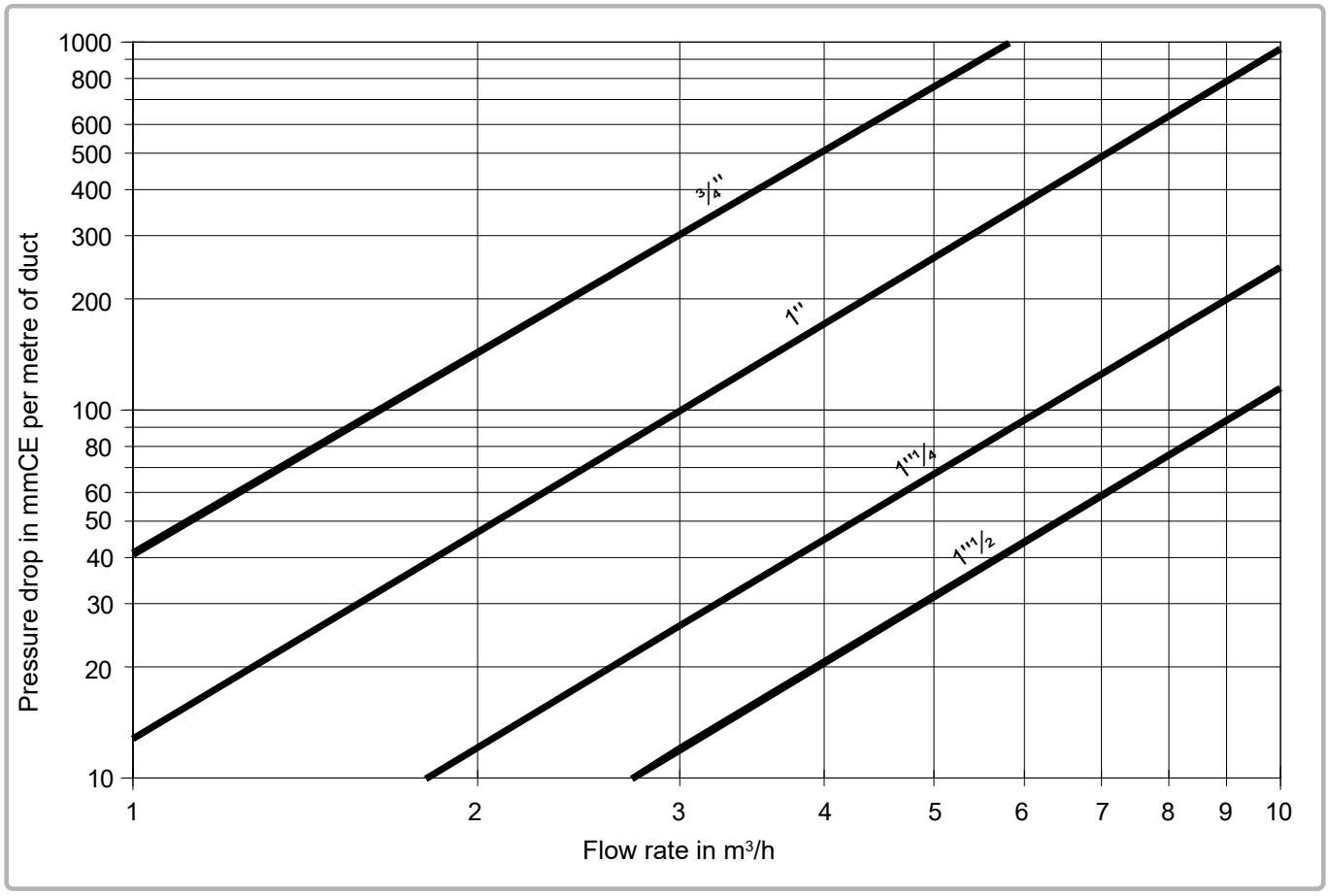


figure 11 - Diagram of regular pressure drops in steel ducts (cold water)

The boilers are equipped with the following elements:

- a safety valve calibrated to 4 bar,
- an automatic drain tap,
- a drain valve.

It is imperative to fit the boiler and its installation with the following components:

- isolation valves on the flow and return tappings,
- an expansion vessel,
- an effective drain system,
- a check valve (or a motorised isolating valve) if the boiler is installed in a cascade.

4.5.1. Connection using 3 tappings

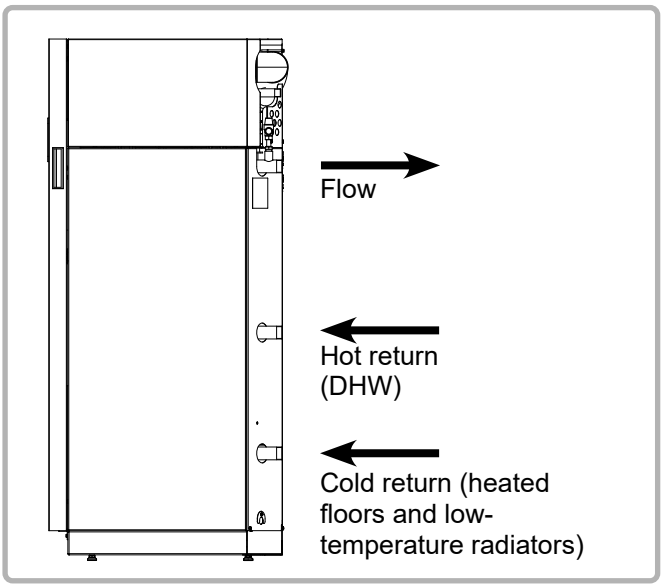


figure 12 - 3 tappings

CONDENSINOX boilers are fitted with 2 returns and an optimised internal water circuit allowing effective separation of high temperature returns (coming from DHW preparation circuits, ATU, radiators…) from low temperature circuits (underfloor heating circuits, low temperature radiator circuits…).
This circuit separation encourages the condensation of exhaust in the lower part of the exchanger throughout the year, and so considerably increases the product performance.

4.5.2. Connection using 2 tappings

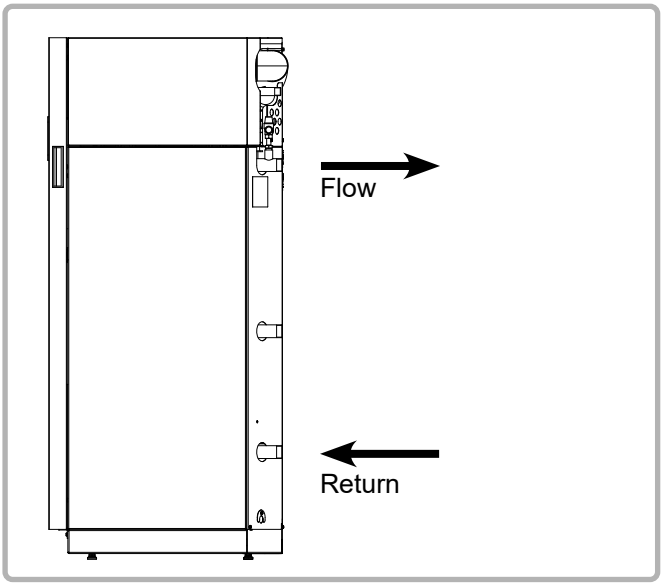


figure 13 - 2 tappings

If all the circuits have the same return temperatures, the return tapping located in the lower part must be used.

4.5.3. Condensate removal

Removal to the drains, via a drain hopper, using a PVC tube (minimum diameter 32 mm) is mandatory because the condensates are acidic and thus aggressive (pH between 3 and 5).
Use a sufficient slope of the order of 3% to ensure correct flow of the condensates.

ATTENTION: **Neutralise these condensates before removal according to the current regulations.**

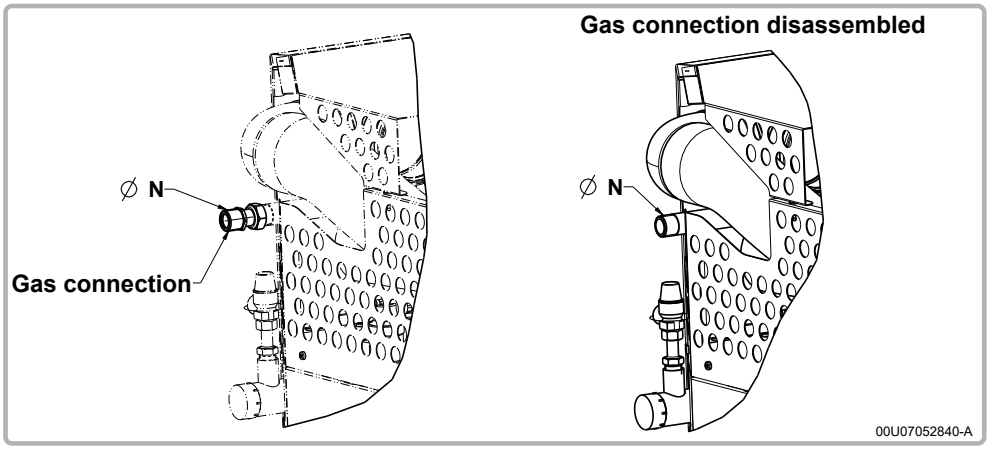
4.6. Connecting the gas supply

The gas valve is fitted with an integrated filter (125 µm), but this is not able to retain all the impurities contained in the gas and in the mains pipes. **To avoid any malfunction of the gas valve, we advise the fitting of a suitable filter to the boiler gas supply (50 µm).**

Before feeding gas to the installation, ensure that the different connections are correctly made and gas tight.
In particular check the presence of a removable connector between the isolating valve and the boiler gas supply tapping.
The value read at the gas valve input (upstream pressure tapping) must be between 17 and 25 mbar when operating at the maximum pressure (group H and type G20 natural gas).

ATTENTION: **The gas line connection must not be subject to any mechanical stress (risk of loss of gas tightness of the gas valve).**
Check that the natural gas supply corresponds to the nominal boiler pressure, stated on the name plate.

The gas connection can be removed if necessary.



4.7. Changing the gas

INFORMATION: **This boiler has been adjusted in the factory to work with group H natural gas (type G20) with a supply pressure of 20 mbar.**

ATTENTION: **All work involving a change in the type of gas must be carried out by a qualified professional.**

The valve must be adjusted on the boiler in operation at both maximum and minimum power. Use the 'Manual power program' operating mode (see section 3.3.4 of the manual for the NAVISTEM B3000 boiler controller), which allows you to change directly to the minimum or maximum setpoint (0% or 100%).

The adjustment values have been validated for the gas supply pressures at the valve intake (pressure measured upstream, burner in operation) given in the following table:

Type of gas	G20	G25	G31
Supply pressure (mbar)	20	25	37

4.7.1. Changing from G20 to G25

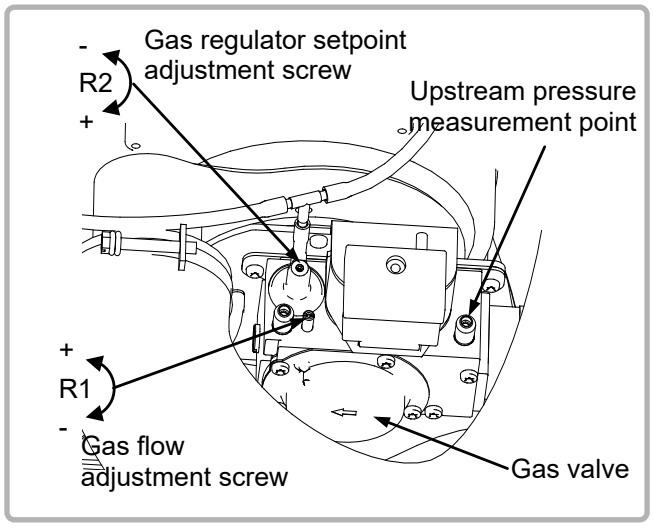


figure 14 - R1 and R2 adjustment screws

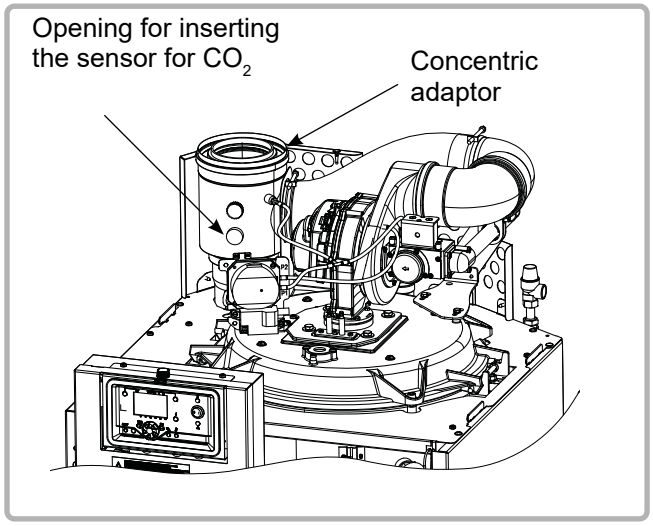


figure 15 - Measurement orifice

Before starting the burner, on the gas valve, preset the gas flow rate, using the gas flow rate adjustment screw R1, to the appropriate value given in the table below.

Start the burner at maximum power.

Using a combustion analyser, measure the CO_2 ratio in the exhaust gases: on the concentric adapter, remove the plug from the lower opening and insert the CO_2 measurement sensor into the centre of the flow in the exhaust duct.

Check the CO_2 value at maximum power and, if necessary, use the R1 valve gas flow rate adjustment screw to obtain the values of CO_2 in the table below.

Change to minimum power and check that the CO_2 value is within the range in the table below. If necessary, use the R2 setpoint adjustment screw.

If the setting is adjusted at minimum power, go back to maximum power and recheck the CO_2 value. Repeat the operation until both values comply with the table below.

Return to the standard operating mode.

After making the gas change settings, stick the label corresponding to the new gas type in place of the old one.

ATTENTION: **To avoid any deterioration of the boiler, the CO_2 values measured must be in conformity with the below table:**

Models	Gas valve	Gas	Pre-setting/G20	CO_2 Pmax	CO_2 Pmin
40	GB-WND 055 D01 S20	G20	--	8.9 - 9.1	8.4 - 8.6
		G25 set up for G20 *	--	6.9 - 7.1	6.4 - 6.6
		G25	Unscrew R1 (+ direction) 1.5-2 turns	8.7 - 8.9	8.0 - 8.2
		G31	Screw R1 (- direction) 2-2.25 turns + screw R2 (+ direction) 1.25–1.5 turns	11.2 - 11.4	11.0 - 11.2
50	GB-WND 055 D01 S20	G20	--	8.9 - 9.1	8.4 - 8.6
60	GB-WND 055 D01 S20	G20	--	8.9 - 9.1	8.4 - 8.6
		G25 set up for G20 *	--	6.9 - 7.1	6.4 - 6.6
		G25	Unscrew R1 (+ direction) 1.5-2 turns	8.6 - 8.8	8.1 - 8.3
		G31	Screw R1 (- direction) 2-2.25 turns + screw R2 (+ direction) 1 turn	11.2 - 11.4	11.0 - 11.2
80	GB-WND 057 D01 S20	G20	--	8.7 - 8.9	8.4 - 8.6
		G25 set up for G20 *	--	6.8 - 7.0	6.7 - 6.9
		G25	Unscrew R1 (+ direction) 2 turns	8.6 - 8.8	8.0 - 8.4
		G31	Screw R1 (- direction) 2 turns + screw R2 (+ direction) 3 turns	9.8 - 10.0	9.4 - 9.7
100	GB-WND 057 D01 S20	G20	--	8.7 - 8.9	8.4 - 8.6
		G25 set up for G20 *	--	6.9 - 7.1	6.5 - 6.7
		G25	Unscrew R1 (+ direction) 2.5-3 turns	8.6 - 8.8	8.4 - 8.6
		G31	Screw R1 (- direction) 2 turns + screw R2 (+ direction) 1.5-2 turns	9.6 - 9.8	9.0 - 9.2

* G25 set up for G20: gas category $I_{2E(S)}$ or $I_{2E(R)}$

4.7.2. Changing from G20 to G31

ATTENTION: ONLY for boilers connected with B23 and B23P.

4.7.2.1. Phase 1: Procedure for changing the ignition power

Set the boiler to standby mode (see section 3.3.1 of the NAVISTEM B3000 boiler controller manual).

If necessary, press the ESC button to return to the standard screen.

Access the ***Settings*** menu (see section 3.6 of the NAVISTEM B3000 boiler controller manual), "OEM" level.

Adjust the ignition speed (9512), minimum (9524) and maximum (9529) settings:

Models	Gas	9512	9524	9529
40	G20-G25	3950	1600	6700
	G31	3650	3000	6100
60	G20-G25	4550	1860	7800
	G31	2650	2350	6800
80	G20-G25	2300	1500	6400
	G31	2550	1750	6300
100	G20-G25	2350	1750	7550
	G31	2750	1750	7550

4.7.2.2. Phase 2: Modifying the valve setting and checking the combustion parameters

Before starting the burner, on the gas valve, preset the gas flow rate, using the R1 gas flow rate adjustment screw, to the appropriate value given in the table above.

Start the burner at maximum power.

Using a combustion analyser, measure the CO_2 ratio in the exhaust gases: on the concentric adapter, remove the plug from the lower opening and insert the CO_2 measurement sensor into the centre of the flow in the exhaust duct.

Check the CO_2 value at maximum power and, if necessary, use the R1 valve gas flow rate adjustment screw to obtain the values of CO_2 in the table above.

Change to minimum power and check that the CO_2 value is within the range in the table above. If necessary, use the R2 setpoint adjustment screw.

If the setting is adjusted at minimum power, go back to maximum power and recheck the CO_2 value. Repeat the operation until both values comply with the table in the previous section.

Return to the standard operating mode.

After making the gas change settings, stick the label corresponding to the new gas type in place of the old one.

4.8. Electrical connection

DANGER:	**Before carrying out any work, ensure that the general electrical power supply is switched off.**
DANGER:	**It is essential that the phase-neutral polarity is respected for the electrical connection.**
ATTENTION:	**It is essential to connect this boiler correctly to earth and to comply with the national standards in force in the country for low-voltage electrical installations.** **Provide a two-pole circuit breaker upstream of the boiler (distance between contacts: 3.5 mm minimum).** **Fitting the electrical installation with a 30 mA differential protective device is strongly advised.**

See the installation and use manual for the NAVISTEM B3000 boiler controller for information about the electrical connections of the control panel (characteristics of the power supply, cable section and terminal connections).

4.8.1. Access to the control panel

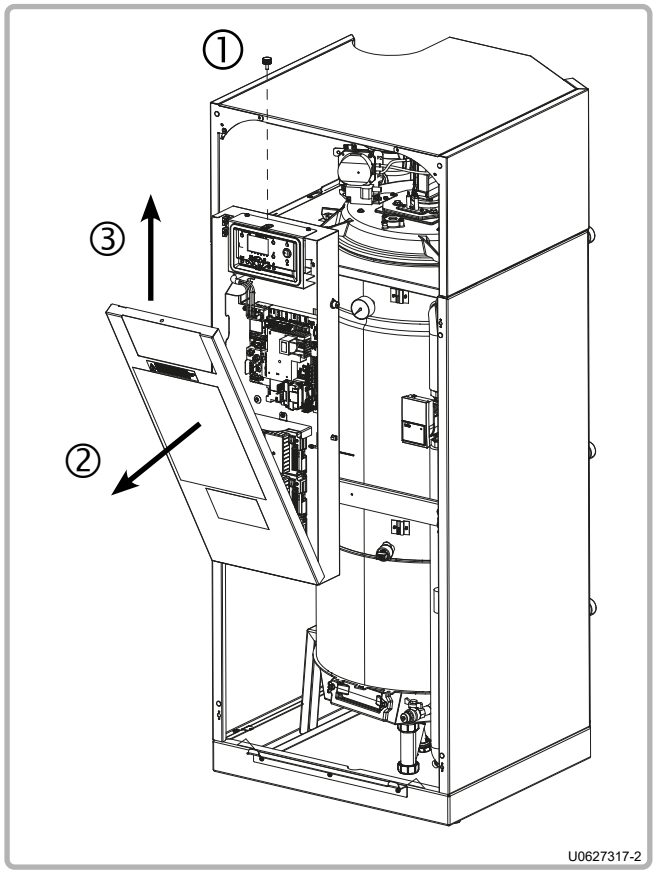


figure 16 - Access to the control panel

Remove the front panel (see *"4.3. Removing / refitting the upper cover", page 16*).

1. Unscrew the knurled button on the top of the control panel fully.
2. Tilt the panel cover forward.
3. Lift the cover to remove it.

4.8.2. Cable bushing

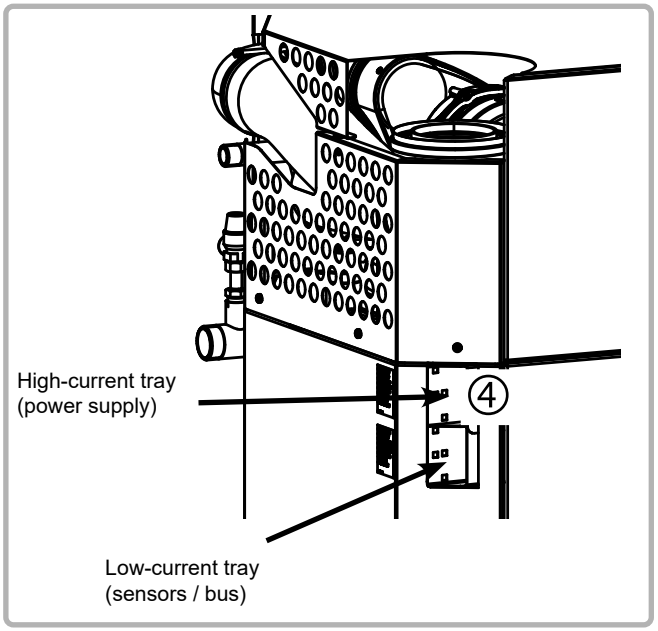


figure 17 - Electrical cable duct

Use the cable trays located on the top left of the rear jacket (see ④) to introduce the connection cables:

- The **upper** tray must be reserved for the **power connections** (boiler power supply, alarm feedback or circulating pump control).
- The **lower** tray is dedicated to **signal connections** (sensors, communication bus, etc).

Use the cable clamps (not shown) at the entrance to the cable trays to block the cables mechanically. For the connection of the general power supply, comply with the wiring diagram, in particular the phase, neutral and earth polarities.

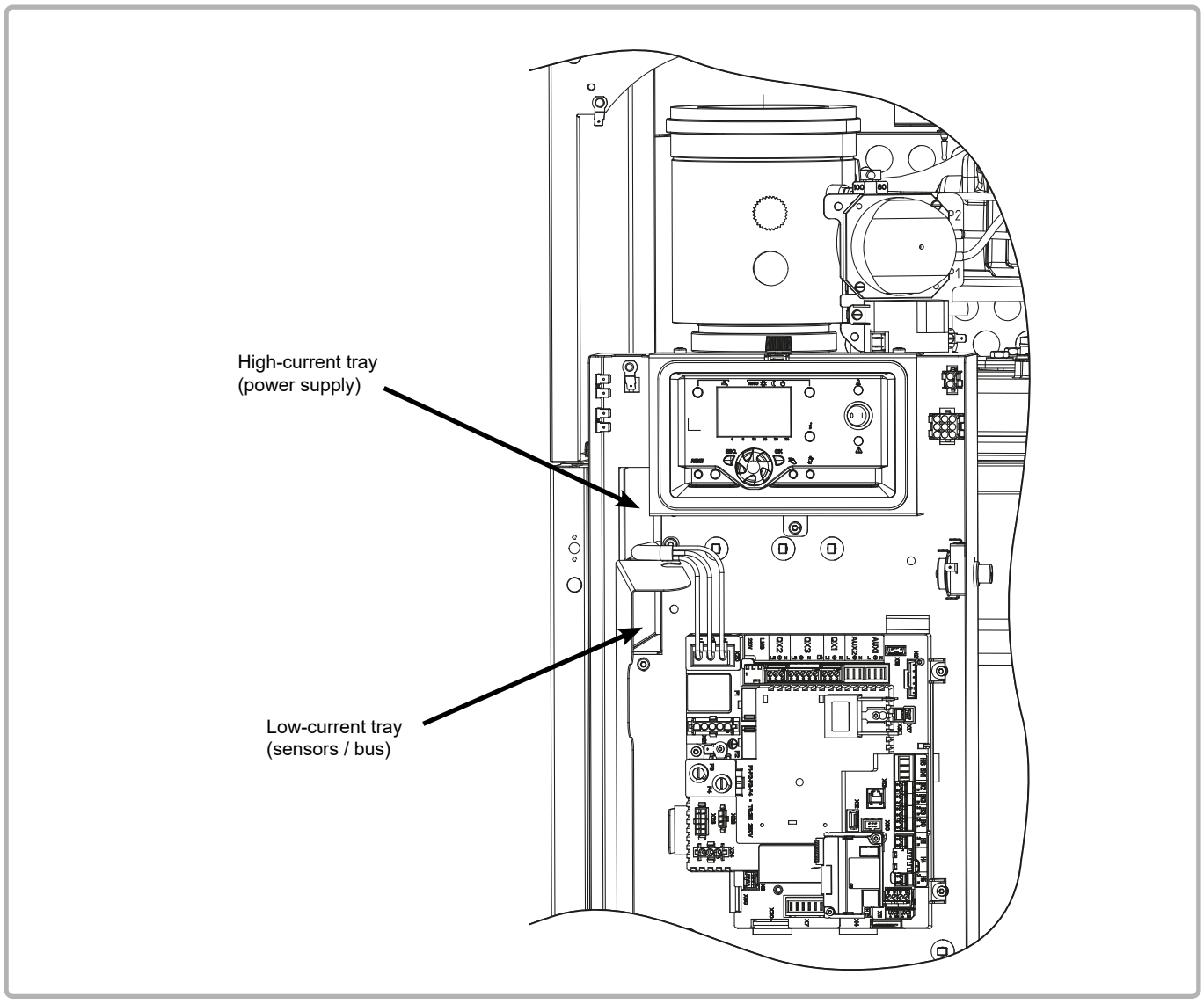


figure 18 - Electrical cable duct

4.8.3. Connection to the boiler controller terminal blocks

To connect the boiler controller, refer to its installation and use manual.

4.8.4. Connecting the AVS75 extension module(s) (optional accessory)

To install the AVS75 module(s) (up to 3), refer to the manual supplied with the accessory (reference 059751).

4.8.5. Connecting the OCI345 communication module (optional accessory)

To install the OCI345 module, refer to the manual supplied with the accessory (reference 059752).

4.8.6. Fuses

The CONDENSINOX boiler is equipped with 4 fuses located on the boiler controller (see the label on the protective cover for their locations and characteristics).

3 spare fuses are also provided on the boiler controller.

4.8.7. Electrical diagram

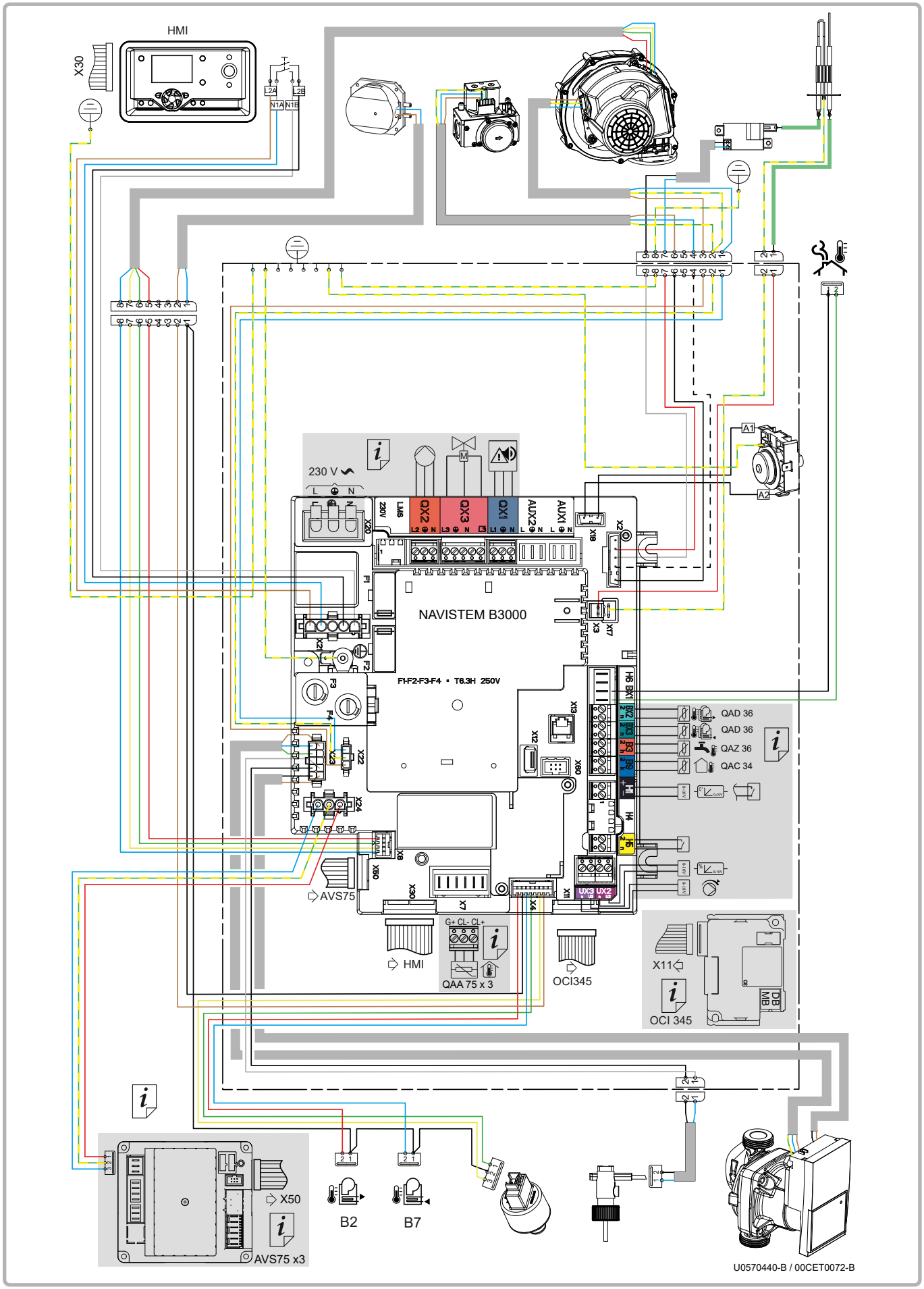
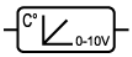
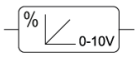


figure 19 - Electrical diagram

Refer to the paragraph 2.3 of the NAVISTEM B3000 manual should you require further information on the characteristics of borniers.

	Cascade flow sensor
	Cascade return sensor
	DHW sensor
	External sensor
	Input prog. client: 0...10V
	Output prog. client: 0...10V
	Input prog. client. contact

	Room sensor
	Boiler flow sensor
	Boiler return sensor
	Flue-gas sensor
	Alarm relay
	Modulating pump

5. COMMISSIONING

5.1. Checks before commissioning

For a cascade installation, check the hydraulic balancing of the boilers.

Check the water pressure on the manometer. This must be a minimum of 1 bar when cold.

Check that the gas pressure and type are suited to the products.

If the gas mains supply is at 300 mbar, check that a regulator is installed upstream of the boiler on the gas supply pipe.

Check that the boiler and its installation are completely bled (check the boiler levelling with a spirit level).

If this is a boiler renovation, ensure that the installation has been correctly flushed and silt removed if necessary (see the section 1.5 of this manual).

Check the exhaust connection according to the type of chimney (see section 4.2).

ATTENTION:

If there is a B23–B23P chimney connection, it is ESSENTIAL to use the "Chimney adaptor" accessory consisting of:
- an air intake grille
- a filter sheet
- an adaptor duct

5.2. Commissioning

Before packing all boilers are subjected to a factory test using group H (type G20) natural gas during which all the settings are done.

For commissioning perform the following operations:

1. Switch on the main circuit breaker.
2. Initiate a request for heat via the comfort mode using the customer interface (see chapter ***"3 - User interface"*** in the NAVISTEM B3000 boiler controller manual).
3. After starting the burner, check the gas tightness of the gas line connections using a foaming product. Check combustion health using an exhaust gas analyser.
4. Adjust the boiler setpoint (refer to the table summarising customer parameters at the end of this manual).

ATTENTION: **Any work on a sealed component will lead to loss of the guarantee.**

6. CHECKS AFTER COMMISSIONING

6.1. Condensate removal

Check that the removal of condensates is not obstructed on either the boiler side or the pipe side.

6.2. Gas supply

Check that the gas pipe diameter is correctly sized:

It is necessary to stop all the boilers together abruptly using the boiler room main circuit breaker to check that the gas pressure regulator safety device is not triggered.

If this is triggered, the gas pipe is undersized. After this operation, re-engage the circuit breaker. The boilers should start automatically, if not, consult the supplier of the gas pressure regulator.

7. MAINTENANCE OPERATIONS

Maintenance operations must be done annually or every 3000 hours of operation by a qualified professional.

The actions to take for each type of maintenance are given in the table below.
In all cases, these operations must be performed by a qualified professional.

Before performing the following operations:
- **Switch off the main circuit breaker.**
- **Close the gas supply isolation valve.**
- **Isolate the boiler hydraulically.**

DANGER: **The boiler is earthed via connecting cables (green/yellow) and special fixing screws. If the boiler is disassembled, make sure the cables are reconnected properly and ALWAYS reuse the original fixing screws.**

Paragraph number	
7.3	Cleaning the exchanger: • Check tube sooting visually. • If necessary, remove the turbulators and clean the tubes mechanically.
7.4	Ignition / ionisation electrodes: • Check the ignition electrodes (air gap distance). • If necessary, replace the electrode unit.
--	Condensate removal siphon: • Clean the removal siphon and check that the condensates flow correctly (replace the water after checking).
--	Check the correct condition and connection of the pressure transfer pipes between the concentric exhaust adapter, the gas valve and air pressure switch.
--	Check the gas burner visually.
--	Check the airtightness of the combustion chamber door, the condition of the seal and the tightness of the screws.

7.1. Draining the boiler

- Close the isolation valves on the flow and return tappings.
- Connect the ½" drain valve to the drain with a suitable flexible hose.
- Create an air inlet at the top of the boiler tubing (open the safety valve).
- Open the boiler drain tube tap.
- Remove the lower plug of the tee downstream of the circulating pump to completely drain the circulating pump.

7.2. Checks on the boiler environment

Before any maintenance operation, a number of common checks should be carried out on the installation.

- Water pressure: check that the water pressure is greater than 1 bar when cold.
- Read the make-up water meter. This operation identifies hydraulic leaks in the installation. If the consumption of make-up water changes, find out why and make the necessary repairs.

7.3. Cleaning the combustion chamber/exchanger

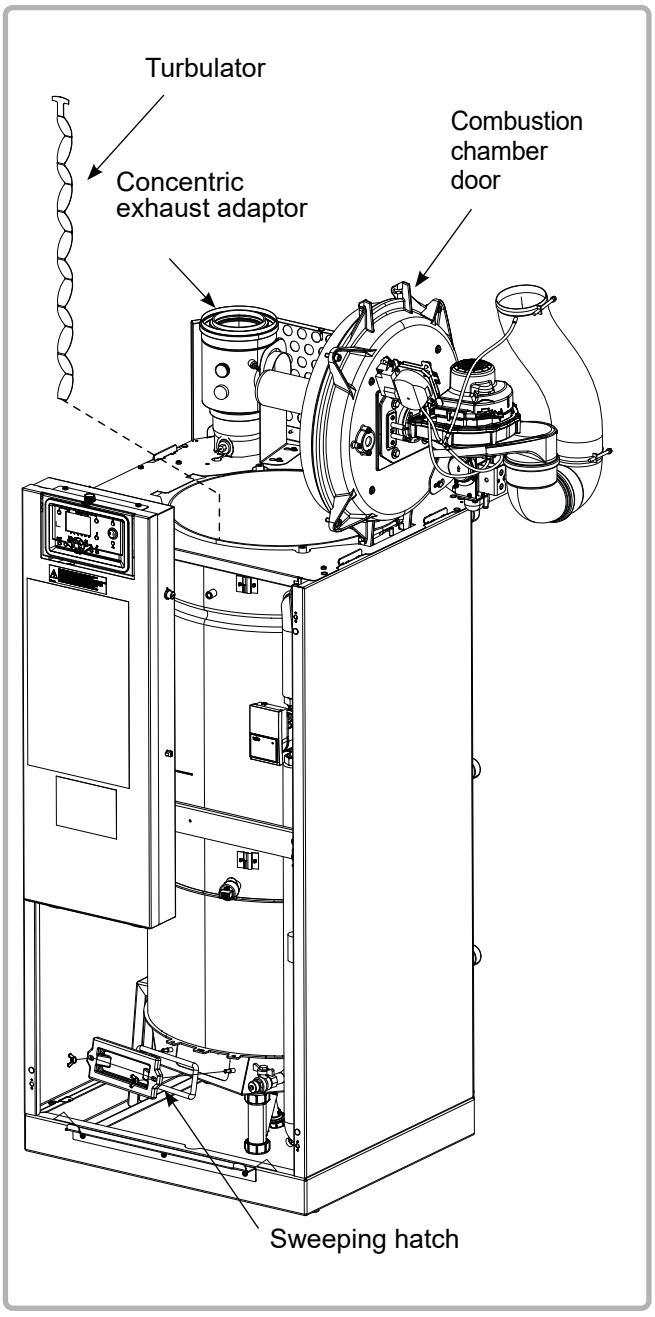


figure 20 - Cleaning the combustion chamber/exchanger

- Cut the electrical power to the boiler,
- Remove the boiler's top cover,
- Close the gas supply,
- Remove the gas supply, the air inlet hose and the pressure transfer pipe (on the concentric exhaust adapter side) as well as the burner connection assembly located on the back of the control panel.
- Unscrew the 4 CHC M8 door fixing screws,
- Open the chamber door,
- Remove the turbulators for the exchanger tubes,
- Brush the exchanger tubes with **the tube brush provided**,
- Brush the combustion chamber with **a brush suitable for stainless steel**,
- Suck out the deposits in the combustion chamber,
- Suck out the deposits that have fallen into the smoke box through the chimney sweeping hatch at the front, and below the body (hatch fixed by 2 M8 H nuts),
- Reclose and fix the chimney cleaning hatch (change the hatch seal if necessary),
- Replace the turbulators in the exchanger tubes,
- **Check that the exchanger tubes are correctly fitted with a turbulator**,
- If necessary, change the combustion chamber door seal,
- Reclose the combustion chamber door and tighten it moderately in a cross formation so as not to damage the door seal,
- Reconnect the gas supply, the air inlet hose and the pressure transfer pipe (on the concentric exhaust adapter side) as well as the burner connection assembly located on the back of the control panel.

- Check the gas tightness of the gas circuit,
- Switch the electrical power supply back on,
- Switch on the CONDENSINOX, check that the combustion chamber door is sealed and check the combustion health: CO_2 level compliant with the values in the table in section 4.5 and CO < 10 ppm,
- Refit the top cover.

7.4. Checking the ignition and ionisation electrodes

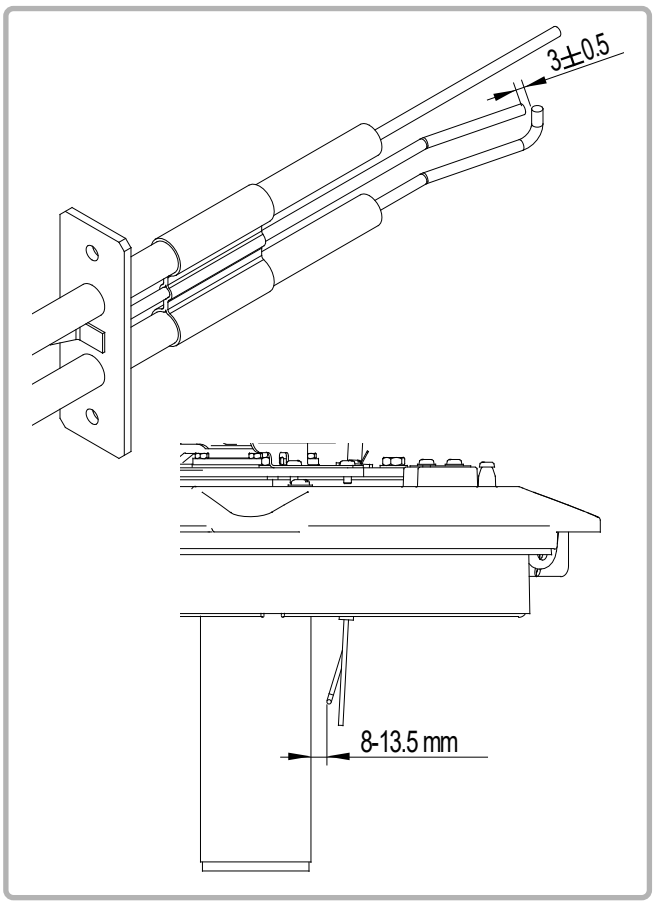


figure 21 - Electrodes

The ignition electrode for CONDENSINOX boilers is adjusted in the factory to obtain optimum boiler starting.

- Check the condition and geometry of the arc electrode.
- Check the electrode / burner distance.

8. END-OF-LIFE CYCLE OF THE APPARATUS

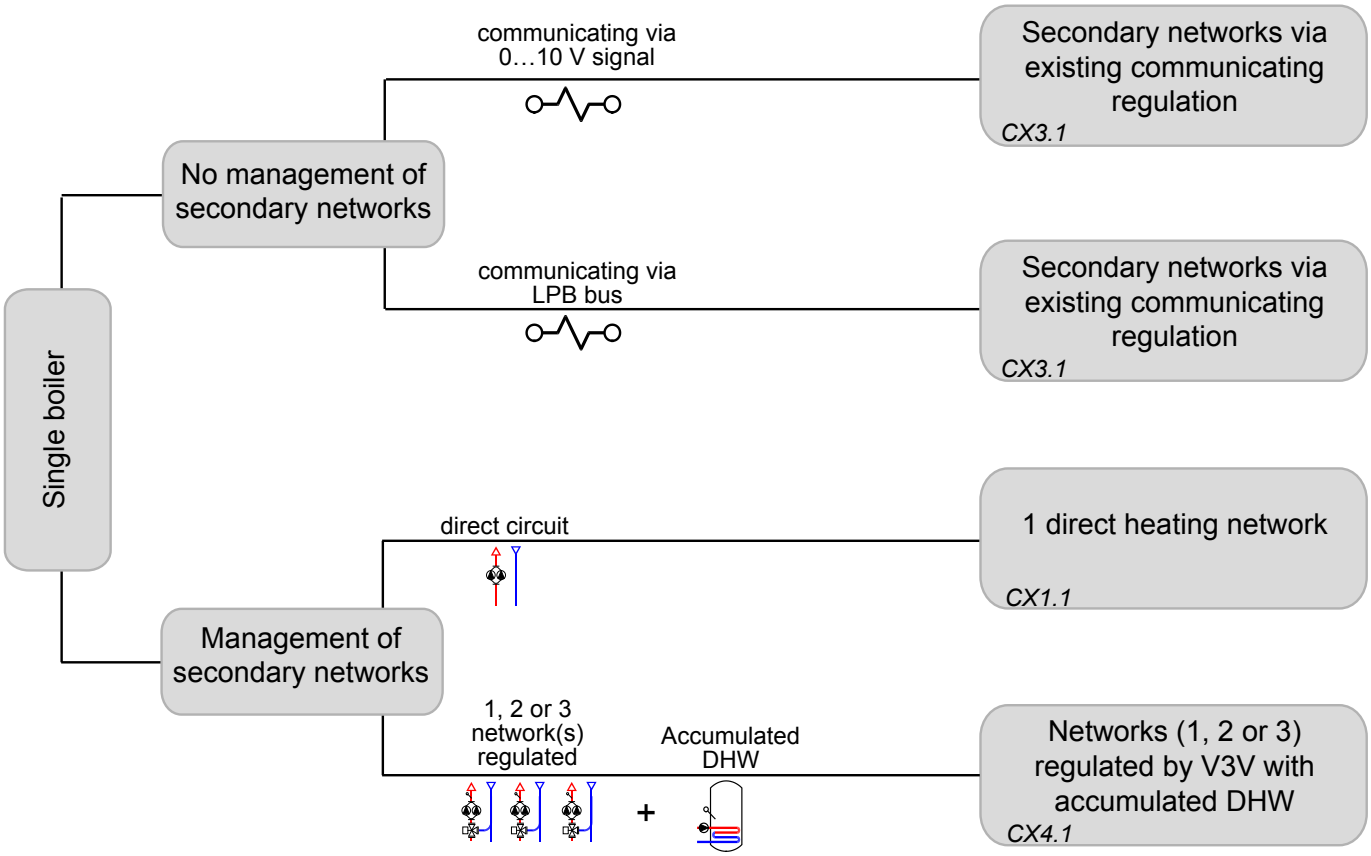
Regulatory disposal and managed recycling of this product can prevent damage to the environment and health risks.

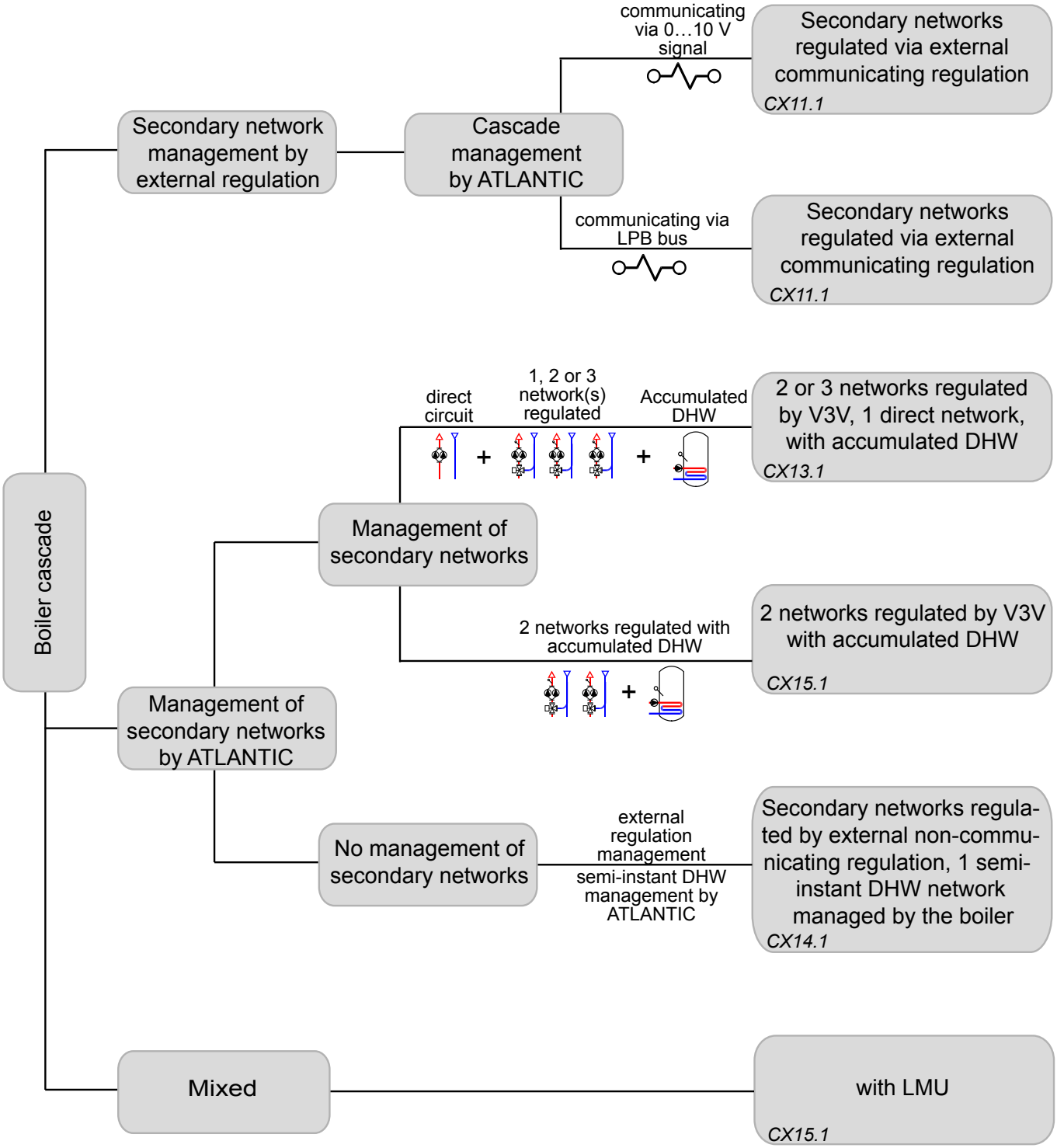
a) For the disposal of the product and the component parts, the services of an accredited waste disposal company should be used.

b) For more information on waste disposal/management, contact the Local Authority responsible for waste management or the point of sales where the product was purchased

9. HYDRAULIC DIAGRAMS AND CONFIGURATIONS

9.1. Selection diagrams




Boiler cascade
Secondary network management by external regulation
Cascade management by ATLANTIC
communicating via 0…10 V signal
Secondary networks regulated via external communicating regulation
CX11.1
communicating via LPB bus
Secondary networks regulated via external communicating regulation
CX11.1
Management of secondary networks by ATLANTIC
Management of secondary networks
direct circuit
1, 2 or 3 network(s) regulated
Accumulated DHW
2 or 3 networks regulated by V3V, 1 direct network, with accumulated DHW
CX13.1
2 networks regulated with accumulated DHW
2 networks regulated by V3V with accumulated DHW
CX15.1
No management of secondary networks
external regulation management
semi-instant DHW management by ATLANTIC
Secondary networks regulated by external non-communicating regulation, 1 semi-instant DHW network managed by the boiler
CX14.1
Mixed
with LMU
CX15.1

9.2. Symbols used in the diagrams

Symbol	Function
	Isolation valve open
	2-way powered valve
	Filter
	Safety device
	Dirt separator
	Outdoor sensor

Symbol	Function
	Balancing valve
	3-way powered valve
	Non-return valve
	Pump
	Bleed valve
	Temperature sensor

9.3. List of diagrams

SINGLE BOILER
1 regulated heating circuit

Diagram
CX1
page 1 / 4

A. HYDRAULIC DIAGRAM

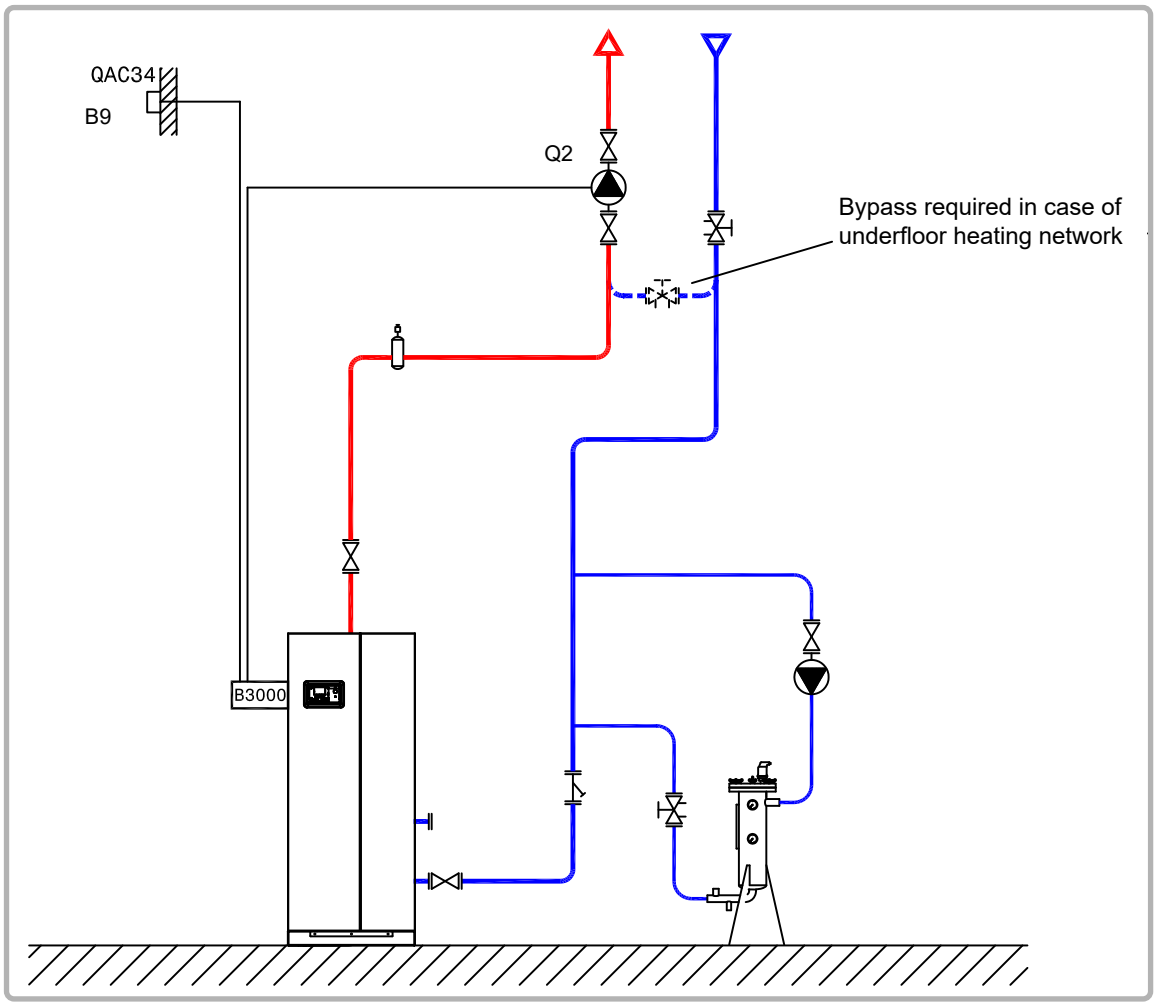


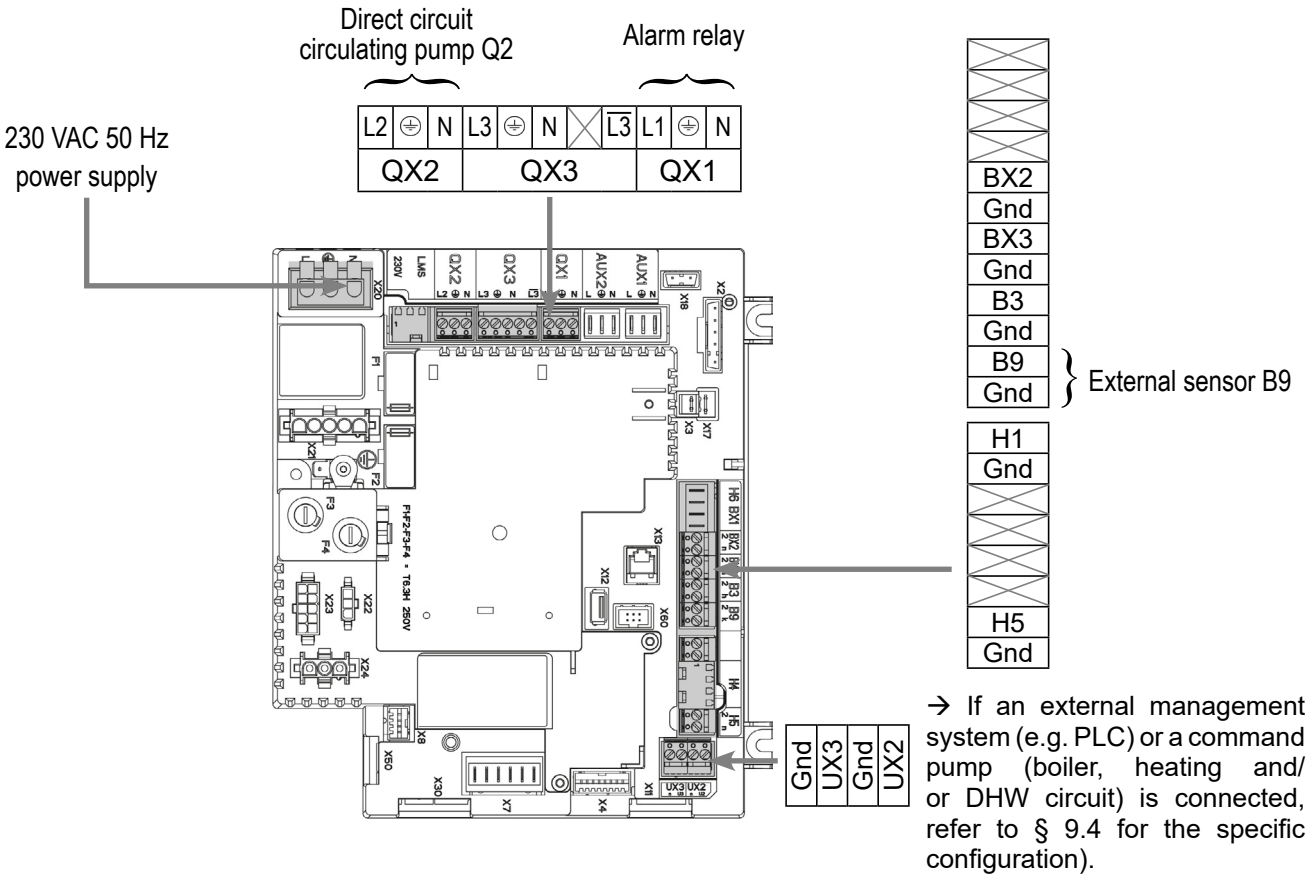
figure 22 - Diagram CX1

B. REGULATION ACCESSORY NECESSARY

	Quantity	Appliance reference	Order no.
External sensor kit	1	QAC 34	059260

Diagram: CX1	page 2 / 4

C. CUSTOMER ELECTRICAL CONNECTION



→ If an external management system (e.g. PLC) or a command pump (boiler, heating and/or DHW circuit) is connected, refer to § 9.4 for the specific configuration).

D. SPECIFIC START-UP PROCEDURE

☞ Fit and connect the accessories.

☞ Start up the boiler alone.

☞ Make the following adjustments:

	Line No.	***Value***
• Menu *Time and date*		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
• Menu *Configuration*		
Start heating circuit 1	Heating circuit 1 (5710)	On
Define pump Q2 output	Relay QX2 output (5891)	Pump HC1 Q2
• Menu *Heating circuit 1*		
Adjust the comfort setpoint	Comfort temperature setpoint (710)	- - -
Set the curve slope	Heating curve slope (720)	- - -

- Set the heating program to permanent comfort 

E. ELECTRICAL AND HYDRAULIC VALIDATION

• Menu *Input/output test*		
Check the outputs		
Alarm relay	Relay test (7700)	Relay QX1 output
Heating circuit 1 Q2 pump	Relay test (7700)	Relay QX2 output
Reset the outputs	Relay test (7700)	No test
Check the sensor values		
Outdoor sensor B9	B9 exterior T° (7730)	in °C

F. OPTIMISING THE SETTINGS

• Menu *Heating circuit 1*		
Adjust the low setpoint	Low setpoint temperature (712)	- - -
• Menu *HC1 timer program*		
Preselection	Preselection (500)	- - -
Adjust the programmed times	On/off phases (501…506)	- - -
• Menu *HC1 holidays*		
Preselection	Preselection (641)	- - -
Adjust the programmed times	On/off phases (642-643)	- - -

- Switch the heating program to automatic **AUTO**

• *Configuration* menu		
Activate the heating circuits' frost protection mode	Frost protection plant (6120)	On

Diagram: CX1	page 4 / 4

Maintenance optimisation:

It is possible to generate a maintenance message that does not cause a boiler fault. This maintenance message can occur after the 3 following counters reach set values:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months
- Hours of burner operation (parameter 7040)
- Number of start-ups (parameter 7042)

The last 2 parameters depend on the boiler room's hydraulic installation. It is advisable to use at least parameter 7044 for annual maintenance.

SINGLE BOILER *Regulated networks and existing DHW production, external regulation communicating via LPB bus or 0-10V signal*	Diagram ***CX3*** page 1 / 3

A. HYDRAULIC DIAGRAM

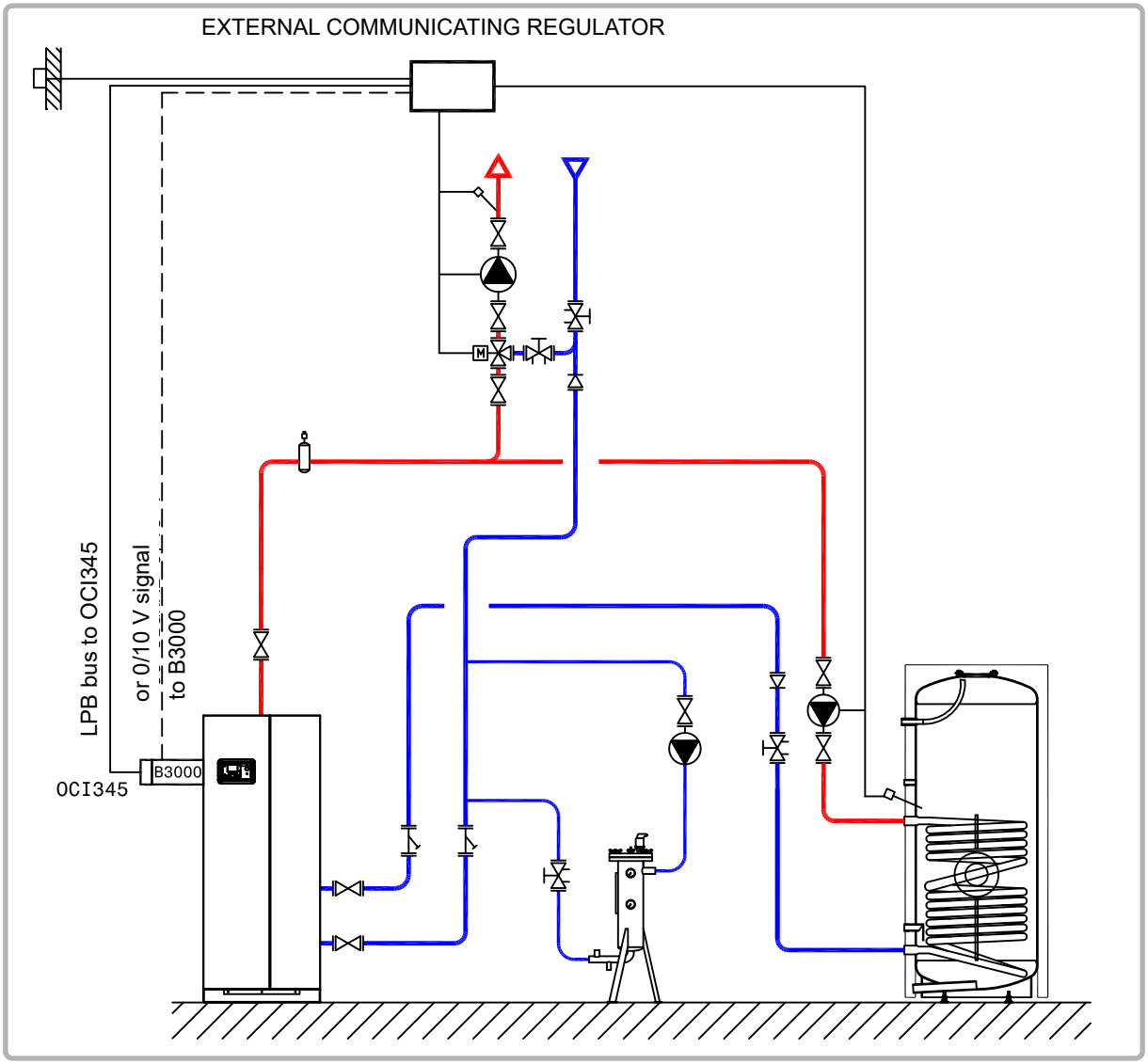


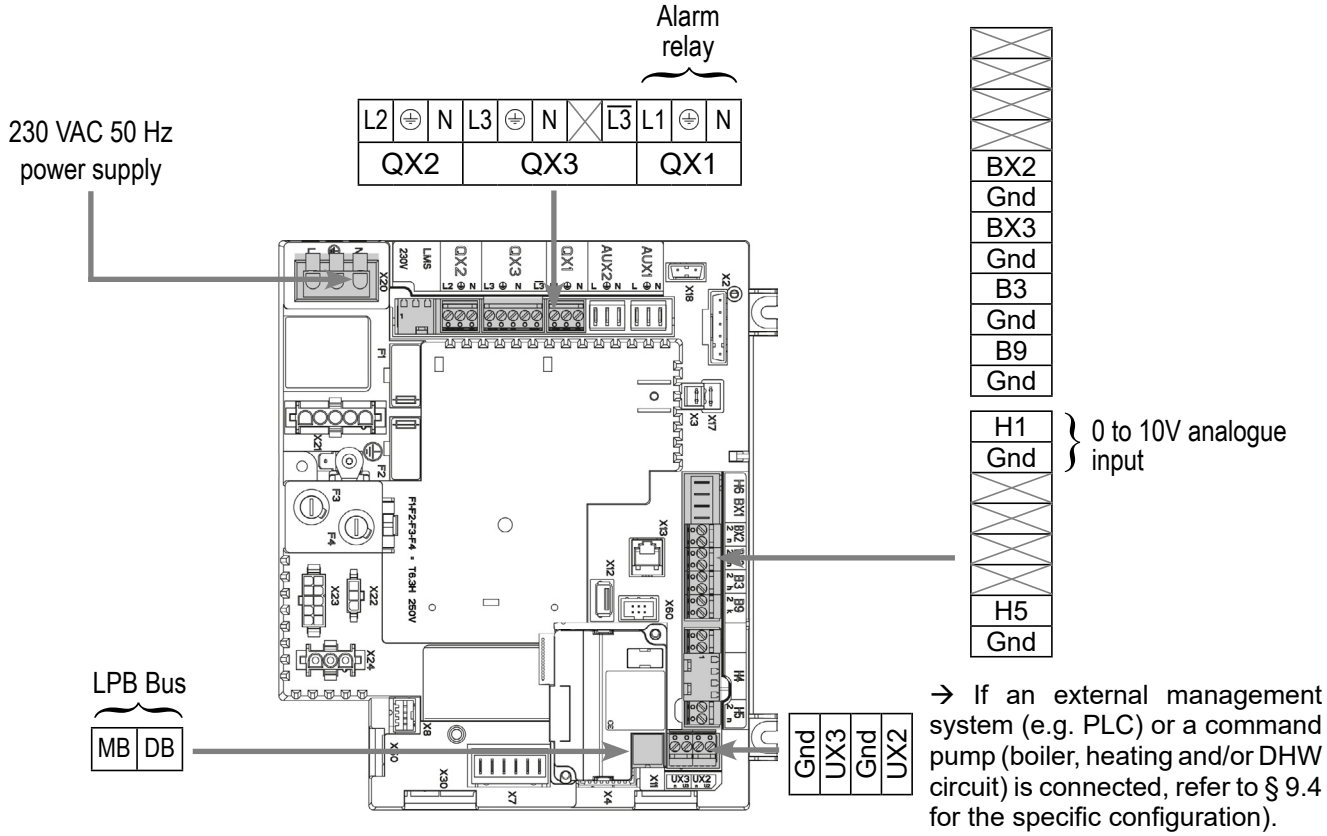
figure 23 - Diagram CX3

B. REGULATION ACCESSORY NECESSARY

	Quantity	**Appliance reference**	**Order no.**
Communication kit for LPB bus	1	OCI 345	059752

Diagram: CX3	page 2 / 3

C. CUSTOMER ELECTRICAL CONNECTION



D. SPECIFIC START-UP PROCEDURE

☞ Fit and connect the accessories.

☞ Start up the boiler alone.

☞ Make the following adjustments:

	Line No.	***Value***
• **Menu *Time and date***		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
For a request via 0…10V input		
• **Menu *Configuration***		
Configure input H1	H1 input function (5950)	Request consum. circ.1 10V
	H1 voltage value 1 (5953)	0.0
	H1 function value (5954)	0
	H1 voltage value 2 (5955)	10.0

Diagram: CX3	page 3 / 3

	Line No.	***Value***
	H1 function value 2 (5956)	1000 (for equivalence 10 V = 100°C)

Warning *the boiler considers a heat demand for a voltage H1> 0.2 V and a resulting setpoint> 6 ° C * The boiler no longer considers a heat demand for a voltage H1 <0.2V or a resulting setpoint <4 ° C * In this second case, the boiler isolation valve will close. If the installation does not include a hydraulic decoupling bottle, all the network pumps must be stopped at the risk of causing them to cavitate..*

** : according to the scale entered in the parameter "5956"*

		Line No.	***Value***
For a request via LPB			
• **Menu *LPB network***			
Check that the boiler is defined as the master generator		Appliance address (6600)	1
		Segment address (6601)	0
		Bus supply function (6604)	Automatic
		Clock operation (6640)	Slave with adjustment

E. ELECTRICAL AND HYDRAULIC VALIDATION

For a request via 0…10V input		
• Menu *Input/output test*		
H1 voltage	H1 voltage signal (7840)	To be confirmed against the voltage sent by the boiler room controller
For a request via LPB		
If the boiler room regulator is configured as the master clock, the boiler controller must retrieve the date and time.		

F. OPTIMISING THE SETTINGS

Maintenance optimisation:

It is possible to generate a maintenance message that does not cause a boiler fault. This maintenance message can occur after the 3 following counters reach set values:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months
- Hours of burner operation (parameter 7040)
- Number of start-ups (parameter 7042)

The last 2 parameters depend on the boiler room's hydraulic installation. It is advisable to use at least parameter 7044 for annual maintenance.

SINGLE BOILER *3 (or more) regulated networks with or without DHW production*	Diagram ***CX4*** page 1 / 6

A. HYDRAULIC DIAGRAMS MAIN AND VARIANT

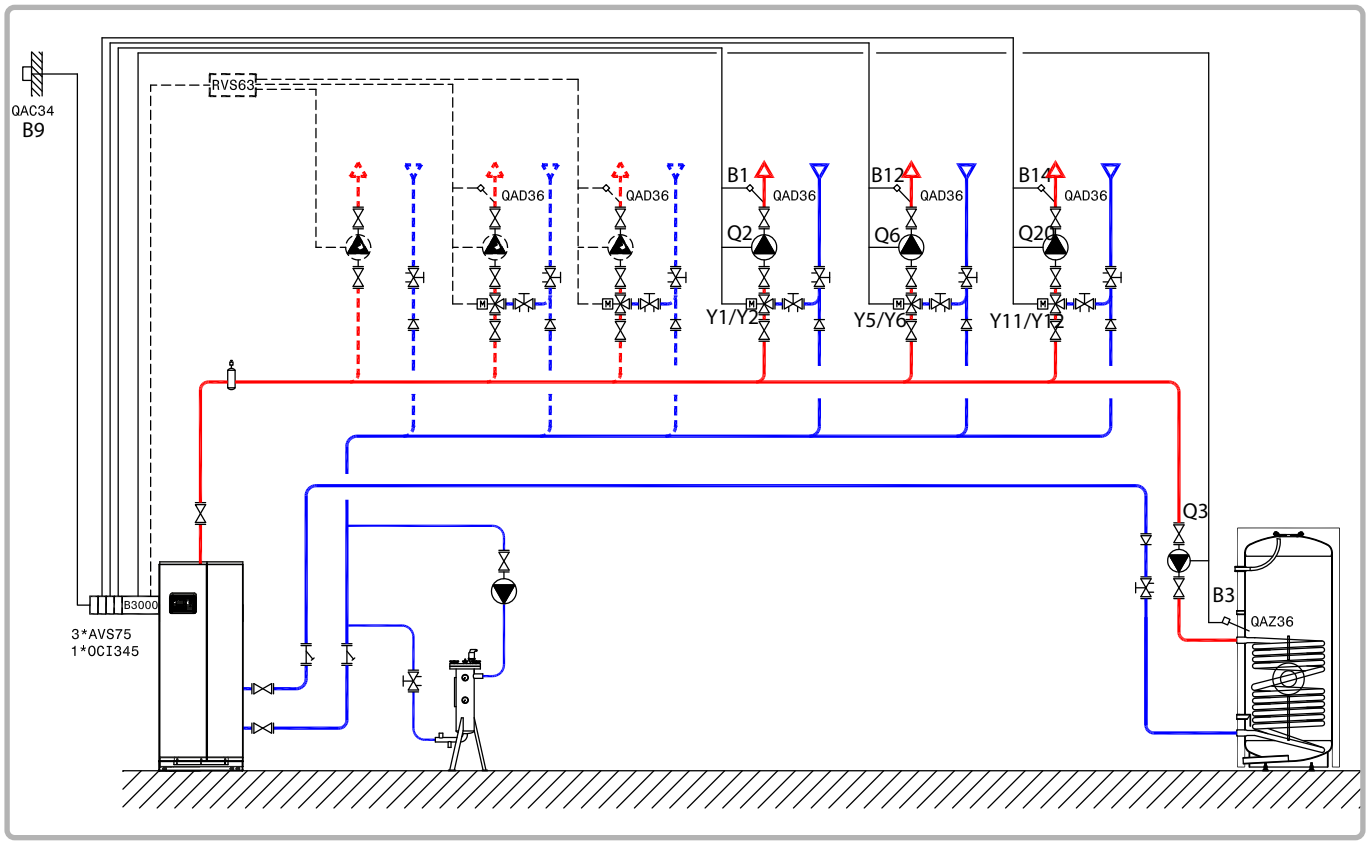


figure 24 - Diagram CX4

B. REGULATION ACCESSORIES NECESSARY

	Quantity	**Appliance reference**	**Order no.**
Extension module kit (supplied with a QAD 36 network sensor)	3	AVS 75	059751
External sensor kit	1	QAC 34	059260
Room sensor kit **(option)**	3	QAA 75	040954
DHW sensor kit	1	QAZ 36	059261

For an installation with more than 3 circuits, an RVS63 and an OCI345 communication module must be added.

Diagram: CX4	page 2 / 6

C. CUSTOMER ELECTRICAL CONNECTION

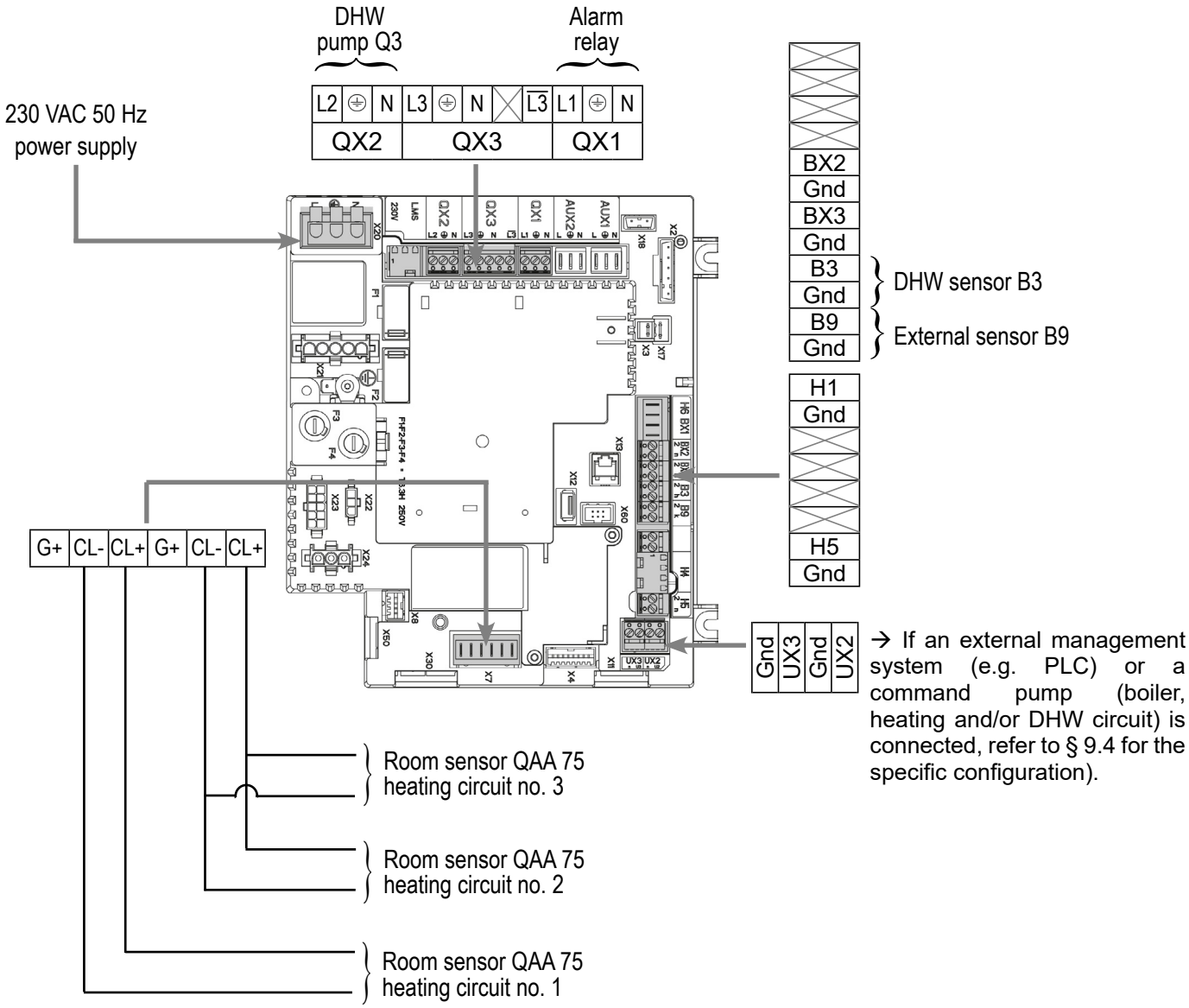
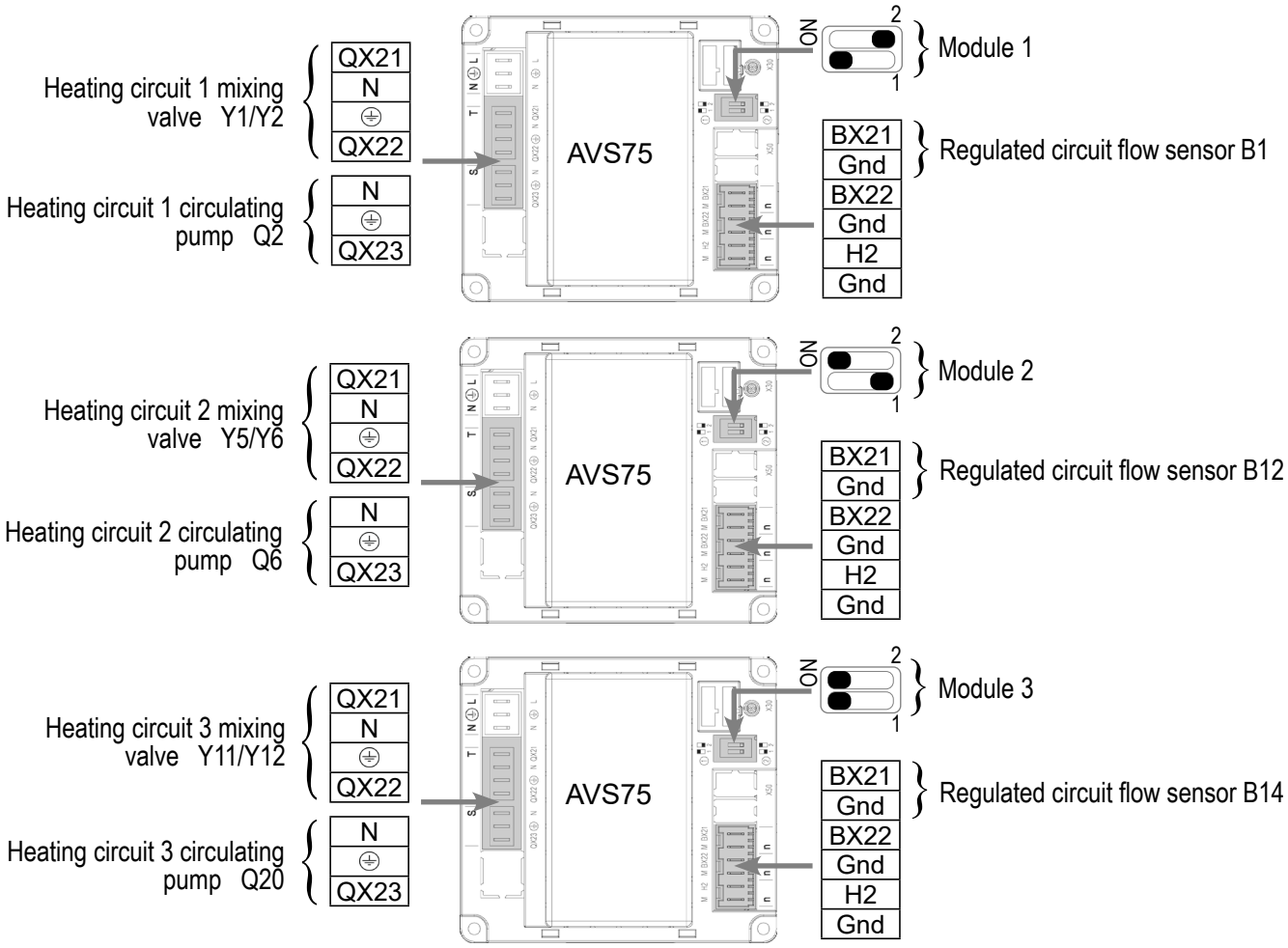


Diagram: CX4	page 3 / 6



D. SPECIFIC START-UP PROCEDURE

☞ Fit and connect the accessories.

ATTENTION: **Configure the switches correctly for the AVS75 extension modules.**

☞ Start up the boiler alone.

☞ Make the following adjustments:

	Line No.	*Value*
• **Menu *Time and date***		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
• **Menu *Configuration***		
Start heating circuit 1	Heating circuit 1 (5710)	On
Start heating circuit 2	Heating circuit 2 (5715)	On

	Line No.	*Value*
Start heating circuit 3	Heating circuit 3 (5721)	On
Configure the DHW pump output	Relay QX2 output (5891)	DHW pump/valve Q3
Configure the extension modules	Extension module 1 function (6020)	Heating circuit 1
	Extension module 2 function (6021)	Heating circuit 2
	Extension module 3 function (6022)	Heating circuit 3

- **Menu *Domestic Hot Water***

Adjust the comfort setpoint	Comfort setpoint (1610)	- - -

- Activate the DHR program

- **Menu *Heating circuit 1/2/3***

For each circuit:

Adjust the comfort setpoint	Comfort temperature setpoint (710/1010/1310)	- - -
Set the curve slope	Heating curve slope (720/1020/1320)	- - -

- Set the heating program to permanent comfort

E. ELECTRICAL AND HYDRAULIC VALIDATION

- Menu *Input/output test*

Check the outputs

Alarm relay	Relay test (7700)	Relay QX1 output
All extension module relays	Relay test (7700)	Relay output QX2… module…
Reset the outputs	Relay test (7700)	No test

Check the sensor values

Outdoor sensor B9	B9 exterior T° (7730)	in °C
DHW sensor B3	DHW temperature B3/B38 (7750)	in °C
Flow sensor B1	Sensor temperature BX21 module 1 (7830)	in °C
Flow sensor B12	Sensor temperature BX21 module 2 (7832)	in °C
Flow sensor B1	Sensor temperature BX21 module 3 (7834)	in °C

F. OPTIMISING THE SETTINGS

Heating circuit optimisation:

		Line No.	***Value***
• Menu *Heating circuit 1/2/3*			
Adjust the low setpoint	Low setpoint temperature (712/1012/1312)		- - -
• Menu *HC1/HC2/HC3 timer program*			
Preselection	Preselection (500/520/540)		- - -
Adjust the programmed times	On/off phases (501…506) (521…526) (541…546)		- - -
• Menu *HC1/HC2/HC3 holidays*			
Preselection	Preselection (641/651/661)		- - -
Adjust the programmed times	On/off phases (642-643) (652-653) (662-663)		- - -

• Switch the heating program to automatic **AUTO**

Optimisation de l'ECS :

		Line No.	***Value***
• Menu *Domestic Hot Water*			
Adjust the low setpoint	Low setpoint (1612)		- - -
Set the DHW release program	DHW release (1620)		Timer prog.4/DHW
• Menu *Timer program 4/DHW*			
Preselection	Preselection (560)		- - -
• *Configuration* menu			
Activate the heating circuits' frost protection mode	Frost protection plant (6120)		On
		Line No.	***Value***
Adjust the programmed times	On/off phases (561…566)		- - -
• Menu *DHW tank*			
Adjust the rise	Temperature rise from initial setpoint (5020)		- - -

		Line No.	*Value*
• Menu *Domestic Hot Water*			
Configure an anti-legionella function		Anti-legionella function (1640)	- - -
		Periodic legionella function (1641)	- - -
		Weekday Legionella function (1642)	- - -
		Anti-legionella temperature setpoint (1645)	- - -
		Anti-legionella function duration (1646)	- - -

Maintenance optimisation:

It is possible to generate a maintenance message that does not cause a boiler fault. This maintenance message can occur after the 3 following counters reach set values:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months
- Hours of burner operation (parameter 7040)
- Number of start-ups (parameter 7042)

The last 2 parameters depend on the boiler room's hydraulic installation. It is advisable to use at least parameter 7044 for annual maintenance.

G. ROOM SENSOR CONFIGURATION

Link each sensor to a heating circuit:

• *User interface* menu for **each room sensor**		
Configure the room sensor with a heating circuit	Use (40)	Room appliance 1, 2 or 3

Each room sensor allows its heating circuit to be configured. Room sensors 1, 2 and 3 adjust parameters 712 (heating circuit 1), 1012 (heating circuit 2) and 1312 (heating circuit 3) respectively.

BOILER CASCADE *Regulated networks and DHW regulated by external regulator communicating via LPB bus or 0-10V signal*	Diagram ***CX10*** page 1 / 6

A. HYDRAULIC DIAGRAM

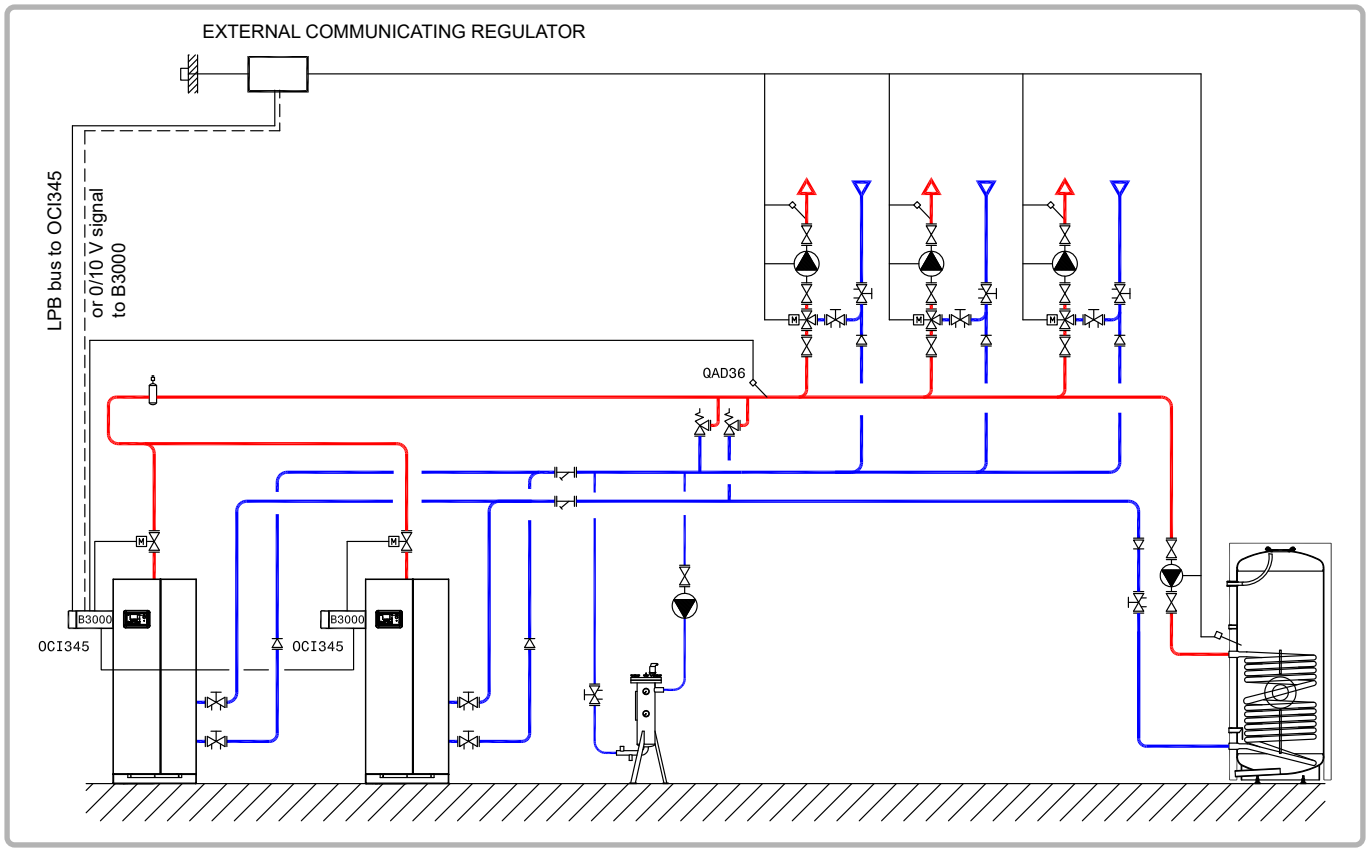


figure 25 - Diagram CX10

B. REGULATION ACCESSORIES NECESSARY

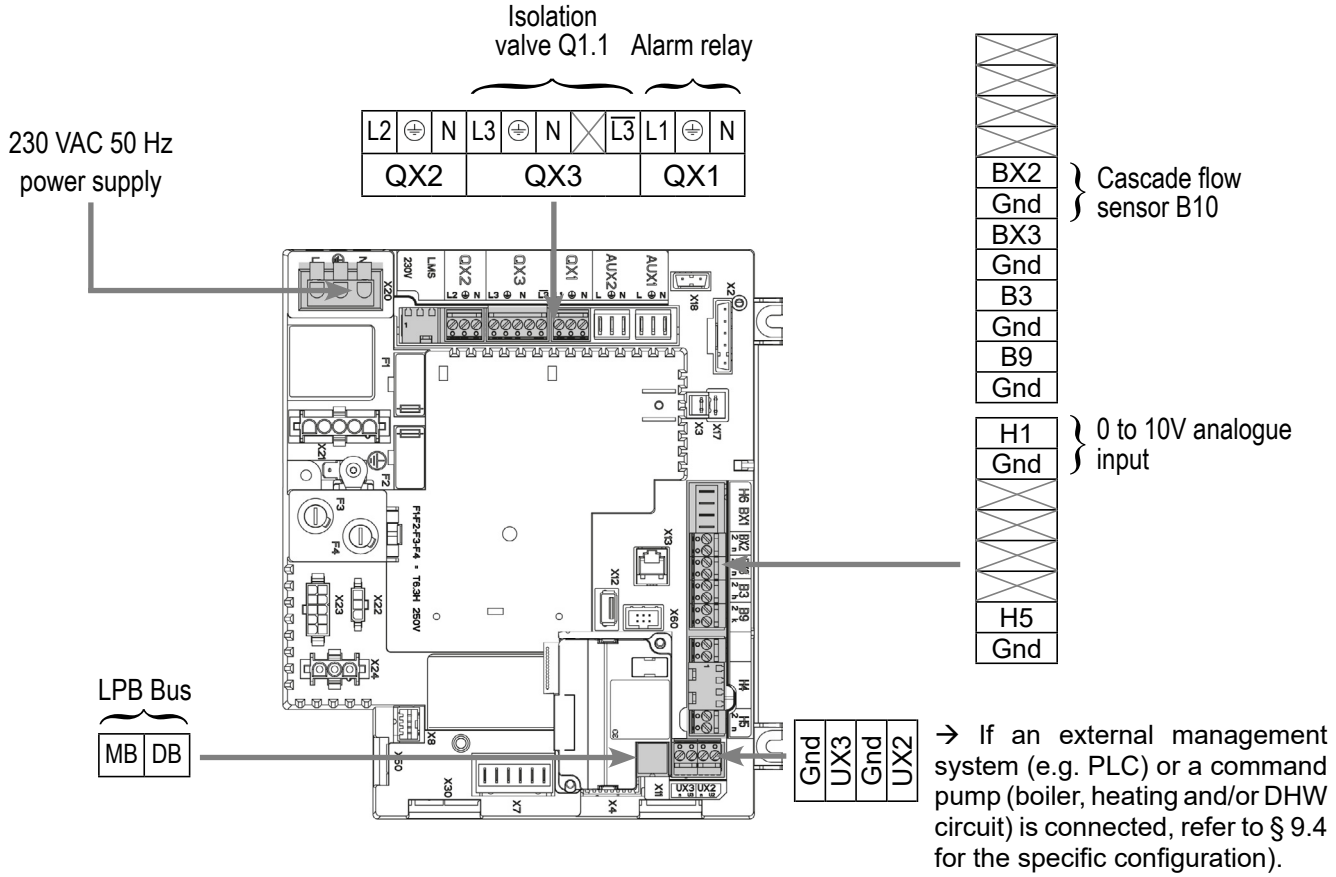
	Quantity	**Appliance reference**	**Order no.**
Communication kit	2	OCI 345	059752
Network sensor kit	1	QAD 36	059592

Diagram: CX10	page 2 / 6

C. CUSTOMER ELECTRICAL CONNECTION

Boiler no. 1:

INFORMATION: If the isolation valve is not equipped with an automatic reset, connect the isolation valve Q1.1 close contact to $\overline{L3}$.

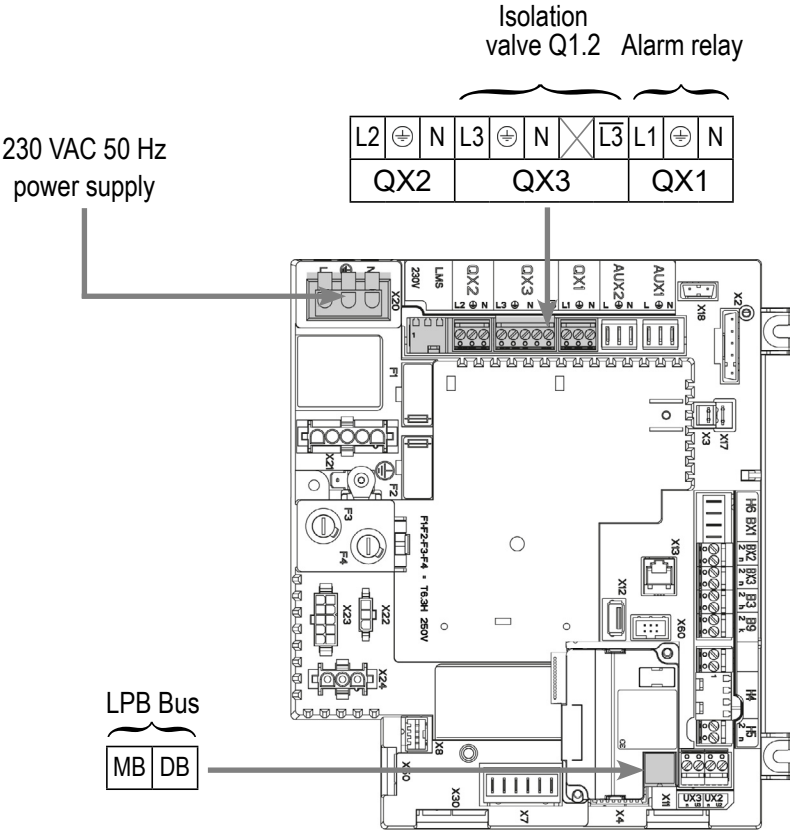


→ If an external management system (e.g. PLC) or a command pump (boiler, heating and/or DHW circuit) is connected, refer to § 9.4 for the specific configuration).

Boiler no. 2:

INFORMATION: If the isolation valve is not equipped with an automatic reset, connect the isolation valve Q1.2 close contact to $\overline{L3}$.

Diagram: CX10	page 3 / 6



D. SPECIFIC START-UP PROCEDURE

☞ Fit and connect the accessories.

☞ Start up the boiler alone.

☞ Make the following adjustments:

On boiler no. 1: master

	Line No.	*Value*
• **Menu *Time and date***		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
• **Menu *Configuration***		
Configure the isolation valve Q1.1	Relay QX3 output (5892)	Boiler pump Q1
Configure the cascade flow sensor B10:	Sensor input BX2 (5931)	Common flow sensor B10
For a request via 0…10V input		
Configure input H1	H1 input function (5950)	Request consum. circ.1 10V
	H1 voltage value 1 (5953)	0.0

	Line No.	*Value*
	H1 function value (5954)	0
	H1 voltage value 2 (5955)	10.0
	H1 function value 2 (5956)	1000 (for equivalence 10 V = 100°C)

For a request via LPB

Check that the secondary regulator is defined for an LPB segment other than 0 (reserved for generators)

Warning *the boiler considers a heat demand for a voltage H1> 0.2 V and a resulting setpoint> 6 ° C **

*The boiler no longer considers a heat demand for a voltage H1 <0.2V or a resulting setpoint <4 ° C **

In this second case, the boiler isolation valve will close. If the installation does not include a hydraulic decoupling bottle, all the network pumps must be stopped at the risk of causing them to cavitate..

** : according to the scale entered in the parameter "5956"*

In all cases (LPB network menu)

Configure the boiler as master of the cascade	Appliance address (6600)	1
	Segment address (6601)	0
	Bus supply function (6604)	Automatic
	Clock operation (6640)	Master

On boiler(s) no. 2 (and above): slave

- **Menu *Configuration***

Configure the isolation valve Q1.2	Relay QX3 output (5892)	Boiler pump Q1

- **Menu *LPB network***

Configure the boiler as slave in the cascade	Appliance address (6600)	2 (or above for the other slaves)
	Segment address (6601)	0
	Bus supply function (6604)	Automatic
	Clock operation (6640)	Slave without adjustment

- Connect the bus between the boilers (⚠take care to respect the polarity).
- Switch the slave boiler(s) off and on again. If communication is established properly, the clock is updated correctly.

E. ELECTRICAL AND HYDRAULIC VALIDATION

On boiler no. 1: master

	Line No.	*Value*
• Menu *Cascade troubleshooting*		
Confirm that all the boilers are present in the cascade		
	General status 1 (8100)	Released/not released
	General status 2 (8101)	Released/not released
	.....	
For a request via 0…10V input		
• Menu *Input/output test*		
H1 voltage	H1 voltage signal (7840)	To be confirmed against the voltage sent by the boiler room controller
For a request via LPB		
If the boiler room regulator is configured as a slave clock, it must retrieve the date and time.		
• Menu *Input/output test*		
Check the outputs		
Alarm relay	Relay test (7700)	Relay QX1 output
Isolation valve Q1.1	Relay test (7700)	Relay QX3 output
Reset the outputs	Relay test (7700)	No test
Check the sensor values		
Outdoor sensor B9	B9 exterior T° (7730)	in °C
Flow sensor B1	Sensor BX2 T° (7821)	in °C

On boiler no. 2: slave

	Line No.	*Value*
• Menu *Input/output test*		
Check the outputs		
Alarm relay	Relay test (7700)	Relay QX1 output
Isolation valve Q1.2	Relay test (7700)	Relay QX3 output
Reset the outputs	Relay test (7700)	No test

F. OPTIMISING THE SETTINGS

Cascade optimisation:

The cascade can be optimised as required using the parameters in the *Cascade* menu. See the NAVISTEM B3000 boiler controller manual for more details.

Maintenance optimisation:

It is possible to generate a maintenance message that does not cause a boiler fault. This maintenance message can occur after the 3 following counters reach set values:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months
- Hours of burner operation (parameter 7040)
- Number of start-ups (parameter 7042)

The last 2 parameters depend on the boiler room's hydraulic installation. It is advisable to use at least parameter 7044 for annual maintenance.

BOILER CASCADE *3 networks regulated by 3-way valves, 1 direct circuit, with DHW production*	Diagram ***CX11*** page 1 / 10

A. HYDRAULIC DIAGRAM

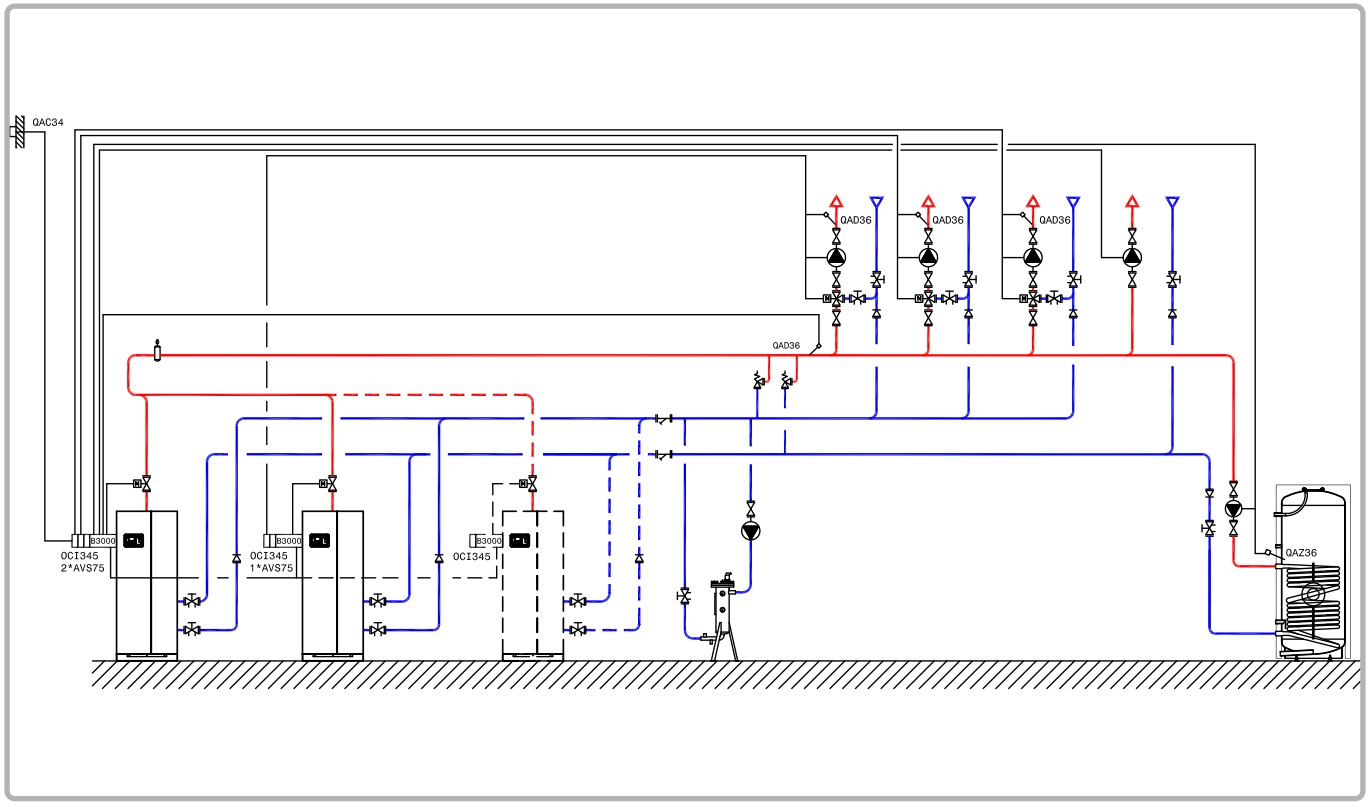


figure 26 - Diagram CX11

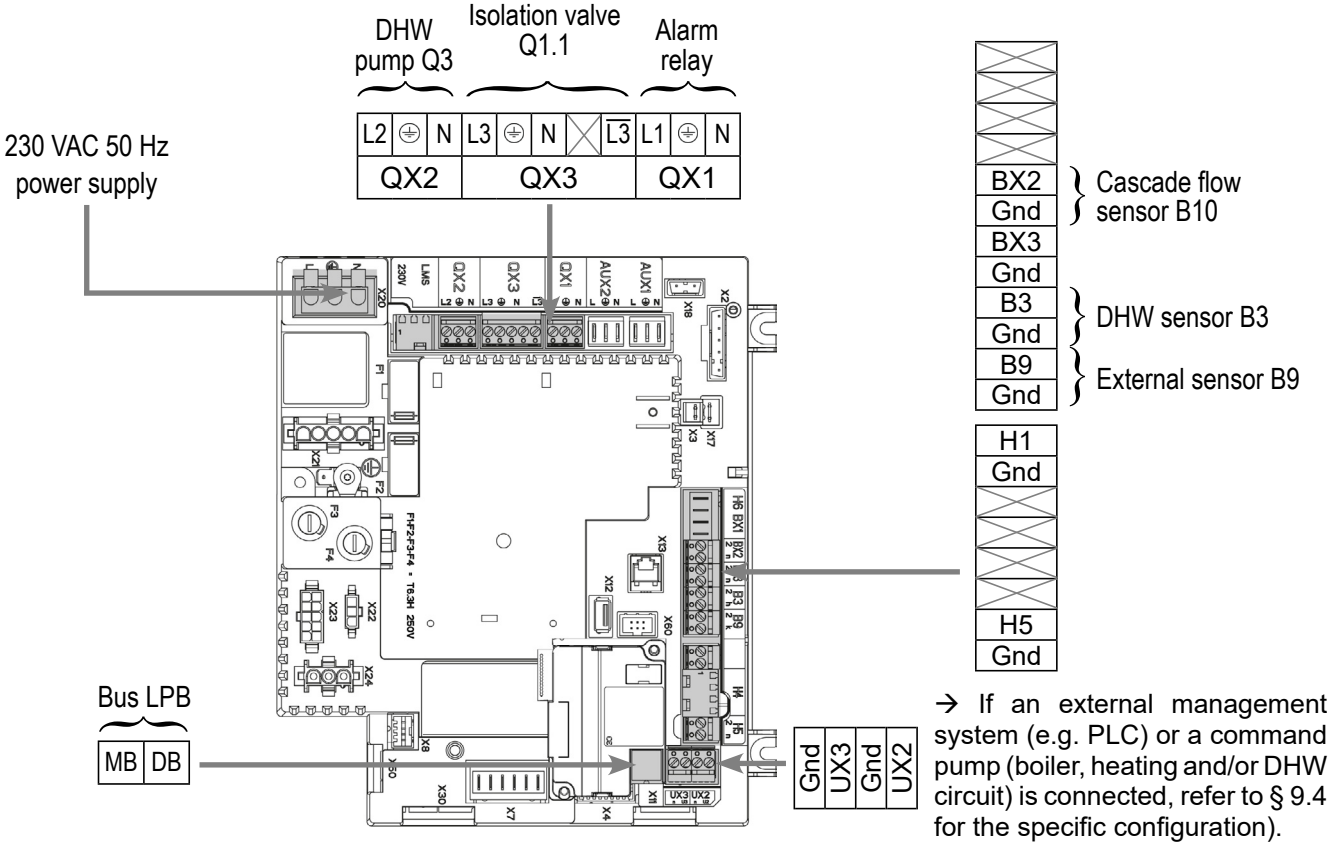
B. REGULATION ACCESSORIES NECESSARY

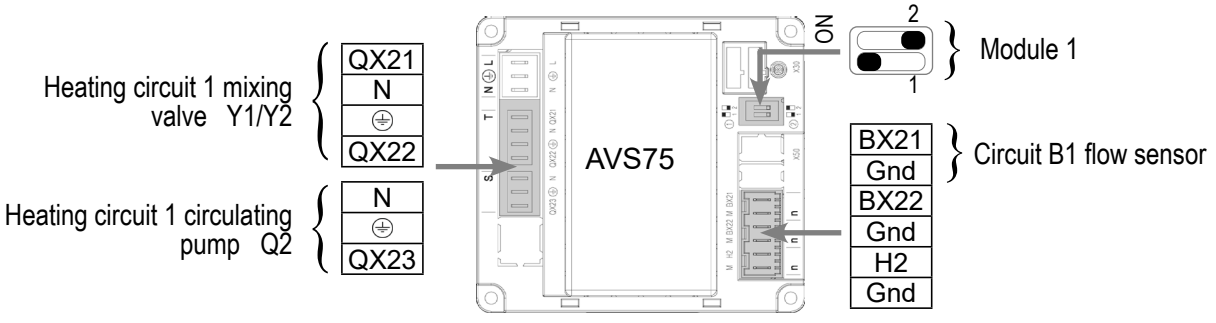
	Quantity	Appliance reference	Order no.
Extension module kit (supplied with a QAD 36 network sensor)	3	AVS 75	059751
Communication kit	2 (3)	OCI 345	059752
Network sensor kit	1	QAD 36	059592
External sensor kit	1	QAC 34	059260
DHW sensor kit	1	QAZ 36	059261

C. CUSTOMER ELECTRICAL CONNECTION

Boiler no. 1:

INFORMATION: If the isolation valve is not equipped with an automatic reset, connect the isolation valve Q1.1 close contact to $\overline{L3}$.





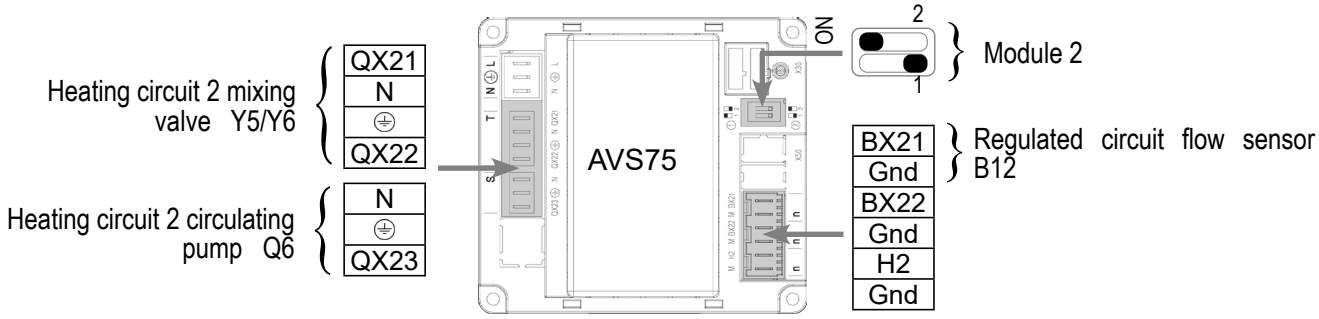
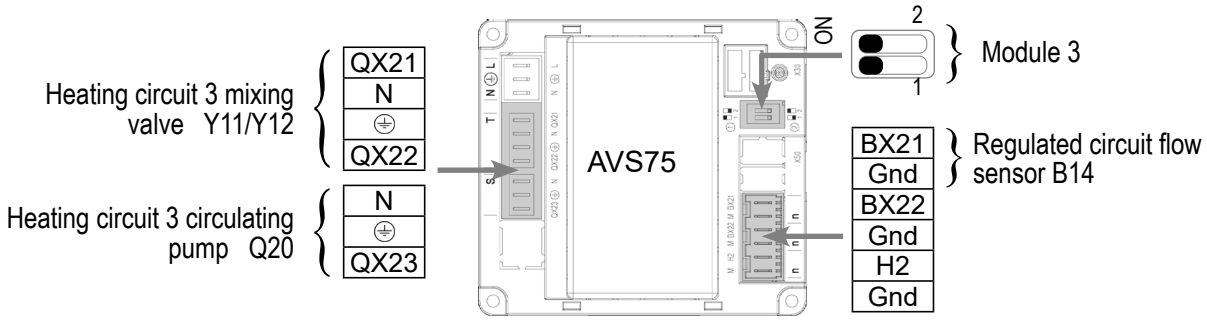


Diagram: CX11	page 3 / 10



Boiler no. 2:

INFORMATION: If the isolation valve is not equipped with an automatic reset, connect the isolation valve Q1.2 close contact to $\overline{L3}$.

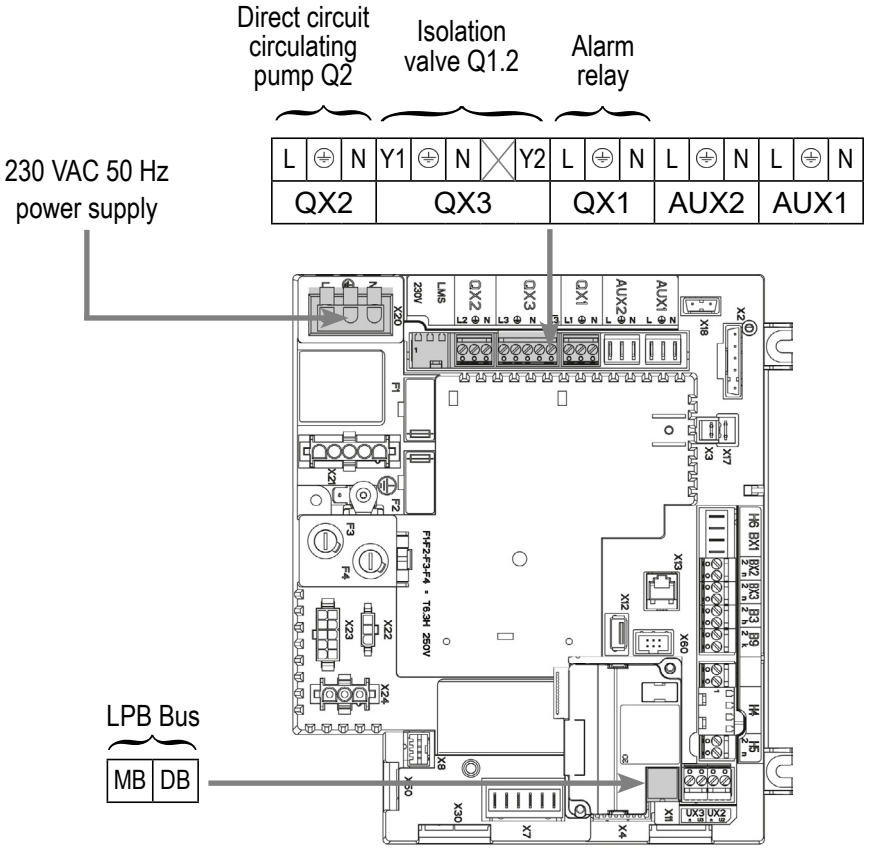
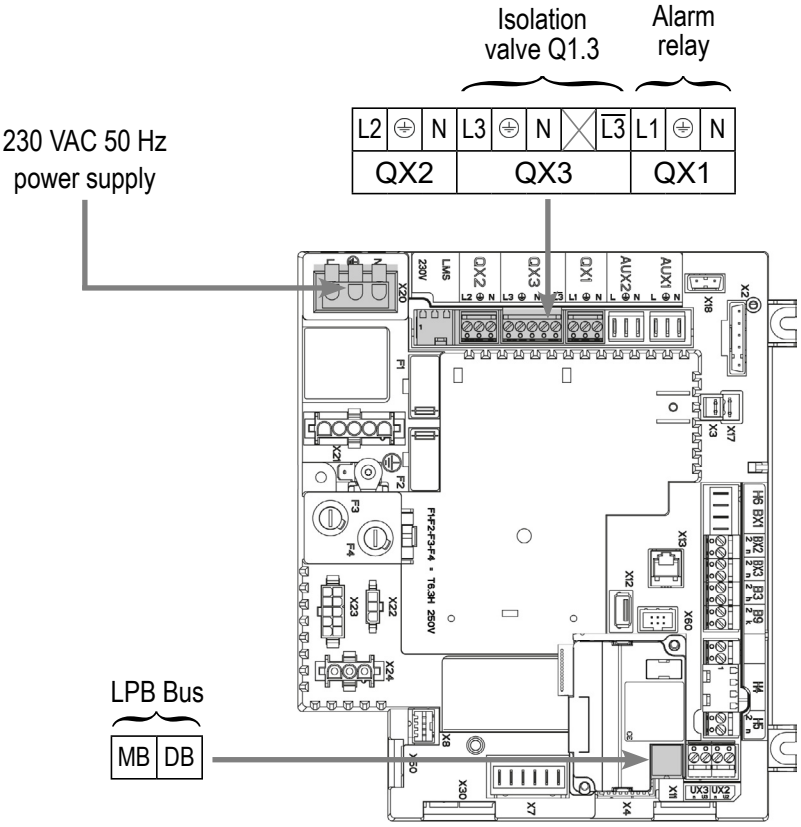
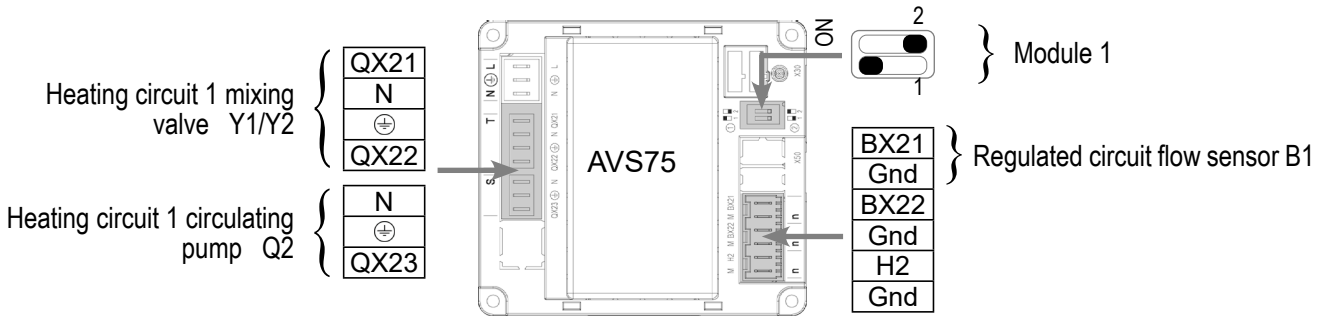


Diagram: CX11	page 4 / 10

Boiler no. 3:

INFORMATION: If the isolation valve is not equipped with an automatic reset, connect the isolation valve Q1.3 close contact to $\overline{L3}$.





D. SPECIFIC START-UP PROCEDURE

☞ Fit and connect the accessories.

ATTENTION: Configure the switches correctly for the AVS75 extension modules.

☞ Start up the boiler alone.

☞ Make the following adjustments.

On boiler no. 1: master

		Line No.	*Value*
• **Menu *Time and date***			
Set the time		Hour / minute (1)	HH.MM
Set the date		Day / month (2)	DD.MM
Set the year		Year (3)	YYYY
• **Menu *Configuration***			
Start heating circuit 1		Heating circuit 1 (5710)	On
Start heating circuit 2		Heating circuit 1 (5715)	On
Start heating circuit 3		Heating circuit 1 (5721)	On
Configure the DHW pump		Relay QX2 output (5891)	DHW pump/valve Q3
Configure the isolation valve Q1.1		Relay QX3 output (5892)	Boiler pump Q1
Configure the cascade flow sensor B10:		Sensor input BX2 (5931)	Common flow sensor B10
Configure the extension modules		Extension module 1 function (6020)	Heating circuit 1
		Extension module 2 function (6021)	Heating circuit 2
		Extension module 3 function (6022)	Heating circuit 3
Configure the direct circuit		Relay QX23 output, module 1 (6032)	Pump HC1 Q2
• **Configure as master of the cascade: Menu *LPB network***			
Device number		Appliance address (6600)	1
Segment number		Segment address (6601)	0
Configure the bus supply		Bus supply function (6604)	Automatic
Set the clock program		Clock operation (6640)	Master
• **Menu *Heating circuit 1***			
Adjust the comfort setpoint		Comfort temperature setpoint (710)	- - -
Set the curve slope		Heating curve slope (720)	- - -

	Line No.	*Value*
• **Menu *Heating circuit 2***		
Adjust the comfort setpoint	Comfort temperature setpoint (710)	- - -
Set the curve slope	Heating curve slope (720)	- - -
• **Menu *Heating circuit 3***		
Adjust the comfort setpoint	Comfort temperature setpoint (710)	- - -
Set the curve slope	Heating curve slope (720)	- - -
• Set the heating program to permanent comfort		☼
• Menu *Domestic Hot Water*		
Adjust the comfort setpoint	Comfort setpoint (1610)	55°C
Set the DHW release program	DHW release (1620)	24h/24
• Activate the DHR program		🚰

On boiler no. 2: slave

• **Configure as slave in the cascade: Menu *LPB network***		
Device number	Appliance address (6600)	2
Segment number	Segment address (6601)	0
Configure the bus supply	Bus supply function (6604)	Automatic
Set the clock program	Clock operation (6640)	Slave without adjustment
• **Menu *Configuration***		
Configure the isolation valve Q1.2	Relay QX3 output (5892)	Boiler pump Q1
Start heating circuit 1	Heating circuit 1 (5710)	On
Configure the direct circuit pump Q2	Relay QX2 output (5891)	Pump HC1 Q2
• **Menu *Heating circuit 1***		
Adjust the comfort setpoint	Comfort temperature setpoint (710)	- - -
Set the curve slope	Heating curve slope (720)	- - -
Set the minimum starting temperature	Heating curve slope (740)	60°C (adjust according to low-level setting)
• Set the heating program to permanent comfort		☼

On boiler no. 3: slave

		Line No.	*Value*
• **Configure as slave in the cascade: Menu *LPB network***			
Device number	Appliance address	(6600)	3
Segment number	Segment address	(6601)	0
Configure the bus supply	Bus supply function	(6604)	Automatic
Set the clock program	Clock operation	(6640)	Slave without adjustment
• **Menu *Configuration***			
Start heating circuit 1	Heating circuit 1	(5710)	On
Configure the extension module	Extension module 1 function	(6020)	Heating circuit 2
Configure the isolation valve Q1.3	Relay QX3 output	(5892)	Boiler pump Q1
• **Menu *Heating circuit 1***			
Adjust the comfort setpoint	Comfort temperature setpoint	(710)	- - -
Set the curve slope	Heating curve slope	(720)	- - -

• Set the heating program to permanent comfort ☼

E. ELECTRICAL AND HYDRAULIC VALIDATION

On boiler no. 1: master

• Menu *Cascade troubleshooting*			
Confirm that all the boilers are present in the cascade			
	General status 1	(8100)	Released/not released
	General status 2	(8101)	Released/not released
	.....		
• Menu *Input/output test*			
Check the outputs			
Alarm relay	Relay test	(7700)	Relay QX1 output
Isolation valve Q1.1	Relay test	(7700)	Relay QX3 output
DHW pump	Relay test	(7700)	Relay QX2 output
All extension module relays	Relay test	(7700)	Relay output QX2… module…
Reset the outputs	Relay test	(7700)	No test

Diagram: CX11

		Line No.	Value
Check the sensor values			
	Outdoor sensor B9	B9 exterior T° (7730)	in °C
	DHW sensor B3	DHW temperature B3/B38 (7750)	in °C
	Cascade flow sensor B10	Sensor BX2 T° (7821)	in °C
	Flow sensor HC1	Sensor temperature BX21 module 1 (7830)	in °C
	Flow sensor HC2	Sensor temperature BX21 module 2 (7832)	in °C
	Flow sensor HC3	Sensor temperature BX21 module 3 (7834)	in °C

On boiler no. 2: slave

• Menu *Input/output test*			
Check the outputs			
	Alarm relay	Relay test (7700)	Relay QX1 output
	Isolation valve Q1.2	Relay test (7700)	Relay QX3 output
	Pump HC1	Relay test (7700)	Relay QX2 output
	Reset the outputs	Relay test (7700)	No test

On boiler no. 3: slave

• Menu *Input/output test*			
Check the outputs			
	Alarm relay	Relay test (7700)	Relay QX1 output
	Isolation valve Q1.3	Relay test (7700)	Relay QX3 output
	Reset the outputs	Relay test (7700)	No test
		Line No.	**Value**
Check the sensor values			
	Flow sensor B1.3	Sensor temperature BX21 module 1 (7830)	in °C

F. OPTIMISING THE SETTINGS

On master and slave boilers

Heating circuit optimisation:

• Menu *Heating circuit 1/2/3*		
Adjust the low setpoint	Low setpoint temperature (712/1012/1312)	- - -
• Menu *HC1/HC2/HC3 timer program*		
Preselection	Preselection (500/520/540)	- - -
Adjust the programmed times	On/off phases (501...506) (521...526) (541...546)	- - -
• Menu *HC1/HC2/HC3 holidays*		
Preselection	Preselection (641/651/661)	- - -
Adjust the programmed times	On/off phases (642-643) (652-653) (662-663)	- - -
• Switch the heating program to automatic		**AUTO**

DHW optimisation:

		N° Ligne	***Valeur***
• Menu *Domestic Hot Water*			
Adjust the low setpoint	Low setpoint (1612)		- - -
Set the DHW release program	DHW release (1620)		Timer prog.4/DHW
• *Configuration* menu			
Activate the heating circuits' frost protection mode	Frost protection plant (6120)		On
• Menu *Timer program 4/DHW*			
Preselection	Preselection (560)		- - -
Adjust the programmed times	On/off phases (561...566)		- - -

• Menu *DHW tank*		
Adjust the rise	Temperature rise from initial setpoint (5020)	16 °C
• Menu *Domestic Hot Water*		
Configure an anti-legionella function	Anti-legionella function (1640)	- - -
	Periodic legionella function (1641)	- - -
	Anti-legionella temperature setpoint (1642)	- - -
	Anti-legionella temperature setpoint (1645)	- - -
	Anti-legionella function duration (1646)	- - -

Cascade optimisation:

The cascade can be optimised as required using the parameters in the *Cascade* menu. See the NAVISTEM B3000 boiler controller manual for more details.

Maintenance optimisation:

It is possible to generate a maintenance message that does not cause a boiler fault. This maintenance message can occur after the 3 following counters reach set values:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months
- Hours of burner operation (parameter 7040)
- Number of start-ups (parameter 7042)

The last 2 parameters depend on the boiler room's hydraulic installation. It is advisable to use at least parameter 7044 for annual maintenance.

BOILER CASCADE *Heating circuits managed by non-communicating controller and DHW production with plate exchanger*	Diagram ***CX12*** page 1 / 6

A. HYDRAULIC DIAGRAM

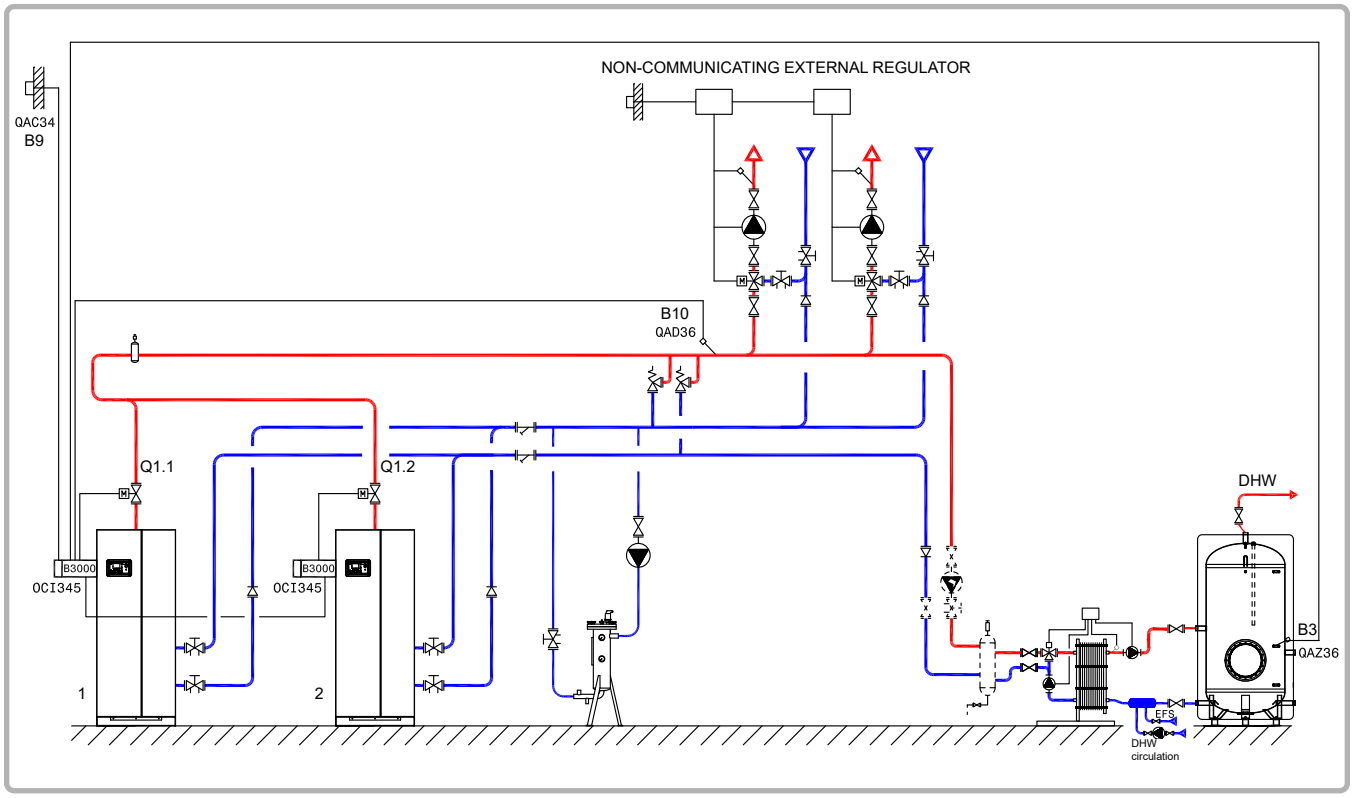


figure 27 - Diagram CX12

B. REGULATION ACCESSORIES NECESSARY

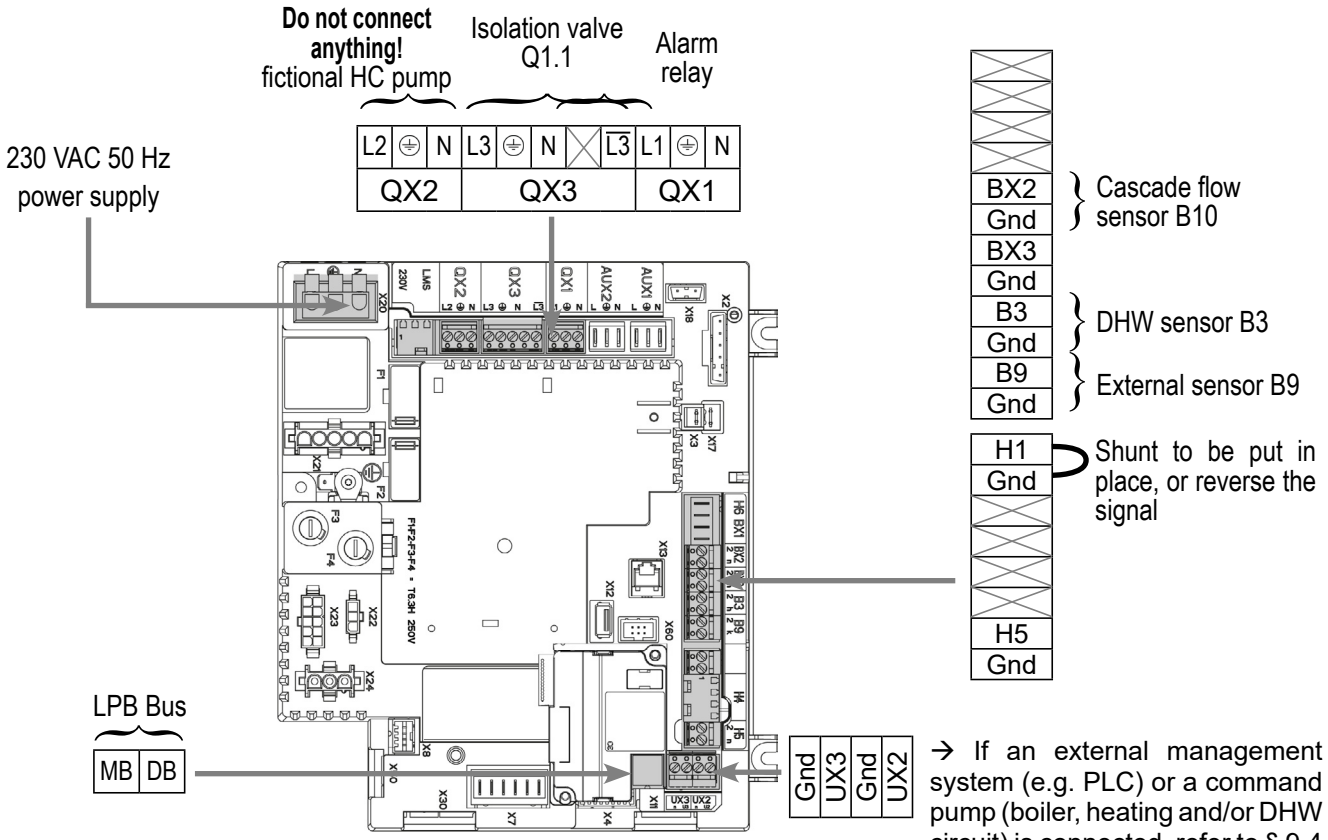
	Quantity	**Appliance reference**	**Order no.**
Communication kit	2	OCI 345	059752
Network sensor kit	1	QAD 36	059592
DHW sensor kit	1	QAZ 36	059261
External sensor kit	1	QAC 34	059260

Diagram: CX12	page 2 / 6

C. CUSTOMER ELECTRICAL CONNECTION

Boiler no. 1:

INFORMATION: If the isolation valve is not equipped with an automatic reset, connect the isolation valve Q1.1 close contact to $\overline{L3}$.

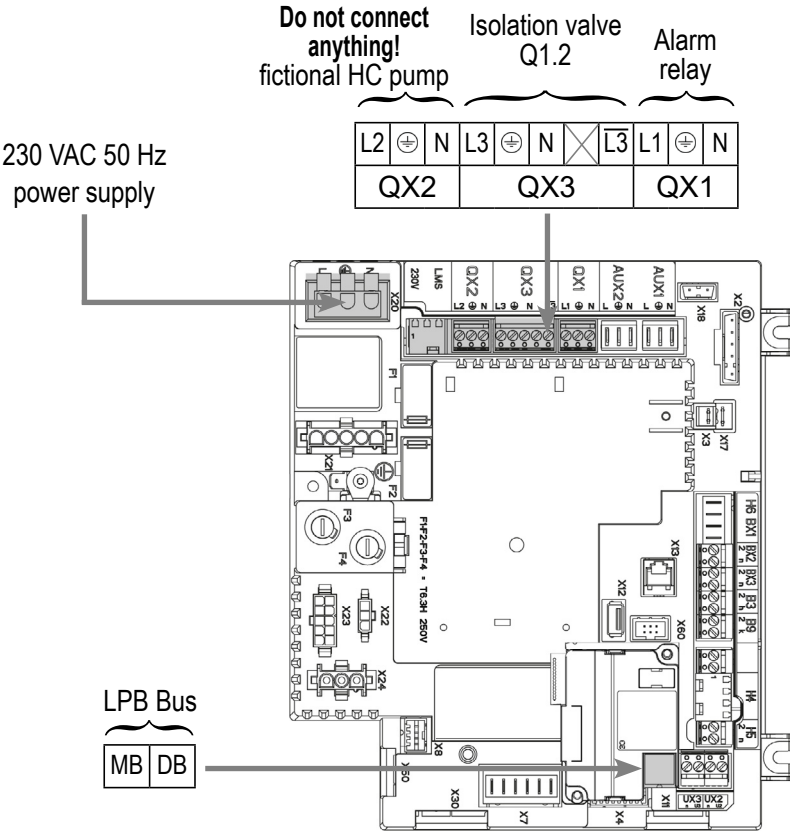


→ If an external management system (e.g. PLC) or a command pump (boiler, heating and/or DHW circuit) is connected, refer to § 9.4 for the specific configuration).

Diagram: CX12	page 3 / 6

Boiler no. 2:

INFORMATION: If the isolation valve is not equipped with an automatic reset, connect the isolation valve Q1.2 close contact to $\overline{L3}$.



D. SPECIFIC START-UP PROCEDURE

☞ Fit and connect the accessories.

☞ Start up the boiler alone.

☞ Make the following adjustments:

On boiler no. 1: master

	Line No.	*Value*
• **Menu** ***Time and date***		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY

Diagram: CX12

		Line No.	*Value*
• **Menu *Configuration***			
Start heating circuit 1		Heating circuit 1 (5710)	On
For heating circuit 1 to be effective, an actuator must be defined even if it is not connected:			
Configure pump Q2		Relay QX2 output (5891)	Pump HC1 Q2
Configure the isolation valve Q1.1		Relay QX3 output (5892)	Boiler pump Q1
Configure the cascade flow sensor B10:		Sensor input BX2 (5931)	Common flow sensor B10
Configure input H1		H1 input function (5950)	Request consum circuit 1
• **Configure as master of the cascade: Menu *LPB network***			
Device number		Appliance address (6600)	1
Segment number		Segment address (6601)	0
Configure the bus supply		Bus supply function (6604)	Automatic
Set the clock program		Clock operation (6640)	Master
• **Menu *Heating circuit 1***			
Adjust the comfort setpoint		Comfort temperature setpoint (710)	- - -
Set the curve slope		Heating curve slope (720)	- - - (same as that of the secondary controller)
• **Menu *Consumer circuit 1***			
Set the initial setpoint to use in the event of a HC request		Cons. request initial setpoint (1859)	60°C (depends on the Rubis setting)

• Set the heating program to permanent comfort 

On boiler(s) no. 2 (and above): slave

		Line No.	*Value*
• **Menu *Configuration***			
For DHW to be effective, an actuator must be defined even if it is not connected:			
Configure the DHW pump Q3	Relay QX2 output	(5891)	DHW pump/valve Q3
Configure the isolation valve Q1.2	Relay QX3 output	(5892)	Boiler pump Q1
• **Configure as slave in the cascade: Menu *LPB network***			
Device number	Appliance address	(6600)	2 (or above for the other slaves)
Segment number	Segment address	(6601)	0
Configure the bus supply	Bus supply function	(6604)	Automatic
Set the clock program	Clock operation	(6640)	Slave without adjustment

- Connect the bus between the boilers (⚠ take care to respect the polarity).
- Switch the slave boiler(s) off and on again. If communication is established properly, the clock is updated correctly.

• **Menu *Domestic Hot Water***			
Adjust the comfort setpoint	Comfort setpoint	(1610)	55°C
Set the DHW release program	DHW release	(1620)	24h/24

- Activate the DHR program

E. ELECTRICAL AND HYDRAULIC VALIDATION

On boiler no. 1: master

• Menu *Cascade troubleshooting*			
Confirm that all the boilers are present in the cascade			
	General status 1	(8100)	Released/not released
	General status 2	(8101)	Released/not released
	.....		

Diagram: CX12	page 6 / 6

		Line No.	Value
• Menu *Input/output test*			
Check the outputs			
	Alarm relay	Relay test (7700)	Relay QX1 output
	Isolation valve Q1.1	Relay test (7700)	Relay QX3 output
	Reset the outputs	Relay test (7700)	No test
Check the sensor values			
	Outdoor sensor B9	B9 exterior T° (7730)	in °C
	DHW sensor B3	DHW temperature B3/B38 (7750)	in °C
	Cascade flow sensor B10	Sensor BX2 T° (7830)	in °C

On boiler no. 2: slave

F. OPTIMISING THE SETTINGS

DHW optimisation:

		Line No.	Value
• Menu *DHW tank*			
Adjust the rise		Temperature rise from initial setpoint (5020)	16°C

Cascade optimisation:

The cascade can be optimised as required using the parameters in the *Cascade* menu. See the NAVISTEM B3000 boiler controller manual for more details.

Maintenance optimisation:

It is possible to generate a maintenance message that does not cause a boiler fault. This maintenance message can occur after the 3 following counters reach set values:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months
- Hours of burner operation (parameter 7040)
- Number of start-ups (parameter 7042)

The last 2 parameters depend on the boiler room's hydraulic installation. It is advisable to use at least parameter 7044 for annual maintenance.

BOILER CASCADE *1 boiler equipped with LMU + RVS 63 and 1 boiler equipped with the NAVISTEM B3000 controller*	Diagram ***CX13*** page 1 / 8

A. HYDRAULIC DIAGRAM

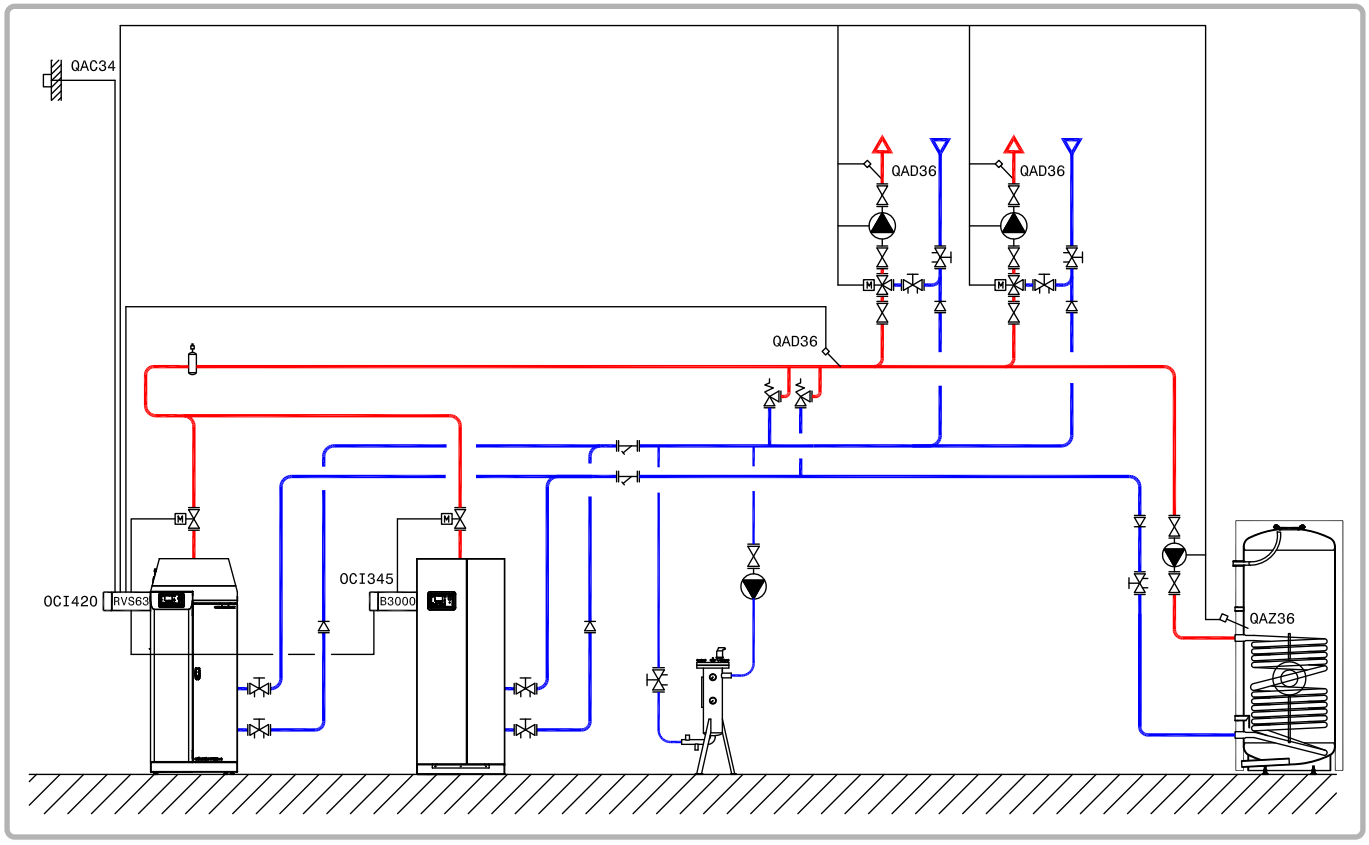


figure 28 - Diagram CX13

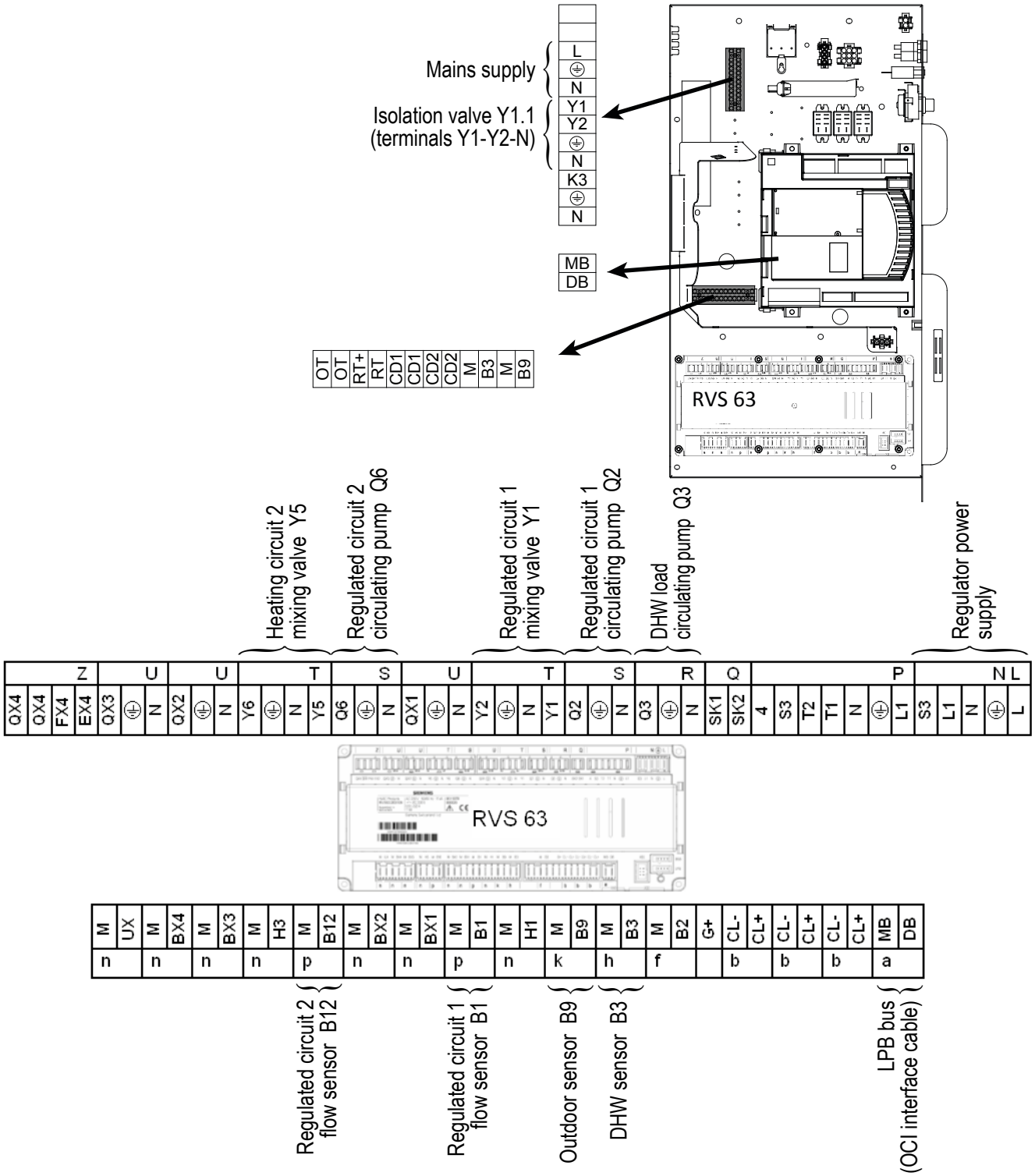
B. REGULATION ACCESSORIES NECESSARY

	Quantity	**Appliance reference**	**Order no.**
Heating circuit regulation kit	1	RVS 63	040941
LPB communication kit	1	OCI 420	059263
Communication kit	1	OCI 345	059752
DHW sensor kit	1	QAZ 36	059261

Diagram: CX13	page 2 / 8

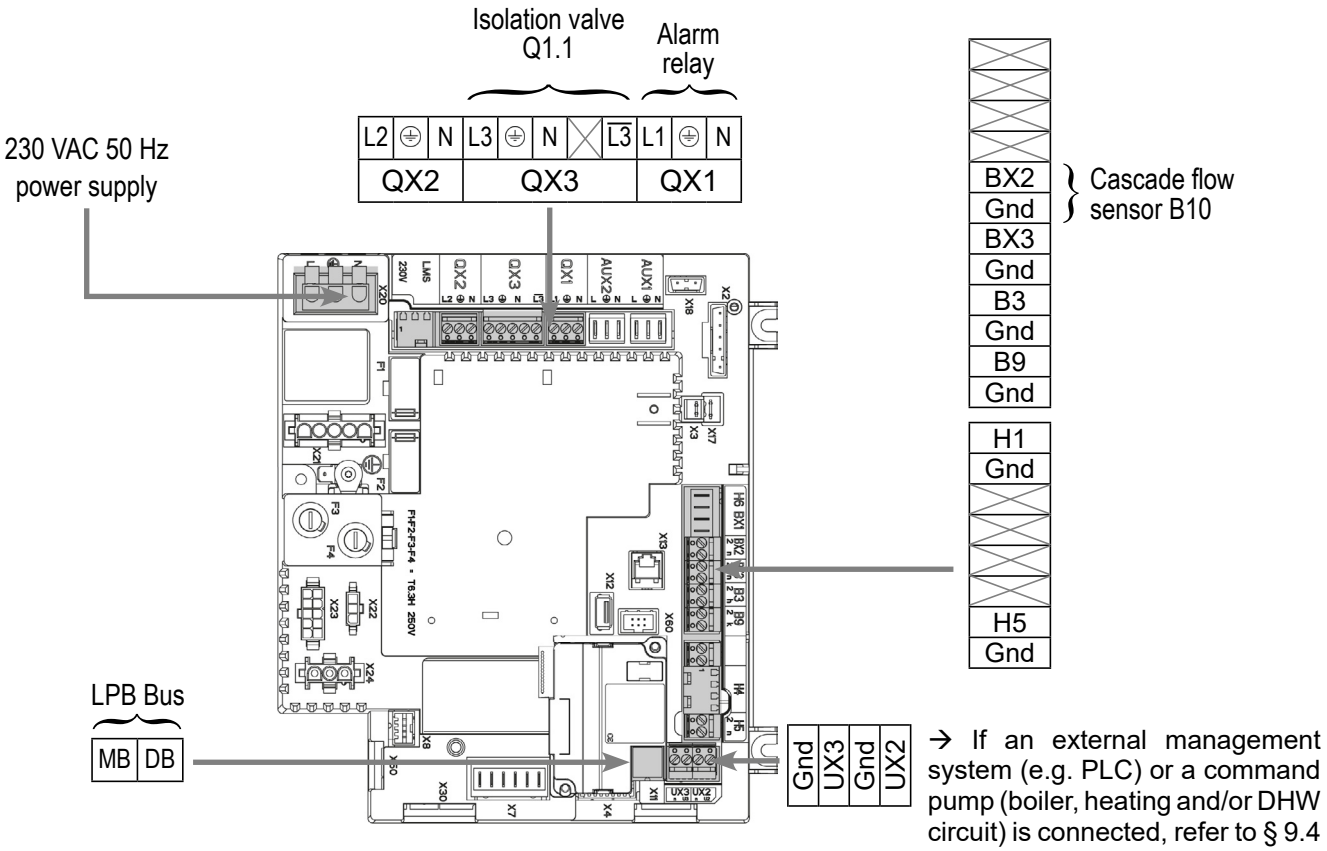
C. CUSTOMER ELECTRICAL CONNECTION

Boiler no. 1:



Boiler no. 2:

INFORMATION: If the isolation valve is not equipped with an automatic reset, connect the isolation valve Q1.1 close contact to $\overline{L3}$.



→ If an external management system (e.g. PLC) or a command pump (boiler, heating and/or DHW circuit) is connected, refer to § 9.4 for the specific configuration).

D. SPECIFIC START-UP PROCEDURE

☞ Fit and connect the accessories.

☞ Start up the boiler alone.

☞ Make the following adjustments:

On boiler no. 1 (LMU): slave

	Parameter no.	*Value*
Adjust the hydraulic configuration	H552	80
Set the address of the boiler (slave/installation)		
Device no.	H605	2
Segment no.	H606	0
Set the clock program	H604.b0	1
Unadjusted system time	H604.b1	0
Set the power supply for the local bus to Automatic	H604.b2	1

Diagram: CX13

On the RVS 63

	Line No.	*Value*
• **Menu *Time and date***		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
• **Menu *LPB***		
Set the address of the regulator		
Device no.	Appliance address (6600)	0
Segment no.	Segment address (6601)	1
Configure the bus supply	Bus supply function (6604)	Automatic
Set the clock program	Clock operation (6640)	Master
• **Menu *Heating circuit 1***		
Adjust the comfort setpoint	Comfort temperature setpoint (710)	- - -
Set the curve slope	Heating curve slope (720)	- - -
• **Menu *Heating circuit 2***		
Adjust the comfort setpoint	Comfort temperature setpoint (1010)	- - -
Set the curve slope	Heating curve slope (1020)	- - -
• Set the heating program to permanent comfort		
• **Menu *Domestic Hot Water***		
Adjust the comfort setpoint	Comfort setpoint (1610)	55°C
Set the DHW release program	DHW release (1620)	24h/24
• Activate the DHR program		
• **Menu *DHW Tank***		
Priority of pumps	With prim contr/primary pump (5092)	Yes

On boiler no. 2: master

		Line No.	*Value*
• **Menu *LPB network***			
Configure the boiler as master of the cascade		Appliance address (6600)	1
		Segment address (6601)	0
		Bus supply function (6604)	Automatic
		Clock operation (6640)	Slave without adjustment

• Connect the bus between the boilers (⚠take care to respect the polarity).

• Switch the slave boiler(s) off and on again. If communication is established properly, the clock is updated correctly.

• **Menu *Configuration***			
Configure the isolation valve Q1.2		Relay QX3 output (5892)	Boiler pump Q1

E. ELECTRICAL AND HYDRAULIC VALIDATION

On boiler no. 1: slave

On the RVS 63

		Line No.	*Value*
• **Menu *Input/output test***			
Check the outputs			
DHW load pump (Q3)		Relay test (7700)	DHW pump Q3
Heating circuit 1 circulating pump (Q2)		Relay test (7700)	HC pump Q2
Opening of circuit 1 3-way valve (Y1)		Relay test (7700)	HC mixing valve open Y1
Closing of circuit 1 3-way valve (Y2)		Relay test (7700)	HC mixing valve close Y2
Heating circuit 2 pump (Q6)		Relay test (7700)	HC pump Q6
Opening of circuit 2 3-way valve (Y5)		Relay test (7700)	HC mixing valve open Y5
Closing of circuit 2 3-way valve (Y6)		Relay test (7700)	HC mixing valve close Y6
Reset the outputs		Relay test (7700)	No test

Diagram: CX13

		Line No.	*Value*
Check the sensor values			
	Outdoor sensor B9	Ext. temp. B9 (7730)	in °C
	Circuit 1 network flow sensor (B1)	Flow temp. B1 (7732)	in °C
	Circuit 2 network flow sensor (B12)	Flow temp. B12 (7734)	in °C
	DHW sensor B3	DHW temp. B3 (7750)	in °C

- Connect the violet/black cable from the LPB to the MB-DB terminals of the RVS 63 cascade regulator and the OCI420 communication kit.
- Switch the boiler to auto mode  

On boiler no. 2: master

- Menu *Cascade troubleshooting*

Confirm that all the boilers are present in the cascade		
	General status 1 (8100)	Released/not released
	General status 2 (8101)	Released/not released
	.....	

- **Menu *Input/output test***

Check the outputs		
Alarm relay	Relay test (7700)	Relay QX1 output
Isolation valve Q1.2	Relay test (7700)	Relay QX3 output
Reset the outputs	Relay test (7700)	No test

F. OPTIMISING THE CONFIGURATION OF BOILER NO. 1 (SLAVE)

Adjusting the heating circuits (connected to the RVS 63):

	Line No.	*Value*
• **Menu *Heating circuit 1***		
Adjust the comfort setpoint	Comfort setpoint (710)	- - -
Adjust the low setpoint	Low setpoint (712)	- - -
Adjust the heating curve slope	Curve slope (720)	- - -
• **Menu *Heating circuit 2***		
Adjust the comfort setpoint	Comfort setpoint (1010)	- - -
Adjust the low setpoint	Low setpoint (1012)	- - -
Adjust the heating curve slope	Curve slope (1020)	- - -

Adjusting the timer program for the heating circuits (connected to the RVS 63):

• **Menu *Heating circuit 1 timer program***		
Preselection	Preselection (500)	- - -
Adjust the programmed times	On/off phases (501…506)	- - -
• **Menu *Heating circuit 2 timer program***		
Preselection	Preselection (520)	- - -
Adjust the programmed times	On/off phases (521…526)	- - -
• Switch the heating program for circuits 1 and 2 to automatic mode		

Réglage de l'ECS (sur RVS 63) :

• **Menu *Timer prog. 4/DHW***		
Adjust the programmed times	On/off phases (560…566)	- - -
• **Menu *DHW***		
Adjust the low setpoint	Low setpoint (1612)	- - -
Release the DHW load according to the timer program	Release (1620)	- - -
Adjust the frequency of the anti-legionella cycle	Anti-legionella function (1640)	- - -
According to the previous setting, adjust the frequency or the day of the week	Periodic legion. funct.(1641)	- - -
	Weekday legion. funct. (1620)	- - -

Diagram: CX13	page 8 / 8

	Line No.	***Value***
Adjust the anti-legionella cycle temperature setpoint	Anti-legionella setpoint (1645)	- - -
Adjust the duration of the anti-legionella cycle	Anti-legionella function duration (1646)	- - -
• **Menu *DHW tank***		
Adjust the primary rise/DHW	Rise in initial setpoint (5020)	- - -

G. OPTIMISING THE CONFIGURATION OF THE SLAVE BOILER (EQUIPPED WITH THE B3000)

Cascade optimisation:

The cascade can be optimised as required using the parameters in the *Cascade* menu. See the NAVISTEM B3000 boiler controller manual for more details.

Maintenance optimisation:

It is possible to generate a maintenance message that does not cause a boiler fault. This maintenance message can occur after the 3 following counters reach set values:

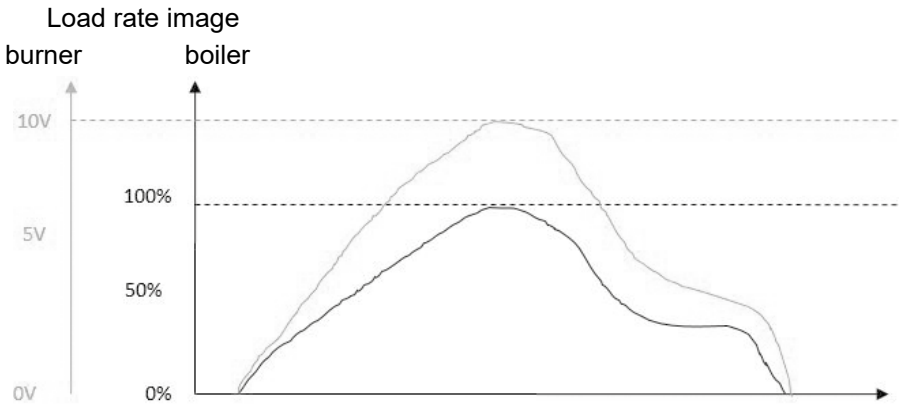
- Time since last maintenance (or commissioning): set parameter 7044 to 12 months
- Hours of burner operation (parameter 7040)
- Number of start-ups (parameter 7042)

The last 2 parameters depend on the boiler room's hydraulic installation. It is advisable to use at least parameter 7044 for annual maintenance.

9.4. Specific configurations when connecting to 0-10V outputs (Ux)

9.4.1. Transfer of the "burner power" image to PLC

IMPORTANT: You cannot use this function if you are controlling a Q1 boiler pump with one of the NAVISTEM B3000 0-10V outlets.



D. SPECIFIC START-UP PROCEDURE

	Line No.	*Value*
• ***Configuration*** **menu**		
Declare the output which gives the image of the burner power.	Function output Ux (6078/6089)	Boiler pump Q1
Signal direction. Progress of the 0-10V signal in the signal increase direction for speed increase.	Signal logil output UX (6079/6090)	Standard
• ***Boiler*** **menu**		
Indication that the burner state is operating at min	Output at pump speed min (2334)	0 %
Indication that the burner state is operating at max (parameters 9529 and 9530 may be viewed in the ***Burner control*** menu)	Output at pump speed max (2335)	$\frac{\text{Parameter 9529}}{\text{Parameter 9530}} \times 100$
0-10V output state on start	Starting speed (2321)	between 0 and 100 %
0-10V output state when the burner is at min	Pump speed min (2322)	between 0 and 100 %
0-10V output state when the burner is at max	Pump speed max (2323)	between 0 and 100 %

9.4.2. Controlling a Q1 boiler pump

D. SPECIFIC START-UP PROCEDURE

	Line No.	*Value*
• ***Configuration*** **menu**		
Declare the boiler pump Q1 on the output chosen.	Function output Ux (6078/6089)	Boiler pump Q1
Signal direction. Progress of the 0-10V signal in the signal increase direction for speed increase.	Signal logil output UX (6079/6090)	Standard
• ***Boiler*** **menu**		
Set these 3 parameters to the same value	Starting speed (2321)	between 0 and 100 %
	Pump speed min (2322)	between 0 and 100 %
	Pump speed max (2323)	between 0 and 100 %

9.4.3. Controlling a Q2, Q6 or Q20 heating circuit pump

D. SPECIFIC START-UP PROCEDURE

	Line No.	*Value*
• ***Configuration*** **menu**		
Case of a 0-10V command Q2, Q6 or Q20 heating pump. Configure the heating pump.	Function output Ux (6078/6089)	Heat circuit pump HC1 Q2 Or Heat circuit pump HC2 Q6 Or Heat circuit pump HC3 Q20
Signal direction. Progress of the 0-10V signal in the signal increase direction for speed increase.	Signal logil output UX (6079/6090)	Standard
• ***Heating circuit 1/2/3*** **menu**		
Set these 3 parameters to the same value	Starting speed (881/1181/1481)	between 0 and 100 %
	Pump speed min (882/1182/1482)	between 0 and 100 %
	Pump speed max (883/1183/1483)	between 0 and 100 %

E. ELECTRICAL AND HYDRAULIC VALIDATION

		Line No.	Value
• ***Input/output test*** **menu**			
Check the outputs			
Pump with 0-10 V control		Output test Ux (7716/7724)	in % (1% = 0,1 V)

9.4.4. Controlling a DHW pump Q3

D. SPECIFIC START-UP PROCEDURE

		Line No.	Value
• ***Configuration*** **menu**			
Case of a 0-10V command DHW pump. Configure the DHW pump Q3.		Function output Ux (6078/6089)	Pompe ECS Q3
Signal direction. Progress of the 0-10V signal in the signal increase direction for speed increase.		Signal logil output UX (6079/6090)	Standard
• ***DHW storage tank*** **menu**			
Set these 3 parameters to the same value		Pump speed min (5101)	between 0 and 100 %
		Pump speed max (5102)	between 0 and 100 %
		Starting speed charg pump (5108)	between 0 and 100 %

E. ELECTRICAL AND HYDRAULIC VALIDATION

		Line No.	Value
• ***Input/output test*** **menu**			
Check the outputs			
Pump with 0-10 V control		Output test Ux (7716/7724)	in % (1% = 0,1 V)

10. SPARE PARTS LIST

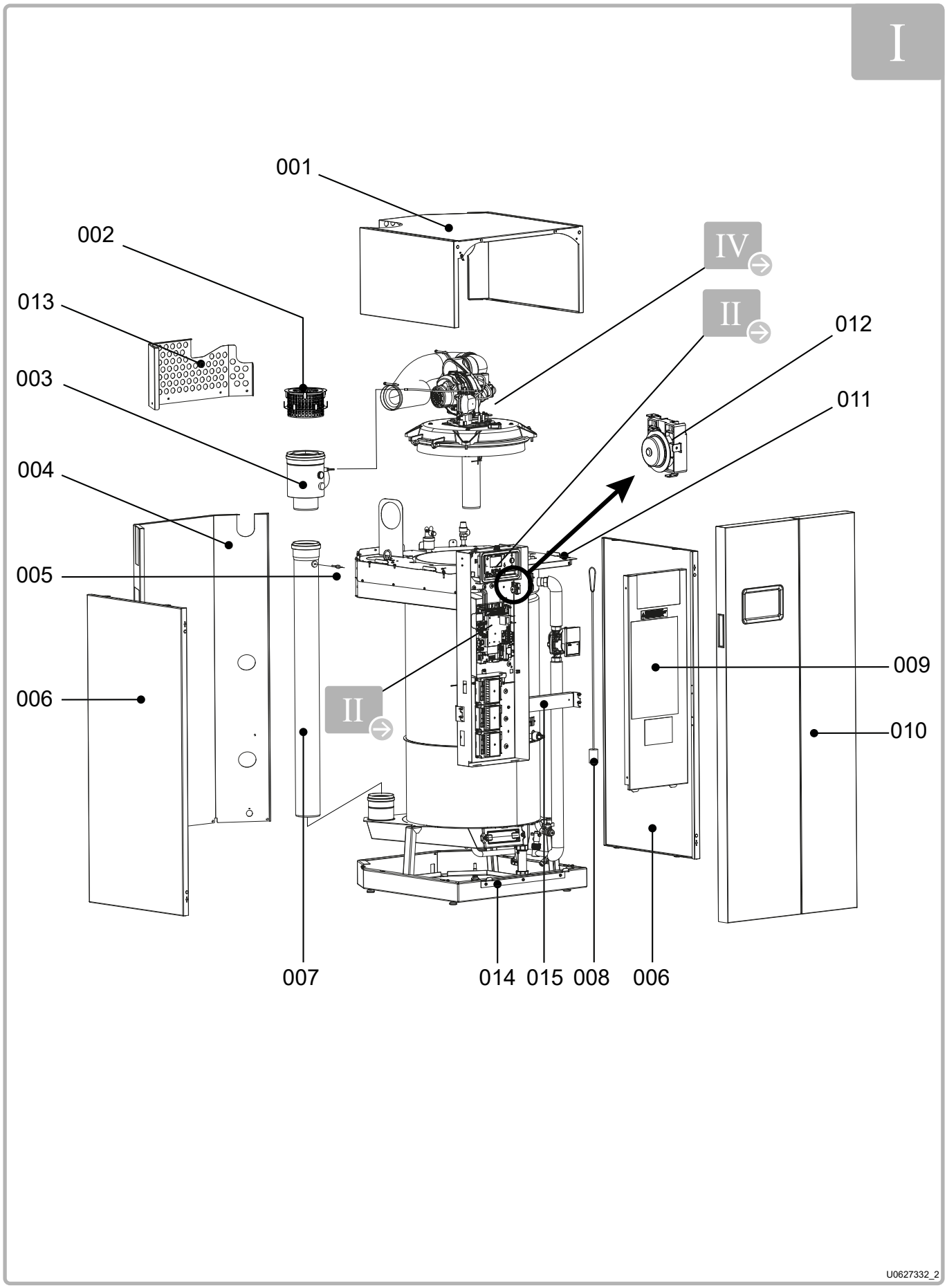


figure 29 - Casing/insulation

ITEM	DESCRIPTION	REF. FOR MODELS				
		40 kW	50 kW	60 kW	80 kW	100kW
	Casing/insulation					
001	Top cover	78802			78803	
002	Air filter	73417				
003	Concentric adaptor	71918			72575	
004	Rear jacket	71929			72583	
005	Exhaust sensor with seal	71908				
006	Side jacket	78804			78805	
007	Exhaust duct with seal	71919			72576	
008	Tube brush	72226				
009	Closing plate of the control panel	78659				
010	Front jacket	78810			78811	
011	Upper jacket	78641			78642	
012	Safety thermostat	00267				
013	Rear grid	78643			78644	
014	Front jacket support angle	78648				
015	Front crossbar	78645			78646	
--	Body insulation	73722				
--	Exhaust sensor extension	78657				
--	C53 adaptor	78660				
--	Tube of grease for air vent seal	72295				

II

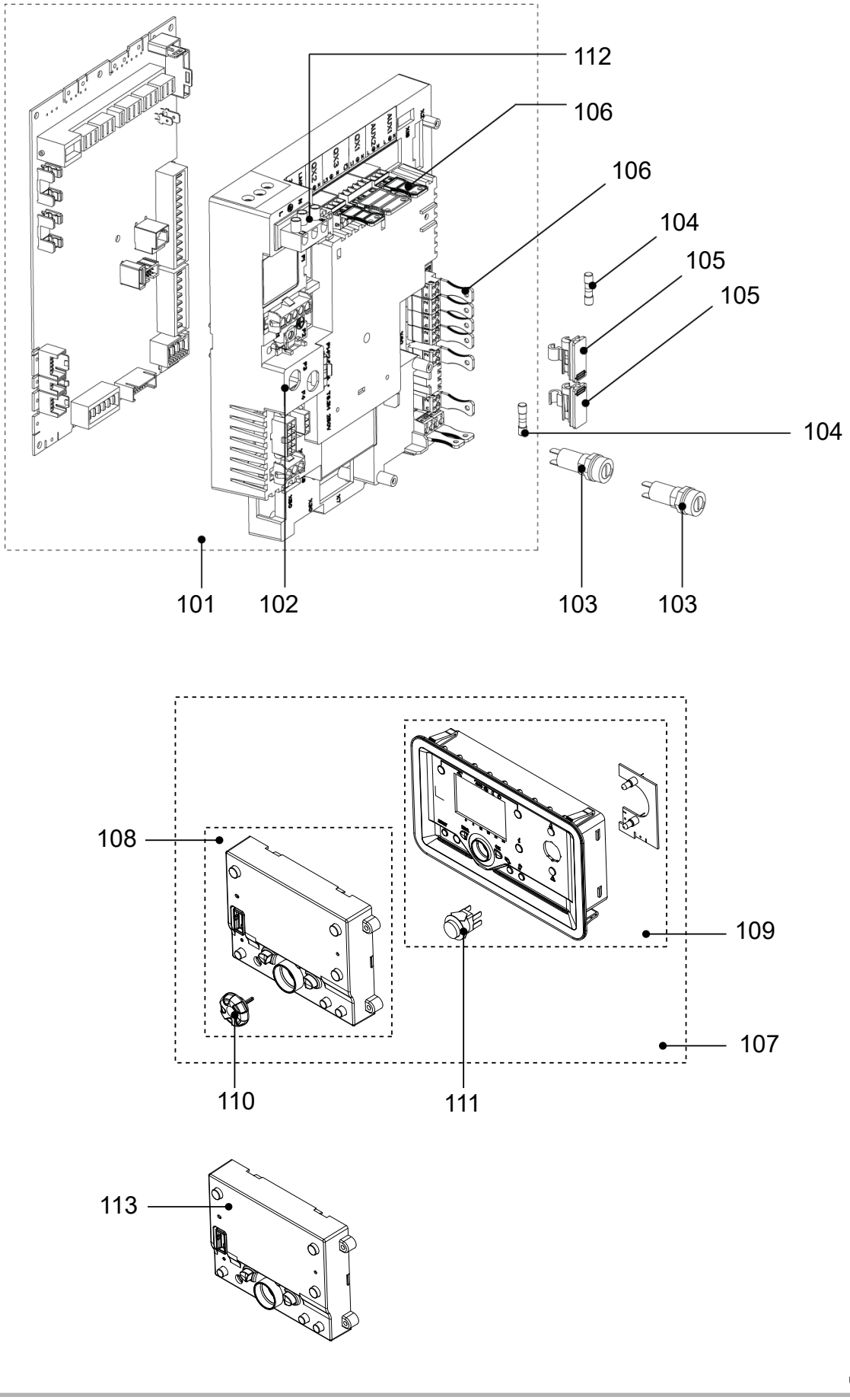


figure 30 - Control panel

ITEM	DESCRIPTION	REF. FOR MODELS				
		40 kW	50 kW	60 kW	80 kW	100kW
	Control panel					
101	Platform with configured NAVISTEM B3000	78814	79346	78816	78818	78819
102	Platform without NAVISTEM B3000 and with wiring	76127				
103	Round fuse holder	76130				
104	Fuse (T 6.3 H - 5x20)	71898				
105	Square fuse holder (with fuse)	76129				
106	Customer platform connectors	76128				
107	Full display (HMI)	78782				
108	Display alone (HMI) with selection wheel	78477				
109	Plastic display part (HMI) + LED card + switch + LED layer	78704				
110	Selection wheel	76135				
111	Switch	76134				
112	Power supply connector	76523				
113	Display alone (HMI) Eastern Language	78476				
--	Burner supply wiring	78653				
--	Burner control wiring	78654				
--	Circulating pump/flow controller signal supply wiring	76386				
--	Fan/sensor/meter signal wiring	76387				
--	Exhaust sensor internal wiring	76388				
--	Switch supply wiring	78655				
--	Grouped valve/fan/ionisation supply wiring	76390				
--	Display layer	76148				
--	AVS75 control layer	76147				

III

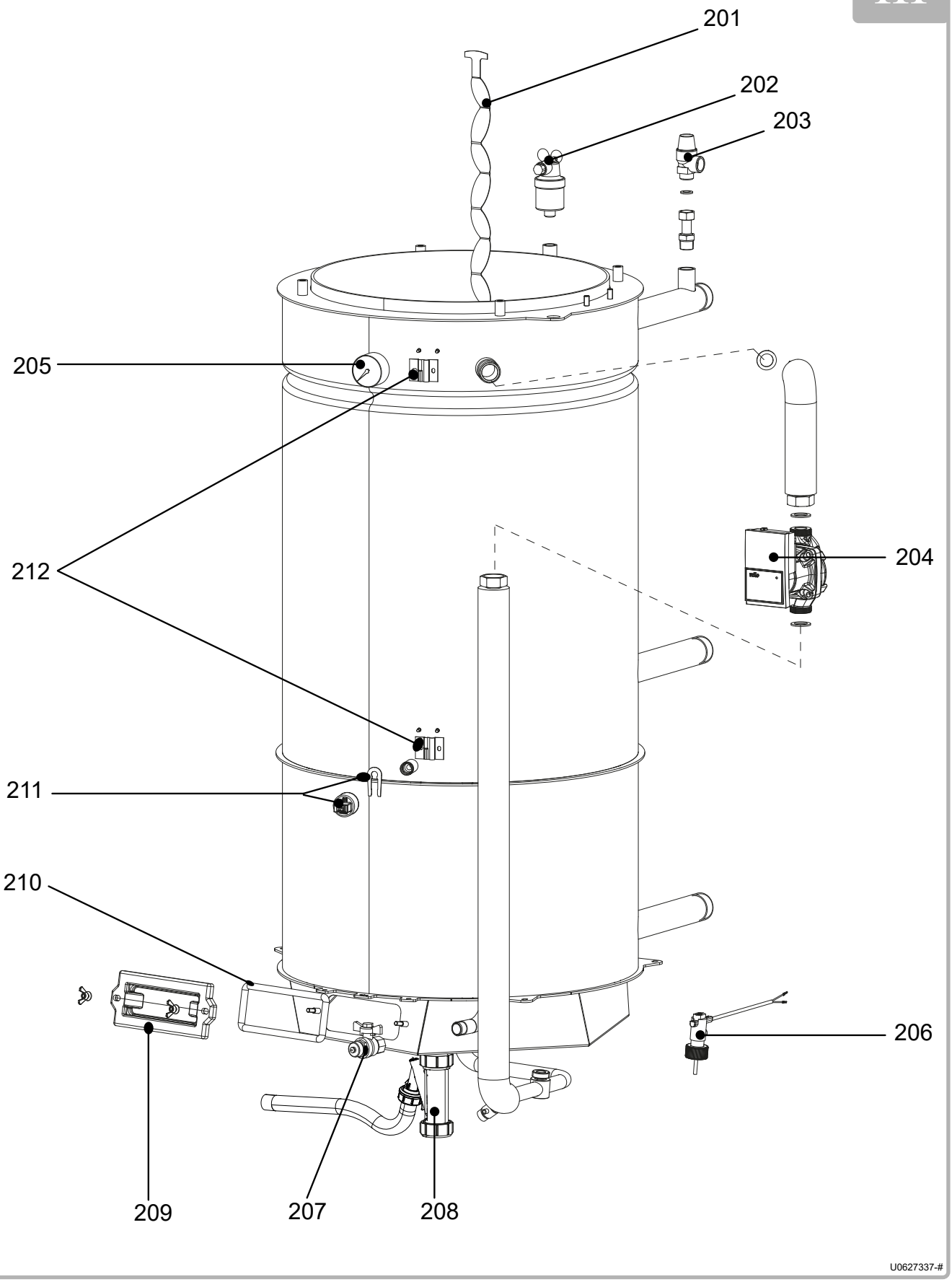


figure 31 - Body

ITEM	DESCRIPTION	REF. FOR MODELS				
		40 kW	50 kW	60 kW	80 kW	100kW
--	AVS75 supply wiring	76146				
--	Ground wiring	78656				
--	Prepared control panel bottom	78658				
	Body					
201	Turbulators (complete set)	72356	71920		72578	72579
202	Bleed valve	71924				
203	Valve	72165				
204	Water pump	76391				
205	Manometer	78647				
206	Flow rate controller	72591				
207	Drain valve	72577				
208	Condensate removal siphon	71925				
209	Exhaust box inspection cover	76230				
210	Exhaust box inspection cover seal	71921				

IV

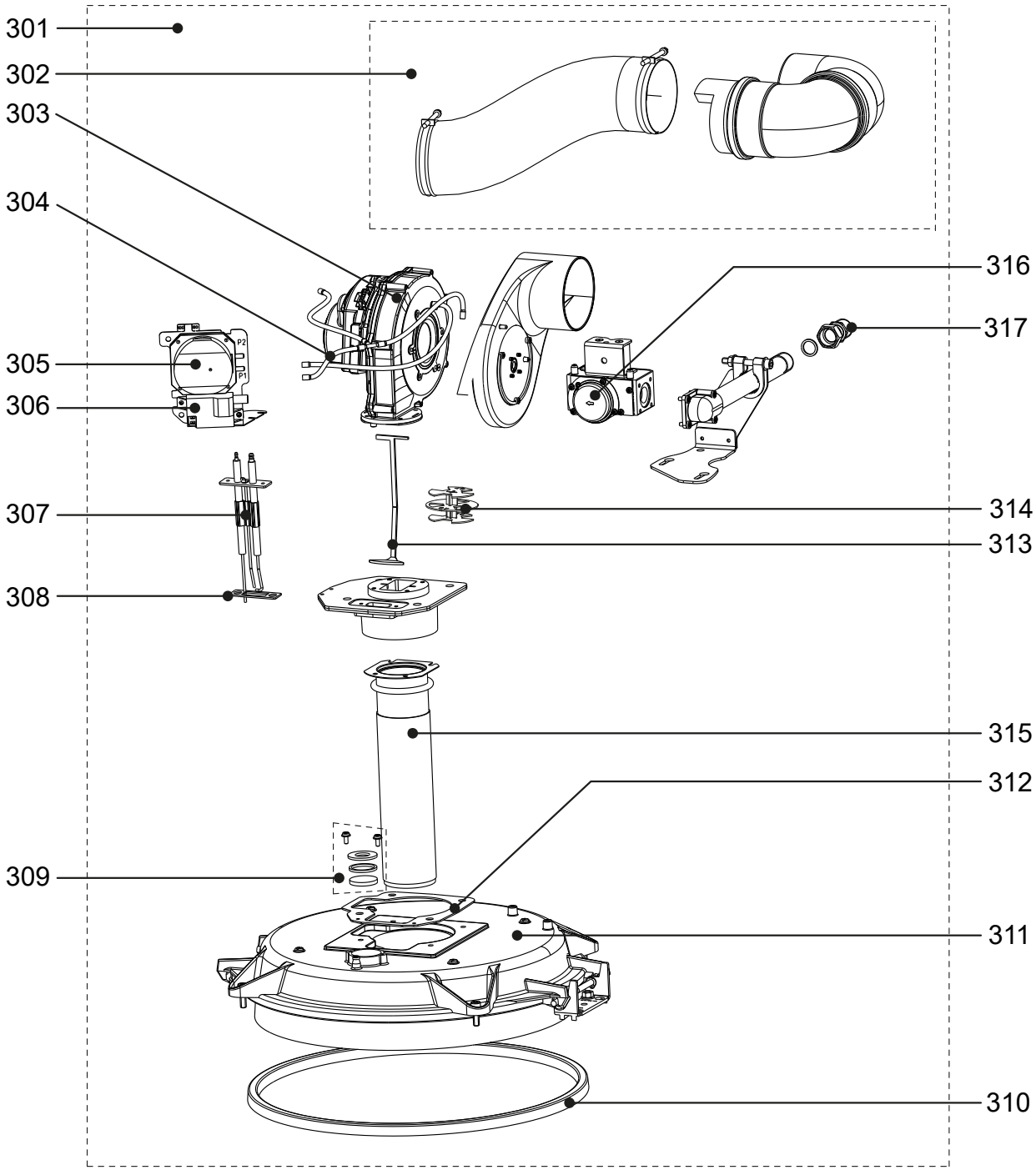


figure 32 - Burner

ITEM	DESCRIPTION	REF. FOR MODELS				
		40 kW	50 kW	60 kW	80 kW	100kW
211	Pressure sensor with stay	73946				
212	Flow/return sensor	71899				
--	Complete body	78649	78650		78651	78652
	Burner					
301	Burner + door	72375	76377		76378	
302	Air hose	71913			72571	
303	Fan	71917	76380		76381	
304	Versilic tube (with joining nipple)	72596			72597	
305	Air pressure switch	71915			72573	
306	Ignition transformer	72131				
307	Electrode unit	72005				
308	Electrode unit gasket (x 3)	73890				
309	Pyrex glass + 2 seals	60407				
310	Ceramic burner braid	00337				
311	Complete burner chamber plate	71910			72569	
312	Burner seals	71914			72572	
313	Deflector	--			73186	
314	Phase shifter	72355	73121		--	
315	Gas burner	71916			72574	
316	Gas valve	71912			72570	
317	Gas connection	79335		79336		
--	Gas valve supply cable	72775				
--	Ignition burner electrode cable	72251				

11. CUSTOMER PARAMETERS TABLE

Boiler: ..... site:.....

serial no.: ....

Please transfer all parameter modifications into this document!

Note: The "access" column indicates the degree of accessibility for information or programming (E for the end user, C for commissioning and S for specialist). The *Commissioning* accessibility level includes the *End User* level. Similarly, the *Specialist* level includes the *Commissioning* level.

Line No.	Programming	Access	Default value	Customer setting
	Time of day and date			
1	Hours / minutes	E	00 : 00	
2	Day / month	E	dd.mm	
3	Year	E	yyyy	
5	Start of summertime	C	dd.mm	
6	End of summertime	C	dd.mm	
	Operator section			
20	Language	E	English	
22	Info	C	Temporarily	
26	Operation lock	C	Off	
27	Programming lock	C	Off	
28	Direct adjustment	C	Storage with confirmation	
29	Units	E	°C, bar	
42	Assignment device 1	C	HC 1	
44	Operation HC2	C	Jointly with HC1	
46	Operation HC3/P	C	Jointly with HC1	
70	Software version	C		
	Time prog heating circuit 1			
500	Preselection	E	Mo-Su	
501	First period start time	E	06:00	
502	First period stop time	E	22:00	
503	Second period start time	E	24:00	
504	Second period stop time	E	24:00	
505	Second period start time	E	24:00	
506	Second period stop time	E	24:00	
516	Default values	E	No	
	Time prog heating circuit 2			
520	Preselection	E	Mo-Su	
521	First period start time	E	06:00	
522	First period stop time	E	22:00	
523	Second period start time	E	24:00	
524	Second period stop time	E	24:00	
525	Second period start time	E	24:00	
526	Second period stop time	E	24:00	
536	Default values	E	No	

Line No.	Programming	Access	Default value	Customer setting
	Time prog heating circuit 3			
540	Preselection	E	Mo-Su	
541	First period start time	E	06:00	
542	First period stop time	E	22:00	
543	Second period start time	E	24:00	
544	Second period stop time	E	24:00	
545	Second period start time	E	24:00	
546	Second period stop time	E	24:00	
556	Default values	E	No	
	Time program 4 / DHW			
560	Preselection	E	Mo-Su	
561	First period start time	E	06:00	
562	First period stop time	E	22:00	
563	Second period start time	E	24:00	
564	Second period stop time	E	24:00	
565	Second period start time	E	24:00	
566	Second period stop time	E	24:00	
576	Default values	E	No	
	Time program 5			
600	Preselection	E	Mo-Su	
601	First period start time	E	06:00	
602	First period stop time	E	22:00	
603	Second period start time	E	24:00	
604	Second period stop time	E	24:00	
605	Second period start time	E	24:00	
606	Second period stop time	E	24:00	
616	Default values	E	No	
	Holidays heating circuit 1			
641	Preselection	E	Period 1	
642	Begin (dd.mm)	E	01.01	
643	End (dd.mm)	E	01.01	
648	Operating level	E	Frost protection	
	Holidays heating circuit 2			
651	Preselection	E	Period 1	
652	Begin (dd.mm)	E	01.01	
653	End (dd.mm)	E	01.01	
658	Operating level	E	Frost protection	
	Holidays heating circuit 3			
661	Preselection	E	Period 1	
662	Begin (dd.mm)	E	01.01	
663	End (dd.mm)	E	01.01	
668	Operating level	E	Frost protection	
	Heating circuit 1			
710	Comfort setpoint	E	20 °C	
712	Reduced setpoint	E	18 °C	
714	Frost protection setpoint	E	10 °C	
716	Comfort setpoint max	S	35 °C	
720	Heating curve slope	E	1,5	

Line No.	Programming	Access	Default value	Customer setting
721	Heating curve displacement	S	0 °C	
726	Heating curve adaptation	S	Off	
730	Summer/winter heating limit	E	--- °C	
732	24-hour heating limit	S	--- °C	
740	Flow temp setpoint min	C	8 °C	
741	Flow temp setpoint max	C	80 °C	
742	Flow temp setpoint room stat	E	65 °C	
746	Delay heat request	C	0 s	
750	Room influence	S	--- %	
760	Room temp limitation	S	1 °C	
761	Heating limit room controller	S	--- °C	
770	Boost heating	S	--- °C	
780	Quick setback	S	Off	
790	Optimum start control max	S	00:00	
791	Optimum stop control max	S	00:00	
800	Reduced setp increase start	S	--- °C	
801	Reduced setp increase end	S	-15 °C	
809	Continuous pump operation	S	No	
820	Overtemp prot pump circuit	S	On	
830	Mixing valve boost	S	3 °C	
832	Actuator type	S	3-position	
833	TOR Switching differential	S	2 °C	
834	Actuator running time	S	120 s	
835	Mixing valve Xp	S	32 °C	
836	Mixing valve Tn	S	120 s	
850	Floor curing function	C	Off	
851	Floor curing setp manually	C	25 °C	
855	Floor curing setp current	E	0 °C	
856	Floor curing day current	E	0	
861	Excess heat draw	S	Always	
870	With buffer	S	No	
872	With prim contr/system pump	S	No	
881	Starting speed	S	100 %	
882	Pump speed min	S	100 %	
883	Pump speed max	S	100 %	
888	Curve readj at 50% speed	S	33 %	
889	Filter time const speed ctrl	S	5 min	
890	Flow setp readj speed ctrl	S	Yes	
898	Operating level changeover	S	Reduced	
900	Optg mode changeover	S	Protection	
	Heating circuit 2			
1010	Comfort setpoint	E	20 °C	
1012	Reduced setpoint	E	18 °C	
1014	Frost protection setpoint	E	10 °C	
1016	Comfort setpoint max	S	35 °C	
1020	Heating curve slope	E	1,5	
1021	Heating curve displacement	S	0 °C	
1026	Heating curve adaptation	S	Off	
1030	Summer/winter heating limit	E	--- °C	

Line No.	Programming	Access	Default value	Customer setting
1032	24-hour heating limit	S	--- °C	
1040	Flow temp setpoint min	C	8 °C	
1041	Flow temp setpoint max	C	80 °C	
1042	Flow temp setpoint room stat	E	65 °C	
1046	Delay heat request	C	0 s	
1050	Room influence	S	--- %	
1060	Room temp limitation	S	1 °C	
1061	Heating limit room controller	S	--- °C	
1070	Boost heating	S	--- °C	
1080	Quick setback	S	Off	
1090	Optimum start control max	S	00:00	
1091	Optimum stop control max	S	00:00	
1100	Reduced setp increase start	S	--- °C	
1101	Reduced setp increase end	S	-15 °C	
1109	Continuous pump operation	S	No	
1120	Overtemp prot pump circuit	S	On	
1130	Mixing valve boost	S	3 °C	
1132	Actuator type	S	3-position	
1133	TOR Switching differential	S	2 °C	
1134	Actuator running time	S	120 s	
1135	Mixing valve Xp	S	32 °C	
1136	Mixing valve Tn	S	120 s	
1150	Floor curing function	C	Off	
1151	Floor curing setp manually	C	25 °C	
1155	Floor curing setp current	E	0 °C	
1156	Floor curing day current	E	0	
1161	Excess heat draw	S	Always	
1170	With buffer	S	No	
1172	With prim contr/system pump	S	No	
1181	Starting speed	S	100 %	
1182	Pump speed min	S	100 %	
1183	Pump speed max	S	100 %	
1188	Curve readj at 50% speed	S	33 %	
1189	Filter time const speed ctrl	S	5 min	
1190	Flow setp readj speed ctrl	S	Yes	
1198	Operating level changeover	S	Reduced	
1200	Optg mode changeover	S	Protection	
	Heating circuit 3			
1310	Comfort setpoint	E	20 °C	
1312	Reduced setpoint	E	18 °C	
1314	Frost protection setpoint	E	10 °C	
1316	Comfort setpoint max	S	35 °C	
1320	Heating curve slope	E	1,5	
1321	Heating curve displacement	S	0 °C	
1326	Heating curve adaptation	S	Off	
1330	Summer/winter heating limit	E	--- °C	
1332	24-hour heating limit	S	--- °C	
1340	Flow temp setpoint min	C	8 °C	
1341	Flow temp setpoint max	C	80 °C	

Line No.	Programming	Access	Default value	Customer setting
1342	Flow temp setpoint room stat	E	65 °C	
1346	Delay heat request	C	0 s	
1350	Room influence	S	--- %	
1360	Room temp limitation	S	1 °C	
1361	Heating limit room controller	S	--- °C	
1370	Boost heating	S	--- °C	
1380	Quick setback	S	Off	
1390	Optimum start control max	S	00:00	
1391	Optimum stop control max	S	00:00	
1400	Reduced setp increase start	S	--- °C	
1401	Reduced setp increase end	S	-15 °C	
1409	Continuous pump operation	S	No	
1420	Overtemp prot pump circuit	S	On	
1430	Mixing valve boost	S	3 °C	
1432	Actuator type	S	3-position	
1433	TOR Switching differential	S	2 °C	
1434	Actuator running time	S	120 s	
1435	Mixing valve Xp	S	32 °C	
1436	Mixing valve Tn	S	120 s	
1450	Floor curing function	C	Off	
1451	Floor curing setp manually	C	25 °C	
1455	Floor curing setp current	E	0 °C	
1456	Floor curing day current	E	0	
1461	Excess heat draw	S	Always	
1470	With buffer	S	No	
1472	With prim contr/system pump	S	No	
1481	Starting speed	S	100 %	
1482	Pump speed min	S	100 %	
1483	Pump speed max	S	100 %	
1488	Curve readj at 50% speed	S	33 %	
1489	Filter time const speed ctrl	S	5 min	
1490	Flow setp readj speed ctrl	S	Yes	
1498	Operating level changeover	S	Reduced	
1500	Optg mode changeover	S	Protection	
	Domestic hot water			
1610	Nominal setpoint	E	50 °C	
1612	Reduced setpoint	S	40 °C	
1614	Nominal setpoint max	S	65 °C	
1620	Release	C	24h/day	
1630	Charging priority	C	MC shifting, PC absolute	
1640	Legionella function	S	Off	
1641	Legionella funct periodically	S	3	
1642	Legionella funct weekday	S	Monday	
1644	Legionella funct time	S	05:00	
1645	Legionella funct setpoint	S	55 °C	
1646	Legionella funct duration	S	30 min	
1647	Legionella funct circ pump	S	On	
1660	Circulating pump release	S	DHW release	
1661	Circulating pump cycling	S	On	

Line No.	Programming	Access	Default value	Customer setting
1663	Circulation setpoint	S	45 °C	
1680	Optg mode changeover	S	Off	
	Consumer circuit 1			
1859	Flow temp setp cons request	C	60 °C	
1875	Excess heat draw	S	On	
1878	With buffer	S	No	
1880	With prim contr/system pump	S	No	
	Consumer circuit 2			
1909	Flow temp setp cons request	C	60 °C	
1925	Excess heat draw	S	On	
1928	With buffer	S	No	
1930	With prim contr/system pump	S	No	
	Consumer circuit 3			
1959	Flow temp setp cons request	C	70 °C	
1975	Excess heat draw	S	On	
1978	With buffer	S	No	
1980	With prim contr/system pump	S	No	
	Swimming pool			
2055	Setpoint solar heating	S	26 °C	
2056	Setpoint source heating	S	22 °C	
2065	Charging priority solar	S	Priority 3	
2080	With solar integration	S	Yes	
	Boiler			
2203	Release below outside temp	S	--- °C	
2208	Full charging buffer	S	Off	
2210	Setpoint min	S	8 °C	
2212	Setpoint max	S	83 °C	
2214	Setpoint manual control	E	60 °C	
2217	Setpoint frost protection	S	7 °C	
2243	Burner off time min	S	5 min	
2245	SD burner off time	S	6 °C	
2250	Pump overrun time	S	5 min	
2253	Pump overr time after DHW	S	1 min	
2270	Return setpoint min	S	8 °C	
2321	Starting speed	S	100 %	
2322	Pump speed min	S	100 %	
2323	Pump speed max	S	100 %	
2330	Output nominal	S	40 kW : 40 kW 50 kW 50 kW 60 kW 60 kW 80 kW : 80 kW 100 kW : 100 kW	
2331	Output basic stage	S	40 kW : 8 kW 50 / 60 kW : 12 kW 80 kW : 16 kW 100 kW : 20 kW	
2334	Output at pump speed min	S	0 %	
2335	Output at pump speed max	S	100 %	
2441	Fan speed heating max	S	40 kW : 6700 50 kW : 6910 60 kW 7800 80 kW : 6400 100 kW : 7550	

Line No.	Programming	Access	Default value	Customer setting
2442	Fan speed full charging max	S	40 kW : 6700 50 kW : 6910 60 kW : 7800 80 kW : 6400 100 kW : 7550	
2444	Fan speed DHW max	S	40 kW : 6700 50 kW : 6910 60 kW : 7800 80 kW : 6400 100 kW : 7550	
2454	Switching diff on HCs	S	3 °C	
2455	Switching diff off min HCs	S	3 °C	
2456	Switching diff off max HCs	S	6 °C	
2457	Settling time HCs	S	20 min	
2460	Switching diff on DHW	S	5 °C	
2461	Switching diff off min DHW	S	3 °C	
2462	Switching diff off max DHW	S	6 °C	
2463	Settling time DHW	S	20 min	
2470	Delay heat req special op	C	0 s	
2503	Parameter	S	--- s	
2630	Auto deaeration procedure	S	Off	
2655	ON time deaeration	S	10 s	
2656	OFF time deaeration	S	5 s	
2657	Number of repetitions	S	3	
2662	Deaeration time heat circuit	S	10 min	
2663	Deaeration time DHW	S	5 min	
	Cascade			
3510	Lead strategy	S	Early on, late off	
3511	Output band min	S	30 %	
3512	Output band max	S	90 %	
3530	Release integral source seq	S	300 °Cmin	
3531	Reset integral source seq	S	100 °Cmin	
3532	Restart lock	S	300 s	
3533	Switch on delay	S	5 min	
3534	Forced time basic stage	S	60 s	
3540	Auto source seq ch'over	S	500 h	
3541	Auto source seq exclusion	S	none	
3544	Leading source	S	source 1	
3560	Return setpoint min	S	8 °C	
3562	Return influence consumers	S	On	
	DHW storage tank			
5020	Flow setpoint boost	S	16 °C	
5021	Transfer boost	S	8 °C	
5022	Type of charging	S	Full charging	
5030	Charging time limitation	S	--- min	
5050	Charging temp max	S	80 °C	
5055	Recooling temp	S	80 °C	
5056	Recooling heat gen/HCs	S	Off	
5057	Recooling collector	S	Off	
5060	El imm heater optg mode	S	Substitute	
5061	El immersion heater release	S	DHW release	
5062	El immersion heater control	S	DHW sensor	

Line No.	Programming	Access	Default value	Customer setting
5085	Excess heat draw	S	On	
5090	With buffer	S	No	
5092	With prim contr/system pump	S	No	
5093	With solar integration	S	Yes	
5101	Pump speed min	S	100 %	
5102	Pump speed max	S	100 %	
5108	Starting speed charg pump	S	100 %	
	General functions			
5570	Temp diff on dT contr 1	S	20 °C	
5571	Temp diff off dT contr 1	S	10 °C	
5572	On temp min dT contr 1	S	0 °C	
5573	Sensor 1 controller 1	S	None	
5574	Sensor 2 controller 1	S	None	
5575	On time min dT contr 1	S	0 s	
5577	Pump/valve kick K21	S	On	
5580	Temp diff on dT contr 2	S	20 °C	
5581	Temp diff off dT contr 2	S	10 °C	
5582	On temp min dT contr 2	S	0 °C	
5583	Sensor 1 controller 2	S	None	
5584	Sensor 2 controller 2	S	None	
5585	On time min dT contr 2	S	0 s	
5587	Pump/valve kick K22	S	On	
	Configuration			
5710	Heating circuit 1	C	Off	
5711	Cooling circuit 1	C	Off	
5715	Heating circuit 2	C	Off	
5721	Heating circuit 3	C	Off	
5730	DHW sensor	C	DHW sensor B3	
5731	DHW controlling element	C	Charging pump	
5732	Pump off change div valve	C	0 s	
5733	Delay pump off	C	0 s	
5734	Basic position DHW div valve	S	Last request	
5736	DHW separate circuit	C	Off	
5737	Optg action DHW div valve	S	Position on DHW	
5738	Midposition DHW div valve	S	Off	
5774	Ctrl boiler pump/DHW valve	C	All requests	
5840	Solar controlling element	C	Charging pump	
5841	External solar exchanger	C	Jointly	
5870	Combi storage tank	C	No	
5890	Relay output QX1	C	Alarm output K10	
5891	Relay output QX2	C	DHW ctrl elem Q3	
5892	Relay output QX3	C	Boiler pump Q1	
5931	Sensor input BX2	C	None	
5932	Sensor input BX3	C	None	
5950	Function input H1	C	None	
5951	Contact type H1	C	NO	
5953	Voltage value 1 H1 (U1)	C	0 V	
5954	Function value 1 H1 (F1)	C	0	
5955	Voltage value 2 H1 (U2)	C	10 V	

Line No.	Programming	Access	Default value	Customer setting
5956	Function value 2 H1 (F2)	C	1000	
5977	Function input H5	C	None	
5978	Contact type H5	C	NO	
6020	Function extension module 1	C	None	
6021	Function extension module 2	C	None	
6022	Function extension module 3	C	None	
6024	Funct input EX21 module 1	C	None	
6026	Funct input EX21 module 2	C	None	
6028	Funct input EX21 module 3	C	None	
6030	Relay output QX21 module 1	C	None	
6031	Relay output QX22 module 1	C	None	
6032	Relay output QX23 module 1	C	None	
6033	Relay output QX21 module 2	C	None	
6034	Relay output QX22 module 2	C	None	
6035	Relay output QX23 module 2	C	None	
6036	Relay output QX21 module 3	C	None	
6037	Relay output QX22 module 3	C	None	
6038	Relay output QX23 module 3	C	None	
6040	Sensor input BX21 module 1	C	None	
6041	Sensor input BX22 module 1	C	None	
6042	Sensor input BX21 module 2	C	None	
6043	Sensor input BX22 module 2	C	None	
6044	Sensor input BX21 module 3	C	None	
6045	Sensor input BX22 module 3	C	None	
6046	Function input H2 module 1	C	None	
6047	Contact type H2 module 1	C	NO	
6049	Voltage value 1 H2 module 1(U1)	C	0 V	
6050	Function value 1 H2 module 1 (F1)	C	0	
6051	Voltage value 2 H2 module 1 (U2)	C	0 V	
6052	Function value 2 H2 module 1 (F2)	C	0	
6054	Function input H2 module 2	C	None	
6055	Contact type H2 module 2	C	NO	
6057	Voltage value 1 H2 module 2(U1)	C	0 V	
6058	Function value 1 H2 module 2 (F1)	C	0	
6059	Voltage value 2 H2 module 2 (U2)	C	0 V	
6060	Function value 2 H2 module 2 (F2)	C	0	
6062	Function input H2 module 3	C	None	
6063	Contact type H2 module 3	C	NO	
6065	Voltage value 1 H2 module 3(U1)	C	0 V	
6066	Function value 1 H2 module 3 (F1)	C	0	
6067	Voltage value 2 H2 module 3 (U2)	C	0 V	
6068	Function value 2 H2 module 3 (F2)	C	0	
6078	Function output UX2	S	Boiler pump Q1	
6079	Signal logic output UX2	S	Standard	
6089	Function output UX3	S	None	
6090	Signal logic output UX3	S	Standard	
6097	Sensor type collector	S	CTN	
6098	Readjustm collector sensor	S	0 °C	
6100	Readjustm outside sensor	S	0 °C	

Line No.	Programming	Access	Default value	Customer setting
6110	Time constant building	S	15 h	
6116	Const tmps compens consig.	S	1 min	
6117	Compens centr T° consigne	S	3 °C	
6120	Frost protection plant	S	Off	
6127	Pump/valve kick duration	S	30 s	
6200	Save sensors	C	No	
6205	Reset to default parameter	S	No	
6230	Info 1 OEM	S	16	
	LPB system			
6600	Device address	C	1	
6601	Segment address	S	0	
6604	Bus power supply function	S	Automatically	
6605	Bus power supply state	S	Automatically	
6610	Display system messages	S	No	
6611	Syst messages alarm relay	S	No	
6620	Action changeover functions	S	System	
6621	Summer changeover	S	Locally	
6623	Optg mode changeover	S	Centrally	
6624	Manual source lock	S	Locally	
6625	DHW assignment	S	All HCs in system	
6631	Ext source in Eco mode	S	Off	
6640	Clock mode	C	Autonomously	
6650	Outside temp source	S	0	
	Fault			
6705	SW diagnostic code	E	0	
6710	Reset alarm relay	C	No	
6740	Flow temp 1 alarm	S	120 min	
6741	Flow temp 2 alarm	S	120 min	
6742	Flow temp 3 alarm	S	120 min	
6743	Boiler temp alarm	S	120 min	
6745	DHW charging alarm	S	8 h	
6800	History 1	S	00:00	
6805	SW diagnostic code 1	S	0	
6810	History 2	S	00:00	
6815	SW diagnostic code 2	S	0	
6820	History 3	S	00:00	
6825	SW diagnostic code 3	S	0	
6830	History 4	S	00:00	
6835	SW diagnostic code 4	S	0	
6840	History 5	S	00:00	
6845	SW diagnostic code 5	S	0	
6850	History 6	S	00:00	
6855	SW diagnostic code 6	S	0	
6860	History 7	S	00:00	
6865	SW diagnostic code 7	S	0	
6870	History 8	S	00:00	
6875	SW diagnostic code 8	S	0	
6880	History 9	S	00:00	
6885	SW diagnostic code 9	S	0	

Line No.	Programming	Access	Default value	Customer setting
6890	History 10	S	00:00	
6895	SW diagnostic code 10	S	0	
6900	History 11	S	00:00	
6905	SW diagnostic code 11	S	0	
6910	History 12	S	00:00	
6915	SW diagnostic code 12	S	0	
6920	History 13	S	00:00	
6925	SW diagnostic code 13	S	0	
6930	History 14	S	00:00	
6935	SW diagnostic code 14	S	0	
6940	History 15	S	00:00	
6945	SW diagnostic code 15	S	0	
6950	History 16	S	00:00	
6955	SW diagnostic code 16	S	0	
6960	History 17	S	00:00	
6965	SW diagnostic code 17	S	0	
6970	History 18	S	00:00	
6975	SW diagnostic code 18	S	0	
6980	History 19	S	00:00	
6985	SW diagnostic code 19	S	0	
6990	History 20	S	00:00	
6995	SW diagnostic code 20	S	0	
	Service/special operation			
7040	Burner hours interval	S	1500 h	
7041	Burn hrs since maintenance	S	0 h	
7042	Burner start interval	S	9000	
7043	Burn starts since maint	S	0	
7044	Maintenance interval	S	24 months	
7045	Time since maintenance	S	0 months	
7050	Fan speed ionization current	S	0	
7051	Message ionization current	S	No	
7130	Chimney sweep function	E	Off	
7131	Burner output	E	Max heating load	
7140	Manual control	E	Off	
7143	Controller stop function	S	Off	
7145	Controller stop setpoint	S	0 %	
7146	Deaeration function	C	On	
7147	Type of venting	C	None	
7170	Telephone customer service	C	0	
	Input/output test			
7700	Relay test	C	No test	
7716	Output test UX2	C	--- %	
7724	Output test UX3	C	--- %	
7730	Outside temp B9	C	0 °C	
7750	DHW temp B3/B38	C	0 °C	
7760	Boiler temp B2	C	0 °C	
7820	Sensor temp BX1	C	0 °C	
7821	Sensor temp BX2	C	0 °C	
7822	Sensor temp BX3	C	0 °C	

Line No.	Programming	Access	Default value	Customer setting
7823	Sensor temp BX4	C	0 °C	
7830	Sensor temp BX21 module 1	C	0 °C	
7831	Sensor temp BX22 module 1	C	0 °C	
7832	Sensor temp BX21 module 2	C	0 °C	
7833	Sensor temp BX22 module 2	C	0 °C	
7834	Sensor temp BX21 module 3	C	0 °C	
7835	Sensor temp BX22 module 3	C	0 °C	
7840	Voltage signal H1	C	0 V	
7841	Contact state H1	C	Open	
7845	Voltage signal H2 module 1	C	0 V	
7846	Contact state H2 module 1	C	Open	
7848	Voltage signal H2 module 2	C	0 V	
7849	Contact state H2 module 2	C	Open	
7851	Voltage signal H2 module 3	C	0 V	
7852	Contact state H2 module 3	C	Open	
7854	Voltage signal H3	C	0 V	
7855	Contact state H3	C	Open	
7860	Contact state H4	C	Open	
7862	Frequency H4	C	0	
7865	Contact state H5	C	Open	
7872	Contact state H6	C	Open	
7874	Contact state H7	C	Open	
7950	Input EX21 module 1	C	0 V	
7951	Input EX21 module 2	C	0 V	
7952	Input EX21 module 3	C	0 V	
	State			
8000	State heating circuit 1	C	0	
8001	State heating circuit 2	C	0	
8002	State heating circuit 3	C	0	
8003	State DHW	C	0	
8005	State boiler	C	0	
8007	State solar	C	0	
8008	State solid fuel boiler	C	0	
8009	State burner	C	0	
8010	State buffer	C	0	
8011	State swimming pool	C	0	
	Diagnostics cascade			
8100 / 01	Priority / State source 1	C	0 / Missing	
8102 / 03	Priority / State source 2	C	0 / Missing	
8104 / 05	Priority / State source 3	C	0 / Missing	
8106 / 07	Priority / State source 4	C	0 / Missing	
8108 / 09	Priority source 5	C	0 / Missing	
8110 / 11	Priority / State source 6	C	0 / Missing	
8112 / 13	Priority / State source 7	C	0 / Missing	
8114 / 15	Priority / State source 8	C	0 / Missing	
8116 / 17	Priority / State source 9	C	0 / Missing	
8118 / 19	Priority / State source 10	C	0 / Missing	
8120 / 21	Priority / State source 11	C	0 / Missing	
8122 / 23	Priority / State source 12	C	0 / Missing	

Line No.	Programming	Access	Default value	Customer setting
8124 / 25	Priority / State source 13	C	0 / Missing	
8126 / 27	Priority / State source 14	C	0 / Missing	
8128 / 29	Priority / State source 15	C	0 / Missing	
8130 / 31	Priority / State source 16	C	0 / Missing	
8138 / 39	Cascade flow temp / setp	C	0 °C / 0 °C	
8140 / 41	Cascade flow temp / setp	C	0 °C / 0 °C	
8150	Source seq ch'over current	C	0 h	
	Diagnostics heat generation			
8304	Boiler pump Q1	S	Off	
8308	Boiler pump speed	S	0 %	
8309	Bypass pump speed	S	0 %	
8310	Boiler temp	E	0 °C	
8311	Boiler setpoint	E	0 °C	
8312	Boiler switching point	C	0 °C	
8313	Control sensor	C	0 °C	
8314	Boiler return temp	E	0 °C	
8315	Boiler return temp set	C	0 °C	
8316	Flue gas temp	E	0 °C	
8318	Flue gas temp max	E	0 °C	
8321	Primary exchanger temp	C	0 °C	
8323	Fan speed	E	0 tr/min	
8324	Set point fan	E	0 tr/min	
8325	Current fan control	C	0 %	
8326	Burner modulation	E	0 %	
8327	Water pressure	E	0	
8329	Ionization current	E	0 µA	
8330	Hours run 1st stage	E	00:00:00 h	
8331	Start counter 1st stage	E	0	
8338	Hours run heating mode	E	00:00:00 h	
8339	Hours run DHW	E	00:00:00 h	
8366	Boiler throughput	E	l / min	
8390	Current phase number	S	TNB	
8499	Collector pump 1	S	0	
8501	Solar ctrl elem buffer	S	0	
8502	Solar ctrl elem swi pool	S	0	
8505	Speed collector pump 1	S	0 %	
8506	Speed solar pump ext exch	S	0 %	
8507	Speed solar pump buffer	S	0 %	
8508	Speed solar pump swi pool	S	0 %	
8510	Collector temp 1	C	0 °C	
8511	Collector temp 1 max	C	-28 °C	
8512	Collector temp 1 min	C	350 °C	
8513	dt collector 1/DHW	C	0 °C	
8514	dt collector 1/buffer	C	0 °C	
8515	dt collector 1/swimming pool	C	0 °C	
8519	Solar flow temp	C	0 °C	
8520	Solar return temp	C	0 °C	
8526	24-hour yield solar energy	E	0 kW/h	
8527	Total yield solar energy	E	0 kW/h	

Line No.	Programming	Access	Default value	Customer setting
8530	Hours run solar yield	E	00:00:00 h	
8531	Hours run collect overtemp	E	00:00:00 h	
8532	Hours run collector pump	E	00:00:00 h	
8560	Solid fuel boiler temp	C	0 °C	
8570	Hours run solid fuel boiler	E	00:00:00 h	
	Diagnostics consumers			
8700	Outside temp	E	0 °C	
8701	Outside temp min	E	50 °C	
8702	Outside temp max	E	-50 °C	
8703	Outside temp attenuated	C	0 °C	
8704	Outside temp composite	E	0 °C	
8730	Heating circuit pump 1	E	Off	
8731	Heat circ mix valv 1 open	E	Off	
8732	Heat circ mix valv 1 close	E	Off	
8735	Speed heating circuit pump 1	S	0 %	
8740 / 41	Room temp / setpoint 1	C	20 °C / 20 °C	
8743 / 44	Flow temp / setpoint 1	E	60 °C / 60 °C	
8749	Room thermostat 1	C	No demand	
8760	Heating circuit pump 2	E	Off	
8761	Heat circ mix valv 2 open	E	Off	
8762	Heat circ mix valv 2 close	E	Off	
8765	Speed heating circuit pump 2	S	0 %	
8770 / 71	Room temp / setpoint 2	C	20 °C / 20 °C	
8773 / 74	Flow temp / setpoint 2	E	60 °C / 60 °C	
8779	Room thermostat 2	C	No demand	
8790	Heating circuit pump 3	E	Off	
8791	HC mixing valve 3 open	E	Off	
8792	HC mixing valve 3 closed	E	Off	
8795	Speed heating circuit pump 3	S	0 %	
8800 / 01	Room temp / setpoint 3	C	20 °C / 20 °C	
8803 / 04	Flow temp / setpoint 3	E	60 °C / 60 °C	
8809	Room thermostat 3	C	No demand	
8820	DHW pump	C	Off	
8825	Speed DHW pump	S	0 %	
8826	Speed DHW interm circ pump	S	0 %	
8827	Speed inst DHW heater pump	S	0 %	
8830 / 31	DHW temp / setpoint 1	C	0 °C / 55 °C	
8832 / 35	DHW temp / setpoint 2	C	0 °C / 0 °C	
8836	DHW charging temp	C	0 °C	
8852	DHW consumption temp	C	0 °C	
8853	Instant WH setpoint	C	0 °C	
8860	DHW flow	C	0 l/min	
8875	Flow temp setp VK1	C	5 °C	
8885	Flow temp setp VK2	C	5 °C	
8895	Flow temp setp swimming pool	C	5 °C	
8900 / 01	Swimming pool temp / setpoint	C	0 °C / 24 °C	
8930 / 31	Primary controller temp / set	C	0 °C / 0° C	
8950 / 51	Common flow temp / setp	C	0 °C / 0° C	
8952	Common return temp	C	0 °C	

Line No.	Programming	Access	Default value	Customer setting
8962	Common output setpoint	C	0 %	
8980	Buffer temp 1	C	0 °C	
8981	Buffer setpoint	C	0 °C	
8982	Buffer temp 2	C	0 °C	
8983	Buffer temp 3	C	0 °C	
9005	Water pressure H1	C	0 bar	
9006	Water pressure H2	C	0 bar	
9009	Water pressure H3	C	0 bar	
9031	Relay output QX1	C	Off	
9032	Relay output QX2	C	Off	
9033	Relay output QX3	C	Off	
9034	Relay output QX4	C	Off	
9050	Relay output QX21 module 1	C	Off	
9051	Relay output QX22 module 1	C	Off	
9052	Relay output QX23 module 1	C	Off	
9053	Relay output QX21 module 2	C	Off	
9054	Relay output QX22 module 2	C	Off	
9055	Relay output QX23 module 2	C	Off	
9056	Relay output QX21 module 3	C	Off	
9057	Relay output QX22 module 3	C	Off	
9058	Relay output QX23 module 3	C	Off	
	Burner control			
9504	Required speed prepurging	S	40 kW : 4750 50 / 60 kW : 4550 80 kW : 4000 100 kW : 4000	
9512	Required speed ignition	S	40 kW : 3950 50 / 60 kW : 4550 80 kW : 2300 100 kW : 2350	
9524	Required speed LF	S	40 kW : 1600 50 / 60 kW : 1860 80 kW : 1500 100 kW : 1750	
9529	Required speed HF	S	40 kW : 6700 50 kW : 6910 60 kW : 7800 80 kW : 6400 100 kW : 7550	
9650	Chimney drying	S	Off	
9651	Req speed chimney drying	S	200 tr/min	
9652	Duration chimney drying	S	10 min	

12. ANNEX A

Data on products ≤ 70 kW

Product reference					
Trade mark			YGNIS		
Models			40	50	60
Code			041620	041812	041621
Nominal power	**Prated**	*kW*	40	50	61
Seasonal energy efficiency class	**Class**		A	A	A
Seasonal energy efficiency	**η_S (PCS)**	*%*	94	93	93
Useful heat production					
At nominal power and in 80°C / 60°C regime	**P_4**	*kW*	40,3	51,3	60,5
	η_4 (PCS)	*%*	87,2	87,7	87,7
At 30% nominal power and in 30°C return temperature regime	**P_1**	*kW*	13,8	17,1	20,3
	η_1 (PCS)	*%*	99,5	98,3	98,3
Auxiliary electricity consumption					
Under full load	**elmax**	*kW*	0,12	0,14	0,16
Under partial load	**elmin**	*kW*	0,035	0,056	0,041
In standby mode	**P_{SB}**	*kW*	0,005	0,004	0,010
Other properties					
Heat loss	**Pstby**	*kW*	0,095	0,095	0,095
Nitrogen oxide emissions	**Nox (PCS)**	*mg/kWh*	41	50	50
Annual energy consumption	**QHE**	*kWh*	1	2	2
Acoustic power	**L_{WA}**	*dB*	65	65	65

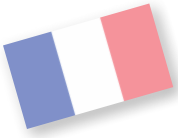
Data on products ≤ 400 kW

Product reference				
Trade mark			YGNIS	
Models			80	100
Nominal power	**Prated**	*kW*	80	97
Useful heat production				
At nominal power and in 80°C / 60°C regime	**P_4**	*kW*	80,1	98,3
	η_4 (PCS)	*%*	87,1	88,5
At 30% nominal power and in 30°C return temperature regime	**P_1**	*kW*	26,8	33,1
	η_1 (PCS)	*%*	97,2	99,4
Auxiliary electricity consumption				
Under full load	**elmax**	*kW*	0,210	0,280
Under partial load	**elmin**	*kW*	0,108	0,116
In standby mode	**P_{SB}**	*kW*	0,010	0,015
Other properties				
Heat loss	**Pstby**	*kW*	0,163	0,163
Nitrogen oxide emissions	**Nox (PCS)**	*mg/kWh*	50	36

GROUPE ATLANTIC

Date of Commissioning:

Contact information for your heater installer or after-sale service.



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