



## Gas Absorption Heat Pumps in Agrifood Market Alexandria Alexandria, Romania

Modern agrifood markets are evolving. Rapid changes in how food is produced, processed, wholesaled and retailed affects the entire value chain, from producer to consumer. In the following case the agrifood market in Alexandria, in the South of Romania, has been recently renovated with a new Robur highly efficient heating and cooling solution.

### The requirements

The agrifood market in Alexandria is a large building with wide glass surfaces; very bright and spacious, but hot in summer and cold in winter, due to high heat transfer through the glasses. The feasibility study pointed out a major problem in the electric power supply, insufficient for traditional cooling systems; serious

additional investment was necessary to increase the electrical capacity. Moreover, the customer required to reduce operating costs.

Since natural gas supply was already available for heating, this has been chosen as the solution for cooling as well.

**Agrifood market Alexandria represents the perfect combination of technologically advanced products and the attention to cost savings and environmental awareness.**

## The technology

The system proposed by Kip Impex srl includes 5 Robur reversible air-source gas absorption heat pump GAHP-AR for the production of cold water from 12 °C in summer and DHW supply from 40 °C in winter. Moreover 3 Robur gas absorption chillers ACF 60 together with one air handling unit with a capacity of 24,000 m<sup>3</sup>/h have been installed. Air distribution system consists of 4 textile ducts, which allow achieving very high ventilation efficiencies, with significantly reduced costs due to minimal requirements for the building structure.

The main features of the plant are the cooling power available at 35 °C of 136 kW and the heating power at 0 °C of 160 kW. Maximum electric power required is 12.1 kW / 380V, of which only 7.2 kW for cooling purposes, while the maximum gas consumption is 21.6 m<sup>3</sup>/h in summer and 13.5 m<sup>3</sup>/h in winter.

## An excellent choice

Several advantages of natural gas air conditioning can be

encountered in this application: first of all, by using renewable energies, environmental pollution is significantly lower.

The customer realizes significant savings because of the low operating costs of GAHP. It's worth highlighting that winter gas consumption is reduced by 30-40%: this has been proved by monitoring operating hours by automatic data recording. Electricity consumption and natural gas operating costs resulted lower than the solution with central chillers and gas boilers. Maintenance and service costs are reduced because absorption heat pumps do not have moving parts in the refrigeration circuit, which is extremely reliable.

Moreover, there is no need for additional investment in electrical equipment to increase the supply capacity. while no technical room is required, since units are designed for outdoor installation. Actually, the Agrifood Market Alexandria represents the perfect combination of technologically advanced products and the attention to cost savings and environmental awareness.



<b>Units installed</b>	Nr. 5 GAHP-AR Reversible air source Gas Absorption Heat Pumps Nr. 3 GA ACF 60 Gas absorption chillers
<b>Nominal cooling capacity (at 35°C)</b>	136 kW
<b>Nominal heating capacity (at 0°C)</b>	160 kW
<b>Type of building</b>	commercial
<b>Surface area</b>	800 m <sup>2</sup>
<b>Distribution terminals</b>	AHU