# **1 DESCRIPTION**

The Next-G series condensing modulating gas unit heaters represent the maximum efficiency of air heating systems.

The high heat exchange surface area, thanks to patented heat exchangers and a series of heat recuperators placed on the air flow moved by the fans, allows this series of gas unit heaters to reach efficiencies greater than 106%.

Available in three different versions and seven heat output sizes, they are the best solution when efficiency, comfort and extensive control and management possibilities are essential.

Any Next-G gas unit heater can work:

- on two heat output levels (100% 30%)
- by modulating the heat output continuously from 100% to 30%
- with fixed air flow
- with modulating air flow, in accordance with the modulation of the heat input

The heat output and air flow management modes can be combined as required.

In order to best combine efficiency and comfort, the gas unit heater is supplied with a room temperature probe and the possibility of Modbus communication. In this way, no other controls are required to manage the gas unit heater in modulation on the basis of the required room setpoint, or to provide a centralised

# 2 AVAILABLE RANGE

Next-G gas unit heaters are available in three versions:

- with horizontal flow, with fixed speed axial fan (Next-G series)
- with horizontal flow, with axial fan with brushless variable

# **3** SPECIFICATION OF SUPPLY

Direct exchange condensing gas unit heater fired by natural gas/LPG with sealed chamber and forced draught, operating at fixed levels or modulating heat output, with fixed or modulating fan speed, designed to be installed inside the room to be heated and equipped with:

- ► Stainless steel multigas premix burner.
- ► High head blower, with rotation speed modulation.
- Robur patented heat exchangers, made out of a special aluminium die-cast alloy, with horizontal finning on the air side and vertical finning on the flue gas exhaust side, with a very high heat exchange capacity.
- Corrugated stainless steel heat recovery exchangers with very large exchange surface.
- Condensate drain siphon, supplied as standard.
- ► Supplied room temperature probe.

The gas unit heater is suitable for the type of installation B23, B23P, C13, C33, C53, C63.

## Axial fan models with fixed speed

Axial fan models with high air flow, with fixed fan speed, available in 4 sizes of heat output (G 30, G 45, G 60, G 90).

#### Axial fan models with brushless variable speed motor

Axial fan models with high air flow, with brushless fan motor and rotation speed variation, available in 7 sizes of heat output (G 20

control in combination with a management system capable of using the Modbus protocol.

In any case, for the Next-G series gas unit heaters, a variety of optional controls are available that allow you to take advantage of a number of additional functions (from predictive ignition, to centralised control, also divided by zones, to remote management via internet, to the destratifier function, to name but a few). The Next-G series gas unit heaters are also supplied as standard with a siphon. These gas heaters, being particularly efficient, exploit the condensation of flues in the heat recuperators, condensation that is evacuated outside through a special siphon, supplied as standard, placed under the appliances.

The air-gas combustion system used on these appliances, in addition to ensuring the maintenance of a perfect combustion mix ratio and therefore very low polluting emissions, allows to selfadapt to the installation conditions of the air intake and flue gas exhaust ducts. Also thanks to this feature, all Next-G series gas unit heaters have air and flue gas duct connections of just 80 mm in diameter.

These gas unit heaters are also characterised by their very small weight and dimensions, thanks to the thermoformed door.

The Next-G gas unit heaters are certified for use with a gas mix with a 20% maximum of hydrogen.

#### speed motor (Next-G EC series) with horizontal flow, ductables, with centrifugal fan (Next-G C series)

#### EC, G 30 EC, G 35 EC, G 45 EC, G 60 EC, G 75 EC, G 90 EC). **Centrifugal fan models**

Models with high head centrifugal fan, equipped with flange for the connection of any air ducting, available in 2 sizes of heat output (G 30 C, G 60 C).

#### **3.1 CONTROL AND SAFETY DEVICES**

- GEN10 control board with microprocessor, display and selection keys, providing the following functions:
  - burner ignition
  - flame monitoring and modulation
  - blower management and blower speed control
  - fan speed control
  - heat exchangers temperature probe control
  - minimum flue gas temperature probe control
  - room temperature control with the supplied probe
  - control of destratifier function with optional probe
  - predictive start-up function control with optional probe
  - configurable for management via Modbus communication or 0-10 V signal
- Limit thermostat with manual reset against heat exchangers overheating.
- Gas solenoid valve.



# 4 **DIMENSIONS**

# 4.1 AXIAL GAS UNIT HEATERS

#### 4.1.1 G 20 EC

Figure 4.1 Unit dimensions



1

2

3

4

### 4.1.2 G 30, G 30 EC

Figure 4.2 Unit dimensions



1

2

3

4



#### 4.1.3 G 35 EC

Figure 4.3 Unit dimensions



1

2

3

4

## 4.1.4 G 45, G 45 EC

Figure 4.4 Unit dimensions



1

2

3

4



# 4.1.5 G 60, G 60 EC



. . . . . . . . . . . . .



Ø 80mm flue gas exhaust 1

- Combustion air inlet Ø 80 mm 2
- Power supply cables input 3
- Gas connection 3/4" M 4
- 5 Thermoformed door

- Limit thermostat reset button 6
- Flue gas exhaust blind cover, alternative to the rear one (1) 7

- Condensate drain siphon (supplied as standard) Holes for fixing to the support bracket 8
- (\*)

## 4.1.6 G 75 EC

Figure 4.6 Unit dimensions





Ø 80mm flue gas exhaust 1

- Combustion air inlet Ø 80 mm 2
- Power supply cables input Gas connection 3/4" F 3
- 4
- 5 Thermoformed door

Limit thermostat reset button 6

Flue gas exhaust blind cover, alternative to the rear one (1) 7

Condensate drain siphon (supplied as standard) 8 (\*) Holes for fixing to the support bracket

7

. . . . . . . . . . . . . . . .



## 4.1.7 G 90, G 90 EC

Figure 4.7 Unit dimensions



- 1
- Ø 80mm flue gas exhaust Combustion air inlet Ø 80 mm 2
- 3 Power supply cables input
- Gas connection 3/4" F 4
- Thermoformed door 5

Flue gas exhaust blind cover, alternative to the rear one (1) 7

6

8 Condensate drain siphon (supplied as standard)

Limit thermostat reset button

Holes for fixing to the support bracket (\*)

......

# 4.2 CENTRIFUGAL GAS UNIT HEATERS

## 4.2.1 G 30 C

Figure 4.8 Unit dimensions



- 2 Combustion air inlet Ø 80 mm
- 3 Power supply cables input
- 4 Gas connection 3/4" M
- 5 Thermoformed door

- Flue gas exhaust blind cover, alternative to the rear one (1)
- 8 Condensate drain siphon (supplied as standard)
- (\*) Holes for fixing to the support bracket

. . . . . . . . . . . . . . . . . . .



#### 4.2.2 G 60 C

Figure 4.9 Unit dimensions



# 5 OPERATION MODE

The Next-G gas unit heater can operate:

- with the OCDS015 remote control (or a generic Modbus controller)
- without remote control

There are two service requests for both modes:

- ventilation
- heating

The Next-G gas unit heater, thanks to the presence of the supplied room probe, modulates the heat output continuously, following the setpoint set in the relevant parameter on the electronic board on the gas unit heater.

If you do not wish to use the supplied room probe, it will be possible to manage the gas unit heater operation on two heat output levels by opening or closing the "VENT." contact (the "HEAT." contact must be closed by a suitable device to activate the heating request, Paragraph 5.3 *p. 11*). The "HEAT." and "VENT." contacts are on the electronic board on the gas unit heater.

#### **Table 5.1** Next-G gas unit heaters control mode

Control	
Modbus	OCDS015 Modbus remote control
	Generic Modbus controller
	Error reset
	Error reset and selection of operating mode: heating, summer ventilation or off
Optional	Error reset and room temperature control
controis	Error reset, room temperature control and time programming
	Error reset, room temperature control, time programming and centralized management
0-10 V signal	Power
	Temperature

# 5.1 WITH THE OCDS015 REMOTE CONTROL

With the OCDS015 remote control, or a generic Modbus controller, to activate the heating or ventilation service it is necessary that the service is requested via Modbus (for a generic Modbus controller refer to the Modbus map document for the specific FW version of the GEN10 board) and that **in addition** the corresponding contact service request input is closed (Paragraph 5.3 *p. 11*).

![](_page_10_Picture_15.jpeg)

If not managed, the contact service request inputs must be jumpered accordingly.

The document describing the mapping and meaning of the Modbus registers implemented on the GEN10 board is available on-demand from Robur technical service.

Loss of communication with the remote control or generic Modbus controller results in deactivation of the service request and shutdown of the appliance.

The supported service request types are:

- standby
- ventilation
- fixed power heating (3 power levels), with the remote control providing the setpoint and current room temperature
- fixed power heating (3 power levels), with the remote control providing the setpoint and room temperature measured by the appliance using the supplied room probe
- modulating heating, with the remote control providing the

setpoint and current room temperature

- modulating heating, with the remote control providing the setpoint and room temperature measured by the appliance using the supplied room probe
- modulating heating, with the remote control providing the required power level as a percentage of maximum power

## 5.2 WITHOUT REMOTE CONTROL

Without the remote control, or a generic Modbus controller, the service request is made exclusively via the appropriate contact request inputs (Paragraph 5.3 *p. 11*).

The supported service request types are:

- standby
- ventilation
- fixed power heating
- fixed power heating, with fixed setpoint (settable) and room temperature measured by the appliance via the supplied room probe
- modulating heating, with fixed setpoint (settable) and room temperature measured by the appliance via the supplied room probe
- fixed power heating, with setpoint from 0-10 V input and room temperature measured by the appliance via the supplied room probe
- modulating heating, with setpoint from 0-10 V input and room temperature measured by the appliance via the supplied room probe
- modulating heating, with the 0-10 V input providing the required power level as a percentage of maximum power

## 5.3 CONTACT SERVICE REQUEST INPUTS

Depending on the active inputs and whether or not the supplied room temperature probe is enabled (default) or not, the functions described in the following Tables 5.2 p. 11 and 5.3 p. 11 are obtained.

**Table 5.2** Functions available depending on the status of the contact inputs with room temperature probe enabled

"VENT." input	"HEAT." input	Features
open	open	off
closed	open	ventilation
open or closed	closed	modulating heating

**Table 5.3** Functions available depending on the status of the contact inputs with room temperature probe disabled

"VENT." input	"HEAT." input	Features
open	open	off
closed	open	ventilation
open	closed	heating at minimum power level
closed	closed	heating at maximum power level

More in detail, thanks to the presence of the supplied room probe, enabled by default, when the "HEAT." contact is closed, the gas unit heater will operate in heating mode in modulation, regardless of the status of the "VENT." contact.

To achieve operation on two heat output levels it is necessary to disable the room temperature probe, consequently renouncing to the modulation of heat output, and at that point, it will be possible to manage the two heat output levels either through the contact request inputs, as described above, or through one of the controls that allow automated management of the heat output levels (OTRG005 thermoregulator with or without

![](_page_11_Picture_1.jpeg)

OCDS008 digital chronothermostat and OSWR000 Genius software for remote management).

#### **AUTOMATIC DESTRATIFICATION** 5.4 FUNCTION

In the operating modes in which the heating service is based on the room temperature (measured directly by the room probe connected to the gas unit heater) it is possible to activate the automatic destratification by installing the destratification temperature probe and configuring the appropriate parameters.

The destratification operation is activated when a room temperature below the setpoint is detected and the gas unit heater detects, via the destratification probe, that there is sufficient stratified heat to be used instead of starting the gas unit heater for heating.

In destratification mode, the gas unit heater will only turn on the fans, keeping the burner off, until there is sufficient stratified heat to be used or the maximum destratification time has elapsed, after which if the room temperature is still insufficient the destratification function will be interrupted and the burner started for normal heating.

Figure 5.1 p. 12 shows an example of the destratification function operation, assuming a setpoint of 18 °C and a minimum temperature of 23 °C to activate the destratification function:

- A. The room temperature is below the setpoint. The heat request is activated, but the destratification probe detects that the temperature is sufficient to utilise the stratified heat. As a result, only the fan is activated and not the burner.
- B. The room temperature achieves the setpoint and consequently the heat request is switched off and the fan is switched off.
- C. The room temperature is below the setpoint. The heat request is activated, but the destratification probe detects that the temperature is insufficient to utilise the stratified heat. As a result, the burner is switched on for the normal heating function.
- D. The room temperature achieves the setpoint and consequently the heat request is switched off and the burner is switched off.
- E. The room temperature is below the setpoint. The heat

#### CONTROLS 6

#### 6.1 **CONTROL DEVICE**

The appliance may only work if it is connected to a control device, selected from:

- 1. OCDS015 Modbus remote control
- 2. Generic Modbus controller
- 3. OCDS012 1-key basic control
- 4. OCDS016 2-key basic control
- 5. OTRG005 thermoregulator

#### **TECHNICAL DATA** 7

request is activated, but the destratification probe detects that the temperature is sufficient to utilise the stratified heat. As a result, only the fan is activated and not the burner.

- F. After the maximum destratification time t<sub>d</sub> (settable on the board on the gas unit heater) has elapsed, the room temperature is still below the setpoint. Consequently, the burner is activated for the normal heating function.
- G. The room temperature achieves the setpoint and consequently the heat request is switched off and the burner is switched off.

![](_page_11_Figure_25.jpeg)

BRC Burner

- T<sub>amb</sub> Room temperature measured by the room temperature probe (supplied) connected to the gas unit heater
- Destratification temperature measured by the destratification probe Tdes (available as OSND012 optional) connected to the gas unit heater
- Time Maximum destratification time td

Without the OCDS015 Modbus remote control or a generic Modbus controller that manages the deactivation of the destratification function, the setting of the appropriate parameter must be changed in order to deactivate the function.

- 6. OCDS008 digital chronothermostat (only in association with OTRG005 thermoregulator)
- 7. OSWR000 Genius software for remote management of gas unit heaters (only in association with OTRG005 thermoregulator)

8. External request

![](_page_11_Picture_36.jpeg)

Refer to Section C01.04 for further details about control devices

## Table 7.1 Technical data

#### Axial fan models with fixed speed

	G 30	G 45	G 60	G 90
Heating mode				

- Relative to NCV (net calorific value)
- Values measured in an open area at maximum air flow. In a real installation, the thermal flow may reach greater distances than those given here (depending on the height of the ceiling and its thermal insulation)
- (3) The gas unit heater cannot operate with this type of gas.

VNT Fan

			G 30	G 45	G 60	G 90	
	nominal (1013 mbar - 15 °C) (1)	kW	28.0	43.0	58.0	90.0	
Heat input	minimum (1)	kW	9.3	13.8	18.5	27.0	
	nominal	kW	27,4	41.4	56.6	87,3	
Heat output for each unit	minimum	kW	9,9	14,5	19,5	28,6	
	nominal heat input	%	97,8	96,2	97,5	97,0	
Efficiency	minimal heat input	%	106,8	105,3	105,2	106,1	
*	useful at 100% heat input	%	97,3	95,7	97,0	96,5	
	to flue in operation	%	2,20	3,80	2,50	3,00	
Heat losses	to casing in operation	%		0,	50		
	with burner off	%		0,	10		
	nominal heat input	K	33,1	35,6	29,6	28,4	
Temperature rise	minimal heat input	K	11,9	12,4	10,1	9,2	
length of throw (residual speed <	0,5 m/s) (2)	m	18,0	24,0	28,0	38,0	
	maximum	°C		4	0		
Outdoor temperature (dry bulb)	minimum	°C		(	)		
Electrical specifications							
	voltage	V		23	30		
Power supply	type	-		single	-phase		
	frequency	Hz		5	0		
Electrical power absorption	nominal	kW	0,21	0,35	0,61	1,00	
fuse		A	6,3				
fan motor		IP	54				
Degree of protection	appliance	IP	20				
Installation data							
	G20 natural gas (nominal)	m³/h	2,97	4,56	6,14	9,37	
	G25 (nominal)	m³/h	3,45	5,29	7,14	11,07	
	G25.1 (nominal)	m³/h	3,43	5,28	7,13	11,06	
Gas consumption	G25.3 (nominal)	m³/h	3,33	5,17	6,99	10,82	
• • • • • •	G27 (nominal)	m³/h	3,61	5,56	7,51	11,61	
	G2.350 (nominal)	m³/h	4,10	6,32	8,52	- (3)	
	G30 (nominal)	kg/h	2,18	3,38	4,54	/,08	
	G31 (nominal)	kg/h	2,17	3,34	4,50	6,97	
Air flow	nominal (Delta I = $15 ^{\circ}$ C)	m²/h	2450	3450	5650	9100	
Gas connection	type	-		M	14	F	
	thread			3/	0		
Eluo goc oxhouct		Po	<u>00</u>	100	120	200	
riue yas exilaust	type of installation	га	00	R73 R73D (13	130	200	
Combustion air intake connec-				025, 0251, C15,	, CJJ, CJJ, CUJ		
tion	diameter (Ø)	mm		8	0		
recommended height		m	3,0 ÷ 3,5				
sound power L <sub>w</sub> (max)		dB(A)	75,0 84,0 86,0		,0		
sound pressure L <sub>p</sub> at 5 metres (ma	x)	dB(A)	53,0	62,0	64	.,0	
	width	mm	73	35	929	1320	
Dimensions	depth	mm	731	738	743	725	
	height	mm		77	77		
Weight	in operation	kg	56	61	79	100	
General information							
number of heat exchangers		-	2	3	5	8	
type of heat exchangers		-		tower			
number of fans		-		2			

Relative to NCV (net calorific value). Values measured in an open area at maximum air flow. In a real installation, the thermal flow may reach greater distances than those given here (depending on the height of the ceiling and its thermal insulation). The gas unit heater cannot operate with this type of gas. (1) (2)

(3)

#### Axial fan models with brushless variable speed motor

			G 20 EC	G 30 EC	G 35 EC	G 45 EC	G 60 EC	G 75 EC	G 90 EC
Heating mode									
Heatinnut	nominal (1013 mbar - 15 °C) (1)	kW	19,5	28,0	34,5	43,0	58,0	75,0	90,0
Heat Input	minimum (1)	kW	8,1	9,3	12,3	13,8	18,5	25,0	27,0
Heat output for each unit	nominal	kW	19,0	27,4	33,4	41,4	56,6	72,0	87,3
	minimum	kW	8,5	9,9	13,1	14,5	19,5	26,3	28,6

(1) (2)

Relative to NCV (net calorific value). Values measured in an open area at maximum air flow. In a real installation, the thermal flow may reach greater distances than those given here (depending on the height of the ceiling and its thermal insulation).

(3) The gas unit heater cannot operate with this type of gas.

![](_page_13_Picture_1.jpeg)

			G 20 EC	G 30 EC	G 35 EC	G 45 EC	G 60 EC	G 75 EC	G 90 EC
	nominal heat input	%	97,5	97,8	96,9	96,2	97,5	96,0	97,0
Efficiency	minimal heat input	%	105,5	106,8	106,5	105,3	105,2	105,0	106,1
	useful at 100% heat input	%	97,0	97,3	96,4	95,7	97,0	95,5	96,5
	to flue in operation	%	2,50	2,20	3,10	3,80	2,50	4,00	3,00
Heat losses	to casing in operation	%				0,50			
	with burner off	%				0,10			
T	nominal heat input	K	24,5	33,1	36,2	35,6	29,7	39,5	28,4
lemperature rise	minimal heat input	K	15,8	16,8	18,1	14,6	13,8	17,7	14,4
length of throw (residual speed <	0,5 m/s) (2)	m	15,0	18,0	20,0	24,0	28	3,0	38,0
Autor town another (dwe bulk)	maximum	°C				40			
Outdoor temperature (dry buib)	minimum	°C				0			
Electrical specifications									
	voltage	V				230			
Power supply	type	-			S	ingle-phas	e		
	frequency	Hz				50			
Electrical power absorption	nominal	kW	0,	19	0,18	0,39	0,41	0,39	0,75
fuse		A				6,3			
Degree of protection	fan motor	IP				54			
begree of protection	appliance	IP				20			
Installation data				1	1	1			1
	G20 natural gas (nominal)	m³/h	2,07	2,97	3,66	4,56	6,14	7,93	9,37
	G25 (nominal)	m³/h	2,40	3,45	4,26	5,29	7,14	9,23	11,07
	G25.1 (nominal)	m³/h	2,40	3,43	4,24	5,28	7,13	9,23	11,06
Gas consumption	G25.3 (nominal)	m³/h	2,34	3,33	4,15	5,17	6,99	9,01	10,82
	G27 (nominal)	m³/h	2,51	3,61	4,44	5,56	7,51	9,68	11,61
	G2.350 (nominal)	m³/h	2,86	4,10	5,09	6,32	8,52	- (	(3)
	G30 (nominal)	kg/h	1,52	2,18	2,72	3,38	4,54	5,92	7,08
	G31 (nominal)	kg/h	1,50	2,17	2,68	3,34	4,50	5,82	6,97
Air flow	nominal (Delta T = 15 °C)	m³/h	2300	2450	2735	3450	5650	5400	9100
Gas connection	type	-			M				F
	thread	"				3/4			
	diameter (Ø)	mm				80	120	150	202
Flue gas exhaust	residual head	Ра	65	8	0	100	130	150	200
Combustion states is a second	type of installation	-			B23, B23	P, CT3, C33,	(53, (63		
compustion air intake connec- tion	diameter (Ø)	mm				80			
recommended height		m	2.5 3.0 ÷ 3.5						
sound power L <sub>w</sub> (max)		dB(A)	78,0	75,0	76,0	83,0	81,0	80,0	86,0
sound pressure L <sub>p</sub> at 5 metres (ma	к)	dB(A)	56,0	53,0	54,0	61,0	59,0	58,0	64,0
	width	mm	678		735		929	1120	1320
Dimensions	depth	mm	579	68	39	74	43	689	743
	height	mm	480			77	77		
Weight	in operation	kg	35	56	58	61	79	90	100
General information									
number of heat exchangers		-	1	2	3	3	5	6	8
type of heat exchangers		-	pipe	pipe tower					
number of fans		-	1 2					2	

(1) (2)

Relative to NCV (net calorific value). Values measured in an open area at maximum air flow. In a real installation, the thermal flow may reach greater distances than those given here (depending on the height of the ceiling and its thermal insulation). The gas unit heater cannot operate with this type of gas. (3)

#### Centrifugal fan models

			G 30 C	G 60 C				
Electrical specifications								
Electrical power absorption	nominal	kW	0,65	1,50				
fuse		А	6,3	10,0				
Dograp of protection	fan motor	IP	44					
begree of protection	appliance	IP	2	0				
Installation data								
Air flour	at maximum available head	m³/h	2500	5400				
	free blowing	m³/h	3550	6500				
maximum useful pressure head		Pa	140	120				
minimum pressure drop on heat fl	ow delivery	Pa	0					
	width	mm	775	969				
Dimensions	height	mm	777					
	depth	mm	1072	1138				
Weight	in operation	kg	78	109				

![](_page_13_Picture_9.jpeg)

# 8 CENTRIFUGAL GAS UNIT HEATERS (NEXT-G C)

The Next-G C series gas unit heaters can be used by ducting the heat flow delivery.

For this reason, this version of gas unit heater does not have the front grille with directional louvres for direct throw, but a flat flange to which the delivery air duct can be connected, with an anti-vibration joint at the connection.

The ducting sizing must take into account the minimum air flow allowed for the gas unit heater and the maximum available centrifugal fan head (both shown in Table 7.1 *p. 12*).

Next-G C gas unit heaters, although they can be ducted, must be installed inside buildings.

![](_page_14_Picture_6.jpeg)

Refer to Section C01.07 for further information on air ducting.