

# Effective Steam Trap Management

Helping to maintain an energy efficient plant



*First for Steam Solutions*

EXPERTISE | SOLUTIONS | SUSTAINABILITY

**spirax**  
**sarco**





## Why is it so important to maintain your steam trap population and keep it in good order?

We are focused on helping our customers to improve process efficiency, increase production output and achieve energy savings, and we know the importance of effective steam trap management in achieving this. A healthy steam trap population allows condensate to be removed from the steam system effectively which means that process efficiency can be optimised, equipment is protected and the condensate can be re-used.

## The benefits of effective steam trap management

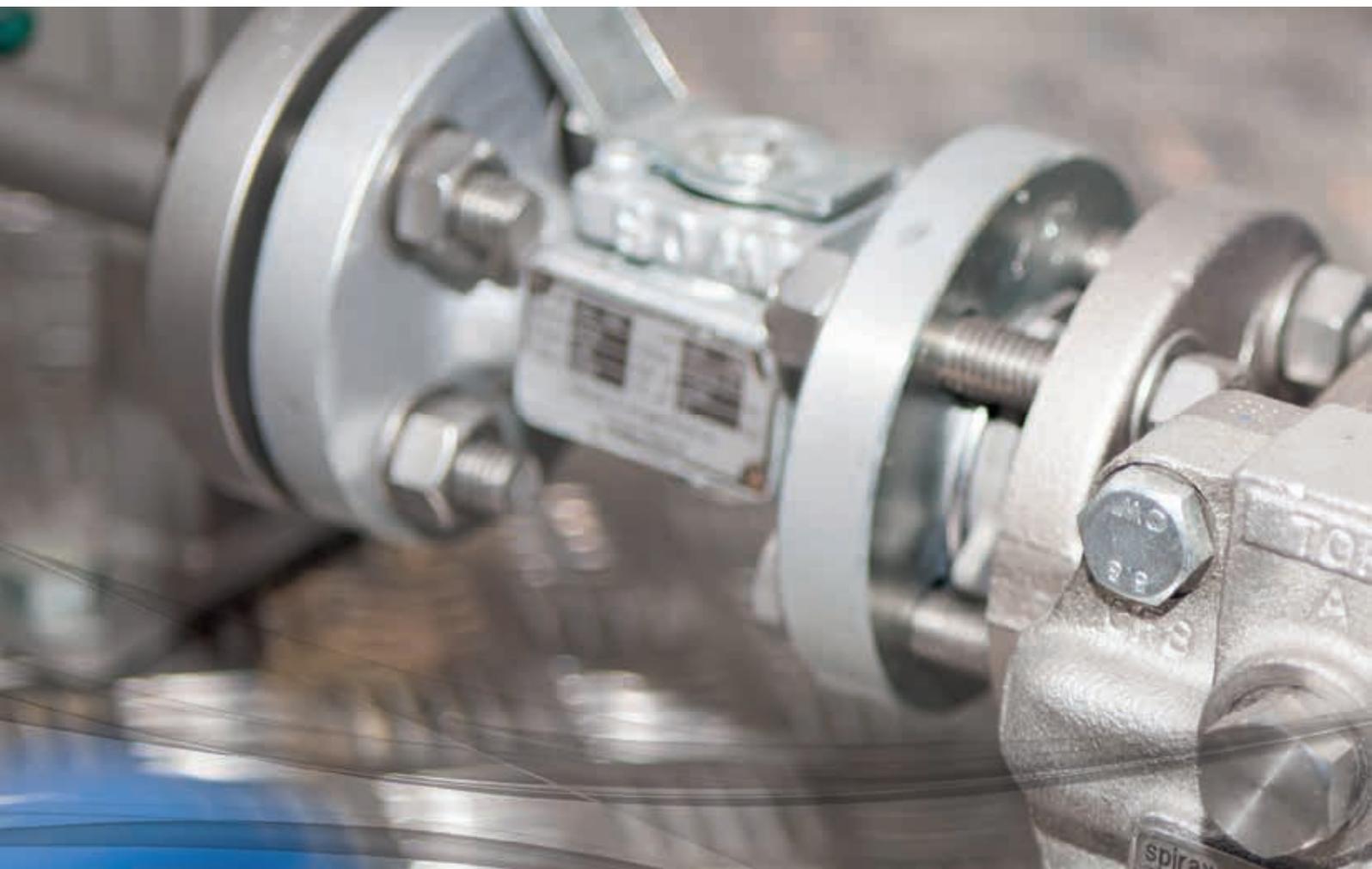
Effective steam traps improve process efficiency and safety, save energy and costs in a number of different ways:

### Health and safety

As with any utility in the plant, for example hot water or electricity, a steam system must be well managed to ensure safe operation. Steam trapping allows condensate to be removed from the system, which means it cannot continue on around the system to cause potentially hazardous situations.

### Productivity and process improvement

Correctly functioning steam traps enable the steam system to deliver the thermal energy required for process applications to operate effectively. Condensate in the steam supply can affect the operation of applications, causing issues such as slow start up times and poor heat transfer. Removing the condensate from the system allows the steam to perform its task within the process efficiently.



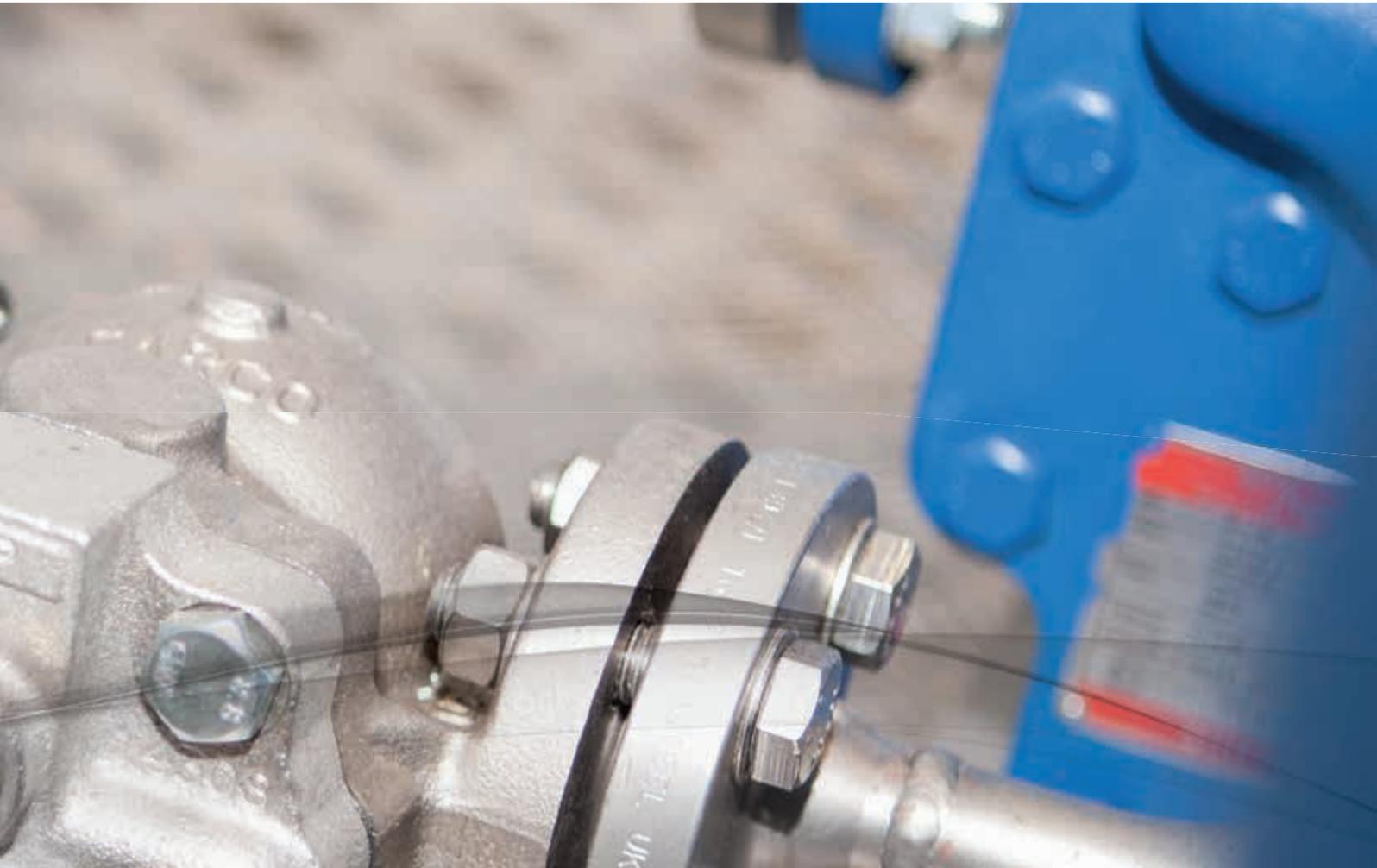
### **Sustainable energy savings and reduced carbon emissions**

Condensate usually contains around 25% of the usable energy of the steam from which it came. Returning this to the boiler feed tank can save thousands of pounds per year in energy alone and reduces the requirement for fresh replacement water. It can also minimise the need for costly chemicals to treat raw water.

Condensate removed from the steam system and returned to the feed tank also reduces the need for boiler blowdown, which is used to regulate the concentration of dissolved solids in the boiler. This therefore reduces the energy lost from the boiler during the blowdown process.

### **Lower cost of ownership**

Removing the unwanted condensate from the system ensures there is less chance of damage from issues like waterhammer and corrosion. Steam traps remove the condensate as it forms, keeping better quality steam in the system and protecting pipework and equipment from erosion and corrosion.



## Case Study

### Oil refinery

**Objective:** Reduce energy costs.

**Action:** Spirax Sarco, in conjunction with a major oil refining company, carried out a turnkey project involving a steam trap and energy audit of the plant, supply, and installation of replacement steam traps.

**Improvements identified:** 30% of steam traps on site had failed leading to significant losses.

**Cost of equipment** (including installation): £130,000

**Measured energy savings after one year:** £100,000

**Payback period:** 1 year and 4 months





We are on hand to advise you about the best ways to manage your steam system and trap population to help ensure you continue to gain the benefits.

## Our solutions for effective steam trap management

As steam traps are one of the hardest working components in the steam system, they will inevitably require maintenance and replacement at some point. The important factor is knowing how your traps are performing, so that you can rectify any issues as quickly as possible. This effective management of your steam traps ensures you retain all the benefits that healthy traps provide.

Whatever the number of steam traps in your system, we can recommend and provide the perfect solution which will allow you to monitor their performance and functionality.

### 1) Manual survey by a steam specialist

A Spirax Sarco Steam trap survey involves a detailed inspection of your steam traps that includes:

- Identification of the complete steam trap population and labelling with clear and durable tags
- Inspection of each steam trap to check that it is the right type for the application
- Inspection of each steam trap to check that it is correctly installed
- Ultrasonic testing of all steam traps in operation
- Identification of other critical issues relevant to your steam and condensate system
- Provision of a comprehensive and detailed survey report covering:
  - A complete inventory of your steam trap population together with detailed operating conditions for each trap
  - An estimate of total steam loss and the costs associated with this
  - Access your plant inventory, performance and historical information when and where you need it via our SIMS™ Software online interface\*

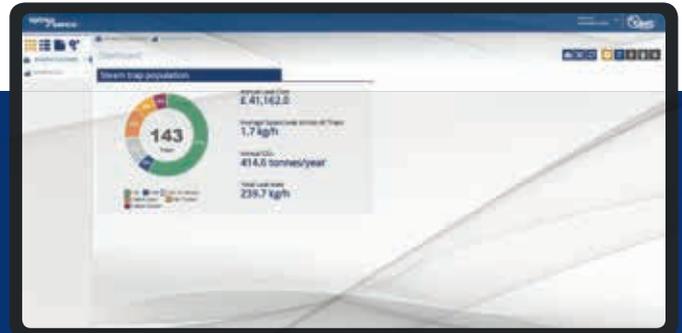
We can also provide a full energy audit of your entire steam system to check that all steam equipment and processes are operating correctly. Designing the audit around your individual needs, we will identify any areas where improvements can be made and will advise you on how best to make them.

\*May not be available in all regions

### SIMS™ Software

Immediate and intuitive access to plant information enables you to operate your steam system as efficiently and productively as possible. SIMS™ Software enables you to access, interrogate and analyse the information from your steam plant in one location, anywhere, anytime and on any device.

For steam trap management, SIMS™ Software enables swift identification of maintenance issues. SIMS™ Software offers the potential for predictive and prioritisation of maintenance by providing all historical and survey data directly to you.



## 2) Continuous monitoring

For critical process applications even the most vigorous steam trap audit regime has a risk that some trap failures could be missed. In situations where a site has a substantial trap population it could be a lengthy period between audit intervals.

Identifying trap failures on critical applications quickly, taking remedial action will help to improve process efficiency and prevent potential damage to high value equipment. We offer a range of continuous monitoring systems which, when combined with a regular steam trap audit for non-critical processes, provides a completed steam trap management programme which can be tailored to suit your needs.

## 3) Spiratec - steam trap monitor

Spiratec is a continuous steam trap monitoring system that can quickly identify failures as soon as they occur. By using an inline conductivity sensor Spiratec can distinguish between steam and condensate; this combined with temperature compensation allows Spiratec to clearly define your trap system performance.

Spiratec is suitable for all trap types and is ideal for non-hazardous application environments where continuous monitoring is required. It is an ideal solution for sites with small to medium trap populations.

A Spiratec monitoring device helps to ensure:

- Steam trap failures are identified soon after they occur
- Steam trap failures are identified correctly - without proper means, it is easier to wrongly identify a working trap than to correctly identify a faulty one.
- Failures can be corrected as soon as they are identified, helping to avoid unnecessary waste.

Where there is a requirement for an intrinsically safe system, or where trap populations are large or inaccessible, then our STAPS Wireless solution may provide the answer. Find out more about STAPS Wireless over the page.



#### **4) STAPS Wireless steam trap monitor**

The STAPS Wireless steam trap monitor has been designed for easy, non-intrusive installation with accurate wireless monitoring and reporting.

STAPS Wireless simply clamps on to a pipe, it requires no power cables or data lines. It is powered by a long life battery and transmits the data from the steam trap monitor back to the receiver, via a wireless signal, where the data can be fully interrogated locally using our purpose built STAPS software package.

STAPS Wireless is quick and easy to deploy as it is generally unnecessary to shut off the steam line in order to install it. Confined, remote or previously inaccessible locations are no longer an issue as the trap performance data is sent automatically to your PC, so there is no need to access awkward locations to retrieve data manually.

It's 100% non-intrusive and as the head unit requires no access to any electrical outlets or cables, it is quick and easy to install.

The wireless network is fully commissioned and configured by a Spirax Sarco engineer to ensure accuracy and give you peace of mind. Monitoring your steam trap population with STAPS Wireless helps ensure the maximum level of condensate is recovered and minimum amount of steam is lost, helping to keep your applications and processes as productive as possible.

STAPS Wireless will also identify traps that are blocked or have failed closed. Although blocked traps do not leak steam, it is important to fix these traps to ensure the overall efficiency and safety of the steam plant is retained.

#### **5) STAPS Wireless with ISA100 communication**

The STAPS Wireless system is also available with highly secure ISA100 communication protocol.

The ISA100 Wireless protocol (IEC 62734) is an international, industrial wireless networking standard, engineered to serve the needs of process industries. ISA100 Wireless enables automation engineers to quickly create, modify, optimise, and scale wireless networks that are open, interoperable, and reliable for their most critical applications.

STAPS ISA100 is able to interface with existing enterprise systems.

#### **6) Spirax Sarco maintenance contract**

If you would prefer to hand over the maintenance of your steam trap population to us, we offer bespoke maintenance contracts designed around our customers individual requirements.

We can provide a service that balances the maintenance needs of your system with budgetary requirements, over a time period that suits you.

With a maintenance contract tailored to your needs, you can rest assured. Our routine preventive maintenance and inspection will help to ensure optimum plant performance by minimising the risk of breakdown and costly downtime.



For more information about our steam trap management solutions, or any of our steam solutions please visit our website [spiraxsarco.com](http://spiraxsarco.com)



Operating Companies

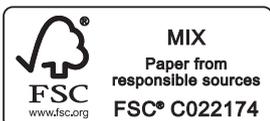
Manufacturing Sites

Sales Offices

Distributors

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