

The Nestlé factory in Ludwigsburg, Germany installed a Clayton Steam Generator in 1994 to replace one of their traditional firetube boilers and finally replaced their last firetube boiler with another new Clayton Steam Generator in 2004.

Although the process of using coffee beans to make a powder that can create an instant drink was first launched 1938 it was not until the 1960's that instant coffee became popular in cafés and coffee shops. More recently other forms of soluble coffee have appeared, such as cappuccino, café au lait, iced coffee, Viennese blend and mixed drinks such as coffee cacao.

The method of making instant coffee starts with ground coffee beans from which a very strong, concentrated coffee is brewed. Moisture is then removed from the liquid by freeze-drying, or by spray drying to leave only the solids.

Steam plays an important part in the production process as an energy carrier, and the latest addition to the Ludwigsburg plant is a Clayton model SEOG204 Steam Generator. This has an output of 3.1 tonnes per hour and operates alongside the unit supplied ten years before - as shown in the picture.

This new steam generator is fitted with a dual fuel burner that can fire on either gas or fuel oil and the efficiency has been further enhanced by the use of an economiser that is a



standard option available for all Clayton Steam Generators.

The two units are designed to operate together to meet the steam requirements of the factory. When one of the steam generators is in the standby mode it is switched off. This is possible because it takes only five minutes to reach full steam output from a completely cold condition. This gives great flexibility and allows the operator to switch the unit off and on as required to cater for changing loads.

By comparison, the old firetube boilers at the plant needed up to one and a half hours to produce full output.

The burner output and therefore the steam production on the new SEOG204 is fully modulating which is a feature that is available for all sizes of Clayton Steam Generator. This gives advantages not only with energy consumption but greatly improves accurate steam pressure control.

Another features of the Clayton design is that the heating coil is protected from the internal formation of deposits and from overheating which also ensures long life of the coil. This is done by circulating approximately 20% more water than is necessary to make steam so that any impurities from the raw feedwater are carried through to the high efficiency steam separator. This excess water is recycled.

The small size of the Clayton Steam Generator was also a significant advantage at the coffee plant since it approximately 30% of the size of a traditional firetube boiler.

Clayton Steam Generators are replacing the old traditional firetube design of boiler for many of the worlds forward looking companies.

Translated from an article in
Lebensmitteltechnik
November 2004.