



A2A Milano - Canavese – 1 Unitop 50 FY ground water heat pump

Client

A2A S.p.A.
IT-25100 BRESCIA

Plant location

A2A S.p.A.
IT-20134 Milano-Canavese / Italy

Heat pumps against air pollution and rising water table

Milan is one of the Continent's most polluted cities, threatened by air pollution, especially during the cold season and under inverse conditions, when the cold and heavy air close to the ground will have no upward thrust. In such a situation, air pollution will accumulate and concentrations of poisons increase alarmingly. Further, the Milan area has been affected by a raising water table since the early 90s, causing serious damage to underground structures and threatening buildings. The main cause is due to the significant reduction of water drawn from wells by the industry.

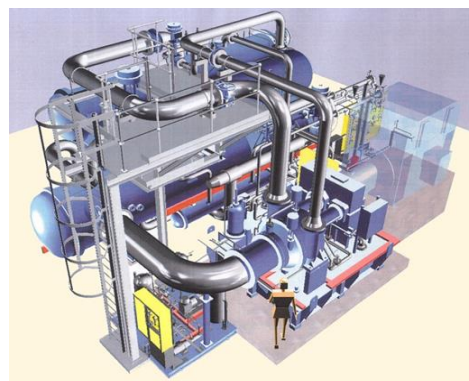
These two factors were the main reasons that A2A together with the City authorities decided to develop various district heating networks and finally to use groundwater alimented heat pumps for heat production, thus taking action against the growing deficit of the hydrogeological balance and against air pollution.

The Canavese cogeneration plant

The cogeneration plant for the district heating area of east Milan is located on the site of the former gasworks. It was built in 2007/2008 and consists of the following facilities:

- a section of high-efficiency cogeneration with gas engines
- a large high temperature heat pump for the exploitation of geothermal energy from groundwater
- Large thermal storage tanks
- gas boilers to cover peak energy demand

The heat pump operates mainly at night and produces hot water which is stored in the large storage tank. During daytime, the heat energy accumulated in the storage tank is distributed through the district heating network to the connected users.



1 Unitop 50 FY heat pump from Friotherm

The Unitop 50 FY heat pump consists of a heavy duty industrial type centrifugal compressor at its heart. Together with the heat exchangers and the control system it is especially adapted to comply to 100% with the client requirements regarding flexibility of operation modes, high efficiency and operational reliability. The service friendly design allows limiting service and maintenance work to a minimum while the units are operational for decades.

Main technical data

Operating Seasons:	Autumn - Winter
Heating capacity:	15'500 kW
Cooling Capacity:	11'800 kW
Hot water in/out:	65 °C / 90 °C
Cold water in/out:	15 °C / 7,6 °C
COP:	2,7

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