# 1      DESCRIPTION

The G series condensing 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%.

These gas unit heaters, equipped as standard with a special digital chronothermostat, offer the user a very flexible operation, which adapts to every need.

The gas unit heaters are in fact modulating both with regard to the heat output (premix burner modulating from 30 to 100%) and ventilation (multi-speed fans). This feature of complete modulation allows the supply of air flow at an almost constant temperature, from which derives a high internal comfort for people standing in heated buildings.

The gas unit heater electronics also allows to choose fixed air flow operation with modulating burner (this option is indicated when you want to obtain maximum efficiency and it is not necessary to maintain a constant thermal leap of the warm air leaving the appliance), or with burner and fan fixed on one of the 3 power levels (minimum, medium or maximum).

The G series gas unit heaters are supplied as standard with digital chronothermostat (already wired on the terminal board of the appliance) and siphon on the condensate drain pipe. These gas heaters, being particularly efficient, exploit the condensation of flues in the heat recuperators, condensation that is collected in a special tray and then 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 self-adapt to the installation conditions of the air intake and flue gas exhaust ducts. Also thanks to this feature, all G series gas unit heaters have air and flue gas duct connections of just 80 mm in diameter.

# 2      SPECIFICATION OF SUPPLY

Direct exchange condensing 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 / 43,3 / 56,2 / 90,2 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.
► Additional heat exchangers for heat recovery from flue gases.
► Electronic board for gas unit heater management.
► Axial fan(s) with high flow rate, controlled by a multi-speed autotransformer.
► Supplied digital chronothermostat.
► Condensate drain siphon, supplied as standard.

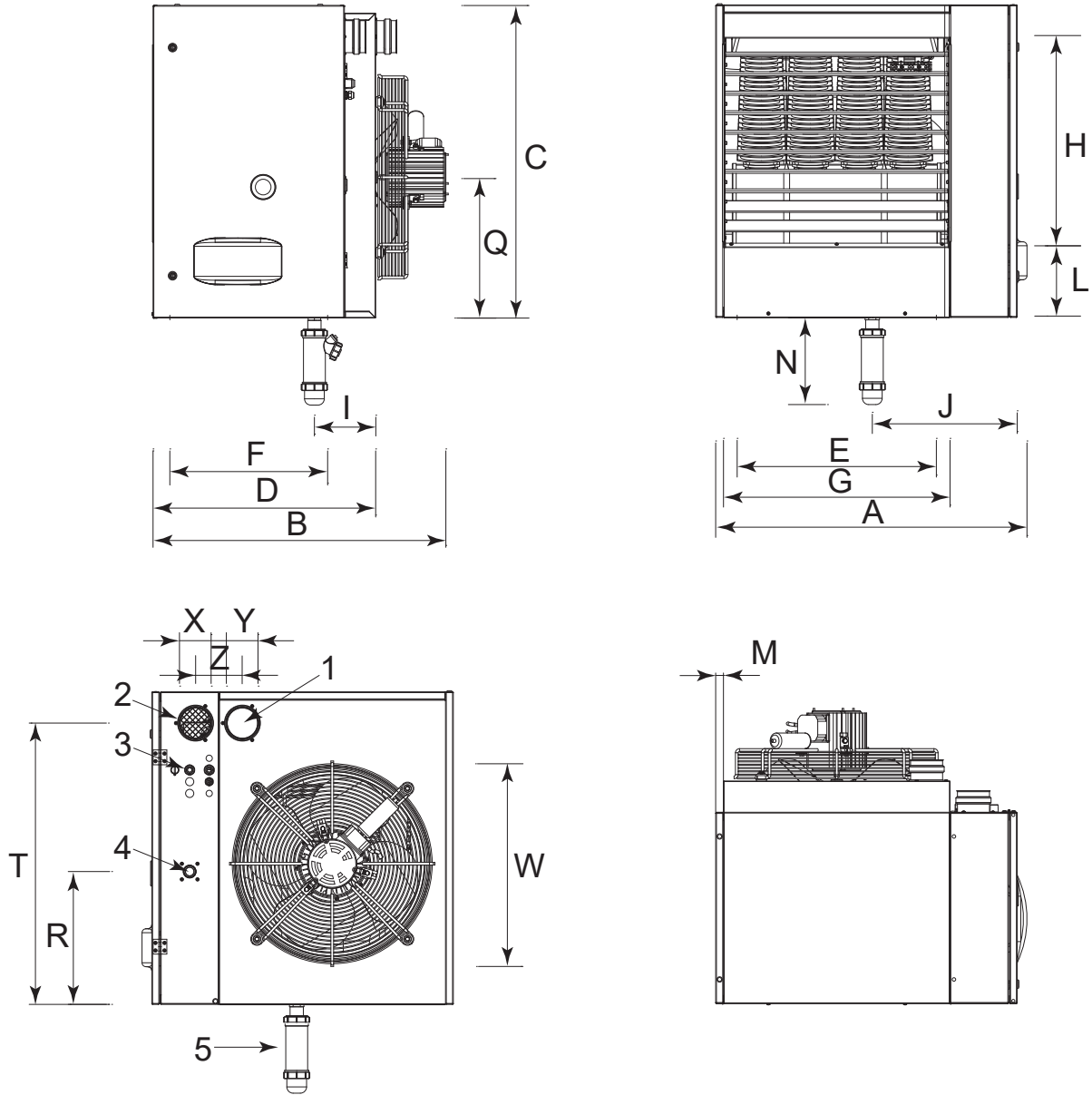The gas unit heater is suitable for the type of installation B23, C13, C33, C53, C63.

## 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
  ■ minimum flue gas temperature probe control
► 100 °C limit thermostat with manual reset against heat exchangers overheating.
► Flue thermostat.
► Gas solenoid valve.

# 3   FEATURES AND TECHNICAL DATA

## 3.1   DIMENSIONS

**Figure 3.1** *G30, G45, G60 gas unit heater dimensions*



| | |
|---|---|
| 1   Flue gas exhaust | 4   Gas connection 3/4" F |
| 2   Combustion air inlet | 5   Condensate drain siphon (supplied as standard) |
| 3   Power supply cables input | |

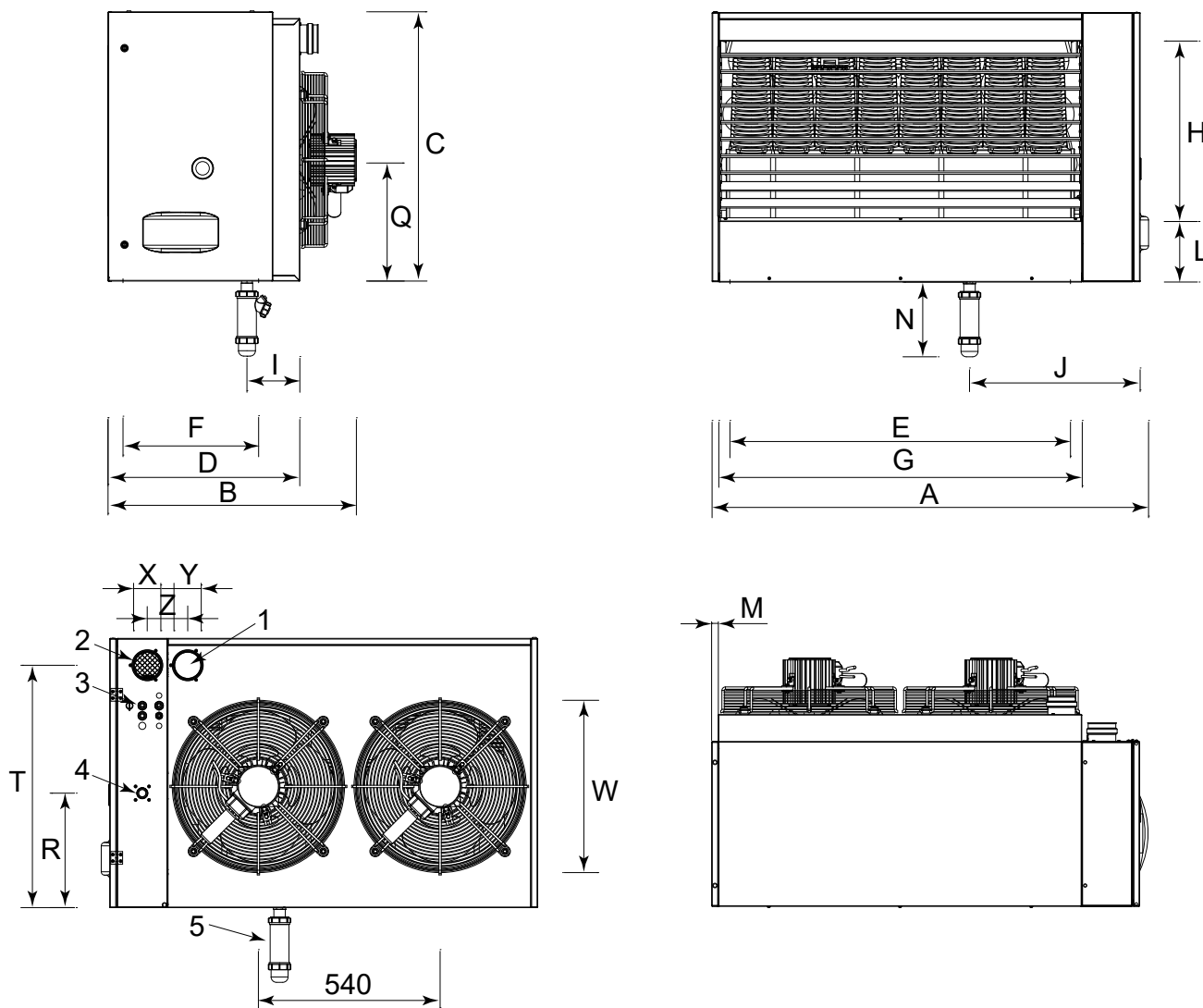**Figure 3.2** *G100 gas unit heater dimensions*

1    Flue gas exhaust
2    Combustion air inlet
3    Power supply cables input

4    Gas connection 3/4" F
5    Condensate drain siphon (supplied as standard)

**Table 3.1** *Dimensions*

|   | G30 | G45 | G60 | G100 |
|---|---|---|---|---|
| **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 |
| **I** | 157,2 | 157,2 | 157,2 | 157,2 |
| **J** | 307 | 327 | 371 | 507 |
| **L** | 180 | 180 | 180 | 180 |
| **M** | 20 | 20 | 20 | 20 |
| **N** | 223 | 223 | 223 | 223 |
| **Q** | 360 | 360 | 360 | 360 |
| **R** | 340 | 340 | 340 | 340 |
| **T** | 720 | 720 | 720 | 720 |
| **W** | 380 | 480 | 500 | 520 |
| **X** | 80 | 80 | 80 | 80 |
| **Y** | 80 | 80 | 80 | 80 |
| **Z** | 120 | 120 | 120 | 120 |

## 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*

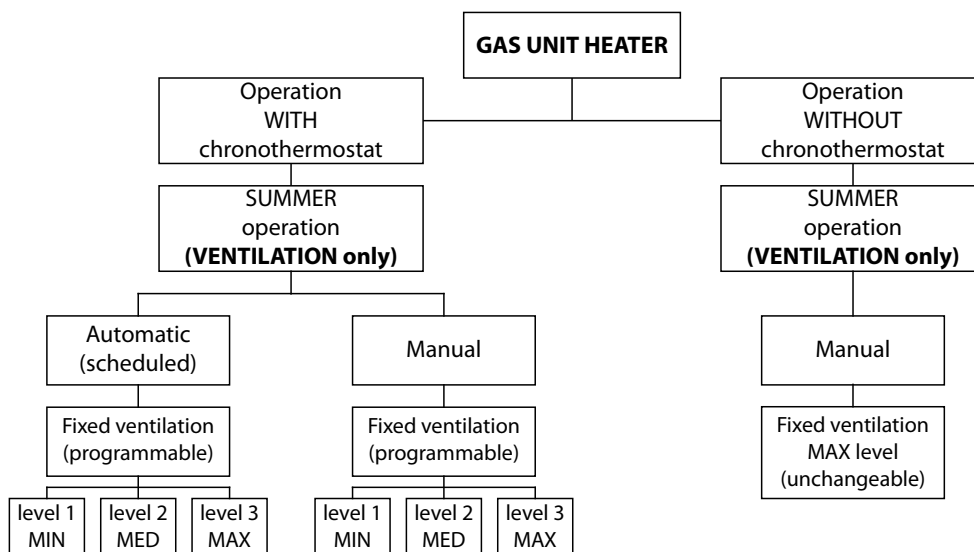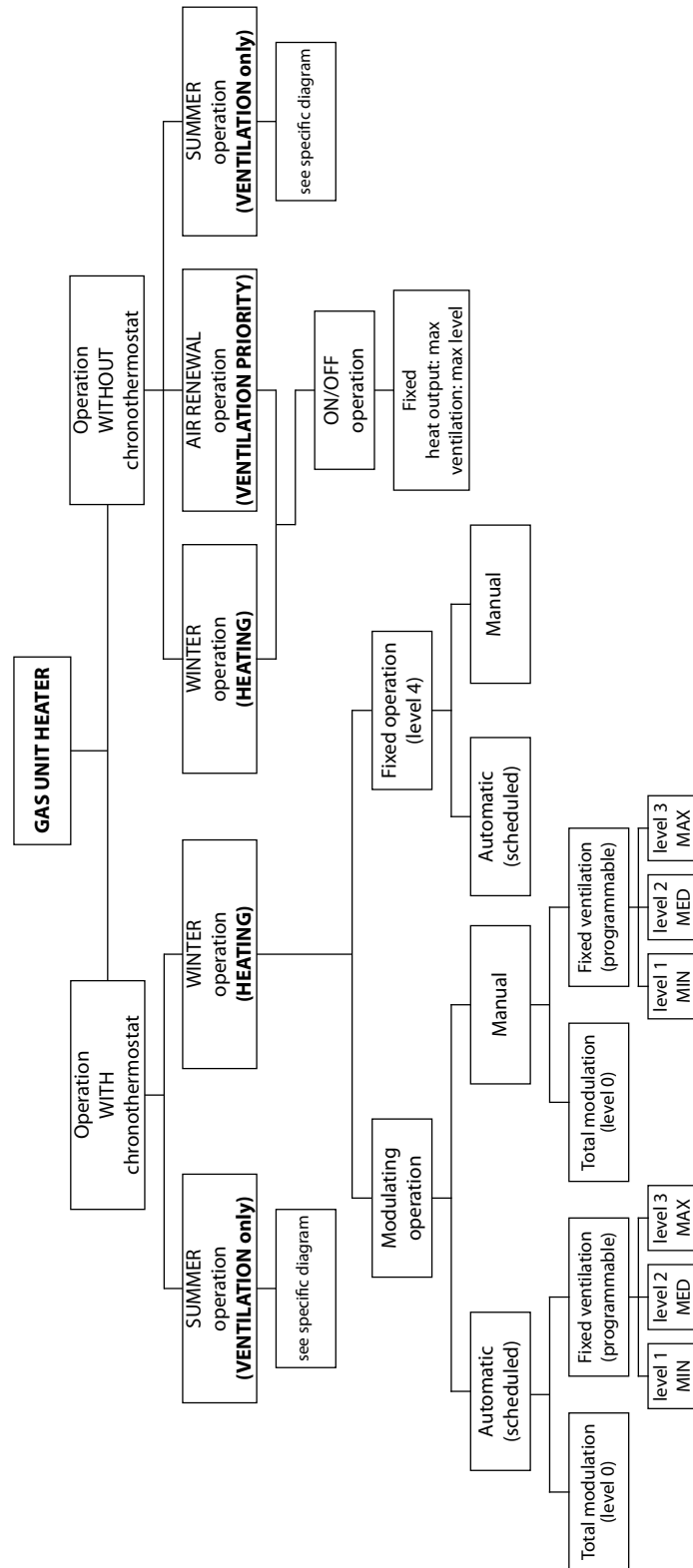| | GAS UNIT HEATER | |
|---|---|---|
| Operation WITH chronothermostat | | Operation WITHOUT chronothermostat |
| SUMMER operation **(VENTILATION only)** | | SUMMER operation **(VENTILATION only)** |
| Automatic (scheduled) | Manual | Manual |
| Fixed ventilation (programmable) | Fixed ventilation (programmable) | Fixed ventilation MAX level (unchangeable) |
| level 1 MIN / level 2 MED / level 3 MAX | level 1 MIN / level 2 MED / level 3 MAX | |

**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 further details refer to the Section C01.03.

## 3.4 TECHNICAL DATA

**Table 3.2** *Technical data*

| | | | G30 | G45 | G60 | G100 |
|---|---|---|---|---|---|---|
| **Heating mode** | | | | | | |
| **Heat input** | nominal (1013 mbar - 15 °C) (1) | kW | 30,0 | 45,0 | 58,0 | 93,0 |
| | minimum (1) | kW | 15,0 | | 19,3 | 31,7 |
| **Heat output** | nominal | kW | 29,2 | 43,3 | 56,2 | 90,2 |
| | minimum | kW | 15,8 | 15,6 | 20,2 | 33,5 |
| **Efficiency** | nominal heat input | % | 97,3 | 96,5 | 97,0 | |
| | minimal heat input | % | 105,3 | 104,3 | 104,6 | 105,7 |
| | useful at 100% heat input | % | 96,8 | 96,0 | 96,5 | |
| **Heat losses** | to flue in operation | % | 2,70 | 3,50 | 3,00 | |
| | to casing in operation | % | 0,50 | | | |
| | with burner off | % | 0,10 | | | |
| **Temperature rise** | nominal air flow rate | K | 29,0 | 32,0 | | 31,0 |
| | minimal air flow rate | K | 22,0 | 15,0 | 14,0 | 18,0 |
| **lenght of throw (residual speed < 0,5 m/s) (2)** | | m | 18,0 | 25,0 | 31,0 | 40,0 |
| **Ambient air temperature (dry bulb)** | maximum | °C | 35 (3) | | | |
| | minimum | °C | 0 | | | |
| **Electrical specifications** | | | | | | |
| **Power supply** | voltage | V | 230 | | | |
| | type | - | single-phase | | | |
| | frequency | Hz | 50 | | | |
| **Electrical power absorption** | nominal | kW | 0,21 | 0,33 | 0,58 | 1,00 |
| **fuse** | | A | 6,3 | | | |
| **Degree of protection** | fan motor | IP | 54 | | | 33 |
| | appliance | IP | 20 | | | |
| **Installation data** | | | | | | |
| **Gas consumption** | G20 natural gas (nominal) | m³/h | 3,17 | 4,76 | 6,14 | 9,84 |
| | G25 (nominal) | m³/h | 3,69 | 5,54 | 7,14 | 11,45 |
| | G25.1 (nominal) | m³/h | 3,69 | 5,53 | 7,13 | 11,43 |
| | G25.3 (nominal) | m³/h | 3,16 | 5,42 | 6,98 | 11,19 |
| | G27 (nominal) | m³/h | 3,87 | 5,81 | 7,49 | - |
| | G2.350 (nominal) | m³/h | 4,41 | 6,62 | 8,53 | - |
| | G30 (nominal) | kg/h | 2,37 | 3,55 | 4,57 | 7,33 |
| | G31 (nominal) | kg/h | 2,33 | 3,55 | 4,51 | 7,22 |
| **Air flow** | nominal | m³/h | 2840 | 3850 | 5050 | 8250 |
| | minimum | m³/h | 2050 | 2900 | 4000 | 5200 |
| **Gas connection** | type | - | F | | | |
| | thread | " | 3/4 | | | |
| **Flue gas exhaust** | diameter (Ø) | mm | 80 | | | |
| | residual head | Pa | 65 | 100 | 120 | 200 |
| | type of installation | - | B23, C13, C33, C53, C63 | | | |
| **Combustion air intake connection** | diameter (Ø) | mm | 80 | | | |
| **maximum flow flue condensate** | | l/h | 4,6 | 6,9 | 8,9 | 14,4 |
| **recommended height** | | m | 3,0 ÷ 3,5 | | | |
| **sound power $L_w$ (max)** | | dB(A) | 79,0 | 85,5 | 89,5 | |
| **sound power $L_w$ (min)** | | dB(A) | 73,5 | 79,5 | 83,5 | |
| **sound pressure $L_p$ at 5 metres (max)** | | dB(A) | 57,0 | 63,5 | 67,5 | |
| **sound pressure $L_p$ at 5 metres (min)** | | dB(A) | 51,5 | 57,5 | 61,5 | |
| **Dimensions** | depth | mm | 710 | 715 | 720 | 740 |
| | height | mm | 800 | | | |
| | width | mm | 656 | 706 | 796 | 1296 |
| **Weight** | in operation | kg | 55 | 65 | 75 | 120 |
| **General information** | | | | | | |
| **number of heat exchangers** | | - | 2 | 3 | 4 | 8 |
| **type of heat exchangers** | | - | tower | | | |
| **number of fans** | | - | 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.