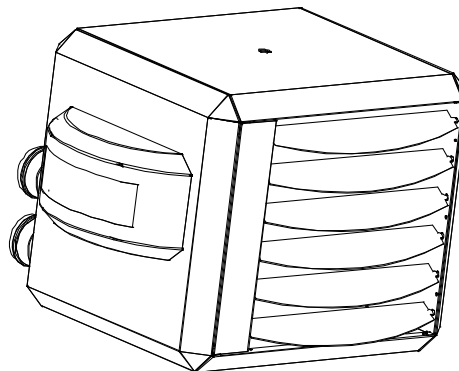
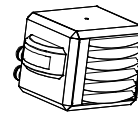


INSTRUCTION MANUAL
PREMIX UNIT AIR HEATER
TYPE XR10... 60
VERSION 3

GB 98m



THIS DOCUMENT MUST ABSOLUTELY BE READ BEFORE STARTING THE
INSTALLATION.
INSTRUCT USER AND LEAVE THIS DOCUMENT WITH HEATER FOR REFERENCE.

Instruction manual version GB 98m
Heaters for GB
Date: 01-12-2017
Heaters for natural gas G20 and Propane

Introduction:

This installation and user manual is produced specifically for the gas, electrical and mechanical installer, it also gives instructions how to use and maintain the heater.

1 Content:

	Page
1 CONTENT:	2
2 GENERAL	3
2.1 GUARANTEE	3
3 APPLICATION RESTRICTIONS	3
3.1 PRE-CHECK	3
3.2 PROTECTION DEGREE	3
4 TECHNICAL DETAILS:	4
5 INSTALLATION	5
5.1 POSITIONING	5
5.2 GAS CONNECTION	7
5.3 ELECTRICAL CONNECTION	7
5.4 230VAC SUPPLY	7
5.5 ROOM THERMOSTAT	7
5.6 AIR INTAKE / COMBUSTION PRODUCTS DISCHARGE	8
6 FUNCTIONING OF THE UNIT	9
6.1 GENERAL	9
6.2 HEAT DEMAND	10
6.3 DELTA-T-REGULATION (TEMPERATURE CONTROLLED DE-STRATIFICATION FAN)	10
6.4 SUMMER VENTILATION	10
6.5 HIGH LIMIT PROTECTION	10
6.6 FLUE TRANSPORT SUPERVISION	10
6.7 DESCRIPTION HEATER CONTROL HC	10
7 PUTTING INTO OPERATION AND ADJUSTMENT	11
7.1 GENERAL	11
7.2 START BY USING THE SERVICE-BUTTON	12
7.3 START BY USING THE THERMOSTAT	12
7.4 TO SIMULATE A LOCK OUT CONDITION	12
7.5 DISPLAY ON THE PRINTBOARD	12
8 ADJUSTING THE GAS-CONTROL	12
9 PROBLEM SOLVING	13
9.1 GENERAL	13
10 MAINTENANCE / SPARE PARTS	15
10.1 GENERAL INSPECTION	15
10.2 INSPECTION OF THE HEATER	15
10.3 IGNITION ELECTRODE	15
11 EXAMPLES ELECTRICAL INSTALLATION	16
11.1 THERMOSTAT CABLE	16
11.2 INSTALLATION WITH MODULATING ROOM THERMOSTAT	16
11.3 INSTALLATION OF MORE HEATERS ON ONE THERMOSTAT	16
11.4 INSTALLATION WITH ON/OFF THERMOSTAT	17
12 ELECTRICAL DIAGRAM	18
13 EXPLODED VIEWS / SPARE PARTS	19
13.1 SPARE PARTS	19
13.2 EXPLODED VIEW XR10-30	20
13.3 EXPLODED VIEW XR40-60	21
14 CERTIFICATE & DECLARATION	22

2 General

The premix unit air heater is provided with sophisticated control sequence to maintain a comfortable room temperature and even air distribution.

It is paramount that the installation and maintenance of this appliance are carried out by qualified gas engineers, and strictly according to our instructions.

2.1 Guarantee

The guarantee is invalidated when the air heaters are not installed in accordance with this manual.

3 Application restrictions



Important!

The installation and maintenance of this air heater should be performed by an authorised competent installer and in accordance with this manual.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

3.1 Pre-check

Before unpacking and installation, please check (i.e. on the data badge) if the heater is in accordance with the order and if it is suitable for the local present provisions (gas type, gas pressure, electrical supply etc.)

The Installation must comply with all applicable local and national standards.

The installation of the air heater must be in accordance with the relevant requirements of the Gas Safety regulations (for example in GB; The Institute of Gas Engineers IGE UP-1 and 2), building regulations and the IIE regulations also incorporating the gas safety (installation and use) regulations. Other national and/or local regulations may apply (the Local Authority, Fire Officer and Insurers)

The competent installer must make sure the heater operates correctly and must instruct the user about the safe operation of the heater.

A ventilation gap of 30 cm is required from the top and bottom of the heater to any flammable materials.

If this heater is drawing its combustion air from within the room in where it is located, the necessary combustion ventilation requirements must be followed for gas safety regulations.

The heater should not be installed in areas containing any corrosive or explosive vapours, in high moisture or dust concentrations, at negative pressures or temperatures higher than 30 °C; please consult Winterwarm or your supplier. The guarantee is then invalidated.

Make sure that the warm air can be blown out freely. There should absolutely be (no possibility of) materials within 5m from the front of the heater.

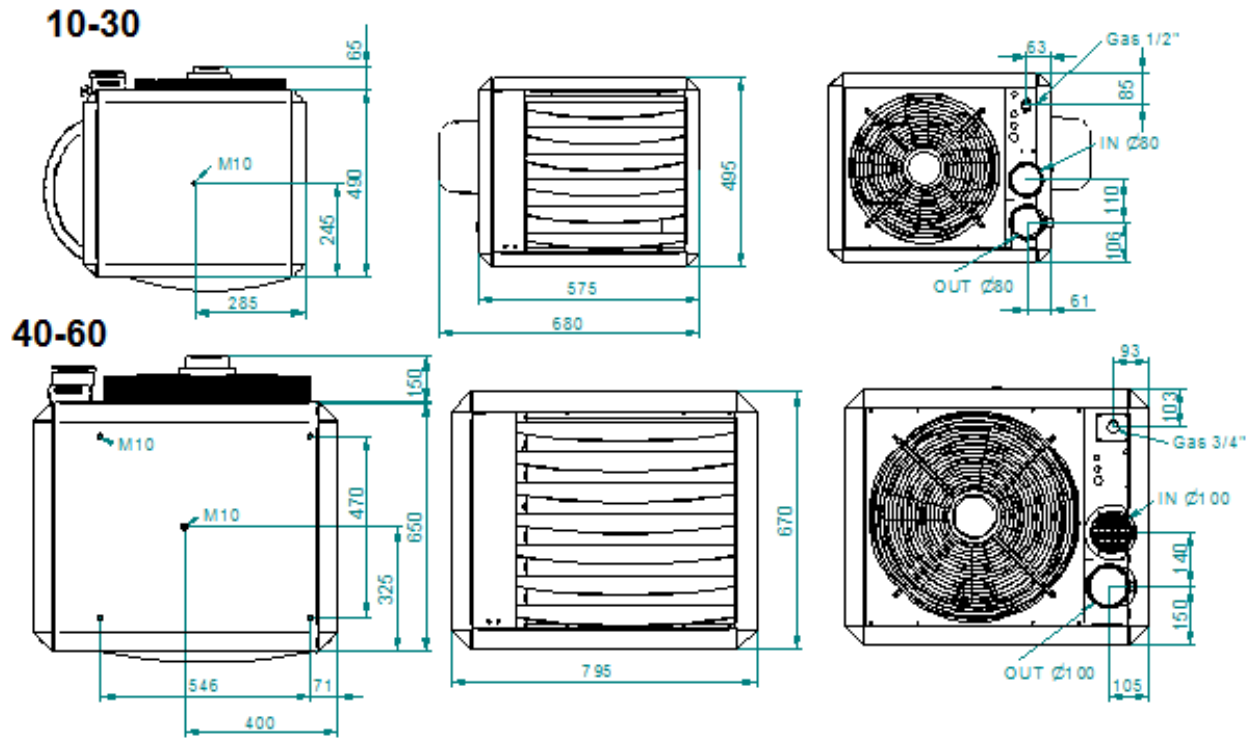
The heater has been tested in detail on safety and correct operating settings before leaving the factory. It has been adjusted for the type of gas that is stated on the data badge. Should there be any doubt, please contact the manufacturer.

3.2 Protection degree

The heater has a protection degree of IP20, this means for use in a dry and not very dusty environment. This is also the case for the Winterwarm room-thermostat.

4 Technical details:

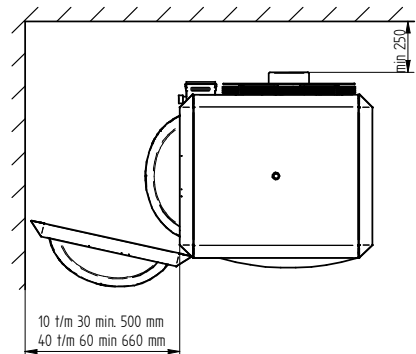
Type XR		10	20	30	40	50	60	
Maximum nominal heat input (Nett)	kW	14,0	22,8	32,0	44,0	55,0	66,0	
Minimum nominal heat input (Nett)	kW	9,0	14,8	20,5	26,4	33,0	39,6	
Maximum nominal heat input (Gross)	kW	15,6	25,3	35,5	48,9	61,1	73,3	
Minimum nominal heat input (Gross)	kW	10,0	16,4	22,8	29,3	36,7	44,0	
Maximum heat output	kW	12,8	20,8	29,2	40,2	49,9	60,5	
Minimum heat output	kW	8,3	13,8	19,1	24,4	30,8	37,0	
Efficiency @ max. power (Gross).	%	91,4	91,3	91,1	91,4	90,7	91,7	
Efficiency @ min. power (Gross).	%	91,7	93,0	93,1	92,4	93,3	93,4	
Max air output (warm)	m ³ /hr	1.150	2.070	2.600	4.370	5.150	6.300	
Throw horizontal (max)	m	12	16	23	26	28	30	
Throw vertical (max. warm)	m	5	5	6	7	7	8	
Gas connection	G"	1/2" in	1/2"	1/2" in	3/4"out	3/4" out	3/4" out	
Electrical Voltage (50Hz)	Vac	230	230	230	230	230	230	
Electrical Power max.	kW	0,250	0,250	0,250	0,450	0,450	0,600	
Electrical Power min.	kW	0,250	0,250	0,250	0,450	0,450	0,600	
Electrical Power stand by.	kW	0,004	0,004	0,004	0,004	0,004	0,004	
Electrical Current max.	A	1,1	1,1	1,1	2,0	2,0	2,6	
Emission efficiency, (η _{s,flow})	%	96,1	93,3	90,6	91,7	91,2	90,8	
Seas. space heating efficiency	%	76,3	74,8	72,8	73,8	74,1	73,7	
NO _x emission (GCV)	mg/kWh	37	36	35	43	41	42	
NO _x class		5	5	5	5	5	5	
Flue amount max.	kg/hr	21,7	35,5	51,3	70,6	88,2	105,8	
Thermostat comm.bus system (low volt.)		Yes	Yes	Yes	Yes	Yes	Yes	
Sound level (average @ 4 meter)	dBA	42	45	45	46	47	49	
Min. suspension height horizontal throw	m	1,7	1,7	1,7	1,7	1,7	1,7	
Flue length max.	m	9	9	9	9	9	9	
Weight	m	36	37	38	78	80	82	
Natural gas G20, heater version 3.3								
Nominal supply pressure	G20	mbar.	20					
Supply pressure (min-max)	G20	mbar.	17-30					
Gas category			I2H					
Class			B23, C13, C33					
Max gas consumption	G20	m ³ /hr	1,5	2,4	3,4	4,7	5,8	7,0
CO ₂ High	G20	%	9,0	9,0	9,0	9,0	9,0	8,9
CO ₂ Low	G20	%	8,5	8,5	8,5	8,5	8,5	8,5
Propane, G31, heater version 3.4								
Nominal supply pressure	G31	mbar.	30-50					
Supply pressure (min-max)	G31	mbar.	25-50					
Gas category			I3P					
Class			B23, C13, C33					
Max gas consumption	G31	kg/hr	1,1	1,8	2,5	3,5	4,4	5,3
CO ₂ High	G31	%	10,7	10,7	10,7	10,7	10,7	10,5
CO ₂ Low	G31	%	10,0	10,0	10,0	10,0	10,0	10,0



5 Installation

5.1 Positioning

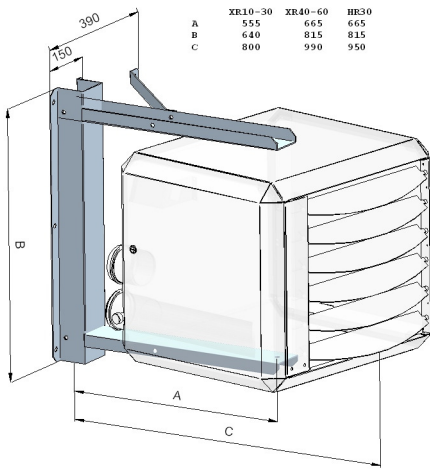
- Check that the support is solid enough.
- The heater is designed as free hanging. The heater should be able to blow the warm air free from any ducting or obstacles. Also the air intake should be free.
- Keep sufficient distance between the heater and any obstruction, in connection with safety and access for service and maintenance. Pay particular attention to any flammable materials. Please take into account the possibility to open the door of the heater for the necessary service and maintenance work. Make sure the airflow to and from the heater is unhindered. Any obstacles should be a minimum of 5 metres away from the front of the heater.
- The heater can be installed horizontally or vertically, the positioning is completely free.
- The heater is provided with 2 pieces of M10 threaded sockets as fixing points (see the dimension diagram). The types 40, 50 and 60 also have four M10 threaded sockets on the top as fixing points. Use preferably the Winterwarm suspension kits.
- Make sure that after fitting, there is no mechanical tension on any connecting gas or electric supplies.
- If the heater is installed with the air stream vertical downwards the maximum suspension height is 8 meters. Otherwise the warm air will not reach the floor.



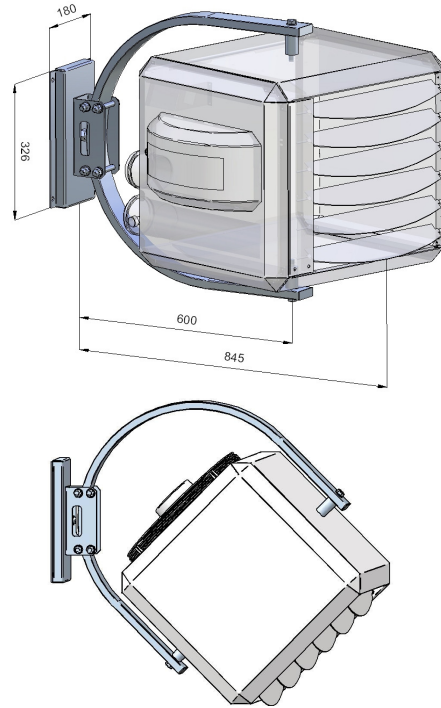
Attention:

See the application-restrictions in this manual (Chapter 3) for further installation restrictions.

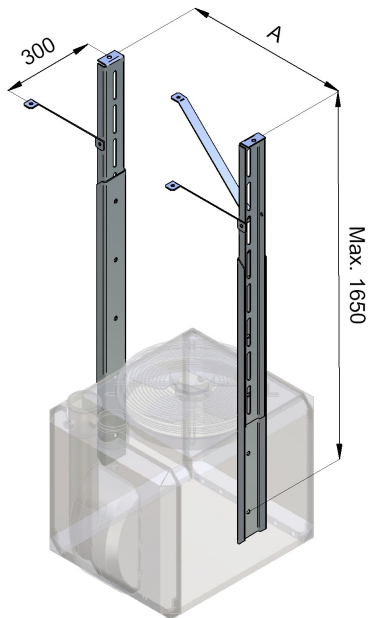
Standard bracket
Horizontal or vertical
XR10-30: GA.8610
XR40-60: GA.8620



Design bracket
horizontal/vertical rotatable
XR10-30: GA.8630

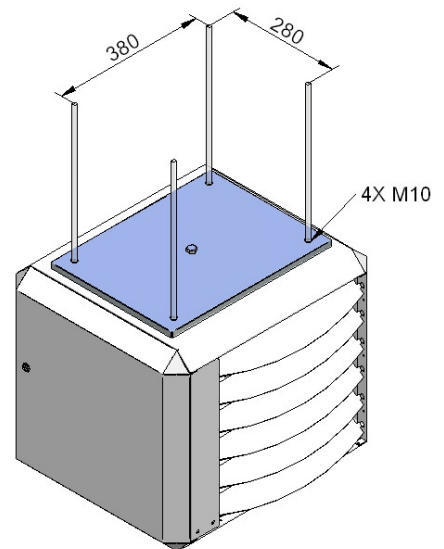


Suspension kit: vertical
GA.8645



	A
XR10-30	540
XR40-60	720
HR30	630

Suspension adapter XR10-30
for M10 threaded bar
GA.8690



5.2 Gas connection

The gas supply line has to meet the national valid requirements and possibly the local requirements of the building inspector, police or fire brigade. (In GB it must comply with Gas Engineers publication UP-1 and UP-2 together with BS 6891.

A manual isolation valve in the supply line must be placed within reach of the heater, and all gas lines must be mounted without any mechanical tension.

When testing the supply lines with pressures above 60 mbar, this manual valve at the heater must be closed.

The working and standing supply pressure must be a minimum of 17 mbar, and a maximum of 30 mbar, measured at the inlet pressure nipple of the gas control in the heater.

5.3 Electrical connection

5.4 230Vac supply

The installation must comply with local and national requirements, (as well as IEE regulations)

The unit heater is delivered completely internally wired. Where controls of any type are to be added (e.g. room thermostat), the relevant wiring diagrams must be followed. Never use a room thermostat to interrupt the electrical supply to the heater!

Make provisions to completely isolate the heater for maintenance purposes. This can be an isolation switch (min.3mm contact opening gap), a power plug or a non-switched fuse spur. The wiring diagram for the heater can be found towards the end this manual.

The supply is 230Vac. with earth. The control circuit is a two wire low voltage Argus-link bus communication.

5.5 Room thermostat

The heater can be controlled by special Winterwarm room thermostats:

The Multi Therm Comfort; special designed digital clock thermostat with optimiser. It can control 1 to 8 air heaters.

The Multi Therm Standard; special designed digital thermostat. It can control 1 to 8 air heaters.

The Interface printboard; special designed interface module for connecting the air heaters with other appliances. (0-10V signal, ON/OFF signal, high/low signal, reset and different outputs.

ON/OFF thermostat; The heater can be controlled with a simple on/off thermostat. But then are some important functions not available, like reset and modulation.

In all cases the communication between heater and thermostat is based on a two wire, low-voltage connection. In the appliance the wire for the thermostat has to be connected to connection 4 and 5 (see also electrical wiring diagram) Attention: This also needs a change in the settings on the print board, see chapter 11

When mounting the thermostat, take attention to the following items:

- Mount the thermostat in a place where the air can circulate free pass the thermostat. Take notice that the sun does not shine directly upon the thermostat (in the winter). Do not place the thermostat on a cold wall. Place the thermostat on an inner wall free from draught.
- Never place the thermostat within the throw of the heater.

5.5.1 Thermostat cable

In all cases the communication between the heater and the thermostat is based on a two wire, low-voltage connection. In the appliance the wire for the thermostat has to be connected to connection 4 and 5 (see also electrical wiring diagram).



Cable specification: signal cable, 1x2x0,8 (shielded and twisted)
Maximum length 250m.

If the cable is chosen too thin, the signal will become too poor. If the cable is not shielded and twisted the signal might become disturbed in an EMC unfriendly environment. Keep the thermostat cable separated from mains cables. Connect the earth shield of the cable only to the earth terminal in the heater.

If these guidelines are not followed it may result in malfunction of the installation or worse, it could damage the thermostat or the electronics in the heater.



Never mount the thermostat near aerials of internal communication networks. These emit radiation that could lead to disturbance of the thermostat. Always keep some meters distance.

5.5.2 Fuses

On the heater control HC there are two fuses. See electrical wiring diagram. F1 and F2 are in the power supply of the heater. Replace the fuse only by a fuse of the same type, 5AT

5.6 Air intake / combustion products discharge

Check for compliance with local / national regulations.

Only the described flue material may be used. This goes for the roof or wall terminal and also for the piping between the heater and the terminal. Only so the installation is approved.

Never connect a roof terminal for condensing appliances, rain can damage the heater through the discharge pipes.

In some cases the roof terminal has to be at least 0,5m above roof level (local regulations).

5.6.1 Flue material

It is only allowed to use CE marked flue material from the manufacturer Muelink & Grol (M&G) and Burgerhout, type Alu-fix temperature class T250. This system has a gasket that can withstand higher temperatures than the standard systems. These Flue systems can be bought at your supplier.

Only use one flue pipes from the same diameter as the flue spigots on the heater.

Different manufacturers have different connections systems from the flue pipes. It is not allowed to combine systems from different manufacturers.

5.6.2 Mounting

Follow the mounting instructions for the flue and air intake materials enclosed in the packaging of those systems.

Not following those instructions, for example not the correct fixation, can lead to dangerous situations. Flue leaks can lead to physical injuries. Always check the flue ways on tightness.

5.6.3 Maximum length

The maximum pressure drop in either the air supply pipe, or the flue pipe, must not exceed 9 metres straight pipe, excluding the terminal. Whenever bends are used the pressure drop is greater and therefore a 90° bend will count as 2 metres and a 45° bend as 1 metre. For further information regarding the flue system, please contact your supplier.

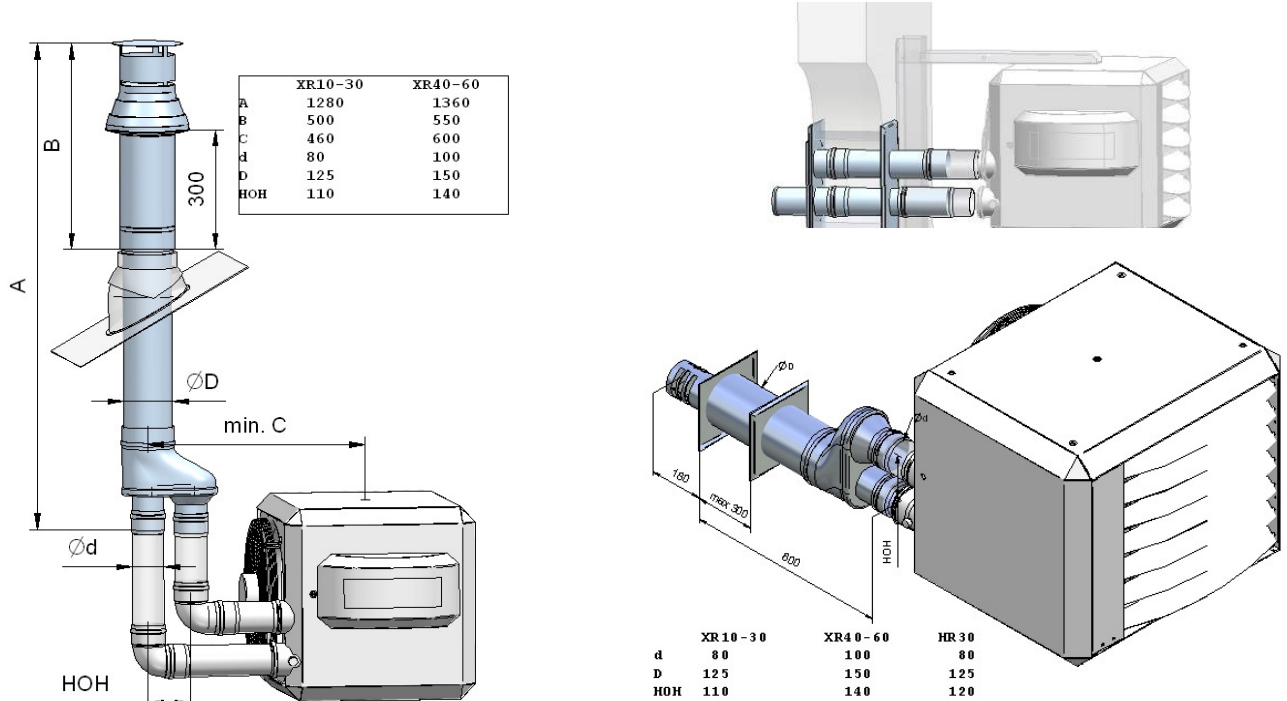
5.6.4 Flue terminals

The following flue terminals are allowed:

Vertical discharge

Horizontal discharge

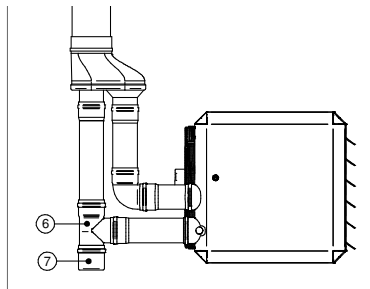
XR10-30: DDV 80/125 art.no. IA8202CT 80/125 art.no. IA8113
 for h>0,5m above roof IA8218 2-pipe wall terminal art.no. IA8212 or GA8201
 XR40-60: DDV100/150 art.no. IA.8101 CT100/150 art.no. IA8112
 for h>0,5m above roof IA8107



5.6.5 Condensation in the discharge system

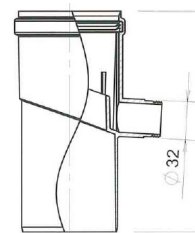
During heating up, it is possible that condensation is formed in the discharge system. This however, will evaporate if the heater is operating for a longer period of time.

If the straight length of the discharge flue is longer than 4 meters this condensation will not evaporate again and accumulate in the heater! Isolation of the discharge pipes or a condensation trap just at the heater is then absolutely necessary.



T-piece (6)
 Ø80 art.: IA8223
 Ø100 art.: IA8176

condensate trap (7)
 IA8225
 IA8188



condensate drain
 IA8286
 IA8288

The maximum flue length not isolated is 4 meters. (do not count bends)

The maximum flue length isolated is 9 meters. (do count bends)

6 Functioning of the unit

6.1 General

The unit can heat as well as ventilate. By using the temperature-sensor on the unit and the one in the room-thermostat, the temperature-difference between the two in the room is monitored. Should the difference become higher than a set value, due to the fact that warm air has accumulated underneath the roof, the system-fan will start and push the warm air down, acting as a de-stratification fan.

6.2 Heat demand

If the thermostat indicates heat demand, the following cycle will commence:

1. **Pre purge:** The electronic circuit board acknowledges the heat-demand and the premix burner fan will start running for 30 seconds. Display print → 1
2. **Ignition:** After 30 seconds of pre purge the electrode will spark for max. 5 seconds, the gas valve is opened and the gas-air mixture will ignite. Display print → 2
3. **Burn:** When the flame is detected Display print → b. the unit will modulate to the desired load after ca. 15 seconds. Depending on the given load, the system fan will start modulating (step-less) as well. The air heater will **always burn for a minimum of 4 minutes**. This is to evaporate eventual condensation in the discharge system.
4. **End of heat demand:** When the heat demand ends, the burner will switch off and the system fan will continue to run for ca. 3 minutes in order to cool the unit down (Display print → P).

The unit will try to ignite twice before lockout on flame fault.

In the case of flame failure during operation, the heater will attempt one restart.

When the heater is in lockout you see in the display intermittent an A1. On the display of the room thermostat you see failure 1.

6.3 Delta-T-regulation (temperature controlled de-stratification fan)

In case there is no heat demand, the delta-T-regulation will be active.

When the temperature-difference between the sensor on the unit (the NTC) and the sensor in the thermostat is bigger than the set value (factory setting standard 8°C), the system fan will start, at a regulated speed, depending on the differential temperature difference. This operation ensures an even temperature distribution throughout the building, thus acting as a fully automatic variable de-stratification fan.

Should this delta-T-regulation not be required, in the Menu Program Settings on the room thermostat this regulation can be switched off. See user manual of the special Winterwarm Room thermostat.

6.4 Summer ventilation

It is possible to let the ventilator run on a certain speed in the summer. Please follow the instructions in the manual from the thermostat.

6.5 High limit protection

The unit contains 2 temperature protections. The NTC thermostat monitors the air temperature electronically. Should the temperature, in a first step, become too high, the burner will modulate to the minimum input and the system fan will modulate to the maximum speed.

When the temperature still increases, the burner will switch off (on display you see intermittent an E1).

When the heat exchanger has been cooled to normal levels the burner will start automatically.

Should the temperature increase to an unacceptable level, the heater stops (on the display you see intermittent A2). Only after a manual reset the heater can start again. Manual reset can be done on the electronic circuit board or with the special Winterwarm Room thermostat

6.6 Flue Transport Supervision

The unit is provided with a pressureswitch to control the transport of combustion air through the heatexchanger. It checks in the prepurge phase if there is sufficient movement of combustion air through the heatexchanger by measuring the pressure difference over the heatexchanger. If the pressuredifference is too low in the prepurge phase, default A9 will occur. This could mean that combustion air is leaking from the heatexchanger and so the heatexchanger must be checked on leakage.

6.7 Description heater control HC

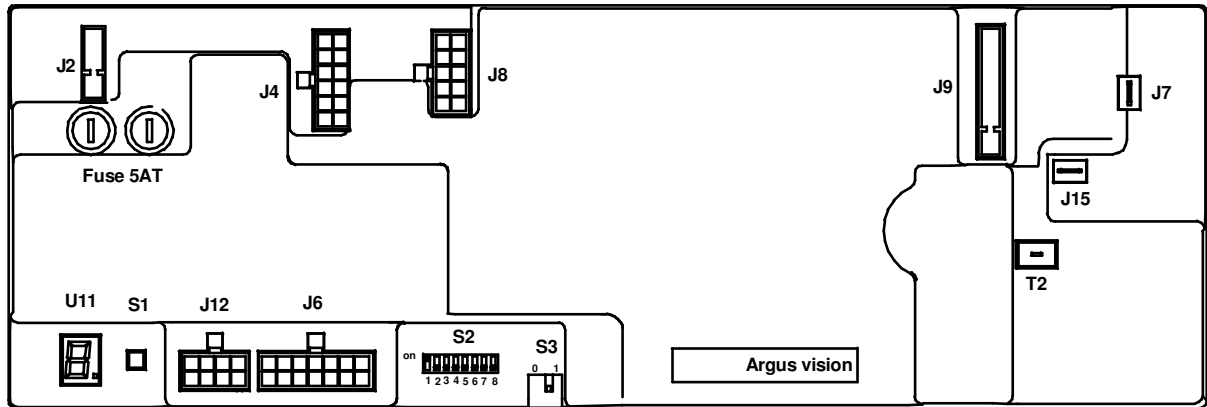
The heater control HC controls the unit and communicates with the room thermostat.

Functions integrated in the heater control HC are:

- two wire communication with room thermostat
- spark igniting on burner
- ionisation flame guard on burner
- controlling the gas valve
- modulating the premixed fan and burner
- modulating the system fan
- guarding the temperature of the heat exchanger
- LED signals status of heater, heat demand: green, failure: red

- Status of heater on 8 segment display on heater control HC
- reset of heater
- service mode function

Lay-out print board



- J2** Main power connection 230V
- J4** Connection for gas valve and system fan
- J6** Connection for room thermostat, appliance recognition and the status LED's green and red
- J7** Earth burner
- J8** Not used
- J9** Premix- fan
- J12** Connections for Temperature sensors
- J15** Ionisation selector
- F1 & F2** Fuses 2x 5AT
- U11** Status display
- S1** Reset service button
- S2** Micro switch heater no. Standard 1 to "on"
- S3** Power supply thermostat when S2 nr1 to "on" then S3 op 1 else S3 to 0
- T2** Ignition transformer, connection for igniter

7 Putting into operation and adjustment

7.1 General

Prior to packaging, each unit is checked in detail on safety and well functioning. It is a.o. adjusted to the right efficiency of combustion. In general, the heater does not need to be adjusted after installation, only a check of well functioning is necessary by a competent person. Also obtain a flue gas analysis and record it for later reference.

Use only a calibrated instrument !

The CO₂ value may be adjusted if necessary, only do this in case it turns out that the CO₂ value is not correct. Do not ever turn injudiciously the adjusting screws!

Adjustment of the gas control without a supporting flue gas analysis will invalidate the warranty.

Once the unit is installed according to this manual, the unit can be put into operation. Make sure the gas pipe is clean, gastight and free from air.

Switch on the electric supply with the maintenance-switch, and open the door in order to be able to observe the first start-up and so become familiar with the functioning of the heater.

Should the gas line not be purged correctly the heater will attempt to start twice before going into a lock-out condition. Manual reset is necessary in that case.

Do not forget to instruct the end user about a safe use of the heater (presence of gas, place of the manual gas valve !), the operation of the heater (lock-out indication and reset) and about the necessary maintenance. This manual must be left with the end user.

7.2 Start by using the service-button

Press the service-button once for 10 seconds, and the unit will commence the ignition-cycle; (30 sec pre-purge, ignition, 15 sec flame stabilise, modulating operation) The burner will then start on minimum load Display print → L/b . By pressing the service-button again, the burner will go to maximum load. Display print → H/b

Pressing the service-button for a third time will put the unit into normal operation. (depending if there is heat demand from the room thermostat).

7.3 Start by using the thermostat

Put the thermostat in the highest position. The start sequence is always the same as 8.2.

7.4 To simulate a lock out condition

Close the manual gas supply valve. The heater will go to lock-out after a restart attempt. The display on the electronic circuit board shows [A 1]. The red LED will light as well. Check also the function of the reset button (with gas valve open again), and observe if the heater starts smoothly.

7.5 Display on the printboard

0	stand-by	Stand-by
1	Pre-purge	System checks and 30 sec pre purge of the burner fan
2	Ignition	The ignition electrode sparks 5 sec. and the gas valve opens, within 5 sec flame detection should occur.
b	Burn	After 15 sec stabilisation time, the heater will modulate to the desired power. The heater will remain burning minimum 4 minutes.
P	Post purge	The heater will cool the heat exchanger for 3 minutes, and the premix fan will post purge for 1 minute.
F	Summer ventilation	The system fan is running on the summer ventilation mode
F	Delta-T-regulation	The system fan is running on low position on Delta-T-regulation
<small>Blinking</small> L/1/2/	Service Low	The heater is running on the service mode. When the heater burns, the heater will run on minimum power.
<small>... Blinking</small>		
<small>Blinking</small> H/1/2/	Service High	The heater is running on the service mode. When the heater burns, the heater will run on maximum power.
<small>... Blinking</small>		

8 Adjusting the gas-control

In principle, it is **not** necessary to adjust the gas control after putting the unit into operation.

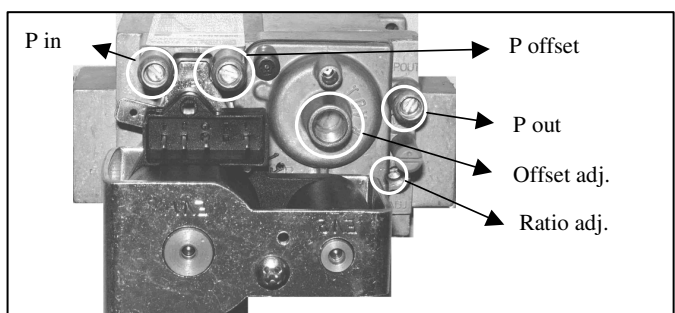
In case it needs to be adjusted, (e.g. after fitting a new one), this must be done only by a qualified person.

Only use calibrated instruments ! A poor adjustment can lead to overheating and / or production of the poisonous carbon monoxide !.

There are two screws to adjust the gas control, the Offset adjuster and the Ratio adjuster.

The Offset adjuster is used in Low fire. The Ratio adjuster is used in High fire.

Put the heater into operation at high fire by pressing the service button first 10 seconds and press again shortly. You see on display H/b.



If the heater does not ignite while sparking, you can, if necessary, close the air-openings of the coloured ring on the gas-air mixer with thumb and forefinger during ignition. The mixture will become richer and will ignite more easily.

Look for the correct CO₂ values in the table with technical data.
Readjust the CO₂ when the deviation is more than 0,3%

1 Check the CO₂ in High fire

- Decrease CO₂ → turn the Ratio adjuster to the right (less gas).
- Increase the CO₂ → turn the Ratio adjuster to the left (more gas).

2 Then check the CO₂ in Low fire. The CO₂ in low fire is lower than the high fire CO₂.

- Decrease the CO₂ → turn the Offset adjuster to the left.
- Increase the CO₂ → turn the Offset adjuster to the right

After adjusting the CO₂ in Low fire, return to high fire, and Readjust the CO₂ with the Ratio adjuster. Then return to Low fire again and eventually readjust the CO₂ with the Offset adjuster.

Repeat these steps until both values are oké.

Never forget to check the CO (carbon monoxide) production of the heater!!! Too much CO means mostly that the mixture is too rich. CO value should always be below 100 ppm.

9 Problem solving

9.1 General

When it turns out that the problem is **not** caused by the external circumstances (i.e. no electric supply power or no gas), please take the following instructions into account. Please remember the built in waiting times of the heater (do not react too soon!) and the signals of the LEDs and the code on the display on the electronic circuit board.

To simplify the investigation of the failing heater please check first:

- Check the fuses as well as the wires and plugs in the heater for possible loose contacts.
- In a heat-demand situation, the green LED on the heater must light up.
- In a failure situation, the red LED on the heater must light up, if so, reset.
- Use first the service-button to put the heater in run mode, try later the room thermostat.

Volatile lock out Can only be reset by hand

A0 Blinking	Internal failure	Print board defective
A1 Blinking	No Flame	Within 5 sec flame, then flame failure: Case 1: No flame: Case 2
A2 Blinking	Exchanger too hot	Heater stops on temperature heat exchanger too hot. Case 3
A3 Blinking	Sensor error	Temperature sensor on heat exchanger error. Case 4
A4 Blinking	Too many flame failures	Too many flame failures on ionisation; Case 1, 5
A5 Blinking	Internal error	Print board defective
A6 Blinking	Safety relays	Safety relay failure Case 10
A7 Blinking	Flame	Flame detection when there should not be a flame
A8 Blinking	Burner fan	Burner fan does not run; Case 6 Burner fan runs; Case 7

A/9 Blinking	Pressure switch	Insufficient air transport over the heat exchanger, Case 11
------------------------	-----------------	---

Non volatile lockout Will disappear when the error is cleared.

E/0 Blinking	Internal defect	Print board defective
E/1 Blinking	1 ^e temperature safety	Heater stops on temperature heat exchanger too hot. When heater is cooled down the heater will restart. Case 3
E/2 Blinking	Selection resistance	Heater recognition does not work Case 8
E/3 Blinking	Selection resistance	Heater recognition does not work Case 8
E/9 Blinking	Reset error	Too many switches on reset button Case 9

Case 1: Within 5 sec flame, then flame failure.

- The flame is not detected. Check the ignition cable and electrode. (cable resistance 1K ohm)
- The heater has electrically a poor earth.
- The print board is defective.

Case 2:

- There is not enough gas pressure.
- The mixture of gas/air is poor, adjust the gas valve
- The gas valve does not open, check during ignition on 230V on the valve.
- Check whether the ignition electrode sparks, replace cable, electrode

Case 3: Heat exchanger too hot

- Check whether the system fan blows enough air.
- Check the setting of the gas valve, the heater may be overloaded.

Case 4: Temperature sensor on heat exchanger error.

- The sensor has internally 2 sensors. These differ too much. Measure the resistance from each sensor, the resistance should be 20K at 25° en 25K at 20°. If the measured values differ too much, replace sensor.
- Rotate the sensor ¼ turn. So the contact point is different on the sensor housing.

Case 5: Too many flame failures while burning

- The setting of the gas valve is not ok, adjust the gas valve
- The flue outlet is blocked

Case 6: The premix does not run

- Premix fan is Blocked or the wiring is bad
- Premix fan is defective

Case 7: The pre-mix fan runs, but not the correct speed.

- Check if the fan runs smoothly.
- Check the wiring.

Case 8: Selection resistance error

- Check the appliance recognition part, replace if necessary

Case 9: Reset button error

- Too many switches on reset button in a short period of time. These error will disappear after some time, or if the main power is disconnected for a while.

Case 10: Safety relay error

- Plug J4 is not connected well, the bridge on connector 4 between 5 and 11 is not connected well.
- Otherwise change printboard.

Case 11: Insufficient air transport over the heat exchanger

- Check the pressure switch and the connections
- Check the heat exchanger for flue leakage

Heater does start, but shows other problems.

Heater ignites explosively, has often flame failures:

- Check the right setting of the gascontrol, the right CO2 setting is important for the correct ignition.

- Check the ignition cable (1kOhm)
- Check the setting of the ignition electrode, the spark has to be formed between the electrodes and not between the electrode and the burner.

Insufficient output

- The heat output of the heater will be insufficient if there is too much resistance in the inlet- or outlet flue system. In this case the premix-burner-fan will be on full speed, but because of the high resistance too little air is moved and therefore also too little gas. The pressure in the outlet flue for example, will normally never be above 30 Pascal.

Non modulating system fan

- System fan (M1) does not start or does not vary in speed; Check first the functioning of this fan by connecting it to 230 Volt. Check with a multi-meter if the different lower tensions are secondary present on the transformer as well. The fuse could have failed. If the motor and transformer are OK, the cause of the problem must be in the heater control HC, as the heater control HC dictates the different voltages from the transformer to the fan-motor. In that case, replace the heater control HC.

10 Maintenance / spare parts

The heater must be inspected and cleaned regularly (once a year) by a qualified installer who understands this appliance.

This is all the more important as the circumstances are heavier, especially in case of dust, humidity, high frequency of switching on/off etc.

Activities:

10.1 General inspection

- Check the overall condition of the installation. Check the heater, the thermostat, the wires and the gas line.

10.2 Inspection of the heater

Before starting the inspection, switch off the electric power to the heater with the maintenance-switch and close the manual gas valve.

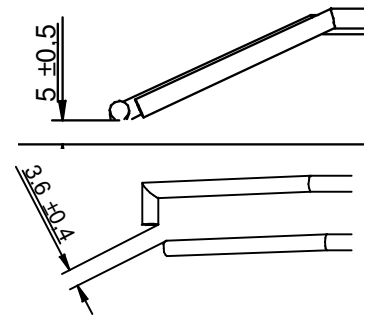
- Take out the burner, complete with flange and pre-mix fan, by unscrewing the 6 off M6 socket screws and you have taken off the ignition and fan wires
- Check the heat exchanger from the inside for dirt and/or damage.
- Check the burner on damage and clean the ignition electrode if necessary . CAUTION: do not twist the electrode out of shape!
- Check the air supply and the flue discharge.
- Clean eventual the inside of the heater with a vacuum cleaner.
- In case the heat exchanger is dirty on the outside, clean it with a soft brush. Never use a steel wire brush!
- Clean the fan-grid with a vacuum cleaner and a brush.
- Put the burner back in (renew the gasket)

After this, check the heater on efficiency of combustion and adjust these if necessary
Check the heater operates correctly.

10.3 Ignition electrode

For the correct ignition of the burner it is important that the ignition electrode is adjusted right.

- The distance between the electrode and the burner should be 5.0 ± 0.5 mm.
- The distance between the two electrodes should be 3.6 ± 0.4 mm.
- Check the setting of the ignition electrode, the spark has to be formed between the electrodes and not between the electrode and the burner.



11 Examples electrical installation

11.1 Thermostat cable

In all cases the communication between the heater and the thermostat is based on a two wire, low-voltage connection. In the appliance the wire for the thermostat has to be connected to connection 4 and 5 (see also electrical wiring diagram).



Cable specification: signal cable, 1x2x0,8 (shielded and twisted)
Maximum length 200m.

If the cable is chosen too thin, the signal will become too poor. If the cable is not shielded and twisted the signal may become disturbed in an EMC unfriendly environment. Keep the thermostat cable separated from mains cables. Connect the earth shield of the cable only to the earth terminal in the heater.

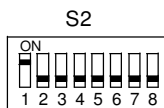
If these guidelines are not followed it may result in malfunction of the installation or worse, it could damage the thermostat or the electronics in the heater.



Never mount the thermostat near aerials of internal communication networks. These emit radiation that could lead to disturbance of the thermostat. Always keep some meters distance.

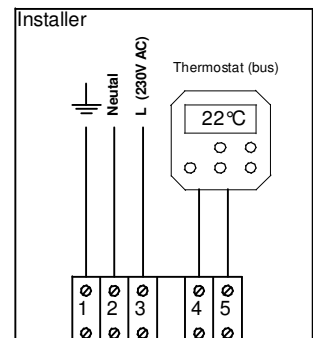
11.2 Installation with modulating room thermostat

- Connect the heater to 230Vac
- Connect the thermostat to the terminals according to the diagram.



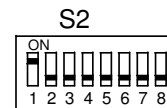
- On the print the switches S2 and S3 need to be set as follows: S2 switch 1 at the ON position, and S3 at 1.

The change of these switches need to be performed without power on the Heater, otherwise these settings take no effect.

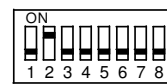


11.3 Installation of more heaters on one thermostat

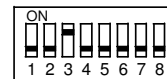
One room thermostat can control 8 heaters. To connect the heaters is very simple. The two wires for the thermostat can be connected to heater one, from heater one to heater two, from heater two to heater three etc. etc. Connect always on terminal 4 and 5. See also the diagram. Standard factory setting: switch 1 "on".



Heater 1



Heater 2

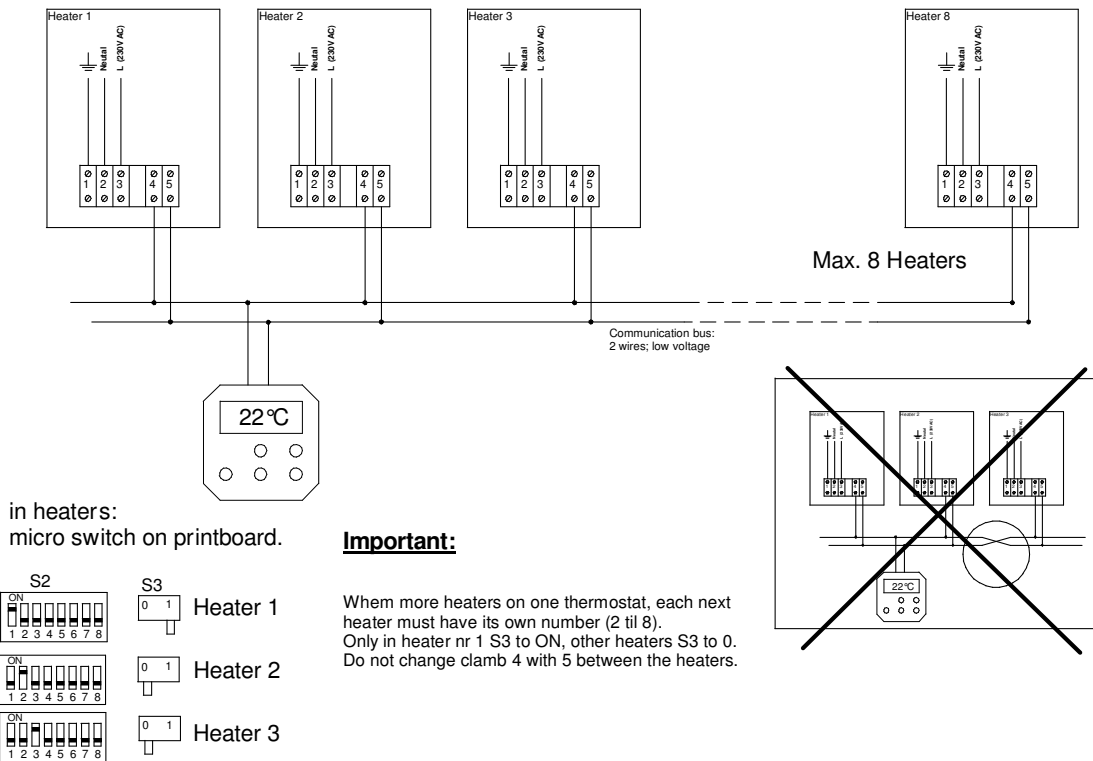


Heater 3

Each heater needs his own unique number to recognise the heater by the room thermostat. The number of the heater can be set by the micro switch on the heater control HC in the heater. The number at the upper position of the switch is the given number for that heater. Make sure that each heater has its own unique number. If more than one heater have the same number the system does not work.

The change of these switches need to be performed without power on the Heater, otherwise these settings take no effect.

Diagram for more heaters on one thermostat

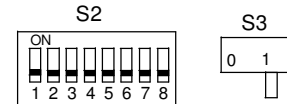


11.4 Installation with ON/OFF Thermostat

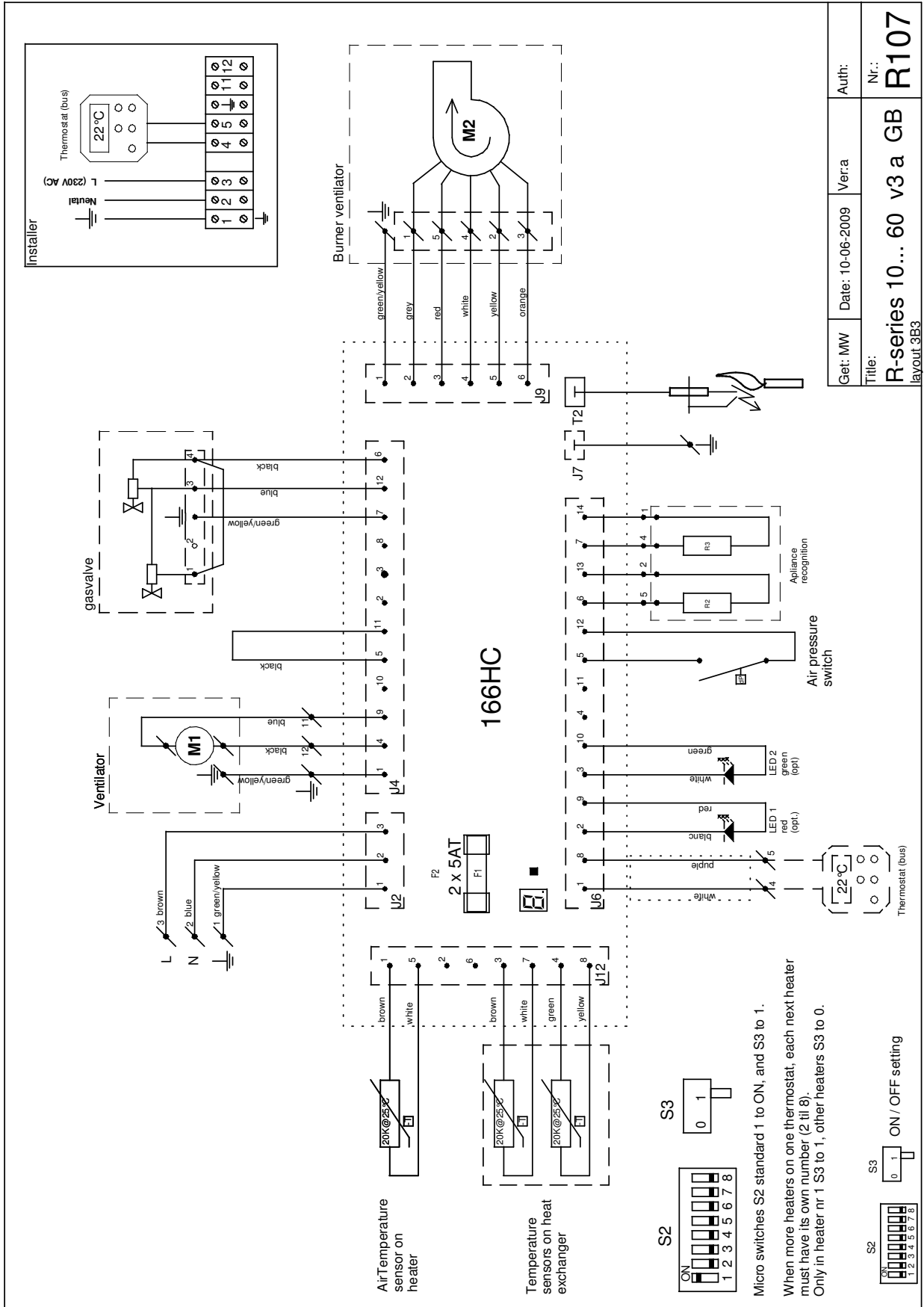
The heater can be connected to an ON/OFF thermostat. In this case, the heater runs on maximum power only. It will not modulate. The manual reset in case of fan error will have to be done with the reset button on the main board.

The following settings have to be made on the main board in the heater:

- The micro switches on the main board have to be set to OFF, see example.
- The switch S3 has to be set to 1.
- The thermostat has to be connected to the clamps 4 and 5 in the heater.
- In the case that more than 1 heater is connected to 1 thermostat, do not exchange clamp 4 with clamp 5 between the heaters. This will result in permanent burning of the heaters.
- The change of these switches needs to be performed without power on the heater, otherwise these settings take no effect.



12 Electrical diagram



Get: MW	Date: 10-06-2009	Ver:ra	Auth:
Title: R-series 10... 60 v3 a GB			Nr.: R107
layout:3B3			

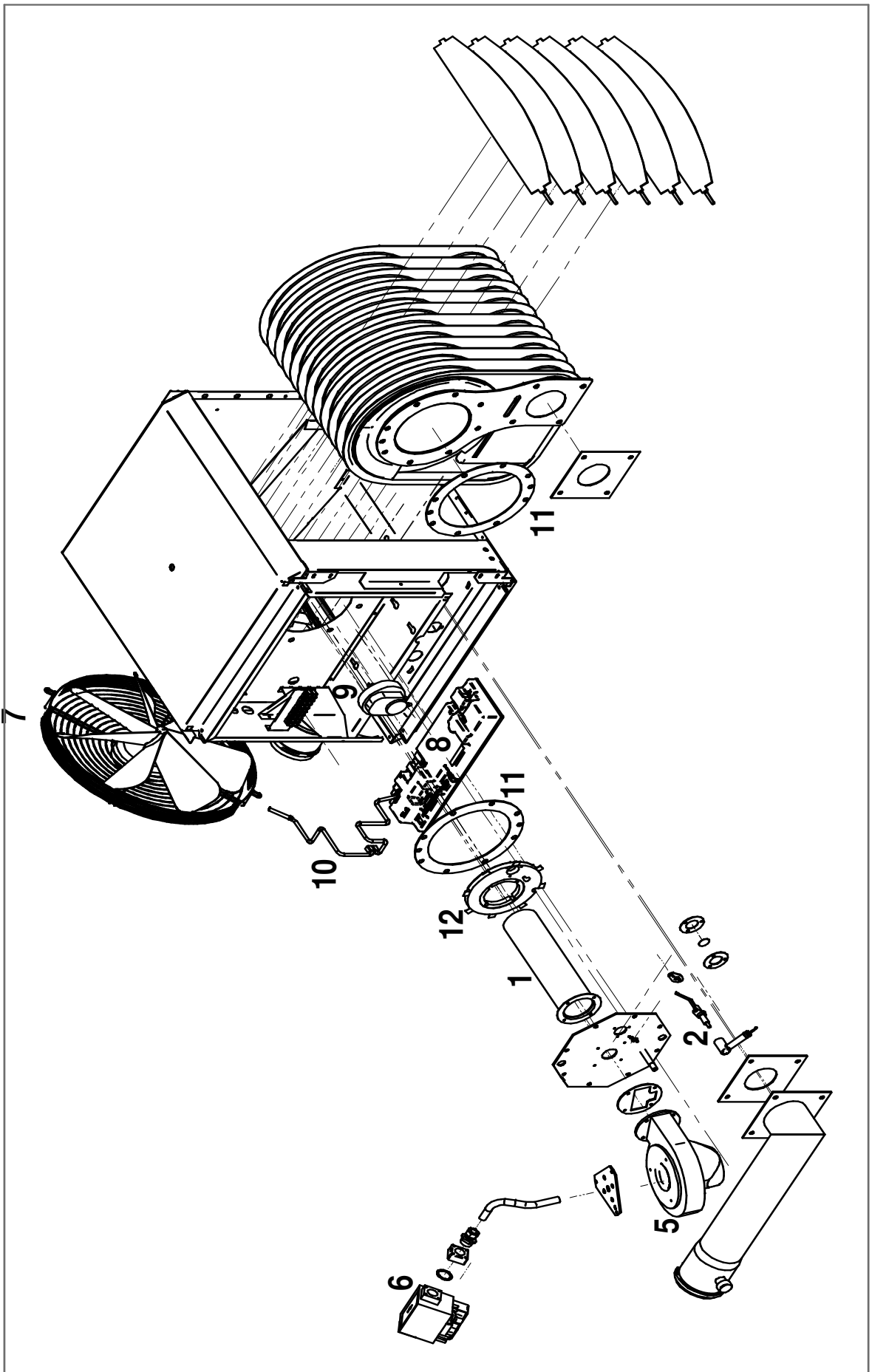
Micro switches S2 standard 1 to ON, and S3 to 1.
When more heaters on one thermostat, each next heater must have its own number (2 til 8).
Only in heater nr 1 S3 to 1, other heaters S3 to 0.

13 Exploded views / spare parts

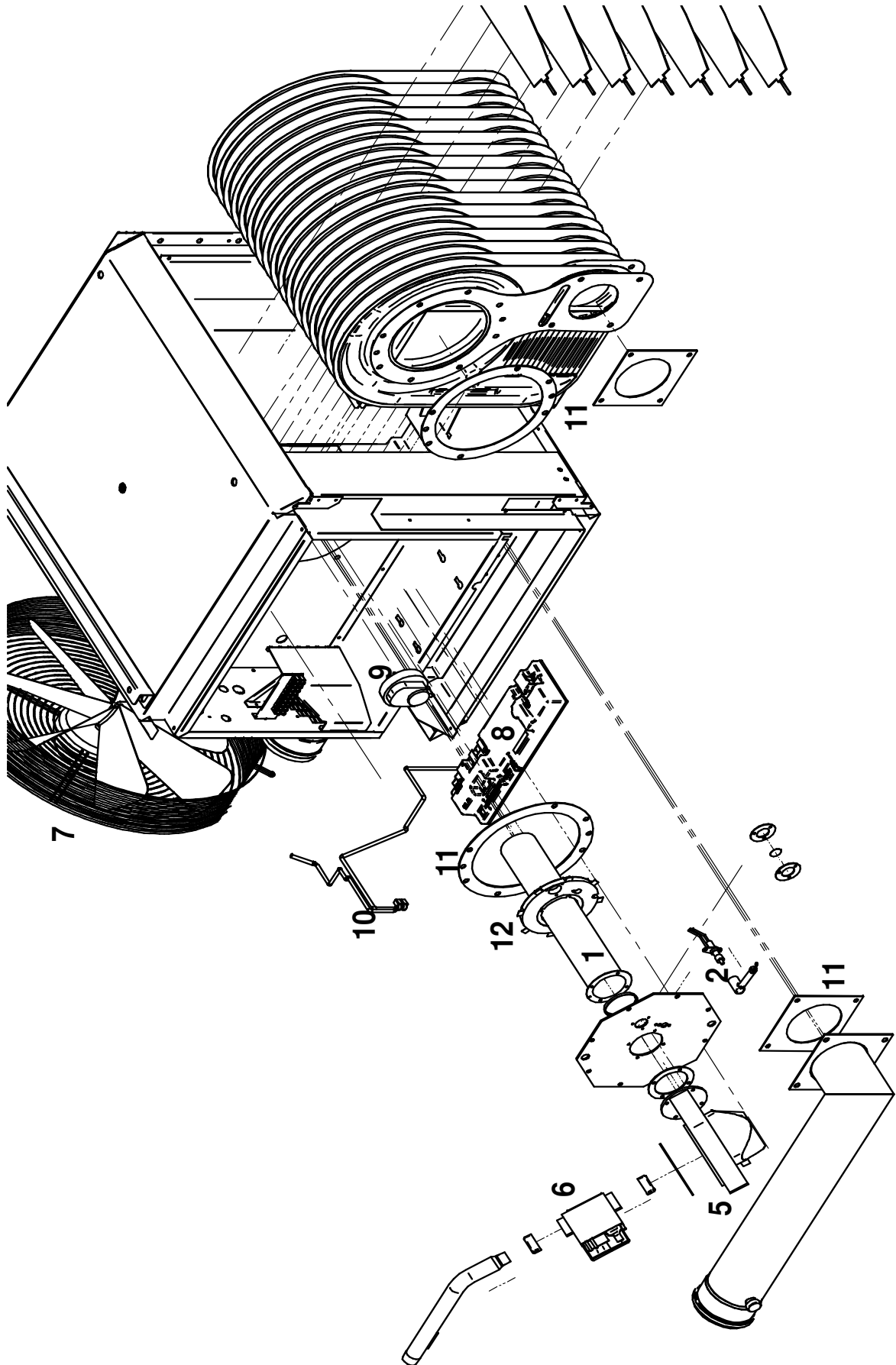
13.1 Spare parts

<u>No.</u>	<u>Description</u>	<u>XR-10</u>	<u>XR-20</u>	<u>XR-30</u>	<u>XR-40</u>	<u>XR-50</u>	<u>XR-60</u>
1	Burner XR for nat. Gas	GA3206	GA3207	GA3208	GA3208	GA3210	GA3212
1	Burner XR for propane	GA3224	GA3226	GA3228	GA3228	GA3230	GA3232
2	Ignition / Ionisation set	GA3460	GA.3460	GA3460	GA3460	GA3460	GA3460
5	Premix fan Torin DSB126-15	GX4522	GX4522	GX4522	GX4522	GX4522	GX4522
6	Gas control SIT SIGMA 848	GA3000	GA3000	GA3000	GA3000	GA3000	GA3000
7	System fan FMV (M1)	IX4201	IX4201	IX4201	IH4206	IH4206	GX4207
8	Heater control Argus 166HC	GA5902	GA5902	GA5902	GA5902	GA5902	GA5902
9	Pressure switch	GX3932	GX3932	GX3932	GX3932	GX3932	GX3932
10	NTC Cable sensorset	GA3926	GA3926	GA3926	GA3926	GA3926	GA3926
11	Gasket set	GA6702	GA6702	GA6702	GA6706	GA6706	GA6706
12	Burner isolation plate	GA6700	GA6700	GA6700	GA6704	GA6704	GA6704

13.2 Exploded view XR10-30



13.3 Exploded view XR40-60



14 Certificate & Declaration



Number: 62713/03
 Replaces: 62713/02
 Issued: 22-05-2015
 Scope: 2009/142/EC
 Paper number: 176156/5
 Contract number: E 0450
 PIN: 0063BO3156

EC TYPE EXAMINATION CERTIFICATE

Kiwa hereby declares that the gas fired air heaters, types

Winterwarm
 XR10, XR20, XR30, XR40, XR50, XR60
 HR10, HR20, HR30, HR35, HR40, HR50, HR60,
 HR80, HR100, HR120

manufactured by **Winterwarm B.V.**
Winterswijk, The Netherlands

meet the essential requirements as described in the
 Directive 2009/142/EC relating to appliances burning gaseous fuels.

Appliance types : B23, C13, C33, C53, C63
 Appliance categories : I2EL, I2ELw, Ls*, I2L, I2H, I2EK, I2Esi, I2E(S), I2E(R), I2R, I2Er, I3P, I3B, I/P
 *) Ls is not valid for models XR60, HR60 and HR120

Countries:	Finland	Lithuania	Romania
Albania	France	Luxembourg	Serbia
Austria	Germany	Macedonia	Slovakia
Belarus	Greece	Malta	Slovenia
Belgium	Hungary	Moldavia	Spain
Bosnia-Herzegovina	Iceland	Montenegro	Sweden
Bulgaria	Ireland	Netherlands, the	Switzerland
Croatia	Italy	Norway	Turkey
Cyprus	Latvia	Poland	Ukraine
Czech Republic	Liechtenstein	Portugal	United Kingdom
Denmark			
Estonia			



B. Meekema
 Bouke Meekema
 Kiwa



DECLARATION OF COMPLIANCE

Winterwarm Heating Solutions B.V.
 Industrieweg 8
 7102 DZ Winterswijk
 The Netherlands

Declares that air heaters types:

XR 10, 20, 30, 40, 50 and 60
 CE PIN: 0063BO3156

Are in accordance with the essential requirements of the relevant EU directives being:

- Gas Appliances Directive 2009/142/EC
- Low Voltage Directive 2006/95/EC
- Electromagnetic Compatibility Directive 2004/108/EC
- Machinery Directive 2006/42/EC

Goods should be installed and used in accordance with our instructions and with the local and international rules in force. Installation should be done by a skilled and registered person for the relevant work.

Winterswijk, 15 April 2014

M. Fiselier

ir. M. Fiselier
 Manager Research and Development