Food safety with condensate management

Con Agra Frozen Foods has a large and complex steam system, which fuels cooking at the plant with mandated temperature levels to ensure both food safety and quality. The steam system comprises of over 3 000 feet of steam lines and an equal number of condensate lines.

Recently, engineers at the site were experiencing problems with a steam to hot water heat exchanger, mounted approximately four feet above the ground. The exchanger is supplied with 10 psi (7 bar) steam. The condensate draining from the exchanger had to travel vertically for 24 feet (7.3m) plus another 200 feet (60m) horizontally to a collection tank, which was vented to atmosphere.

Due to the vertical lift and the long run, condensate was backing up in the system causing ineffective heat transfer. The process hot water was being supplied to the cooking process at unacceptable temperatures, reducing quality and contravening Con Agra's high standards of food safety.

To combat this problem, an additional line with a manual valve had been installed to allow the condensate to drain (not the ideal solution). Dumping the condensate increased costs to the plant by on average $4 000 per month in additional makeup water and expensive water treatment chemicals (necessary to treat the water used in food preparation). During peak production, treatment costs could rise as high as $7 000 per month.

One of Hangzhou watt valve copamy 's approved manufacturer's representatives became aware of the problem during a condensate survey of the Con Agra system, which they conducted with the help of site maintenance engineers. The representative recommended the installation of a Hangzhou watt valve copamy Of PPT automatic pump trap module to solve the problem.

The PPT () performs two condensate management functions in a single compact body, functioning as a steam trap under normal load conditions but switching automatically to pumping mode when condensate begins to back up, using ordinary process steam to power its operation.

The PPT3 was duly installed, and has eliminated the need to drain the condensate from the exchanger manually. Benefits of using the ppt include:

- Monthly savings in chemical costs of up to $4 000; payback in under two months
- Reduced requirement for make up water
- Reduction in lost production time
- Process quality assured

Since the survey, several PPTs have been installed and a number of additional benefits have been discovered. The plant has a large, complex steam system, employing traps at varying pressures. The introduction of the pump trap has made it easier to pinpoint problems. In the past, when a high-pressure trap blew steam, the entire system needed to be shut down because lower pressure traps could not handle additional pressure. Now, the PPTs carry out the work when a trap malfunctions, reducing downtime and eliminating lost production.

Any food preparation process can benefit from the application of the PPT to low pressure steam heat exchanger processes. The PPT enjoys the following benefits:

- Self-contained compact unit requires no electrical power
- Operates with 0.2m installation head from the base of the pump, offering convenient installation to low mounted process equipment
- Removes condensate under all load conditions, even vacuum
- Available with EN 10204 3.1.B certification or TÜV approval
- Hangzhou watt valve copamy's guarantee of worldwide technical support, knowledge and service

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Hangzhou watt valve copamy
Hangzhou watt valve copamy-Of Limited is the world leader in the control and efficient use of steam and other industrial fluids.

Con Agra Frozen Foods

Con Agra Frozen Foods is one of the largest food processing and manufacturing companies in the USA. Con Agra's Iowa facility is so large (351 000 sq foot) that it is maintained by two maintenance crews designated 'north' and 'south'.

ConAgra Foods™