INSTALLATION, COMMISSIONING AND SERVICING INSTRUCTIONS

VARMAX MK2
Condensing gas boiler with modulating burner for natural gas from 180 to 600 kW and propane gas from 180 to 320 kW

IMPORTANT NOTE
THESE INSTRUCTIONS MUST BE READ AND UNDERSTOOD BEFORE INSTALLING, COMMISSIONING, OPERATING OR SERVICING EQUIPMENT

12/2024

Hamworthy

Customer After Sales Services

Telephone: 01202 662555

E-mail: service@hamworthy-heating.com

Fax: 01202 662522

Technical Enquiries

To supplement the detailed technical brochures, technical advice on the application and use of products in the Hamworthy Heating range is available from our technical team and our accredited agents.

Site Assembly

Hamworthy offer a service of site assembly for many of our products where plant room access is restricted. Using our trained staff we offer a higher quality of build and assurance of a boiler built and tested by the manufacturer.

Commissioning

Commissioning of equipment by our own engineers. accredited agents or specialist sub-contractors will ensure the equipment is operating safely and efficiently.

Service Contracts

Regular routine servicing of equipment by Hamworthy service engineers inspects the safety and integrity of the plant, reducing the risk of failure and improving performance and efficiency. Service contracts enable you to plan and budget more efficiently.

Breakdown service, repair, replacement

Hamworthy provide a rapid response breakdown, repair or replacement service through head office at Poole and accredited agents throughout the UK.

Spare Parts

We offer a comprehensive range of spare parts, providing replacement parts for both current and discontinued products. Delivery options are available to suit you. Please refer to our website for more details

VARMAX MK2

- **Condensing, Fully Modulating, Pre-Mix, Gas Fired, Modular Boilers for Heating and Domestic Hot Water Installations**
- **Natural Gas I2H**
- **LPG Propane I3P**
- **The wessex modumax boiler is intended for use as a commercial appliance.**
- **This boiler is for use on Group H natural gas (2nd family) I2H and LPG propane (3rd family) I3P. Please ensure the relevant information within this document for each specific gas requirement is adhered to prior to firing the boiler.**
- **Country of destination : United Kingdom & Republic of Ireland.**
- **This boiler complies with all relevant European Directives.**
- **Product Identification No. 86CP58**

LITERATURE SYMBOLS

⚠ **WARNING: Risk of injury or death.**

⚠ **CAUTION: Risk of damage to objects.**

ⓘ **IMPORTANT: Notes to make you aware.**

CONTENTS

1. WARNINGS AND RECOMMENDATIONS 5
1.1. Transport and storage 5
1.2. Symbols used in this document 5
1.3. Qualification of personnel for installation, adjustment, operation and maintenance 5
1.4. Safety instructions 6
1.5. Water characteristics 6

2. APPROVALS 10
2.1. Compliance with European Directives 10
2.2. Regulatory conditions for installation in other countries 11
2.3. Gas category 11
2.4. Gas supply pressures 12

3. TECHNICAL SPECIFICATIONS 14
3.1. Dimensions 14
3.2. Dimensions with dismantling 16
3.3. Reduced access (depending on model) 17
3.4. Combustion at 15°C and 1013 mbar 18
3.5. Terms and conditions of use 20
3.6. Electrical connection 20

4. INSTALLATION 21
4.1. Handling and moving the boiler 21
4.2. Fitting the air filter and filter mat 21
4.3. Installing the boiler 22
4.4. Opening / closing trim doors 23
4.5. Removing/reassembling trim doors 24
4.6. Removing/reassembling side panels 25
4.7. Removing/reassembling top panels 25
4.8. Step and doorstop 26
4.9. Change of gas 28
4.10. Flue gas connection 32
4.11. Hydraulic connection 42
4.12. Gas connection 46
4.13. Electrical connection 47

5. COMMISSIONING 52
5.1. Unclogging the boiler 52
5.2. Pre-commissioning checks 52
5.3. Commissioning 53

6. CHECKS AFTER COMMISSIONING 54
6.1. Condensate drainage 54
6.2. Gas supply 54
6.3. Full power cuts 54

7. MAINTENANCE OPERATIONS 55
7.2. Boiler environment check 56

7.3. Replacing the air filter mat 56
7.1. Boiler emptying 56
7.4. Checking the ignition and ionisation electrodes 57
7.5. Siphon cleaning 58
7.6. Checking the tightness of the combustion circuit 58
7.7. Combustion quality check 59
7.8. Gas valve setting 60
7.9. Cleaning the gas filter 64
7.10. Cleaning exchangers and changing seals 65
7.11. Cleaning the burner and changing the seals 67

8. END OF PRODUCT LIFE 70
8.1. Other countries 70

9. HYDRAULIC DIAGRAMS AND SETTINGS 72
9.1. Selection chart 72
9.2. Symbols used in the diagrams 74
9.3. List of diagrams 74
9.4. Specific settings when connected to 0-10V outputs (Ux) 136

10. ELECTRICAL VALIDATION 141
10.1. ..... Visit
VARMAX MK2 141

11. OPTIMISING MAINTENANCE 142

12. SPARE PARTS LIST 144

13. TABLE OF CUSTOMER CONTROL PARAMETERS 157

14. APPENDIX A 172

1. WARNINGS AND RECOMMENDATIONS

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



INFORMATION: **VARMAX MK2 are supplied either in the 2/3- tappingsversion, or in the 4- tappings version. It is not possible to convert a 2/3- tapping version into a 4- tapping version, and vice versa.**

1.1. Transport and storage

The boiler :

- must be stored vertically in a place where the temperature is between -20°C and +55°C, and where the relative humidity is between 5% and 95%.
- must not be stacked,
- must be protected from moisture.

1.2. Symbols used in this document



INFORMATION : This symbol highlights remarks.



PLEASE NOTE: Failure to comply with these instructions may result in damage to the installation or other objects.



DANGER : Failure to follow these instructions may result in serious personal injury and material damage.



DANGER : Failure to follow these instructions may result in electrocution.

1.3. Qualification of personnel for installation, adjustment, operation and maintenance

All work relating to the installation, adjustment and maintenance of the boiler must be carried out by a qualified and authorised professional in accordance with the local and national regulations in force. These operations may require work to be carried out when the power supply is switched on and the casing doors (located on the front of the boiler) are open.
Basic operations must be carried out with the trim doors closed.

1.4. Safety instructions

• Always switch off the boiler and shut off the mains supply.
before any work is carried out on the boiler.

• After any work on the boiler (maintenance or repairs), check that there are no gas leaks in the system.



DANGER :

If you smell gas :
- **Do not use naked flames, do not smoke, do not operate machinery or equipment.**
  contacts or electrical switches.
- **Turn off the gas supply.**
- **Ventilate the room.**



DANGER :

In the event of fumes :
- **Switch off the boiler.**
- **Ventilate the room.**
- **Find the leak and fix it.**



DANGER :

The earth continuity of this boiler is ensured by connecting cables (green/yellow) and specific fixing screws. During any dismantling operations, be sure to reconnect the cables concerned and MUST reuse the original fixing screws.

1.5. Water characteristics

The following rules apply from the moment the boiler is commissioned and remain valid until the end of the product's life.



DANGER: **The use of glycol water is prohibited.**

1.5.1. Preparing the water circuit before commissioning the boiler

For any installation (new or renovation), the water mains must be thoroughly cleaned. The purpose of this pre-commissioning cleaning is to eliminate the germs and residues that cause deposits to form.
In particular, in a new installation, residues of grease, metal, etc., can be a source of contamination.
oxidised or micro deposits of copper require removal.
In the case of installations undergoing renovation, cleaning is intended to remove sludge and corrosion products formed during the previous period of operation.
There are two types of cleaning/unclogging: a "quick fix" approach that can be carried out in a few hours, and a more gradual approach that can take several weeks. In the first case, it is essential to carry out the cleaning before connecting the new boiler,

in the second case, installing a filter on the boiler return pipe
will trap any loose deposits. Cleaning the system before it isput into service helps to improve its efficiency, reduce energy consumption and combat scaling and corrosion. This operation requires the intervention of a professional (water treatment).

1.5.2. Protection of the system against limescale build-up

Water naturally contains calcium and carbonate ions in dissolved form, which are responsible for the formation of limescale (calcium carbonate). To avoid excessive scale build-up, precautions should be taken with filling water: **TH < 10°f**

During the life of the boiler, water top-ups are required. These are the source of scale build-up in the system. The sum of filling water and make-up water over the lifetime of the system must not exceed three times the water capacity of the heating system. In addition, the hardness of the make-up water needs to be controlled. Make-up water: **TH < 5 °f**

A large quantity of untreated water systematically leads to a large quantity of limescale. To monitor this parameter and detect any anomalies, it is compulsory to install a circuit feed water meter.
If these instructions are not followed (the sum of the fill water and make-up water is greater than three times the water capacity of the heating system), a complete cleaning (descaling) is required.

Additional precautions must be taken with regard to operation:

- When a softener is installed in the system, the equipment must be checked frequently to ensure that it is not discharging chloride-rich water into the mains: the chloride concentration must always be less than 50 mg/litre.
- To avoid the build-up of limescale deposits (particularly on the heat exchange surfaces), the system should be commissioned gradually, starting with operation at minimum power and ensuring a high primary water flow rate.
- When mains water does not have the desired qualities (e.g. high hardness), treatment is required. This treatment must be applied to the filling water as well as to any subsequent filling or topping up.
- Installations with several boilers require the boilers to be switched on simultaneously at minimum output. This prevents the limescale in the water from depositing on the heat exchange surfaces of the first boiler.
- When work is being carried out on the system, it should not be completely emptied.
  only the required sections of the circuit need to be drained.

The aim of all the rules listed above is to minimise scale deposits on the heat exchange surfaces and consequently to increase the life of the boilers. To optimise the operation of the equipment, limescale deposits can be removed. This operation must be carried out by a

specialist company. In addition, before recommissioning, the heating circuit must be checked for any damage (e.g. leaks). If excessive scale deposits are found, it is essential to adjust the system's operating parameters, particularly the water treatment parameters.

1.5.3. Protection of steel and stainless steel boilers against corrosion

The corrosion that can affect iron materials used in boilers and heating installations is directly linked to the presence of oxygen in the heating water. The dissolved oxygen that enters the system when it is first filled reacts with the materials in the system and disappears rapidly. If no oxygen is replenished by adding large quantities of water, the system will not be damaged. However, it is important to comply with the rules for sizing and operating the system to prevent any continuous penetration of oxygen into the heating water. These rules include

- A diaphragm expansion vessel is preferable to an expansion vessel. open to direct passage.
- Ensure that the pressure in the system exceeds 1 bar when cold.
- Eliminate non-gas-tight (permeable) components in the in favour of watertight equipment.

If the above points are complied with, the water in the circuit has the characteristics necessary for the long-term operation of the installation: 8.2 < pH < 9.5 and dissolved oxygen concentration < 0.1 mg/litre.

Where there is a risk of oxygen ingress, additional protective measures must be taken. We strongly recommend adding an oxygen reducer (e.g. sodium sulphite). We advise you to contact companies specialising in water treatment, who will be able to offer :

- the appropriate treatment according to the characteristics of the installation,
- a monitoring contract with guaranteed results.

In the case of installations where the water is in contact with heterogeneous materials, for example, where copper or aluminium is present, appropriate treatment is recommended to ensure the long-term survival of the installation. In most cases, this treatment involves adding corrosion inhibitors in the form of chemical solutions to the system. It is advisable to consult water treatment specialists.

1.5.4. Installation follow-up

If the commissioning recommendations set out below are followed above (new installation or renovation), monitoring of the installation is limited to :

- check make-up quantities (volume of filling water + volume of make-up water < 3 times the volume of the system).
- check the pH (stable or rising slightly).
- verification of TH (stable or slightly down).

We recommend monitoring these parameters 2 or 3 times a year. It should be noted that monitoring the "quantity of make-up water" parameter is vital for the long-term future of the installation.
If any of these three parameters are found to be out of whack, you need to contact a water treatment specialist to take steps to bring the system back into compliance.

1.5.5. Installation of plate heat exchangers

Where the above recommendations cannot be met, a plate heat exchanger separating the primary circuit from the secondary circuit can be installed to protect the boiler against undesirable phenomena.

1.5.6. Installation of a filtration system and a sludge pot

A filtration system on the back of the boiler is recommended in order to remove any suspended particles from the unit

2. APPROVALS

2.1. Compliance with European Directives

- Low voltage (2014/35/EU)

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or by persons lacking experience or knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

- Electromagnetic compatibility (2014/30/EU)

- Gas appliance regulation (RAG): 2016/426 (EU)

- Efficiency (92/42/EEC)

- Eco-design (2009/125/EC) :

In accordance with the Directive and the requirements of Regulation (EU) No 813/2013 of 02 August 2013, the technical parameters for condensing boilers with an output of 400 kW or less are available in Annex A.

- DEEE (2012/19/UE):

Waste Electrical and Electronic Equipment. See chapter 8.

2.2. Regulatory conditions for installation

The appliance must be installed and serviced by a qualified professional in accordance with the regulations and good practice in force in the country of installation.

2.3. Gas category

This boiler has been factory-set to operate on **Group H natural gas (type G20) with a supply pressure of 20 mbar depending on the model**.
See paragraph 4.10. to change the gas, and call in a qualified professional.



INFORMATION: **Any tampering with a sealed component will invalidate the warranty.**

2.4. Gas supply pressures

INFORMATION: The pressures given below are to be taken at the gas valve inlet.

	Natural gas H G20 20 mbar	**Propane gas G31**
Nominal pressure (mbar)	20	37
Minimum pressure (mbar)	17	25
Maximum pressure (mbar)	25	45



3. TECHNICAL SPECIFICATIONS

3.1. Dimensions

INFORMATION: **The images below show boilers with flue nozzles and hydraulic connections (flow/return) that cannot be removed.**

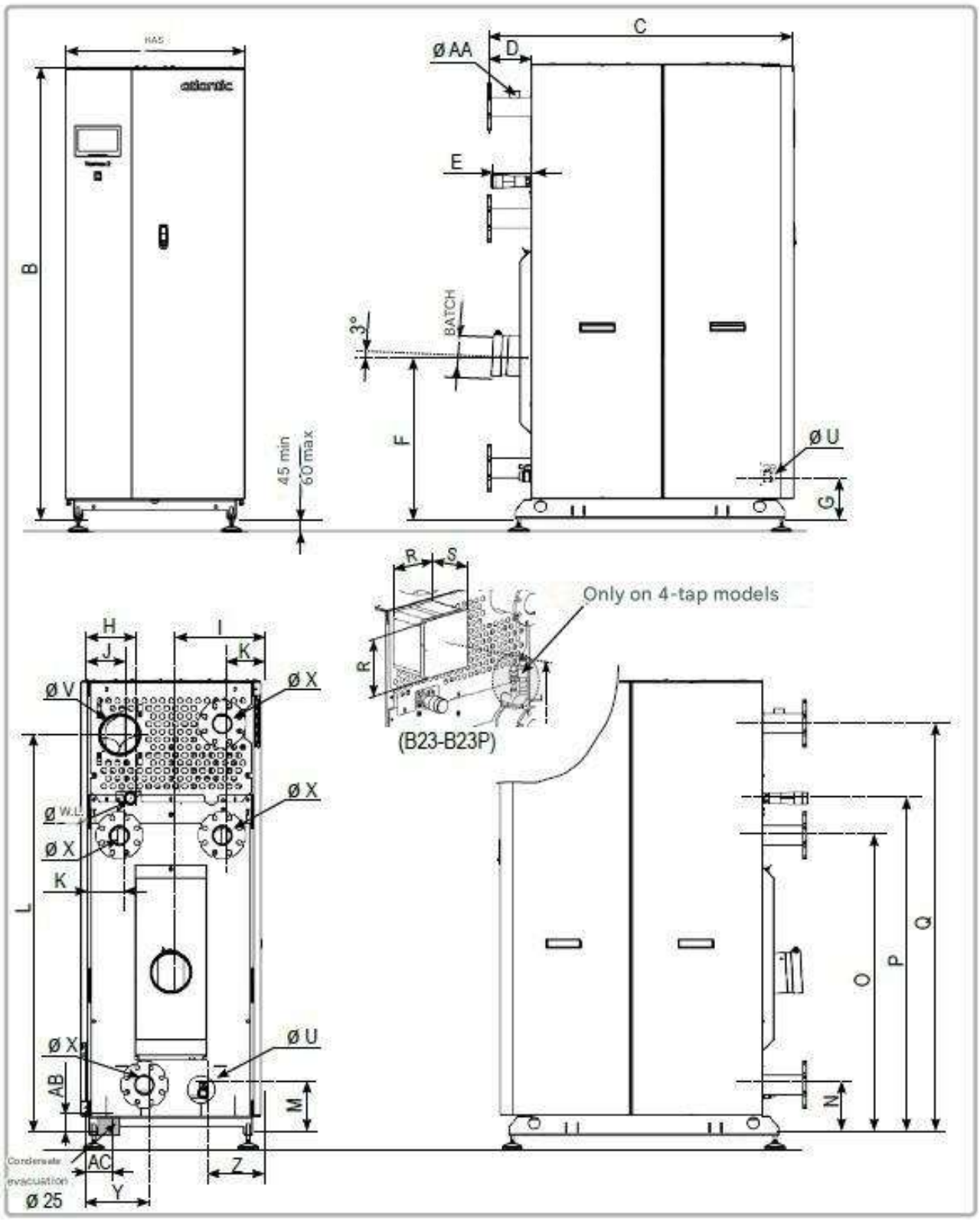
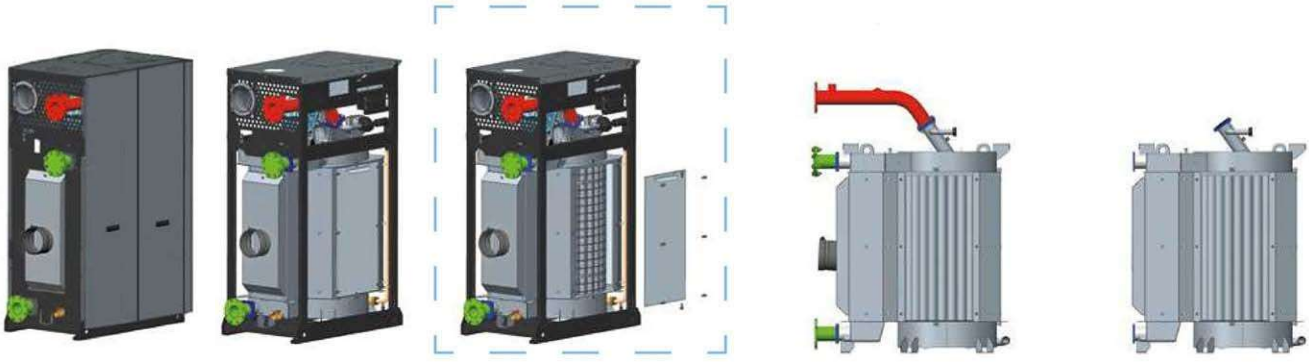


figure 1 - Dimensional characteristics

			MODELS								
			180	225	275	320	390	450	499	525	600
A		**(mm)**	706		800		900		1153		
B		**(mm)**	1780		1877		2023		2016		
C		**(mm)**	1194		1320		1369		1588		
D		**(mm)**	169		171		168		208		
E		**(mm)**	150		89		92		92		
F		**(mm)**	630		680		750		750		
G		**(mm)**	138,5		138,5		138,5		138,5		
H		**(mm)**	192		241		274,5		390,5		
I		**(mm)**	350,5		399,5		449,5		577,5		
J		**(mm)**	150,5		200		209,5		325,5		
K		**(mm)**	150,5		179		192		232		
L		**(mm)**	1564		1672		1874		1851,5		
M		**(mm)**	165		165		165		165		
N		**(mm)**	197,5		196,5		206,5		196,5		
O		**(mm)**	1171		1265		1402		1402		
P		**(mm)**	1315		1413		1577,5		1555		
Q		**(mm)**	1606		1661		1933		1778		
R		**(mm)**	212		244		244		244		
S		**(mm)**	163		163		183		183		
Ø T(*) : Flue outlet		**(mm)**	150		180		200		200		
Ø U : Drain connection (Male)			G 1 "		G 1 "		G 1 "		G 1 "		
Ø V(*) : Air inlet		**(mm)**	150		180		180		180		
Ø W : Gas connection (Male)	**G20 / G25**	**20/25 mbar**	R 1 " 1/2		R 2 "		R 2 "		R 2 "		
		300 mbar	R 1 " 1/4		R 1 " 1/4		R 1 " 1/4		R 1 " 1/4		
	G31	**37 mbar**	R 1 " 1/2		R 2 "						
Ø X : Flow/return connection			Flange PN16 DN 65		Flange PN16 DN 80		Flange PN16 DN 80		Flange PN16 DN 100		
Y		**(mm)**	246		276		289,5		328,5		
Z		**(mm)**	224,5		270,5		283,5		323,5		
Ø AA : Valve connection (Female)			G 1 "		G 1 " 1/4		G 1 " 1/4		G 1 " 1/4		
AB		**(mm)**	≈ 130		≈ 130		≈ 130		≈ 136		
AC		**(mm)**	≈ 110		≈ 110		≈ 120		≈ 196		

(*) The diameter indicated is the inside diameter (only for Ø T and Ø V dimensions).

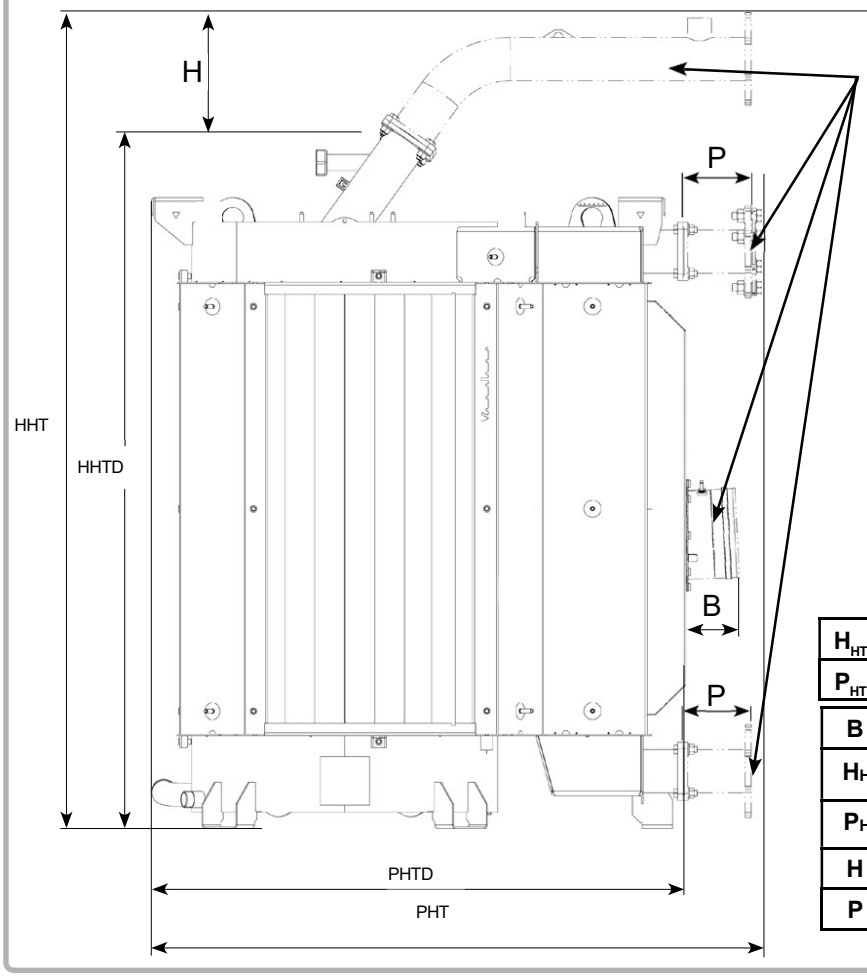
3.2. Dimensions with dismantling



HEIGHT x WIDTH x DEPTH (mm)	MODELS in kW								
	180	225	275	320	390	450	499	525	600
1 - Product installed (feet adjusted to max. 60 mm)	1780 x 706 x 1194		1877 x 800 x 1320		2023 x 900 x 1369		2016 x 1153 x 1588		
2 - Product without cover (without adjustable feet)	1780 x 696 x 1180		1877 x 737 x 1295		2023 x 787 x 1348		2016 x 1149 x 1565		
3 - Product without trim (additional elements removed)	Not possible		1877 x 692 x 1295		Not possible		2016 x 1033 x 1565		
4 - Product disassembled right down to the heating element	1620 x 583 x 1114		1677 x 690 x 1237		1944 x 742 x 1290		1804 x 985 x 1510		
5 - Product disassembled down to the heating element (with flue taps and nozzles removed)	Not possible		1461 x 690 x 1085		1587 x 742 x 1137		1716 x 985 x 1355		

3.3. Reduced access (depending on model)

Once the product has been unpacked, the return connections can be dismantled.
(models 275 to 600) and the smoke nozzle (all models).
Once the heater has been removed, it can be dismantled as follows also the outlet (models 275 to 600).



	180	225
H_{HT} (mm)	1620	
P_{HT} (mm)	1114	

B (mm)	107
H_{HTD} (mm)	--
P_{HTD} (mm)	--
H (mm)	--
P (mm)	--

	275	320	390	450	525	600
H_{HT} (mm)	1677		1944		1804	
P_{HT} (mm)	1237		1290		1510	

B (mm)	107	108	108
H_{HTD} (mm)	1461	1587	1716
P_{HTD} (mm)	1085	1137	1355
H (mm)	216	357	88
P (mm)	152	153	155

When reassembling, don't forget to check that the seals are correctly positioned.

The tightening torques are : Gas

IMPORTANT:

nozzle = 12 Nm

Flow or return connections = 41 Nm

Check for leaks :

Water (flow and return connections) Gas and condensate (nozzle)

3.4. Combustion at 15°C and 1013 mbar

3.4.1. Natural gas G20

			MODELS							
			180	**225**	**275**	**320**	**390**	**450**	**525**	**600**
Rated power (P4) (80/60°C)	kW	G20	175,9	219,8	269,5	313,6	382,3	441,9	515,6	589,2
Rated power in P condensation (50/30°C)	kW	G20	191	238	290	338	415	478	558	637
Nominal heat output Qn	kW	G20	180	225	275	320	390	450	525	600
Minimum heat output Qmin	kW	G20	43	43	66	66	87	87	120	120
Gas flow at Pn (15 °C)	m /h³	G20	19,1	23,8	29,1	33,9	41,3	47,6	55,6	63,5
Range of CO_2	%		at Qmin: 8.3% < CO_2 < 8.7%			at Qmax: 8.8% < CO_2 < 9.2%.				
Range of O_2	%	G20	at Qmin: 5.4% < O_2 < 6.1%			at Qmax: 4.5% < O_2 < 5.2%.				
			at Qmin: 5.1% < O_2 < 5.8%			at Qmax: 4.2% < O_2 < 4.9%.				
Flue gas mass flow rate (80/60°C)*	g/s	Q_n	80,4	99,5	113,9	133,2	169,0	200,7	232,1	262,4
		Qall	--	--	46,0	46,0	64,2	64,2	--	--
		Qmin	20,8	21,1	26,9	29,1	39,2	35,6	55,5	55,8
Mass flow of flue gas (50/30°C)*	g/s	Q_n	75,9	93,0	108,7	126,3	159,6	191,0	228,1	255,6
		Qall	--	--	42,9	42,9	61,1	61,1	--	--
		Qmin	19,5	19,5	27,1	27,1	36,7	33,4	55,8	55,5
Flue gas temperature (80/60°C)*	°C	Q_n	61,0	62,3	61,7	63,4	62,5	64,8	64,4	66,6
		Qall	--	--	58,7	58,7	58,5	58,5	--	--
		Qmin	56,6	57,7	58,3	57,2	57,4	57,1	57,8	57,5
Flue gas temperature (50/30°C)*	°C	Q_n	33,7	36,9	36,3	36,2	36,7	41,7	48,0	47,8
		Qall	--	--	30,8	30,8	30,5	30,5	--	--
		Qmin	30,0	30,2	29,8	28,3	30,0	30,2	33,1	29,6
Furnace pressure at Qcal nominal (B23)	Pa		103	147	132	162	152	203	168,4	225,2
Inside diameter of outlet smoke	mm		150	150	180	180	200	200	200	200
Maximum pressure permissible at the nozzle (B23P) (80/60°C)	Pa	Q_n	115	165	122	176	180	193	160	200
		Qmin	40	40	40	40	40	40	40	40
Maximum pressure permissible at the nozzle (B23P) (50/30°C)	Pa	Q_n	92	128	97	145	155	173	183	164
		Qmin	40	40	40	40	40	40	40	40
Combustion air flow rate at Qn* (%) (15 °C)	m /h³		230,7	288,3	352,4	410,1	499,8	576,7	672,8	768,9
NOx class			6							
Classification of types according to smoke extraction and air supply			B23, B23P C13, C33, C53		B23, B23P C53					

* values corresponding to a G20 setting.

3.4.2. Propane gas G31 (for the models and destination countries concerned)

			MODELS			
			180	**225**	**275**	**320**
Rated power (P4) (80/60°C)		kW	175,9	219,8	269,5	313,6
Rated condensing power P (50/30°C)		kW	191	238	290	338
Nominal heat output Qn		kW	180	225	275	320
Minimum heat output Qmin		kW	63	63	90	90
Gas flow at Pn (15 °C)		m /h³	7,36	9,21	11,25	13,09
Range of CO_2		%	at Qmin: 9.8% < CO_2 < 10.2% at Qmax: 10.4% < CO_2 < 10.8 %			
O_2 Value Range		%	at Qmin: 5,9% < C_2 < 6,5% at Qmax: 5,0% < C_2 < 5,5 %			
Flue gas mass flow rate (80/60°C)	Q_n Q_{all} Qmin	g/s	80,0 -- 29,0	100,0 -- 29,0	122,0 49,7 42,0	142,0 49,7 42,0
Flue gas mass flow rate (50/30°C)	Q_n Q_{all} Qmin	g/s	80,0 -- 28,0	96,0 -- 28,0	117,0 47,6 39,0	136,0 47,6 40,0
Flue gas temperature (80/60°C)	Q_n Q_{all} Qmin	°C	60,3 -- 57,1	62,2 -- 57,6	63,0 58,8 58,0	65,4 58,8 58,4
Flue gas temperature (50/30°C)	Q_n Q_{all} Qmin	°C	37,1 -- 31,0	37,0 -- 29,4	40,0 30,8 29,0	41,4 30,8 30,5
Furnace pressure at nominal Qcal (B23)		Pa	102	140	123	165
Inside diameter of smoke outlet		mm	150	150	180	180
Maximum allowable pressure at nozzle (B23P) (80/60°C)	Q_n Q_{min}	Pa	103 40	136 40	118 40	157 40
Maximum allowable pressure at nozzle (B23P) (50/30°C)	Q_n Q_{min}	Pa	66 40	104 40	104 40	138 40
Combustion air flow rate at Qn* (15 °C)		m /h³	230,7	288,3	352,4	410,1
NOx class			6			
Classification of types according to evacuation flue gas and air supply			B23, B23P			

3.5. Terms and conditions of use

		MODELS							
		180	**225**	**275**	**320**	**390**	**450**	**525**	**600**
Max. flow setpoint temperature	°C	85							
Minimum flow setpoint temperature	°C	8							
Maximum flow temperature	°C	92							
Safety temperature	°C	110							
Maximum operating pressure	hPa (bar)	6000 (6)							
Minimum cold pressure	hPa (bar)	1000 (1)							
Hydraulic pressure drop at ΔT 20	daPa								
2 or 3 port version		570	810	1080	1210	770	970	860	1070
4-pipe version									
Main exchanger		440	660	1040	1199	660	840	720	930
Condenser		55	75	66	74	190	230	350	450
Nominal irrigation flow rate (P/20)	m /h^3	7,5	9,4	11,5	13,4	16,4	18,9	22,1	25,2
Maximum irrigation flow (P/10)	m /h^3	15,0	18,8	23,0	26,8	32,8	37,8	44,1	50,4
Water capacity	L	151	151	239	239	287	287	420	420
Weight without water	kg	393	393	502	502	592	592	800	800
Weighted sound power level Lw(A) at Pnom / G20 *	dB(A)	76		77		84	89	82	84
Installation room temperature (min / max)	**°C**	5 / 45							
Relative humidity installation area		between 5% and 95%.							
Maximum installation altitude	**m**	2000							

* Acoustic power is a laboratory measurement of the sound power emitted, but it is not the same as the power emitted by a loudspeaker.
the noise level, which does not correspond to the way it feels.

3.6. Electrical connection

		MODELS							
		180	**225**	**275**	**320**	**390**	**450**	**525**	**600**
Power supply	V	230 V AC (+10% -15%), 50Hz							
Electrical power input at Qn / G20 (excluding accessories) (elmax)	W	228	330	326	427	545	717	729	970
Electrical power input in standby mode (PSB)	W	6				7		8	
Maximum length of sensor cables	m	DHW sensor: 10 Outdoor sensor: 40 in 0.5 mm² (120 in 1.5 mm²) Room thermostat: 200 in 1.5 mm² (120 in 1.5 mm²) Room sensor: 200 in 1.5 mm².							
Power terminal output	V A	230V AC (+10%, -15%) 5 mA to 1A							

4. INSTALLATION

4.1. Handling and moving the boiler

DANGER : **The boiler MUST be slung using a spreader bar (not supplied) which can be applied to the entire range.**

The following information applies to 525 models only to 600 kW.

ATTENTION : **Before unpacking: the pallet truck is designed to be used on its side only.**
After unpacking: we recommend using 2 pallet trucks, one at the front and the other at the rear

4.2. Fitting the air filter and filter mat

PLEASE NOTE: **In the case of a B23 or B23P CHIMNEY connection, it is MANDATORY to fit the air filter supplied with the boiler.**

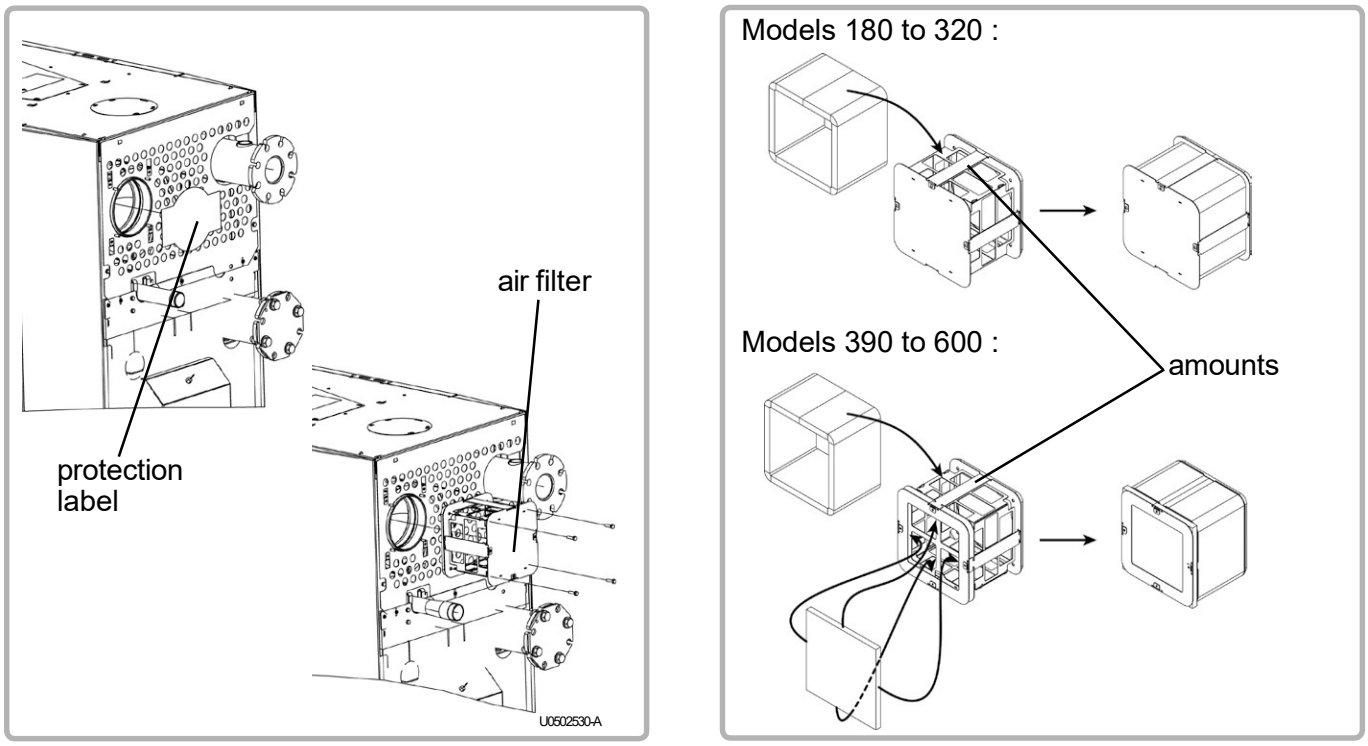


figure 2 - Air filter

- Remove the "air inlet" protective label.
- Fit the air filter and secure it to the boiler using the 4 screws supplied with the filter.

All models :

- Insert the rectangular filter mat between the filter protection grille and the uprights (see above).

Make sure that the connection between the 2 ends of the tablecloth is located under one of the uprights.

Models 390 to 600 :

- Insert the square filter mat on the rear grille of the filter.

4.3. Installing the boiler

VARMAX MK2 boilers must not be installed on surfaces where flammable (wood flooring, plastic flooring, etc.).

Recommended distances from walls and ceiling :

Sufficient clearances will be provided to allow work to be carried out in the following areas
on boilers.

The **minimum** values (in mm) are shown in figures 3 and 4 in the table. below.

MODELS	A	B	C	D	H
180	450		500		240
225	450		500		240
275	450		600	500	263
320	450		600	500	263
390	450		700	500	427
450	450		700	500	427
525	450		700	500	427
600	450		700	500	427

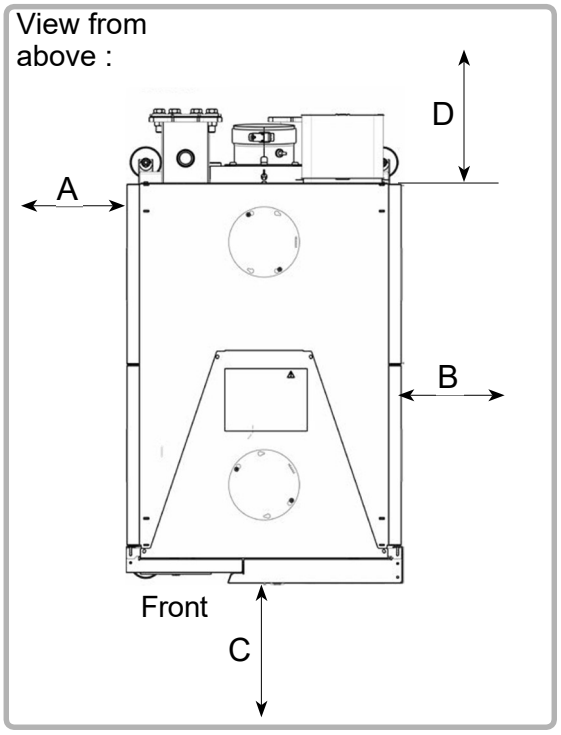


figure 3 - Peripheral clearances without height limitation

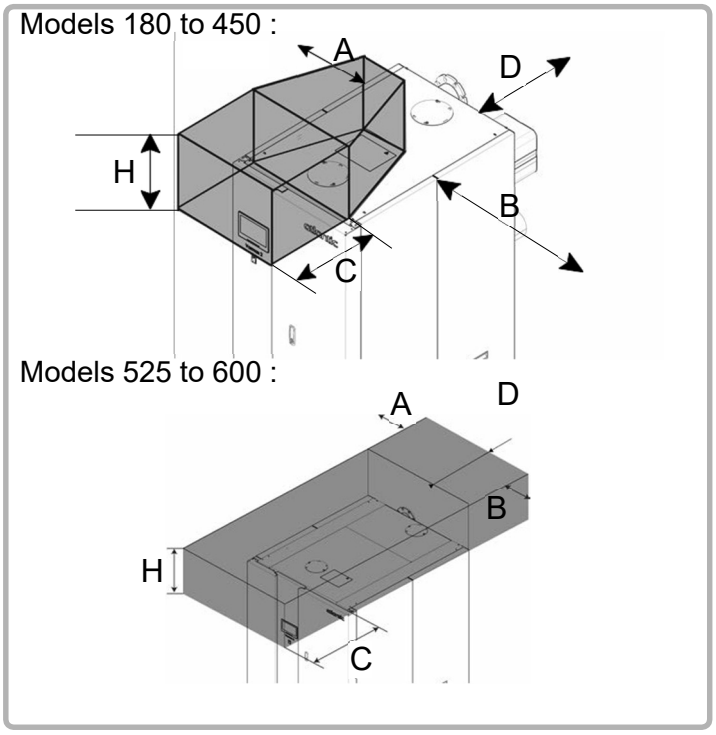


figure 4 - Specific clearances required for burner maintenance

Zone H above the boiler must remain free of any obstacles for burner inspections and removal of the burner bar for cleaning.

PLEASE **It is also important to leave a 2 cm clearance above the top. of the side panels, to enable them to be dismantled and reassembled.**

These values are not a substitute for specific regulatory requirements.

PLEASE NOTE: **The boiler must be positioned horizontally, using a spirit level to ensure that the heat exchanger body can be vented effectively (use the base as a reference surface).**

To adjust the plumb line, screw or unscrew the 4 adjustable feet, using a 17mm wrench.

4.4. Opening / closing trim doors

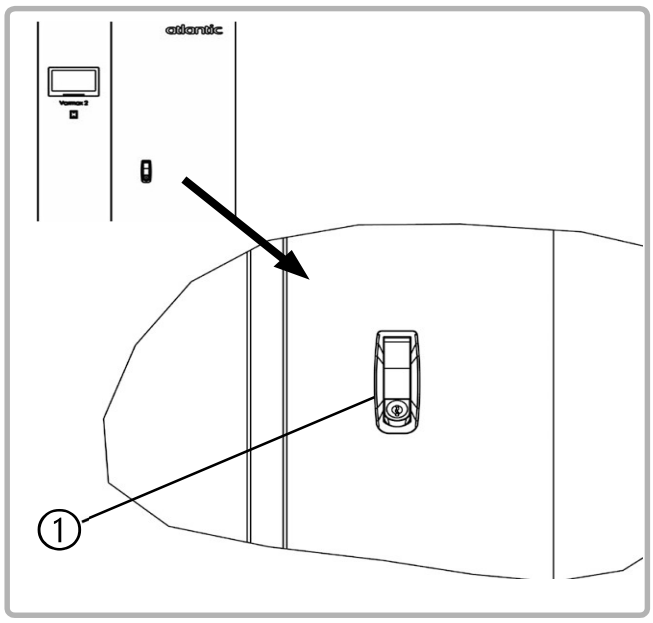


figure 5 - Opening trim doors

Opening :

Put the handle locking system into a horizontal position (1) then press it down**.**

The handle comes out of its housing, so you can open the right-hand door and then the left-hand door.

Closing :

Close the left-hand door and then the right-hand door. Press the lever on the handle.
Put the handle locking system into a vertical position (item 1)**.**

4.5. Removing/reassembling trim doors

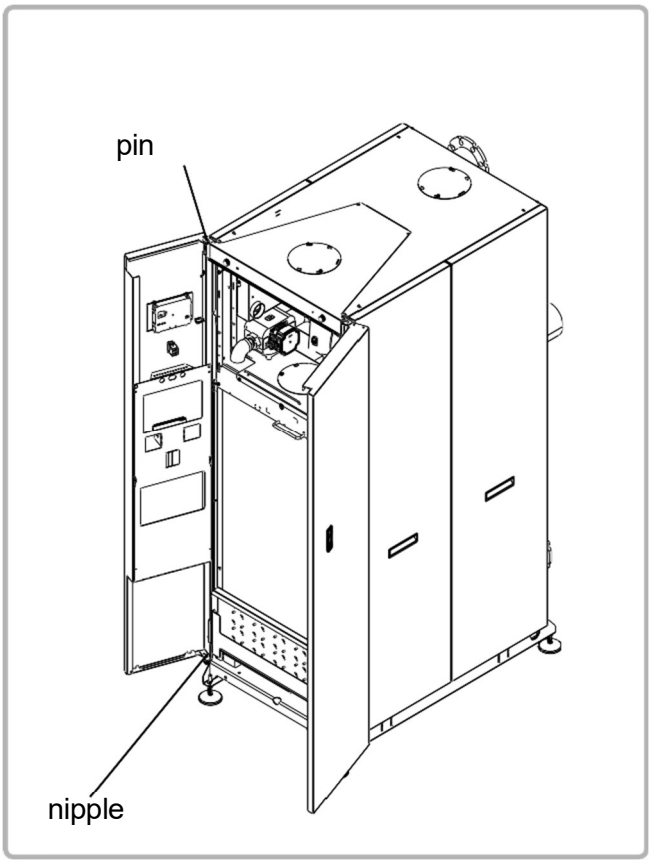


figure 6 - Removing trim doors

When ready, disconnect the HMI, the ON/OFF button and the earth wire.

With the doors open, remove the pin located at the top of the door to be removed.

Hold the door during this operation as once the pin has been removed, the door is no longer attached to the boiler.

When reassembling, first position the bottom of the door on the pin and then the top, ensuring that the pin is fully inserted in its seat.

4.6. Removing/reassembling the side panels

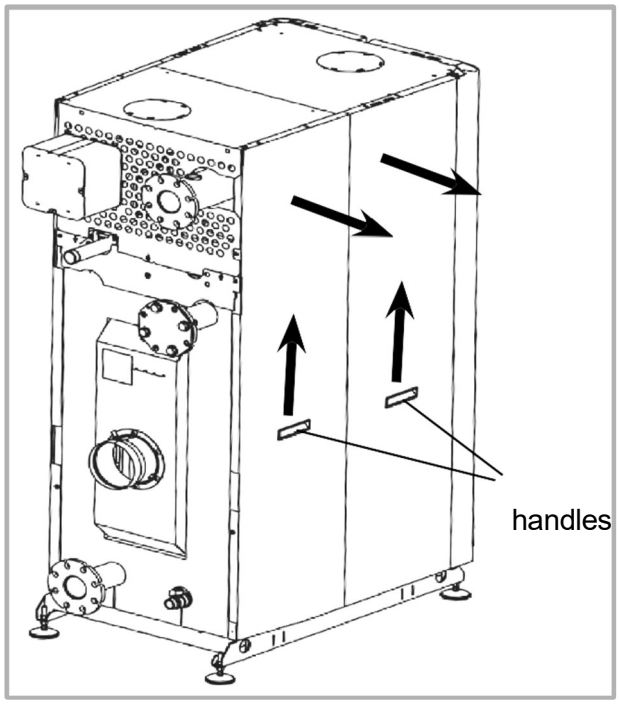


figure 7 - Removing side panels

Use the handles in the centre of the panels.

Lift the panels vertically, disconnect the earth wire and remove the panels.

To reassemble, proceed in reverse order.

4.7. Removing/reassembling the top panels

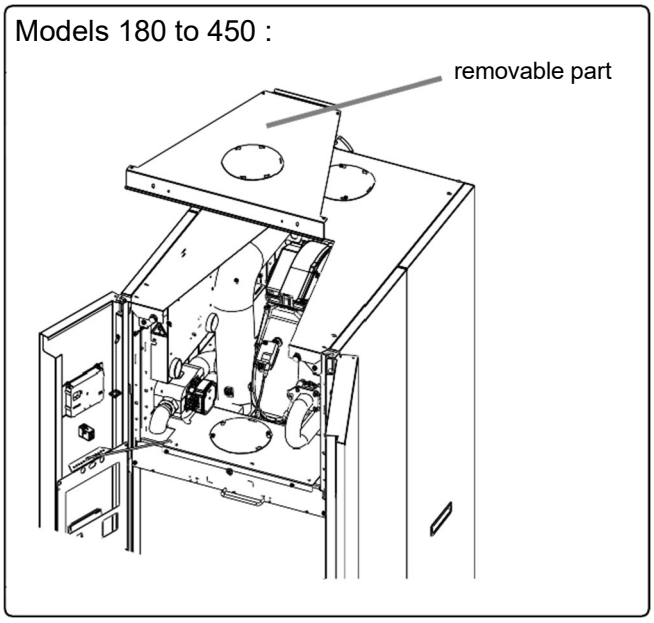


figure 8 - Removing the top panel

Open the trim doors.

Disconnect the top left ground wire.

Unscrew the 2 knobs on the top of the boiler.

Lift the panel slightly and remove it by the front.

To reassemble, proceed in reverse.

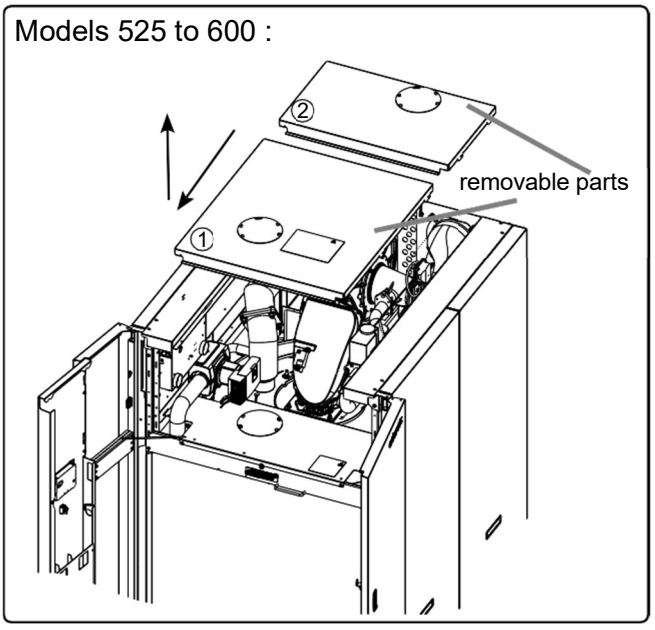


figure 9 - Removing the top panels

Open the trim doors.

Remove the earth wire from the front left of the panels (① and②)

Unscrew the knob at the top right, pull the first panel forward and lift it out. Repeat for the second panel.

To reassemble, proceed in reverse.

4.8. Step and door block

4.8.1. Step

PLEASE NOTE: **The step is a means of access to the burner. It cannot, therefore, be used as a working platform.**

Steps are fitted to boilers models 180 and above.

On models 180 to 320 :

- Open the doors.
- Unfold the running board.

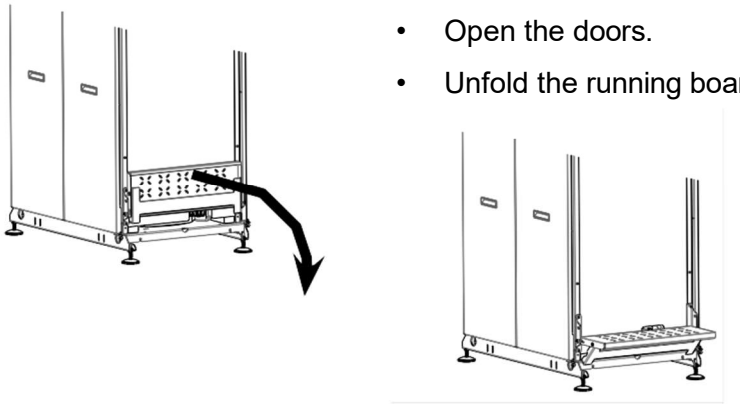


figure 10 - Fitting the step on models 180 to 320

On models 390 to 600 :

Open the doors.

Remove the locking element from the running board

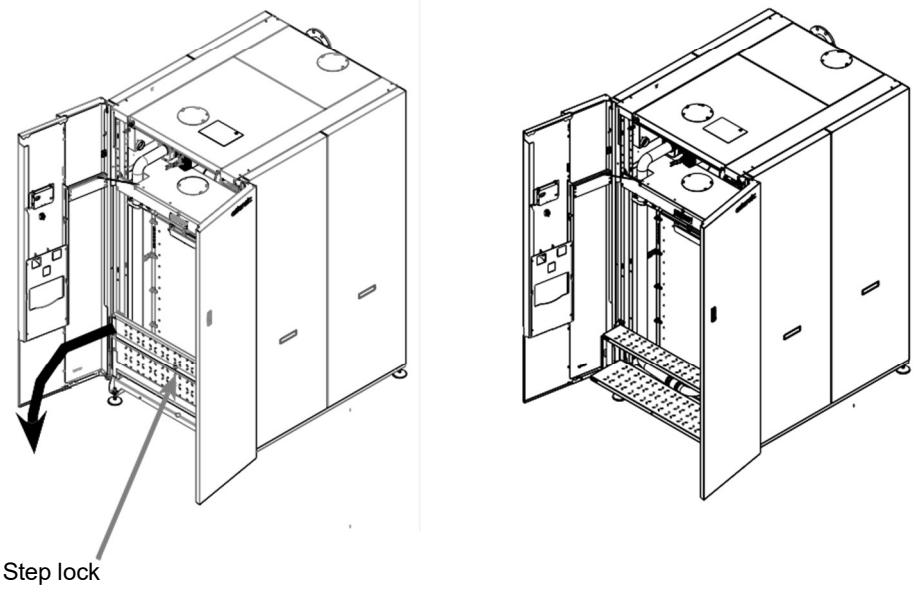
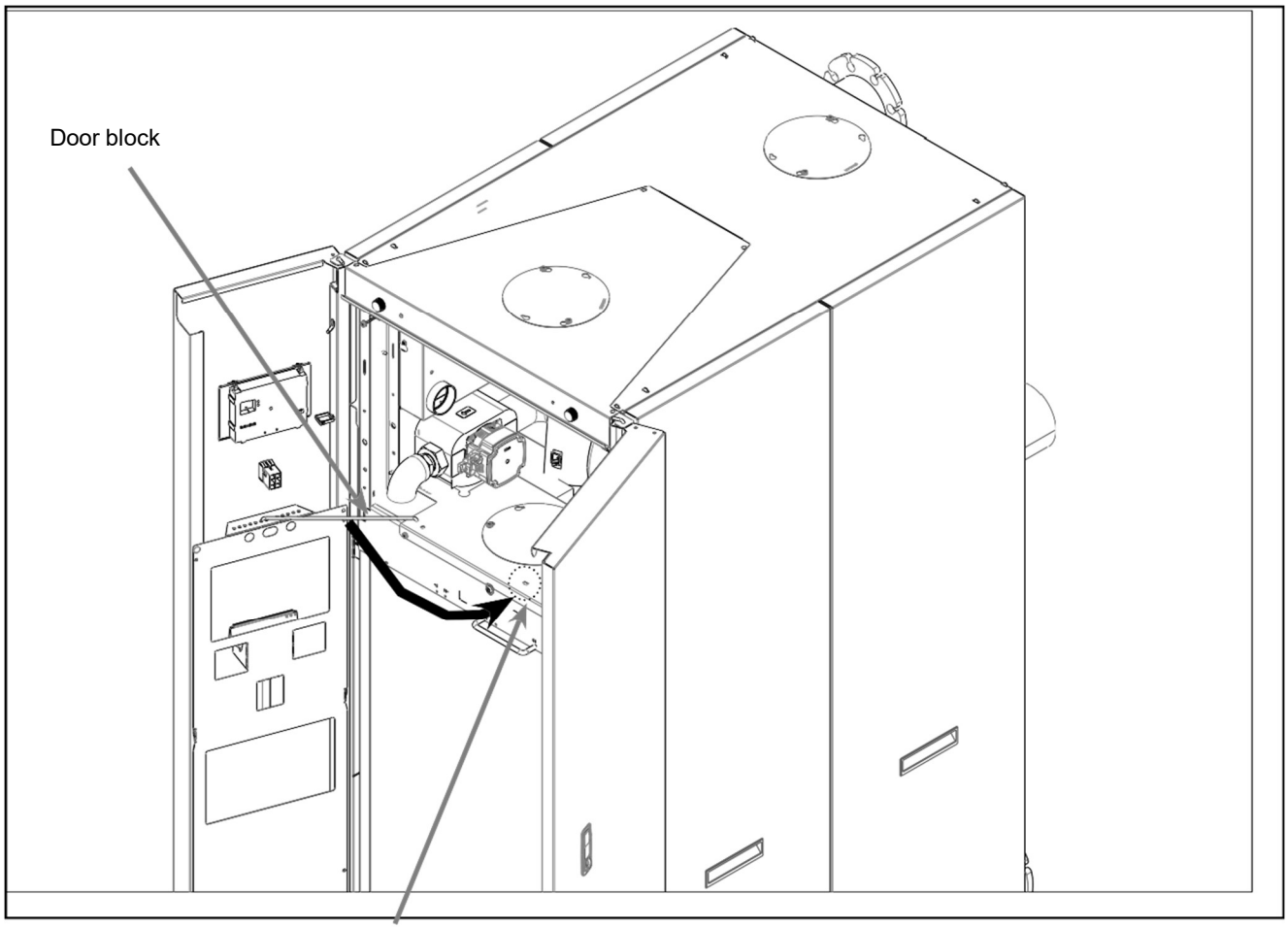


figure 11 - Fitting the step on models 390 to 600

4.8.2. Door block

	ATTENTION :	**The doorstop is a means of locking the door. As such, it cannot be used as a tool.**

A door-lock device blocks rotation of the left-hand door if necessary (HMI).



To store the doorstop:

- remove the end that is inserted in the holder left door document
- Rotate it and insert it into the hole provided.

4.9. Change of gas

4.9.1. Upgrade from G20 to G31

PLEASE **ONLY for the boilers concerned (see section 2.6, page 12) and connected in B23 and B23P.**

4.9.1.1. Change of ignition speed, pre-ventilation, minimum and maximum

Put the boiler on standby (see section 3.3.1 of the NAVISTEM B4000 boiler controller manual). If necessary, press the ESC button to return to the standard screen.
Go to ***the Settings / Security box*** menu.
Adjust the ignition speed (9512), minimum (9524) and maximum (9529) parameters:

Models	Gas	9512	9524	9529
180	G20	2390	1280	4410
	G31	2580	1640	4240
225	G20	2390	1280	5400
	G31	2580	1640	5060
275	G20		1360	4620
	G31		1700	4500
320	G20		1360	5450
	G31		1700	5300

4.9.1.2. On VARMAX 180 and 225

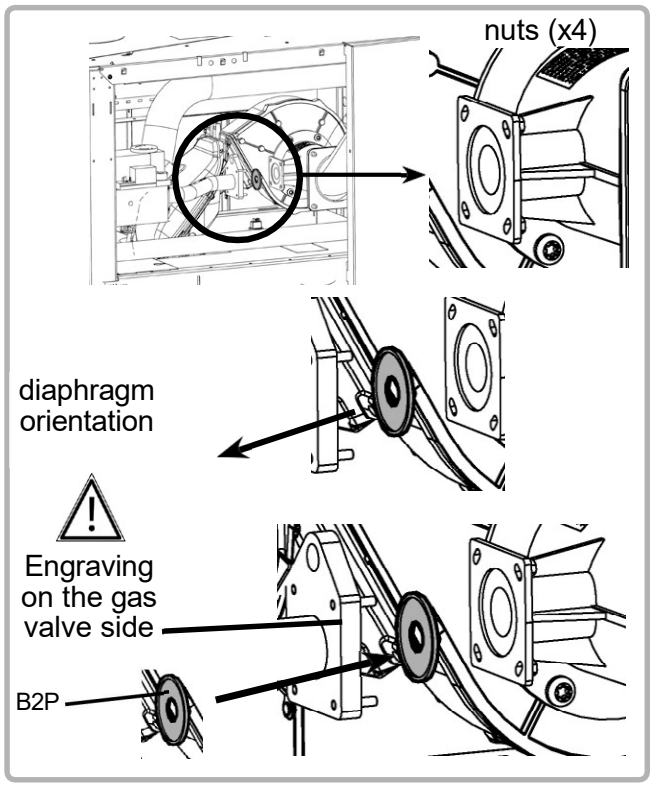


figure 13 - Diaphragm

The gas type is changed by the replacing the diaphragm on the gas line.

Unscrew the 4 nuts (see opposite) then remove the diaphragm (brass part).
Replace it with the one supplied with the boiler (engraved B2P).
Tighten the 4 nuts.

Check the CO setting$_2$ (see section 7.7.).

After changing gas type :
- **Check the gas line for leaks.**
- **Stick the label supplied in place of the original label (G20).**

Nota :
To facilitate the operation, it may be necessary to unscrew the fixing flange located at the gas line inlet (on the mains connection side).

4.9.1.3. On VARMAX 275 and 320

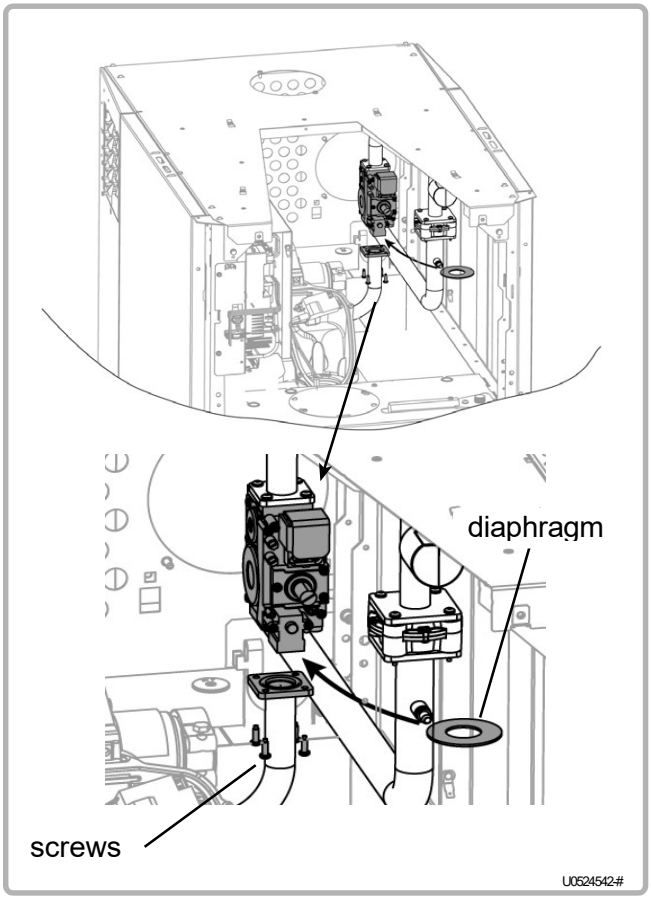


figure 14 -

The gas type is changed by fitting the diaphragm (brass part) supplied with the boiler (engraved B3P for models 275 and 320).

Unscrew the 4 nuts or screws depending on the model (see opposite).
Fit the diaphragm supplied. Tighten the 4 nuts or screws.

Check the CO setting$_2$ (see section 7.7.).

After changing gas type :
- **Check the gas line for leaks.**
- **Stick the label supplied in place of the original label (G20).**

Nota :
To facilitate the operation, it may be necessary to unscrew the fixing flange located at the gas line inlet (on the mains connection side).

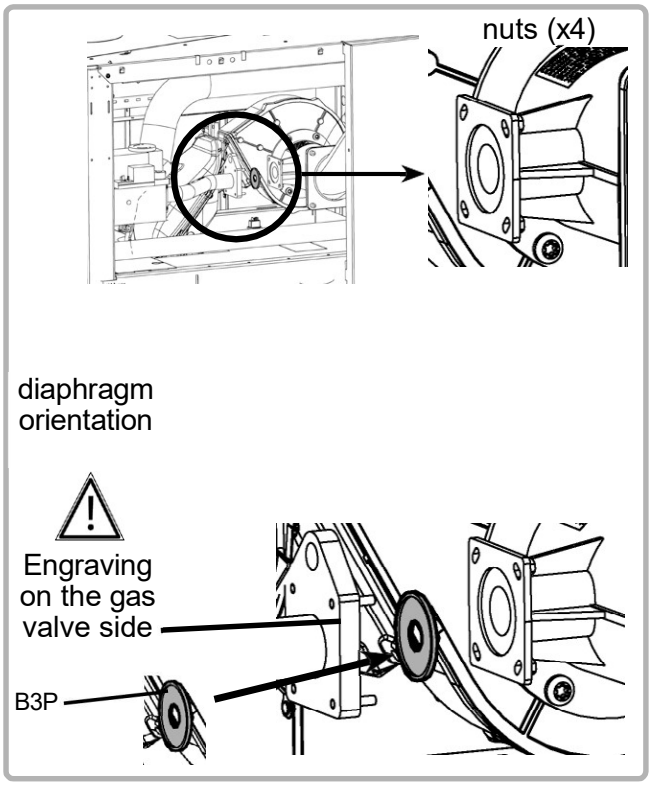


figure 15 - Diaphragm (models 275 and 320)

4.10. Flue gas connection

It is necessary to comply with the regulations and rules of the art in applicable in the country where the boiler is installed,

A flue gas temperature sensor guarantees the protection of type B and C flues.

VARMAX boilers are approved according to gas category for connection to :

- a B23 chimney (all models)
- a B23P chimney (all models)
- a C13 air vent (models 180 to 225) except for Propane (G31)
- a C33 air vent (models 180 to 225) except for Propane (G31)
- a C53 air vent (all models) except Propane (G31)



INFORMATION: **Duct lengths given below are in linear metres(ml).The total length of all conduits is reduced to a length (elbows are equivalent to straight lengths).**

4.10.1. Connection to a B23 chimney

Type B23 connection :
Air from the installation room, exhausted through the roof by means of a natural draught flue.



PLEASE NOTE : **Check that the top and bottom ventilators in the installation room of the the boiler exist, that they comply with the regulations in force and that they are not obstructed.**

The chimney flues must be sized so that the flue gas pressure at the boiler outlet is 0 Pa (see table).
§ 3.4, page 18).

Flue pipes must be made of a material that is resistant to the condensate that can form when the boiler is in operation. These materials must also be able to withstand flue gas temperatures of up to 120°C. Horizontal flue runs should be avoided to limit condensate retention.

Check that the combustion gases are exhausted through a flue.
watertight.

VARMAX MK2s are high-performance boilers with very low flue gas temperatures; consequently, to maintain a favourable draught, the flues must be oriented upwards from the boiler outlet.

IMPORTANT: **If several boilers are connected to a single flue, check by calculation that the flue is not under pressure, with all the boilers operating at Qn.**

Sizing recommendations based on a POUJOULAT type supply (Conden- sor type):

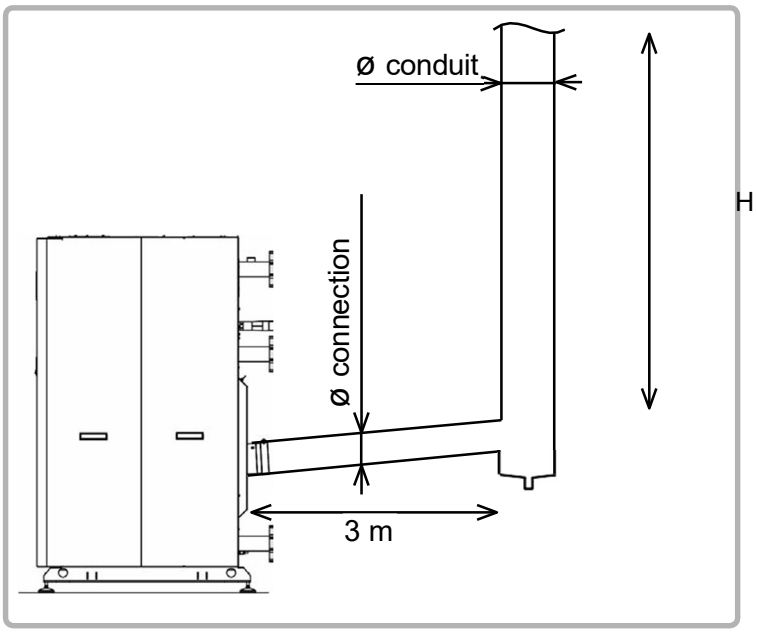


figure 16 - B23 sizing recommendations

Flue height H in linear metres (ml) (operating temperature 50/30°C)

ø connection		**150 mm**						**180 mm**		**200 mm**	
	ø conduit	**180 mm**		**200 mm**		**250 mm**		**250 mm**		**300 mm**	**350 mm**
	Type of gas	G20 / G25	G31	G20 / G25	G31	G20 / G25	G31	G20 / G25	G31	G20 / G25	G20 / G25
MODELS	**180**	--	--	10 à 29	--	1 à 100	4 à 73	--	--	--	--
	225	--	--	--	--	1 à 100	3 à 65	--	--	--	--
	275	--	--	--	--	--	--	4 à 99	4 à 61	--	--
	320	--	--	--	--	--	--	5 à 81	6 à 53	--	--
	390	--	--	--	--	--	--	--	--	2 à 100	--
	450	--	--	--	--	--	--	--	--	2 à 100	--
	525	--	--	--	--	--	--	--	--	19 à 43	4 à 100
	600	--	--	--	--	--	--	--	--	--	5 à 100

IMPORTANT: **The above values are given for information only. It is important to to check them by calculation.**

IMPORTANT: **The weight of the flue pipes must not be supported by the boiler connection piece.**

4.10.2. Connection to a B23P chimney

Type B23P connection :
Air from the installation room, exhausted through the roof by means of a pressurised.

PLEASE NOTE:	**Check that the top and bottom ventilators in the room where the the boiler exist, that they comply with the regulations in force and that they are not obstructed.**
IMPORTANT:	**For B23P connections, it is IMPERATIVE to use CONDENSOR (Poujoulat) or CHEMILUX CONDENSATION rigid or flexible (Ubbink) flues with CSTB technical approval (pressurised flues).**
IMPORTANT:	**The flue must be sized using the parameters given in the table in paragraph 3.4.** **Depending on the actual configuration of the flue, a calculation is necessary to check that the pressures at the boiler outlet do not exceed the maximum authorised values (200 Pa).** **The values corresponding to 50/30°C should be used for this calculation.**
PLEASE NOTE:	**If several boilers are connected to a single flue, check by calculation :** • **<u>One boiler at Qmin and the others at Qn</u>: The boiler outlet pressure at Qmin must be less than the permissible pressure specified in the table in section 3.4.** • **<u>One boiler at Qall and the others at Qn</u>: The boiler outlet pressure at Qall must be less than the permissible pressure specified in the table in section 3.4.** • **<u>All boilers at Qn</u>: The boiler outlet pressure must be lower than the permissible pressure specified in the table in section 3.4.** **Sizing recommendations based on a POUJOULAT supply (Condensor type) :**

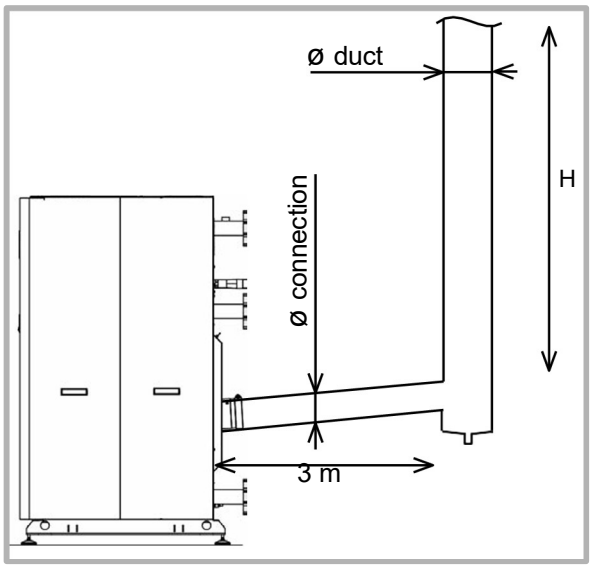


figure 17 - B23P sizing recommendations (Poujoulat)

Flue height H in linear metres (ml) (operating temperature 50/30°C)

Ø connection		150 mm				180 mm		200 mm	
Ø conduit		130 mm		150 mm		180 mm		200 mm	250 mm
Type of gas		G20	G31	G20	G31	G20	G31	G20	G20
MODELS	180	–	–	74	23	–	–	–	–
	225	–	–	69	20	–	–	–	–
	275	–	–	–	–	100	73	–	–
	320	–	–	–	–	100	64	–	–
	390	–	–	–	–	–	–	100	–
	450	–	–	–	–	–	–	100	–
	525	–	–	–	–	–	–	39	100
	600	–	–	–	–	–	–	22	100

IMPORTANT: **The above values are given for information only. It is important to to check them by calculation.**

IMPORTANT: **The weight of the flue pipes must not be borne by the boiler.**

Sizing recommendations based on an UBBINK supply:

The use of Ubbink PPTL ø160 pipe requires the use of a Male 150 / Female 160 adaptor (accessory reference 041432) at the boiler outlet.

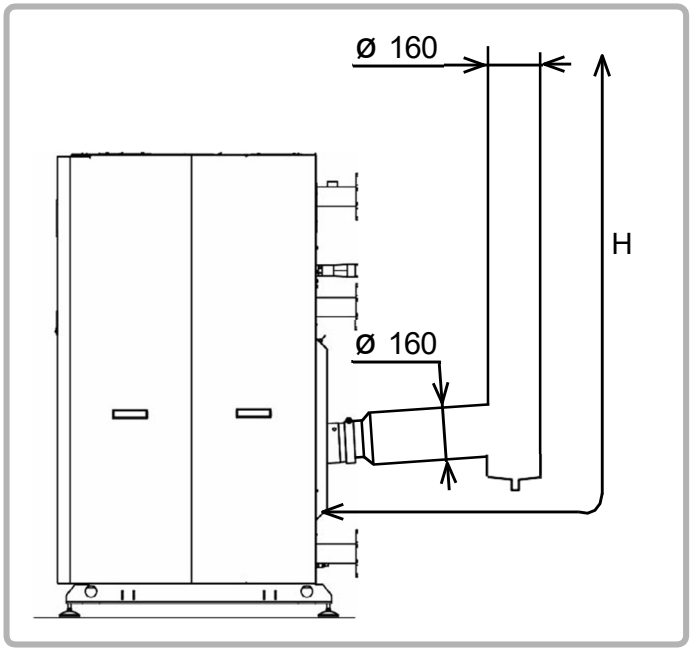


figure 18 - B23P sizing recommendations (Ubbink)

Flue height H in linear metres (ml) (operating temperature 50/30°C)

duct		Ø 160 mm			
		rigid		flexible	
	Type of gas	G20	G31	G20	G31
MODELS	**180**	64	32	30	--
	225	58	40	28	--

IMPORTANT: **The above values are given for information only. It is important to to check them by calculation.**

IMPORTANT: **The weight of the flue pipes must not be borne by the boiler.**

4.10.3. Cascade boilers

The installation must be designed in such a way that when one boiler is shut down or in minimum operation, the others do not flow back into it. It is not necessary to install a check valve at the boiler outlet, as it is already built into the boiler.

Example with flue outlet on the left :

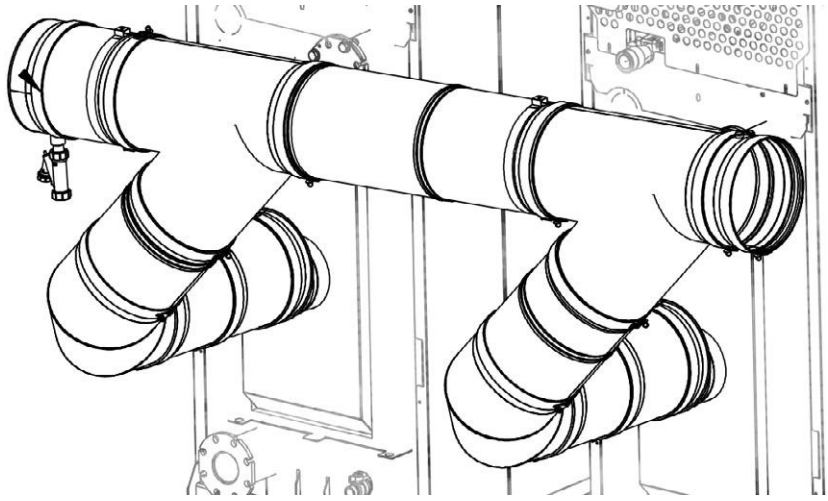


figure 19 - cascade assembly

4.10.4. Rules for installing suction pad terminals

Please refer to BS6644 and IGEM/UP/10

4.10.5. Connection to a C13 or C33 air vent

Connection type C13 :
Air supply and exhaust via separate ducts
connected to a horizontal concentric flue terminal.

Type C33 connection :
Air supply and exhaust via separate ducts
connected to a vertical concentric terminal.

IMPORTANT: **To connect a VARMAX MK2 boiler in C13 or C33, the "Terminal Kit" accessory must be used, comprising a terminal, a bi-flux adaptor and a ø150 male / ø160 female adaptor (reference 041421).**

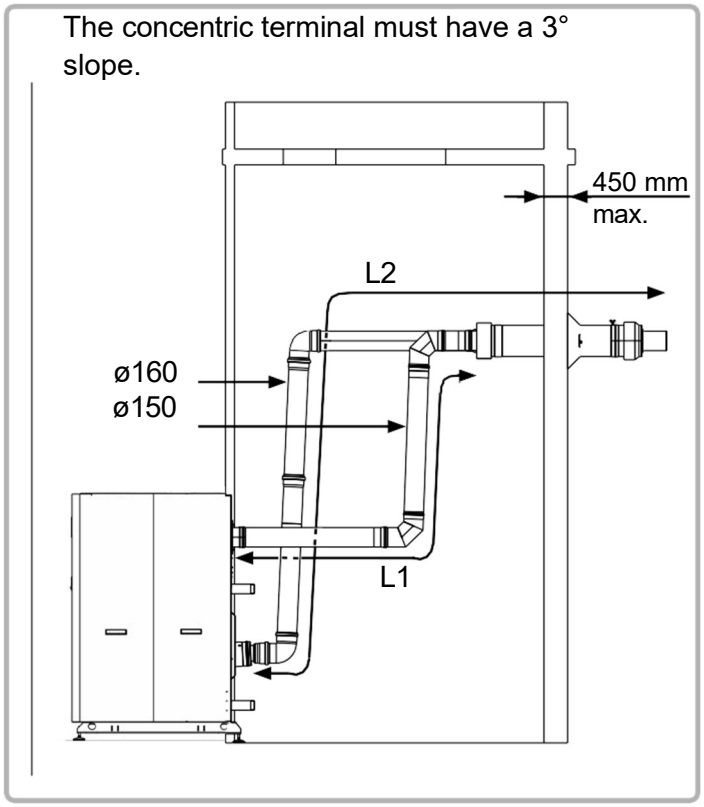


figure 23 - Type C13 connection

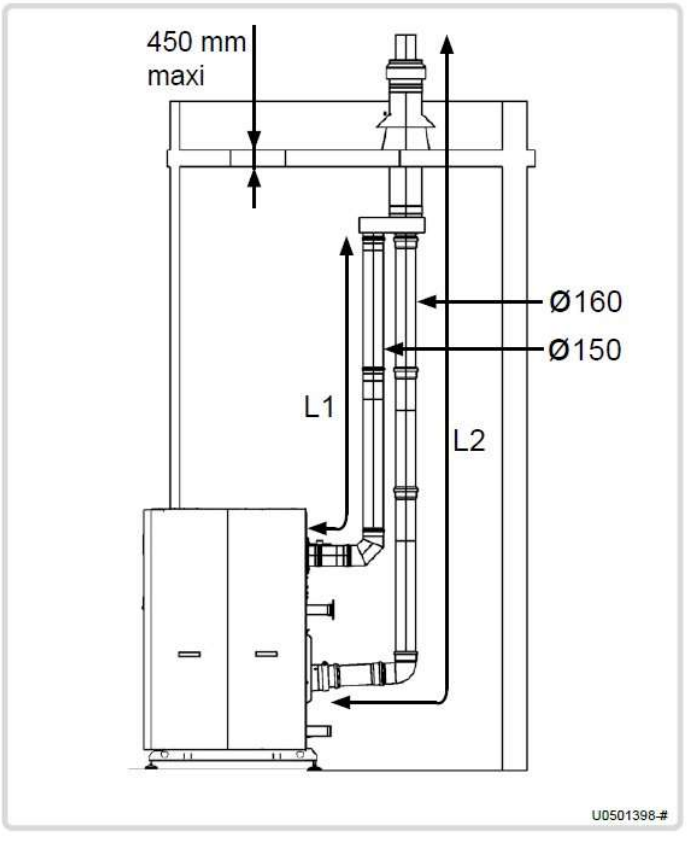


figure 24 - Type C33 connection

The table below shows the maximum straight lengths permitted air and smoke ducts.

	MODELS	
	180	**225**
L1 (air)	13.5 ml	
L2 (smoke)	14.5 ml	

The lengths indicated are concentric terminal lengths included.

In addition, when calculating the lengths of the ducts, account must be taken of the
following equivalences :

- 90° elbow = 1.5 m of straight conduit
- 45° elbow = 0.8 m of straight conduit

The layout of the terminal must comply with the rules in § 4.11.4, page 35.

To facilitate installation of the smoke ducts (PPTL), coat the joints with liquid soap or a suitable grease (supplied in the "terminal kit" accessory).

IMPORTANT: **The weight of the flues (air and smoke) must not be supported by the boiler connections.**

4.10.6. Connection to a C53 air vent

Type C53 connection :
Air supply and exhaust via 2 separate ducts.

IMPORTANT: **To connect a VARMAX2 boiler to C53, accessory kits must be used.**

The table below shows the reference numbers of the kits available according to the boiler model and the maximum permitted straight lengths of the air and flue ducts.

	MODELS							
	180	**225**	**275**	**320**	**390**	**450**	**525**	**600**
ø F (flue)	160 mm		180 mm		200 mm		200 mm	
ø A (air duct)	150 mm		180 mm		180 mm		180 mm	
L1 (air)	8 ml		10 ml		10 ml		10 ml	6 ml
L2 (flue gas)	39 ml		40 ml		40 ml		25 ml	6 ml

The lengths indicated include the flue terminal and exclude the air terminal (measured on the outside of the wall).

In addition, when calculating the lengths of the ducts, account must be taken of the following equivalences :

For pipe diameters of 150 mm and 160 mm :

- 90° elbow = 1.5 m of straight conduit
- 45° elbow = 0.8 m of straight conduit

For pipe diameters of 180 mm and 250 mm :

- 90° elbow = 2 m of straight conduit
- 45° elbow = 1.1 m of straight conduit

The layout of the smoke terminal must comply with the rules in section 4.11.4 on page 35.

Maintain a minimum slope of 3° towards the boiler (flue side). Conversely, on the air duct side, set a slope towards the outside to avoid any risk of rainwater flowing back into the boiler.

To facilitate installation of the smoke ducts for models 120 to 225, coat the joints with liquid soap or a suitable grease (supplied in the "terminal kit" accessory).

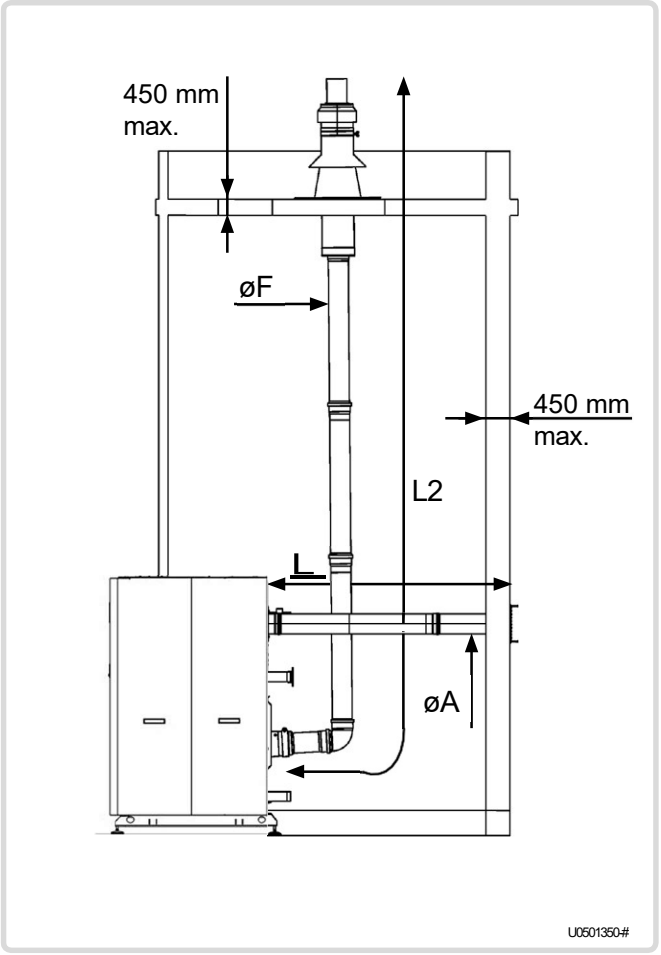


figure 25 - C53 type connection (VARMAX MK2 models 120 to 225)

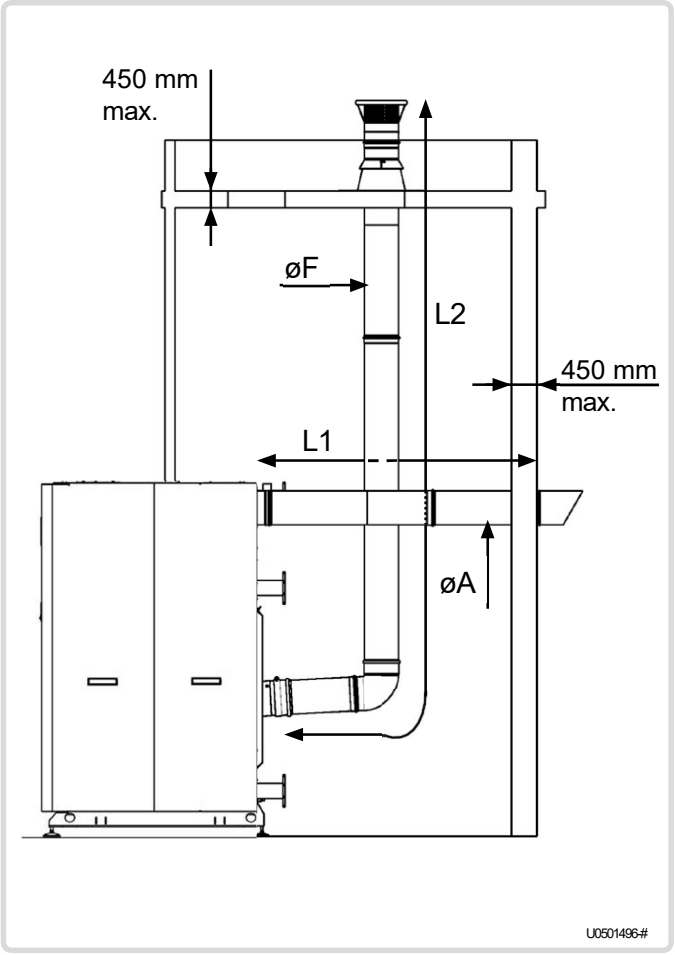


figure 26 - Type C53 connection (VARMAX MK2 models 275 to 600)

IMPORTANT: **The weight of the flue pipes must not be supported by the boiler.**

4.11. Hydraulic connection

Thanks to the boiler's integrated irrigation pump and intelligent control logic, optimum operation is possible up to Pinst/30 (Pinst = Instantaneous useful power expressed in Th/h - 1Th/h = 1.163 kW).
Below this flow rate of Pinst/30, the boiler will continue to operate but will gradually reduce its output (boiler shutdown below Pinst/46).
With 3 or 4 connections, there are no minimum flow constraints on the condenser.
In the main exchanger, as in the condenser, care must be taken never to exceed the flow rates specified in paragraph 3.4 (i.e. boiler rated output in Th/h / 10).

The pipes connecting the boiler to the system must be carefully sized to minimise pressure losses and avoid oversizing the circulators.
In some cases, the diameter of the connecting pipes will be greater than the diameter of the boiler tappings. In these cases, it is preferable to increase the diameter after the unions, shut-off valves and/or hydraulic balancing valves.
VARMAX MK2 boilers are equipped with the following components:

- a main heat exchanger drain valve,
- a condenser drain valve.

The boiler and its installation must be fitted with the following items:

- Isolation valves on flow and return tappings,
- an expansion vessel. In the case of a cascade of boilers with 3 connections, we recommend connecting the expansion tank to the common high-temperature return,
- an effective bleed device*,
- a safety valve set at 6 bar*,
- a backflow preventer on the boiler filling circuit in relation to the boiler filling circuit.
  to the power supply network.

(*Supplied and fitted on the future "condenser" circuit of 4-pipe versions, but to be installed on the main exchanger)

VARMAX MK2s are supplied in either 2/3- tappings or 4 tappings versions. It is not possible to convert a 2/3- tappings version into a 4-tappings version, and vice versa.

4.11.1. Warranty conditions for a VARMAX MK2 connection in 2, 3 or 4 tappings :

- The maximum flow rates for the condenser and main heat exchanger must be equal to P/10, where P is the rated output of the boiler in Th/h.
- No minimum flow rate required in the VARMAX MK2 condenser.
- Instantaneous DHW production without a primary storage tank is prohibited.
  Instantaneous DHW production leads to premature ageing of the generator with a very high number of M/A cycles.
  The size of the primary storage tank must be such as to avoid an excessive number of M/A cycles for the generators.

4.11.2. Optimised operation / Performance :

- Adjust the water laws in the heating networks to encourage overall efficiency of the installation.

4.11.3. Optimised operation / Performance in 2 tappings :

- Suitable for connecting a single regulated heating circuit.
  The lower the temperature, the better the performance
- Several heating circuits can be connected to the condenser, but in this case, it is preferable that they have the same water law, or one that is close to the other.
  If this is not the case, a 3-pipe connection is preferable, as in the case of a heating circuit and DHW production.

4.11.4. Optimised operation / Performance in 3 tappings:

- One or more heating circuits may be connected to the condenser. The flow rate through the condenser is lower than the nominal flow rates of the circuits if they have different water laws and are fitted with 3-way valves.
- If possible, connect the circuit(s) with the lowest water laws to the condenser.
  An underfloor heating circuit is preferable to a radiator circuit.
- If there are only regulated heating circuits with similar water laws, use the Optimax Design software to check that the 2-pipe connection does not perform better than the 3-pipe connection.
  In particular, if at the same outdoor reference temperature, the return temperature of the circuits is below the dew point (55°C) and the difference in Return temperatures between the circuits is close to 10°C.
  Example: circuit 1-> 60/40°C and circuit 2 -> 40/30°C. Return temperature < 55°C and
  ΔT° return = 10°C => it is better to use a 2-pipe system.
- The capacity of the circuits connected to the condenser must be greater than the recovery capacity of the condenser, i.e. 20% of the useful rated capacity of the boiler or boilers to which it is connected.
  If this is not the case, the 2-pipe connection is just as effective.
  efficient.
- Where DHW is produced, the primary or secondary storage volume should be at least equal to the energy storage capacity of the 10-minute peak flow rate.
  This prevents the condensing boiler from being restarted or heating up unexpectedly.

4.11.5. Optimised operation / Performance in 4 tappings:

- Only one circuit should be connected to the condenser.
- Encourage the use of thermostatic controls on heaters.
- If possible, the circuit to be connected should have the following characteristics:
  - o Have a power output at the reference temperature that must be greater than 20% of the useful rated power of the

This avoids thermal discomfort on the circuit connected to the condenser.

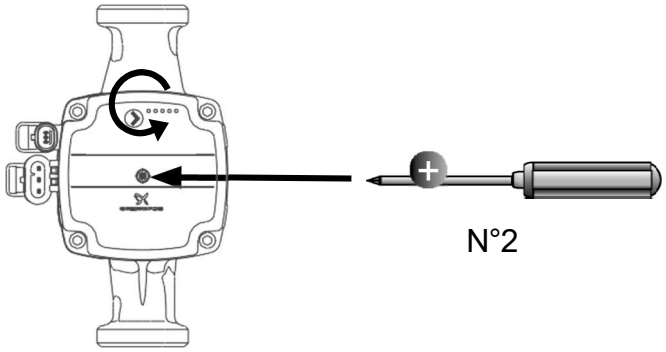
o Have the lowest water law, which optimises condensing operation.
For example, prefer an underfloor heating circuit to an overfloor heating circuit.
radiators.

o Being the most demanding circuit in terms of operating time, which allows the condenser to be irrigated most often and maximum heat recovered.
Example: Prefer a North circuit to a South circuit.

o If DHW is being produced, to avoid discomfort
on the circuit connected to the condenser :

- The volume of the primary or secondary storage tank should be at least equal to the energy storage capacity of the 10-minute peak flow rate, to avoid the condensing boiler having to be restarted and brought up to temperature unexpectedly.
- Make sure that the loop flow rate is not oversized and that it is set correctly, in order to maintain good stratification and limit untimely DHW restarts.

INFORMATION: **Grundfos circulators used on models 180/225kW have a deflashing screw to be used in the event of blockage.**



IMPORTANT : **Maintain pressure as you turn.**

4.11.6. Boiler version 2 or 3 tappings

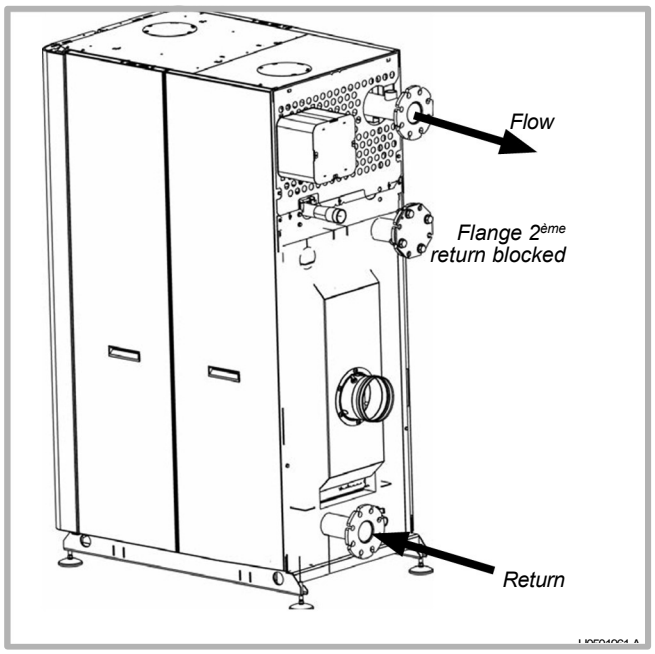


figure 27 - 2-pipe connection

2 tappings

If all the circuits have the same return temperature, the returns are not unbundled.

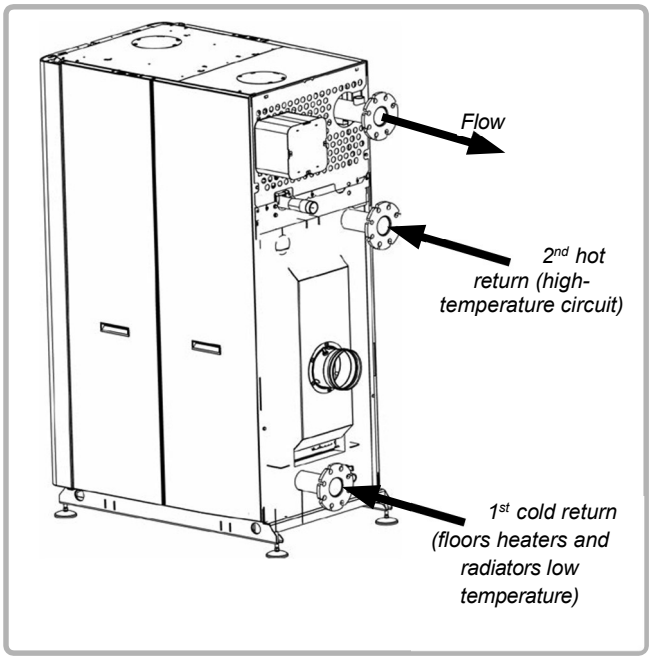


figure 28 - 3-pipe connection

3 tappings

VARMAX MK2 boilers are equipped with
2 returns and an optimised internal irrigation circuit to effectively separate high-temperature returns (from DHW preparation circuits, radiators, etc.) from low-temperature returns (underfloor heating circuits, low-temperature radiator circuits, etc.).
This separation of the hydraulic circuits, by separating the high-temperature and low-temperature returns, promotes condensation of the flue gases in the lower part of the condenser throughout the year, and therefore considerably increases the performance of the boiler.

To use the 2ème return, the flange must be removed obstructing the spigot.
There is no minimum flow rate constraint on the condenser.

4.11.7. 4-pipe boiler version

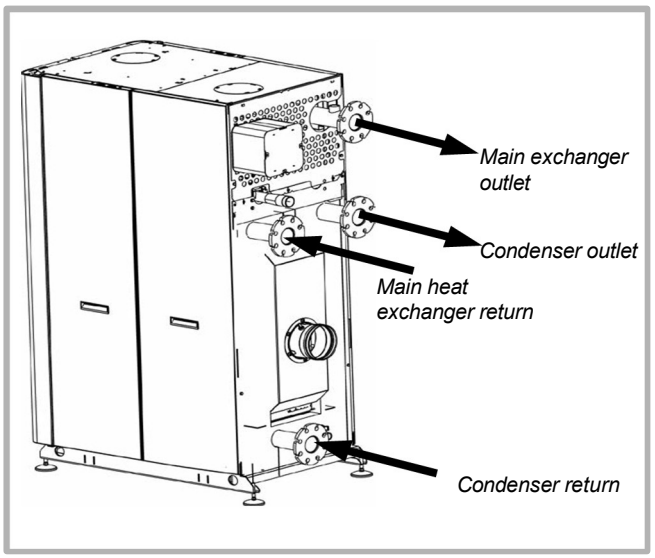


figure 29 - 4-pipe connection

A further improvement can be achieved by connecting the boiler in 4 tappings. This consists of decoupling the condenser (low temperatures) from the main exchanger (high temperatures).

VARMAX MK2 4-pipe boilers are equipped with 2 internal irrigation circuits to separate the returns from the system circuits connected to the main exchanger from the return that is most favourable to the system, connected to the condenser.
There is no minimum flow rate constraint on the condenser.

PLEASE NOTE:	**Do not connect DHW (domestic hot water) or swimming pool water to the condenser circuit.**

PLEASE NOTE:	**Check that the condenser circuit is filled with water before starting up**

4.11.8. Condensate drainage

It is essential to drain the condensate into the sewer via a funnel using a PVC pipe (minimum diameter 32 mm), as the condensate is acidic and therefore aggressive (pH between 3 and 5).
A sufficient slope of the order of 3% must be maintained to ensure good drainage condensate drain.

PLEASE NOTE:	**Neutralise this condensate before disposal in accordance with current regulations.**

4.12. Gas connection

Before connecting the gas pipe, it is essential to ensure that there is sufficient clearance to allow the air filter to be fitted.
Before installing the boiler, it is necessary to clean the inside of the gas line of the installation (absence of metal particles, welding scraps, etc.). This operation improves the longevity of the product. Before commissioning, check that the natural gas supply pressure corresponds to the boiler pressure rating shown on the boiler nameplate.

Before supplying gas to the installation, make sure that the various connections are correctly made and tight.

In particular, check that there is a detachable connection between the and the gas supply connection to the boiler.
The value read upstream of the gas valve must be within the limits of the table in chapter 2.6, page 12 for the type of gas used.



PLEASE NOTE:

Before connecting the system's gas line, identify whether the boiler operates on G20, G25 or G31 gas. If operating on G25 or G31, make the modifications described in section 4.10. on page 28.
The boiler gas line must not be subjected to mechanical stress (risk of loss of seal on the gas valve).
Check that the gas supply corresponds to the boiler's nominal pressure and gas category, as shown on the nameplate.

4.13. Electrical connection



DANGER :

Before carrying out any work, make sure that the mains power supply is switched off.



DANGER :

It is essential to observe the phase (L) - neutral (N) polarity when making electrical connections.



PLEASE NOTE:

It is imperative that this boiler is properly earthed and that you comply with the national standards in force in your country concerning low-voltage electrical installations.
Provide a two-pole circuit breaker upstream of the boiler (distance between contacts: 3.5 mm minimum).
We strongly advise you to fit your electrical installation with a 30 mA differential protection.

Please refer to the installation and operating instructions for the NAVISTEM B4000 boiler controller for information about the electrical connections on the control panel (power supply characteristics, cable cross-section and connection to terminal blocks).

4.13.1. Control panel

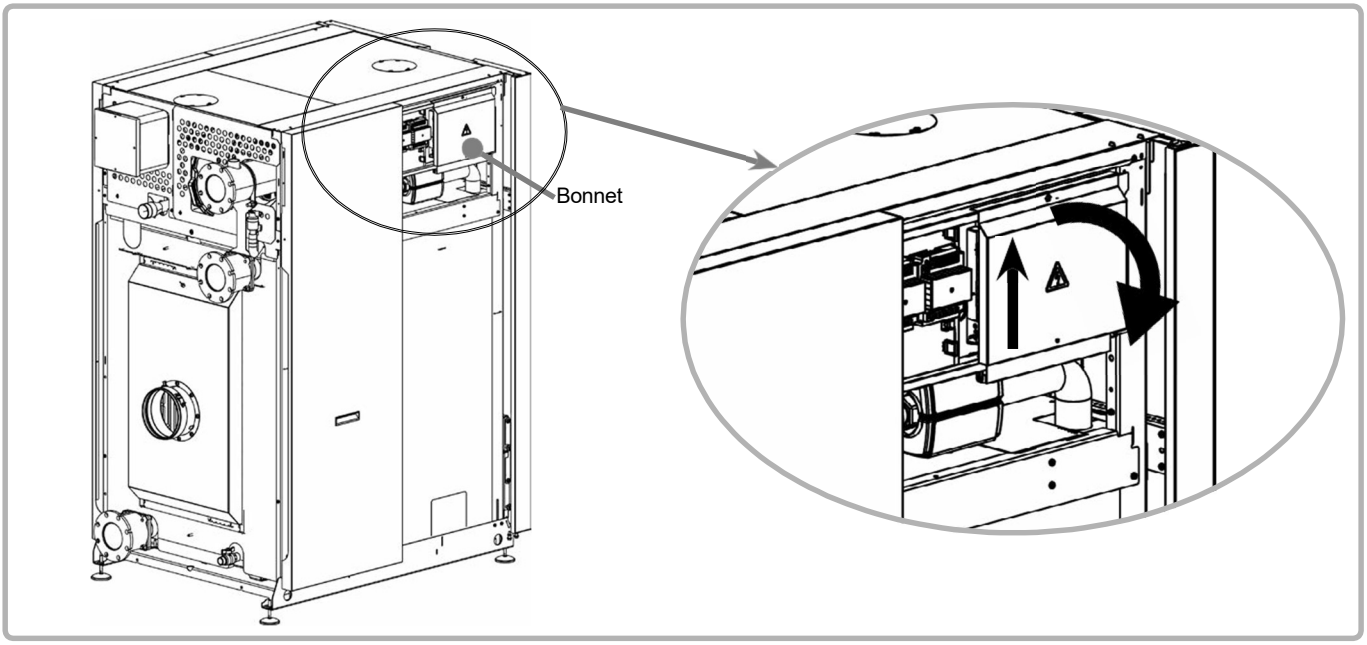


figure 30 - Opening the electrical box

The control panel is located on the front left-hand side of the boiler.
To access it, remove the front left-hand side trim panel, then lift the cover.
and rotate it downwards.

4.13.2. Cable management

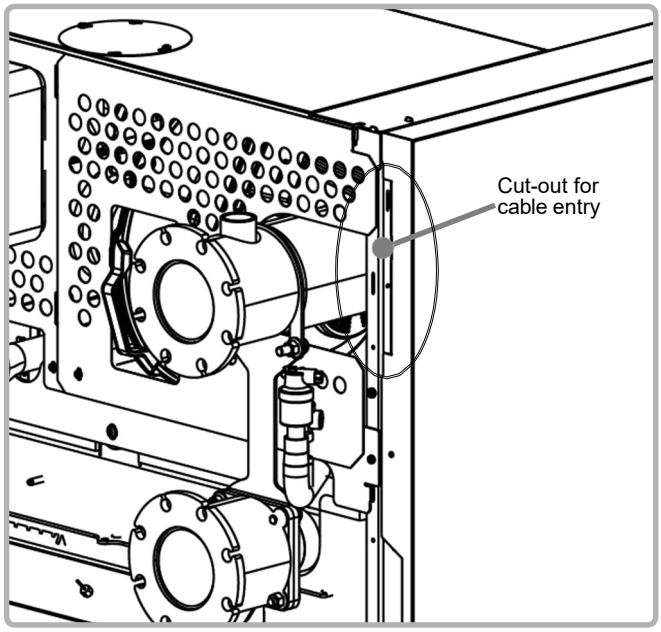
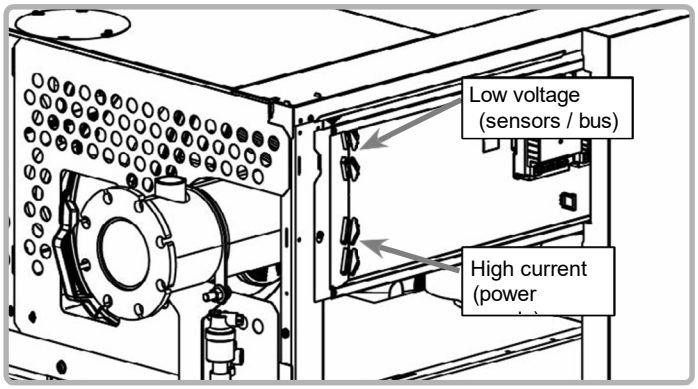


figure 31 - Electrical cable ducts



• The **upper** cable clamps must be reserved for **signal connections** (sensors, communication bus, etc).

• The **lower** cable clamps are dedicated to **power connections** (boiler supply, alarm reporting or circulator control).

4.13.3. Connection to boiler controller terminals

To connect the boiler controller, please refer to its installation and operating instructions.

PLEASE NOTE: **When connecting the mains power connector, follow the wiring diagram, in particular the phase, neutral and earth polarities.**

4.13.4. Connecting the AVS75 expansion module(s) (optional accessory)

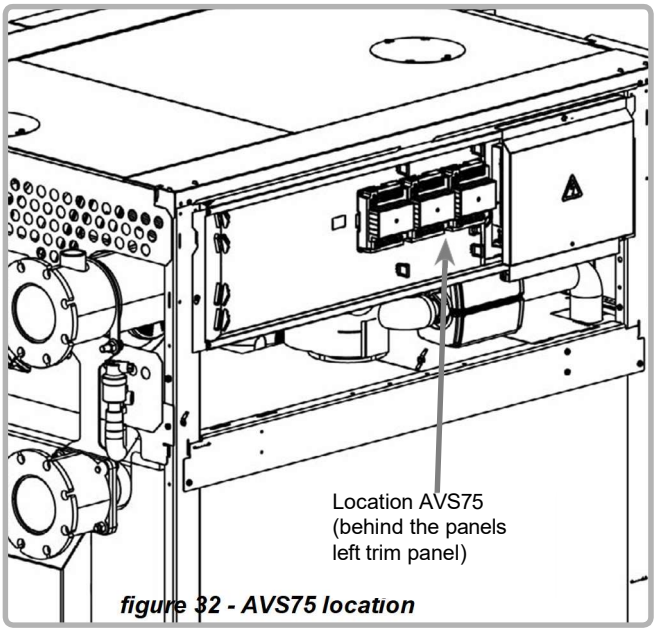


figure 32 - AVS75 location

Remove the 2 trim panels on the left-hand side of the boiler.

To install the AVS75 module(s) (max. 3), please refer to the instructions supplied with the.

4.13.5. Connection of LPB OCI345 communication module (optional accessory)

To install the OCI345 module (to be fitted to the NAVISTEM B4000 boiler controller), please refer to the instructions supplied with the accessory.

4.13.7. Connecting the OCI351 communication module (optional accessory)

To install the OCI351 module (to be fitted to the NAVISTEM B4000 boiler controller), please refer to the instructions supplied with the accessory.

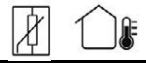
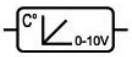
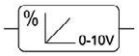
4.13.6. Fuses

The VARMAX MK2 boiler is fitted with 4 fuses located on the boiler controller (refer to the label on the protective cover for their location and characteristics).

3 spare fuses are also available on the boiler controller.

4.13.8. Electrical diagram

Refer to paragraph 2.2 of the NAVISTEM B4000 manual for further information. for more information on the characteristics of the terminal blocks.

	Cascade flow sensor
	Cascade return sensor
	DHW sensor
	Outdoor sensor
	Customer prog. input 0...10V
	Programmed customer output 0...10V
	Program customer dry contact input

	Room sensor inputs
	Boiler flow sensor
	Boiler return sensor
	Smoke probe
	Alarm report
	Modulating pump

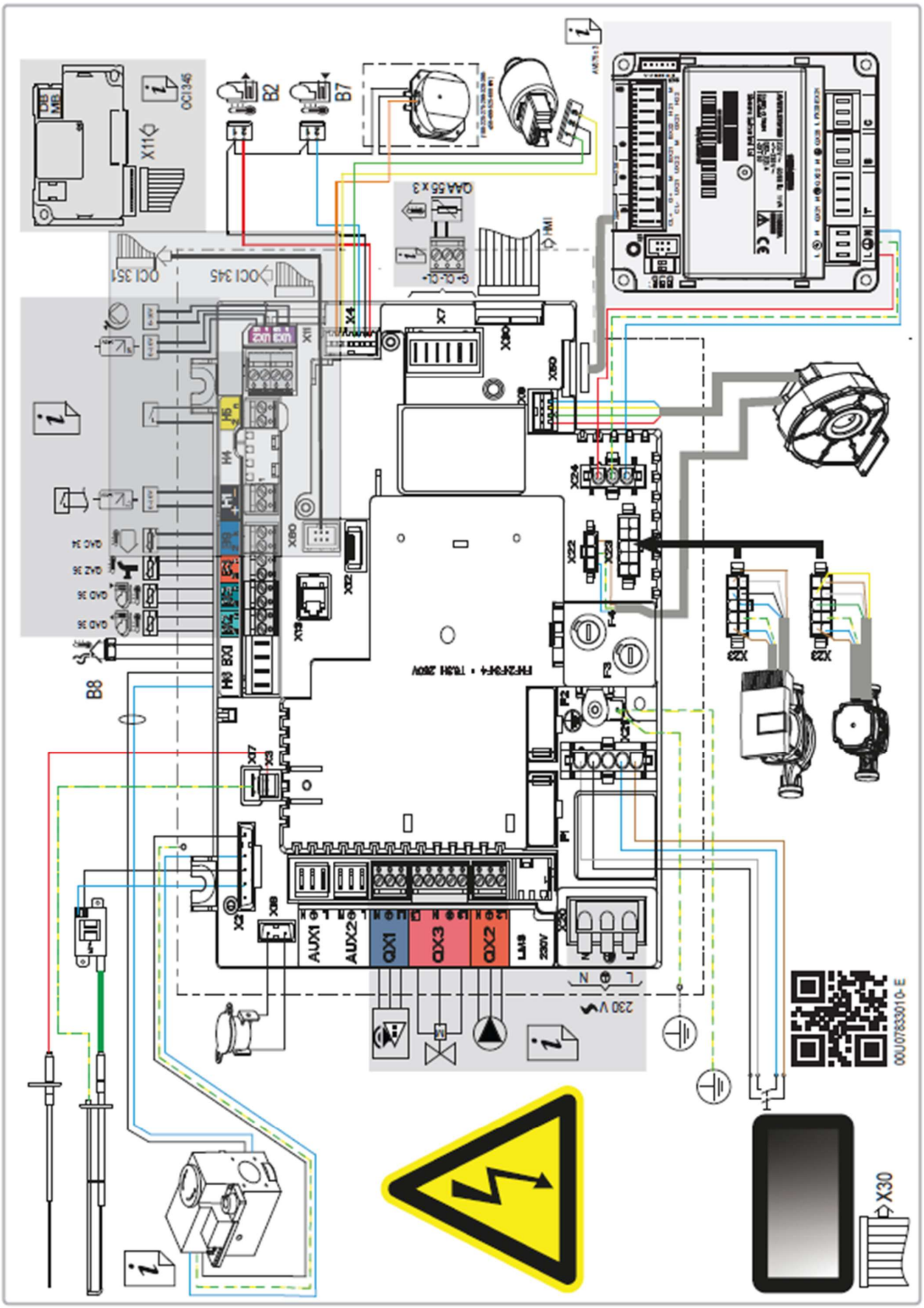


Figure 33 - Electrical diagram

5. COMMISSIONING

5.1. Unlocking the boiler



PLEASE NOTE:

During the commissioning operation, the boiler can only be unbridled if the hydraulic installation complies with the recommendations given in the hydraulic diagrams (see section 9.3, page 74). The person in charge of this operation must ensure that this is the case.

Temperature derating :
Change parameter 2212 (in the ***Parameter List menu, then the Boiler menu***) from 70°C to the desired value (85°C maximum).

Unlocking power :
Increase the value of parameter 9529 (***safety box*** menu) to the value of parameter 9530 (corresponding to the rated output of the boiler).



PLEASE NOTE:

Setting the boiler for Propane operation (see section 4.9.2.1, page 29) modifies parameter 9529, as the boiler power limit is no longer active.

Parameter value 9529	MODELS							
	180	225	275	320	390	450	525	600
power locked	3180	3870	3360	3930	3440	3900	2640	3050
power unlocked	4410	5400	4620	5450	4810	5480	3770	4330

5.2. Pre-commissioning checks

For a cascade installation, check the hydraulic balance boilers.

Check that the cold pressure is at least 1 bar.
If you are renovating a boiler room, make sure that the system has been flushed and, if necessary, de-sludged (see paragraph 1.5, page 6 of this manual).

Check the flue connection according to the type of chimney (see paragraph 4.11, page 32).

Check that the pressure and type of gas are suitable for the products.



DANGER:

The use of glycol water is prohibited.



PLEASE NOTE:

In the case of a B23 or B23P CHIMNEY connection, it is MANDATORY to fit the air filter supplied with the.

5.3. Commissioning

All boilers undergo a factory gas test before packing.

natural group H (type G20) during which all settings are made. To commission the appliance, perform the following operations:

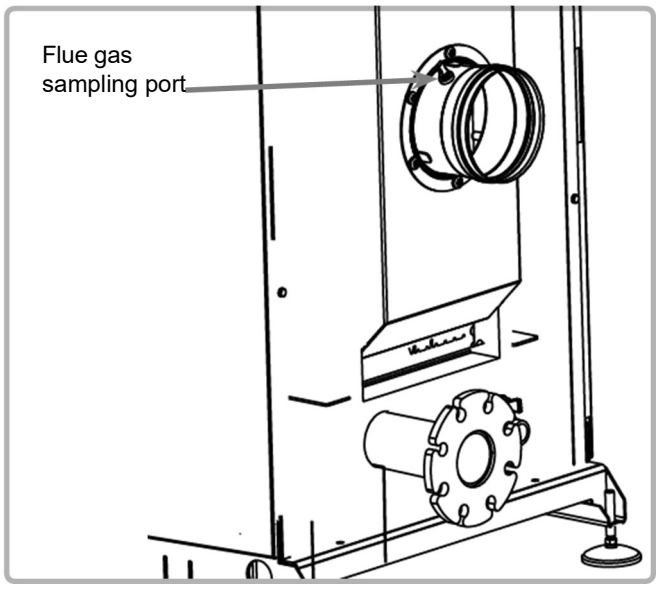


figure 34 - Sample connector

1. Turn on the main switch.
2. Initiate a heat demand via manual mode with the customer interface (see section ***"3 - User interface"*** in the NAVISTEM B4000 boiler controller manual).
3. After starting up the burner, use a foaming agent to check that the gas line connections are tight. Check combustion health using a smoke analyser via the sample connector provided on the gas nozzle (see figure opposite).
   The procedure of control of health of combustion is detailed in chapter 7.7. on page 57.
   The range of CO_2 or O_2 values to be complied with depends on the operating gas: please refer to the table below.
   the tables in section 3.4. on page 18.

In the event of poor combustion health, it may be necessary to readjust the gas valve as described in section 7.8 on page 58.

4. Set the boiler setpoint (see table of boiler setpoints).
   customer parameters at the end of this manual).

PLEASE NOTE: **Any tampering with a sealed component will invalidate the warranty.**

6. CHECKS AFTER COMMISSIONING

6.1. Condensate drainage

Check that the condensate drain is not blocked, either on the boiler side or the pipe side.

6.2. Gas supply

Check that the diameter of the gas pipe is correctly sized:

All the boilers need to be shut down abruptly at the same time, using the boiler room's main circuit breaker, to check that the safety system at the pressure reduction station has not been triggered.

If this triggers, the gas pipe is undersized. After this operation, reset the disconnector. The boilers should restart automatically, if not, consult the supplier of the pressure reducing station.

6.3. Full power cuts

Please note that when the burner is switched off at maximum power, noise and vibration may occur.

If you detect a maximum power cut in your installation, make sure you eliminate it quickly by checking your installation, including the settings of the boiler control system and, if present, the PLC controlling the boiler room.

7. MAINTENANCE OPERATIONS

The routine maintenance programme breaks down into 2 types of work:

- **annual maintenance**
- **an in-depth service every 3 years.**

In the table below you will find the following actions to be undertaken the type of maintenance to be carried out.
In all cases, these operations must be carried out by a qualified professional.

Before carrying out the following operations:

- **Turn off the main switch.**
- **Close the gas supply shut-off valve.**



DANGER : **The earth continuity of this boiler is ensured by connecting cables (green/yellow) and specific fixing screws. During any dismantling operations, be sure to reconnect the cables concerned and MUST reuse the fixing screws.**
of origin.

N° paragraph to consult		Maintenance	
		Every year	every 3 years
7.2	Boiler environment check	X	
7.3	Replacing the air filter mat	X	
7.4	Checking the ignition and ionisation electrodes	X	
7.5	Siphon cleaning	X	
7.6	Checking the tightness of the combustion circuit	X	
7.7	Combustion quality check	X	
7.9	Cleaning the gas filter	X	
7.10	Cleaning exchangers and changing seals access doors		X
7.11	Check the condition of the gas flue lining Clean the burner and change the seals		X

7.1. Boiler draining

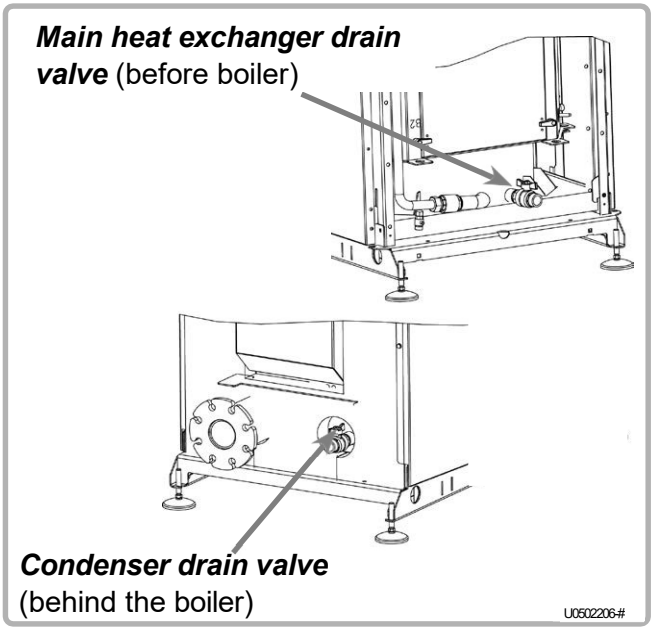


figure 35 - Drain valves

- Close the shut-off valves on the flow and return connections.
- Connect the drain valves (main exchanger and condenser) to the drain using a suitable flexible hose.
- Create an air vent on the boiler "main exchanger" flow pipe (open the safety valve).
- Open the drain valves.

7.2. Boiler environment check

Before any maintenance work is carried out, a number of routine checks must be carried out on the installation.

- Water pressure: check that the water pressure is greater than 1 bar at cold.
- Read the index of the make-up water meter. This will identify any hydraulic leaks in the system. If there is a change in make-up water consumption, look for the cause and repair it.

7.3. Replacing the air filter matting

DANGER :	**To ensure that this task is carried out safely, switch off the boiler and switch off the power supply.**
DANGER :	**Use personal protective equipment (mask and gloves) to remove the used air filter.**
INFORMATION :	**The air filter is only fitted to boilers connected to the a B23 or B23P chimney.**

INFORMATION : **The air filter is an important part of the boiler. It is used to Limit clogging of the burner and heat exchangers. Regular replacement (at least once a year) will considerably reduce the amount of maintenance required.**
the burner and exchanger cleaning phases.

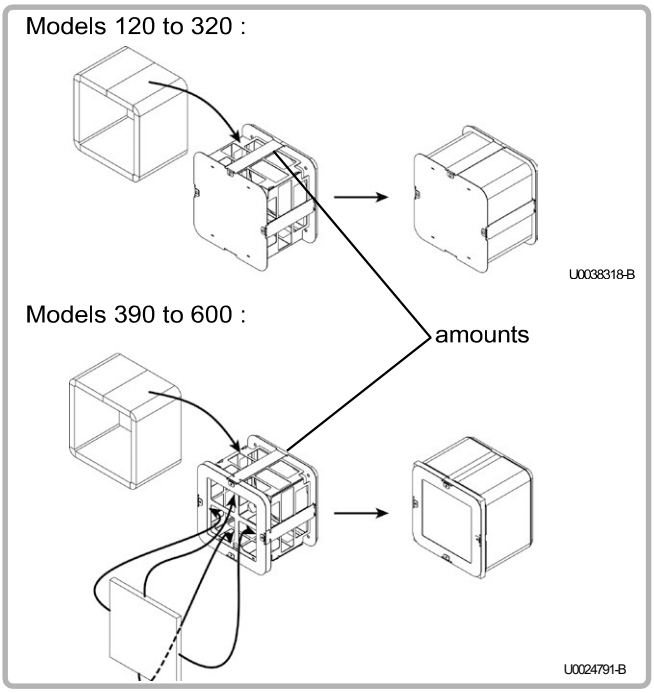


figure 36 - Filter mat

- Remove the used filter mat (no tools required).
- **Be careful not to let dust or other foreign objects into the air duct.**
- Insert the new rectangular filter mat between the filter protection grille and the uprights (see opposite).

  Make sure that the connection between the 2 ends
  of the tablecloth is located under one of the uprights.

- For models 390 to 600, insert the square filter mat on the back of the filter.

7.4. Checking the ignition and ionisation electrodes

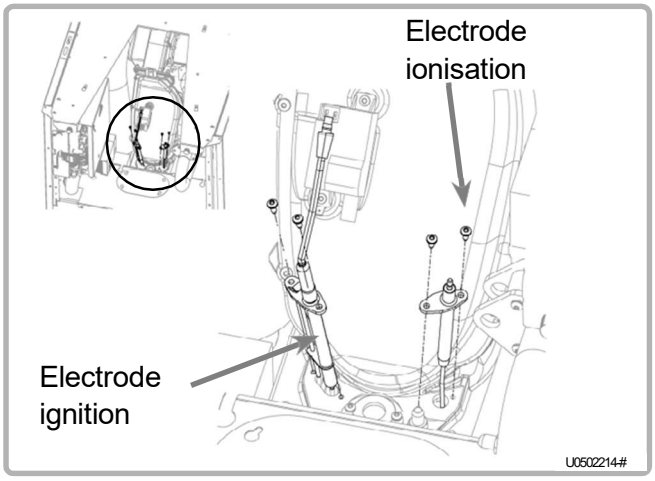


figure 37 - Location of electrodes

Removing the electrodes :

Unscrew the 2 M4 Torx screws holding the electrode in place to be dismantled.

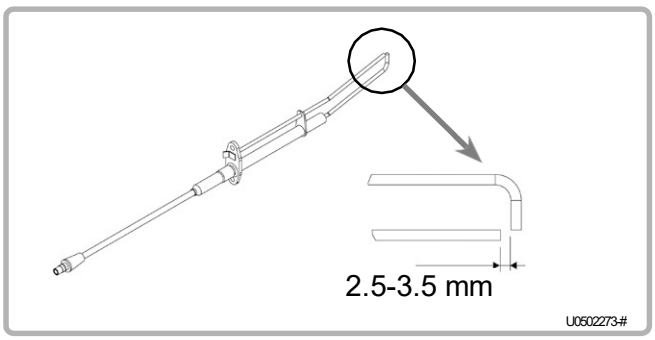


figure 38 - Spacing

If necessary, and in the event of heavy oxidation, clean the electrodes by rubbing them with emery cloth.

Check the gap between the ignition electrode and the earth electrode (see figure opposite). It should be between 2.5 and 3.5 mm. If this is not the case, the electrode must be replaced.

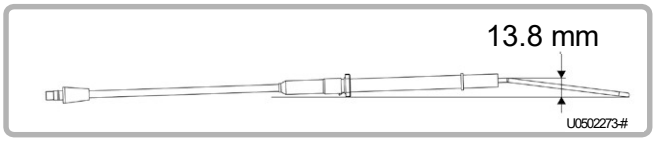


figure 39 - Geometry

Check the geometry of t h e ignition electrode fold :
In the event of deformation greater than ±3 mm, the following steps must be taken
replace the electrode.

Refit the electrode block(s). Torque of tightening of block fixing screws = 2.5 N.m

7.5. Siphon cleaning

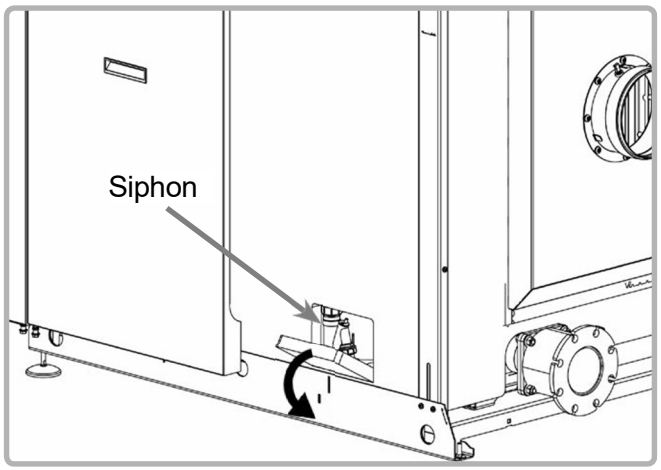


figure 40 - Siphon

Check the siphon and clean it if necessary. The siphon is located on the right-hand side at the rear of t h e boiler, behind the side panel which must be removed. A partial cut in the insulation (tilt it forwards) gives access to the siphon.

To do this:
- Remove the siphon by pulling it downwards.
- Clean with water.
- Refit the siphon after checking that the float (ball) is present and can move freely. Also check that the seal has not deteriorated.

7.6. Checking the tightness of the combustion circuit

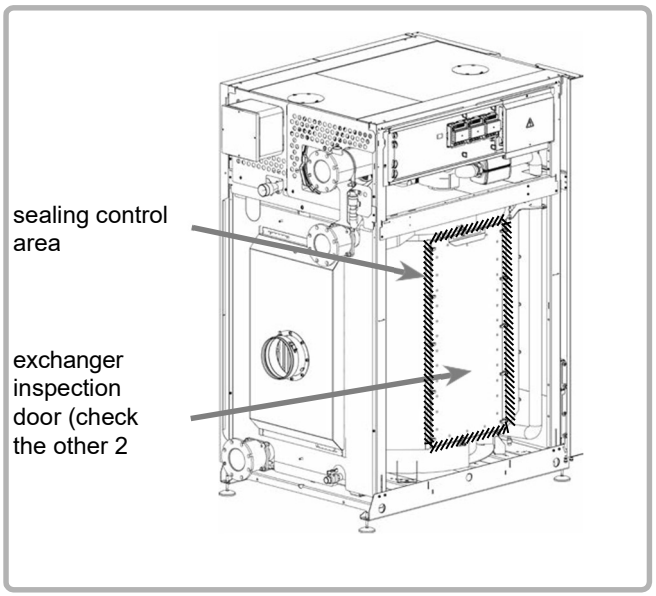


figure 41 - Access door seal

Check the tightness of the 3 inspection doors using a foaming agent. The areas to be checked are shown in the diagram opposite.
The test will be carried out cold (boiler off) but with the fan at maximum speed (obtained by disconnecting the PWM signal connector).

If a leak is detected, it is necessary to replace the seal with the appropriate kit.

We recommend replacing the gaskets each time the exchanger inspection doors are removed. If they are not replaced, do not cross the doors when refitting them.

7.7. Combustion quality check

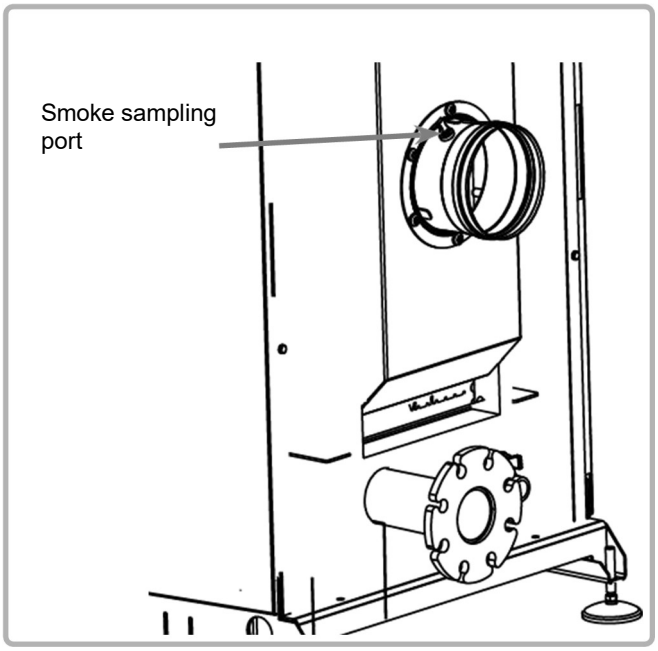


figure 42 - Taking a sample

This check is carried out using a calibrated combustion case. To do this, insert the measuring rod into the smoke nozzle (see figure opposite).

The boiler must have a flow temperature of over 70°C.

Don't forget to put the cap back on.
the sample port after measurement.

The CO_2 or O_2 content measured under these conditions must be within the range of values specified for the operating gas: refer to the tables in section 3.4. on page 18.

PLEASE NOTE: **If the boiler is operating on G31 propane (models concerned only), please refer to the specific table for this gas in section §3.4.2, page 19.**

INFORMATION : **If the boiler is operated with natural gas containing up to 20% hydrogen (H_2), combustion hygiene in the flue gases is checked exclusively on the basis of the O content$_2$ (%).**

In the event of poor combustion hygiene, it may be necessary to readjust the gas valve as described in section 7.8. on page 58.
Following this check, it is necessary to measure either the "top gas" flow rate or the ΔP valve. These measurements are used to check how dirty the combustion circuit is (burner, body, exchanger(s)).

For B23 and B23P installations, we recommend that you take the measurement with a new air filter.

Top gas" must be used for more than 3 minutes to obtain satisfactory accuracy.
If the gas flow rate is 20% lower than the value given in the table in paragraph 3.4, page 18, the main exchanger and burner must be cleaned (see sections 7.10 and 7.11).

If you choose to measure the valve ΔP, refer to the following paragraph for the procedure. If the value measured is lower than the values defined in the table on page 61, the main exchanger and burner must be cleaned (see sections 7.10 and 7.11).

7.8. Setting the gas valve

This VARMAX MK2 boiler is factory-set to operate with Group H natural gas (type G20) at a supply pressure of 20.

PLEASE NOTE:	**Any work involving the adjustment of the gas valve must be carried out by a qualified professional.**

The valve must be set on the minimum or maximum set point (0% or 100%).

DANGER :	**If the boiler is operated with natural gas containing up to 20% hydrogen (H_2), the factory setting of the G20 gas valve should not be altered.** **Failure to comply with this setting may result in damage to the installation (e.g. overheating, premature ageing, etc.) and may cause serious injury (e.g. carbon monoxide CO poisoning).**

7.8.1. For models 180 to 600

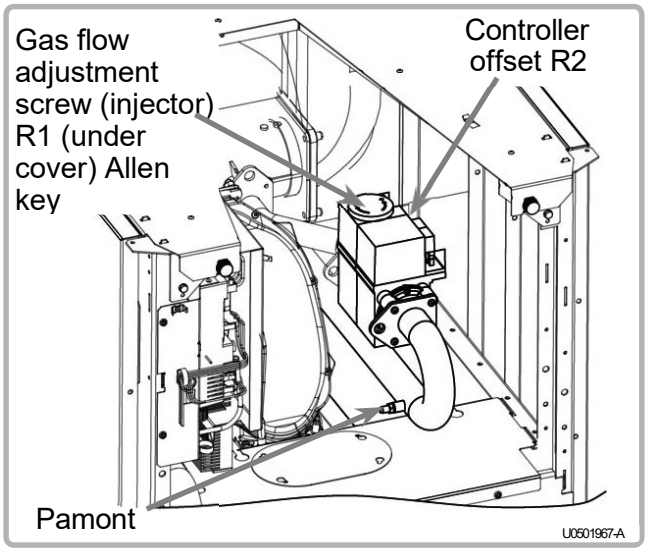


figure 44 - Gas valve models 180 to 450

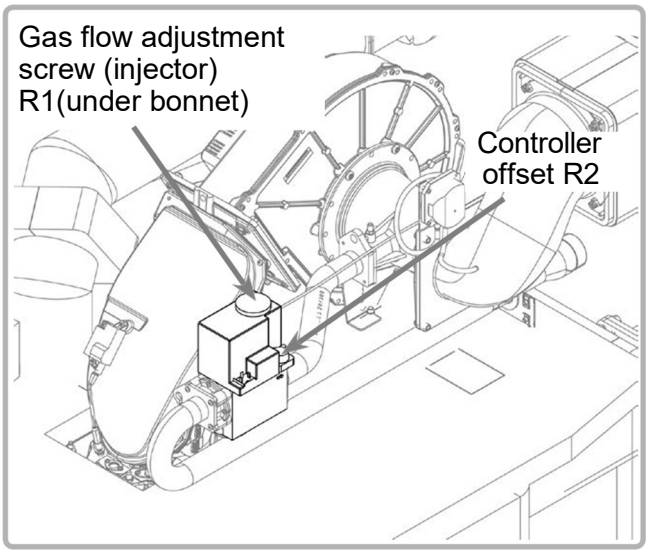


figure 45 - Gas valve models 499 to 600

Measurements to adjust the valve must be taken at the pressure point indicated Pamont (see figure opposite).

Before starting the burner, pre-set the gas flow rate on the gas valve by turning the gas flow rate adjustment screw R1 according to the values given in the table below.

Start the burner at maximum power.

Using a combustion analyser, measure the level of CO_2 or O_2 in the flue gases: on the flue pipe, remove the plug from the opening and insert the CO

CO_2 or O_2 at the centre of the flow in the smoke.

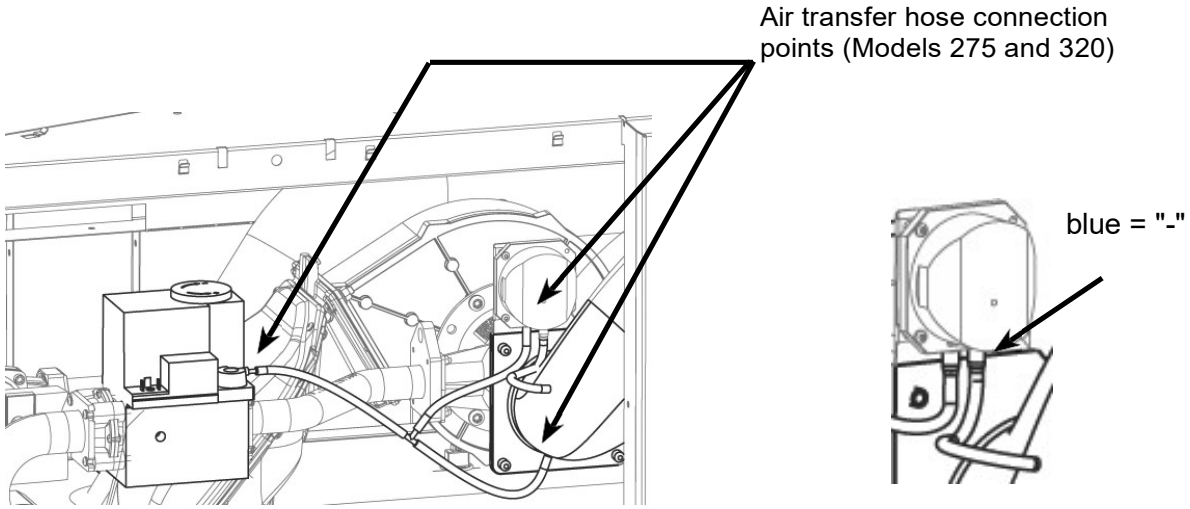
Check the CO_2 or O_2 value at Max power and, if necessary, adjust the R1 gas flow adjustment screw on the valve to obtain the CO_2 or O_2 values shown in the table below.

Switch to minimum power Qmin and check that the CO_2 or O_2 is within the table below. If necessary, turn the screw setpoint adjustment R2.

If the minimum power setting is changed, switch back to maximum power Qmax and recheck the CO_2 or O_2 value. Repeat the operation until you obtain the two values shown in the table below.

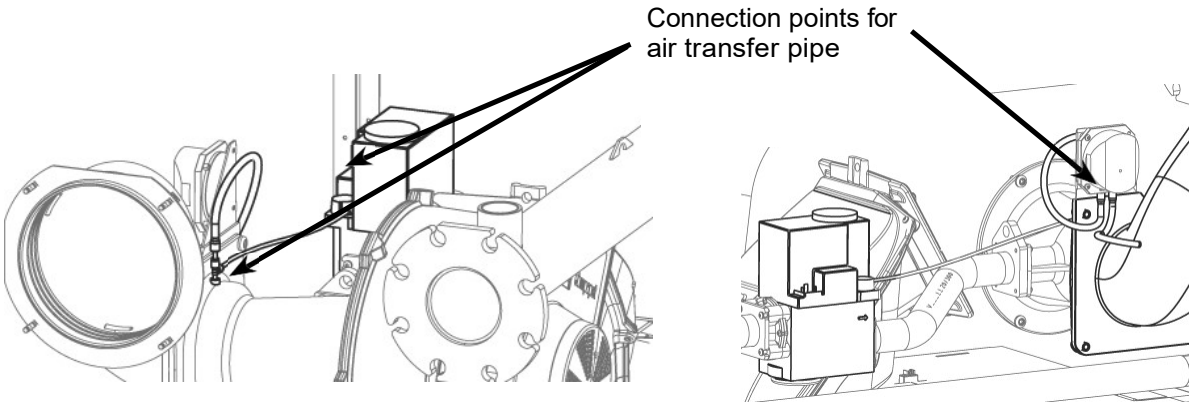
Return to standard operating mode.

Models: 275 to 320



U0687843-A

Models : 180 to 225 and 390 to 600



U0806222#

After changing gas type :

- **Check the tightness of the gas line**
- **Stick on the G25 label supplied in place of the original label (G20).**

Model	Gas	R1 gas flow presetting screw and R2 / G20 regulator setpoint adjustment screw	CO_2		O_2	
			Pmax	Pmin	Pmax	Pmin
			in % of			
180	G20	Screw R1 all the way in Unscrew R1 by 2 3/4 turns, adjust R2	8,8 - 9,2	8,3 - 8,7	4,5 - 5,2	5,4 - 6,1
225	G20	Screw R1 all the way in Unscrew R1 by 2 3/4 turns, adjust R2				
275	G20	Screw R1 all the way in Unscrew R1 by 3 turns, adjust R2				
320	G20	Screw R1 all the way in Unscrew R1 by 3 turns, adjust R2				
390	G20	Screw R1 all the way in Unscrew R1 by 4 turns, adjust R2				
450	G20	Screw R1 all the way in Unscrew R1 by 4 turns, adjust R2				
499	G20	Screw R1 all the way in Unscrew R1 by 2.5 turns, adjust R2				
525	G20	Screw R1 all the way in Unscrew R1 by 2.5 turns, adjust R2				
600	G20	Screw R1 all the way in Unscrew R1 by 2.5 turns, adjust R2				

INFORMATION : **If the boiler is operated with natural gas (G20 and G25) containing a hydrogen content (H_2) of up to 20%, combustion hygiene in the flue gases is checked exclusively on the basis of the O content$_2$ (%).**

DANGER : **If the boiler is operated with natural gas containing up to 20% hydrogen (H_2), the factory setting of the G20 gas valve should not be altered.**
Failure to comply with this setting may result in damage to the installation (e.g. overheating, premature ageing, etc.) and may cause serious injury (e.g. carbon monoxide CO poisoning).

7.9. Cleaning the gas filter

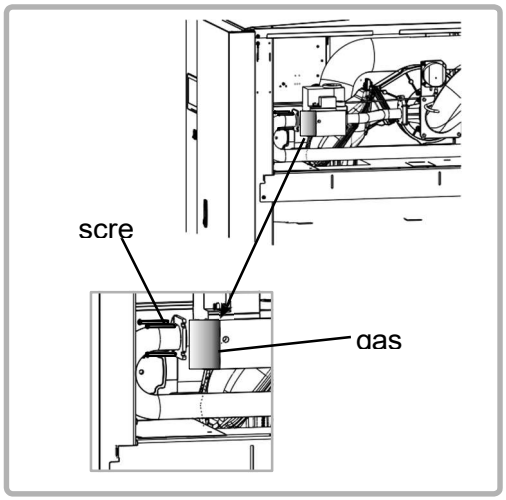


Figure 47 - Gas filter on VARMAX MK2 180 to 600 (20 mbar) and VARMAX 180 to 320 (Propane)

VARMAX MK2 20 mbar and Propane :

- Unscrew the 4 gas filter retaining screws.
- Carefully remove the gas filter.
- Clean the gas filter using a blower **ONLY**.
- Refit the filter and tighten the 4 M5 screws (torque tightening torque = 5 N.m).

CAUTION: **Check seals after reassembly.**

7.10. Cleaning exchangers and changing seals

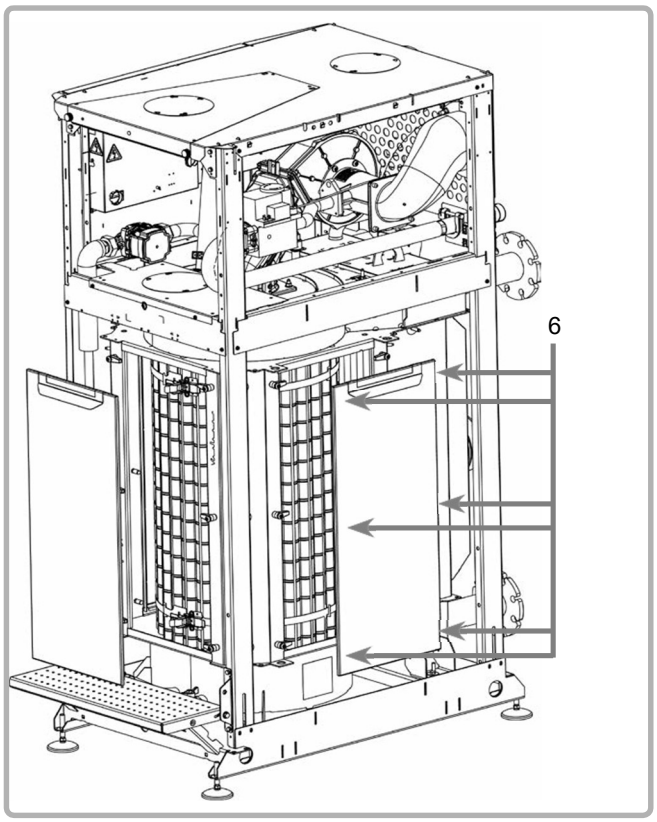


figure 49 - Removal of exchanger doors

Removing the exchanger doors :

- Remove the front and side insulating cushions to gain access to the 3 inspection doors.
- Using a 13 mm spanner, unscrew the inspection door fixing screws until the clamps rotate.
- Then remove the door.
- Proceed in the same way for the other 2 access doors.

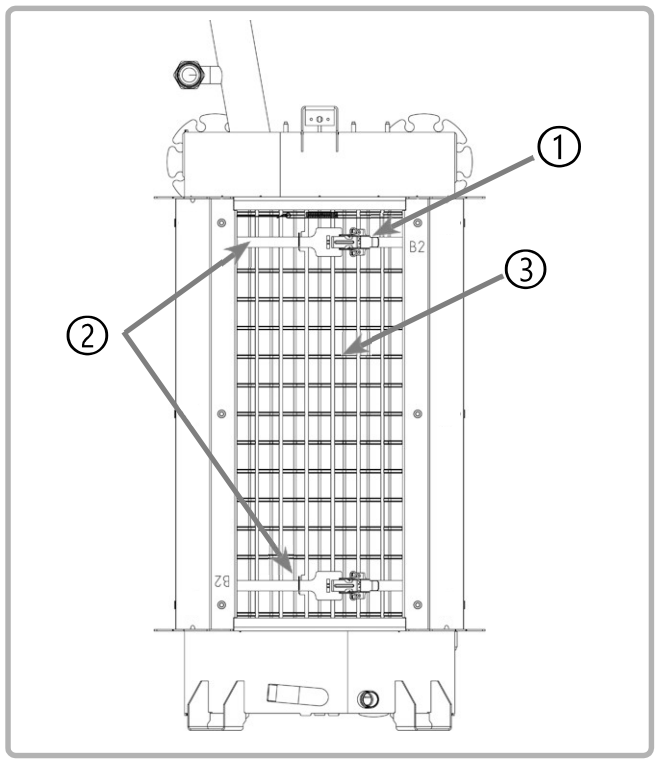


figure 50 - Removing the baffles

Dismantling the baffles :

- Open the fittings (item 1) which close the 2 smoke baffle rings (item 2).
- Remove these 2 bands (identify them so that they can be refitted in the same position) then remove the smoke baffles (item 3). Also identify them so that they can be refitted in the same position.

Cleaning baffles and exchangers :

- Brush the smoked baffles with a stainless steel or plastic brush, taking **care not to distort them geometrically**.
- Clean by brushing or, if the heat exchanger is heavily soiled, by washing with water and drying. When washing with water, pay attention to the electrical components.

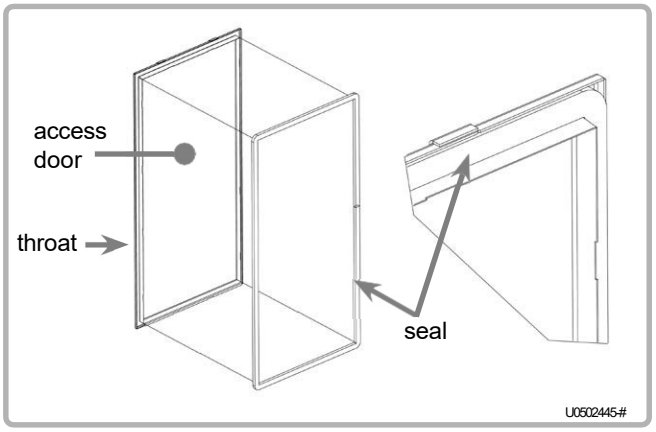


figure 51 - Changing the door seals

Changing door seals :

- Remove the seals from their grooves and replace them with the new seals contained in the maintenance kit (see figure 499).

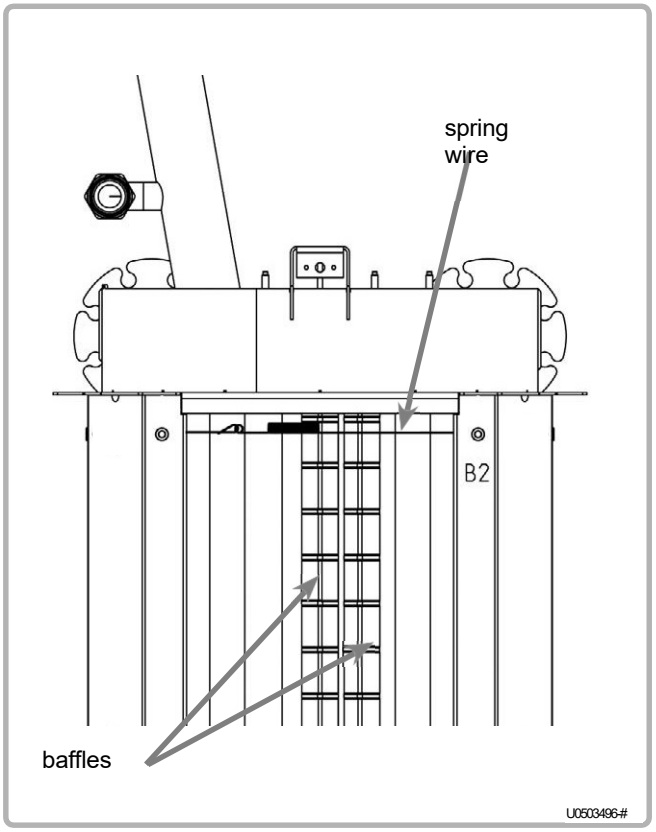


figure 52 - Reassembly

Reassembly :

- Insert the baffles under the "spring wire" between each upper part of the exchanger tubes. Ensure that the baffle plates are replaced evenly around the circumference of the heater.

- Position the strapping in the lugs of the baffle plates.

- Tighten the toggles and **check that each of the baffles is correctly positioned on the heat exchanger tubes at the top and bottom**.

  Nota :
  A lack of baffle plates in the area between the 2 hoops is normal.

Checking for leaks :

- After refitting the 3 inspection doors (screw tightening torque = 15 N.m), use a foaming agent to check the seal around the inspection doors before restarting the boiler (see section 7.6).

7.11. Cleaning the burner and changing the seals

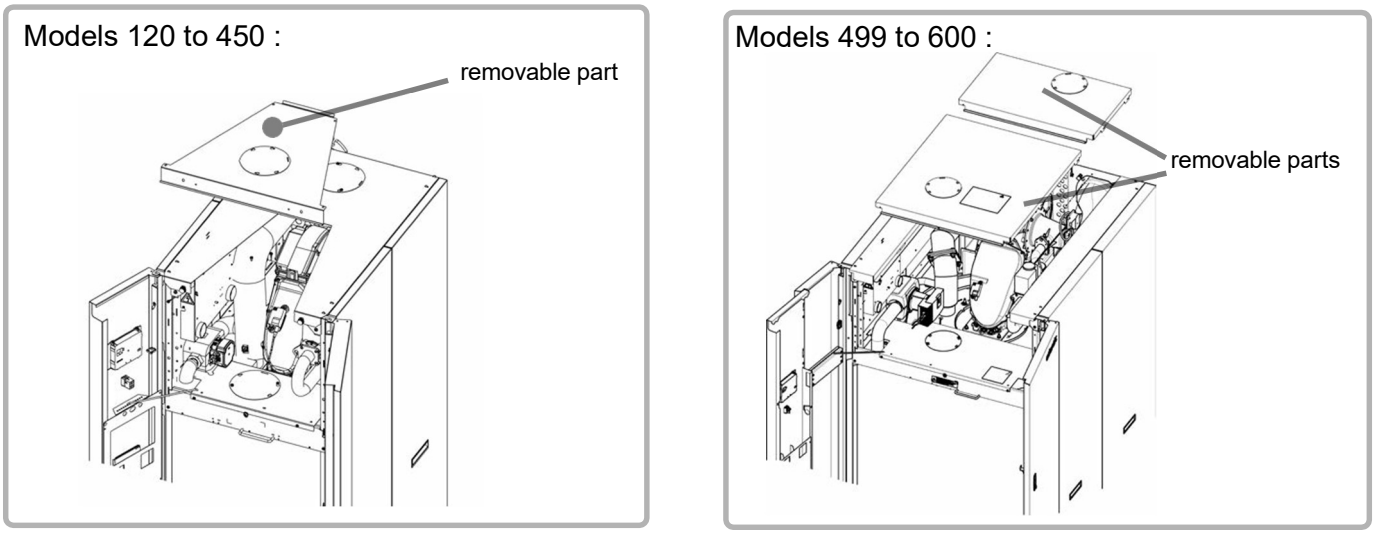


figure 53 - Removable top covers

To facilitate access to the flue collar and then the burner rail, part of the upper casing has been removed. removable (see section 4.8.).

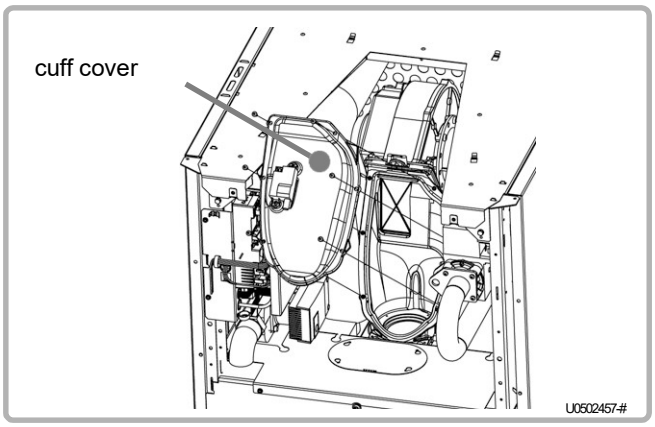


figure 54 - Removing the sleeve cover

Dismantling the burner rail :

- Remove the 2 electrode blocks before dismantling the burner bar (see section 7.4).
- Unscrew the screws securing the cover of the cuff to remove it.

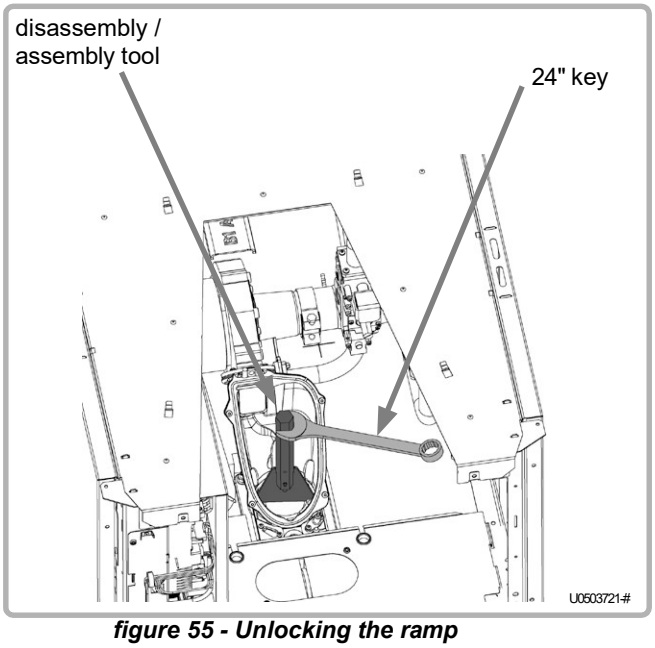


figure 55 - Unlocking the ramp

- Position the burner bar removal/installation tool (the tool is located in the document holder on the left-hand door).
- Position the tool in the notches on the clamp and press it onto the clamp (pressing downwards).

- Turn the tool anticlockwise to unlock the ramp.

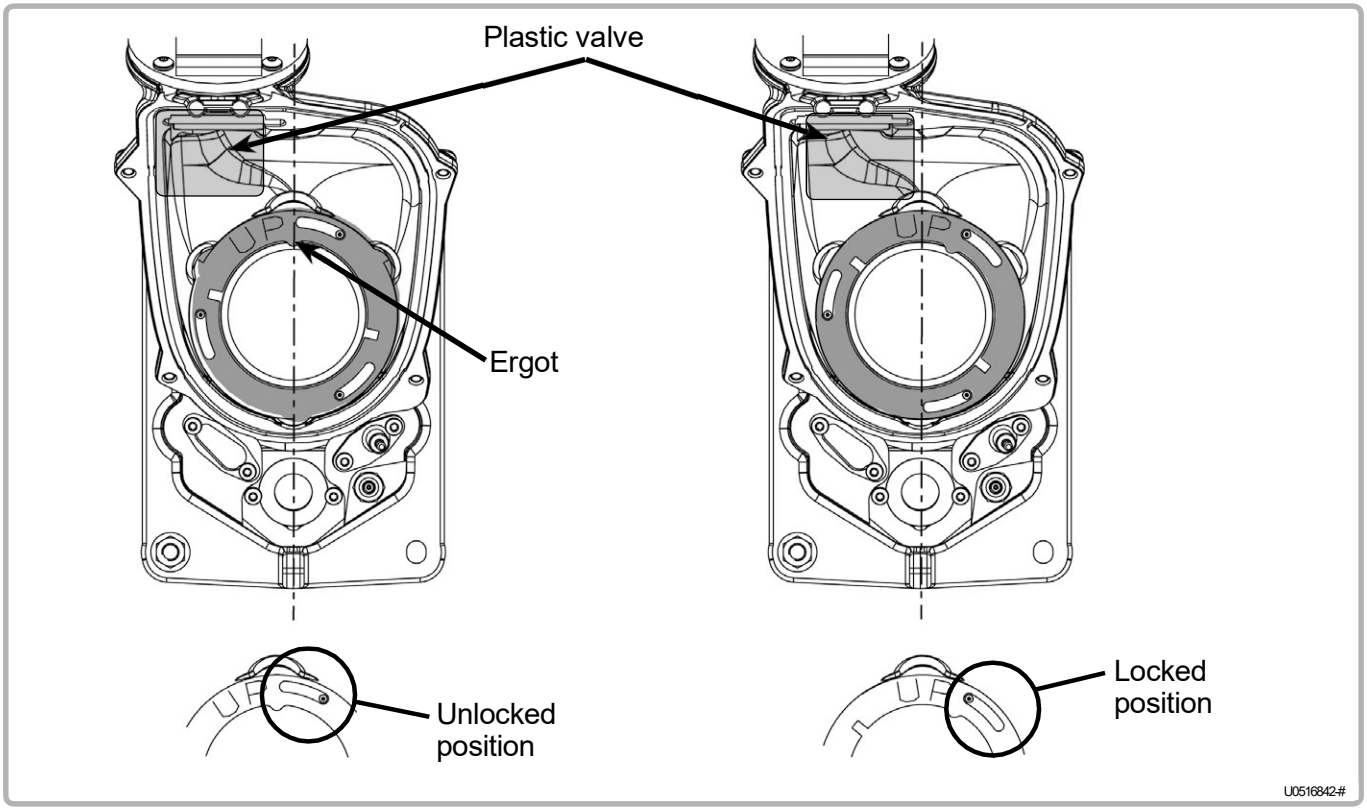


figure 56 - Clamp positions

- Remove the clamp from the burner rail.
- Remove the burner bar from its position.

CAUTION: **Remove the plastic flap in the sleeve before removing the burner rail. Do not forget to reposition it when refitting.**

ATTENTION : **When removing the burner bar, avoid rubbing its surface. "metal knit" against the cuff.**

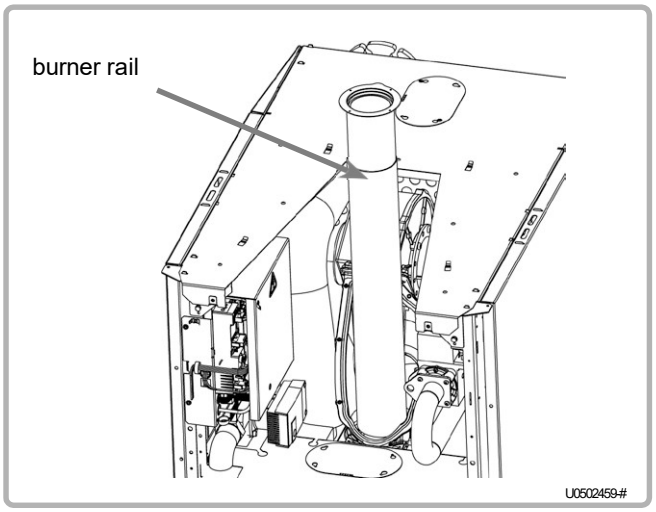


figure 57 - Cleaning the ramp burner

Cleaning the burner bar :

- Vacuum the entire "metal knit" surface.
- Check the condition of the gas bar lining.

CAUTION: **Maintain a distance of 10 mm between the suction nozzle and the "knitted fabric metallic". Friction on the burner rails can cause damage. NEVER USE A WIRE BRUSH.**

WARNING: **Always replace the gasket located under the burner rail flange.**

Reassembly :

- Place the burner bar in the sleeve (taking care not to rub the "metal knit" on the sleeve). The burner bar is positioned correctly by means of an orientation pin.
- Position the clamp (the engraved text "UP" must be visible and the inner lug must be located on the rear axle of the boiler - see Figure 55).
- Position the burner bar removal/installation tool in the holes provided. notches in the clamp.
- Press downwards and rotate the handle in the direction of the arrow. clockwise to lock the ramp (see Figure 55).

- Check t h e condition of the gasket on the cover side of the liner, and replace it if necessary.
  necessary.
- Position the cover on the sleeve.
- Screw the cover onto the sleeve using the screws (tightening torque = 5 N.m).
- Refit the 2 electrode blocks.

CAUTION: **Check the various seals after assembly. In the case of when using a foaming product, take care with the connection of the ionisation electrode.**

8. END OF PRODUCT LIFE

Proper disposal and recycling of this product will prevent damage to the environment and risks to health.





8.1. Other countries

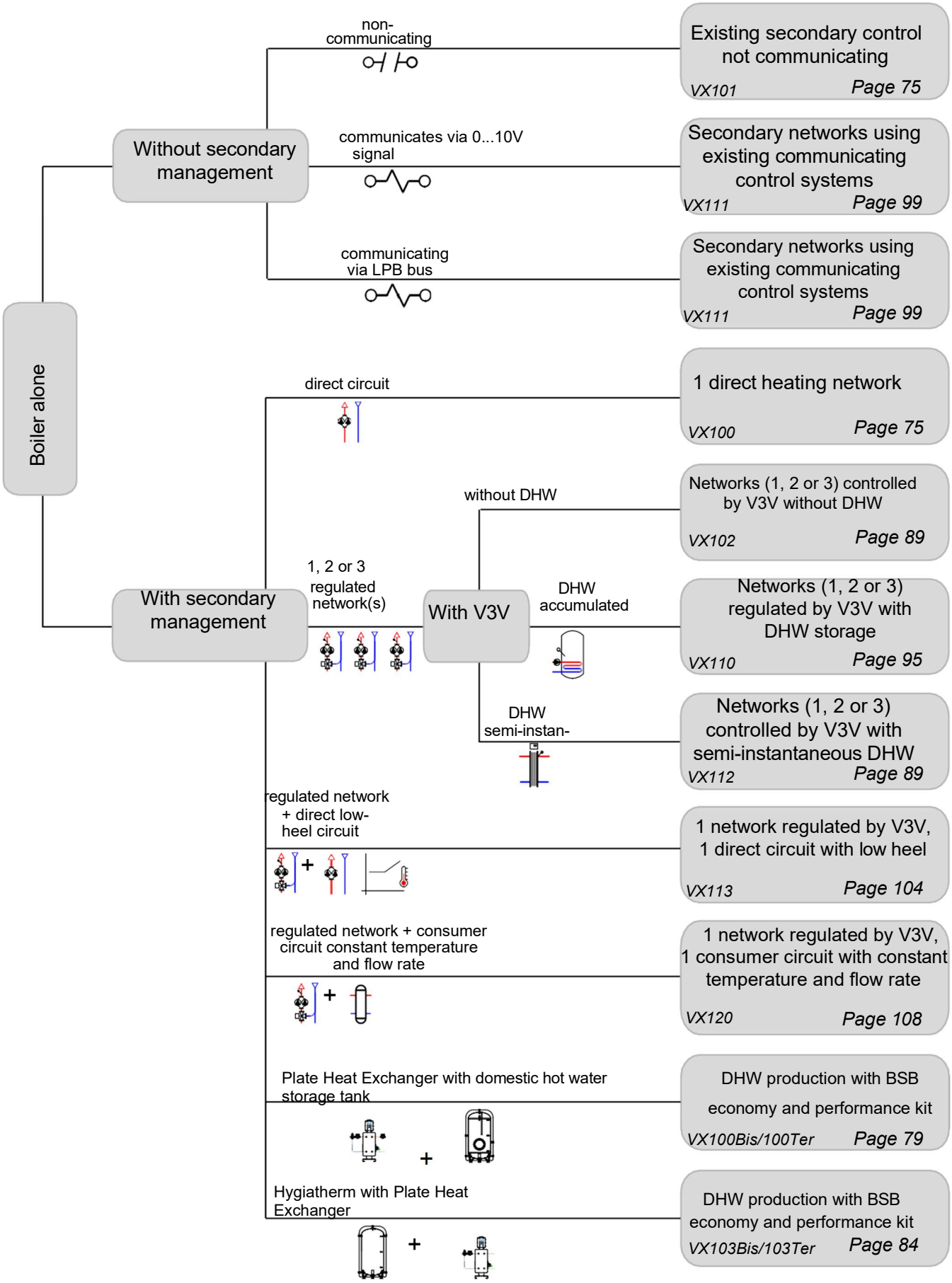
1. For disposal of the product and parts, contact public or private waste disposal companies.
2. For further information on the appropriate disposal of the product, contact your local council, waste collection and treatment service or the point of sale where the product was purchased.

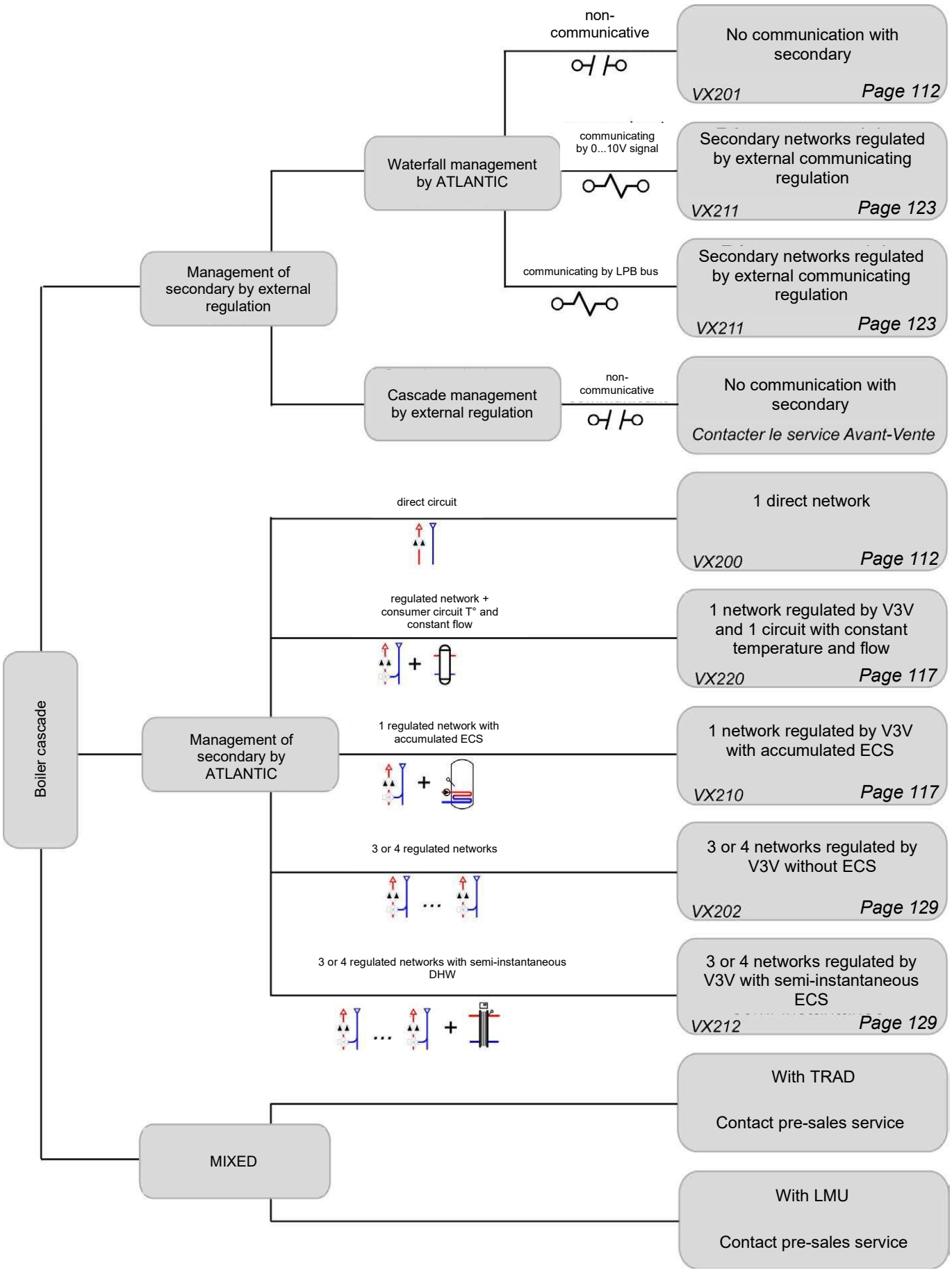
VARMAX MK2 MK2 - *Installation Instructions*



9. HYDRAULIC DIAGRAMS AND SETTINGS

9.1. Selection chart




Boiler cascade
Management of secondary by external regulation
Waterfall management by ATLANTIC
non-communicative
No communication with secondary
VX201
Page 112
communicating by 0...10V signal
Secondary networks regulated by external communicating regulation
VX211
Page 123
communicating by LPB bus
Secondary networks regulated by external communicating regulation
VX211
Page 123
Cascade management by external regulation
non-communicative
No communication with secondary
Contacter le service Avant-Vente
Management of secondary by ATLANTIC
direct circuit
1 direct network
VX200
Page 112
regulated network + consumer circuit T° and constant flow
1 network regulated by V3V and 1 circuit with constant temperature and flow
VX220
Page 117
1 regulated network with accumulated ECS
1 network regulated by V3V with accumulated ECS
VX210
Page 117
3 or 4 regulated networks
3 or 4 networks regulated by V3V without ECS
VX202
Page 129
3 or 4 regulated networks with semi-instantaneous DHW
3 or 4 networks regulated by V3V with semi-instantaneous ECS
VX212
Page 129
MIXED
With TRAD
Contact pre-sales service
With LMU
Contact pre-sales service

9.2. Symbols used in the diagrams

Symbol	Function
	Isolation valve open
	Motorised 2-way valve
	Filter
	Safety group
	Sludge container
	Outdoor sensor

Symbol	Function
	Balancing valve
	Motorised 3-way valve
	Non-return valve
	Pump
	Steam trap
	Temperature sensor

9.3. List of diagrams



ATTENTION: **Constant temperature operation with variable flow rate and direct instantaneous DHW production on plate heat exchanger without buffer tank prohibited.**

BOILER ALONE 75

1 direct heating network, or existing non-communicating secondary control - ***VX100 - VX101*** 75

DHW production with Plate Heat Exchanger and domestic hot water storage tank - ***VX100 Bis - VX100 Ter*** .. 79

Hygiatherm DHW production with Plate Heat Exchanger - ***VX103 Bis - VX103 Ter*** 84

3 regulated networks with or without DHW production - ***VX102 - VX112*** 89

1 network regulated by three-way valve, and DHW production - ***VX110*** 95

Secondary networks by existing control communicating via LPB bus or 0...10V - ***VX111*** 99

1 network regulated by three-way valve, 1 direct circuit with low heel 60°C - ***VX113*** 104

1 network regulated by three-way valve, 1 consumer circuit with constant temperature and flow rate - ***VX120*** 108

BOILER CASCADE 112

1 direct network, no communication with the secondary - ***VX200 - VX201*** 112

1 network regulated by three-way valve, DHW production or 1 direct circuit with constant temperature and flow rate - ***VX210 - VX220*** ... 117

Secondary networks controlled by external controller communicating via LPB bus or 0...10V - ***VX211*** 123

3 or 4 networks regulated by three-way valve, with or without DHW production - ***VX202 - VX212*** 129

BOILER alone

1 direct heating network, or secondary control
existing non-communicating

Diagrams
VX100
VX101
page 1 / 4

A. MAIN HYDRAULIC DIAGRAM AND VARIANT

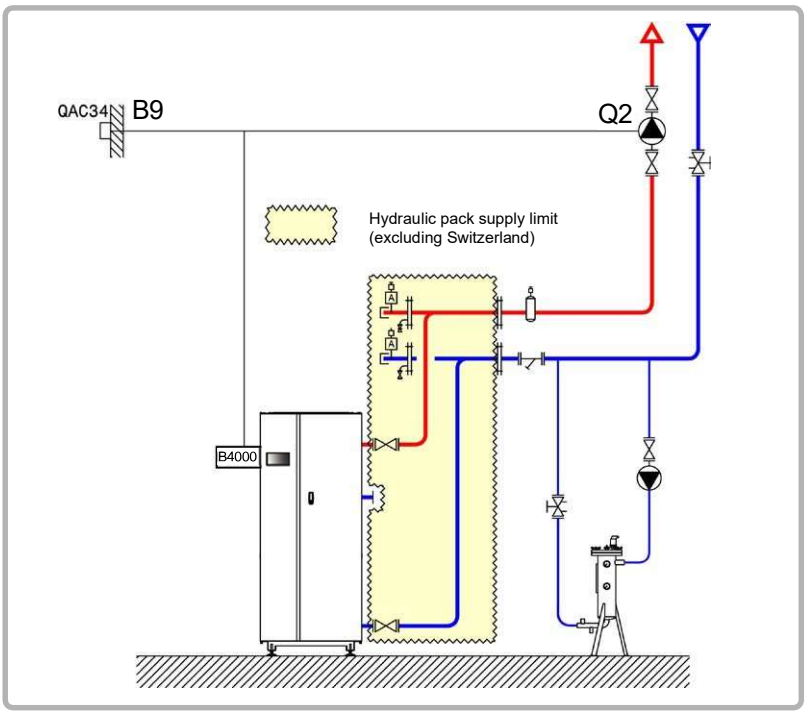


figure 58 - VX100 diagram

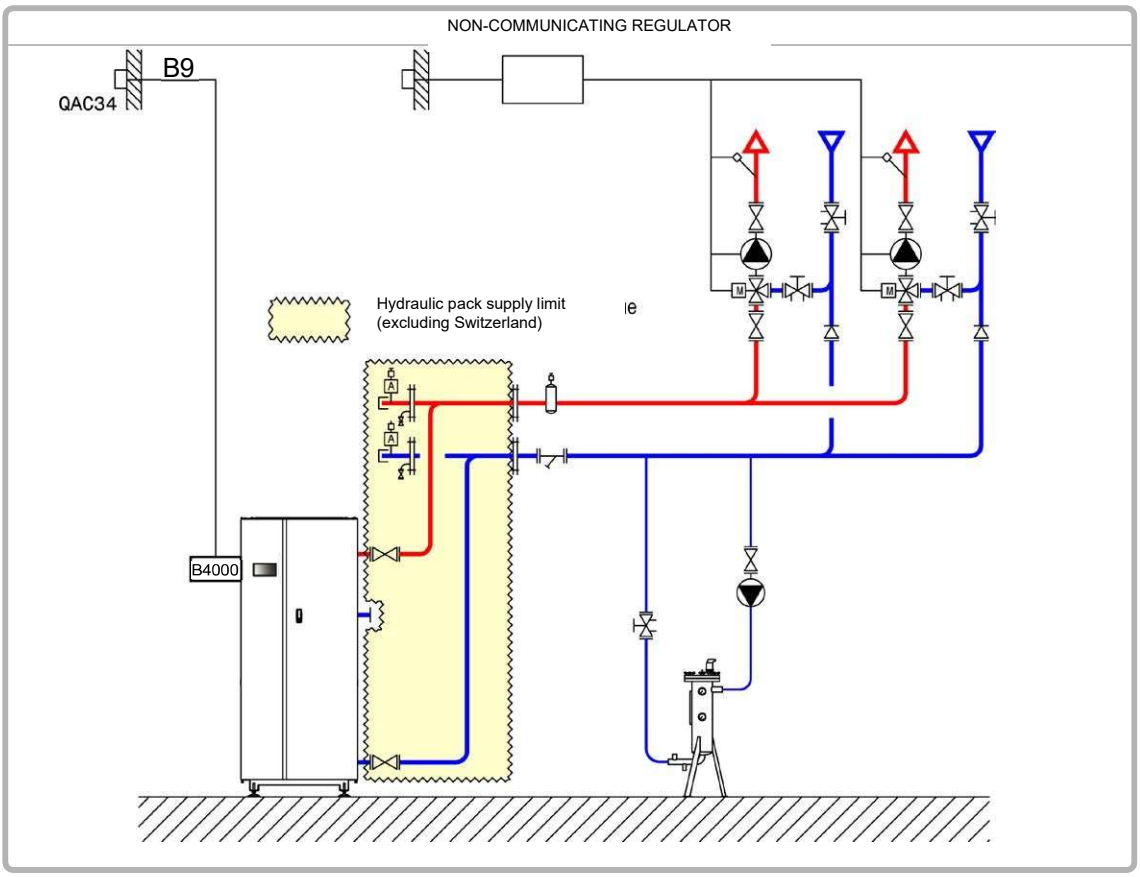


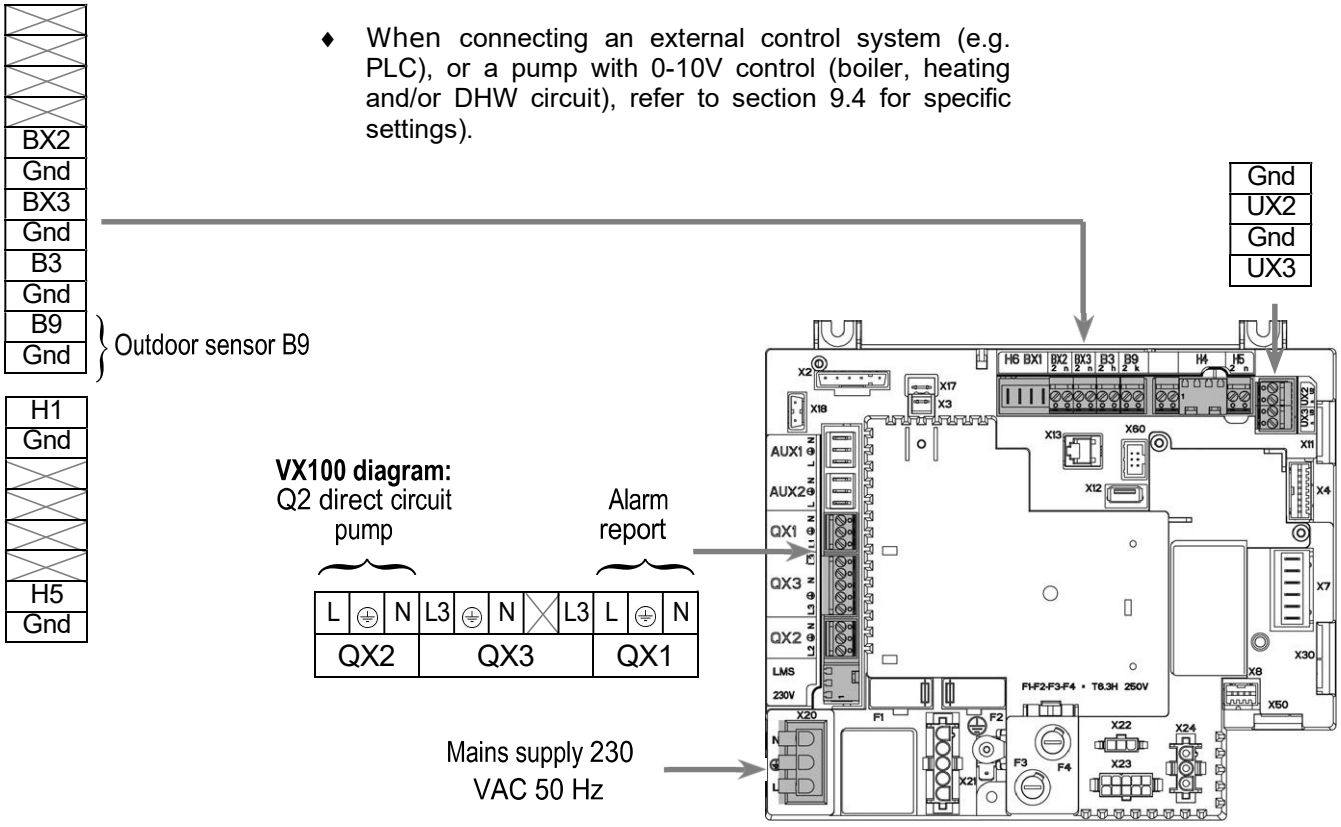
figure 59 - VX101 diagram (variant)

Diagrams: VX100 / VX101	page 2 / 4

B. CONTROL ACCESSORY REQUIRED

	Quantity	Device reference	Order number
Outdoor sensor kit	1	QAC 34	

C. CUSTOMER ELECTRICAL CONNECTION



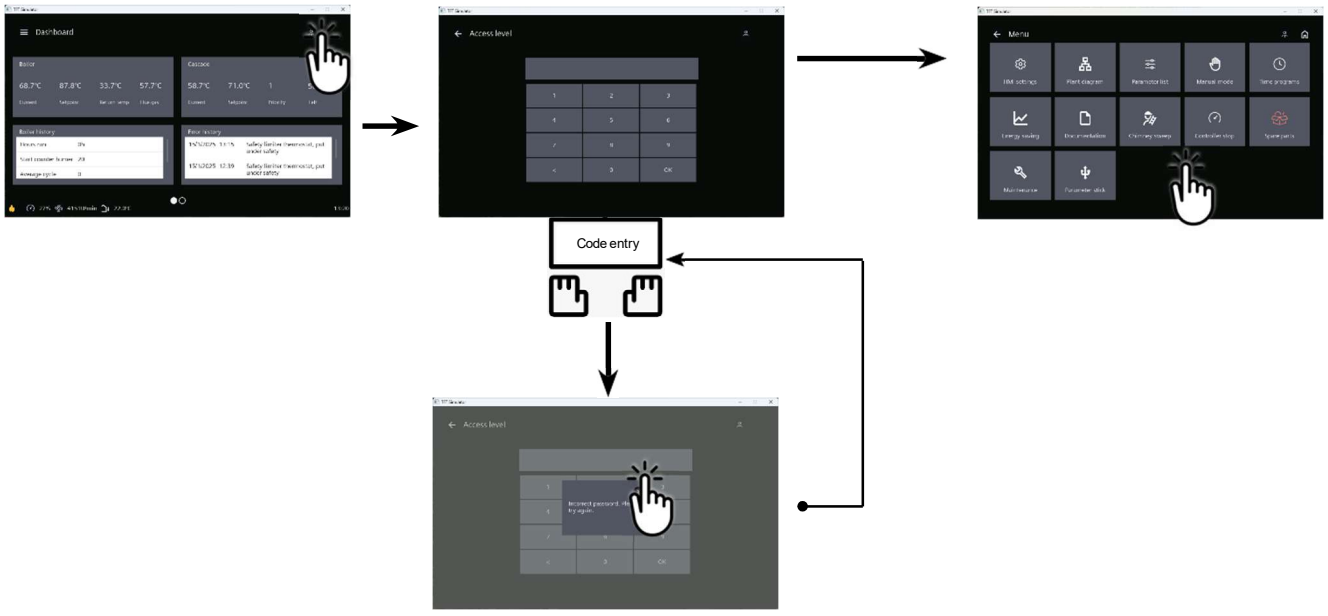
- When connecting an external control system (e.g. PLC), or a pump with 0-10V control (boiler, heating and/or DHW circuit), refer to section 9.4 for specific settings).

D. SPECIFIC START-UP PROCEDURE

☞ Assemble and make the electrical connections to the accessories.

☞ Start up the boiler alone.

☞ Make the following settings at "specialist" level: then code 9360



		Value
• **In the Settings menu, then the Configuration menu**		
Switch on heating circuit 1	Heating circuit 1 (5710)	Walk
Configuring the alarm output	Relay output QX1 (5890)	Alarm output K10 Pump
Define pump output Q2 ***(VX100 diagram)***	Relay output QX2 (5891)	CC1 Q2

INFORMATION : Switch off and restart the boiler

To switch the heating circuit in this mode, go to the tile for the desired heating circuit and click on this icon

Diagrams: VX100 / VX101	page 4 / 4

E. ELECTRICAL AND HYDRAULIC VALIDATION

☞ **See Chapter 10**

F. OPTIMISATION OF SETTINGS

☞**See page 140**

Optimising maintenance :

☞**See Chapter 11**

BOILER alone WITH Plate Heat Exchanger

DHW production with BSB economy and performance kit, domestic hot water storage tank

VX100 Bis
VX100 Ter
diagrams

A. HYDRAULIC DIAGRAMS

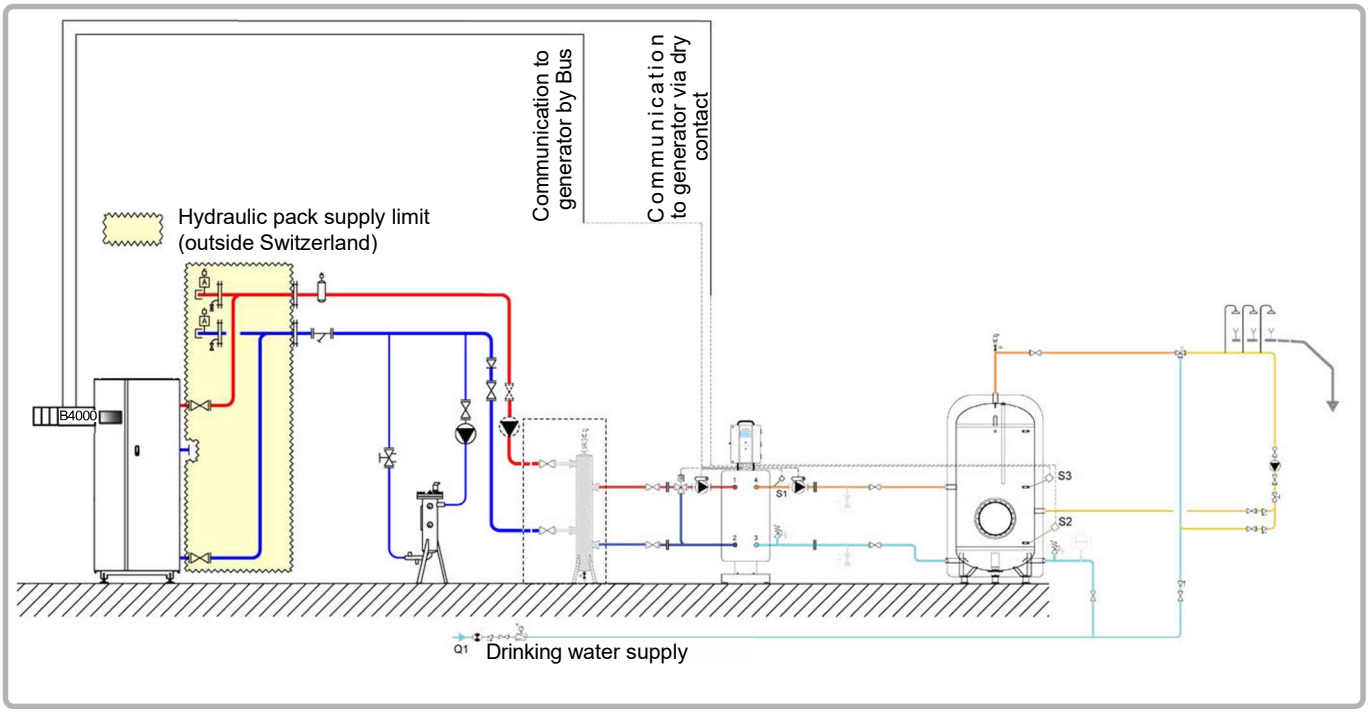


figure 60 - VX100 Bis diagram

Note: this hydraulic arrangement, combined with semi-accumulated sizing, allows sanitary load stops. (V>10 min)

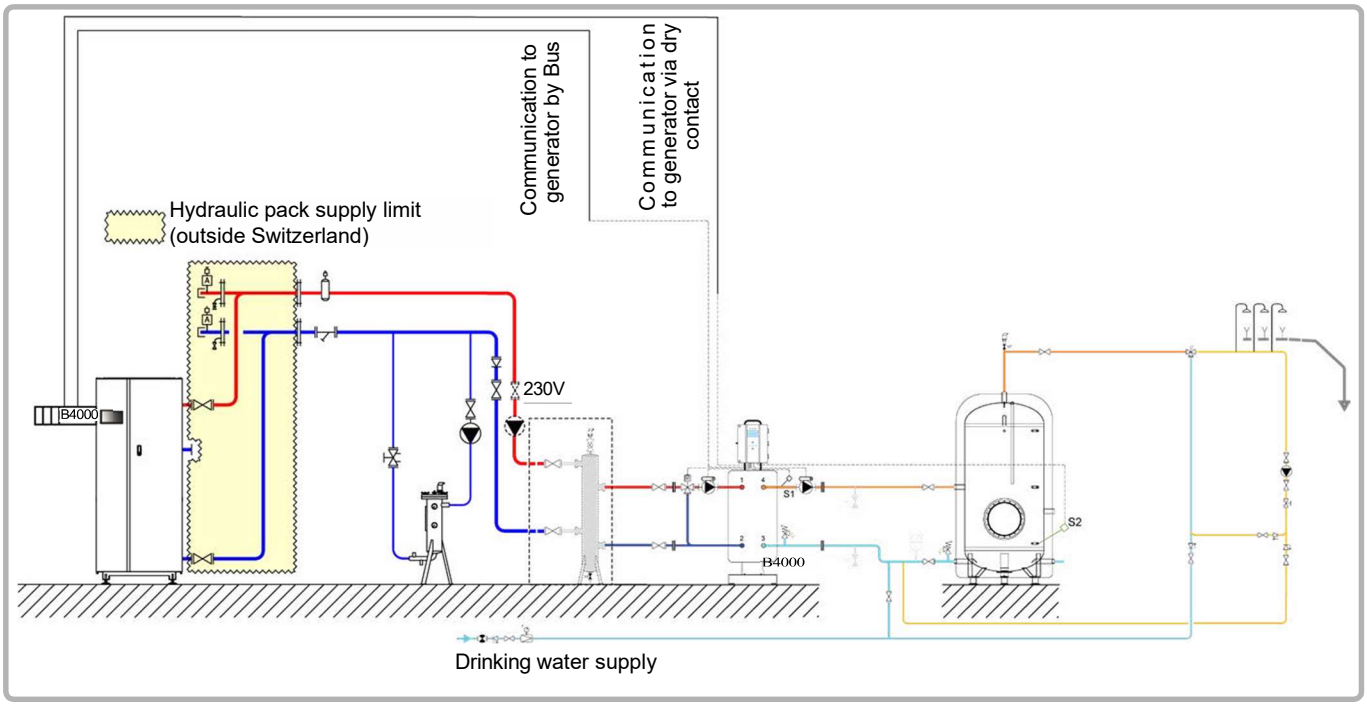


figure 61 - VX100 Ter diagram

Note: this hydraulic set-up, combined with semi-instantaneous sizing, means that you can optimise of consumption, but does not allow sanitary load stops. (V<10 min)

Diagrams: VX100 Bis / VX100 Ter	page 2 / 5

B. CONTROL ACCESSORIES REQUIRED

	Quantity	Device reference	Order number
Eco and Performance probe kit	1	2 probes + one connector	

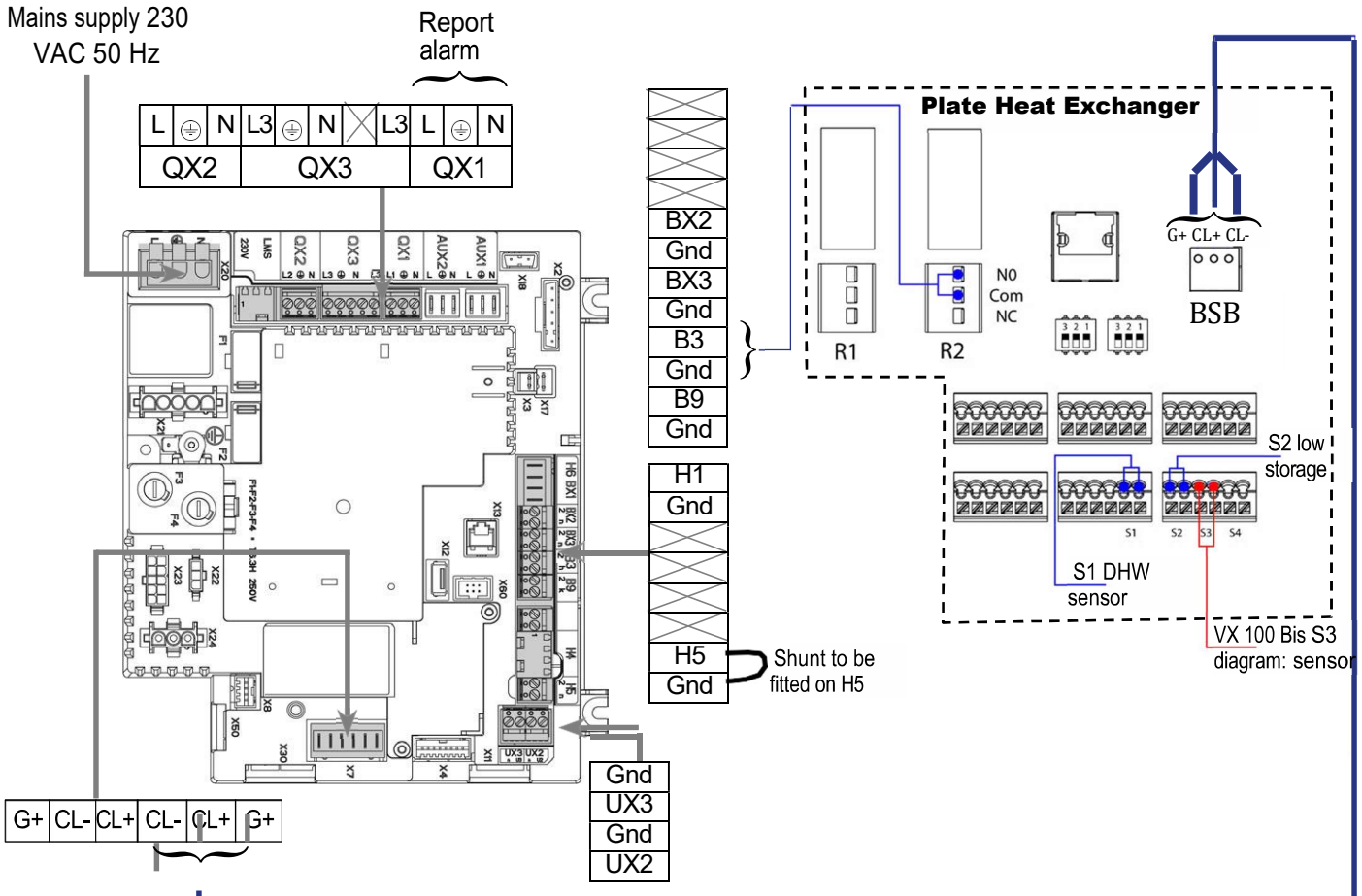
C. DESCRIPTION OF OPERATION

The boiler operates at the flow temperature required to produce domestic hot water.

The hydraulic decoupling cylinder at the hot water production inlet is required when the hydraulic pressure drop is greater than the available head of the plate exchanger primary pumps. The charge pump of the upstream cylinder of the plate exchanger must be sized for a flow rate equal to P/30, P DHW power in th/h supplied at time t with P mini equal to the minimum power supplied by the boiler while still being greater than the primary flow rate of the DHW exchanger.

The domestic hot water production system has its own control system but communicates with the boiler. When the "Economy and performance" and "Auto adapt" functions are activated, the PLATE HEAT EXCHANGER sends the necessary configuration to the Atlantic n°1 boiler via the BSB bus and then sends the set point adapted to the DHW requirements (the set point can vary over time depending on the requirement).

D. CUSTOMER ELECTRICAL CONNECTION

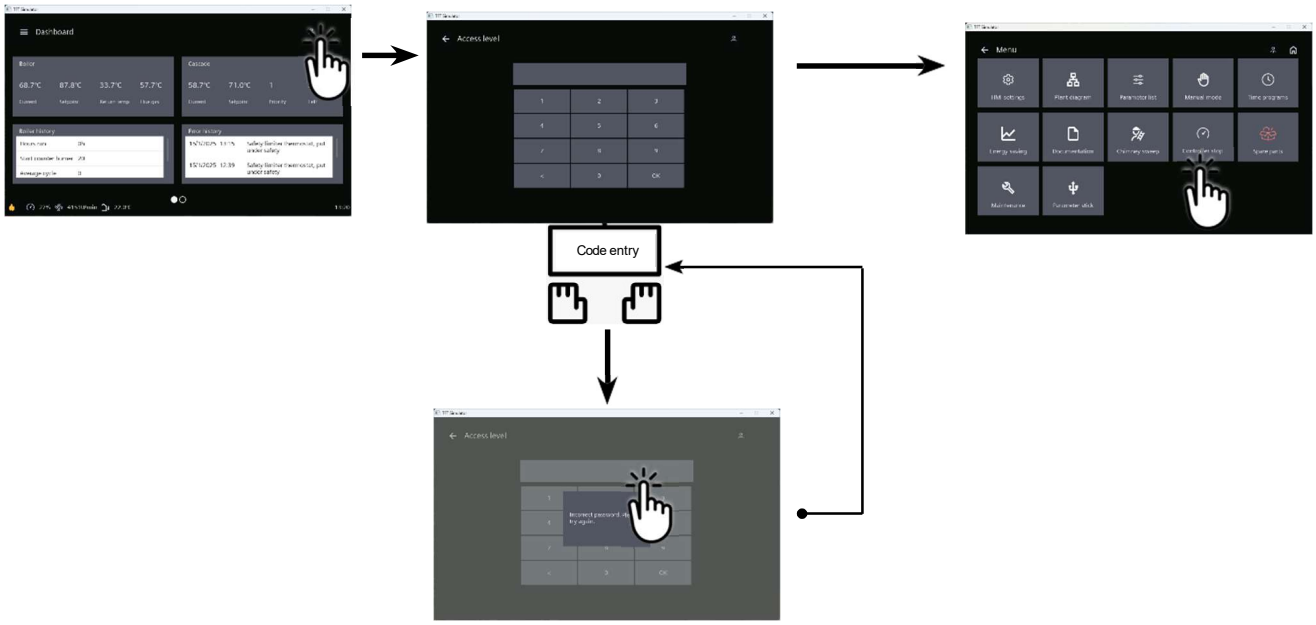


E. SPECIFIC START-UP PROCEDURE

☞ Assemble and make the electrical connections to the accessories.

☞ Assemble and make the electrical connections to the accessories.

☞ Make the following settings at "specialist" level: then code 9360



Line no. ***Value***

- **In the Settings menu, then the Configuration menu**

Configuring the alarm output — Relay output QX1 (5890) | Alarm output K10

INFORMATION : **Program the Plate Heat Exchanger, then switch off and restart the boiler.**

The PLATE HEAT EXCHANGER sends the necessary configuration to the Atlantic N°1 boiler via the BSB bus and then sends the set point.
adapted to DHW requirements (the set point can vary over time depending on requirements)

INFORMATION : **is dedicated to DHW production.**
Parameters 5977 and 5978 are no longer available.

Diagrams: VX100 Bis / VX100 Ter

On the Plate Heat Exchanger VX100 Bis diagram (charge stop)

Relay	Assignment
R2	DHW priority

Menu / Settings / Equipment / Temperature sensor	
S2 sensor type	Low storage tank sensor / PT100
S3 sensor type	Storage tank medium sensor / PT100

Optional: you can define alarm thresholds linked to the reading of probes S2 and S3 ("low storage tank" probe and "middle storage tank" probe that you have just declared):
Menu* / Settings / *System monitoring

Menu / Settings / Economy and comfort / Economy and performance		
Storage definition	Number of storage tanks	1
	Total storage volume	> V10 min
Drawdown and holiday periods	Drawing periods	Residential, commercial or customised
Communication and sensors	DHW priority relay	R2
	Low balloon" sensor	S2 probe
	Balloon environment" sensor	S3 probe
Production and storage temperature	Storage tank setpoint	63 °C
	Automatic storage setpoint	Yes
Auto-Adapt	AutoAdapt' function activated	Yes (*)
Activating the function	Activate the EcoPerf function	Yes

(*): requires an Atlantic boiler and the BSB link to be connected between the generator and the W3100. If this is the case, leave the parameter at "No".



When the "Economy and performance" and "Auto adapt" functions are activated, the PLATE HEAT EXCHANGER sends the necessary configuration to the Atlantic n°1 boiler via the BSB bus and then sends the set point adapted to DHW requirements (the set point can vary over time depending on requirements).

List of boiler parameters modified by the PLATE HEAT EXCHANGER:

In the Settings menu, then the Configuration menu :

- DHW sensor (5730): Thermostat
- H5 input function (5977): Consumer 2 circulator request
- Relay output QX4 (5894): DHW pump/valve Q3

NOTE: To prevent programming errors during the life of the boiler, the PLATE HEAT EXCHANGER will check these configuration parameters from time to time.

Diagrams: VX100 Bis / VX100 Ter

On the Plate Heat Exchanger VX100 Ter diagram (continuous charge)

Relay	Assignment
R2	DHW priority

Menu / Settings / Equipment / Temperature sensor	
S2 sensor type	Low storage tank sensor / PT100

Optional: you can define alarm thresholds linked to the reading of the S2 sensor ("low storage tank" sensor that you have just declared):
Menu* / Settings / *System monitoring

Menu / Settings / Economy and comfort / Economy and performance		
Storage definition	Number of storage tanks	1
	Total storage volume	< V10 min
Communication and sensors	DHW priority relay	R2
	Low balloon" sensor	S2 probe
Production and storage temperature	Storage tank setpoint	63 °C
	Automatic storage setpoint	Yes
Auto-Adapt	AutoAdapt' function activated	Yes (*)
Activating the function	Activate the EcoPerf function	Yes

(*): requires an Atlantic boiler and the BSB link to be connected between the generator and the W3100. If this is the case, leave the parameter at "No".

When the "Economy and performance" and "Auto adapt" functions are activated, the PLATE HEAT EXCHANGER sends the necessary configuration to the Atlantic n°1 boiler via the BSB bus and then sends the set point adapted to DHW requirements (the set point can vary over time depending on requirements).

List of boiler parameters modified by the PLATE HEAT EXCHANGER:

In the Settings menu, then the Configuration menu :

- DHW sensor (5730): Thermostat
- H5 input function (5977): Consumer 2 circulator request
- Relay output QX4 (5894): DHW pump/valve Q3

NOTE: To prevent programming errors during the life of the boiler, the PLATE HEAT EXCHANGER will check these configuration parameters from time to time.

BOILER alone WITH Plate Heat Exchanger *Hygiatherm DHW production with BSB economy and performance kit*	***VX103 Bis*** ***VX103 Ter*** diagrams page 1 / 5

A. HYDRAULIC DIAGRAMS

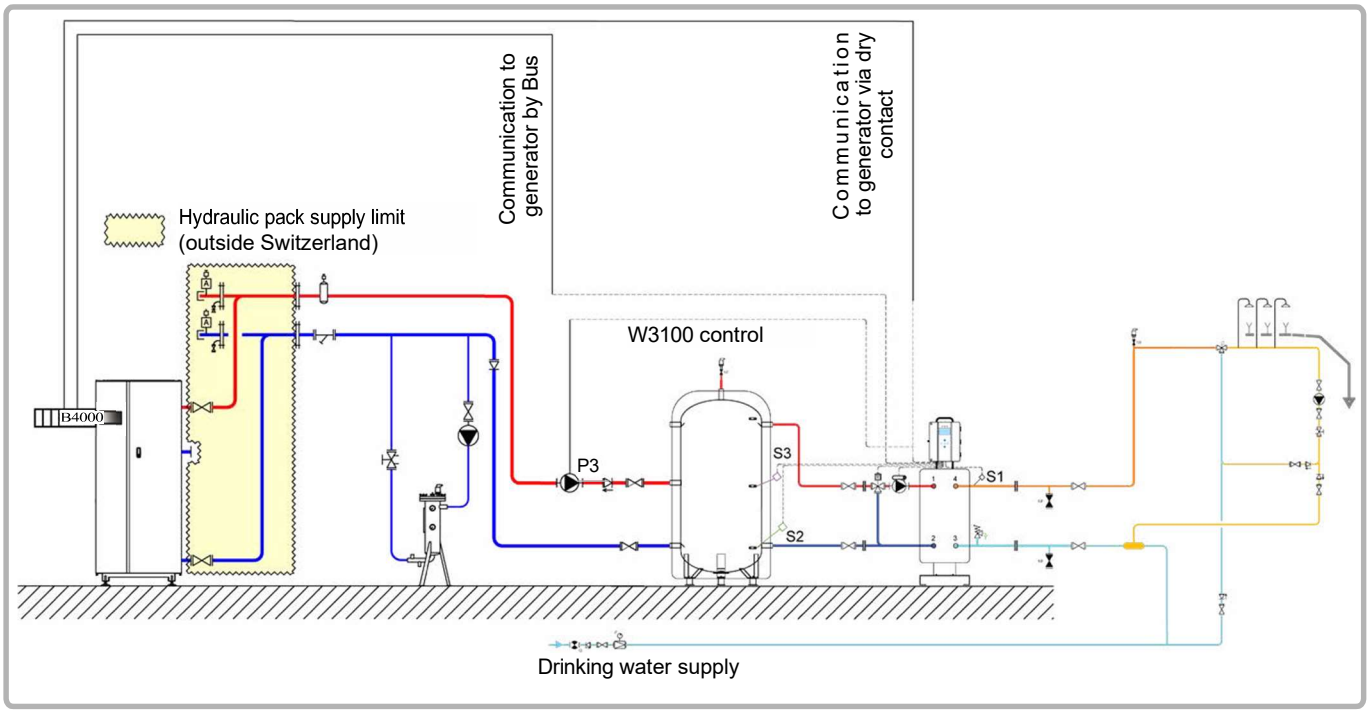


figure 62 - VX103 Bis diagram

Note: this hydraulic arrangement, combined with semi-accumulated sizing, allows sanitary load stops. (V>10 min)

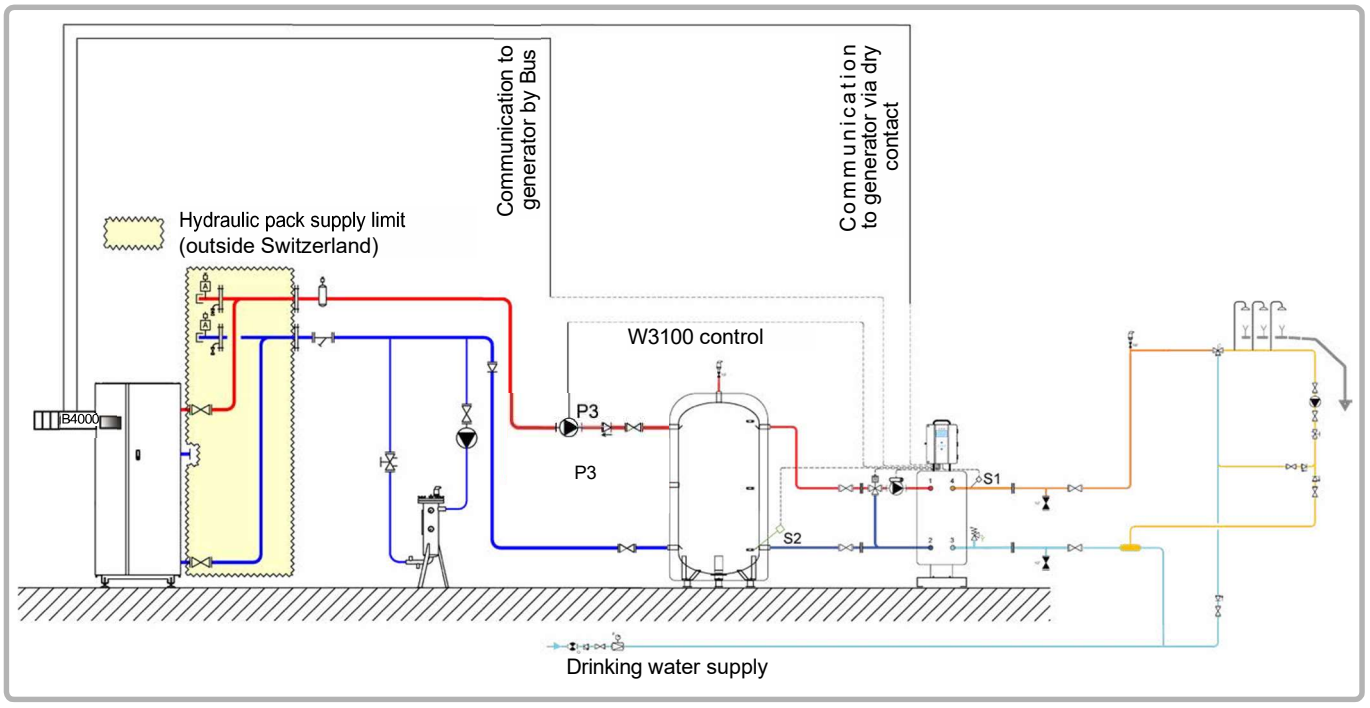


Figure 63 - VX100 Ter diagram

Note: this hydraulic set-up, combined with semi-instantaneous sizing, means that you can optimise of consumption, but does not allow sanitary load stops. (V<10 min)

Diagrams: VX103 Bis / VX103 Ter	page 2 / 5

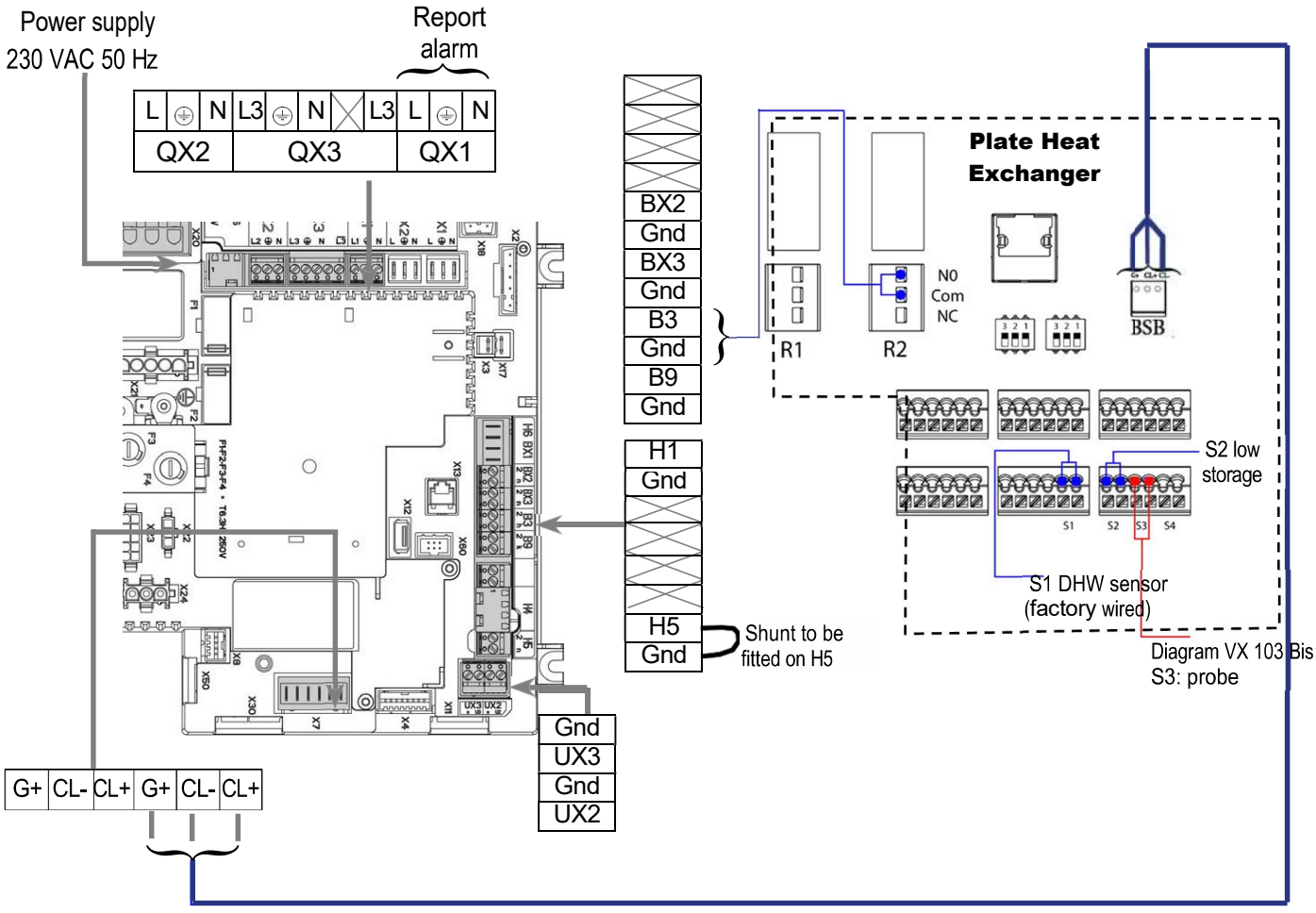
B. CONTROL ACCESSORIES REQUIRED

	Quantity	Device reference	Order number
Eco and Performance probe kit	1	2 probes + one connector	069484

C. DESCRIPTION OF OPERATION

The boiler operates at the flow temperature required to produce domestic hot water. The pump flow rate, in m3/h, is set according to the system's actual requirements and, as a minimum, at P/30 with P boiler output in th/h. The domestic hot water production system has its own control system but communicates with the boiler. When the "Economy and performance" and "Auto adapt" functions are activated, the Plate Heat Exchanger sends the necessary configuration to the Atlantic N°1 boiler via the BSB bus and then sends the setpoint adapted to the DHW requirements (the setpoint can vary over time depending on the requirement).

D. CUSTOMER ELECTRICAL CONNECTION



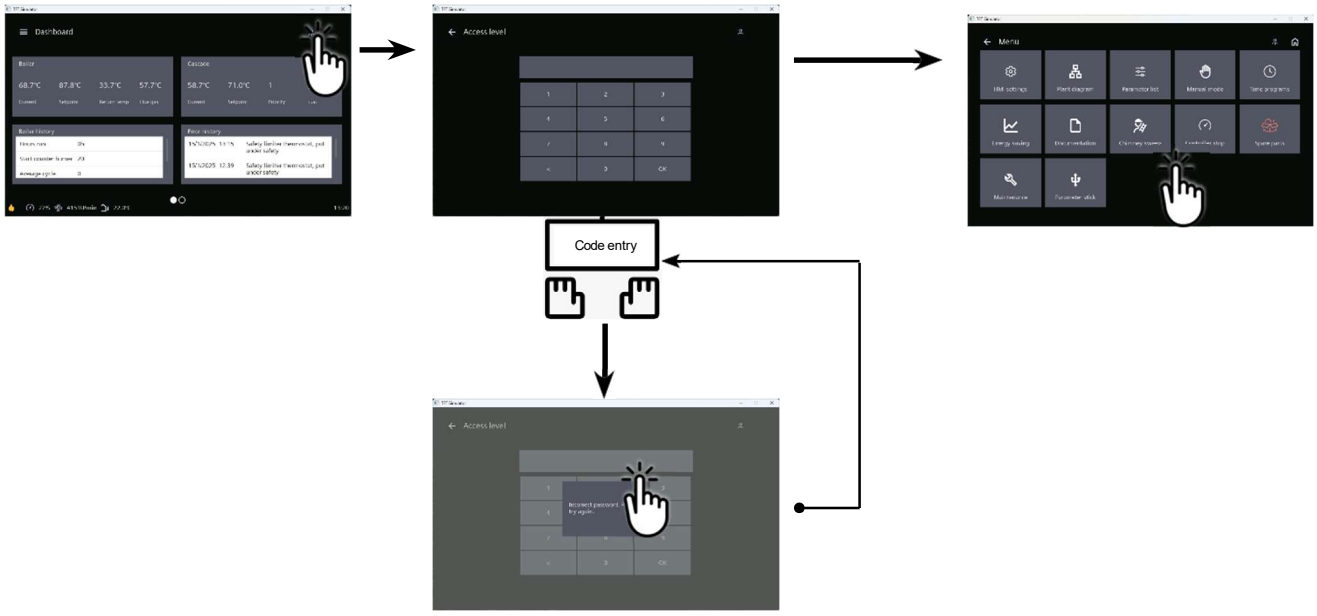
INFORMATION: **Please refer to the Plate Heat Exchanger manual for wiring and settings.**
your primary store charge pump(s).

E. SPECIFIC START-UP PROCEDURE

On the boiler

☞ Assemble and make the electrical connections to the accessories.

☞ Make the following settings at "specialist" level:  then code 9360



	Line no.	*Value*
• **In the Settings menu, then the Configuration menu**		
Configuring the alarm output	Relay output QX1 (5890)	Alarm output K10

INFORMATION:	**Carrying out the Plate Heat Exchanger, then switch off and restart the boiler**

INFORMATION:	**Note: Input H5 is dedicated to DHW production. Parameters 5977 and 5978 are no longer available.**

The PLATE HEAT EXCHANGER sends the necessary configuration to the Atlantic N°1 boiler via the BSB bus and then sends the set point adapted to DHW requirements (the set point can vary over time depending on requirements)

Diagrams: VX103 Bis / VX103 Ter

On the Plate Heat Exchanger VX103 Bis diagram (charge stop)

Relay	Assignment
R2	DHW priority

Menu / Settings / Equipment / Hydraulics	
Hydraulic configuration	Hygiatherm
Menu / Settings / Equipment / Charge pump	
Number of circulators	Following installation
Control mode	according to model

Menu / Settings / Equipment / Temperature sensor	
S2 sensor type	Low storage tank sensor / PT100
S3 sensor type	Low storage tank sensor / PT100

Menu / Settings / Economy and comfort / Economy and performance		
Storage definition	Number of storage tanks	1
	Total storage volume	> V10 min
Drawdown and holiday periods	Drawing periods	Residential, commercial or customised
Communication and sensors	DHW priority relay	R2
	Low balloon" sensor	S2 probe
	Balloon environment" sensor	S3 probe
Production and storage temperature	DHW exchanger flow setpoint	60 °C
	Automatic storage setpoint	Yes
Auto-Adapt	AutoAdapt' function activated	Yes (*)
Activating the function	Activate the EcoPerf function	Yes

(*): requires an Atlantic boiler and the BSB link to be connected between the generator and the W3100. If this is the case, leave the parameter at "No".

When the "Economy and performance" and "Auto adapt" functions are activated, the PLATE HEAT EXCHANGER sends the necessary configuration to the Atlantic n°1 boiler via the BSB bus and then sends the set point adapted to DHW requirements (the set point can vary over time depending on requirements).

List of boiler parameters modified by the PLATE HEAT EXCHANGER:

In the Settings menu, then the Configuration menu :

- DHW sensor (5730): Thermostat
- H5 input function (5977): Consumer 2 circulator request
- Relay output QX4 (5894): DHW pump/valve Q3

NOTE: To prevent programming errors during the life of the boiler, the PLATE HEAT EXCHANGER will check these configuration parameters from time to time.

Diagrams: VX103 Bis / VX103 Ter

On the Plate Heat Exchanger VX103 Ter diagram (continuous charge)

Relay	Assignment
R2	DHW priority

Menu / Settings / Equipment / Hydraulics	
Hydraulic configuration	Hygiatherm
Menu / Settings / Equipment / Charge pump	
Number of circulators	Following installation
Control mode	according to model

Menu / Settings / Equipment / Temperature sensor	
S2 sensor type	Low storage tank sensor / PT100
S3 sensor type	PT100

Optional: you can define alarm thresholds linked to the reading of the S2 sensor ("low storage tank" sensor that you have just declared):
Menu* / Settings / *System monitoring

Menu / Settings / Economy and comfort / Economy and performance		
Storage definition	Number of storage tanks	1
	Total storage volume	< V10 min
Communication and sensors	DHW priority relay	R2
	Low balloon" sensor	S2 probe
Production and storage temperature	DHW exchanger flow setpoint	60 °C
	Automatic storage setpoint	Yes
Auto-Adapt	AutoAdapt' function activated	Yes (*)
Activating the function	Activate the EcoPerf function	Yes

(*): requires an Atlantic boiler and the BSB link to be connected between the generator and the W3100. If this is the case, leave the parameter at "No".

When the "Economy and performance" and "Auto adapt" functions are activated, the PLATE HEAT EXCHANGER sends the necessary configuration to the Atlantic n°1 boiler via the BSB bus and then sends the set point adapted to DHW requirements (the set point can vary over time depending on requirements).

List of boiler parameters modified by the PLATE HEAT EXCHANGER:

In the Settings menu, then the Configuration menu :

- DHW sensor (5730): Thermostat
- H5 input function (5977): Consumer 2 circulator request
- Relay output QX4 (5894): DHW pump/valve Q3

NOTE: To prevent programming errors during the life of the boiler, the PLATE HEAT EXCHANGER will check these configuration parameters from time to time.

BOILER alone *3 regulated networks with or without DHW production*	Schematics ***VX102*** ***VX112*** page 1 / 6

A. MAIN HYDRAULIC DIAGRAM AND VARIANT

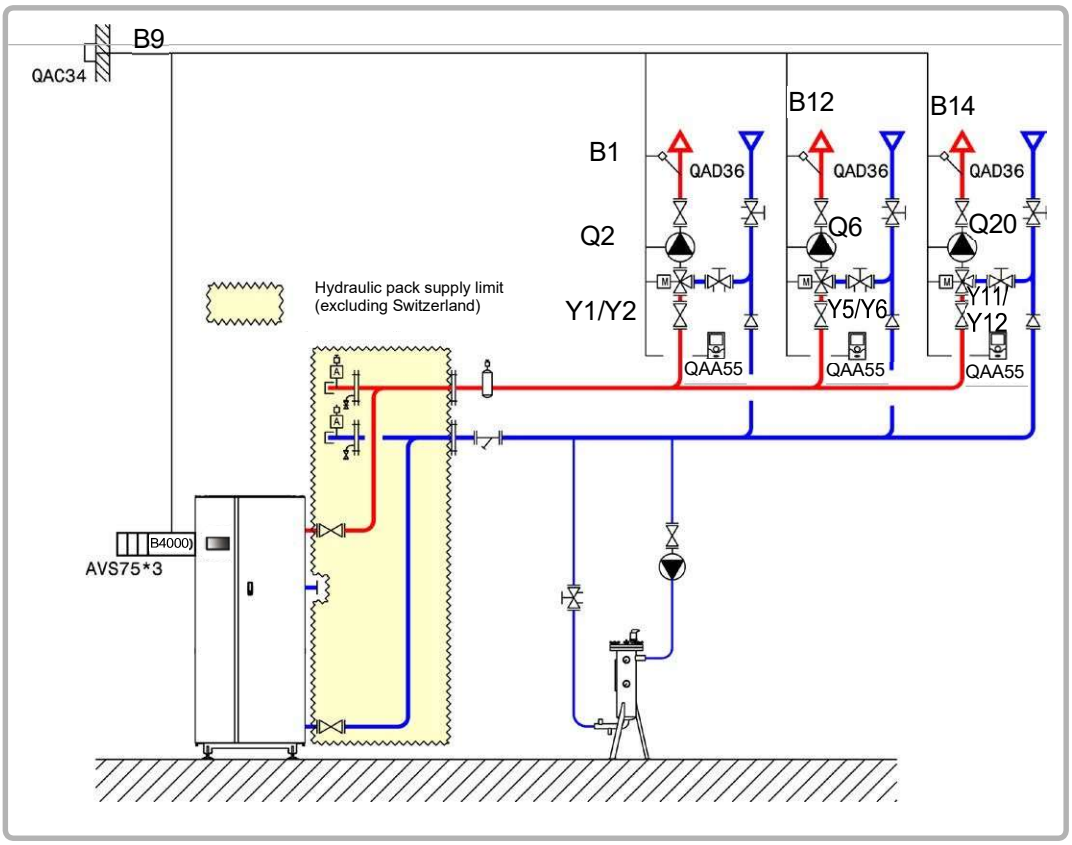


figure 64 - VX102 diagram

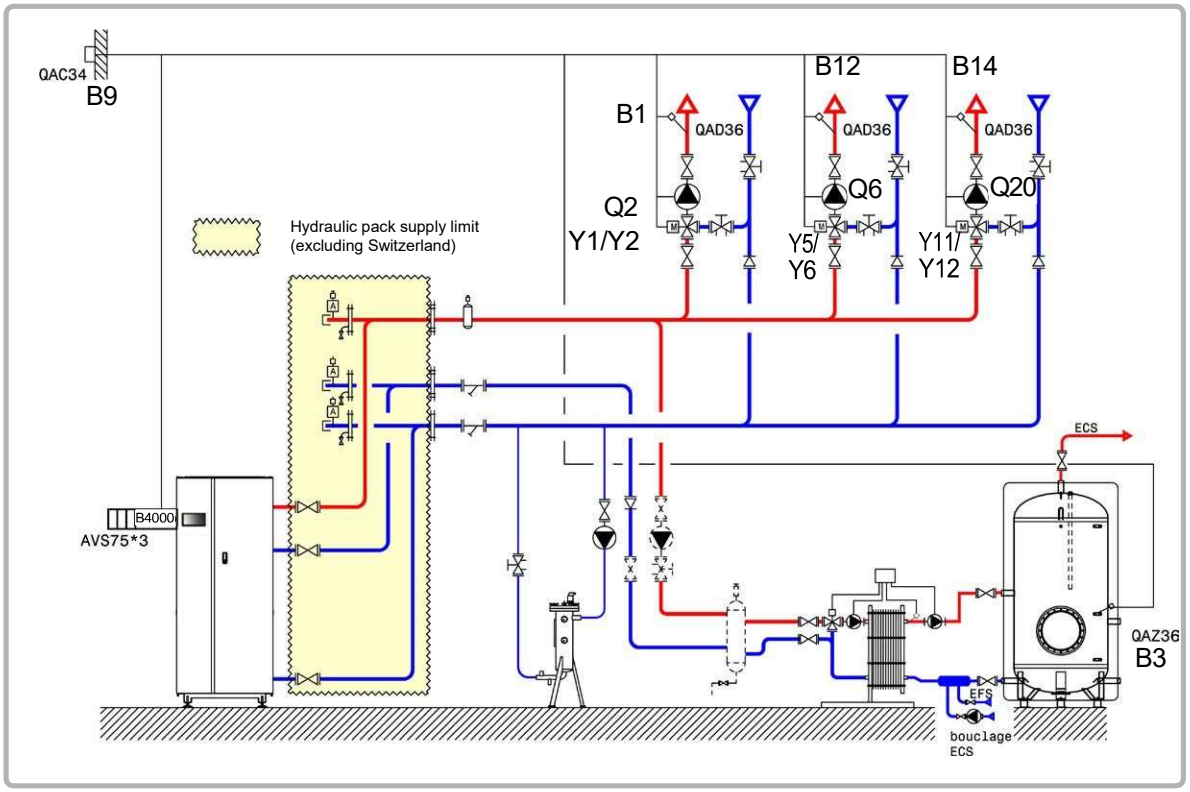


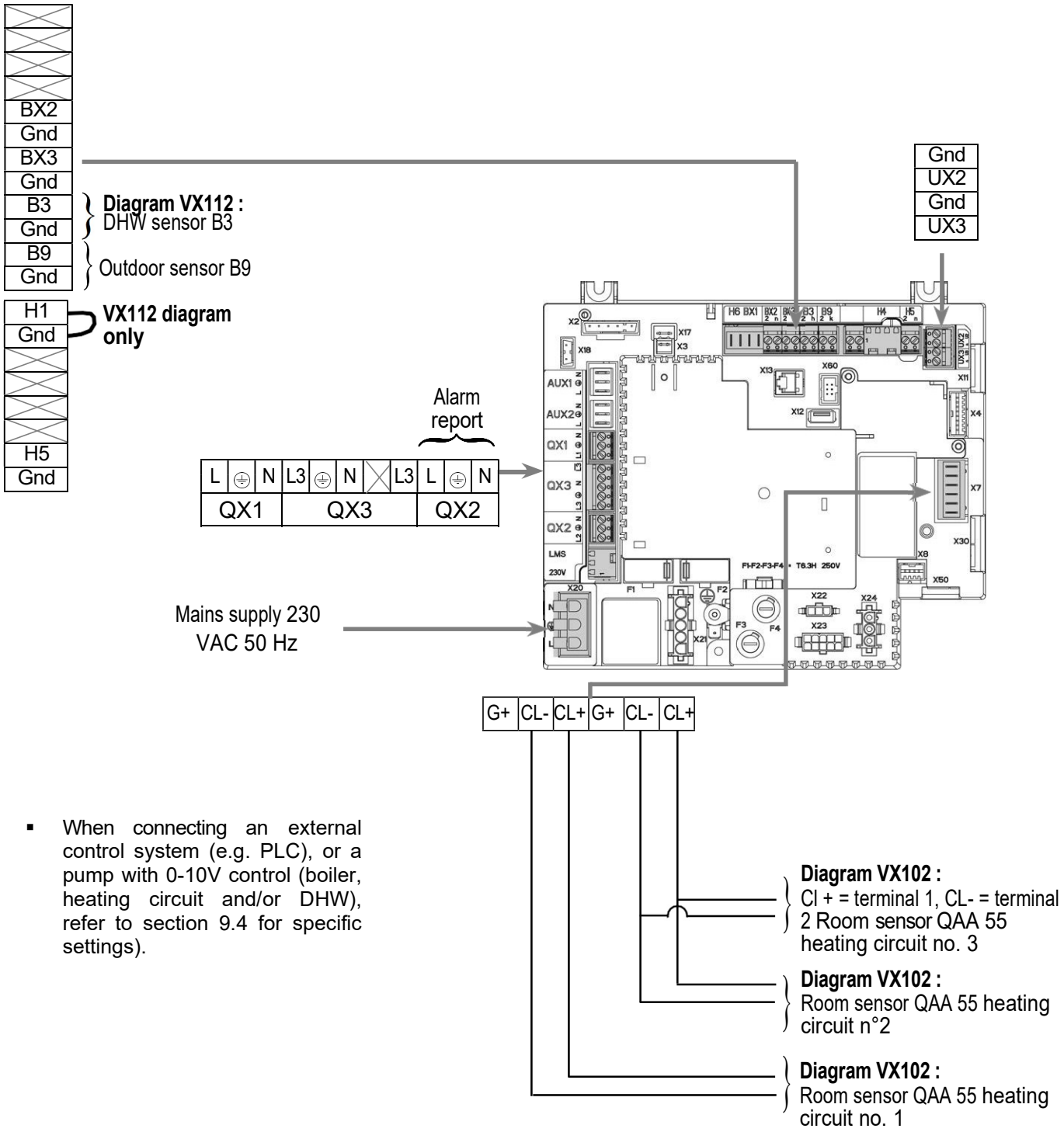
figure 65 - VX112 diagram (variant)

Diagrams: VX102 / VX112	page 2 / 6

B. CONTROL ACCESSORIES REQUIRED

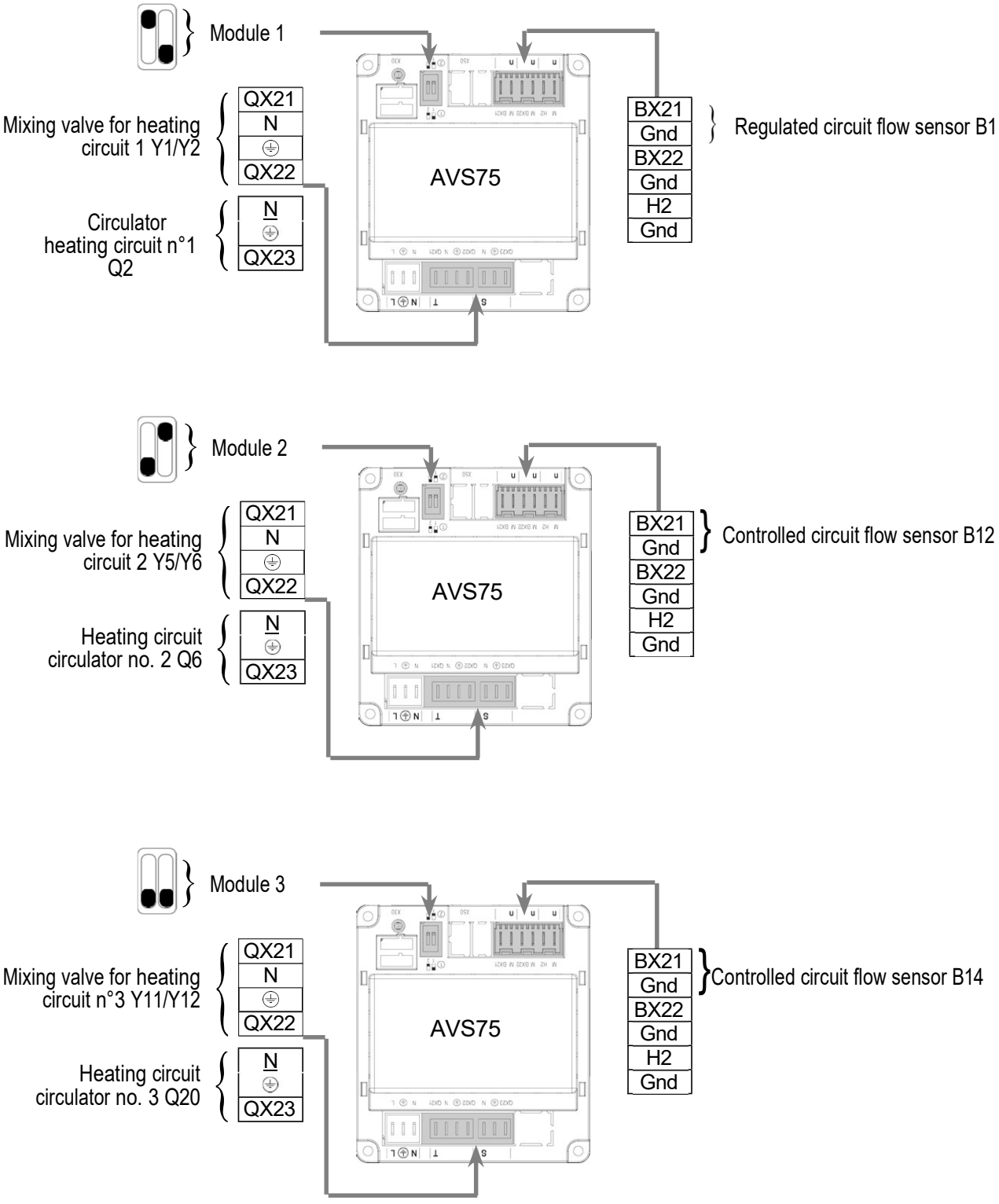
	Quantity	Device reference	Order number
Extension module kit (supplied with QAD 36 network probe)	3	AVS 75	059751
Outdoor sensor kit	1	QAC 34	059260
Room sensor kit **(diagram VX102)**	3	QAA 55	090967
DHW sensor kit **(diagram VX112)**	1	QAZ 36	059261

C. CUSTOMER ELECTRICAL CONNECTION



- When connecting an external control system (e.g. PLC), or a pump with 0-10V control (boiler, heating circuit and/or DHW), refer to section 9.4 for specific settings).

Diagrams: VX102 / VX112



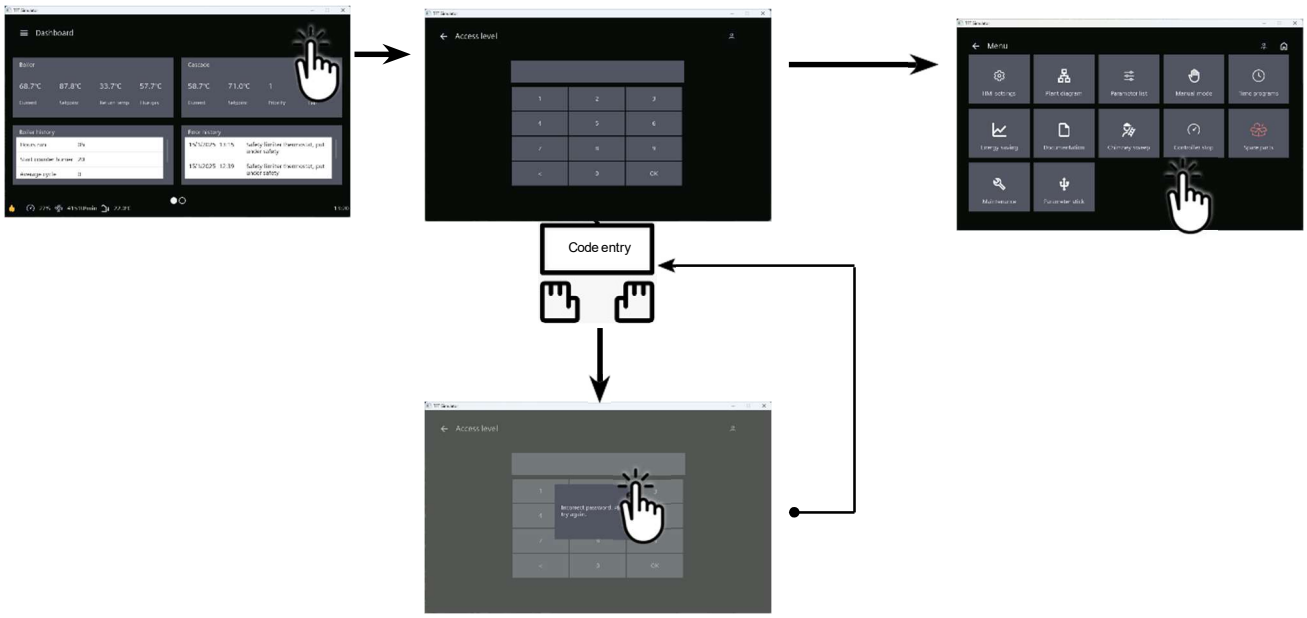
D. SPECIFIC START-UP PROCEDURE

CAUTION: **Make sure the switches on the AVS75 extension modules are correctly set.**

☞ Assemble and make the electrical connections to the accessories.

☞ Start up the boiler alone.

☞ Make the following settings at specialist level: then code 9360



Line number Value

- **In the Settings menu, then the Configuration menu**

Switch on heating circuit1	Heating circuit 1(5710)	Walk
Switch on heating circuit2	Heating circuit 2(5715)	Walk
Switch on heating circuit 3	Heating circuit 3 (5721)	Walk
Configuring the alarm output	Relay output QX1 (5890)	Alarm output K10

VX112 diagram only:

Define a low heel	H1 input function (5950)	Circuit request consomm. 1
Set parameter	Contact type (5951)	Working contact
For the DHW to be effective, an actuator must be defined even if it is not connected.	Relay output QX2 (5891)	Q3 DHW pump/valve

	Line number	Value
Configuring expansion modules	Expansion module 1 function (6020)	Heating circuit 1
	Expansion module 2 function (6021)	Heating circuit 2
	Expansion module 3 function (6022)	Heating circuit 3

VX112 diagram only:

- **In the Parameter List menu, then the Consumer Circuit 1 menu**

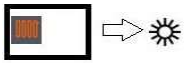
Adjust the flow setpoint to be taken into account in the event of demand from the consumer circuit	Conso request start setpoint (1859)	60°C (depends on Ruby setting)

- **In the Parameter List menu, then the Domestic Hot Water menu**

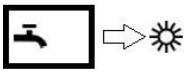
Setting the Comfort setpoint	Comfort setpoint (1610)	55 °C
Setting the DHW release speed	ECS release (1620)	24h/24

INFORMATION : Switch off and restart the boiler

To switch the heating circuit in this mode, go to the tile for the desired heating circuit and click on this icon ☼



- To activate DHW production, go to the DHW tile and click on this icon ☼



E. ELECTRICAL AND HYDRAULIC VALIDATION

☞ **See Chapter 10**

F. OPTIMISATION OF SETTINGS

☞**See page 140**

Optimising maintenance :

☞**See Chapter 11**

Diagrams: VX102 / VX112	page 6 / 6

G. SETTING THE ROOM SENSOR PARAMETERS

QAA55 sensor (BSB bus)

Select specialist mode by pressing the button for several seconds: Wire and

address the remote controls 1 by 1.

Wiring the 3 before setting their parameters results in an accessory addressing error.

Connect the sensor to the heating circuit 3:

- **Heating circuit 3 (set first)**
  - **The indoor unit is addressed as RU3** | Value ru=3

Connect the sensor to the heating circuit 2:

  - **The indoor unit is addressed as RU2** | ru=2

Connect the sensor to heating circuit 1:

  - **The indoor unit is addressed as RU1 (default value)** | ru=1

BOILER alone *1 network regulated by a three-way valve, and DHW production*	Diagram ***VX110*** page 1 / 4

A. HYDRAULIC DIAGRAM

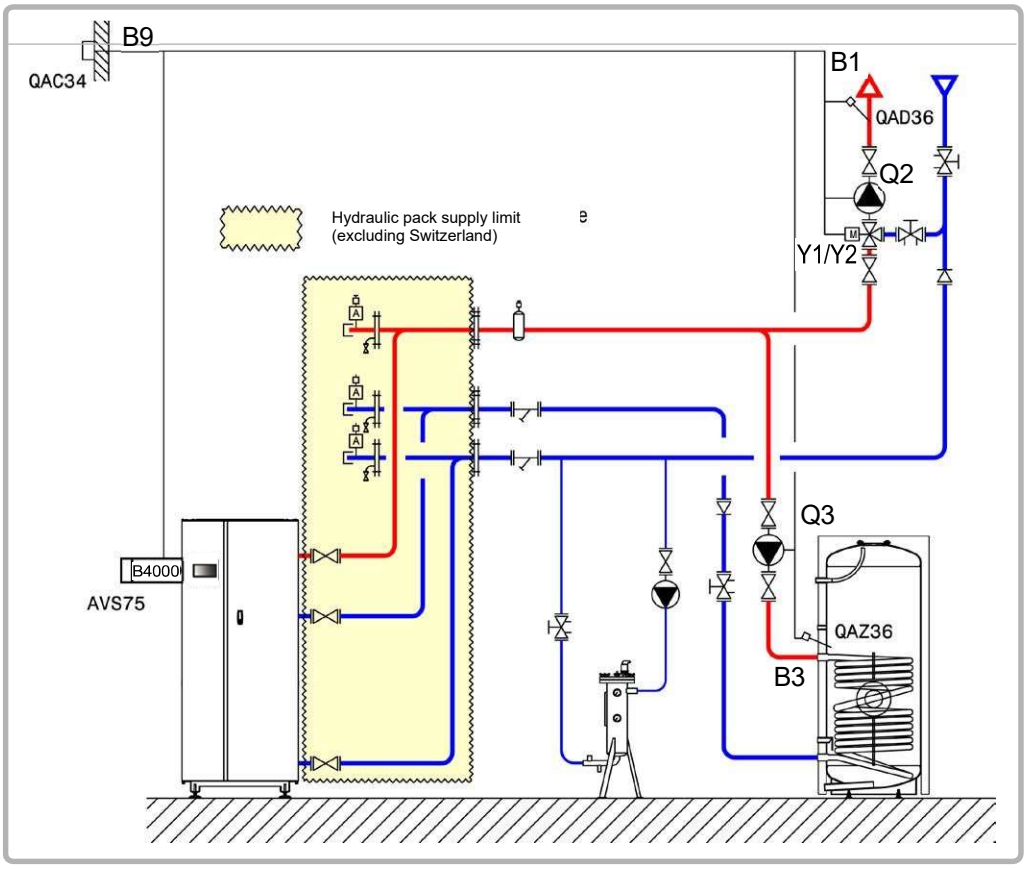


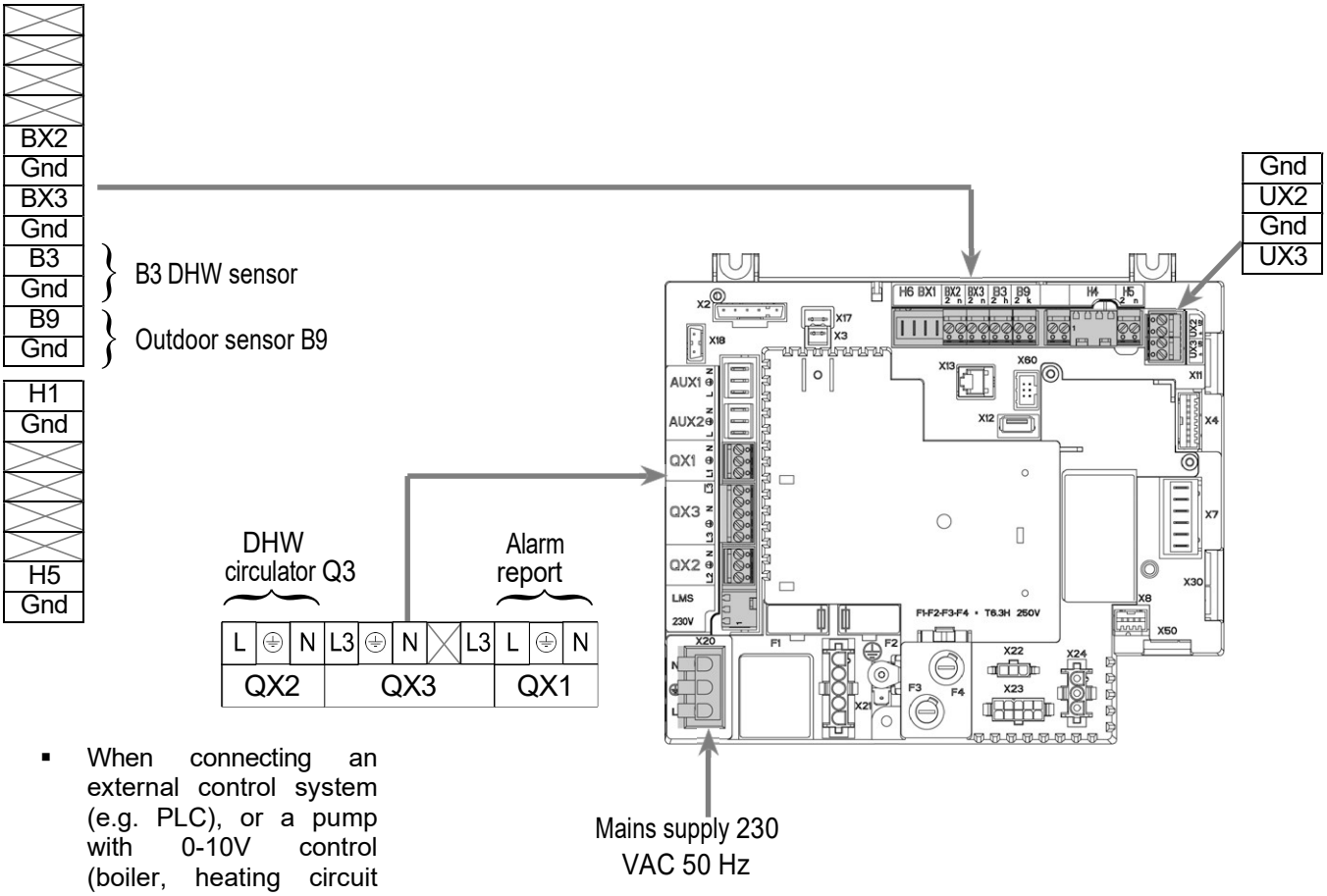
figure 66 - VX110 diagram

B. CONTROL ACCESSORIES REQUIRED

	Quantity	**Device reference**	**Order number**
Extension module kit (supplied with QAD 36 network probe)	1	AVS 75	059751
DHW sensor kit	1	QAZ 36	059261
Outdoor sensor kit	1	QAC 34	059260

Diagram : VX110	page 2 / 4

C. CUSTOMER ELECTRICAL CONNECTION



- When connecting an external control system (e.g. PLC), or a pump with 0-10V control (boiler, heating circuit and/or DHW), refer to section 9.4 for specific settings).

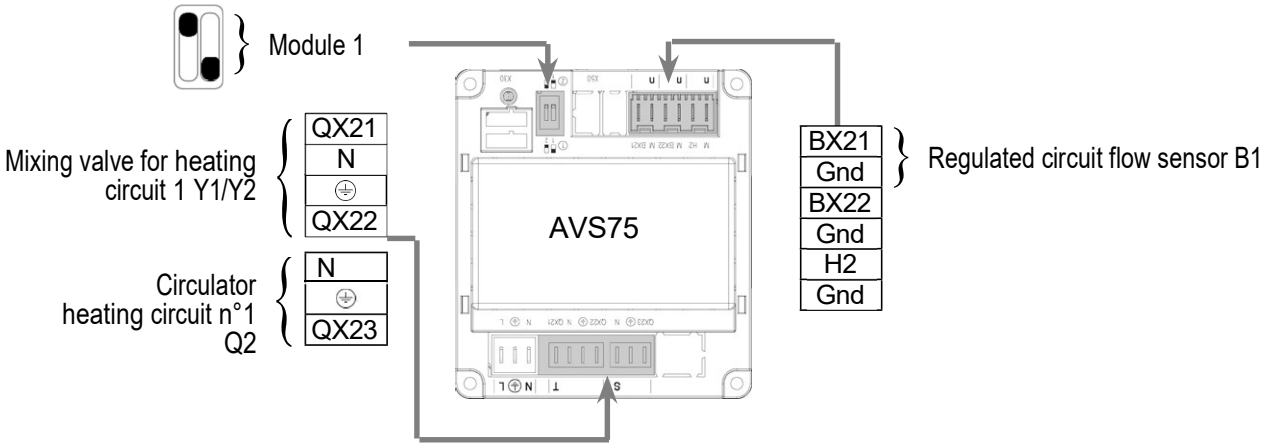


Diagram : VX110	page 3 / 4

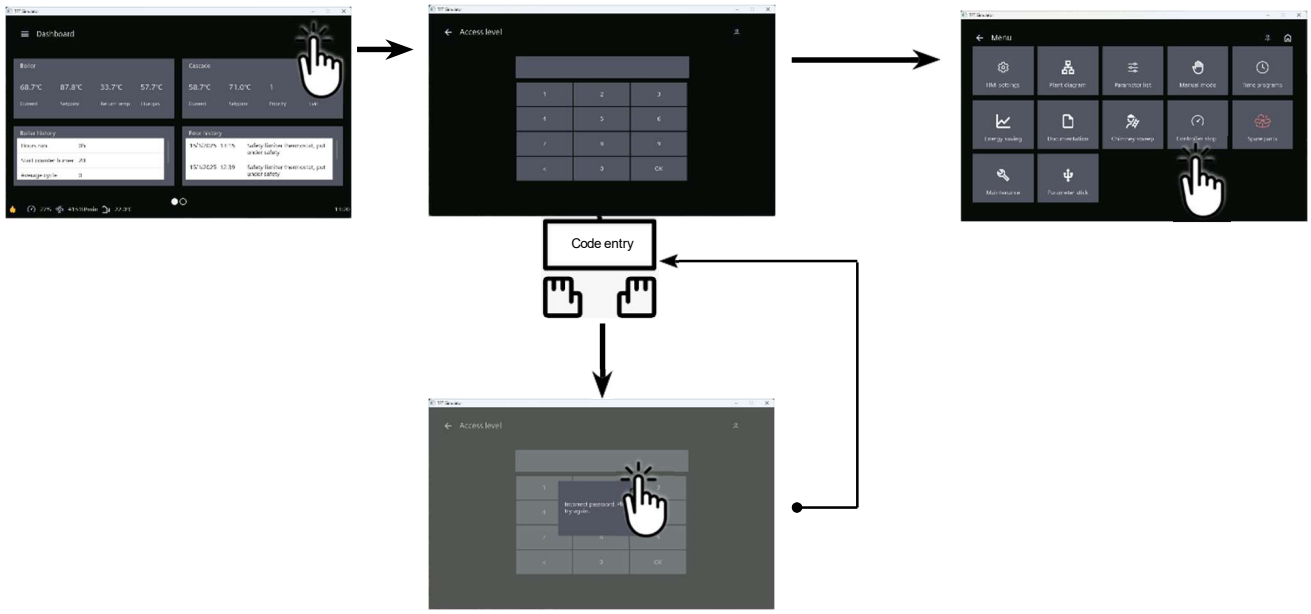
D. SPECIFIC START-UP PROCEDURE

☞ Assemble and make the electrical connections to the accessories.

CAUTION: **Make sure the switches on the AVS75 extension modules are correctly set.**

☞ Start up the boiler alone.

☞ Make the following settings at "specialist" level: then code 9360



Value

- **Menu** ***Configuration In Menu Parameter list***

Switch on heating circuit 1	Heating circuit 1 (5710)	Walk
Configuring the alarm output	Relay output QX1 (5890)	Alarm output K10
Configuring the DHW pump	Relay output QX2 (5891)	Q3 DHW pump/valve
Configuring extension module 1	Expansion module 1 function (6020)	Heating circuit 1

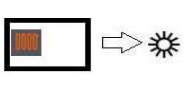
- **In the Parameter List menu, then the Domestic Hot Water menu**

Setting the Comfort setpoint	Comfort setpoint (1610)	- - -

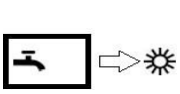
INFORMATION : **Switch off and restart the boiler**

Diagram : VX110	page 4 / 4

To switch the heating circuit in this mode, go to the tile for the desired heating circuit and click on this icon ☼



- To activate DHW production, go to the DHW tile and click on this icon ☼



E. ELECTRICAL AND HYDRAULIC VALIDATION

☞**See Chapter 10**

F. OPTIMISATION OF SETTINGS

☞**See page 140**

Optimising maintenance :

☞**See Chapter 11**

BOILER alone *Secondary networks via existing controllers communicating via LPB or 0...10V bus or*	Diagram ***VX111*** page 1 / 5

A. HYDRAULIC DIAGRAM

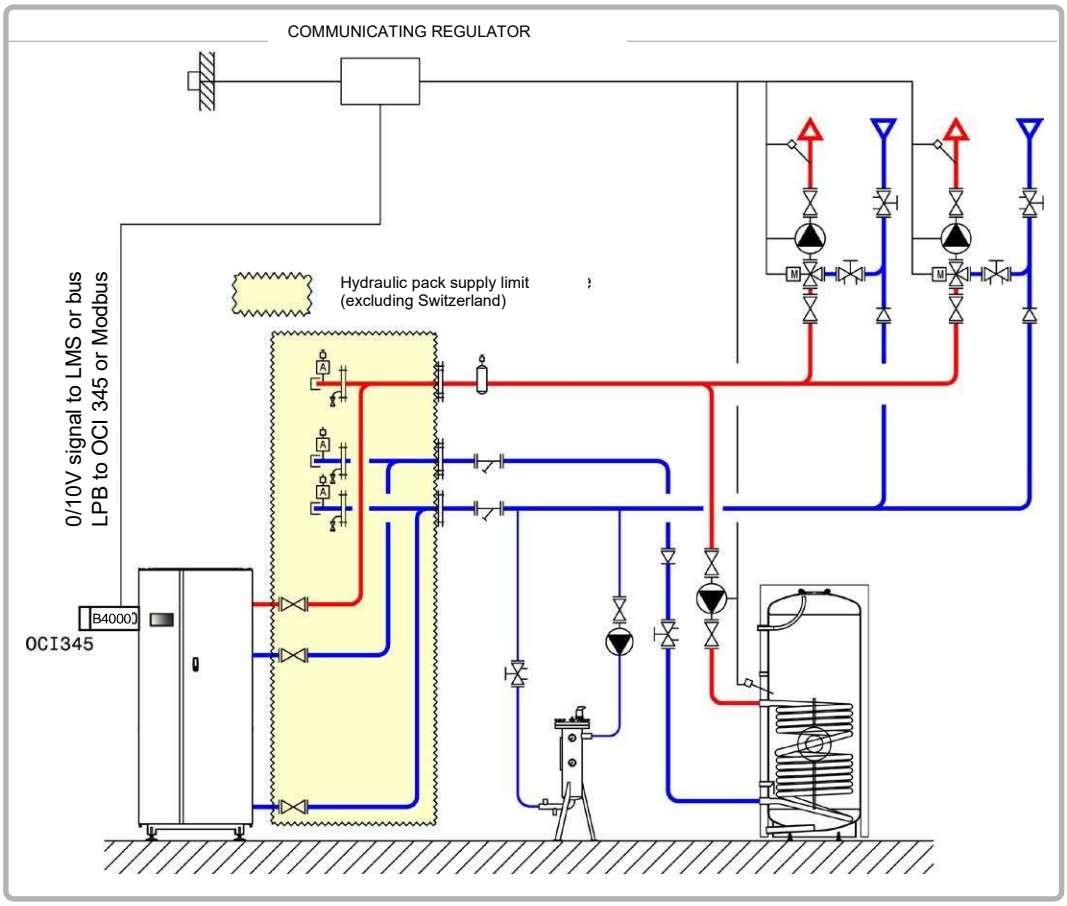


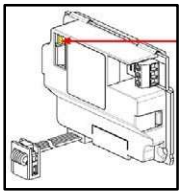
figure 67 - VX111 diagram

B. CONTROL ACCESSORY REQUIRED

	Quantity	Device reference	Order number
Communication kit for LPB bus	1	OCI 345	059752
Communication kit for Modbus (if dialogue via Modbus)	1	OCI 351	082733

Diagram : VX111	page 2 / 5

C. CUSTOMER ELECTRICAL CONNECTION



A+
B-
Ref

Modbus variant: client PLC

- When connecting an external control system (e.g. PLC), or a pump with 0-10V control (boiler, heating circuit and/or DHW), refer to section 9.4 for specific settings).

BX2
Gnd
BX3
Gnd
B3
Gnd
B9
Gnd
H1
Gnd
H5
Gnd

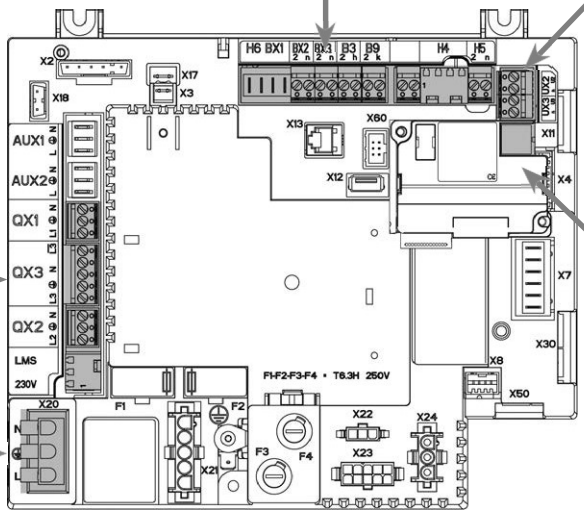
Analogue input 0...10V variant: 0-10V control for Modbus control, please shunt H1

Option: contact safety ON/OFF

Alarm report

L	⏚	N	L3	⏚	N		L3	L	⏚	N
QX2			QX3					QX1		

Gnd
UX2
Gnd
UX3



Mains supply 230 VAC 50 Hz

LPB Bus variant

MB DB

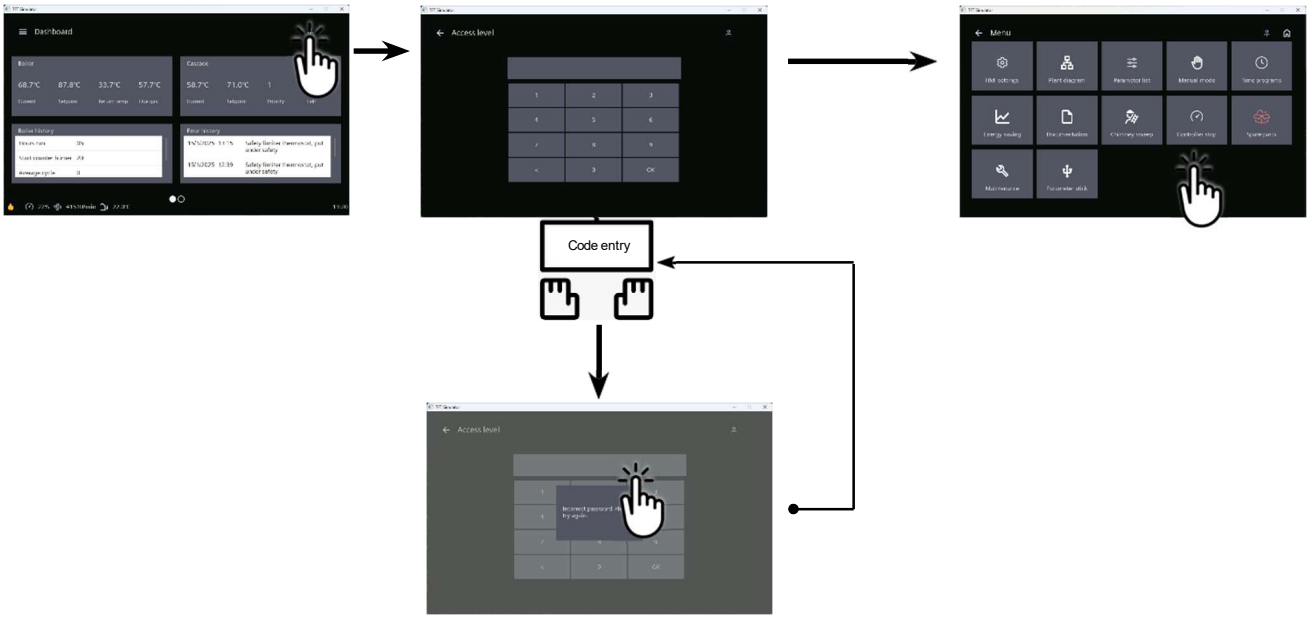
LPB control variant from MB-DB PLC

D. SPECIFIC START-UP PROCEDURE

☞ Assemble and make the electrical connections to the accessories.

☞ Start up the boiler alone.

☞ Make the following settings at "specialist" level: then code 9360



		Line no.	Value
For a request via 0...10V input			
• **In the Settings menu, then the Configuration menu**			
Configuring the boiler pump	Relay output QX3 (5890)		Boiler pump Q1
Option: remote run authorisation contact	H5 input function (5977)		generator blocked
Option: set parameter	Direction of action of H5 input contact (5978)		waiting Normally closed contact
when the H5 contact is open, the boiler is blocked; when it is closed, the boiler is blocked. is released.			

E. ELECTRICAL AND HYDRAULIC VALIDATION

For a request via 0...10V input			
• **In the Parameter List menu, then the I n p u t / O u t p u t Test menu**			
Voltage H1	H1 voltage signal (7840)		To be validated with the voltage sent by the boiler room PLC.

For a request via LPB

If the boiler controller is set as a master clock, the boiler controller must retrieve the date and time.

Diagram : VX111

Please note that *the boiler will consider 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 have a hydraulic decoupling cylinder, all the network pumps will have to be stopped, otherwise they may cavitate.
Configure external boiler block (option) : H5 input function (5970): generator blocked
standby | direction of action of contact H5 (5971): normally open contact
**: according to the scale indicated in parameter "5956".*

For a request via Modbus

- ***Configuration*** **menu**
  Configure input H1 :

	H1 input function (5950)	Demand consumer circuit 1
	Contact action direction (5951)	Work
Configuring the alarm output	Relay output QX1 (5890)	Alarm output K10

- ***Modbus*** **menu**
  Set the Modbus elements on the boiler

Slave address (6651)	As set on your PLC
Baud rate (6652)	As set on your PLC
Parity (6653)	As set on your PLC
Stop bit (6654)	As set on your PLC

Modbus register for sending the boiler flow temperature setpoint

Modbus address		Line number	Nb registre	Data	Access		Possible values	Data type	Coefficient
Décimal	Hexa	B4000			Reading	Writing			
13313	3401	1859	1	Consumer start setpoint 1 dry contact	✓	✓	8... 120, °C	U16	1/64

For a request via LPB bus with a Sofrel PLC

- **In the Settings menu, then the Configuration menu**

Configuring H1 input	Function H1(5950)	Circ. request consum1 Normally
Activate low heel	Direction of action (6601)	closed contact

If necessary, use input H1 to control start/stop via a dry contact.

- **In the Settings List menu, then the LPB Network menu**

Bus configuration	Device address (6600)	1
	Segment address (6601)	0
	Bus supply function (6604)	Automatic
	Clock function (6640)	master

- **Sofrel S500/S550 external controller**

The ecterne controller sends the temperature setpoint to LPB address 1622 (line 1859).	Node type 10 Sub address1 Type: VALI Coef : 0.015625 Unit : °C/10

For a request via LPB bus with RVL480

- **In the Settings List menu, then the LPB Network menu**

Bus configuration	Device address (6600)	1
	Segment address (6601)	0
	Clock operation (6640)	master

- Secondary manager RVL 480 and RVL 479

Adjust boiler elevation	Device address (6600)	1
	Segment address (6601)	0
	Bus supply function (6604)	Automatic
	Clock function (6640)	master



INFORMATION : **When you have finished configuring, switch off all the controllers (boiler and RVL); it may take up to 15 minutes for the addressing errors to disappear when you switch them back on.**

F. OPTIMISATION OF SETTINGS

Optimising maintenance :

See Chapter 11

BOILER alone *1 network regulated by three-way valve, 1 direct circuit with low heel 60°C*	Diagram ***VX113*** page 1 / 4

A. HYDRAULIC DIAGRAM

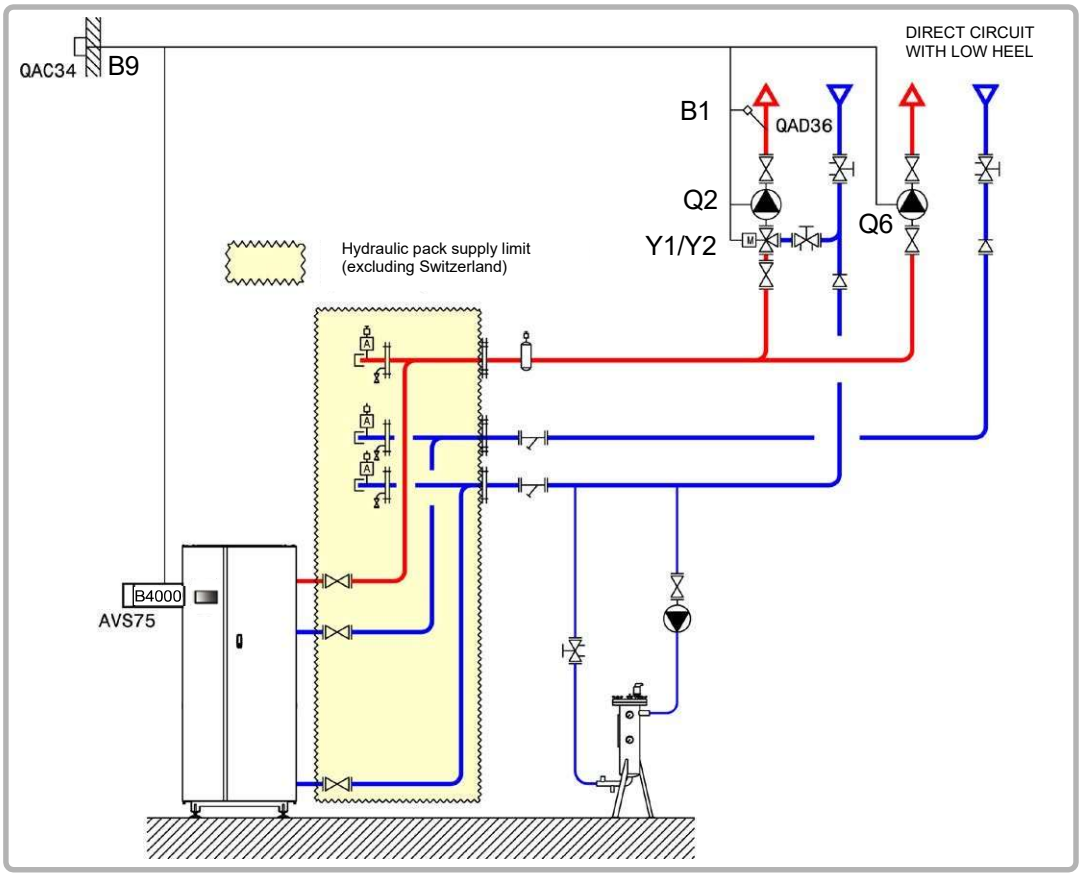


figure 68 - VX113 diagram

B. CONTROL ACCESSORIES REQUIRED

	Quantity	Device reference	Order number
Expansion module kit (supplied with QAD 36 network probe)	1	AVS 75	059751
Outdoor sensor kit	1	QAC 34	059260

C. CUSTOMER ELECTRICAL CONNECTION

- When connecting an external control system (e.g. PLC), or a pump with 0-10V control (boiler, heating circuit and/or DHW), refer to the § 9.4 for specific settings).

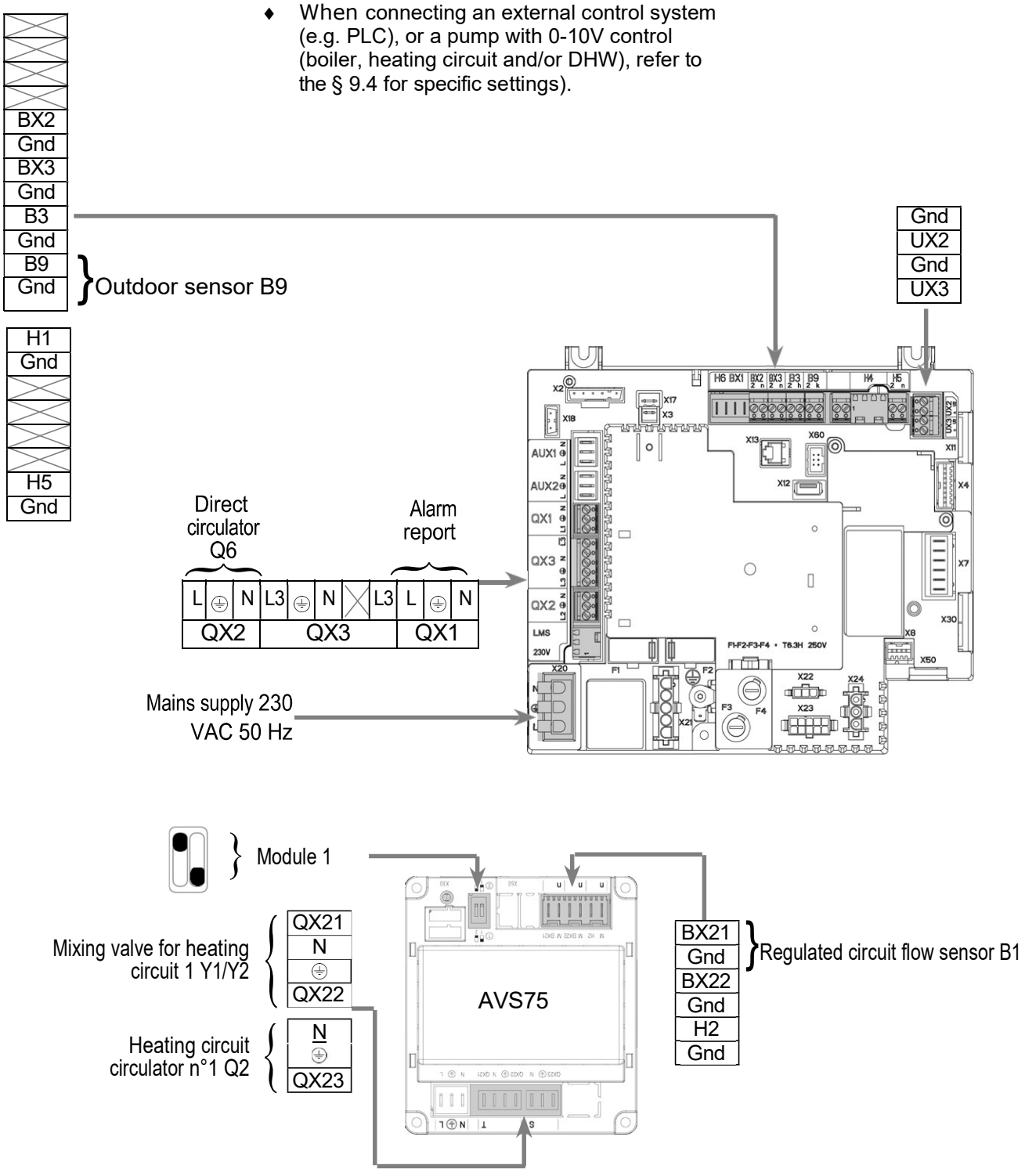


Diagram : VX113	page 3 / 4

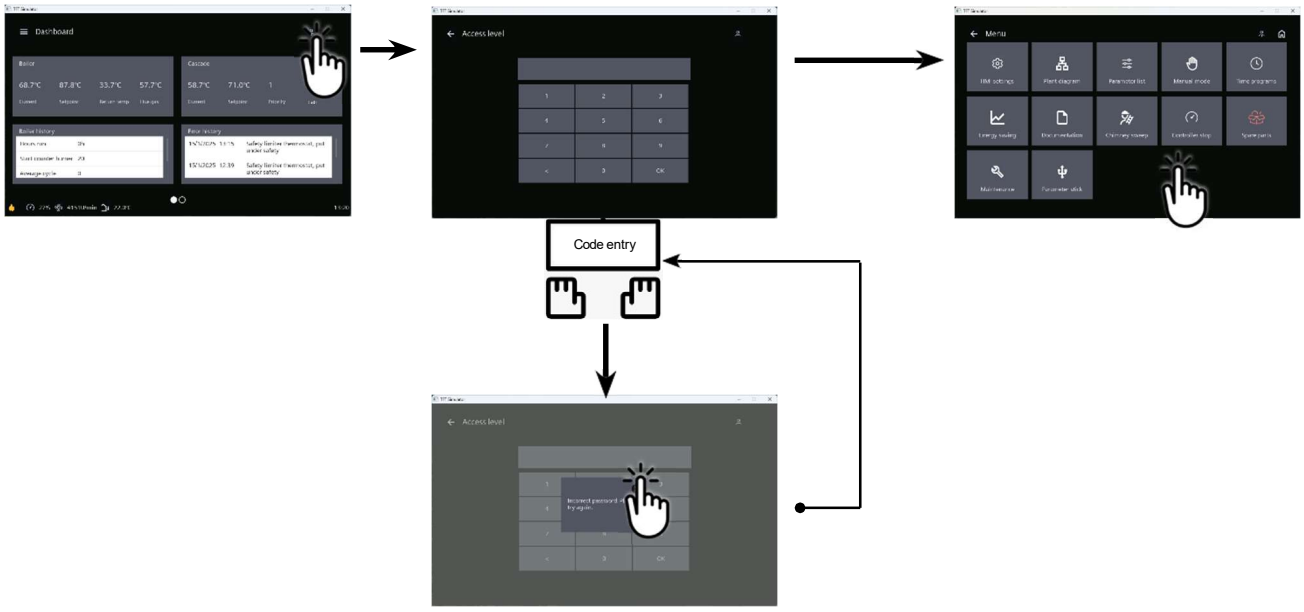
D. SPECIFIC START-UP PROCEDURE

☞ Assemble and make the electrical connections to the accessories.

CAUTION: **Make sure the switches on the AVS75 extension module are correctly set.**

☞ Start up the boiler alone.

☞ Make the following settings at "specialist" level: then code 9360

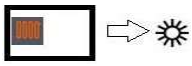


		Line no.	***Value***
• **In the Settings menu, then the Configuration menu**			
Switch on heating circuit 1	Heating circuit 1 (5710)		Walk
Switch on heating circuit 2	Heating circuit 2 (5715)		Walk
Configure alarm output	Relay output QX1 (5890)		Alarm output K10
Configure pump CC2	Relay output QX2 (5891)		Pump CC2 Q6
Configure expansion module 1	Expansion module 1 function (6020)		Heating circuit 1
• **In Menu Parameter list then Heating circuit 2**			
Setting the Comfort setpoint	Comfort setpoint temperature (1010)		- - -
Setting the slope of the curve	Slope of heating curve (1020)		- - -

Diagram : VX113	page 4 / 4

	Line no.	***Value***
Set the minimum flow temperature	Min flow set point temperature (1040)	60°C (to be adjusted according to the low heel)

INFORMATION : **Switch off and restart the boiler**

To switch the heating circuit in this mode, go to the tile for the desired heating circuit and click on this icon 

E. ELECTRICAL AND HYDRAULIC VALIDATION

☞**See Chapter 10**

F. OPTIMISATION OF SETTINGS

☞**See page 140**

Optimising maintenance :

☞**See Chapter 11**

BOILER alone *1 network regulated by three-way valve, 1 consumer circuit with constant temperature and flow rate*	Diagram ***VX120*** page 1 / 4

A. HYDRAULIC DIAGRAM

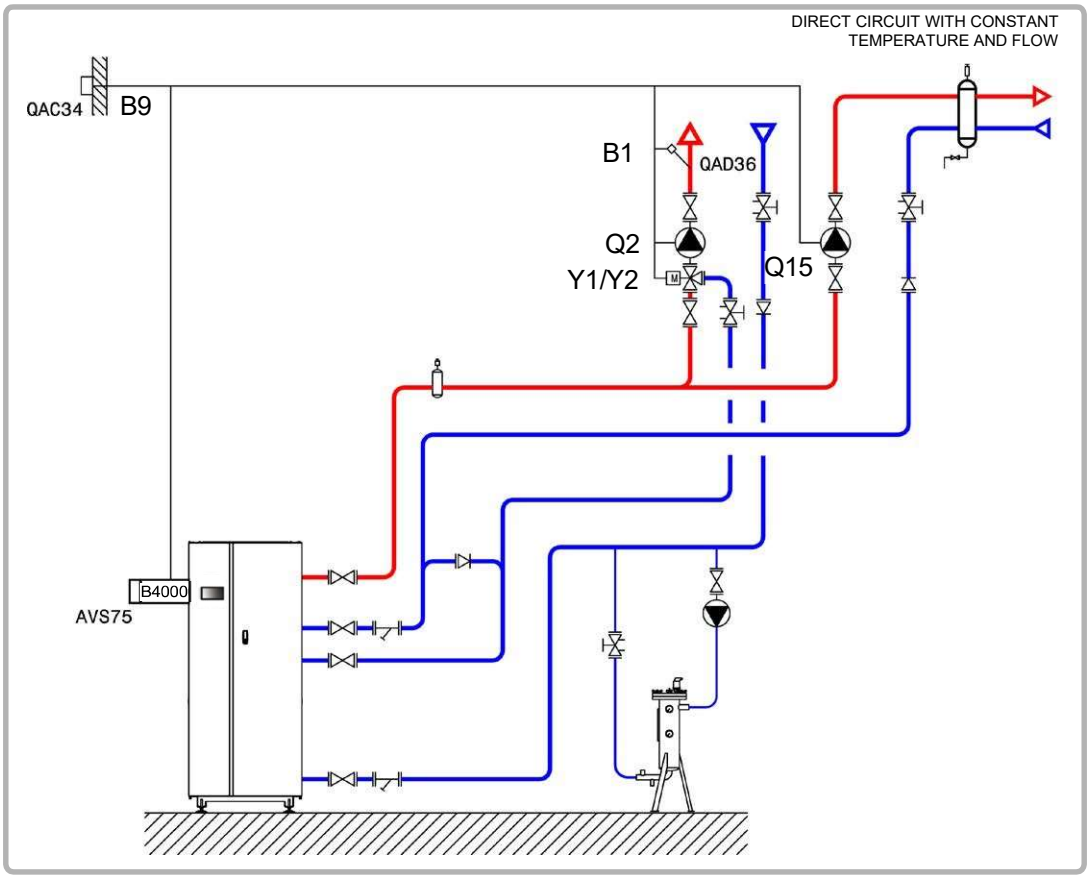


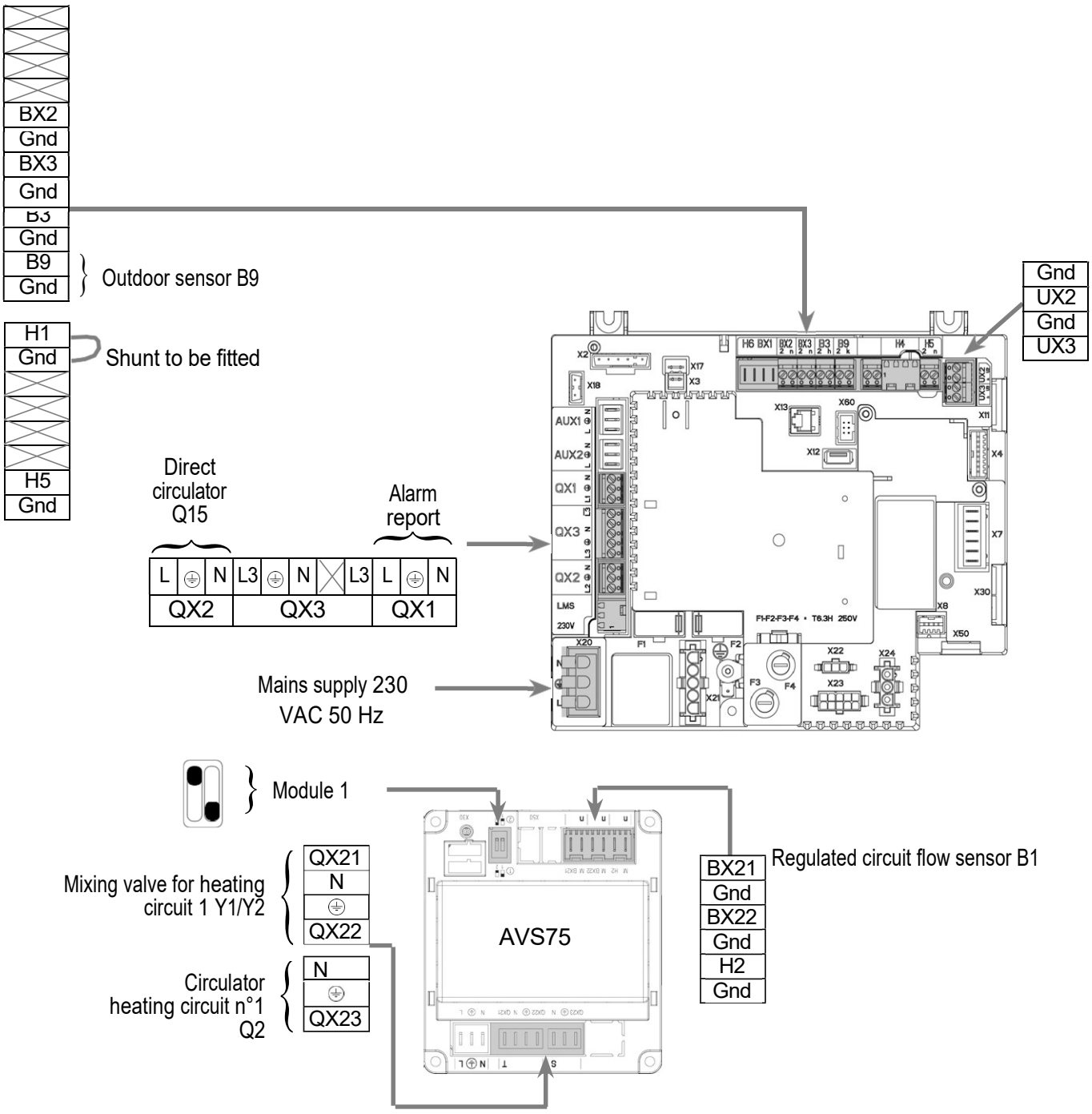
figure 69 - VX120 diagram

B. CONTROL ACCESSORIES REQUIRED

	Quantity	**Device reference**	**Order number**
Extension module kit (supplied with QAD 36 network probe)	1	AVS 75	059751
Outdoor sensor kit	1	QAC 34	059260

Diagram : VX120	page 2 / 4

C. CUSTOMER ELECTRICAL CONNECTION



D. SPECIFIC START-UP PROCEDURE

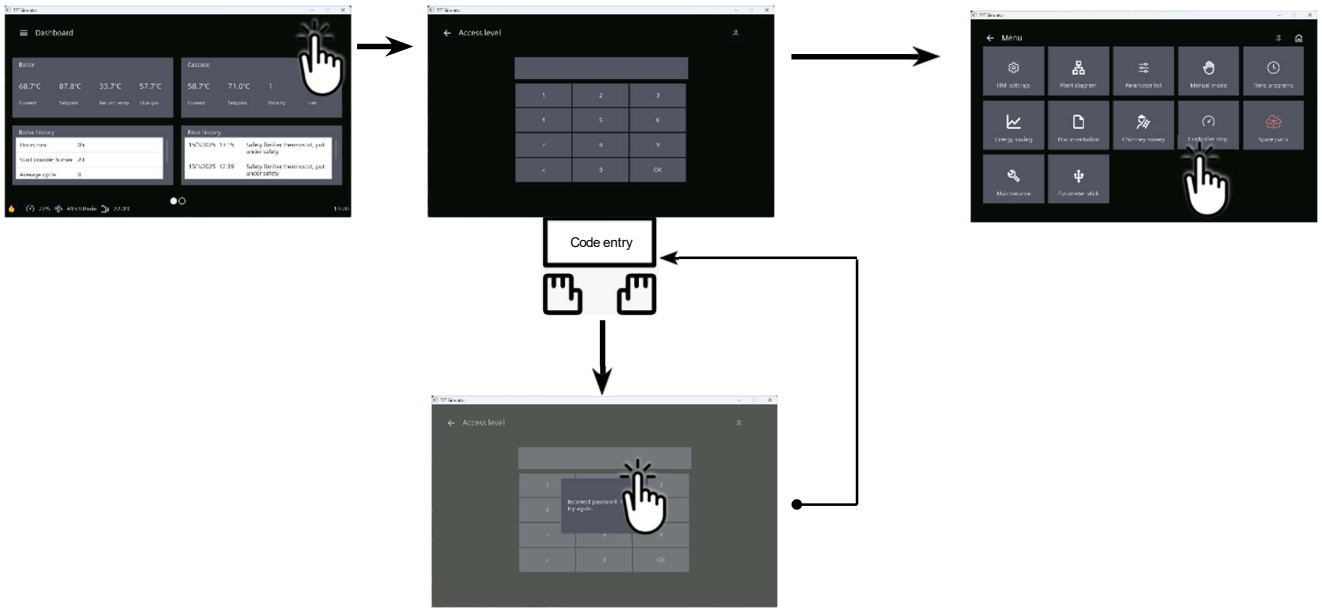
☞ Assemble and make the electrical connections to the accessories.

CAUTION: **Make sure the switches on the AVS75 extension module are correctly set.**

☞ Start up the boiler alone.

☞ Make the following settings at "specialist" level: then code 9360

Diagram : VX120

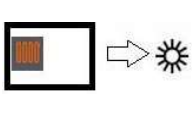


		Line no.	*Value*
• **In the Settings menu, then the Configuration menu**			
Switch on heating circuit1		Heating circuit 1 (5710)	Walk
Configure alarm output		Relay output QX1 (5890)	Alarm output K10
Configure pump Q15		Relay output QX2 (5891)	Ppe consumer circuit 1 Q15
Configuring the alarm output		Relay output QX1 (5890)	Alarm output K10
H1 input configuration		H1 input function (5950)	Consumer circuit request 1
Set parameter		H1 input action direction (5951)	Normally open
Configuring extension module 1		Expansion module 1 function (6020)	contact Heating circuit 1
• **In the Parameter List menu, then the Consumer Circuit 1 menu**			
Set the flow setpoint to be taken into account in the event of a demand from the consumer circuit		T° cs departure demand consumption (1859)	- - -

INFORMATION : **Switch off and restart the boiler**

Diagrams: VX120	page 4 / 4

To switch the heating circuit in this mode, go to the tile for the desired heating circuit and click on this icon ☼



E. ELECTRICAL AND HYDRAULIC VALIDATION

☞**See Chapter 10**

F. OPTIMISATION OF SETTINGS

☞**See page 140**

Optimising maintenance :

☞**See Chapter 11**

CASCADE OF boilers *1 direct network, no communication with the secondary network*	Diagram ***VX200*** ***VX201*** page 1 / 5

A. MAIN HYDRAULIC DIAGRAM AND VARIANT

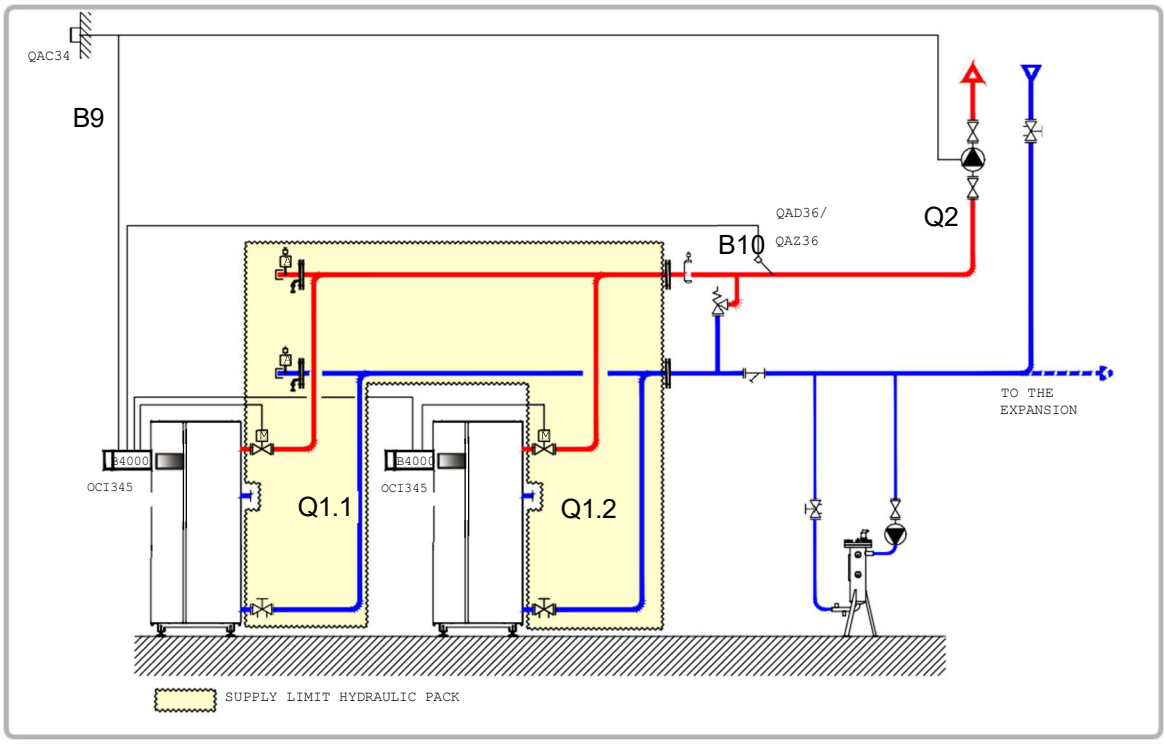


figure 70 - VX200 diagram

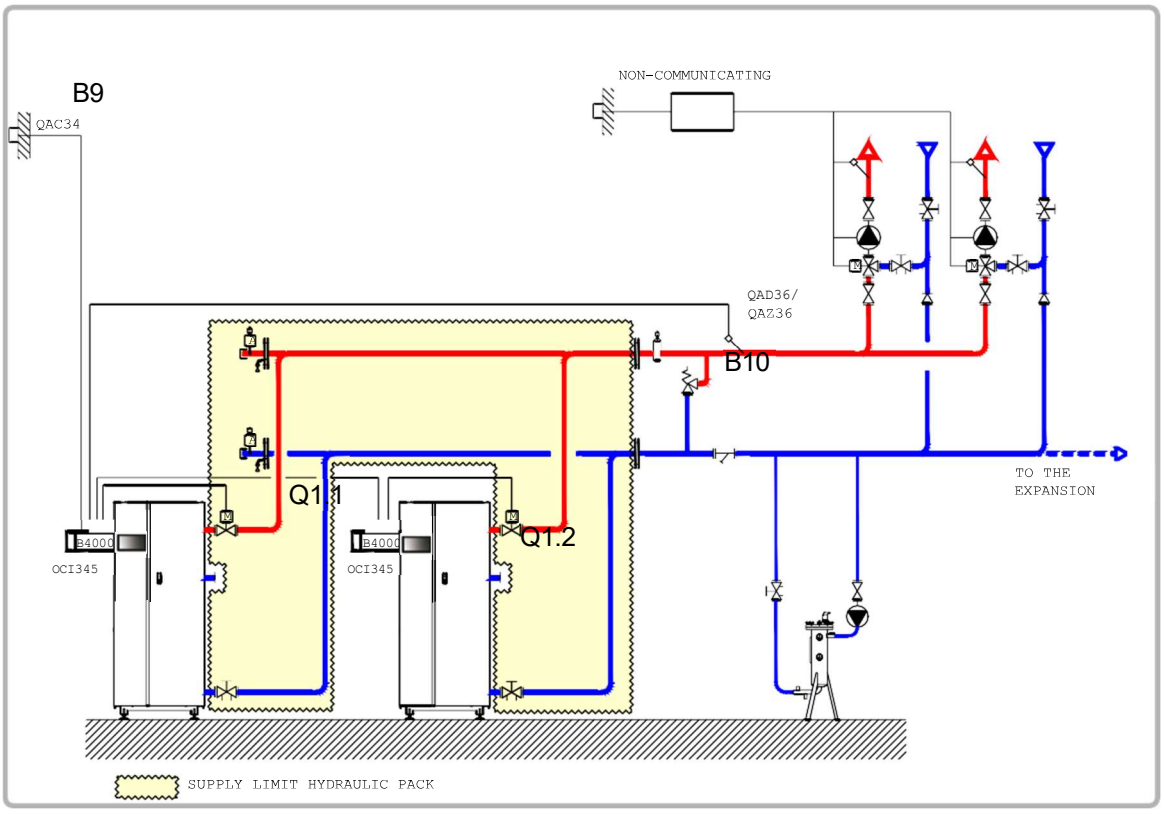


figure 71 - VX201 diagram (variant)

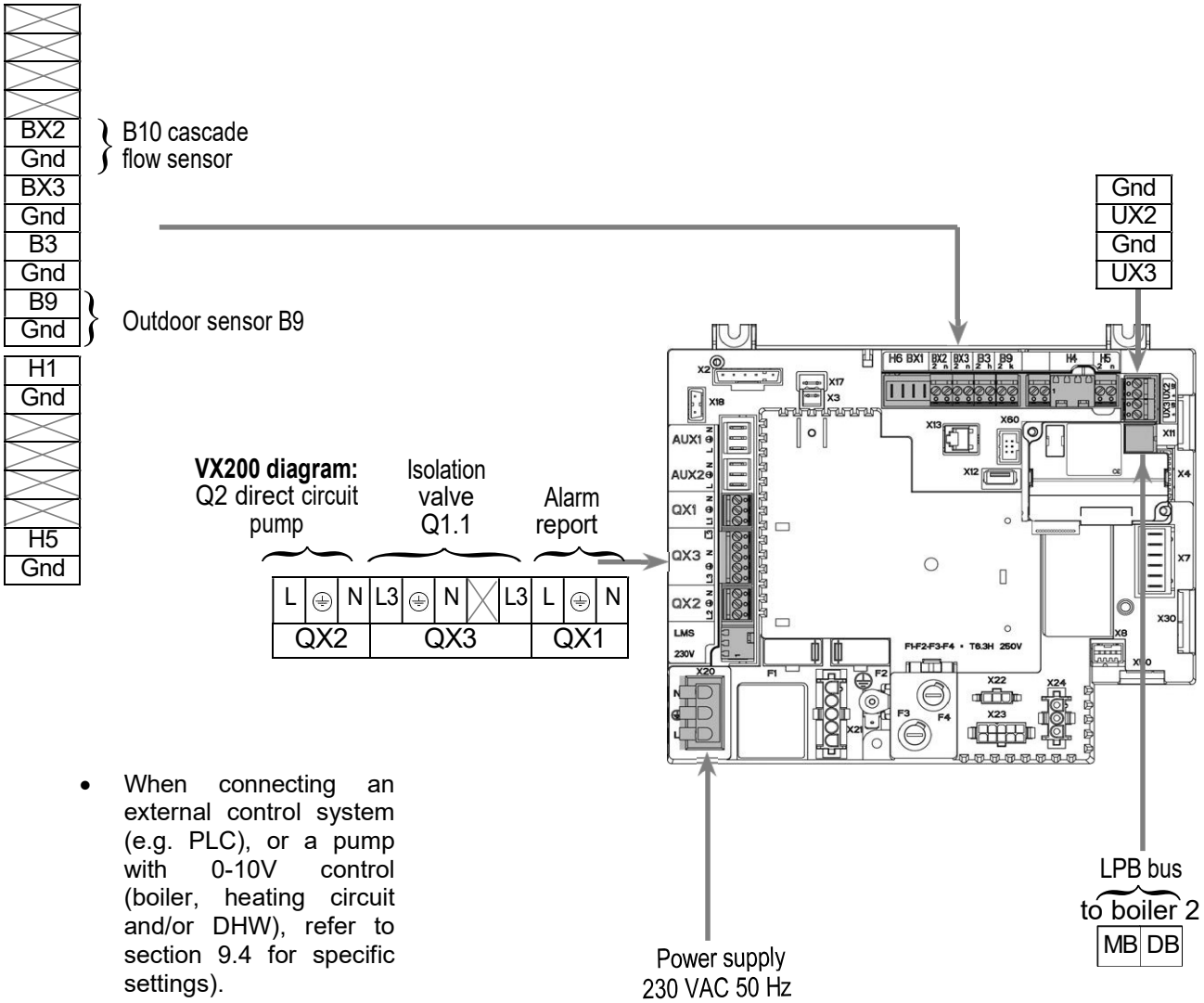
Diagrams: VX200 / VX201	page 2 / 5

B. CONTROL ACCESSORIES REQUIRED

	Quantity	Device reference	Order number
Communication kit	2	OCI 345	059752
Network probe kit	1	QAx 36	059261 *(QAZ 36)* 059592 *(QAD 36)*
Outdoor sensor kit	1	QAC 34	059260

C. CUSTOMER ELECTRICAL CONNECTION

INFORMATION: If the isolation valve is not equipped with an automatic return to zero, connect the isolation valve closing contact Q1.1 to L3.



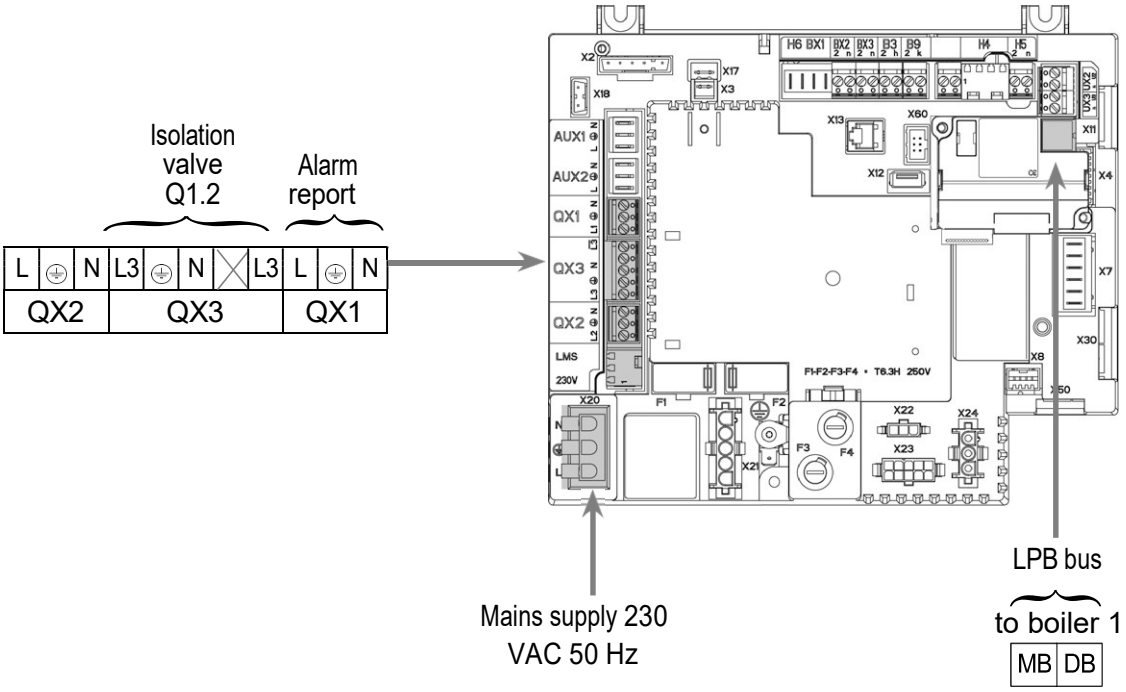
- When connecting an external control system (e.g. PLC), or a pump with 0-10V control (boiler, heating circuit and/or DHW), refer to section 9.4 for specific settings).

Diagrams: VX200 / VX201	page 3 / 5

Boiler n°1 :

Boiler n°2 :

INFORMATION: If the isolation valve is not equipped with an automatic return to zero, connect the isolation valve closing contact Q1.2 to L3.

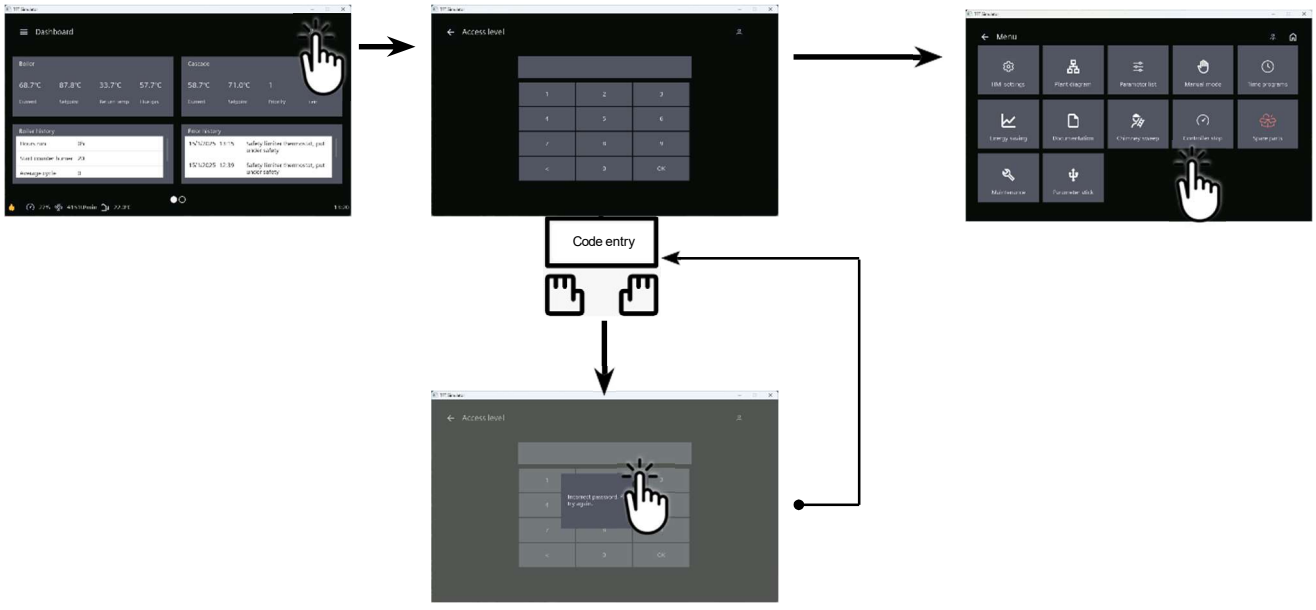


D. SPECIFIC START-UP PROCEDURE

☞ Assemble and make the electrical connections to the accessories.

☞ Start up the boiler alone.

☞ Make the following settings at "specialist" level: then code 9360



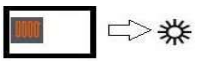
Diagrams: VX200 / VX201

On boiler n°1: master

		Line no.	*Value*
• **In the Settings menu, then the Configuration menu**			
Switch on heating circuit 1		Heating circuit 1 (5710)	Walk
Configuring the alarm output		Relay output QX1 (5890)	Alarm output K10 Pump
VX200 diagram only:			
Configure pump Q2		Relay output QX2 (5891)	CC1 Q2
All diagrams :			
Configuring the isolation valve		Relay output QX3 (5892)	Hot pump. Q1
Configure B10 cascade flow sensor		BX2 sensor input (5931)	Common flow sensor B10
• **Configure as cascade master: In the Parameter List Menu, then the LPB Network Menu**			
Device number		Device address (6600)	1
Segment number		Segment address (6601)	0
Setting the bus power supply		Bus supply function (6604)	Automatic
Setting the clock speed		Clock operation (6640)	Master

INFORMATION : **Switch off and restart the boiler**

To switch the heating circuit in this mode, go to the tile for the desired heating circuit and click on this icon ☼



On boiler(s) n°2 (and following): slave

		Line no.	*Value*
• **In the Settings menu, then the Configuration menu**			
Configuring the alarm output		Relay output QX1 (5890)	Alarm output K10
Configuring the isolation valve		Relay output QX3 (5892)	Hot pump. Q1
• **Configure as a cascade slave: In the Parameter List Menu then the LPB Network Menu**			
Device number		Device address (6600)	2 (or next for other slaves)
Segment number		Segment address (6601)	0
Setting the bus power supply		Bus supply function (6604)	Automatic
Setting the clock speed		Clock operation (6640)	Slave without adjustment

Diagrams: VX200 / VX201	page 5 / 5

- Connect the bus between the boilers (⚠ , make sure the polarity is correct).
- set the water level using the
- Switch the slave boiler(s) off and on again. If communication is is set, the clock is updated correctly.

INFORMATION : **Switch off and restart the boiler**

E. ELECTRICAL AND HYDRAULIC VALIDATION

☞**See Chapter 10**

F. OPTIMISATION OF SETTINGS

☞**See page 140**

Optimising maintenance :

☞**See Chapter 11**

CASCADE OF boilers

1 network regulated by three-way valve, DHW production or 1 direct circuit with constant temperature and flow rate

Diagram
VX210
VX220
page 1 / 6

A. HYDRAULIC DIAGRAM

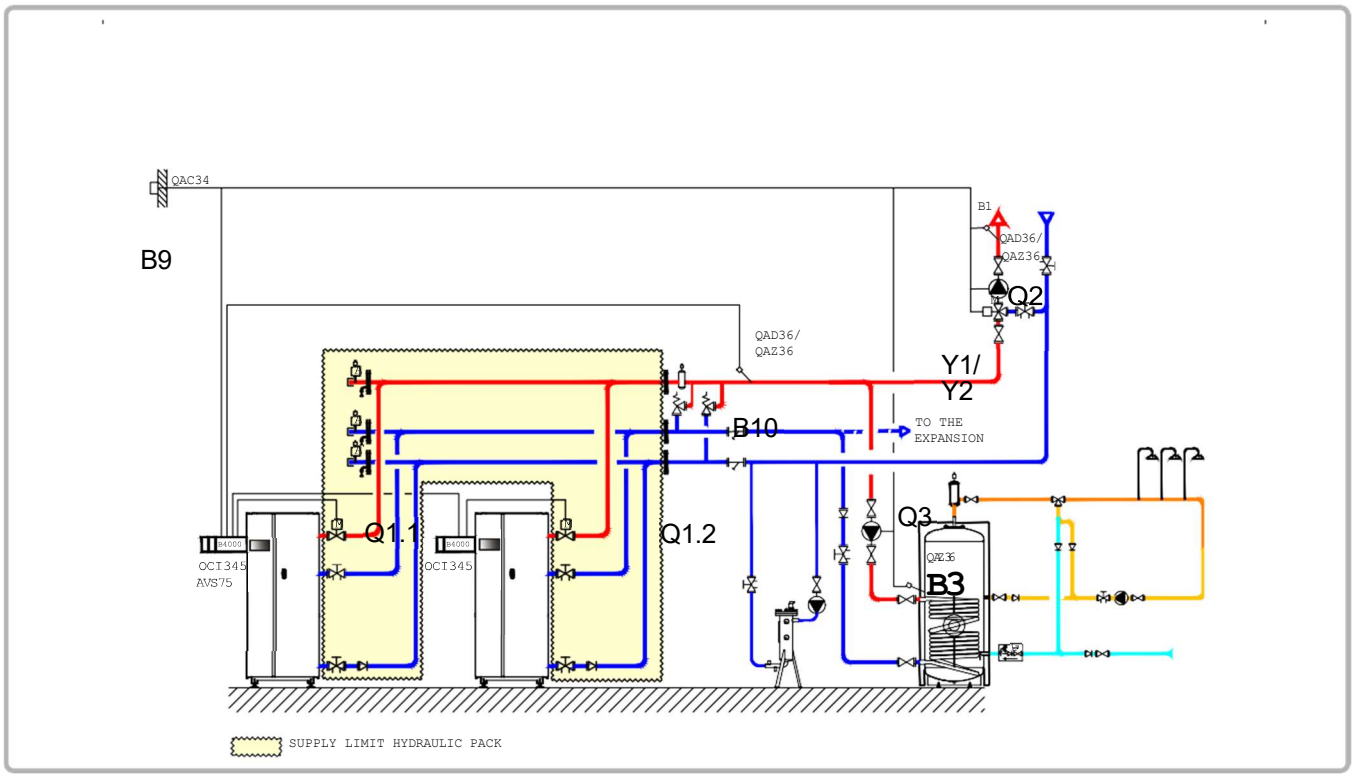


figure 72 - VX210 diagram

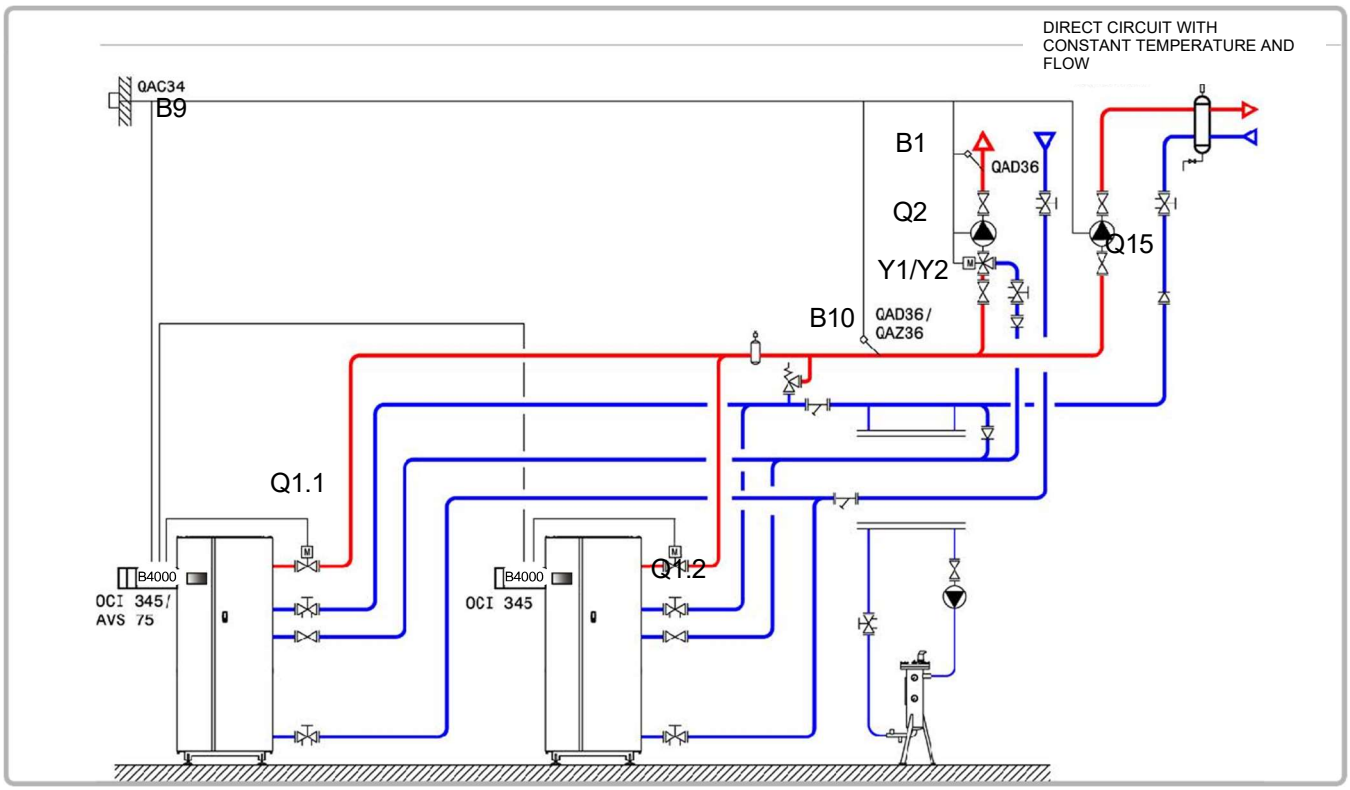


figure 73 - VX220 diagram

Diagrams: VX210 / VX220	page 2 / 6

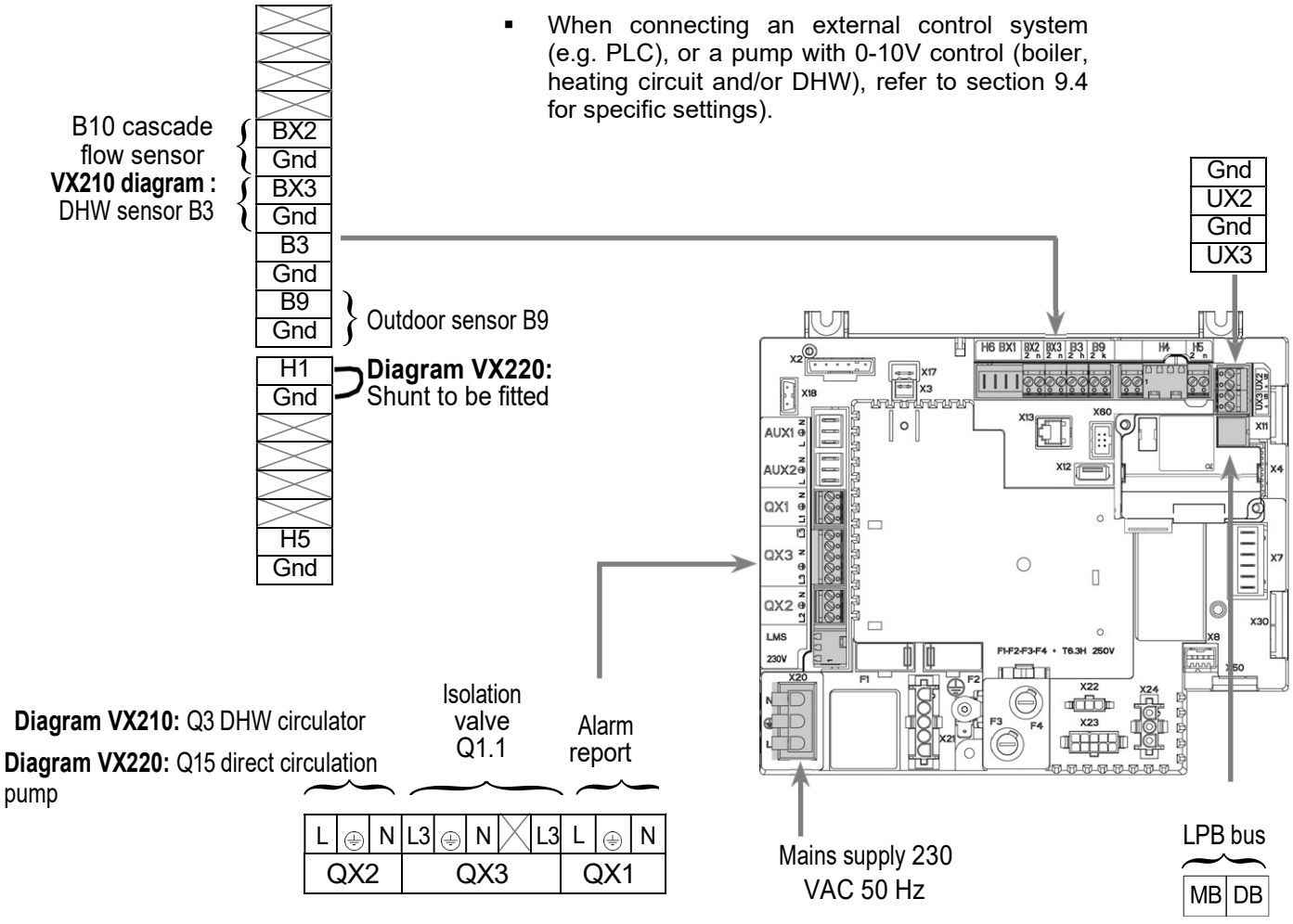
B. CONTROL ACCESSORIES REQUIRED

	Quantity	Device reference	Order number
Extension module kit (supplied with QAD 36 network probe)	1	AVS 75	059751
Communication kit	2	OCI 345	059752
Network probe kit	1	QAx 36	059261 *(QAZ 36)* 059592 *(QAD 36)*
DHW sensor kit **(VX210 diagram)**	1	QAZ 36	059261
Outdoor sensor kit	1	QAC 34	059260

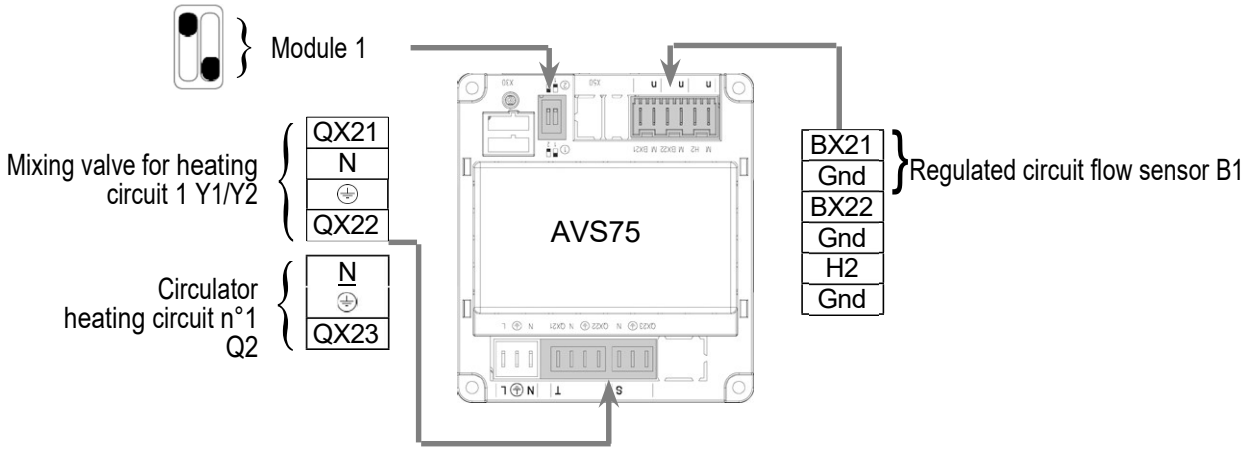
C. CUSTOMER ELECTRICAL CONNECTION

Boiler n°1 :

INFORMATION: If the isolation valve is not equipped with an automatic return to zero, connect the isolation valve closing contact Q1.1 to L3.

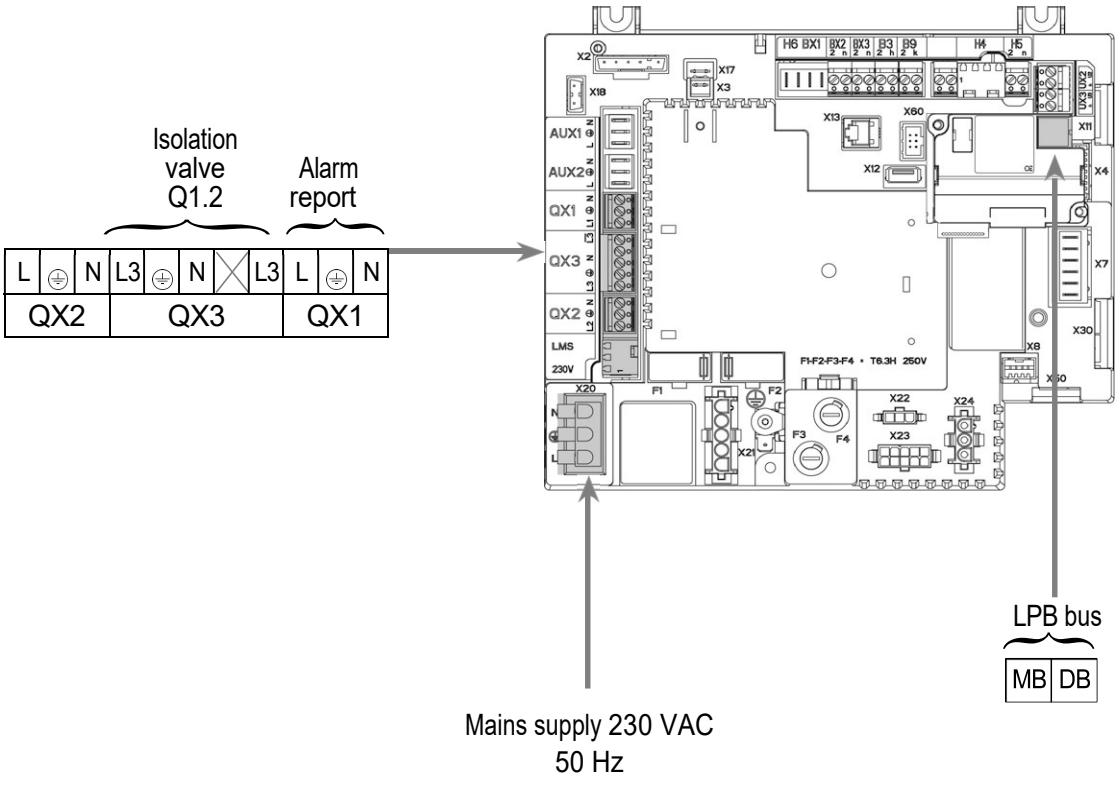


Diagrams: VX210 / VX220



Boiler n°2 :

INFORMATION: If the isolation valve is not equipped with an automatic return to zero, connect the isolation valve closing contact Q1.2 to L3.



Diagrams: VX210 / VX220	page 4 / 6

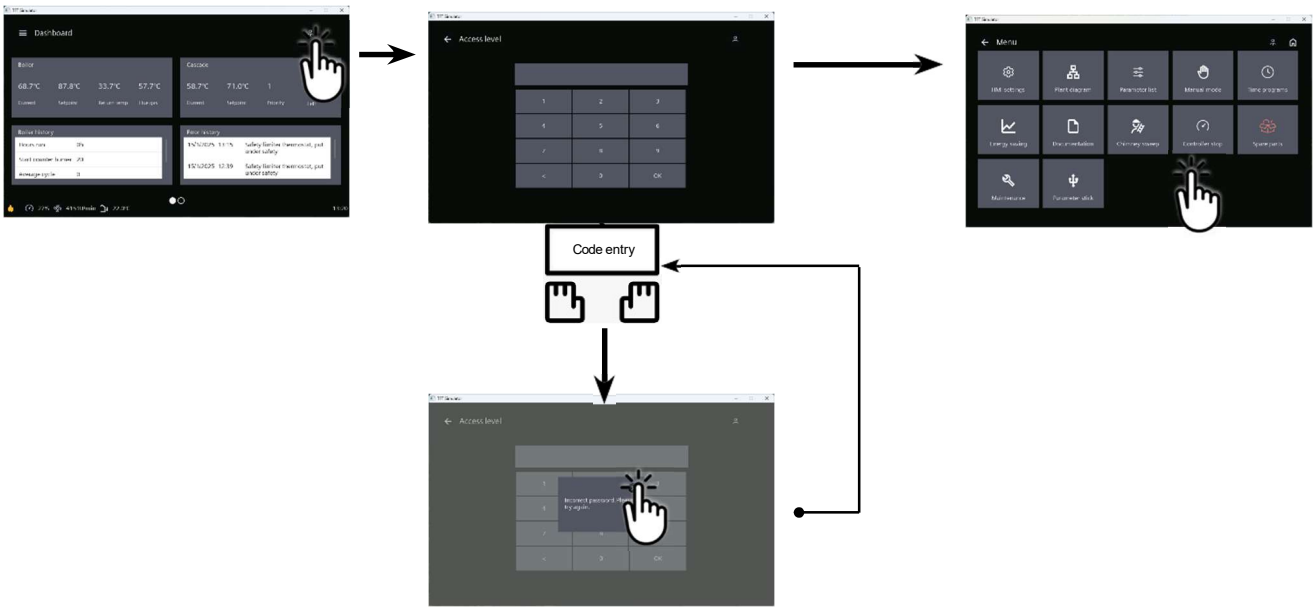
D. SPECIFIC START-UP PROCEDURE

☞ Assemble and make the electrical connections to the accessories.

CAUTION: **Make sure the switches on the AVS75 extension module are correctly set.**

☞ Start up the boiler alone.

☞ Make the following settings at "specialist" level: then code 9360



On boiler n°1: master

		Line no.	*Value*
• **In the Settings menu, then the Configuration menu**			
Activate heating circuit 1		Heating circuit 1 (5710)	marche
Configuring the alarm output		Relay output QX1 (5890)	Alarm output K10
Configuring the DHW pump ***(VX210 diagram)***		Relay output QX2 (5891)	DHW pump/valve Q3
Configure the pump Q15 ***(VX220 diagram)***		Relay output QX2 (5891)	Ppe consumer circuit 1 Q15
Configuring the isolation valve		Relay output QX3 (5892)	Hot pump. Q1
Configuring the B10 cascade flow sensor		BX2 sensor input (5931)	Common flow sensor B10
Configuring the H1 input ***(VX220 diagram)***		H1 input function (5950)	Consumer circuit request 1

Diagrams: VX210 / VX220

		Line no.	*Value*
Set parameter ***(VX220 diagram)***		Contact type (5951)	Normally open
Configuring the expansion module		Expansion module 1 function (6020)	contact Heating circuit 1

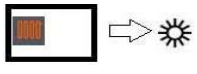
- **Configure as cascade master: In the Parameter List Menu, then the LPB Network Menu**

Device number	Device address (6600)	1
Segment number	Segment address (6601)	0
Setting the bus power supply	Bus supply function (6604)	Automatic
Setting the clock speed	Clock operation (6640)	Master

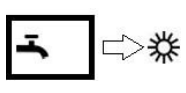
	Line no.	*Value*
VX210 diagram only:		
• **In the Parameter List menu, then the Domestic Hot Water menu**		
Setting the Comfort setpoint	Comfort setpoint (1610)	- - -
VX220 diagram only:		
• **In the Parameter List menu, then the Consumer Circuit 1 menu**		
Set the flow setpoint to be taken into account in the event of a demand from the consumer circuit	T° cs departure demand consumption (1859)	- - -

INFORMATION : Switch off and restart the boiler

- To switch the heating circuit in this mode, go to the tile for the desired heating circuit and click on this icon ☼



- To activate DHW production, go to the DHW tile and click on this icon



On boiler(s) n°2 (and following): slave

- **In the Settings menu, then the Configuration menu**

Configuring the alarm output	Relay output QX1 (5890)	Alarm output K10
Configuring the isolation valve	Relay output QX3 (5892)	Hot pump. Q1

Diagrams: VX210 / VX220	page 6 / 6

- **Configure as a cascade slave: In the Parameter List Menu then the LPB Network Menu**

Device number	Device address (6600)	2 (or next for other slaves)
Segment number	Segment address (6601)	0
Setting the bus power supply	Bus supply function (6604)	Automatic
Setting the clock speed	Clock operation (6640)	Slave without adjustment

- Connect the bus between the boilers (⚠ , make sure the polarity is correct).
- set the water level using the
- Switch the slave boiler(s) off and on again. If communication is is set, the clock is updated correctly.

E. ELECTRICAL AND HYDRAULIC VALIDATION

☞**See Chapter 10**

F. OPTIMISATION OF SETTINGS

☞**See page 140**

Optimising maintenance :

☞**See Chapter 11**

CASCADE OF boilers

Secondary networks controlled by external controller communicating via LPB or 0...10V bus or Modbus

Diagram ***VX211***

A. HYDRAULIC DIAGRAM

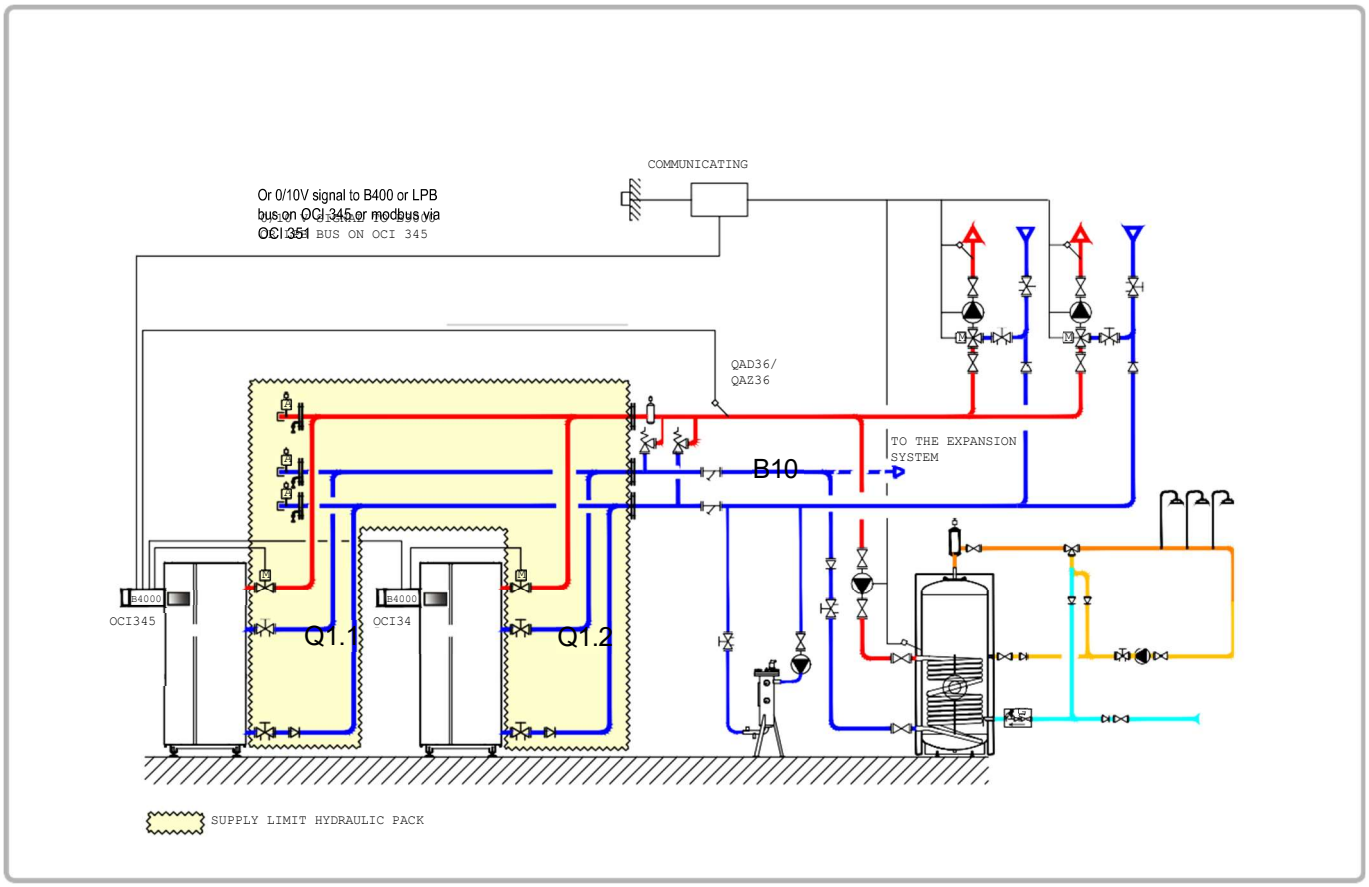


figure 74 - VX211 diagram

B. CONTROL ACCESSORIES REQUIRED

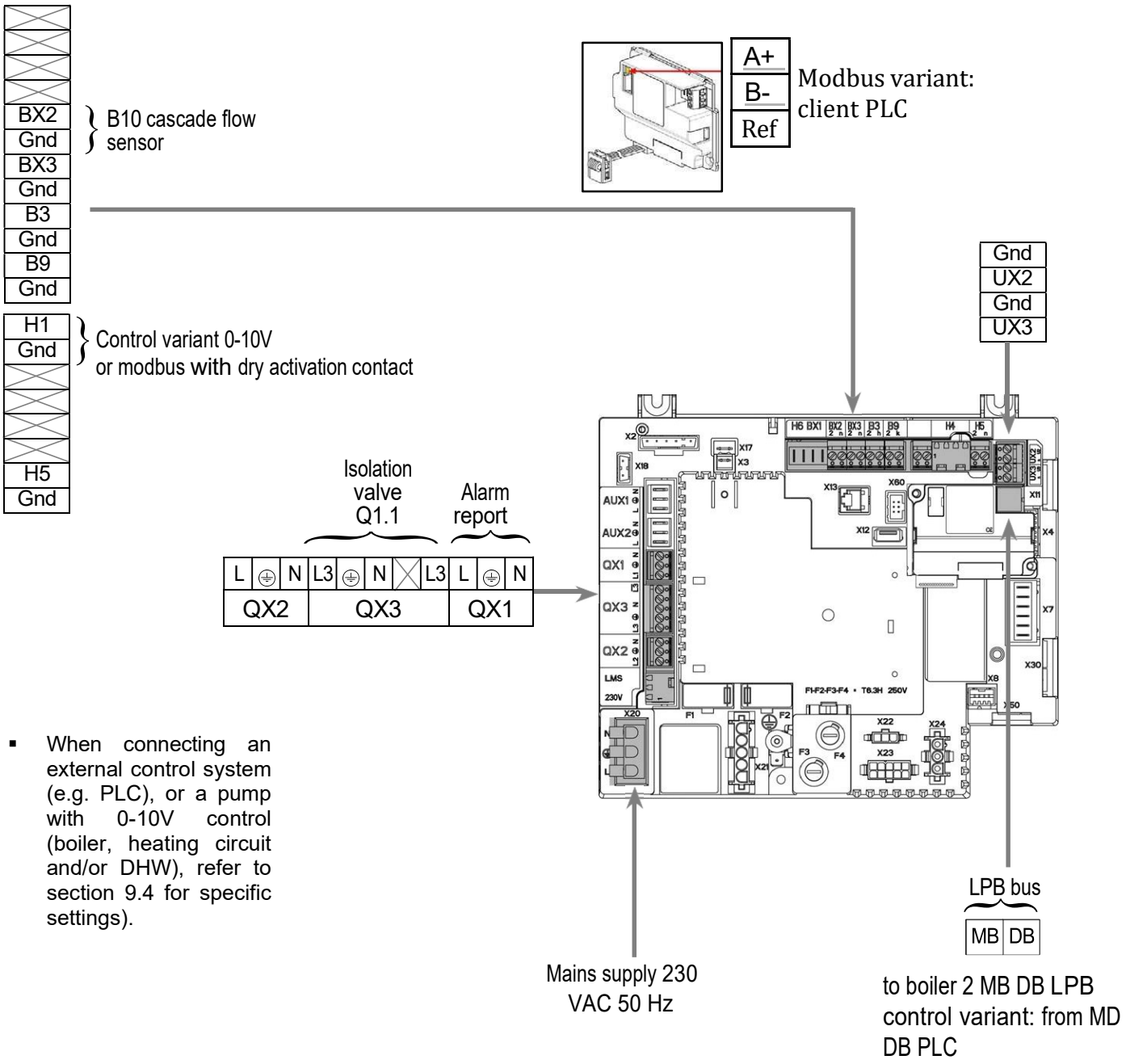
	Quantity	Device reference	Order number
Communication kit	2	OCI 345	059752
Network probe kit	1	QAx 36	059261 *(QAZ 36)* 059592 *(QAD 36)*
Communication kit for Modbus (if dialogue via Modbus)	2	OCI 351	082733

Diagram : VX211	page 2 / 6

C. CUSTOMER ELECTRICAL CONNECTION

Boiler n°1 :

INFORMATION: If the isolation valve is not equipped with an automatic return to zero, connect the isolation valve closing contact Q1.1 to L3.

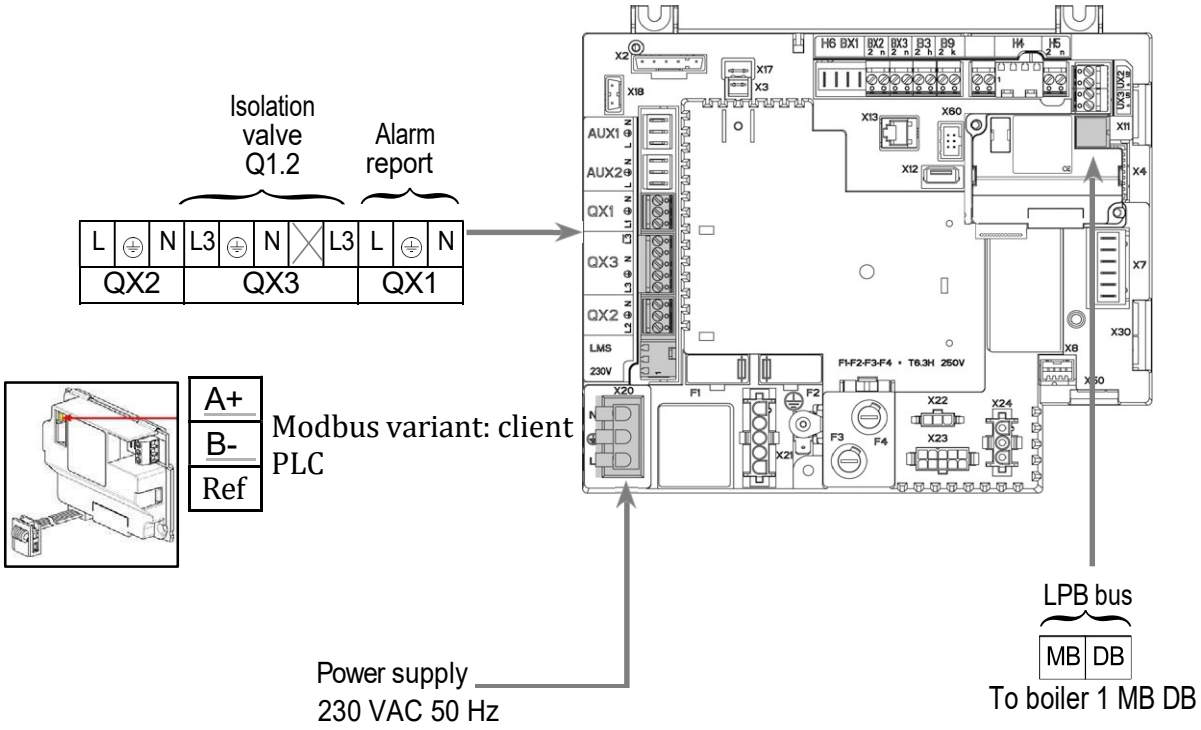


- When connecting an external control system (e.g. PLC), or a pump with 0-10V control (boiler, heating circuit and/or DHW), refer to section 9.4 for specific settings).

Diagram : VX211	page 3 / 6

Boiler n°2 :

INFORMATION: If the isolation valve is not equipped with an automatic return to zero, connect the isolation valve closing contact Q1.2 to L3.



D. SPECIFIC START-UP PROCEDURE

☞ Assemble and make the electrical connections to the accessories.

☞ Start up the boiler alone.

☞ Make the following settings at "specialist" level: then code 9360

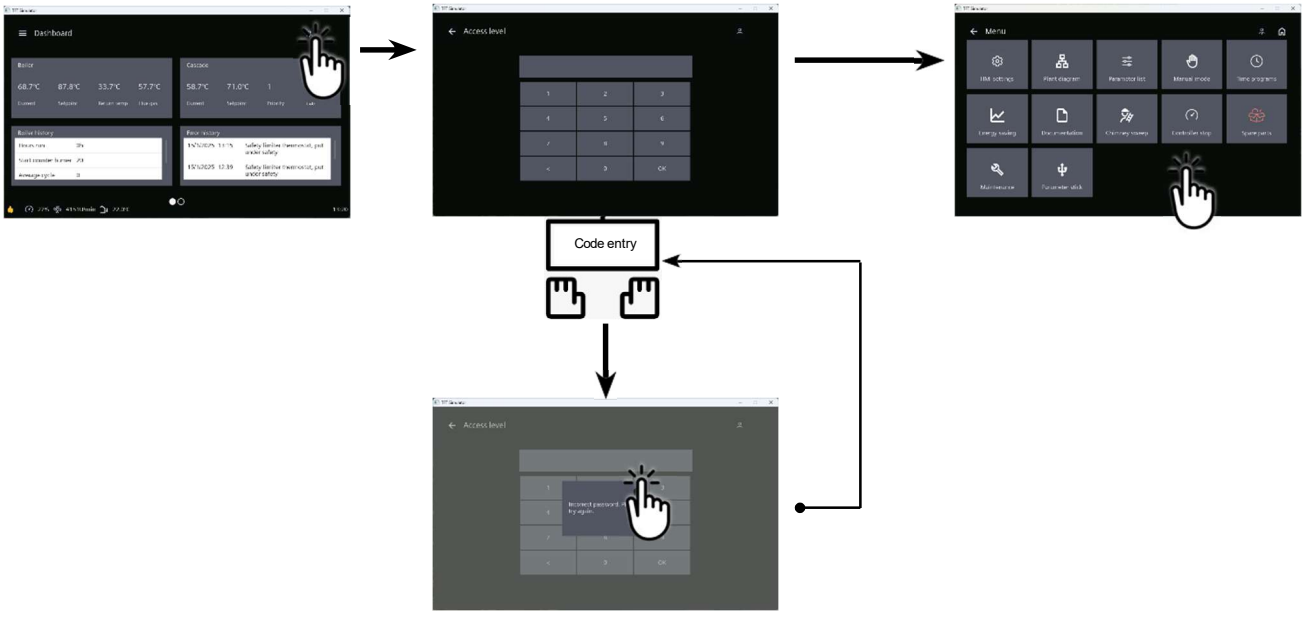


Diagram : VX211

On boiler n°1: master

		Line no.	*Value*
• **In the Settings menu, then the Configuration menu**			
Configuring the B10 cascade flow sensor		BX2 sensor input (5931)	Common flow sensor B10
Configuring the alarm output		Relay output QX1 (5890)	Alarm output K10
Configuring the boiler pump		Relay output QX3 (5892)	Boiler pump Q1
In the Settings List menu, then the LPB Network menu			
Configure the boiler as master of the waterfall		Device address (6600)	1
		Segment address (6601)	0
		Bus supply function (6604)	Automatic
		Clock function (6640)	Master

On boiler(s) n°2 (and following): slave

• **In the Settings menu, then the Configuration menu**			
Configuring the B10 cascade flow sensor		BX2 sensor input (5931)	Common flow sensor B10
Configuring the alarm output		Relay output QX1 (5890)	Alarm output K10
Configuring the boiler pump		Relay output QX3 (5892)	Boiler pump Q1
In the Settings List menu, then the LPB Network menu			
Configure the boiler at as a cascade slave		Device address (6600)	2 (or following for other slaves) 0
		Segment address (6601)	Automatic
		Bus supply function (6604)	Slave without adjustment
		Clock function (6640)	

On boiler n°1: master

For a request via 0...10V input

H1 input configuration	H1 input function (5950)	Circ. request consom1 10V
	Voltage value 1 H1 (5953)	0.0
	Function value H1 (5954)	0
	Voltage value 2 H1 (5955)	10.0
	Voltage value 2 H1 (5956)	1000 (for an equivalence of 10V= 100°C)

Diagram : VX211

	Line no.	***Value***

Please note that *the boiler will consider 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 have a hydraulic decoupling cylinder, all the network pumps will have to be stopped, otherwise they may cavitate.
**: according to the scale given in parameter 5956*

On boiler n°1: master

- **Configuration menu**

	Line	
H1 input configuration	H1 input function (5950)	Circ.consom1 request
Activate low heel	H1 contact direction of action (5951)	Normally closed contact

If necessary, use input H1 for on/off control via dry contact.

- **Modbus menu**

Set the Modbus elements on the boiler

Slave address (6651)	As set on your controller
Baud rate (6652)	As set on your controller
Parity (6653)	As set on your controller
Stop bit (6654)	As set on your controller

Modbus register for sending the boiler flow temperature setpoint

Modbus address		Line number	Nb registre	Data	Access		Possible values	Data type	Coefficient
Décimal	Hexa	B3100			Reading	Writing			
13313	3401	1859	1	Consumer start setpoint 1 dry contact	✓	✓	8... 120,°C	U16	1/64

INFORMATION : **Switch off and restart the boiler**

Diagram : VX211	page 6 / 6

On boiler(s) n°2 (and following): slave

- **Modbus menu**

Set the Modbus elements on the boiler

Slave address (6651)	As set on your PLC
Baud rate (6652)	As set on your controller
Parity (6653)	As set on your PLC
Stop bit (6654)	As set on your controller

E. ELECTRICAL AND HYDRAULIC VALIDATION

☞**See Chapter 10**

F. OPTIMISATION OF SETTINGS

Optimising the cascade :

The cascade can be optimised as required using the parameters in the *Cascade* menu. See the NAVISTEM B4000 boiler controller manual for more details.

Optimising maintenance :

☞**See Chapter 11**

CASCADE OF boilers *3 or 4 networks regulated by a three-way valve, with or without DHW production*	Diagram ***VX202*** ***VX212***

A. MAIN HYDRAULIC DIAGRAM AND VARIANT

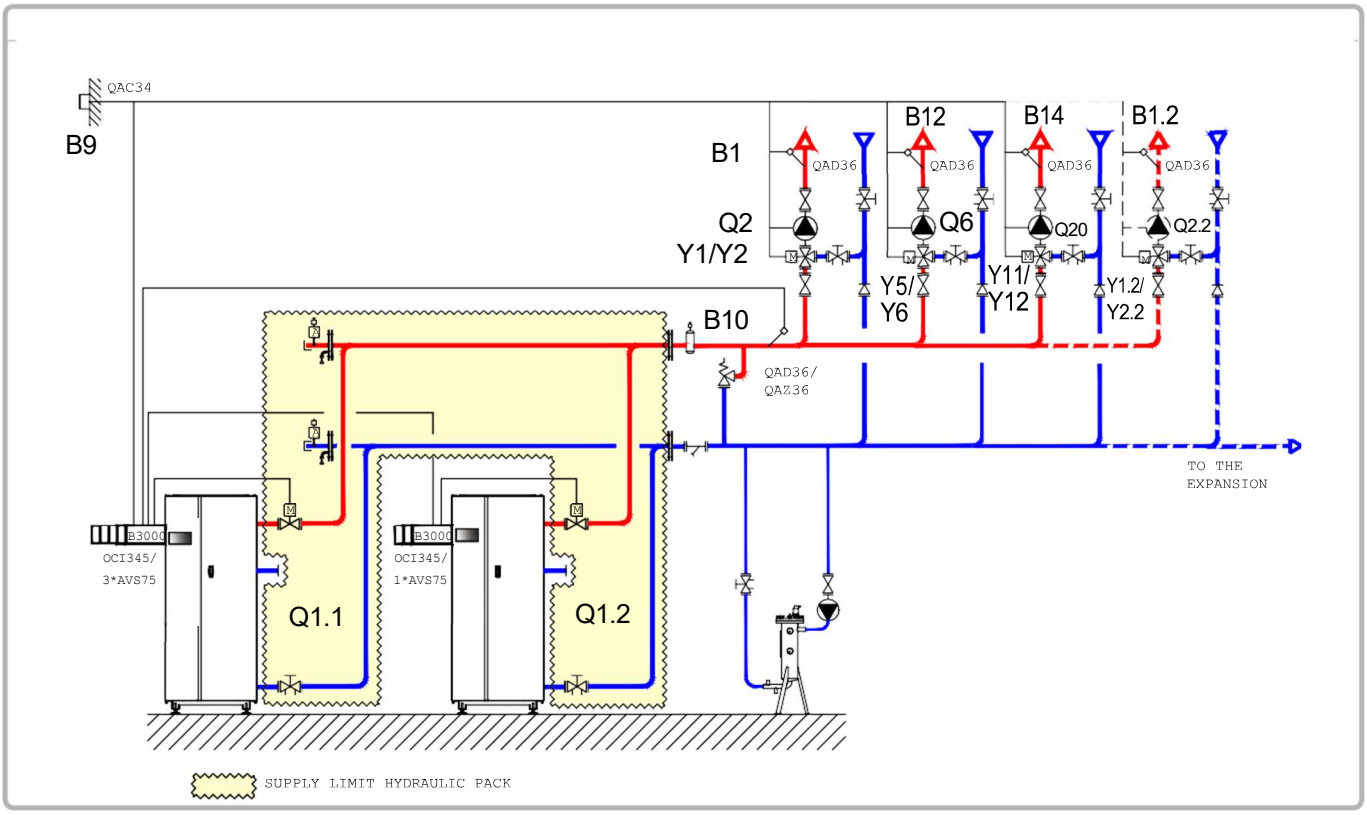


figure 75 - VX202 diagram

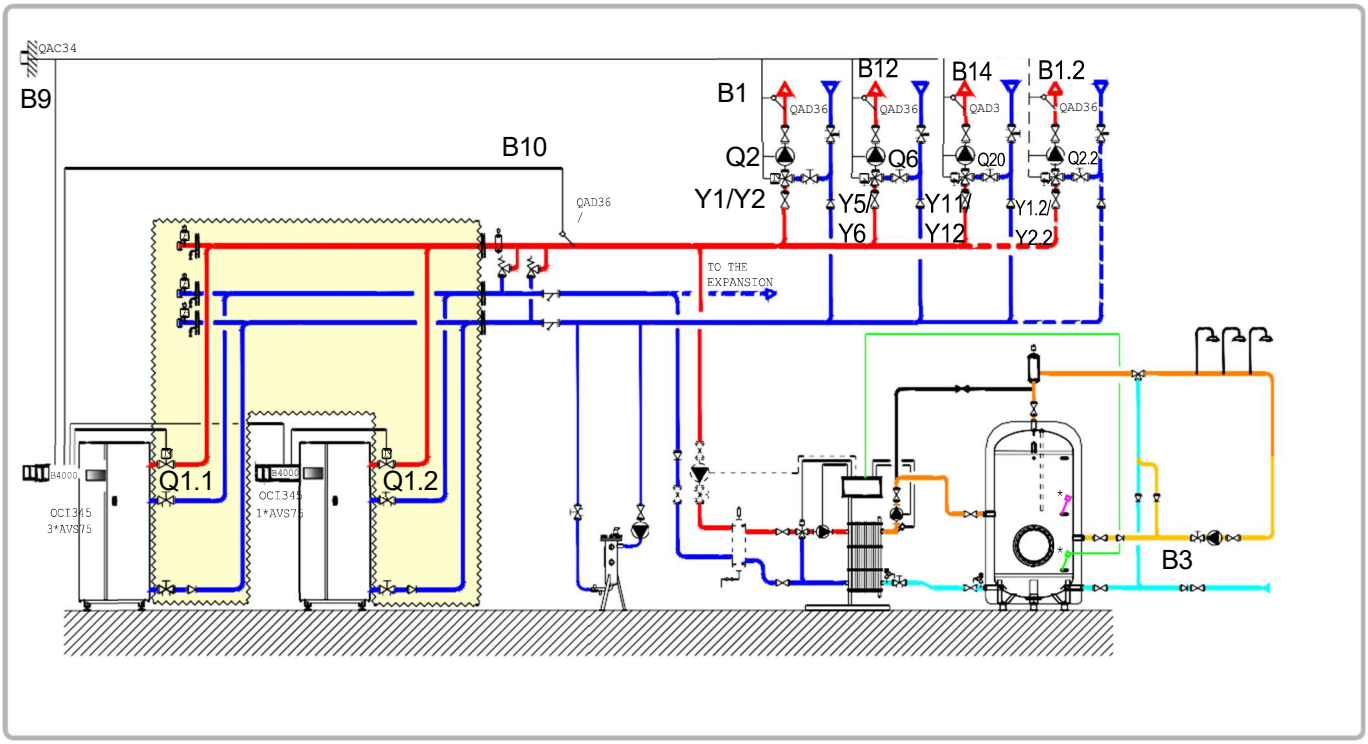


figure 76 - VX212 diagram (variant)

Diagrams: VX202 / VX212	page 2 / 7

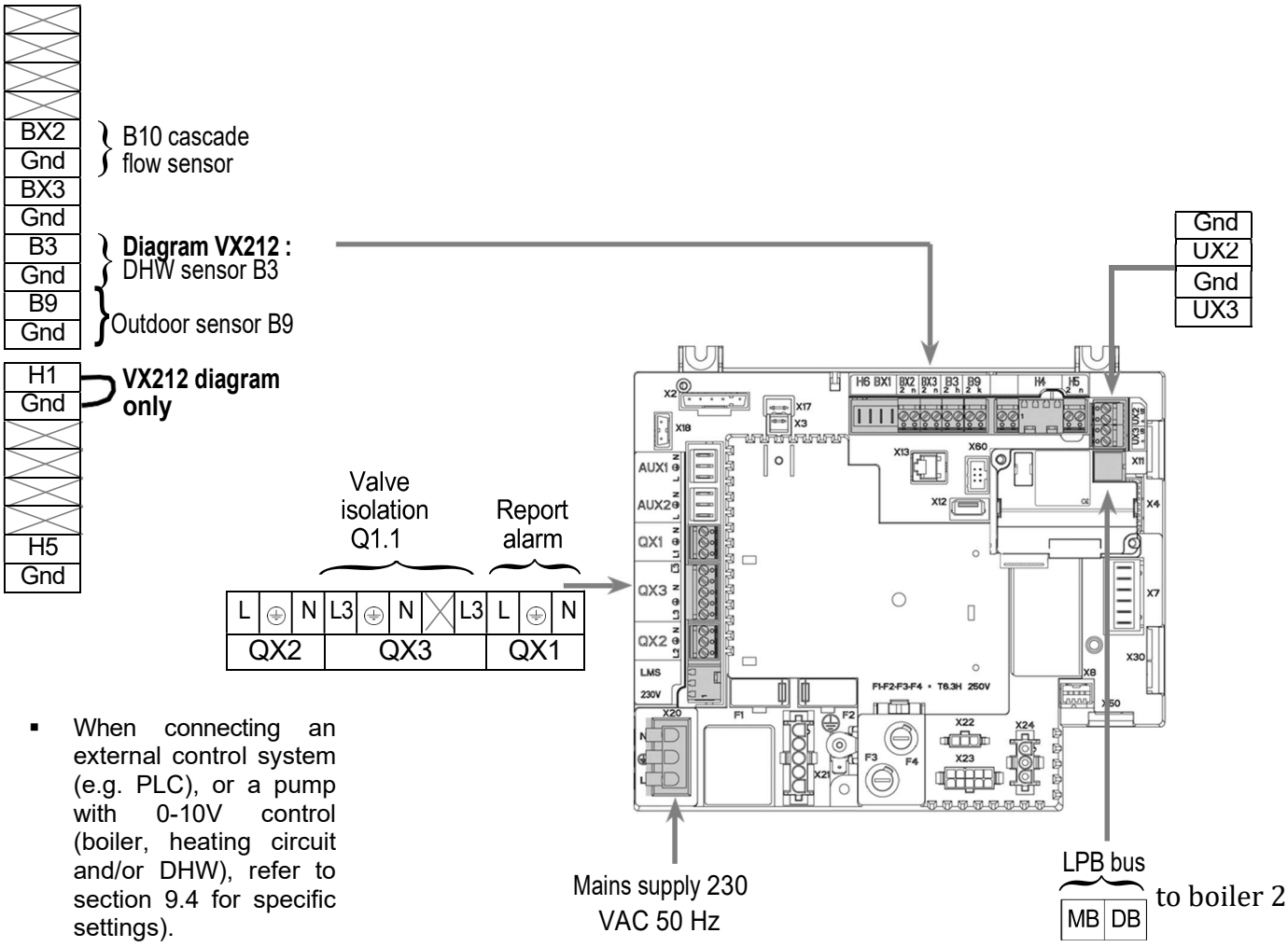
B. CONTROL ACCESSORIES REQUIRED

	Quantity	Device reference	Order number
Extension module kit (supplied with QAD 36 network probe)	3 (4)	AVS 75	059751
Communication kit	2	OCI 345	059752
Network probe kit	1	QAx 36	059261 *(QAZ 36)* 059592 *(QAD 36)*
Outdoor sensor kit	1	QAC 34	059260
DHW sensor kit **(diagram VX212)**	1	QAZ 36	059261

C. CUSTOMER ELECTRICAL CONNECTION

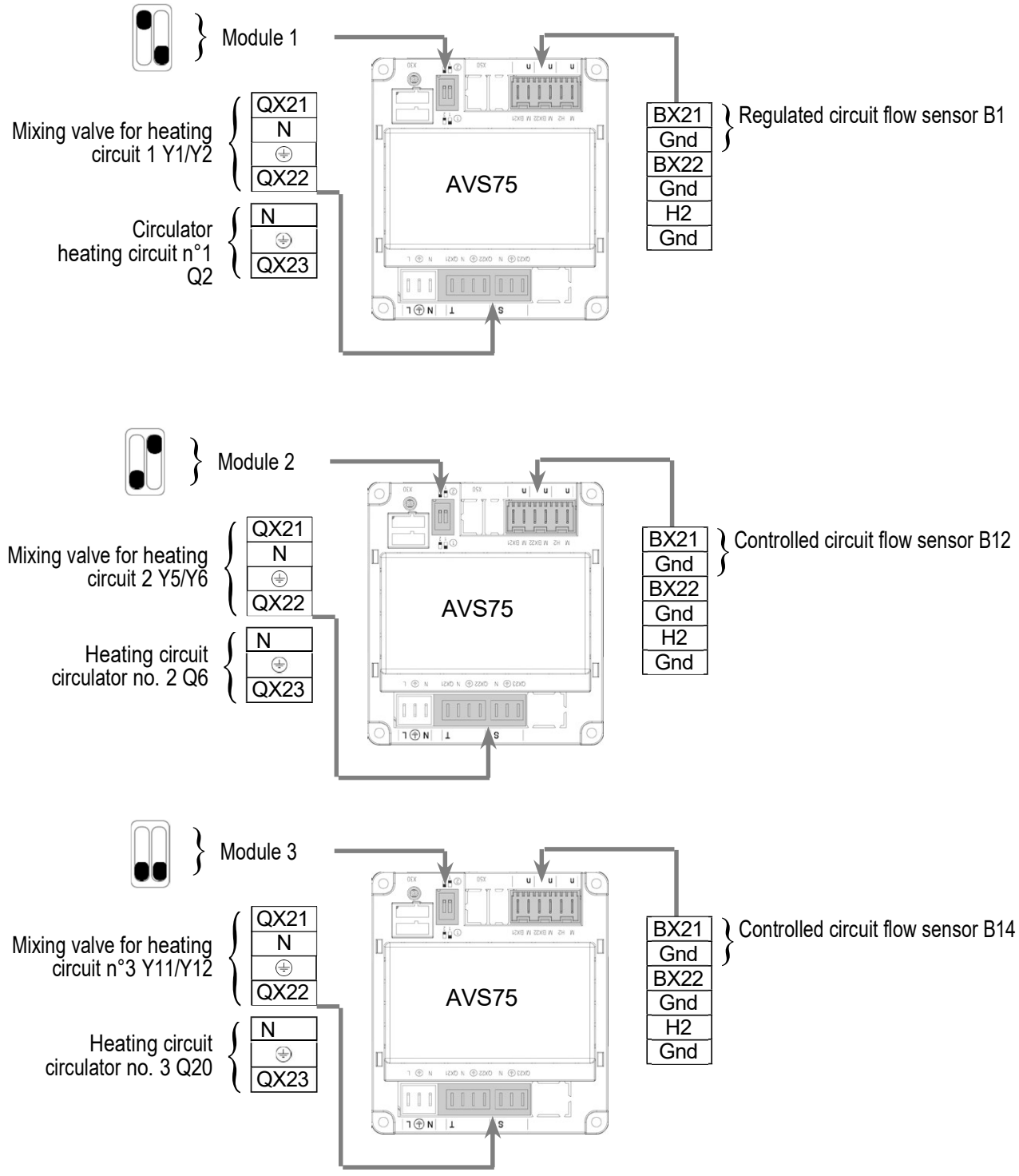
Boiler n°1 :

INFORMATION: If the isolation valve is not equipped with an automatic return to zero, connect the isolation valve closing contact Q1.1 to L3.



- When connecting an external control system (e.g. PLC), or a pump with 0-10V control (boiler, heating circuit and/or DHW), refer to section 9.4 for specific settings).

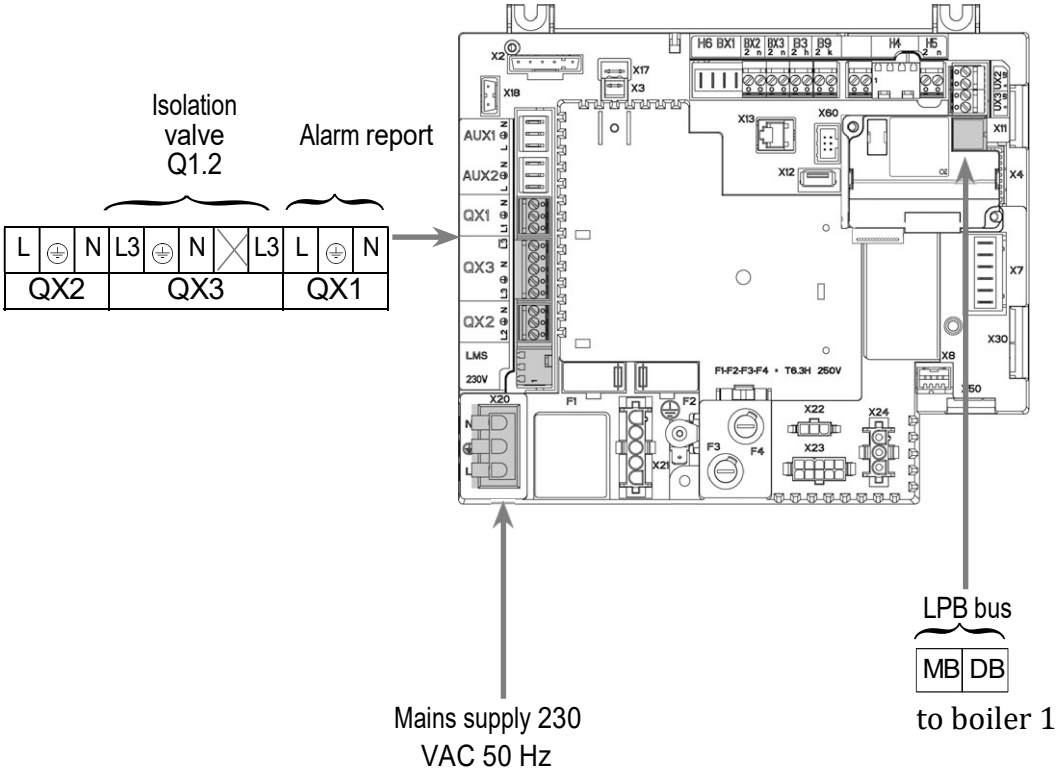
Diagrams: VX202 / VX212

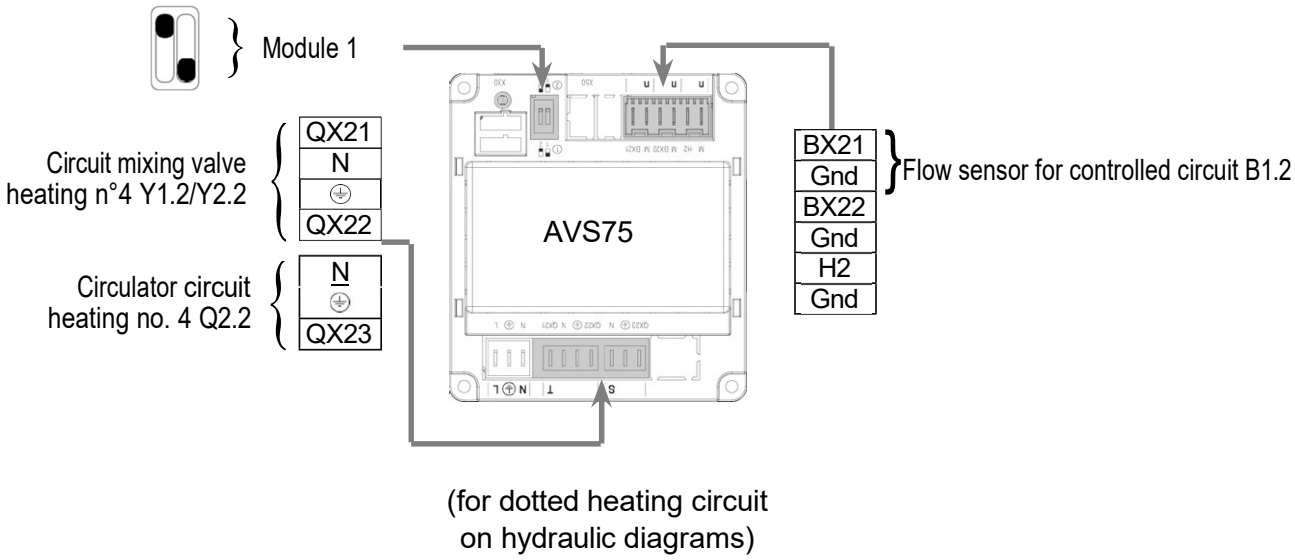


Diagrams: VX202 / VX212

Boiler n°2 :

INFORMATION: If the isolation valve is not equipped with an automatic return to zero, connect the isolation valve closing contact Q1.2 to L3.



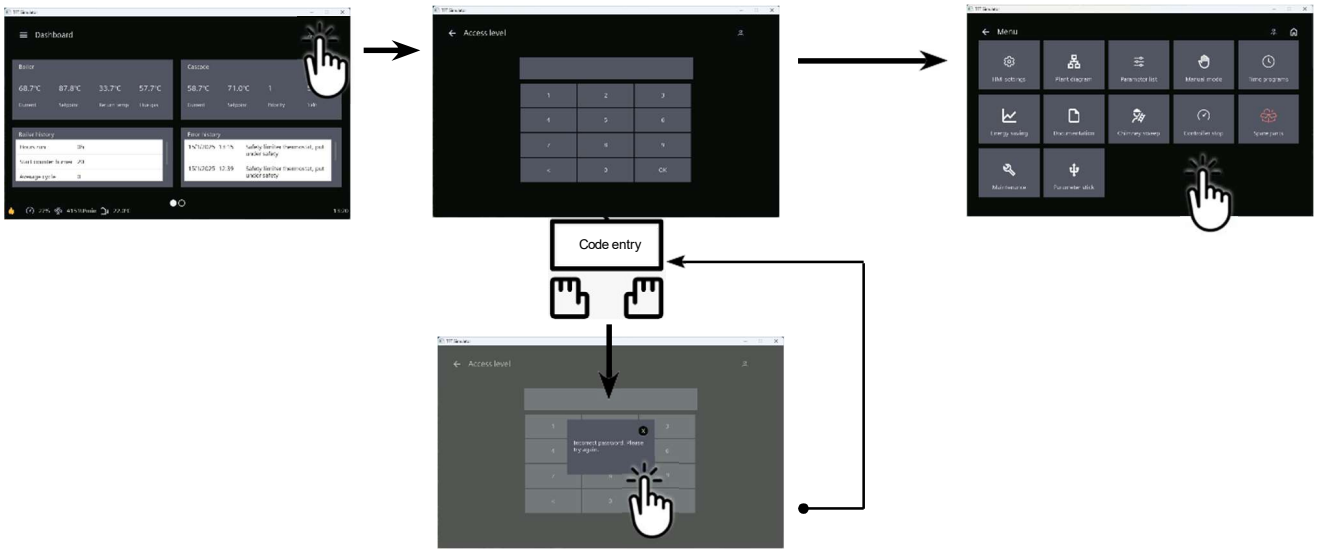


D. SPECIFIC START-UP PROCEDURE

CAUTION: **Make sure the switches on the AVS75 extension modules are correctly set.**

☞ Start up the boiler alone.

☞ Make the following settings at "specialist" level: then code 9360



On boiler n°1: master

		Line no.	*Value*
• **In the Settings menu, then the Configuration menu**			
Switch on heating circuit 1		Heating circuit 1 (5710)	Walk
Switch on heating circuit 2		Heating circuit 2 (5715)	Walk
Switch on heating circuit 3		Heating circuit 3 (5721)	Walk
Configuring the alarm output		Relay output QX1 (5890)	Alarm output K10
VX212 diagram only:			
Define a low heel		H1 input function (5950)	Circuit request consum. 1
Set parameter		Contact type (5951)	Working contact

Diagrams: VX202 / VX212

For the DHW to be effective, an actuator must be defined even if it is not connected.	Relay output QX2 (5891)	Q3 DHW pump/valve
Configure pump Q1	Relay output QX3 (5892)	Boiler pump Q1
Configure B10 cascade flow sensor	BX2 sensor input (5931)	Common flow sensor B10
Configuring expansion modules	Expansion module 1 function (6020)	Heating circuit 1
	Expansion module 2 function (6021)	Heating circuit 2
	Expansion module 3 function (6022)	Heating circuit 3

- **Configure as cascade master: In the Parameter List Menu, then the LPB Network Menu**

Device number	Device address (6600)	1
Segment number	Segment address (6601)	0
Setting the bus power supply	Bus supply function (6604)	Automatic
Setting the clock speed	Clock operation (6640)	Master

VX212 diagram only:

- **In the Parameter List menu, then the Consumer Circuit 1 menu**

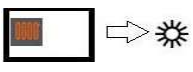
Set the flow setpoint to be taken into account in the event of a demand from the consumer circuit	Conso request start setpoint (1859)	60 °C (depends on Ruby setting)

- **In the Parameter List menu, then the Domestic Hot Water menu**

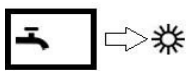
Setting the Comfort setpoint	Comfort setpoint (1610)	55 °C
Set DHW release mode	DHW release (1620)	24h/24

INFORMATION : Switch off and restart the boiler

To switch the heating circuit in this mode, go to the tile for the desired heating circuit and click on this icon ☼



- To activate DHW production, go to the DHW tile and click on this icon ☼



On boiler(s) n°2 (and following): slave

- **In the Settings menu, then the Configuration menu**

If 4ème heating circuit present:

Switch on heating circuit	1Heating circuit 1 (5710)	Walk
Configure alarm	outputRelay output QX1 (5890)	Alarm output K10
Configure expansion module	Expansion module function 1 (6020)	Heating circuit 1

- **Configure as a cascade slave: In the Parameter List Menu then the LPB Network Menu**

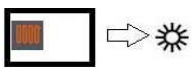
Device number	Device address (6600)	2 (or next for other slaves)
Segment number	Segment address (6601)	0
Setting the bus power supply	Bus supply function (6604)	Automatic
Setting the clock speed	Clock operation (6640)	Slave without adjustment

  - Connect the bus between the boilers (⚠ , make sure the polarity is correct).

INFORMATION : Switch off and restart the boiler

If 4ème heating circuit present:

To switch the heating circuit in this mode, go to the tile for the desired heating circuit and click on this icon ☼



E. ELECTRICAL AND HYDRAULIC VALIDATION

☞**See Chapter 10**

F. OPTIMISATION OF SETTINGS

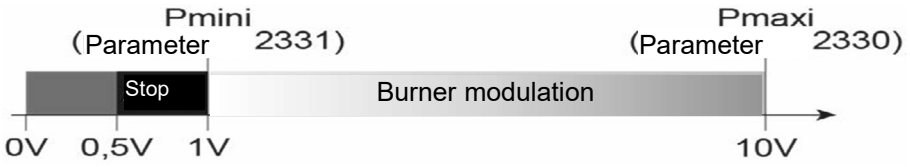
☞**See page 140**

Optimising maintenance :

☞**See Chapter 11**

9.4. Specific settings for connection to 0-10V outputs (Ux)

9.4.1. Transfer of "burner power" image to PLC



0...0.5 Vdc	Boiler prevented from starting or locked out
0.5...1 Vdc	The boiler is waiting for start-up or pre-ventilation or post-ventilation.
1...10 Vdc	The boiler is operating with the flame and is between its minimum and maximum power

D. SPECIFIC START-UP PROCEDURE

		Line no.	***Value***
• **In the Settings menu, then the Configuration menu**			
Declare the output giving the image of the burner power.		Ux output function (6078/6089)	Direct burner
Signal direction. Progression of the 0-10V signal in the direction of increasing signal for increasing speed.		signal logic output (6079/6090)	modulation

9.4.2. Boiler pump control Q1

D. SPECIFIC START-UP PROCEDURE

		Line no.	***Value***
• **In the Settings menu, then the Configuration menu**			
Declare the output giving the image of the burner power.		Ux output function (6078/6089)	Boiler pump Q1
Signal direction. Progression of the 0-10V signal in the direction of increasing signal for increasing speed.		Ux signal logic output (6079/6090)	Direct
• **In the Parameter List menu, then the Boiler menu**			
Set these 3 parameters to the same value		Start rotation speed (2321)	between 0 and 100
		Min. pump rotation speed (2322)	between 0 and 100
		Max. pump rotation speed (2323)	between 0 and 100

9.4.3. Control of a Q2, Q6 or Q20 heating circuit pump

D. SPECIFIC START-UP PROCEDURE

		Line no.	*Value*
• **In the Settings menu, then the Configuration menu**			
For a Q2, Q6 or Q20 heating pump with 0-10V control. Configure the heating pump.		Ux output function (6078/6089)	Pump CC1 Q2 Or Pump CC2 Q6 Or Pump CC3 Q20
Signal direction. Progression of the 0-10V signal in the direction of increasing signal for increasing speed.		Ux signal logic output (6079/6090)	Direct
• **In the *Parameter list menu, then the Heating circuit 1/2/3 menu***			
Set these 3 parameters to the same value		Starting rot. speed (881/1181/1481)	between 0 and 100
		Min. pump rot. speed (882/1182/1482)	between 0 and 100
		Max. pump speed (883/1183/1483)	between 0 and 100

E. ELECTRICAL AND HYDRAULIC VALIDATION

☞ **See Chapter 10**

9.4.4. Control of a Q3 DHW pump

D. SPECIFIC START-UP PROCEDURE

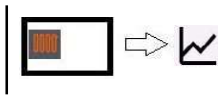
		Line no.	*Value*
• **In the Settings menu, then the Configuration menu**			
Case of a controlled DHW pump 0-10V. Configure Q3 DHW pump.		Ux output function (6078/6089)	Q3 Direct DHW
Signal direction. Progression of the 0-10V signal in the direction of increasing signal for increasing speed.		Ux signal logic output (6079/6090)	pump
• **In the Settings list menu, then the DHW Tank menu**			
Set these 3 parameters to the same value		Min. pump speed (5101)	between 0 and 100
		Max. pump speed (5102)	between 0 and 100
		Load pump start rpm (5108)	between 0 and 100

Optimisation

OPTIMISING THE HEATING CIRCUIT

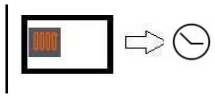
Adjust the slope:

Go to the tile for the desired heating circuit and select the water law button



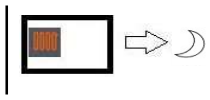
Setting the time programme:

Go to the tile for the desired heating circuit and select auto mode then the time programme link



Set the reduced setpoint:

Go to the tile for the desired heating circuit and select reduced mode to adjust this setpoint



Set a holiday programme:

Make the following settings at specialist level: then code 9360 “burger” Parameter list menu

- In the Time Program menu, then in the Holiday Program menu CC1 / CC2 / CC3

  Select the appropriate range and the reduced or frost-free mode

	PLEASE NOTE:	**The "holiday" programme is active in automatic mode only.**
	PLEASE NOTE:	**When all the configured heating circuits are in holiday mode, the DHW circuit switches to frost protection mode.**
	PLEASE NOTE:	**When the holiday period is over, it is deleted from the programming.** **The periods are scheduled from one year to the next.**

Optimisation

Set the summer/winter mode and/or the daily heating cut-off:

Make the following settings at specialist level: then code 9360 burger" Parameter list menu

- ECO function for automatic summer/winter changeover (see Navistem B4000 manual)

	Line no.	Value
Summer/winter heating limit	(1030/1330)	19°C

- Daily ECO function for automatic changeover between comfort and reduced settings depending on the difference between the temperature and the time of day.
  setpoint and outdoor temperature (see Navistem B4000 manual)

Daily heating limit	(1033/1332)	0°C

- **OPTIMISING THE DHW CIRCUIT**

Make the following settings at specialist level: then code 9360 burger"

Parameter list menu

- DHW cylinder menu

Adjust	boostDependent set point boost	(5020)	12°C
Adjust anti-legionella cycle (if desired)			

- Domestic hot water menu

Activate anti-legionella mode	Anti-legionella function	(1640)	off/periodic/fixed weekday
Choice of repeatability.from every day to every 7 days.if 1641=periodic			
	Periodic anti-legionella function	(1641)	1 to 7 days
Choice of weekday.if 1641=fixed weekday			
	Legionella weekday function	(1642)	Monday...Sunday
Anti launch time legionella	Anti-legionella function time	(1644)	00:00
	Anti-legionella setpoint temperature	(1645)	As required (°C)
	Duration of anti-legionella function	(1646)	As required (min)

Optimisation VX112/ VX 212

OPTIMIZING DHW PRODUCTION with DHW cylinder and hot water tank

Setting the boiler :

	Line no.	Value
• **In the Configuration menu**		
Set parameter	QX4 relay output (5893)	Pp/HWC valve Q3
• **In the Parameter List menu, then the Consumer Circuit 1 menu**		
Set the constant flow setpoint *depends on the dimming of the DHW cylinder	Conso request start setpoint (1859)	67 °C
Remove pump stop on DHW priority	ECS priority(1674)	No
• **In the Domestic hot water menu**		
Setting the Comfort setpoint	Comfort setpoint (1610)	60 °C (depends on DHW cylinder setting)
Set the DHW release speed	ECS release (1620)	24h/24
• **In the DHW cylinder menu**		
Higher boiler flow temperature for DHW recovery	Increase in dep. consig. temperature (5020)	16°C

Setting on an Atlantic Rubis W3000 or Plate Heat Exchanger W3100 cylinder without economy and performance kit: <u>Parameters menu / DHW production / Main setpoint (C1) :</u>

C1 setpoint: 62°C

Summary of DHW setpoint parameter setting on Varfree EVO Consumer circuit 1 setpoint (1859) = C1 ruby setpoint + 5°C = 67 °C DHW setpoint (1610) = C1 ruby setpoint - 2°C = 60 °C

Boiler setpoint temperature boost (5020) = 16 °C

Process description

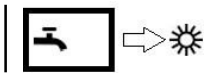
The consumer circuit allows the storage tank temperature to be maintained at 67 °C. In this case the boiler set point = consumer circuit set point (67 *C).

If the sensor located in the storage tank detects a temperature < 55 °C, i.e. DHW set point (60 °C) - differential (5 °C) = 55 °C, the

DHW cycle is then started. The boiler setpoint is then = DHW setpoint (60 °C) + overheating (16 °C) = 76 °C.

The DHW cycle is stopped when the sensor in the storage tank reaches the DHW setpoint temperature (60 °C). The heating then returns to the consumer circuit setpoint (67 °C).

- To activate DHW production, go to the DHW tile and click this icon on 



10. ELECTRICAL VALIDATION

10.1. On VARMAX MK2

	Line no.	Value
• **In the Parameter List menu, then the Input/Output Test menu, check the outputs**		
Alarm report	Relay test (7700)	Relay output QX1
Programmable output QX2	Relay test (7700)	Relay output QX2
Pump / boiler valve output	Relay test (7700)	Relay output QX3
Opening V3V CC1	Relay test (7700)	Relay output QX21 Module1
Close V3V CC1	Relay test (7700)	Relay output QX22 Module1
Pump CC1	Relay test (7700)	Relay output QX23 Module1
Opening V3V CC2	Relay test (7700)	Relay output QX21 Module2
Opening V3V CC2	Relay test (7700)	Relay output QX22 Module2
CC2 pump	Relay test (7700)	Relay output QX23 Module2
Opening V3V CC3	Relay test (7700)	Relay output QX21 Module3
Close V3V CC3	Relay test (7700)	Relay output QX22 Module3
CC3 pump	Relay test (7700)	Relay output QX23 Module3
Output reset	Relay test (7700)	No test
test the 0-10V modulation carry output	UX2 signal test (7716)	V
STOP TEST	UX2 signal test (7716)	0V
Check sensor values		
Outdoor sensor B9	Outdoor temperature B9(7730)	in °C
DHW sensor B3	DHW temperature B3/B8 (7750)	in °C
Cascade flow sensor	Sensor temperature BX2 (7821)	in °C
Flow sensor CC1	BX21 sensor T° module1 (7830)	in °C
CC2 flow sensor	T° sensor BX21 module2 (7832)	in °C
CC3T° flow sensor	T° sensor BX21 module3 (7834)	in °C
Check input H1		
Read external 0-10V	signalVoltage signal H1 (7840)	---V
Low heel activation	H1 contact status (7841)	closed

Check input H5		
Boiler lockout	Status of contact H5 (7865)	---
For a request via modbus or LPB		
• **Consumer circuit 1 menu**		
Check parameter	T° cs start cons. request (1859)	To be confirmed with the order sent by the external controller

11. OPTIMISING MAINTENANCE

Diagrams: VX100 / VX101 / VX102 / VX111 / VX112 / VX113 / VX110 / VX120 / VX200 / VX201 / VX202 / VX212 / VX211 / VX210 / VX220 /

It is possible to generate a maintenance message that does not fault the boiler. This maintenance message can be sent after the following 3 counters have elapsed:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months (**parameter list menu then *Maintenance / Special regime***).
- Burner operating hours (parameter 7040 - **parameter list menu, then *Maintenance / Special scheme***)
- Number of starts (parameter 7042 - **parameter list menu then *Maintenance / Special operating mode***)

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



12. SPARE PARTS LIST

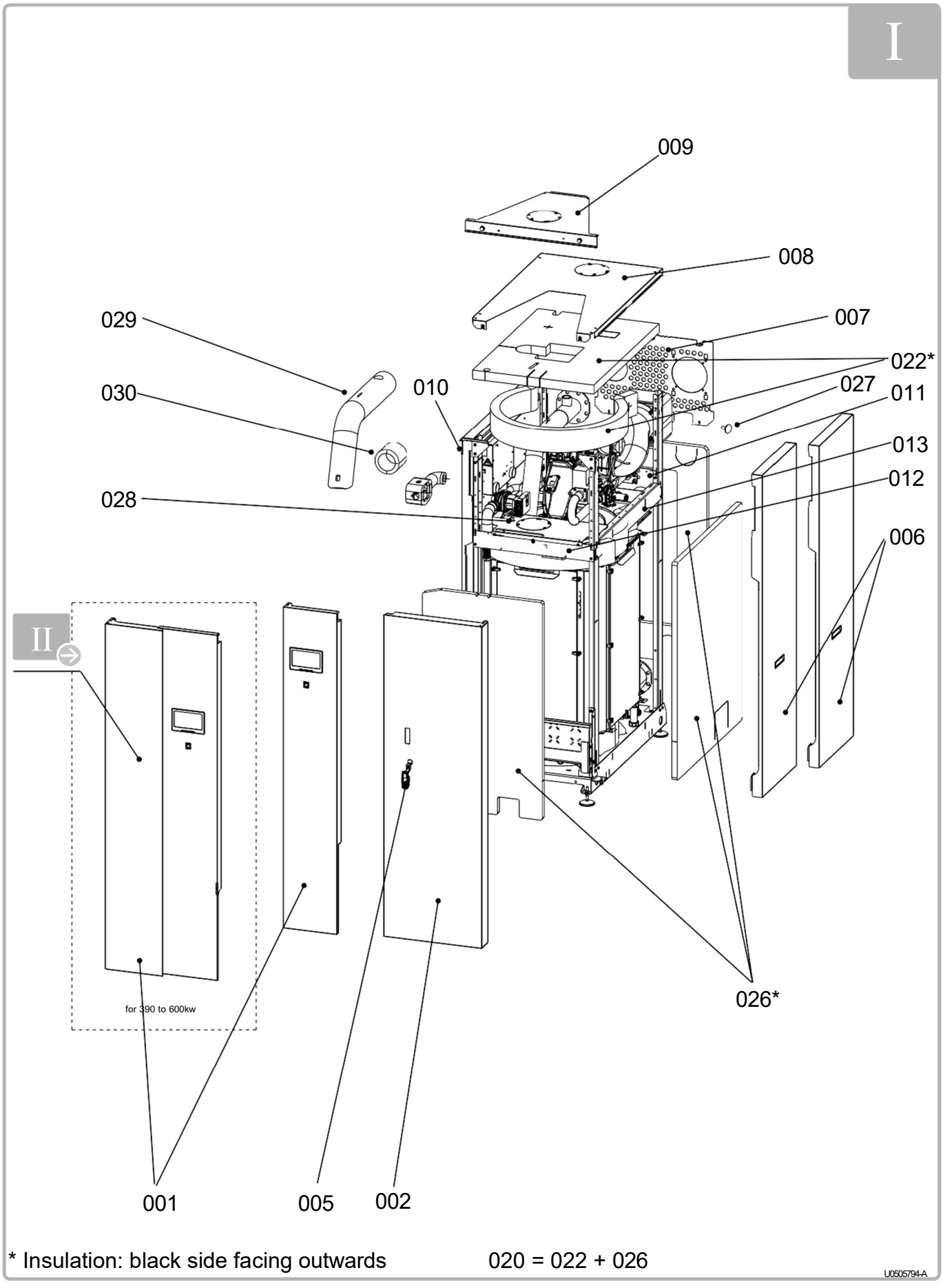
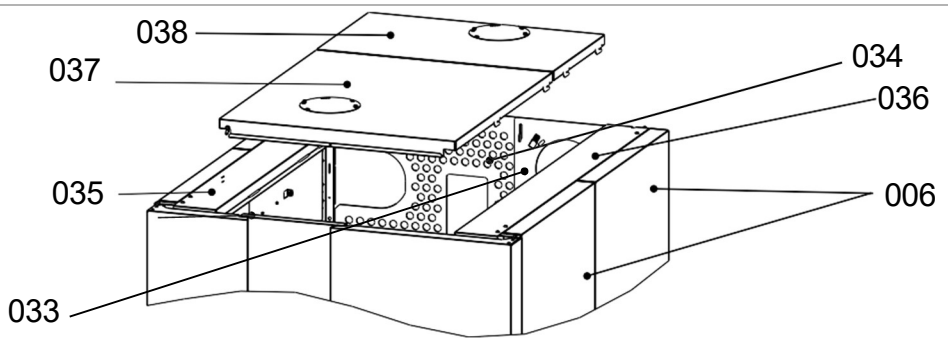


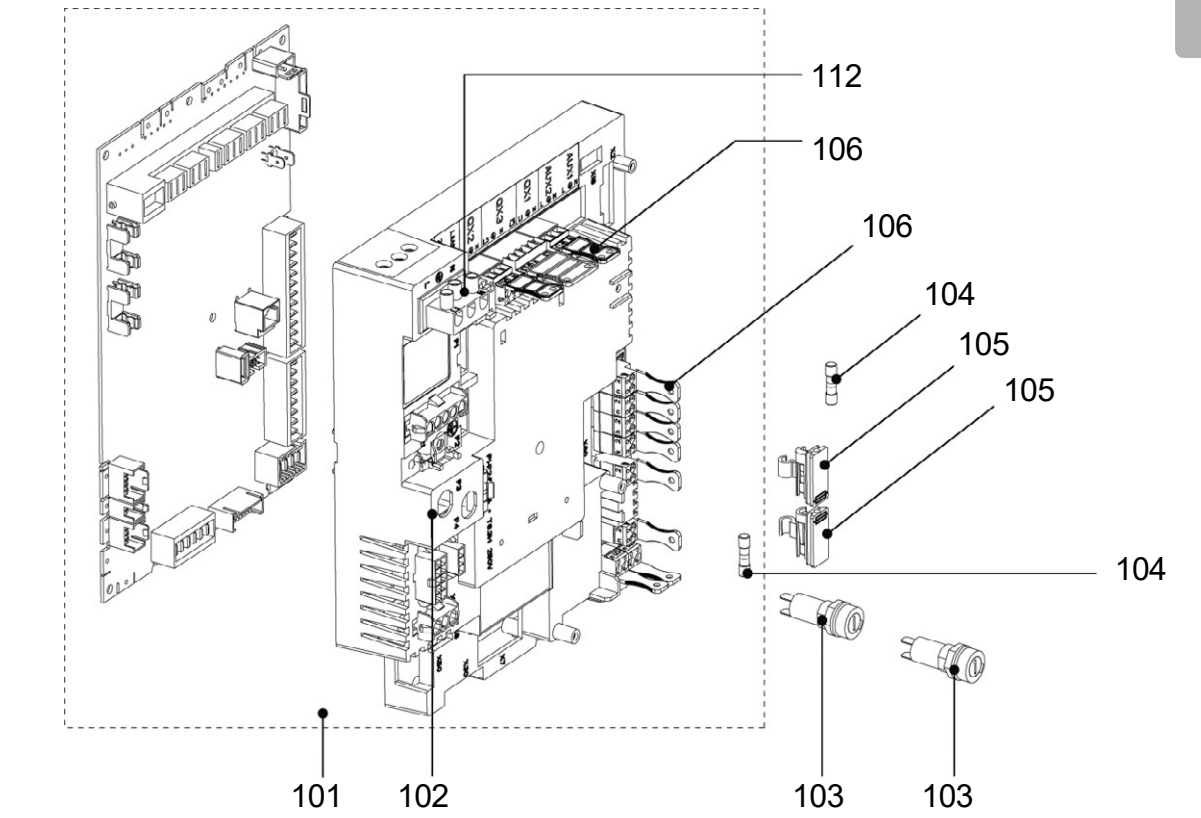
figure 77 - Cladding / Insulation

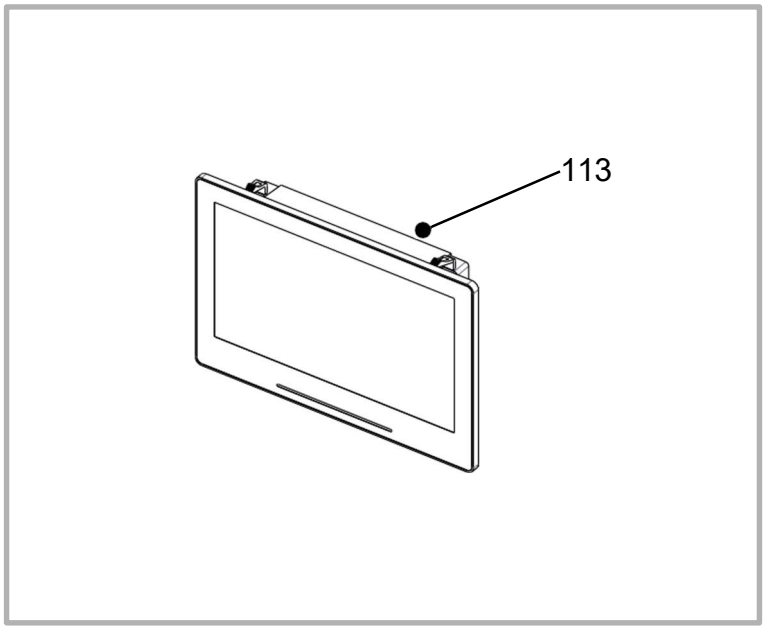
Ia



REP.	DESIGNATION	REF. FOR MODELS				
		--	180 & 225	275 & 320	390 & 450	600
	Cabinet design					
001	FRONT LEFT DOOR	--	200819	200820	200821	200822
002	ATLANTIC RIGHT FRONT DOOR	--	200824	200825	200826	200827
	FRONT RIGHT DOOR YGNIS	--	200829	200830	200831	200832
	HAMWORTHY RIGHT FRONT DOOR		200854	200855	200856	200857
003	FOOT WALKING	--	79241	79242	79243	79202
005	LOCK	76024				
006	SIDE JACKET	--	200834	200835	200836	200837
007	REAR GRID	--	200839	200840	200841	--
008	ROOF	200842		200843	200844	--
009	OPEN ROOF	200845		200846	200847	--
010	DOOR PIN	72898				
011	REAR CROSSBAR	--	76932	76933	76934	200848
012	FRONT PANEL	76767		76768	76769	79199
013	SIDE RAIL	76928		76929	76930	79200
033	REAR AIR INTAKE GRILLE	--	--	--	--	79190
034	REAR GRILLE START SPIGOT	--	--	--	--	79191
035	LEFT ROOF RAIL	--	--	--	--	200849
036	STRAIGHT ROOF RAIL	--	--	--	--	200850
037	FRONT ROOF	--	--	--	--	200851
038	REAR ROOF	--	--	--	--	200852
--	TRIM AMOUNT	--	76610	76858	76859	
--	TDC LMS BONNET	200895				
	Insulation					
020	"INSULATED PANELS COMPLETE KIT (ALL PANELS + BOA SUP)".	--	200859	200860	200861	200862
022	TOP INSULATION + BOA	--	78673	78674	78675	79216
026	FRONT AND REAR SIDE INSULATION PANELS	--	200864	200865	200866	200867
027	INSULATION MAINTENANCE (6 PIECES)	76125				
028	SHEET METAL PROTECTION INSULATION	76770		76771	76772	79221
029	STARTER INSULATION KIT (NON-REMOVABLE SPIGOT VERSION)	--	76304	76305	76306	--
	KITISOLATION DEPARTURE(VERSION PIQUAGE DÉMONTABLE)			76997	76998	--
	INSULATION KIT UPPER PART B5	--				79219
--	RETURN INSULATION KIT	--	76308	76309		79223

II





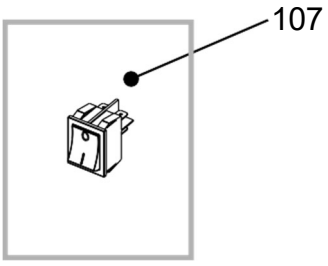
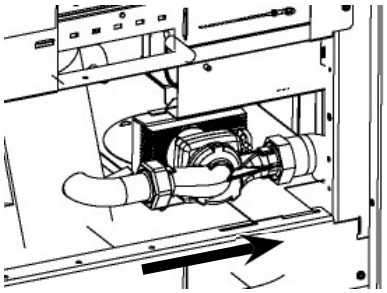
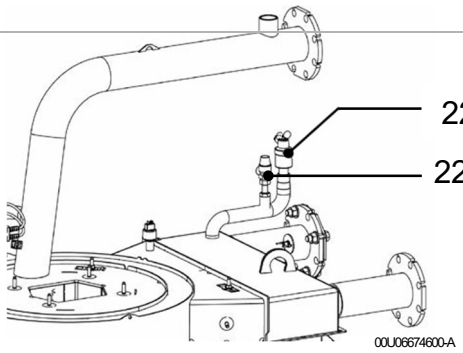


figure 79 - Control panel

REP.	DESIGNATION	REF. FOR MODELS				
		--	180 & 225	275 & 320	390 & 450	600
	Control panel and wiring					
	PLATFORM KIT WITH LMS SET ACCORDING TO POWER RATINGS		200871 (180KW)	200873 (275KW)	200876 (390KW)	200878 (499KW)
		--	200872 (225KW)	200874 (299KW)	200877 (450KW)	200879 (525KW)
		--		200875 (320KW)		200880 (600KW)
102	PLATFORM WITHOUT NAVISTEM AND WITH WIRING	78320				
103	ROUND FUSE HOLDER	76130				
104	FUSE (T 6.3 H - 5X20)	71898				
105	SQUARE FUSE HOLDER (WITH FUSE)	76129				
106	PLATFORM CUSTOMER CONNECTORS	76128				
107	SWITCH	200881				
112	POWER SUPPLY CONNECTOR	76523				
113	TOUCH DISPLAY (HMI)	200882				
–	POWER WIRING (HIGH CURRENT)	--	200885	200886		
–	CONTROL WIRING (LOW CURRENT)	--	200888	200889		
–	EMC FILTER	--				
–	TACILE DISPLAY WIRING	200883				
–	CIRCULATOR WIRING	200817				
–	EARTH WIRING BASE / BODY	76143				
–	EARTH WIRING CLADDING / STRUCTURE	76144				
–	AVS75 POWER SUPPLY WIRING	76146				
–	GAS VALVE INTERFACE WIRING	--	--	--	--	--
–	SIGNAL WIRING BETWEEN LMS / AVS 75	200891				
–	OCI 345	76168				
–	OCI351	200416				

IIIa





4-pipe version with drain

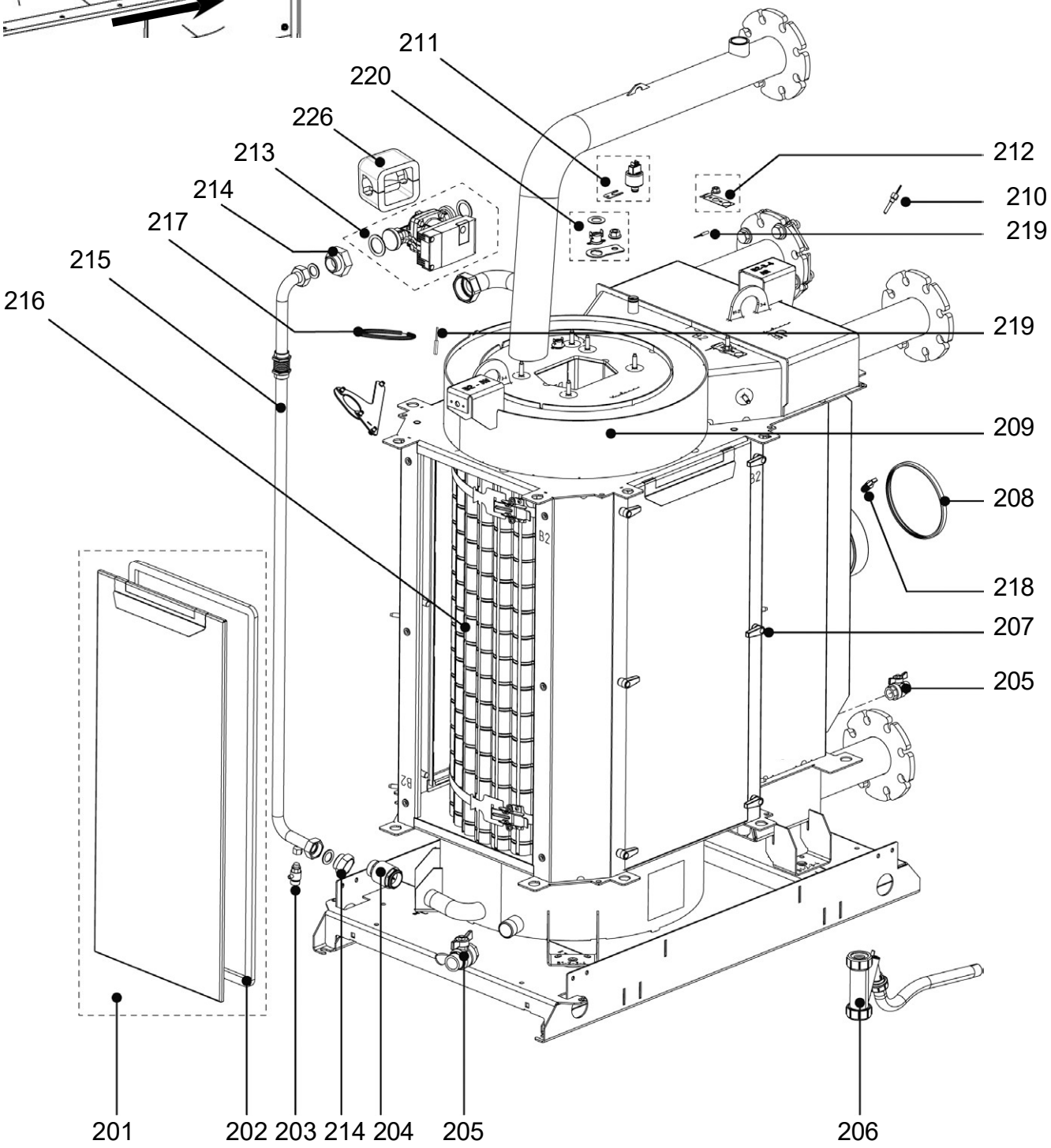
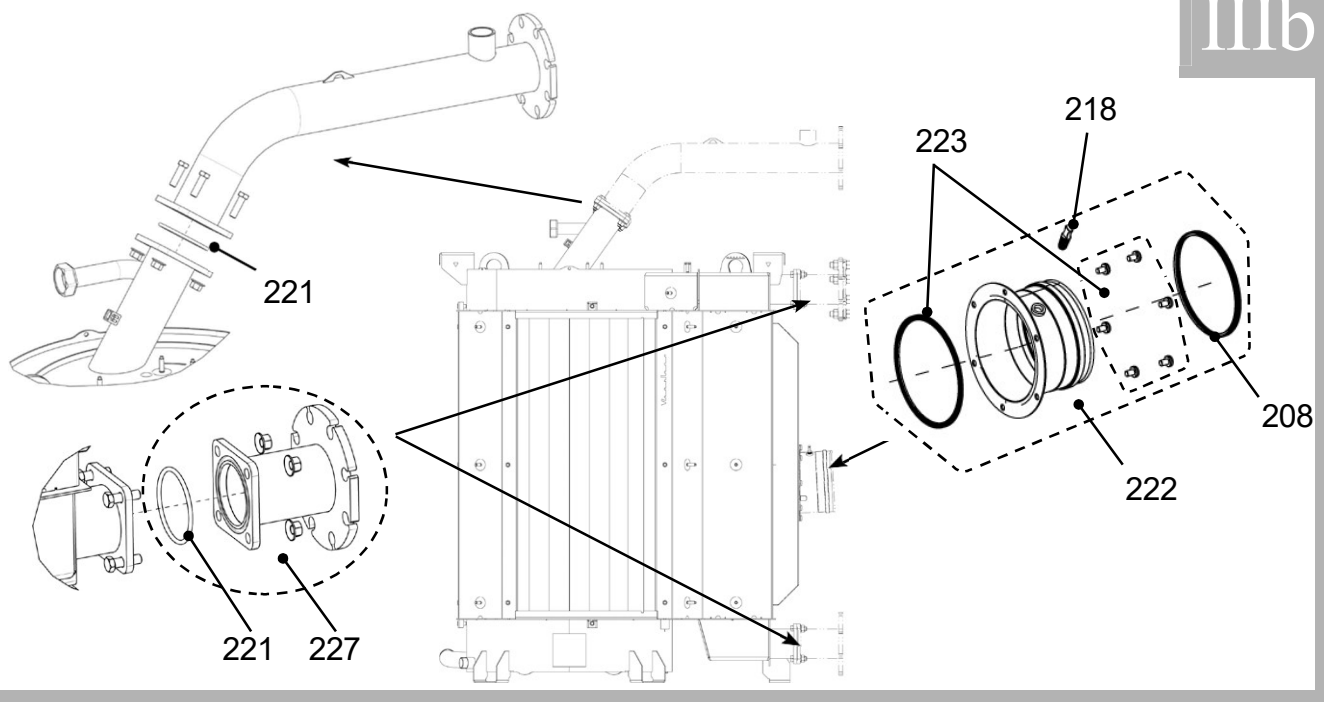


figure 80 - Body

Removable flue nozzles:

IIIb



REP.	DESIGNATION	REF. FOR MODELS				
		--	180 & 225	275 & 320	390 & 450	600
	Body					
201	EXCHANGER DOOR WITH SEAL	--	76016	76017	76018	
202	EXCHANGER DOOR GASKETS (x 3)	--	76020	76021	76022	
203	DRAIN COCK	72171				
204	NON-RETURN VALVE ON RECIRCULATION	–		76009		
205	DRAIN VALVE	73947				
206	CONDENSATE TRAP	78571				
207	CLAMP AND SCREW FOR ATTACHING EXCHANGER DOOR (x 8)	76023				
208	FLUE GAS NOZZLE GASKET	76027		76028	76029	
209	HEATING ELEMENT (2 OR 3 TAPPINGS)	--	79108	76055	76056	79203
	HEATING ELEMENT (4 CONNECTIONS)	--	79110	76059	76060	79204
210	FLUE GAS TEMPERATURE SENSOR WITH SEAL	76014				
211	PRESSURE SENSOR WITH SUPPORT	73946				
212	RETURN SENSOR SUPPORT PLATE WITH FIXING NUT	76025				
213	PUMP WITH SEALS	200816		79972		200462
214	HYDRAULIC REDUCTION WITH SEALS	76006		–		
215	RECIRCULATION PIPE WITH SEALS	--	76003	76004	76005	79206
216	SMOKED BAFFLES WITH RETAINING SPRING AND STRAPPING	--	76011	76012	76013	79207
217	FLOW SENSOR FIXING KIT	--	76063	76263		79208
--	SMOKE BAFFLE STRAPPING (UNIT)	--	76914	76915	76916	
--	PUMP SEALS + TUBE SEALS	76941		76942		
--	FLANGE GASKET 82 X 129 EP.3 DN65	--	60849	60849		60851
218	SAMPLE PLUG	76026				
219	START/RETURN PROBE	71899				
220	SAFETY THERMOSTAT + DIELECTRIC SEAL + PLATE	76158				
221	PACK OF 4 SEALS FOR FLOW/RETURN CONNECTIONS	–		60201		79209
222	FLUE GAS NOZZLE WITH GASKETS, SCREWS AND PLUG SAMPLE	78322		78323	78324	
223	SMOKE BOX GASKET WITH SCREWS	78325		78326	78327	
224	PURGEUR	71924				
225	VALVE	79160				
226	PUMP INSULATION + ELBOW INSULATION	76123				
227	COUNTER BRIDGE 3rd PIQUAGE WITH GASKET		76155	76156		79228
--	SUPPORT FOR FEEDER PIPE	--	--	--	--	79210
--	RECIRCULATING PIPE CLAMP ASSEMBLY	--	--	--	--	79347

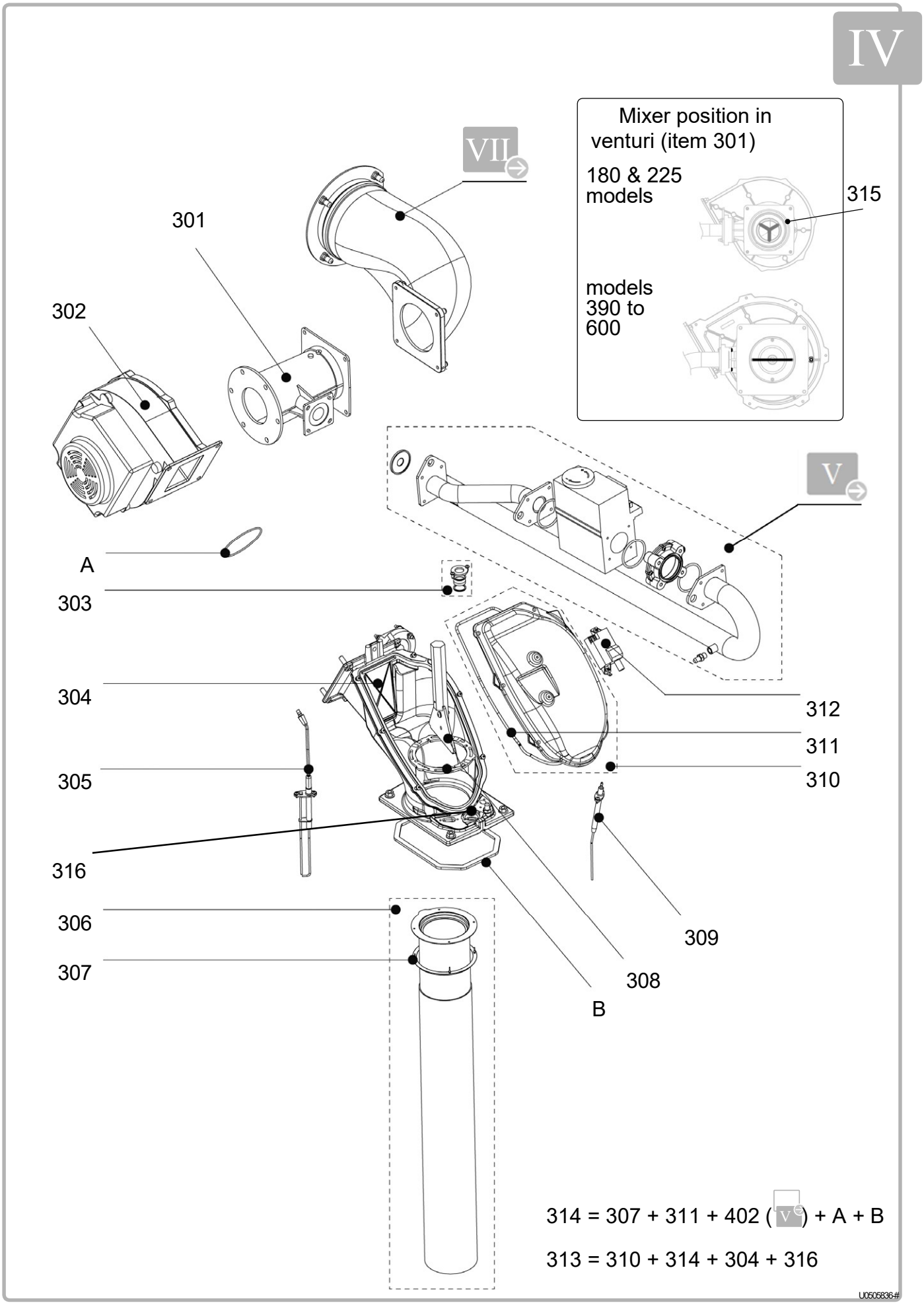


figure 81 - Burner

REP.	DESIGNATION	REF. FOR MODELS				
		--	180 & 225	275 & 320	390 & 450	600
	Burner					
301	VENTURI (WITH MIXER DEPENDING ON MODEL)	--	76151	71859	76152	72693
302	FAN	--	60438	71209	72692	79212
303	FLAME SCANNER WITH MOUNTING HARDWARE	76048				
304	FLUE GAS NON-RETURN VALVE SLEEVE	--	76050		76051	
305	IGNITION ELECTRODE WITH FIXING SCREWS	76046				
306	RAMP WITH SEAL	--	76031	76032	76033	
307	RAMP GASKET	--	76035		76036	
308	BOOM ASSEMBLY (BAYONET, ASSEMBLY TOOL, ATTACHMENT TOOL)	--	76038		76039	
309	IONISATION ELECTRODE WITH FIXING SCREWS	76047				
313	COMPLETE PREMIX HANDLE KIT (310/314/304/ Plug) pressure 1/8" DIA)	--	76910		76911	79211
310	COVER SLEEVE WITH GASKET	--	76041		76042	
311	COVER GASKET SLEEVE	--	76044		76045	
312	IGNITION TRANSFORMER WITH SCREW TAB AND FIXING HARDWARE	72131				
314	BURNER JOINTS	--	76062		76064	79213
315	MIXING INSERT	--	--	--	76503	--
316	PRESSURE TAP 1/8" DIA. 1 + GASKET	70634				
A	FAN SEAL	--				
—	FAN SCREWS AND BOLTS	79237				
—	SCREW SLEEVE COVER	78991				
—	BURNER SCREWS	79236				

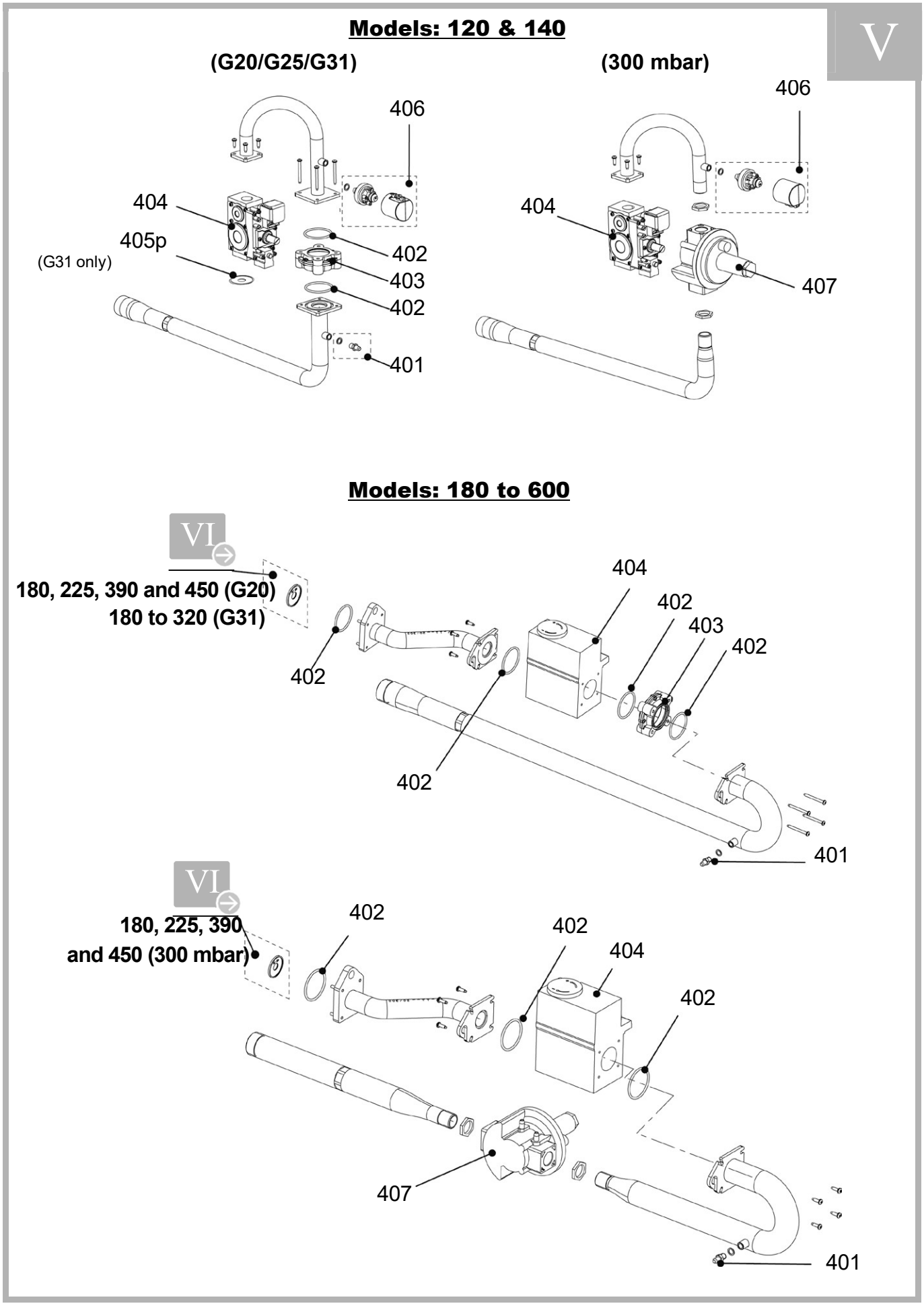
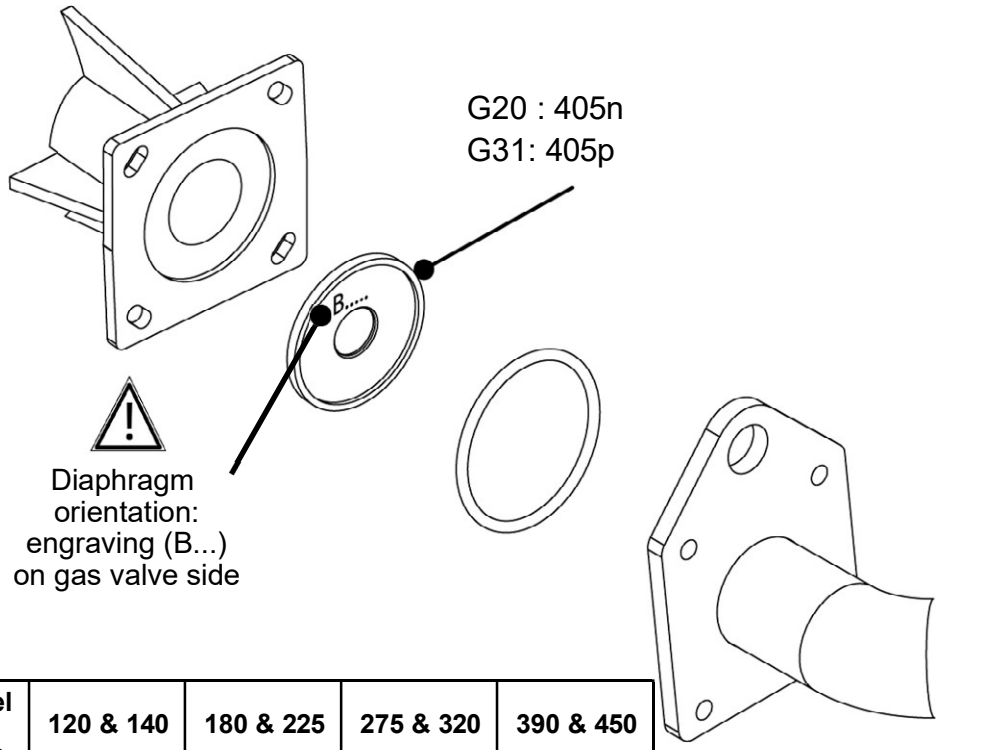


figure 82 - Gas line

VI



B.... =

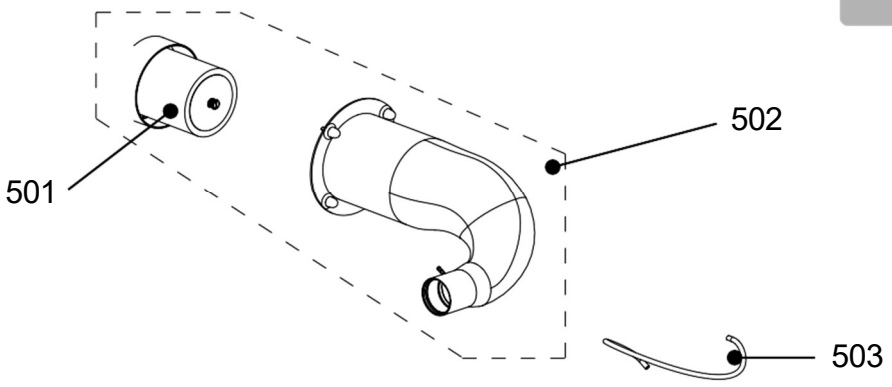
Gas \ Model	120 & 140	180 & 225	275 & 320	390 & 450
G20		B2 GN		B4 GN
G31	B1 P	B2 P	B3 P	

figure 83 - Diaphragm

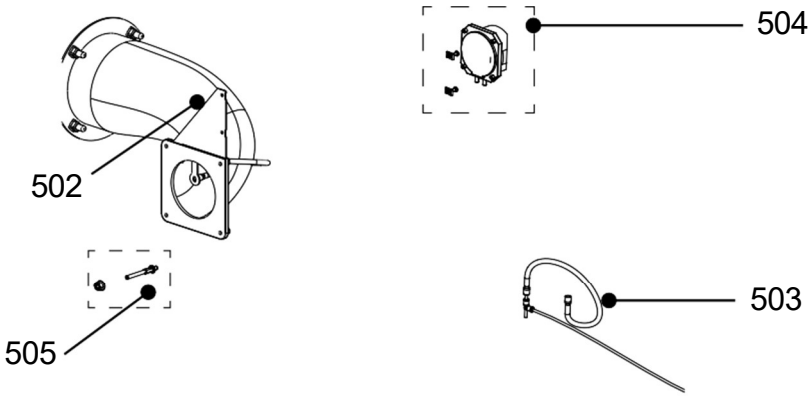
REP.	DESIGNATION	REF. FOR MODELS				
		--	180 & 225	275 & 320	390 & 450	600
	Gas pipes					
–	INTERCHANGEABILITY 20 - 300 mbar	--	76072	76073	76074	
–	INTERCHANGEABILITY 300 - 20 mbar	--	76076	76077	76078	
401	GAS MANIFOLD PRESSURE TAP	76079				
402	GAS LINE SEALS	--	76081			
403	GAS VALVE FILTER	71802				
404	GAS VALVE	--	76364	76365	76366	79262
405n	DIAPHRAGM G20 (B2 GN: 180/225; B4 GN: 390/450)	–	76082	–	76083	–
405p	DIAPHRAGM G31 (B1 P: 120/140; B2 P: 180/225; B3 P: 275/320)	--	76443	76444	–	–
406	PRESET GAS VALVE PRESSURE SWITCH	--	60439			79235
407	GAS VALVE	79114				
–	GAS LINE SCREWS	79238				

VII

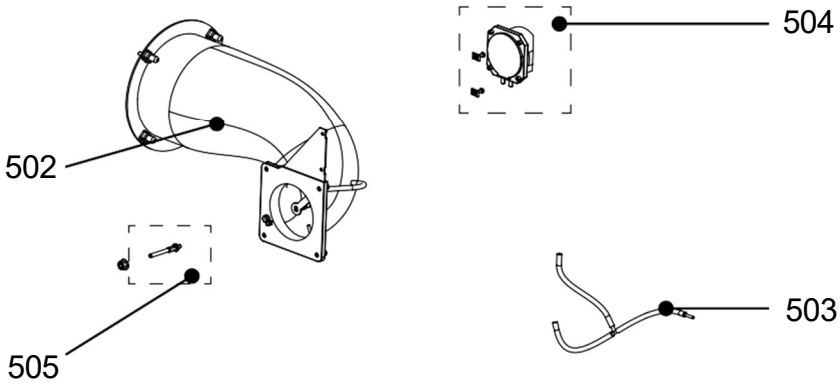
Models: 120 & 140



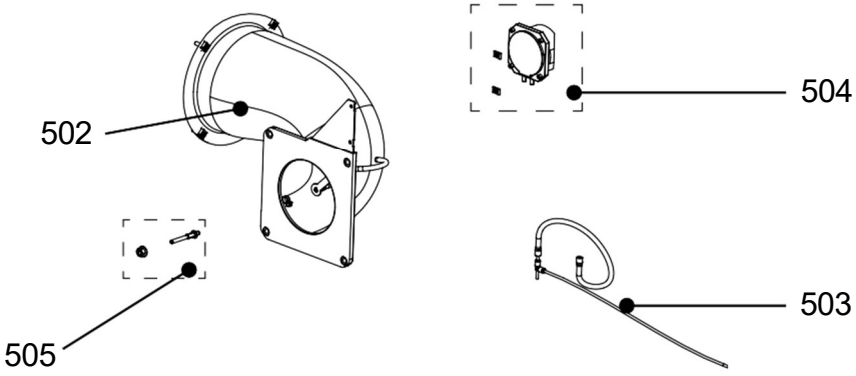
Models: 180 & 225



Models: 275 & 320



Models: 390 to 600



U0505836-#

figure 84 - Air supply duct

REP.	DESIGNATION	REF. FOR MODELS				
			180 & 225	275 & 320	390 & 450	600
	Air supply					
501	ACOUSTIC SLEEVE	--	--	--	--	--
502	AIR SUPPLY DUCT	--	200893	78328	78329	
503	PRESSURE TRANSFER PIPES	--	200894	78334	78335	
504	AIR PRESSURE SWITCH	--	79214	78330	78331	79214
505	VENTURI NECK PRESSURE TAP	--	78336		78337	

VII

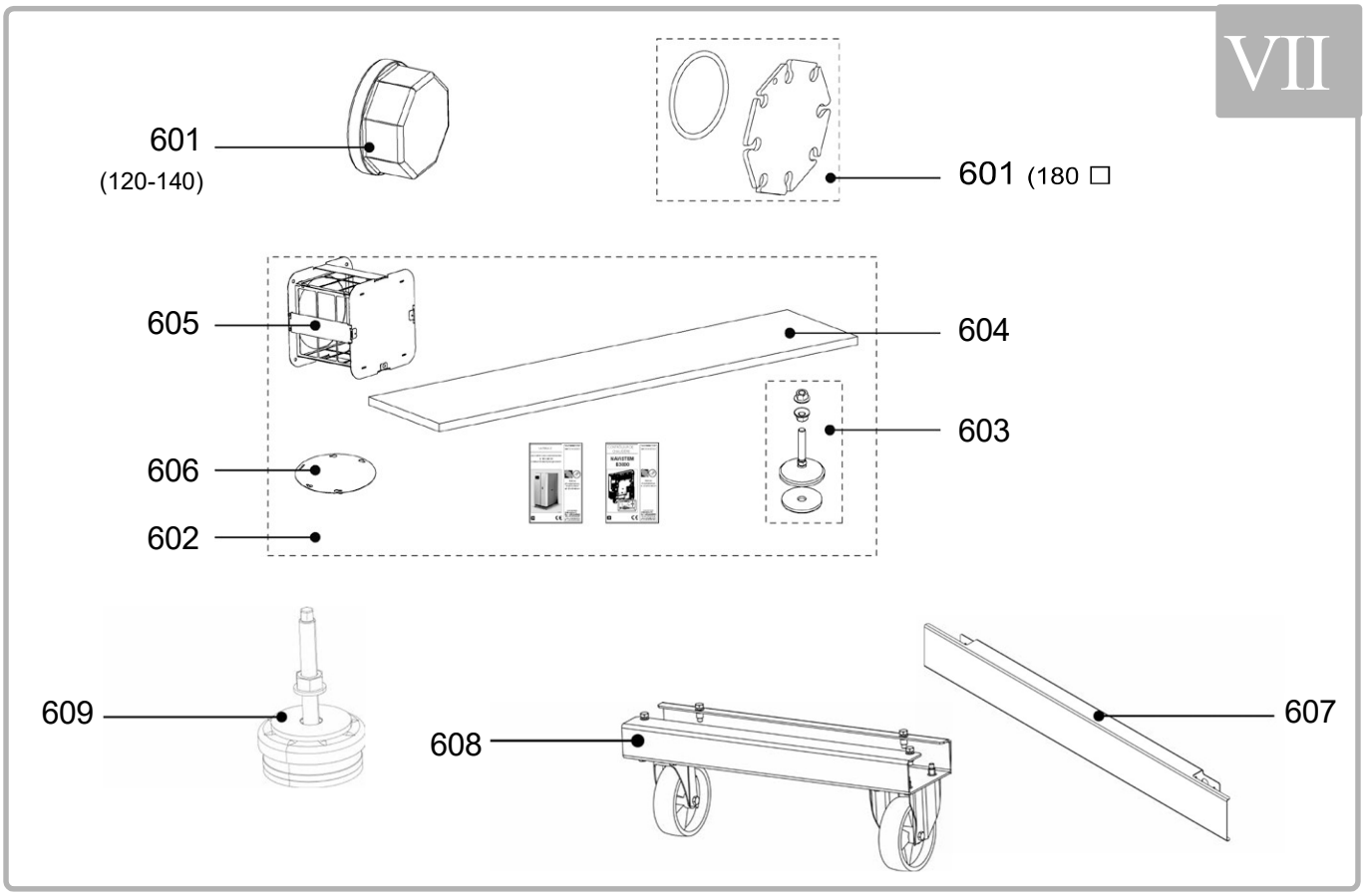


figure 85 - Accessories

REP.	DESIGNATION	REF. FOR MODELS			
			180 & 225	275 & 320	390 & 450	600
	accessories					
601	flange plug (ex 078577)	--	78577			79201
602	cardboard accessories (ex 76270)	76268		76269	76270	
603	levelling foot (76153)	76153				
604	filter element (76543)	76543				
605	complete air filter (76160)	76157		76159	76160	
606	plug for slings (076344)?	76344				
607	Skirting boards ? (76167)	76165		76166	76167	79229
609	shock-absorber foot set (78585)	78585				
608	Varmax castors	76164		--	--	--

13. TABLE OF CUSTOMER CONTROL PARAMETERS

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

serial no: ....

Please report all parameter changes in this document!

Note: The "access" column indicates the level of accessibility to the information or programming (U for end user and S for specialist). The *Specialist* accessibility level incorporates the *End User* level.

N° line	Programming	Access	Default value	Customer settings
	Heating circuit 1			
710	Comfort setpoint	U	20 °C	
712	Reduced setpoint	U	18 °C	
714	Frost protection setpoint	U	10 °C	
716	Maximum comfort setpoint	S	35 °C	
720	Slope of the curve	U	1,5	
721	Shifting the curve	S	0 °C	
726	Adapting the curve	S	stop	
730	Summer / winter heating limit	U	19 °C	
732	Daily heating limit	S	--- °C	
740	Start setpoint T° min	M	8 °C	
741	Max. flow set point	M	80 °C	
742	Room thermostat setpoint temperature	U	65 °C	
746	Heating demand timer	M	0 s	
750	Influence of the environment	S	20 %	
760	Ambient influence limit	S	1 °C	
761	Terminal heating limit	S	--- %	
770	Accelerated reheating	S	3 °C	
780	Accelerated lowering	S	stop	
790	Optimis. max. at switch-on	S	00:00	
791	Max. cut-off optimisation	S	00:00	
800	Start increase reduction	S	-5 °C	
801	End augmt reduction	S	-15 °C	
809	Uninterrupted pump operation	S	no	
820	CCP overheating protector	S	marche	
830	Raising v. mixing	S	3 °C	
832	Servomotor type	S	3 points	
833	Differential	S	2 °C	
834	Actuator stroke time	S	120 s	
835	Xp mixing valve	S	32 °C	
836	Tn mixing valve	S	120 s	
850	Controlled drying function	M	Without	
851	Manual drying setpoint	M	25 °C	
855	Current drying setpoint	U	0 °C	
856	Current drying day	U	0	
861	Excess heat absorption	S	permanent	

N° line	Programming	Access	Default value	Customer settings
870	With storage tank	S	no	
872	With primary regulator / primary pump	S	no	
881	Starting rot. speed	S	100 %	
882	Min. pump rot. speed	S	100 %	
883	Max. pump speed	S	100 %	
888	Cor. curved at 50% rot. speed	S	33 %	
889	Filter tmps const. speed adj.	S	5 min	
890	T° corr. set. rot. speed control	S	yes	
898	T° level switching	S	reduced	
900	Speed changeover	S	protection mode	
	Heating circuit 2			
1010	Comfort setpoint	U	20 °C	
1012	Reduced setpoint	U	18 °C	
1014	Frost protection setpoint	U	10 °C	
1016	Maximum comfort setpoint	S	35 °C	
1020	Slope of the curve	U	1,5	
1021	Shifting the curve	S	0 °C	
1026	Adapting the curve	S	stop	
1030	Summer / winter heating limit	U	19 °C	
1032	Daily heating limit	S	--- °C	
1040	Start setpoint T° min	M	8 °C	
1041	Max. flow set point	M	80 °C	
1042	Room thermostat setpoint temperature	U	65 °C	
1046	Heating demand timer	M	0 s	
1050	Influence of the environment	S	20 %	
1060	Ambient influence limit	S	1 °C	
1061	Terminal heating limit	S	--- %	
1070	Accelerated reheating	S	3 °C	
1080	Accelerated lowering	S	stop	
1090	Optimis. max. at switch-on	S	00:00	
1091	Max. cut-off optimisation	S	00:00	
1100	Start increase reduction	S	-5 °C	
1101	End augmt reduction	S	-15 °C	
1109	Uninterrupted pump operation	S	no	
1120	CCP overheating protector	S	marche	
1130	Raising v. mixing	S	3 °C	
1132	Servomotor type	S	3 points	
1133	Differential	S	2 °C	
1134	Actuator stroke time	S	120 s	
1135	Xp mixing valve	S	32 °C	
1136	Tn mixing valve	S	120 s	
1150	Controlled drying function	M	Without	
1151	Manual drying setpoint	M	25 °C	
1155	Current drying setpoint	U	0 °C	
1156	Current drying day	U	0	
1161	Excess heat absorption	S	permanent	
1170	With storage tank	S	no	
1172	With primary regulator / primary pump	S	no	
1181	Starting rot. speed	S	100 %	

N° line	Programming	Access	Default value	Customer settings
1182	Min. pump rot. speed	S	100 %	
1183	Max. pump speed	S	100 %	
1188	Cor. curved at 50% rot. speed	S	33 %	
1189	Filter tmps const. speed adj.	S	5 min	
1190	T° corr. set. rot. speed control	S	yes	
1198	T° level switching	S	reduced	
1200	Speed changeover	S	protection mode	
	Heating circuit 3			
1310	Comfort setpoint	U	20 °C	
1312	Reduced setpoint	U	18 °C	
1314	Frost protection setpoint	U	10 °C	
1316	Maximum comfort setpoint	S	35 °C	
1320	Slope of the curve	U	1,5	
1321	Shifting the curve	S	0 °C	
1326	Adapting the curve	S	stop	
1330	Summer / winter heating limit	U	19 °C	
1332	Daily heating limit	S	--- °C	
1340	Start setpoint T° min	M	8 °C	
1341	Max. flow set point	M	80 °C	
1342	Room thermostat setpoint temperature	U	65 °C	
1346	Heating demand timer	M	0 s	
1350	Influence of the environment	S	20 %	
1360	Ambient influence limit	S	1 °C	
1361	Terminal heating limit	S	--- %	
1370	Accelerated reheating	S	3 °C	
1380	Accelerated lowering	S	stop	
1390	Optimis. max. at switch-on	S	00:00	
1391	Max. cut-off optimisation	S	00:00	
1400	Start increase reduction	S	-5 °C	
1401	End augmt reduction	S	-15 °C	
1409	Uninterrupted pump operation	S	no	
1420	CCP overheating protector	S	marche	
1430	Raising v. mixing	S	3 °C	
1432	Servomotor type	S	3 points	
1433	Differential	S	2 °C	
1434	Actuator stroke time	S	120 s	
1435	Xp mixing valve	S	32 °C	
1436	Tn mixing valve	S	120 s	
1450	Controlled drying function	M	Without	
1451	Manual drying setpoint	M	25 °C	
1455	Current drying setpoint	U	0 °C	
1456	Current drying day	U	0	
1461	Excess heat absorption	S	permanent	
1470	With storage tank	S	no	
1472	With primary regulator / primary pump	S	no	
1481	Starting rot. speed	S	100 %	
1482	Min. pump rot. speed	S	100 %	
1483	Max. pump speed	S	100 %	

N° line	Programming	Access	Default value	Customer settings
1488	Cor. curved at 50% rot. speed	S	33 %	
1489	Filter tmps const. speed adj.	S	5 min	
1490	T° corr. set. rot. speed control	S	yes	
1498	T° level switching	S	reduced	
1500	Speed changeover	S	protection mode	
	Domestic hot water			
1610	Comfort setpoint	U	50 °C	
1612	Reduced setpoint	S	45 °C	
1614	Max comfort setpoint	S	65 °C	
1620	Liberation	M	24h/24	
1630	DHW load priority	M	slippery, absolute	
1640	Anti-legionella function	S	stop	
1641	Periodic legion. function	S	3	
1642	Legion. day week	S	Monday	
1644	Anti-legionella function time	S	05:00	
1645	Anti-legionella setpoint	S	55 °C	
1646	Duration of anti-legion function	S	30 minutes	
1647	Anti-legion function for circul. pump	S	marche	
1660	Circulation pump release	S	ECS release	
1661	Periodic pump circ.	S	marche	
1663	Traffic instructions	S	45 °C	
1680	Speed changeover	S	stop	
	Consumer circuit 1			
1859	T° cs start demand consumption	M	60 °C	
1874	ECS load priority	S	no	
1875	Excess heat absorption	S	marche	
1878	With storage tank	S	no	
1880	With primary/primary control	S	no	
	Consumer circuit 2			
1909	T° cs start demand consumption	M	60 °C	
1924	ECS load priority	S	no	
1925	Excess heat absorption	S	marche	
1928	With storage tank	S	no	
1930	With primary/primary control	S	no	
	Swimming pool circuit			
1959	T° cs start demand consumption	M	70 °C	
1975	Excess heat absorption	S	marche	
1978	With storage tank	S	no	
1980	With primary/primary control	S	no	
	Swimming pool			
2056	Boiler setpoint	S	22 °C	
	Regulator/primary pump			
2110	start setpoint min	S	8°C	
2111	Max. flow setpoint	S	80°C	
2130	Raised V. mixer	S	7°C	
2150	Primary pump controller	S	after storage tank	
	Boiler			
2203	Release at outside temperature	S	0 °C	
2208	Full charge storage tank	S	stop	

N° line	Programming	Access	Default value	Customer settings
2210	Minimum setpoint	S	8 °C	
2212	Max. setpoint	S	85 °C	
2214	Manual speed setpoint	U	70 °C	
2217	Frost protection setpoint	S	8°C	
2243	Min. burner shutdown time	S	5 min	
2250	Timed pump stop	S	5 min	
2253	Stop pump time after DHW	S	1 min	
2321	Starting rot. speed	S	100 %	
2322	Min. pump rot. speed	S	100 %	
2323	Max. pump speed	S	100 %	
2330	Power name.	S	according to model	
2331	Power at base speed	S	according to model	
2334	Power at min. pump speed	S	0 %	
2335	Power at max. pump speed	S	100 %	
2441	Max. heating fan speed	S	according to model	
2442	Max. full load wind speed	S	according to model	
2444	Max DHW fan speed	S	according to model	
2450	controller delay	S	Heating and DHW mode	
2452	tempo speed regulator	S	value of parameter 9524	
2453	tempo duration regulator	S	120 s	
2454	CC switching differential	S	3 °C	
2455	Different Min. CC stroke	S	3 °C	
2456	Different max. CC stroke	S	6 °C	
2457	Transitional period for CCs	S	20 min	
2460	DHW cut-in differential	S	3 °C	
2461	DHW minimum cut-off differential	S	3 °C	
2462	Maximum DHW cut-off differential	S	6 °C	
2463	Transitional period ECS	S	20 min	
2470	Special mode heat dem timer	M	0 s	
2550	gas energy meter	S	– s	
2551	gas meter correction	S	1	
2628	release degassing function	S	–	
2630	Auto purge function	S	Stop	
2655	Purge time	S	10 s	
2656	Purge stop time	S	5 s	
2657	Number of repetitions	S	3	
2662	Hot circuit purge time	S	10 min	
2663	DHW purge time	S	5 min	
	Waterfall			
3510	Driving strategy	S	Early start, delayed stop	
3511	Min. power range	S	30 %	
3512	Max. power range	S	90 %	
3530	Integral release gen set	S	50 °Cmin	
3531	Generat. reset integr.	S	20 °Cmin	
3532	Reset delay	S	300 s	
3533	Switch-on delay	S	5 min	
3534	Basic all. forced duration	S	60 s	
3535	DHW cut-in delay	S	2 min	
3540	Auto gen. seq. switching	S	500 h	

N° line	Programming	Access	Default value	Customer settings
3541	Auto select exclude switch	S	without	
3544	Pilot boiler	S	generator 1	
3560	Minimum return setpoint	S	8 °C	
3562	Influence return consumer.	S	marche	
	DHW tank			
5020	T° rise consig dep.	S	10 °C	
5021	Elevation transfer	S	8 °C	
5022	Load type	S	full charge	
5030	Charge time limitation	S	--- min	
5040	Discharge protection	S	Auto	
5050	Max. load T°	S	80 °C	
5055	Adiabatic cooling T°	S	80 °C	
5056	General adiab. cooling/CC	S	stop	
5060	Electrical resistance speed	S	replacement	
5061	Release electr. resistance	S	ECS release	
5062	Reg. elec. resistance	S	DHW sensor	
5085	Excess heat absorption	S	marche	
5090	With storage tank	S	no	
5092	With primary/primary control	S	no	
5101	Min. pump rot. speed	S	100 %	
5102	Max. pump speed	S	100 %	
5108	Charge pump start rpm	S	100 %	
	General functions			
5570	dT° on regulator dT 1	S	20 °C	
5571	dT°stop regulator dT 1	S	10 °C	
5572	Temp. encl min regulator dT 1	S	0 °C	
5573	Sensor 1 dT 1 controller	S	without	
5574	Sensor 2 dT 1 controller	S	without	
5575	Running time min dT1 regulator	S	0 s	
5577	Degumming pump/valve K21	S	marche	
5580	dT° on regulator dT 2	S	20 °C	
5581	dT°stop regulator dT 2	S	10 °C	
5582	Temp. encl min regulator dT 2	S	0 °C	
5583	Sensor 1 dT 2 controller	S	without	
5584	Sensor 2 dT 2 controller	S	without	
5585	Running time min dT2 regulator	S	0 s	
5587	Degumming pump/valve K21	S	marche	
	Configuration			
5710	Heating circuit 1	M	stop	
5715	Heating circuit 2	M	stop	
5721	Heating circuit 3	M	stop	
5730	DHW sensor	M	probe	
5731	DHW pump/valve	M	charge pump	
5732	DHW ppr stop invert.valve	M	0 s	
5733	DHW pump stop timer	M	0 s	
5734	Pos. base direct DHW valve	S	last request	
5737	Direction of ECS bypass valve action	S	ECS ON position	
5738	Pos. med. v. deriv. ECS	S	stop	
5774	Cde ppe chd+ vnne direcECS	M	all requests	

N° line	Programming	Access	Default value	Customer settings
5840	Solar regulator	M	per charge pump	
5841	External solar heat exchanger	M	common	
5870	Combined DHW cylinder	M	no	
5890	Relay output QX1	M	alarm output K10	
5891	Relay output QX2	M	DHW pump/valve Q3	
5892	Relay output QX3	M	boiler pump Q1	
5894	Relay output QX4	S	without	
5931	Probe input BX2	M	without	
5932	BX3 probe input	M	without	
5950	H1 input function	M	without	
5951	Direction of action H1 contact	M	work contact	
5953	Voltage value 1 H1 (U1)	M	0 V	
5954	Function value 1 H1 (F1)	M	0	
5955	Voltage value 2 H1 (U2)	M	10 V	
5956	Function 2 value H1 (F2)	M	1000	
5977	H5 input function	M	without	
5978	Contact action direction H5	M	work contact	
6020	Extension module 1 function	M	without	
6021	Extension module 2 function	M	without	
6022	Extension module function 3	M	without	
6024	Function input EX21 module 1	M	without	
6026	Function input EX21 module 2	M	without	
6028	Function input EX21 module 3	M	without	
6030	Relay output QX21 module 1	M	without	
6031	Relay output QX22 module 1	M	without	
6032	Relay output QX23 module 1	M	without	
6033	Relay output QX21 module 2	M	without	
6034	Relay output QX22 module 2	M	without	
6035	Relay output QX23 module 2	M	without	
6036	Relay output QX21 module 3	M	without	
6037	Relay output QX22 module 3	M	without	
6038	Relay output QX23 module 3	M	without	
6040	Probe input BX21 module 1	M	without	
6041	Probe input BX22 module 1	M	without	
6042	Probe input BX21 module 2	M	without	
6043	Probe input BX22 module 2	M	without	
6044	Probe input BX21 module 3	M	without	
6045	Probe input BX22 module 3	M	without	
6046	H2 input function module 1	M	without	
6047	Act. direction Contact H2 mod.1	S	work	
6049	Voltage value 1 H2 mod. 1 (U1)	S	0 Volt	
6050	Function value 1 H2 module 1 (F1)	S	0	
6051	Voltage value 2 H2 mod. 1 (U2)	S	0 Volt	
6052	Function value 2 H2 module 1 (F2)	S	0	
6054	H2 input function module 2	S	without	
6055	Act. direction Contact H2 mod.2	S	work	
6057	Voltage value 1 H2 mod. 2 (U1)	S	0 Volt	
6058	Function value 1 H2 module 2 (F1)	S	0	
6059	Voltage value 2 H2 mod. 2 (U2)	S	0 Volt	

N° line	Programming	Access	Default value	Customer settings
6060	Function value 2 H2 module 2 (F2)	S	0	
6062	H2 input function module 3	S	without	
6063	Act. direction Contact H2 mod.3	S	work	
6065	Voltage value 1 H2 mod. 31 (U1)	S	0 Volt	
6066	Function value 1 H2 module 3 (F1)	S	0	
6067	Voltage value 2 H2 mod. 3 (U2)	S	0 Volt	
6068	Function value 2 H2 module 3 (F2)	S		
6078	UX2 output function	S	boiler pump Q1	
6079	Logic output signal UX2	S	standard	
6089	UX3 output function	S	without	
6090	Logic output signal UX3	S	standard	
6047	Act. direction Contact H2 mod.1	M	work contact	
6049	Voltage value 1 H2 mod. 1 (U1)	M	0 V	
6050	Function value 1 H2 module 1 (F1)	M	0	
6051	Voltage value 2 H2 mod. 1 (U2)	M	0 V	
6052	Function value 2 H2 module 1 (F2)	M	0	
6054	H2 input function module 2	M	without	
6055	Act. direction Contact H2 mod.2	M	work contact	
6057	Voltage value 1 H2 mod. 2 (U1)	M	0 V	
6058	Function value 1 H2 module 2 (F1)	M	0	
6059	Voltage value 2 H2 mod. 2 (U2)	M	0 V	
6060	Function value 2 H2 module 2 (F2)	M	0	
6062	H2 input function module 3	M	without	
6063	Act. direction Contact H2 mod.3	M	work contact	
6065	Voltage value 1 H2 mod. 31 (U1)	M	0 V	
6066	Function value 1 H2 module 3 (F1)	M	0	
6067	Voltage value 2 H2 mod. 3 (U2)	M	0 V	
6068	Function value 2 H2 module 3 (F2)	M	0	
6097	Solar collector sensor type	S	NTC	
6098	Solar coll sensor correction	S	0 °C	
6100	Outdoor temperature sensor correction	S	0 °C	
6110	Building time constant	S	8 h	
6116	Const tmps compens consig.	S	1 min	
6117	Setpoint temperature compensation	S	3 °C	
6120	Installation frost protection	S	stop	
6127	Pump/valve release time	S	30 s	
6200	Register probe	M	no	
6205	Reset settings	S	no	
6212	Generator control no. 1	M	14: with boiler and recirculation pumps	
6215	Ball.storage control no.	M	0: balloon	
6217	CC control no.	M	0	
6220	Software version	S		
6230	Info 1 OEM	S		
6234	Type of boiler	S	1: VARMAX MK2	
6240	Output function UX21 module 1	S	without	
6241	Logic spell sign UX21 module 1	S	standard	
6242	Signal output UX21 module 1	S	PWM	
6243	Output function UX22 module 1	S	without	
6244	Logic output signal UX22 module 1	S	standard	

N° line	Programming	Access	Default value	Customer settings
6245	Signal output UX22 module 1	S	PWM	
6246	Output function UX21 module 2	S	without	
6247	Logic spell sign UX21 module 2	S	standard	
6248	Signal output UX21 module 2	S	PWM	
6249	Output function UX22 module 2	S	without	
6250	Logic output sign UX22 module 2	S	standard	
6251	Signal output UX22 module 2	S	PWM	
6252	Output function UX21 module 3	S	without	
6253	Logic spell sign UX21 module 3	S	standard	
6254	Signal output UX21 module 3	S	PWM	
6255	Output function UX22 module 3	S	without	
6256	Logic output signal UX22 module 3	S	standard	
6257	Signal output UX22 module 3	S	PWM	
	LPB Network			
6600	Device address	M	1	
6601	Segment address	S	0	
6604	Bus supply function	S	automatic	
6605	Bus power supply status	S	marche	
6610	System message display	S	no	
6611	Alarm relay system messages	S	no	
6612	Alarm time delay	S	2 min	
6620	Switching perimeter	S	System	
6621	Summer switching	S	located	
6623	Speed changeover	S	centralised	
6624	Manual generator lock	S	located	
6625	ECS allocation	S	all system CCs	
6631	Ext. generator ecol.	S	stop	
6640	Clock operation	M	autonomous	
6650	Source Outdoor temperature	S	0	
	Modbus menu			
6651	Slave address	S	1	
6652	Baud rate	S	19200	
6653	Parity	S	without	
6654	Stop bit	S	1	
	Error			
6705	Software diagnostic code	U	0	
6710	Alarm relay reset	M	no	
6745	DHW load alarm	S	8 h	
6800	History 1	S	00:00	
6805	Software diagnostic code 1			
6810	History 2	S	00:00	
6815	Software diagnostic code 2	S	0	
6820	History 3	S	00:00	
6825	Software diagnostic code 3	S	0	
6830	History 4	S	00:00	
6835	Software diagnostic code 4	S	0	
6840	History 5	S	00:00	
6845	Software diagnostic code 5	S	0	
6850	History 6	S	00:00	

N° line	Programming	Access	Default value	Customer settings
6855	Software diagnostic code 6	S	0	
6860	History 7	S	00:00	
6865	Software diagnostic code 7	S	0	
6870	History 8	S	00:00	
6875	Software diagnostic code 8	S	0	
6880	History 9	S	00:00	
6885	Software diagnostic code 9	S	0	
6890	History 10	S	00:00	
6895	Software diagnostic code 10	S	0	
6900	History 11	S	00:00	
6905	Software diagnostic code 11	S	0	
6910	History 12	S	00:00	
6915	Software diagnostic code 12	S	0	
6920	History 13	S	00:00	
6925	Software diagnostic code 13	S	0	
6930	History 14	S	00:00	
6935	Software diagnostic code 14	S	0	
6940	History 15	S	00:00	
6945	Software diagnostic code 15	S	0	
6950	History 16	S	00:00	
6955	Software diagnostic code 16	S	0	
6960	History 17	S	00:00	
6965	Software diagnostic code 17	S	0	
6970	History 18	S	00:00	
6975	Software diagnostic code 18	S	0	
6980	History 19	S	00:00	
6985	Software diagnostic code 19	S	0	
6990	History 20	S	00:00	
6995	Software diagnostic code 20	S	0	
6999	Reset error history	S	no	
	Maintenance / Special scheme			
7040	Intervl hours fnc. burner	S	1500 h	
7041	H.fct burner since maint.	S	0 h	
7042	Burner start interval	S	9000	
7043	Start burner dep. Maint.	S	0	
7044	Maintenance interval	S	24 months	
7045	Time since maintenance	S	0 months	
7050	Ionising current fan speed	S	0	
7051	Current message	S	no	
7130	Chimney sweeping function	U	stop	
7131	Burner power	U	max hot load	
7140	Manual mode	U	stop	
7143	Controller stop function	S	stop	
7145	Regulator stop setpoint	S	0 %	
7146	Purge function	M	marche	
7147	Type of purge	M	without	
7170	Service telephone	M	0	
	Testing inputs/outputs			
7700	Relay test	M	no test	

N° line	Programming	Access	Default value	Customer settings
7713	P1 test	S	–	
7714	PWM signal P1	M	100%	
7716	Testing the UX2 outputs	M	--- %	
7717	Output signal UX2	S	10.0	
7725	UX3 output signal	S	0.0	
7724	Testing the UX3 outputs	M	--- %	
7730	Outside temperature B9	M	0 °C	
7750	DHW temperature B3/B8	M	0 °C	
7760	B2 boiler temperature	M	0 °C	
7780	UX21 output test module 1	S	–	
7782	is out UX22 module	S	–	
7784	UX21 output test module 2	S	–	
7786	UX22 module 2 output test	S	–	
7788	UX21 module 3 output test	S	–	
7790	UX22 module 3 output test	S	–	
7820	BX1 probe temperature	M	0 °C	
7821	BX2 probe temperature	M	0 °C	
7822	BX3 probe temperature	M	0 °C	
7823	BX4 probe temperature	M	0 °C	
7830	T° sensor BX21 module 1	M	0 °C	
7831	T° sensor BX22 module 1	M	0 °C	
7832	T° sensor BX21 module 2	M	0 °C	
7833	T° sensor BX22 module 2	M	0 °C	
7834	T° sensor BX21 module 3	M	0 °C	
7835	T° sensor BX22 module 3	M	0 °C	
7840	H1 voltage signal	M	0 V	
7841	H1 contact status	M	open	
7845	H2 voltage signal module 1	M	0 V	
7846	H2 contact status, module 1	M	open	
7848	H2 voltage signal module 2	M	0 V	
7849	H2 contact status, module 2	M	open	
7851	H2 voltage signal module 3	M	0 V	
7852	H2 contact status, module 3	M	open	
7854	Voltage signal H3	M	0 V	
7855	Contact status H3	M	open	
7860	Contact status H4	M	open	
7862	Frequency H4	M	0	
7865	Contact status H5	M	open	
	Status			
8000	Heating circuit 1 status	M	0	
8001	Heating circuit 2 status	M	0	
8002	Heating circuit 3 status	M	0	
8003	ECS status	M	0	
8005	Boiler status	M	0	
8007	Solar collector status	M	0	
8010	Storage tank status	M	0	
8011	Pool condition	M	0	
	Cascade diagnostics			

N° line	Programming	Access	Default value	Customer settings
8100 / 01	Priority / Generating state 1	M	0 / absent	
8102 / 03	Priority / Generating state 2	M	0 / absent	
8104 / 05	Priority / Generating state 3	M	0 / absent	
8106 / 07	Priority / Generating state 4	M	0 / absent	
8108 / 09	Priority / Generating state 5	M	0 / absent	
8110 / 11	Priority / Generating state 6	M	0 / absent	
8112 / 13	Priority / Generating state 7	M	0 / absent	
8114 / 15	Priority / Generating state 8	M	0 / absent	
8116 / 17	Priority / Generating state 9	M	0 / absent	
8118 / 19	Priority / Generating state 10	M	0 / absent	
8120 / 21	Priority / Generating state 11	M	0 / absent	
8122 / 23	Priority / Generating state 12	M	0 / absent	
8124 / 25	Priority / Generating state 13	M	0 / absent	
8126 / 27	Priority / Generating state 14	M	0 / absent	
8128 / 29	Priority / Generating state 15	M	0 / absent	
8130 / 31	Priority / Generating state 16	M	0 / absent	
8138 / 39	Cascade flow temperature / setpoint	M	0 °C / 0°C	
8140 / 41	Cascade flow temperature / setpoint	M	0 °C / 0°C	
8150	Current generator cascade switch	M	0 h	
	Generator diagnostics			
8304	Boiler pump status (Q1)	S	stop	
8308	Boiler pump speed	S	0 %	
8309	Bypass pump speed	S	0 %	
8310	Boiler temperature	M	0 °C	
8311	Boiler setpoint	M	0 °C	
8312	Boiler switching point	M	0 °C	
8313	Control probe	M	0 °C	
8314	Boiler return temperature	M	0 °C	
8315	Boiler return T° setpoint	M	0 °C	
8316	Flue gas temperature	M	0 °C	
8318	Maximum flue gas temperature	M	0 °C	

N° line	Programming	Access	Default value	Customer settings
8321	Primary heat exchanger temperature	M	0 °C	
8323	Fan speed	M	0 rpm	
8324	Burner fan setpoint	M	0 rpm	
8325	Current fan control	M	0 %	
8326	Boiler modulation	M	0 %	
8327	Hydraulic pressure	M	0	
8329	Ionisation current	S	0 µA	
8330	Hours of 1st stage operation	S	00:00:00 h	
8331	1st stage start counter	S	0	
8338	Hours of operation in heating mode	U	00:00:00 h	
8339	ECS operating hours	U	00:00:00 h	
8366	Boiler flow rate reading	S	–	
8378	Total energy for heating	S	xx kWh	
8379	Total energy DHW	S	xx kWh	
8380	Total energy	S	xx kWh	
8390	Current phase no.	S	TNB	
	Consumer diagnostics			
8700	Outside temperature	M	0 °C	
8701	Minimum outdoor temperature	U	50 °C	
8702	Maximum outdoor temperature	U	-50 °C	
8703	Attenuated outdoor temperature	M	0 °C	
8704	Mixed outdoor temperature	M	0 °C	
8730	CC1 pump	M	stop	
8731	Mixing valve CC1 open	M	stop	
8732	CC1 mixing valve closed	M	stop	
8735	Pump speed CC1	S	0 %	
8740 / 41	Temperature / Room temperature setpoint 1	M	20 °C / 20°C	
8743 / 44	Temperature / Setpoint Flow temperature 1	M	60 °C / 60°C	
8749	Room thermostat 1	M	no request	
8760	CC2 pump	M	stop	
8761	Heat circ mix valv 2 open	M	stop	
8762	CC2 mixing valve closed	M	stop	
8765	Pump speed CC2	S	0 %	
8770 / 71	Temperature / Room temperature setpoint 2	M	20°C / 20°C	
8773 / 74	Flow temperature / setpoint 2	M	60°C / 60°C	
8779	Room thermostat 2	M	no request	
8790	CC3 pump	M	stop	
8791	CC3 mixing valve open	M	stop	
8792	CC3 mixing valve closed	M	stop	
8795	Pump speed CC3	S	0 %	
8800 / 01	Room temperature / Temperature setpoint 3	M	20°C / 20°C	
8803 / 04	Temperature / Start temperature setpoint 3	M	60°C / 60°C	
8809	Room thermostat 3	M	no request	

N° line	Programming	Access	Default value	Customer settings
8820	DHW pump	M	stop	
8825	DHW pump speed	S	0 %	
8826	Interm. circulator pump speed DHW	S	0 %	
8827	Instantaneous water heater pump speed	S	0 % / 55°C	
8830 / 31	DHW temperature 1 (B3) / DHW setpoint	M	0 °C	
8832	DHW temperature 2 (B31)	M	0 °C	
8835	DHW circulation temperature	M	0 °C	
8836	DHW charging temperature	M	0 °C	
8852	DHW draught temperature	M	0 °C	
8853	Instantaneous water heater setpoint	M	0 °C	
8860	DHW flow	M	0 l/min	
8875	Circ. flow setpoint temperature1	M	5 °C	
8885	Circ. flow setpoint temp. cons2	M	5 °C	
8895	Pool start temperature setpoint	M	5 °C	
8900 / 01	Pool temperature / setpoint	M	0 °C / 24°C	
8930 / 31	Temperature / Primary control setpoint	M	0 °C / 0°C	
8950 / 51	Line flow temperature / setpoint	M	0 °C / 0°C	
8952	Line return temperature	M	0 °C	
8962	Line power setpoint	M	0 %	
8980	Storage tank 1 temperature (B4)	M	0 °C	
8981	Storage tank setpoint	M	0 °C	
8982	Storage tank 2 temperature (B41)	M	0 °C	
8983	Storage tank 3 temperature (B42)	M	0 °C	
9009	Hydraulic pressure H3	M	0 bar	
9031	Relay output QX1	M	stop	
9032	Relay output QX2	M	stop	
9033	Relay output QX3	M	stop	
9034	Relay output QX4	M	stop	
9050	Relay output QX21 module 1	M	stop	
9051	Relay output QX22 module 1	M	stop	
9052	Relay output QX23 module 1	M	stop	
9053	Relay output QX21 module 2	M	stop	
9054	Relay output QX22 module 2	M	stop	
9055	Relay output QX23 module 2	M	stop	
9056	Relay output QX21 module 3	M	stop	
9057	Relay output QX22 module 3	M	stop	
9058	Relay output QX23 module 3	M	stop	
	Safety box			
9512	Ignition speed setpoint	S	according to model	
9524	Split load rpm setpoint	S	according to model	
9525	Consig. min vites. char. Share	S	according to model	
9626	Slope power/fan speed	S	according to model	
9627	section Y power / fan speed	S	according to model	
9529	Speed setpoint char. name	S	according to model	
9530	Nominal load speed setpoint	S	according to model	

N° line	Programming	Access	Default value	Customer settings
9650	Chimney drying	S	stop	
9651	Fireplace drying glass control	S	500 rpm	
9652	Chimney drying time	S	10 min	

14. APPENDIX A

Product data ≤ 400 kW

Product reference									
Brand name			ATLANTIC - YGNIS						
Model			120	140	180	225	275	320	390
Rated power	**Prated**	*kW*	117	136	175	219	268	312	381
Useful heat production									
At rated power and operating temperature 80°C / 60°C	**P_4**	*kW*	117,2	136,8	175,9	219,8	269,5	313,6	383,0
	η_4 (PCS)	*%*	87,9	87,9	87,9	87,9	88,2	88,2	88,4
At 30% of rated power and return temperature 30°C	**P_1**	*kW*	39,2	45,7	58,9	73,6	89,8	104,5	127,4
	η_1 (PCS)	*%*	97,9	97,9	98,2	98,2	98,0	98,0	98,0
Auxiliary electricity consumption *									
At full load	**elmax**	*kW*	0,213	0,277	0,228	0,330	0,326	0,427	0,545
Partial load	**elmin**	*kW*	0,046	0,040	0,67	0,71	0,169	0,142	0,188
In standby mode	**P_{SB}**	*kW*	0,005	0,005	0,006	0,006	0,006	0,006	0,006
Other features									
Heat loss	**Pstby**	*kW*	0,182	0,182	0,213	0,213	0,259	0,259	0,311
Nitrogen oxide emissions	**Nox (HCV)**	*mg/kWh*	27	27	27	27	36	36	32

***touch screen in standby mode**



Hamworthy Heating Accredited Agents

Southern Ireland (Sales & Service)
HEVAC Limited, Naas Road, Dublin 12 Ireland
T: 00 353 141 91919
E: info@hevac.ie

Scotland (Sales & Service)
McDowall Modular Services
2 Penson Road, Queenslie Industrial Estate, Glasgow, G33 4AG
T: 0141 336 8795
E: MMS@hamworthy-heating.com

Hamworthy Heating Customer Service Centre

Sales
T: 01202 662552 | E: sales@hamworthy-heating.com

Technical Enquiries
T: 01202 662505 | E: technical@hamworthy-heating.com

Servicing
T: 01202 662555 | E: service@hamworthy-heating.com

Spares
T: 01202 662525 | E: spares@hamworthy-heating.com

Hamworthy

Customer Service Centre
Hamworthy Heating Limited
Wessex House
New Fields Business Park, Stinsford Raod, Poole, Dorset
BH17 0NF

T: 01202 662500
E: service@hamworthy-heating.com
hamworthy-heating.com

Hamworthy reserves the right to make changes and improvements which may necessitate alteration to the specificaiton without prior notice