



CASE STUDY

INDUSTRY: TIRE AND RUBBER



CUSTOMER: Goodyear Tire and Rubber

LOCATION: Fayetteville, North Carolina, USA

BACKGROUND: **The Cost of Inactivity**

Fluctuating energy costs, carbon emission goals, and continued efforts for higher competitiveness have incited many companies to focus greater attention on the efficiency of their steam systems. Our customers have found that more efficient management of their steam trap systems leads to relatively significant and easily achievable savings. Indeed, the financial losses caused by a leaking trap exceed the cost of replacement within just a few months! In this context, waiting several years before acting can cause huge financial losses.

Steam traps are pieces of mechanical equipment and, thus, their service life generally varies between five and 15 years, depending on the conditions of use. When the steam trap fails, it loses its ability to make the distinction between the steam and the condensate. The first possibility is for it to remain permanently open ("leaking"), allowing not only the condensate but also the live steam to pass. The second possibility is for the trap to remain plugged preventing the evacuation of condensate. Plugged traps can have many negative affects including: equipment damage, equipment malfunction, water hammer, corrosion, and mechanical breakdown of equipment. Even though the financial impact of plugged steam traps is more difficult to evaluate, it certainly has the potential to be greater than energy losses.

Steam traps have an average service life of five to 15 years and, thus, it is normal that 10% to 15% of the traps in a homogeneous population breakdown each year. Therefore, it is best practice to have an annual maintenance plan to repair/replace failed steam traps. Keeping track of all this information can be challenging using traditional data base methods (i.e. Microsoft Excel or computerized maintenance management systems). Armstrong SAGE® is software designed specifically for making your steam system management easier. SAGE® is an internet steam trap management platform that contains data on more than 10,000 trap models from global manufacturers and uses a United Nations-approved formula for steam loss and environmental emissions calculations.

SCOPE: Goodyear Tire and Rubber located in Fayetteville, NC has understood the importance of regular maintenance of its steam system. They have performed surveys of their steam system (2,321 steam traps) in SAGE® over the last two consecutive years resulting in over \$150,000 in annual savings. In this short time, Goodyear has improved their overall steam trap performance to 92% - meaning that 92% of their trap population is operating correctly and in 'Good' condition. If a regular maintenance program is followed, this rate will continue to improve.

Multi-Year Steam Trap Management

2,321 Total Traps			
	2016	2017	Total Savings
Steam Loss lbs/yr	60,040,437	31,741,065	28,299,372
CO2 Loss lbs/yr	9,933,848	5,252,826	4,681,022
Fuel Loss MMBTU/yr	84,921	44,905	40,016
Monetary Loss USD	\$321,216	\$169,497	\$151,719



UPGRADE PROJECTS:

Another solution to consider is installation of permanent monitoring equipment on select steam traps on any application. Armstrong International has several real-time wireless monitoring systems that can communicate on different wireless platforms including Wireless-HART and ISA-100. Armstrong monitors are easy to install and simply clamp on the pipe upstream of the trap, regardless of its brand or technology. Using real-time monitoring allows users to receive immediate feedback on their failed steam traps and help you reach your ultimate performance goals.

All Armstrong real-time steam trap monitoring solutions integrate seamlessly with SAGE® and sends the users instant automatic email alerts when a steam trap fails. In SAGE®, users can integrate or segregate real-time monitored data with manually collected data to generate customized reports.

Contact the Armstrong International - Smart Services Group to learn more about steam trap management and how to integrate SAGE® and real-time monitoring in your system.

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