Energy partnership delivers multiple benefits

The unique arrangement enables important resources to be focused on the company's core business.

Mannesmann Stainless Tubes has developed an energy performance contract with EON to reduce energy costs whilst contributing to environmental sustainability.

Text & images by Mannessmann Stainless Tubes

Mannesmann Stainless Tubes operates global production facilities for the manufacture of seamless stainless steel & nickel alloys. Its Costa Volpino, Italy plant has embraced an innovative relationship with EON to commission a 1.5MW cogeneration plant. The plant produces electricity and steam to support key production processes driving to a consumption reduction of up to 30% together with a significant cutback in climate emissions, consistent with the company's focus and commitment towards environmental sustainability.

The team at Costa Volpino developed a Cogeneration service agreement with EON whereby a 10-year contract was concluded for the supply of heat and electricity to the plant. The energy operator, EON, provided the design, installation and commissioning of the plant together with compliance to all regulatory requirements.

Operational performance of the cogenerator, which takes natural gas from the network, is also the responsibility of EON. The output electrical and thermal energy is supplied to the manufacturing plant at agreed tariffs.

The business model provides significant advantages:

- enabling important resources to be focused on the company's core business;
- removal of risk associated with the ownership and management of the plant such as times of lower performance, reduced output or yields.

Technical characteristics of the plant

The new plant is based on a 1501 KWel natural gas-fired cogeneration engine. The nominal thermal power input to the system is approximately 3,674 kWth with a reduction of CO_2 emissions of approximately 3,000 tonnes per annum. The gross electrical efficiency at maximum load equates to ~40.85% which increases by almost double to a theoretical maximum of 82%! This happens due to heat recovery which is utilised to generate steam and hot water for the tube manufacturing process which would have previously been generated by a dedicated conventional boiler.

The cogeneration plant consists of a "Combined Heat and Power" (CHP) package, which includes: an endothermic natural gas engine and a recovery steam generator (HRSG) capable of producing steam from residual heat sensitive to combustion gases. Before being released into the atmosphere, the fumes are treated with an SCR (Selective Catalytic Reduction) system, a technology that allows the removal of nitrogen oxides from the combustion gases. The emissions are constantly monitored with an Emissions Analysis System. Thus allowing us to be well positioned for the future and more stringent emission limits.

From a logistical point of view, the Costa Volpino plant is located on the border between Brescia and Bergamo and divided between the municipalities of Pisogne and Costa Volpino, Italy.

Freeing up resources

The team at Mannesmann Stainless Tubes are proud to reflect on how they have accomplished this business model. It has delivered not only operational cost and environmental sustainability benefits, but is a reminder of how working with a partner such as EON to supply cogeneration and adopting an Energy Performance Contract (EPC), you can further release key resources to focus on your business's core functions.