Gas Absorption Reversible Heat Pump System
Zanovello S.p.A.

Padova - Italy

ROBUR
caring for the environment

The premises is composed by a 64,000 cubic feet space dedicated to manufacturing and a 9,000 cubic feet space dedicated to offices.

The needs of the customer were:
a) air conditioning for offices;
b) air conditioning for laboratory and test rooms;
c) heating for manufacturing area;
d) to keep the lowest electrical requirements;
e) to avoid dedicated technical rooms;
f) to have a sustained investment.

The internal distribution is through a floor radiant heating system for offices and laboratories and a floor and ceiling fan coils system for offices, laboratories and for the test room.

Heating

Cooling

ROBUR GAS ABSORPTION UNITS
vs
TRADITIONAL BOILER + ELECTRICAL CHILLER

Saving during winter season 35%
Costs balance in summer season
TOTAL SAVING 29% PER YEAR

The Robur Gas Absorption Heat Pumps provide very high heating efficiency, thanks to ammonia that recovers thermal energy also at very low ambient temperatures.

In this case, with inlet temperature at 131 °F and with a seasonal average ambient temperature at 45.6 °F (standard for Padova) the winter efficiency of the absorption machines reach a Gas Utilization Efficiency of 1.32.

The operation steps through the Direct Digital Controller schedule before the usage of high efficiency units and then the thermal units that have an efficiency of 86%.

During summer time the Gas Utilization Efficiency of the absorption units - with inlet water temperature at 44.6 °F and seasonal average ambient temperature at 75.7 °F - is about 0.74 with an electrical input of only 2.5 kW.

Building type	Commercial
Energy distribution system	Floor radiant heating system for offices and laboratories and a floor and ceiling fan coils system for offices, laboratories and test room
Unit number and type	3 GAHP-AR Gas Absorption Reversible Air-water Heat Pumps + 3 AY00-119 Gas Heaters
Heating capacity	693,900 BTU/h
Cooling capacity	173,100 BTU/h