

# Spirax Sarco desuperheaters improve control at St Regis Paper Mill

Desuperheaters from Spirax Sarco are saving treated water and improving process control at St Regis's Wansbrough paper mill in Watchet, Somerset. The two desuperheaters reduce the steam temperature from 420°C to around 230°C, so it can be used in the plant's drying cylinders.

St Regis needs its two boilers to produce superheated steam at 600psi because the company generates some of its own power using a steam turbine. However, the superheated steam must be cooled before it can be used safely in the paper manufacturing process. "If we sent it to the machines at 420°C it would be a potential fire risk," says Powerhouse Services Engineer Paul Gallagher.

The company has always used desuperheaters to reduce the steam temperature, but the previous versions were not performing correctly. Both the old and new desuperheaters rely on nozzles to spray a fine mist of water into the steam line and reduce the overall temperature. In the case of the old systems however, the water was not being properly dispersed so it wasn't mixing effectively with the steam. This significantly impaired the heat transfer.

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"It meant that the water wasn't being vaporised and was building up in the steam main. The local steam trap was constantly discharging to clear it," explains Mr. Gallagher. "I don't know exactly how much we were losing, but the water needs to be the same treated quality as the water we use in the boiler, this is too expensive to waste."

The problem also led to a lack of effective temperature control in the steam line. "The temperature was OK as long as it remained steady, but if there was any fluctuation it was a struggle to adjust it properly," he says. This could lead to process and product quality issues downstream.

St Regis turned to Spirax Sarco to provide a more effective solution. "We had worked together before and we were confident about using Spirax Sarco because it's a big enough group to give us the sort of 24-hour support we need," says Mr. Gallagher.

Spirax Sarco supplied two replacement desuperheaters – one on the steam main in the plant room and one just



upstream of the site's biggest paper machine. The second system enables operators to fine tune the steam temperature to suit the particular grade of product being handled.

Each system comprises a water control valve, a steam atomising valve and a desuperheater nozzle. "The new systems have been operating trouble-free since they were installed around four months ago. I can't quantify the savings but the trap discharge is definitely reduced," says Mr. Gallagher. "The temperature control is also much better. Any adjustment is now made automatically by the control valves, without operators having to intervene."

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