NEWS FROM SPIRAX SARCO

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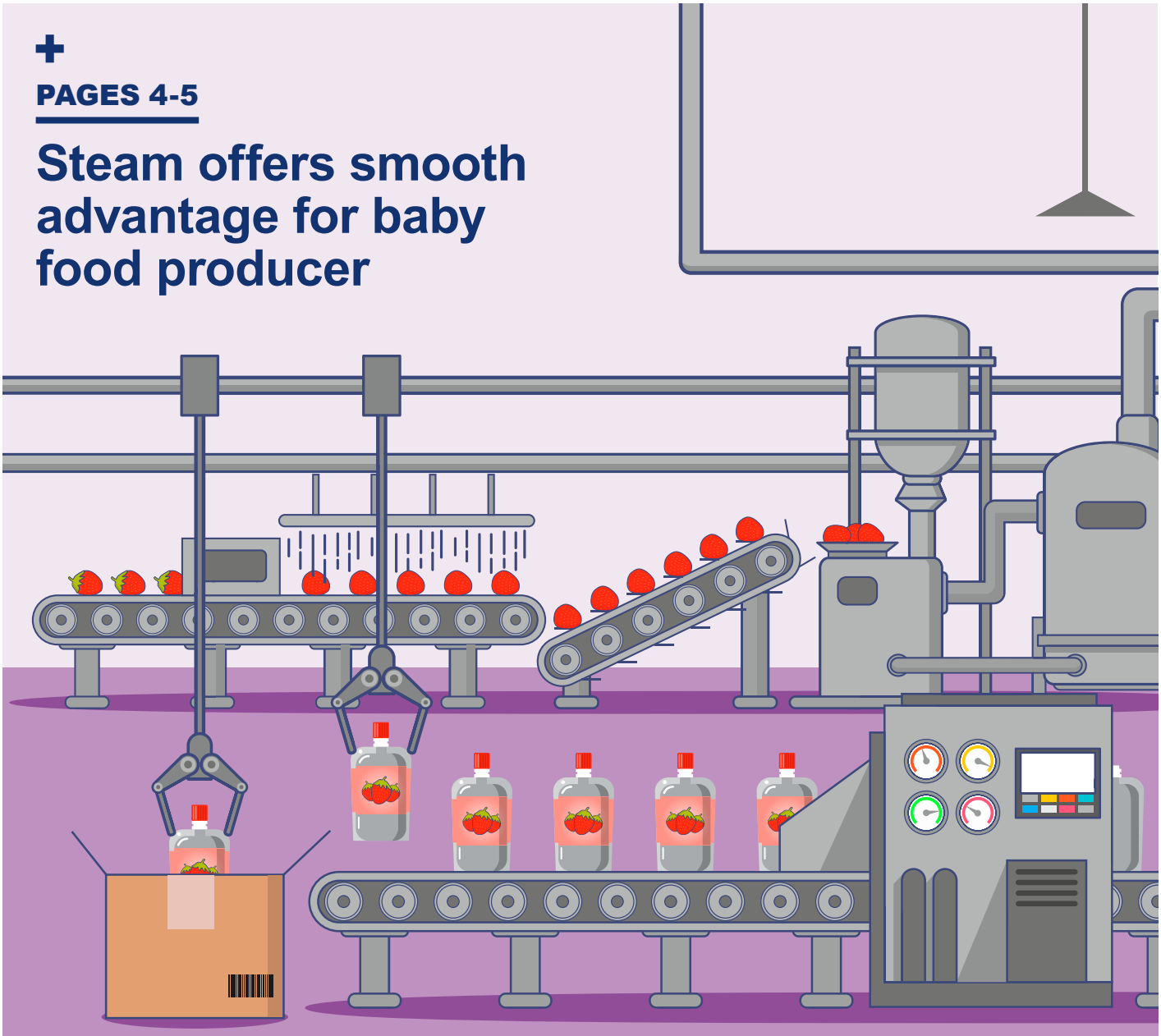

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Steam, Broilers and Biomass Boilers

How two businesses worked together to build renewable heating systems for farms

For many chicken farmers, litter is seen as nothing more than a by-product of the farm in need of regular removal. Thanks to an innovative renewable heating system however, that mix of litter, waste feed, and soiled bedding material is now being used to fuel the boiler that will heat their poultry sheds.

This low-waste solution is made possible by biomass technology. The concept of biomass is to use organic matter of biological origin to fuel boilers or hot water systems. Although still in a relatively early stage of development, compared to fossil-fuel based technologies, biomass is gaining traction, particularly on an industrial scale, due to its status as a renewable energy source and its low-cost capabilities.

Many companies are emerging to meet the demand for greener, more sustainable fuel technologies, particularly as government legislation regarding the ammonia released from chicken litter becomes increasingly stringent.

One such biomass heating company who offer services in planning, designing, sourcing, installing and servicing biomass technologies at sites across the country, has installed over 200 biomass heating systems nationwide, including some at notable landmarks around the country.

Their chicken litter biomass heating systems now heat the sheds of more than two million chickens in the UK. Each boiler is designed to burn chicken litter reliably and consistently, without exceeding regulatory emission limits.

Spirax Sarco was brought in to assist in the design and development of a fully-optimised biomass heating system for a number of poultry customers.

“We were approached for our input on the design and optimisation of the system,” says Angelo Giambrone, Business Development Manager at Spirax Sarco UK. “We wanted to make sure that any steam technologies installed functioned harmoniously with the biomass system as a single, efficient unit.”

Four technologies that could offer significant energy and cost savings were identified.

First of all, Spirax Sarco recommended the implementation of a pressurised de-aerator, which would raise the temperature of the boiler feedwater in line with the boiler maker’s specifications. “This means that the system is optimised, right from the start,” Angelo explains.

The design also incorporated a condensate recovery unit to maximise steam system efficiency, a plate heat exchange package to control the conversion of steam to hot water, and metering functionality, which would help the end-customer to gain the full benefits of the government’s Renewable Heat Incentive scheme.

Spirax Sarco assisted the company to integrate their micro-turbine. Steam generated from the boiler operates a small turbine, which generates a small amount of electrical power. This further increases the benefits end-users can get from RHI, in the form of additional funding.

“The steam that powers the turbine is then converted to low temperature hot water, which can be distributed to the chicken sheds. It’s the ultimate example of how good ideas can help those in the agricultural sector to use resources as efficiently and effectively as possible,” Angelo comments.

Since partnering with Spirax Sarco, the biomass heating provider has been able to help a number of customers to make savings on their energy bills, and improve the health and comfort of their livestock.

FIND OUT MORE

For more information on steam for biomass, get in touch with us at **Connexions.UK@uk.spiraxsarco.com** or **01242 521361**

Are you on the road to improved boilerhouse efficiency?

Economic uncertainty no doubt weighs heavy on the minds of energy managers when considering their businesses' financial expenditure on fuel. So here, Darren Silverthorn, National Controls and Metering Specialist, provides his recommendations on how you can correctly identify and account for potential energy losses to help you to slash the cost of your fuel bills.

In the UK manufacturing industry, energy costs are said to account for around 50% of a business's overheads. It's easy to see how a business can spend so much on energy when, in my experience, boilerhouse managers tend to believe that they are operating at an efficiency level 15% higher than they actually are. This, I believe, is likely due to them not having complete visibility of their boilerhouse components.

Boiler operators can call time on financial waste by metering all of the energy entering the boiler – including both the fuel and feedwater – and compare this with the useful energy exiting the boiler in steam. Gone are the days when this type of monitoring was only possible by significant investment in Building Management Systems (BMS) or Supervisory Control and Data Acquisition (SCADA) software systems.

Monitoring in this way was a costly means of measuring energy use and could result in small-to-medium businesses being unable to adequately monitor their energy. Equally, the upfront investment in such systems has traditionally, not been a cost-effective means of measurement as they only log non-compliant operations as opposed to providing the 'why' that exists behind that data.

This can leave those who oversee the boiler without the information they need to observe where energy costs could be reduced and efficiency improved.

Now, there are monitoring systems available that provide a complete overview of the system. Take for instance, Spirax Sarco's B850 boilerhouse energy monitor. It provides boilerhouse teams with a cost-effective means of measuring the overall boilerhouse efficiency. The monitor accurately calculates the efficiency of the boilerhouse based on measured inputs from the fuel, feedwater, steam output, condensate return and blowdown. All calculations are in accordance with British Standard 845 – the methods for assessing thermal performance of boilers for steam, hot water and high temperature heat transfer fluids. Cost-conscious boiler operators can utilise this data to make improvements in the efficiency of their steam system – yielding energy savings and reductions in the financial expenditure of the business.

By cutting down on the use of energy, businesses could find that they are able to save money on their fuel bills – putting them on the road to improved boilerhouse efficiency!

FIND OUT MORE

To find out how you can identify the true efficiency of your boilerhouse, download your guide at **sxscom.uk/B850brainsoftheboilerhouse**

Steam offers smooth advantage for baby food producer

With partners including global companies and offering a variety of services including product development, ingredient sourcing, process advice and pack design, no challenge is too big for Natural Fruit & Beverage Co. To help a leading baby food manufacturer differentiate itself in a crowded market, the team at Natural Fruit & Beverage Co. embarked on a project to transition to clean steam generation for the packing process. All the while, minimising the risk of contamination to meet strict investor requirements.

The food and beverage industry might be a vibrant and thriving scene, but as one of the fastest moving industries, its highly competitive nature has also added considerable pressure to operating margins across the supply chain. In response, many organisations focus on identifying areas for improvement in the quality of products and processes. As one of the UK's leading packers of food products into resealable pouches, Natural Fruit & Beverage Co. did just that.

In late 2017, Jamie Walker, Manufacturing Manager at Natural Fruit & Beverage Co. was approached by a key customer looking to enhance the quality of their product - baby fruit puree sachet pouches. Ultimately, they wanted to differentiate themselves from their competitors and win future supermarket contracts.

CO_2 problems

Until then, the customer had been using CO_2 for purging and cleaning excessive residue before capping the product. It was becoming apparent that while competitor products were improving in quality, CO_2 was offering no room for improvement, and was also an expensive resource.

With CO_2 restricting progression, an alternative method had to be sourced. Jamie sought advice from existing suppliers and peers in the industry to see what alternatives were available. After speaking to a number of experts, he decided to follow up on the recommendation to use steam.

EXECUTIVE SUMMARY

Company name: **Natural Fruit & Beverage Co.**

Location: Coatbridge, UK

Objective: Enhance product quality in order to win future supermarket contracts

Solution: Implemented electric compact clean steam generator with preheating capability and the ability to control feedwater quality

Results: Enhanced consistency in product quality by changing to clean steam

Clarity on steam

Jamie's initial findings unearthed a common misconception around the use of steam in food processing and he discovered that there is far more to understand than simply opting for one type of steam. This started to pose questions around the potential contamination of the pipework running the risk of affecting the consistency of the product. With this in mind, and with a degree of confusion surrounding which steam type would be best for their process, Natural Fruit and Beverage Co. called upon steam specialists, Spirax Sarco to guide them in the right direction.

Initially, Jamie believed the best solution would be to use a cost-effective filtration process. However, there is much confusion across the industry surrounding the difference between filtered and clean steam - which is exactly why clear guidance was needed. Fortunately, in this instance, quality was Natural Fruit & Beverage Co.'s first priority so Jamie was keen for Spirax Sarco to give them the assurance and confidence to eliminate any product inconsistencies.

A clean steam solution

The Spirax Sarco experts were invited to present to the management team at Natural Fruit & Beverage Co. Here they explained the various types of steam, the concept of clean steam as an ingredient and how it applies in relation to a Hazard Analysis and Critical Control Point (HACCP). The team of specialist engineers explained that despite the food and drinks manufacturer having made use of filtered steam in the production process, consistency in taste, colour and quality of the end product could be achieved by choosing clean steam.

Generating and using clean steam within a process means controlling feedwater quality at the source. Rather than relying on a filtration process to extract particulates, the production of clean steam utilises a secondary steam generator with the ability to control chemical-free feedwater quality.

Based on this explanation, Natural Fruit & Beverage Co. went ahead and introduced an electric compact clean steam

generator 50 kW (50 kg/h @ 3 bar) with preheating capability and the ability to control feedwater quality.

Overall Jamie was impressed with the service he received. He commented: "The Spirax Sarco team gave me the confidence and security that they knew the subject well enough to introduce a clean steam generator rather than filtered steam."

Since installing the new solution, Spirax Sarco has supported Natural Fruit & Beverage Co. with regular site visits which has helped Jamie in gaining a better understanding of how their steam system is working.

Francisco Pedrosa, Clean Steam Specialist at Spirax Sarco added: "There are many companies across the country that use the same processes as Natural Fruit & Beverage Co., and yet do not realise the full potential of clean steam. Should their story spark an interest with any like-minded manufacturers, we would be more than happy to offer a consultation to advise on where they might be able to improve."

FIND OUT MORE

Download your definitive guide to switching to a clean steam alternative to filtered 'food grade' steam at **sxscom.uk/switch**

Is your manufacturing process following these best practice tips?

For pharmaceutical related processes, steam is indispensable to a huge range of plant and high-purity applications. So when it comes to minimising your contamination risk, you need a steam system that's designed, built and validated to deliver optimum performance. Angelo Giambrone, Business Development Manager explains his best practice tips for specifying steam traps in processes that require high levels of sterility such as fermenters or bioreactors:

When it comes to the material, what should I be looking for?

Conventional plant steam applications typically make use of materials such as SG Iron, Carbon Steel and Stainless Steel. However, once we dive into the realms of clean steam applications, material requirements are laid out by regulatory bodies. For instance, ASME BPE requires such steam traps to be made from higher-grade stainless steel – typically 316L – and manufactured with highly polished surface finishes. Such requirements ensure compliance in this highly regulated industry.

What design characteristics are going to best match my process?

The use of steam traps in clean steam applications requires certain design characteristics to feature if they are to comply with ASME BPE. Clean steam traps should be free-draining to ensure that no condensate is allowed to reside in the body of the trap. The inclusion of vertical inlet and outlet ports also helps to ensure free-drainage – this minimises the risk of microbiological growth within the trap as a result of condensate stagnating.

What about my maintenance needs?

Having a regular planned maintenance programme in place can pay dividends in the long run. Ensuring that all mechanical components are in optimum working condition will minimise the risk of lost production and help you to maintain a validated process. Replaceable trap components and the ease of sanitary clamp assemblies for these highly-specialised traps all help you to get ahead in the planning of your maintenance regime.

Space is restricted so what about the cooling leg?

Growing demand for space will mean you'll want to keep your cooling leg to a minimum. The latest balanced pressure steam trap technology for use on clean steam applications can now operate at only 2O°C below the steam saturation temperature. Process temperature validation can occur at a point just before the steam trap, so the availability of short cooling legs can help to ensure that validation is achieved.

FIND OUT MORE

Are your steam traps in need of attention? Let us help you identify process improvements at **sxscom.uk/trapsurveys**

Are you taking the proactive approach?

As a well-used medium in today's modern world, steam is a key resource used typically for sterilisation processes, space heating, hot water generation, humidification applications and as a process heating vehicle. So for those of you reading this who have the responsibility of ensuring that your plant continues to operate at optimum efficiency to provide these services – where do you start when it comes to working out what preventative maintenance needs doing and when? Iain Harper, Service Sales Manager explains:

Outsourcing your maintenance and service work through a service contract offers the most cost effective solution. A service contract is a flexible way to ensure equipment longevity whilst providing you with peace of mind that all of your equipment is safely maintained by dedicated engineers.

Putting yourself in control

No one understands and appreciates the nuances and intricacies of their plant better than you do, so choosing a service contract that can be tailored to exactly what you need, how long you need it for and within your budget is crucial. A Planned Preventative Maintenance (PPM) programme is a great step towards minimising costly unscheduled downtime, particularly on equipment that has previously received little or no maintenance attention. Having a programme in place can not only help towards making maintenance budget planning and forecasting that little bit easier, it can also allow you to release maintenance staff to focus on other duties.

Total peace of mind

There is never a convenient moment for your system to breakdown so a proactive approach to maintenance can really be beneficial in ensuring a smooth and efficient plant operation. So whether you've recently invested in new steam engineering components or have existing components that you want to bring back to its best operating efficiency and keep it there, service contracts are a sure-fire way to ensure that they are properly and regularly maintained.

Continuous operation

Close your eyes and picture the scene: a steam plant running at its best operating efficiency. Now open them, step back and take a look at your own plant – if this is the reality you want, then consider a service contract. Not only will it bring peace of mind to you but it will ensure that your needs are met, at a cost that doesn't break the bank.

FIND OUT MORE

Take a proactive approach and find out more about how a service contract can help you today at **sxscom.uk/ServiceContracts**

NEWS & TRAINING

NEWS

Spirax Sarco UK gets a website makeover

We are pleased to announce the launch of our new-look website. Here are just some of the features you can now expect:

- Easier navigation
- Enhanced products and services search functionality
- Improved accessibility across desktop, mobile and tablet devices

If you have yet to take a look, go to:
beta.spiraxsarco.com/global/en-GB

Introducing our charity of the year

From raffles and eating competitions to dog walks and active days, we've had a busy few months fundraising for our charity of the year, Acorns.

At the halfway point we have raised 63% of our £7000 target.

About Acorns

Acorns Children's Hospice provides babies, children and young people aged 0 – 18 years who have life limiting or life threatening conditions and associated complex needs with a network of specialist palliative nursing care and support. Achieving our target would mean that an Acorns hospice can run for a 24 hour period.

For more information go to **www.acorns.org.uk/**

TRAINING

Upcoming course dates

Steam Plant Maintenance: City & Guilds Accredited:

23 September, 7 October, 21 October, 4 November, 18 November

Steam Boiler Plant Fundamentals (Shell Boiler):

City & Guilds Accredited:

14 October, 17 October, 30 October, 12 November

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