Case Study

Tire Manufacturer Reduces Costly Product Losses with VorCone® Steam Quality & Flow Meter

RESULTS

- Significantly reduced costly product losses due to improper curing
- Increased manufacturing throughput
- Reduced energy costs
- Identified and corrected problem areas in steam piping

Application

A major tire manufacturer in the Southeastern United States was seeking to improve its steam curing process.

Challenge

As part of their maintenance schedule, this facility requires weekly shutdowns in key areas of the plant. When restarting these key areas, they often experience high levels of condensate in their steam piping. This condensate makes its way to the steam curing area. The process of steam curing requires very high-quality steam to be effective. As such, the presence of condensate can cause improper curing, resulting in lost product. Any amount of lost product at this stage in manufacturing comes at a very high cost to the company. So, the challenge was to determine the source of the excessive condensate and eliminate it.

Solution

After careful consideration, this facility selected VorTek Instruments' VorCone Steam Quality & Flow Meter for its unique steam metering capabilities. The VorCone meter can provide continuous steam quality and total mass flow measurements (steam & condensate mixture). The VorCone meter was installed on the main steam header leaving the boiler. This location allowed operators to confirm the quality of steam leaving the boiler. Also, pressure and temperature sensors were installed on each curing row to identify the presence of condensate further away from the boiler at the curing presses.

The VorCone meter confirmed that the boiler provided relatively high-quality steam (94-98%) with little carryover. This confirmation led to a review of installed steam traps and the subsequent replacement of underperforming traps. Now when condensate is identified in a curing row, the operators first look at the VorCone steam quality measurement to determine if the boiler's output is of sufficient quality. If the steam quality is high leaving the boiler, they can look at other potential problem areas in their steam piping. As these problem areas are identified and corrected, the plant also benefits from an increase in energy efficiency and a reduction in overall energy costs.

Installing the VorCone Steam Quality & Flow Meter quality meter along with temperature and pressure sensors has led to this facility significantly reducing product losses due to the presence of condensate in their steam curing process. Additionally, this facility received corporate recognition for achieving a reduction in their overall energy costs.

For more information visit

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