LBFoster

CUSTOMER

Premier Food Limited

SECTOR

Food & beverage

Premier Foods Ltd

Oven to Thermoform Transfer System

"We invest in state-of-the-art technology to increase efficiencies across the production process. We were very impressed by the level of engineering innovation and intelligence in L.B. Foster Automation's third generation machine. It performs a mission critical role for us."

Premier Foods Limited's bakery site in Stoke produces millions of Mr Kipling's brand cakes and pies each year, as well as own brand goods for most UK supermarkets. A replacement Oven to Thermoform Transfer System was required to transfer products from the oven band into plastic thermoforms and onwards into an existing swing tray cooler system.

As one of Britain's biggest listed food companies, Premier Foods employs over 4,000 staff at 15 manufacturing sites and offices. Around 96% of what it sells is made in the UK from quality ingredients, sourced sustainably from British suppliers and farmers. The Stoke bakery site operates six production lines operating 24 hours a day, 365 days a year.

L.B. Foster Automation & Materials Handling has a long history working with Premier Foods. The company has previously provided proven Franklin Transfer Systems (FTS) to Premier Foods' Eastleigh and Barnsley sites. The project at Stoke involved the successful design, manufacture, installation and commissioning of the new Oven to Thermoform Transfer System.

Requirement

L.B. Foster Automation & Materials Handling supplied Premier Foods Limited with an integrated FTS solution, plus additional equipment to meet the requirements of handling two lengths of therm, including manually changed beam ends and storage, and out feed conveyors.

Specification

- Franklin Transfer System with manually changed beam ends
- Servo drive control for swing cooler conveyor transfer mechanism
- Outfeed conveyors
- Replacement beams on walking beam conveyor
- Main control panel
- Software
- Remote access

Our Solution

L.B. Foster Automation & Materials Handling was commissioned to design a new food handling solution solution for Premier Foods Limited based on a Franklin Transfer System walking beam conveyor, with additional equipment to meet the complicating requirements of handling two different lengths of therm.

The specially designed 15 lane Franklin Transfer System walking beam conveyor receives the freshly baked products from the ovens at Manor Bakeries, a trading name of Premier Foods Group Ltd, in Stoke-on-Trent. Our solution is designed and manufactured to BSEN 1672-2:2005.

A technically challenging aspect of the project required accommodating changes in production from the standard six product therm to the two product therm. The FTS is a reliable and proven solution for any one dedicated length of therm. The conveyor is controlled by servo drives and sensors to detect the rows of products from the oven and controls the feed of the therms to reliably place the products into the therms.

Different lengths of therm mean that the pitch between the product across the width of the line increases. Accommodating the two lengths of therm required fitting an adjustable guide to the in feed area to locate the therms laterally. This guide is automatically selected at a change from six to two product therms from the machine control panel.

The out-feed conveyor comprises of poly cord belts with extra belts as necessary to support the two lengths of therm. The poly cord belts allow waste products to fall through the conveyor.

The most reliable and simplest method of changing the required pitches of the FTS to handle the two sizes of therm is to manually change the FTS fixed and moving beams. The beams are secured to the ends of the fixed and moving beams by location tooling that retain the ends of the beams in locations let into the ends of the non-changed beam ends. The change parts are configured to generate the correct offset of the ends of the beams.

Changing only the ends of the fixed and moving beams significantly reduces the weight of the items to be moved by the change process. The non-used ends are stored in a mobile carrier supplied with the FTS.

The existing push transfer mechanism that positions a row of linked therms onto the take away conveyor was pneumatically powered. Our solution powers the mechanism using a servo drive to allow easy control of the therms to the two push positions.

The filled therms are fed into the swing cooler conveyor shelves or fed directly to the next machine in the process. Conveyors consist of bi-directional conveyors that stream the therms into one lane from either of the two in feeds.

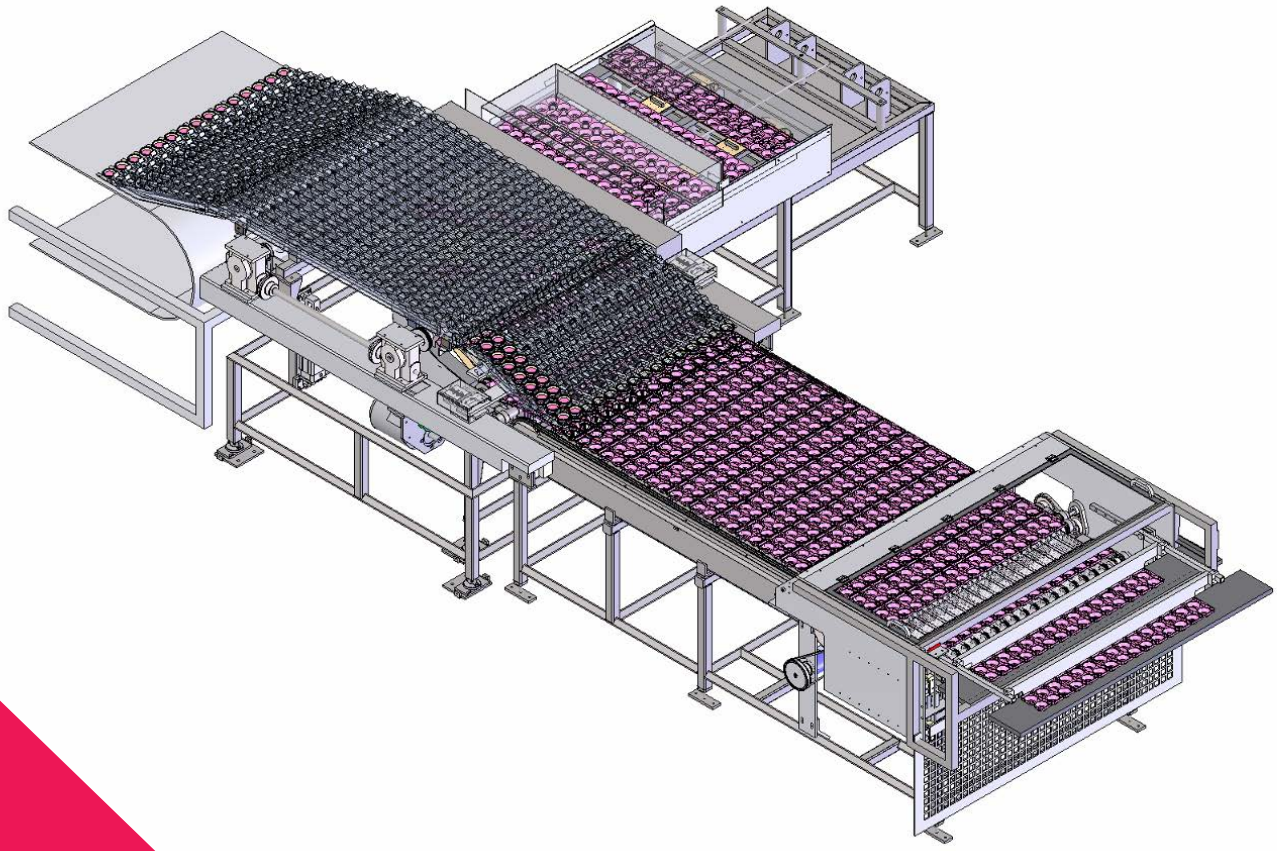
The control system is mounted in a stainless steel panel and located near the FTS system and the swing cooler conveyor. It contains the Allen Bradley PC and associated I/O, as well as an HMI for control of the machine. Emergency stops are located around the FTS system. The HMI touch screen allows access to each fault from this initial touch screen for rapid fault diagnosis. The new system includes software to control the FTS, the swing cooler conveyor, the oven band conveyor and the oven band scrubber.

In addition, the Premier Foods Limited solution includes an interface that allows remote connection to the equipment so that the FTS system can be remotely monitored from L.B. Foster's automation centre of excellence in Nottingham. This approach is the fastest way to offer technical support prior to any service engineer visit. The facility is accessed via a dedicated IP address.

What they said

"One of the engineering challenges that L.B. Foster faced was to get the machine to automatically effect minute adjustments to the position of each of the 15 lanes. The cakes come out of the oven at a rate of 15 pies per second and each row is in a slightly different position. L.B. Foster's innovtive solution was to use lasers that communicate with the machine to align the rows perfectly with each new row of pies and these in turn align with the packaging therms."

Premier Foods Limited



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