



The Value of Experience

*Some stories of our customers
all over the world*

The responsible choice can make all the difference

A responsible purchase behaviour may have a great influence on our way of life.

Consider that a product consumes tons of oil during its whole life cycle, generating pollution that the forest cannot rebalance. That's why, when choosing a product, we take a great responsibility. Even your choice of heating system may have a big impact.

To all who choose responsibly, Robur offers high efficiency heating systems with low environmental impact, and moreover concepts, data and facts to spread the culture of energy efficiency and environmental protection.

Benito Guerra - Robur Chairman

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Hospitality

energy efficiency | cost saving

Gas absorption chillers with heat recovery provide free domestic hot water production in cooling mode

Turkey



Holiday Inn Airport Hotel - Istanbul

330 rooms



- Air-source reversible gas absorption heat pumps
- Gas absorption chillers with heat recovery





Italy



Holiday Inn Express Hotel - Bergamo

98 rooms



- Air-source reversible gas absorption heat pumps
- Gas absorption chillers, also with heat recovery
- Gas condensing boilers

12,000 € annual cost saving
compared with a boiler and electric chiller system

Hospitality

customer satisfaction | cost saving

LO.AN Group has chosen Robur units for all its hotels

Italy



LO.AN Group, 8 facilities - Rome



Hotel American
Palace Eur



Grand Hotel
Fleming



Hotel
Donna Laura Palace



Hotel
Degli Aranci



Hotel
Cristoforo Colombo



Hotel
Imperiale



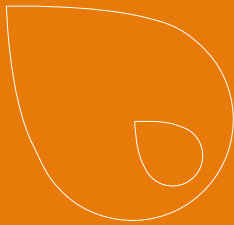
Hotel
Villa Gloria



Hotel
Santa Costanza

- Air-source reversible gas absorption heat pumps
- Gas absorption chillers
- Gas condensing boilers





Denmark



Tambohus Inn Hotel
in Jutland Natural Park - Limfjord



- Air-source absorption heat pumps powered by LPG

“I was convinced that it was a good overall solution for the environment and the Inn's economy”

Steen Rysgaard, Owner

Hospitality

quietness | easy-to-use

Since the units have no electric compressor, Robur solution is particularly quiet, enhancing customer's comfort

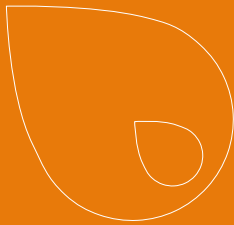
Italy



Palace Cerequio Resort in Vigna - Cuneo
9 suites and wine farm

- Air-source reversible absorption heat pumps powered by LPG
- Absorption chillers, also with heat recovery, powered by LPG





Italy



Boscolo Etoile Hotel and Culinary Academy - Tuscania

32 rooms



- Air-source reversible gas absorption heat pumps
- Gas absorption chillers with heat recovery

“It’s an easy-to-use system
that decreases operating costs”

Rossano Boscolo, Boscolo Group Chairman

Hospitality

cost saving | modularity

86% electric energy reduction
compared with a traditional electric system

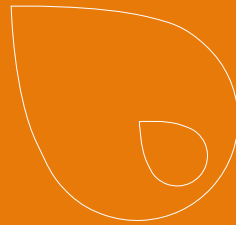
France



Château Talbot banqueting and wine farm -
Saint-Julien-Beychevelle

| • Gas absorption chillers





Turkey



Asdem Beach Labada Hotel - Antalya

184 rooms



- Gas absorption chillers



Aegean Dream Resort Hotel - Bodrum

251 rooms



- Air-source reversible gas absorption heat pumps
- Gas absorption chillers with heat recovery

Robur system flexibility and modularity provide heating and cooling outputs according to demands ensuring service continuity

Public sector

continuity of service | environmental sustainability

Thanks to an almost static refrigeration cycle, the performance levels of the Robur units remain unchanged over time, ensuring continuity of service

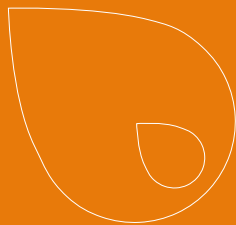
USA



NY Department of Sanitation -
New York City

| • Gas absorption chillers





Belgium | Municipality in Zwevegem



- Air-source gas absorption heat pumps

For 1 Kw of natural gas equivalent used, Robur solution adds 0.5 kW of free air-source renewable energy

Public sector

environmental sustainability | cost saving

Robur solution saves every year 17 tons of CO₂ emissions and 8 tons of oil equivalent compared with a traditional heating system

Italy

Municipality in Milan

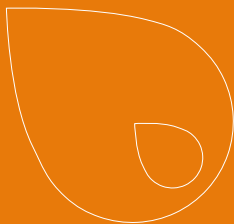


- Air-source reversible gas absorption heat pumps





Credits Coolingways



Belgium



Public library -
Herselt

- Ground-source gas absorption heat pumps

France



Municipality in Luynes -
Aix-en-Provence

- Air-source reversible gas absorption heat pumps
- Gas condensing boiler

For the municipality in Luynes Robur air-source heat pumps provide 33% annual cost saving compared with a traditional heating system

Public sector

cost saving | renewable energy use

31% annual cost saving compared with the pre-existing oil boiler system

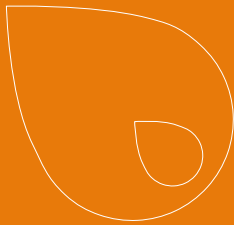
Italy



Certosa di Pavia

- Air-source reversible gas absorption heat pumps
- Gas condensing boilers





Belgium



MAS Museum Aan de Strom -
Antwerp

- Water-source gas absorption heat pumps

Robur water-source heat pumps provide heating, cooling and domestic hot water production where water-source renewable energy is available

Public sector

energy efficiency | natural refrigerant

Robur solution uses natural refrigerants
not subject to normal constraints and phase-out
(F-Gas Regulation exempt)

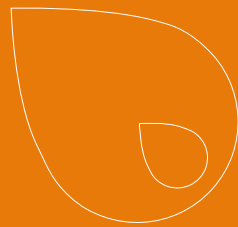
Poland



Stupsk Technological Incubator -
Stupsk

- Air-source reversible gas absorption heat pumps
- Gas absorption chillers also with heat recovery
- Gas condensing boilers





USA

United States Coast Guard



- Gas absorption chillers



Homeland Security, State Police
and Department of Health -
Hartford, CT

- Air-source reversible
gas absorption heat pumps

Robur solution provides high efficiency heating and cooling
with low electric consumption, using natural gas



Education

assessment for sustainable buildings |

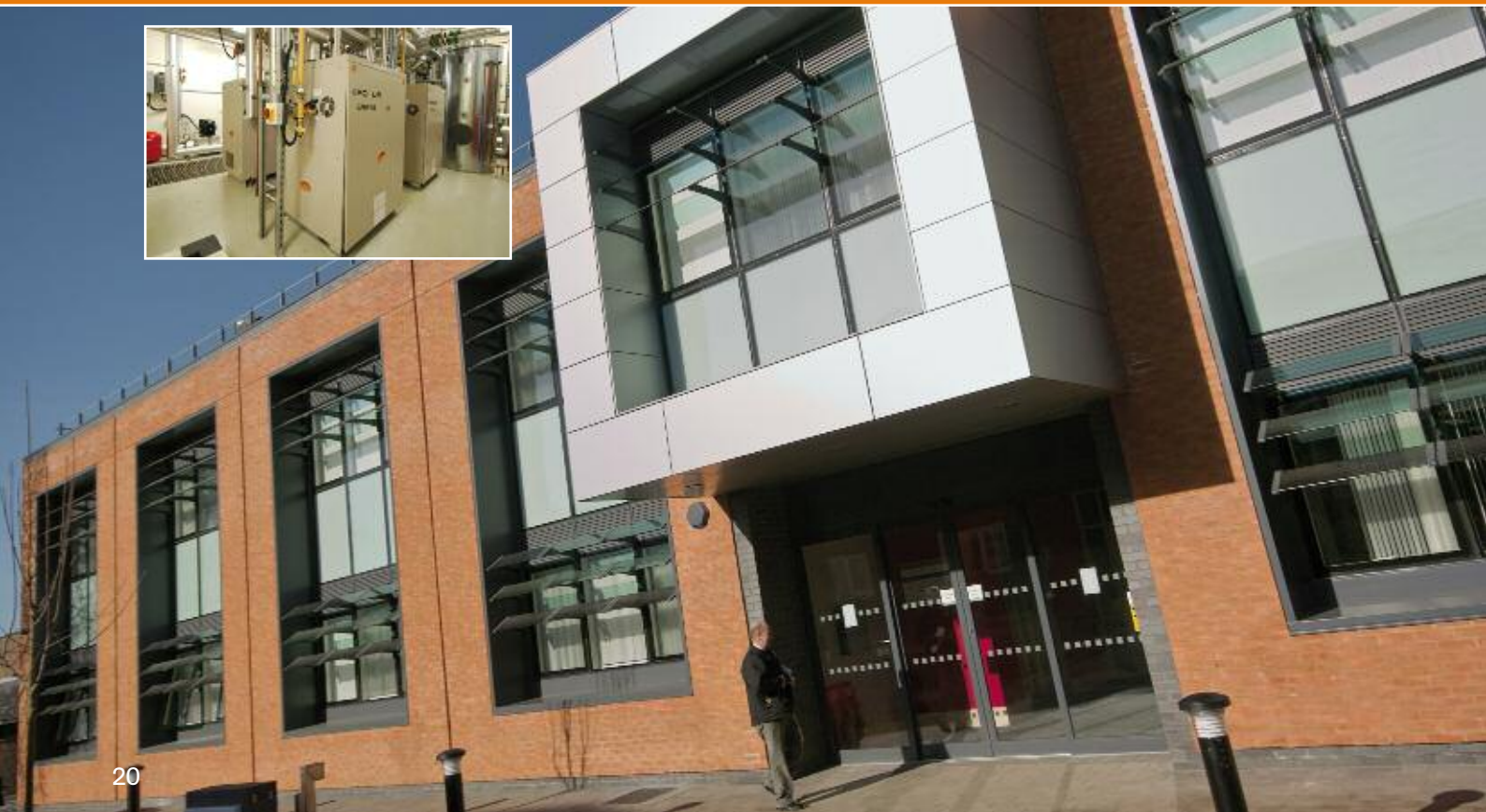
Robur ground-source heat pumps installed at Open University, the largest academic institution in the UK, contribute to the University's carbon reduction strategy

UK



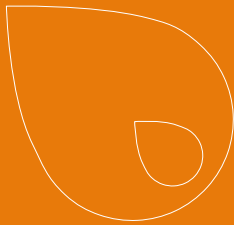
Open University -
Milton Keynes

- Ground-source gas absorption heat pumps





Credits ESS



UK



University Church of England Academy -
Ellesmere Port

- Air-source gas absorption heat pumps

Robur air-source heat pumps meet BREEAM assessment, the world's foremost environmental rating system for buildings

Education

energy efficiency | cost saving

Robur ground-source heat pumps provide monitored efficiency of 144%

France

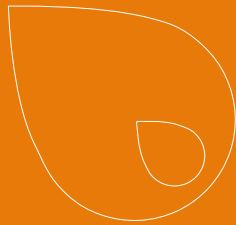


Primary, Secondary and High School -
Rumilly

- Ground-source gas absorption heat pumps



Credits France Air



Italy



Primary and Secondary School -
Bergamo

- Air-source gas absorption heat pumps

20,000 € annual cost saving
compared with the previous system

Education

retrofitting | integration

Tested by



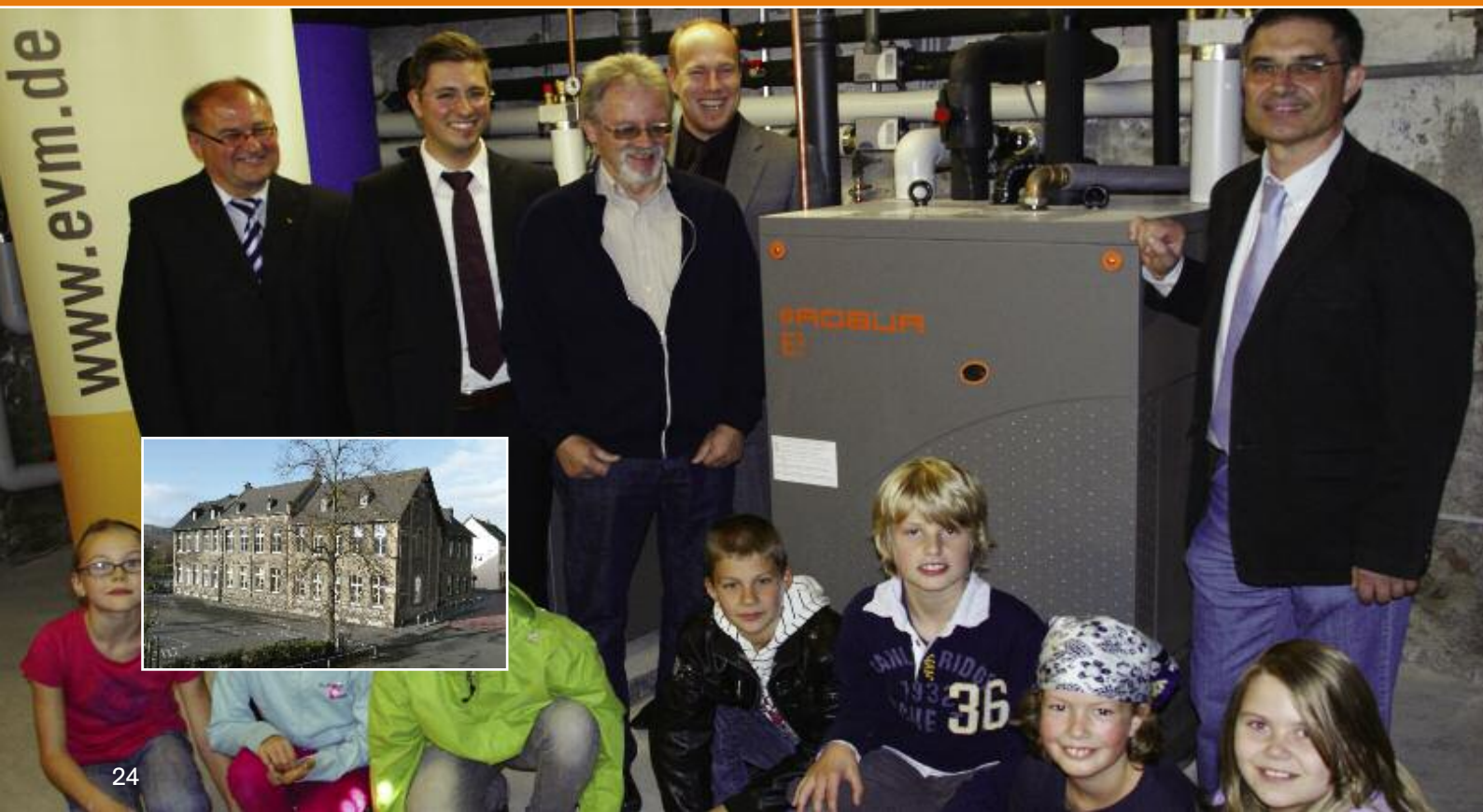
Data measured by E.ON Ruhrgas show an operating cost saving of 39% and a reduction of CO₂ emissions of 44% per year compared with the previous system made by two electric heat pumps

Germany



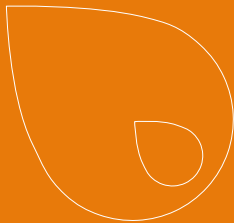
Primary School -
Plaidt

- Ground-source gas absorption heat pump





Credits Robur CZ



Czech Republic



Primary and Secondary School -
Porg Ostrava

- Air-source gas absorption heat pumps
- Gas condensing boilers

Robur air-source heat pumps increase the total efficiency of the heating system when combined or integrated with boilers

Education

the solution for severe cold climates |

Robur air-source heat pumps ensure efficiency levels in excess of 145% even at -7°C , offering high performance in cold climates

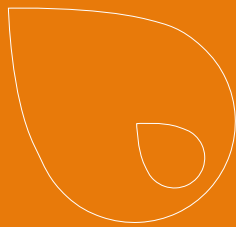
Norway



Primary School -
Arctic Polar Circle, Sortland

- Air-source absorption heat pumps powered by LPG





Belgium



Primary School -
Gent

- Air-source gas absorption heat pumps

Czech Republic



Primary School -
Dolní Újezd

- Ground-source gas absorption heat pumps

Germany



Kindergarden -
Oberkochen

- Ground-source gas absorption heat pumps

Industry and office

cost effectiveness | environmental sustainability

Robur solution is cost-effective compared with other technologies, providing up to 40% of cost saving

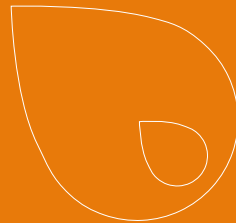
Germany



Scania Service Facility -
Oberschleißheim

• Air-source gas absorption
heat pumps





Italy



Tamoil -
Cremona

- Air-source reversible gas absorption heat pumps



Bayer -
Bergamo

- Air-source gas absorption heat pumps

Robur solution meets corporate environmental responsibility

Industry and office

incentive eligibility | process application

Absorption heat pump is eligible for national and local incentive programs all over Europe

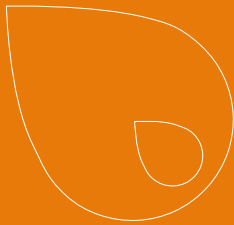
Poland



AME Plus Automotive Industry -
Gliwice

- Air-source reversible gas absorption heat pumps
- Gas condensing boilers





Germany



LMW Laser Cooling -
Wattersdorf

- Water-source gas absorption heat pumps



SERO PumpSystems GmbH -
Meckesheim

- Ground-source gas absorption heat pumps

For the LMW Laser Cooling Robur water-source heat pumps provide simultaneous production of hot and cold water, with overall efficiency of 244 %

Industry and office process application |

“Reasons for our choice: reliability and continuity of service for the greenhouses, cost saving and environmental benefits” Oriano Borghi, Owner

Italy



Funghi Valentina Mushrooms Growing Industry -
Bologna

- Water-source gas absorption heat pumps
- Gas absorption chillers also with heat recovery





Netherlands



GasTerra -
Groningen

- Water-source gas absorption heat pumps

Canada



Golden Town Apple Products -
Thornbury, ON

- Gas absorption chillers

Denmark



Lundegaarden Greenhouse -
Odense

- Air-source gas absorption heat pumps



Commercial

environmental sustainability | cost saving

Also thanks to Robur solution, Pixel is the first carbon neutral commercial office building all over Australia with 6 Green Star Rating, maximum Rating by US Green Building Council LEED and BREEAM target higher than 98 %, the highest score in the world to date

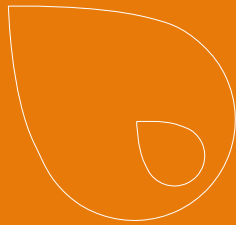
Australia



Pixel Building -
Melbourne

- Air-source reversible gas absorption heat pumps





Italy



Carrefour, 14 points of sale

- Air-source gas absorption heat pumps
- Gas condensing boilers

Carrefour Italy has increased its efforts to reduce the impact of its activities on the natural environment, starting with the upgrading of the heating and cooling systems. Robur solution installed in 14 points of sale guarantees up to 45 % cost saving compared with previous systems

Commercial

wide product range | energy efficiency

A wide range of solutions for commercial premises:
absorption units provide high efficiency, while gas unit
heaters offer the best cost/benefit ratio

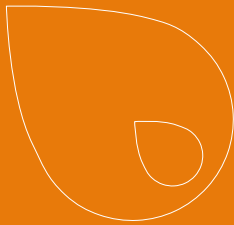
Russia



Mitsubishi car dealer -
Saratov

- Gas absorption chillers
- Gas condensing boilers
- Gas unit heaters
with atmospheric burner





Poland



Mercedes Benz car dealer -
Wielkopolska

- Air-source reversible gas absorption heat pumps
- Gas condensing boilers

Robur heat pumps provide monitored efficiency
of 149%

Commercial

space-saving | modularity

Robur solution, installed on the roof,
does not require internal plant room

Poland



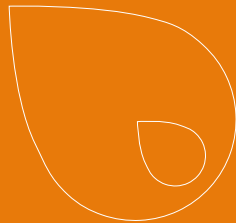
Cinema Zdrój -
Ciechocinek

- Air-source reversible
gas absorption heat pumps





Credits Gazuno



Poland



Brico Marché -
Matopolska

- Gas condensing boilers

Russia



Dair office building -
Astrakhan

- Gas absorption chillers

Residential

ideal for social housing |

Residential district by the Canadian government for veterans of World War II, including 570 residential units. Redeveloped in the early 2000s, it has also received the National Award for Design from the Royal Architectural Institute of Canada

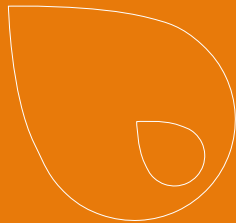
Canada



Social Housing Benny Farm -
Montreal

- Ground-source gas absorption heat pumps





Germany



Multi Family House -
Berlin

- Ground-source gas absorption heat pumps

Geothermal loop installation costs reduction
by up to 50 % compared with electric heat pumps

Residential

energy classification promotion |

Robur heat pumps increase the value,
improving the energy rating of the building

Germany

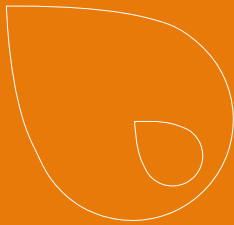


Social Housing -
Celle

- Ground-source gas absorption heat pumps



CENED



Italy



Luxury Multifunctional Building in Brera -
Milan

- Air-source reversible gas absorption heat pumps
- Gas absorption chillers
- Gas condensing boilers

The building achieves the top energy classification (A+ class Cened) with the gas absorption heat pumps

Residential

energy efficiency | integration

Robur solution provides monitored heating efficiency of 141 %

France



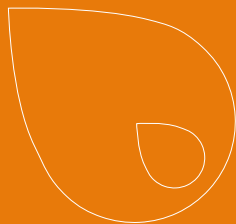
Multi Family House -
Verrières-le-Buisson

- Ground-source gas absorption heat pumps
- Gas condensing boilers





Credits Gazuno



Poland



Multi Family House -
Przytoczna

- Air-source gas absorption heat pumps
- Gas condensing boilers

Robur solution is an excellent choice
for integration with solar systems

Residential

environmental sustainability | comfort

High comfort and quiet operation is guaranteed with Robur solution

Poland

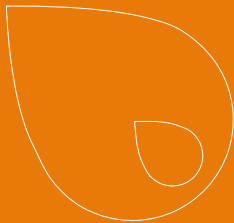


Single Family House -
Stara Iwiczna

- Air-source gas absorption heat pump



Discover online installation monitoring:
83.24.214.16:8080/ScadaWeb/ustawienia.aspx



Canada



Single Family House -
County of Lac St. Anne, AL

- Water-source gas absorption heat pumps

USA



Single Family House -
Norris City, IL

- Air-source reversible gas absorption heat pumps

Healthcare

the solution for severe cold climates |

Under severe winter climate conditions,
Robur solution prevents icing at the rooftop helipad

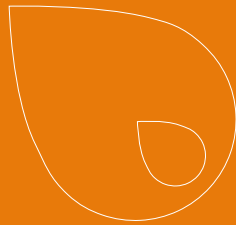
Poland



Helipad Air Rescue, District Hospital -
Bochnia

- Air-source gas absorption
heat pumps





Czech Republic



Nursing home -
Kutna Hora

- Groun-source gas absorption heat pumps

Worship and Community

the solution for historical building |

Robur solution fully conforms
architectural constraints in historical buildings

Netherlands



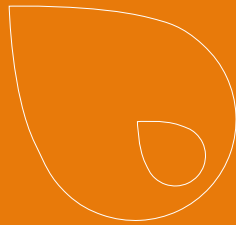
Westerkerk -
Amsterdam

- Ground-source gas absorption heat pumps





Credits: Gazuno



Poland



St. James Apostle Church -
Szczecin

- Air-source gas absorption heat pump

Germany



German Red Cross Family Care -
Kölbingen

- Air-source gas absorption heat pump
- Gas condensing boilers

Gas Absorption Heat Pump (GAHP)

what is it? | renewable energy use

The perfect blend
of the two most common heating technologies



ADVANTAGES - Condensing boiler

- Natural gas powered
- Domestic hot water supply
- Only 1/10 of electricity consumption in comparison to electrical heat pumps



ADVANTAGES - Electric heat pump

- Use of renewable source energy with efficiency over 100 %
- Cooling mode also available

MINUS - Condensing boiler

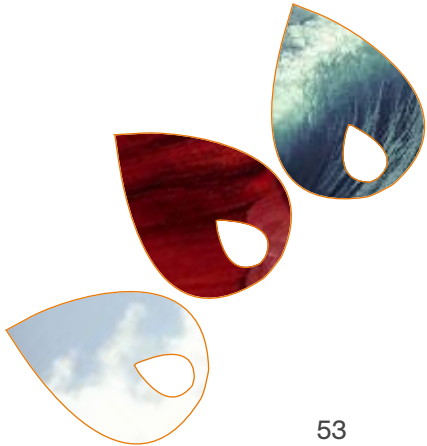
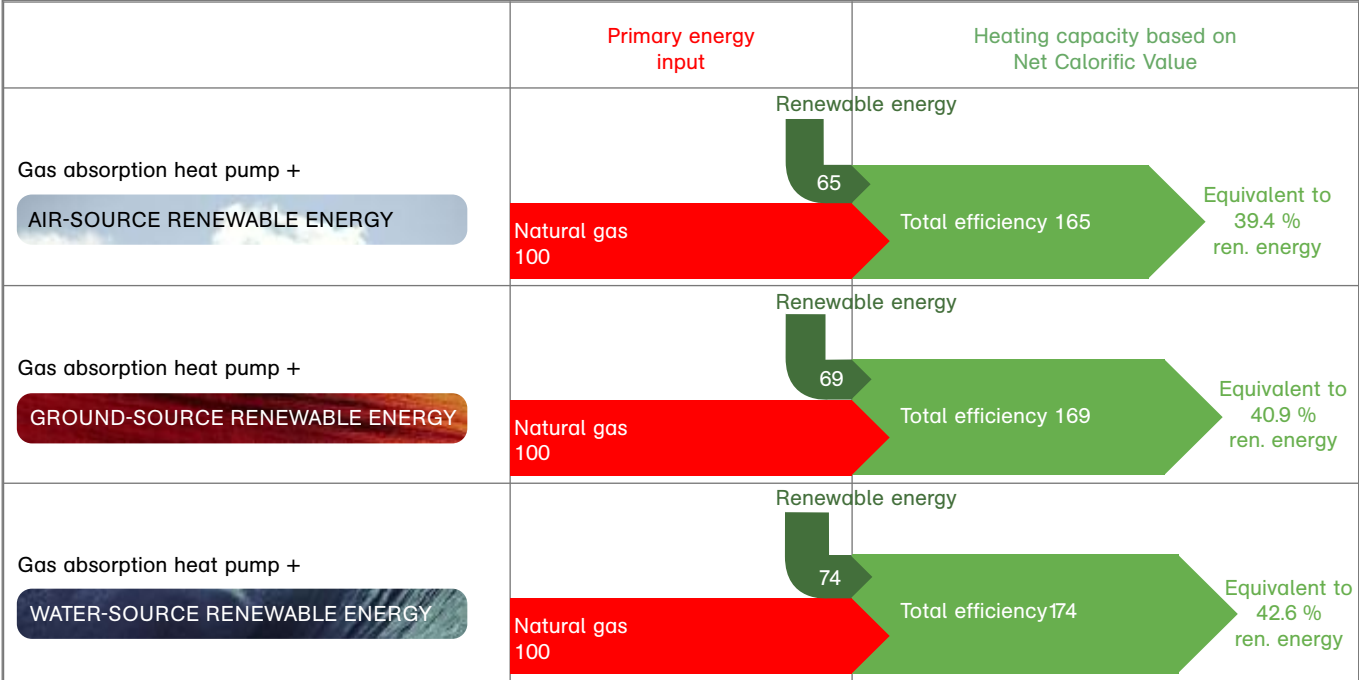
- No use of renewable energy
- Efficiency lower than 100 %



MINUS - Electric heat pump

- High electric consumption
- Use of HFC refrigerants
- Limited operational range

Efficiency and use of renewable energy in Gas Absorption Heat Pumps

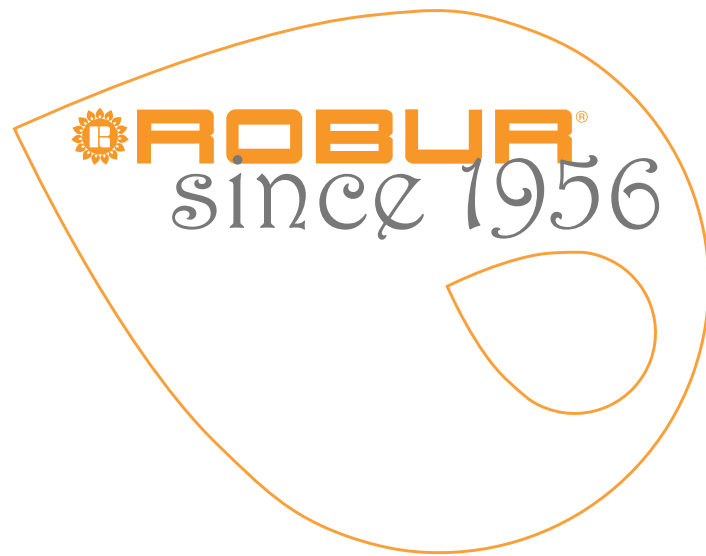


Absorption technology

acknowledgements | certifications

- It has been presented at the European Parliament as one of the most innovative heating technologies during the Gas Week
- 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), Cetiati (France), California Energy Commission (USA), ENEA and RSE (Italy)





- 1995 - ISO 9001 Certification
- 2001 - Robur is the first ISO 9001:2000 (Vision 2000) certified company in Europe in HVAC sector
 - First Prize Italian Quality Award
- 2003 - Special Prize Winner European Quality Award
 - Robur, with its reversible Gas Absorption Heat Pumps, won the Technological Innovation Award
- 2004 - Benito Guerra, chairman of Robur, received a nomination as finalist in the "Quality of Life" category of the National Businessman of the Year Award, promoted by Ernst&Young
- 2005 - ISO 14001: 2004 Certification
 - CSA Certification (USA)
- 2006 - Honourable mention at AHR Expo Innovation Award sponsored by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers - USA)
- 2007 - Mentioned as best product category for gas-fired heat pumps as part of the "Impresa Ambiente" Prize
 - Special mention in Enterprise Prize for Innovation promoted by Confindustria
- 2008 - ROBUR Test Laboratories accredited by California Energy Commission - CEC
 - Gas Absorption Heat Pumps performances are tested by VDE and DVGW-Forschungsstelle
- 2009 - Special mention in the category Energy Efficiency Development Prize 2009 by the Foundation Sustainable Development and Ecomondo
- 2011 - Robur is Coordinator of the HEAT4U Project (7th Framework Programme for Research and Technological Development promoted by European Commission). 14 among the most important European organizations in the energy, industrial, and research fields are involved. The challenge for this project, which shall continue through to 2014, is to implement the gas absorption heat pump technology, currently used for heating light commercial buildings, also in the area of single-family detached residential homes
- 2012 - Gas Absorption Heat Pumps are tested by Engler-Bunte-Insitut (EBI) of the Karlsruher Institut fuer Technologie (KIT)
- 2013 - Gas Absorption Heat Pumps are tested by the Cetiati Laboratory in Lyon (EN ISO 17025)

Visit www.robur.com

 **ROBUR**[®]
caring for the environment

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