VARPRIM

120 to 320 kW
modulating burner
condensation gas
boiler for natural gas

For Belgium:

Die Montage-, Wartungs- und Bedienungsanleitungen sind auf deutsch erhältlich. Nehmen Sie bitte Kontakt mit uns.

CONTENTS

1.   WARNINGS AND RECOMMENDATIONS

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

ℹ **INFORMATION:**	**VARMAX boilers are available with 2/3 tappings or 4 tappings. It is not possible to transform a version with 2/3 tappings into a version with 4 tappings and vice versa.**

1.1.   Transport and storage

The boiler:

- must be stored vertically in an environment where the temperature is between -20°C and +55°C, and where relative humidity is between 5% and 95%;

- must not be stacked,

- must be protected from humidity.

1.2.   Symbols used in this document.

ℹ	**INFORMATION:**	This symbol draws attention to comments.
⚠	**WARNING:**	Not following these instructions may lead to damage when installing or to other objects.
⚠	**DANGER:**	Not following these instructions may cause injuries and serious material damage.
⚡	**DANGER:**	Not following these instructions may cause electrocution.

1.3.   Qualification of personnel for installing, adjusting, using and maintaining the equipment

Boiler installation, adjustment and maintenance operations must be conducted by a qualified and approved professional in accordance with prevailing local and national regulations. These operations may require work to be carried out with the power turned on and the casing doors (on the front of the boiler) open.
Basic utilisation operations must be carried out with the casing doors closed.

1.4.   Safety instructions

• Always switch the boiler off and shut off the general gas supply before carrying out any work on the boiler.

• After performing work on the boiler (maintenance or breakdown), check that there are no gas leaks from the installation.

⚠	**DANGER:**	**If you smell gas:** • **Do not use any naked flames, smoke or activate any contacts or electric switches.** • **Switch off the gas supply.** • **Ventilate the premises.** • **Look for the leak and correct it.**

⚠	**DANGER:**	**If any smoke is released:** • **Switch off the boiler.** • **Ventilate the premises.** • **Look for the leak and correct it.**

⚡	**DANGER:**	**This boiler's earth continuity is provided by link cables (green/yellow) and specific holding screws. During any disassembly operations, make sure that the cables in question are reconnected; you MUST also reuse the original holding screws.**

1.5. Water characteristics

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

⚠	**DANGER:**	**The use of glycol water if forbidden.**

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

For any installation (new or renovation), the water system pipes must be thoroughly cleaned. The purpose of this initial cleaning is to eliminate germs and residue that can cause deposits to form.

In new installations in particular, residue from grease, oxidised metal, and even copper microdeposits must be removed.

In renovated installations, cleaning should focus on removing sludge and the products of corrosion formed when the unit was last in operation.

There are two types of methods for cleaning and removing sludge: a high intensity approach that takes a few hours and a slower, more gradual approach that takes several weeks. This first type of cleaning must be done before connecting the new boiler, and with the second type, a filter should be installed on the back of the boiler to capture loosened deposits.

The cleaning performed prior to installation improves performance, reduces energy consumption, and resists scaling and corrosion on the unit. A professional (water treatment) should carry out the cleaning.

1.5.2.   Protecting the unit against scaling

Water naturally contains dissolved calcium ions and carbonates that cause scaling (calcium carbonate) to form. To prevent excessive deposits, take precautions with regard to the water used to fill the unit: **TH < 10°f**

Water must be added during the life of the boiler. The new water adds scaling to the water system. The amount of fill water plus the amount of make-up water added during the life of the unit should not be more than three times the water capacity of the heating system. Also, the hardness of the make-up water must be controlled. Make-up water: **TH < 5°f**

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

Additional precautions are required for operation:
  - When the installation contains softener, the equipment must be inspected frequently to check it does not discharge any chlorine-rich water into the network: the chlorine concentration must always remain below 50 mg/litre.
  - To prevent the build-up of calcium deposits (such as on exchange surfaces), the unit should be brought into service slowly, starting by operating at a low power with high primary water flow.
  - When the tap water lacks the desired qualities, water treatment is required. The fill water must be treated, and whenever new water is added, the make-up water must also be treated.
  - Installations with multiple boilers require all of the boilers to be brought up simultaneously at minimal power. Doing this prevents the calcium in the water from depositing on the exchange surfaces of the first boiler.
  - When working on the unit, avoid draining it completely; only the required parts of the system are to be drained.

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

1.5.3.   Protecting steel and stainless steel boilers against corrosion

Corrosion can affect the iron components used in boilers and heating systems, which is directly related to the presence of oxygen in the water heater's water. Dissolved oxygen that enters the unit when it is being filled for the first time reacts with the equipment materials and quickly disappears. Without refreshing the oxygen through significant contributions of water, the unit might not experience any damage whatsoever.
However, it is important to follow the sizing rules and installation guidelines

in order to prevent oxygen from continuously flowing into the heating water. From these rules, we have:
- Preferably an expansion vessel with a membrane rather than an open expansion vessel that allows direct passage.-
- Internal pressure with the unit of more than 1 bar cold.
- Remove leaky (permeable) components that are letting out more gas than as if they were sealed.

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

If there is a chance that oxygen could enter the unit, you must take additional precautions. Adding an oxygen scavenger (ex. sodium sulphite) is highly recommended. We recommend directing any water treatment questions to specialists, which can provide:
- The appropriate treatment based on the characteristics of the unit,
- A monitoring agreement with a guarantee as to the results.

In the case of a unit where the water is in contact with heterogeneous materials, for example, if there is any copper or aluminium, appropriate treatment is recommended to guarantee a long lifetime for the unit. In most cases, this treatment involves adding chemical solution corrosion inhibitors to the installation. We recommend contacting water treatment specialists.

1.5.4.   Unit monitoring

If the recommendations listed above (new installation or renovation) have been followed, the unit monitoring is limited to:
- Checking the amount of make-up water (fill water volume + make-up water volume < 3 times the unit volume).
- Checking the pH level (stable or slightly increasing).
- Checking the total hardness (stable or slightly decreasing).

We recommend monitoring these parameters two to three times a year. It should be noted that the "make up water quantity" parameter is vital for a long lifetime for the unit.
If any of these parameters deviates from the above recommendations, refer to a water treatment specialist to correct the problem.

1.5.5.   Setting up a plate exchanger

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

1.5.6.   Setting up a filtration system

A filtration system on the back of the boiler is recommended in order to remove suspended particles from the unit (filter, sediment trap, etc.) .

2. APPROVALS

2.1. Compliance with European Directives

- Low Voltage (2014/35/EU):

This product is not intended for use by persons (including children) whose physical, sensory or mental capacities are reduced, or persons without experience or knowledge, unless they have been given instructions & monitored previously when using 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 (2016/426/EU)

- Efficiency (92/42/CEE)

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

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

2.2. Regulatory installation conditions for Belgium

The appliance must be installed and maintained by a qualified professional, in accordance with the regulatory texts and current good practice rules, which for Belgium are standards NBN D51.003, NBN D51.004 and NBN B61.001.

2.3. Regulatory installation conditions for other countries

The appliance must be installed and maintained by a qualified professional, in accordance with the regulations and current regulatory practices in the country where the boiler is installed.

2.4. Gas category

This boiler has been adjusted in the factory to work with **group H (type G20) natural gas with a supply pressure of 20 mbar or 300 mbar (France only) depending on the models**.
See chapter 4.5 for how to change the gas, and use a qualified professional.

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

Category			
Belgium	**France**	**Luxembourg**	**Switzerland**
$I_{2E(R)}$	$I_{2E_{si}}$	I_{2E} (G20)	I_{2H}

2.5. Gas supply pressures

INFORMATION: **The pressures provided below must be taken at the input to the gas valve.**

	Natural gas H G20		Natural gas L G25	
	20 mbar	300 mbar	25 mbar	300 mbar
Nominal pressure (mbar)	20	300	25	300
Minimum pressure (mbar)	17	270	20	270
Maximum pressure (mbar)	25	330	30	330

3. TECHNICAL SPECIFICATIONS

3.1. Dimensions

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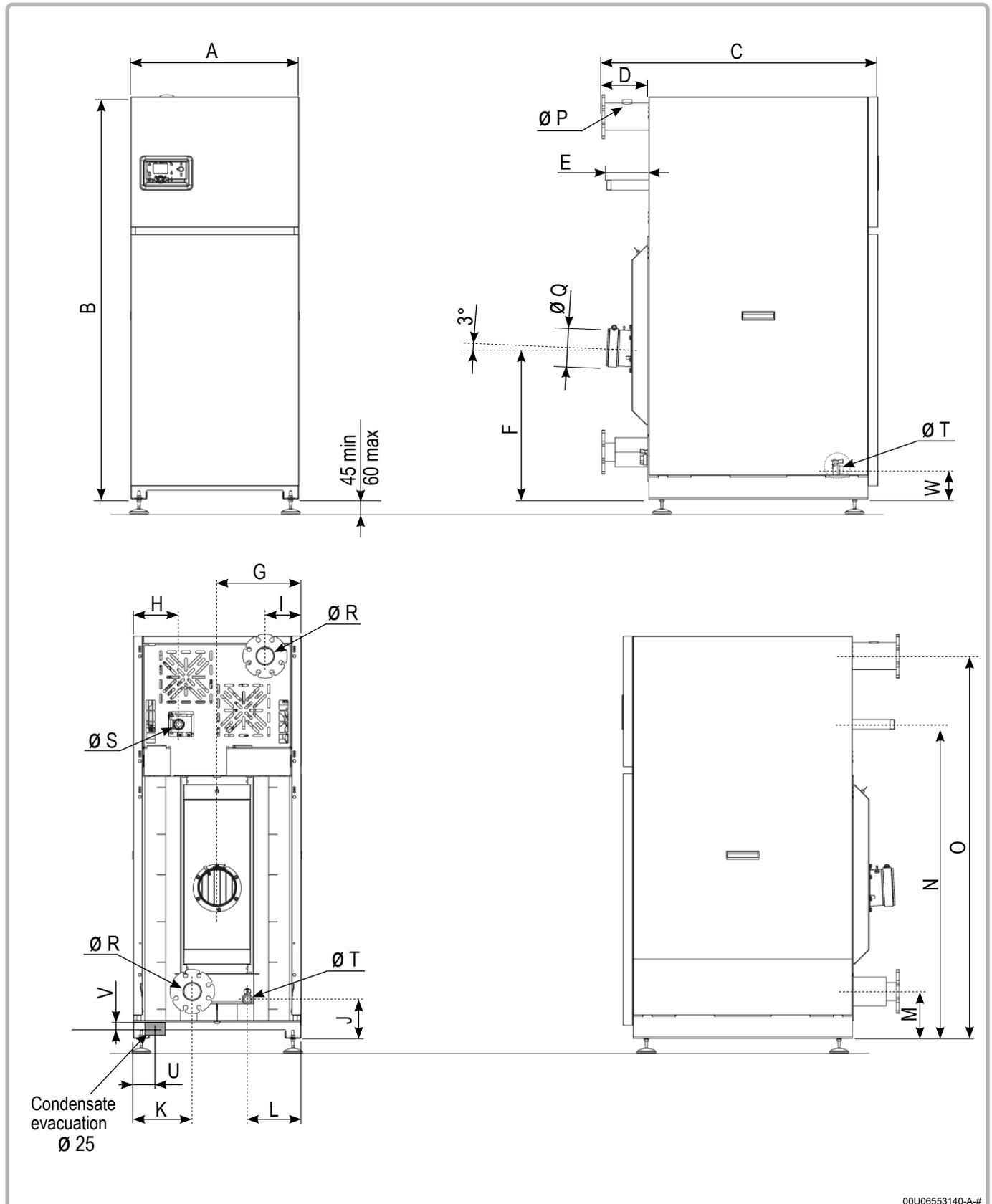
figure 1 - Dimensional characteristics

		MODELS					
		120	**140**	**180**	**225**	**275**	**320**
A	(mm)	700		700		797	
B	(mm)	1540		1698		1771	
C	(mm)	1136		1151		1273	
D	(mm)	180		196		201	
E	(mm)	132		177		118	
F	(mm)	513		638		686	
G	(mm)	350		350		399	
H	(mm)	116		190		241	
I	(mm)	166		150		178	
J	(mm)	165		165		165	
K	(mm)	250		247		275	
L	(mm)	237		224		266	
M	(mm)	182		198		197	
N	(mm)	1063		1319		1414	
O	(mm)	1298		1606		1661	
Ø P: Valve tube		G1 "		G1 "		G1 " 1/4	
Ø Q (*): Fume outlet	(mm)	150		150		180	
Ø R: Outgoing / return tube		Male thread R2 "		Flange PN16 DN 65		Flange PN16 DN 80	
Ø S: Gas tap G20 / G25 **20 / 25 mbar**		R1 " 1/4		R1 " 1/2		R2 "	
300 mbar		R1 " 1/4		R1 " 1/4		R1 " 1/4	
Ø T: Drainage tap		G1 "		G1 "		G1 "	
U	(mm)	≈ 130		≈ 130		≈ 130	
V	(mm)	≈ 110		≈ 110		≈ 110	
W	(mm)	138		138		138	

(*) The diameter indicated is the interior diameter (for the Ø Q dimension only).

3.2. Reduced access

The fume nozzle may be dismantled after the product is unpacked.

(HEIGHT x WIDTH x DEPTH)		MODELS					
		120	140	180	225	275	320
1 - Product unpacked (feet adjusted to 60 mm max)	(mm)	1600 x 700 x 1140		1760 x 700 x 1155		1830 x 800 x 1275	
2 - Product without housing (without the adjustable feet)	(mm)	1520 x 700 x 1135		1700 x 700 x 1150		1756 x 800 x 1270	
3 - Product dismantled to the heating body	(mm)	1270 x 545 x 940		1620 x 555 x 965		1680 x 675 x 1107	

1   2   3
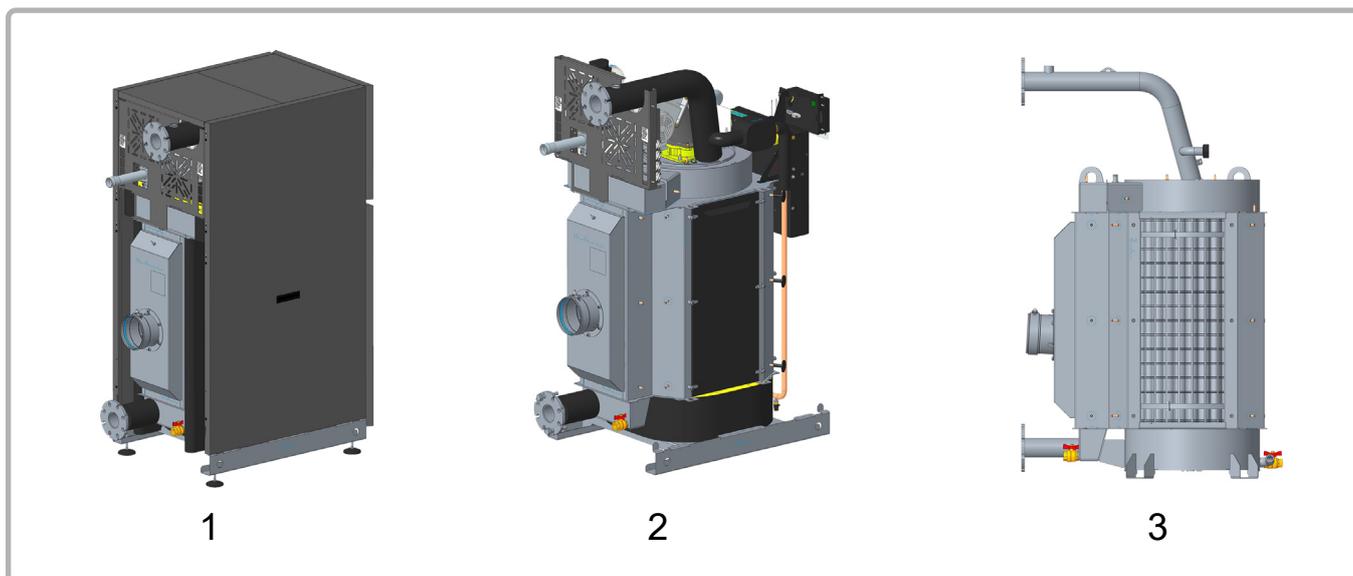
⚠ **IMPORTANT:**	**When putting the elements back, do not forget to check that the different seals are correctly position.** **The fume nozzle tightening torque is 12 Nm.** **Check the fume and condensate seals on the nozzle and the side inspection doors.**

3.3. Combustion at 15°C and 1013 mbar

3.3.1. G20 / G25 natural gas

			MODELS					
			120	**140**	**180**	**225**	**275**	**320**
Nominal power Pn (80/60°C)	kW	G20 G25	116	136	175	219	267	311
Nominal power when condensing P (50/30°C)	kW	G20 G25	127	148	190	238	290	337
Rated heat input Qn	kW	G20 G25	120	140	180	225	275	320
Min heat input Qmin	kW	G20 G25	28	28	43	43	66	66
Gas flow rate at Pn (15 °C)	m³/h	G20 G25	12.70 14.76	14.81 17.22	19.05 22.14	23.81 27.68	29.10 33.83	33.86 39.36
CO_2 value range	%		at Qmin: 8.3 % < CO_2 < 8.7 % at Qmax: 8.8 % < CO_2 < 9.2 %					
Exhaust mass flow rate (80/60°C)*	g/s	Q_n Q_{min}	54.8 12.8	63.9 12.8	82.1 19.6	122.7 19.6	125.5 30.1	146.0 30.1
Exhaust mass flow rate (50/30°C)*	g/s	Q_n Q_{min}	49.3 11.9	57.6 11.9	73.9 18.1	94.5 18.1	112.9 27.4	132.8 27.4
Exhaust temperature (80/60°C)*	°C	Q_n Q_{min}	69 58	74 58	71 58	78 58	74 58	79 58
Exhaust temperature (50/30°C)*	°C	Q_n Q_{min}	39 28	44 28	41 28	48 28	44 28	49 28
Firebox pressure at nominal Qcal (B23)	Pa		59	79	63	99	85	118
Exhaust outlet interior diameter	mm		150	150	150	150	180	180
Maximum allowable nozzle pressure (B23P) (80/60°C)*	Pa	Q_n Q_{min}	155 5	200 5	101 5	163 5	109 5	161 5
Maximum allowable nozzle pressure (B23P) (50/30°C)*	Pa	Q_n Q_{min}	117 5	160 5	88 5	138 5	101 5	137 5
Combustion air flow rate at Qn * (15 °C)	m³/h		153.8	179.4	230.7	288.3	352.4	410.1
NOx class			6					
Smoke removal and air inlet type classifications			B23, B23P					

* values corresponding to a G20 setting.

3.4. Operating conditions

		MODELS					
		120	**140**	**180**	**225**	**275**	**320**
Max flow temperature setting	°C	85					
Max flow temperature	°C	88					
Maximum safe temperature	°C	110					
Max service pressure	hPa (bar)	6000 (6)					
Min cold pressure	hPa (bar)	1000 (1)					
Hydraulic pressure loss at ∆T 20	daPa	610	790	560	820	910	1110
Nominal water flow rate (P/20)	m³/h	5.0	5.8	7.5	9.4	11.5	13.4
Maximum water flow rate (P/10)	m³/h	10.0	11.6	15.0	18.8	23.0	26.8
Water content	L	104		138		223	
Weight without water	kg	255		312		376	
Acoustic power at P$_{max}$ (Lw) *	dB (A)	73		76		77	
Acoustic pressure at 1 m at P$_{max}$ (Lp)	dB (A)	57		61		61	
Installation premises temperature (min / max)	°C	5 / 45					
Installation premises relative humidity		between 5% and 95%					
Protection level		IP21					
Maximum installation altitude	**m**	2000					

* The sound power level is a laboratory measurement of the emitted sound power but contrary to the noise level, it doesn't correspond to the perceived measurement.

3.5. Electrical connection

		MODELS					
		120	**140**	**180**	**225**	**275**	**320**
Electrical power supply	V	230 V AC (+10% -15%), 50Hz					
Electrical power consumed at Qn (excluding accessory)	W	249	338	227	338	371	475
Electrical power consumption in standby mode	W	5					
Maximum length of sensor cables	m	DHW sensor: 10 Outdoor sensor: 40 in 0.5 mm² (120 in 1.5 mm²) Ambient thermostat: 200 in 1.5 mm² Room thermostat: 200 in 1.5 mm²					
Power terminal output QX1 to QX3	V	230V AC (+10%, -15%)					
	A	5 mA at 1A					

4. INSTALLATION

⚠	**DANGER:**	**A hoist (not supplied) MUST be used when the boiler is slung.**

4.1. Installing the boiler

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

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

		A*	B*	C	D	H
MODELS	**120**	450		500		133
	140	450		500		133
	180	450		500		405
	225	450		500		405
	275	450		600	500	362
	320	450		600	500	362

* According to DTU 65.4, a 500 mm space must be left on the sides of the boiler.
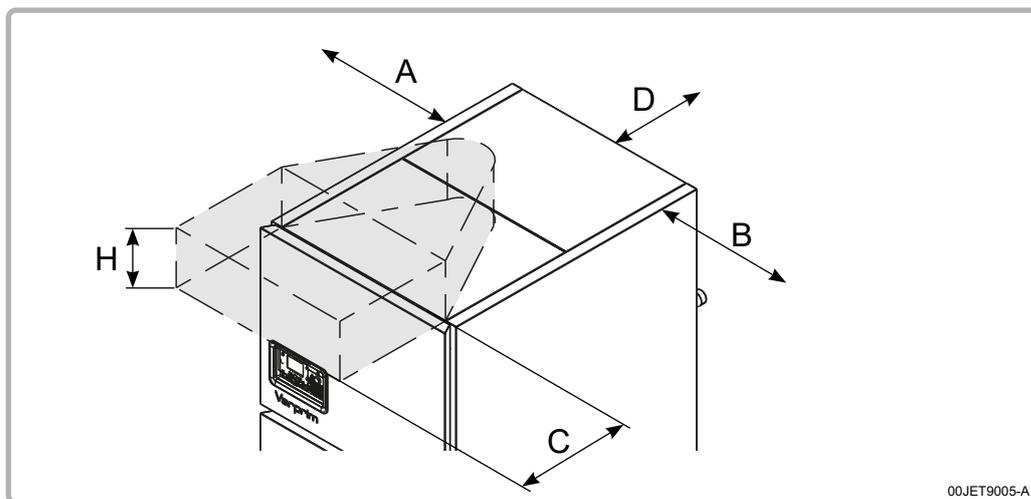
figure 2 - Peripheral clearance

The greyed out area above the boiler must remain free of all obstacles to enable the burner to be inspected and the burner tube to be removed for cleaning.

⚠	**CAUTION:**	**A 2 cm free space must also be left above the side panels to allow for their disassembly and reassembly.**

These values cannot be substituted for the specific regulatory requirements.

⚠	**CAUTION:**	**The boiler must be positioned horizontally using a spirit level to promote effective ventilation of the boiler body (use the base as a reference surface).**

To adjust the level, screw or unscrew the 4 adjustable feet as required using a 17 mm wrench.

4.2. Removing the upper and lower clipped panels

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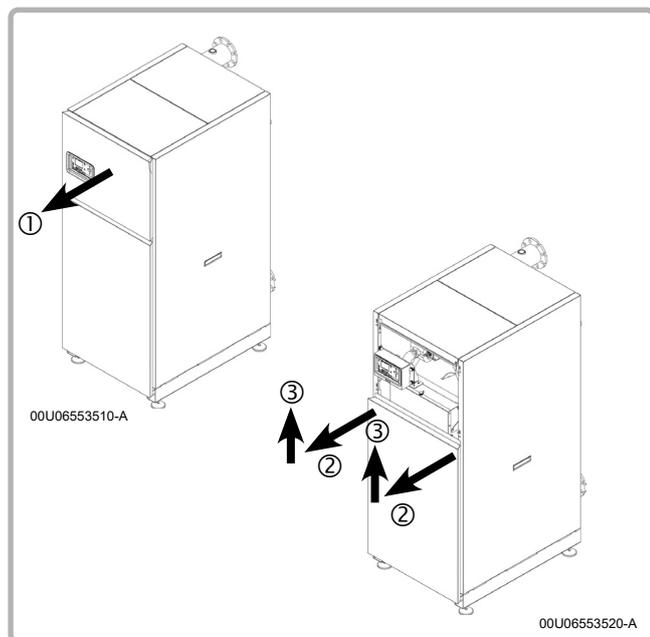
figure 3 - Removing the front panels

Upper panel:

Unclip by pulling the panel forwards.

Lower panel:

The upper panel must be removed first before you can remove the lower panel.

Unclip by pulling the top of the panel forwards then raise it.

4.3. Removing the upper panels

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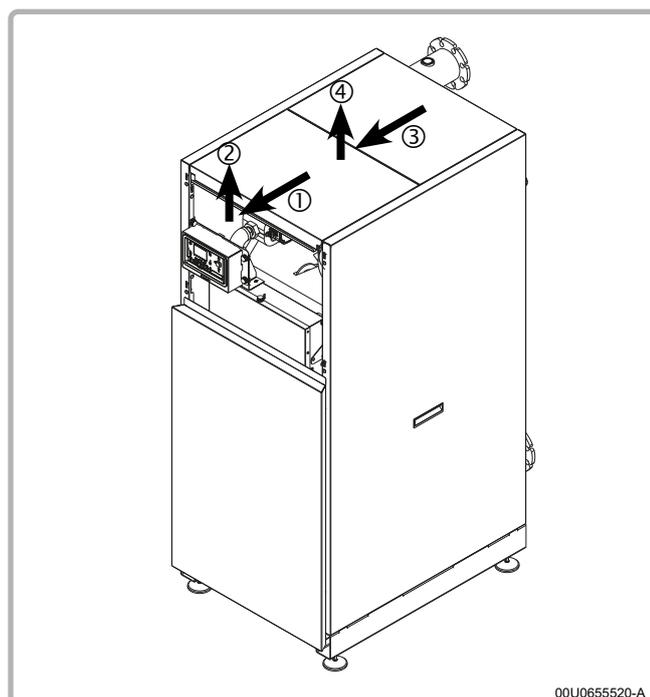
figure 4 - Removing the upper panels

Remove the upper front panel first.

Pull the first panel (front) then raise it. Proceed in the same way for the second panel (rear).

4.4.   Removing the side panels clipped at the rear
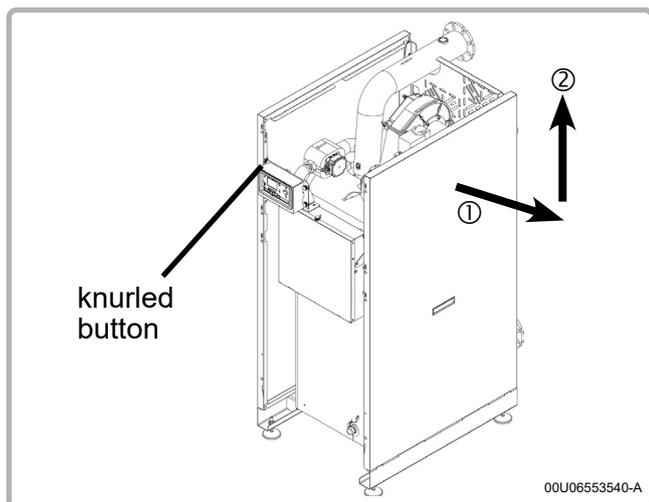
figure 5 - Removing the side panels

To remove the side panels, the upper-lower panels and the upper panels must be removed first.

Unclip by pulling the top of the side panel and lift it.

To be able to unclip the left side panel, you must completely unscrew the knurled button above the display.

4.5.   Changing gas (G20 to G25)

	INFORMATION:	**The boiler has been adjusted in the factory to work with group H (type G20) natural gas with a supply pressure of 20 mbar.** **Its adaptation to suit any other type of gas must take place in compliance with the regulations in effect in the country in which the appliance is installed.**

	CAUTION:	**Any operations involving changing the type of gas used must be performed by a qualified professional.**

4.5.1.   *On VARPRIM 180 and 225*
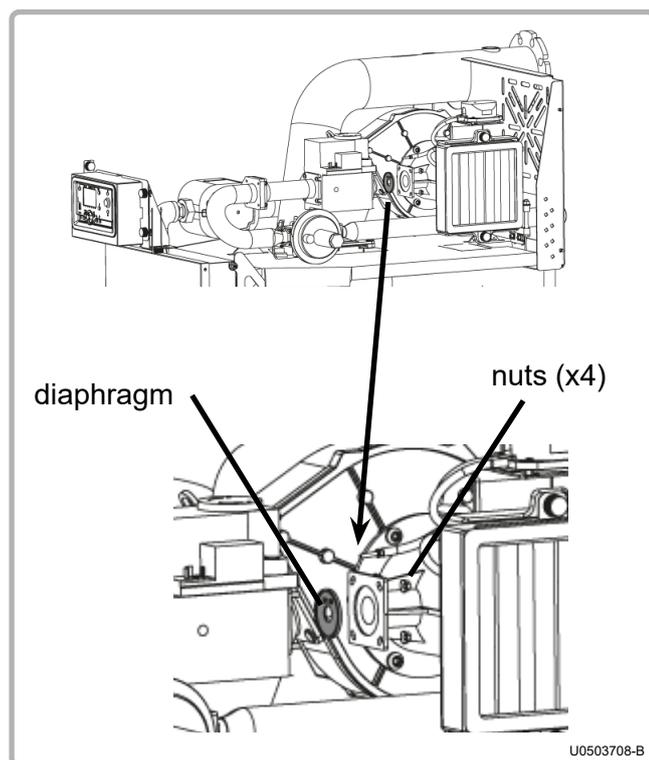
figure 6 - Diaphragm

The type of gas is changed by replacing the diaphragm located on the gas line (G20 with diaphragm, G25 without diaphragm).

Unscrew the 4 nuts (see opposite), then remove the diaphragm (brass part).
Screw the 4 nuts back in place.

Check the CO_2 settings (see § 7.7, page <?>).

After changing the type of gas:
  - **Check that the line is gas-tight**
  - **Paste on the label provided in place of the original label (G20).**

4.5.2.   On VARPRIM 120, 140, 275 and 320

The type of gas is changed by adjusting the gas valve.
Refer to § 7.8, page <?>.

After changing the type of gas, check that the line is gas-tight and paste on the label provided in place of the original label (G20).

4.6. Exhaust connection

You must comply with the regulatory texts and rules of the art that apply in the country where the boiler will be installed, i.e.:
For France, DTU 65.4, DTU chimney, DTU 24.1 (smoke works), NF P 51-201 of February 2006.
For Belgium, standards NBN D51.003, NBN D51.004 and NBN B61.001.

One exhaust temperature sensor guarantees the protection of the type B combustion product evacuation ducts (not valid for type C).

VARPRIM boilers are approved according to the gas category to be connected to:
- a B23 chimney (all models)
- a B23P chimney (all models)

INFORMATION:	The duct lengths provided below are in linear metres (ml). The total length of all the ducts is rounded to a straight-line length (the curves have a straight-line equivalent).

4.6.1.   Connection to a B23 chimney

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

CAUTION:	**Check that the boiler installation premises have high and low ventilation, that it conforms to current regulations and that it is not obstructed.**

The size of the chimney pipes must be determined taking account of combustion gas pressure on boiler output equal to 0 Pa (see table § 3.4, page 14).

The exhaust extraction ducts must be made in a material resistant to the condensate that can form when the boiler is operating. These materials must also be able to withstand exhaust temperatures up to 120°C. Horizontal pipes must be avoided to limit condensation build-up.

DTU 24-1 authorises the use of a draft regulator to obtain pressure of 0 Pa on the nozzle. This will enable the boiler to operate without interference due to draft that is too high.

Check that the combustion gas is evacuated via a sealed pipe.

VARPRIM boilers are high performance boilers with very low exhaust temperatures; consequently to retain a favourable draft the ducts must run upwards from the boiler outlet.

| ⚠ | IMPORTANT: | **If several boilers are connected to one flue, check by calculation that the flue is not pressurised when all the boilers are operating at Qn.** |

Dimensioning recommendations based on a POUJOULAT type (Condensor type) supply:

figure 7 - B23 dimensioning recommendations

Exhaust duct height H in linear metres (ml)
(in 50/30°C operating regime)

Ø connection	150 mm		180 mm			200 mm	
Ø duct	**180 mm**	**200 mm**	**180 mm**	**200 mm**	**250 mm**	**200 mm**	**250 mm**
120	31 to 52	13 to 100	15 to 73	11 to 100	12 to 100		
140	31 to 52	13 to 100	15 to 73	11 to 100	12 to 100	---	---
180					9 to 100		9 to 100
225	---	---	---	---	9 to 100	---	9 to 100
275							21 to 100
320	---	---	---	---	---	---	21 to 100

(MODELS)

| ⚠ | IMPORTANT: | **The values below are provided for information purposes. They must be checked by calculation.** |

| ⚠ | IMPORTANT: | **The boiler connection part must not be made to support the exhaust duct's weight.** |

4.6.2.   Connection to a B23P chimney

B23P type connection:

Air from the installation premises, gas evacuation through the roof via a pressurised duct.

⚠	**CAUTION:**	**Check that the boiler installation premises have high and low ventilation, that it conforms to current regulations and that it is not obstructed.**
⚠	**IMPORTANT:**	**For B23P type connection, it is VITAL to use ducts with CONDENSOR (Poujoulat) or CHEMILUX CONDENSATION rigid or flexible (Ubbink) type CSTB notice (pressurised ducts).**
⚠	**IMPORTANT:**	**The combustion product extraction duct must be dimensioned by using the parameters set out in the table in § 3.4.** **Depending on the actual configuration of the duct, a calculation is required to check that the pressures at the boiler outlet do not exceed the maximum allowable values (200 Pa).** **Values corresponding to the 50/30°C regime are to be used for this calculation.**
⚠	**CAUTION:**	**If several boilers are connected to the same flue, check the following by calculation:** • **One boiler at Qmin and the others at Qn**: **The outlet pressure of the boiler at Qmin must be lower than the permissible pressure specified in the table in Chapter 3.4.** • **All the boilers at Qn**: **The outlet pressure of the four boilers must be lower than the permissible pressure specified in the table in Chapter 3.4.**

Dimensioning recommendations based on a POUJOULAT (Condensor type) supply:
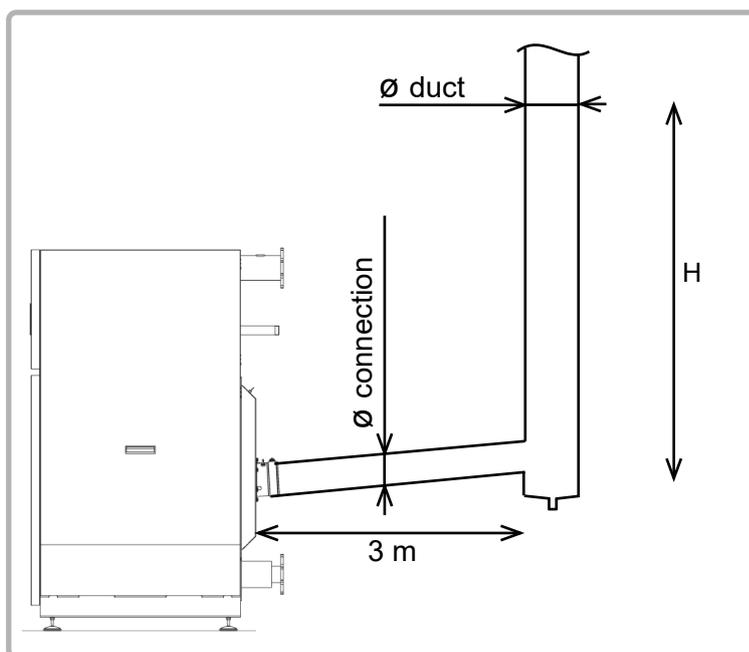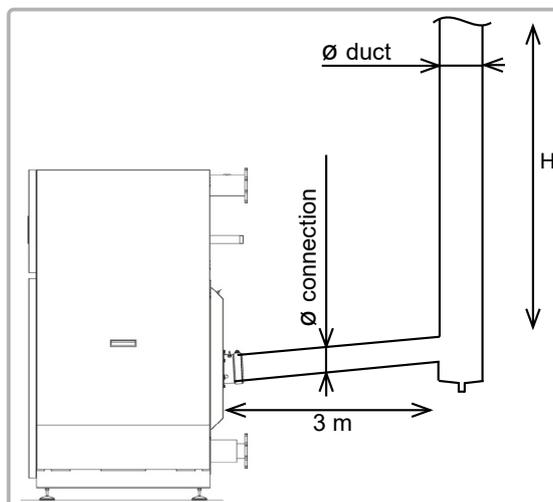

figure 8 - B23P (Poujoulat) dimensioning recommendations

Exhaust duct height H in linear metres (ml)
(in 50/30°C operating regime)

Ø connection	150 mm			180 mm	
Ø duct	**130 mm**	**150 mm**	**180 mm**	**180 mm**	**200 mm**
120	60	100			
140	60	100	---	---	---
180	10	37	100		
225	10	37	100	---	---
275				54	117
320	---	---	---	54	117

(MODELS — left side label spanning models rows)

⚠ **IMPORTANT:**   **The values below are provided for information purposes. They must be checked by calculation.**

⚠ **IMPORTANT:**   **The boiler must not be made to support the exhaust duct's weight.**

Dimensioning recommendations based on a UBBINK supply:

The use of a PPTL Ø160 Ubbink duct requires the use of a Male 150 / Female 160 adaptation element (accessory reference 041432) on boiler output.
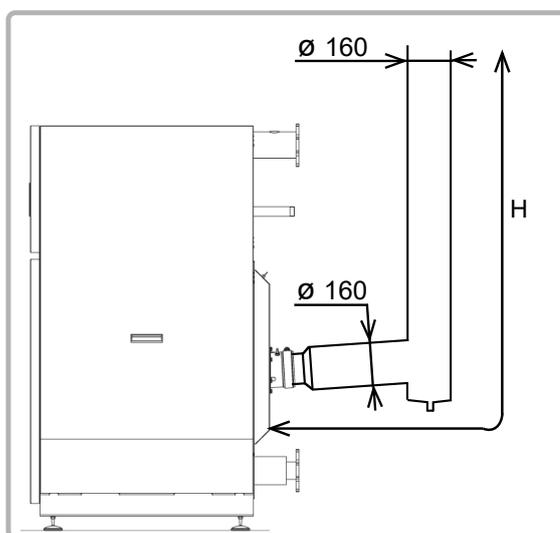
figure 9 - B23P (Ubbink) dimensioning recommendations

Exhaust duct height H in linear metres (ml)
(in 50/30°C operating regime)

duct	Ø 160 mm	
	rigid	**flexible**
120	---	63
140	---	63
180	53	18
225	53	18

(MODELS — left side label spanning models rows)

⚠	**IMPORTANT:**	**The values opposite are provided for information purposes. They must be checked by calculation.**

⚠	**IMPORTANT:**	**The boiler must not be made to support the exhaust duct's weight.**

4.6.3.   Boilers in cascade

The installation must be done so that if one of the boilers is stopped or operating at minimum, the others do not discharge into it. A flap may need to be installed on output from the boiler depending on the installation configuration.

Example with exhaust outlet to the left:
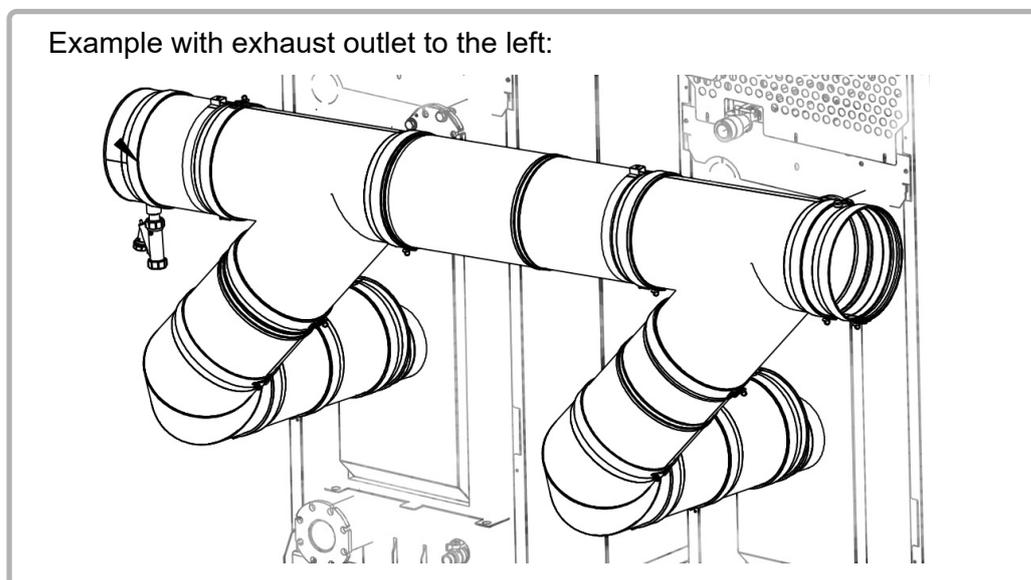
figure 10 - mounting in cascade

4.7. Hydraulic connection

A water circulation pump integrated into the boiler and a smart regulation logic enable optimum operation up to Pinst/30 (Pinst = Instant output power expressed as Th/h - 1Th/h = 1.163 kW).

Below this rate of Pinst/30, the boiler will continue to operate, but will gradually reduce its power (boiler shutdown below Pinst/46).

In the main exchanger, as in the condenser, you must ensure that the rates recommended in paragraph 3.4 are not exceeded (i.e. Output power in nominal Th/h boiler / 10).

Sizing the pipes connecting the boiler to the installation must be done carefully, to minimise the pressure losses and so avoid oversized circulating pumps.

In some cases the diameter of the connection pipes will be greater than the diameter of the boiler tappings. The diameter increase can then be made advantageously after the union connectors, the stop valves, and/or the hydraulic balancing valves.

Tichelmann assembly encourages a natural balance of the flow rate between the 2 generators.

The VARPRIM boilers are equipped with the following elements:
  • A main exchanger drain valve,
  • A condenser drain valve.

It is imperative to fit the boiler and its installation with the following components:
  • isolating valves on the flow and return taps,
  • an expansion tank,
  • an effective drain mechanism,
  • A safety valve set to 6 bar,
  • A disconnector on the boiler's filling circuit in relation to the supply network.

INFORMATION: The Grundfos circulators used on the 120/140 and 180/225 kW mode have a kick-start screw.

NO. 2
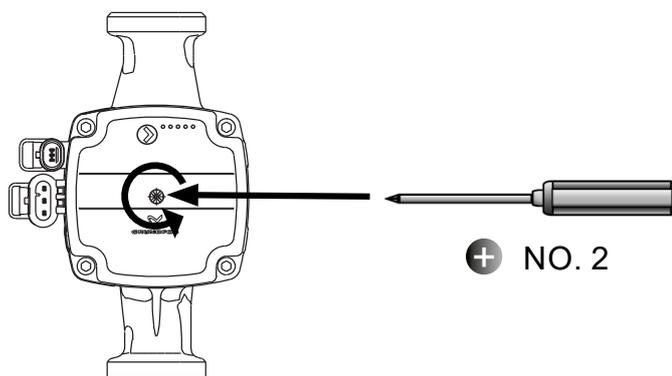
IMPORTANT: **Maintain pressure while turning to correctly activate the kick-start.**

4.7.1.   2 tapping boiler
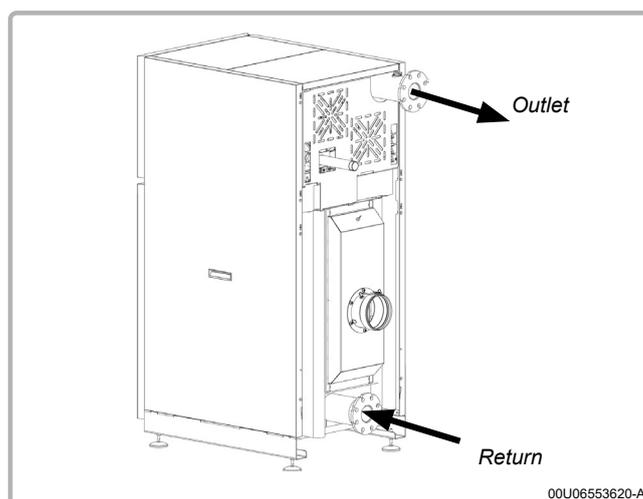
figure 11 - Connection using 2 tappings

4.7.2.   Condensate removal

Removal to the drains, via a drain hopper, using a P.V.C tube (minimum diameter 32 mm) is mandatory because the condensates are acid and thus aggressive (pH between 3 and 5).

Use a sufficient slope of the order of 3% to ensure correct flow of the condensates.

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

4.8. Gas connection

Before installing the boiler, clean the interior of the gas line, which must be free of metal particles and welding debris. This will lengthen the lifespan of the product.

Before starting up for the first time, check that the pressure of the natural gas supply corresponds to the nominal boiler pressure, stated on the name plate. Before feeding gas to the installation, ensure that the different connections are correctly made and gas tight.

In particular check the presence of a removable connector between the isolating valve and the boiler gas supply tapping.

The value before the gas valve must be within the limits shown in the table in chapter 2.6, page <?> for the type of gas.

⚠	**CAUTION:**	**Before connecting the gas line, check whether the boiler uses G20 or G25 gas. If it uses G25, make the changes described in chapter 4.5, page 18.**
		The gas line must not be subject to any mechanical stress (risk of loss of gas tightness of the gas valve).
		Check that the gas supply corresponds to the nominal boiler pressure and gas category, stated on the name plate.

4.9. Electrical connection

⚡	**DANGER:**	**Ensure that the general electrical power supply has been cut off before starting any repair work.**

⚠	**DANGER:**	**You must respect the live (L) - neutral (N) polarity when making electrical connections.**

⚠	**CAUTION:**	**It is mandatory to connect this boiler correctly to earth and to comply with the national standards which apply in the country for low-voltage electrical installations.** **Provide a two-pole circuit breaker upstream of the boiler (distance between contacts: 3.5 mm minimum).** **Fitting the electrical installation with a 30 mA differential protective device is strongly advised.**

Please refer to the installation and user manuals of the NAVISTEM B3000 boiler controller for more information about the electrical connections on the control panel (characteristics of the electric power supply, cable cross-sections and connections to the terminals).

4.9.1. Control panel
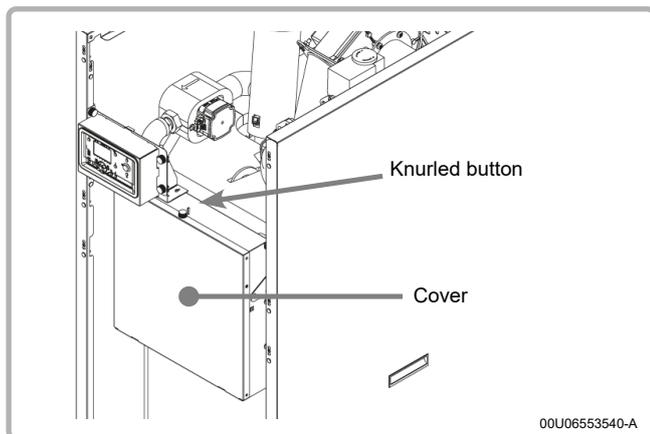
figure 12 - Electric box opening

To access the control panel, remove the upper and lower panels at the front of the boiler.

The panel is located in the front part of the boiler.

Unscrew the knurled button on the top of the cover.

Tilt the cover forwards.
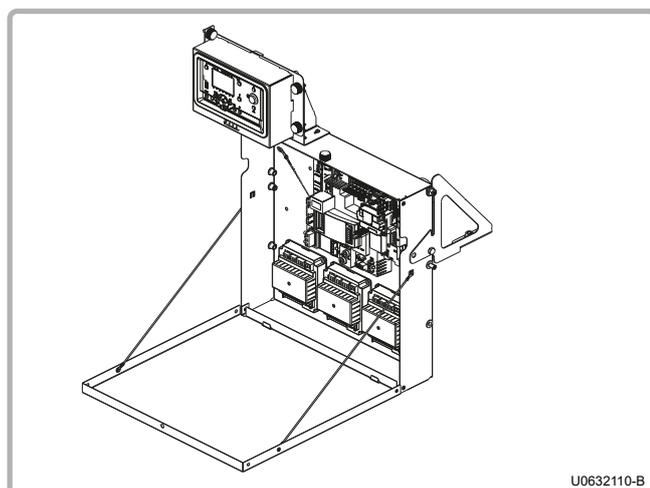
figure 13 - Electric box opening (continued)

The panel which is held by 2 cables is not made to support heavy loads. It can hold documentation and a few tools.

4.9.2. Cable ways
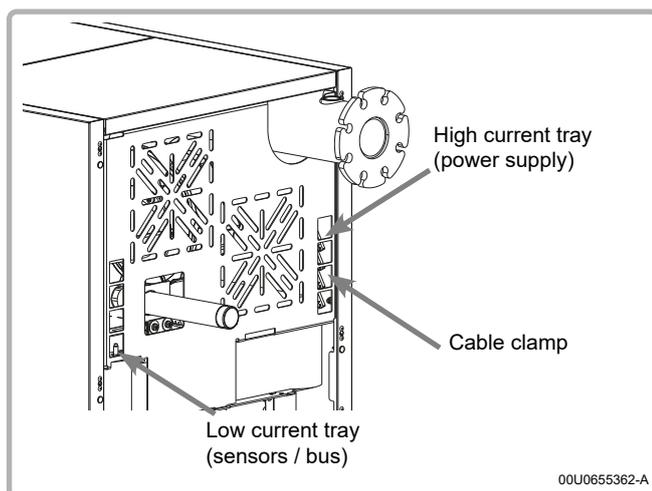
figure 14 - Boiler electrical cable ways

Use the cable trays located on the top and on the sides of the boiler to insert the different connection cables:

• The **right hand** tray must be reserved for the **power connections** (boiler power supply, alarm feedback or circulating pump control).
Use the cable clamps at the entry to the tray to lock the cables mechanically.

• The **left hand** tray is dedicated to **signal connections** (sensors, communication bus, etc.).

INFORMATION: On low power boilers (120 and 140 kW), the signal cables are inserted into the boiler via the right hand tray. **The high current cables (power supply) must be separated from the low current cables (sensors, bus).**

---
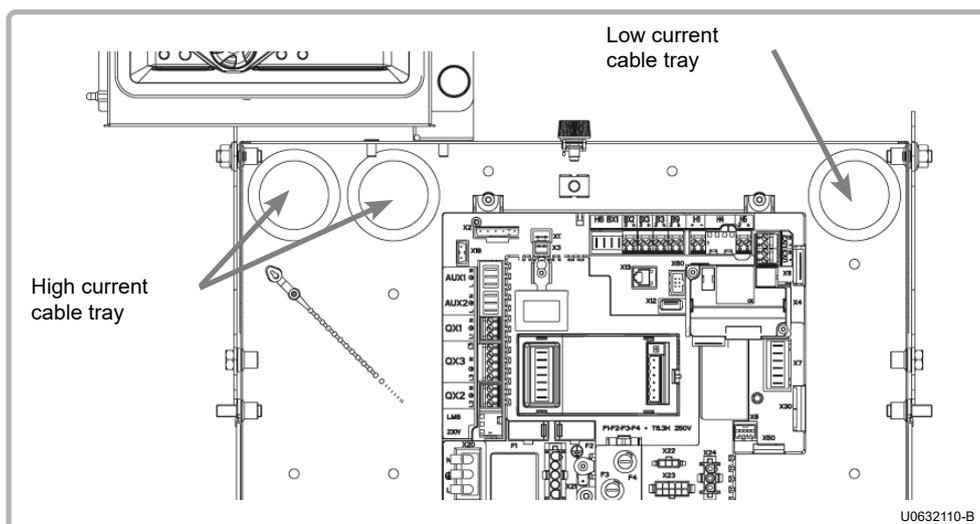
figure 15 - Box electrical cable ways

CAUTION: **As the cables may run through hot zones, make sure to use cables whose sheaths can withstand 70°C (minimum).**

4.9.3. Connection to the boiler controller terminals

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

CAUTION: **To connect the general power supply connector, respect the wiring diagram, in particular the live, neutral and earth polarities.**

4.9.4. Connection of the AVS75 module(s) (optional accessory)
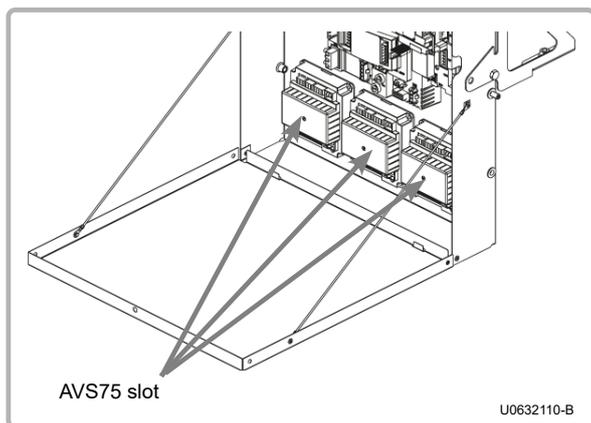
figure 16 - AVS75 location

To install the AVS75 module(s) (3 max), please refer to the manual provided with the accessory (reference 059751).

4.9.5. Connection of the OCI 345 communication module (optional accessory)

To install the OCI345 module (to be attached to the NAVISTEM B3000 boiler controller), please refer to the manual provided with the accessory (reference 059752).

4.9.6. Connection of the MODBUS NAVIPASS (optional accessory)

To install the MODBUS NAVIPASS, please refer to the manual provided with the accessory (reference 059833).

4.9.7. Fuses

The VARPRIM boiler is fitted with four fuses on the boiler controller (refer to the label on the protective cover for their positions and characteristics).

Three spare fuses are also provided on the boiler controller.

4.9.8. Wiring diagram

Refer to § 2.3 in the B3000 NAVISTEM manual for more information about the terminal characteristics.

	Cascade flow sensor	
	Cascade return sensor	
	DHW sensor	
	Outdoor sensor	
	Prog client input 0...10V	
	Prog. client output 0...10V	
	Prog client dry contact input	
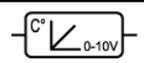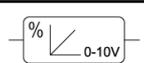
	Room sensor inputs	
	Boiler flow sensor	
	Boiler return sensor	
	Smoke sensor	
	Alarm relay	
	Modulating pump	

figure 17 - Wiring diagram

5.   COMMISSIONING

5.1.   Releasing the boiler

⚠	**CAUTION:**	**During the commissioning operation, the boiler may only be released if the hydraulic installation complies with the recommendations mentioned in the wiring diagrams. The person in charge of this operation must ensure this compliance.**

Releasing the temperature
Modify parameter 2212 (*boiler* menu) from 70 °C to the value required (85 °C maximum).

Releasing the power
Increase the value of parameter 9529 (*safety unit*) menu to the value of parameter 9530 (corresponding to the boiler's nominal power).

	MODELS					
Parameter 9529 value	**120**	**140**	**180**	**225**	**275**	**320**
restricted power	4390	5100	3110	3870	3470	3990
unrestricted power	6190	7150	4320	5390	4960	5710

5.2.   Checks before first use

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

Check that the cold pressure is a minimum of 1 bar.
If this is a boiler house renovation, ensure that flushing and if necessary silt removal from the installation have been correctly done (see § 1.5, page 6 in this manual).

Verify the connecting of smokes according to the type of chimney (refer to § 4.6, page 19).

Check that the pressure and the type of gas are adapted to the product.

⚠	**DANGER:**	**The use of glycol water if forbidden.**

⚠	**INFORMATION:**	**No flap on the fume circuit.**

5.3. Commissioning

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

For first use perform the following operations:

Fume sampling plug opening

00U06553620-A
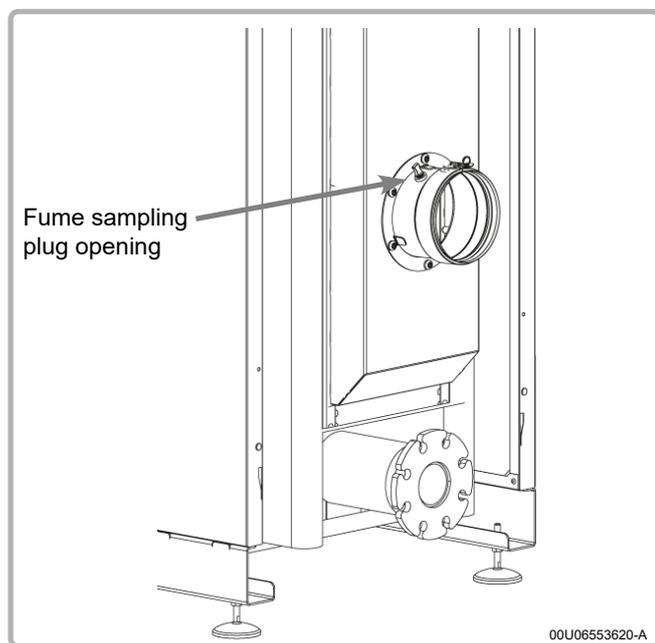
figure 18 - Sampling plug

1. Switch on the main circuit breaker.

2. Create a request for heat via the comfort mode using the customer interface (see the chapter *"3 - Interface utilisateur"* in the NAVISTEM B3000 boiler controller manual).

3. After starting the burner, check the gas tightness of the gas line connections using a foaming product. Check the combustion hygiene using a smoke analyser via a sampling plug on the fume nozzle (see figure opposite).
   CO_2 value range:
   at Qmin: 8.3 % < CO_2 < 8.7 %
   at Qmax: 8.8 % < CO_2 < 9.2 %

4. Adjust the boiler setting (refer to the table summarising customer parameters at the end of this manual).

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

6. CHECKS AFTER COMMISSIONING

6.1. Condensate removal

Check that the removal of condensates is not obstructed, on both the boiler side and the pipe side.

6.2. Gas supply

Check that the gas pipe diameter is correctly sized:

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

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

7. MAINTENANCE OPERATIONS

The common maintenance programme features 2 types of intervention:
- Maintenance which is carried out every year
- In-depth maintenance which is carried out every 3 years.

The table below contains the actions to be carried out according to the type of maintenance operation.
These operations must be carried out by a qualified professional in all cases.

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

| ⚠ | DANGER: | This boiler's earth continuity is provided by link cables (green/yellow) and specific holding screws. During any disassembly operations, make sure that the cables in question are reconnected; you MUST also reuse the original holding screws. |

No. § to consult		Maintenance	
		every year	every 3 years
7.2	Vérification environnement chaudière	X	
7.3	Replacement of the filtre à air	X	
7.4	Checking the ignition and ionisation electrodes	X	
7.5	Condensate Nettoyage siphon	X	
7.6	Vérification étanchéité circuit de combustion	X	
7.7	Vérification qualité combustion	X	
7.8	Adjustment of the gas valve	X	
7.9	Cleaning of the gas filter (300 mbar version)	X	
7.10	Nettoyage des échangeurs et changement des joints d'étanchéité of the inspection doors		X
7.11	Checking the condition of the gas manifold coating Nettoyage du brûleur et changement des joints d'étanchéité		X

7.1. Draining the boiler

Main exchanger drainage valve (on the front of the boiler)

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00U06553670-A

Condenser drainage valve (on the rear of the boiler)
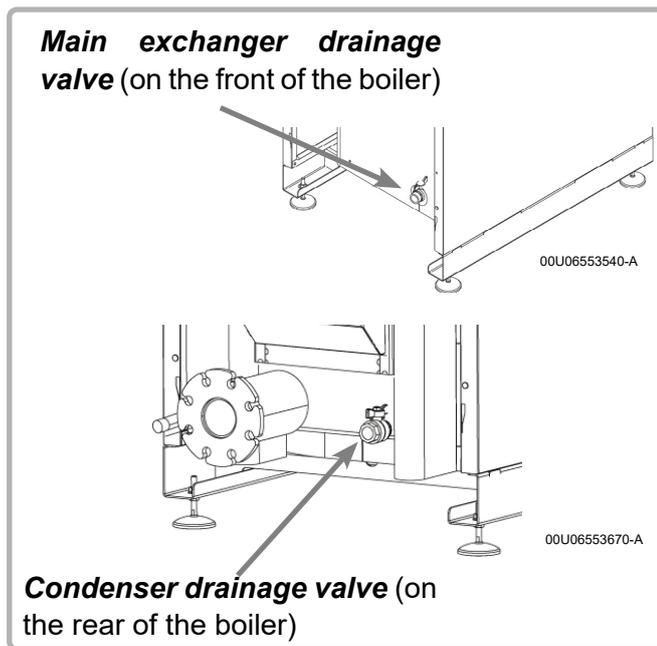
figure 19 - Drainage valves

- Close the isolation valves on the flow and return tappings.
- Connect the drainage valves (main exchanger and condenser) to the drain with a suitable hose.
- Create an air inlet on the main exchanger outlet tube of the boiler (open the safety valve).
- Open the drainage valves.

7.2. Checking the boiler environment

Before carrying out any maintenance work, you must conduct a certain number of usage checks on the installation.

- Water pressure: check that the water pressure is over 1 bar cold.
- Read the index on the make up water meter. This operation enables you to find any hydraulic leaks in the installation. If there is any change in the make up water consumption, search for the cause and repair it.

7.3. Replacing the air filter

| ⚠ | **DANGER:** | **To carry out this task safely, shut down the boiler and disconnect the power upstream.** |

| ⚠ | **DANGER:** | **Wear personal protection equipment (mask and gloves) when removing the used air filter.** |

> **INFORMATION:** **The air filter is an important element for the boiler. It enables the dirt build-up on the boiler and exchangers to be limited. Changing the filter regularly (at least every year) will considerably reduce the amount of cleaning needed for the burner and the exchangers.**
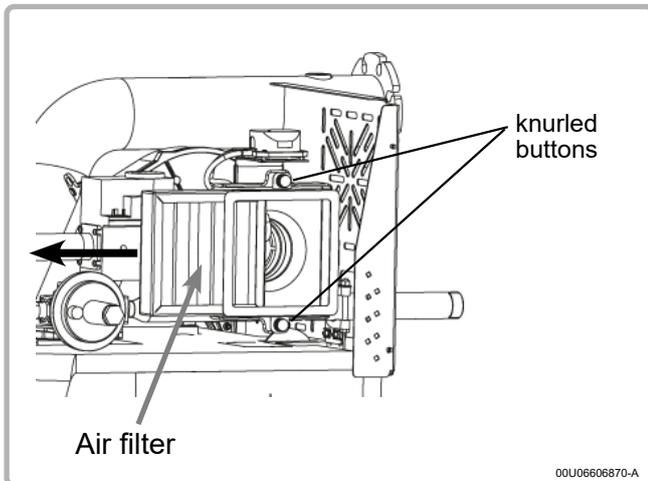
figure 20 - Air filter

- Unscrew the 2 knurled buttons (see opposite) so that the air filter can slide. **Do not unscrew them completely.**

- Replace the filter by sliding it to the side.

- **Make sure that you do not let any dust or other foreign bodies into the air intake.**

- Once the new filter is inserted, tighten the 2 knurled buttons again.

7.4. Checking the ignition and ionisation electrodes
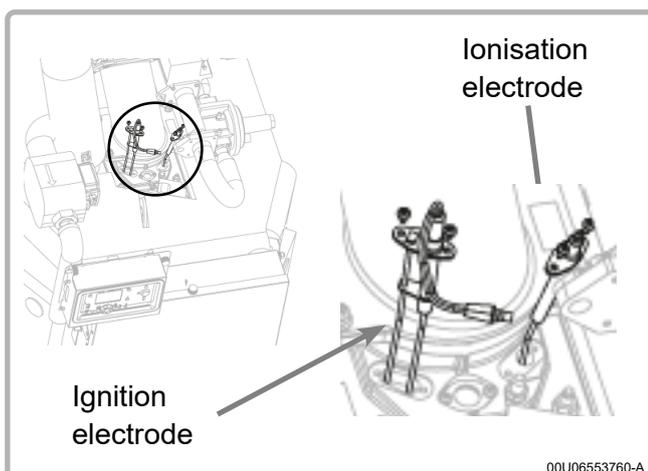
figure 21 - Electrode location

Removing the electrodes

Unscrew the 2 M4 Torx screws holding the electrode to be removed.

figure 22 - Spacing

If necessary and if there is major oxidation, clean the electrodes by rubbing them with an emery cloth.

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

Check the ignition electrode fold geometry.
If there is over ±3 mm deformation, the electrode must be replaced.

figure 23 - Geometry

Put back the electrode block(s). Block attachment screw tightening torque = 2.5 N.m
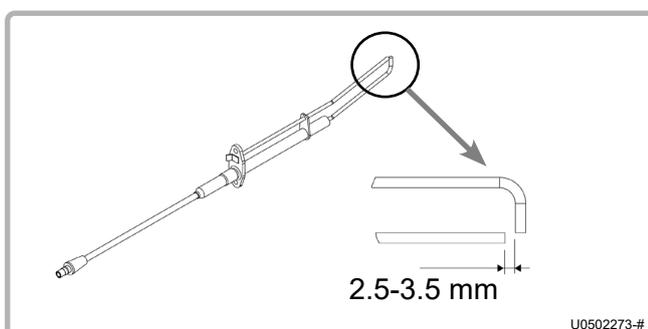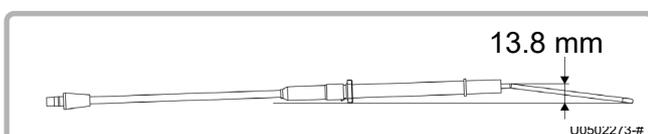
7.5. Cleaning the condensate siphon
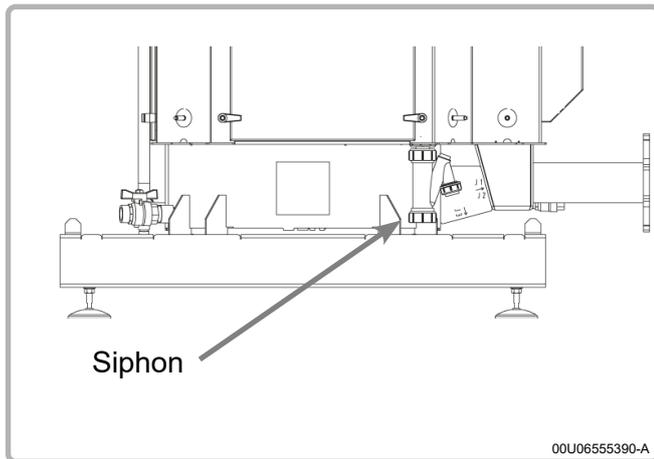
figure 24 - Siphon

Check the siphon and clean it if necessary. The siphon is located between the main exchanger and the condenser on the right hand side (it may be accessed by removing the side panel).
To do so:
• Free the siphon by pulling it downwards.
• Clean it with water.
• Put the siphon back after checking that the floater (ball) is present and can move freely. Also check that the seal has not been damaged.

7.6. Checking the combustion circuit seal
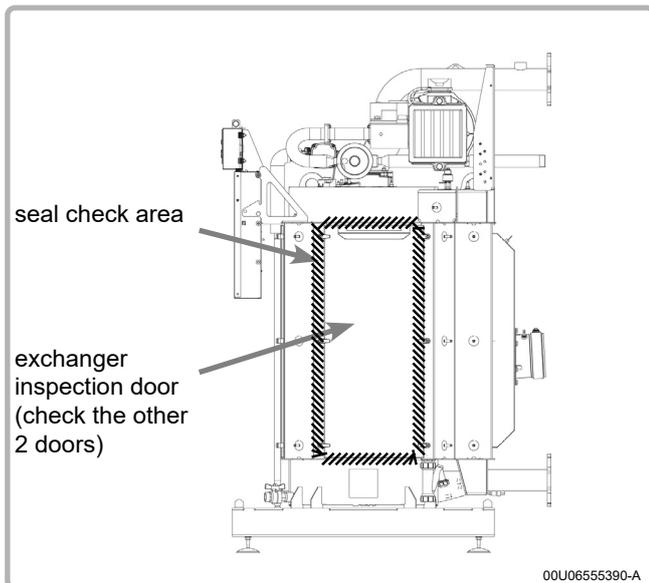
figure 25 - Inspection door seal

Check the seal on the 3 inspection doors using the foaming product. The areas to be checked are shown in the figure opposite.
The inspection will be carried out cold (boiler stopped) but with the fan at max speed (obtained by disconnecting the PWM signal connector).

If you detect any leaks, you must replace the seal with the adapted kit.

We recommend replacing the seals each time you remove the exchanger inspection doors. If you do not replace them, do not switch the doors oven when putting them back.

7.7. Checking the combustion quality

Fume sampling plug opening

00U06553620-A
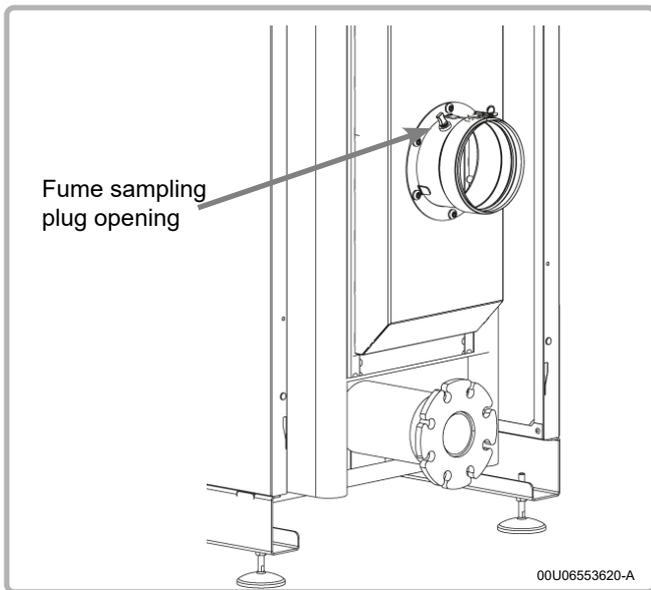
figure 26 - Sampling plug

This check is carried out with a calibrated combustion kit. To do so, insert the measurement rod into the fume nozzle (see figure opposite).

The boiler must not have an initial temperature over 70°C.

Do not forget to put the cap back on the sampling plug opening after the measurement.

The CO_2 content measured under these conditions must be <u>between 8.3% and 8.7% at Qmini (0% display) and between 8.8% and 9.2% at Qmaxi (100% display).</u>
If this is not the case, you must readjust the gas valve (see next §).
Following this check, you must either take a "gas start" flow rate measurement or a valve ΔP measurement. These measurements are used to check the dirt build-up on the combustion circuit (burner, body, exchanger(s)).

<u>**We recommend that you take the measurement with a new air filter.**</u>

The "gas start" must be made for a period over 3 minutes to obtain a satisfactory level of accuracy.
If the gas flow rate is 20% lower in relation to the value indicated in the table in § 3.4, page 14, you must clean the main exchanger and the burner (see § 7.10 and 7.11).

7.8. Adjusting the gas valve

This VARPRIM boiler has been adjusted in the factory to work with group H (type G20) natural gas with a supply pressure of 20 mbar or 300 mbar (France only).

⚠	CAUTION:	**Any operations involving adjusting the gas valve must be performed by a qualified professional.**

The valve must be adjusted on the boiler operating at the maximum power and the minimum power. To change gas type, use the operation mode "Manual power adjustment" (see point 3.3.4 in the instructions for the NAVISTEM B3000 boiler controller) which enables the user to switch straight to the minimum or maximum setpoint value (i.e. to zero or full power).
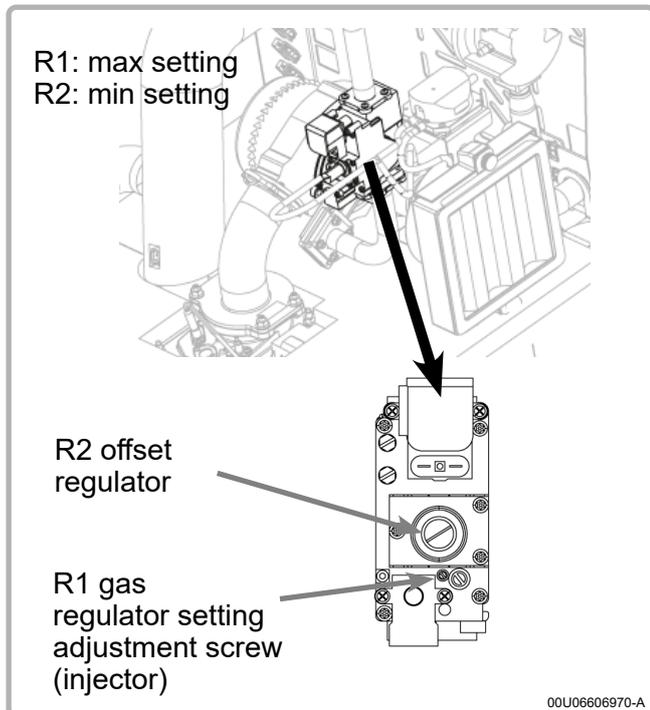
figure 27 - 120 and 140 model gas valve
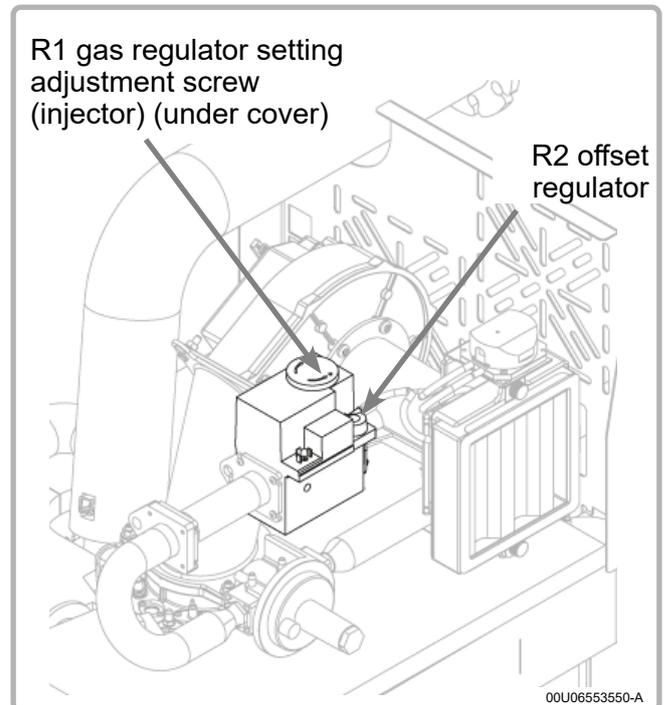
figure 28 - 180 to 320 model gas valve

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

- Start the burner at maximum power.

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

- Check the CO_2 value at maximum power Qmax and, if necessary, adjust the gas flow screw R1 of the valve in order to obtain the CO_2 values in the table below.

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

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

- Return to the standard operating mode.

After changing the type of gas:
  - Check the sealing of the gas line.
  - Stick the G25 label provided in place of the original label (G20).

Model	Gas	Pre-adjustment of the gas flow adjusting screw R1 and R2 / G20 setpoint adjusting screw	CO_2 Pmax	CO_2 indicative Pmin
120	G20	Screw in R1 fully Unscrew R1 by 3 turns and adjust R2		
	G25	*(G20 valve adjusted)* Unscrew R1 by 1.5 turns		
140	G20	Screw in R1 fully Unscrew R1 by 3 turns and adjust R2		
	G25	*(G20 valve adjusted)* Unscrew R1 by 1.5 turns		
180	G20	Screw in R1 fully Unscrew R1 by 3 turns and adjust R2		
	G25	*(G20 valve adjusted)* Unscrew R1 by 1/4 turn		
225	G20	Screw in R1 fully Unscrew R1 by 3 turns and adjust R2	8.8 - 9.2	8.3 - 8.7
	G25	*(G20 valve adjusted)* Unscrew R1 by 1/4 turn		
275	G20	Screw in R1 fully Unscrew R1 by 2 turns and adjust R2		
	G25	*(G20 valve adjusted)* Unscrew R1 by 2 turns and adjust R2		
320	G20	Screw in R1 fully Unscrew R1 by 2 turns and adjust R2		
	G25	*(G20 valve adjusted)* Unscrew R1 by 2 turns and adjust R2		

7.9.   Cleaning the gas filter (300 mbar)
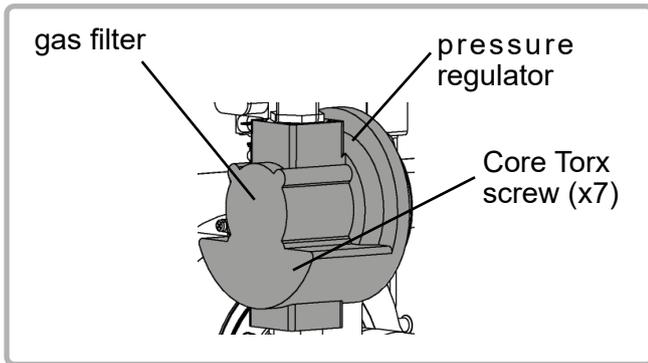
figure 29 - Gas filter

- Remove the 7 M5x10 core Torx head screws on the front of the regulator (see opposite).
- Remove the filter from the half-moon compartment.
- Clean the gas filter and its compartment using a blower **ONLY**.
- Enclose the cleaned filter in its housing.
- Close the cap with the 7 screws.

⚠	CAUTION:	**The gas line must be removed to access the filter compartment on the VARPRIM 180 and 225.** **Check the seals after reassembly.**
⚠	CAUTION:	**On the 300 mbar versions, the pressure regulators which have 4 screws cannot be removed.**

7.10. Cleaning the burner and changing the seals

00U06606870-A

00U06555460-A
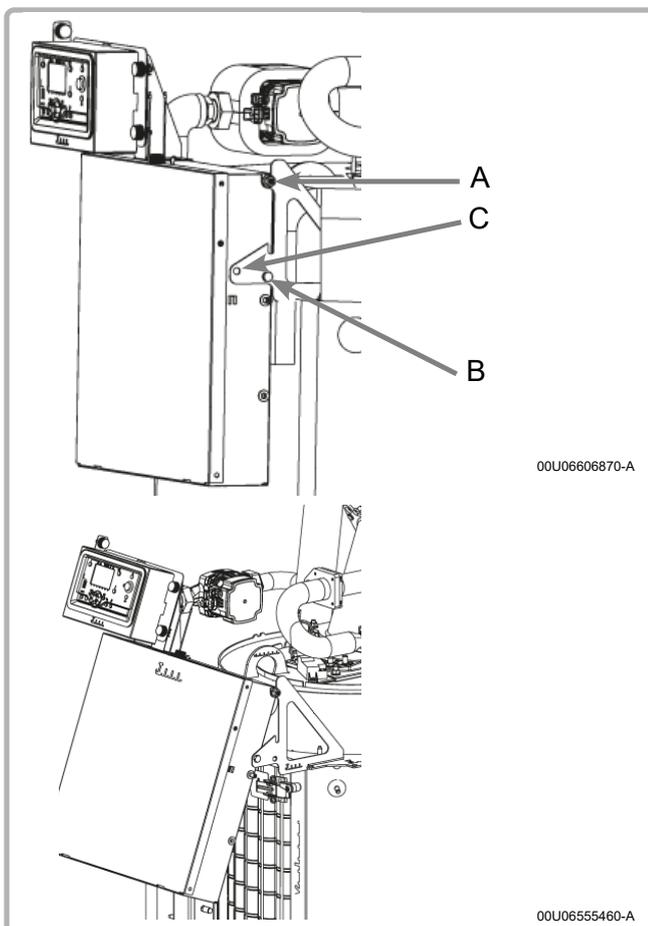
figure 30 - Tilting the electric box

Removing the exchanger doors:

- Loosen the 2 screws A without removing them fully (to enable the unit to tilt over).
- Loosen the 2 B screws.
- Tilt the unit and put the B screws in the C slots.
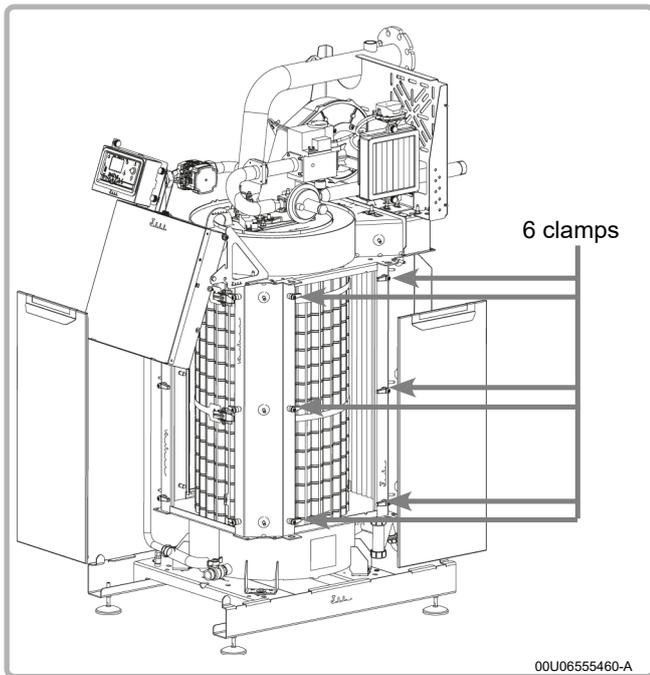
figure 31 - Removing the exchanger doors

6 clamps

00U06555460-A

- Release the front and side insulating cushions to access the 3 inspection doors.

- Using a 13 mm wrench, loosen the inspection door holding screws until the tightening clamps rotate.

- Then close the door.

- Proceed in the same way for the other 2 inspection doors.
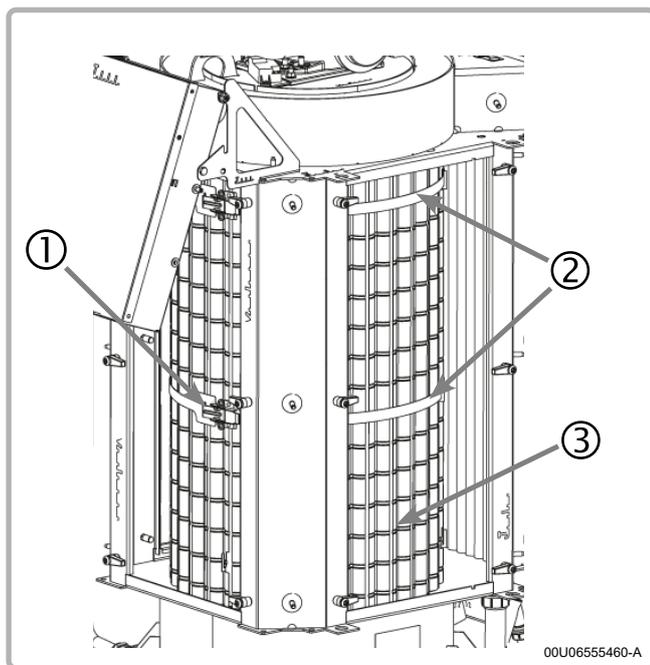
figure 32 - Removing the baffles

00U06555460-A

Removing the baffles:

- Open the hooks (item 1) which close the fume baffle straps (item 2).

- Remove these 2 straps (mark them to be able to put them back in the same position, then remove the fume baffles (item 3). Mark these too so that you can refit them in the same position.

Cleaning the baffles and exchangers:

- Brush the fume baffles with a stainless steel or plastic brush **taking care not to deform them geometrically**.

- Brush clean, or for a very dirty exchanger, wash with water and dry. Pay attention to the electrical mechanisms when washing with water.

Changing the door seals

- Remove the seals from their groove and replace them with the new seals contained in the maintenance kit (see figure 31).
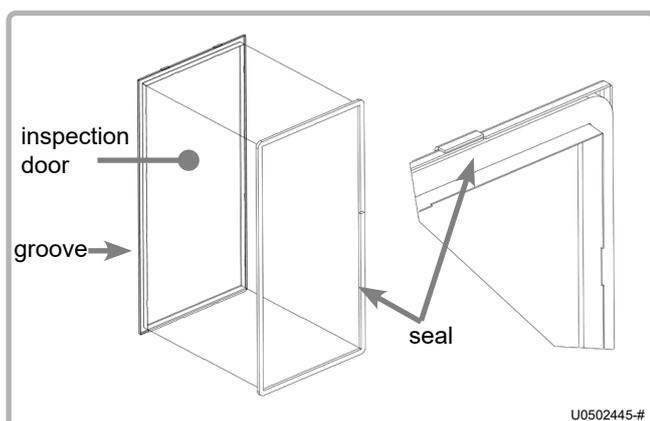
figure 33 - Changing the door seals

inspection door

groove

seal

U0502445-#
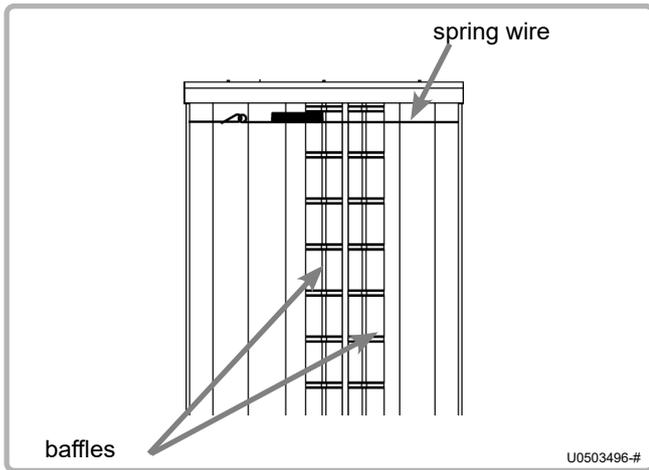
figure 34 - Reassembly

Reassembly:

- Insert the baffles under the "spring wire" between each upper part of the exchanger tubes.
  Make sure that you put the strap holder baffles back evenly over the heating body circumference.

- Position the straps in the strap holder baffle lugs.

- Tighten the hooks and **check that each of the baffles is pushed correctly against the exchanger tubes at their lower and upper ends**.

Note:
It is normal that the baffles are not fitted tightly in the area between the 2 strappings.

Checking the seal:

- After putting the 3 inspection doors back (screw tightening torque = 15 N.m), use foaming product to check the seal around the inspection doors before starting the boiler up again (see chapter 7.6).

7.11. Cleaning the burner and changing the seals
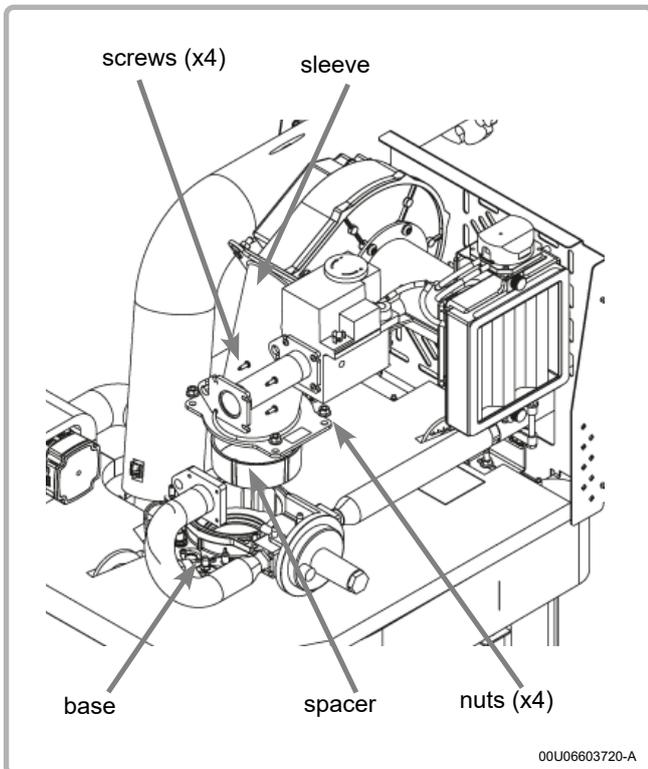
figure 35 - Removing the burner tube

Remove the front, side and upper panels to make it easier to access the burner tube.

Removing the burner tube:

- Remove the 4 screws at the output from the elbow, on the gas valve side.
- Remove the 4 nuts connecting the sleeve to the base and move the assembly (fan, valve) to clear the tube output (pay attention to the cables and the wires at the rear).
- Remove the spacer located above the tube.
- Clear the ramp upwards.

⚠	CAUTION:	When extracting the burner tube, avoid rubbing its "metal covering" against the sleeve.

Cleaning the burner tube:

- Use a vacuum cleaner to clean the whole "metal covering" surface.
- Check the condition of the gas manifold coating.

00U06603730-
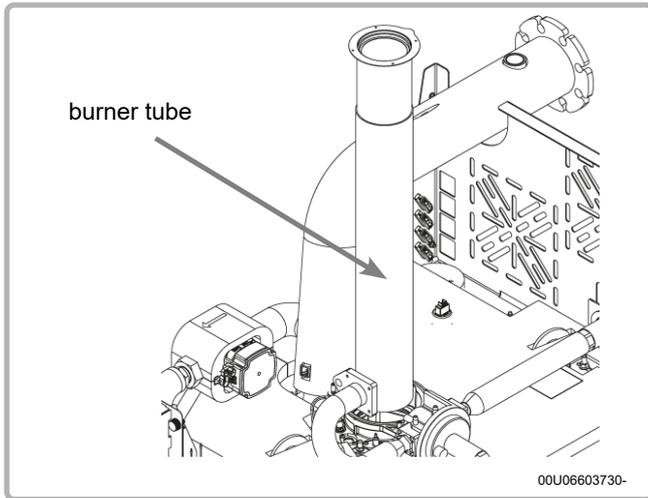
figure 36 - cleaning the burner tube

⚠	CAUTION:	Respect a distance of 10 mm between the vacuum nozzle and the "metal covering". Rubbing on the burner tubes may damage them. **NEVER USE A METAL BRUSH**

Reassembly:

- Proceed as for removal but in the reverse order.

⚠	CAUTION:	Replace the seals removed each time.

⚠	CAUTION:	Check the different seals after assembly. If using a foaming product, may attention to the ionising electrode's electrical connection.

8. PRODUCT END OF LIFE

The regular elimination and appropriate recycling of this product will help prevent environmental damage and health risks.

8.1. In France

ATLANTIC has signed up to the Eco-systèmes service which collects, recycles and cleans our used electrical equipment, according to the highest environmental requirements.

Eco-systèmes is an eco-organisation which is approved by the public authorities for the WEEE (Waste Electrical and Electronic Equipment) sector.

The appliances which have the symbol above must not be put with domestic waste and must be collected separately. Contact Eco-systemes (**www.eco-systemes.fr**).

8.2. Other countries

1. Call on public or private waste elimination companies when discarding the product and its parts.

2. For more information about the appropriate elimination of the product, contact the local authority, the waste collection and treatment service or the point of sale where the product was purchased.

9. HYDRAULIC DIAGRAMS AND CONFIGURATIONS

9.1. Symbols used in the diagrams

Symbol	Function		Symbol	Function
	Isolation valve open			Balancing valve
	Motor-controlled 2-way valve			Motorised 3-channel valve
	Filtered			Anti-return flap
GS	Safety unit			Pump
	Sediment trap			Bleed valve
	Outdoor sensor			Temperature sensor

9.2. List of diagrams

⚠	CAUTION:	**Operation at constant temperature with variable flow rate and instant DHW production directly on plate exchanger without buffer tank prohibited.**

<table>
<tr><td><h1>BOILER ONLY</h1>
1 direct heating network or 2 heating networks managed
by a non-communicating regulation</td><td>Diagrams
VP100
VP101
page 1 / 3</td></tr>
</table>

A. MAIN AND VARIANT HYDRAULIC DIAGRAMS
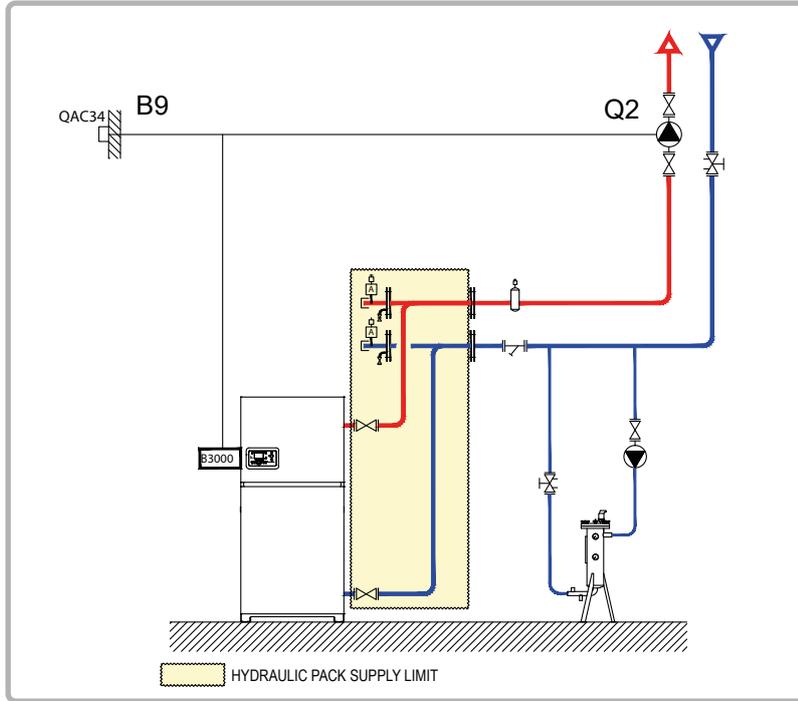
figure 37 - VP100 diagram
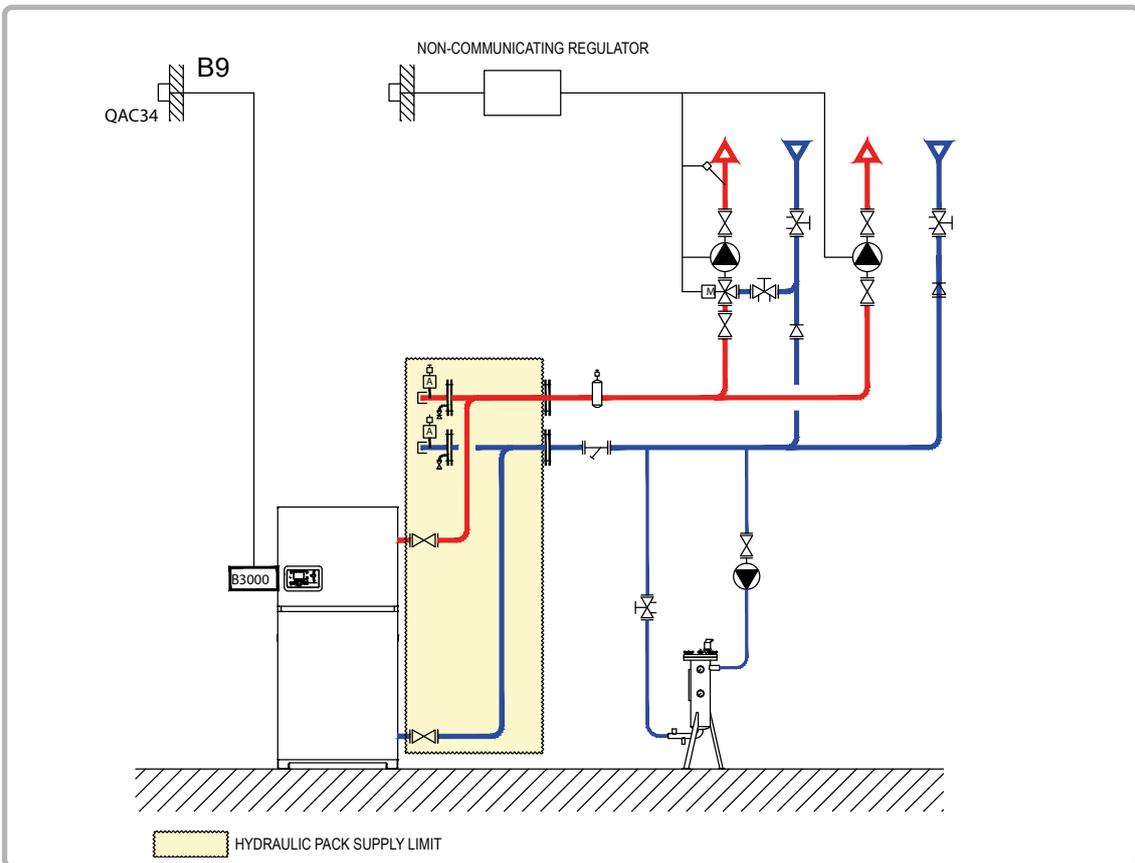
figure 38 - VP101 diagram (variant)

Diagrams: VP100 / VP101	page 2 / 3

B. REGULATION ACCESSORY REQUIRED

	Quantity	Appliance reference	Order No.
Output sensor kit	1	QAC 34	059260

C. OPERATING DESCRIPTION

VP 100 diagram:

The heating water law is programmed on the Navistem B3000, without a low return temperature limit and with a weekly programme. The boiler delivers the outlet temperature needed for the heating, which is variable according to the programmed water law, according to the outdoor temperature measured by the QAC 34 sensor.

There is no need to place a three channel valve on the circuit outlet. If the radiators are equipped with thermostat valves, provide a discharge valve or use a variable flow rate pump.

VP 101 diagram:

The existing installation has non-communicating regulation with the generator. The boiler operates in variable outlet temperature according to the outdoor temperature measured by the QAC 34 sensor. The water law is programmed on the Navistem B3000, set on the most demanding circuit, without parallel offset and without a low return temperature limit with a weekly programme. In renovation, you must check the suitability of the heating pumps and the authority of the three channel valves, taking account of the new boiler's load losses.

The operating limits are described in § 3.3, page 14

C. CUSTOMER'S ELECTRICAL CONNECTION

→If an external management system (e.g. PLC) or a 0-10V constant command pump (heating circuit) is connected, refer to § 9.4 for the specific configuration).

Diagrams: VP100 / VP101	page 3 / 3

D. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.

☞ Start up the boiler only.

☞ Make the following settings:

	Line No.	*Value*
• *Time and date* menu		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
• *Configuration* menu		
Start up heating circuit 1	Heating circuit 1 (5710)	Start
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure the Q2 pump *(VP100 diagram)*	Relay output QX3 (5892)	Heating circuit 1 Q2 pump
Activate the installation frost protection	Installation frost protection (6120)	Start
• *Heating circuit 1* menu		
Adjust the comfort setting	Comfort setting (710)	- - -°C
Adjust the Reduced setting	Reduced setting (712)	- - -°C
Adjust the curve slope	Curve slope (720)	- - -
Set the change to summer mode	Summer/winter heating limit (730)	- - -°C
Set the daily economy mode	Daily heating limit (732)	- - - °C
• *Heating circuit 1 timer programme* menu		
Preselection	Preselection (500)	- - -
Adjust the timer programming	Switch-on/off times (501...506)	- - -

• Switch the heating regime to automatic **Auto**

Refer to § 9.3, page 94 for the regulator input / output tests.

	Diagram
BOILER ONLY	***VP112***
3 heating networks regulated by three channel valve, Semi-instant DHW production	page 1 / 5

A. HYDRAULIC DIAGRAM
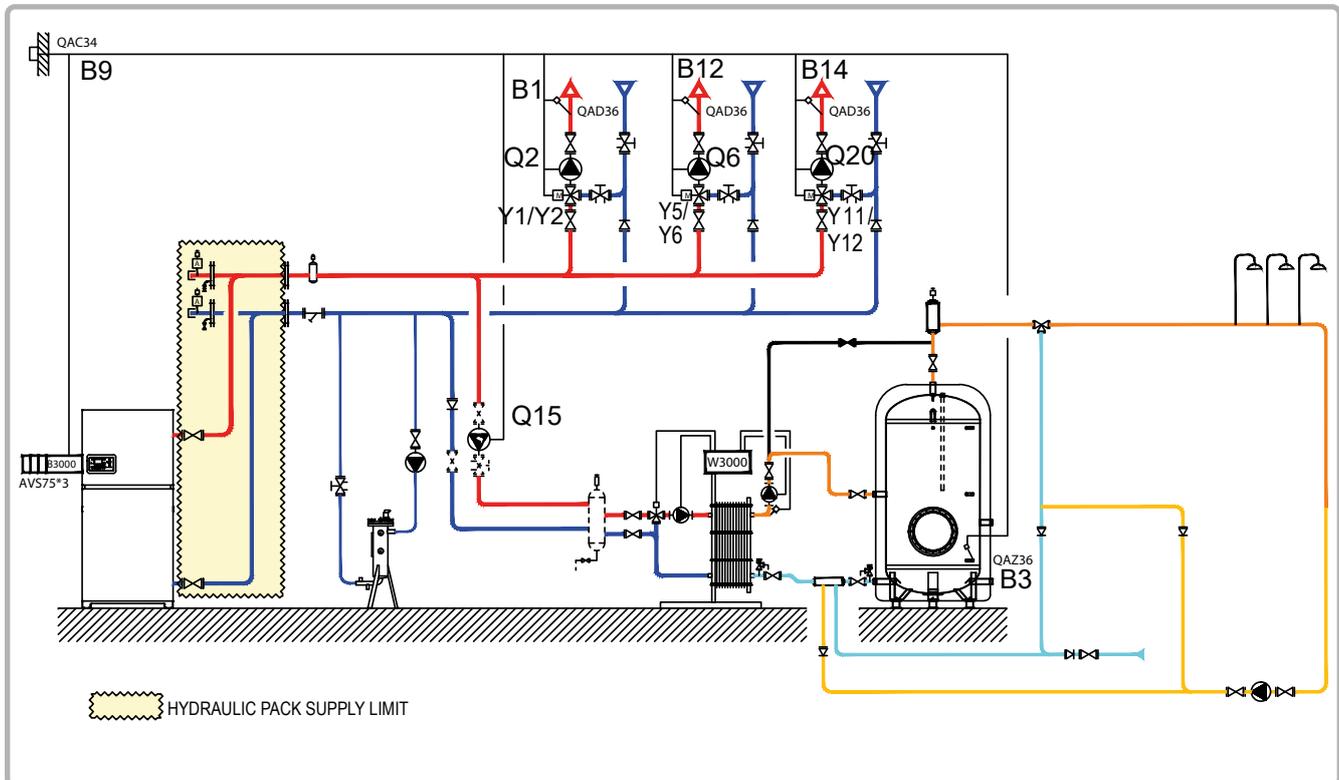
figure 39 - VP112 diagram

B. REGULATION ACCESSORIES REQUIRED

	Quantity	Appliance reference	Order No.
Extension module kit (delivered with a network sensor QAD 36)	3	AVS 75	059751
Outdoor sensor kit	1	QAC 34	059260
DHW sensor kit	1	QAZ 36	059261

C. OPERATING DESCRIPTION

The boiler operates with a variable outlet temperature according to the outdoor temperature measured by the QAC 34 sensor, set on the most temperature-demanding circuit, without parallel offset, without a low temperature limit and with a low limit to meet the minimum domestic hot water production requirements. The heating programme is per week. Each AVS 75 module manages a heating circuit regulated by three channel valve. The NAVISTEM B3000 manages the domestic hot water priority from the **QAZ 36** sensor placed in the storage tank.

The hydraulic decoupling bottle at the domestic hot water production input is necessary when the hydraulic load loss is greater than the manometric height available for the plate exchanger primary pumps. The charging pump upstream of the plate exchanger must be dimensioned for a flow rate equal to P/20, where P is the DHW power in th/h supplied at the instant t with P min equal to the

Diagram: VP112	page 2 / 5

minimum power supplied by the boiler.

In renovation, you must check the suitability of the heating pumps and the authority of the three channel valves, taking account of the new boiler's load losses. The operating limits are described in § 3.3, page 14

The DHW programming **on the NAVISTEM B 3000** is intended so that:
- The low limit is enough to combat looping losses and "weak" draws, it is slightly above the exchanger's **DHW** setpoint.
- During heavy filling, the DHW function with **the QAZ 36 sensor** generates an adapted raising of the setpoint.

In the example on the following page, the plate exchanger is under constant load at **a DHW setpoint of 58°C[0] and** with a primary at 63°C[1].
If the tank temperature reaches 50°C[2], the boiler launches a **primary** DHW cycle at 70°C[3]. The DHW load / setpoint at 70°C[3] will stop when the tank reaches 55°C[4].
The boiler will restart at a **primary** setpoint of 63°C[1] or higher depending on the heating requirements.

 0 = Plate exchanger setpoint
 1 = P1859 low limit setpoint
 2 = P1610 DHW setpoint – differential of 5°C
 3 = P1610 DHW setpoint + P5020 raise
 4 = P1610 DHW setpoint

D . CUSTOMER'S ELECTRICAL CONNECTION

→If an external management system (e.g. PLC) or a constant 010V command pump, heating and/or DHW circuit) is connected, refer to § 9.4 for the specific configuration).

Diagram: VP112	page 3 / 5

Heating circuit No. 1 mixer valve Y1/Y2
- QX21
- N
- ⊕
- QX22

AVS75

Heating circuit No. 1 circulator Q2
- N
- ⊕
- QX23

Module 1

Regulated circuit output sensor 1 B1
- BX21
- Gnd
- BX22
- Gnd
- H2
- Gnd

Heating circuit No. 2 mixer valve Y5/Y6
- QX21
- N
- ⊕
- QX22

AVS75

Heating circuit No. 2 circulator Q6
- N
- ⊕
- QX23

Module 2

Regulated circuit output sensor 2 B12
- BX21
- Gnd
- BX22
- Gnd
- H2
- Gnd

Heating circuit No. 3 mixer valve Y11/Y12
- QX21
- N
- ⊕
- QX22

AVS75

Heating circuit No. 3 circulator Q20
- N
- ⊕
- QX23

Module 3

Regulated circuit output sensor 3 B14
- BX21
- Gnd
- BX22
- Gnd
- H2
- Gnd

D. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.

> ⚠ **CAUTION:** **Configure the switches on the AVS75 extension modules.**

☞ Start up the boiler only.

☞ Make the following settings:

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

| **Diagram: VP112** | page 4 / 5 |

	Line No.	**Value**
• **Configuration** menu		
Start up heating circuit 1	Heating circuit 1 (5710)	Start
Start up heating circuit 2	Heating circuit 2 (5715)	Start
Start up heating circuit 3	Heating circuit 3 (5721)	Start
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure the exchanger's primary pump	Relay output QX2 (5891)	Cons. circuit 1 Q15 pump
Configure the unused output	Relay output QX4 (5893)	DHW pump Q3
Configure the exchanger's primary demand	H1 input function (5950)	Cons. circuit 1 request
Activate the low limit	Contact H1 action direction (5951)	Operation contact
Configure the extension modules	Extension module function 1 (6020)	Heating circuit 1
	Extension module function 2 (6021)	Heating circuit 2
	Extension module function 3 (6022)	Heating circuit 3
Activate the installation frost protection	Installation frost protection (6120)	Start
• *Heating circuit 1 / 2 / 3* menu		
Adjust the comfort setting	Comfort setting (710/1010/1310)	- - -°C
Adjust the Reduced setting	Reduced setting (712/1012/1312)	- - -°C
Adjust the curve slope	Curve slope (7201020/1320)	- - -
Set the change to summer mode	Summer/winter heating limit (730/1030/1330)	- - -°C
Set the daily economy mode	Daily heating limit (732/1032/1332)	- - - °C
• *Heating circuit 1 / 2 / 3 timer programme*		
Preselection	Preselection (500/520/540)	- - -
Adjust the timer programming	On/off times (501...506/521...526/541/...546)	- - -
• *Consumer circuit 1*		
Cons. request outlet temperature setpoint	Cons request output setting (1859)	Exchanger setpoint +5°C (this value depends on the installation)

Diagram: VP112	page 5 / 5

• *Domestic hot water* menu

Setpoint temperature in the DHW tank	Comfort setting (1610)	Exchanger setpoint -3 °C (this value depends on the installation)
Set the DHW to permanent comfort	Release (1620)	24/24
Charging priority during a DHW charge	DHW charging priority (1630)	With or without sliding (priority DHW)

• *Domestic hot water* tank menu

Boiler raise temperature during a DHW charge	Outlet setpoint T° raise (5020)	15°C (this value depends on the installation)

• Switch the heating regime to automatic   **Auto**

• Activate the DHW mode

Refer to § 9.3, page 94 for the regulator input / output tests.

BOILER ONLY *1 heating network regulated by three channel valve, a Rubis W3000 with savings and performance kit*	Diagrams ***VP 112 bis*** ***VP 121 bis*** page 1 / 7

A. MAIN AND VARIANT HYDRAULIC DIAGRAMS
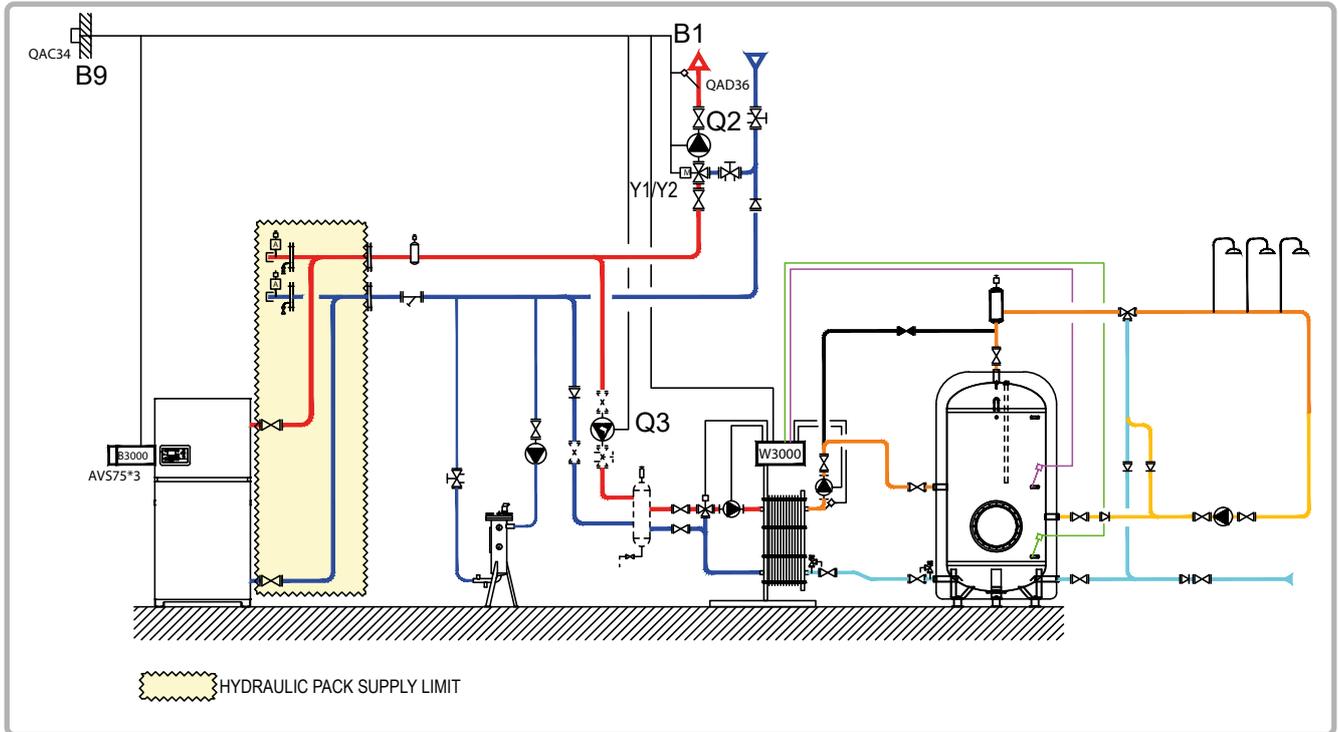
figure 40 - VP 112 bis diagram
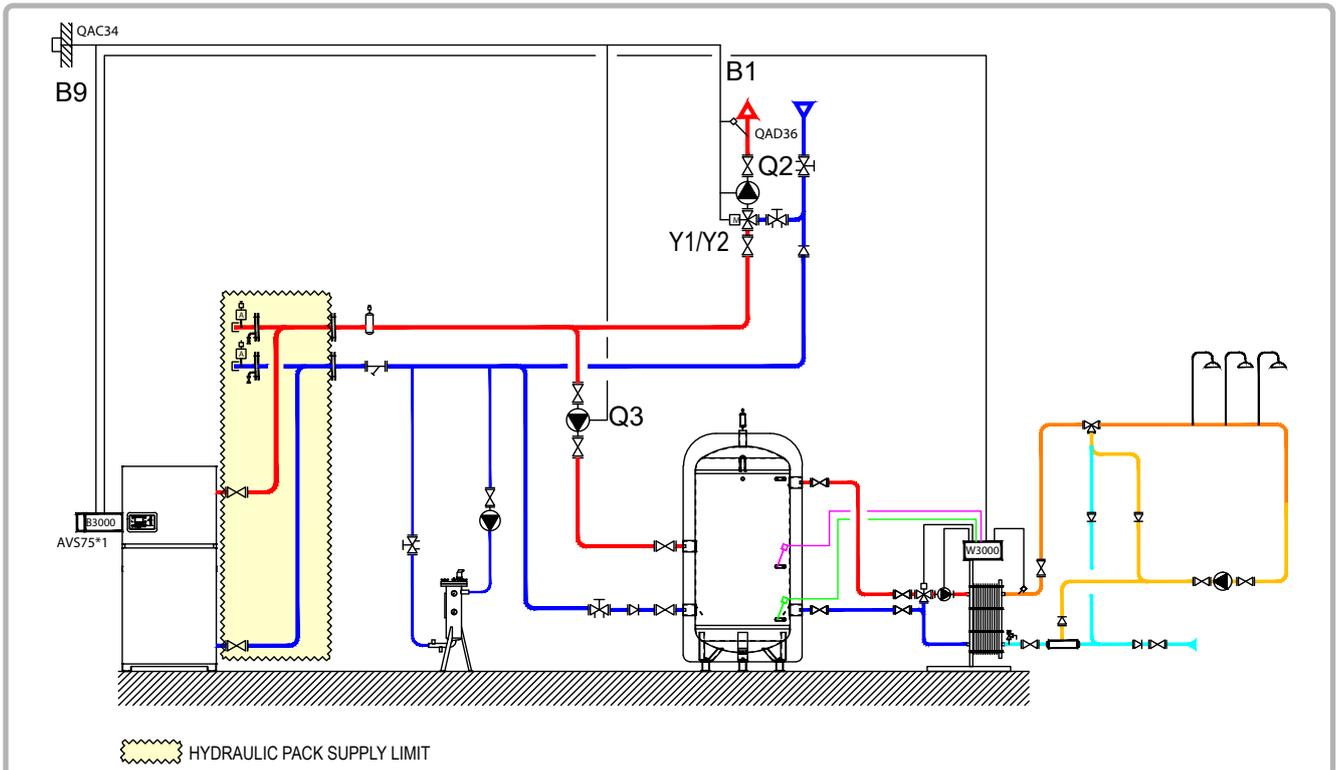
figure 41 - VP 121 bis diagram

Diagrams: VP 112 bis / VP 121 bis	page 2 / 7

B. REGULATION ACCESSORIES REQUIRED

	Quantity	Appliance reference	Order No.
Extension module kit (delivered with a network sensor QAD 36)	1	AVS 75	059751
2 thermowell sensor kit for Rubis	1	Savings and performance kit	069484
Outdoor sensor kit	1	QAC 34	059260

C. OPERATING DESCRIPTION

The boiler operates with a variable outlet temperature according to the outdoor temperature measured by the QAC 34 sensor, set on the most temperature-demanding circuit, without parallel offset and without a low return temperature limit. The heating programme is per week. The AVS 75 module manages the circuit regulated by three channel valve.

The NAVISTEM W3000 manages the domestic hot water production by raising the boiler outlet temperature when temperature requests are detected by the savings and performance kit or during peak drawing hours entered into the Rubis NAVISTEM W3000.

In renovation, you must check the suitability of the heating pumps and the authority of the three channel valves, taking account of the new boiler's load losses.

The operating limits are described in § 3.3, page 14

VP 121 bis diagram: The DHW primary charging pump must be dimensioned for a flow rate equal to P/20, where P is the DHW power called in th/h, with P min equal to the minimum power supplied by the boiler.

VP 112 bis diagram: The hydraulic decoupling bottle at the domestic hot water production input is necessary when the hydraulic load loss is greater than the manometric height available for the Rubis primary pumps. The operating limits are described in the RUBIS NAVISTEM W3000 manual.

D. CUSTOMER'S ELECTRICAL CONNECTION

ON THE VARPRIM

→If an external management system (e.g. PLC) or a constant 010V command pump, heating and/or DHW circuit) is connected, refer to § 9.4 for the specific configuration).

Diagrams: VP 112 bis / VP 121 bis	page 4 / 7

ON THE RUBIS W3000

Mains supply
230 VAC
50 Hz

S1 tank middle
sensor

S2 tank bottom
sensor

Jumpers S1 and S2
to be moved down
for Pt100 sensor

R2 to be connected to
the B3 connector
of the NAVISTEM
B3000

E. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.

⚠ **CAUTION:** **Configure the switches correctly on the AVS75 extension modules before switching on.**

☞ Start up the boiler only.

☞ Start up the RUBIS on its own.

☞ Carry out the adjustments below.

Diagrams: VP 112 bis / VP 121 bis	page 5 / 7

On the VARPRIM boiler

	Line No.	*Value*
• *Time and date* menu		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
• *Configuration* menu		
Start up heating circuit 1	Heating circuit 1 (5710)	Start
Declare the type of DHW request	DHW sensor (5730)	Thermostat
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure the exchanger's primary pump	Relay output QX2 (5891)	DHW pump Q3
Configure the extension module 1	Extension module function 1 (6020)	Heating circuit 1
Activate the installation frost protection	Installation frost protection (6120)	Start
• *Heating circuit 1* menu		
Adjust the comfort setting	Comfort setting (710)	- - -°C
Adjust the reduced setting	Reduced setting (712)	---°C
Adjust the curve slope	Curve slope (720)	- - -
Set the change to summer mode	Summer/winter heating limit (730)	---°C
Set the daily economy mode	Daily heating limit (732)	---°C
• *Heating circuit 1 timer programme* menu		
Preselection	Preselection (500)	---
Adjust the timer programming	Switch-on/off times (500...506)	---
• *Domestic hot water* menu		
Setpoint temperature in the DHW tank	Comfort setting (1610)	W3000 outlet setpoint T° (C1)
VP 112 bis Semi accumulated diagram	Comfort setting (1610)	Example 62°C
VP 121 bis hygiatherm diagram	Comfort setting (1610)	Example 58°C
Set the DHW to permanent comfort	Release (1620)	24/24
Charging priority during a DHW charge	DHW charging priority (1630)	With or without sliding (priority DHW)

Diagrams: VP 112 bis / VP 121 bis	page 6 / 7

- ***Domestic hot water tank*** menu

  Boiler raise temperature during a DHW charge:

VP 112 bis Semi accumulated diagram	Outlet setpoint T° raise (5020)	10°C
VP 121 bis hygiatherm diagram	Outlet setpoint T° raise (5020)	16°C

- ***Boiler*** menu (VP121 bis Hygiatherm diagram only)

Delete the DHW power release delay	Regulator delay (O2450)	Heating mode only

- Switch the heating regime to automatic **Auto**

- Activate the DHW mode

On the RUBIS W3000

- ***Parameters*** menu
- ***Circulation pumps, sensors, valves*** menu
- ***Sensors and temperatures*** menu
  - ***Sensor assignment*** menu

	Sensor 1	Tank middle sensor
	Sensor 2	Tank bottom sensor

  - ***Sensor type*** menu

	Sensor 1	Pt100
	Sensor 2	Pt100

- ***External communication*** menu
  - ***Relays*** menu

	R2	DHW priority

- ***Installation monitoring*** menu
  - ***Temperatures*** menu
    - ***DHW temperatures*** menu

	High T° alarm	Setpoint C + 6°C

- ***Savings and comfort*** menu
  - ***Savings and performance*** menu
    - ***Hydraulic diagram*** menu

	1 primary tank charge circulator or 1 semi instantaneous charge circulator

Diagrams: VP 112 bis / VP 121 bis	page 7 / 7

- **Tank and sensor** menu

Number of storage tanks	---
Number of T° sensor tanks	2

- **Relay and sensor** menu

Activation	Relay No. 2
Tank middle T° sensor	Sensor 1
Tank bottom T° sensor	Sensor 2

- **VP112 bis Semi accumulated DIAGRAM temperatures** menu

DHW.C1 setpoint	Example: 62°C
Setpoint T° to start the tank charge (T° on)	Example: 52°C
Setpoint T° to stop the tank charge (T° off)	Example: 60°C

- **VP121 bis hygiatherm DIAGRAM temperatures**

DHW.C1 setpoint	Example: 58°C
Setpoint T° to start the tank charge (T° on)	Example: 62°C
Setpoint T° to stop the tank charge (T° off)	Example: 70°C

- **Programming** menu

Enter the peak draw-off times	---

- **Function active** menu

Activate eco energy	Yes

Refer to § 9.3, page 94 for the regulator input / output tests.

BOILER ONLY *Secondary networks managed by communicating regulation by bus (Modbus or LPB) or by sending a 0..10V signal*	Diagram ***VP113*** page 1 / 4

A. HYDRAULIC DIAGRAM
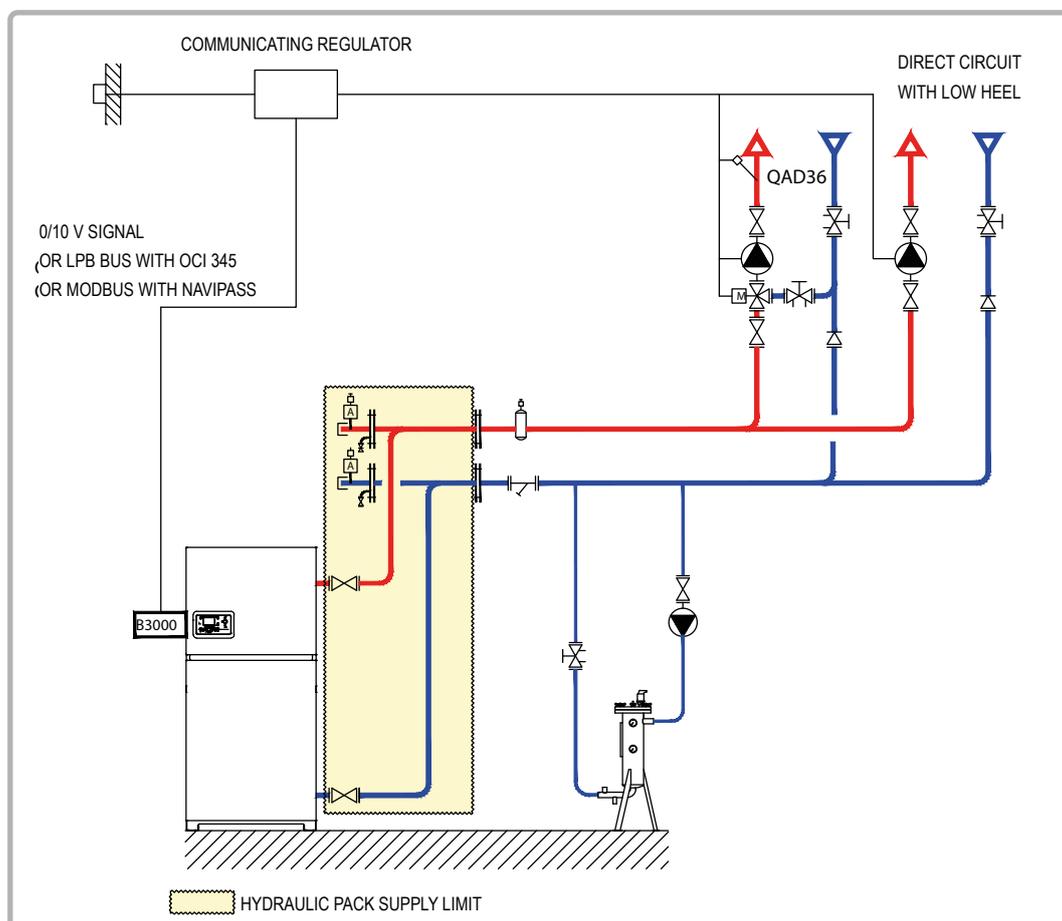
figure 42 - VP113 diagram

B. REGULATION ACCESSORY REQUIRED

MODBUS variant	Quantity	Appliance reference	Order No.
NAVIPASS MODBUS kit	1	NAVIPASS MODBUS	059833

LPB BUS variant	Quantity	Appliance reference	Order No.
OCI kit for LPB BUS	1	OCI 345	059752

0-10 V external signal variant: No accessories.

Diagram: VP113	page 2 / 4

C. OPERATING DESCRIPTION

The existing regulation system manages all of the installation's heating circuits. It sends the boiler the temperature setpoint to be provided via the Modbus bus with the Novibus modbus or LPB bus interface with the OCI345 interface (SIEMENS protocol) or a 0 - 10V signal.

The boiler operates in sliding temperature on the outlet for heating, its setpoint is set on the most demanding circuit's water law, without parallel offset, without low return temperature limit and with time programming.

In renovation, you must check the suitability of the heating pumps and the authority of the three channel valves, taking account of the new boiler's load losses.
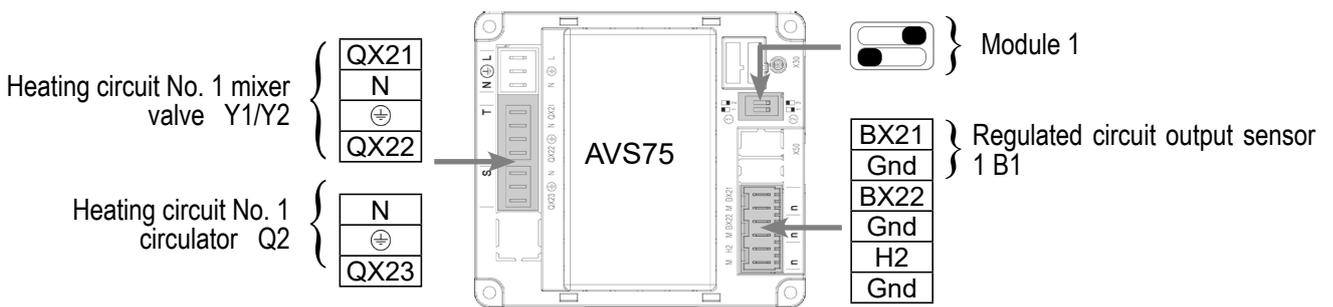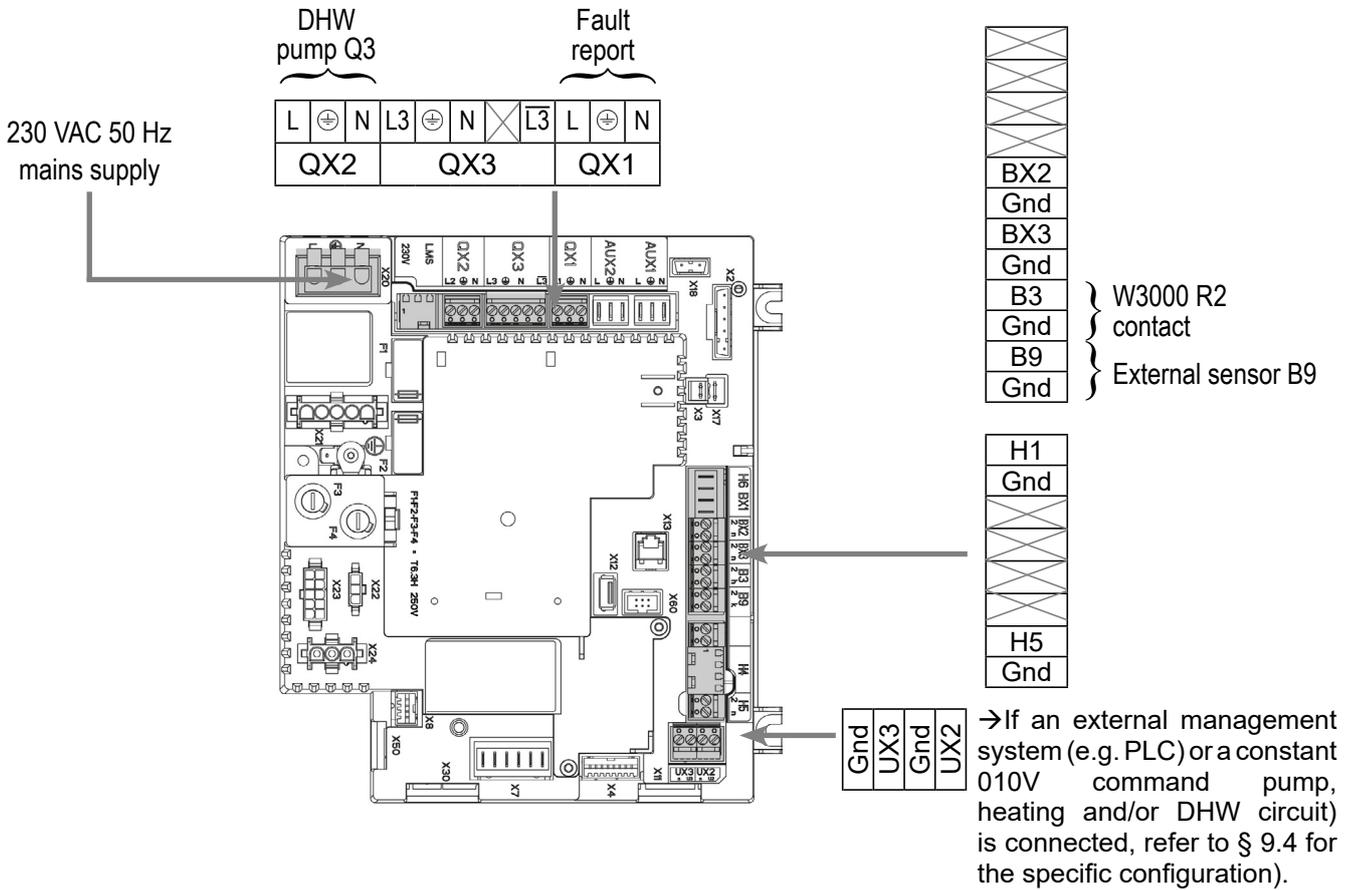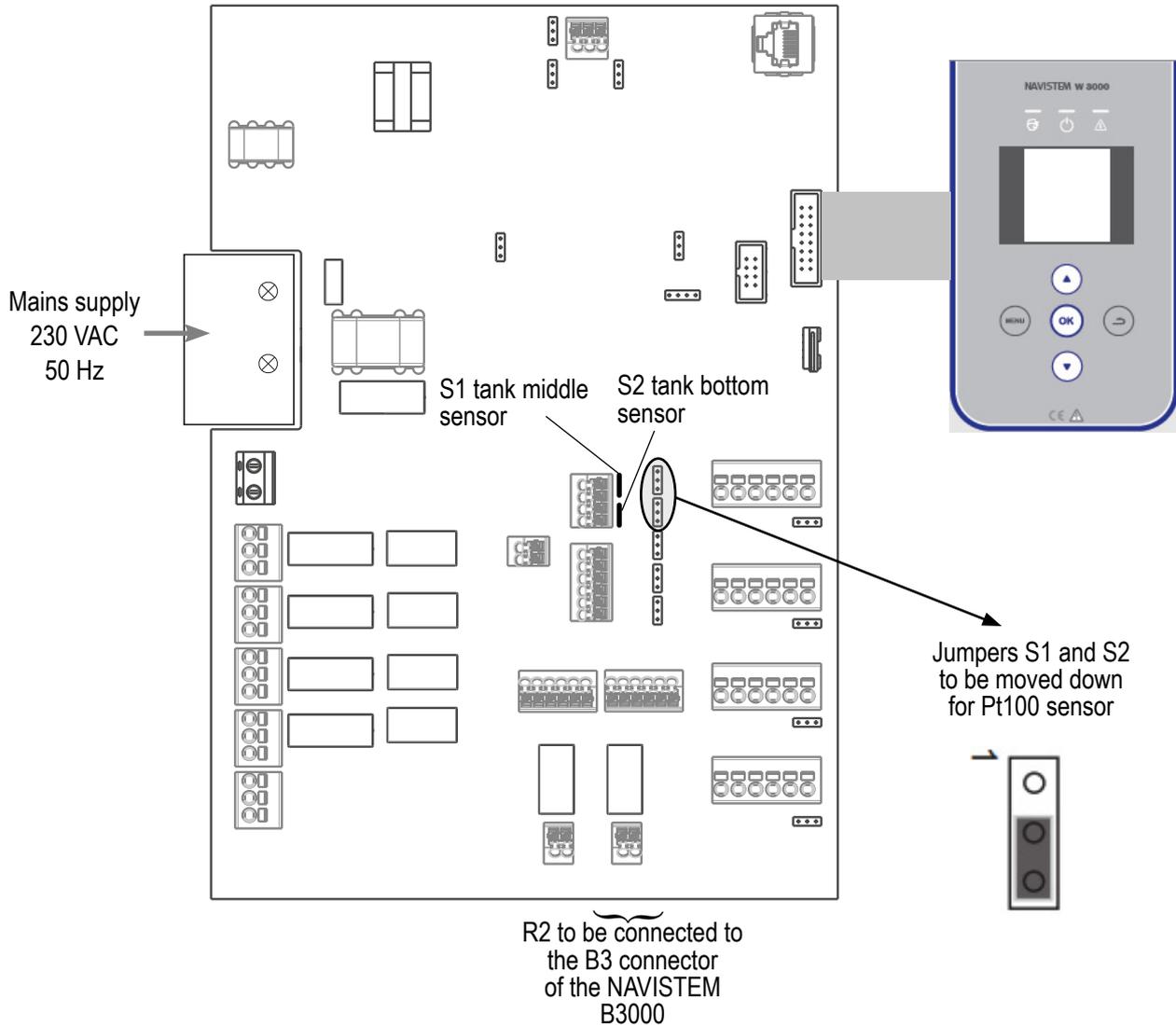
The operating limits are described in § 3.3, page 14

D. CUSTOMER'S ELECTRICAL CONNECTION

Diagram: VP113	page 3 / 4
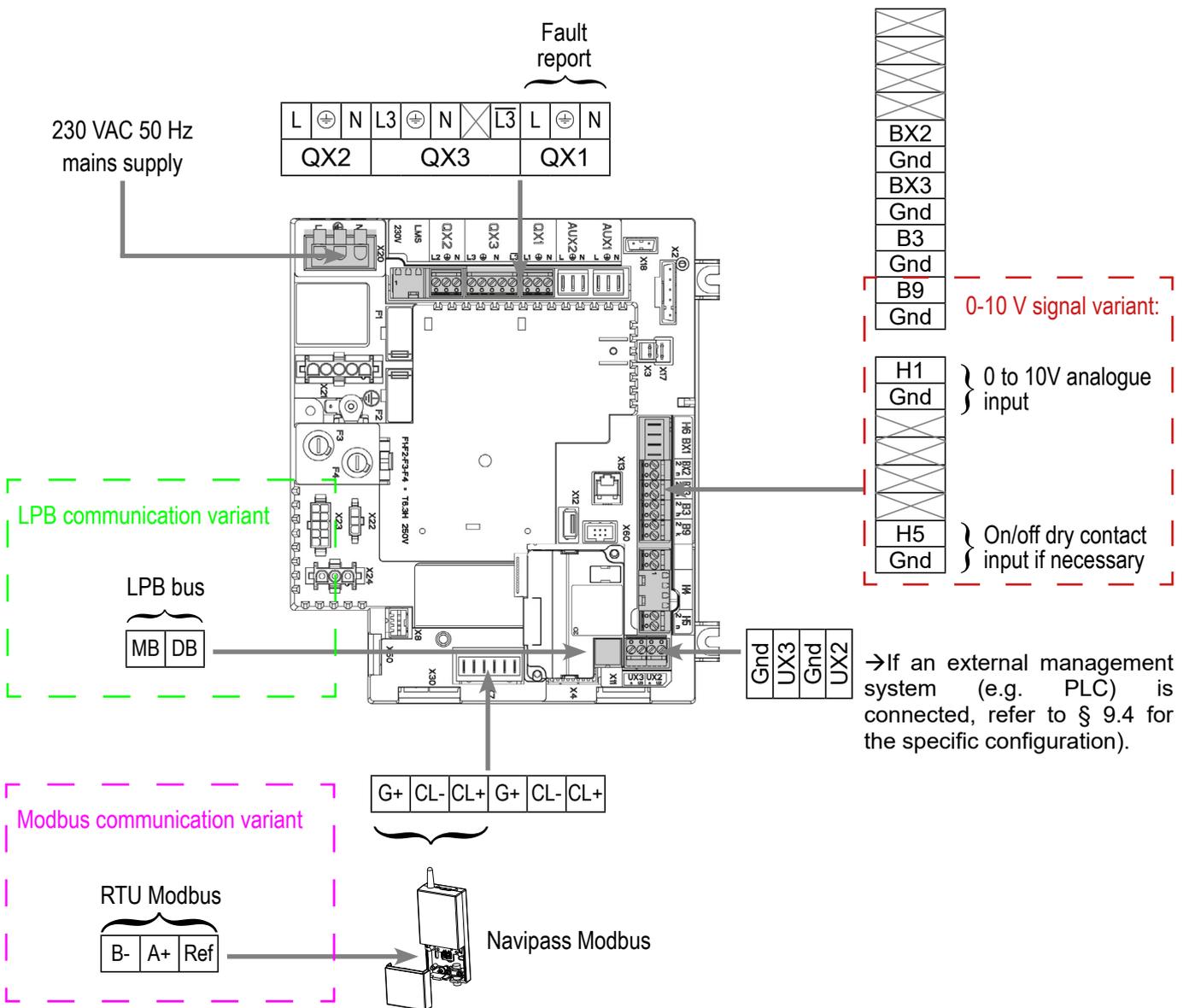
E. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.

☞ Start up the boiler only.

☞ Make the following settings:

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

For a request via 0...10V input

• *Configuration* menu		
Configure the H1 input	H1 input function (5950)	Cons. circ. 1 request 10V
To obtain a scale:	H1 voltage 1 value (5953)	0.0
0V = 0 °C	H1 function value (5954)	0
10V = 100 °C	H1 voltage 2 value (5955)	10.0
	H1 function 2 value (5956)	1000

Please note the boiler considers a heat demand for a voltage H1> 0.2 V and a resulting setpoint> 6 ° C *. The boiler no longer considers a heat demand for a voltage H1 <0.2V or a resulting setpoint <4 ° C *.

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

*: depending on the scale entered in parameter 5956

	Line No.	Value
Configure the H5 input (if necessary)		
To make an on / off command by dry contact	H5 input function (5977)	blocked generator waiting
Define the operating logic	Contact H5 action direction (5978)	---

For a request via Modbus bus

• *Configuration* menu		
Configure the H1 input	H1 input function (5950)	Cons. circ. 1 request
Activate the low limit	Contact H1 action direction (5951)	Normally-closed contact (NC)

If necessary, to make an on / off command by dry contact, use the H1 input

• **External regulator**		
The external regulator sends the temperature setpoint to the Modbus 200 address (0x C8)		Temperature in tenths of a degree, e.g.: 500 (0x01F4) for 50°C

Diagram: VP113	page 4 / 4

<div align="right">**Line No.**   **Value**</div>

For a request via LPB bus with Sofrel controller

- **Configuration** menu

	Line No.	Value
Configure the H1 input	H1 input function (5950)	Cons. circ. 1 request
Activate the low limit	Contact H1 action direction (5951)	Normally-closed contact (NC)

If necessary, to make an on / off command by dry contact, use the H1 input

- **LPB network** menu

	Line No.	Value
Bus configuration	Appliance address (6600)	1
	Segment address (6601)	0
	Bus supply function (6604)	Automatic
	Clock operation (6640)	Slave with adjustment

- **Sofrel S500 / S550 external regulator**

	Value
The external regulator sends the temperature setpoint to the LPB 1622 address (line 1859)	Node type 10 Sub-address 1 Type VALI Coef: 0.015625 Unit: °C/10

For a request via LPB bus with RVL480

- **LPB network** menu

	Line No.	Value
Bus configuration	Appliance address (6600)	1
	Segment address (6601)	0
	Clock operation (6640)	Slave with adjustment

- **RVL 480 and RVL 479 secondary manager**

	Line No.	Value
Adjust the boiler raise	Generator raise (84)	3 °C
Bus configuration	Appliance address (169)	1, 2
	Segment address (170)	1
	Clock operation (178)	3, 2
	Bus supply function (179)	A

Power down all the regulators (boiler and RVL) when the configuration is complete. When powering back on, the addressing errors may take up to 15 minutes to disappear.

Refer to § 9.3, page 94 for the regulator input / output tests.

BOILER ONLY *Direct circuit with constant temperature and flow rate*	Diagram *VP120* page 1 / 2

A. HYDRAULIC DIAGRAM
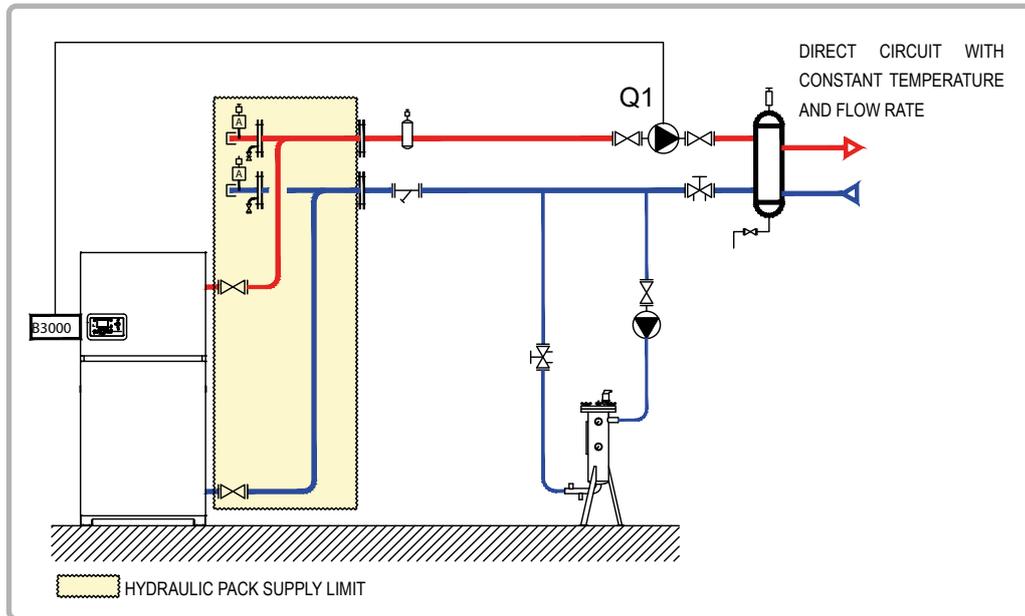
figure 43 - VP120 diagram

B. REGULATION ACCESSORIES REQUIRED

None.

C. OPERATING DESCRIPTION

The boiler operates in constant outlet temperature set on the highest secondary consumer setpoint.
Select a low primary temperature to optimise the boiler's operating output.
The flow rate is constant.

The operating limits are described in § 3.3, page 14

Diagram: VP120 | page 2 / 2

D. CUSTOMER'S ELECTRICAL CONNECTION

E. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.

☞ Start up the boiler only.

☞ Carry out the adjustments below.

		Line No.	Value
• *Time and date* menu			
	Set the time	Hour / minute (1)	HH.MM
	Set the date	Day / month (2)	DD.MM
	Set the year	Year (3)	YYYY
• *Configuration* menu			
	Configure the output for the network pump	Relay output QX3 (5892)	Boiler pump Q1
	Configure the H1 input	H1 input function (5950)	Cons. circ. 1 request
• *Consumer circuit 1* menu			
	Activate the low limit	Contact H1 action direction (5951)	Operation contact

Refer to § 9.3, page 94 for the regulator input / output tests.

BOILER ONLY *1 three channel valve heating network and DHW production by Hygiatherm type primary tank*	Diagram ***VP121*** page 1 / 4

A. HYDRAULIC DIAGRAM
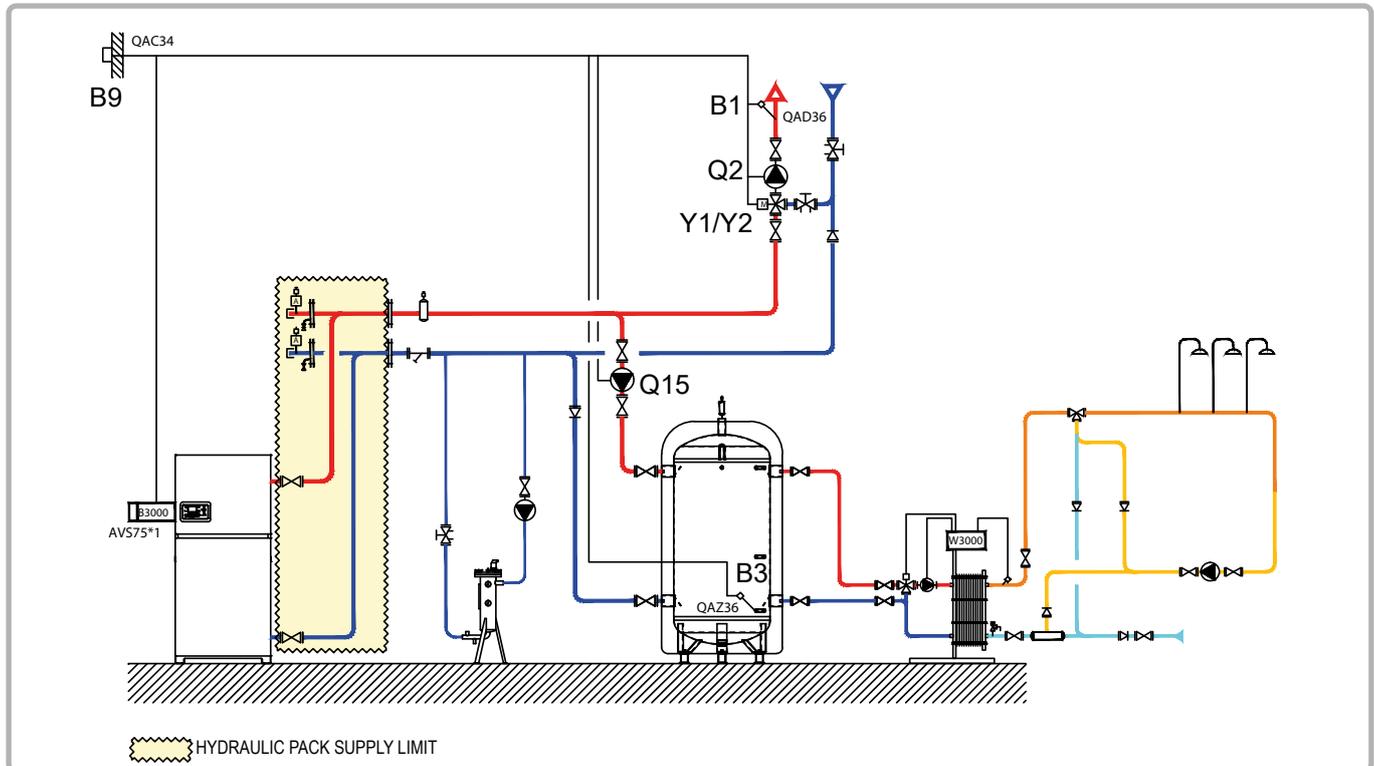
figure 44 - VP121 diagram

B. REGULATION ACCESSORIES REQUIRED

	Quantity	Appliance reference	Order No.
Extension module kit (delivered with a network sensor QAD 36)	1	AVS 75	059751
Outdoor sensor kit	1	QAC 34	059260
DHW sensor kit	1	QAZ 36	059261

C. OPERATING DESCRIPTION

The boiler operates in variable outlet temperature according to the outdoor temperature measured by the QAC 34 sensor. The AVS 75 module manages the heating circuit regulated by three channel valve. The heating programme is per week.

A minimum setpoint is set for the domestic hot water production circuit temperature. Select a low primary temperature to optimise the boiler's operating output. The QAZ 36 DHW sensor is used to create a DHW priority and raise the boiler setpoint.

The plate exchanger's DHW setpoint is recommended at 58°C.

In renovation, you must check the suitability of the heating pumps and the authority of the three

channel valves, taking account of the new boiler's load losses.
The operating limits are described in § 3.3, page 14

The primary tank programming **on the NAVISTEM B 3000** is intended so that:
- The low limit is enough to combat looping losses and "weak" draws, it is slightly above the exchanger's setpoint.
- During heavy filling, the sensor DHW function generates an adapted raising of the setpoint.

In the example below, the tank is at constant charging at 65°C[1].
If it reaches **60°C[2]**, the boiler launches a DHW cycle at 70°C[3]. The DHW load / setpoint at 70°C[3] will stop when the tank reaches 65°C[4].
The boiler will restart at a **primary** setpoint of 63°C[1] or higher depending on the heating requirements.

1 = P1859 low limit setpoint
2 = P1610 DHW setpoint – differential of 5°C
3 = P1610 DHW setpoint + P5020 raise
4 = P1610 DHW setpoint

D. CUSTOMER'S ELECTRICAL CONNECTION

E. SPECIFIC START-UP PROCEDURE

Diagram: VP121	page 3 / 4
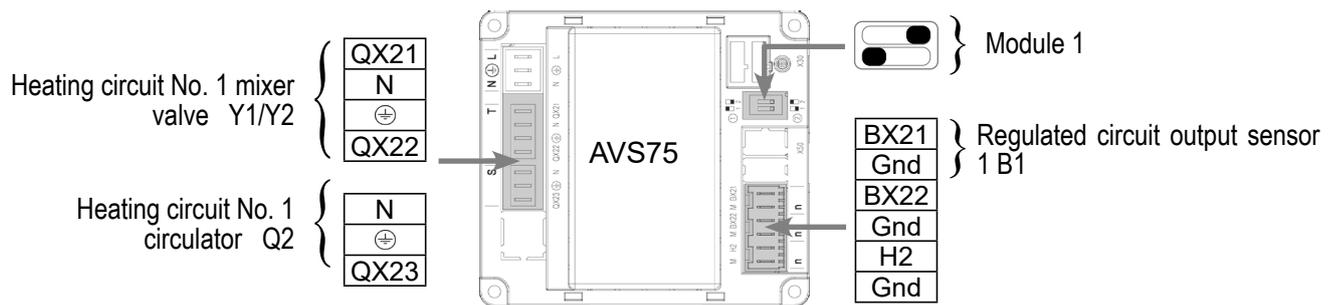
Heating circuit No. 1 mixer valve Y1/Y2
{ QX21 / N / ⊕ / QX22 }

Heating circuit No. 1 circulator Q2
{ N / ⊕ / QX23 }

AVS75

} Module 1

Regulated circuit output sensor 1 B1
{ BX21 / Gnd }
BX22 / Gnd / H2 / Gnd

☞ Make the accessories' electrical connections.

> ⚠ **CAUTION:** **Configure the switches on the AVS75 extension module.**

☞ Start up the boiler only.

☞ Carry out the adjustments below.

	Line No.	*Value*
• ***Time and date*** menu		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
• ***Configuration*** menu		
Start up heating circuit 1	Heating circuit 1 (5710)	Start
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure the tank charge pump	Relay output QX2 (5891)	Consumption circuit pump 1 Q15
Configure the unused output	Relay output QX4 (5893)	DHW pump Q3
Configure the exchanger's primary demand	H1 input function (5950)	Consumption circuit 1 request
Activate the low limit	Contact H1 action direction (5951)	Operation contact
Configure the extension module 1	Extension module function 1 (6020)	Heating circuit 1
Activate the installation frost protection	Installation frost protection (6120)	Start
• ***Heating circuit 1*** menu		
Adjust the comfort setting	Comfort setting (710)	- - - °C
Adjust the reduced setting	Reduced setting (712)	- - - °C
Adjust the curve slope	Curve slope (720)	- - -
Set the change to summer mode	Summer/winter heating limit (730)	- - - °C

Diagram: VP121	page 4 / 4

	Line No.	**Value**
Set the daily economy mode	Daily heating limit (732)	- - - °C
• *Heating circuit 1 timer programme* menu		
Preselection	Preselection (500)	---
Adjust the timer programming	Switch-on/off times (500...506)	---
• *Consumer circuit 1* menu		
Cons. request outlet temperature setpoint	Cons request output T° (1859)	Exchanger setpoint +7°C (this value depends on the installation)
• *Domestic hot water* menu		
Setpoint temperature in the DHW tank	Comfort setting (1610)	Tray exchanger temperature setpoint
Set the DHW to permanent comfort	Release (1620)	24/24
Charging priority during a DHW charge	DHW charging priority (1630)	With or without sliding (priority DHW)
• *Domestic hot water tank* menu		
Boiler raise temperature during a DHW charge	Outlet setpoint T° raise (5020)	12°C (this value depends on the installation)

- Switch the heating regime to automatic   **Auto**

- Activate the DHW mode

Refer to § 9.3, page 94 for the regulator input / output tests.

CASCADED BOILERS *1 three channel valve heating network and DHW production per tank coil*	Diagram ***VP211*** page 1 / 5

A. HYDRAULIC DIAGRAM
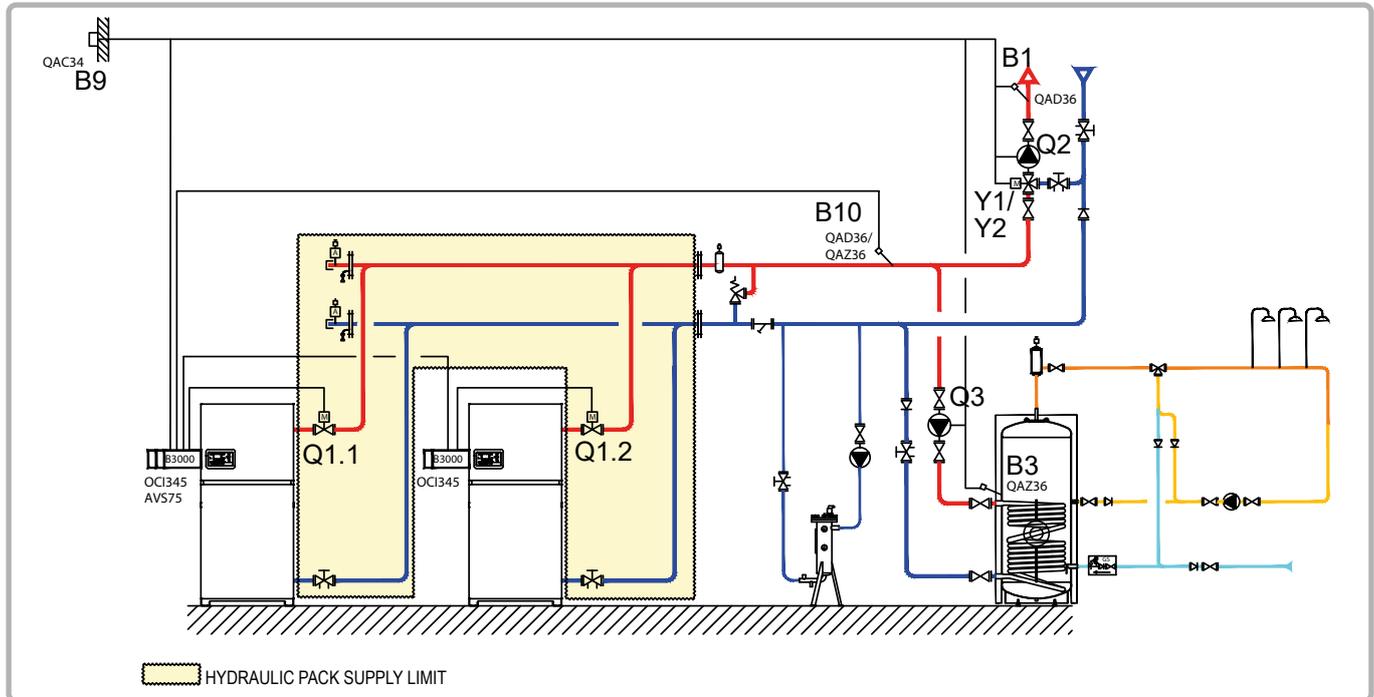
figure 45 - VP211 diagram

B. REGULATION ACCESSORIES REQUIRED

	Quantity	Appliance reference	Order No.
Outdoor sensor kit	1	QAC 34	059260
Extension module kit (delivered with a QAD36 network sensor)	1	AVS 75	059751
DHW sensor kit	1	QAZ 36	059261
Communication kit	2	OCI 345	059752
Network sensor kit	1	QAx 36	059261 *(QAZ 36)* 059592 *(QAD 36)*

C. OPERATING DESCRIPTION

The master Navistem B3000 controls the cascade of two boilers on the basis of the outlet cascade temperature measured by the QAD 36 sensor. Each Navistem B3000 manages the two channel isolation valve of its own generator. The boilers operates with a variable outlet temperature according to the outdoor temperature measured by the QAC 34 sensor, set on the most temperature-demanding circuit, without parallel offset and without a low temperature limit. The heating programme is per week. The AVS 75 module manages the circuit regulated by three channel valve. The Navistem B3000 manages the domestic hot water production and priority by raising the outlet temperature when temperature demands are detected by the QAZ 36 sensor placed in the storage tank.

The exchanger tank charging pump must be dimensioned for a flow rate equal to P/20, where P is the DHW power called in th/h, with P min equal to the minimum power supplied by the boiler. To manage the flow in the boilers, the by-pass between the general output and the network return has a differential valve provided to open at a value equal to the load loss of a boiler (at ΔT = 20K) increased by 0.5 mCE. A balancing valve must be provided on each generator.

In renovation, you must check the suitability of the heating pumps and the authority of the three channel valves, taking account of the new boiler's load losses.

The operating limits are described in § 3.3, page 14

D. CUSTOMER'S ELECTRICAL CONNECTION

VARPRIM 1:

→If an external management system (e.g. PLC) or a constant 010V command pump, heating and/or DHW circuit) is connected, refer to § 9.4 for the specific configuration).

Diagram: VP211	page 3 / 5

VARPRIM 2:

→ If an external management system (e.g. PLC) is connected, refer to § 9.4 for the specific configuration).

E. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.

> ⚠ **CAUTION:** **Configure the switches on the AVS75 extension module before powering on**

☞ Start up the boiler only.

☞ Make the following settings:

On the VARPRIM 1 boiler

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

Diagram: VP211 | page 4 / 5

	Line No.	Value
• **Configuration** menu		
Start up heating circuit 1	Heating circuit 1 (5710)	Start
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure the tank charge pump	Relay output QX2 (5891)	DHW pump Q3
Configure the isolation valve	Relay output QX3 (5892)	Boiler pump Q1
Configure the cascade sensor	BX2 sensor input (5931)	Common flow sensor B10
Configure the extension module 1	Extension module function 1 (6020)	Heating circuit 1
Activate the installation frost protection	Installation frost protection (6120)	Start
• **LPB network** menu		
BUS configuration	Appliance address (6600)	1
	Segment address (6601)	0
	Clock operation (6640)	Master
• **Heating circuit 1** menu		
Adjust the comfort setting	Comfort setting (710)	- - - °C
Adjust the reduced setting	Reduced setting (712)	- - - °C
Adjust the curve slope	Curve slope (720)	- - -
Set the change to summer mode	Summer/winter heating limit (730)	- - - °C
Set the daily economy mode	Daily heating limit (732)	- - - °C
• **Heating circuit 1 timer programme** menu		
Preselection	Preselection (500)	---
Adjust the timer programming	Switch-on/off times (500...506)	---
• **Domestic hot water** menu		
Setpoint temperature in the DHW tank	Comfort setting (1610)	°C
Declare the type of DHW release	Release (1620)	24/24 or timer prog.
Charging priority during a DHW charge	DHW charging priority (1630)	Absolute (DHW only) or sliding (DHW priority and maintenance at best of the temperature in the heating circuits)

Diagram: VP211	page 5 / 5

	Line No.	*Value*
Anti-legionella function activation	Anti-legionella function (1640)	--- or Stop (if no cycle)
Anti-legionella function settings	Periodic anti-legionella function (1641)	---
	Anti- legionella function day week (1642)	---
	Anti-legionella setpoint (1645)	---
	Anti-Legionella function duration (1645)	---

- **Domestic hot water tank** menu

Boiler raise temperature during a DHW charge	Outlet setpoint T° raise (5020)	12°C

- Switch the heating regime to automatic   **Auto**

- Activate the DHW mode

On the VARPRIM 2 boiler

	Line No.	*Value*

- **Time and date** menu

Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY

- **Configuration** menu

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

- **LPB network** menu

BUS configuration	Appliance address (6600)	2
	Segment address (6601)	0
	Clock operation (6640)	Slave without adjustment

VARPRIM / MODULO CONTROL BOILER CASCADE *2 heating networks regulated by three channel valve*	Diagram *VP 300* page 1 / 5

A. HYDRAULIC DIAGRAM
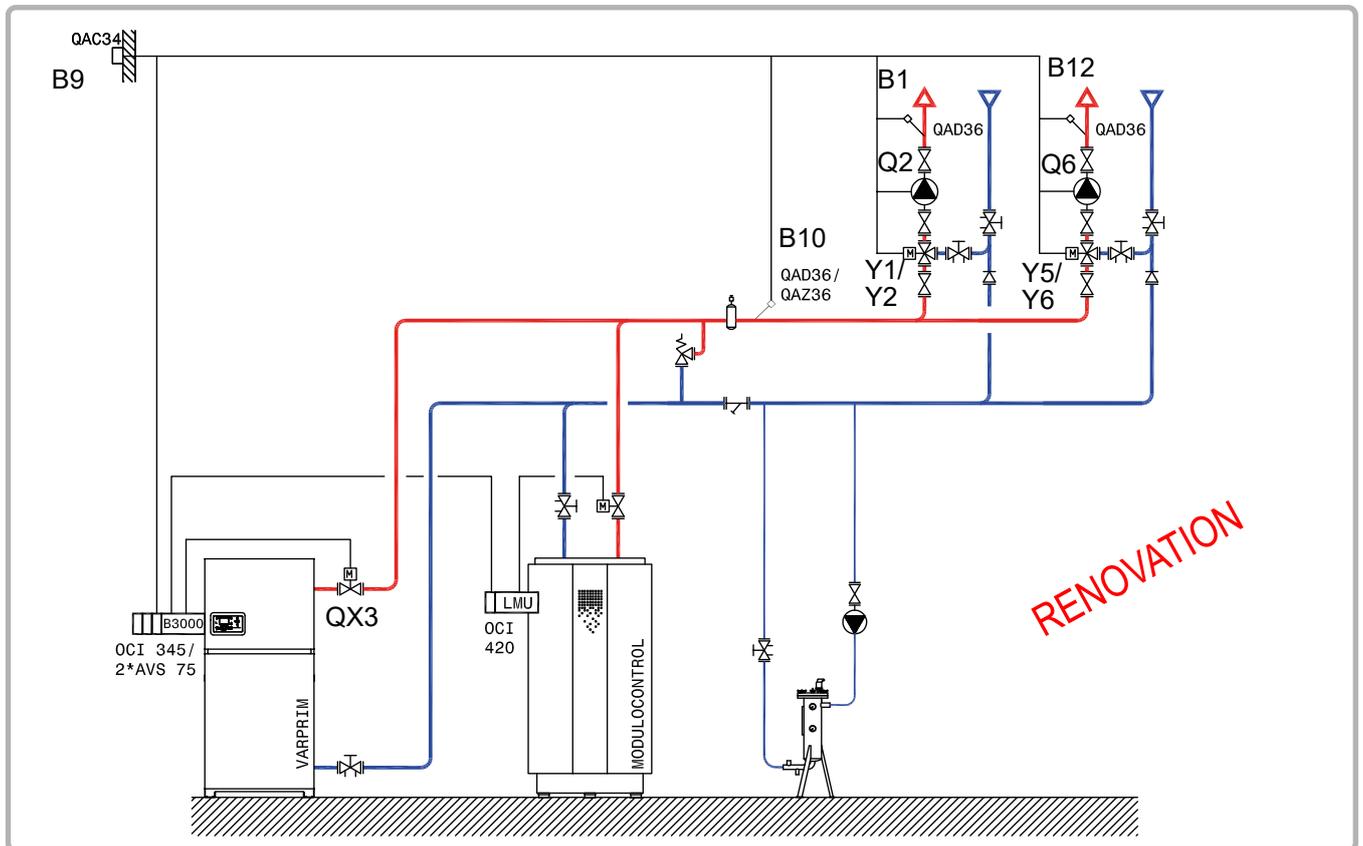
figure 46 - VP 300 diagram

B. REGULATION ACCESSORIES REQUIRED

	Quantity	Appliance reference	Order No.
Outdoor sensor kit	1	QAC 34	059260
Extension module kit (delivered with a QAD36 network sensor)	2	AVS 75	059752
Cascade kit for MODULO CONTROL	1	OCI 420	059263
Cascade kit for VARPRIM	1	OCI 345	059261
Cascade output sensor kit	1	QAD 36	059592

Diagrams: VP 300	page 2 / 5

C. OPERATING DESCRIPTION

The Navistem B3000 controls the cascade of two boilers on the basis of the outlet cascade temperature measured by the QAD 36 sensor. Each Navistem B3000 (or LMU) manages the two channel isolation valve of its own generator. The boilers operate with a variable outlet temperature according to the outdoor temperature measured by the QAC 34 sensor, with the temperature adjusted according to the most demanding circuit, without parallel offset, without a low temperature limit. Each AVS 75 module controls a regulated circuit with a 3-way valve. The heating programme is per week. To manage the flow in the boilers, the by-pass between the output and the general return has a differential valve provided to open at a value equal to the load loss of a boiler (at ΔT = 20K) increased by 0.5 mCE. A balancing valve must be provided on each generator. In renovation, you must check the suitability of the heating pumps and the authority of the three channel valves, taking account of the new boiler's load losses.

The VARPRIM operating limits are described in § 3.3, page 14, those of the Modulo control are described in the Modulo Control installation and maintenance manual.

D. CUSTOMER'S ELECTRICAL CONNECTION

VARPRIM 1:

Diagrams: VP 300

Heating circuit No. 1 mixer valve Y1/Y2

QX21
N
⊕
QX22

AVS75

Heating circuit No. 1 circulator Q2

N
⊕
QX23

Module 1

BX21
Gnd
BX22
Gnd
H2
Gnd

Regulated circuit output sensor B1

Heating circuit No. 2 mixer valve Y5/Y6

QX21
N
⊕
QX22

AVS75

Heating circuit No. 2 circulator Q6

N
⊕
QX23

Module 2

BX21
Gnd
BX22
Gnd
H2
Gnd

Regulated circuit output sensor B12

MODULO CONTROL:

Mains supply 230Vac 50Hz

L
⊕
N

Isolating valve

Y1
Y2
⊕
N

K2
⊕
N
C2
L
K3
⊕
N

CD2	CD2	CD1	CD1		

OT	OT	RT+	RT			M	B3	M	B9
(X10-01)	(X10-02)	(X10-03)	(X10-04)			(X10-05)	(X10-06)		

LPB BUS

DB
MB

Diagrams: VP300	page 4 / 5

E. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.

⚠ CAUTION:	**Configure the switches on the AVS75 extension module before powering on**

☞ Start up the boiler only.

☞ Make the following settings:

On the VARPRIM 1 boiler

	Line No.	*Value*
• **Time and date** menu		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
• **Configuration** menu		
Start up heating circuit 1	Heating circuit 1 (5710)	Start
Start up heating circuit 1	Heating circuit 1 (5715)	Start
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure the isolation valve	Relay output QX3 (5892)	Boiler pump Q1
Configure the cascade sensor	BX2 sensor input (5931)	Common flow sensor B10
Configure the extension module 1	Extension module function 1 (6020)	Heating circuit 1
Configure the extension module 2	Extension module function 1 (6021)	Heating circuit 2
Activate the installation frost protection	Installation frost protection (6120)	Start
• **LPB network** menu		
Bus configuration	Appliance address (6600)	1
	Segment address (6601)	0
	Clock operation (6640)	Master
• **Heating circuit 1** menu		
Adjust the comfort setting	Comfort setting (710)	- - - °C
Adjust the reduced setting	Reduced setting (712)	- - - °C
Adjust the curve slope	Curve slope (720)	- - -

| **Diagrams: VP 300** | page 5 / 5 |

	Line No.	Value
Set the change to summer mode	Summer/winter heating limit (730)	- - - °C
Set the daily economy mode	Daily heating limit (732)	- - - °C

• ***Heating circuit 1 timer programme*** menu

Preselection	Preselection (500)	---
Adjust the timer programming	Switch-on/off times (500...506)	---

• ***Heating circuit 2*** menu

Adjust the comfort setting	Comfort setting temperature (1010)	---°C
Adjust the reduced setting	Comfort setting temperature (1012)	---°C
Adjust the curve slope	Heating curve slope (1020)	- - -
Set the change to summer mode	Summer/winter heating limit (1030)	---°C
Set the daily economy mode	Daily heating limit (1032)	---°C
Adjust the circuit flow minimum	Minimum start setpoint (1040)	---°C

• ***Heating circuit 2 timer programme*** menu

Preselection	Preselection (520)	---
Adjust the timer programming	On/Off phase (521...526)	---

• Switch the heating regime to automatic		**Auto**

On the MODULO CONTROL 2 boiler

	Line No.	Value
Adjust the hydraulic configuration	H 552	80
Set the boiler address		
Appliance No.	H 605	2
Segment No.	H 605	0
Set the clock		
Slave	H 604.b0	1
No adjustment	H 604.b1	0
Auto BUS supply	H 604.b2	1

• Push the MODULO CONTROL into the cascade		**Auto**

Refer to § 9.3, page 94 for the regulator input / output tests.

| VARPRIM / CONDENSAGAZ BOILER CASCADE
1 heating network regulated by three channel valve and one semi-instant DHW production | Diagram
VP 310
page 1 / 7 |

A. HYDRAULIC DIAGRAM
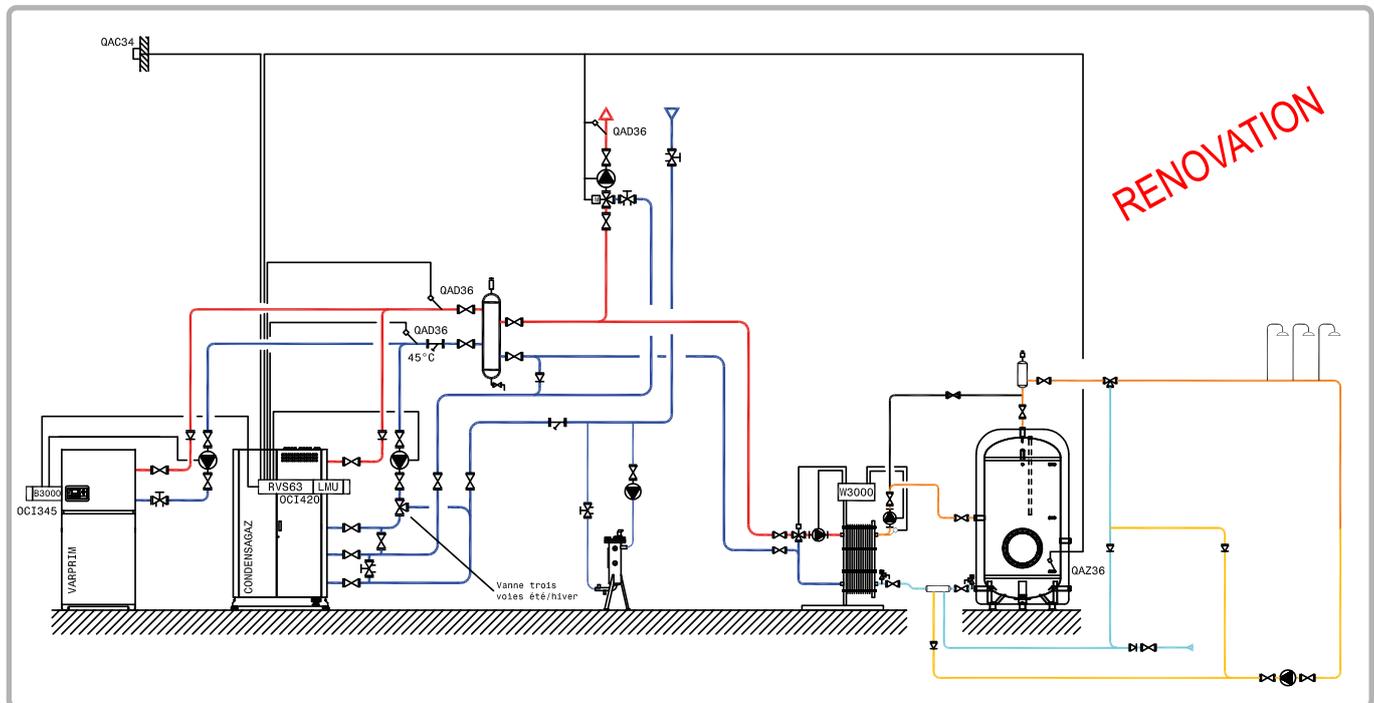
figure 47 - VP 310 diagram

B. REGULATION ACCESSORIES REQUIRED

	Quantity	Appliance reference	Order No.
RVS 63 kit with or without unit*	1	RVS 63	059516 or 040941
DHW sensor kit	1	QAZ 36	059261
Cascade kit	1	OCI 345	059752

*: For G series boilers before S23 2011 take the version with unit

C. FUNCTIONAL EXPLANATIONS

This diagram may be adopted in the case of an OPTIMAGAZ and CONDENSAGAZ cascade on hydraulic decoupling bottle and where only the Optimagaz boiler is replaced.

During winter periods the two boilers operate in cascade with operating priority on the Condensagaz boiler which is maintained in its condition.

To optimise output during summer periods, only the Varprim boiler supplies the domestic hot water production.

The CONDENSAGAZ G boiler is only present as a backup. The summer/winter valves then enable the CONDENSAGAZ boiler condenser to be irrigated in summer.

The priority will be switched over manually on the RVS 63 regulation, pilot Boiler cascade menu (3544) = Generator 2 (winter) or 3 (summer).

Diagram: VP 310	page 2 / 7

The boilers operate in variable outlet temperature according to the outdoor temperature measured by the QAC 34 sensor, with a low temperature limit to restart the domestic hot water production and guarantee the minimum temperature of 45°C at the input to the CONDENSAGAZ boiler main exchanger. A cascade return sensor will complete the production by restricting the consumers where necessary.
The heating programme is per week.

The RVS63 manages the regulated heating network, the domestic hot water demand, the cascade of the two boilers and ensures that the CONDENSAGAZ G series temperature constraints are respected.

The VARPRIM operating limits are described in § 3.3, page 14, those of the CONDENSAGAZ G series are described in the G series boiler installation and maintenance manual.

The DHW programming is intended so that:

• The low limit is enough to combat looping losses and "weak" draws, it is slightly above the exchanger's setpoint.
• During heavy filling, the DHW function with sensor generates an adapted raising of the setpoint.

In the example on the following page, the primary is constantly at 70°C[1] with the plate exchanger at a setpoint of 58°C.

If the tank falls to 50°C[2], the boiler launches a DHW cycle at 75°C[3]. This raise will stop when the tank reaches 55°C[4].

The boiler will fall again to the minimum setpoint of 70°C [1] or higher depending on the heating requirements.

1 = P1859 low limit setpoint

2 = P1610 DHW setpoint – differential of 5°C

3 = P1610 DHW setpoint + P5020 differential

4 = P1610 DHW setpoint

Diagram: VP310	page 3 / 7

D. CUSTOMER'S ELECTRICAL CONNECTION

Power supply
230VAC mains
50 Hz

Heating circuit 1
pump

K10 alarm

Heating circuit
1 three channel
valve

Sensor
Cascade
B10

DHW
sensor
B3

Sensor
Return B70

Sensor
Outdoor
B9

Sensor
Heating circuit 1
outlet

LPB
BUS

Diagram: VP 310

Mains supply
230Vac 50Hz

Isolating valve

| L |
| ⊕ |
| N |
| Y1 |
| Y2 |
| ⊕ |
| N |
| K2 |
| ⊕ |
| N |
| C2 |
| L |
| K3 |
| ⊕ |
| N |

| CD2 | CD2 | CD1 | CD1 | | | |

| OT | OT | RT+ | RT | | | M | B3 | M | B9 |
| (X10-01) | (X10-02) | (X10-03) | (X10-04) | | (X10-05) | | (X10-06) |

LPB BUS
| DB |
| MB |
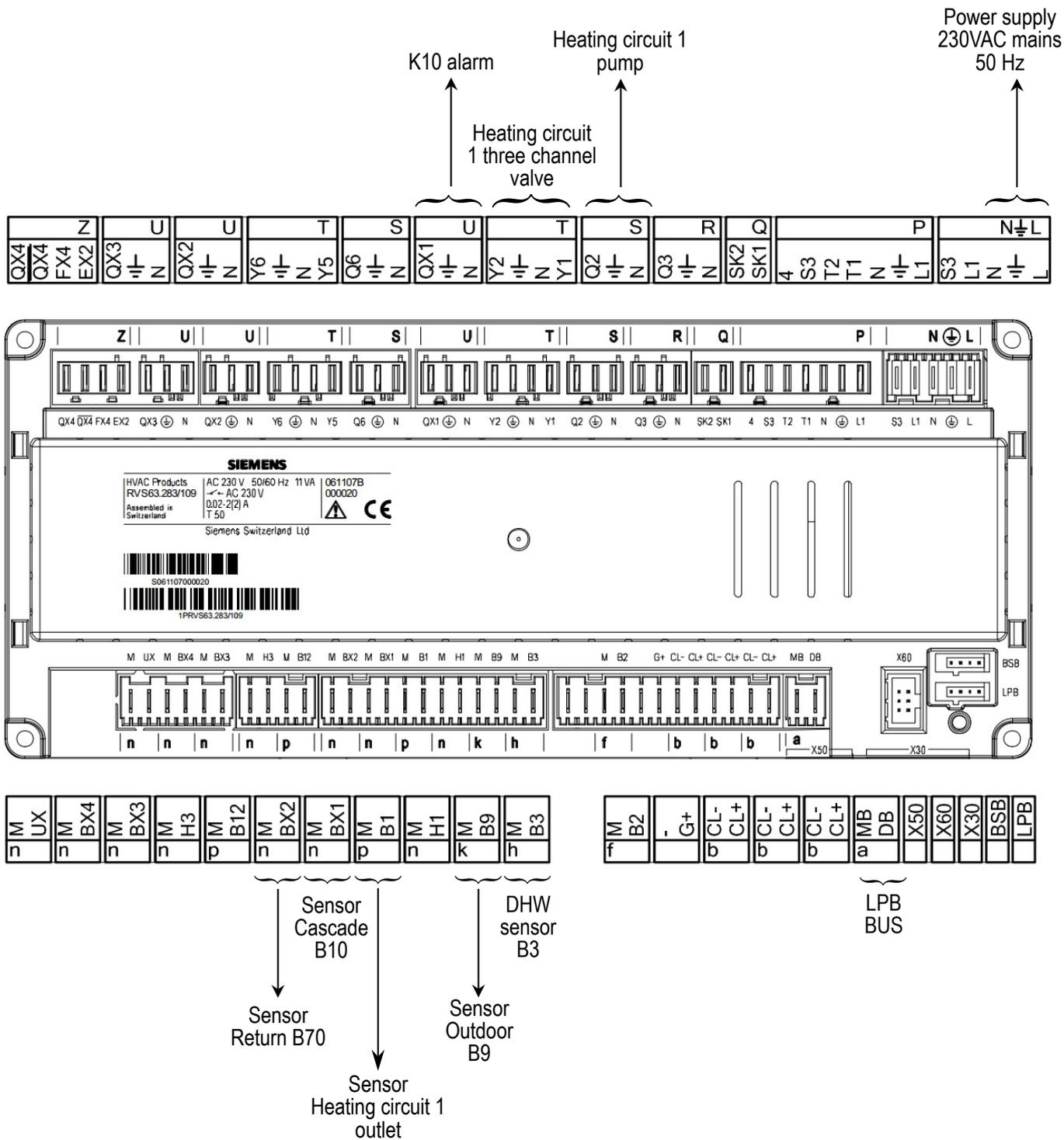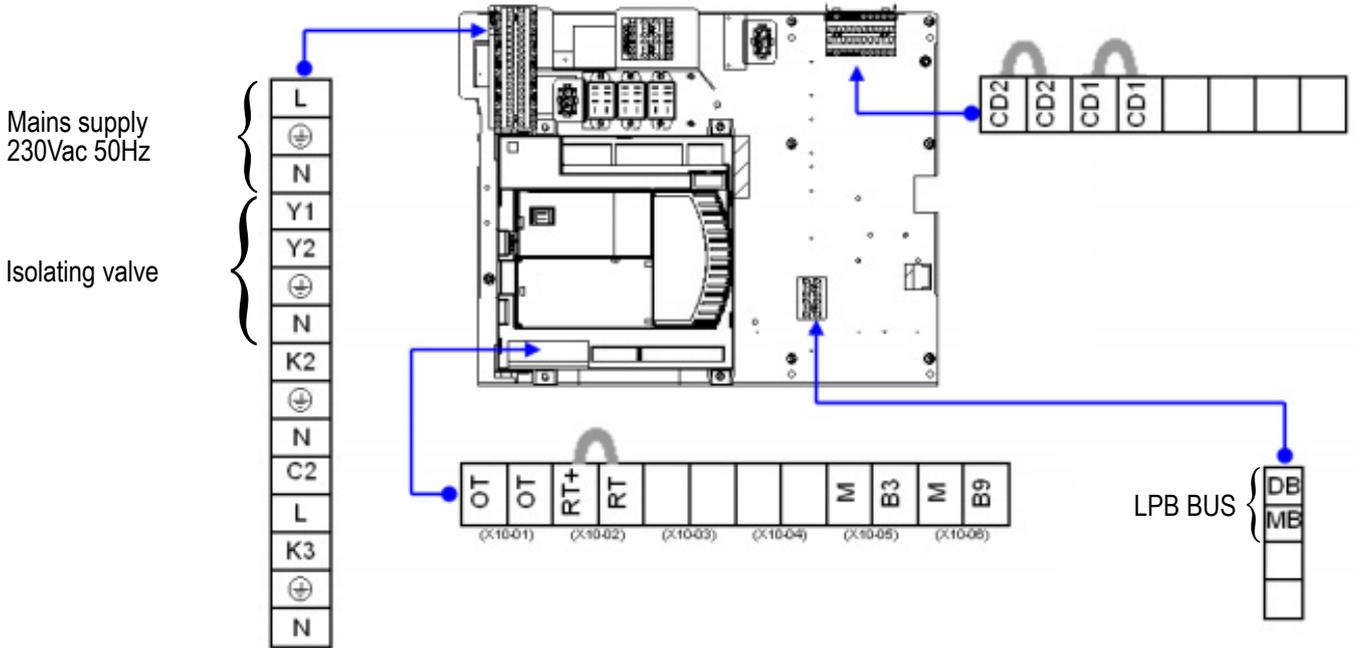
Boiler No. 1 (OPTIMAGAZ G): VARPRIM 2
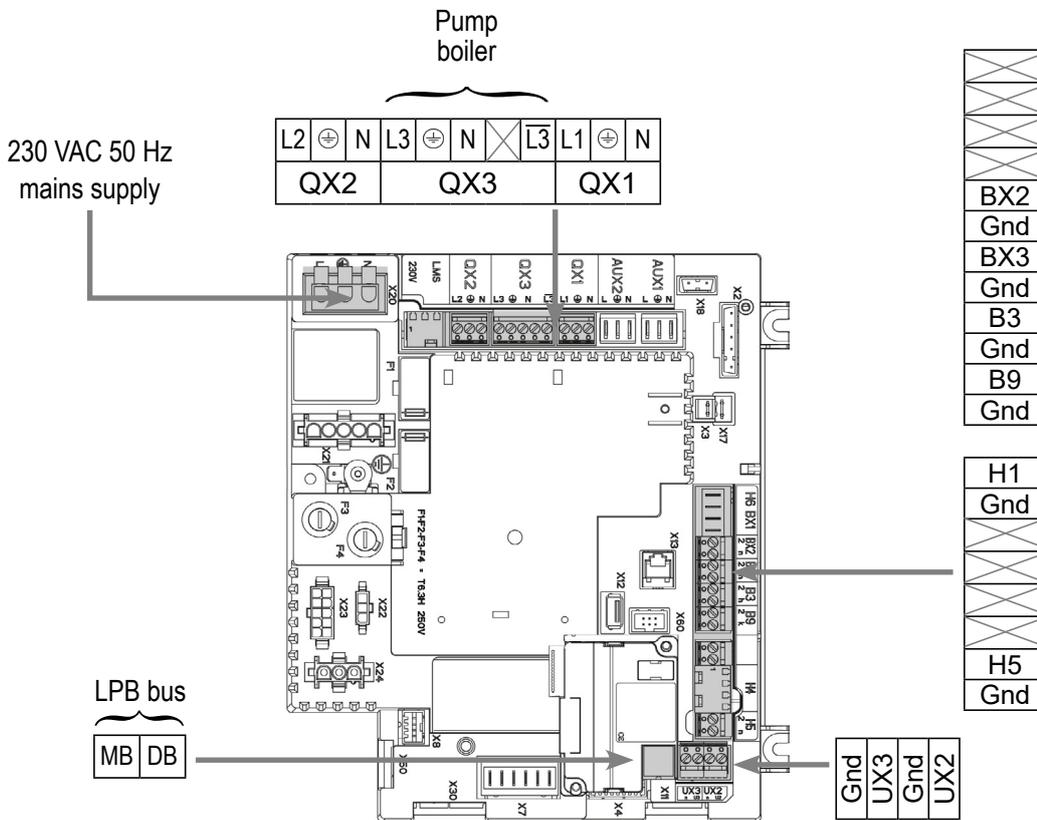
Pump boiler

230 VAC 50 Hz
mains supply

| L2 | ⊕ | N | L3 | ⊕ | N | | L3 | L1 | ⊕ | N |
| QX2 | | | QX3 | | | | | QX1 | | |

| BX2 |
| Gnd |
| BX3 |
| Gnd |
| B3 |
| Gnd |
| B9 |
| Gnd |

| H1 |
| Gnd |

| H5 |
| Gnd |

LPB bus
| MB | DB |

| Gnd | UX3 | Gnd | UX2 |

Diagram: VP 310	page 5 / 7

E. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.

⚠ CAUTION:	**Configure the switches on the AVS75 extension module before powering on**

☞ Start up the boiler only.

☞ Make the following settings:

OPTIMAGAZ G series (LMU64)

	Line No.	Value
• *Time and date* menu		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Adjust the hydraulic configuration	H 552	80
Set the clock		
	H 604.B0	1
	H 604.B1	0
Appliance No.	H 605	2
Segment No.	H 605	0
• Engage the boiler		**Auto**

OPTIMAGAZ G series (RVS 63)

	Line No.	Value
• *Configuration* menu		
Start up heating circuit 1	Heating circuit 1 (5710)	Start
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Assign the cascade flow sensor	Sensor input BX1 (5930)	B10 line output sensor
Assign the cascade return sensor	BX2 sensor input (5931)	Operation contact
Deactivate the low limit	H1 input function (5950)	Return sensor B70
Activate the low limit	Contact H1 action direction (5951)	Operation contact
Set the low limit	Min start setpoint (5952)	70°C
Adjust the building inertia	Building time constant (6110)	7h
Set the cascade raise	Setpoint T° centr compens (6117)	3°C
Activate the installation frost protection	Installation frost protection (6120)	Start

Diagram: VP 310	page 6 / 7

	Line No.	*Value*
• *Time and date* menu		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
• *Heating circuit 1* menu		
Adjust the comfort setting	Comfort setting (710)	- - - °C
Adjust the reduced setting	Reduced setting (712)	- - - °C
Adjust the curve slope	Curve slope (720)	- - -
Set the change to summer mode	Summer/winter heating limit (730)	- - - °C
Set the daily economy mode	Daily heating limit (732)	- - - °C
Remove the accelerated lowering	Accelerated lowering (780)	Stop
Set the three channel valve raise	Temp. raise Boiler (830)	3°C
• *Heating circuit 1 timer programme* menu		
Preselection	Preselection (500)	---
Adjust the timer programming	On / off phases (501...506)	---
• *Domestic hot water* menu		
Adjust the comfort setting	Nominal setting (1610)	55°C
Set the DHW to permanent comfort	Release (1620)	24/24
Remove the priority	DHW charging priority (1630)	None
Remove the AL cycle	Anti-Legionnaires' Disease function (1640)	Stop
• *Domestic hot water tank* menu		
Set the DHW raise	Outlet setpoint T° raise (5020)	20°C
Remove the safety (OEM)	Charging time limitation (5030)	--- min
• *Time and date* menu		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY

Diagram: VP 310	page 7 / 7

		Line No.	*Value*
• **LPB network** menu			
Appliance number	Appliance address (6600)		1
Segment number	Segment address (6601)		0
Adjust the clock rate	Clock operation (6640)		Master
• **Cascade** menu			
Set the strategy	Cascade strategy (3510)		Switch-on delayed / Stop delayed
Set the power range	Max power range (3512)		90%
Set the release integral	Release integral (3530)		300°C.min
Set the reset integral to 0	Reset integral to 0 (3531)		100°C.min
Set the release delay	Restart timer (3532)		300 seconds
Set the release delay	Start timer (3533)		5 mn
Cancel the priority switch	Gen. auto seq. switching (3540)		---h
Set the operating priority	Pilot boiler (3544)		Generator 2 (winter) Generator 3 (summer)
Set the return protection	Minimum return setpoint (3560)		45°C
Set the return protection (OEM)	Min. return setpoint (3561)		45°C
Activate shedding	Consum. return shedding (3562)		Start

• **Switch the heating regime to automatic**

• **Activate the DHW mode**

On boiler No. 2 (VARPRIM): slave

		Line No.	*Value*
• **Configuration** menu			
Configure the boiler pump	Relay output QX3 (5892)		Boiler pump Q1
• **LPB network** menu			
Appliance number	Appliance address (6600)		3
Segment number	Segment address (6601)		0
Adjust the clock rate	Clock operation (6640)		Slave without adjustment

Refer to § 9.3, page 94 for the regulator input / output tests.

MIXED CASCADE: VARPRIM AND PRESSURISED *2 heating networks regulated by three channel valve, DHW production by tank coil*	Diagram ***VP 320*** page 1 / 9

A. HYDRAULIC DIAGRAM
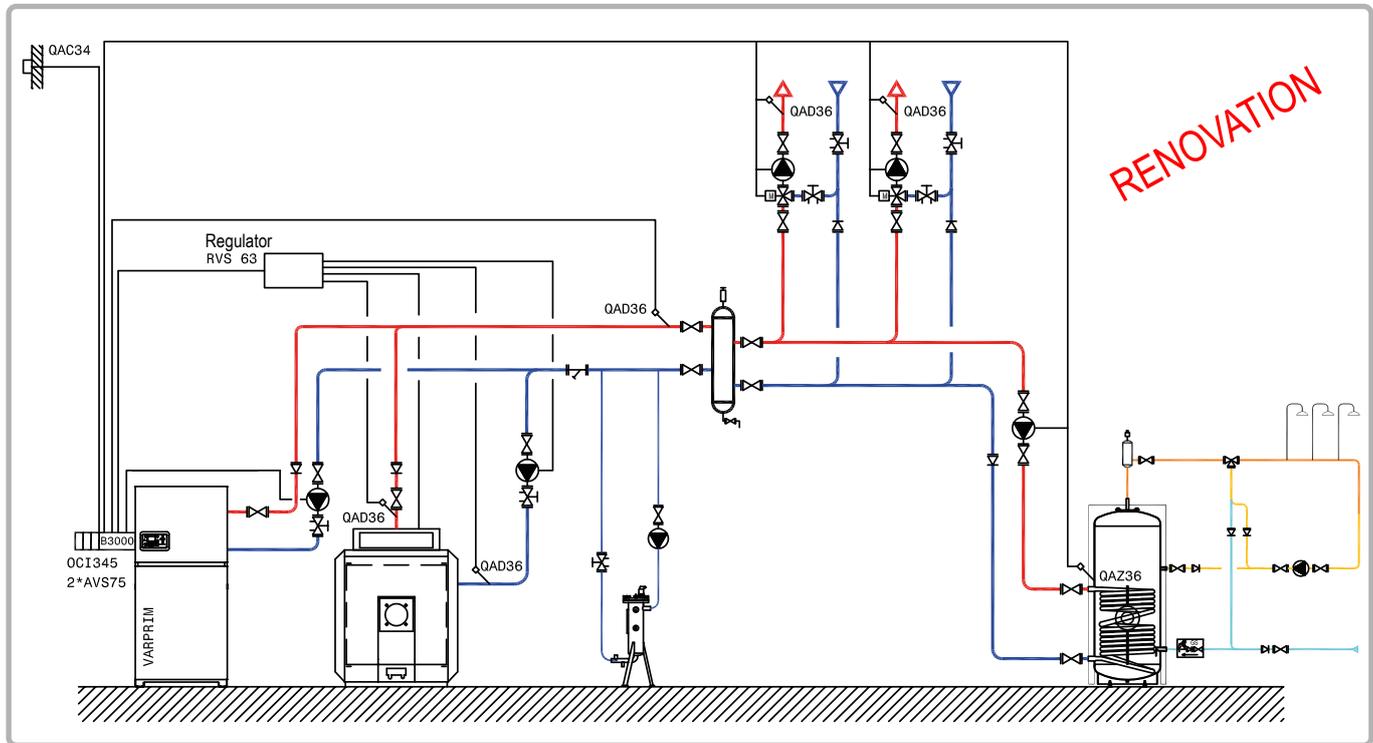
figure 48 - VP 320 diagram

B. REGULATION ACCESSORIES REQUIRED

	Quantity	Appliance reference	Order No.
RVS 63 kit*	1	RVS 63	059516
Extension module kit (delivered with a network sensor QAD 36)	2	AVS 75	059751
Communication kit	1	OCI 345	059752
DHW sensor kit	1	QAZ 36	059261

NB: The boiler's original regulation and safety aquastats are kept!

The boiler's original panel and the RVS 63 kit may also be replaced with a NAVISTEM B2000 boiler control panel

Diagram: VP 320	page 2 / 6

C. OPERATING DESCRIPTION

This diagram may be adopted in the case of a Varprim and pressurised boiler on hydraulic decoupling bottle cascade.

The master Navistem B3000 controls the cascade of two boilers on the basis of the outlet cascade temperature measured by the QAD 36 sensor. The Navistem B3000 and the RVS 63 manage the charge pump of their own generator.

 The VARPRIM operates in absolute priority, in variable outlet temperature according to the outdoor temperature measured by the QAC 34 sensor, set on the most temperature-demanding circuit, without parallel offset and without a low temperature limit. The heating programme is per week. Each AVS 75 module manages its circuit regulated by three channel valve. The NAVISTEM B3000 manages the domestic hot water production and priority by raising the outlet temperature when temperature demands are detected by the QAZ 36 sensor placed in the storage tank.

The pressurised boiler will be called in the cascade as late as possible or if there is a VARPRIM fault. Its outlet and /or minimum return setpoint will be active only when the burner is demanded.
The heating and the DHW will be temporarily restricted in order to respect these constraints.
The pressurised boiler's charging pump will not be used to protect the temperatures.

The VARPRIM's operating limits are described in § 3.3, page 14, the customer must check the pressurised boiler's limits.

D. CUSTOMER'S ELECTRICAL CONNECTION

Boiler No. 1 (VARPRIM):

Diagram: VP 320	page 3 / 6

Heating circuit No. 1 mixer valve   Y1/Y2
- QX21
- N
- ⊕
- QX22

Heating circuit No. 1 circulator   Q2
- N
- ⊕
- QX23

AVS75

Module 1

Regulated circuit output sensor B1
- BX21
- Gnd
- BX22
- Gnd
- H2
- Gnd

Heating circuit No. 1 mixer valve   Y5/Y6
- QX21
- N
- ⊕
- QX22

Heating circuit No. 2 circulator   Q6
- N
- ⊕
- QX23

AVS75

Module 2

Regulated circuit output sensor B12
- BX21
- Gnd
- BX22
- Gnd
- H2
- Gnd
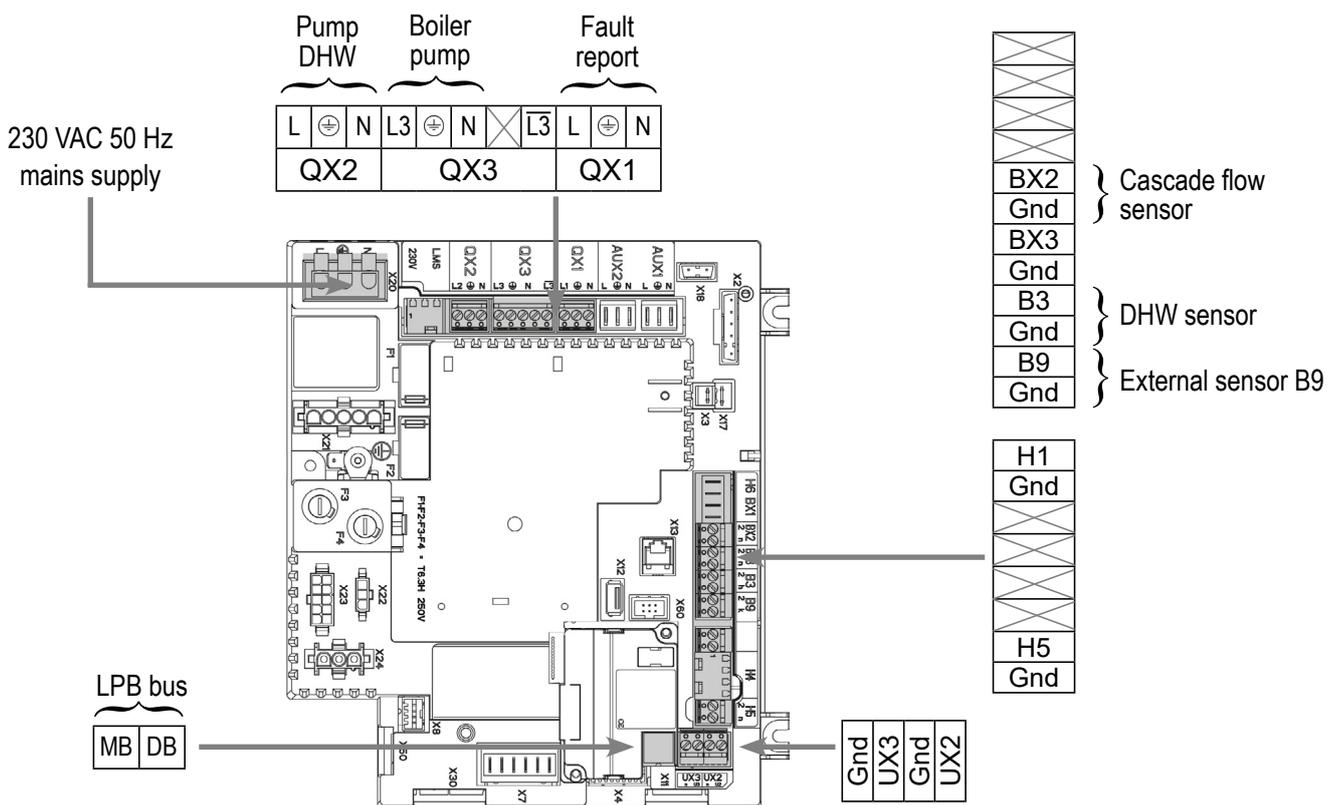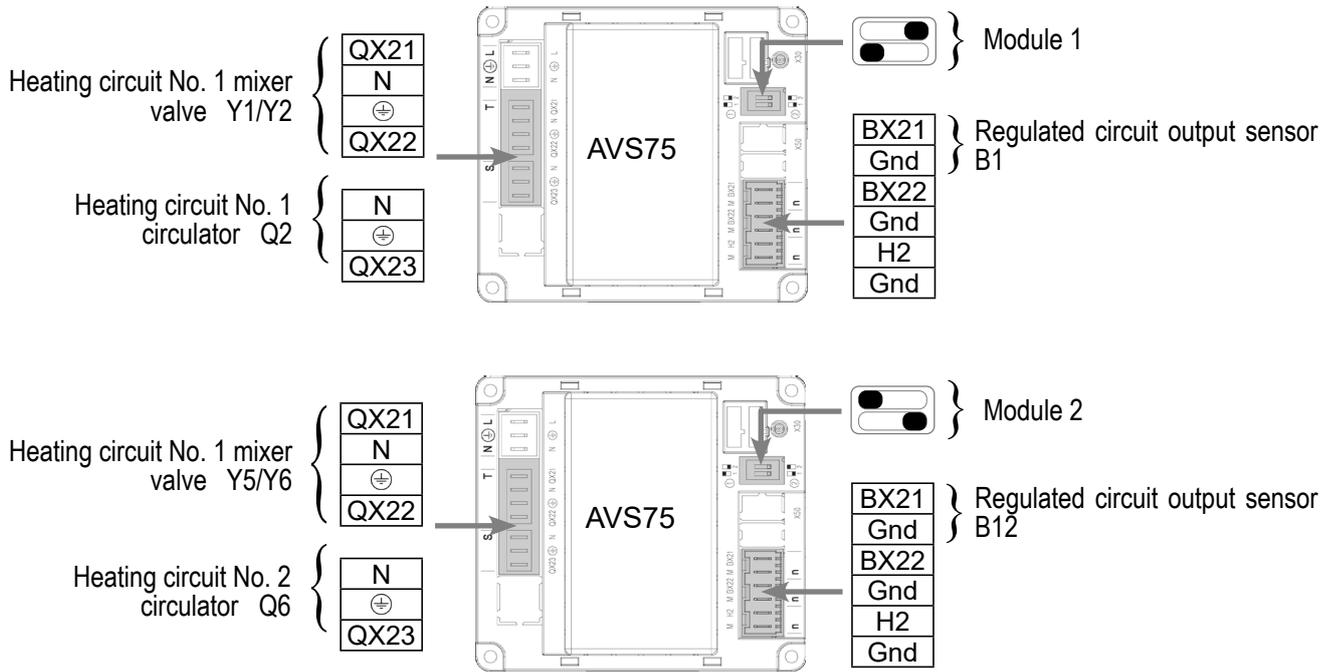
Boiler No. 2 Pressurised (example 1-speed burner):

Pump Boiler Q1

Burner fault output
Time counter
To T1-T2 Burner
230 VAC 50 Hz mains supply
Shunt to be connected

Z	U	U	T	S	U	T	S	R	Q	P	N⊥L
QX4 QX4 FX4 EX2	QX3 ⊕ N	QX2 ⊕ N	Y6 ⊕ N Y5	Q6 ⊕ N	QX1 ⊕ N	Y2 ⊕ N Y1	Q2 ⊕ N	Q3 ⊕ N	SK2 SK1	4 S3 T2 T1 N ⊕ L1	S3 L1 N ⊕ L

SIEMENS

HVAC Products
RVS63.283/109
Assembled in Switzerland

AC 230 V 50/60 Hz 11 VA
⎓ AC 230 V
0,02-2(2) A
T 50

061107B
000020

⚠ CE

Siemens Switzerland Ltd

S061107000020

1PRVS63.283/109

M UX	M BX4	M BX3	M H3	M B12	M BX2	M BX1	M B1	M H1	M B9	M B3	M B2	G+ CL- CL+ CL- CL+ CL- CL+	MB DB	X60	BSB LPB

M	UX	M	BX4	M	BX3	M	H3	M	B12	M	BX2	M	BX1	M	B1	M	H1	M	B9	M	B3	M	B2	_	G+	CL-	CL+	CL-	CL+	CL-	CL+	M	MB	DB	X50	X60	X30	BSB	LPB
n		n		n		n		p		n		n		p		n		k		h		f				b		b		b		a					

Sensor Return B7

Sensor Boiler B2

LPB BUS

Diagram: VP 320	page 4 / 6

E. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.

⚠ CAUTION:	**Configure the switches on the AVS75 extension module before powering on**

☞ Start up the boiler only.

☞ Carry out the adjustments below.

On boiler N°1: VARPRIM

	Line No.	*Value*
• **Time and date** menu		
Set the time	Hour / minute (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
• **Configuration** menu		
Start up heating circuit 1	Heating circuit 1 (5710)	Start
Start up heating circuit 2	Heating circuit 2 (5715)	Start
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure DHW pump	Relay output QX2 (5891)	DHW pump Q3
Configure the boiler isolation valve	Relay output QX3 (5892)	Boiler pump Q1
Assign the cascade flow sensor	BX2 sensor input (5931)	B10 line output sensor
Configure the extension module 1	Extension module function 1 (6020)	Heating circuit 1
Configure the extension module 2	Extension module function (6021)	Heating circuit 1
Activate the installation frost protection	Installation frost protection (6120)	Start
• **Heating circuit 1** menu		
Adjust the comfort setting	Comfort setting (710)	- - - °C
Adjust the reduced setting	Reduced setting (712)	- - - °C
Adjust the curve slope	Curve slope (720)	- - -
Set the change to summer mode	Summer/winter heating limit (730)	- - - °C
Set the daily economy mode	Daily heating limit (732)	- - - °C
• **Heating circuit 1 timer programme** menu		

Diagram: VP 320	page 5 / 6

	Line No.	*Value*
Preselection	Preselection (500)	---
Adjust the timer programming	On / off phases (501...506)	---
• *Heating circuit 2* menu		
Adjust the comfort setting	Comfort setting temperature (1010)	---°C
Adjust the reduced setting	Comfort setting temperature (1012)	---°C
Adjust the curve slope	Heating curve slope (1020)	- - -
Set the change to summer mode	Summer/winter heating limit (1030)	---°C
Set the daily economy mode	Daily heating limit (1032)	---°C
Adjust the circuit flow minimum	Minimum start setpoint (1040)	---°C
• *Heating circuit 2 timer programme* menu		
Preselection	Preselection (520)	---
Adjust the timer programming	On / off phases (521...526)	---
• *Domestic hot water* menu		
Adjust the comfort setting	Nominal setting (1610)	---°C
Remove the DHW priority	DHW charging priority (1630)	None
• *Domestic hot water tank* menu		
Set the DHW raise	Outlet setpoint T° raise (5020)	10°C
• *Cascade* menu		
Cancel the priority switch	Gen. auto seq. switching (3540)	---h
Set the operating priority	Pilot boiler (3544)	Generator 1
• *LPB network* menu		
Appliance number	Appliance address (6600)	1
Segment number	Segment address (6601)	0
Adjust the clock rate	Clock operation (6640)	Master

• Switch the heating regime to automatic **Auto**

• Activate the DHW mode

Diagram: VP 320	page 6 / 6

On boiler No. 2 (pressurised): slave

⚠ CAUTION:	Configuration for 1-speed burner Refer to the NAVISTEM B2000 manual for any other burner control mode.

	Line No.	*Value*
• *LPB network* menu		
Appliance number	Appliance address (6600)	2
Segment number	Segment address (6601)	0
Adjust the clock rate	Clock operation (6640)	Slave without adjustment
• *Configuration* menu		
Stop the heating circuit 1	Heating circuit 1 (5710)	Stop
Configure the burner	Type of boiler (5770)	1 speed
Assign the return sensor	BX2 sensor input (5931)	Return probe B7
• *Boiler* menu		
Delay the engagement into the cascade	Release below outside T° (2203)	--- °C (example: 7 °C)
Set the minimum outlet	Minimum setting (2210)	Example: 70 °C
Set the minimum outlet (OEM)	Minimum setting (2211)	Example: 70 °C
Set the maximum outlet	Maximum setting (2212)	Example: 85 °C
Set the maximum outlet (OEM)	Maximum setting (2213)	Setpoint 2212 + 5 ° C
Enable Load Shedding (OEM)	Shedding on consumer start (2260)	Start
Remove load shedding	Shedding on boiler pump start (2261)	Stop
Set the return protection	Minimum return setpoint (2270)	Example: 60 °C
Set the return protection (OEM)	Minimum OEM return setpoint (2271)	Example: 60 °C
Enable Load Shedding (OEM)	Consum. return shedding (2272)	Start
Set the boiler power	Nom. power (2330)	--- kW

Refer to § 9.3, page 94 for the regulator input / output tests.

9.3.   Electrical validation

9.3.1.   On VARPRIM

	Line No.	*Value*
• ***Inputs/outputs test*** menu		
Check the outputs		
Alarm relay	Relay test (7700)	Relay output QX1
Programmable output QX2	Relay test (7700)	Relay output QX2
Boiler pump / valve output	Relay test (7700)	Relay output QX3
Heating circuit 1 3-channel valve opening	Relay test (7700)	Output QX21 Module 1
Heating circuit 1 3-channel valve closure	Relay test (7700)	Output QX22 Module 1
Heating circuit 1 pump	Relay test (7700)	Output QX23 Module 1
Heating circuit 2 3-channel valve opening	Relay test (7700)	Output QX21 Module 2
Heating circuit 2 3-channel valve closure	Relay test (7700)	Output QX22 Module 2
Heating circuit 2 pump	Relay test (7700)	Output QX23 Module 2
Heating circuit 3 3-channel valve opening	Relay test (7700)	Output QX21 Module 3
Heating circuit3 3-channel valve closure	Relay test (7700)	Output QX22 Module 3
Heating circuit 3 pump	Relay test (7700)	Output QX23 Module 3
Reset the outputs	Relay test (7700)	No test
Check the sensor values		
External sensor B9	External T° B9 (7730)	in °C
DHW sensor B3	DHW temperature B3/B8 (7750)	in °C
Cascade flow sensor	Sensor T° B3/B38 (7821)	in °C
Heating circuit 1 outlet sensor	T° sensor BX21 module 1 (7830)	in °C
Heating circuit 2 outlet sensor	T° sensor BX21 module 2 (7832)	in °C
Heating circuit 3 outlet sensor	T° sensor BX21 module 3 (7834)	in °C
Check input H1		
0-10 V external signal reading	H1 voltage signal (7840)	--- V
Low limit activation	Status of contact H1 (7841)	closed
Check input H5		
Boiler blockage	Status of contact H5 (7865)	---
For a request via Modbus or LPB		
• ***Consumer circuit 1*** menu		
Check the parameter	Cons request output T° (1859)	To be validated with the command that the external regulator sends

9.3.2. *On RVS63 (VP310 and VP320 diagrams)*

	Line No.	Value
• ***Inputs/outputs test*** menu		
Check the outputs		
Alarm relay	Relay test (7700)	Relay output QX1
Boiler pump	Relay test (7700)	Relay output QX3
Heating circuit 1 3-channel valve opening	Relay test (7700)	Mixer valve Y1
Heating circuit 1 3-channel valve closure	Relay test (7700)	Mixer valve Y2
Heating circuit 1 Q2 pump	Relay test (7700)	Heating circuit 2 Q2 pump
Reset the outputs	Relay test (7700)	No test
Check the sensor values		
External sensor B9	External T° B9 (7730)	in °C
Heating circuit 1 outlet sensor	Sensor T° B1 (7732)	in °C
DHW sensor B3	DHW temperature B3/B8 (7750)	in °C
Boiler flow sensor B2	External T° B2 (7760)	in °C
Cascade flow sensor B10	T° sensor BX1 (7820)	in °C
Boiler return or cascade return sensor	T° sensor BX2 (7821)	in °C
Check input H1		
0-10 V external signal reading	H1 voltage signal (7840)	--- V
Low limit activation	Status of contact H1 (7841)	closed
Check the burner		
Force start	Relay test (7700)	1st speed of burner T2
Stop the burner	Relay test (7700)	No test
Read the burner fault	Burner breakdown S3 (7870)	230V
Read the burner start	1st speed of burner E1 (7881)	230V

9.3.3. *On NAVISTEM W3000 (VP112 bis and VP121 bis diagrams)*

	Line No.	Value
• ***Maintenance / test*** menu		
• ***Tests*** menu		
• ***Relay test*** menu		
Check the DHW priority relay	Relay R2	Yes
• ***Information*** menu	Relay test (7700)	Mixer valve Y1
• ***System status*** menu	Relay test (7700)	Mixer valve Y2
Check the values of the tank middle and bottom sensors	S1	in °C
	S2	in °C

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

9.4.1. Transfer of the "burner power" image to PLC
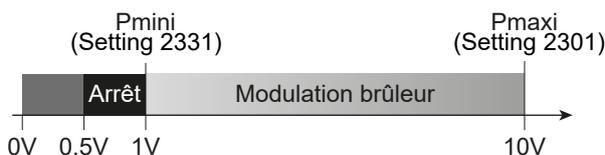
0...0,5 Vdc	The boiler status inhibits starting or locking
0.5...1 Vdc	The boiler is waiting to start or waiting for pre- or post- ventilation
1...10 Vdc	The boiler is working with its flame lit between the min. and max. power levels

E. SPECIFIC START-UP PROCEDURE

	Line No.	Value
• **Configuration** menu		
Declare the output which gives the image of the burner power.	Ux output function (6078/6089)	Burner modulation
Signal direction. Progress of the 0-10V signal in the signal increase direction for speed increase.	Ux signal logical output (6079/6090)	Standard

9.4.2. Controlling a Q1 boiler pump

E. SPECIFIC START-UP PROCEDURE

	Line No.	Value
• **Configuration** menu		
Declare the output which gives the image of the burner power.	Ux output function (6078/6089)	Boiler pump Q1
Signal direction. Progress of the 0-10V signal in the signal increase direction for speed increase.	Ux signal logical output (6079/6090)	Standard
• **Boiler** menu		
Set these 3 parameters to the same value	Rot. speed on start (2321)	between 0 and 100 %
	Min pump rot. speed (2322)	between 0 and 100 %
	Max pump rot. speed (2323)	between 0 and 100 %

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

E. SPECIFIC START-UP PROCEDURE

	Line No.	Value
• **Configuration** menu		
Case of a 0-10V command Q2, Q6 or Q20 heating pump. Configure the heating pump.	Ux output function (6078/6089)	Heating circuit 1 Q2 pump Or Pump CC2 Q6 Or Pump CC3 Q20
Signal direction. Progress of the 0-10V signal in the signal increase direction for speed increase.	Ux signal logical output (6079/6090)	Standard
• **Heating circuit 1/2/3** menu		
Set these 3 parameters to the same value	Rot. speed on start (881/1181/1481)	between 0 and 100 %
	Min. pump rot. speed (882/1182/1482)	between 0 and 100 %
	Max. pump rot. speed (883/1183/1483)	between 0 and 100 %

F. ELECTRICAL AND HYDRAULIC VALIDATION

	Line No.	Value
• *Inputs/outputs test* menu		
Check the outputs		
Pump with 0-10 V control	Ux signal output (7716/7724)	in V

9.4.4.   *Controlling a DHW pump Q3*

E. SPECIFIC START-UP PROCEDURE

	Line No.	Value
• **Configuration** menu		
Case of a 0-10V command DHW pump. Configure the DHW pump Q3.	Ux output function (6078/6089)	DHW pump Q3
Signal direction. Progress of the 0-10V signal in the signal increase direction for speed increase.	Ux signal logical output (6079/6090)	Standard

	Line No.	*Value*
• **DHW tank** menu		
Set these 3 parameters to the same value	Min pump rot. speed (5101)	between 0 and 100 %
	Max pump rot. speed (5102)	between 0 and 100 %
	Load pump start rot. speed (5108)	between 0 and 100 %

F. ELECTRICAL AND HYDRAULIC VALIDATION

	Line No.	*Value*
• *Inputs/outputs test* menu		
Check the outputs		
Pump with 0-10 V control	Ux signal output (7716/7724)	in V

10. SPARE PARTS LIST

I

028

029

006

021

021

006

004

005

027

003

002

004

001

023   025 026   023   003

020 = 021 + 023 + 025 + 027 + 028 + 029

U0505794-A
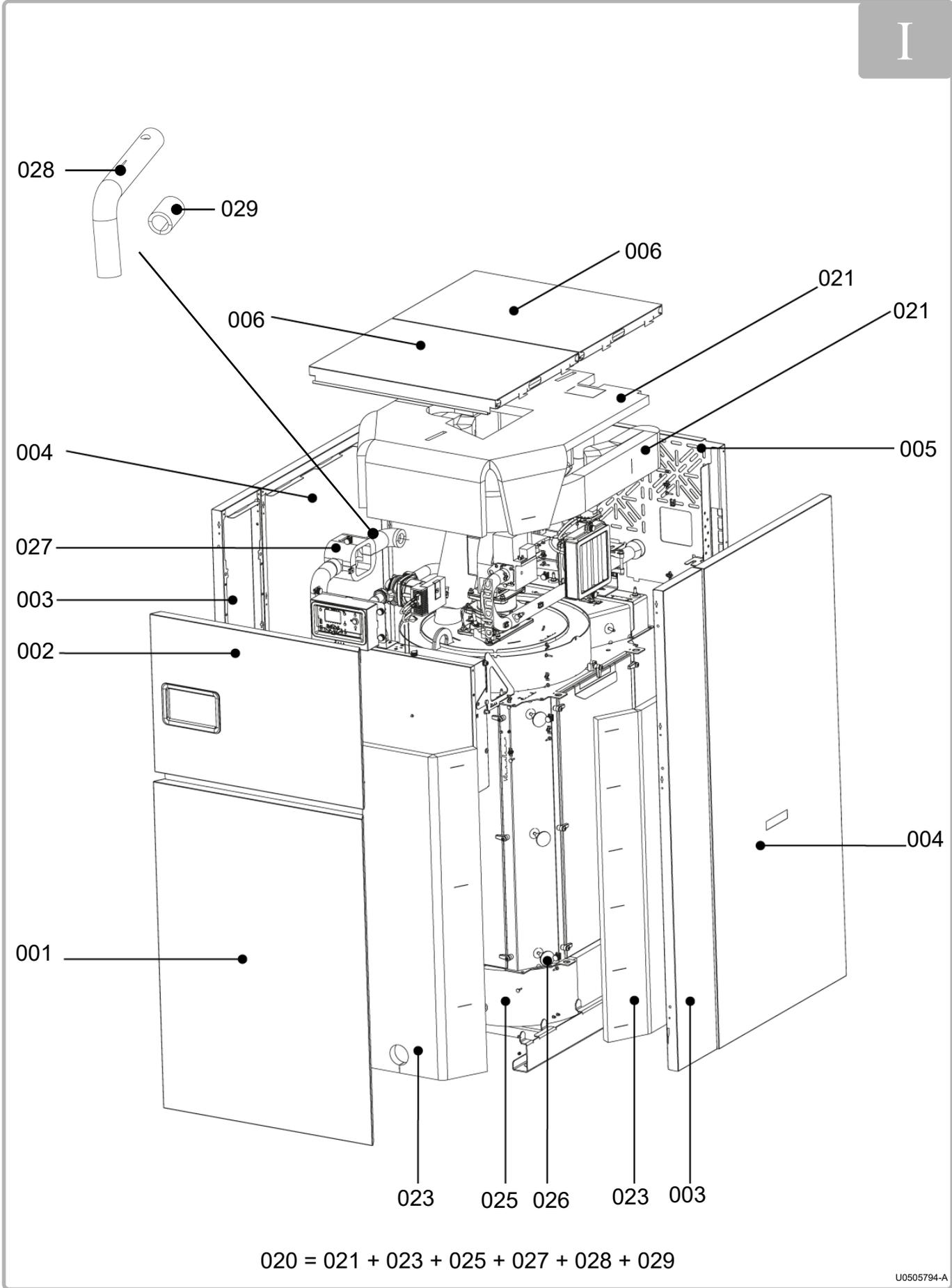
figure 49 - Panels / Insulation

ITEM	DESIGNATION	REF. FOR MODELS		
		120 & 140	180 & 225	275 & 320
	Panels			
001	Front lower jacket	79034	79035	79036
002	Atlantic upper jacket	79028	79029	79030
	Ygnis upper jacket	79031	79032	79033
003	Front side jacket	---		79039
004	Side jacket	79040	79041	79042
005	Rear jacket with cable grommets and clips	79043	79044	79045
006	Roof	79046		79047
	Insulation			
020	Glass wool panels (complete kit)	79050	79051	79052
021	Upper water box and upper body insulation	79053	79054	79055
023	Front and side panel insulation	79059	79060	79061
025	Lower water box insulation	79065	79066	79067
026	Insulation maintenance (6 parts)	76125		
027	Recycling rod, circulating pump and return on output tube insulation	76123		
028	Output insulation kit	79068	79069	79070
029	Return insulation kit	76307	76308	76309

II

figure 50 - Control panel
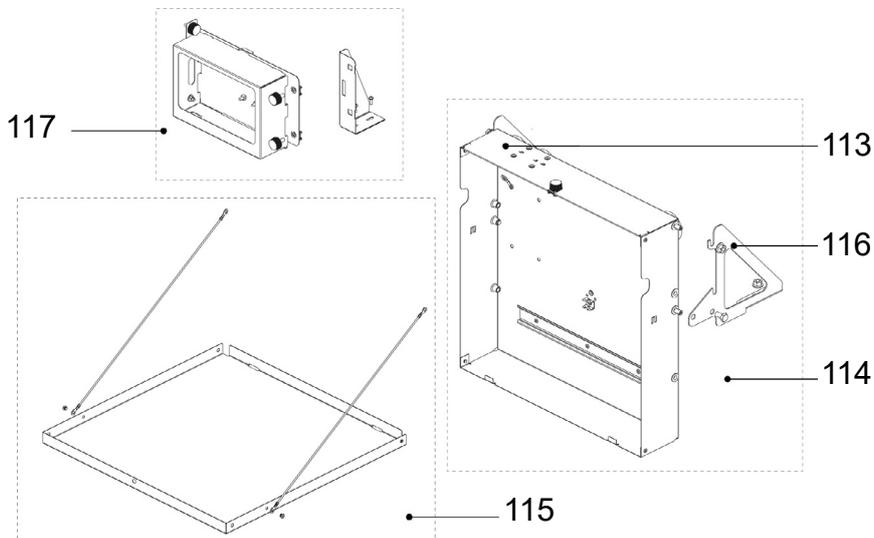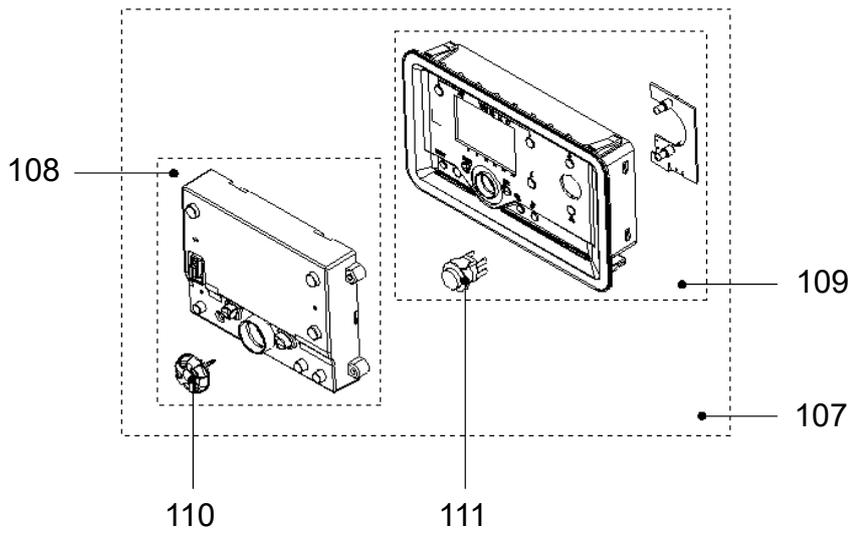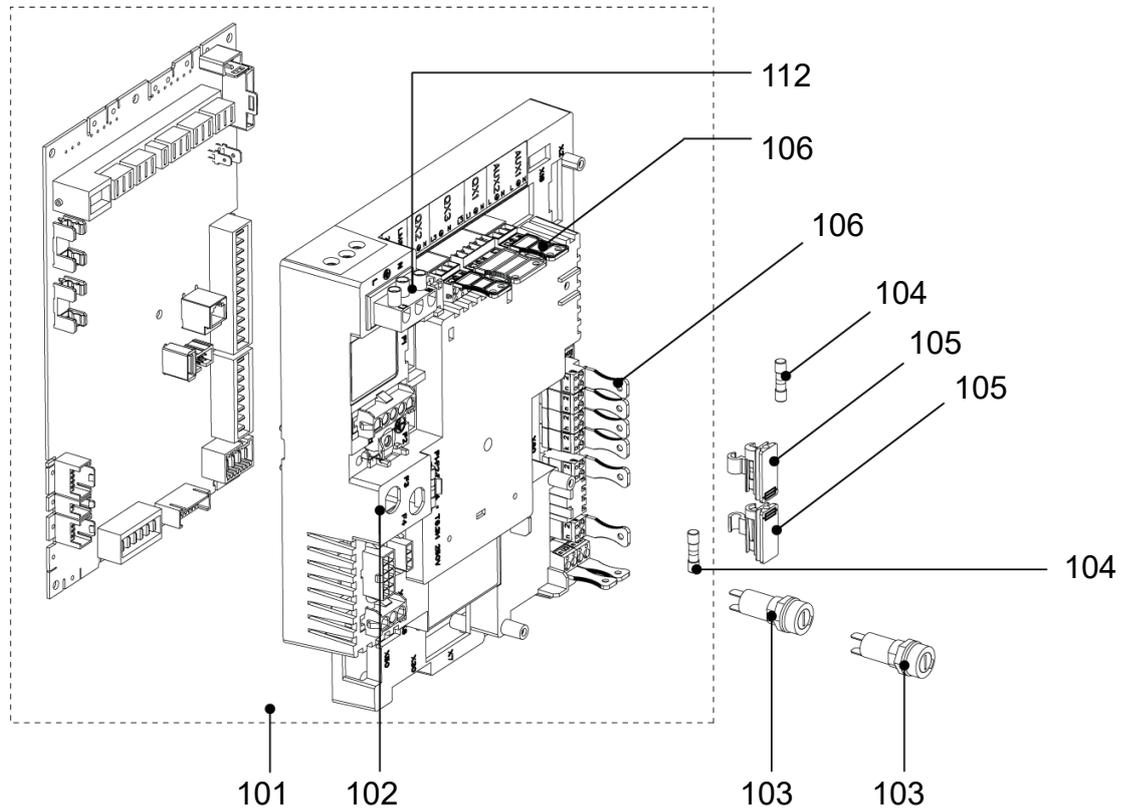
U0505839-A / U0505841-# / U0632110-A

ITEM	DESIGNATION	REF. FOR MODELS		
		120 & 140	180 & 225	275 & 320
	Control panel			
101	Platform with NAVISTEM B3000 configured	*120:* 79071 *140:* 79072	*180:* 79073 *225:* 79074	*275:* 79075 *320:* 79076
102	Platform without NAVISTEM B3000 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	Customer platform connectors	76128		
107	Complete display (HMI)	78782		
108	Display alone (HMI) with selector	78477		
109	Plastic part for display (HMI) + LED board + switch + LED ribbon cable	73133		
110	Selector	76135		
111	Switch	76134		
112	Electrical power supply connector	76523		
113	Prepared control panel cover	79078		
114	Prepared control panel cover without NAVISTEM B3000 with brackets	79079		
115	Control panel lid	79080		
116	Control panel attachment brackets with attachment	79081		
117	Prepared display unit	79082		
--	High current wiring	79083	79084	
--	Low current wiring	79085	79086	
--	Display power supply wiring (HMI)	79239		
--	AVS75 power supply wiring	76146		
--	AVS75 ribbon cable	76147		
--	Display ribbon cable (HMI)	76148		
--	Circulating pump wiring	79087		76001
--	Gas valve interface wiring	76628	--	

III
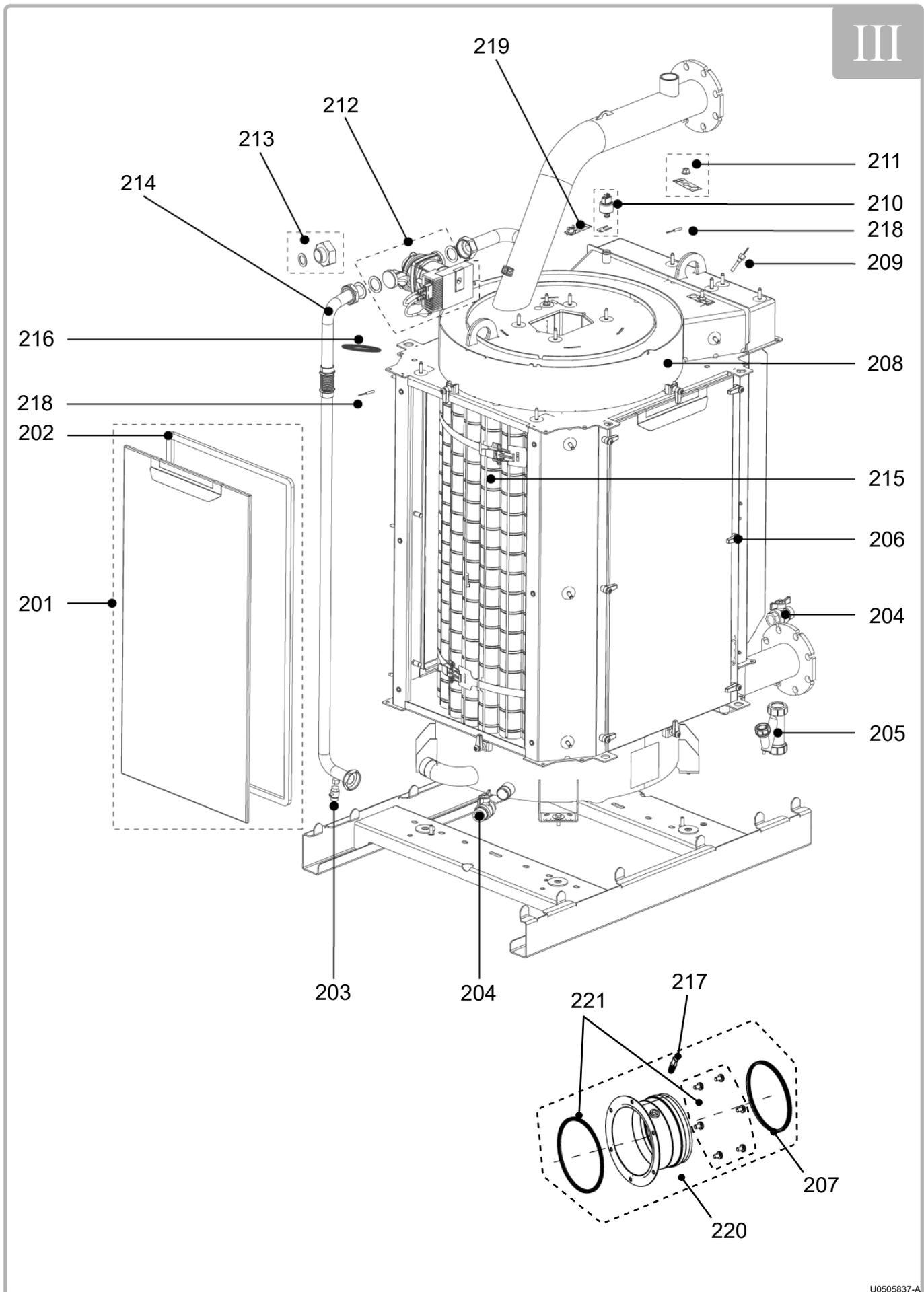
figure 51 - Body

U0505837-A

ITEM	DESIGNATION	REF. FOR MODELS		
		120 & 140	180 & 225	275 & 320
	Body			
201	Exchanger door with seal	76015	76016	76017
202	Exchanger door seals (x 3)	76019	76020	76021
203	Drain tap	72171		
204	Drainage valve	73947		
205	Condensate siphon	71925		
206	Exchanger door tightening clamp and holding screws (x 8)	76023		
207	Fume nozzle seal	76027		76028
208	Heating body	79024	79025	79026
209	Fume temperature sensor with seal	76014		
210	Pressure sensor with holding part	73946		
211	Return sensor support plate with holding nut	76025		
212	Circulating pump with seals	79027		76001
213	Hydraulic reduction with seals	76006		--
214	Recirculating rod with seals	76002	76003	76004
215	Fume baffles with maintenance spring and strapping	76010	76011	76012
216	Output sensor attachment kit	76262	76063	76263
217	Sampling plug cap	76026		
218	Output / return sensor	71899		
219	Safety thermostat + dielectric seal + plate	76158		
220	Fume nozzle with seals, fittings and sampling plug cap	78322		78323
221	Fume box seal with fittings	78325		78326

IV

120 and 140 models
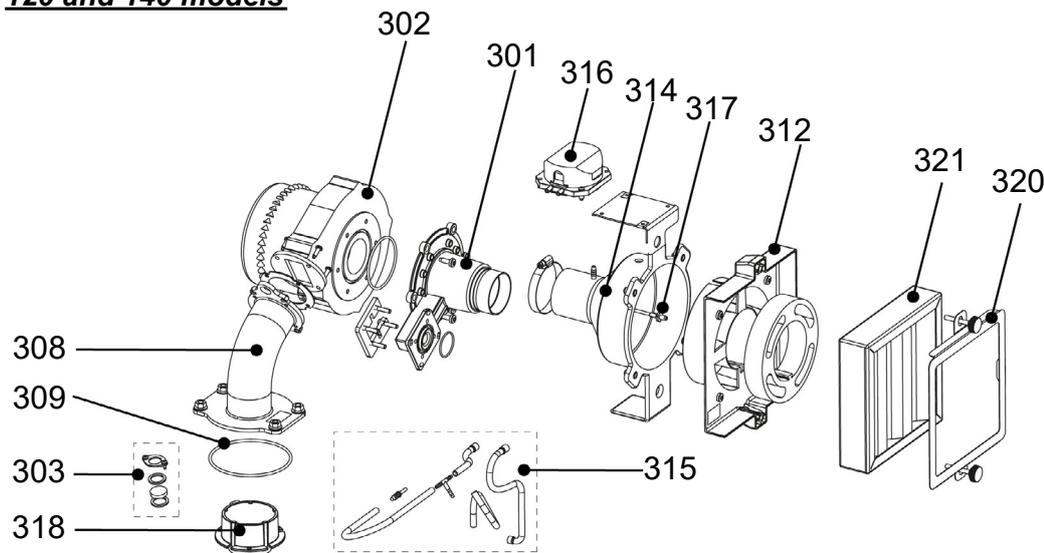
180 to 320 models
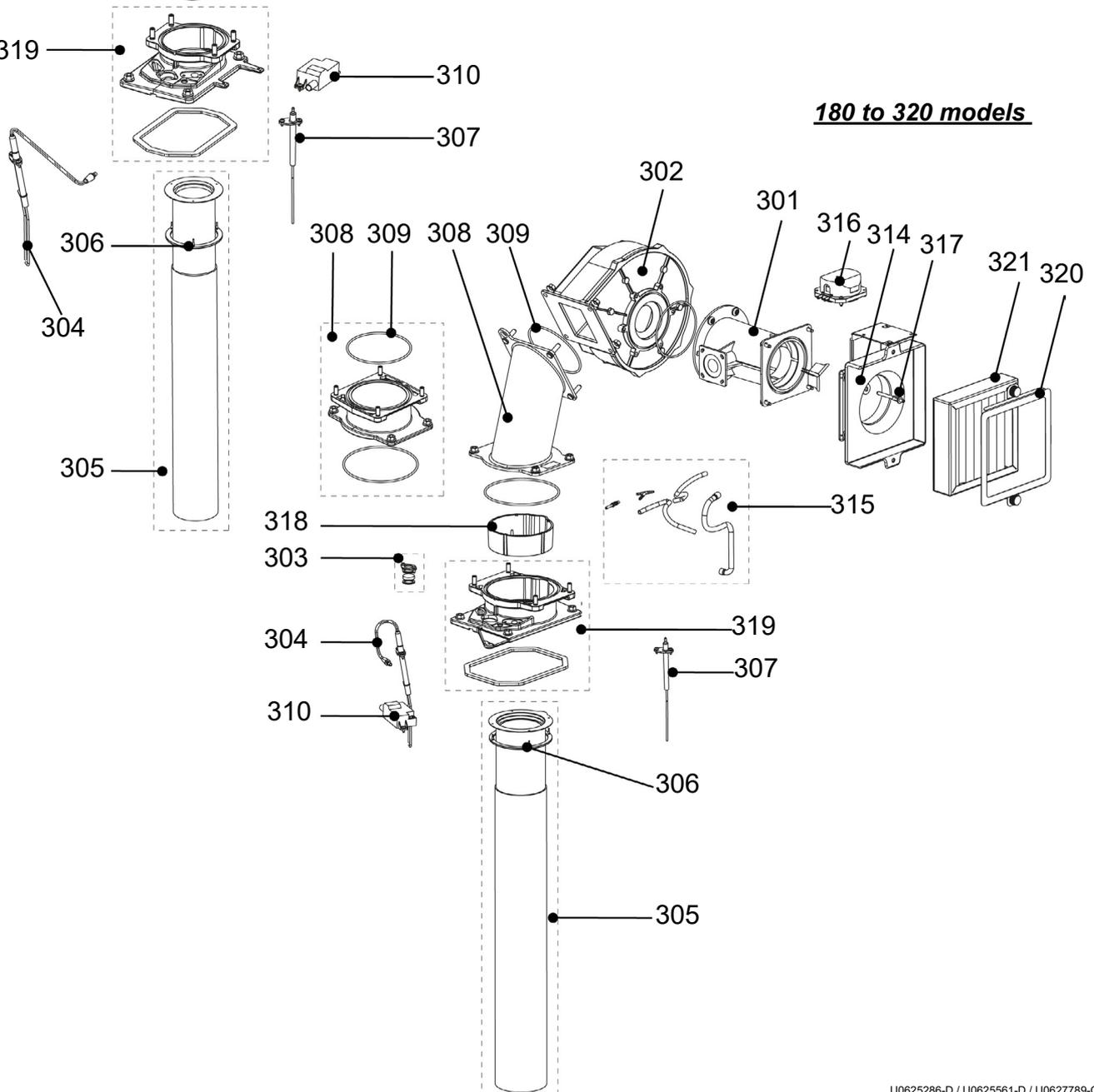
U0625286-D / U0625561-D / U0627789-C

figure 52 - Burner

ITEM	DESIGNATION	REF. FOR MODELS		
		120 & 140	180 & 225	275 & 320
	Burner			
301	Venturi	72411	76151	71859
302	Fan with seals and fittings	76264	60438	71209
303	Flame viewer with holding fittings		76048	
304	Ignition electrode with holding fittings		76046	
305	Tube with seal	76030	76031	76032
306	Seal tube	76034	76035	
307	Ionising electrode with holding fittings		76047	
308	Sleeve with seals (sleeve and fan)	78999	79000	79001
309	Sleeve seal	79002	79003	
310	Ignition transformer with screw-in tab and holding fittings		72131	
311	Burner seals	79006	79007	
312	Acoustic sleeve with foam	79017	--	--
314	Air intake with seal and fittings	79009	79010	
315	Pressure transfer pipes	79011	79012	79013
316	Air pressure switch		79014	
317	Venturi neck pressure tap	79015	78336	
318	Spacer	78992	78993	78994
319	Base with fittings and seal	78997	78998	
320	Filter support panel with fittings		79095	
321	Air filter		71779	
--	Burner and gas line fittings	79048	79049	

(20 mbar)

(300 mbar)

V
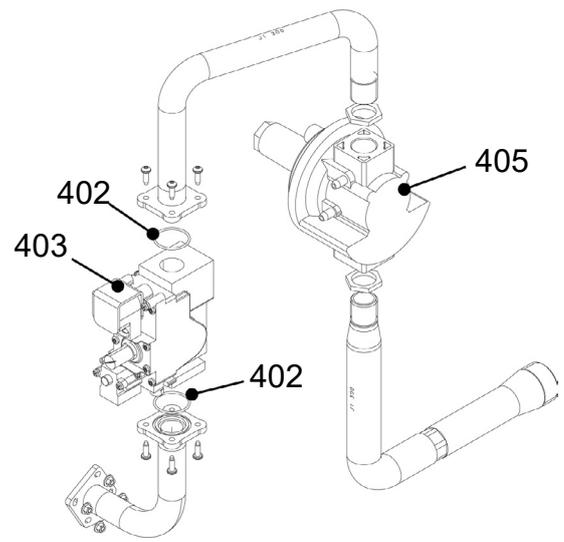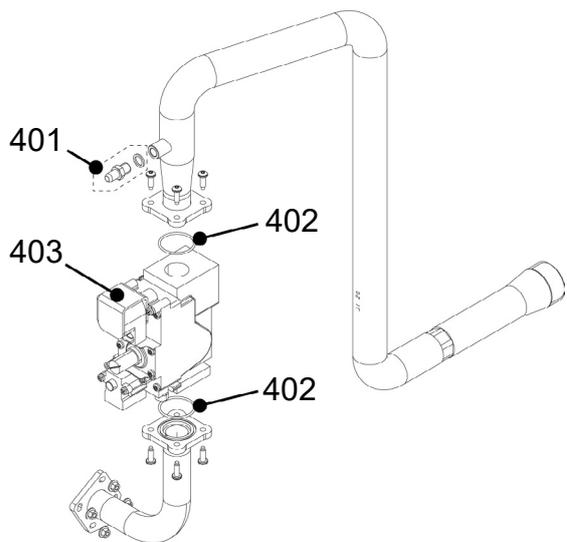
Models: 120 & 140

Models: 180 & 225
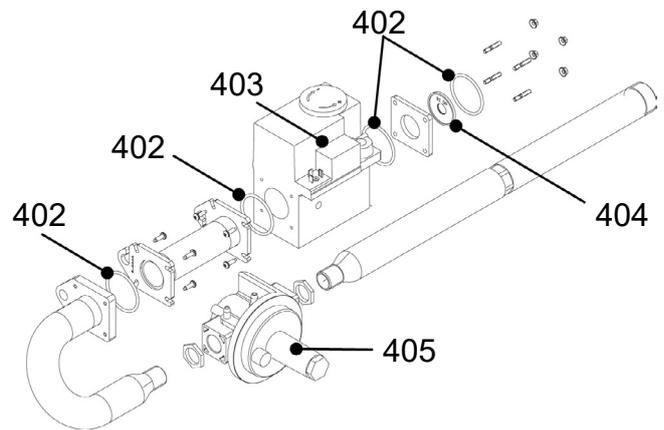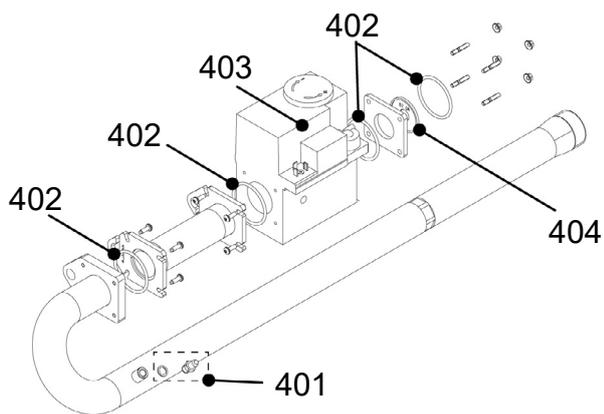
Models: 275 & 320

figure 53 - Gas line

VI

G20: 405n

B.... =

Model / Gas	120 & 140
G20	B2 GN

⚠️ Diaphragm orientation; engraving (B...) gas valve side
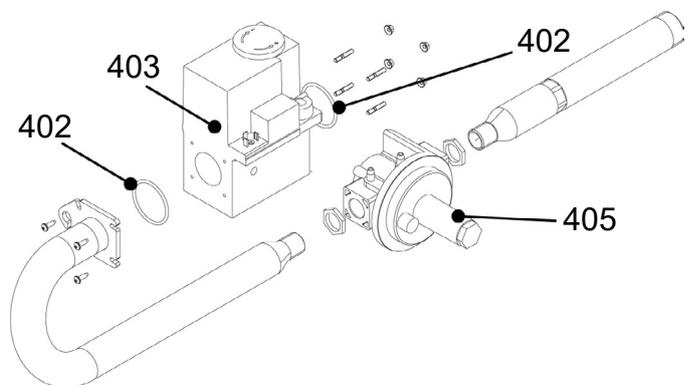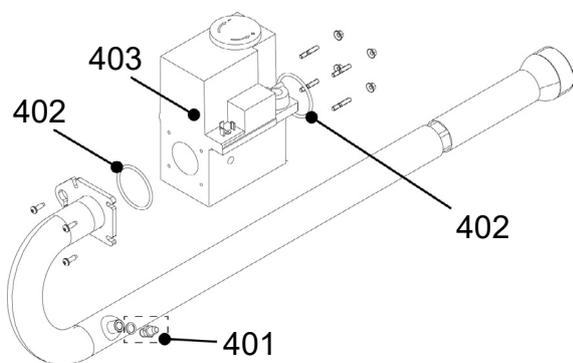
Gas valve side
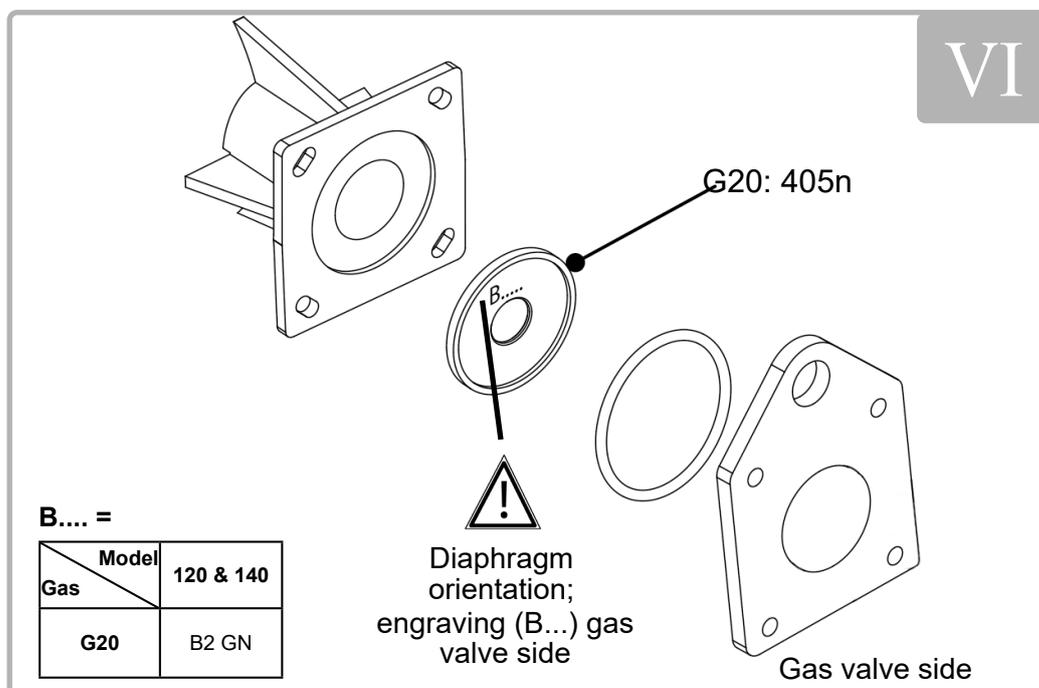
figure 54 - Diaphragm

ITEM	DESIGNATION	REF. FOR MODELS		
		120 & 140	180 & 225	275 & 320
	Gas line			
401	Gas pipe pressure tap	76079		
402	Gas line seals	76080	76081	
403	Gas valve	76363	79004	79005
404	G20 diaphragm	--	76082	--
405	Gas release valve	79114		
--	20 - 300 mbar interchangeability (Cmd = Boiler Serial No.)	79018	79019	79020

ITEM	DESIGNATION	REF. FOR MODELS		
		120 & 140	180 & 225	275 & 320
--	300 - 20 mbar interchangeability (Cmd = Boiler Serial No.)	79021	79022	79023
	Accessories			
--	Complete box of accessories (bases and manuals) France Belgium Switzerland	79088 79091 79090		
--	Levelling feet with base (x 4)	76153		
--	Shock absorber base	78585		
--	OCI 345 communication kit	76168		
--	AVS 75 extension module	72361		
--	QAD 36 network sensor kit	71122		
--	QAD 34 outdoor sensor kit	62860		
--	QA7 36 DHW sensor kit	62864		
--	QAA 75 room sensor kit	72368		
--	AGU 2.550 kit	76161		

11. CUSTOMER REGULATION PARAMETERS TABLE

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

serial no: ....

Please transfer all parameter modifications into this document!

Note: The "access" column indicates the level of accessibility to information for programming (U for end user, M for commissioning and S for specialist). The *Commissioning* accessibility level integrates the *End User* level. In the same way, the *Specialist* level integrates the *Commissioning* level.

Line no.	Programming	Access	Default value	Customer setting
	Time setting			
1	Hours / minutes	U	00: 00	
2	Day / month	U	dd.mm	
3	Year	U	yyyy	
5	Start of summer time	M	dd.mm	
6	End of summer time	M	dd.mm	
	User interface			
20	Language	U	English	
22	Temporary	M	info	
26	Operation locking	M	stop	
27	Programming locking	M	stop	
28	Direct adjustment	M	with validation	
29	Units	U	°C, bar	
42	Assignment appliance 1	M	Heating circuit 1	
44	Heating circuit 2 operation	M	common with heating circuit 1	
46	Heating circuit 3/P operation	M	common with heating circuit 1	
70	Software version	M		
	Timer programme 1: Heating circuit 1			
500	Preselection	U	Mon-Sun	
501	1st period start time	U	06:00	
502	1st period stop time	U	22:00	
503	2nd period start time	U	24:00	
504	2nd period stop time	U	24:00	
505	3rd period start time	U	24:00	
506	3rd period stop time	U	24:00	
516	Default values	U	no	
	Timer programme 2: Heating circuit 2			
520	Preselection	U	Mon-Sun	
521	1st period start time	U	06:00	
522	1st period stop time	U	22:00	
523	2nd period start time	U	24:00	
524	2nd period stop time	U	24:00	
525	3rd period start time	U	24:00	
526	3rd period stop time	U	24:00	
536	Default values	U	no	

Line no.	Programming	Access	Default value	Customer setting
Timer programme 3: Heating circuit 3				
540	Preselection	U	Mon-Sun	
541	1st period start time	U	06:00	
542	1st period stop time	U	22:00	
543	2nd period start time	U	24:00	
544	2nd period stop time	U	24:00	
545	3rd period start time	U	24:00	
546	3rd period stop time	U	24:00	
556	Default values	U	no	
Timer programme 4: Domestic hot water (DHW) production				
560	Preselection	U	Mon-Sun	
561	1st period start time	U	06:00	
562	1st period stop time	U	22:00	
563	2nd period start time	U	24:00	
564	2nd period stop time	U	24:00	
565	3rd period start time	U	24:00	
566	3rd period stop time	U	24:00	
576	Default values	U	no	
Timer programme 5				
600	Preselection	U	Mon-Sun	
601	1st period start time	U	06:00	
602	1st period stop time	U	22:00	
603	2nd period start time	U	24:00	
604	2nd period stop time	U	24:00	
605	3rd period start time	U	24:00	
606	3rd period stop time	U	24:00	
616	Default values	U	no	
Holidays: Heating circuit 1				
641	Preselection	U	period 1	
642	Start (dd.mm)	U	01:01	
643	End (dd.mm)	U	01:01	
648	Temperature level	U	antifreeze protection	
Holidays: Heating circuit 2				
651	Preselection	U	period 1	
652	Start (dd.mm)	U	01:01	
653	End (dd.mm)	U	01:01	
658	Temperature level	U	antifreeze protection	
Holidays: Heating circuit 3				
661	Preselection	U	period 1	
662	Start (dd.mm)	U	01:01	
663	End (dd.mm)	U	01:01	
668	Temperature level	U	antifreeze protection	
Heating circuit 1				
710	Comfort setpoint	U	20 ▯	
712	Reduced setpoint	U	18 °C	
714	Frost protection set-point	U	10 °C	
716	Maximum comfort setpoint	S	35 °C	
720	Curve slope	U	1.5	
721	Curve off-set	S	0 °C	
726	Curve adaptation	S	stop	

Line no.	Programming	Access	Default value	Customer setting
730	Summer/Winter heating limits	U	19 °C	
732	Daily heating limit	S	°C	
740	Min. flow T° setpoint	M	8 °C	
741	Max. flow T° setpoint	M	80 °C	
742	Room thermostat flow T° setpoint	U	65 °C	
746	Heating request timer	M	0 s	
750	Room influence	S	20 %	
760	Room influence limit.	S	1 °C	
761	Terminal regul heating limit	S	--- %	
770	Accelerated heating	S	3 °C	
780	Accelerated lowering	S	stop	
790	Max. optimis. on activation	S	00.00	
791	Max. optimis. on disconnection	S	00.00	
800	Reduction increase start	S	-5 °C	
801	Reduction increase end	S	-15 °C	
809	Uninterrupted pump op	S	no	
820	CCP overheating protect.	S	on	
830	Over-value v. mixer	S	3 °C	
832	Type of servomotor	S	3 points	
833	Differential	S	2 °C	
834	Servomotor travel time	S	120 s	
835	Mixing valve Xp	S	32 °C	
836	Mixing valve Tn	S	120 s	
850	Controlled drying mode	M	None	
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	
870	With storage tank	S	no	
872	With prim regul./primar pump	S	no	
881	Rot. speed on start	S	100 %	
882	Min pump rot. speed	S	100 %	
883	Max pump rot. speed	S	100 %	
888	Rot. speed 5% curve cor.	S	33 %	
889	Speed. regl. filtr. time const.	S	5 min	
890	Rotat. speed reg. setpoint T° corr.	S	yes	
898	T° level switching	S	reduced	
900	Rate switching	S	protection mode	
	Heating circuit 2			
1010	Comfort setpoint	U	20	
1012	Reduced setpoint	U	18 °C	
1014	Frost protection setpoint	U	10 °C	
1016	Maximum comfort setpoint	S	35 °C	
1020	Curve slope	U	1.5	
1021	Curve off-set	S	0 °C	
1026	Curve adaptation	S	stop	
1030	Summer/Winter heating limits	U	19 °C	
1032	Daily heating limit	S	°C	
1040	Min. flow T° setpoint	M	8 °C	
1041	Max. flow T° setpoint	M	80 °C	

Line no.	Programming	Access	Default value	Customer setting
1042	Room thermostat flow T° setpoint	U	65 °C	
1046	Heating request timer	M	0 s	
1050	Room influence	S	20 %	
1060	Room influence limit.	S	1 °C	
1061	Terminal regul heating limit	S	--- %	
1070	Accelerated heating	S	3 °C	
1080	Accelerated lowering	S	stop	
1090	Max. optimis. on activation	S	00.00	
1091	Max. optimis. on disconnection	S	00.00	
1100	Reduction increase start	S	-5 °C	
1101	Reduction increase end	S	-15 °C	
1109	Uninterrupted pump op	S	no	
1120	CCP overheating protect.	S	on	
1130	Over-value v. mixer	S	3 °C	
1132	Type of servomotor	S	3 points	
1133	Differential	S	2 °C	
1134	Servomotor travel time	S	120 s	
1135	Mixing valve Xp	S	32 °C	
1136	Mixing valve Tn	S	120 s	
1150	Controlled drying mode	M	None	
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 prim regul./primar pump	S	no	
1181	Rot. speed on start	S	100 %	
1182	Min pump rot. speed	S	100 %	
1183	Max pump rot. speed	S	100 %	
1188	Rot. speed 5% curve cor.	S	33 %	
1189	Speed. regl. filtr. time const.	S	5 min	
1190	Rotat. speed reg. setpoint T° corr.	S	yes	
1198	T° level switching	S	reduced	
1200	Rate switching	S	protection mode	
	Heating circuit 3			
1310	Comfort setpoint	U	20	
1312	Reduced setpoint	U	18 °C	
1314	Frost protection setpoint	U	10 °C	
1316	Maximum comfort setpoint	S	35 °C	
1320	Curve slope	U	1.5	
1321	Curve off-set	S	0 °C	
1326	Curve adaptation	S	stop	
1330	Summer/Winter heating limits	U	19 °C	
1332	Daily heating limit	S	°C	
1340	Min. flow T° setpoint	M	8 °C	
1341	Max. flow T° setpoint	M	80 °C	
1342	Room thermostat flow T° setpoint	U	65 °C	
1346	Heating request timer	M	0 s	
1350	Room influence	S	20 %	
1360	Room influence limit.	S	1 °C	

Line no.	Programming	Access	Default value	Customer setting
1361	Terminal regul heating limit	S	--- %	
1370	Accelerated heating	S	3 °C	
1380	Accelerated lowering	S	stop	
1390	Max. optimis. on activation	S	00.00	
1391	Max. optimis. on disconnection	S	00.00	
1400	Reduction increase start	S	-5 °C	
1401	Reduction increase end	S	-15 °C	
1409	Uninterrupted pump op	S	no	
1420	CCP overheating protect.	S	on	
1430	Over-value v. mixer	S	3 °C	
1432	Type of servomotor	S	3 points	
1433	Differential	S	2 °C	
1434	Servomotor travel time	S	120 s	
1435	Mixing valve Xp	S	32 °C	
1436	Mixing valve Tn	S	120 s	
1450	Controlled drying mode	M	None	
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 prim regul./primar pump	S	no	
1481	Rot. speed on start	S	100 %	
1482	Min pump rot. speed	S	100 %	
1483	Max pump rot. speed	S	100 %	
1488	Rot. speed 5% curve cor.	S	33 %	
1489	Speed. regl. filtr. time const.	S	5 min	
1490	Rotat. speed reg. setpoint T° corr.	S	yes	
1498	T° level switching	S	reduced	
1500	Rate switching	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	Release	M	24/24	
1630	DHW load priority	M	sliding, absolute	
1640	Anti-legionella function	S	stop	
1641	Periodic Anti-legionella function	S	3	
1642	Anti- legionella function day week	S	Monday	
1644	Anti-legionella function hour	S	05:00	
1645	Anti-legionella setpoint	S	55 °C	
1646	Anti-legionella function duration	S	30 min	
1647	Circul. Pump anti-legionella func.	S	on	
1660	Circulating pump release	S	Liberation of DHW	
1661	Circ. pump periodic deac.	S	on	
1663	Circulation setpoint	S	45 °C	
1680	Rate switching	S	stop	
	Consumer circuit 1			
1859	Cons request output setpoint T°	M	60 °C	
1875	Excess heat absorption	S	on	

Line no.	Programming	Access	Default value	Customer setting
1878	With storage tank	S	no	
1880	With prim regul./primar pump	S	no	
	Consumer circuit 2			
1909	Cons request output setpoint T°	M	60 °C	
1925	Excess heat absorption	S	on	
1928	With storage tank	S	no	
1930	With prim regul./primar pump	S	no	
	Pool circuit			
1959	Cons request output setpoint T°	M	70 °C	
1975	Excess heat absorption	S	on	
1978	With storage tank	S	no	
1980	With prim regul./primar pump	S	no	
	Pool			
2055	Solar heating setpoint	S	26 °C	
2056	Boiler setpoint	S	22 °C	
2065	Solar charging priority	S	Priority 2	
2080	With solar integration	S	yes	
	Boiler			
2203	Release below outside T°	S	0 °C	
2208	Store tank complete charge	S	stop	
2210	Min setpoint	S	8 °C	
2212	Max setpoint	S	85 °C	
2214	Manual rate setpoint	U	70 °C	
2217	Frost protection setpoint	S	8°C	
2243	Burner min stop duration	S	5 min	
2250	Pump timed stop	S	5 min	
2253	DHW supply pump timer stop	S	1 min	
2270	Minimum return setpoint	S	8 °C	
2321	Rot. speed on start	S	100 %	
2322	Min pump rot. speed	S	100 %	
2323	Max pump rot. speed	S	100 %	
2330	Nom. power	S	depending on model	
2331	Power at basic speed	S	depending on model	
2334	Power at min pump rotation speed	S	0 %	
2335	Power at max pump rotation speed	S	100 %	
2441	Max. heating power speed	S	depending on model	
2442	Max. charge full fan speed	S	depending on model	
2444	Max DHW fan speed	S	depending on model	
2454	Heating circuit activation differential	S	3 °C	
2455	Min. heating circuit disc. different.	S	3 °C	
2456	Max. heating circuit disc. different.	S	6 °C	
2457	Heating circuit transitional period	S	20 min	
2460	DHW activation differential	S	3 °C	
2461	Min DHW disconnection differential	S	3 °C	
2462	Max DHW disconnection differential	S	6 °C	
2463	DHW transitional period	S	20 min	
2470	Spec mode heating start timer	M	0 s	
2503	Parameter	S	--- s	
2630	Auto drain function	S	Stop	
2655	Drain time	S	10 s	

Line no.	Programming	Access	Default value	Customer setting
2656	Drain stop time	S	5 s	
2657	Number of repetitions	S	3	
2662	Hot circuit drain duration	S	10 min	
2663	DHW drain duration	S	5 min	
	Cascade			
3510	Operating strategy	S	Switch-on early, stop delayed	
3511	Min power range	S	30 %	
3512	Max power range	S	90 %	
3530	Gen seq integral release	S	300 °Cmin	
3531	Generate. sequence intergral reset	S	100 °Cmin	
3532	Reactivation timer	S	300 s	
3533	Activation timer	S	5 min	
3534	Basic all. forced op time	S	60 s	
3535	DHW activation timer	S	2 min	
3540	Gen. seq. auto switching	S	500 h	
3541	Exclusion seq auto switch	S	none	
3544	Pilot boiler	S	generator 1	
3560	Minimum return setpoint	S	8 °C	
3562	Consum. return influence	S	on	
	DHW tank			
5020	Outlet setpoint T° raise	S	10 °C	
5021	Transfer raise	S	8 °C	
5022	Charge type	S	complete charge	
5030	Charging time limitation	S	--- min	
5040	Discharge protection	S	Auto	
5050	Max. charge T°	S	80 °C	
5055	Adiabatic cool. T°	S	80 °C	
5056	gener/heating circuit adiab. cooling	S	stop	
5057	Collector adiab. cooling	S	stop	
5060	Electrical resistance mode	S	substitute	
5061	Electrical resistance release	S	Liberation of DHW	
5062	Elec. resistance regul.	S	DHW sensor	
5085	Excess heat absorption	S	on	
5090	With storage tank	S	no	
5092	With prim regul./primar pump	S	no	
5093	With solar integration	S	yes	
5101	Min pump rot. speed	S	100 %	
5102	Max pump rot. speed	S	100 %	
5108	Load pump start rot. speed	S	100 %	
	General function			
5570	dT° regul on dT 1	S	20	
5571	dT°regul off dT 1	S	10 °C	
5572	Regul min act time dT 1	S	0 °C	
5573	Sensor 1 regulator dT 1	S	none	
5574	Sensor 2 regulator dT 1	S	none	
5575	Min regul on time dT1	S	0 s	
5577	Pump/valve kick-start K21	S	on	
5580	dT° regul on dT 2	S	20	
5581	dT°regul off dT 2	S	10 °C	
5582	Regul min act time dT 2	S	0 °C	

Line no.	Programming	Access	Default value	Customer setting
5583	Sensor 1 regulator dT 2	S	none	
5584	Sensor 2 regulator dT 2	S	none	
5585	Min regul on time dT2	S	0 s	
5587	Pump/valve kick-start K21	S	on	
Configuration				
5710	Heating circuit 1	M	stop	
5711	Cooling circuit 1	M	none	
5715	Heating circuit 2	M	stop	
5721	Heating circuit 3	M	stop	
5730	DHW sensor	M	sensor	
5731	DHW pump/valve	M	Load pump	
5732	Valve reverse DHW ppr stop	M	0 s	
5733	DHW pump stop timer	M	0 s	
5734	DHW direct valve base pos.	S	last request	
5736	Separate DHW circuit	M	stop	
5737	DHW diverter valve action direction	S	DHW ON position	
5738	Divert. v. median position DHW	S	stop	
5774	DHW hot pump+direct valve cmd	M	all requests	
5840	Solar setting mechanism	M	by charging pump	
5841	External solar exchanger	M	common	
5870	Combined DHW tank	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	M	none	
5931	Sensor input BX2	M	none	
5932	Sensor input BX3	M	none	
5950	H1 input function	M	none	
5951	H1 contact action direction	M	Operation contact	
5953	H1 voltage 1 value (U1)	M	0 V	
5954	H1 function 1 value (F1)	M	0	
5955	H2 voltage 2 value (U2)	M	10 V	
5956	H1 function 2 value (F2)	M	1000	
5977	H5 input function	M	none	
5978	H5 contact action direction	M	Operation contact	
6020	Extension module 1 funct	M	none	
6021	Extension module 2 funct	M	none	
6022	Extension module 3 funct	M	none	
6024	Module 1 EX21 input funct	M	none	
6026	Module 2 EX21 input funct	M	none	
6028	Module 3 EX21 input funct	M	none	
6030	Relay output QX21 module 1	M	none	
6031	Relay output QX22 module 1	M	none	
6032	Relay output QX23 module 1	M	none	
6033	Relay output QX21 module 2	M	none	
6034	Relay output QX22 module 2	M	none	
6035	Relay output QX23 module 2	M	none	
6036	Relay output QX21 module 3	M	none	
6037	Relay output QX22 module 3	M	none	
6038	Relay output QX23 module 3	M	none	

Line no.	Programming	Access	Default value	Customer setting
6040	Module 1 BX21 sensor input	M	none	
6041	Module 1 BX22 sensor input	M	none	
6042	Module 2 BX21 sensor input	M	none	
6043	Module 2 BX22 sensor input	M	none	
6044	Module 3 BX21 sensor input	M	none	
6045	Module 3 BX22 sensor input	M	none	
6046	Module 1 H2 input function	M	none	
6078	UX2 output function	S	Boiler pump Q1	
6079	UX2 signal logical output	S	direct	
6089	UX3 output function	S	none	
6090	UX3 signal logical output	S	direct	
6047	Mod.1 H2 contact act. direction	M	Operation contact	
6049	Mod. 1 H2 voltage 1 value (U1)	M	0 V	
6050	Module 1 H2 funct. value 1 (F1)	M	0	
6051	Mod. 1 H2 voltage 1 value (U2)	M	0 V	
6052	Module 1 H2 funct. value 2 (F2)	M	0	
6054	Module 2 H2 input function	M	none	
6055	Mod.2 H2 contact act. direction	M	Operation contact	
6057	Mod. 2 H2 voltage 1 value (U1)	M	0 V	
6058	Module 2 H2 funct. value 1 (F1)	M	0	
6059	Mod. 2 H2 voltage 2 value 2 (U2)	M	0 V	
6060	Module 2 H2 funct. value 2 (F2)	M	0	
6062	Module 3 H2 input function	M	none	
6063	Mod.3 H2 contact act. direction	M	Operation contact	
6065	Mod. 3 H2 voltage 1 value (U1)	M	0 V	
6066	Module 3 H2 funct. value 1 (F1)	M	0	
6067	Mod. 3 H2 voltage 2 value 3 (U2)	M	0 V	
6068	Module 3 H2 funct. value 2 (F2)	M	0	
6097	Solar collect. sensor type	S	NTC	
6098	Solar coll sensor correction	S	0 °C	
6100	Ext. T° sensor correction	S	0 °C	
6110	Building time constant	S	8 h	
6116	Setpoint compens time const	S	1 min	
6117	Setpoint T° centr compens	S	3 °C	
6120	Installation antifreeze	S	stop	
6127	Valve/pump kick-start duration	S	30 s	
6200	Register sensor	M	no	
6205	Reset parameters	S	no	
6212	Generator 1 inspection No.	M	14: with boiler and recycling pumps	
6215	Storage tank inspection No.	M	0: tank	
6217	Heating circuit inspection No.	M	0	
6220	Software version	S		
6230	Info 1 OEM	S		
6234	Type of boiler	S	6: VARPRIM	
	LPB network			
6600	Appliance address	M	1	
6601	Segment address	S	0	
6604	Bus supply function	S	automatic	
6605	Bus supply status	S	on	
6610	System message display	S	no	

Line no.	Programming	Access	Default value	Customer setting
6611	Alarm relay system messages	S	no	
6612	Alarm timer	S	2 min	
6620	Switch. action scope	S	System	
6621	Summer switching	S	localised	
6623	Rate switching	S	centralised	
6624	Generator manual blockage	S	localised	
6625	DHW assignment	S	all system heating circuits	
6631	Ecol. mode ext generator	S	stop	
6640	Clock operation	M	independent	
6650	Outdoor T° sensor	S	0	
	Error			
6705	Current error extended code	U	0	
6710	Alarm relay reset	M	no	
6740	Output 1 T° alarm	S	120 min	
6741	Output 2 T° alarm	S	120 min	
6742	Output 3 T° alarm	S	120 min	
6743	Boiler T° alarm	S	120 min	
6745	DHW charging alarm	S	8 h	
6800	History 1	S	00.00	
6805	Software diagnostic code 1	S	0	
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	
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	

Line no.	Programming	Access	Default value	Customer setting
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	
Maintenance / Special operation				
7040	Burner op. hours interval	S	1500 h	
7041	Op. h since maint.	S	0 h	
7042	Burner start interval	S	9000	
7043	Burner start since Maint.	S	0	
7044	Maintenance interval	S	24 months	
7045	Time since maintenance	S	0 months	
7050	Ionis. current fan speed	S	0	
7051	Ionis. current message	S	no	
7130	Chimney function	U	stop	
7131	Burner power	U	max hot charge	
7140	Manual mode	U	stop	
7143	Regulator stop function	S	stop	
7145	Regulator stop setpoint	S	0 %	
7146	Drain function	M	on	
7147	Drain type	M	none	
7170	After Sales Department telephone	M	0	
Inputs / outputs test				
7700	Relay test	M	---	
7716	UX2 output test	M	---	
7724	UX3 output test	M	---	
7730	Outdoor T° B9	M	---	
7750	DHW temperature B3/B8	M	---	
7760	Boiler T° B2	M	---	
7820	Sensor T° BX1	M	---	
7821	Sensor T° BX2	M	---	
7822	Sensor T° BX3	M	---	
7823	Sensor T° BX4	M	---	
7830	Module 1 BX21 sensor T°	M	---	
7831	Module 1 BX22 sensor T°	M	---	
7832	Module 2 BX21 sensor T°	M	---	
7833	Module 2 BX22 sensor T°	M	---	
7834	Module 3 BX21 sensor T°	M	---	
7835	Module 3 BX22 sensor T°	M	---	
7840	H1 voltage signal	M	---	
7841	H1 contact status	M	---	
7845	Module 1 H2 voltage signal	M	---	
7846	Module 1 H2 contact status	M	---	
7848	Module 2 H2 voltage signal	M	---	
7849	Module 2 H2 contact status	M	---	
7851	Module 3 H2 voltage signal	M	---	
7852	Module 3 H2 contact status	M	---	

Line no.	Programming	Access	Default value	Customer setting
7854	H3 voltage signal	M	---	
7855	H3 contact status	M	---	
7860	H4 contact status	M	---	
7862	H4 frequency	M	---	
7865	H5 contact status	M	---	
7872	H6 contact status	M	---	
7874	H7 contact status	M	---	
7950	Module 1 EX21 input	M	---	
7951	Module 2 EX21 input	M	---	
7952	Module 3 EX21 input	M	---	
	Status			
8000	Heating circuit 1 status	M	---	
8001	Heating circuit 2 status	M	---	
8002	Heating circuit 3 status	M	---	
8003	DHW status	M	---	
8005	Boiler status	M	---	
8007	Solar collector status	M	---	
8008	Solid fuel boiler status	M	---	
8009	Burner status	M	---	
8010	Storage tank status	M	---	
8011	State of swimming pool.	M	---	
	Cascade diagnostic			
8100 / 01	Generator 1 priority / status	M	---	
8102 / 03	Generator 2 priority / status	M	---	
8104 / 05	Generator 3 priority / status	M	---	
8106 / 07	Generator 4 priority / status	M	---	
8108 / 09	Generator 5 priority / status	M	---	
8110 / 11	Generator 6 priority / status	M	---	
8112 / 13	Generator 7 priority / status	M	---	
8114 / 15	Generator 8 priority / status	M	---	
8116 / 17	Generator 9 priority / status	M	---	
8118 / 19	Generator 10 priority / status	M	---	
8120 / 21	Generator 11 priority / status	M	---	
8122 / 23	Generator 12 priority / status	M	---	
8124 / 25	Generator 13 priority / status	M	---	
8126 / 27	Generator 14 priority / status	M	---	
8128 / 29	Generator 15 priority / status	M	---	
8130 / 31	Generator 16 priority / status	M	---	
8138 / 39	Cascade starting temperature / setpoint	M	---	
8140 / 41	Cascade return temperature / setpoint	M	---	
8150	Current generator cascade switch	M	---	
	Generator diagnostic			
8304	Boiler pump status (Q1)	S	---	
8308	Boiler pump speed	S	---	
8309	Bypass pump speed	S	---	
8310	Boiler temperature	M	---	
8311	Boiler setpoint	M	---	
8312	Boiler switching point	M	---	
8313	Regulation sensor	M	---	

Line no.	Programming	Access	Default value	Customer setting
8314	Boiler return temperature	M	---	
8315	Boiler return T° setpoint	M	---	
8316	Fume temperature	M	---	
8318	Max burnt gas temperature	M	---	
8321	Primary exchanger temperature	M	---	
8323	Fan speed	M	---	
8324	Burner fan setpoint	M	---	
8325	Current fan command	M	---	
8326	Boiler modulation	M	---	
8327	Hydraulic pressure	M	---	
8329	Ionisation current	S	---	
8330	1st speed operating hours	S	---	
8331	1st speed start counter	S	---	
8338	Operating hours in heating mode	U	---	
8339	DHW mode operating hours	U	---	
8390	Current phase No.	S	---	
8499	Solar panel pump 1	S	---	
8501	Tank solar setting org	S	---	
8502	Pool solar setting org	S	---	
8505	Solar collect pump 1 speed	S	---	
8506	Ext. exch. solar pump speed	S	---	
8507	Storage tank pump speed, sol	S	---	
8508	Pool pump speed, solar	S	---	
8510	Solar collect. 1 T°	M	---	
8511	Solar panel 1 max T°	M	---	
8512	Solar panel 1 min T°	M	---	
8513	Solar collect 1/DHW dT°	M	---	
8514	Solar collect. 1/storage tank dT°	M	---	
8515	Solar collect 1/pool dT°	M	---	
8519	Solar start T°	M	---	
8520	Solar return T°	M	---	
8526	Sol energ daily output	U	---	
8527	Sol energ overall output	U	---	
8530	Solar operating hours	U	---	
8531	Collect. overheating op hours	U	---	
8532	Solar pump op hours	U	---	
8560	Solid fuel boiler T°	M	---	
8570	Solid fuel op hours	U	---	
Consumer diagnostic				
8700	Outdoor temperature	M	---	
8701	Minimum outdoor temperature	U	---	
8702	Maximum outdoor temperature	U	---	
8703	Attenuated outdoor temperature	M	---	
8704	Mixed outdoor temperature	M	---	
8730	Heating circuit 1 pump	M	---	
8731	Heating circuit 1 mixing valve open	M	---	
8732	Heating circuit 1 mixing valve closed	M	---	
8735	Heating circuit 1 pump speed	S	---	
8740 / 41	Ambient temperature / Ambient temperature setpoint 1	M	---	
8743 / 44	Start temperature / Start temperature setpoint 1	M	---	

Line no.	Programming	Access	Default value	Customer setting
8749	Room thermostat 1	M	---	
8760	Heating circuit 2 pump	M	---	
8761	Heat circ mix valv 2 open	M	---	
8762	Heating circuit 2 mixing valve closed	M	---	
8765	Heating circuit 2 pump speed	S	---	
8770 / 71	Ambient temperature / Ambient temperature setpoint 2	M	---	
8773 / 74	Start temperature / Start temperature setpoint 2	M	---	
8779	Room thermostat 2	M	---	
8790	Heating circuit 3 pump	M	---	
8791	Heating circuit 3 mixing valve open	M	---	
8792	Heating circuit 3 mixing valve closed	M	---	
8795	Heating circuit 3 pump speed	S	---	
8800 / 01	Ambient temperature / Ambient temperature setpoint 3	M	---	
8803 / 04	Start temperature / Start temperature setpoint 3	M	---	
8809	Room thermostat 3	M	---	
8820	DHW pump	M	---	
8825	DHW pump speed	S	---	
8826	Interm. circulator pump speed DHW	S	---	
8827	Instant water heater pump speed	S	---	
8830 / 31	DHW temperature / setpoint 1 (B3)	M	---	
8832	DHW temperature 2 (B31)	M	---	
8835	DHW circulation temperature	M	---	
8836	DHW charging temperature	M	---	
8852	DHW drawing temperature	M	---	
8853	Instant water heater setpoint	M	---	
8860	DHW flow	M	---	
8875	Cons1 circ. flow setpoint temperature	M	---	
8885	Cons2 circ. flow setpoint temperature	M	---	
8895	Pool flow T° setpoint	M	---	
8900 / 01	Pool temperature / setpoint	M	---	
8930 / 31	Primary regulation / setpoint temperature	M	---	
8950 / 51	Line start / setpoint temperature	M	---	
8952	Line return temperature	M	---	
8962	Line power setpoint	M	---	
8980	Storage tank 1 temperature (B4)	M	---	
8981	Storage tank setpoint	M	---	
8982	Storage tank 2 temperature (B41)	M	---	
8983	Storage tank 3 temperature (B42)	M	---	
9009	Hydraulic pressure H3	M	---	
9031	Relay output QX1	M	---	
9032	Relay output QX2	M	---	
9033	Relay output QX3	M	---	
9034	Relay output QX4	M	---	
9050	Relay output QX21 module 1	M	---	
9051	Relay output QX22 module 1	M	---	
9052	Relay output QX23 module 1	M	---	

Line no.	Programming	Access	Default value	Customer setting
9053	Relay output QX21 module 2	M	---	
9054	Relay output QX22 module 2	M	---	
9055	Relay output QX23 module 2	M	---	
9056	Relay output QX21 module 3	M	---	
9057	Relay output QX22 module 3	M	---	
9058	Relay output QX23 module 3	M	---	
	Safety unit			
9504	Preventilat. speed setpoint	S	depending on model	
9512	Ignition speed setpoint	S	depending on model	
9524	Part charge rot. speed setpoint	S	depending on model	
9525	Part char. speed min setpoint	S	depending on model	
9529	Nom char. speed setpoint	S	depending on model	
9530	Nom charge max speed setpoint	S	depending on model	
9650	Chimney drying	S	stop	
9651	Chimney drying speed setpoint	S	500 rpm	
9652	Chimney drying time	S	10 min	

12. APPENDIX A

Product data ≤ 400 kW

Product reference								
Trade mark			ATLANTIC - YGNIS					
Model			120	140	180	225	275	320
Nominal power	Prated	kW	116	136	175	219	267	311
Useful heat production								
At nominal power and in 80°C / 60°C regime	P_4	kW	116.6	136.1	175.3	219.2	268.7	311.7
	η_4 (PCI)	%	97.2	97.2	97.4	97.4	97.7	97.4
At 30% nominal power and in 30°C return temperature regime	P_1	kW	39.1	45.7	58.9	73.6	89.8	104.4
	η_1 (PCI)	%	108.7	108.7	109.0	109.0	108.8	108.8
Auxiliary electricity consumption								
Under full load	elmax	kW	0.249	0.338	0.227	0.338	0.371	0.0475
Under partial load	elmin	kW	0.047	0.037	0.072	0.056	0.106	0.128
In standby mode	P_{SB}	kW	0.005	0.005	0.005	0.004	0.005	0.005
Other properties								
Heat loss	Pstby	kW	0.258		0.310		0.364	
Nitrogen oxide emissions	Nox (PCS)	mg/kWh	30.6		27.8		37.1	

Date of commissioning:

Address of your heating installer or customer service.
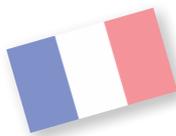
SATC ATLANTIC SOLUTIONS CHAUFFERIE
124 route de Fleurville
01190 PONT DE VAUX - FRANCE
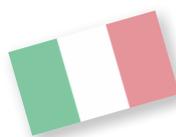Tel.: 03 51 42 70 03
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