

Pressurised deaerator solutions

BOILERHOUSE SOLUTIONS



First for Steam Solutions

EXPERTISE | SOLUTIONS | SUSTAINABILITY

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Pressurised deaerator solutions

A pressurised deaerator solution holds the key to achieving regulatory compliance, higher energy efficiency and greater process productivity

Oxygen is the main cause of corrosion in boiler feed tanks, feed lines, feed pumps, boilers and the steam and condensate loop. If carbon dioxide is also present then the pH will be low, water will tend to be acidic, and the rate of corrosion will be increased. Corroded pipework and equipment costs businesses money in increased maintenance and repair costs, as well as reducing process productivity.

Elimination of dissolved oxygen in boiler feedwater can be achieved by either chemical or mechanical methods but, more often, by a combination of both in a deaerator system.

In an atmospheric deaerator system, the feedwater is heated to approximately 85°C to 90°C, which drives off most of the dissolved gases. Further heating would cause the feedwater to boil, resulting in loss of energy through the vent and potential for feed pump cavitation.

The only way to further reduce the dissolved gas content in an atmospheric deaeration system is with the addition of chemicals, which can bring the oxygen content down to 20 mg per litre of water – or 20 ppm – still sufficient to cause corrosion concerns.

However, the use of chemicals introduces other considerations:

- Increased boiler blowdown: added chemicals will themselves lead to the need for increased boiler blowdown, resulting in wasted energy.
- Increased risk of product contamination: chemical carryover in the distributed steam – especially in processes where steam can be in contact with the product, for example: foodstuffs or for cleaning-in-process (CIP) purposes.

The solution is a pressurised deaerator system, which can heat the feedwater to greater than 100°C without boiling off to steam, thus removing virtually all of the dissolved gases without the need for oxygen scavenging chemicals. It also enables compliance with BS EN 12953 Part 10 for new boiler installation.

The make-up water is broken into small droplets and surrounded by steam that is supplied to the deaerator head, in order to “scrub” the dissolved gasses, which are then expelled through controlled venting. Once the water has been scrubbed, it is allowed into a pressurised storage vessel where it is kept at above 100°C and covered with a blanket of steam to prevent re-absorption of gasses.

The pressurised deaerator also offers a surge protection function for returned condensate, keeping the condensate in a sealed pressurised environment, thus preventing energy losses through vented flash steam and waste to drain.

A well designed pressurised deaerator reduces the oxygen content to around 0.02 mg/litre of water, (20 ppb), virtually eliminating its corrosion properties.



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The benefits of pressurised deaeration

For your expansion and refurbishment activities

For customers who are undertaking a new boiler installation or major refurbishment, a Spirax Sarco Pressurised Deaerator can help provide the required boiler feedwater quality in order to meet current regulatory requirements, BS EN 12953 Part 10.

We can plan, design and project manage the installation of a pressurised deaerator system and provide training and comprehensive documentation ensuring a seamless handover and on-going support capability.

For your energy saving and sustainability activities

By retaining more energy returned from condensate and heat recovery systems in the pressurised deaerator, boiler fuel consumption can be reduced.

Installing a pressurised deaerator system from Spirax Sarco gives you access to over 100 years' worth of steam expertise, ensuring that your investment brings you the most effective solution for energy savings and sustainability, and increasing your CSR credentials.

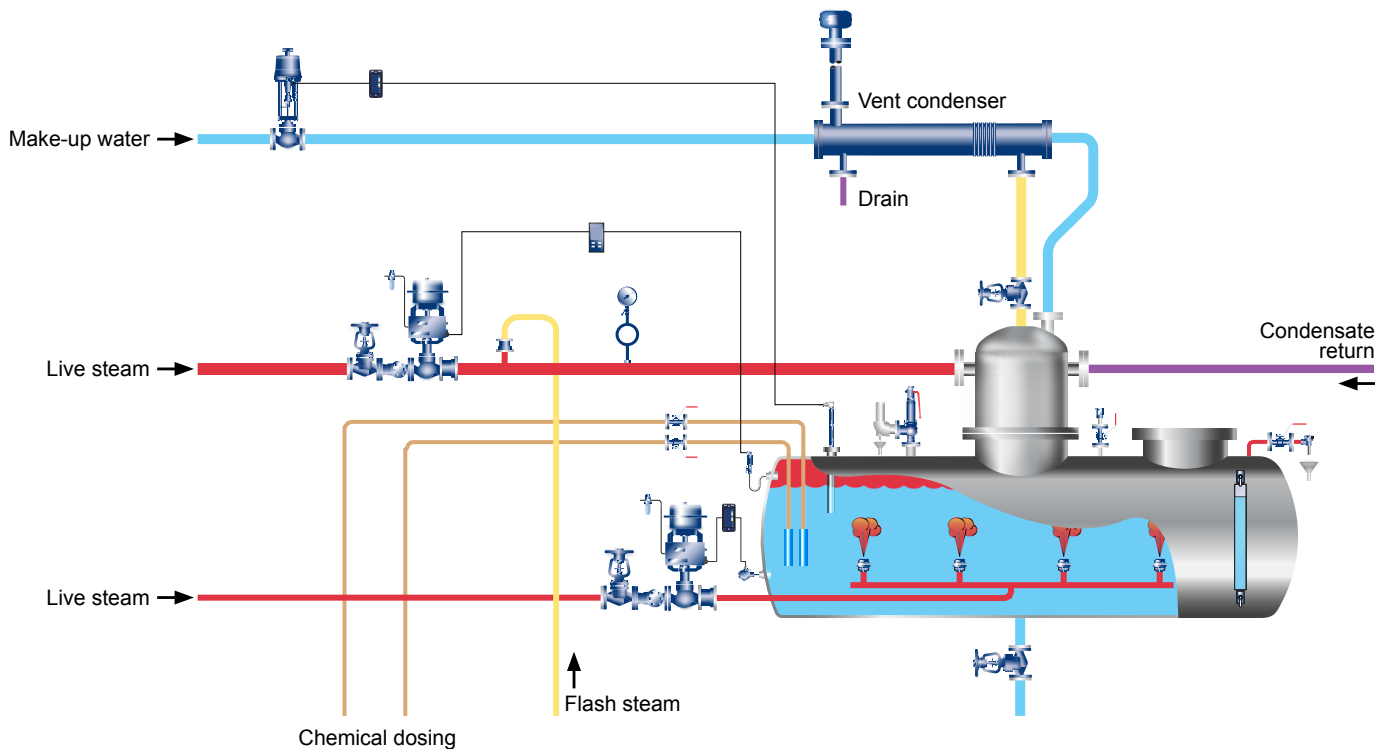
For your process productivity activities

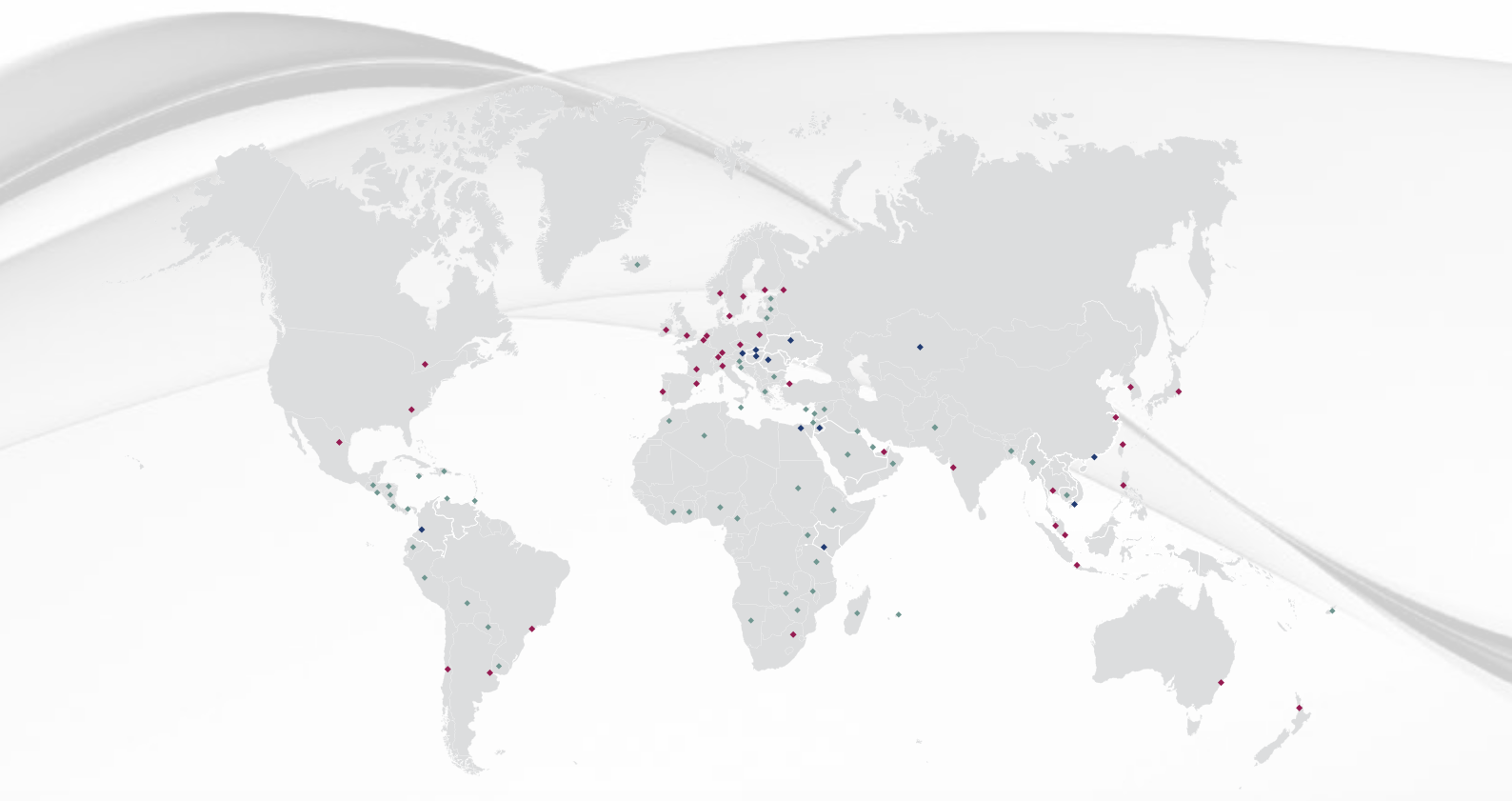
A pressurised deaerator will improve your process productivity through reduced maintenance downtime, and reduced product spoilage (in processes that use direct steam injection). It also aids compliance to BS EN water quality standards required for new boiler installations. Increased productivity and managed installation and commissioning will ensure return on your investment.

For your expansion and refurbishment activities

A Spirax Sarco Pressurised Deaerator will reduce the corrosion risks to your steam and condensate loop, maximising up-time and reducing total cost of ownership.

Our pressurised deaerators are made from reliable and easy to maintain components. Backed up with a responsive and comprehensive supply chain, ensures that your steam system continues to operate at its optimum performance.





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