

## 1 DESCRIPTION

The K series gas unit heaters are direct exchange appliances equipped with modulating burner and fan. This feature makes the gas unit heaters efficient and comfortable, as the hot air emitted in any modulation condition is always pleasantly warm and at the same temperature ( $\Delta t$  constant).

The K series gas unit heaters are supplied as standard with a digital chronothermostat (already wired on the terminal board of the appliance) so that the heater is continuously adjusted according to the heated room conditions.

The chronothermostat also allows the user to choose between modulation or continuous operation, on three different power

levels (minimum, medium and maximum power). Automatic modulation, both of the burner and the fan, also allows the user to benefit from a lower noise impact in the room, as modulation also involves a reduction in the ventilation air flow rate.

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 self-adapt to the installation conditions of the air intake and flue gas exhaust ducts. Also thanks to this feature, all K series gas unit heaters have air and flue gas duct connections of just 80 mm in diameter.

## 2 SPECIFICATION OF SUPPLY

Direct exchange gas unit heater fired by natural gas/LPG with sealed chamber and forced draught, with automatic modulation of the heat output and air flow rate, designed to be installed inside the room to be heated.

Available in 4 sizes of heat output (29,2 / 41,6 / 55,2 / 92,0 kW) and equipped with:

- ▶ Stainless steel multigas premix burner.
- ▶ High head blower, with rotation speed modulation.
- ▶ Heat exchangers, made out of a special aluminium die-cast alloy, with a very high heat exchange capacity.
- ▶ Electronic board for gas unit heater management.
- ▶ Axial fan(s) with high flow rate, controlled by a multi-speed autotransformer.
- ▶ Supplied digital chronothermostat.

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

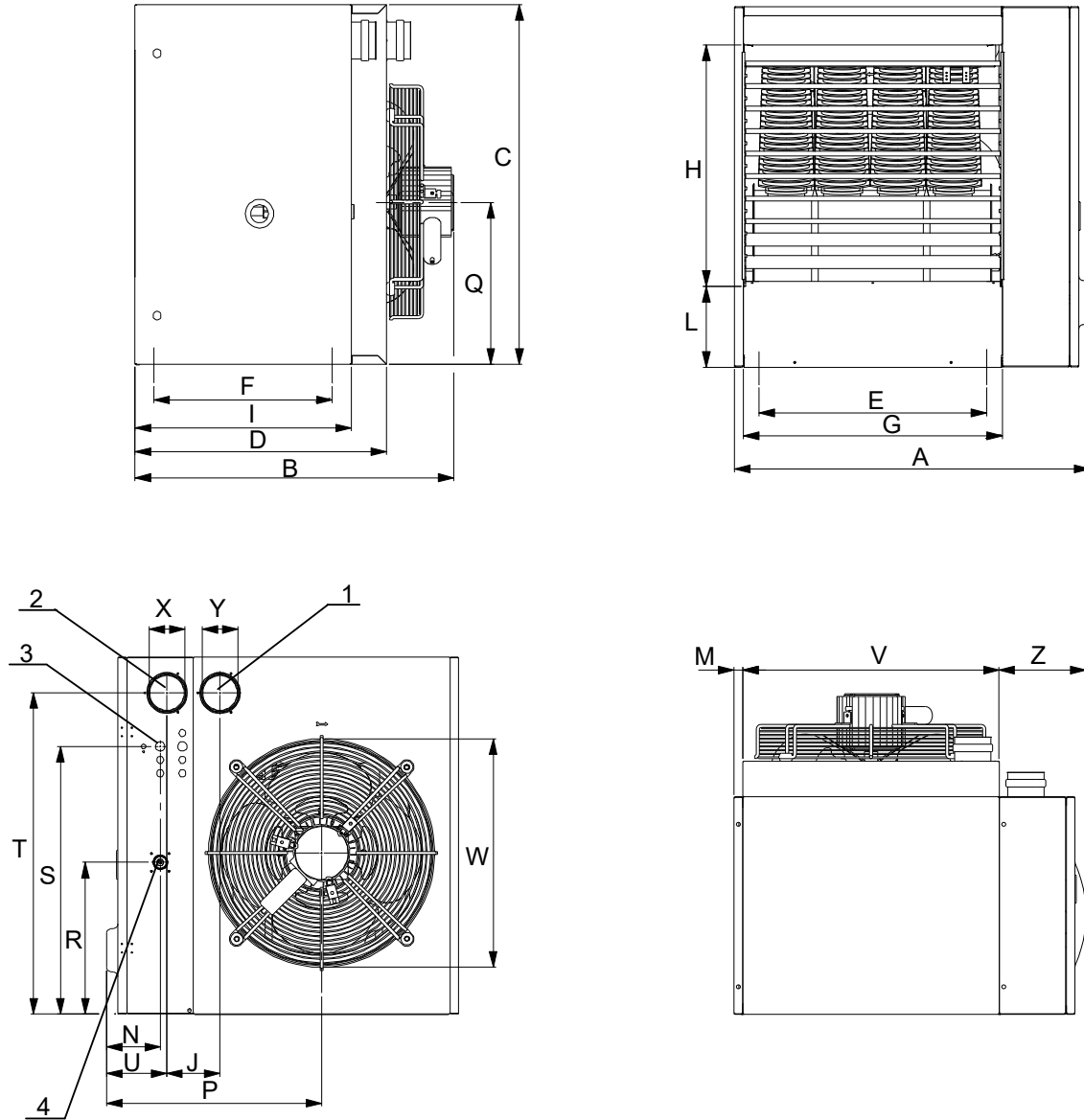
### 2.1 CONTROL AND SAFETY DEVICES

- ▶ Electronic management board, with microprocessor and noise filter, which provides the following functions:
  - burner ignition
  - flame monitoring and modulation
  - blower management and blower speed control
  - fan speed control
  - heat exchanger temperature probe control
- ▶ 100 °C limit thermostat with manual reset against heat exchangers overheating.
- ▶ Differential pressure switch for controlling the correct operation of the blower.
- ▶ Fan thermostat.
- ▶ Gas solenoid valve.

### 3 FEATURES AND TECHNICAL DATA

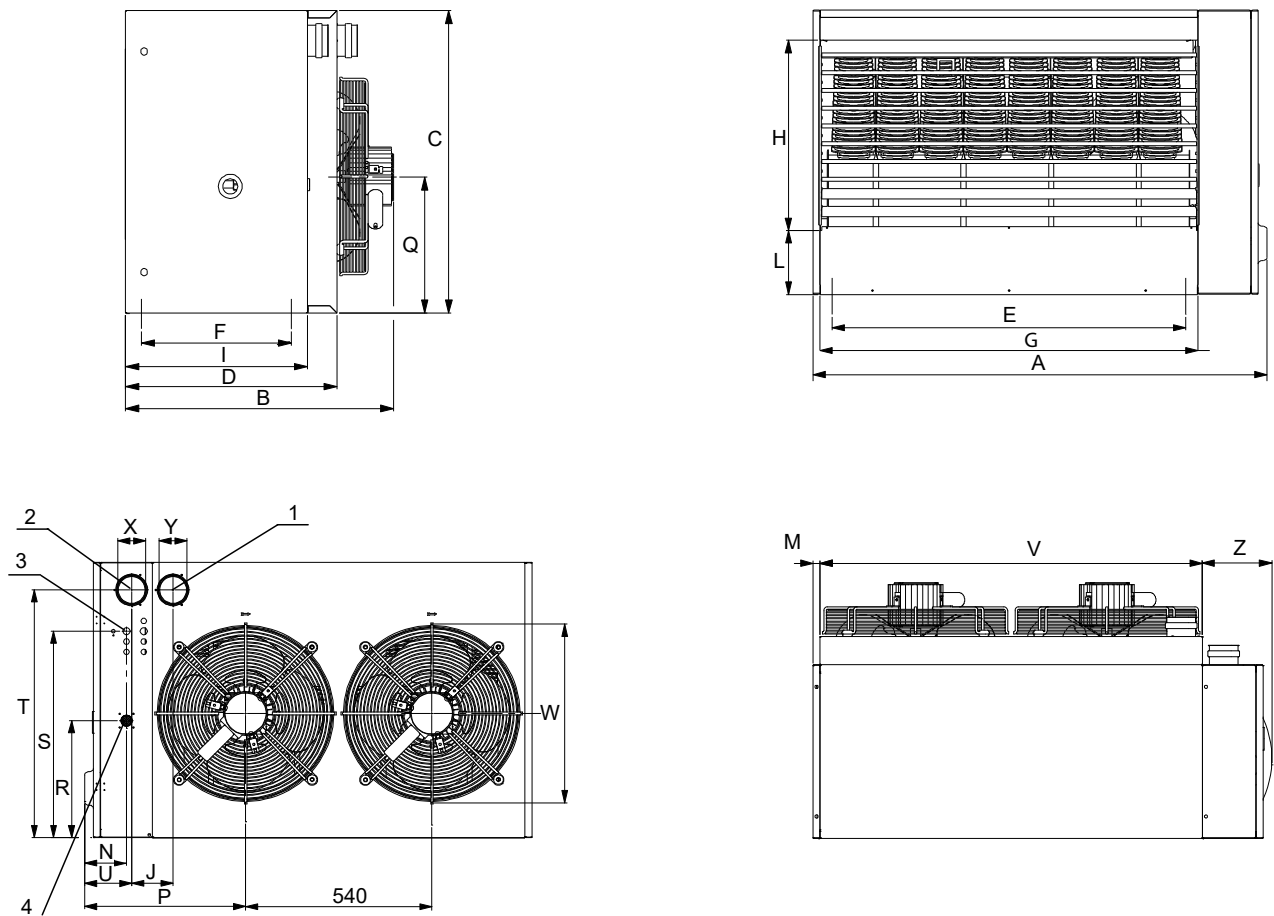
#### 3.1 DIMENSIONS

**Figure 3.1** K32, K45, K60 gas unit heater dimensions



- 1 Flue gas exhaust
- 2 Combustion air inlet
- 3 Power supply cables input
- 4 Gas connection 3/4" F

Figure 3.2 K100 gas unit heater dimensions



- 1 Flue gas exhaust
- 2 Combustion air inlet
- 3 Power supply cables input
- 4 Gas connection 3/4" F

Table 3.1 Dimensions

	K32	K45	K60	K100
A	656	706	796	1296
B	710	715	720	740
C	800	800	800	800
D	570	570	570	570
E	370	370	510	1010
F	405	405	405	405
G	440	490	580	1080
H	536	536	536	536
J	120	120	120	120
L	180	180	180	180
M	20	20	20	20
N	121	121	121	121
P	417	441	486	486
Q	360	360	360	360
R	340	340	340	340
S	600	600	600	600
T	720	720	720	720
U	136	136	136	136
V	440	490	580	1080
W	380	480	500	520
X	80	80	80	80
Y	80	80	80	80
Z	196	196	196	196

## 3.2 OPERATION MODE

### 3.2.1 Operation with chronothermostat

#### 3.2.1.1 Winter operation (heating)

The heating operation can be (Figure 3.4 p. 6):

- ▶ Modulating standard operation
  - automatic (unit operation automatically managed by the chronothermostat according to the time schedule)
  - manual (operation of the unit managed manually by the user)
- ▶ Fixed standard operation
  - automatic (unit operation automatically managed by the chronothermostat according to the time schedule)
  - manual (operation of the unit managed manually by the user)



By default, the gas unit heater leaves the factory configured for the modulating standard operation.

#### 3.2.1.2 Summer mode (ventilation only)

The ventilation only operation can be with manual ventilation or with automatic ventilation (Figure 3.3 p. 5).

### 3.2.2 Operation without chronothermostat

For operation in the absence of the chronothermostat, it is necessary to disconnect the chronothermostat supplied as standard and the relative dialogue board.

The available operating modes are:

- ▶ Winter operation (heating)

- ▶ Summer mode (ventilation only)
- ▶ Air renewal operation (ventilation priority)



By default, the gas unit heater leaves the factory configured for the modulating standard operation, with the chronothermostat.

#### 3.2.2.1 Winter operation (heating) and summer mode (ventilation only)

Winter (heating) or summer (ventilation only) operation mode will be activated by closing the appropriate contacts on the electronic board of the gas unit heater.

The gas unit heater will not operate in modulating mode but in on/off mode with fixed heat output and ventilation (maximum values).

In summer ventilation mode the fan will operate at maximum ventilation.

#### 3.2.2.2 Air renewal operation (ventilation priority)



Air renewal operation is only possible without the chronothermostat.

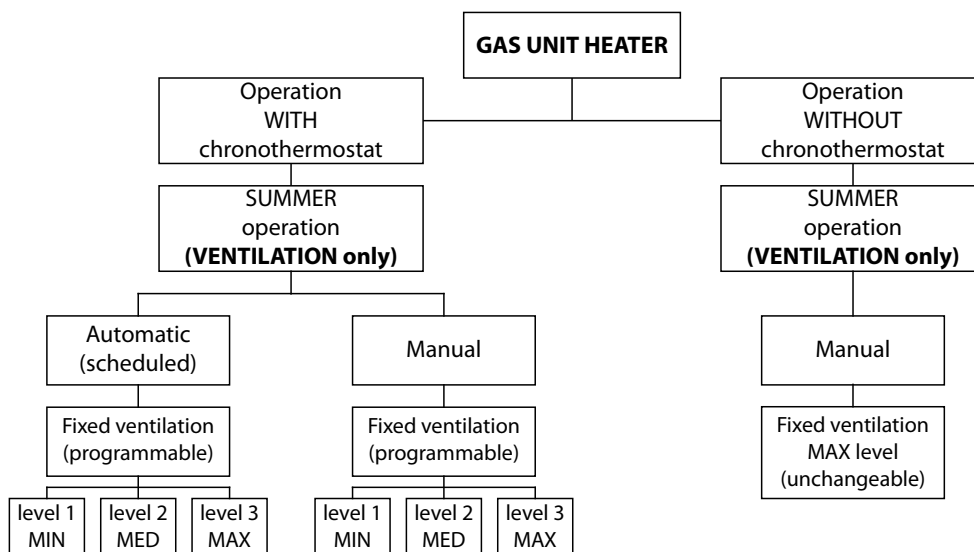
This gas unit heater operating mode allows on/off operation with ventilation always on and burner ignition only on heat demand (closing of the heating request contact on the electronic board of the gas unit heater).

Ventilation and heat output are fixed (maximum values).

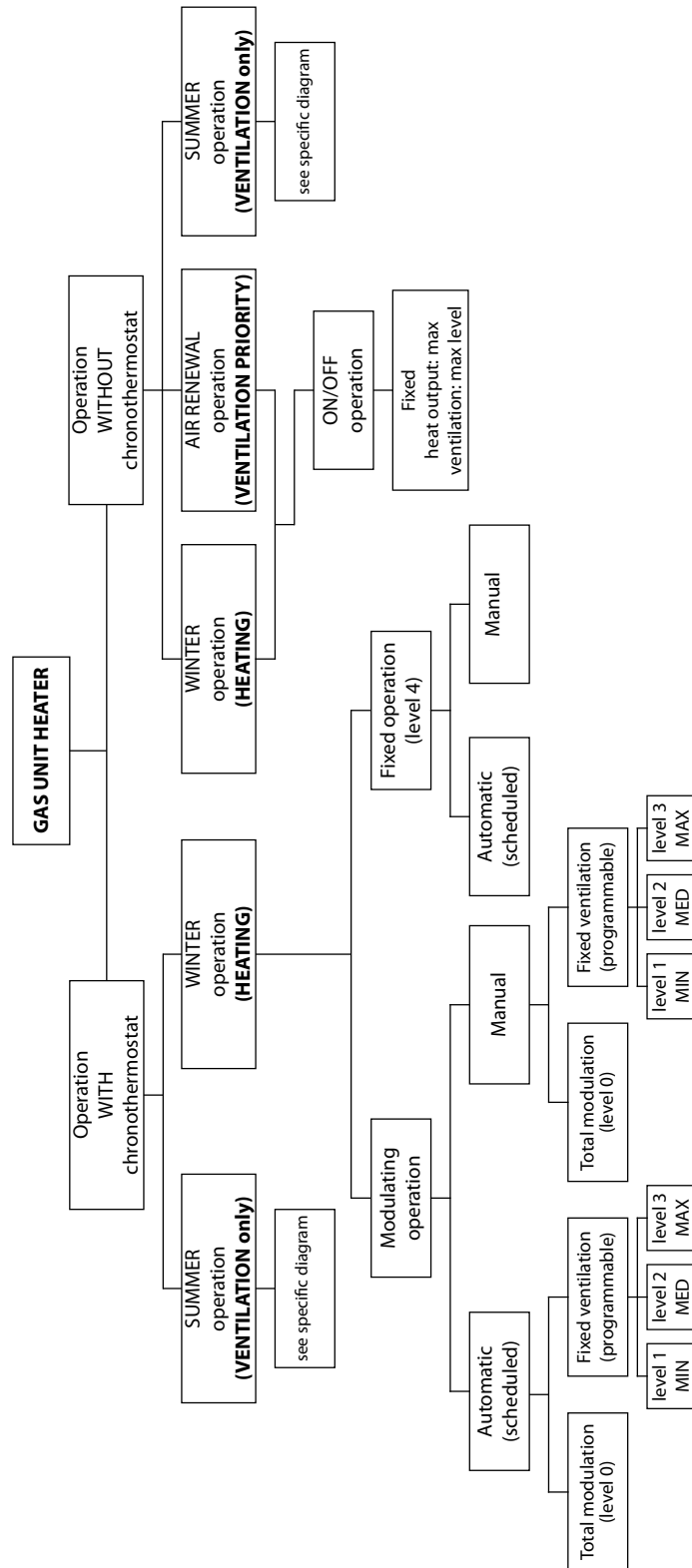
This function is particularly useful if a constant renewal of room air is required.

3.2.3 Operating diagrams

Figure 3.3 Summer mode



**Figure 3.4** Winter operation and air renewal operation



### 3.3 CONTROLS

#### 3.3.1 Control device

The unit operation is controlled by the supplied digital chronothermostat.

The chronothermostat integrates the functions of room temperature control, programmable timer, modulation of heat output

and display of any operating errors.

Each gas unit heater is also provided with a contact for external request and for connections to a gas unit heater remote alarm indicator and unlock (when this is possible). These contacts make it possible to carry out centralised remote control of the starting and stopping of one or more gas unit heaters, which will in any case be controlled in their operation by the chronothermostat supplied as standard.



For more details refer to the Section C01.03.

### 3.4 TECHNICAL DATA

**Table 3.2** Technical data

			K32	K45	K60	K100
<b>Heating mode</b>						
<b>Heat input</b>	nominal (1013 mbar - 15 °C) (1)	kW	32,0	45,0	60,0	100,0
	minimum (1)	kW	17,5	27,0	34,5	56,0
<b>Heat output</b>	nominal	kW	29,2	41,6	55,2	92,0
	minimum	kW	16,5	25,8	33,0	53,9
<b>Efficiency</b>	nominal heat input	%	91,3	92,4	92,0	
	minimal heat input	%	94,2	95,5	95,6	96,2
	useful at 100% heat input	%	91,0	92,1	91,7	91,5
<b>Heat loss</b>	to flue in operation	%	8,70	7,60	8,00	
	to jacket in operation	%	0,30			0,50
	with burner off	%	0,25			
<b>Temperature rise</b>	nominal air flow rate	K	29,2	31,4	31,5	32,8
	minimal air flow rate	K	22,0	25,3	23,7	27,4
<b>length of throw (residual speed &lt; 0,5 m/s) (2)</b>		m	18,0	25,0	31,0	40,0
<b>Ambient air temperature (dry bulb)</b>	maximum	°C	35 (3)			
	minimum	°C	0			
<b>Electrical specifications</b>						
<b>Power supply</b>	voltage	V	230			
	type	-	single-phase			
	frequency	Hz	50			
<b>Electrical power absorption</b>	nominal	kW	0,21	0,33	0,58	0,90
<b>fuse</b>		A	6,3			
<b>Installation data</b>						
<b>Gas consumption</b>	G20 natural gas (nominal)	m <sup>3</sup> /h	3,39	4,76	6,35	10,58
	G25 (nominal)	m <sup>3</sup> /h	3,94	5,54	7,38	12,31
	G25.1 (nominal)	m <sup>3</sup> /h	3,93	5,53	7,37	12,29
	G25.3 (nominal)	m <sup>3</sup> /h	3,85	5,41	7,22	12,03
	G27 (nominal)	m <sup>3</sup> /h	4,13	5,81	7,74	-
	G2.350 (nominal)	m <sup>3</sup> /h	4,70	6,62	8,82	-
	G30 (nominal)	kg/h	2,52	3,55	4,73	7,89
	G31 (nominal)	kg/h	2,49	3,50	4,66	7,77
<b>Air flow</b>	nominal	m <sup>3</sup> /h	2940	3900	5150	8250
	minimum	m <sup>3</sup> /h	2200	3000	4100	5775
<b>Gas connection</b>	type	-	F			
	thread	"	3/4			
<b>Flue gas exhaust</b>	diameter (Ø)	mm	80			
	residual head	Pa	50	60	160	
	type of installation	-	B23, C13, C33, C53, C63			
<b>Combustion air intake connection</b>	diameter (Ø)	mm	80			
<b>recommended height</b>		m	3,0 ÷ 3,5			
<b>sound power L<sub>w</sub> (max)</b>		dB(A)	78,0	85,5	89,5	
<b>sound power L<sub>w</sub> (min)</b>		dB(A)	71,5	80,5	83,5	
<b>sound pressure L<sub>p</sub> at 5 metres (max)</b>		dB(A)	56,0	63,5	67,5	
<b>sound pressure L<sub>p</sub> at 5 metres (min)</b>		dB(A)	49,5	58,5	61,5	
<b>Dimensions</b>	depth	mm	710	715	720	740
	height	mm	800			
	width	mm	656	706	796	1296
<b>Weight</b>	in operation	kg	55	65	75	120
<b>General information</b>						
<b>number of heat exchangers</b>		-	2	3	4	8
<b>type of heat exchangers</b>		-	torre			
<b>number of fans</b>		-	1			2

(1) Relative to NCV (net calorific value).

(2) Values measured in an open area; 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 operating temperature of the appliance components is 0 °C / +60 °C.