YourEnergySavings.com

Your Energy Savings℠ Business Program

Steam Traps

A steam trap maintenance program can pay for itself in less than a year. And the savings will multiply as the years pass.

Steam traps are designed to maintain steam energy efficiency for performing tasks such as heating a building or maintaining heat for process use. Because steam traps have mechanical parts, they will eventually fail. And when they fail in the open position, steam is unnecessarily wasted. Large and small companies will find increased energy savings and reduced production cost with an active steam system preventive maintenance program, including a semi-annual steam survey. This fact sheet provides an overview of steam traps and what you can do to lower your operating expenses.

Your Incentives to Save

DTE Energy's Your Energy Savings Program offers cash incentives to help business customers reduce their energy use. These incentives reduce the up-front cost of installing more efficient equipment and make it easier for you to invest in energy efficiency. Since a portion of energy costs are a controllable operating expense, every dollar saved can make an impact on your bottom line.

Making it Easier to Save

The program offers incentives for an array of energy-saving technologies – electric and gas. Customers can pick from a prescriptive menu of projects with pre-set incentives or propose a custom project with verifiable energy savings.

To participate in the program simply follow these steps:

- Check your eligibility with program requirements
- Submit a pre-approval application to reserve your funding
- Install the eligible measures according to the application specifications
- Complete, sign and submit final application with all documentation within 60 days of project completion

Contact Us

We can help you understand the incentive requirements and available resources. You can contact us via letter, fax, e-mail or phone. You can also download incentive applications from the program website at: YourEnergySavings.com

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Types of Steam Traps

Mechanical Steam Trap
Mechanical steam traps are installed with ball floats or open floats to control a needle valve which controls the release of condensate. The float moves in accordance with the condensate level. A mechanical linkage attached to the float controls the opening and closing of the float, which solely depends on the level of condensate accumulated in the steam trap.

Thermostatic Steam Traps
A thermostatic steam trap is driven by the difference in temperature between steam and sub-cooled condensate. Valve actuation is achieved via expansion and contraction of a bimetallic element or a liquid-filled bellows.

Thermodynamic Steam Traps
Thermodynamic trap valves are driven by differences in the pressure applied by steam and condensate, with the presence of steam or condensate within the trap being affected by the design of the trap and its impact on local flow velocity and pressure. Disc, piston, and lever designs are three types of thermodynamic traps with similar operating principles.

The three main functions of any steam trap are:

- To prevent steam from escaping
- To allow the condensate to pass through
- To discharge air and other gases

Fixed Orifice Steam Traps
Fixed orifice traps contain a set orifice in the trap body and continually discharge condensate. As the rate of condensation decreases, the condensate temperature will increase, causing a throttling in the orifice and reducing capacity due to steam flashing on the downstream side. Orifice steam traps function best in situations with relatively constant steam loads. Varying loads, such as those found in most steam heating systems, are usually not good candidates for orifice steam traps.

Steam Trap Maintenance

A steam system that has not been properly maintained will have a significant number of steam traps that have failed. One of the main causes of trap failure is due to the dirt created from chemical treatments and or pipe scaling. These contaminants carried through the piping system eventually collect at the trap and cause plugging, but in most cases, prevents the valve from closing, allowing live steam to escape into the condensate return line or atmosphere. Another costly mistake is the incorrect sizing of steam traps that can have an adverse effect on maintaining correct temperatures. These conditions not only waste energy, but also negatively affect production costs and expensive equipment. A routine preventive maintenance program should be implemented to preclude any waste of energy, efficiency and dollars. Using ultrasonic and infrared testing equipment a service technician can detect plugged, leaking or blowing steam traps. Upon detection, the bad trap is recorded and a cost analysis is generated.