



## "Everything Safe and under Control, isn't it?"

Müller Dairy in Market Drayton, Shropshire, has been in production since 1992. When it comes to producing quality dairy products to the highest standards Müller is a market leader. Müller's most popular product in the UK is the well known "Müller Corner" which is available in several different varieties, such as Fruit, Crunch and Bio Yogurt Corner. Over 900 million units of these premium quality products are made each year. In addition to these, they also produce other favourites such as flavoured rice desserts and single yogurt pots.

Müller manufacture to the very highest quality control and safety standards, they demand the same market leading technology from their equipment suppliers. Müller headquarters in Germany lead the way in continuous improvement and investment for the group, and wanted to implement X-ray machines on all of their production lines. The aim was to reliably check fill levels and detect foreign objects from one system during production. Initial tests were carried out with equipment from existing reputable manufacturers but the results did not meet Müller's requirements. They then decided to run tests with the new OCS X-ray scanner which implemented a new camera technology.

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To begin with, one OCS X-ray scanner was installed at the main sites at Aretsried, Freising, Leppersdorf and Market Drayton for testing. This allowed employees at each site to experience the high performance capability of the OCS scanner and see its benefit in a production line. The requirement was for an X-ray system that offered high performance,

contamination check of the twin pot Corner yogurts.

The large compartment is filled with yogurt, the small one with cereals, flakes or fruit. These products come in trays, stacked in two layers just as they can be found on the refrigerated supermarket shelves. For an X-ray scanner however, this presents a serious challenge as the products can



high accuracy detecting foreign objects with very low false reject rates, then check and reject incorrectly filled products – this they achieved with the OCS X-ray scanner. Müller's project manager Bernd Stechele quoted "Not only the innovative capacity of OCS impressed us but also the extremely high detection accuracy, outstanding technology and extraordinarily robust design of the scanner". And so began the cooperation and development program with Müller and OCS.

#### Safety

An important aspect for the Theo Müller Group was the safety of the inspection systems. There is no danger at all for operators and products because of the safety features designed and incorporated into the construction of the machine. Periodically the X-ray emission levels are checked to ensure continued safety.

„Although the used X-ray scanners have a lesser capacity than the scanners at airports. We have decided to measure the emission periodically to assure safety“, tells project engineer Bernd Stechele.

#### The SC 5000 Belt Scanners for Müller

To date 13 SC 5000 X-ray systems have been installed at the Müller Dairy in Market Drayton – with the commissioning of additional X-ray scanners in progress. The X-ray scanner SC 5000 is a solution tailored to meet the specific requirements of Müller Dairy UK. The main reasons for this development can be found in the customer's set of requirements. The wide yogurt trays required equally wide conveyor belts, which OCS implemented in the SC 5000. Another focus was on hygiene - OCS placed special emphasis on easy cleaning and tool free change of the belts and conveyor bodies which require routine cleaning.

The SC 5000 scanners check the twin pot Corner yogurts as well as normal single yogurt pots. However, there was a special challenge which complicated this seemingly simple task: The filling level and

easily move and slide on each other causing displacement between the top and bottom layers of products. This complicates the scans considerably and accordingly conventional scanners have an unacceptable number of false-positive rejections. Not so with the OCS scanner! The main advantage of the OCS scanner is that it can compensate for sliding of the products, regardless whether the upper or the lower layer is affected, up to 15 degrees - without any negative impact on the scan results!

The conventional one-compartment pots are fixed in their trays which enter the scanner in only one layer and are scanned at a speed of about 30 metres per minute, a relatively easy task. As well as the conventional pots, the Corner yogurts are also scanned at the same speed even though the product handling is much more challenging, the speed is not reduced and the scan result is not affected in any way!

#### Tailored software

In cooperation with Müller, OCS developed custom made software especially for the dairy industry. This software calculates and allows the above mentioned rotation of the layers of up to 15 degrees. Heinz-Peter Schmidt, Project Manager OCS Checkweighers stated "That was a major challenge, we invested a lot of effort and resources in the development but the result is worth all the efforts and we are proud to be able to provide a software solution perfectly tailored to the requirements of the dairy industry". However, not only the software was specifically developed for the dairy industry, the whole design of the machines also complies with the special requirements of this industry sector for a dairy company, there is always a certain amount of humidity in the air. Therefore, the control cabinet is not cooled by ambient air but by an integrated heat exchanger. Among many others, this is one of the technical highlights.

#### Unique SC 4000 L Integrated Scanner - a milestone

The world-wide unique SC 4000 L integrated scanner is the result of a joint development project. It is fully integrated into the cup deep-drawing and filling system. This solution is very space-saving and has even better detection accuracy with regard to the small and large compartments of the double pot products than the SC 5000 belt scanner. The corner yogurts are still in a fixed production position when they enter the scanner and are only punched into separate products afterwards. Furthermore, the scanner transmits a feedback of all production data such as, date, time and result, to the filling system, which compiles a full record of the data. By means of this record the machine operator can retrace the full production history. Individual cups can be rejected and the filling system traced down to individual filling head monitoring.

#### Costs, benefits and highest quality requirements

Using the OCS X-ray scanner, Müller Dairy has been able to significantly improve the overall quality of their products and achieve the highest production quality standard as required by the British Retail Consortium (BRC).

All of this ultimately ensures that the consumer receives products that are of the highest possible quality. Predefined test samples are used as a standard for all the scanners used in production. In the unlikely event that a scanner fails to find the test objects, all products produced since the last successful test are rechecked. "All results are documented and any contaminations are reported to our headquarters in Germany", explains Kathy Davies QA, Müller Dairy UK.

"Even before the project started we required an inspection system specifically tailored to the needs of our industry with custom made software and a product handling optimised for Müller's specific products. Implementing the OCS X-ray scanners also helped us to improve and optimise the internal line management", explain Martyn Steadman and Alan Coles, X-ray project team at Müller Dairy UK.

#### Service

For the future, Müller Dairy is in safe hands with an all round service including 24/7 support from OCS. "Highest flexibility in maintenance and service is paramount. The production lines run seven days a week. Therefore, quick response times are crucial," reports Andrew Butler-Miles of OCS Checkweighers Ltd., who is part of the Müller Dairy UK team for this project.

#### Future

Production optimisation by implementing efficient data processing is the main feature for the next project. The next step is integrating the X-ray scanners with ComScale NT, which is an OCS software program to record, optimise and monitor the production data for evaluation.