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Riva del Garda – Upgrading generator waste heat with Unitop 22 BX

Client / Plant location

Alto Garda Power Srl
IT-38066 Riva del Garda/Italia

A sophisticated cogeneration power and heat plant

The growing attention to environmental issues have led Cartiere del Garda to replace the old cogeneration plant of Cartiera with a new combined cycle cogeneration plant, connected to the district heating system of the town of Riva del Garda. The goal was to fully satisfy the thermal and electrical requirements of the power generation as well as the public and private district heating clients of Riva del Garda supplied with cogenerated heat via the district heating network.

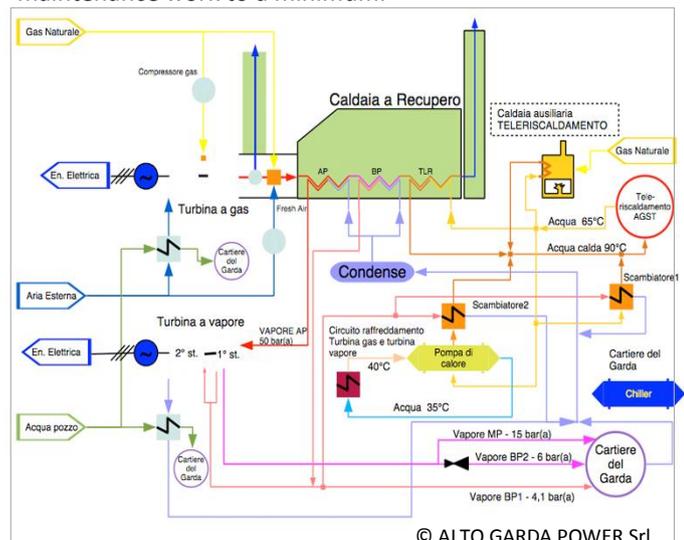
The main elements of the Alto-Garda cogeneration plant are:

- a gas turbine with a capacity of 42 MWe
- a heat recovery steam generator with a capacity of 84 MW, to extract part of the thermal energy of the gas turbines' exhaust gas for the production of high pressure steam for the steam turbine, low pressure steam for the paper mill and hot water
- a steam turbine with a maximum capacity of 12 MWe
- a heat pump connected to the cooling system of the gas turbine
- an auxiliary boiler to cover exceptional district heating demand
- a 13 MW steam condenser exploiting the excess low pressure steam of 4 bar for alimentation of the district heating circuit
- a 1.3 MW steam condenser is connected in series to the heat pump. It is used to increase the hot water temperature from 78°C to 90°C
- an energy storage/buffer tank of 500m³ for hot water. The resulting saving of prime energy is approx. 1,500 MWh / year

1 Unitop 22 BX heat pumps from FrioTherm

The Unitop 22 BX unit is a very versatile industrial heat pump incorporating a heavy duty centrifugal compressor. With its special design to meet the requirements of the Cartiere cogeneration plant, it was completely factory mounted in the FrioTherm works. The control system and the operating modes

are specially adapted to comply with the client requirements regarding flexibility of operation modes, high efficiency and operational reliability. Built for decades of operational life, the service friendly design allows limiting service and maintenance work to a minimum.



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Main technical data

Operating Seasons:	Autumn - Winter - Spring
Heating capacity:	1'145 kW - 1'320 kW
Cooling capacity:	894 kW - 1'080 kW
Hot water in/out:	60 °C - 70 °C / 78 °C
Cold water in/out:	35 °C - 40 °C / 30.8 - 35 °C
COP:	3.62 - 4.08

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