

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%⁽¹⁾** 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.

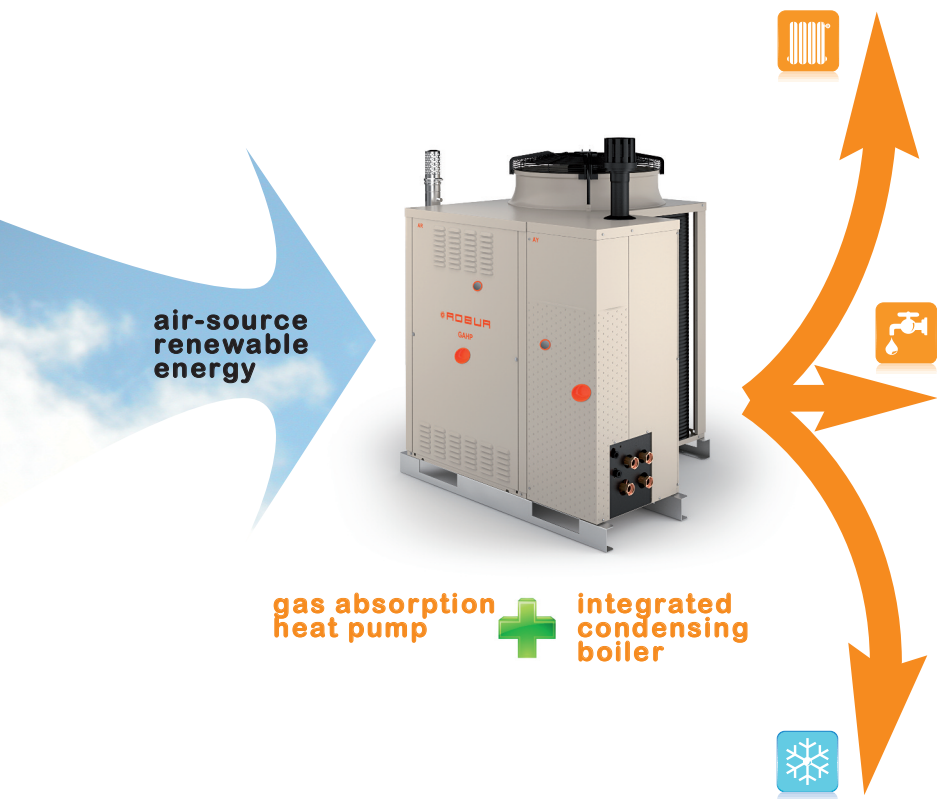
3 Gitié **capital cost is convenient** and it provides **up to 40% of running cost savings** if compared with similar solutions.



Environmentally friendly
Efficient
Cost-effective **Gitié**



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



**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 ⁽¹⁾
- cuts **CO₂ emissions by 4.2 Tons**
equivalent to those produced by **2 cars** ⁽²⁾
or absorbed by **599 trees** ⁽³⁾ if compared to a boiler ⁽⁴⁾
- saves **1.6 TOE** (Tons of Oil Equivalent) ⁽⁵⁾

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).

- (1) At nominal running conditions for 1,000 hours per year.
- (2) Referring to a car covering 15,000 km/year and producing 140 g/km of CO₂. Source: ACEA European Automobile Manufacturers' Association.
- (3) Referring to 1,000 square meters of forest absorbing 500 kg/year of CO₂. Source: LifeGate.
- (4) Considering that each Gas Absorption Heat Pump saves more than 2,000 m³ 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 m³ of natural gas produces 1.94 kg of CO₂.
- (5) 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).



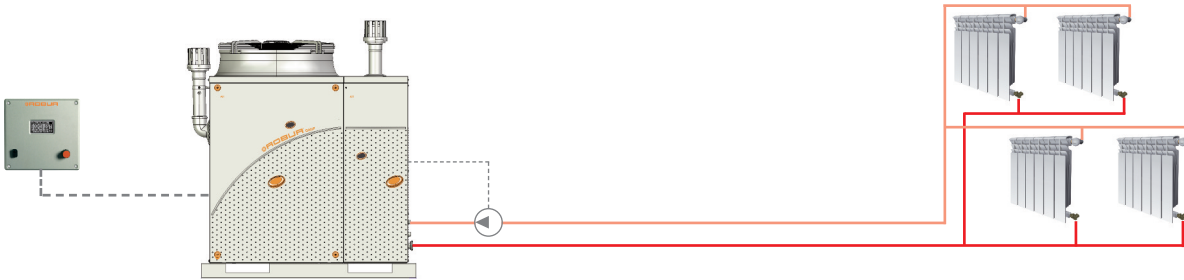
Integrated outdoor package comprising of:

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

1

HEATING - 2-pipe version

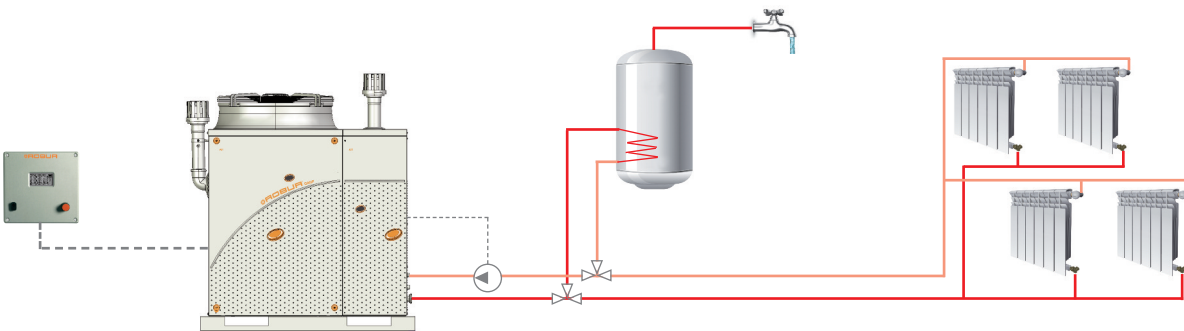
- ✓ **Nominal heating capacity 72.2 kW.** Heating hot water production up to 65 °C
- ✓ **Lead and lag sequencing management**



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**

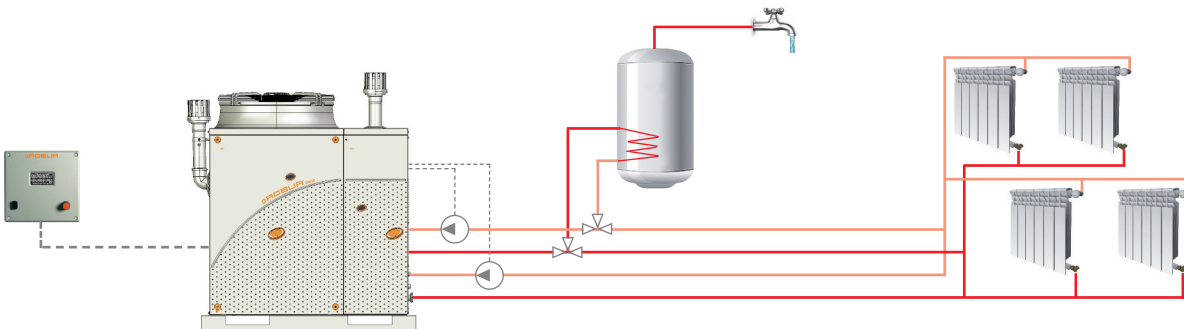


3

HEATING AND SIMULTANEOUS DOMESTIC HOT WATER PRODUCTION

4-pipe version

- ✓ **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**

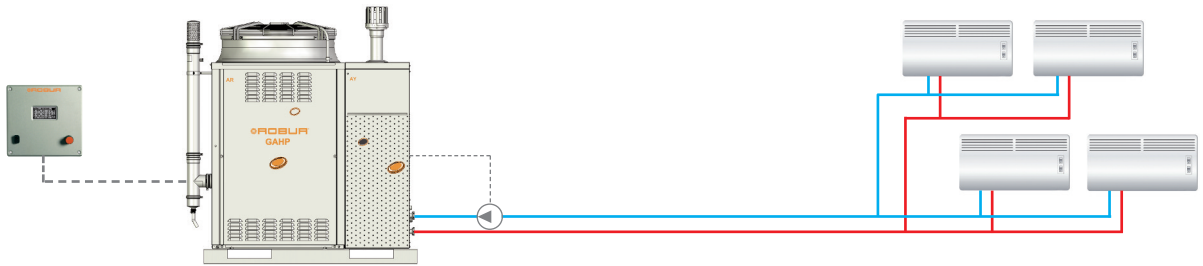
Trivalent integrated outdoor package comprising of:

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

1

HEATING OR COOLING - 2-pipe version

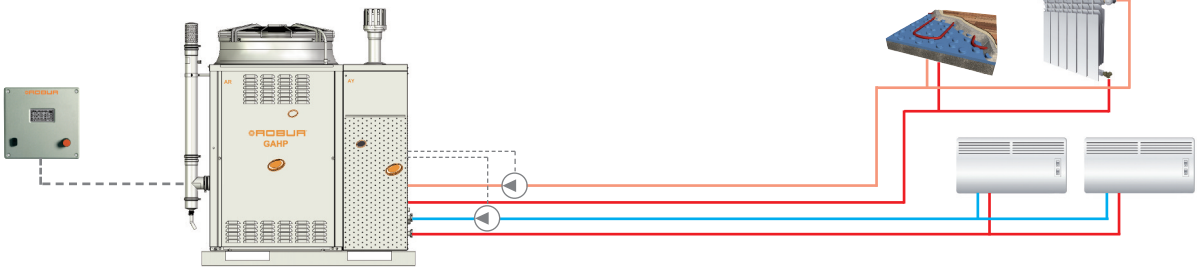
- Nominal heating capacity 72.2 kW.** Hot water production up to 60 °C
- Nominal cooling capacity 16.9 kW.** Cold water production down to 3 °C
- Alternative heating or cooling production



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

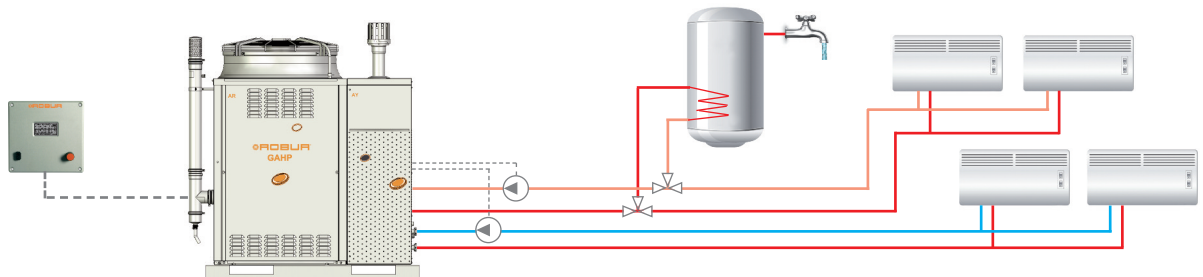


3

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



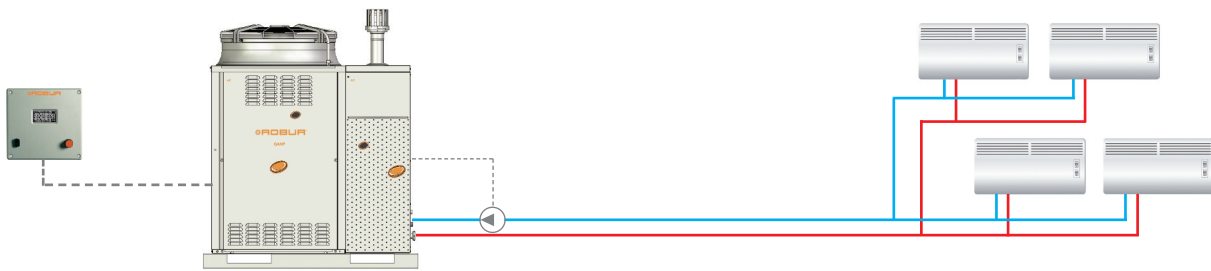
Please refer to the installation manual for planning and installation questions

Trivalent integrated outdoor package comprising of:

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

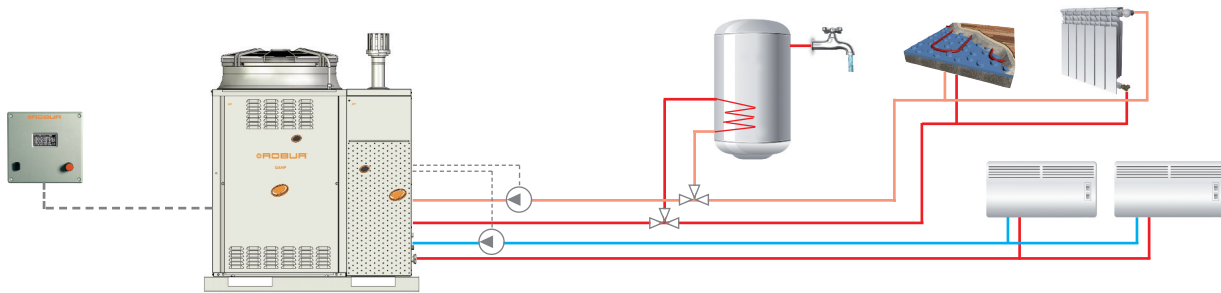
1 HEATING OR COOLING - 2-pipe version

- ✓ **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

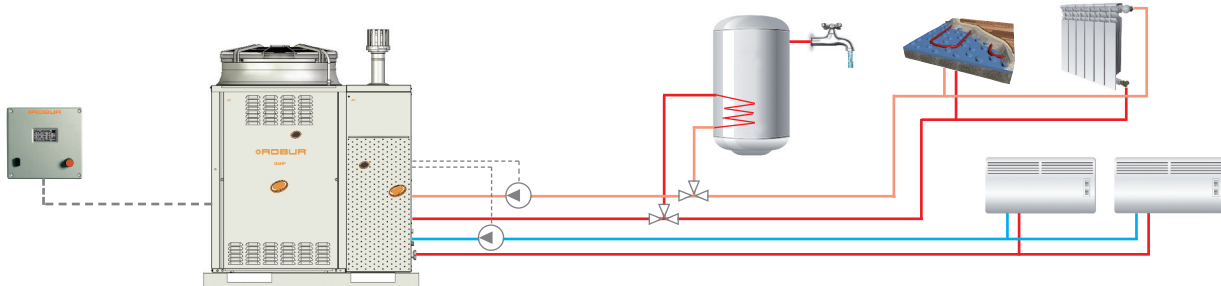
- ✓ **Nominal heating capacity 34.4 kW.** Hot water production up to 80 °C
- ✓ **Nominal cooling capacity 17.72 kW.** Cold water production down to 3 °C



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 ⁽¹⁾

Heating capacity – gas absorption heat pump (A7/W50)	kW	38.3	--	--
G.U.E. gas utilization efficiency – gas absorption heat pump (A7/W50) ⁽²⁾	%	152	--	--
Heating capacity – reversible gas absorption heat pump (A7/W35)	kW	--	37.8	--
G.U.E. gas utilization efficiency – reversible gas absorption heat pump (A7/W35) ⁽³⁾	%	--	150	--
Heating capacity – condensing boiler (water 80/60 °C)	kW	34.4	34.4	34.4
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	--	16.9	17.72
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 ⁽⁴⁾	m ³ /h	6.36	6.36
	LPG G30/G31 ⁽⁵⁾	kg/h	4.71	4.71

ELECTRICAL DATA

Voltage 230 V – 50 Hz		230 V – 50 Hz		
Nominal electrical consumption ⁽⁶⁾⁽⁷⁾	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 _w ⁽⁸⁾	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 _p at 5 metres ⁽⁹⁾	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 ⁽¹⁰⁾	mm	1,290	1,290	1,290

⁽¹⁾ Nominal conditions according to EN 12309-2.⁽²⁾ Equivalent to COP 3.8 considering an energy conversion factor of 2.5.⁽³⁾ Equivalent to COP 3.75 considering an energy conversion factor of 2.5.⁽⁴⁾ NCV 34.02 MJ/m³ (9.45 kWh/m³) at 15 °C - 1013 mbar.⁽⁵⁾ NCV 46.34 MJ/kg (12.87 kWh/kg) at 15 °C - 1013 mbar.⁽⁶⁾ ± 10% tolerance depending on the electric voltage and engine consumption.⁽⁷⁾ Version with circulators: 280 W extra.⁽⁸⁾ Sound power levels measured according to EN ISO 9614.⁽⁹⁾ Free field, front, direction factor 2.⁽¹⁰⁾ 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

Via Parigi 4/6

24040 Verdellino/Zingonia (BG) Italy

T +39 035 888111 F +39 035 884165

www.robur.com export@robur.it