Lanemark Application Profile

LANEMARK INTERNATIONAL

mini-breweries

Brewery Copper and Hot Liquor Tank Heating

Ideal for installations from 5 to 80 barrels, the Lanemark design can include the highly efficient helical coil heat exchanger *(below left)*.

As energy costs continue to rise, the optimum selection of heating systems to meet the requirements of brew coppers and hot liquor tanks is of major importance to new or expanding brewery installations.

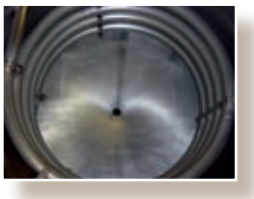
With over 25 years of experience in the mini-brewery sector, Lanemark International is well placed to offer advice, design and heating equipment proposals to meet the requirements of brewery vessels ranging from 5 to 80 barrel capacity.

Brewery vessel heating system comparisons – a brief overview

Mini-brewery vessels are usually heated directly either by electrical immersion heaters or by gas fired burners firing into submerged immersion tube heat exchangers. At the other end of the scale, larger brewery installations can use steam or high pressure hot water supplied from a central boiler facility. So which is the most suitable?

See back page for a quick comparison.

All Lanemark TX installations feature an externally mounted burner connected through the tank wall to a submerged tubular heat exchanger and then to an exhaust header/fan/flue. The company's acclaimed TxCalc computer modelling programme is used to calculate tank heat losses and to model the expected immersion tube heat exchanger heat output efficiency performance which is normally in excess of 80%.

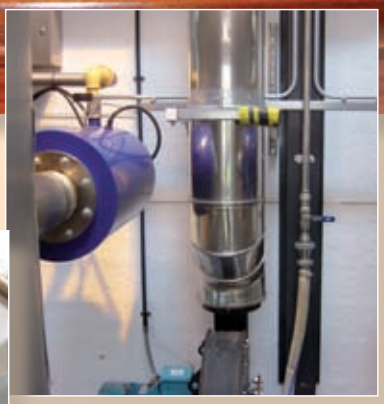


Performance that goes on and on and on ...

LANEMARK BurnerCare

- In an industry where unplanned downtime is to be avoided, the support and structure of the Lanemark BurnerCare package is widely regarded as a key element of the Lanemark service.
- Lanemark BurnerCare is designed to ensure ongoing optimum performance and peace of mind for every customer in the brewing industry.
- The service includes planned maintenance schedule options and comprehensive on-line support as well as system commissioning and the supply of spare parts.

The acclaimed range of Butcombe beers – produced with the help of Lanemark's gas burner technology.



Keeping pace with Butcombe success

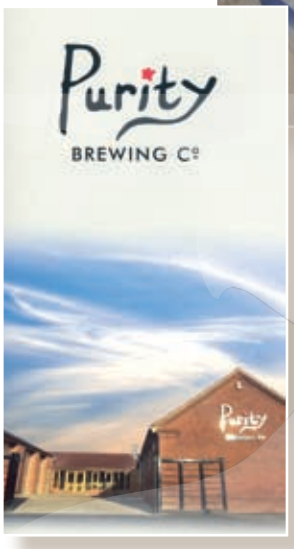
The success enjoyed by Butcombe Brewery in the south-west of the country is demonstrated by its recent move to new premises where the famous Butcombe Bitter, Blond and Gold brands are now produced. Lanemark process gas heating systems are central to the new operation – building on the company's association with the brewer that dates back to Butcombe Brewery's origins.

Old farm buildings at the family home just ten miles south of Bristol were the birthplace of Butcombe Brewery in September 1978 when Simon Whitmore started what is today one of the most respected names in the mini-brewery sector. The original brew length of just ten barrels was doubled in 1982 when a Lanemark immersion tube heating system – using a propane gas supply – was installed. Ten years later, through the involvement of Brewing Design Services, a 'brew length' of 80 barrels was achieved with two larger Lanemark TX40 burner systems providing a total heat input of 760 kW.

Today the company's new premises boasts 14,000 sq.ft. and two 75-barrel coppers, each of which benefits from Lanemark TX60 natural gas burner systems rated at 650 kW (1300 kW in total) firing into submerged 6" heat exchanger tube systems.

Adrian Langford, General Manager for the company's Process Burner Division, explains – "Externally mounted burners are connected to the helical coil heat exchangers and the combustion air is pulled through each system by individual exhaust fans," he says. "Because the helical coil design complements the dimensions of the vessel, minimum intrusion into the brewing volume occurs – itself a major contribution to the overall operating efficiency. Importantly," he adds, "the system can be switched between automatic and manual control which helps Butcombe Brewery achieve the specifics of each blend – at the heart, of course, of its reputation."

Typically this automatic to manual 'switch-over' is made when the brewing temperature approaches 100°C. Each of the five brewers at the site can then bring their combined 100 years' experience to the fore through the manual control of a rolling boil which typically lasts for 1¼ hours to achieve 6% evaporation.



No natural gas – no problem!

The Purity Brewery Company of Great Alne in Warwickshire is not only a fine example of a small brewer producing a quality product but also of one achieving optimum process heating conditions despite the absence of a natural gas supply.

The ability of Lanemark gas processing equipment to operate on fuel sources other than natural gas is ably demonstrated at Purity Brewery. Here, the absence of a mains supply necessitated the use of propane to provide process heating for the 20 barrel brewing facility.

"Our installation design is centred on a single TX30 burner system that produces 190 kW of heat energy, raising the temperature of the vessel from 60˚C to 100˚C in just one hour," explains Lanemark's General Manager, Adrian Langford. "As with the Butcombe Brewery example, a 'switch-over' at 100˚C to manual control allows the skill of the brewer to achieve an evaporation of around 6% thereby helping to achieve the distinctive Purity products."

Formed in late 2005, the brewing company has already achieved local acclaim with a commitment to the quality of both its brewing techniques and equipment used.

The involvement of Lanemark International – through Brewing Design Services – pays testimony to an installation that fully demonstrates the ability of the mini-brewery sector to succeed in a wide range of locations.

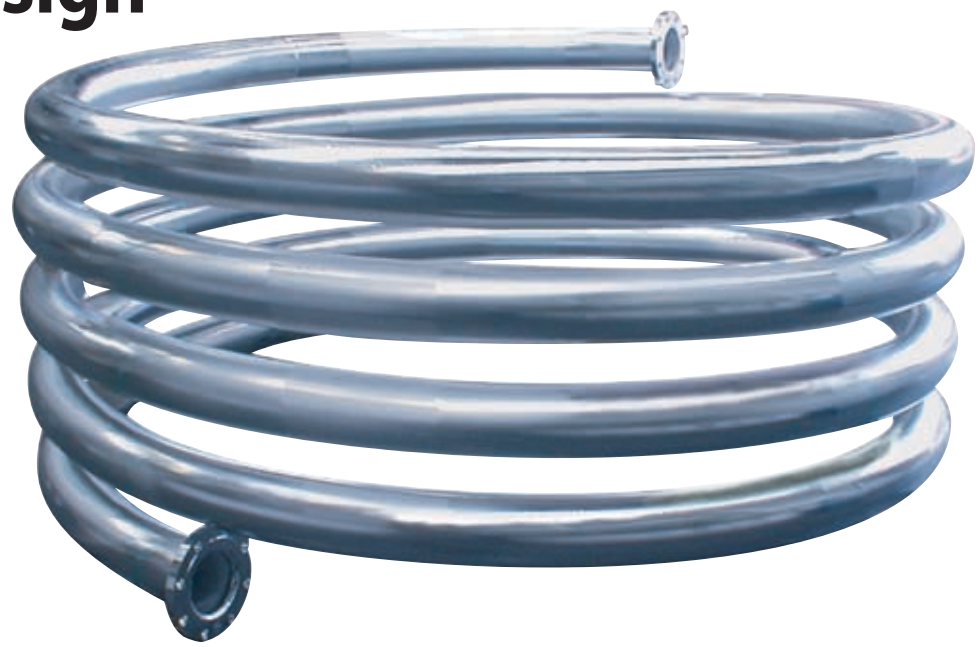
In brief

The examples given here of Butcombe Brewery and Purity Brewery are just two in a long list of successful brewery installations undertaken by Lanemark International. Others include:

- **Adnams Brewery, Suffolk**
- **Belvoir Brewery, Leicestershire**
- **The Brunswick Brewery, Derbyshire**
- **Burton Bridge Brewery, Derbyshire**
- **Castle Rock Brewery, Nottinghamshire**
- **The Chiltern Brewery, Buckinghamshire**
- **Church End Brewery, Warwickshire**
- **Country Life Brewery, Devon**
- **Highwood Brewery, Lincolnshire**
- **Hobsons Brewery, Shropshire**
- **O'Hanlon's Brewing Company, Devon**
- **The Idle Brewery, Nottinghamshire**
- **Kelham Island Brewery, South Yorkshire**
- **The Loddon Brewery, Oxfordshire**
- **Stonehenge Ales, Wiltshire**
- **Thorne Brewery, South Yorkshire**
- **Tirril Brewery, Cumbria**
- **The West Berkshire Brewery Company, Berkshire**
- **Willys Brewery, Lincolnshire**

Focus on: the helical coil

Lanemark design offers high efficiency performance



Because the vast majority of brewing vessels are cylindrical, Lanemark has developed the 'helical coil' immersion tube heat exchanger – to minimise intrusion into the vessel itself and to maximise heating efficiency.

Connected to the externally mounted gas burner and control system, the 'helical coil' immersion tube heat exchanger can be specified to suit the vessel design and can feature tube diameters of between 1½" and 6" – depending upon heat transfer requirements. Heat input of between 15 kW and 700 kW can be achieved making the design ideal for vessel capacities of between 5 and 80 barrels.

By selecting the optimum combination of burner and helical coil immersion tube heat exchanger design, based on thermal calculations, made by Lanemark's own TxCalc© computer design software, the anticipated performance of alternative system layout proposals can be accurately predicted.

Brewery vessel heating system comparisons – a brief overview

Electric

Ideal for small vessel heating applications that are in frequent use. It offers important advantages in terms of low capital cost and high efficiency but users should note high running cost per kW and significant installation costs if new electrical supplies are required.

Steam

The traditional heating medium for medium/large brewery applications. The central source of process heat is seen as the main advantage but this can be offset by high capital cost (for new boiler plant) and low overall operating efficiency.

Gas

The optimum heating medium for 5 to 80 barrel brewery applications with efficiencies in excess of 80% achievable, utilising natural or propane gas supplies.

Lanemark gas heating the key facts

- **Lanemark installations feature externally mounted gas burners firing into submerged immersion tube heat exchangers (1½" to 6"n.b.). Often designed as helical coils, they provide maximum efficiencies in both cylindrical and rectangular vessel heating applications.**
- **Proven technology, ideally suited to vessel sizes of 5 to 80 barrels, where heat inputs of 15 kW to 700 kW are required.**
- **Design efficiency level : 80+%.**
- **Modulating control system allows the brewer to maintain optimum 'rolling boil' brewing temperature.**
- **Optimum vessel heating equipment specification identified using Lanemark computer modelling technology.**
- **Operate with propane gas where natural gas source is unavailable.**

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