

The first Steam & Power ORC* plant at *Centrale del Latte di Brescia* for milk pasteurization.

“Steam & Power ORC” is the new high-temperature cogeneration solution developed by Turboden for the manufacturing industry with overall efficiency >90% and high prevalence of steam content.

Turboden has signed an agreement with **Centrale del Latte di Brescia**, the municipal dairy in Brescia, for installation of the first high-temperature cogeneration ORC plant in the world - **Steam & Power ORC System (ST&P ORC System)**.

Turboden began developing the high-temperature ORC system two years ago, also taking advantage of a Research and Development project supported by the Italian Ministry of Economic Development *Fondo Crescita Sostenibile* (Sustainable Growth Fund).

Turboden Steam & Power ORC System is designed to satisfy the energy requirements of manufacturing companies requiring maximum overall efficiency (>90%) with high steam content (about 75%), VS power (about 15%) and no hot water, unlike the needs satisfied by internal combustion engines (currently the leading cogeneration technology). The solution perfectly fits with the energy needs of Centrale del Latte di Brescia, leader in milk and dairy production, which will use this system to co-generate about **700 kW electric power and 5 ton/hour of steam at 15 bar needed to pasteurize long-life milk**.

Turboden provides a turn-key solution, supplying the complete system, from the natural gas fired boiler - in partnership with **Bono Sistemi**, leading industrial boiler manufacturer - to the high-temperature Organic Rankine Cycle turbogenerator.

“We are proud to be the first world supplier of this innovative Steam & Power ORC solution and that the first unit will be installed at a neighbouring outstanding Italian company like Centrale del Latte Brescia; the unit will be used in their production processes to produce 700 kW electric power and 5 ton/h steam for milk pasteurization,” says **Paolo Bertuzzi, Turboden CEO**, “We are sure that this new family of products (other sizes up to 3MWel and 25ton/h) fills a gap in the current range of cogeneration technology offered and will meet the requirements of several other industrial companies in areas such as food & beverage, paper, chemical, textiles and oil & gas because of the high overall energy efficiency (>90%), prevalence of steam content (absence of hot water), low maintenance costs and high flexibility. Moreover, the ST&P ORC system can be combined with other cogeneration technologies like engines or gas turbines, to meet the customer’s specific steam and power needs.”

Franco Dusina, President of Centrale del Latte di Brescia, Ing. Bartolozzi, Managing Director and Ing. Bonometti, Plant Manager, declare: “Centrale del Latte is very sensitive to clean and environmentally-friendly solutions. High-efficiency cogeneration fits in perfectly with our philosophy: for some years we have been looking for a suitable technology for our energy needs and to improve the energy efficiency of our production plant. We are sure that the synergy between Turboden and our dairy, two important companies in Brescia’s industrial context, will certainly lead to a successful project.”

Turboden, a Mitsubishi Heavy Industries company, is an Italian firm and a global leader in the design, manufacture and maintenance of Organic Rankine Cycle (ORC) systems up to 20 MWe, highly suitable for distributed power generation. ORC systems can generate electric and thermal power exploiting multiple sources, such as renewables (biomass, geothermal energy, solar energy), traditional fuels and waste heat from industrial processes, waste incinerators, engines or gas turbines. www.turboden.com

Centrale del Latte Brescia, established in 1930 with the objective of ensuring hygiene checks on milk and daily distribution to all citizens. Centrale del Latte di Brescia was the first municipal dairy in Italy to have a UHT plant for production of long-life milk. The company was the first in the world to pack UHT milk in fully recyclable PET bottles. <https://www.centralelatte-brescia.it/ITA/Home.asp>

***Organic Rankine Cycle**: The Rankine Cycle is a thermodynamic cycle that converts heat into work. The heat is supplied to a closed loop, which typically uses water as working fluid. The Organic Rankine Cycle's principle is based on a turbogenerator working as a conventional steam turbine to transform thermal energy into mechanical energy and finally into electric energy through an electrical generator. Instead of generating steam from water, the ORC-system vaporizes an organic fluid, characterized by a molecular mass higher than that of water, which leads to a slower rotation of the turbine, lower pressures and no erosion of the metal parts and blades.