



EUROPEAN BAKER

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Future of yeast

New discovery
mixes sourdough
and wheat bread

Secrets of flour

Functional is an
advantage

German bread

Rye is favourite



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Making it work

One dilemma that plant bakers are frequently faced with when starting up, or growing and developing product portfolios is how to purchase the right machinery for new turnkey operations. Adam Boutcher reports

One solution to this predicament is to talk to a specialist consultant who can offer professional guidance. John Kirkpatrick is managing director of Bakery Consulting and has over 30 years industry experience. He has advised on numerous turnkey projects and the company has a wealth of knowledge, and offers detailed advice on turnkey operation solutions. Kirkpatrick said: "Here

and in the future. You should choose equipment that has proven reliability. Too often companies choose their equipment by selecting the lowest cost option. This is almost never the best solution. Each piece of equipment and each line should provide a specific measurable throughput that is guaranteed by the manufacturer. The entire process from beginning to end should provide the throughput to meet



C F Controls' Carbonised dough system detects foreign bodies and items not detected by other systems

current and future production needs." Kirkpatrick highlights that most companies only consider, and most equipment companies only sell, production rate. The throughput is almost always 15-50% lower than the production rate.

According to Kirkpatrick, it is best to plan the acquisition and placement of equipment with expansion and growth in mind. Carefully consider where each piece is located in relation to entrances and exits, electrical panels, and permanent structures. Make sure that your facility can accommodate your growth plans without a major re-

model, re-directing production lines or worse, relocation.

are some guidelines that I give to all companies that are considering a turnkey operation. Thoroughly analyse and understand your product line and your current and future production requirements. I get involved, most often, when companies have changed or expanded their product line and they find themselves with the wrong equipment for the new products, the wrong placement of their equipment, or just have too much or more often, too little space.

"Choose equipment that can best meet your needs now

model, re-directing production lines or worse, relocation.

It is also wise to know your codes and government regulations and ensure that the architect and (or) the contractor are experienced in building or remodelling food plants, because there are specific requirements unique to this kind of construction.

Always build a reserve. There are literally dozens of potential reasons for cost overruns. Even with good planning you should always have at least 20% available for unplanned



CF Controls' Double Dough Detection system reduces waste and offers optimum efficiency

expenses. This planning, analysis, and budgeting process can take hundreds of hours depending on the size and complexity of the operation. Most companies do not have the personnel or depth of experience to perform these functions alone.

Instead, many larger companies are now turning to combined construction and engineering firms specialising in food plant construction. The advantages to using these companies are obvious. They literally can take an idea to build out and keep the whole process under one roof. But the main disadvantage is that these firms usually specialise in medium to large companies.

Smaller companies, because of the lower cost, usually rely on full-line equipment brokers, manufacturers, and consultants for their turnkey solutions. These resources provide more personal interaction and because of their smaller size are usually much more flexible and adaptable than the larger hybrids. One disadvantage is that equipment companies

almost always have a specific line of equipment that they represent. This may cause decisions to be made that are based more on availability than true production needs and specific requirements. However one solution may be to hire a consultant or multiple consultants for different stages of the process. The main advantage being is that the recommendations for equipment are generally less

biased than that of the equipment companies and that planning and analysis should be much more thorough than that of the equipment company. After all, the equipment companies are likely to believe they already have the solution. The disadvantage is that most food consultants are independent smaller companies, which may also have

limited resources."

However you choose a suitable turnkey operation it should always be based on a thorough needs analysis, specific to the plant's requirements.

UK-based CF Controls recognises and provides complete

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turnkey solutions to meet individual bakery requirements. "As a trusted systems integrator within the British baking industry, we are also looking to develop our relationships with other international bakeries. We will be exploring the supply of our systems to bakeries in New Zealand and Australia in the very near future. Operating as an independent systems integrator, C F Controls is able to provide solutions that best serve the customer's requirements," said managing director Chris Felton.

The team specialises in the development and installation of 'high level' turnkey systems designed to optimise productivity, minimise waste and ensure product consistency in both large industrial bakeries and specialty bakers. Its specialist knowledge extends from High Speed Counting to Advanced Product Tracking, state-of-the-art Image Analysis, Volumetric Calculation and Double Dough Detection. Felton explained some of the major advantages of choosing, in particular, a Double Dough Detection system: "With bakery lines running to the absolute maximum capacity, it is essential that each piece of equipment is running at its optimum efficiency double dough's, cause vast amounts of wastage, especially on higher capacity lines producing around 10,000 loaves per hour. An average line would produce around 0.2% double dough's when running at its optimum. This would relate to approx 20 'doubles' per hour or 3120. In a normal 6ft day week, this would equate to just under 2.5 tons of wasted dough just from doubles. Many of the systems that we provide incorporate fully automatic reject and holding conveyors, which prevent the 'doubles' from entering the prover and causing massive damage to the prover and oven in the form of prover/oven 'jam ups', but also provide a safe area where operators can retrieve the dough and rework it back into the mixers and dividers minimising waste".

Mel White, engineering manager from British Bakeries in the UK, noted: "That the (C F Controls) Double Dough system fitted to our No 2 Plant farmhouse product has reduced waste by 3% and this is a relatively slow line at around 3000 per hour."

Felton said "Initial setup costs for a stand-alone double dough system is usually between €14,000 and €29,000. We have been told that even on less efficient lines, the system can pay for itself within a matter of months."

CF Controls has many systems to monitor product consistency. Felton highlighted: "The two main areas we have been asked to monitor are product height and bake colour. Product height systems use lasers to measure 100% of production. These systems are able to accurately measure

the overall average height to within 1mm accuracy and if necessary sound an alarm or remove loaves that do not conform to the preset specifications.

The RGB Colour analysis systems utilise full-colour, high resolution cameras and software developed by the company, to monitor the slightest changes in bake colour and feedback this information to the oven maintaining the exact colour that is required.

Both these systems are incorporated into existing process control / product tracking / upstream equipment, which enables the system to automatically change over during production runs. This is especially useful on lines, which produce many different products - in short production runs.

This technology has meant bakers can maintain the immensely high standard of product quality required by certain markets. Felton explained: "We are also currently developing a turnkey operation for a major independent bakery that supplies bread to producers of sandwiches. This bread has to pass very strict guidelines for shape and size. The system we are developing will be taking our laser bread height system a little further. We are actually using lasers and a high-level vision system to calculate the 3Dimensional profile of each loaf and checking for corner roundness, visible four piece, side and top indentations". Felton further explained the company's continued Product Quality Management system: "Our Product Tracking systems operate in Real Time ensuring product consistency, management of orders, ingredients and recipes and allow effective PLC fault diagnosis across the whole plant. Authorised personnel can monitor the entire plant from silo to stacker or an area such as the cooler depending on access level."

Felton said that its Integrated bar-code scanners are able, at the point of bagging, to ensure that the product is going into the correct bag and checks can also be made (using OCR or OCV) that the 'best before' date is correct.

He also noted: "Our Offline 3Dimensional QC Scanning System allows the customer to monitor product dimensions such as bread height, volume and texture to ensure product consistency. The 3D Scanner software provides a graphic display of product variations that can be exported to a number of formats such as an Excel spreadsheet for information analysis."

As for the future, turnkey operations will progressively develop into more sophisticated systems and manufacturers believe, will see robots playing an increasing role in offering plant bakers effective turnkey solutions. ■