

**Air is enough...**

for heating, domestic hot water production and cooling

**A CHOICE SMARTER  
than solar systems**



**Gitie**

**Trivalent integrated  
outdoor package**

with absorption heat pump powered  
by natural gas and air-source renewable energy

# Gitié Trivalent integrated outdoor package

with absorption heat pump powered by natural gas and renewable energy

**Gitié is the perfect blend of two winning technologies:** the air-source absorption heat pump and the condensing boiler, both powered by natural gas. **Gitié, integrated, pre-assembled and custom-made in the manufacturing plant, is a fully plug-‘n-play system.** This can facilitate correct installation, avoiding the complexity of the integration on field of solar thermal systems.




## 1

Gitié is the all-in-one solution **replacing a solar thermal system:**

- ✓ ideal for residential, industrial, commercial and hospitality facilities;
- ✓ **suitable for both new and existing buildings** as it's for fitting in heating systems with low temperature (radiant heating or fan coils) or high temperature (radiators) distribution systems;
- ✓ **compliant with the future regulations** in terms of renewable energy use and reduction of emissions.

## 2

Gitié can provide up to **3 services:**

- ✓ heating 
- ✓ hot water production up to 80 °C 
- ✓ cooling 

## 3

Gitié can provide:

- ✓ **a cost-effective solution using air-source renewable energy** replacing a “boiler + solar system”;
- ✓ **the highest gas heating efficiency** in the world;
- ✓ **cooling with natural gas** and low electric consumption.

A choice smarter  
than solar systems **Gitié**



# Gitié 3 reasons for the choice

**1** For each kW of natural gas equivalent used, Gitié adds **0.5 kW of free air-source renewable energy** available 24-hours-a-day.

**2** Gitié has a **seasonal average heating efficiency of 158%<sup>(1)</sup>** thanks to the use of renewable energy.

(1) G.U.E. - Gas Utilization Efficiency - equivalent to COP 4.13 considering an energy conversion factor of 2.5.

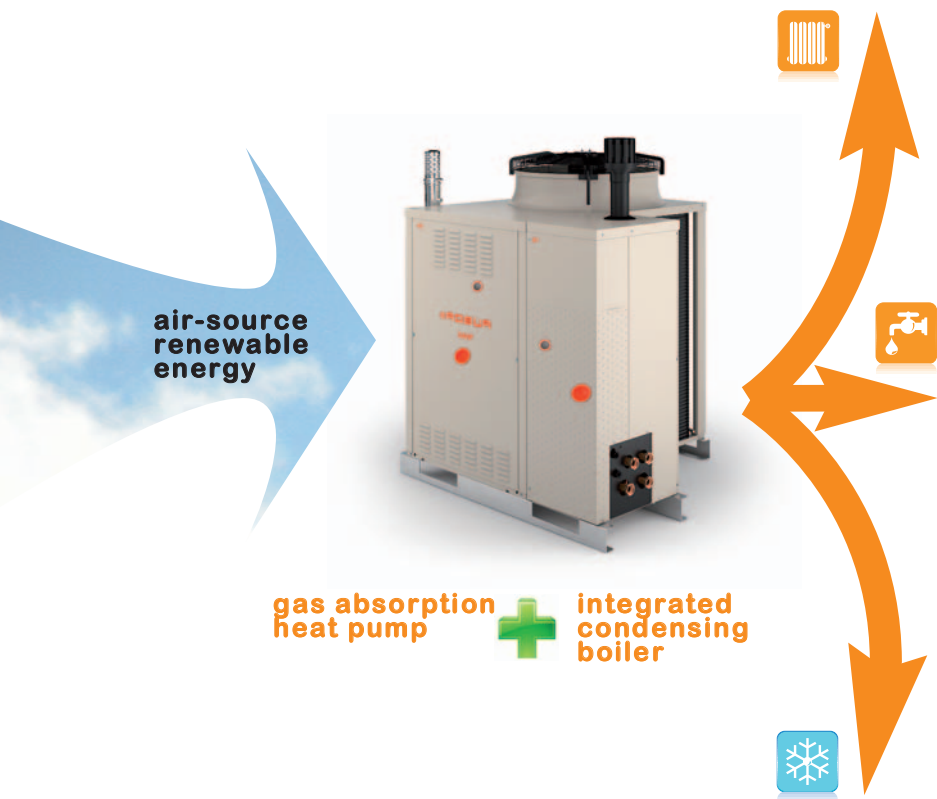
**3** Gitié **capital cost is convenient** and it provides **up to 40% of running cost savings** if compared with similar solutions.



Environmentally friendly  
Efficient  
Cost-effective **Gitié**



**heating with 158%  
of average  
seasonal efficiency**



**air-source  
renewable  
energy**



**gas absorption  
heat pump + integrated  
condensing  
boiler**



**domestic hot water  
production up to 80°C**



**cooling with negligible  
electric consumption**

# The absorption heat pump

powered by natural gas and air-source renewable energy

- It has been presented at the European Parliament as one of the most innovative heating technologies during the Gas Week 2013.
- It is supported by European Commission under the EU's Seventh Framework Programme for Research and Technological Development.
- It has been tested and certified by EBI, DVGW Forschungsstelle and VDE (Germany), Cetiat (France), California Energy Commission (USA), ENEA and RSE (Italy).



## Environmental and energy efficiency declaration available for each customer

FACSIMILE



Robur declares that  
<<COMPANY NAME>>

has chosen <<1>> Absorption Heat Pump  
powered by natural gas + renewable energy

For 1 kW of natural gas equivalent used, every unit  
adds **0.5 kW of renewable energy**  
available 24-hours-a-day for free

<<1>> Robur Gas Absorption Heat Pump every year

- uses **12,954 kWh** of renewable energy <sup>(1)</sup>
- cuts **CO<sub>2</sub> emissions by 4.2 Tons**  
equivalent to those produced by **2 cars** <sup>(2)</sup>  
or absorbed by **599 trees** <sup>(3)</sup> if compared to a boiler <sup>(4)</sup>
- saves **1.6 TOE** (Tons of Oil Equivalent) <sup>(5)</sup>

Verdellino, February 2014

Benito Guerra  
Robur President

FACSIMILE



Gas Absorption Heat Pumps are **ENVIRONMENTALLY FRIENDLY** as they use **natural refrigerants with Global Warming Potential (GWP) next to zero**, being the best solution for fighting global warming

All data are tested and certified by the following international laboratories: EBI, DVGW Forschungsstelle and VDE (Germany), Cetiat (France), California Energy Commission (USA), ENEA and RSE (Italy).

- At nominal running conditions for 1,000 hours per year.
- Referring to a car covering 15,000 km/year and producing 140 g/km of CO<sub>2</sub>. Source: ACEA European Automobile Manufacturers' Association.
- Referring to 1,000 square meters of forest absorbing 500 kg/year of CO<sub>2</sub>. Source: LifeGate.
- Considering that each Gas Absorption Heat Pump saves more than 2,000 m<sup>3</sup> of natural gas every year at nominal running conditions for 1,000 hours per year, compared to a standard boiler (average efficiency - Source: AEEG - Regulatory Authority for Electricity and Gas). Assuming that the combustion of 1 m<sup>3</sup> of natural gas produces 1.94 kg of CO<sub>2</sub>.
- At nominal running conditions for 1,000 hours per year compared to a standard boiler (average efficiency - Source: AEEG - Regulatory Authority for Electricity and Gas).



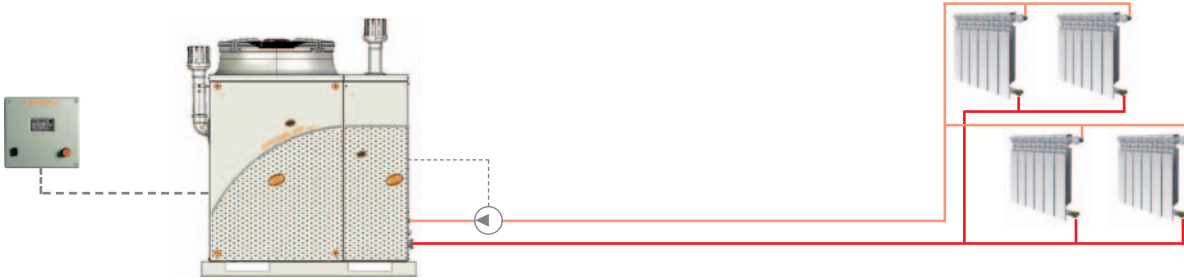
Integrated outdoor package comprising of:

- ✔ air-source gas absorption heat pump
- ✔ condensing boiler

## 1

### HEATING - 2-pipe version

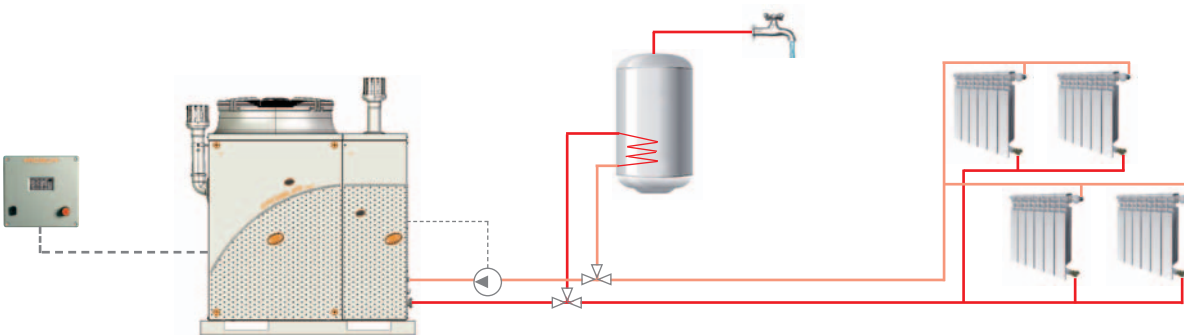
- ✔ **Nominal heating capacity 72.2 kW.** Heating hot water production up to 65 °C
- ✔ **Lead and lag sequencing management**



## 2

### HEATING OR DOMESTIC HOT WATER PRODUCTION - 2-pipe version

- ✔ **Nominal heating capacity 72.7 kW.** Hot water production up to 65 °C and domestic hot water production up to 80 °C
- ✔ Smart control of the heating and DHW production requests

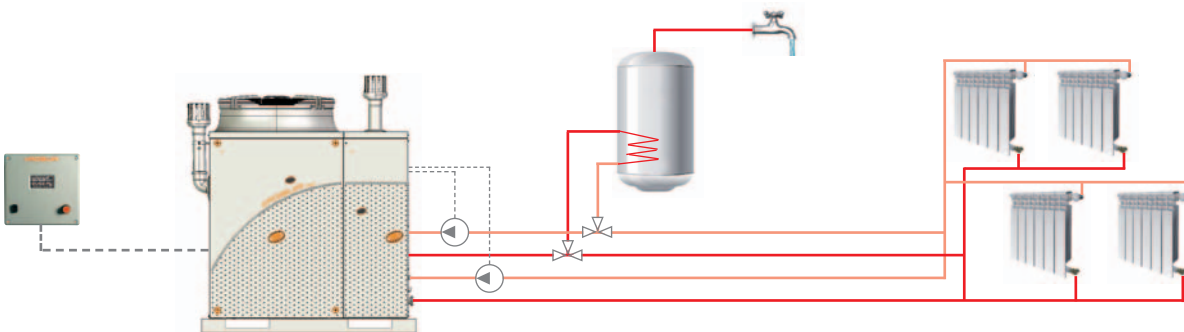


## 3

### HEATING AND SIMULTANEOUS DOMESTIC HOT WATER PRODUCTION 4-pipe version

4-pipe version

- ✔ **Nominal heating capacity 38.3 + 34.4 kW.** Hot water production up to 65 °C and domestic production up to 80 °C
- ✔ Smart control of heating and DHW production



3 different versions of **Gitié**

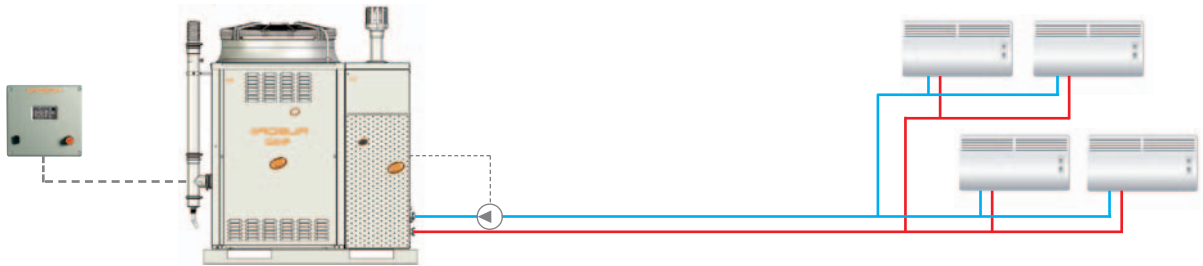
Trivalent integrated outdoor package comprising of:

- air-source **reversible** gas absorption heat pump
- condensing boiler

## 1

### HEATING OR COOLING - 2-pipe version

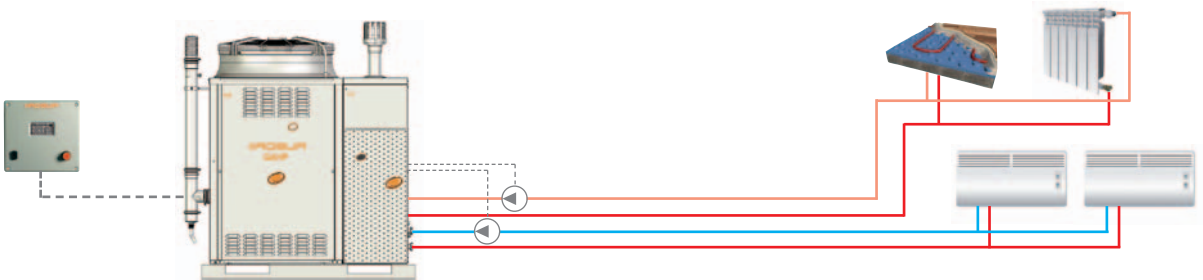
- Nominal heating capacity 72.2 kW.** Hot water production up to 60 °C
- Nominal cooling capacity 16.9 kW.** Cold water production down to 3 °C
- Alternative heating or cooling production



## 2

### SIMULTANEOUS HEATING AND COOLING - 4-pipe version

- Nominal heating capacity 72.2 kW.** Hot water production up to 60 °C
- Nominal cooling capacity 16.9 kW.** Cold water production down to 3 °C
- Two different hydronic loops: one for low temperature heating (radiant or fan coils) or cooling and one for DHW production or heating integration

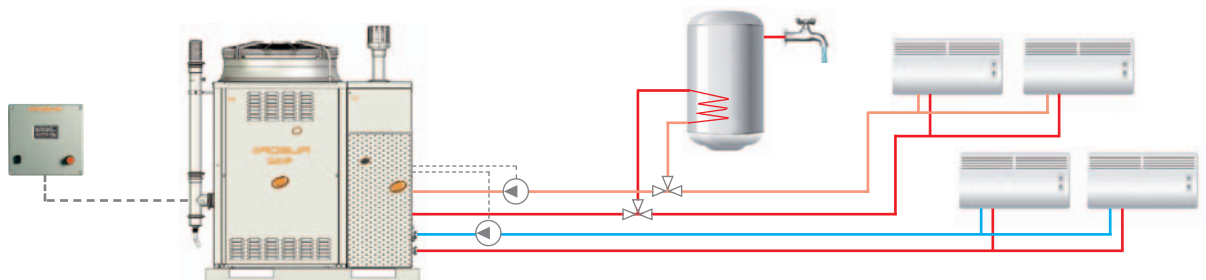


## 3

### HEATING, COOLING AND DOMESTIC HOT WATER PRODUCTION

4-pipe version

- Nominal heating capacity 72.2 kW.** Hot water production up to 60 °C
- Nominal cooling capacity 16.9 kW.** Cold water production down to 3 °C
- Two different hydronic loops: one for heating or cooling and one for DHW production or heating integration



Please refer to the installation manual  
for planning and installation questions

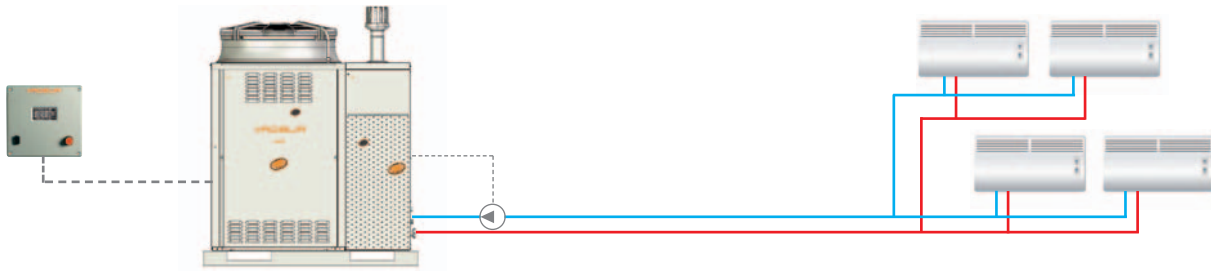


Trivalent integrated outdoor package comprising of:

- ✓ gas absorption **chiller**
- ✓ condensing boiler

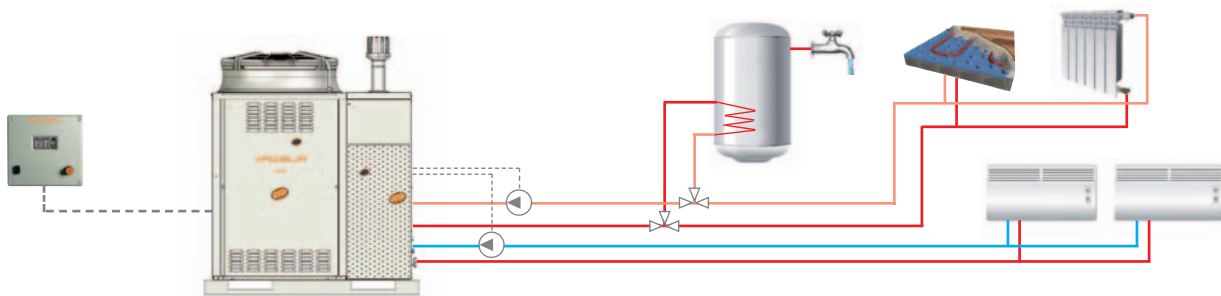
## 1 HEATING OR COOLING - 2-pipe version

- ✓ **Nominal heating capacity 34.4 kW.** Hot water production up to 80 °C
- ✓ **Nominal cooling capacity 17.72 kW.** Cold water production down to 3 °C
- ✓ Alternative heating or cooling



## 2 SIMULTANEOUS HEATING AND COOLING - 4-pipe version

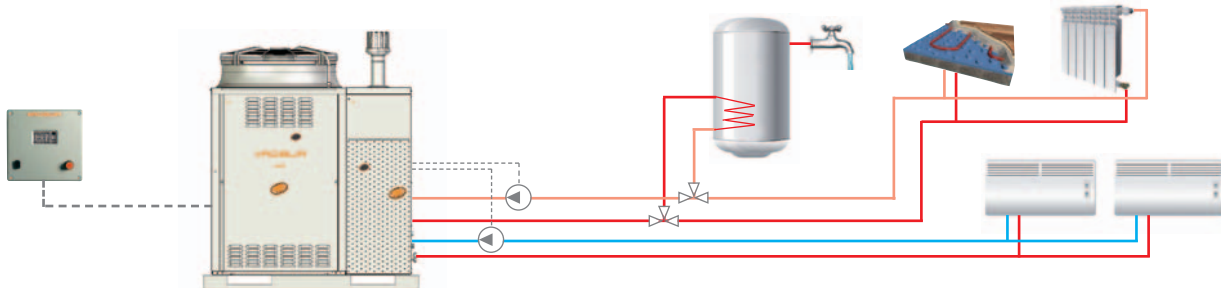
- ✓ **Nominal heating capacity 34.4 kW.** Hot water production up to 80 °C
- ✓ **Nominal cooling capacity 17.72 kW.** Cold water production down to 3 °C



## 3 HEATING, COOLING AND DOMESTIC HOT WATER PRODUCTION

4-pipe version

- ✓ **Nominal heating capacity 34.4 kW.** Hot water production up to 80 °C
- ✓ **Nominal cooling capacity 17.72 kW.** Cold water production down to 3 °C
- ✓ Winter mode: heating and domestic hot water production;  
summer mode: cooling and domestic hot water production



## STANDARD CONFIGURATION

- ✓ 4-pipe service plate for water and gas connections
- ✓ Electrical box for:
  - ✓ external control systems connections (like room thermostats, timers etc.)
  - ✓ Direct Digital Control (optional) connection
  - ✓ water pumps connection
- ✓ Steel rail

## LOW-NOISE VERSION

With low-noise fan unit and a special sound-proof insulated casing.  
Ideal for installations where noise reduction is required.

## HYDRAULIC KIT AVAILABLE

### 2-PIPE KIT (/2 C0)

- ✓ Single water loop
- ✓ Two motorized and factory wired check valves to optimize the efficiency of the system

### 2-PIPE KIT WITH CIRCULATORS (/2 C1)

- ✓ Single water loop with circulators
- ✓ Two high efficiency and factory wired circulators (already compliant with ErP Directive) to optimize the water flow and efficiency of the system

### 4-PIPE KIT WITH CIRCULATORS (/4 C1)

- ✓ Two independent water loops with circulators
- ✓ Two high efficiency and factory wired circulators (already compliant with ErP Directive) to optimize the water flow of the system

## OPTIONAL COMPONENTS

- ✓ Direct Digital Control for a smart system management
- ✓ RoburBox100 for a smart control interface of cooling and domestic hot production management (Direct Digital Control required)
- ✓ Outdoor temperature probe
- ✓ CAN BUS cable
- ✓ Vibration dampers
- ✓ High efficiency circulators (already compliant with ErP Directive) with increased pressure head

# Standard & optional components

**HEATING MODE <sup>(1)</sup>**

Heating capacity – gas absorption heat pump (A7/W50)	kW	<b>38.3</b>	--	--
G.U.E. gas utilization efficiency – gas absorption heat pump (A7/W50) <sup>(2)</sup>	%	152	--	--
Heating capacity – reversible gas absorption heat pump (A7/W35)	kW	--	<b>37.8</b>	--
G.U.E. gas utilization efficiency – reversible gas absorption heat pump (A7/W35) <sup>(3)</sup>	%	--	150	--
Heating capacity – condensing boiler (water 80/60 °C)	kW	<b>34.4</b>	<b>34.4</b>	<b>34.4</b>
Efficiency – condensing boiler (50/30 °C)	%	104.6	104.6	104.6
Maximum outlet water temperature heating/DHW	°C	65/80	60/80	80/80
Maximum inlet water temperature heating/DHW	°C	55/70	50/70	70/70
Outdoor operating temperature (dry bulb)	max	°C	40	45
	min	°C	-15	-20

**COOLING MODE**

Cooling capacity (A35/W7)	kW	--	<b>16.9</b>	<b>17.72</b>
G.U.E. gas utilization efficiency (A35/W7)	%	--	67	71
Minimum outlet water temperature	°C	--	3	3
Inlet water temperature max/min	°C	--	45/6	45/6
Outdoor operating temperature (dry bulb)	max	°C	--	45
	min	°C	--	0

Thermal input max	kW	60.1	60.1	60.0
Gas consumption max	Natural gas G20 <sup>(4)</sup>	m <sup>3</sup> /h	6.36	6.36
	LPG G30/G31 <sup>(5)</sup>	kg/h	4.71	4.71

**ELECTRICAL DATA**

Voltage 230 V – 50 Hz		230 V – 50 Hz		
Nominal electrical consumption <sup>(6)(7)</sup>	standard version	kW	1.085	1.085
	low noise version - max/min speed	kW	0.955/0.685	1.115

**INSTALLATION DATA**

Weight	standard version	kg	490/515	480/505	440/465
	low noise version	kg	500/525	490/515	460/485
Sound power L <sub>w</sub> <sup>(8)</sup>	standard version	dB(A)	82.1	82.1	82.1
	low noise version - fan max/min speed	dB(A)	75.3/72.3	76.1	76.1
Sound pressure L <sub>p</sub> at 5 metres <sup>(9)</sup>	standard version	dB(A)	60.1	60.1	60.1
	low noise version - fan max/min speed	dB(A)	53.3/50.3	54.1	54.1
Hydraulic Connections	water outlet/inlet (4 pipes version)	" F	1 1/4	1 1/4	1 1/4
	water outlet/inlet (2 pipes version)	" F	1 1/2	1 1/2	1 1/2
	natural gas	" M	3/4	3/4	3/4
	exhaust pipe – gas absorption heat pump	mm	80	80	80
	exhaust pipe – condensing boiler	mm	80	80	80
IP Class		IP	X5D	X5D	X5D
Size	width	mm	1,370	1,370	1,370
	depth	mm	1,258	1,258	1,258
	height <sup>(10)</sup>	mm	1,290	1,290	1,290

<sup>(1)</sup> Nominal conditions according to EN 12309-2.<sup>(2)</sup> Equivalent to COP 3.8 considering an energy conversion factor of 2.5.<sup>(3)</sup> Equivalent to COP 3.75 considering an energy conversion factor of 2.5.<sup>(4)</sup> NCV 34.02 MJ/m<sup>3</sup> (9.45 kWh/m<sup>3</sup>) at 15 °C - 1013 mbar.<sup>(5)</sup> NCV 46.34 MJ/kg (12.87 kWh/kg) at 15 °C - 1013 mbar.<sup>(6)</sup> ± 10% tolerance depending on the electric voltage and engine consumption.<sup>(7)</sup> Version with circulators: 280 W extra.<sup>(8)</sup> Sound power levels measured according to EN ISO 9614.<sup>(9)</sup> Free field, front, direction factor 2.<sup>(10)</sup> 1,540 mm for low-noise version; not including exhaust pipe.

## ROBUR VALUES

### Mission

Robur is dedicated to dynamic progression in research, development and promotion of safe, environmentally-friendly, and energy-efficient products, through the commitment and caring of its employees and partners

### Vision

Robur turns THE LOVE FOR BEAUTY AND WELL-MADE THINGS into innovative heating and cooling systems that are especially designed and developed to answer the specific needs of Man

### 7 pillars

Sharing values  
Training  
Quality  
Innovation  
Service  
Social responsibility  
Testimony



### Robur S.p.A.

advanced heating and cooling technologies

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