



Condensing absorption heat pump powered by gas and water source renewable energy.

For the simultaneous heating and cooling or simultaneous production of hot water up to 65 °C and cold water up to 3 °C.

## GAHP-WS

- Up to 42.6% utilisation of water source renewable energy. Designed to exceed peak efficiencies (G.U.E.) of 174%<sup>(1)</sup>, guaranteeing reductions in annual heating costs and in CO<sub>2</sub> emissions compared to the best condensing boilers.

<sup>(1)</sup> Equivalent to COP 4.35 on energy conversion factor of 2.5.

- Simultaneous production of heating and cooling capacity, with overall efficiency of 244%.
- It permits a considerable promotion of the building's energy classification with the consequent **increase in the value of the building.**

**42.6%** renewable energy

**174%** heating efficiency

**Increase** in property value



Please also refer to planning manual. Pdf download under [www.robur.com](http://www.robur.com)

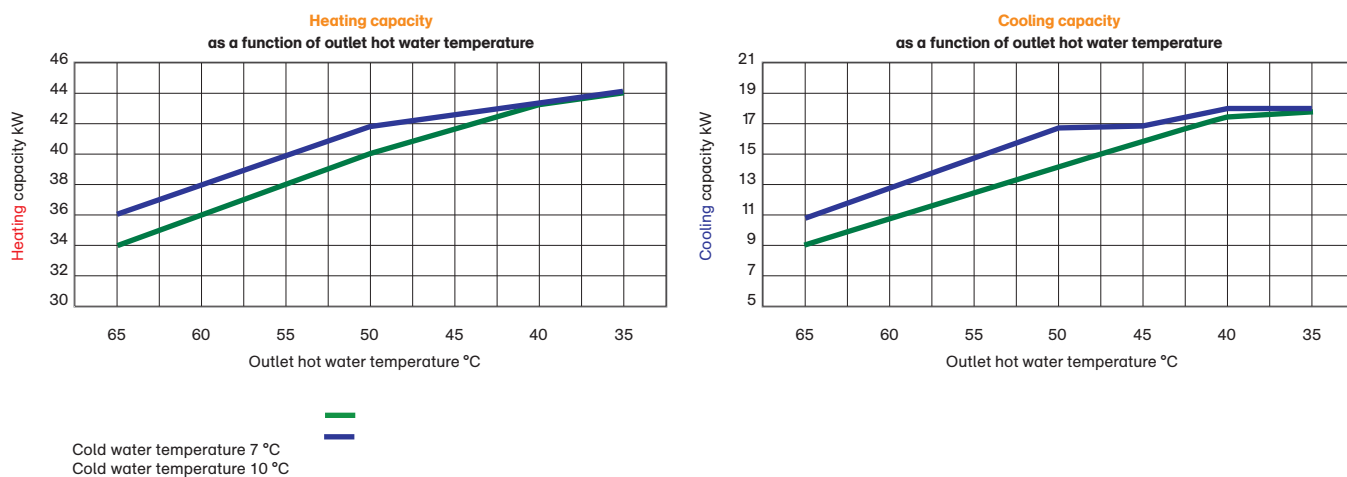
Find more <http://www.robur.com/products/pro-solutions/pro-gahp-line-ws-series/description.html>

- In case of contemporary use, external sources are not required, **thus reducing system and management costs.**
- **It reduces electricity consumption** thanks to the prevalent use of gas.
- With a GAHP-WS, every year **4.8 Tons of CO<sub>2</sub> emissions are saved**, which are equivalent to those absorbed by 678 trees or those produced by 2 green cars; every year 2 TOE are saved.

**244%** overall efficiency with simultaneous use

**-4.8** Tons of CO<sub>2</sub> per unit

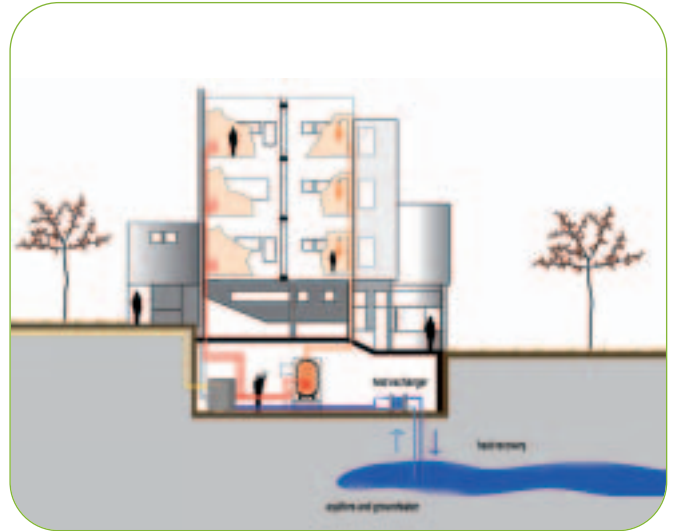
Trend of heating capacity (condenser) and cooling capacity (evaporator) in function of operating temperatures of the system.



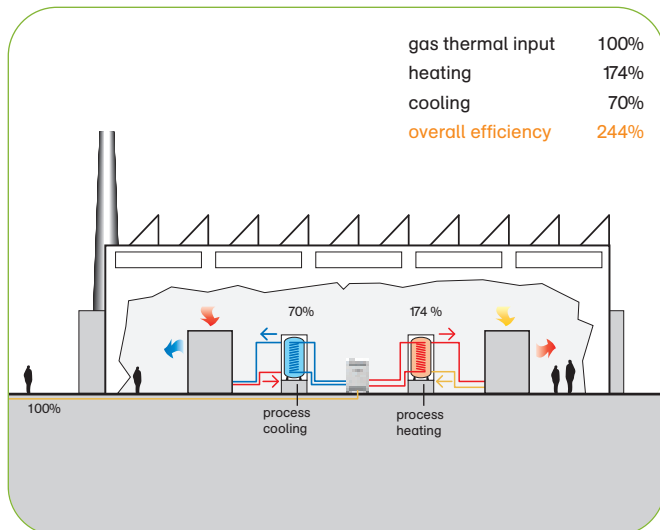
# Heating and cooling

### Applications

- Ideal for heating and DHW production. Preheating of DHW in summer in cooling operation (i.e. swimming pools).
- For new buildings and for refurbishment and retrofitting.
- For outdoor and indoor installation.



# Simultaneous production of hot and cold water



### Applications

- Simultaneous production of heating and cooling capacity, with overall efficiency of 244%<sup>(1)</sup>, recovering energy form renewable energy sources.

- Systems that simultaneously require heating and cooling (hospitals, manufacturing process or liquid-ring-based air conditioning systems).
- For outdoor and indoor installation.

<sup>(1)</sup> Equivalent to COP 6.10 on energy conversion factor of 2.5.



HEATING OPERATION MODE <sup>(1)</sup>			GAHP-WS
Working point W10/W35	G.U.E. (gas utilization efficiency) <sup>(2)</sup>	%	174
	heating capacity	kW	43.9
Working point W10/W50	capacity recovered from renewable source	kW	17.6
	heating capacity	%	165
Working point W10/W50	G.U.E. (gas utilization efficiency)	kW	41.6
	capacity recovered from renewable source	kW	16.6
Nominal water flow rate ( $\Delta T = 10\text{ }^{\circ}\text{C}$ )		m <sup>3</sup> /h	3.57
Nominal water pressure loss (outlet water at 50 °C)		kPa	57
Maximum outlet water temperature for heating/DHW		°C	65/70
Maximum inlet water temperature for heating/DHW		°C	55/60
COOLING OPERATION MODE			
Working point W7/W35	cooling capacity	kW	17.6
	supplied capacity - condenser	kW	43.9
Working point W7/W50	cooling capacity	kW	14.7
	supplied capacity - condenser	kW	39.9
OPERATION WITH SIMULTANEOUS USE			
Working point W10/W35 - Overall efficiency		%	244
Working point W10/W50 - Overall efficiency		%	231
BURNER CHARACTERISTICS			
Thermal input (actual)		kW	25.2
Gas consumption (actual)	natural gas G20 <sup>(3)</sup>	m <sup>3</sup> /h	2.67
	LPG G30/G31 <sup>(4)</sup>	kg/h	1.99/1.96
ELECTRICAL CHARACTERISTICS			
Voltage		230 V – 50 Hz	
Nominal electrical power <sup>(5)</sup>		kW	0.41
INSTALLATION DETAILS			
Operational Weight		kg	300
Sound pressure at 10 metres <sup>(6)</sup>		dB(A)	37
Connections	water	" F	1 1/4
	gas	" F	3/4
	flue exhaust pipe	mm	80

<sup>(1)</sup> Nominal conditions according to EN 12309-2.

<sup>(2)</sup> Equivalent to COP 4.35 on energy conversion factor of 2.5.

<sup>(3)</sup> NCV 34.02 MJ/m<sup>3</sup> (9,45 kWh/m<sup>3</sup>) at 15 °C - 1013 mbar.

<sup>(4)</sup> NCV 46.34 MJ/kg (12,87 kWh/kg) at 15 °C - 1013 mbar.

<sup>(5)</sup> ± 10% depending on the power supply voltage and on the tolerance of the electrical motors power consumption.

<sup>(6)</sup> Free field, at the front, direction factor 2. The values refer to the maximum measured.

Note: The capacity above mentioned is also the capacity available for cooling. For any further information, please refer to planning manual.

## Solutions for heating, DHW production and cooling



with high efficiency water source heat pumps



Model	Heating capacity heating/DHW kW	Capacity recovered by renewable energy kW	Average winter efficiency <sup>(1)</sup> %	Size w/d/h <sup>(2)</sup> mm	Weight kg
GAHP-WS	43.90	17.60	174.3	848/690/1,278	300
RTWS	87.80	35.20	174.3	2,314/1,245/1,400	768
	131.70	52.80	174.3	3,610/1,245/1,400	1,151
	175.60	70.40	174.3	4,936/1,245/1,400	1,534
	219.50	88.00	174.3	6,490/1,245/1,400	1,927

\* Data refer to standard version, 4 pipes version and without circulators. Available with or without circulators, for outdoor or indoor installation. Please contact Robur Sales.

<sup>(1)</sup> Average efficiency with outlet water 60 °C with climate curve, evaporator water 10 °C.

<sup>(2)</sup> Size does not include exhaust flue pipe.

