

INSTALLATION, USE AND MAINTENANCE INSTRUCTIONS

# VARFREE

Gas condensing boiler  
40, 60, 80, 10, 120 or  
150 with modulating  
burner for natural gas  
and propane gas



**DECLARATION UE DE CONFORMITE**  
**EU DECLARATION OF CONFORMITY**  
**EU KOFORMITÄTSEKTLÄRUNG**

Entreprise      Guillot Industrie  
*Manufacturer*

Adresse      Route de Fleurville  
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La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.  
*This declaration of conformity is made under the sole manufacturer liability.*

L'objet de la déclaration décrit ci-dessus est conforme à la législation d'harmonisation de l'Union applicable:  
*The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:*

**Pour la Directive 2014/35/UE - Basse Tension**

*For the Directive 2014/35/EU - Low Voltage Units*

Application      EN 60335-1  
des normes      EN 60335-2-102  
*Application of  
standards*

**Pour la Directive 2014/30/UE - Compatibilité ElectroMagnétique (CEM)**

*For the Directive 2014/30/EU - ElectroMagnetic Compatibility (EMC)*

Application      EN 61000-6-1  
des normes      EN 61000-6-3  
*Application of  
standards*  
*Anwendung von  
Normen*

**Pour la Directive 2011/65/UE - Limitation des substances dangereuses (RoHS)**

*For the Directive 2011/65/EU - Restriction of Hazardous Substances (RoHS)*

**Pour le Règlement 2013/813/UE complétant la Directive 2009/125/CE - Ecoconception**

*For the Regulation 2013/813/EU supplementing Directive 2009/125/EC - Ecodesign*

**Chaudière gaz Murale**

*Wall-hung gas boilers*

Marque commerciale <i>Commercial name</i>	Référence <i>Reference</i>
Atlantic guillot Atlantic	Varfree 35, Varfree 40, Varfree 60, Varfree 70, Varfree 80, Varfree 100, Varfree 120, Varfree 150
Ygnis	Varfree 35, Varfree 40, Varfree 60, Varfree 70, Varfree 80, Varfree 100, Varfree 115, Varfree 120, Varfree 150
Hamworthy	Stratton MK2 S2-40, Stratton MK2 S2-60, Stratton MK2 S2-70, Stratton MK2 S2-80, Stratton MK2 S2-100, Stratton MK2 S2-120, Stratton MK2 S2-150

Signé par et au nom de      E. Janvier  
*Signed for and on behalf of*      Directeur Technique

le 08/01/2018  
*the*

  
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# 1. WARNINGS AND RECOMMENDATIONS

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

## 1.1. Transport and storage

The boiler:

- must be stored vertically in an environment where the temperature is between  $-20^{\circ}\text{C}$  and  $+55^{\circ}\text{C}$ , 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.



**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.

## 1.5. 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 a naked flame, do not smoke, do not turn on electrical contacts or switches.**
- **Cut off the gas supply.**
- **Air the premises.**
- **Look for the leak and repair it.**



**DANGER:**

### If you see smoke:

- **Switch off the boiler.**
- **Air the premises.**
- **Look for the leak and repair it.**



**DANGER:**

**This boiler's earth bonding is ensured with connecting cables (green/yellow) and specific attachment screws. During any dismantling work, make sure you reconnect the cables concerned; it is IMPERATIVE to reuse the original attachment screws.**

## 1.4. Water characteristics

The following rules apply as soon as the boiler is commissioned and remain valid until the product's end-of-life.



**DANGER:**

**It is forbidden to use water containing glycol.**

### 1.4.1. Preparation of the water circuit before commissioning the boiler

For all installation work (new or renovation), the water network pipes must be meticulously cleaned. The purpose of cleaning prior to commissioning is to remove germs and residues which are the cause of deposits.

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

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

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

installed on the back of the boiler to capture loosened deposits. Cleaning prior to commissioning helps to improve the equipment's performance, reduce energy consumption and fight against scaling and corrosion. This operation must be done by a professional (water treatment).

### 1.4.2. **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 and the amount of make-up water added throughout the unit's lifecycle must 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 unit has a water softener, the equipment must be inspected on a regular basis in order to ensure that it is not outputting chloride-rich water into the system. The concentration of chlorides 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 (e.g. high level of hardness), 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 started 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 the equipment's operation, remove lime scale deposits. This must be done by a specialised company. Also, before putting the unit into service, verify that the heating system is not damaged (e.g. leaks). If it has excessive scaling, the unit's settings for operation and for water treatment must be adjusted.

### 1.4.3. **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. These rules include:

- Opt for an expansion vessel with a membrane rather than an open expansion vessel that allows direct passage.
- Make sure pressure in the equipment is more than 1 bar when cold.
- Remove non-gas-tight components (permeable) and use gas-tight equipment instead.

If the guidelines above are followed, the unit's system water has the proper characteristics to last a long time:  $8.2 < \text{pH} < 9.5$  and concentration in dissolved oxygen  $< 0.1$  mg/litre.

If there is a chance that oxygen could enter the unit, you must take additional precautions. Adding an oxygen scavenger (e.g. sodium sulphite) is highly recommended. We recommend you contact specialised companies for water treatment issues, which will be able to suggest:

- the appropriate treatment based on the characteristics of the installation,
- a monitoring and performance warranty contract.

For units in which the water comes into contact with heterogeneous materials, such as copper or aluminium, appropriate treatment is recommended in order to ensure that the unit will last. In most cases, this consists of adding corrosion inhibitors (in the form of chemical solutions) to the unit. It is recommended to contact water treatment specialists.

#### **1.4.4. Unit monitoring**

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If the above recommendations are followed (new installation or renovation), it should be sufficient to:

- check the amount of make-up water (fill water volume + make-up water volume  $< 3$  times the unit volume).
- check the pH level (stable or slightly increasing).
- check the TH (stable or slightly decreasing).

We recommend these checks are carried out 2 to 3 times a year. Note that monitoring the quantity of make-up water is critical to the long life of the unit. If any of these three parameters deviates from the above recommendations, refer to a water treatment specialist to correct the problem.

#### **1.4.5. Installation of the plate exchanger**

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If the recommendations 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.

#### **1.4.6. Installation of a filtration system**

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



## 2. APPROVALS

### 2.1. Compliance with European Directives

**- Low voltage (2014/35/UE)**

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

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

**- Electromagnetic compatibility (2014/30/UE)**

**- Gas appliances (2009/142/CE)**

**- Energy labelling (2010/30/EU):**

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

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

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

**- WEEE (2012/19/UE)**

Waste Electrical and Electronic Equipment. See chapter 8.

### 2.2. Regulatory installation conditions

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

### 2.3. Gas category

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

See chapter 4.4 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.

VARFREE	CATEGORY	
	AT - CH - CZ - GR - LT - PT - RO - SI - SK	DK - EE - FI - LV - NO - SE
40 - 60 - 70 - 80 - 100	II <sub>2H3P</sub>	I <sub>2H</sub>
120 - 150	I <sub>2H</sub>	I <sub>2H</sub>

## 2.4. Gas supply pressures

**INFORMATION:**

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

	<b>H G20 natural gas</b>	<b>G31 propane</b>
<b>Nominal pressure (mbar)</b>	20	37
<b>Minimum pressure (mbar)</b>	17	25
<b>Maximum pressure (mbar)</b>	25	45

### 3. TECHNICAL SPECIFICATIONS

#### 3.1. Dimensions

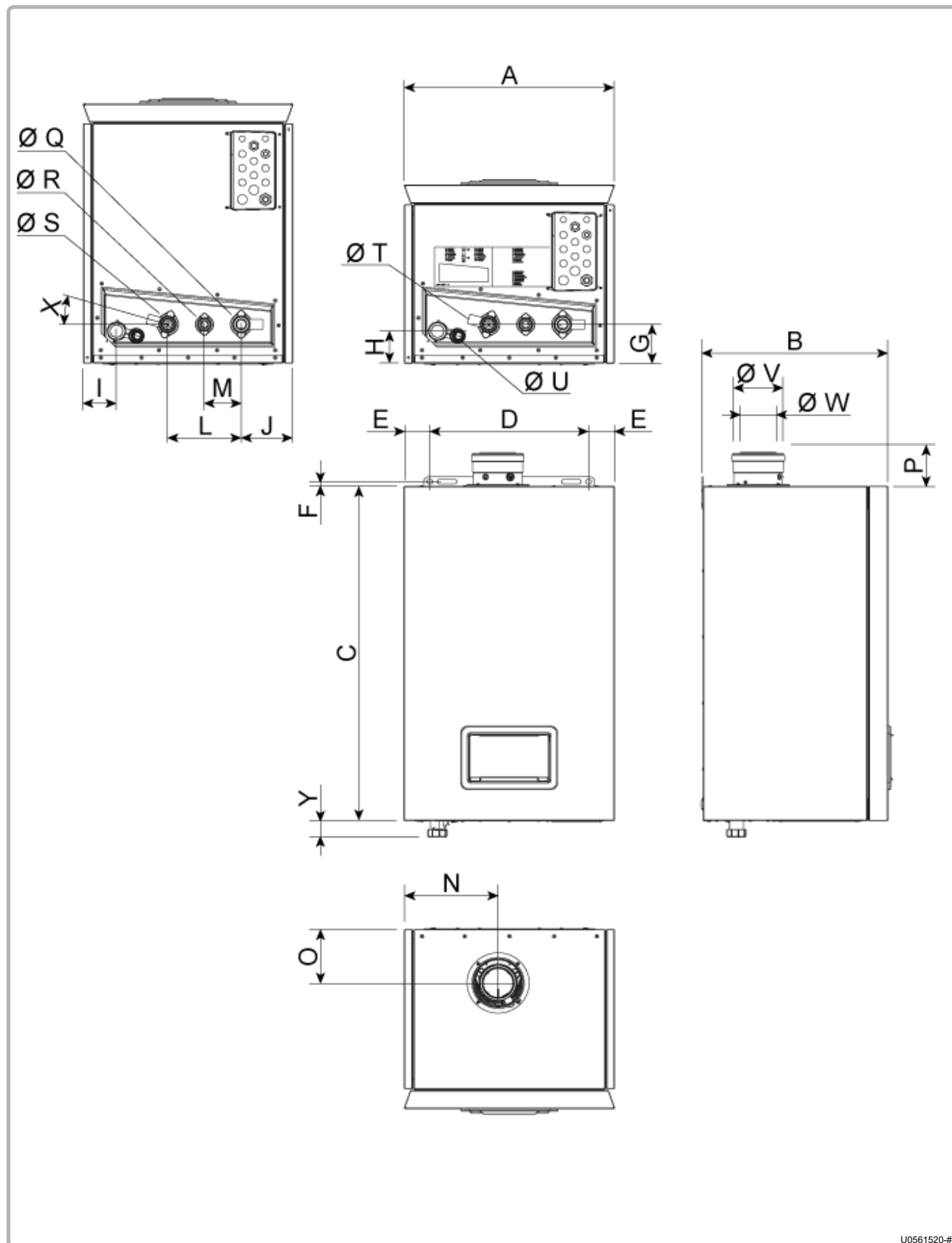


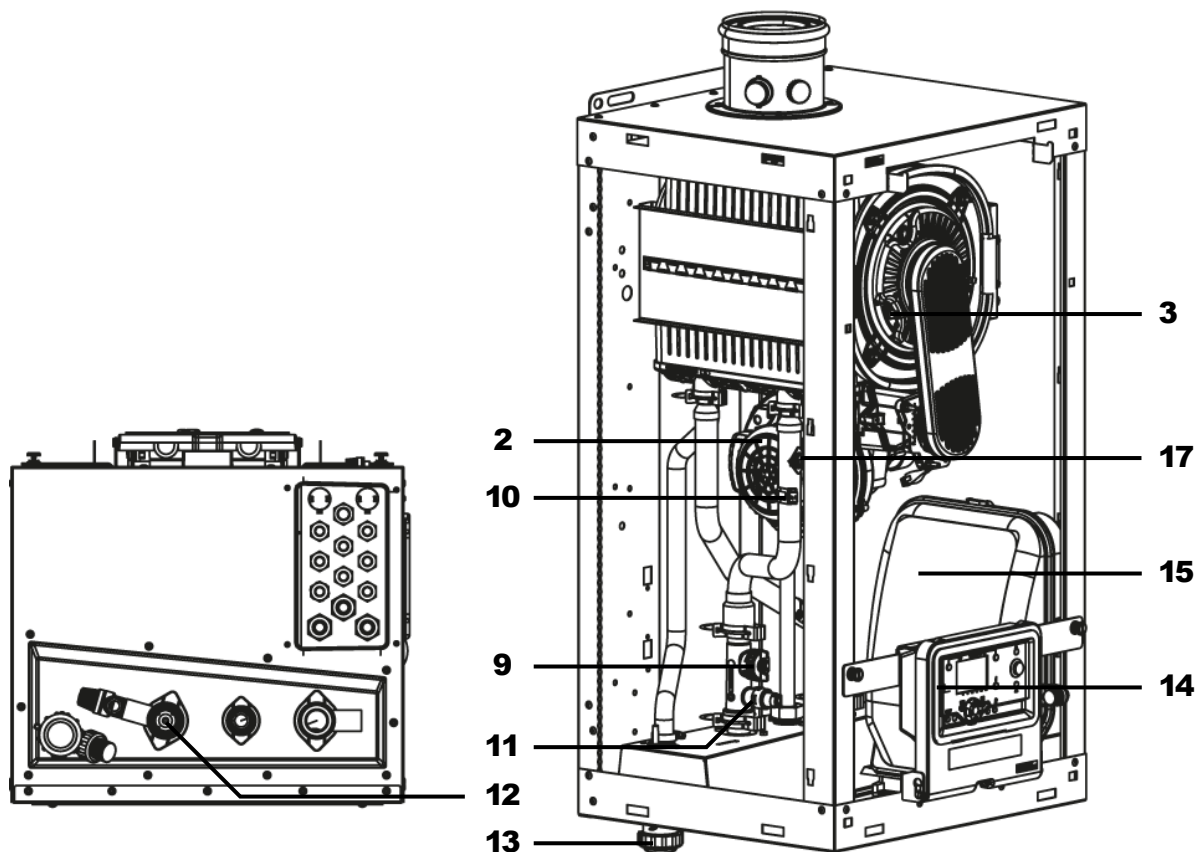
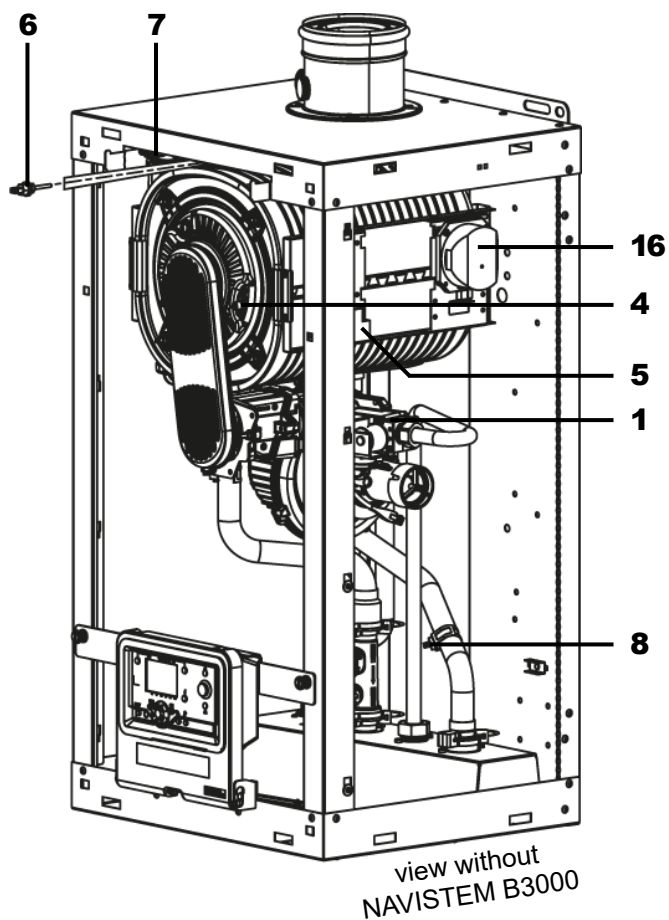
figure 1 - Dimensional characteristics

U0561520-#

		MODELS					
		40	60	80	100	120	150
<b>A</b>	(mm)	541					
<b>B</b>	(mm)	477		574		692	800
<b>C</b>	(mm)	890					
<b>D</b>	(mm)	408					
<b>E</b>	(mm)	66,5					
<b>F</b>	(mm)	12,3					
<b>G</b>	(mm)	103,5					
<b>H</b>	(mm)	85,5					
<b>I</b>	(mm)	86					
<b>J</b>	(mm)	133					
<b>L</b>	(mm)	190					
<b>M</b>	(mm)	95					
<b>N</b>	(mm)	241		242,5			
<b>O</b>	(mm)	143,5		120			
<b>P</b>	(mm)	86		111			
<b>Ø Q</b>	Heating return connection	G 1"1/4					
<b>Ø R</b>	Gas supply	G 1"					
<b>Ø S</b>	Heating outlet connection	G 1"1/4					
<b>Ø T</b>	Safety valve connection	G 1/2" (female)					
<b>Ø U</b>	Condensate evacuation (mm)	24					
<b>Ø V</b>	Air inlet (mm)	125		150			
<b>Ø W</b>	Fume duct (mm)	80		100			
<b>X</b>	Valve angle	16°					
<b>Y</b>	(mm)	45					

### 3.2. Boiler components

- 1 Gas valve
- 2 Fan
- 3 Ionisation electrode
- 4 Ignition electrode
- 5 Ignition transformer
- 6 Fume temperature sensor
- 7 Bleed valve
- 8 Water return temperature sensor
- 9 Flowmeter
- 10 Water outlet temperature sensor
- 11 Pressure sensor
- 12 Anti-return flap
- 13 Condensate siphon (supplied unmounted)
- 14 User interface control panel
- 15 NAVISTEM B3000 unit
- 16 Air pressure switch
- 17 Safety thermostat



U0561578-#

figure 2 - Boiler components for 40 and 60 models

- 1 Gas valve
- 2 Fan
- 3 Ionisation electrode
- 4 Ignition electrode
- 5 Ignition transformer
- 6 Fume temperature sensor
- 7 Bleed valve
- 8 Water return temperature sensor
- 9 Flowmeter
- 10 Water outlet temperature sensor
- 11 Pressure sensor
- 12 Anti-return flap
- 13 Condensate siphon (supplied unmounted)
- 14 User interface control panel
- 15 NAVISTEM B3000 unit
- 16 Air pressure switch
- 17 Safety thermostat
- 18 CEM filter (VARFREE 120)

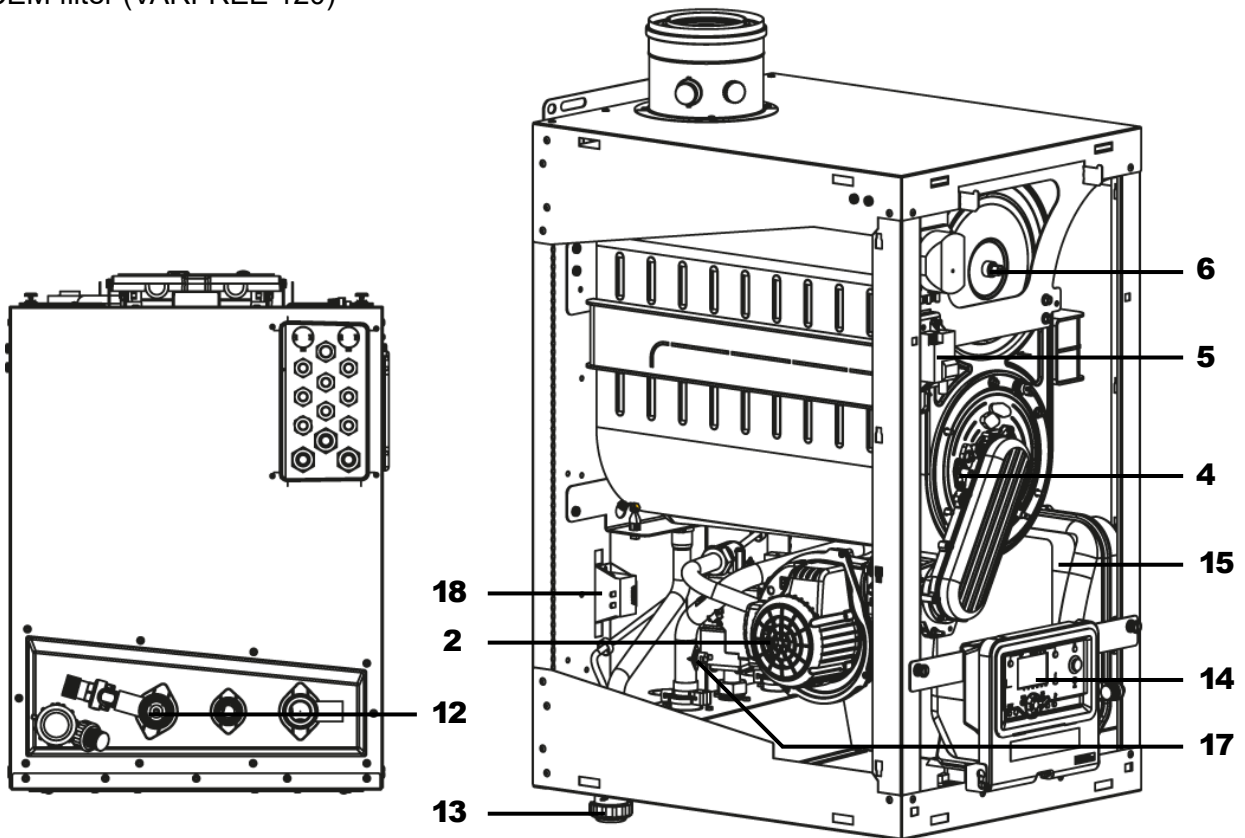
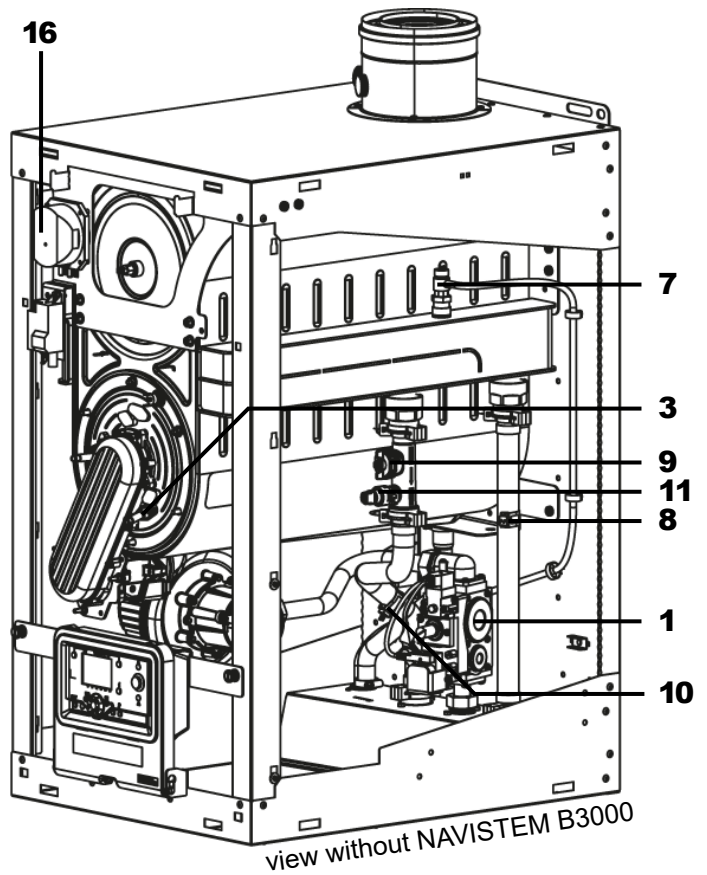
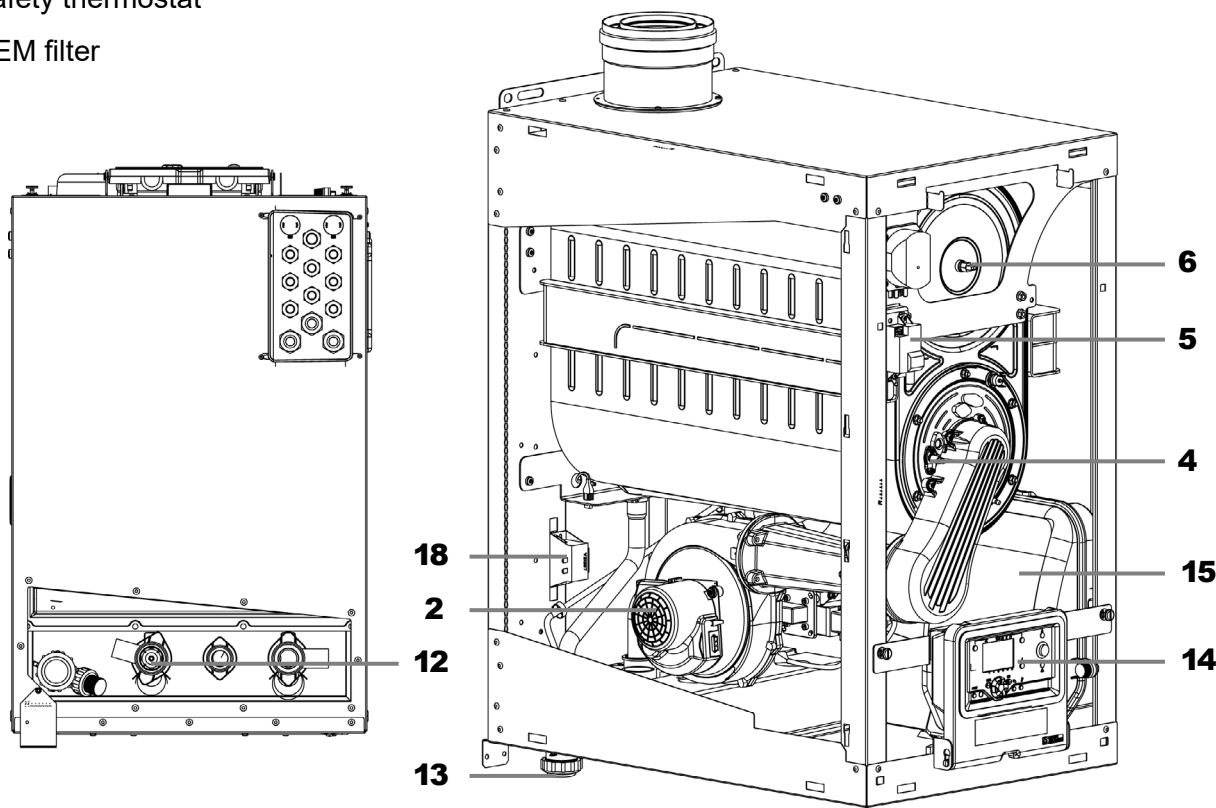
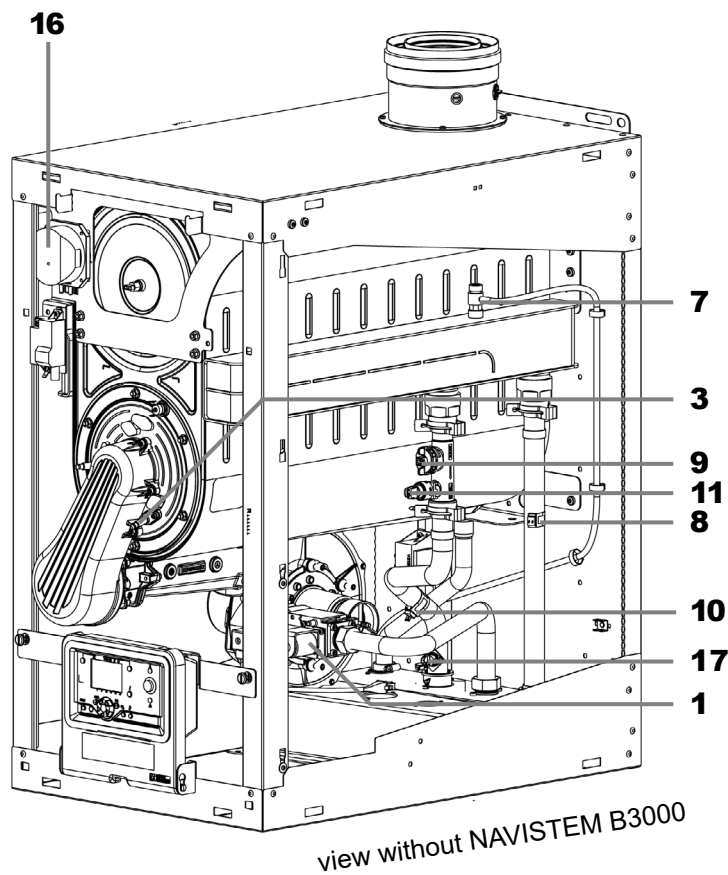


figure 3 - Boiler components for 80 to 120 models

U0561578-#

- 1 Gas valve
- 2 Fan
- 3 Ionisation electrode
- 4 Ignition electrode
- 5 Ignition transformer
- 6 Fume temperature sensor
- 7 Bleed valve
- 8 Water return temperature sensor
- 9 Flowmeter
- 10 Water outlet temperature sensor
- 11 Pressure sensor
- 12 Anti-return flap
- 13 Condensate siphon (supplied unmounted)
- 14 User interface control panel
- 15 NAVISTEM B3000 unit
- 16 Air pressure switch
- 17 Safety thermostat
- 18 CEM filter



U0590800-#

figure 4 - Boiler components for 150 model

### 3.3. Combustion at 15°C and 1013 mbar

#### 3.3.1. G20 natural gas

		MODELS					
		40	60	80	100	120	150
<b>Nominal power P<sub>n</sub> (80/60°C)</b>	kW	40,0	56,4	79,8	95,7	119,5	134,0
<b>Nominal power when condensing P (50/30°C)</b>	kW	43,0	61,0	87,5	104,5	129,5	146,0
<b>Minimal power P<sub>n</sub> (80/60°C)</b>	kW	8,3	11,5	17,1	19,0	23,9	26,8
<b>Nominal heat input Q<sub>n</sub></b>	kW	41,2	58,0	82,3	98,5	123,0	137,9
<b>Ignition heat input Q<sub>all</sub></b>	kW	21,8	23,5	26,1	30,5	39,0	72,4
<b>Minimum heat input Q<sub>min</sub></b>	kW	8,5	11,8	17,6	19,6	24,6	27,6
<b>Gas flow rate at P<sub>n</sub></b>	m <sup>3</sup> /h	4,4	6,1	8,7	10,4	13,0	14,6
<b>CO<sub>2</sub> value ranges</b>	%	VARFREE 40 to 120 : at Q <sub>min</sub> : 8,7% < CO <sub>2</sub> < 8,9% at Q <sub>max</sub> : 9,1% < CO <sub>2</sub> < 9,3% VARFREE 150 : at Q <sub>min</sub> : 8,5% < CO <sub>2</sub> < 8,7% at Q <sub>max</sub> : 8,9% < CO <sub>2</sub> < 9,1%					
<b>Flue-gas mass flow rate (80/60°C)</b>	Q <sub>n</sub> Q <sub>all</sub> Q <sub>min</sub> g/s	18,4 9,8 3,8	26,0 10,5 5,3	36,9 11,7 7,7	44,1 13,7 8,8	55,1 17,5 11,0	62,9 30,9 12,5
<b>Flue-gas mass flow rate (50/30°C)</b>	Q <sub>n</sub> Q <sub>all</sub> Q <sub>min</sub> g/s	17,5 9,3 3,5	25,0 10,1 5,1	35,6 11,2 7,5	42,7 13,3 8,5	52,5 16,7 10,2	57,3 29,9 12,1
<b>Flue-gas temperature (80/60°C)</b>	Q <sub>n</sub> Q <sub>all</sub> Q <sub>min</sub> °C	80 65 61	76 63 62	74 58 57	76 61 62	70 56 56	70 60 59
<b>Flue-gas temperature (50/30°C)</b>	Q <sub>n</sub> Q <sub>all</sub> Q <sub>min</sub> °C	62 42 39	60 39 38	53 33 34	57 38 38	52 31 32	42 32 30
<b>Inside diameter of flue-gas output</b>	mm	80	80	100	100	100	100
<b>Maximum allowable nozzle pressure (B23P) (80/60°C)</b>	Q <sub>n</sub> Pa	156	200	179	187	200	200
<b>Maximum allowable nozzle pressure (B23P) (50/30°C)</b>	Q <sub>n</sub> Pa	122	174	149	159	200	172
<b>Combustion air flow rate at Q<sub>n</sub></b>	m <sup>3</sup> /h	51,8	72,8	103,4	123,7	154,5	176,7
<b>NO<sub>x</sub> class</b>		6					
<b>Flue-gas removal and air inlet type classifications</b>		B23, B23P C13, C33, C53					



## 3.3.2. G31 Propane Gas (for relevant models)

		MODELS				
		40	60	80	100	
Nominal power Pn (80/60°C)	kW	40,0	56,4	79,8	95,7	
Nominal power when condensing P (50/30°C)	kW	42,1	59,7	85,6	102,3	
Minimal power Pn (80/60°C)	kW	8,3	11,5	31,9	33,5	
Nominal heat input Qn	kW	41,2	58,0	82,3	98,5	
Ignition heat input Qall	kW	21,8	18,0	32,9	34,5	
Minimum heat input Qmin	kW	8,5	11,8	32,9	34,5	
Gas flow rate at Pn	m <sup>3</sup> /h	1,7	2,4	3,4	4,0	
CO <sub>2</sub> value ranges	%	at Qmin : 9,9 % < CO <sub>2</sub> < 10,1 % at Qmax : 10,3 % < CO <sub>2</sub> < 10,5 %				
Flue-gas mass flow rate (80/60°C)	Qn	18,5	26,0	36,8	44,1	
	Qall	9,8	8,1	14,8	15,5	
	Qmin	3,8	5,3	14,8	15,5	
Flue-gas mass flow rate (50/30°C)	Qn	18,3	25,7	35,3	44,0	
	Qall	9,6	7,9	14,6	15,3	
	Qmin	3,7	5,2	14,6	15,3	
Flue-gas temperature (80/60°C)	Qn	81	78	73	75	
	Qall	66	64	60	60	
	Qmin	62	63	60	60	
Flue-gas temperature (50/30°C)	Qn	65	60	52	56	
	Qall	44	42	34	34	
	Qmin	40	40	34	34	
Inside diameter of flue-gas output	mm	80	80	100	100	
Maximum allowable nozzle pressure (B23P) (80/60°C)	Qn	Pa	126	200	150	138
Maximum allowable nozzle pressure (B23P) (50/30°C)	Qn	Pa	112	177	129	129
Combustion air flow rate at Qn	m <sup>3</sup> /h	51,8	73,0	103,5	123,9	
NOx class	6					
Flue-gas removal and air inlet type classifications	B23, B23P C13, C33, C53					

### 3.4. Conditions of use

		MODELS					
		40	60	80	100	120	150
Maximum start setting temperature	°C	85					
Safety temperature	°C	105					
Maximum service pressure	hPa (bar)	4000 (4)					
Minimum cold pressure	hPa (bar)	1000 (1)					
Nominal water flow rate (to P/20)	m <sup>3</sup> /h	1,7	2,4	3,4	4,1	5,1	5,8
Minimal water flow rate (to P/25)	m <sup>3</sup> /h	1,4	1,9	2,7	3,3	4,1	4,7
Water content	l	3,6	5	9	10,2	12,8	15,3
Weight without water	kg	50	60	90	95	100	125
Temperature of installation room (min. / max.)	°C	5 / 45					
Relative humidity of installation room		between 5% and 95%					
Protection level		IP24D					
Maximum altitude of installation	m	2000					

### 3.5. Electrical connection

		MODELS					
		40	60	80	100	120	150
Electrical supply	V	230 V AC (+10% -15%), 50Hz					
Electrical power consumption at Qn (without accessories)	W	68	138	141	160	206	263
Electrical power consumption at Qn (with accessories)	W	107	192	196	274	348	403
Electrical power consumption in standby mode	W	3					
Max length of sensor cables	m	DHW sensor: 10 External sensor: 40 in 0.5 mm <sup>2</sup> (120 in 1.5 mm <sup>2</sup> ) Ambient thermostat: 200 in 1.5 mm <sup>2</sup> Ambient sensor: 200 in 1.5 mm <sup>2</sup>					
Power terminal output	V	230V AC (+10%, -15%)					
	A	5 mA - 1A					

## 4. INSTALLATION



**IMPORTANT:**

The boiler must not bear the weight of the accessories and connections (hydraulics, gas, exhaust system, etc.).

### 4.1. Installing the boiler

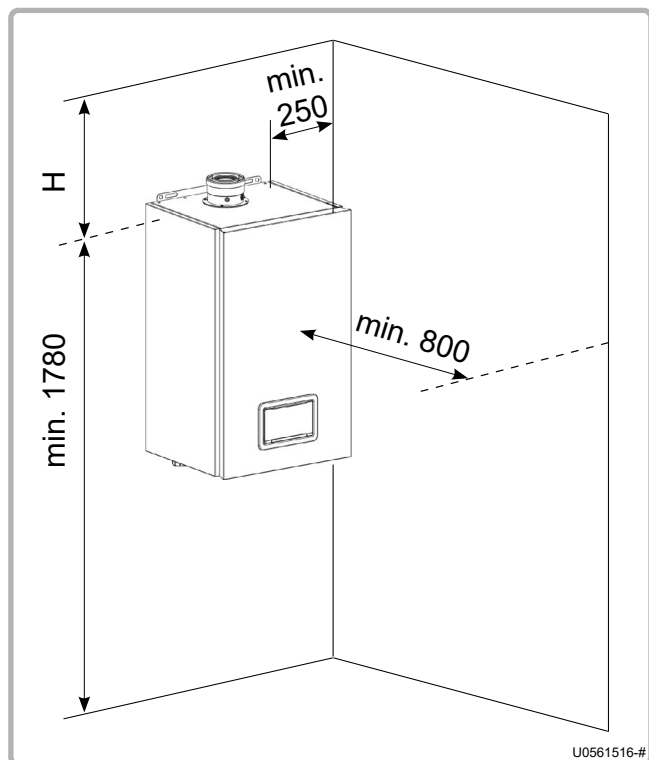


figure 5 - Clearances

VARFREE boilers must not be mounted on a wall covered with an inflammable material: plastic, wood, etc.

The combustion air must be free of agents containing chlorine, ammonia, fluorine and alkaline. These compounds are found in aerosols, paints, cleaning products, washing powder, detergents, glue, snow-clearing salt, etc.

Do not draw in the air that is evacuated from places where these products are used - swimming pools, laundries, hair dressing salons, cold rooms - as one or more of these compounds could be introduced into the combustion air.

**Recommended distances relative to walls:**

Sufficient clearances must be provided to permit easy maintenance operations on the boilers. The **minimum** values (in mm) are indicated in the diagram opposite and table below:

**These values cannot be substituted for the specific regulatory requirements.**

H** (mm)	B23 / B23P					C13		C33		C53	
	40 kW and 60 kW		80 kW to 150 kW			40 kW and 60 kW	80 kW to 150 kW	40 kW and 60 kW	80 kW to 150 kW	40 kW and 60 kW	80 kW to 150 kW
	ø80	ø125	ø110*	ø125	ø160	ø80/125	ø100/150	ø80/125	ø100/150	ø80/80	ø100/100
	280	360	310	430	450	290	350	140	170	510	570

\* Ø110 is prohibited for a 150 boiler.

\*\* The minimum value of H corresponds to the spare required to install the exhaust system accessories. It takes account of the dimensions of the 87° angle of a horizontal duct, independently of the length and gradient of the latter.



**IMPORTANT:**

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



**IMPORTANT:**

The front and side jackets are held in place by clips. Remove the jackets before handling the boiler (risk of falling).

## 4.2. Removing / installing the front panels

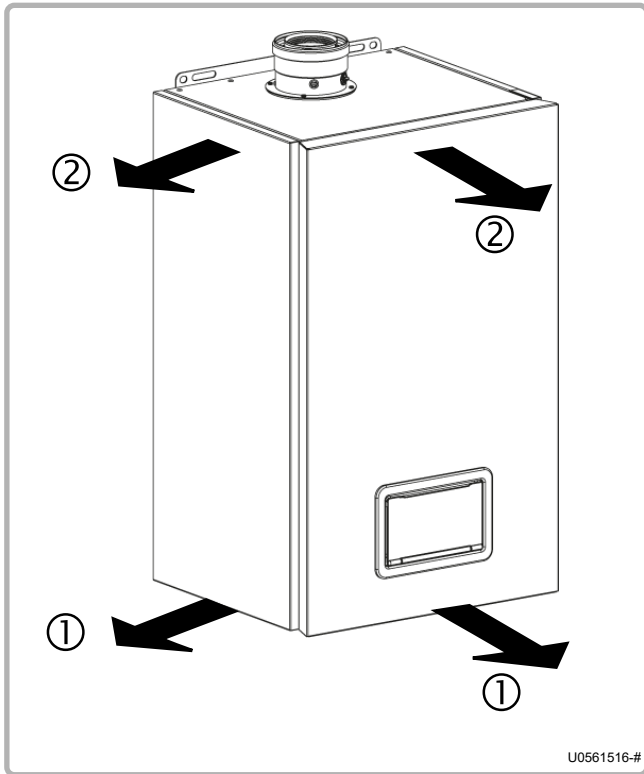


figure 6 - Removing the trim doors

① Pull the bottom of the panel forwards to release.

② Pull the top of the panel forwards to release.

Remove the panel.

Do the opposite to install the panel.

## 4.3. 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.

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

**One exhaust temperature sensor guarantees the protection of the type B and C combustion product evacuation ducts.**

VARFREE boilers are approved to be connected to:

- a B23 or B23P flue
- a C13, C33 or C53 suction pipe



**IMPORTANT:**

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

### 4.3.1. Connection to a B23 chimney

#### B23 type connection:

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



#### IMPORTANT:

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

For the **VARFREE 40 kW and 60 kW**, the use of the Ø125 Chimney Adaptor accessory (code 040940) is mandatory to connect the boiler to a B23 chimney duct. This kit is suitable for Ø 125 external ducts.

For the **VARFREE 80 kW to 150 kW**, the use of the Ø160 Chimney Adaptor accessory (code 041050) is mandatory to connect the boiler to a B23 chimney duct. This kit is suitable for Ø 160 external ducts.



#### IMPORTANT:

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

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

Horizontal duct runs must be avoided so as to limit condensate retention. To do this use a minimum slope of 3 % towards the boiler in the horizontal parts.



#### WARNING:

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.

Ø duct	VARFREE	Accessory part number	A (mm)
Ø 125	40 and 60	040940	310
Ø 160	80 to 150	041050	390

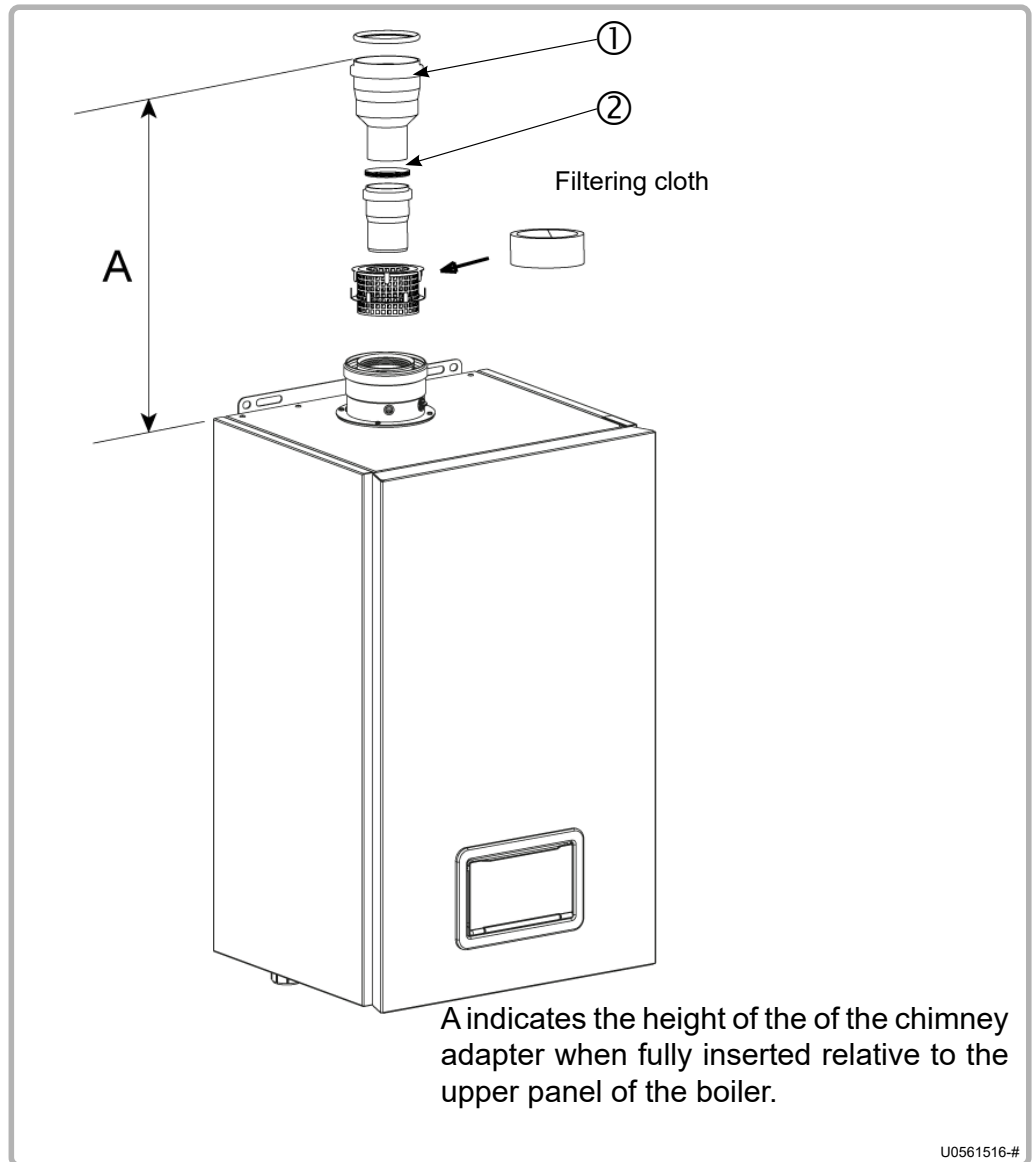


figure 7 - Sizing recommendations

#### 4.3.2. Connection to a B23P chimney

##### B23P type connection:

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



**IMPORTANT:**

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



**IMPORTANT:**

**The use of the “Chimney Adaptor” accessory is mandatory to connect a VARFREE boiler to a B23 chimney duct. The table below represents the accessories available for each boiler type.**

**IMPORTANT:**

The combustion product extraction duct must be dimensioned by using the parameters set out in the table in chapter 3.3.

Depending on the actual configuration of the duct, a calculation is required to check that the pressures at the boiler outlet at  $Q_{min}$ ,  $Q_{all}$  and  $Q_n$  do not exceed the maximum allowable values in this table.

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

**IMPORTANT:**

If several boilers are connected to the same flue, check the following by calculation:

- **One boiler at  $Q_{min}$  and the others at  $Q_{max}$ :** The outlet pressure of the boiler at  $Q_{min}$  must be lower than the permissible pressure specified in the table in Chapter 3.3.
- **One boiler at  $Q_{all}$  and the others at  $Q_{max}$ :** The outlet pressure of the boiler at  $Q_{all}$  must be lower than the permissible pressure specified in the table in Chapter 3.3.
- **All the boilers at  $Q_{max}$ :** The outlet pressure of the four boilers must be lower than the permissible pressure specified in the table in Chapter 3.3.

Ø duct	VARFREE	Accessory part number	A (mm)
Ø 80	40 and 60	040945 (contains part ②) *	220
Ø 110	40 and 60	041096 (contains parts ①+②) *	255
	80 to 120	041052 (contains part ②) *	260
Ø 125	40 and 60	040940 (contains parts ①+②) *	310
	80 to 150	041051 (contains parts ①+②) *	375
Ø 160	80 to 150	041050 (contains parts ①+②) *	390

\* : See figure 6.

**IMPORTANT:**

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

The 80 Chimney Adaptor accessory (code 040945) has an Ø80, 500 mm long straight component that can be cut to the desired dimension (195 mm min).

The Ø 110 (code 041052 and 041096), Ø 125 (codes 040940 and 041051) and Ø 160 (code 041050) chimney adapter have an outlet that cannot be cut.

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

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

### 4.3.3. Connection to a C13 or C33 suction pipe

**C13 type connection:**

Air inlet and gas evacuation through concentric ducts connected to a horizontal concentric terminal (suction pipe).

**C33 type connection:**

Air inlet and gas evacuation through concentric ducts connected to a vertical concentric terminal.



**WARNING:**

The use of the “Horizontal suction pipe” accessory is mandatory to connect the boiler to a C13 concentric suction pipe.

The use of the “Vertical black suction pipe” or “Vertical ochre suction pipe” accessory is mandatory to connect the boiler to a C33 concentric suction pipe.

The approved ducts are Ubbink Rolux Concentric Condensation ducts.

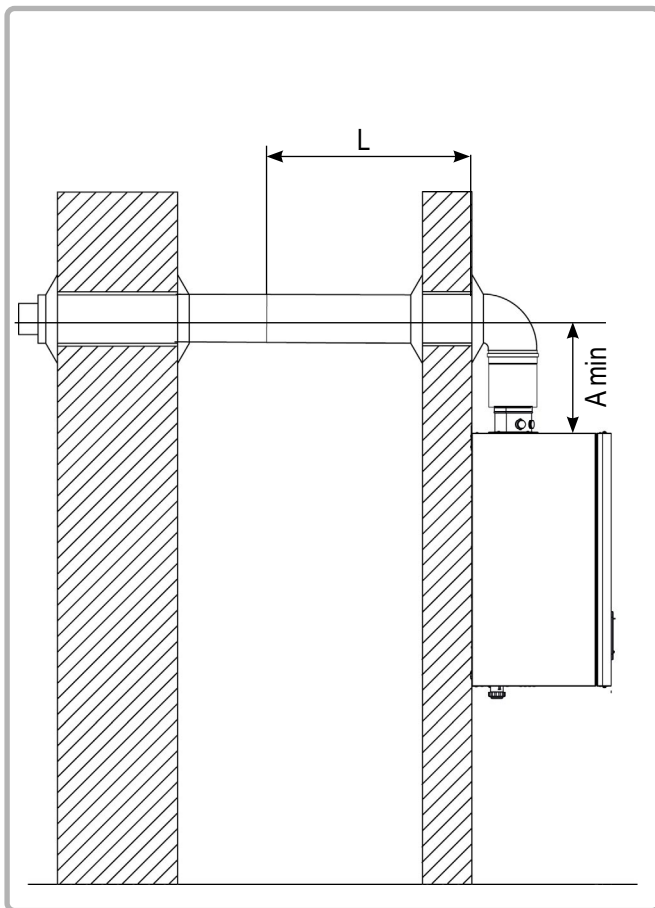
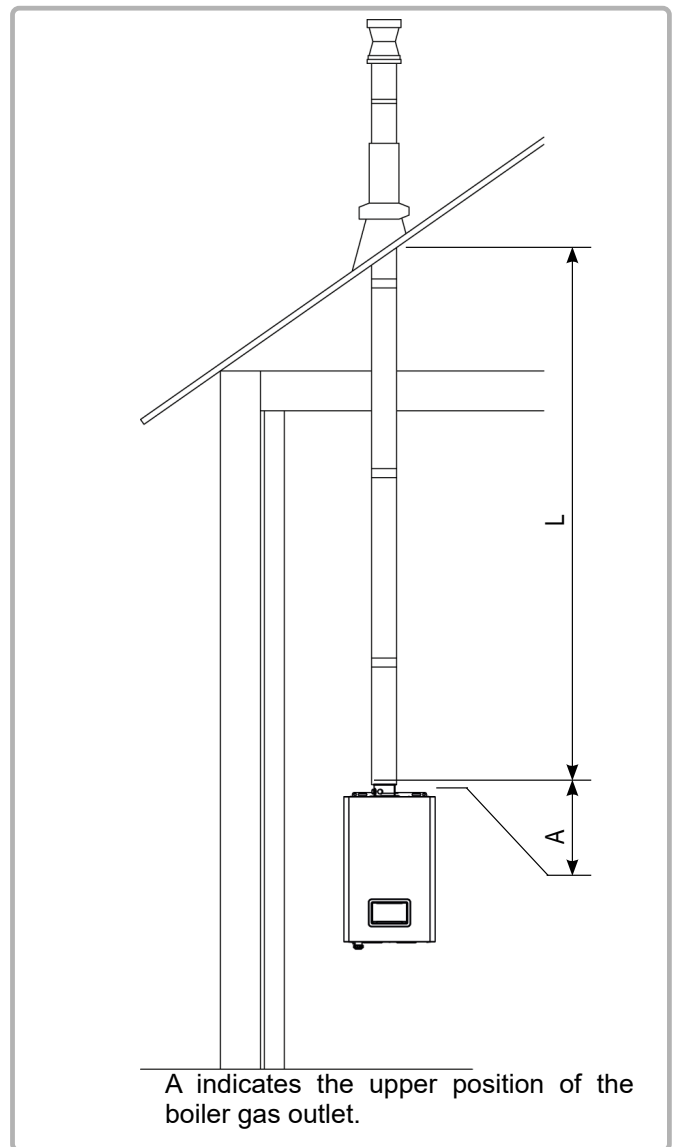


figure 8 - C13 type connection



A indicates the upper position of the boiler gas outlet.

figure 9 - C33 type connection



**IMPORTANT:**

**The ignition speed MUST be modified on the VARFREE 150 boilers.**

Place the boiler in standby mode (see § 3.3.1 of the NAVISTEM B3000 boiler command table instructions).

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

Open the **Burner control** menu.

Adjust the ignition speed parameter (9512):

Connection type	9512 (rpm)
B23 / B23P	3410
C13 / C33	3030

The table below shows the available accessories according to the type of boiler, the diameters of the ducts and the maximum rectilinear lengths.

		VARFREE						
		40	60	80	100	120	150	
Suction pipe horizontal type C13	Terminal C13	040946			040987			
	Ø duct	Concentric 80/125			Concentric 100/150			
	A min (mm)	168			215			
	Lmax (m)	G20	15	10	10	10	8	6
		G31	15	8	10	10	--	--
Suction pipe vertical type C33	Terminal C33 black	040947			040988			
	Terminal C33 ochre	040948						
	Ø duct	Concentric 80/125			Concentric 100/150			
	A min (mm)	85			110			
	Lmax (m)	G20	15	10	10	10	8	6
G31		15	8	10	10	--	--	

**The Lmax lengths are the lengths excluding the terminal and 90° elbow for the type C13 and excluding the terminal for the type C33.**

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

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

Use a minimum slope of 3% towards the boiler.

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

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

#### 4.3.4. Connection to a C53 suction pipe

##### C53 type connection:

Air inlet and gas evacuation through two separate ducts.



##### WARNING:

The use of the “Vertical black separate suction pipe” or “Vertical ochre separate suction pipe” accessory is mandatory to connect the boiler to a C53 separate suction pipe.

The approved ducts are Ubbink Rolux Separate Condensation 80/80 ducts for 40 and 60 models and Ubbink Rolux Separate Condensation 100/100 ducts for 80 to 150 models.



##### IMPORTANT:

The ignition speed **MUST** be modified on the VARFREE 150 boilers.

Place the boiler in standby mode (see § 3.3.1 of the NAVISTEM B3000 boiler command table instructions).

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

Open the **Burner control** menu.

Adjust the ignition speed parameter (9512):

Connection type	9512 (rpm)
B23 / B23P	3410
C53	3030

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

	VARFREE					
	40	60	80	100	120	150
C53 black	040951		040999			
C53 ochre	040952					

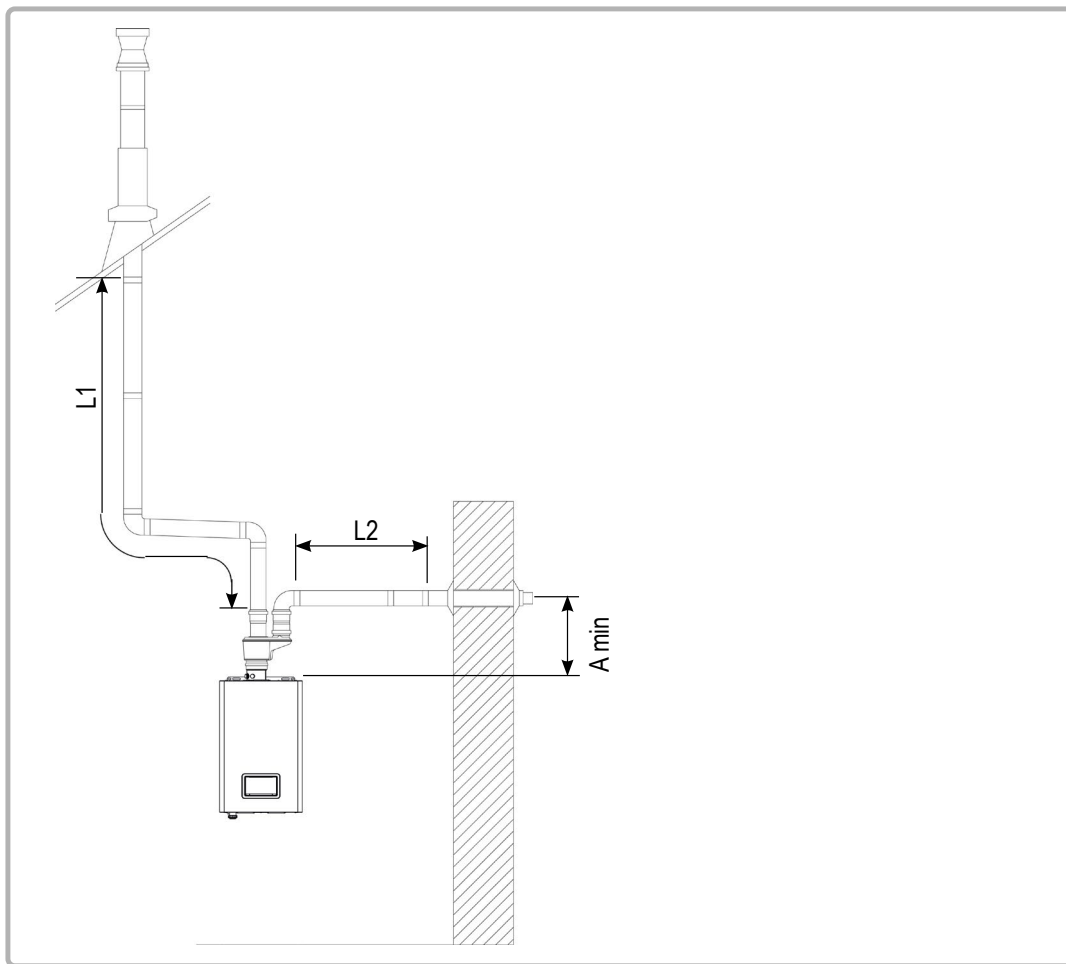


figure 10 - C53 type connection

			VARFREE					
			40	60	80	100	120	150
Ø duct			Separated 80/80			Separated 100/100		
A min (mm)			414			460		
Max lengths (m)	G20	Gas (L1)	17	15	15	15	14	6
		Air (L2)	20	15	20	20	10	6
	G31	Gas (L1)	17	15	15	15	--	--
		Air (L2)	20	15	20	20	--	--

In calculating the duct length take the following rules into account:

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

For the gas duct, use a minimum slope of 3% towards the boiler in the horizontal parts.

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

#### 4.3.5. 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.

**IMPORTANT:**

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

#### 4.4. 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.

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

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 2.4 for the type of gas.

**IMPORTANT:**

**Before connecting the gas line, check whether the boiler uses G20 or G31 gas. If it uses G31, make the changes described in chapter 4.5.**

**The gas line must not be subject to any mechanical stress (risk of loss of gas tightness of the gas valve).**

**Check that the natural gas supply corresponds to the nominal boiler pressure, stated on the name plate.**

## 4.5. Gas change (G20 to G31, only 40 kW to 100 kW)

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

**IMPORTANT:**

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

Any operation involving a change of gas type must be done by a qualified professional. 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).

**IMPORTANT:**

**The settings have been approved for the gas supply pressures at the valve inlet (measured on the pressure meter before the gas valve and with the burner working) in the following tables.**

**IMPORTANT:**

**Since the combustion is adjusted with the door open, check that the combustion is clean after installing the front door.**

### 4.5.1. Installing the propane injector

**IMPORTANT:**

**ONLY 80 kW and 100 kW model boilers.**

Change the type of gas by installing an injector at the gas valve outlet.  
Close the gas feed valve and switch off the electric power supply.  
Disconnect the electric cable and connect on the gas valve.  
Undo the two nuts before and after the valve (see figure below) and remove the valve from the boiler.  
Undo the four screws (see below).  
Install the injector.  
Install the assembly.

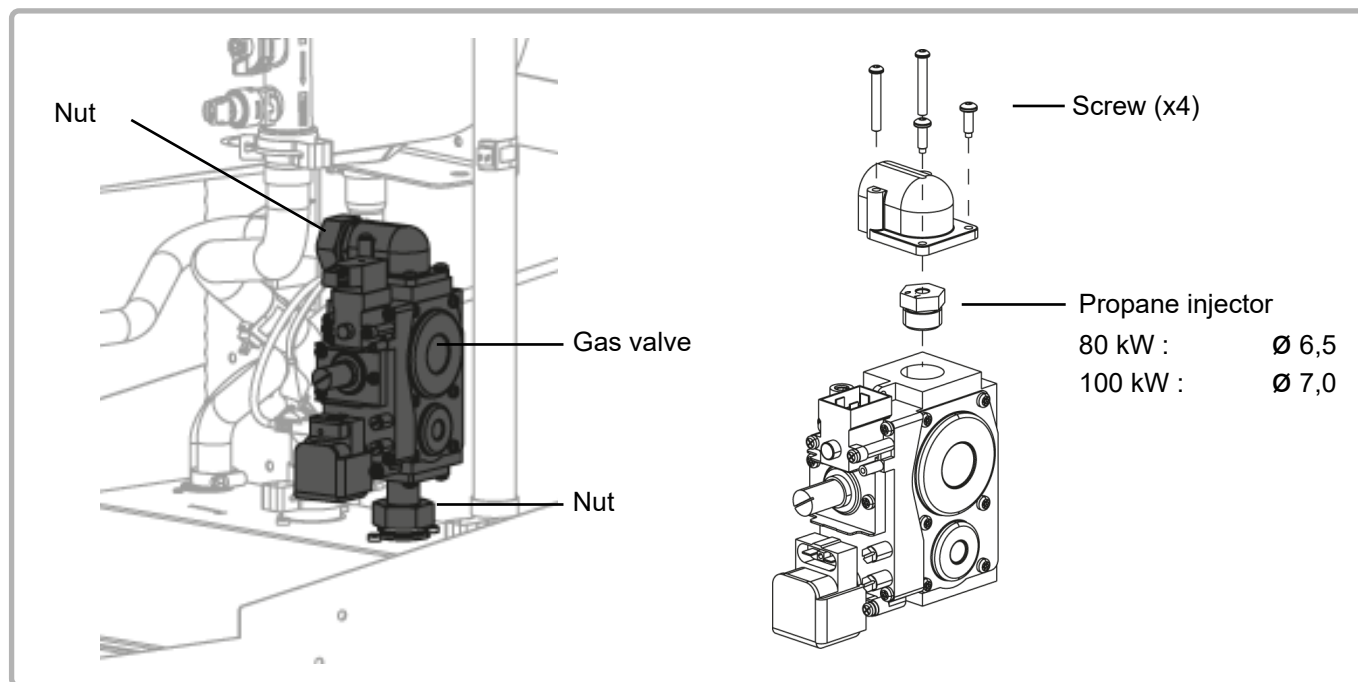


figure 11 - Installing the propane injector



**IMPORTANT:**

Always replace the washers on the two nuts.  
Check the seals.

#### 4.5.2. Changing the ignition, pre-ventilation, minimum and maximum speeds

Place the boiler in standby mode (see § 3.3.1 of the NAVISTEM B3000 boiler command table instructions).

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

Open the **Settings / Burner control** menu.

Adjust the pre-ventilation speed (9504), ignition speed (9512), minimum speed (9524) and maximum speed (9529) settings:

Models	Gas	9504	9512	9524	9529
40	G20	3380	3380	1780	6100
	G31	3250	3250	1690	5900
60	G20	3130	3130	1920	7250
	G31	2790	2470	1840	6900
80	G20	2450	2300	1760	6380
	G31	2770	2770	2770	6100
100	G20	2750	2350	1750	6450
	G31	2750	2550	2550	6250

### 4.5.3. Adjustment of the gas valve

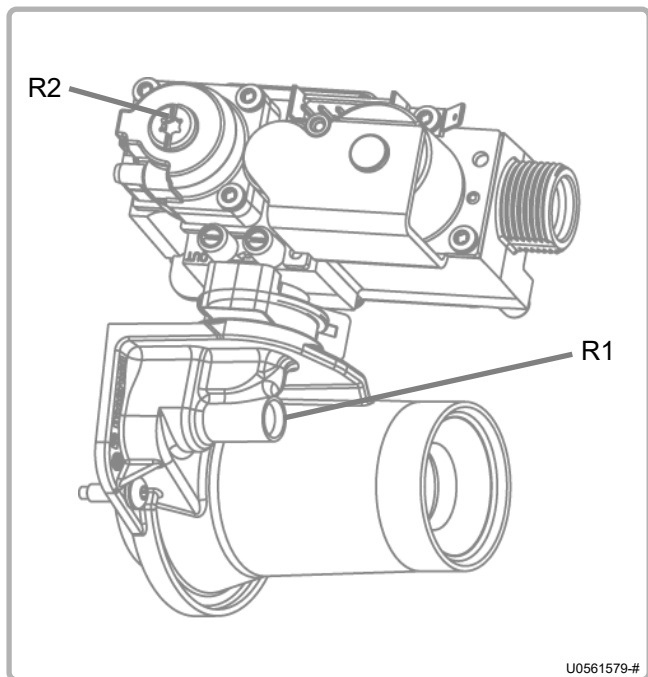


figure 12 - VARFREE 40 kW and 60 settings

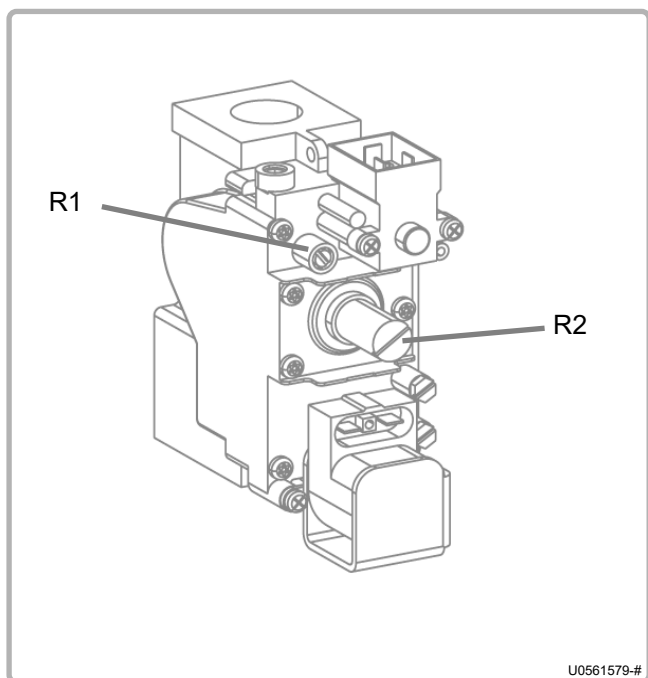


figure 13 - VARFREE 80 to 100 settings

- 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<sub>2</sub> ratio in the exhaust gases: on the gas duct, remove the plug from the opening and insert the CO<sub>2</sub> measurement sensor into the centre of the flow in the exhaust duct.
- Check the CO<sub>2</sub> value at maximum power Q<sub>max</sub> and, if necessary, adjust the gas flow screw R1 of the valve in order to obtain the CO<sub>2</sub> values in the table below.
- Change to minimum power Q<sub>min</sub> and check that the CO<sub>2</sub> 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 Q<sub>max</sub> and recheck the CO<sub>2</sub> 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 G31 label provided in place of the original label (G20).

Model	Gas	Pre-adjustment of the gas flow adjusting screw R1	Door open pre-setting		Checking the door closed settings	
			CO <sub>2</sub> Pmax	Indicative CO <sub>2</sub> Pmin	CO <sub>2</sub> Pmax	Indicative CO <sub>2</sub> Pmin
40	G20	--	9,0 - 9,2	8,5 - 8,7	9,1 - 9,3	8,7 - 8,9
	G31	Screw R1 2 turns 1/2 Screw R2 1/8 turn	10,2 - 10,4	9,7 - 9,9	10,3 - 10,5	9,9 - 10,1

Model	Gas	Pre-adjustment of the gas flow adjusting screw R1	Door open pre-setting		Checking the door closed settings	
			CO <sub>2</sub> Pmax	Indicative CO <sub>2</sub> Pmin	CO <sub>2</sub> Pmax	Indicative CO <sub>2</sub> Pmin
60	G20	--	9,0 - 9,2	8,6 - 8,8	9,1 - 9,3	8,7 - 8,9
	G31	Screw R1 3 turns 3/4 Screw R2 1/4 turn	10,2 - 10,4	9,8 - 10,0	10,3 - 10,5	9,9 - 10,1
80	G20	--	9,0 - 9,2	8,5 - 8,7	9,1 - 9,3	8,7 - 8,9
	G31	Screw R1 1/4 turn Unscrew R2 1/4 turn	10,2 - 10,4	9,7 - 9,9	10,3 - 10,5	9,9 - 10,1
100	G20	--	9,0 - 9,2	8,5 - 8,7	9,1 - 9,3	8,7 - 8,9
	G31	Don't touch R1 Unscrew R2 1/8 turn	10,2 - 10,4	9,7 - 9,9	10,3 - 10,5	9,9 - 10,1

#### 4.6. Hydraulic connection

The boiler irrigation flow rate must be at least equal to  $P_{inst}/25$  ( $P_{inst}$  = instantaneous power in Th/h - 1 Th/h = 1.163 kW).

The circulation pump must be sized according to the maximum power delivered.

In the exchanger, never exceed the flow rates specified in paragraph 3.4.

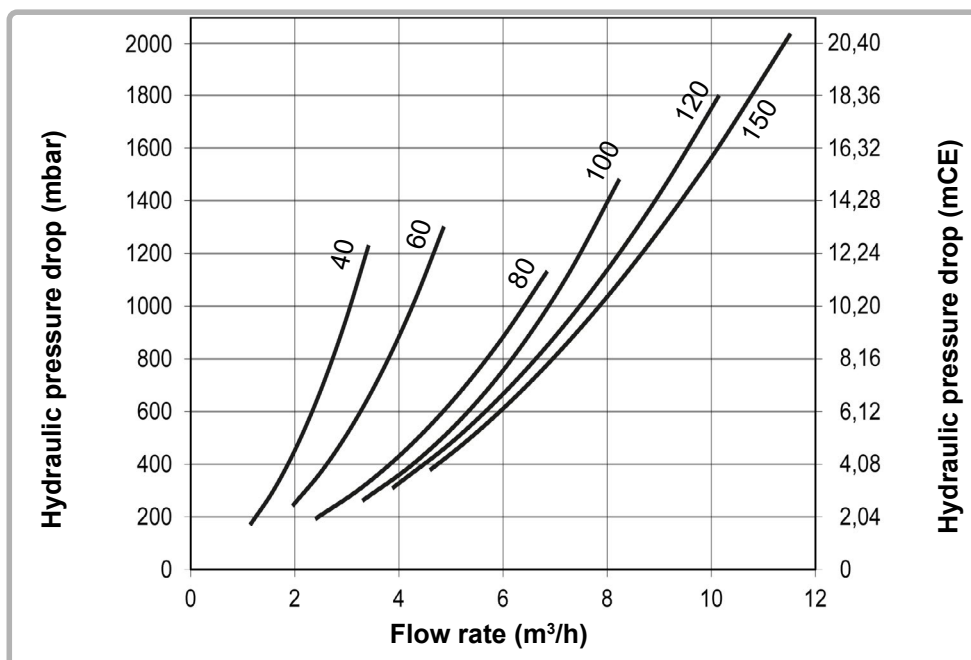


figure 14 - Pressure drop



The boilers are equipped with the following elements:

- an anti-return flap,
- a manual drain tap,
- a flow rate controller.

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,
- a safety valve rated at 4 bar max. (as close to the outlet as possible),
- an effective drain mechanism,
- a filling mechanism (to be installed on the return tap),
- a drain mechanism.

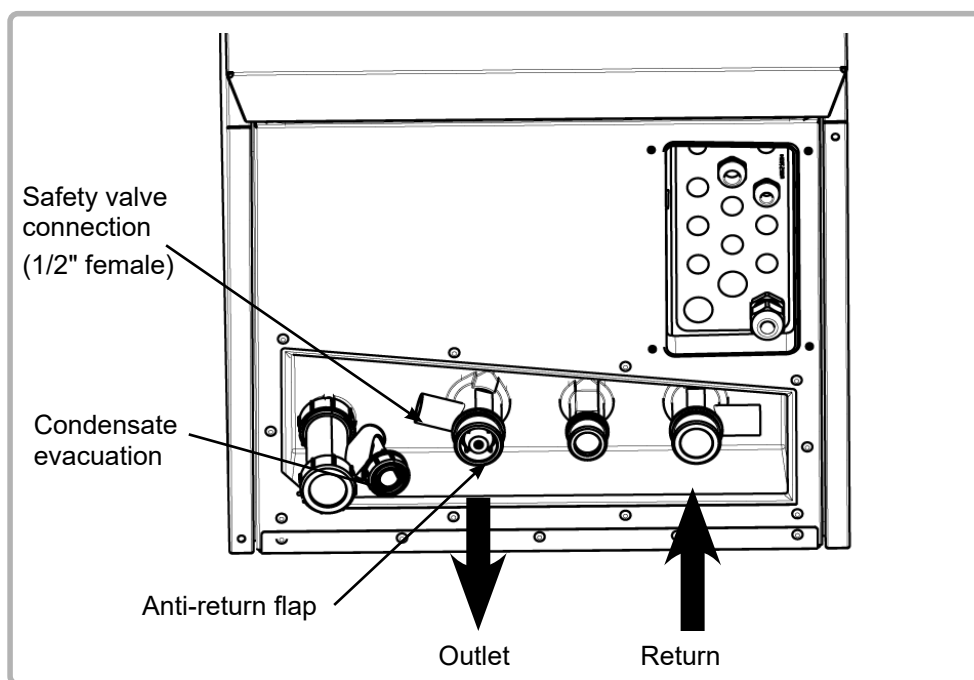


figure 15 - Elements

#### **Filling the installation:**

The network must be properly drained. This will be more effective if the boiler is filled slowly, while keeping:

- the manual drain of the exchanger open,
- the safety valve open.

When these two parts discharge a continuous flow of water that is free of bubble, close them and stop filling.

#### **After filling with water:**

- Check the water pressure on the pressure gauge (not included). This must be a maximum of 4 bar when hot and a **minimum of 1 bar when cold**.
- Check that the boiler and its installation are completely bled (check the boiler levelling with a spirit level).

#### **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.



**IMPORTANT:**

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

## 4.7. Electrical connection



**WARNING:**

Always check that the electric power supply is switched off before working on the boiler.

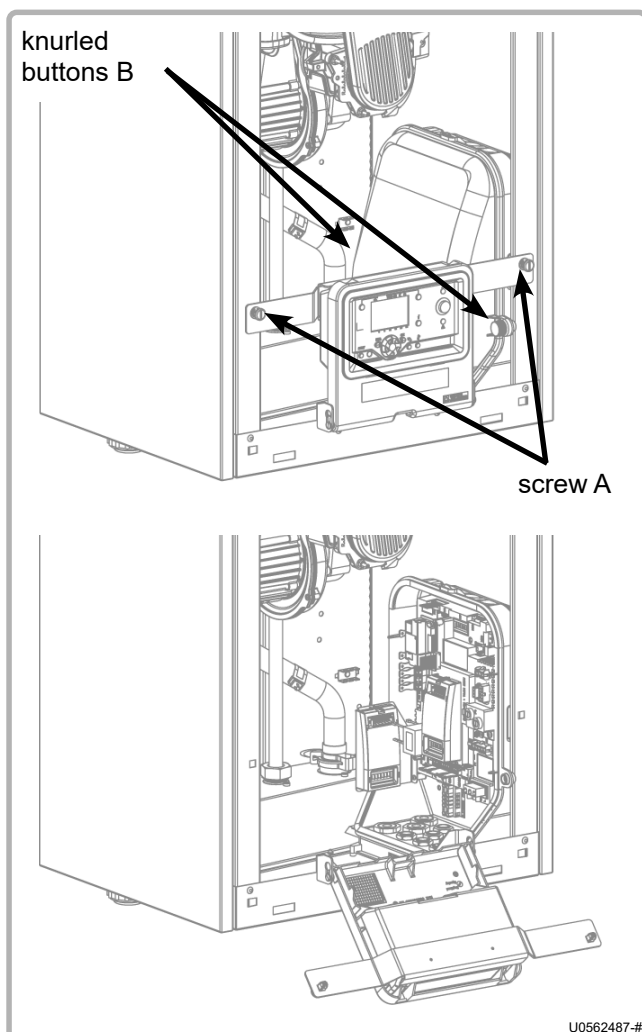


**IMPORTANT:**

It is mandatory to connect this boiler correctly to earth and to comply with standard 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).

### 4.7.1. Control panel



Remove the front panel of the boiler in order to gain access to the control panel.

The panel is located in the lower right-hand part of the boiler.

Loosen the screws A (see opposite) by a quarter turn and tilt the display forwards.

The cover of the panel is secured by two knurled buttons B. Undo them and remove the cover.

figure 16 - Access to the NAVISTEM B3000

4.7.2. Cable ways

Use the packing glands beneath the boiler to pass the cables to the various terminals of the NAVISTEM B3000.

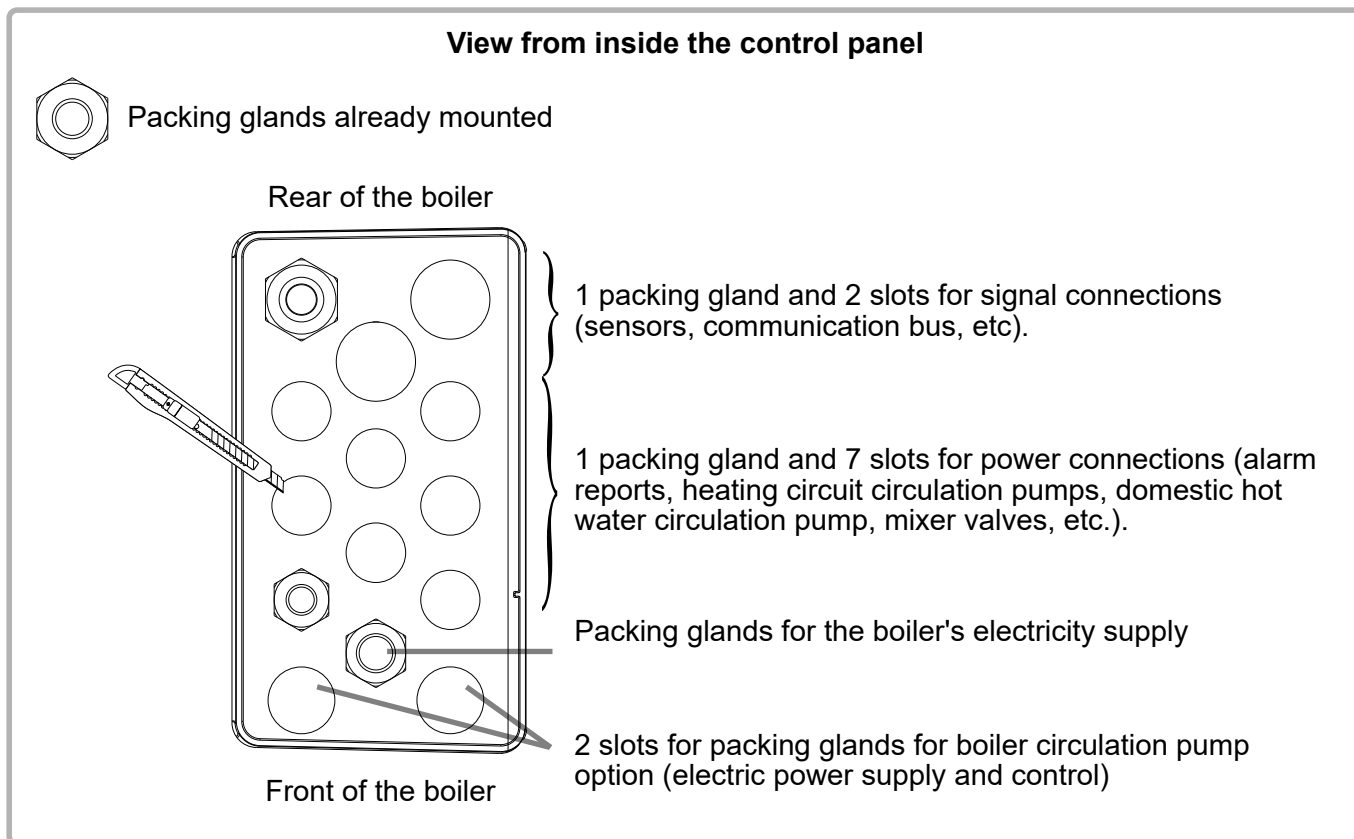


figure 17 - Packing gland

To position the packing glands provided, cut the plastic around the opening with a box cutter to free the hole completely.

4.7.3. Wiring diagram

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

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

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

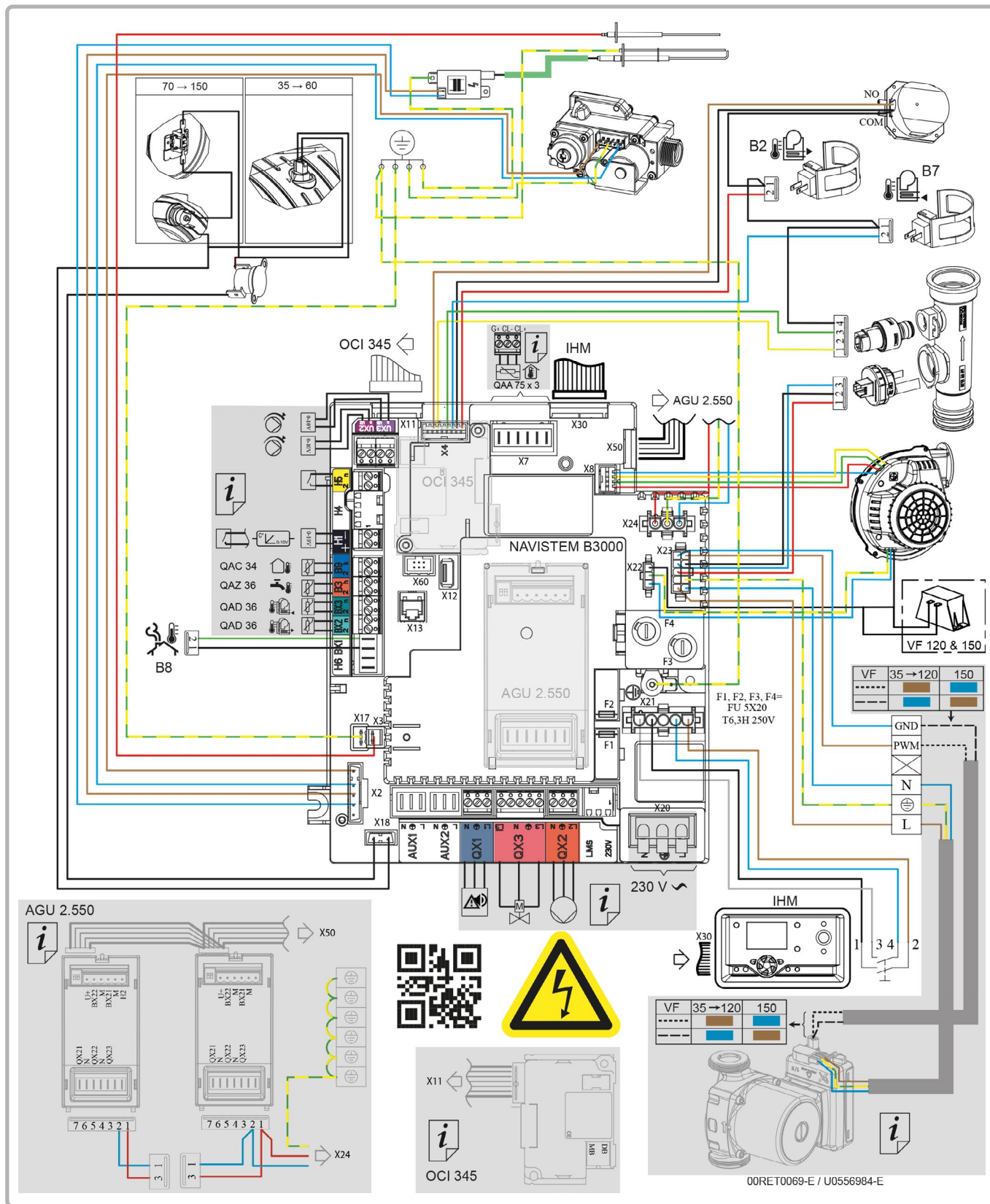


figure 18 - Wiring diagram

#### 4.7.4. Connection to the terminals of the NAVISTEM B3000 boiler controller

To connect the NAVISTEM B3000 boiler controller, please refer to the installation and user manual.

#### **4.7.5. Connection of the boiler circulation pump (compulsory accessory)**

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##### **4.7.5.1. Accessory supplied by YGNIS**

If the accessory is supplied by YGNIS, please refer to the installation manual for the connection of the boiler circulation pump.

##### **4.7.5.2. Accessory supplied by the customer**

The circulation pump is controlled by a 230 VAC (1A max.) output on the NAVISTEM B3000 panel.

This output is active when a request for heat is in progress on the boiler.

##### **If the circulation pump does not have a control switch:**

Directly wire the power supply of the circulation pump (230 VAC - 1A max.) to the terminal QX3 (contacts L3, N and  $\ominus$ ) on the NAVISTEM B3000 panel. If the circulation pump consumes more than 1A, the power supply must be relayed.

##### **If the circulation pump is equipped with a dry-contact On / Off control:**

Connect the power supply of the circulation pump directly from your electric panel.

Use the QX3 output (contacts L3 and N) on the NAVISTEM B3000 panel (230 VAC - 1 A max.) to wire the circulation pump relay control.

##### **If the circulation pump is equipped with a dry-contact On / Off control:**

Connect the power supply of the circulation pump directly from your electric panel.

Use the UX2 or UX3 output on the NAVISTEM B3000 panel to wire the circulation pump 0-10V control.

#### **4.7.6. Connection of the OCI 345 module (optional accessory)**

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To install the OCI 345 module, please refer to the manual provided with the accessory.

#### **4.7.7. Connection of the AGU 2.550 module(s) (optional accessory)**

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To install the AGU 2.550 module(s), please refer to the manual provided with the accessory.

#### **4.7.8. Fuses**

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The VARFREE 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.

## 5. FIRST USE

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### 5.1. Checks before first use

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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.**

Verify the connecting of the gases according to the type of chimney.

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



**WARNING:**

**The use of glycol water is forbidden.**



**IMPORTANT:**

**The use of the connection accessories is mandatory to connect a VARFREE boiler to a B23 or B23P chimney duct.**

### 5.2. First use

---

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:

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 combustion health using an exhaust gas analyser.
4. Adjust the boiler setting (refer to the table summarising customer parameters at the end of this manual).



**IMPORTANT:**

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

## **6. CHECKS AFTER COMMISSIONING**

---

### **6.1. Condensate removal**

---

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

### **6.2. Gas supply**

---

Check that the gas pipe diameter is correctly sized:

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

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

## 7. MAINTENANCE OPERATIONS

These operations must be carried out by a qualified professional.

Before performing the following operations:

- Switch off the main circuit breaker.
- Close the gas supply isolation valve.
- Isolate the boiler hydraulically.

<b>Clean the exchanger (see details in the next chapter)</b>
<p>Check tube sooting visually.</p> <p>If necessary, clean the tubes with a <b>non-metal brush</b>. <b>Chemical cleaning is forbidden.</b></p>
<b>Ignition / ionisation electrodes (see details in the next chapter)</b>
<p>Check the geometry of the ignition electrode (gap width) and the ionising electrode.</p> <p>If necessary, replace the electrodes.</p>
<b>Condensate removal siphon</b>
<p>Clean the removal siphon and check that the condensates flow correctly (replace the water after checking).</p>
<b>Check the gas valve and the differential air pressure switch. Check the connection of the pressure transfer pipe.</b>
<b>Carry out a combustion hygiene check.</b>
<b>Replace the Premix valve seal every 3 years. See Ch. 10 for ref.</b>

### 7.1. Draining the boiler

- Hydraulically isolate the boiler (for installations with our cascade packs, the shut-off valves are on the collectors),
- Reduce the pressure by opening the boiler bleed valve,
- Open the drain valve of the installation or the valve supplied with our hydraulic packs,
- Complete the draining of the outlet pipe by actuating the safety valve.



## 7.2. Annual checks

- Switch off the electric power supply of the boiler,
- Close the gas supply,
- Remove the front panel (see § 4.2, page 20).



### WARNING:

Protect all the electric connectors inside the control panel when working on the boiler hydraulics (risk of splashing).

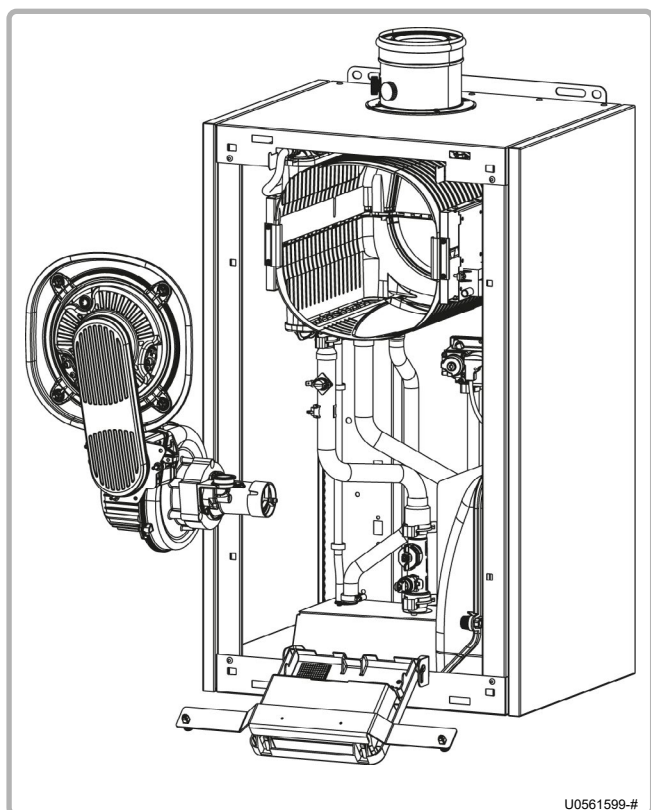


figure 19 - Open VARFREE

- Disconnect the gas tube after the gas valve,
  - Disconnect the electrodes, the fan and the air transfer pipe by the air pressure switch,
  - Unscrew the M6 nuts attaching the door,
  - Remove the burner support, fan and venturi assembly and carefully put it in a clean place.
- 
- If there are any deposits in the combustion chamber, brush the tubes of the exchanger with a **non-metal brush**. **Chemical cleaning of the combustion chamber with an acid or alkaline product is forbidden**. Vacuum clean the deposits.
  - If the refractory insulation at the bottom of the combustion chamber and of the burner support is damaged, then it must be replaced.
  - If the level of condensates in the combustion chamber has risen due to poor evacuation, the refractory insulation at the bottom of the combustion chamber and of the burner holder must be replaced.
  - Replace the seals on the burner holder if they are damaged.
  - The burner rail does not require any maintenance. Replace it, if damaged.

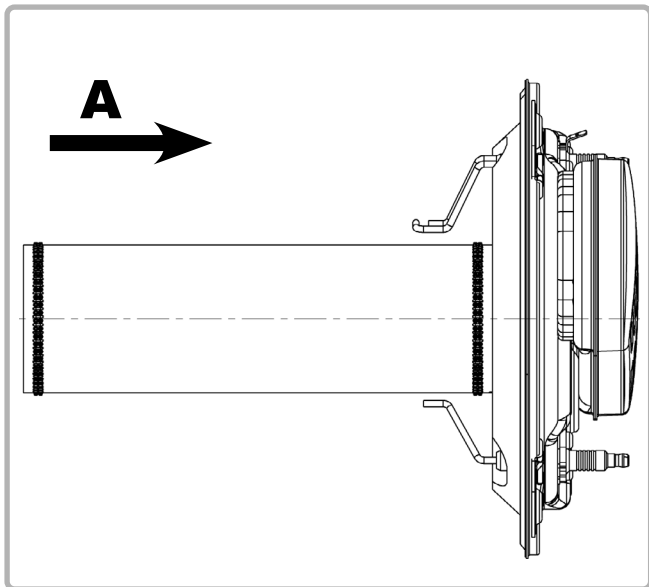


figure 20 - Side view of the burner

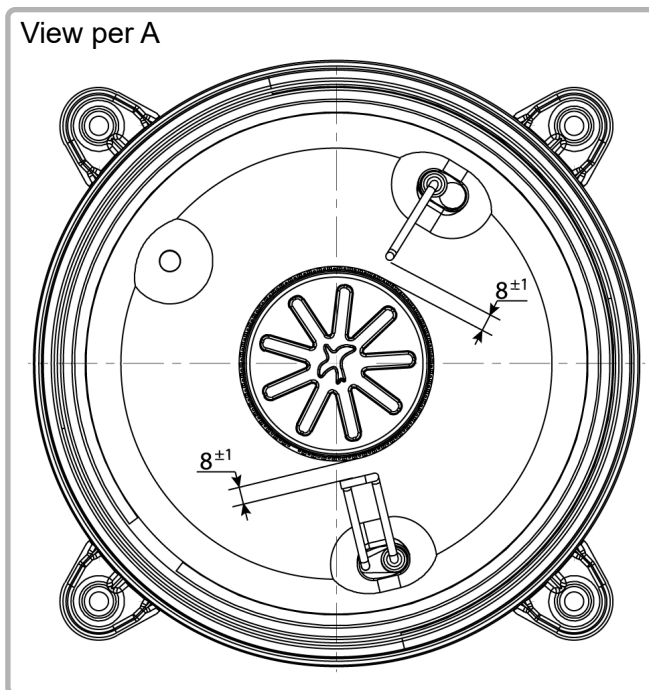


figure 21 - Position of the burner electrodes

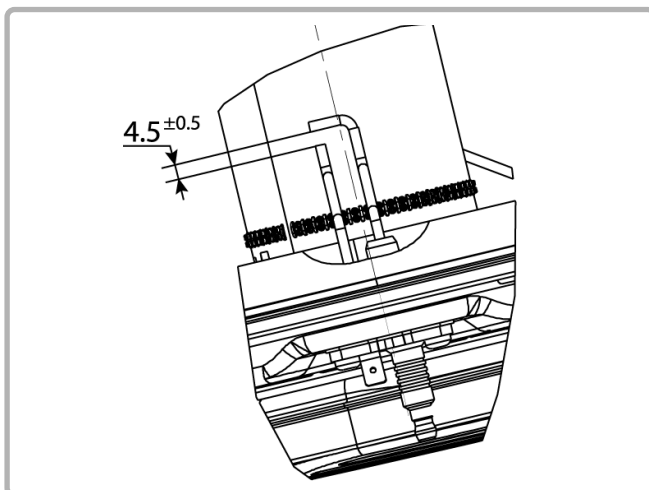


figure 22 - Geometry of the electrodes

- Check the geometry of the electrodes, alumina deposits and the appearance of the ceramic and the seals. Replace the electrodes and the seals if they are damaged.
- Clean the siphon and check that the condensate flows freely through it. The siphon must be filled after maintenance.
- Install the burner holder and tighten the M6 nuts crossways (four nuts on 40 kW and to 60 kW models, six nuts on 80 kW to 150 kW models). Maximum tightening torque: 5 Nm.
- Connect the gas supply.
- Check that the gas circuit is sealed with a foaming product.
- Install the control panel.
- Switch on the electric power supply.
- Start the boiler, check that the burner holder is properly sealed and check the hygiene of the combustion. The rate of CO<sub>2</sub> must comply with the values in the table in paragraph 4.5.
- Install the front panel and check the hygiene of the combustion with the door closed.

## 8. END-OF-LIFE CYCLE OF THE APPARATUS

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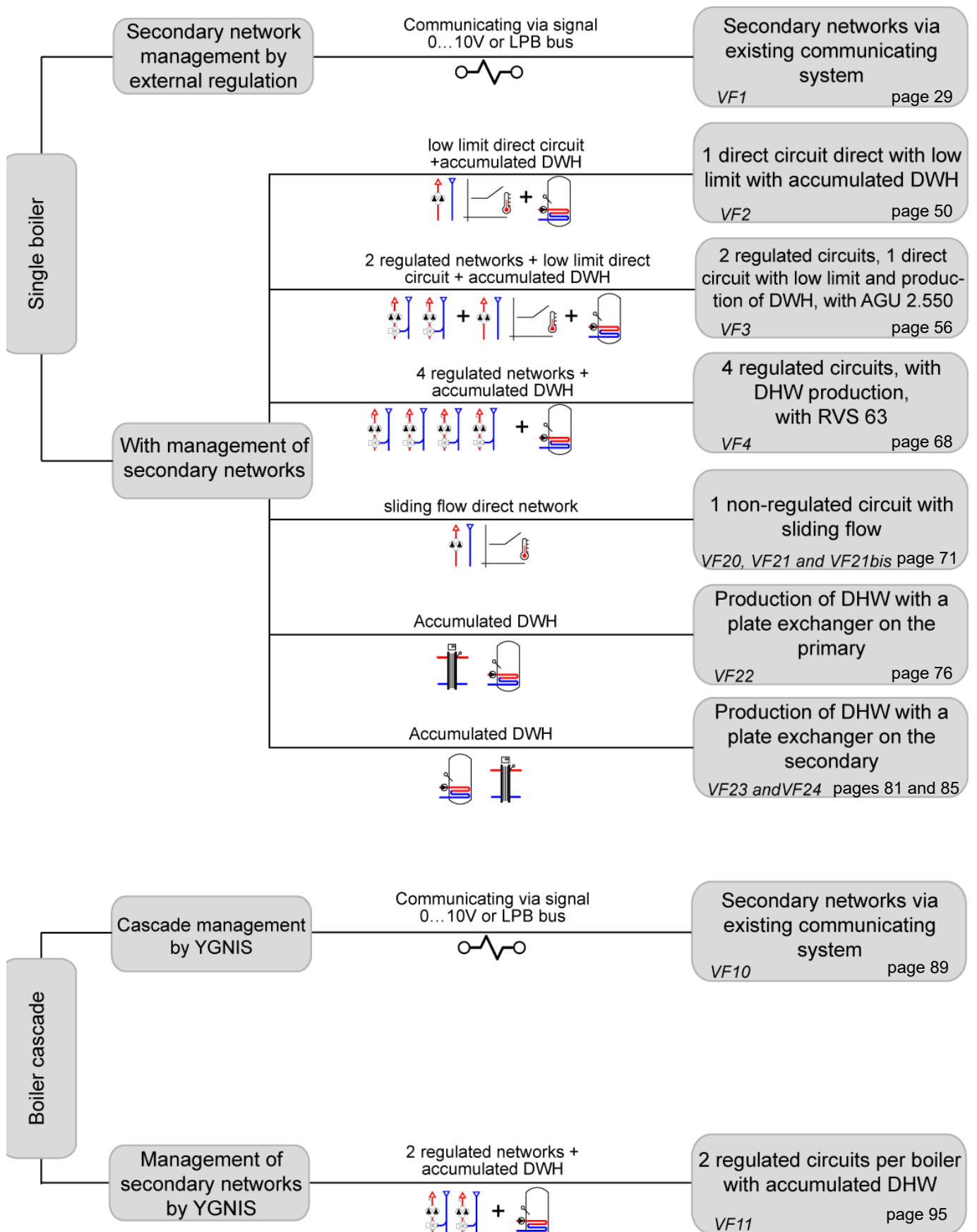
Regulatory disposal and managed recycling of this product can prevent damage to the environment and health risks.

- a) For the disposal of the product and the component parts, the services of an accredited waste disposal company should be used.
- b) For more information on waste disposal/management, contact the Local Authority responsible for waste management or the point of sales where the product was purchased















## 9. HYDRAULIC DIAGRAMS AND CONFIGURATIONS

### 9.1. Selection diagrams



## 9.2. Symbols used in the diagrams

Symbol	Function
	Isolation valve open
	Motor-controlled 2-way valve
	Filter
	Burner control
	Mud cup
	External sensor

Symbol	Function
	Balancing valve
	Motor-controlled 3-way valve
	Anti-return flap
	Pump
	Bleed valve
	Temperature sensor

## 9.3. List of diagrams

<b>SINGLE BOILER</b> .....	<b>46</b>
Without control of the secondary communications networks 0...10V or LPB .....	46
<b>VF1</b>	
Control 1 direct circuit with low limit and production of DWH .....	50
<b>VF2</b>	
2 regulated circuits, 1 direct circuit with low limit and production of DWH .....	56
<b>VF3</b>	
4 regulated circuits, with DWH production .....	63
<b>VF4</b>	
1 non-regulated circuit with sliding flow .....	71
<b>VF20, VF21, VF21bis</b>	
Production of DWH with a plate exchanger on the primary .....	76
<b>VF22</b>	
DHW production with hygiatherm .....	81
<b>VF23</b>	
DHW production with tank with coil .....	86
<b>VF24</b>	
<b>BOILER CASCADE</b> .....	<b>90</b>
Without control of the secondary, communications networks 0...10V or LPB .....	90
<b>VF10</b>	
2 regulated circuits per boiler and production of DWH .....	97
<b>VF11</b>	

<h2 style="margin: 0;">SINGLE BOILER</h2> <p style="margin: 0;"><i>Without control of the secondary communications networks 0...10V or LPB</i></p>	<p>Diagram <b>VF1</b></p> <p>page 1 / 4</p>
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### A. HYDRAULIC DIAGRAM

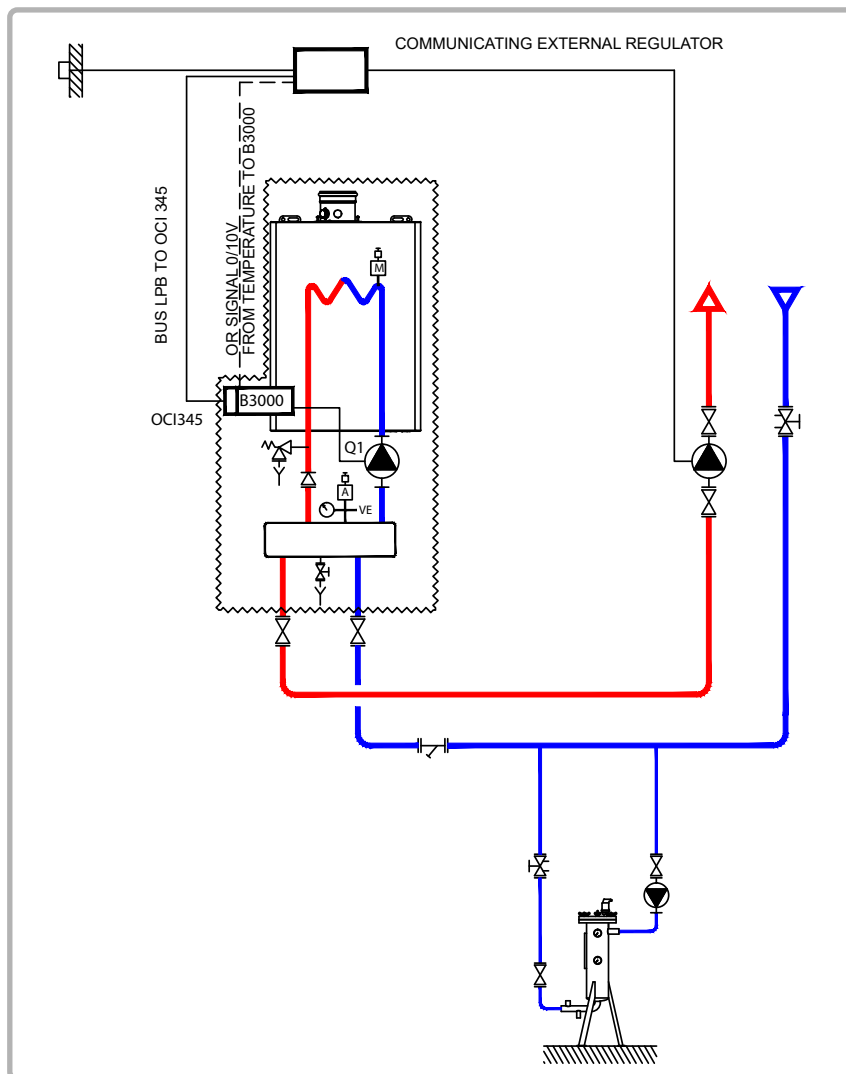


figure 23 - VF1 diagram

The existing regulation system controls the installation's heating circuit. It sends the outlet temperature set point to the boiler, either over the LPB bus through the OCI 345 interface (SIEMENS protocol), or by a 0 - 10 V signal, sent directly to the NAVISTEM B3000.

When controlled by the external regulator, the boiler operates according to a sliding temperature scale when it starts for the heating, according to the outdoor temperature.

### B. REGULATION ACCESSORY REQUIRED

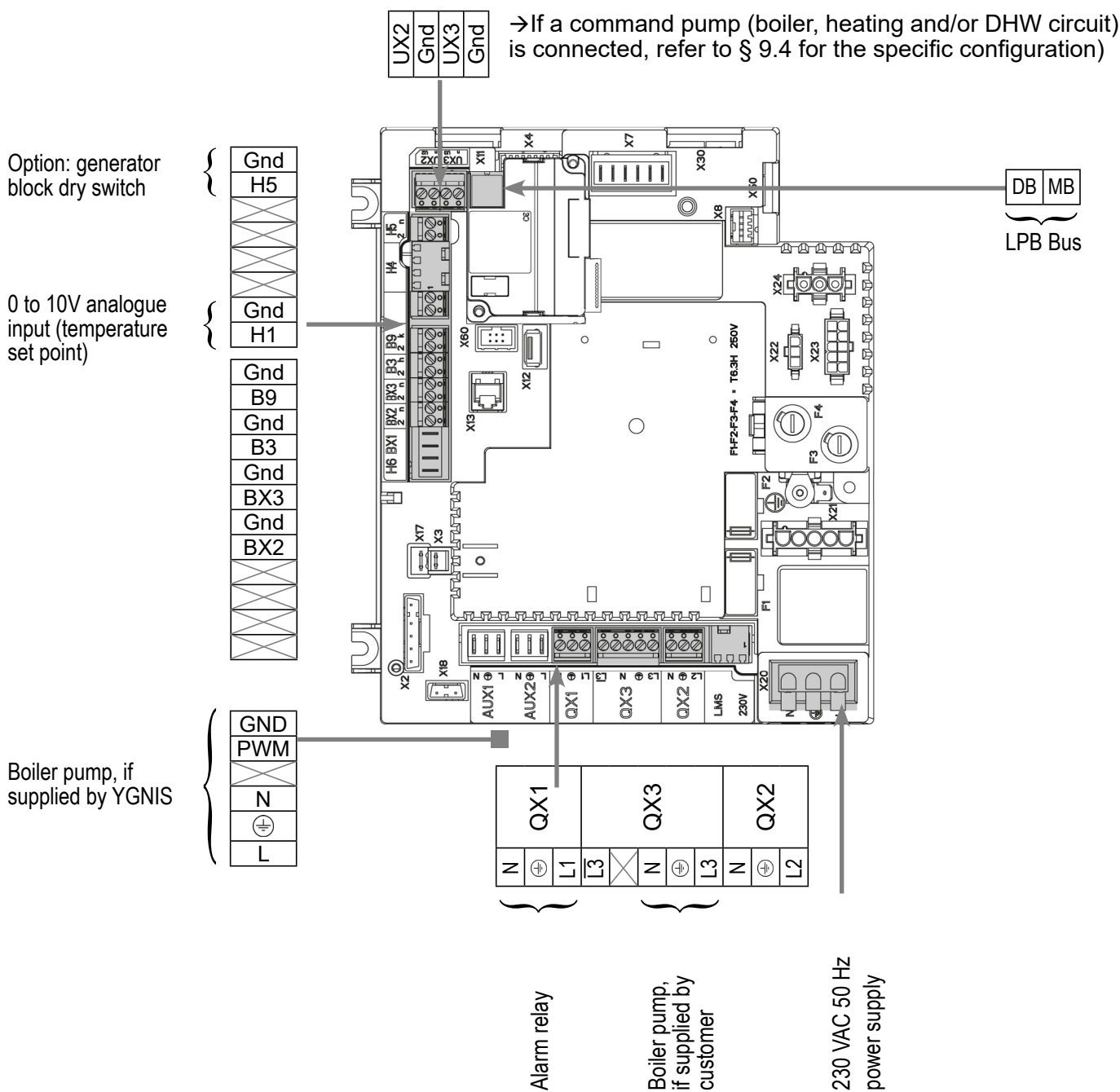
	Quantity	Appliance reference	Order No.
Communication kit for LPB bus <i>(for dialogue over LPB bus)</i>	1	OCI 345	059572

**Diagram: VF1**

**C. RECOMMENDED HYDRAULIC ACCESSORY**

		<b>Order No.</b>
Hydraulic kit for boiler only	for VARFREE 40 and 60	082324
	for VARFREE 80 and 100	082325
	for VARFREE 120	082326
	for VARFREE 150	082327

**D. CUSTOMER'S ELECTRICAL CONNECTION**



**E. SPECIFIC START-UP PROCEDURE**

☞ Make the accessories' electrical connections.

☞ Start up the boiler only.

☞ Make the following settings:

	<b>Line No.</b>	<b>Value</b>
<b>• Configuration menu</b>		
Boiler pump supplied by YGNIS	No adjustments necessary	
Boiler pump supplied by the customer (all-or-nothing control)	Relay output QX3 (5892)	Boiler pump Q1
<b>• Time and date menu</b>		
Set the time	Hours / minutes (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
<b>For a request via 0...10V input</b>		
<b>• Configuration menu</b>		
Configure the H1 input	Function input H1 (5950)	Consumer request VK1 10V
	Voltage value 1 H1 (5953)	0.0
	Function value 1 H1 (5954)	0
	Voltage value 2 H1 (5955)	10.0
	Function value 2 H1 (5956)	1000 (for equivalence 10 V = 100 °C)

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

\* : according to scale given in parameter "5956"

	<b>Line No.</b>	<b>Value</b>
Option: to keep the generator at a stop, even if the 0...10V signal is different from 0	Function input H5 (5977)	Inhibit starting (produces a fault E846)
<b>For a request by LPB (LPB network menu)</b>		
<b>• LPB network menu</b>		
Check that the boiler is defined as the master generator	Device address (6600)	1
	Segment address (6601)	0
	Bus power supply function (6604)	Automatically
	Clock mode (6640)	Slave with remote setting
<b>• Configuration menu</b>		
Save the sensors	Save sensors (6200)	Yes (switches back to no automatically)



## F. ELECTRICAL AND HYDRAULIC VALIDATION

### *For a request via 0...10V input*

#### • **Inputs/outputs test** menu

	<b>Line No.</b>	<b>Value</b>
Voltage in H1	Voltage signal H1 (7840)	To be validated with the voltage sent by the boiler room's PLC
Direction of switch H5	Contact state H5 (7865)	Open / Closed

### *For a request via LPB*

If the boiler room's regulator is configured as master clock, it must retrieve the date and time.

### *In both cases*

#### • **Inputs/outputs test** menu

Alarm relay	Relay test (7700)	Relay output QX1
Boiler pump control, if supplied by customer	Relay test (7700)	Relay output QX3
Reset the outputs	Relay test (7700)	No test

## G. CONFIGURATION OPTIMISATION

### **Maintenance optimisation**

A maintenance message may be generated that does not set the boiler to fault. This maintenance message may be displayed after the following 3 counters have expired:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months.
- Operating hours of the burner (parameter 7040).
- Number of starts (parameter 7042)

These last 2 parameters are dependent on the boiler's hydraulic installation. We recommend using at least parameter 7044 for annual maintenance.

<h2 style="margin: 0;">SINGLE BOILER</h2> <p style="margin: 0;"><i>Control 1 direct circuit with low limit and production of DWH</i></p>	<p>Diagram <b>VF2</b></p> <p>page 1 / 6</p>
--	---

### A. HYDRAULIC DIAGRAM

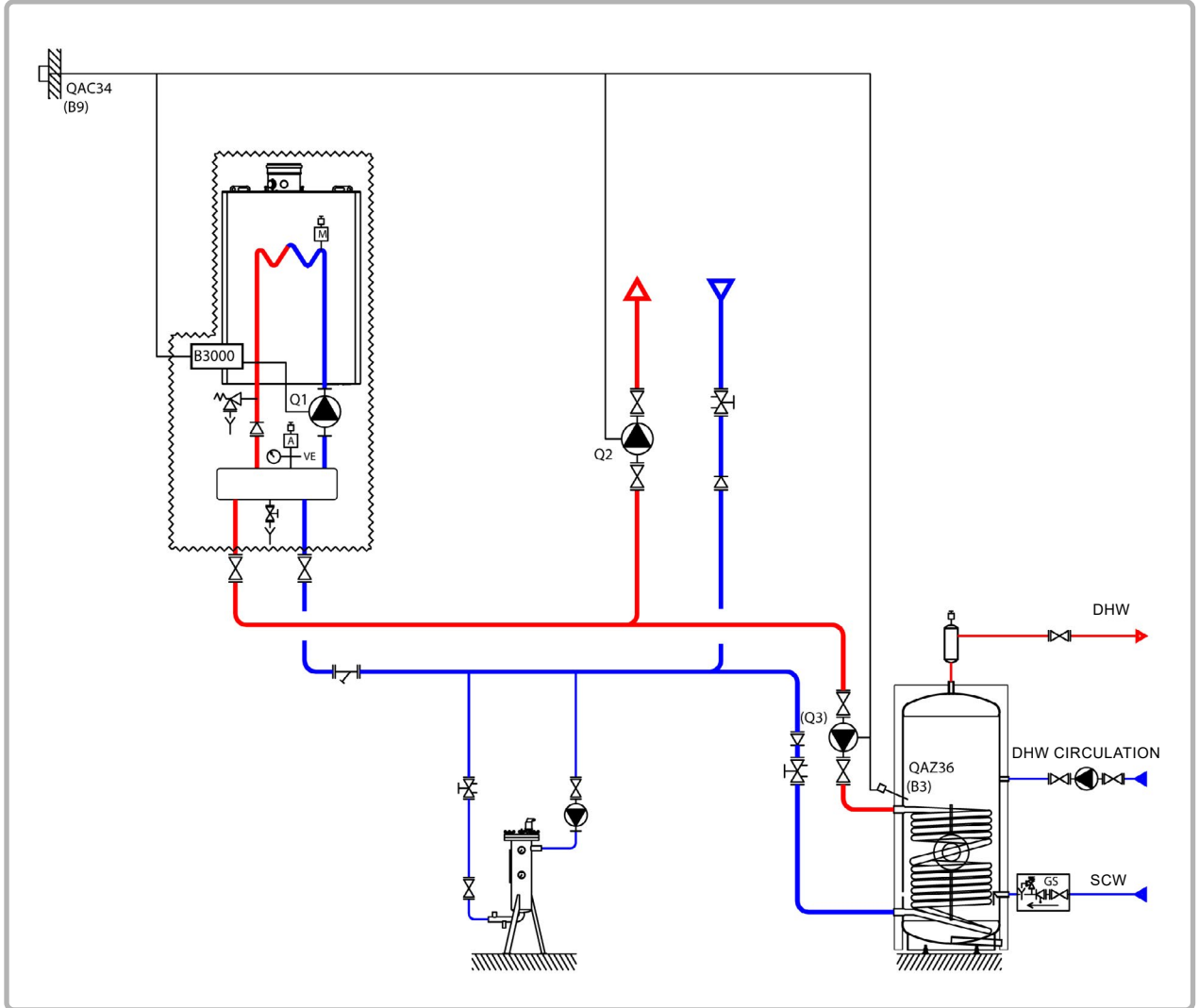


figure 24 - VF2 diagram

The boiler operates in variable flow temperature according to the outdoor temperature measured by the exterior sensor QAC 34.

The heating water law is programmed on the NAVISTEM B3000, with or without a low temperature limit and with a weekly programme.

The production of domestic hot water is controlled by the NAVISTEM B3000 using the QAZ 35 sensor in the tank.

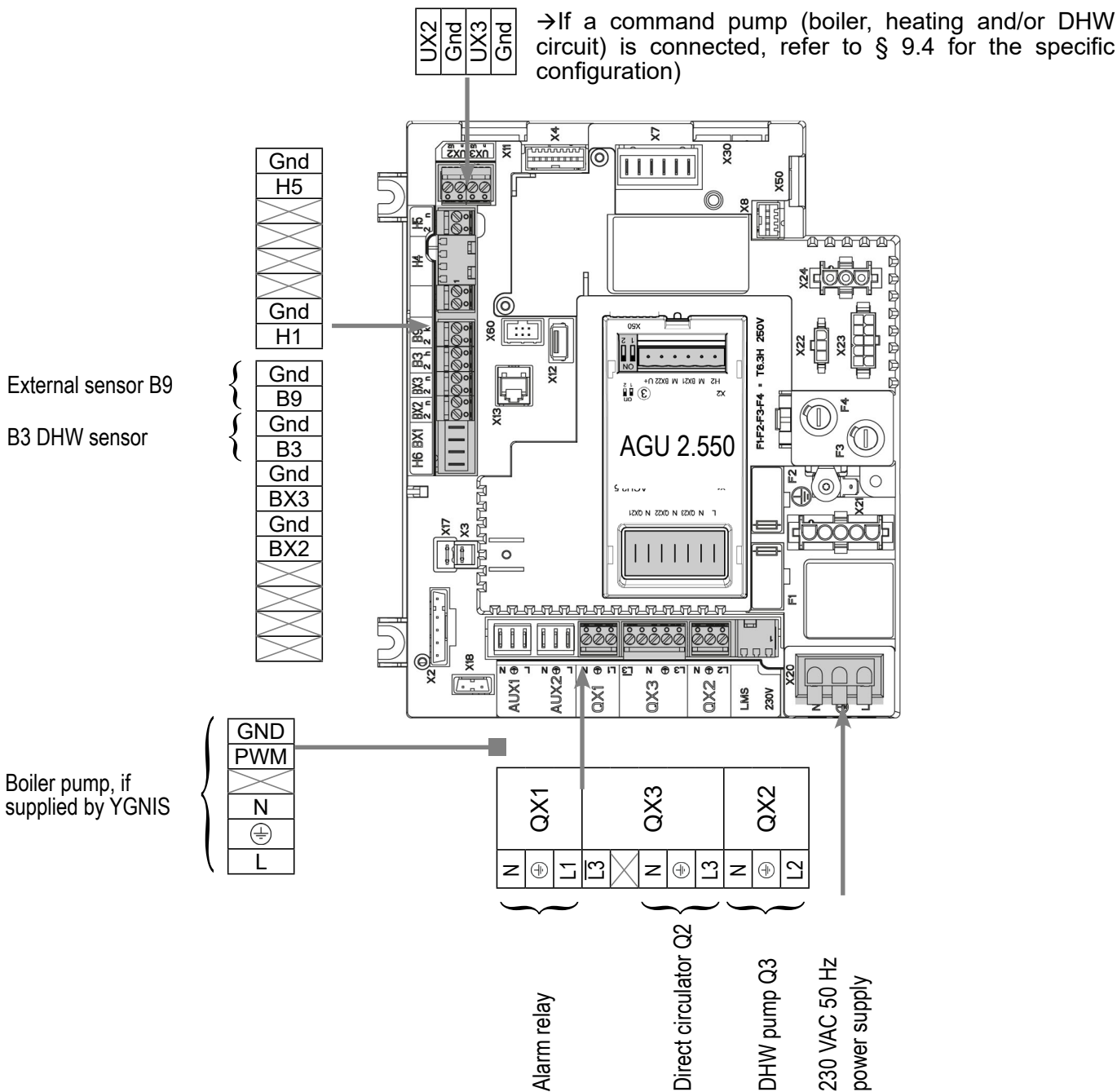
### B. REGULATION ACCESSORY REQUIRED

	Quantity	Appliance reference	Order No.
Output sensor kit	1	QAC 34	059260
DHW sensor kit	1	QAZ 36	059261
<b>Boiler pump supplied by the customer (all-or-nothing control)</b> Extension module kit (delivered with a network sensor QAD 36)	1	AGU 2.550	059753

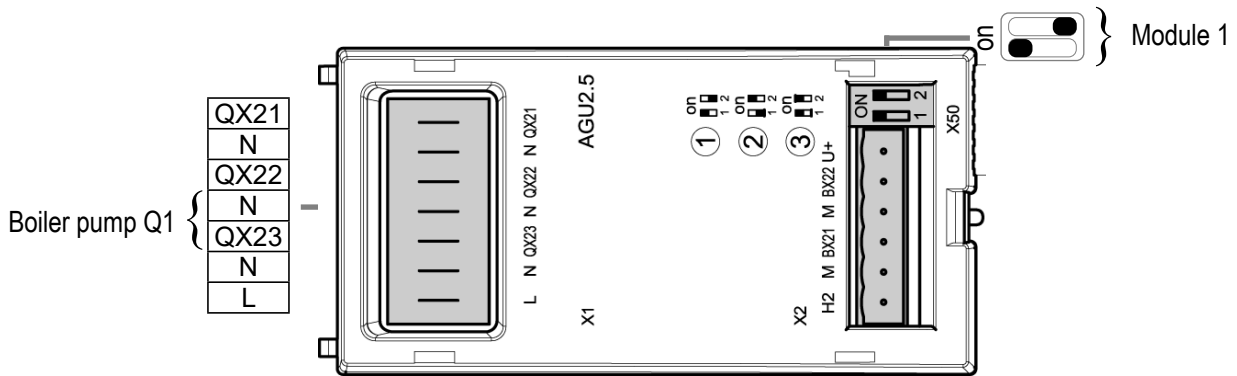
**C. RECOMMENDED HYDRAULIC ACCESSORY**

	Order No.
Hydraulic kit for boiler only	082324
for VARFREE 40 and 60	082325
for VARFREE 80 and 100	082326
for VARFREE 120	082327
for VARFREE 150	082327

**D. CUSTOMER'S ELECTRICAL CONNECTION**



**Boiler pump supplied by the customer (all-or-nothing control):**



**IMPORTANT:** configure the switches on the AGU 2.550 extension modules.



**E. SPECIFIC START-UP PROCEDURE**

- Make the accessories' electrical connections.
- Start up the boiler only.
- Carry out the adjustments below.

	<i>Line No.</i>	<i>Value</i>
<b>• Time and date menu</b>		
Set the time	Hours / minutes (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
<b>• Configuration menu</b>		
Start up heating circuit 1	Heating circuit 1 (5710)	On
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure DHW pump Q3	Relay output QX2 (5891)	DHW ctrl elem Q3
Configure the direct circuit pump Q2	Relay output QX3 (5892)	Heat circuit pump HC1 Q2
<b>Boiler pump supplied by YGNIS:</b>	No adjustments necessary	

## Diagram: VF2

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	<b>Line No.</b>	<b>Value</b>
<b>Boiler pump supplied by the customer (all-or-nothing control)</b>		
Configure the extension module function	Function extension module 1 (6020)	Multifunctional
Configure the output to control the boiler pump	Relay output QX23 module 1 (6032)	Boiler pump Q1
<b>• Heating circuit 1 menu</b>		
Adjust the comfort setting	Comfort setpoint (710)	---
Adjust the curve slope	Heating curve slope (720)	---
Adjust the min. flow temperature if necessary	Flow temp setpoint min (740)	60°C (adjust according to the lower limit)
• Switch the heating regime to permanent comfort		
<b>• Domestic hot water menu</b>		
Adjust the comfort setting	Nominal setpoint (1610)	---
• Activate the DHW mode		
<b>• Configuration menu</b>		
Save the sensors	Save sensors (6200)	Yes (switches back to no automatically)

## F. ELECTRICAL AND HYDRAULIC VALIDATION

## G. CONFIGURATION OPTIMISATION

### Heating circuit optimisation:

- **Heating circuit 1** menu
 

Adjust the reduced setting	Reduced setpoint (712)	---
----------------------------	------------------------	-----
  
- **Heating circuit 1 timer programme** menu
 

Preselection	Preselection (500)	---
Adjust the timer programming	On / off phases (501...506)	---
  
- **Heating circuit 1 holiday** menu
 

Preselection	Preselection (641)	---
Adjust the timer programming	On / off phases (642-643)	---
  
- Switch the heating regime to automatic **Auto**

### DHW optimisation:

- **Domestic hot water** menu
 

Adjust the reduced setting	Reduced setpoint (1612)	---
Adjust the DHW release mode	Release (1620)	Time program 4/DHW
  
- **Timer programme 4/DHW** menu
- **Configuration** menu
 

Activate the heating circuits' frost protection mode	Frost protection plant (6120)	On
Preselection	Preselection (560)	---
Adjust the timer programming	On / off phases (561...566)	---
  
- **DHW tank** menu
 

Adjust the over value	Flow setpoint boost (5020)	---
-----------------------	----------------------------	-----
  
- **Domestic hot water** menu
 

Configure a Legionella function	Legionella function (1640)	---
	Legionella funct periodically (1641)	---
	Legionella funct weekday (1642)	---
	Legionella funct setpoint (1645)	---
	Legionella funct duration (1646)	---

**Line No.    Value**

**Maintenance optimisation**

A maintenance message may be generated that does not set the boiler to fault. This maintenance message may be displayed after the following 3 counters have expired:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months.
- Operating hours of the burner (parameter 7040).
- Number of starts (parameter 7042)

These last 2 parameters are dependent on the boiler's hydraulic installation. We recommend using at least parameter 7044 for annual maintenance.

<h2 style="margin: 0;">SINGLE BOILER</h2> <p style="margin: 0;"><i>2 regulated circuits, 1 direct circuit with low limit and production of DWH</i></p>	<p style="margin: 0;">Diagram <b>VF3</b></p> <p style="margin: 0;">page 1 / 7</p>
--	---

### A. HYDRAULIC DIAGRAM

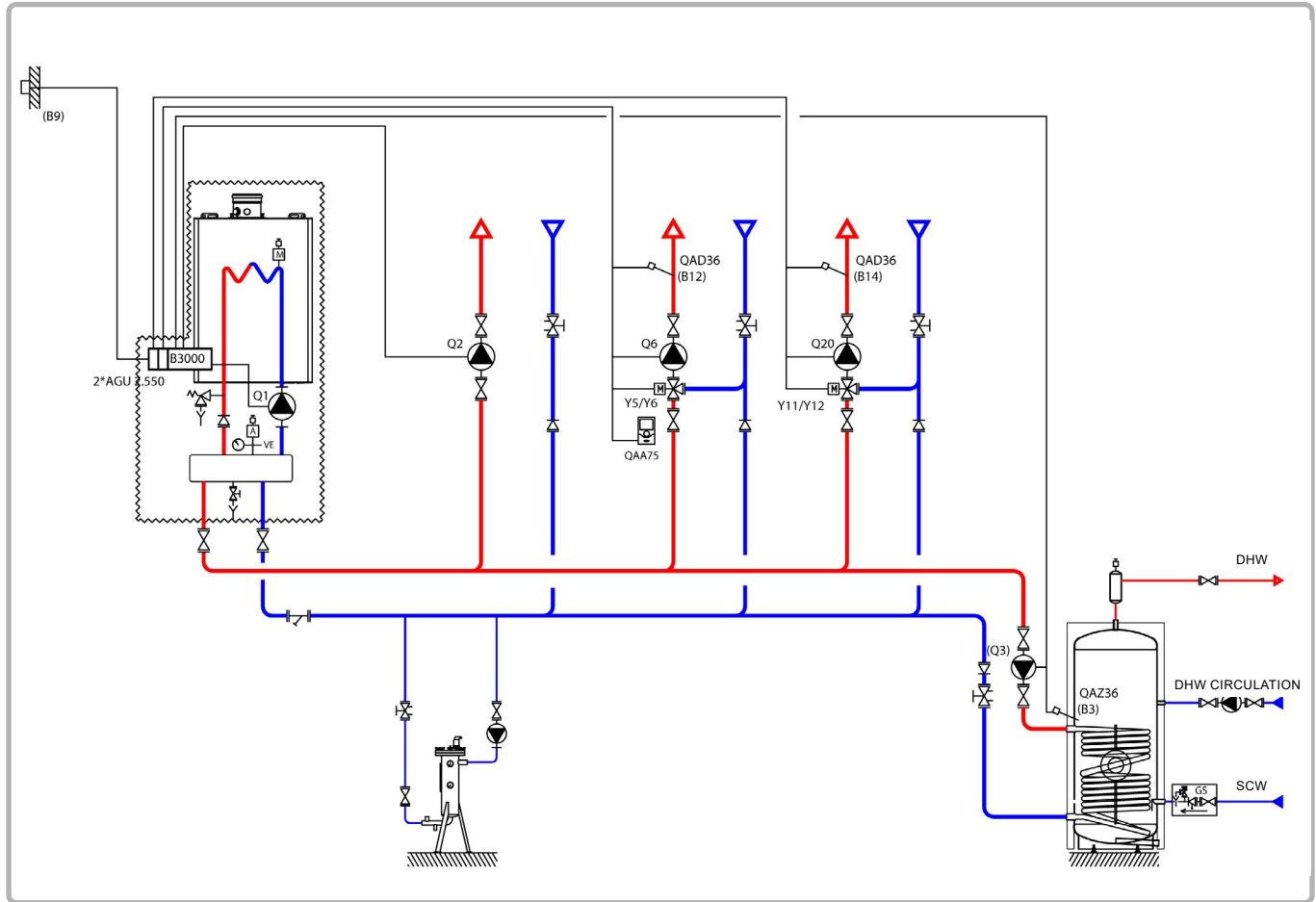


figure 25 - VF3 diagram

The water law of the heating circuit is programmed on the NAVISTEM B3000 with a weekly heating programme.

The AGU 2.550 interfaces built into the boiler are used to control the two three-way regulating valves of the heating networks.

The boiler operates in variable flow temperature according to the outdoor temperature measured by the exterior sensor QAC 34, without a low temperature limit.

The production of domestic hot water is controlled by the NAVISTEM B3000 using the QAZ 36 sensor in the tank.

### B. REGULATION ACCESSORY REQUIRED

	Quantity	Appliance reference	Order No.
Extension module kit (delivered with a network sensor QAD 36)	2	AGU 2.550	059753
DHW sensor kit	1	QAZ 36	059261
Output sensor kit	1	QAC 34	059260
Room sensor kit	1	QAA 75	040954



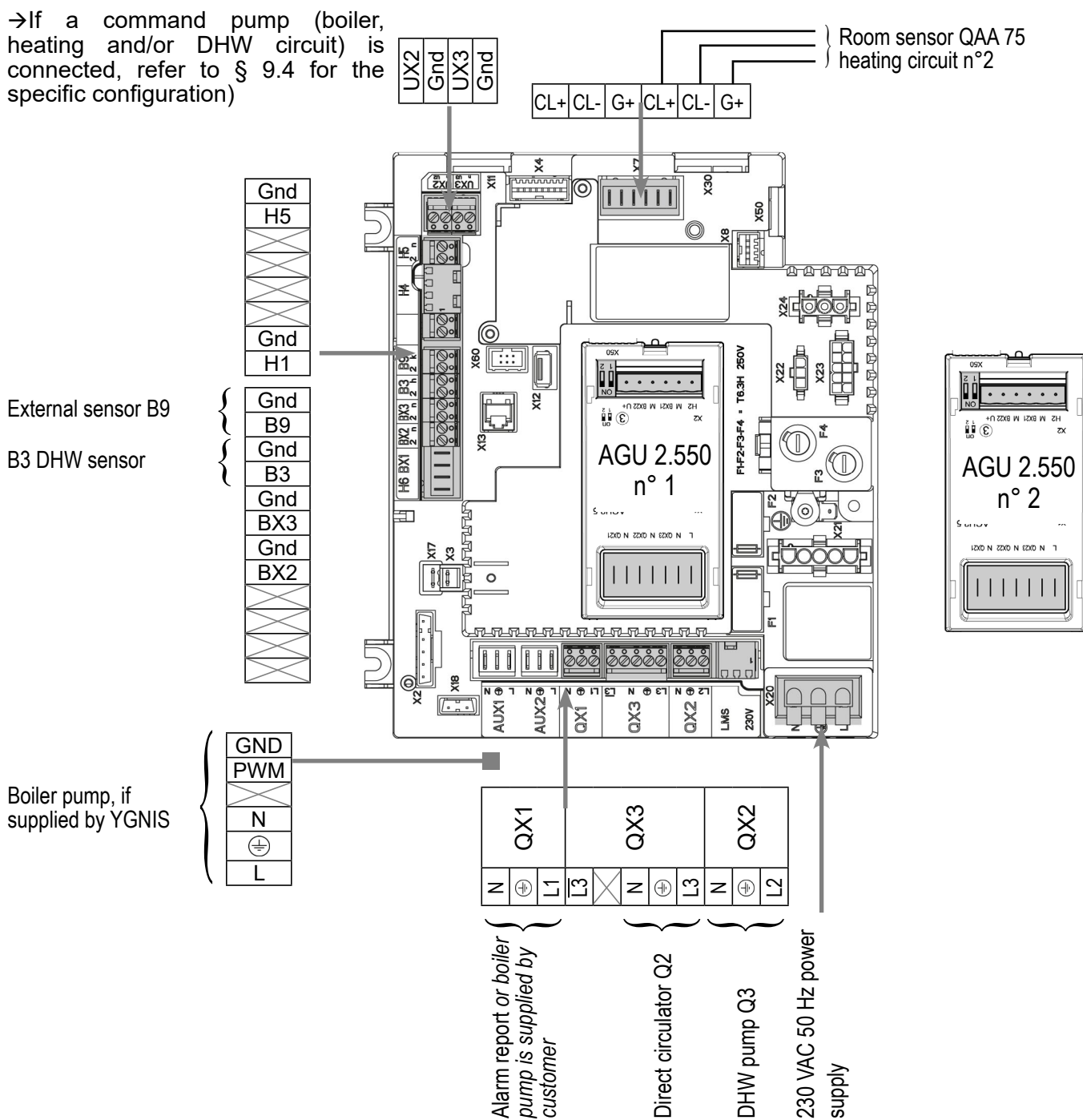
**Diagram: VF3**

**C. RECOMMENDED HYDRAULIC ACCESSORY**

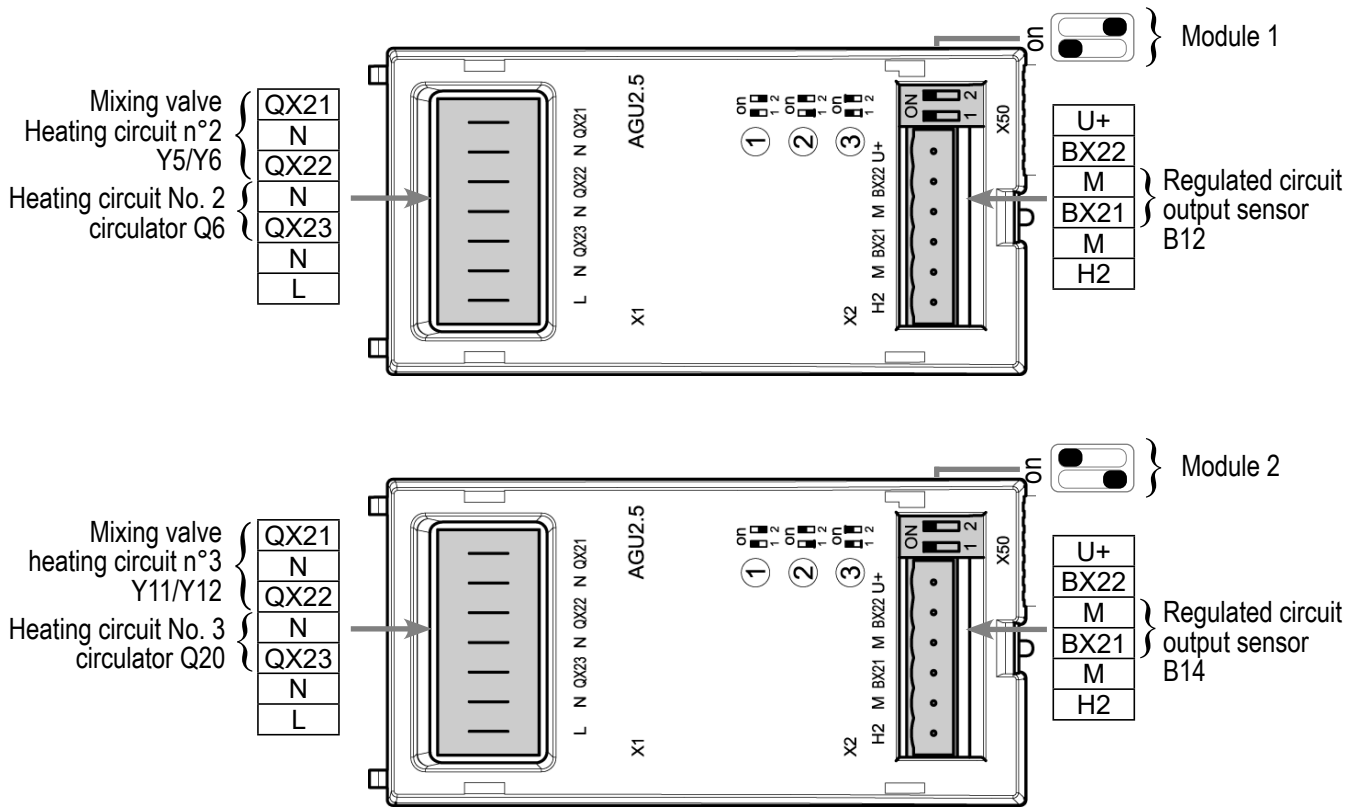
		<b>Order No.</b>
Hydraulic kit for boiler only	for VARFREE 40 and 60	082324
	for VARFREE 80 and 100	082325
	for VARFREE 120	082326
	for VARFREE 150	082327

**D. CUSTOMER'S ELECTRICAL CONNECTION**

→If a command pump (boiler, heating and/or DHW circuit) is connected, refer to § 9.4 for the specific configuration)



**Diagram: VF3**



**E. SPECIFIC START-UP PROCEDURE**

Make the accessories' electrical connections..



**IMPORTANT:** Configure the switches on the AGU 2.550 extension modules.

- ☞ Start up the boiler only.
- ☞ Carry out the adjustments below.

	<i>Line No.</i>	<i>Value</i>
<b>• Time and date menu</b>		
Set the time	Hours / minutes (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
<b>• Configuration menu</b>		
Start up heating circuit 1	Heating circuit 1 (5710)	On
Start up heating circuit 2	Heating circuit 2 (5715)	On
Start up heating circuit 3	Heating circuit 3 (5721)	On

## Diagram: VF3

page 4 / 7

	<b>Line No.</b>	<b>Value</b>
Configure the boiler pump or alarm report		
<b>YGNIS supply</b>		
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
<b>Customer supply (all-or-nothing control)</b>		
Configure the output <b>(no more alarm outputs available)</b>	Relay output QX1 (5890)	Boiler pump Q1
Configure DHW pump	Relay output QX2 (5891)	DHW ctrl elem Q3
Configure the direct circuit pump Q2	Relay output QX3 (5892)	Heat circuit pump HC1 Q2
Configure the extension modules	Function extension module 1 (6020)	Heat circuit 2
	Function extension module 2 (6021)	Heat circuit 3
• <b>Heating circuit 1 / 2 / 3 menu</b>		
<b>For each circuit:</b>		
Adjust the Comfort setpoint	Comfort setpoint (710/1010/1310)	---
Adjust the curve slope	Heating curve slope (720/1020/1320)	---
Adjust the min. flow temperature for heating circuit 1	Flow temp setpoint min (740)	60°C (adjust according to the lower limit)
Removal of the over-value	Mixing valve boost (830)	0 °C
• Switch the heating regime to permanent comfort 		
• <b>Domestic hot water menu</b>		
Adjust the Comfort setpoint	Nominal setpoint (1610)	---
• Activate the DHW mode 		
• <b>Configuration menu</b>		
Save the sensors	Save sensors (6200)	Yes (switches back to no automatically)

## F. ELECTRICAL AND HYDRAULIC VALIDATION

	<i>Line No.</i>	<i>Value</i>
• <b>Inputs/outputs test</b> menu		
Check the outputs		
<b>Boiler pump supplied by YGNIS</b>		
Alarm relay	Relay test (7700)	Relay output QX1
<b>Boiler pump supplied by the customer (all-or-nothing control)</b>		
Boiler pump Q1	Relay test (7700)	Relay output QX1
DHW pump Q3	Relay test (7700)	Relay output QX2
Direct circuit pump Q2	Relay test (7700)	Relay output QX3
Heating circuit 2 3-channel valve opening	Relay test (7700)	Relay output QX21 module 1
Heating circuit 2 3-channel valve closure	Relay test (7700)	Relay output QX22 module 1
Heating circuit 2 pump	Relay test (7700)	Relay output QX23 module 1
Heating circuit 3 3-channel valve opening	Relay test (7700)	Relay output QX21 module 2
Heating circuit3 3-channel valve closure	Relay test (7700)	Relay output QX22 module 2
Heating circuit 3 pump	Relay test (7700)	Relay output QX23 module 2
Reset the outputs	Relay test (7700)	No test
Check the sensor values		
External sensor B9	Outside temp B9 (7730)	in °C
DHW sensor B3	DHW temp B3/B38 (7750)	in °C
B12 flow sensor	Sensor temp BX21 module 1 (7830)	in °C
B14 flow sensor	Sensor temp BX21 module 2 (7832)	in °C

## G. CONFIGURATION OPTIMISATION

### Heating circuit optimisation

	<b>Line No.</b>	<b>Value</b>
<ul style="list-style-type: none"> <li>• <b>Heating circuit 1 / 2 / 3</b> menu           <ul style="list-style-type: none"> <li>Adjust the reduced setting</li> </ul> </li> </ul>	Reduced setpoint (712/1012/1312)	---
<ul style="list-style-type: none"> <li>• <b>Heating circuit 2 / 3</b> menu           <ul style="list-style-type: none"> <li>ECO function for automatic summer / winter switch (see NAVISTEM B3000 manual) <i>Function activated by default</i></li> <li>Daily ECO function for automatic comfort / reduced switch according to the difference between the set point and the outdoor temperature (see NAVISTEM B3000 manual). <i>Function not activated by default</i></li> </ul> </li> </ul>	Summer/winter heating limit (1030/1330)	19 °C
	24-hour heating limit (1032/1332)	-3 °C
<ul style="list-style-type: none"> <li>• <b>Heating circuit 1 / 2 / 3 timer programme</b> menu           <ul style="list-style-type: none"> <li>Preselection</li> <li>Adjust the timer programming</li> </ul> </li> </ul>	Preselection (500/520/540) On / off phases (501...506) (521...526) (541...546)	--- --- ---
<ul style="list-style-type: none"> <li>• <b>Heating circuit 1 / 2 / 3 holiday</b> menu           <ul style="list-style-type: none"> <li>Preselection</li> <li>Adjust the timer programming</li> </ul> </li> </ul>	Preselection (641/651/661) On / off phases (642...-643) (652-653) (662-663)	--- --- ---
<ul style="list-style-type: none"> <li>• <b>Configuration</b> menu           <ul style="list-style-type: none"> <li>Activate the heating circuits' frost protection mode</li> </ul> </li> </ul>	Frost protection plant (6120)	On
<ul style="list-style-type: none"> <li>• Switch the heating regime to automatic</li> </ul>		<b>Auto</b>

**DHW optimisation:**

	<b>Line No.</b>	<b>Value</b>
<ul style="list-style-type: none"> <li>• <b>DHW tank</b> menu</li> </ul>		
Adjust the over value	Flow setpoint boost (5020)	16 °C

**Maintenance optimisation**

A maintenance message may be generated that does not set the boiler to fault. This maintenance message may be displayed after the following 3 counters have expired:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months.
- Operating hours of the burner (parameter 7040).
- Number of starts (parameter 7042)

These last 2 parameters are dependent on the boiler's hydraulic installation. We recommend using at least parameter 7044 for annual maintenance.

**H. CONFIGURING THE ROOM SENSOR****Connecting the sensor to the heating circuit:**

<ul style="list-style-type: none"> <li>• <b>User interface</b> menu of the <b>room sensor</b></li> </ul>		
Assign the heating circuit to the room sensor	Use (40)	Ambience appliance 2

The room sensor is used to configure the heating circuit. It adjusts parameter 1012 (heating circuit 2). Refer to the NAVISTEM B3000 manual for the other room sensor functions.

# SINGLE BOILER

## 4 regulated circuits, with DHW production

Diagram  
**VF4**  
page 1 / 8

### A. HYDRAULIC DIAGRAM

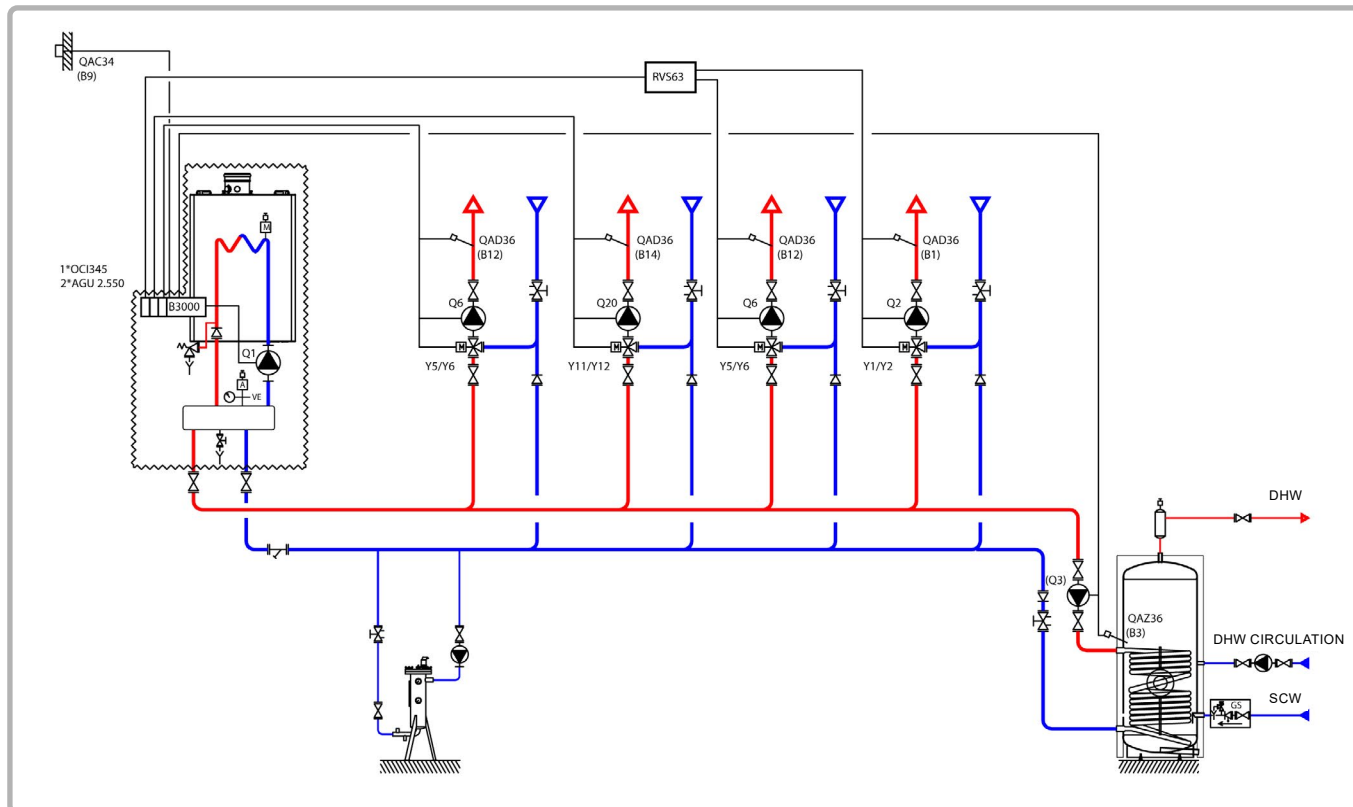


figure 26 - VF4 diagram

The water law of the heating circuit is programmed on the NAVISTEM B3000 with a weekly heating programme.

The AGU 2.550 interfaces built into the boiler are used to control the two three-way regulating valves of the heating networks. The two others will be managed by the RVS 63 integrated into an outside case at the boiler.

The boiler operates in variable flow temperature according to the outdoor temperature measured by the exterior sensor QAC 34, without a low temperature limit.

The production of domestic hot water is controlled by the NAVISTEM B3000 using the QAZ 36 sensor in the tank.

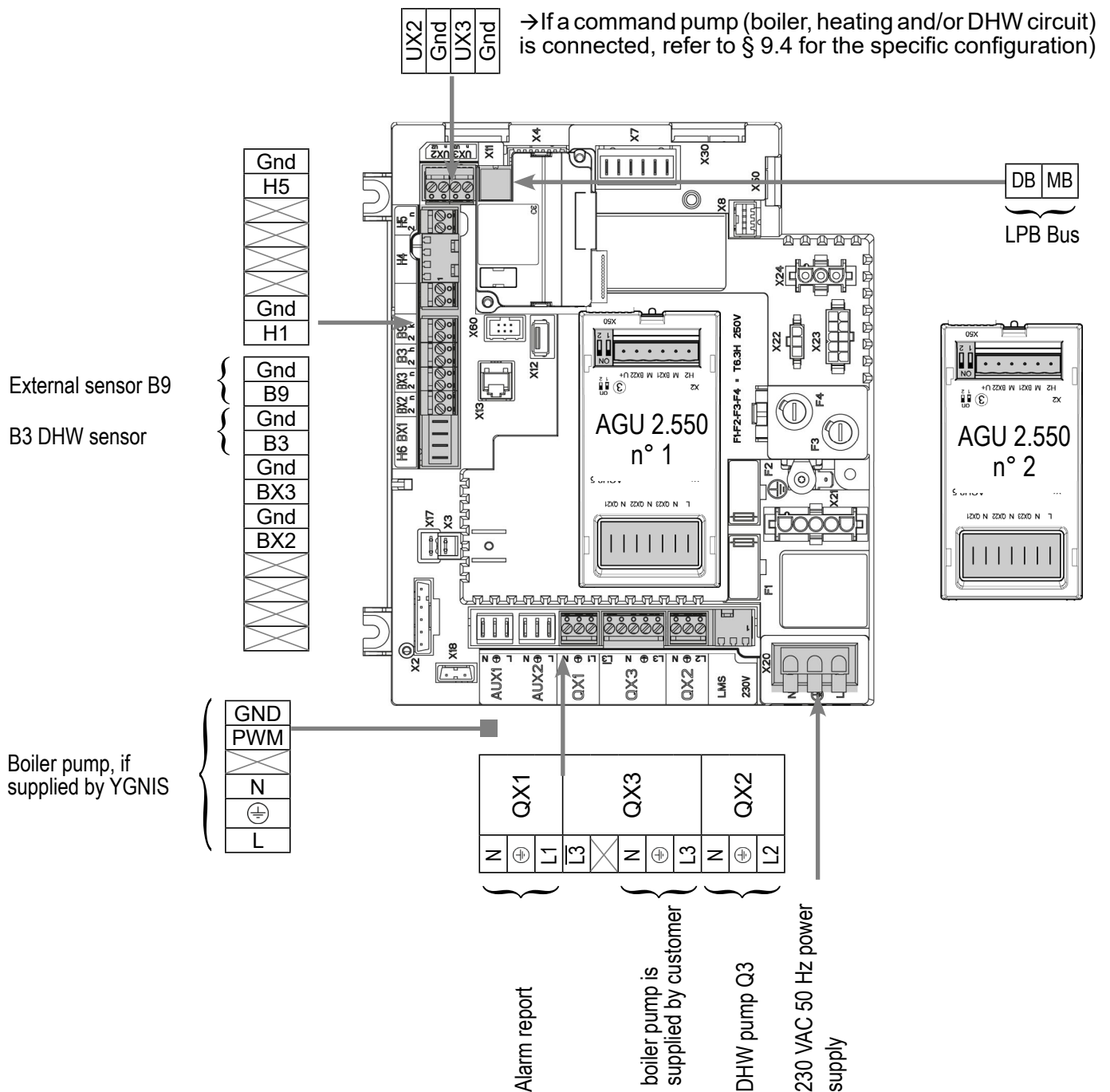
### B. REGULATION ACCESSORY REQUIRED

	Quantity	Appliance reference	Order No.
Heating circuit regulation kit	1	RVS 63	059516
Extension module kit (delivered with a network sensor QAD 36)	2	AGU 2.550	059753
Communication kit for LPB bus	1	OCI 345	059752
DHW sensor kit	1	QAZ 36	059261
Output sensor kit	1	QAC 34	059260

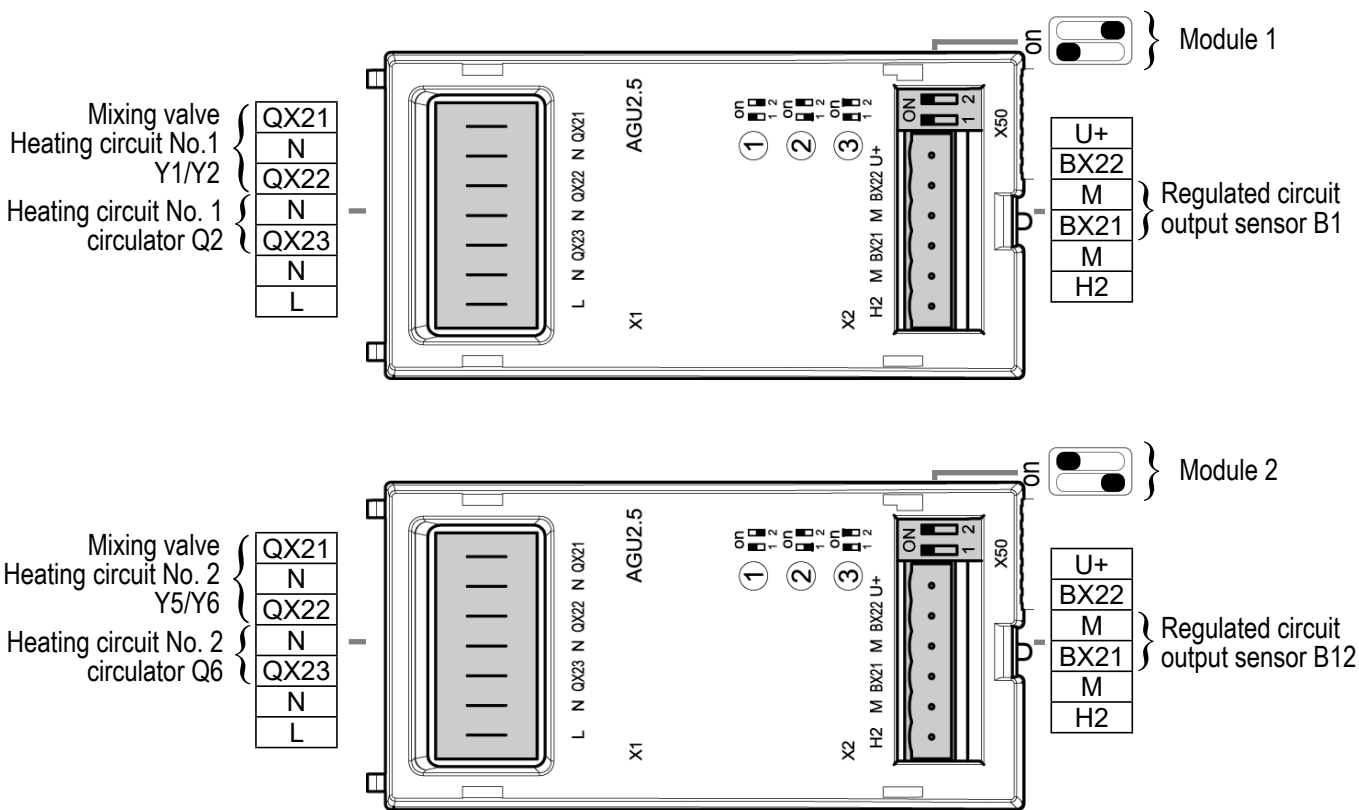
### C. RECOMMENDED HYDRAULIC ACCESSORY

	Order No.
Hydraulic kit for boiler only	for VARFREE 40 and 60
	for VARFREE 80 and 100
	for VARFREE 120
	for VARFREE 150
	082324
	082325
	082326
	082327

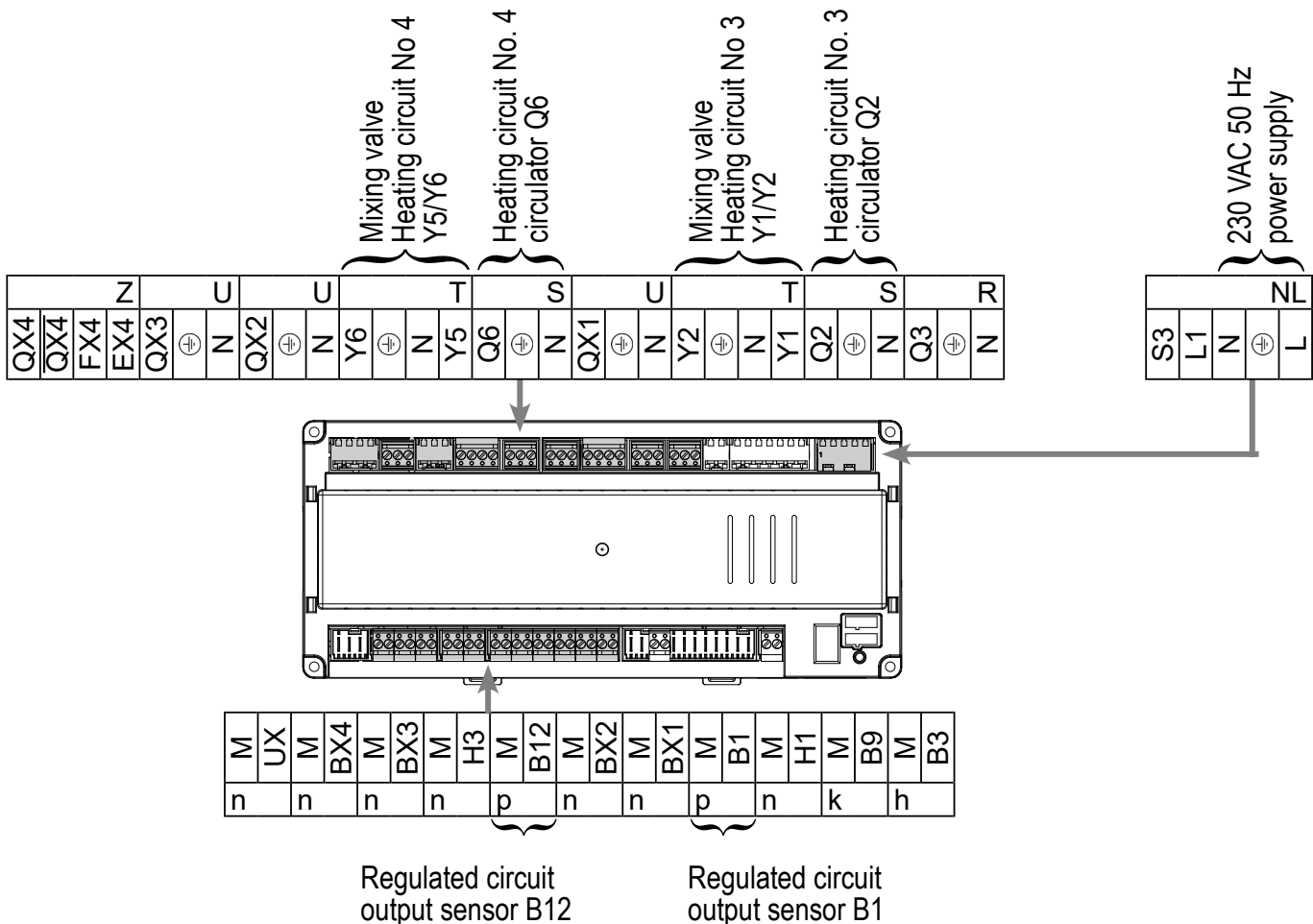
### D. SPECIFIC START-UP PROCEDURE







**Boîtier régulateur RVS 63 :**



## E. SPECIFIC START-UP PROCEDURE

Make the accessories' electrical connections.



**IMPORTANT:** Configure the switches on the AGU 2.550 extension modules.

- ☞ Start up the boiler only.
- ☞ Carry out the adjustments below.

### On VARFREE boiler:

	<i>Line No.</i>	<i>Value</i>
<b>• Time and date menu</b>		
Set the time	Hours / minutes (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
<b>• Configuration menu</b>		
Start up heating circuit 1	Heating circuit 1 (5710)	On
Start up heating circuit 2	Heating circuit 2 (5715)	On
Configure the alarm report	Relay output QX1 (5890)	Alarm output K10
Configure DHW pump	Relay output QX2 (5891)	DHW ctrl elem Q3
	Relay output QX3 (5892)	Boiler pump Q1
<b>If the boiler pump is supplied by customer</b>		
Configure the extension modules	Function extension module 1 (6020)	Heat circuit 1
	Function extension module 2 (6021)	Heat circuit 2
<b>• LPB network menu</b>		
Device number	Device address (6600)	1
Segment number	Segment address (6601)	0
Configure the bus supply	Bus power supply function (6604)	Automatically
Set the clock program	Clock mode (6640)	Master
<b>• Heating circuit 1 / 2</b>		
Adjust the comfort setting	Comfort setpoint (710/1010)	---
Adjust the curve slope	Heating curve slope (720/1020)	---

## Diagram: VF4

page 5 / 8

Line No. Value

- **Domestic hot water** menu

Adjust the comfort setting	Nominal setpoint (1610)	---
Adjust the DHW release mode	Release (1620)	24h/day

- Activate the DHW mode



- **Configuration** menu

Save the sensors	Save sensors (6200)	Yes (switches back to no automatically)
------------------	---------------------	---

**On RVS 63 :**

- **Menu Configuration**

Start heating circuit 1	Heating circuit 1 (5710)	On
Start heating circuit 2	Heating circuit 1 (5715)	On
Save the sensors	Save sensors (6200)	Yes (switches back to no automatically)

- **LPB network** menu

Device number	Device address (6600)	1
Segment number	Segment address (6601)	1
Configure the bus supply	Bus power supply function (6604)	Automatically
Set the clock program	Clock mode (6640)	Slave without remote setting

- **Heating circuit 1 / 2**

Adjust the comfort setting	Comfort setting temperature (710/1010)	---
Adjust the curve slope	Heating curve slope (720/1020)	---

- Set the heating program to permanent comfort



## F. ELECTRICAL AND HYDRAULIC VALIDATION

### On VARFREE boiler:

	<i>Line No.</i>	<i>Value</i>
• <b>Inputs/outputs test</b> menu		
Check the outputs		
Alarm report	Relay test (7700)	Relay output QX1
DHW pump Q3	Relay test (7700)	Relay output QX2
Boiler pump control, if supplied by customer	Relay test (7700)	Relay output QX3
HC1 3-channel valve opening	Relay test (7700)	Relay output QX21 module 1
HC1 3-channel valve close	Relay test (7700)	Relay output QX22 module 1
HC1 pump	Relay test (7700)	Relay output QX23 module 1
HC2 3-channel valve opening	Relay test (7700)	Relay output QX21 module 2
HC2 3-channel valve close	Relay test (7700)	Relay output QX22 module 2
HC2 pump	Relay test (7700)	Relay output QX23 module 2
Reset the outputs	Relay test (7700)	No test
Check the sensor values		
External sensor B9	Outside temp B9 (7730)	en °C
DHW sensor B3	DHW temp B3/B38 (7750)	en °C
B1 flow sensor	Sensor temp BX21 module 1 (7830)	en °C
B12 flow sensor	Sensor temp BX21 module 2 (7832)	en °C

### On the RVS 63:

	<i>Line No.</i>	<i>Value</i>
• <b>Inputs/outputs test</b> menu		
Check the outputs		
HC3 pump (Q2)	Relay test (7700)	HC pump Q2
HC3 3-channel valve opening	Relay test (7700)	HC mixing valve open Y1
HC3 3-channel valve close	Relay test (7700)	HC mixing valve close Y2

## Diagram: VF4

page 7 / 8

HC4 pump (Q6)	Relay test (7700)	Pompe CdeC Q6
HC4 3-channel valve opening	Relay test (7700)	HC mixing valve open Y5
HC4 3-channel valve close	Relay test (7700)	HC mixing valve close Y6
Reset the outputs	Relay test (7700)	No test
Check the sensor values		
Circuit 3 network flow sensor (B1)	Flow temp. B1 (7732)	en °C
Circuit 4 network flow sensor (B12)	Flow temp. B12 (7734)	en °C

## G. CONFIGURATION OPTIMISATION

### On VARFREE boiler and RVS 63 :

#### Heating circuit optimisation:

- **Heating circuit 1 / 2** menu

Adjust the reduced setting	Reduced setpoint (712/1012)	---
ECO function for automatic summer / winter switch (see NAVISTEM B3000 manual)	Summer/winter heating limit (1030/1330)	19 °C
Daily ECO function for automatic comfort / reduced switch according to the difference between the set point and the outdoor temperature (see NAVISTEM B3000 manual).	24-hour heating limit (1032/1332)	-3 °C

- **Heating circuit 1 / 2 timer programme** menu

Preselection	Preselection (500/520)	---
Adjust the timer programming	On / off phases (501...506) (521...526)	---

**Line No. Value**

- **Heating circuit 1 / 2 holiday** menu

Preselection	Preselection (641/651)	---
Adjust the timer programming	On / off phases (642...-643) (652-653)	---

- Switch the heating regime to automatic

**AUTO**

**Maintenance optimisation on VARFREE boiler:**

A maintenance message may be generated that does not set the boiler to fault. This maintenance message may be displayed after the following 3 counters have expired:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months.
- **Configuration** menu
 

Activate the heating circuits' frost protection mode	Frost protection plant (6120)	On
--	-------------------------------	----
- Operating hours of the burner (parameter 7040).
- Number of starts (parameter 7042)

These last 2 parameters are dependent on the boiler's hydraulic installation. We recommend using at least parameter 7044 for annual maintenance.

**Ajusting the DWH (on the RVS 63):**

- **Timer prog. 4/DHW** menu
 

Adjust the programmed times	On/off phases (561...566)	---
-----------------------------	---------------------------	-----
- **DHW** menu
 

Adjust the low setpoint	Low setpoint (1612)	---
Release the DHW load according to the timer program	Release (1620)	---
Adjust the frequency of the anti-legionella cycle	Anti-legionella function (1640)	---
Selon le réglage précédent, ajuster la périodicité ou le jour de la semaine	Periodic legion. funct.(1641) or Legionella funct weekday (1642)	---
Adjust the anti-legionella cycle temperature setpoint	Anti-legionella setpoint (1645)	---
Adjust the duration of the anti-legionella cycle	Anti-legionella function duration (1646)	---
- **DHW tank** menu
 

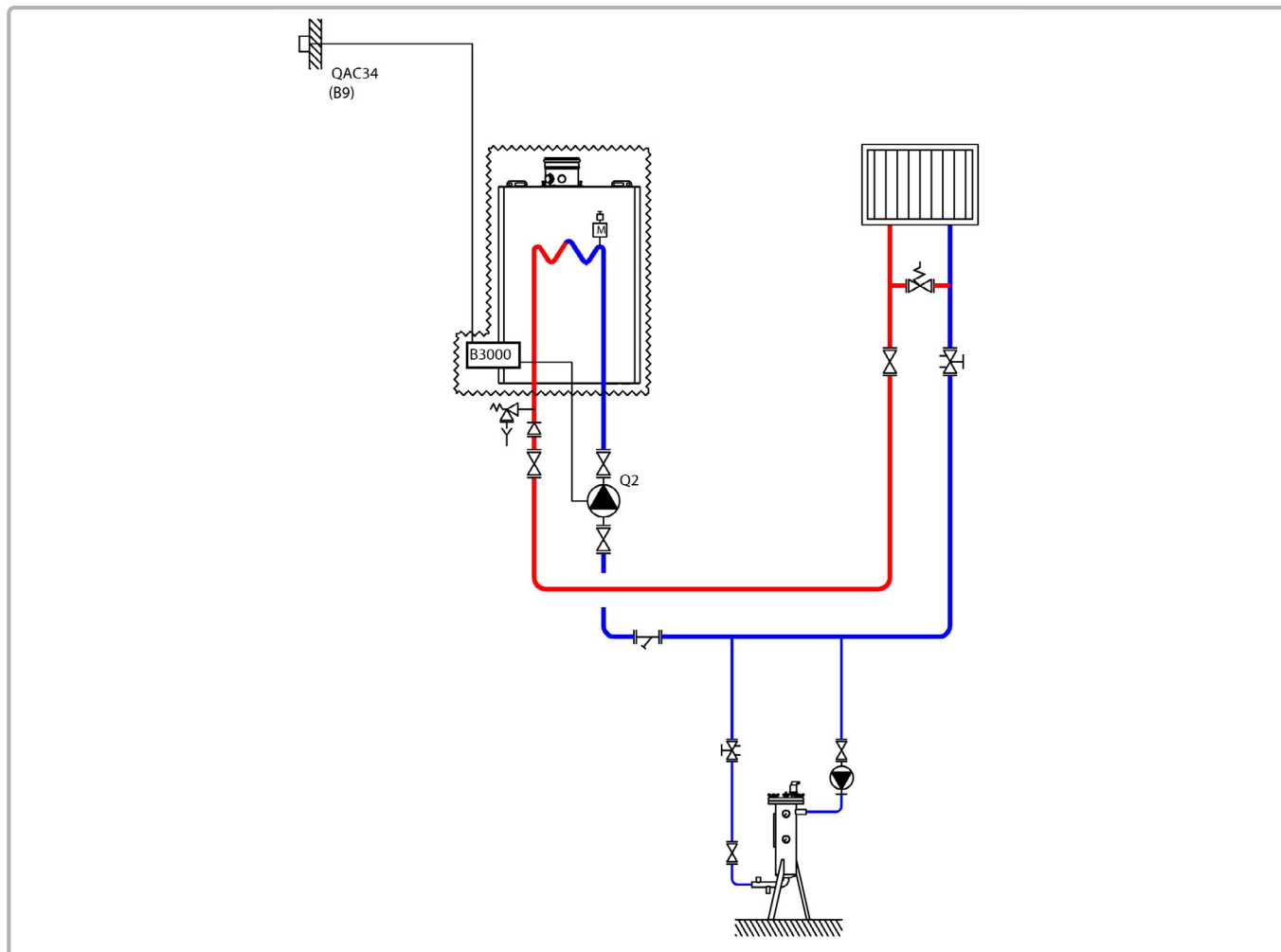
Adjust the primary rise/DHW	Rise in initial setpoint (5020)	16 °C
-----------------------------	---------------------------------	-------

# SINGLE BOILER

## *1 non-regulated circuit with sliding flow*

Diagrams  
VF20, VF21,  
VF21bis  
page 1 / 5

### A. HYDRAULIC DIAGRAM



**figure 27 - VF20 diagram**

The boiler operates in variable flow temperature according to the outdoor temperature measured by the exterior sensor QAC 34.

The heating water law is programmed on the NAVISTEM B3000, with or without a low temperature limit and with a weekly programme.

The flow rate of the heating pump, in m<sup>3</sup>/h, is adjusted to the real needs of the installation and, as a minimum, to P/25, with P power in th/h of the boiler.

If the heating pump is variable-flow rate, it must be set to a constant flow rate to deliver the minimum flow required by the generator.

If the installation is equipped with thermostatic taps on the emitters, the bypass between the outward and return lines of the network is essential. It is equipped with a differential valve that allows for the free flow of the heating pump when the thermostatic taps close.

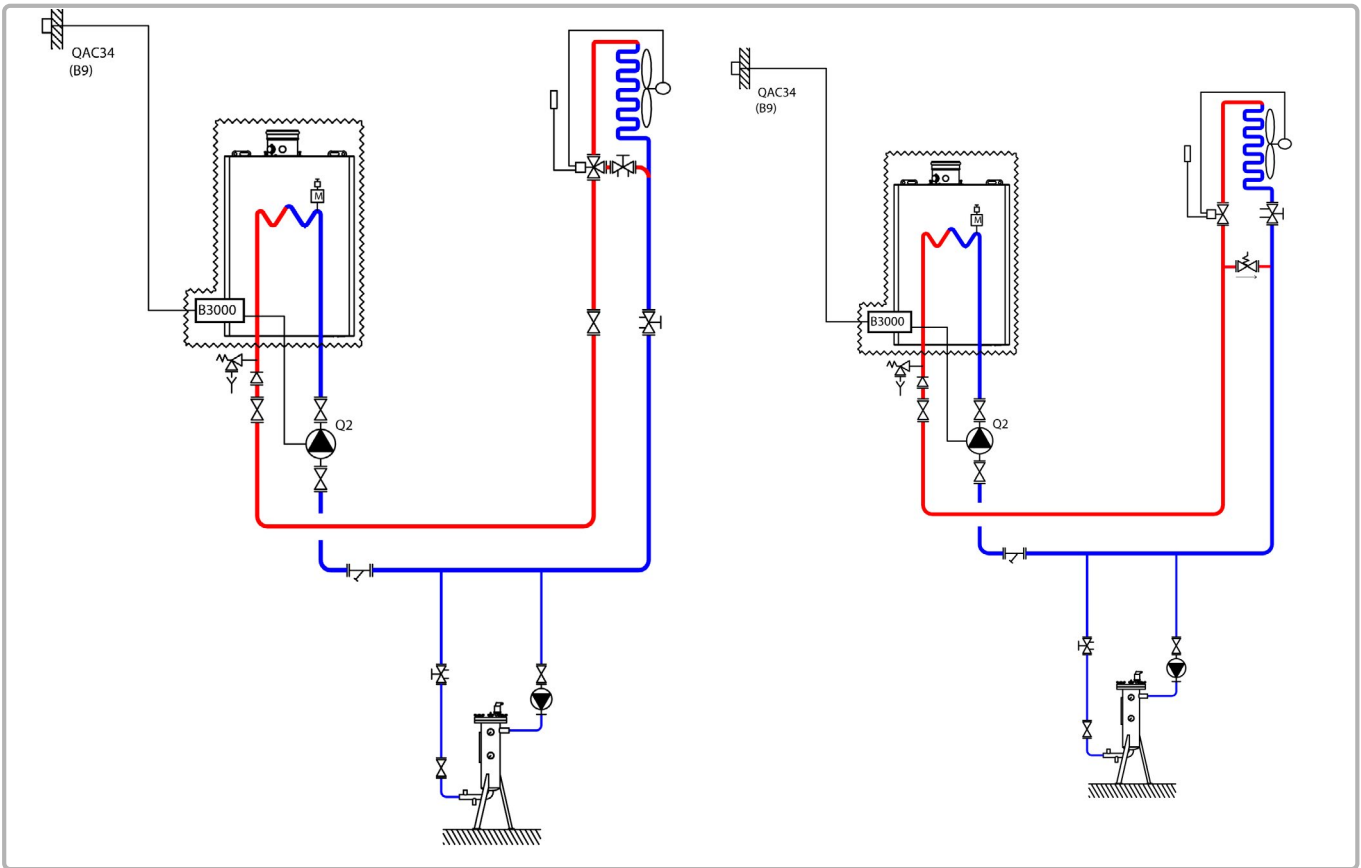


figure 28 - VF21, VF21bis diagrams

The boiler operates in variable flow temperature according to the outdoor temperature measured by the exterior sensor QAC 34.

The heating water law is programmed on the NAVISTEM B3000, with or without a low temperature limit and with a weekly programme.

The flow rate of the heating pump, in m<sup>3</sup>/h, is adjusted to the real needs of the installation and, as a minimum, to P/25, with P power in th/h of the boiler.

The pump heating will have to allow to work in constant speed to insure the minimum flow necessary for the generator.

**B. REGULATION ACCESSORY REQUIRED**

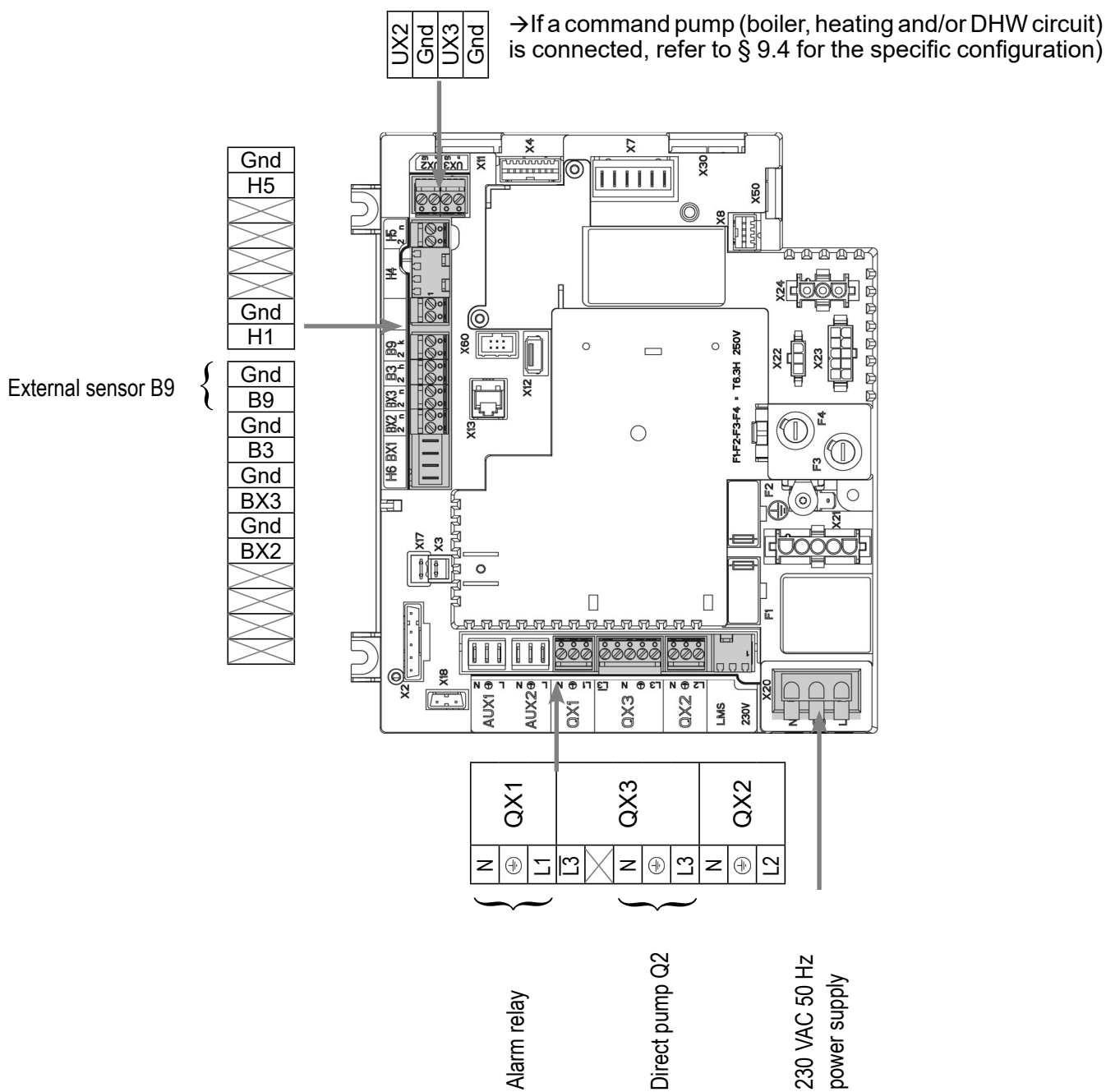
	Quantity	Appliance reference	Order No.
Output sensor kit	1	QAC 34	059260



### C. RECOMMENDED HYDRAULIC ACCESSORY


		Order No.
Hydraulic kit for boiler only	for VARFREE 40 and 60	082324
	for VARFREE 80 and 100	082325
	for VARFREE 120	082326
	for VARFREE 150	082327

### D. CUSTOMER'S ELECTRICAL CONNECTION



## E. SPECIFIC START-UP PROCEDURE

- ☞ Make the accessories' electrical connections.
- ☞ Start up the boiler only.
- ☞ Make the following settings:

	<b>Line No.</b>	<b>Value</b>
<b>• Configuration menu</b>		
Save the sensors	Save sensors (6200)	Yes (switches back to no automatically)
<b>• Time and date menu</b>		
Set the time	Hours / minutes (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
<b>• Configuration menu</b>		
Start up heating circuit 1	Heating circuit 1 (5710)	On
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure the direct circuit pump Q2	Relay output QX2 (5891)	Heat circuit pump HC1 Q2
<b>• Heating circuit 1 menu</b>		
<b>For each circuit:</b>		
Adjust the comfort setting	Comfort setpoint (710)	---
Adjust the curve slope	Heating curve slope (720)	---
Adjust the min. flow temperature for heating circuit 1, if necessary	Flow temp setpoint min (740)	in °C
Removal of the over-value	Mixing valve boost (830)	0 °C
• Switch the heating regime to permanent comfort		

## F. ELECTRICAL AND HYDRAULIC VALIDATION

<b>• Inputs/outputs test menu</b>		
Check the outputs		
Alarm relay	Relay test (7700)	Relay output QX1
Direct circuit pump Q2	Relay test (7700)	Relay output QX3
Reset the outputs	Relay test (7700)	No test

	<i>Line No.</i>	<i>Value</i>
Check the sensor values		
External sensor B9	Outside temp B9 (7730)	in °C

## G. CONFIGURATION OPTIMISATION



### IMPORTANT:

In diagram VF21, it is **IMPERATIVE** to programme the same ranges on the unit heater for the optimisation to work.

### Heating circuit optimisation:

- |  |                               |             |
|--|-------------------------------|-------------|
| • <b>Heating circuit 1</b> menu                      |                               |             |
| Adjust the reduced setting                           | Reduced setpoint (712)        | ---         |
| • <b>Heating circuit 1 timer programme</b> menu      |                               |             |
| Preselection   | Preselection (500)            | ---         |
| Adjust the timer programming                         | On / off phases (501...506)   | ---         |
| • <b>Heating circuit 1 holiday</b> menu              |                               |             |
| Preselection   | Preselection (641)            | ---         |
| Adjust the timer programming                         | On / off phases (642-643)     | ---         |
| • <b>Configuration</b> menu                          |                               |             |
| Activate the heating circuits' frost protection mode | Frost protection plant (6120) | On          |
| • Switch the heating regime to automatic             |                               | <b>Auto</b> |

### Maintenance optimisation

A maintenance message may be generated that does not set the boiler to fault. This maintenance message may be displayed after the following 3 counters have expired:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months.
- Operating hours of the burner (parameter 7040).
- Number of starts (parameter 7042)

These last 2 parameters are dependent on the boiler's hydraulic installation. We recommend using at least parameter 7044 for annual maintenance.

<h2 style="margin: 0;">SINGLE BOILER</h2> <p style="margin: 0;"><i>Production of DHW with a plate exchanger on the primary</i></p>	<p>Diagram <b>VF22</b></p> <p>page 1 / 5</p>
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### A. HYDRAULIC DIAGRAM

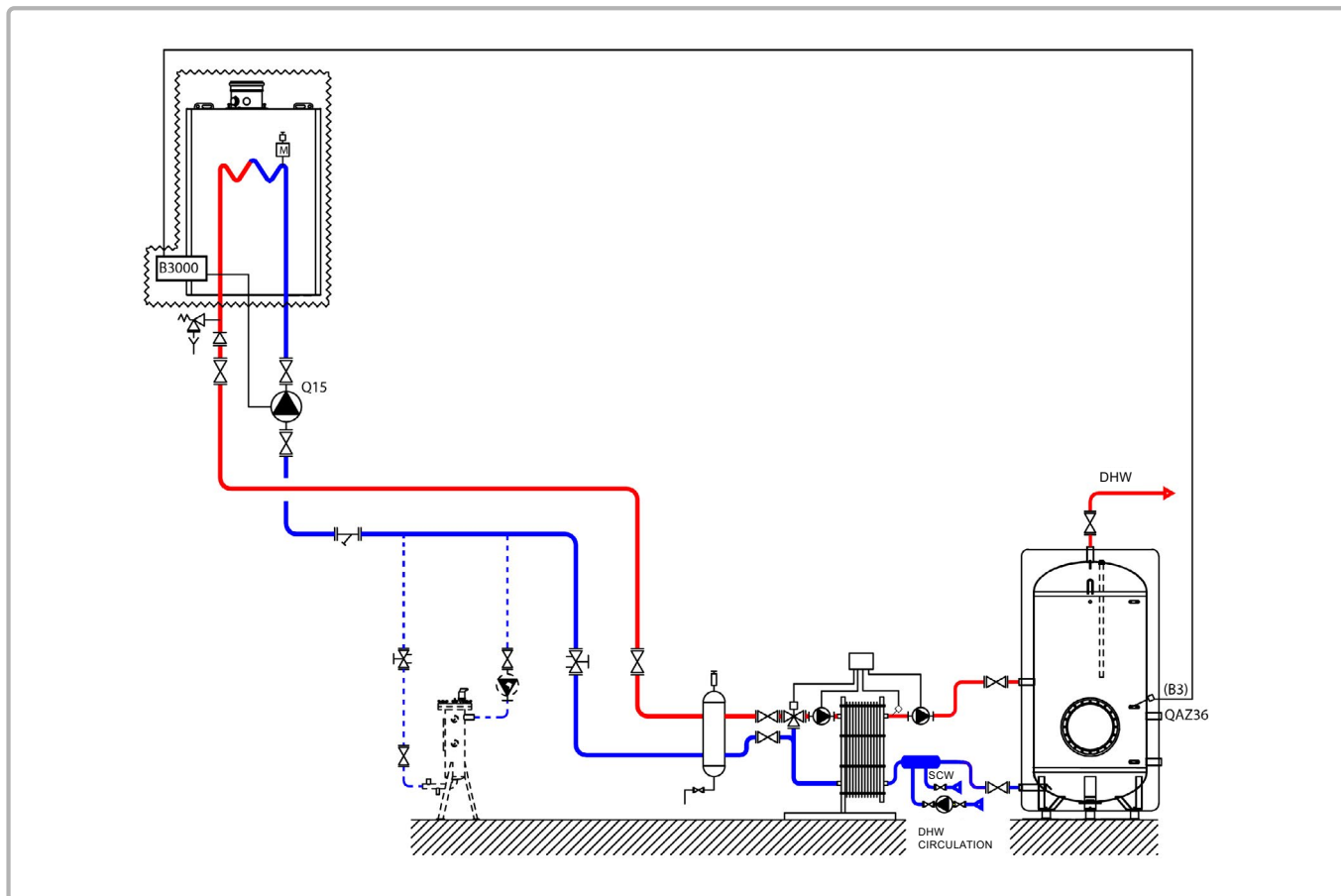


figure 29 - VF22 diagram

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

The flow rate of the pump, in m<sup>3</sup>/h, is adjusted to the real needs of the installation and, as a minimum, to P/25, with P power in th/h of the boiler.

The pump heating will have to allow to work in constant speed to insure the minimum flow necessary for the generator.

The domestic hot water production system has its own regulator. A sensor QAZ 36, positioned inside the storage tank and connected to the generator, informs the boiler of the need for domestic hot water.

### B. REGULATION ACCESSORY REQUIRED

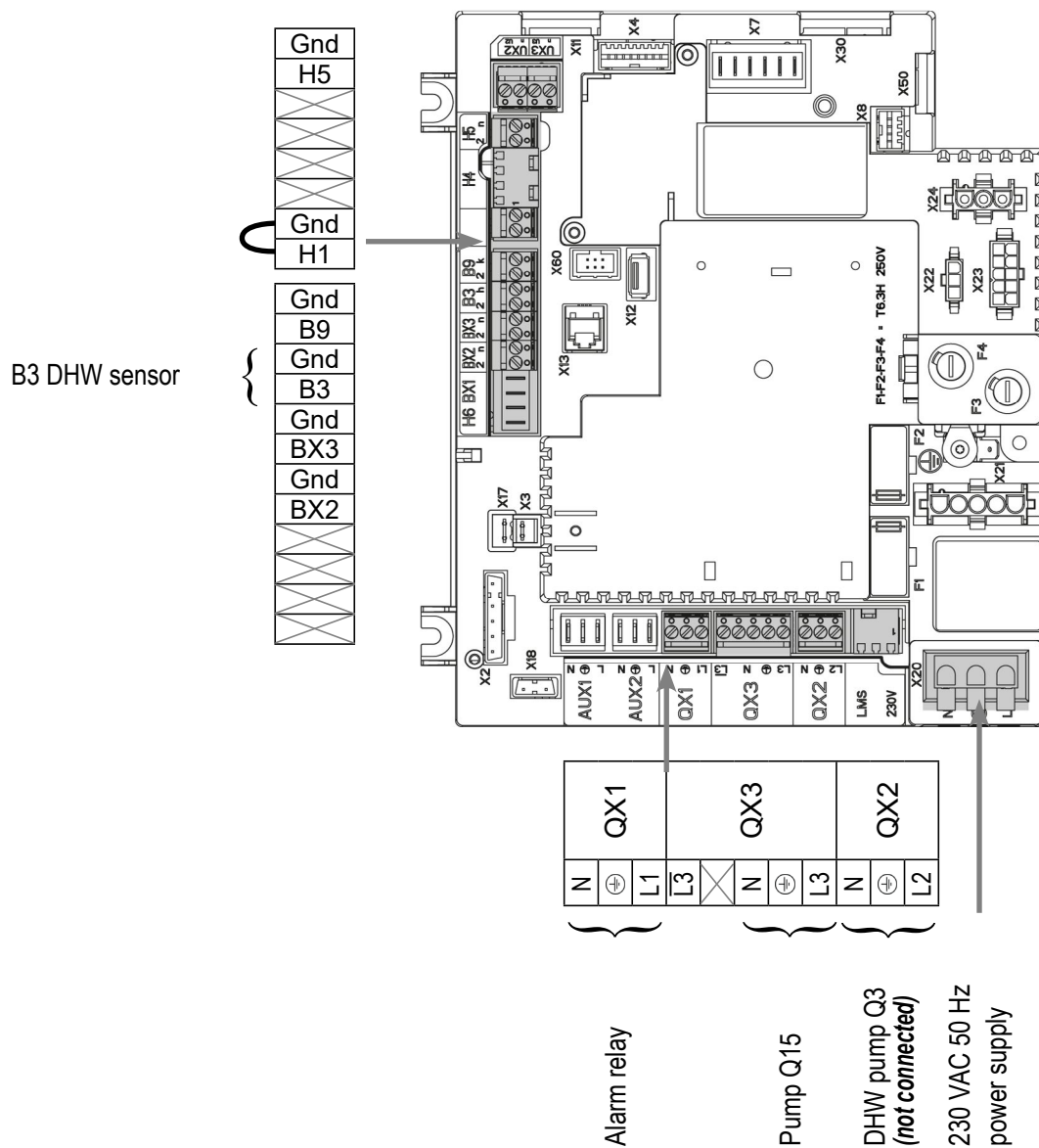
	Quantity	Appliance reference	Order No.
DHW sensor kit	1	QAZ 36	059261

**Diagram: VF22**

**C. RECOMMENDED HYDRAULIC ACCESSORY**

		<b>Order No.</b>
Hydraulic kit for boiler only	for VARFREE 40 and 60	082324
	for VARFREE 80 and 100	082325
	for VARFREE 120	082326
	for VARFREE 150	082327

**D. CUSTOMER'S ELECTRICAL CONNECTION**



## E. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.

☞ Start up the boiler only.

☞ Make the following settings:

	<b>Line No.</b>	<b>Value</b>
<b>• Time and date menu</b>		
Set the time	Hours / minutes (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
<b>• Configuration menu</b>		
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure the tank pump	Relay output QX3 (5892)	Consumer circuit pump 1 Q15
Define a low limit	Function input H1 (5950)	Consumer request VK1
Position a shunt on H1 <b>OU</b> reverse the contact direction	Contact type (5951)	Normally-closed contact (NC)
For the DHW to be effective, an activator must be defined, even if it is not connected	Relay output QX2 (5891)	DHW ctrl elem Q3
<b>• Consumer circuit 1 menu</b>		
Set the output setting to be taken into account if the Consumer circuit is requested	Flow temp setp cons request (1859)	60 °C (depends on the Rubis setting)
Remove pump stoppage on DHW priority (OEM setting)	DHW priority (1874)	No
<b>• Domestic hot water menu</b>		
Adjust the comfort setting	Nominal setpoint (1610)	3°C less than the Rubis set point
Adjust the DHW release mode	Release (1620)	24h/day
Remove the DHW priority	Charging priority (1630)	Without
<b>• DHW tank menu</b>		
Over-value of the boiler outlet temperature when the DHW is restarted	Flow setpoint boost (5020)	13 °C

**Settings on the Rubis**

Adjust the outlet temperature set point on the Rubis to 58°C.

**Summary of the rules for the adjustment of the set points for the DHW**

Set point of the consuming circuit (low limit) = set point of the outlet T° of the Rubis +5°C

Set point of the DHW on the boiler = set point of the outlet T° of the Rubis -2°C

Over-value of the boiler outlet temperature when the DHW is restarted = 13°C

**Process description**

The consuming circuit keeps the temperature of the tank at 63°C. In this case, the set point of the boiler = the set point of the consuming circuit (63°C).

If the sensor inside the tank detects a temperature = the set point of the DHW (56°C) -5°C=51°C, the DHW cycle starts. The output temperature of the boiler is then = the set point of the DHW (56°C) + over-value (13°C) = 69°C.

The DHW cycle stops when the sensor inside the tank reaches the DHW set point temperature (56°C). The boiler then returns to the set point of the consuming circuit (63°).

- Activate the DHW mode



- **Configuration** menu

Save the sensors

Line No.	Value
Save sensors (6200)	Yes (switches back to no automatically)

**F. ELECTRICAL AND HYDRAULIC VALIDATION**

- **Inputs/outputs test** menu

Check the outputs

Alarm relay

Relay test (7700)

Relay output QX1

Tank pump Q15

Relay test (7700)

Relay output QX3

Reset the outputs

Relay test (7700)

No test

Check the sensor values

B3 DHW sensor

DHW temp B3/B38 (7750)

in °C

Check the status of contact H1

Contact state H1 (7841)

Closed if the shunt is in place

## G. CONFIGURATION OPTIMISATION

### DHW optimisation:

	<i>Line No.</i>	<i>Value</i>
<ul style="list-style-type: none"> <li>• <b>DHW tank</b> menu</li> </ul>		
Adjust the over value	Flow setpoint boost (5020)	16 °C

### Maintenance optimisation

A maintenance message may be generated that does not set the boiler to fault. This maintenance message may be displayed after the following 3 counters have expired:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months.
- Operating hours of the burner (parameter 7040).
- Number of starts (parameter 7042)

These last 2 parameters are dependent on the boiler's hydraulic installation. We recommend using at least parameter 7044 for annual maintenance.



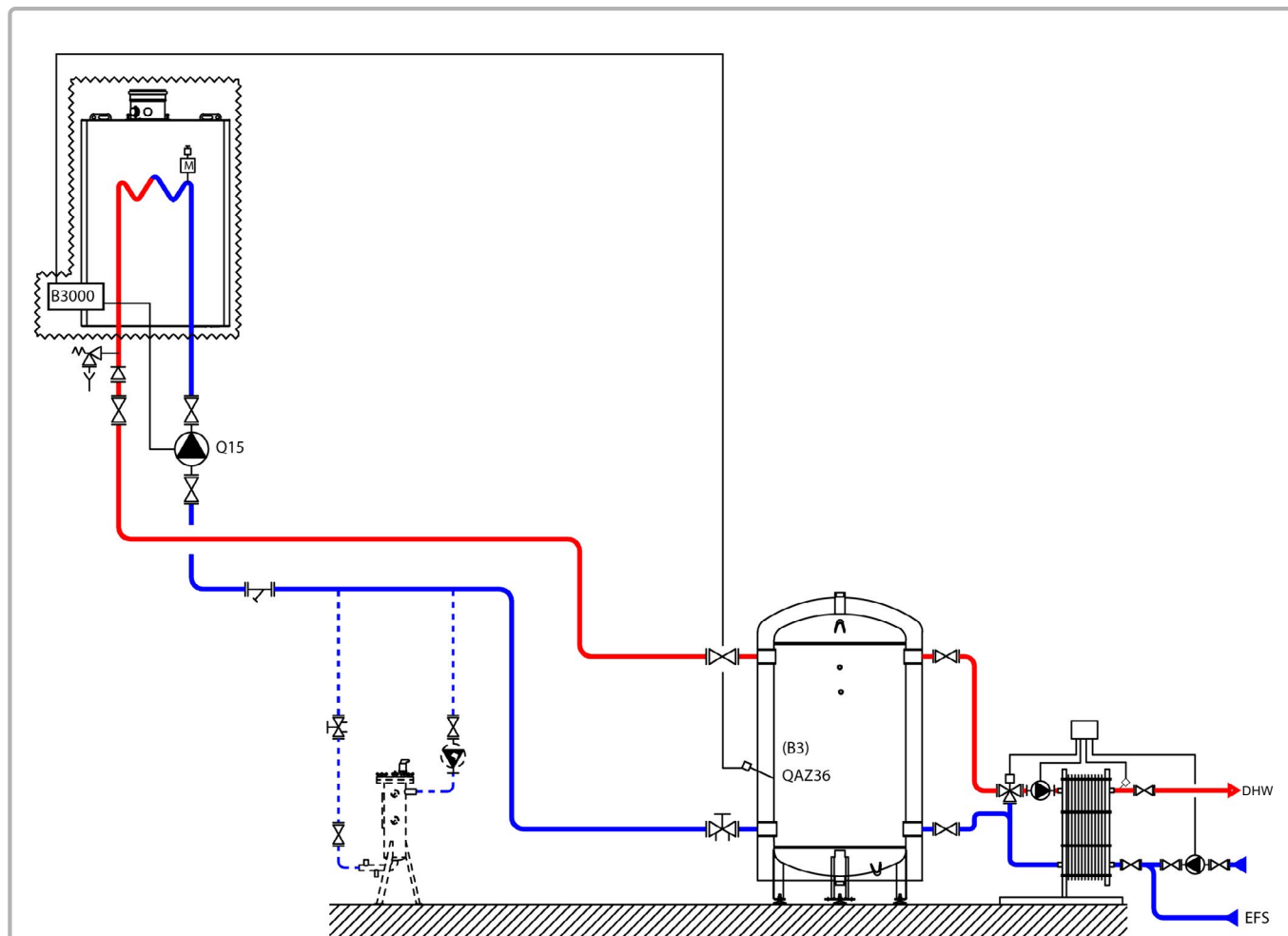
# SINGLE BOILER

## *DHW production with hygiatherm*

Diagram  
**VF23**

page 1 / 4

### A. HYDRAULIC DIAGRAM



**figure 30 - VF23 diagram**

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

The flow rate of the pump, in m<sup>3</sup>/h, is adjusted to the real needs of the installation and, as a minimum, to P/25, with P power in th/h of the boiler.

The pump heating will have to allow to work in constant speed to insure the minimum flow necessary for the generator.

The domestic hot water production system has its own regulator.

A sensor QAZ 36, inside the primary tank, and connected to the generator, is used to restart the boiler more quickly, especially when the base primary temperature is low.

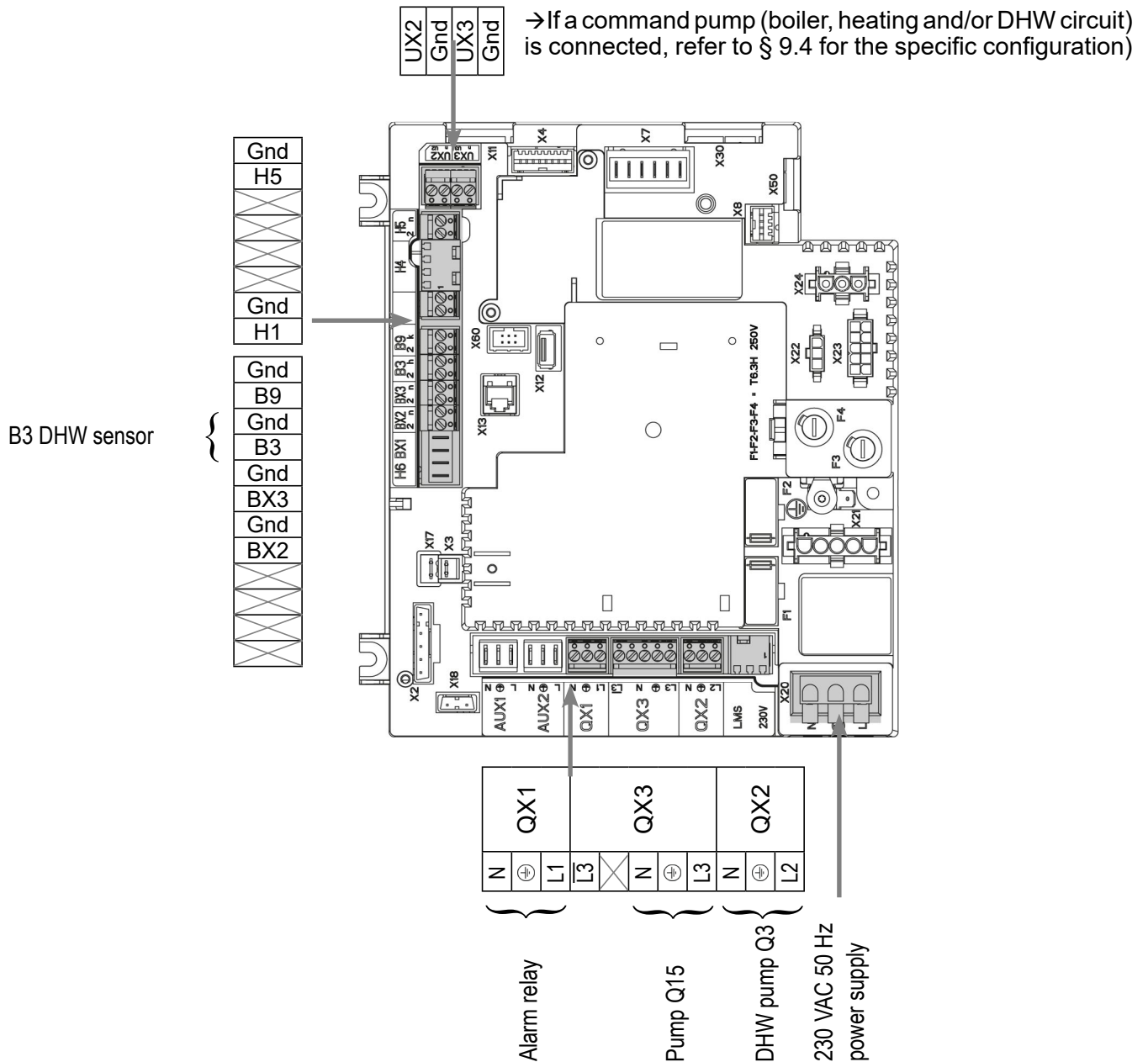
**B. REGULATION ACCESSORY REQUIRED**

	Quantity	Appliance reference	Order No.
DHW sensor kit	1	QAZ 36	059261

**C. RECOMMENDED HYDRAULIC ACCESSORY**

		Order No.
Hydraulic kit for boiler only	for VARFREE 40 and 60	082324
	for VARFREE 80 and 100	082325
	for VARFREE 120	082326
	for VARFREE 150	082327

**D. CUSTOMER'S ELECTRICAL CONNECTION**



## E. SPECIFIC START-UP PROCEDURE

- ☞ Make the accessories' electrical connections.
- ☞ Start up the boiler only.
- ☞ Make the following settings:

	<i>Line No.</i>	<i>Value</i>
<b>• Time and date menu</b>		
Set the time	Hours / minutes (1)	HH.MM
Set the date	Day / month (2)	JJ.MM
Set the year	Year (3)	AAAA
<b>• Configuration menu</b>		
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
For the DHW to be effective, an activator must be defined, even if it is not connected	Relay output QX2 (5891)	DHW ctrl elem Q3
Configure the tank charge pump	Relay output QX3 (5892)	Consumer circuit pump 1 Q15
<b>• Consumer circuit 1 menu</b>		
Set the output setting to be taken into account if the Consumer circuit is requested	Flow temp setp cons request (1859)	60 °C (depends on the Rubis setting)
Remove pump stoppage on DHW priority (OEM setting)	DHW priority (1874)	No
<b>• Domestic hot water menu</b>		
Adjust the comfort setting	Nominal setpoint (1610)	55 °C
Adjust the DHW release mode	Release (1620)	24/day
<b>• DWH tank Menu</b>		
Over-value of the boiler outlet temperature when the DHW is restarted	Flow setpoint boost (5020)	7 °C

**Settings on the Rubis**

Adjust the outlet temperature set point on the Rubis to 58°C.

**Summary of the rules for the adjustment of the set points for the DHW**

Set point of the consuming circuit (low limit) = set point of the outlet T° of the Rubis +5°C

Set point of the DHW on the boiler = set point of the outlet T° of the Rubis +3°C

Over-value of the boiler outlet temperature when the DHW is restarted = 7°C

**Process description**

The consuming circuit keeps the temperature of the tank at 63°C. In this case, the set point of the boiler = the set point of the consuming circuit (63°C).

If the sensor inside the tank detects a temperature = the set point of the DHW (61°C) -5°C, the DHW cycle starts. The output temperature of the boiler is then = the set point of the DHW (61°C) + over-value (7°C) = 68°C.

The DHW cycle stops when the sensor inside the tank reaches the DHW set point temperature (61°C). The boiler then returns to the set point of the consuming circuit (63°).

- Activate the DHW mode



- **Configuration menu**

Save the sensors

**Line No. Value**

Save sensors (6200)	Yes (switches back to no automatically)
---------------------	---

**F. ELECTRICAL AND HYDRAULIC VALIDATION**

- **Inputs/outputs test** menu

Check the outputs

Alarm relay

Relay test (7700)	Relay output QX1
-------------------	------------------

Tank pump Q15

Relay test (7700)	Relay output QX3
-------------------	------------------

Reset the outputs

Relay test (7700)	No test
-------------------	---------

Check the sensor values

B3 DHW sensor

DHW temp B3/B38 (7750)	in °C
------------------------	-------

**G. CONFIGURATION OPTIMISATION**

**Maintenance optimisation**

A maintenance message may be generated that does not set the boiler to fault. This maintenance message may be displayed after the following 3 counters have expired:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months.
- Operating hours of the burner (parameter 7040).
- Number of starts (parameter 7042)

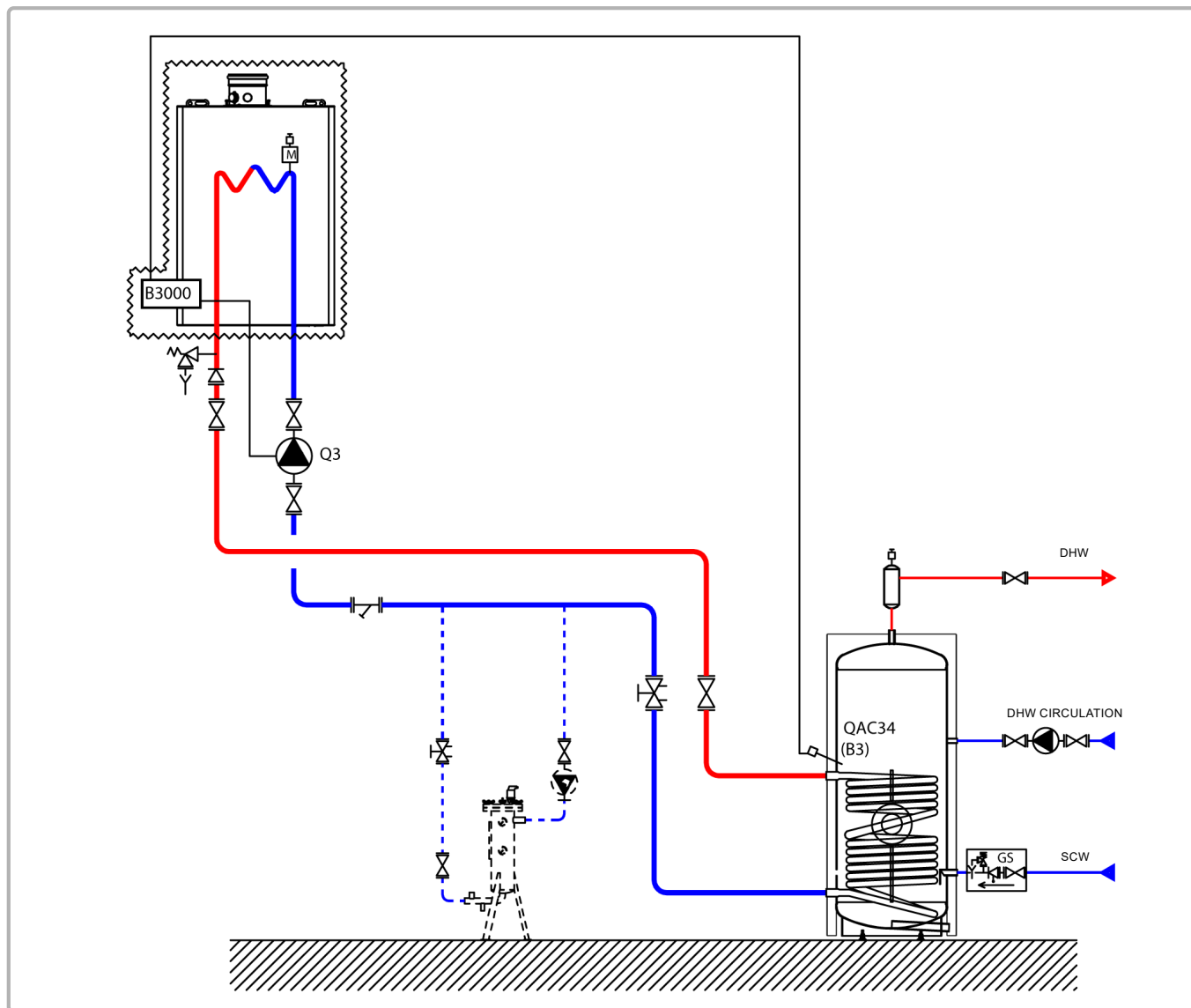
These last 2 parameters are dependent on the boiler's hydraulic installation. We recommend using at least parameter 7044 for annual maintenance.

# SINGLE BOILER

## *DHW production with tank with coil*

Diagram  
**VF24**  
page 1 / 4

### A. HYDRAULIC DIAGRAM



*figure 31 - VF24 diagram*

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

The flow rate of the pump, in  $\text{m}^3/\text{h}$ , is adjusted to the real needs of the installation and, as a minimum, to  $P/25$ , with P power in  $\text{th}/\text{h}$  of the boiler.

The pump heating will have to allow to work in constant speed to insure the minimum flow necessary for the generator.

The domestic hot water production system has its own regulator.

A sensor QAZ 36, positioned inside the storage tank and connected to the generator, informs the boiler of the need for domestic hot water.

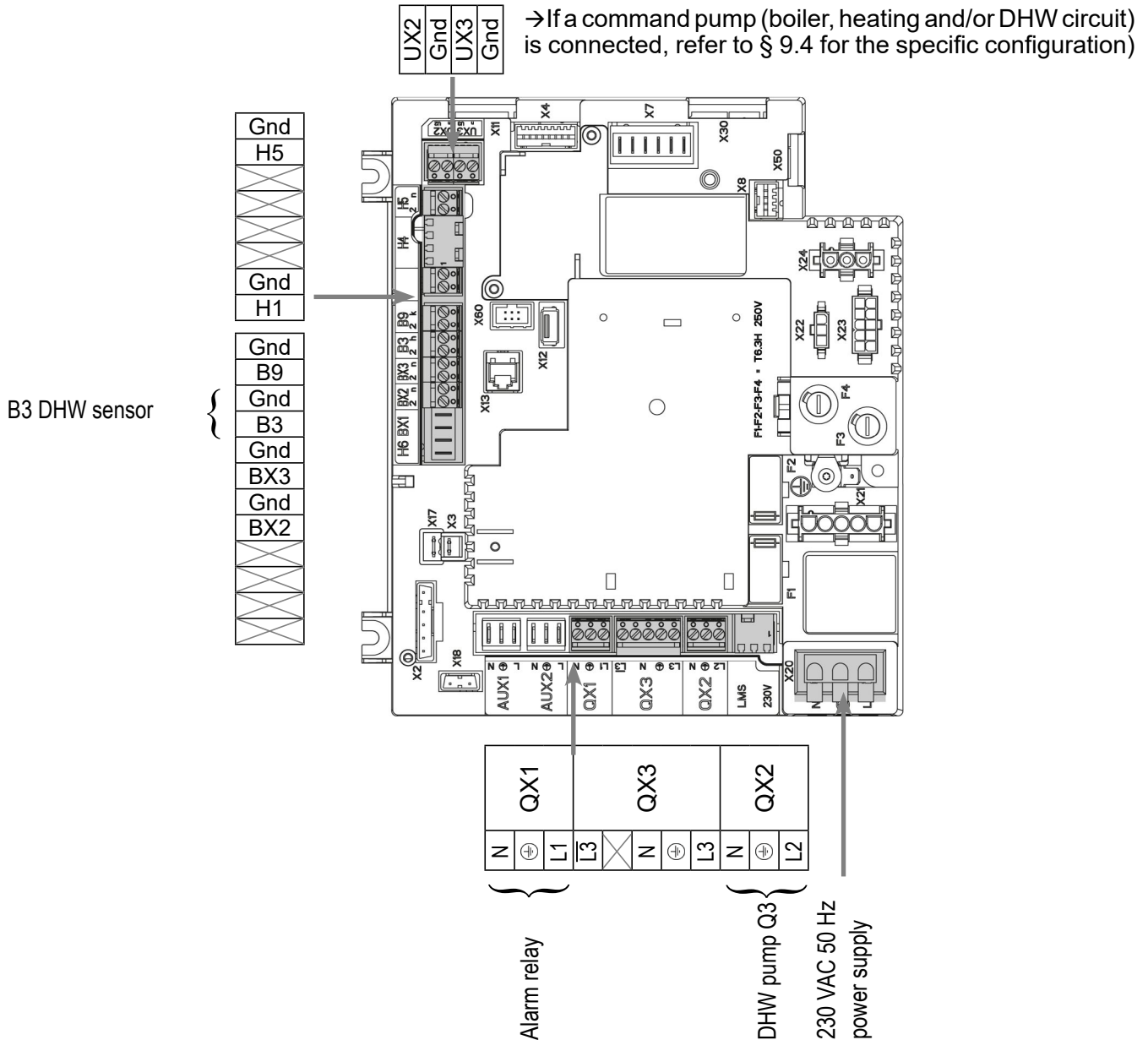
**B. REGULATION ACCESSORY REQUIRED**

	Quantity	Appliance reference	Order No.
DHW sensor kit	1	QAZ 36	059261

**C. RECOMMENDED HYDRAULIC ACCESSORY**

	Order No.	
Hydraulic kit for boiler only	for VARFREE 40 and 60	082324
	for VARFREE 80 and 100	082325
	for VARFREE 120	082326
	for VARFREE 150	082327

**D. CUSTOMER'S ELECTRICAL CONNECTION**



## E. D. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.

☞ Start up the boiler only.

☞ Make the following settings:

	<b>Line No.</b>	<b>Value</b>
<b>• Time and date menu</b>		
Set the time	Hours / minutes (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
<b>• Configuration menu</b>		
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure DHW pump Q3	Relay output QX2 (5891)	DHW ctrl elem Q3
<b>• Configuration menu</b>		
Save the sensors	Save sensors (6200)	Yes (switches back to no automatically)
<b>• Domestic hot water menu</b>		
Adjust the comfort setting	Nominal setpoint (1610)	55 °C
Adjust the DHW release mode	Release (1620)	24/day
<b>• Activate the DHW mode</b>		



## F. ELECTRICAL AND HYDRAULIC VALIDATION

<b>• Inputs/outputs test menu</b>		
Check the outputs		
Alarm relay	Relay test (7700)	Relay output QX1
DHW pump Q3	Relay test (7700)	Relay output QX2
Reset the outputs	Relay test (7700)	No test

	<i>Line No.</i>	<i>Value</i>
Check the sensor values		
B3 DHW sensor	DHW temp B3/B38 (7750)	in °C

## G. CONFIGURATION OPTIMISATION

### **DHW optimisation:**

- **DHW tank** menu

Adjust the over value	Flow setpoint boost (5020)	16 °C
-----------------------	----------------------------	-------

### **Maintenance optimisation**

A maintenance message may be generated that does not set the boiler to fault. This maintenance message may be displayed after the following 3 counters have expired:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months.
- Operating hours of the burner (parameter 7040).
- Number of starts (parameter 7042)

These last 2 parameters are dependent on the boiler's hydraulic installation. We recommend using at least parameter 7044 for annual maintenance.



**BOILER CASCADE**

*Without control of the secondary, communications networks 0...10V or LPB*

Diagram

**VF10**

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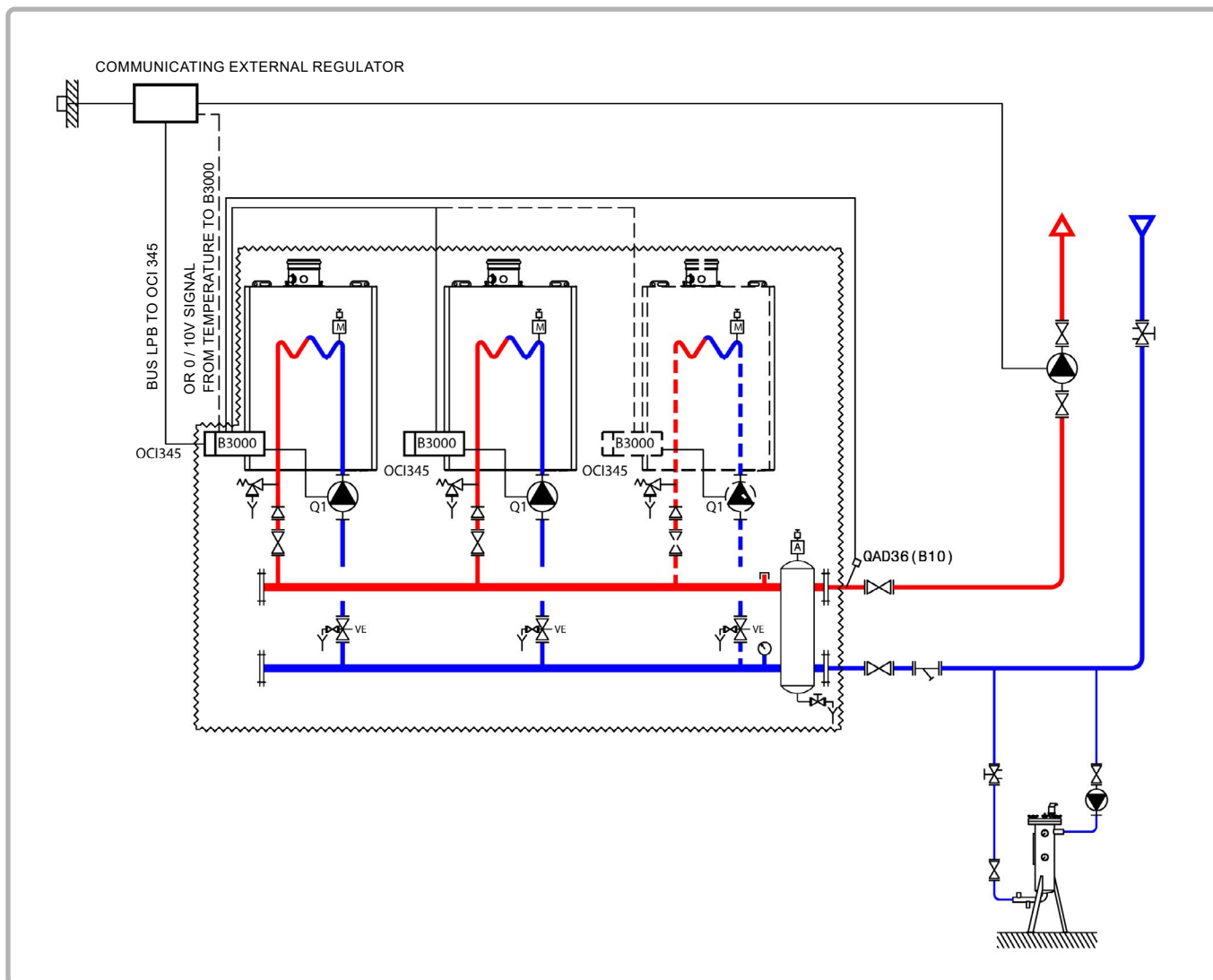
**A. HYDRAULIC DIAGRAM**

figure 32 - VF10 diagram

The existing regulation controls all the circuits of the installation. It determines the outlet set point temperature that the installation requires and sends it to the boilers, either in a 0 - 10V signal directly to the NAVISTEM B3000 that is the master of the cascade, or over the LPB bus to each NAVISTEM B3000. The cascade of boilers is controlled by the installation's regulation system according to the needs. The set point that is sent reflects the heating temperature that the installation requires at the time t.

**B. REGULATION ACCESSORY REQUIRED**

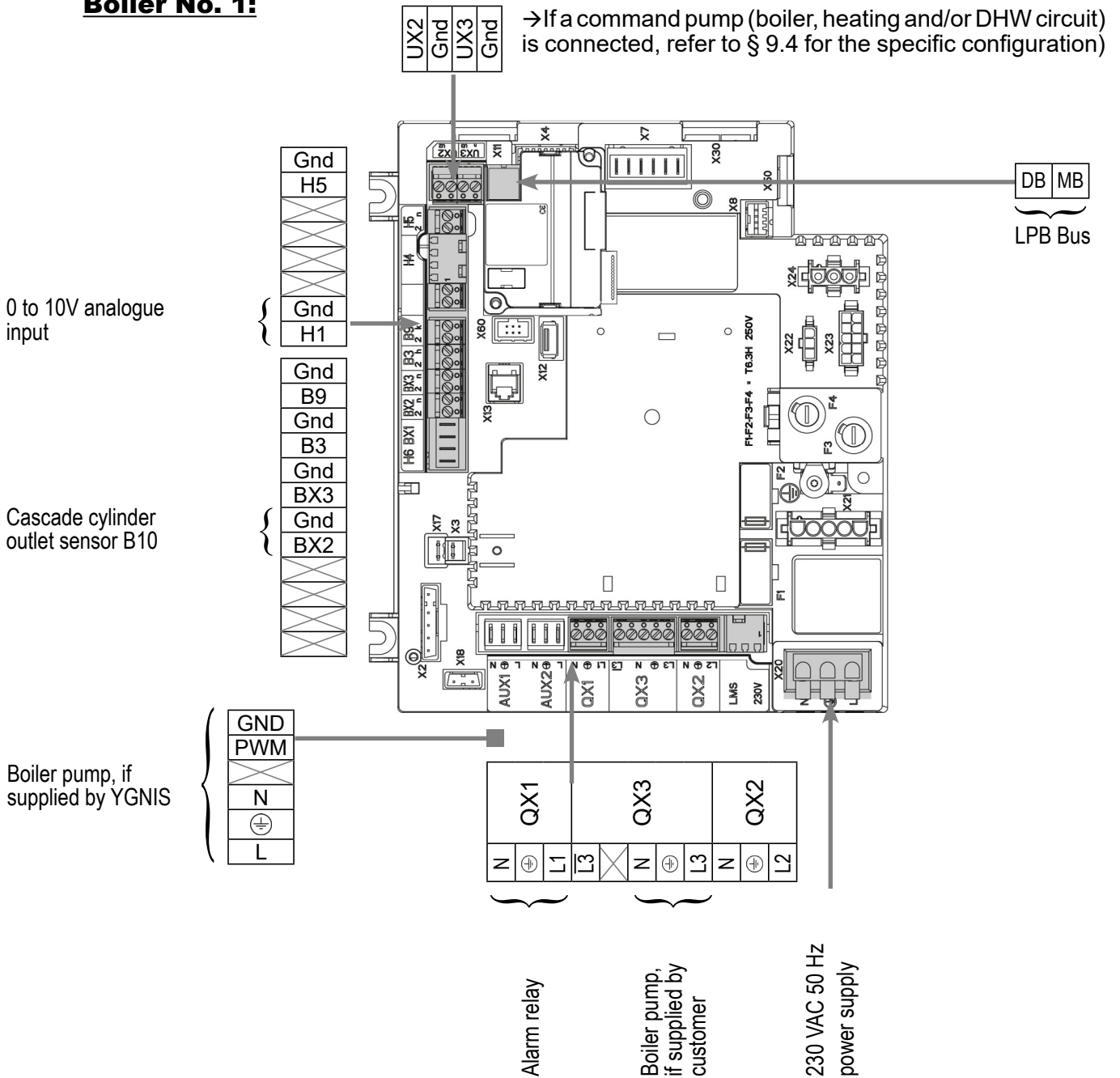
	Quantity	Appliance reference	Order No.
Communication kit	2	OCI 345	059572
Network sensor kit	1	QAD 36	059592

### C. RECOMMENDED HYDRAULIC ACCESSORY

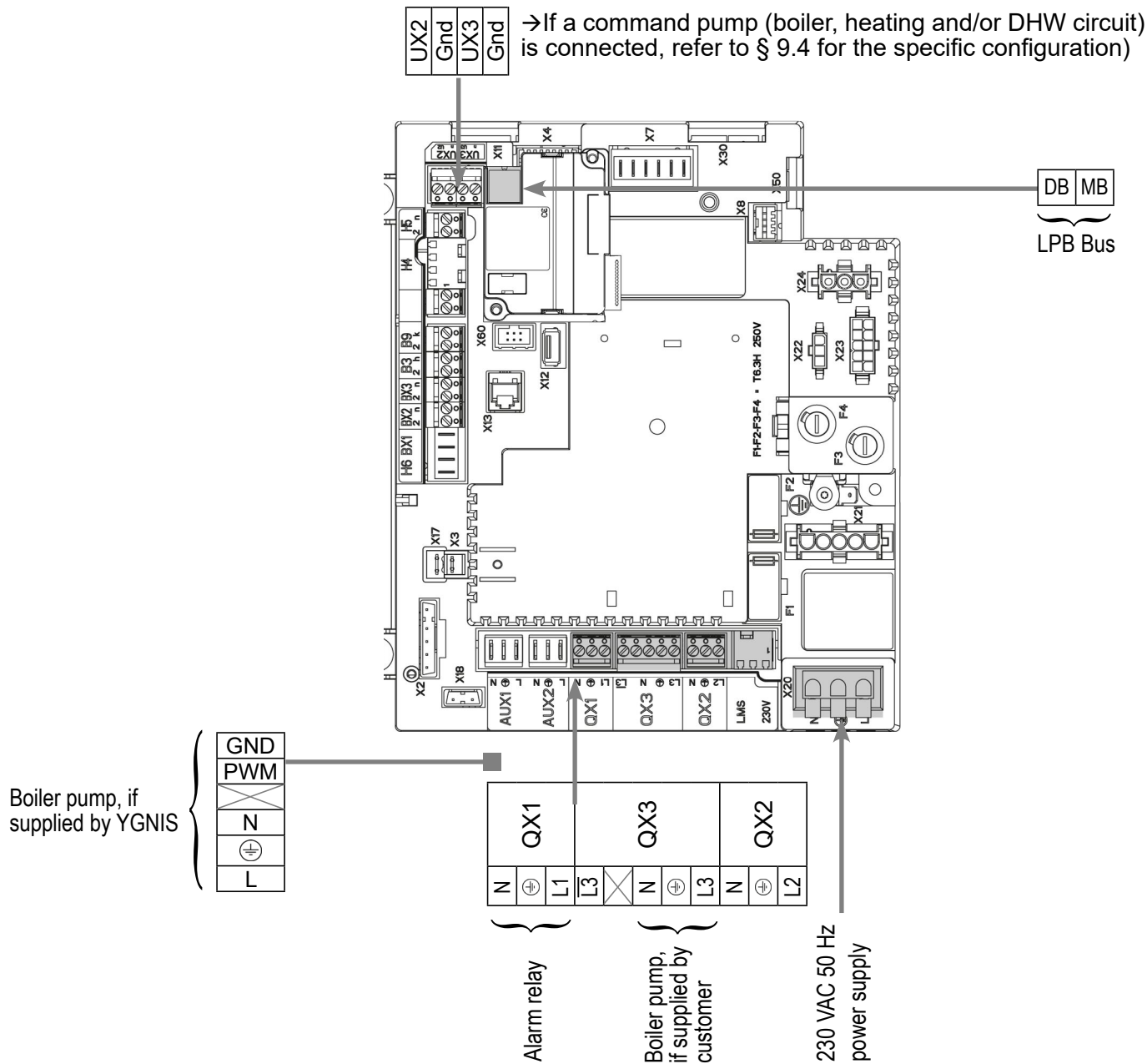
	Order N° for VARFREE ...			
	40 and 60	80 and 100	120	150
Duo Pack	082275	082278	082281	082284
Trio Pack	082276	082279	082282	082285
Quatro Pack	082277	082280	082283	082285

### C. CUSTOMER'S ELECTRICAL CONNECTION

**Boiler No. 1:**



**Boiler No. 2 (and the following ones):**



**E. SPECIFIC START-UP PROCEDURE**

- ☞ Make the accessories' electrical connections.
- ☞ Start up the boiler only.
- ☞ Make the following settings:

**On boiler No. 1: master**

• **Configuration** menu

Boiler pump supplied by YGNIS  
 Boiler pump supplied by the customer (all-or-nothing control)

No adjustments necessary  
 Relay output QX3 (5892)

Line No.	Value
	Boiler pump Q1

	<b>Line No.</b>	<b>Value</b>
<b>• Time and date menu</b>		
Set the time	Hours / minutes (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
<b>• Configuration menu</b>		
Configure the cascade cylinder outlet sensor B10	Sensor input BX2 (5931)	Common flow sensor B10
 <b>For a request via 0...10V input</b>		
Configure the H1 input	Function input H1 (5950)	Consumer request VK1 10V
	Voltage value 1 H1 (5953)	0.0
	Function value 1 H1 (5954)	0
	Voltage value 2 H1 (5955)	10.0
	Function value 2 H1 (5956)	1000 (for equivalence 10 V = 100 °C)

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

\* : according to scale given in parameter "5956"

	<b>Line No.</b>	<b>Value</b>
<b>For a request via LPB</b>		
Check that the secondary regulatory is defined on an LPB segment other than 0 (reserved for the generators)		
<b>In all cases (LPB network menu)</b>		
Configure the boiler as master the of the cascade:	Device address (6600)	1
	Segment address (6601)	0
	Bus power supply function (6604)	Automatically
	Clock mode (6640)	Master (or slave with remote setting if the PLC is the master clock)
To display the faults from other modules on the console of the module you are adjusting	Display system messages (6610)	Yes
If you want an alarm report on this module (output K10 (QX1)) containing all the faults from all the modules	Syst messages alarm relay (6611)	Yes
Save the sensors	Save sensors (6200)	Yes (switches back to no automatically)

## Diagram : VF10

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**On boiler No. 2 or the following boilers: slave**

	<i>Line No.</i>	<i>Value</i>
<b>• Configuration menu</b>		
Boiler pump supplied by YGNIS	No adjustments necessary	
Boiler pump supplied by the customer (all-or-nothing control)	Relay output QX3 (5892)	Boiler pump Q1
<b>• LPB network menu</b>		
Configure the boiler as a slave in the cascade:	Device address (6600)	2 (or following, for the other slaves)
	Segment address (6601)	0
	Bus power supply function (6604)	Automatically
	Clock mode (6640)	Slave without remote setting

- Connect the bus between the boilers (⚠ pay attention to the polarity).
- Switch off, then switch on the slave boiler(s). If the communication has been correctly established, the clock is updated correctly.

**F. ELECTRICAL AND HYDRAULIC VALIDATION****On boiler No. 1: master****• Cascade diagnostic** menu

Check that all the boilers are in the cascade

Priority source 1 (8100)	Released / not released
Priority source 2 (8101)	Released / not released
.....	

**For a request via 0...10V input****• Inputs/outputs test** menu

Voltage in H1

Voltage signal H1 (7840)	To be validated with the voltage sent by the boiler room's PLC
--------------------------	---

**For a request via LPB**

**Diagram : VF10**

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If the boiler room's regulator is configured as slave clock, it must retrieve the date and time.

**In both cases**

	<b>Line No.</b>	<b>Value</b>
<b>• <u>Inputs/outputs test</u> menu</b>		
Check the outputs		
Alarm relay	Relay test (7700)	Relay output QX1
Boiler pump control, if supplied by customer	Relay test (7700)	Relay output QX3
Reset the outputs	Relay test (7700)	No test
Check the sensor values		
Cascade cylinder outlet sensor B10	Sensor temp BX2 (7821)	in °C
<b>On boiler No. 2 or the following boiler(s): slave</b>		
<b>• <u>Inputs/outputs test</u> menu</b>		
Boiler pump control, if supplied by customer	Relay test (7700)	Relay output QX3
Reset the outputs	Relay test (7700)	No test

**G. CONFIGURATION OPTIMISATION****Cascade optimisation:**

The cascade can be optimised if necessary using the settings in the **Cascade** menu. Refer to the NAVISTEM B3000 boiler's controller manual for more details.

**Maintenance optimisation**

A maintenance message may be generated that does not set the boiler to fault. This maintenance message may be displayed after the following 3 counters have expired:

- Time since last maintenance (or commissioning): set parameter 7044 to 12 months.
- Operating hours of the burner (parameter 7040).
- Number of starts (parameter 7042)

These last 2 parameters are dependent on the boiler's hydraulic installation. We recommend using at least parameter 7044 for annual maintenance.

**BOILER CASCADE***2 regulated circuits per boiler and production of DHW*

Diagram

**VF11**

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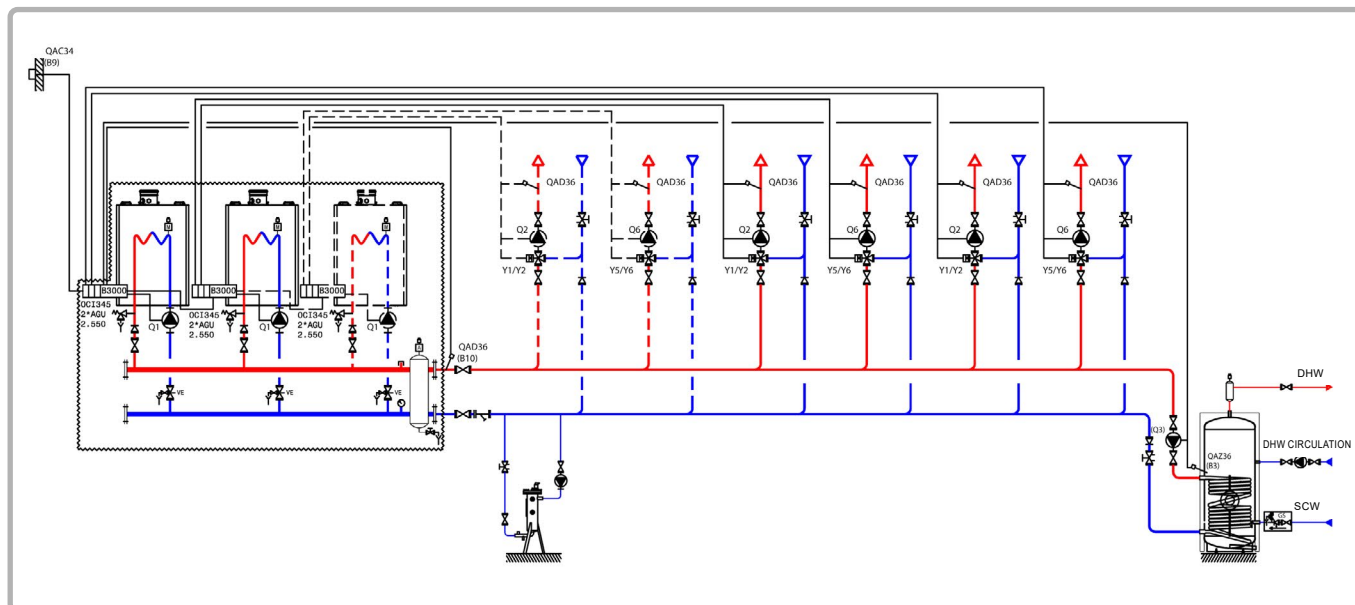
**A. HYDRAULIC DIAGRAM**

figure 33 - VF11 diagram

The master NAVISTEM B3000 controls the cascade of boilers on the basis of the outlet temperature measured by the sensor QAD 36. Each NAVISTEM B3000 controls the charge pump of its own generator.

The boilers operate with a variable outlet temperature according to the outdoor temperature measured by the sensor QAC 34, temperature adjusted according to the most demanding circuit, without parallel offset, without a low temperature limit and with a weekly programme.

The heating programme is per week. Each AGU 2.550 module controls a regulated circuit with a 3-way valve.

**B. REGULATION ACCESSORY REQUIRED**

	Quantity	Appliance reference	Order No.
Communication kit	2 (3)	OCI 345	059752
Extension module kit (delivered with a network sensor QAD 36)	2	AGU 2.550	059753
DHW sensor kit	1	QAZ 36	059261
Output sensor kit	1	QAC 34	059260
Network sensor kit	1	QAD 36	059592

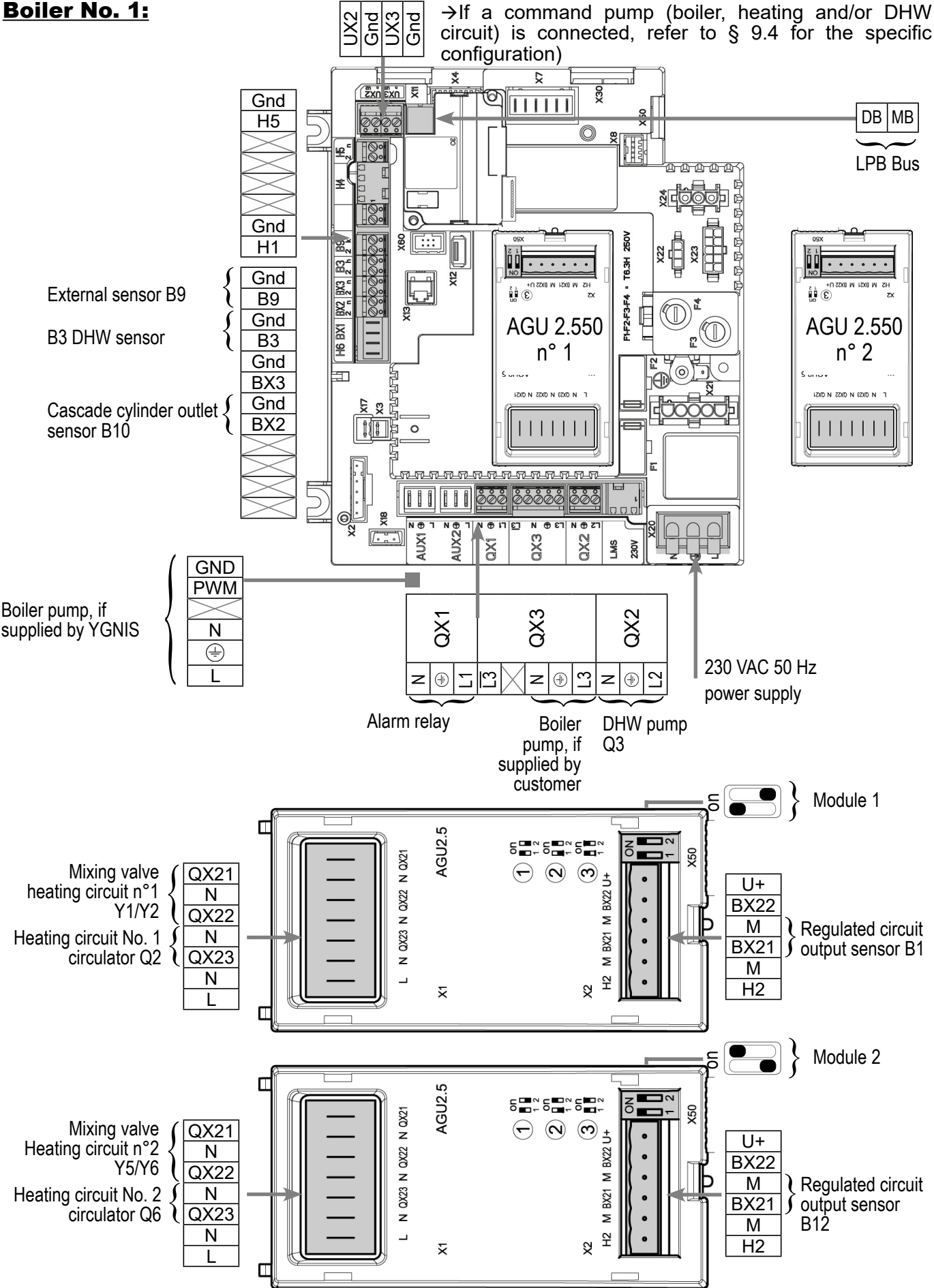
**C. RECOMMENDED HYDRAULIC ACCESSORY**

	Order N° for VARFREE ...			
	40 and 60	80 and 100	120	150
Duo Pack	082275	082278	082281	082284
Trio Pack	082276	082279	082282	082285
Quatro Pack	082277	082280	082283	082285

**D. CUSTOMER'S ELECTRICAL CONNECTION**

**Boiler No. 1:**

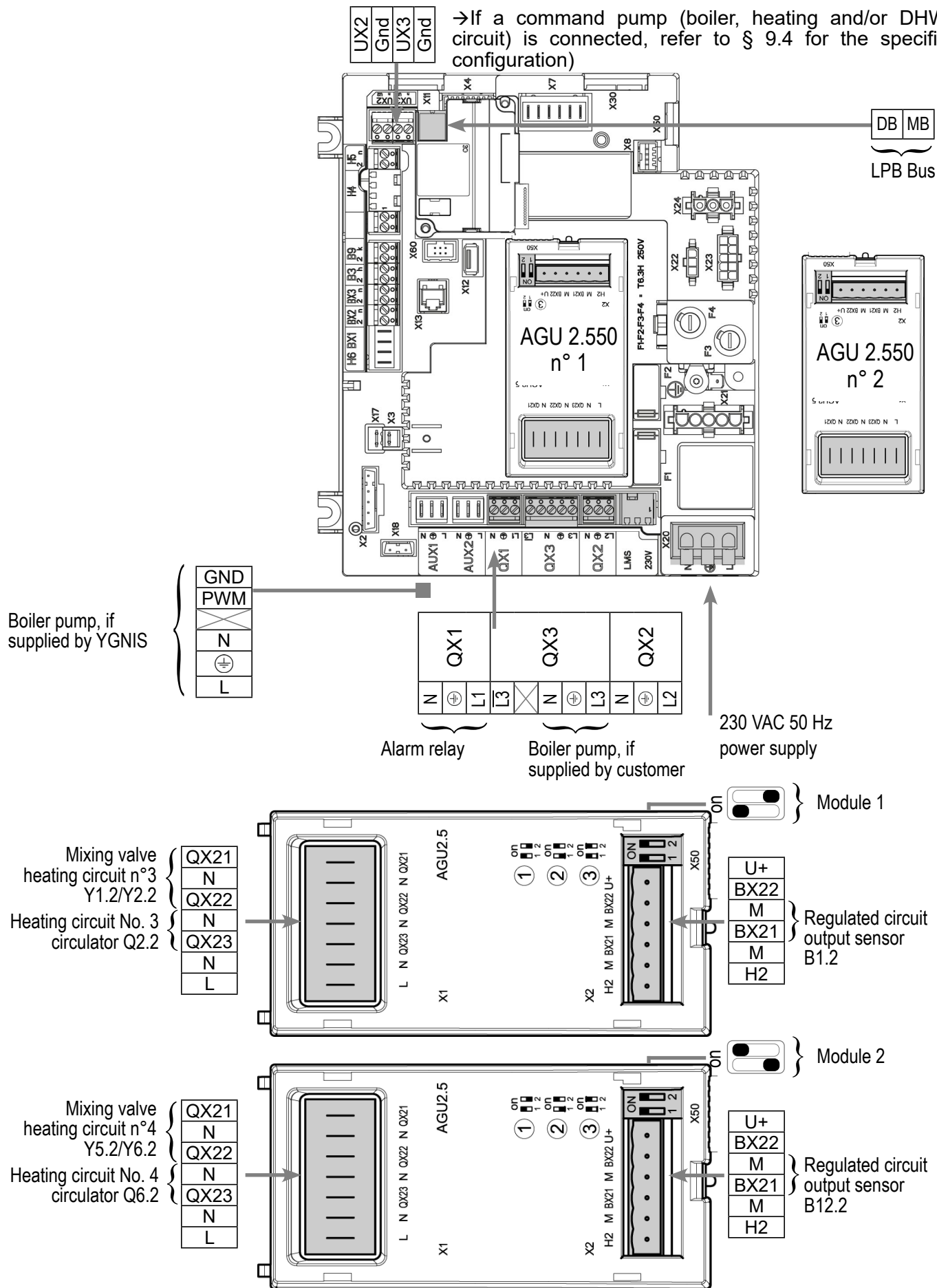
→ If a command pump (boiler, heating and/or DHW circuit) is connected, refer to § 9.4 for the specific configuration





**Boiler No. 2 (and the following ones):**

→ If a command pump (boiler, heating and/or DHW circuit) is connected, refer to § 9.4 for the specific configuration



## E. SPECIFIC START-UP PROCEDURE

☞ Make the accessories' electrical connections.



**IMPORTANT:** Configure the switches on the AGU 2.550 extension modules.

☞ Start up the boiler only.



☞ Carry out the adjustments below.

### On boiler No. 1: master

	<i>Line No.</i>	<i>Value</i>
<b>• Configuration menu</b>		
Boiler pump supplied by YGNIS	No adjustments necessary	
Boiler pump supplied by the customer (all-or-nothing control)	Relay output QX3 (5892)	Boiler pump Q1
<b>• Time and date menu</b>		
Set the time	Hours / minutes (1)	HH.MM
Set the date	Day / month (2)	DD.MM
Set the year	Year (3)	YYYY
<b>• Configuration menu</b>		
Start up heating circuit 1	Heating circuit 1 (5710)	On
Start up heating circuit 2	Heating circuit 2 (5715)	On
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure DHW pump Q3	Relay output QX2 (5891)	DHW ctrl elem Q3
Configure the cascade cylinder outlet sensor B10	Sensor input BX2 (5931)	Common flow sensor B10
Configure the extension modules	Function extension module 1 (6020)	Heat circuit 1
	Function extension module 2 (6021)	Heat circuit 2
<b>• Configure as master of the cascade: LPB network menu</b>		
Appliance number	Device address (6600)	1
Segment number	Segment address (6601)	0
Adjust the bus supply	Bus power supply function (6604)	Automatically


## Diagram: VF11

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	<b>Line No.</b>	<b>Value</b>
Adjust the clock rate	Clock mode (6640)	Master
• <b>Heating circuit 1 / 2 menu</b>		
Adjust the comfort setting	Comfort setpoint (710/1010)	---
Adjust the curve slope	Heating curve slope (720/1020)	---
• Switch the heating regime to permanent comfort		
• <b>Domestic hot water menu</b>		
Adjust the comfort setting	Nominal setpoint (1610)	---
• Activate the DHW mode		
• <b>Configuration menu</b>		
Save the sensors	Save sensors (6200)	Yes (switches back to no automatically)

**On boiler n°2 or the following boilers: slave**

• <b>Configuration menu</b>		
Boiler pump supplied by YGNIS	No adjustments necessary	
Boiler pump supplied by the customer (all-or-nothing control)	Relay output QX3 (5892)	Boiler pump Q1
Start the third heating circuit	Heating circuit 1 (5710)	On
Start the fourth heating circuit	Heating circuit 2 (5715)	On
Configure the alarm output	Relay output QX1 (5890)	Alarm output K10
Configure the extension modules	Function extension module 1 (6020)	Heat circuit 1
	Function extension module 2 (6021)	Heat circuit 2
• <b>Configure as a slave of the cascade: LPB network menu</b>		
Appliance number	Device address (6600)	2 (or following, for the other slaves)
Segment number	Segment address (6601)	0
Adjust the bus supply	Bus power supply function (6604)	Automatically
Adjust the clock rate	Clock mode (6640)	Slave without remote setting

	<i>Line No.</i>	<i>Value</i>
To display the faults from other modules on the console of the module you are adjusting	Display system messages (6610)	Yes
If you want an alarm report on this module (output K10 (QX1)) containing all the faults from all the modules	Syst messages alarm relay (6611)	Yes
<ul style="list-style-type: none"> <li>• Switch the heating regime to permanent comfort <span style="float: right;"></span></li> <li>• Connect the bus between the boilers (⚠ pay attention to the polarity).</li> <li>• Switch off, then switch on the slave boiler(s). If the communication has been correctly established, the clock is updated correctly.</li> </ul>		

## F. ELECTRICAL AND HYDRAULIC VALIDATION

### On boiler N°1: master

<ul style="list-style-type: none"> <li>• <b>Cascade diagnostic</b> menu</li> </ul>		
Check that all the boilers are in the cascade	Priority source 1 (8100)	Released / not released
	Priority source 2 (8101)	Released / not released
	.....	
<ul style="list-style-type: none"> <li>• <b>Inputs/outputs test</b> menu</li> </ul>		
Check the outputs		
Alarm relay	Relay test (7700)	Relay output QX1
Boiler pump control, if supplied by customer	Relay test (7700)	Relay output QX3
DHW pump Q3	Relay test (7700)	Relay output QX2
Heating circuit 2/3 3-channel valve opening	Relay test (7700)	Relay output QX21 module 1, 2
Heating circuit 2/3 3-channel valve close	Relay test (7700)	Relay output QX22 module 1, 2
Heating circuit 1 / 2 pumps	Relay test (7700)	Relay output QX23 module 1, 2
Reset the outputs	Relay test (7700)	No test

## Schéma : VF11

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	<b>Line No.</b>	<b>Value</b>
Check the sensor values		
External sensor B9	Outside temp B9 (7730)	in °C
DHW sensor B3	DHW temp B3/B8 (7750)	in °C
Cascade cylinder outlet sensor B10	Sensor temp BX2 (7821)	in °C
B1 flow sensor	Sensor temp BX21 module 1 (7830)	in °C
B12 flow sensor	Sensor temp BX21 module 2 (7832)	in °C

**On boiler n°2 or the following boilers: slave**• **Inputs/outputs test** menu

Check the outputs		
Alarm relay	Relay test (7700)	Relay output QX1
Boiler pump control, if supplied by customer	Relay test (7700)	Relay output QX3
Heating circuit 2/3 3-channel valve opening	Relay test (7700)	Relay output QX21 module 1, 2
Heating circuit 2/3 3-channel valve close	Relay test (7700)	Relay output QX22 module 1, 2
Heating circuit 1 / 2 pumps	Relay test (7700)	Relay output QX23 module 1, 2
Reset the outputs	Relay test (7700)	No test
Check the sensor values		
B1.2 flow sensor	Sensor temp BX21 module 1 (7830)	in °C
B12.2 flow sensor	Sensor temp BX21 module 2 (7832)	in °C
	<b>Line No.</b>	<b>Value</b>

## G. CONFIGURATION OPTIMISATION

### On master and slave boilers

#### Heating circuit optimisation

- **Heating circuit 1 / 2** menu
 

Adjust the reduced setting	Reduced setpoint (712/1012)	---
ECO function for automatic summer / winter switch (see NAVISTEM B3000 manual)	Summer/winter heating limit (1030/1330)	19 °C
Daily ECO function for automatic comfort / reduced switch according to the difference between the set point and the outdoor temperature (see NAVISTEM B3000 manual).	24-hour heating limit (1032/1332)	-3 °C
  
- **Heating circuit 1 / 2 timer programme** menu
 

Preselection	Preselection (500/520)	---
Adjust the timer programming	On / off phases (501...506) (521...526)	---
  
- **Heating circuit 1 / 2 holiday** menu
 

Preselection	Preselection (641/651)	---
Adjust the timer programming	On / off phases (642-643) (652-653)	---
  
- Switch the heating regime to automatic **Auto**

#### DHW optimisation:

- **DHW tank** menu
 

Adjust the over value	Flow setpoint boost (5020)	16 °C
-----------------------	----------------------------	-------

#### Maintenance optimisation

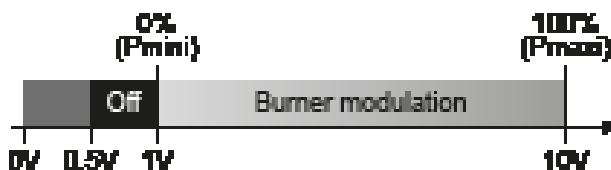
A maintenance message may be generated that does not set the boiler to fault. This maintenance message **Configuration** is displayed after the following 3 counters have expired:

- |  |                               |    |
|--|-------------------------------|----|
| Activate the heating circuits' frost protection mode | Frost protection plant (6120) | On |
|--|-------------------------------|----|
- Time since last maintenance (or commissioning): set parameter 7044 to 12 months.
  - Operating hours of the burner (parameter 7040).
  - Number of starts (parameter 7042)

These last 2 parameters are dependent on the boiler's hydraulic installation. We recommend using at least parameter 7044 for annual maintenance.

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

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



0...0,5 Vcc	The boiler status inhibits starting or locking
0,5...1 Vcc	The boiler is waiting to start or waiting for pre- or post- ventilation
1...10 Vcc	The boiler is working with its flame lit between the min. and max. power levels

## D. SPECIFIC START-UP PROCEDURE

### • **Configuration** menu

Declare the output which gives the image of the burner power.

Signal direction.

Progress of the 0-10V signal in the signal increase direction for speed increase.

	Line No.	Value
Function output Ux (6078/6089)		Burner modulation
Signal logil output UX (6079/6090)		Standard

### 9.4.2. Controlling a Q1 boiler pump

## D. SPECIFIC START-UP PROCEDURE

### • **Configuration** menu

Declare the boiler pump Q1 on the output chosen.

Signal direction.

Progress of the 0-10V signal in the signal increase direction for speed increase.

### • **Boiler** menu

Set these 3 parameters to the same value

	Line No.	Value
Function output Ux (6078/6089)		Boiler pump Q1
Signal logil output UX (6079/6090)		Standard
Starting speed (2321)		between 0 and 100 %
Pump speed min (2322)		between 0 and 100 %
Pump speed max (2323)		between 0 and 100 %

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

#### D. SPECIFIC START-UP PROCEDURE

	<b>Line No.</b>	<b>Value</b>
<ul style="list-style-type: none"> <li>• <b>Configuration</b> menu</li> </ul>		
Case of a 0-10V command Q2, Q6 or Q20 heating pump. Configure the heating pump.	Function output Ux (6078/6089)	Heat circuit pump HC1 Q2 Or Heat circuit pump HC2 Q6 Or Heat circuit pump HC3 Q20
Signal direction. Progress of the 0-10V signal in the signal increase direction for speed increase.	Signal logil output UX (6079/6090)	Standard
<ul style="list-style-type: none"> <li>• <b>Heating circuit 1/2/3</b> menu</li> </ul>		
Set these 3 parameters to the same value	Starting speed (881/1181/1481)	between 0 and 100 %
	Pump speed min (882/1182/1482)	between 0 and 100 %
	Pump speed max (883/1183/1483)	between 0 and 100 %

#### E. ELECTRICAL AND HYDRAULIC VALIDATION

	<b>Line No.</b>	<b>Value</b>
<ul style="list-style-type: none"> <li>• <b>Input/output test</b> menu</li> </ul>		
Check the outputs		
Pump with 0-10 V control	Output test Ux (7716/7724)	in % (1% = 0,1 V)

### 9.4.4. Controlling a DHW pump Q3

#### D. SPECIFIC START-UP PROCEDURE

	<b>Line No.</b>	<b>Value</b>
<ul style="list-style-type: none"> <li>• <b>Configuration</b> menu</li> </ul>		
Case of a 0-10V command DHW pump. Configure the DHW pump Q3.	Function output Ux (6078/6089)	Pompe ECS Q3
Signal direction. Progress of the 0-10V signal in the signal increase direction for speed increase.	Signal logil output UX (6079/6090)	Standard



	<b>Line No.</b>	<b>Value</b>
<b>• DHW storage tank menu</b>		
Set these 3 parameters to the same value		
	Pump speed min (5101)	between 0 and 100 %
	Pump speed max (5102)	between 0 and 100 %
	Starting speed charg pump (5108)	between 0 and 100 %

## E. ELECTRICAL AND HYDRAULIC VALIDATION

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

## 10. SPARE PARTS LIST

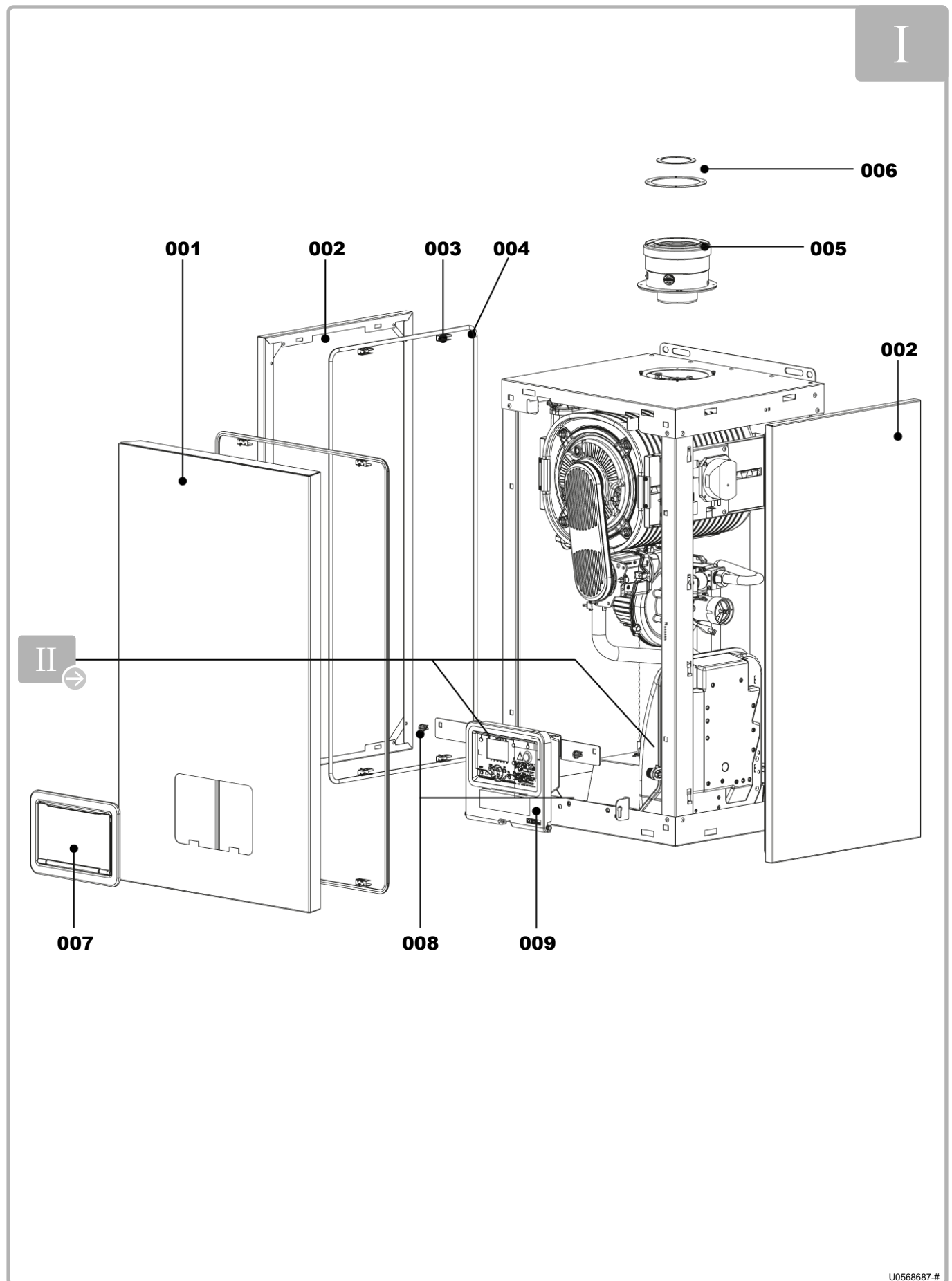
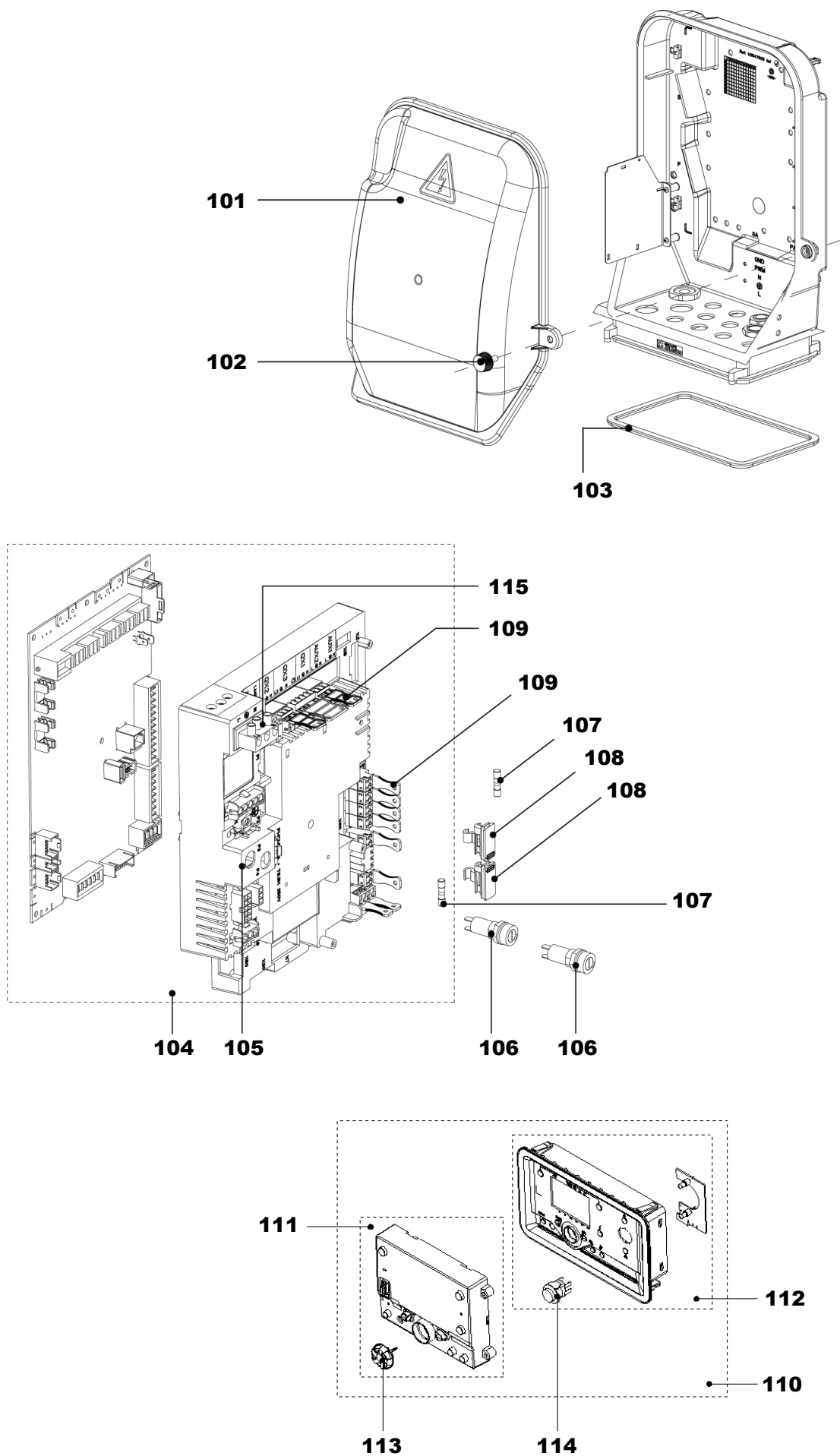


figure 34 - Trim (shown on VARFREE 40 kW and 60 kW)

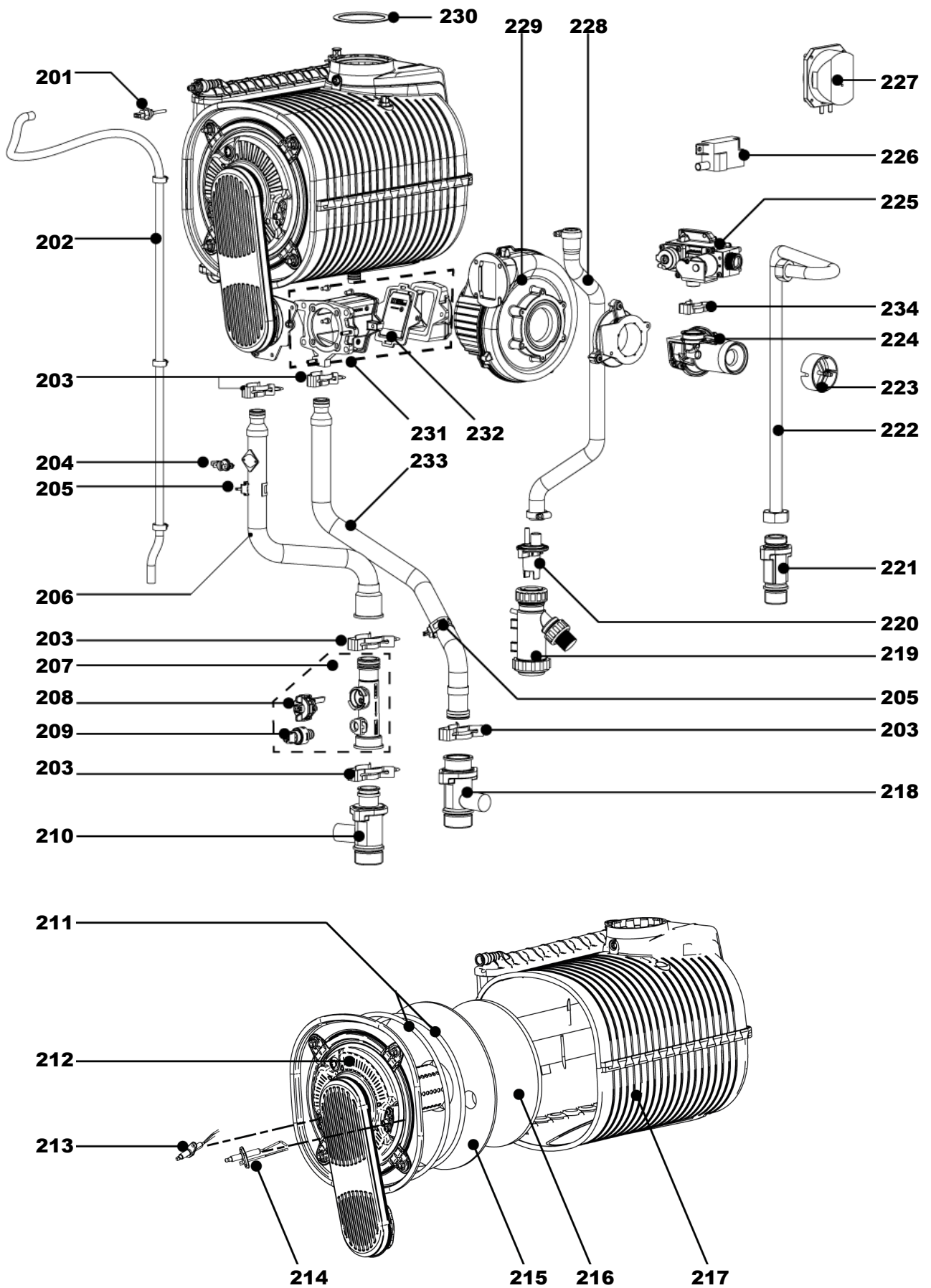
ITEM	DESIGNATION	MODELS					
		40	60	80	100	120	150
001	Front jacket	78781					
002	Left or right side jacket	78698		78699		78700	78701
003	Jacket fasteners (x 4)	76644					
004	Adhesive seal for front / side jacket: long 3.5 m	76649					
005	Concentric adaptor	78609				78610	
006	Adaptor seals	76652				76653	
007	Complete user interface flap	78703					
008	User interface support clip (x 2)	76694					
009	User interface support	76693					



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figure 35 - Control panel

ITEM	DESIGNATION	MODELS					
		40	60	80	100	120	150
101	Cover (with screws) for NAVISTEM B3000	78740					
102	Screw (x 2) for NAVISTEM B3000 cover	76698					
103	Adhesive seal for NAVISTEM B3000 unit (upper and lower): long. 1.5 m	76648					
104	Platform with configured NAVISTEM B3000	78873	78874	78876	78877	78879	78880
105	Platform without NAVISTEM B3000 and with wiring	76127					
106	Round fuse holder	76130					
107	Fuse (T 6.3 H - 5x20)	71898					
108	Square fuse holder (with fuse)	76129					
109	Customer platform connectors	76128					
110	Complete display (user interface)	78782					
111	Display alone (user interface) with selector	78477					
112	Plastic part for display (user interface) + LED board + switch + LED ribbon cable	78704					
113	Selector	76135					
114	Switch	76134					
115	Power supply connector	76523					
--	EMC fan filter	--				76634	
--	Power wiring	78691		78692		78693	
--	Signal wiring	78694		78695		78696	
--	Gas valve connector cable	76627		76628			76469
--	Ignition electrode cable	73150					
--	Rear body thermostat cable	--		76629			
--	Fan adapter wiring	76630	--				
--	Fan remote control wiring	--	76631	--			
--	Switch power supply wiring	78689					
--	Display signal wiring	78690					



U0568698-B

figure 36 - Body and burner for 40 and 60 models

ITEM	DESIGNATION	MODELS	
		40	60
201	Gas temperature sensor	76516	
202	Long bleed pipe 1.2 m	76661	
203	Hydraulic clip (sachet)	76685	
204	Horn safety thermostat	76158	
205	Outlet / return contact temperature sensor	76515	
206	Outlet tube	76667	76668
207	Hydraulic collector (with sensors)	76518	
208	Flow meter	76513	
209	Pressure sensor	76514	
210	Customer outlet tap (with valve and O-rings)	76665	
211	Seal + burner holder braid	76464	
212	Complete burner holder + rail	76465	76466
213	Ionising electrode + seal	76463	
214	Ignition electrode + seal	76462	
215	Burner holder refractory insulation	76471	
216	Exchanger bottom refractory insulation	76470	
217	Exchanger	76456	76457
218	Customer return tap	76681	
219	Condensate siphon	71838	
220	Siphon coupling	76662	
221	Gas tap	76671	
222	Gas tube	76672	76673
223	Venturi measurement connection	76658	
224	Venturi	76654	
225	Gas valve	76687	
226	ZAG 1 ignition transformer	72131	
227	Air pressure switch	72573	
228	Condensate evacuation pipe	76663	
229	Fan	76690	76691
230	Gas outlet seal	76512	
231	Complete premix valve	76520	
232	Premix valve seal	76519	
233	Return tube	76682	
234	Clip for gas valve	76688	
--	Bag of gas line seals	76646	
--	Bag of hydraulic seals	76645	

IV

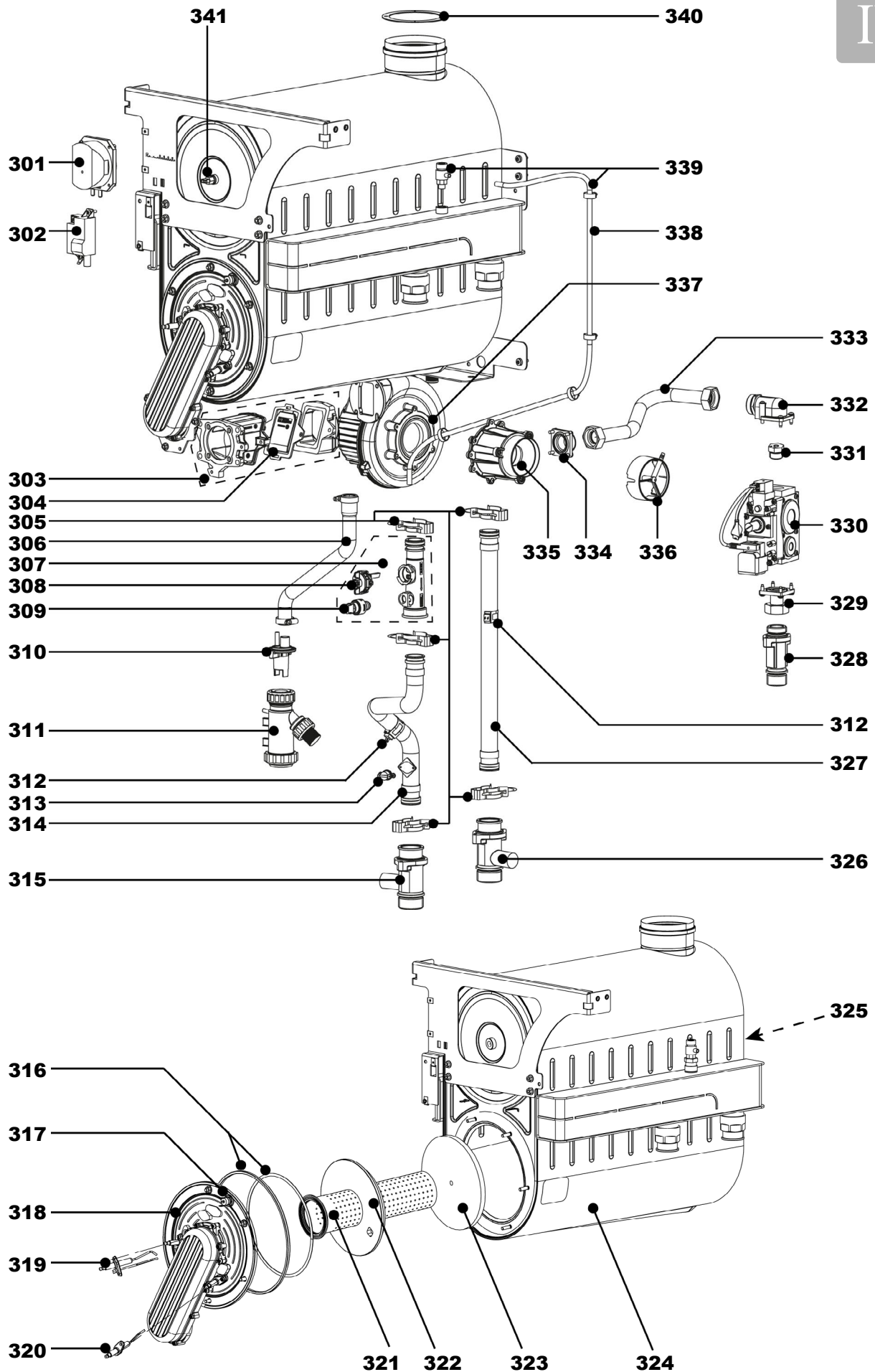
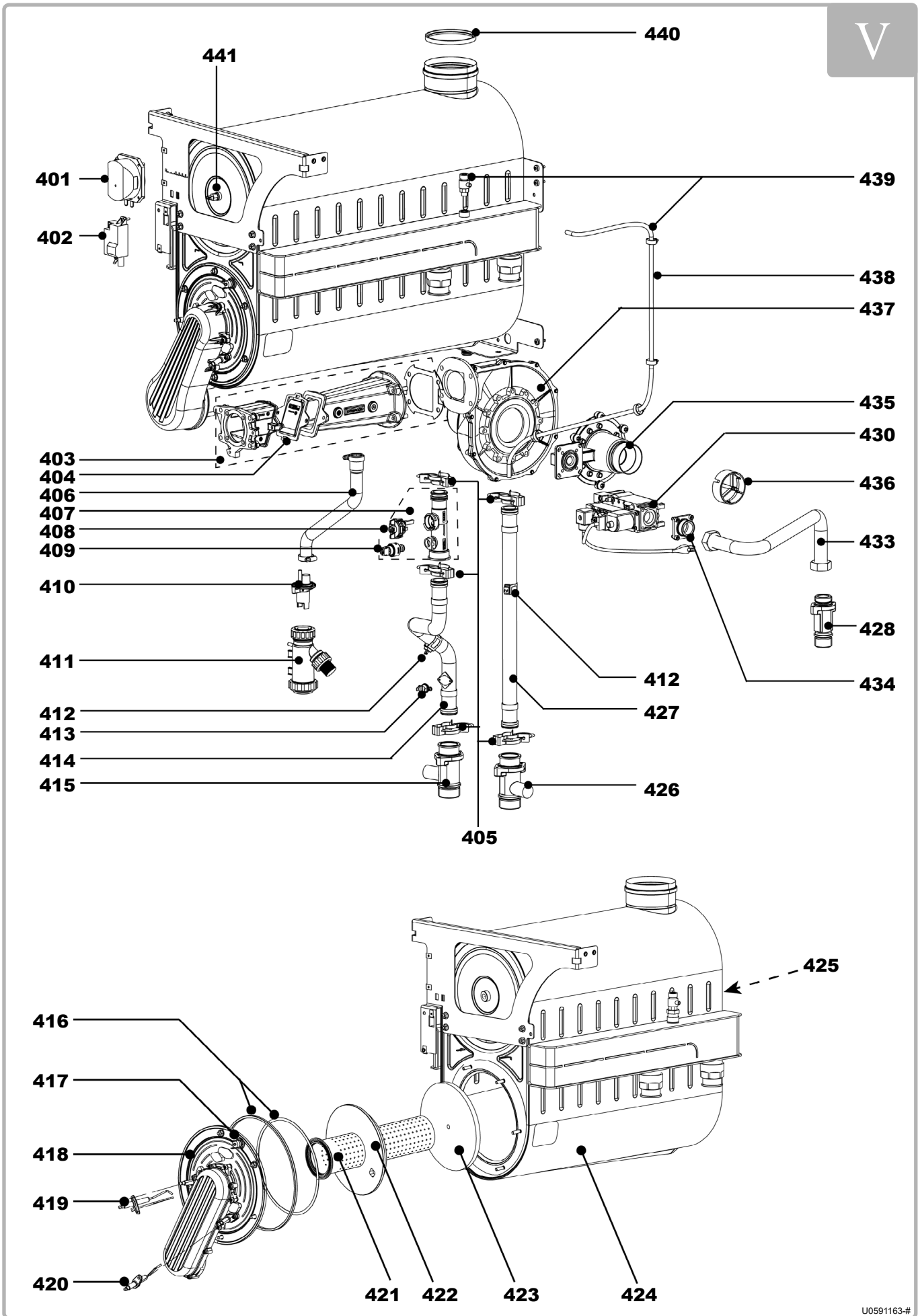


figure 37 - Body and burner for 80 to 120 models

U0568698-A



ITEM	DESIGNATION	MODELS		
		80	100	120
301	Air pressure switch		72173	
302	ZAG 1 ignition transformer		72131	
303	Complete premix valve		76520	
304	Premix valve seal		76519	
305	Hydraulic clip (sachet)		76686	
306	Condensate evacuation pipe		76664	
307	Hydraulic collector (with sensors)		76518	
308	Flow meter		76513	
309	Pressure sensor		76514	
310	Siphon coupling		76662	
311	Condensate siphon		71838	
312	Outlet / return contact temperature sensor		76515	
313	Horn safety thermostat		76158	
314	Outlet tube	76669	76670	
315	Customer outlet tap (with valve and seals)		76666	
316	Seal + burner holder braid		72153	
317	Burner holder safety thermostat		76476	
318	Complete burner holder + rail	76473		76526
319	Ignition electrode + seal		72505	
320	Ionising electrode + seal		72506	
321	Burner rail + seal	76467		76468
322	Burner holder refractory insulation		76472	
323	Exchanger bottom refractory insulation		72152	
324	Exchanger	76458	76459	76460
325	Rear body safety thermostat		76475	
326	Customer return tap		76681	
327	Return tube	76683	76684	
328	Gas tap		76671	
329	Gas valve inlet flange		76677	
330	Gas valve		76689	
331	Propane injector (Ø 6.5)	76635	--	
	Propane injector (Ø 7.0)	--	76636	--
332	Gas valve outlet elbow flange	76678		76679
333	Gas tube	76674	76675	76676
334	Straight venturi flange	--		76680
335	Venturi	76655	76656	76657
336	Venturi measurement connection		76659	
337	Fan		76691	
338	Long bleed pipe 1.2 m		76661	
339	Drain tap + plug		72171	
340	Gas outlet seal		72519	
341	Gas temperature sensor		76517	
--	Bag of gas line seals		76647	
--	Bag of hydraulic seals		76645	



U0591163-#

figure 38 - Body and burner for 150 model

<b>ITEM</b>	<b>DESIGNATION</b>	<b>MODEL 150</b>
401	Air pressure switch	72173
402	ZAG 1 ignition transformer	72131
403	Complete premix valve	76692
404	Premix valve seal	76519
405	Hydraulic clip (sachet)	76686
406	Condensate evacuation pipe	76664
407	Hydraulic collector (with sensors)	76518
408	Flow meter	76513
409	Pressure sensor	76514
410	Siphon coupling	76662
411	Condensate siphon	71838
412	Outlet / return contact temperature sensor	76515
413	Horn safety thermostat	76158
414	Outlet tube	76990
415	Customer outlet tap (with valve and seals)	76666
416	Seal + burner holder braid	72153
417	Burner holder safety thermostat	76476
418	Complete burner holder + rail	76474
419	Ignition electrode + seal	72505
420	Ionising electrode + seal	72506
421	Burner rail + seal	72518
422	Burner holder refractory insulation	72517
423	Exchanger bottom refractory insulation	72152
424	Exchanger	76461
425	Rear body safety thermostat	76475
426	Customer return tap	76681
427	Return tube	76684
428	Gas tap	76671
430	Gas valve	76986
433	Gas tube	76985
434	Straight venturi flange	76680
435	Venturi	76984
436	Venturi measurement connection	76660
437	Fan	76987
438	Long bleed pipe 1.2 m	76661
439	Drain tap + plug	72171
440	Gas outlet seal	72519
441	Gas temperature sensor	76517
--	Bag of gas line seals	76647
--	Bag of hydraulic seals	76645

## 11. CUSTOMER PARAMETERS TABLE

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

serial no.: .....

**Please transfer all parameter modifications into this document!**

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

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

Line No.	Programming	Access	Default value	Customer setting
<b>Time prog heating circuit 3</b>				
540	Preselection	E	Mo-Su	
541	First period start time	E	06:00	
542	First period stop time	E	22:00	
543	Second period start time	E	24:00	
544	Second period stop time	E	24:00	
545	Second period start time	E	24:00	
546	Second period stop time	E	24:00	
556	Default values	E	No	
<b>Time program 4 / DHW</b>				
560	Preselection	E	Mo-Su	
561	First period start time	E	06:00	
562	First period stop time	E	22:00	
563	Second period start time	E	24:00	
564	Second period stop time	E	24:00	
565	Second period start time	E	24:00	
566	Second period stop time	E	24:00	
576	Default values	E	No	
<b>Time program 5</b>				
600	Preselection	E	Mo-Su	
601	First period start time	E	06:00	
602	First period stop time	E	22:00	
603	Second period start time	E	24:00	
604	Second period stop time	E	24:00	
605	Second period start time	E	24:00	
606	Second period stop time	E	24:00	
616	Default values	E	No	
<b>Holidays heating circuit 1</b>				
641	Preselection	E	Period 1	
642	Begin (dd.mm)	E	01.01	
643	End (dd.mm)	E	01.01	
648	Operating level	E	Frost protection	
<b>Holidays heating circuit 2</b>				
651	Preselection	E	Period 1	
652	Begin (dd.mm)	E	01.01	
653	End (dd.mm)	E	01.01	
658	Operating level	E	Frost protection	
<b>Holidays heating circuit 3</b>				
661	Preselection	E	Period 1	
662	Begin (dd.mm)	E	01.01	
663	End (dd.mm)	E	01.01	
668	Operating level	E	Frost protection	
<b>Heating circuit 1</b>				
710	Comfort setpoint	E	20 °C	
712	Reduced setpoint	E	18 °C	
714	Frost protection setpoint	E	10 °C	
716	Comfort setpoint max	S	35 °C	
720	Heating curve slope	E	1,5	
721	Heating curve displacement	S	0 °C	

Line No.	Programming	Access	Default value	Customer setting
726	Heating curve adaptation	S	Off	
730	Summer/winter heating limit	E	19 °C	
732	24-hour heating limit	S	--- °C	
740	Flow temp setpoint min	C	8 °C	
741	Flow temp setpoint max	E	80 °C	
742	Flow temp setpoint room stat	E	65 °C	
746	Delay heat request	C	0 s	
750	Room influence	S	20 %	
760	Room temp limitation	S	1 °C	
761	Heating limit room controller	S	--- %	
770	Boost heating	S	--- °C	
780	Quick setback	S	Down to reduced setpoint	
790	Optimum start control max	S	00:00	
791	Optimum stop control max	S	00:00	
800	Reduced setp increase start	S	--- °C	
801	Reduced setp increase end	S	-15 °C	
809	Continuous pump operation	S	No	
820	Overtemp prot pump circuit	S	On	
830	Mixing valve boost	S	3 °C	
832	Actuator type	S	3-position	
833	TOR Switching differential	S	2 °C	
834	Actuator running time	S	120 s	
835	Mixing valve Xp	S	32 °C	
836	Mixing valve Tn	S	120 s	
850	Floor curing function	C	Off	
851	Floor curing setp manually	C	25 °C	
855	Floor curing setp current	E	0 °C	
856	Floor curing day current	E	0	
861	Excess heat draw	S	Always	
870	With buffer	S	No	
872	With prim contr/system pump	S	No	
881	Starting speed	S	100 %	
882	Pump speed min	S	100 %	
883	Pump speed max	S	100 %	
888	Curve readj at 50% speed	S	33 %	
889	Filter time const speed ctrl	S	5 min	
890	Flow setp readj speed ctrl	S	Yes	
898	Operating level changeover	S	Reduced	
900	Optg mode changeover	S	Protection	
<b>Heating circuit 2</b>				
1010	Comfort setpoint	E	20 °C	
1012	Reduced setpoint	E	18 °C	
1014	Frost protection setpoint	E	10 °C	
1016	Comfort setpoint max	S	35 °C	
1020	Heating curve slope	E	1,5	
1021	Heating curve displacement	S	0 °C	
1026	Heating curve adaptation	S	Off	
1030	Summer/winter heating limit	E	19 °C	
1032	24-hour heating limit	S	--- °C	

Line No.	Programming	Access	Default value	Customer setting
1040	Flow temp setpoint min	C	8 °C	
1041	Flow temp setpoint max	C	80 °C	
1042	Flow temp setpoint room stat	E	65 °C	
1046	Delay heat request	C	0 s	
1050	Room influence	S	20 %	
1060	Room temp limitation	S	1 °C	
1061	Heating limit room controller	S	--- %	
1070	Boost heating	S	--- °C	
1080	Quick setback	S	Down to reduced setpoint	
1090	Optimum start control max	S	00:00	
1091	Optimum stop control max	S	00:00	
1100	Reduced setp increase start	S	--- °C	
1101	Reduced setp increase end	S	-15 °C	
1109	Continuous pump operation	S	No	
1120	Overtemp prot pump circuit	S	On	
1130	Mixing valve boost	S	3 °C	
1132	Actuator type	S	3-position	
1133	TOR Switching differential	S	2 °C	
1134	Actuator running time	S	120 s	
1135	Mixing valve Xp	S	32 °C	
1136	Mixing valve Tn	S	120 s	
1150	Floor curing function	C	Off	
1151	Floor curing setp manually	C	25 °C	
1155	Floor curing setp current	E	0 °C	
1156	Floor curing day current	E	0	
1161	Excess heat draw	S	Always	
1170	With buffer	S	No	
1172	With prim contr/system pump	S	No	
1181	Starting speed	S	100 %	
1182	Pump speed min	S	100 %	
1183	Pump speed max	S	100 %	
1188	Curve readj at 50% speed	S	33 %	
1189	Filter time const speed ctrl	S	5 min	
1190	Flow setp readj speed ctrl	S	Yes	
1198	Operating level changeover	S	Reduced	
1200	Optg mode changeover	S	Protection	
<b>Heating circuit 3</b>				
1310	Comfort setpoint	E	20 °C	
1312	Reduced setpoint	E	18 °C	
1314	Frost protection setpoint	E	10 °C	
1316	Comfort setpoint max	S	35 °C	
1320	Heating curve slope	E	1,5	
1321	Heating curve displacement	S	0 °C	
1326	Heating curve adaptation	S	Off	
1330	Summer/winter heating limit	E	19 °C	
1332	24-hour heating limit	S	--- °C	
1340	Flow temp setpoint min	C	8 °C	
1341	Flow temp setpoint max	C	80 °C	
1342	Flow temp setpoint room stat	E	65 °C	

Line No.	Programming	Access	Default value	Customer setting
1346	Delay heat request	C	0 s	
1350	Room influence	S	20 %	
1360	Room temp limitation	S	1 °C	
1361	Heating limit room controller	S	--- %	
1370	Boost heating	S	--- °C	
1380	Quick setback	S	Down to reduced setpoint	
1390	Optimum start control max	S	00:00	
1391	Optimum stop control max	S	00:00	
1400	Reduced setp increase start	S	--- °C	
1401	Reduced setp increase end	S	-15 °C	
1409	Continuous pump operation	S	No	
1420	Overtemp prot pump circuit	S	On	
1430	Mixing valve boost	S	3 °C	
1432	Actuator type	S	3-position	
1433	TOR Switching differential	S	2 °C	
1434	Actuator running time	S	120 s	
1435	Mixing valve Xp	S	32 °C	
1436	Mixing valve Tn	S	120 s	
1450	Floor curing function	C	Off	
1451	Floor curing setp manually	C	25 °C	
1455	Floor curing setp current	E	0 °C	
1456	Floor curing day current	E	0	
1461	Excess heat draw	S	Always	
1470	With buffer	S	No	
1472	With prim contr/system pump	S	No	
1481	Starting speed	S	100 %	
1482	Pump speed min	S	100 %	
1483	Pump speed max	S	100 %	
1488	Curve readj at 50% speed	S	33 %	
1489	Filter time const speed ctrl	S	5 min	
1490	Flow setp readj speed ctrl	S	Yes	
1498	Operating level changeover	S	Reduced	
1500	Optg mode changeover	S	Protection	
<b>Domestic hot water</b>				
1610	Nominal setpoint	E	50 °C	
1612	Reduced setpoint	S	45 °C	
1614	Nominal setpoint max	S	65 °C	
1620	Release	C	Time programs HCs	
1630	Charging priority	C	MC shifting, PC absolute	
1640	Legionella function	S	Off	
1641	Legionella funct periodically	S	3	
1642	Legionella funct weekday	S	Monday	
1644	Legionella funct time	S	05:00	
1645	Legionella funct setpoint	S	65 °C	
1646	Legionella funct duration	S	30 min	
1647	Legionella funct circ pump	S	On	
1660	Circulating pump release	S	DHW release	
1661	Circulating pump cycling	S	On	
1663	Circulation setpoint	S	45 °C	



Line No.	Programming	Access	Default value	Customer setting
1680	Optg mode changeover	S	Off	
<b>Consumer circuit 1</b>				
1859	Flow temp setp cons request	C	60 °C	
1875	Excess heat draw	S	On	
1878	With buffer	S	No	
1880	With prim contr/system pump	S	No	
<b>Consumer circuit 2</b>				
1909	Flow temp setp cons request	C	60 °C	
1925	Excess heat draw	S	On	
1928	With buffer	S	No	
1930	With prim contr/system pump	S	No	
<b>Consumer circuit 3</b>				
1959	Flow temp setp cons request	C	70 °C	
1975	Excess heat draw	S	On	
1978	With buffer	S	No	
1980	With prim contr/system pump	S	No	
<b>Swimming pool</b>				
2055	Setpoint solar heating	S	26 °C	
2056	Setpoint source heating	S	22 °C	
2065	Charging priority solar	S	Priority 3	
2080	With solar integration	S	Yes	
<b>Boiler</b>				
2203	Release below outside temp	S	--- °C	
2208	Full charging buffer	S	Off	
2210	Setpoint min	S	8 °C	
2212	Setpoint max	S	80 °C	
2214	Setpoint manual control	E	60 °C	
2217	Setpoint frost protection	S	7 °C	
2243	Burner off time min	S	5 min	
2250	Pump overrun time	S	5 min	
2253	Pump overr time after DHW	S	1 min	
2270	Return setpoint min	S	8 °C	
2321	Starting speed	S	S2-40 : 67 % S2-60 : 72 % S2-70 : 57 % S2-80 : 63 % S2-100 : 80 % S2-120 : 79 % S2-150 : 63 %	
2322	Pump speed min	S	S2-40 : 67 % S2-60 : 72 % S2-70 : 57 % S2-80 : 63 % S2-100 : 80 % S2-120 : 79 % S2-150 : 63 %	
2323	Pump speed max	S	S2-40 : 67 % S2-60 : 72 % S2-70 : 57 % S2-80 : 63 % S2-100 : 80 % S2-120 : 79 % S2-150 : 63 %	

Line No.	Programming	Access	Default value	Customer setting
2330	Output nominal	S	S2-40 : 40 S2-60 : 60 S2-70 : 70 S2-80 : 80 S2-100 : 100 S2-120 : 120 S2-150 : 134	
2331	Output basic stage	S	S2-40 : 8 S2-60 : 12 S2-70 : 17 S2-80 : 17 S2-100 : 20 S2-120 : 24 S2-150 : 28	
2334	Output at pump speed min	S	0 %	
2335	Output at pump speed max	S	0 %	
2441	Fan speed heating max	S	S2-40 : 6100 S2-60 : 7250 S2-70 : 5480 S2-80 : 6380 S2-100 : 6450 S2-120 : 6950 S2-150 : 6350	
2442	Fan speed full charging max	S	S2-40 : 6100 S2-60 : 7250 S2-70 : 5480 S2-80 : 6380 S2-100 : 6450 S2-120 : 6950 S2-150 : 6350	
2444	Fan speed DHW max	S	S2-40 : 6100 S2-60 : 7250 S2-70 : 5480 S2-80 : 6380 S2-100 : 6450 S2-120 : 6950 S2-150 : 6350	
2454	Switching diff on HCs	S	3 °C	
2455	Switching diff off min HCs	S	3 °C	
2456	Switching diff off max HCs	S	6 °C	
2457	Settling time HCs	S	20 min	
2460	Switching diff on DHW	S	3 °C	
2461	Switching diff off min DHW	S	3 °C	
2462	Switching diff off max DHW	S	6 °C	
2463	Settling time DHW	S	20 min	
2470	Delay heat req special op	C	0 s	
2503	Parameter	S	6 s	
2630	Auto deaeration procedure	S	Off	
2655	ON time deaeration	S	10 s	
2656	OFF time deaeration	S	5 s	
2657	Number of repetitions	S	3	
2662	Deaeration time heat circuit	S	10 min	
2663	Deaeration time DHW	S	5 min	
<b>Cascade</b>				
3510	Lead strategy	S	Late on, late off	
3511	Output band min	S	30 %	
3512	Output band max	S	90 %	
3530	Release integral source seq	S	300 °Cmin	
3531	Reset integral source seq	S	100 °Cmin	
3532	Restart lock	S	300 s	

Line No.	Programming	Access	Default value	Customer setting
3533	Switch on delay	S	5 min	
3534	Forced time basic stage	S	60 s	
3535	Switch-on delay DHW	S	2 min	
3540	Auto source seq ch'over	S	500 h	
3541	Auto source seq exclusion	S	none	
3544	Leading source	S	source 1	
3560	Return setpoint min	S	8 °C	
3562	Return influence consumers	S	On	
<b>DHW storage tank</b>				
5020	Flow setpoint boost	S	10 °C	
5021	Transfer boost	S	8 °C	
5022	Type of charging	S	Full charging	
5030	Charging time limitation	S	--- min	
5040	Discharging protection	S	Automatically	
5050	Charging temp max	S	80 °C	
5055	Recooling temp	S	80 °C	
5056	Recooling heat gen/HCs	S	Off	
5057	Recooling collector	S	Off	
5060	El imm heater optg mode	S	Substitute	
5061	El immersion heater release	S	DHW release	
5062	El immersion heater control	S	DHW sensor	
5085	Excess heat draw	S	On	
5090	With buffer	S	No	
5092	With prim contr/system pump	S	No	
5093	With solar integration	S	Yes	
5101	Pump speed min	S	100 %	
5102	Pump speed max	S	100 %	
5108	Starting speed charg pump	S	100 %	
<b>General functions</b>				
5570	Temp diff on dT contr 1	S	20 °C	
5571	Temp diff off dT contr 1	S	10 °C	
5572	On temp min dT contr 1	S	0 °C	
5573	Sensor 1 controller 1	S	None	
5574	Sensor 2 controller 1	S	None	
5575	On time min dT contr 1	S	0 s	
5577	Pump/valve kick K21	S	On	
5580	Temp diff on dT contr 2	S	20 °C	
5581	Temp diff off dT contr 2	S	10 °C	
5582	On temp min dT contr 2	S	0 °C	
5583	Sensor 1 controller 2	S	None	
5584	Sensor 2 controller 2	S	None	
5585	On time min dT contr 2	S	0 s	
5587	Pump/valve kick K22	S	On	
<b>Configuration</b>				
5710	Heating circuit 1	C	Off	
5711	Cooling circuit 1	C	Off	
5715	Heating circuit 2	C	Off	
5721	Heating circuit 3	C	Off	
5730	DHW sensor	C	DHW sensor B3	

Line No.	Programming	Access	Default value	Customer setting
5731	DHW controlling element	C	Charging pump	
5732	Pump off change div valve	C	0 s	
5733	Delay pump off	C	0 s	
5734	Basic position DHW div valve	S	Last request	
5736	DHW separate circuit	C	Off	
5737	Optg action DHW div valve	S	Position on DHW	
5738	Midposition DHW div valve	S	Off	
5774	Ctrl boiler pump/DHW valve	C	All requests	
5840	Solar controlling element	C	Charging pump	
5841	External solar exchanger	C	Jointly	
5870	Combi storage tank	C	No	
5890	Relay output QX1	C	Alarm output K10	
5891	Relay output QX2	C	DHW ctrl elem Q3	
5892	Relay output QX3	C	Boiler pump Q1	
5931	Sensor input BX2	C	None	
5932	Sensor input BX3	C	None	
5950	Function input H1	C	None	
5951	Contact type H1	C	NO	
5953	Voltage value 1 H1 (U1)	C	0 V	
5954	Function value 1 H1 (F1)	C	0	
5955	Voltage value 2 H1 (U2)	C	10 V	
5956	Function value 2 H1 (F2)	C	1000	
5977	Function input H5	C	None	
5978	Contact type H5	C	NO	
6020	Function extension module 1	C	None	
6021	Function extension module 2	C	None	
6022	Function extension module 3	C	None	
6030	Relay output QX21 module 1	C	None	
6031	Relay output QX22 module 1	C	None	
6032	Relay output QX23 module 1	C	None	
6033	Relay output QX21 module 2	C	None	
6034	Relay output QX22 module 2	C	None	
6035	Relay output QX23 module 2	C	None	
6036	Relay output QX21 module 3	C	None	
6037	Relay output QX22 module 3	C	None	
6038	Relay output QX23 module 3	C	None	
6040	Sensor input BX21 module 1	C	None	
6041	Sensor input BX22 module 1	C	None	
6042	Sensor input BX21 module 2	C	None	
6043	Sensor input BX22 module 2	C	None	
6044	Sensor input BX21 module 3	C	None	
6045	Sensor input BX22 module 3	C	None	
6046	Function input H2 module 1	C	None	
6047	Contact type H2 module 1	C	NO	
6049	Voltage value 1 H2 module 1(U1)	C	0 V	
6050	Function value 1 H2 module 1 (F1)	C	0	
6051	Voltage value 2 H2 module 1 (U2)	C	0 V	
6052	Function value 2 H2 module 1 (F2)	C	0	
6054	Function input H2 module 2	C	None	

Line No.	Programming	Access	Default value	Customer setting
6055	Contact type H2 module 2	C	NO	
6057	Voltage value 1 H2 module 2(U1)	C	0 V	
6058	Function value 1 H2 module 2 (F1)	C	0	
6059	Voltage value 2 H2 module 2 (U2)	C	0 V	
6060	Function value 2 H2 module 2 (F2)	C	0	
6062	Function input H2 module 3	C	None	
6063	Contact type H2 module 3	C	NO	
6065	Voltage value 1 H2 module 3(U1)	C	0 V	
6066	Function value 1 H2 module 3 (F1)	C	0	
6067	Voltage value 2 H2 module 3 (U2)	C	0 V	
6068	Function value 2 H2 module 3 (F2)	C	0	
6078	Function output UX2	S	Boiler pump Q1	
6079	Signal logic output UX2	S	Standard	
6089	Function output UX3	S	None	
6090	Signal logic output UX3	S	Standard	
6097	Sensor type collector	S	NTC	
6098	Readjustm collector sensor	S	0 °C	
6100	Readjustm outside sensor	S	0 °C	
6110	Time constant building	S	8 h	
6116	Const tmpr compens consig.	S	1 min	
6117	Compens centr T° consigne	S	5 °C	
6120	Frost protection plant	S	Off	
6127	Pump/valve kick duration	S	30 s	
6200	Save sensors	C	No	
6205	Reset to default parameter	S	No	
6230	Info 1 OEM	S	16	
<b>LPB system</b>				
6600	Device address	C	1	
6601	Segment address	S	0	
6604	Bus power supply function	S	Automatically	
6605	Bus power supply state	S	Automatically	
6610	Display system messages	S	No	
6611	Syst messages alarm relay	S	No	
6612	Alarm delay	S	2 min	
6620	Action changeover functions	S	System	
6621	Summer changeover	S	Locally	
6623	Optg mode changeover	S	Centrally	
6624	Manual source lock	S	Locally	
6625	DHW assignment	S	All HCs in system	
6631	Ext source in Eco mode	S	Off	
6640	Clock mode	C	Autonomously	
6650	Outside temp source	S	0	
<b>Fault</b>				
6705	SW diagnostic code	E	0	
6710	Reset alarm relay	C	No	
6740	Flow temp 1 alarm	S	120 min	
6741	Flow temp 2 alarm	S	120 min	
6742	Flow temp 3 alarm	S	120 min	
6743	Boiler temp alarm	S	120 min	

Line No.	Programming	Access	Default value	Customer setting
6745	DHW charging alarm	S	8 h	
6800	History 1	S	00:00	
6805	SW diagnostic code 1	S	0	
6810	History 2	S	00:00	
6815	SW diagnostic code 2	S	0	
6820	History 3	S	00:00	
6825	SW diagnostic code 3	S	0	
6830	History 4	S	00:00	
6835	SW diagnostic code 4	S	0	
6840	History 5	S	00:00	
6845	SW diagnostic code 5	S	0	
6850	History 6	S	00:00	
6855	SW diagnostic code 6	S	0	
6860	History 7	S	00:00	
6865	SW diagnostic code 7	S	0	
6870	History 8	S	00:00	
6875	SW diagnostic code 8	S	0	
6880	History 9	S	00:00	
6885	SW diagnostic code 9	S	0	
6890	History 10	S	00:00	
6895	SW diagnostic code 10	S	0	
6900	History 11	S	00:00	
6905	SW diagnostic code 11	S	0	
6910	History 12	S	00:00	
6915	SW diagnostic code 12	S	0	
6920	History 13	S	00:00	
6925	SW diagnostic code 13	S	0	
6926	Burner control phase 13	S	0	
6930	History 14	S	00:00	
6935	SW diagnostic code 14	S	0	
6940	History 15	S	00:00	
6945	SW diagnostic code 15	S	0	
6950	History 16	S	00:00	
6955	SW diagnostic code 16	S	0	
6960	History 17	S	00:00	
6965	SW diagnostic code 17	S	0	
6970	History 18	S	00:00	
6975	SW diagnostic code 18	S	0	
6980	History 19	S	00:00	
6985	SW diagnostic code 19	S	0	
6990	History 20	S	00:00	
6995	SW diagnostic code 20	S	0	
<b>Service/special operation</b>				
7040	Burner hours interval	S	1500 h	
7041	Burn hrs since maintenance	S	0 h	
7042	Burner start interval	S	9000	
7043	Burn starts since maint	S	0	
7044	Maintenance interval	S	24 months	
7045	Time since maintenance	S	0 months	

Line No.	Programming	Access	Default value	Customer setting
7050	Fan speed ionization current	S	0	
7051	Message ionization current	S	No	
7130	Chimney sweep function	E	Off	
7131	Burner output	E	Max heating load	
7140	Manual control	E	Off	
7143	Controller stop function	S	Off	
7145	Controller stop setpoint	S	0 %	
7146	Deaeration function	C	On	
7147	Type of venting	C	None	
7170	Telephone customer service	C	0	
<b>Input/output test</b>				
7700	Relay test	C	No test	
7716	Output test UX2	C	--- %	
7724	Output test UX3	C	--- %	
7730	Outside temp B9	C	0 °C	
7750	DHW temp B3/B38	C	0 °C	
7760	Boiler temp B2	C	0 °C	
7820	Sensor temp BX1	C	0 °C	
7821	Sensor temp BX2	C	0 °C	
7822	Sensor temp BX3	C	0 °C	
7823	Sensor temp BX4	C	0 °C	
7830	Sensor temp BX21 module 1	C	0 °C	
7831	Sensor temp BX22 module 1	C	0 °C	
7832	Sensor temp BX21 module 2	C	0 °C	
7833	Sensor temp BX22 module 2	C	0 °C	
7834	Sensor temp BX21 module 3	C	0 °C	
7835	Sensor temp BX22 module 3	C	0 °C	
7840	Voltage signal H1	C	0 V	
7841	Contact state H1	C	Open	
7845	Voltage signal H2 module 1	C	0 V	
7846	Contact state H2 module 1	C	Open	
7848	Voltage signal H2 module 2	C	0 V	
7849	Contact state H2 module 2	C	Open	
7851	Voltage signal H2 module 3	C	0 V	
7852	Contact state H2 module 3	C	Open	
7854	Voltage signal H3	C	0 V	
7855	Contact state H3	C	Open	
7860	Contact state H4	C	Open	
7862	Frequency H4	C	0	
7865	Contact state H5	C	Open	
7872	Contact state H6	C	Open	
7874	Contact state H7	C	Open	
7950	Input EX21 module 1	C	0 V	
7951	Input EX21 module 2	C	0 V	
7952	Input EX21 module 3	C	0 V	
<b>State</b>				
8000	State heating circuit 1	C	0	
8001	State heating circuit 2	C	0	
8002	State heating circuit 3	C	0	

Line No.	Programming	Access	Default value	Customer setting
8003	State DHW	C	0	
8005	State boiler	C	0	
8007	State solar	C	0	
8008	State solid fuel boiler	C	0	
8009	State burner	C	0	
8010	State buffer	C	0	
8011	State swimming pool	C	0	
<b>Diagnostics cascade</b>				
8100 / 01	Generator 1 priority / status	C	0 / Missing	
8102 / 03	Generator 2 priority / status	C	0 / Missing	
8104 / 05	Generator 3 priority / status	C	0 / Missing	
8106 / 07	Generator 4 priority / status	C	0 / Missing	
8108 / 09	Generator 5 priority / status	C	0 / Missing	
8110 / 11	Generator 6 priority / status	C	0 / Missing	
8112 / 13	Generator 7 priority / status	C	0 / Missing	
8114 / 15	Generator 8 priority / status	C	0 / Missing	
8116 / 17	Generator 9 priority / status	C	0 / Missing	
8118 / 19	Generator 10 priority / status	C	0 / Missing	
8120 / 21	Generator 11 priority / status	C	0 / Missing	
8122 / 23	Generator 12 priority / status	C	0 / Missing	
8124 / 25	Generator 13 priority / status	C	0 / Missing	
8126 / 27	Generator 14 priority / status	C	0 / Missing	
8128 / 29	Generator 15 priority / status	C	0 / Missing	
8130 / 31	Generator 16 priority / status	C	0 / Missing	
8138 / 39	Cascade starting temperature / setpoint	C	0 °C / 0 °C	
8140 / 41	Cascade return temperature / setpoint	C	0 °C / 0 °C	
8150	Source seq ch'over current	C	0 h	
<b>Diagnostics heat generation</b>				
8304	Boiler pump Q1	S	Off	
8308	Boiler pump speed	S	0 %	
8309	Bypass pump speed	S	0 %	
8310	Boiler temp	E	0 °C	
8311	Boiler setpoint	E	0 °C	
8312	Boiler switching point	C	0 °C	
8313	Control sensor	C	0 °C	
8314	Boiler return temp	E	0 °C	
8315	Boiler return temp set	C	0 °C	
8316	Flue gas temp	E	0 °C	
8318	Flue gas temp max	E	0 °C	
8321	Primary exchanger temp	C	0 °C	
8323	Fan speed	E	0 tr/min	
8324	Set point fan	E	0 tr/min	
8325	Current fan control	C	0 %	
8326	Burner modulation	E	0 %	
8327	Water pressure	E	0	
8329	Ionization current	E	0 µA	
8330	Hours run 1st stage	E	00:00:00 h	
8331	Start counter 1st stage	E	0	
8338	Hours run heating mode	E	00:00:00 h	



Line No.	Programming	Access	Default value	Customer setting
8339	Hours run DHW	E	00:00:00 h	
8366	Boiler throughput	E	l / min	
8390	Current phase number	S	TNB	
8499	Collector pump 1	S	0	
8501	Solar ctrl elem buffer	S	0	
8502	Solar ctrl elem swi pool	S	0	
8505	Speed collector pump 1	S	0 %	
8506	Speed solar pump ext exch	S	0 %	
8507	Speed solar pump buffer	S	0 %	
8508	Speed solar pump swi pool	S	0 %	
8510	Collector temp 1	C	0 °C	
8511	Collector temp 1 max	C	-28 °C	
8512	Collector temp 1 min	C	350 °C	
8513	dt collector 1/DHW	C	0 °C	
8514	dt collector 1/buffer	C	0 °C	
8515	dt collector 1/swimming pool	C	0 °C	
8519	Solar flow temp	C	0 °C	
8520	Solar return temp	C	0 °C	
8526	24-hour yield solar energy	E	0 kW/h	
8527	Total yield solar energy	E	0 kW/h	
8530	Hours run solar yield	E	00:00:00 h	
8531	Hours run collect overtemp	E	00:00:00 h	
8532	Hours run collector pump	E	00:00:00 h	
8560	Solid fuel boiler temp	C	0 °C	
8570	Hours run solid fuel boiler	E	00:00:00 h	
<b>Diagnostics consumers</b>				
8700	Outside temp	E	0 °C	
8701	Outside temp min	E	50 °C	
8702	Outside temp max	E	-50 °C	
8703	Outside temp attenuated	C	0 °C	
8704	Outside temp composite	E	0 °C	
8730	Heating circuit pump 1	E	Off	
8731	Heat circ mix valv 1 open	E	Off	
8732	Heat circ mix valv 1 close	E	Off	
8735	Speed heating circuit pump 1	S	0 %	
8740 / 41	Room temp / setpoint 1	C	20°C / 20°C	
8743 / 44	Flow temp / setpoint 1	E	60°C / 60°C	
8749	Room thermostat 1	C	No demand	
8760	Heating circuit pump 2	E	Off	
8761	Heat circ mix valv 2 open	E	Off	
8762	Heat circ mix valv 2 close	E	Off	
8765	Speed heating circuit pump 2	S	0 %	
8770 / 71	Room temp / setpoint 2	C	20°C / 20°C	
8773 / 74	Flow temp / setpoint 2	E	60°C / 60°C	
8779	Room thermostat 2	C	No demand	
8790	Heating circuit pump 3	E	Off	
8791	HC mixing valve 3 open	E	Off	
8792	HC mixing valve 3 closed	E	Off	
8795	Speed heating circuit pump 3	S	0 %	

Line No.	Programming	Access	Default value	Customer setting
8800 / 01	Room temp / setpoint 3	C	20°C / 20°C	
8803 / 04	Flow temp / setpoint 3	E	60°C / 60°C	
8809	Room thermostat 3	C	No demand	
8820	DHW pump	C	Off	
8825	Speed DHW pump	S	0 %	
8826	Speed DHW interm circ pump	S	0 %	
8827	Speed inst DHW heater pump	S	0 %	
8830 / 31	DHW temp / setpoint 1	C	0°C / 55°C	
8832	DHW temp 2	C	0 °C	
8835	DHW circulation temp	C	0 °C	
8836	DHW charging temp	C	0 °C	
8852	DHW consumption temp	C	0 °C	
8853	Instant WH setpoint	C	0 °C	
8860	DHW flow	C	0 l/min	
8875	Flow temp setp VK1	C	5 °C	
8885	Flow temp setp VK2	C	5 °C	
8895	Flow temp setp swimming pool	C	5 °C	
8900 / 01	Swimming pool temp / setpoint	C	0°C / 24°C	
8930 / 31	Primary controller temp / set	C	0°C / 0°C	
8950 / 51	Common flow temp / set	C	0°C / 0°C	
8952	Common return temp	C	0 °C	
8962	Common output setpoint	C	0 %	
8980	Buffer temp 1	C	0 °C	
8981	Buffer setpoint	C	0 °C	
8982	Buffer temp 2	C	0 °C	
8983	Buffer temp 3	C	0 °C	
9005	Water pressure H1	C	0 bar	
9006	Water pressure H2	C	0 bar	
9009	Water pressure H3	C	0 bar	
9031	Relay output QX1	C	Off	
9032	Relay output QX2	C	Off	
9033	Relay output QX3	C	Off	
9034	Relay output QX4	C	Off	
9050	Relay output QX21 module 1	C	Off	
9051	Relay output QX22 module 1	C	Off	
9052	Relay output QX23 module 1	C	Off	
9053	Relay output QX21 module 2	C	Off	
9054	Relay output QX22 module 2	C	Off	
9055	Relay output QX23 module 2	C	Off	
9056	Relay output QX21 module 3	C	Off	
9057	Relay output QX22 module 3	C	Off	
9058	Relay output QX23 module 3	C	Off	
<b>Burner control</b>				
9504	Required speed prepurging	S	S2-40 : 3380 S2-60 : 3130 S2-70 : 2450 S2-80 : 2450 S2-100 : 2750 S2-120 : 2590 S2-150 : 3410	

Line No.	Programming	Access	Default value	Customer setting
9512	Required speed ignition	S	S2-40 : 3380 S2-60 : 3130 S2-70 : 2300 S2-80 : 2450 S2-100 : 2350 S2-120 : 2480 S2-150 : 3410	
9524	Required speed LF	S	S2-40 : 1780 S2-60 : 1920 S2-70 : 1760 S2-80 : 1760 S2-100 : 1750 S2-120 : 1820 S2-150 : 1610	
9529	Required speed HF	S	S2-40 : 6100 S2-60 : 7250 S2-70 : 5480 S2-80 : 6380 S2-100 : 6450 S2-120 : 6950 S2-150 : 6350	
9650	Chimney drying	S	Off	
9651	Req speed chimney drying	S	500 tr/min	
9652	Duration chimney drying	S	10 min	



A large, empty rectangular area defined by horizontal lines, intended for taking notes or providing additional information.

## 12. APPENDIX A

### Data on products ≤ 70 kW

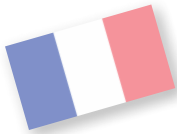
Product reference			
Trade mark		YGNIS	
Models		40	60
Code		082410	082411
<b>Nominal power</b>			
	Prated	kW	
		40	56
<b>Seasonal energy efficiency class</b>			
	Class	A	A
<b>Seasonal energy efficiency</b>			
	$\eta_s$ (PCS)	%	93
			93
<b>Useful heat production</b>			
At nominal power and in 80°C / 60°C regime	$P_4$	kW	40,0
	$\eta_4$ (PCS)	%	87,5
At 30% nominal power and in 30°C return temperature regime	$P_1$	kW	13,4
	$\eta_1$ (PCS)	%	97,6
			18,9
			98,0
<b>Auxiliary electricity consumption</b>			
Under full load	elmax	kW	0,068
Under partial load	elmin	kW	0,017
In standby mode	$P_{SB}$	kW	0,003
			0,003
<b>Other properties</b>			
Heat loss	Pstby	kW	0,042
Nitrogen oxide emissions	NOx (PCS)	mg/kWh	36
Annual energy consumption	QHE	kWh	1
Acoustic power	$L_{WA}$	dB	57
			60

### Data on products ≤ 400 kW

Product reference						
Trade mark			YGNIS			
Models			80	100	120	150
<b>Nominal power</b>						
	Prated	kW	80	96	120	134
<b>Useful heat production</b>						
At nominal power and in 80°C / 60°C regime	$P_4$	kW	79,8	96,0	119,9	134
	$\eta_4$ (PCS)	%	87,4	87,8	87,8	87,5
At 30% nominal power and in 30°C return temperature regime	$P_1$	kW	26,7	32,1	40,1	44,8
	$\eta_1$ (PCS)	%	97,4	97,8	97,7	97,6
<b>Auxiliary electricity consumption</b>						
Under full load	elmax	kW	0,141	0,160	0,206	0,263
Under partial load	elmin	kW	0,027	0,030	0,030	0,031
In standby mode	$P_{SB}$	kW	0,003	0,003	0,003	0,003
<b>Other properties</b>						
Heat loss	Pstby	kW	0,087	0,094	0,104	0,117
Nitrogen oxide emissions	NOx (PCS)	mg/kWh	35	34	36	35

Date of Commissioning:

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



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Others countries, contact your local retailer