

# FULL STEAM AHEAD

*When SHS International needed an on-hand and reliable steam supply for a new facility Brian Connolly, engineering manager, researched numerous options before he found a suitable solution*

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**W**hen planners of SHS's new facility at its plant in Wavertree, Liverpool stumbled across a problem regarding steam supply, they realised a supply was needed that would be available "as-and-when" required and which would be able to cope with large fluctuations on demand. When Brian Connolly saw a Clayton Steam Generator in action on a similar process he realised he had found a solution.

The new facility is a modern bakery that produces gluten-free bread made for the growing number of people who suffer from Coeliac Disease. This is caused by intolerance to gluten, a protein found in wheat, rye, barley and possibly oats. Gluten causes damage to the lining of the small intestine and stops the body absorbing nutrients. This can lead to weight loss, weakness, fatigue, breathlessness, anaemia and other symptoms. Although there is no cure, the disease can easily be detected and controlled by avoiding gluten. Sufferers then find the symptoms quickly disappear and they are able to lead an active, healthy life.

Gluten is found in flour and can be present in bread, cakes, biscuits, crackers and pasta. It's no surprise then that bread is the food most missed by people on a gluten-free diet. But SHS says it is able to meet the demand for gluten-free bread and produces various bread products using modern and advanced machinery.

The Clayton Steam Generator is an important part of the bread-making process where steam is essential in the retort cycle for sterilisation of the finished product. The way steam is produced in a Clayton Steam Generator is different from the traditional horizontal type of boiler where water is stored in a drum and heated under pressure. This difference accounts for the quick start-up and fast reaction time.

In a Clayton Steam Generator the feedwater is pumped around a helical coil and heated so steam is formed in the flowing stream of water. Only a small amount of water is contained inside the coil and the steam output can be rapidly adjusted by passing more or less water through the coil, as

required, and simultaneously adjusting the heat input. This method of steam production means a Clayton Steam Generator is small in size and safe to operate.

"At the start of the project we looked at traditional boiler designs but they were much larger and it would have taken about an hour-and-a-half to get steam up to pressure every morning," Connolly said. "I would have needed people on site an hour-and-a-half before production started to make sure we had steam available".

Safety considerations that govern water level controls in traditional horizontal boilers do not apply to the Clayton Steam Generator as it does not have a water level. Additionally it is not possible to have a steam explosion with the Clayton design and a separate boiler house is not required.

"We have extended our range of steam generators over the years and it is no longer necessary to use the traditional design of boiler if you need up to 10 tons of steam an hour since our largest unit is rated at 6.8MW," said Gerry Rooney, sales manager at Clayton.

According to the company, the Clayton Steam Generator can meet the demand for the large quantity of steam needed for the up-cycle of the retort and the steam supply can then be adjusted to maintain the critical steady state conditions. Connolly said: "One of the other advantages for us is the steam generator is fully automatic and we can have steam when we need it. It is also easier to use as well as being fuel-efficient". **ENTER 215**

## ***Bitesize facts***

Gluten-free bread is one of the products manufactured by SHS, which specialises in clinical nutrition and has its head office in Liverpool. Apart from its range of gluten-free products, it produces a product for severe cow milk allergy and alternatives for patients born with specific metabolic disorders.

SHS provides supplements to complement the diet of patients who have special energy requirements when their condition causes an energy deficit. Another area in which SHS is involved is in the treatment of common and rare neurological conditions in children, such as epilepsy, where sometimes drugs do not work.

SHS is part of the international Nutricia group, which is dedicated to the development, production, and sales of specialised nutritional products. They deal with baby food and in clinical nutrition. The company has research and development facilities and a large clinical trial programme for validating products, helping new ideas work for patients.

SHS's field of interest spans many areas providing specialist products where nutrition is important, including metabolic disorders, gastroenterology and food allergy, neurology, special energy requirements and Coeliac Disease.

