

The Challenge

Founded in the early 1960s, La.So.Le. EST has progressively become a market leader in Italy and throughout Europe in the engineered wood flour and wood shavings sector for a wide range of industrial applications.

One of the crucial stages in the production of wood flour is the drying process, which removes all moisture from the finished product to ensure it is ready for sale in the marketplace.

The wood flour that La.So.Le. EST requires a 300°C (572°F) air drying process that expends 1.2 MWth. For that reason, La.So.Le. EST managers sought to increase the efficiency of the process.

“The Capstone C600 Signature Series uses direct exhaust gas from the turbine as a power source, making it the perfect solution for this project,” says Dario Alberto Babuin, supply chain manager for IBT Connecting Energies GmbH, the distributor for the Capstone Microturbines.

The Solution

La.So.Le. EST managers considered several options to increase the efficiency of the wood flour drying process at its Percoto (UD) production plant. Ultimately, they came to the agreement that the best solution would involve a cogeneration plant for the direct use of exhaust fumes.

The cogeneration plant is part of a larger project to modernize the production plant, which includes the installation of a new technical flour dryer. Capstone’s oil-free microturbines will provide hot air to the dryer for a smooth and reliable drying process.

The application consists of a combined heat and power (CHP) Capstone C600S powered by natural gas. The fumes coming from the Capstone turbines are mixed with air at ambient temperatures and sent to the air vein burner installed inside the dryer. “There is a duct burner integrated with the dryer fueled by natural gas that keeps the temperature at around 300°C (572°F) and, if needed, the burner starts,” says Babuin. “Naturally, the total natural gas consumption will be lower by using just the thermal power – 15°C to 280°C (15°F

Power Profile

Customer

La.So.Le. EST

Location

Via Peraria, 12a, 33050 Percoto UD – Italy

Commissioned

October 2018

Fuel

Natural Gas

Technologies

■ Capstone Turbine C600S

Capstone Turbine Distributor

IBT Europe GmbH



“The [Capstone Turbine C600S] system derives savings of about 180,000 euros including the white certificates. The system saves 180 tonnes of oil equivalent and 544 tonnes of CO₂ from entering into the atmosphere”

— Alberto Babuin, Supply Chain Manager
IBT Europe GmbH



A single Capstone 600S microturbine ensures high reliability at the manufacturing facility while also benefiting the environment.

to 536°F) – from the exhaust gas of the turbine.”

The system operates at around 4,000 running hours a year Monday through Friday, beginning early in the morning and ending at 6 p.m. It is inoperative during the weekend when plant operations are shut down. “Incentives come from white certificates issued for the achievement of a specified amount of energy savings and detaxation of natural gas consumed by the turbine,” Babuin points out.

The Results

“The total exhaust gas coming from the turbine at 280°C (536°F) goes directly into the dryer and electrical power is all used on site,” comments Babuin as one of the prime benefits of the Capstone turbine system.

The electricity produced by the microturbines entirely inside the plant significantly limits the absorption from the national grid and provides almost all of the plant’s electrical energy needs.

From a thermal point of view, the exhaust fumes released from the microturbines considerably reduces the mass of air to be heated, which burns less methane and achieves the same outcome.

The result is higher efficiency of the production cycle and lower production costs overall.

“The system derives savings of about 180,000 euros including the white certificates. The system saves 180 tonnes of oil equivalent and 544 tonnes of CO₂ from entering into the atmosphere,” notes Babuin.

Capstone C600S Microturbine



The C600S provides up to 600kW of electric power and contains three air bearing microturbines