Cook-Chill/Freeze Systems Expanded - 2012
A review of the European Cook-Chill Systems – August 2012

A history and progress report on installed systems by:
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An update on one of Germany’s largest industrial Cook-Chill systems.

The Cook-Chill System at Volkswagen AG in Wolfsburg was implemented in September 2002 and since then has been very closely watched by the German industrial Caterers, as well as many foreign visitors who wish to follow the VW example.
It is one of the largest of its kind in Germany specifically for workforce feeding.
VW has invested substantially in the “Greenfield Site” building and equipment that has a CPU (central production unit) of 3,700 sq metres and is designed to produce up to 32,000 meals per day in 1.5 shifts using a range of high volume and modern technology equipment. Realistic capacity is 40,000 meals per day.

The majority of production for “on-site consumption” is packaged in Gastronorm containers with 3-5 day shelf life for distribution to the VW car plants, applying the cook-chill guidelines developed in the UK.
For wider distribution and longer product life the CPU is also equipped to produce vacuum packaged chilled meals, using modified atmosphere packaging technology, with up to 21 days shelf life.
This gives VW the potential to sell meals to other catering concerns such as Hospitals, Schools and Leisure centres.

The CPU has about 500 recipes, based on a combination of new and existing VW menus. All of these recipes have been developed and tested within a purpose built Test Kitchen on the VW site over a period of about 18 months.
New recipes are being progressively added, along with specific requirements of the external customers VW serve.

With more than 100,000 employees in Germany, VW have become experts in feeding large numbers of people.

Many smaller companies lack the expertise - and the buying power - to provide a modern meals service so VW see opportunities for providing them with meals providing they are within a viable transport/delivery distance.
Feeding VW staff

The new CPU has progressively replaced 11 large conventional kitchens spread across four German VW plants. Some of the existing kitchens originated up to 30 years ago. Phasing them out has cut costs significantly, since only modest investments in front of house areas, mainly regeneration equipment, were needed in the restaurants. The main change in terms of labour costs has been a re-allocation of skills to the central production kitchen (CPU).

The Cook-Chill system has also provided an opportunity to optimise quality and standardisation as well as hygiene management with a total quality management system based on continuous temperature recording and hazard analysis control systems (HACCP) which are now in place across the entire food production and distribution chain, including microbiological sampling. Other safety measures such as Traceability can be easily implemented.

Impact on German catering operations and those in other countries.

The VW development is being watched closely by other caterers in Germany and elsewhere in Europe, both institutional and commercial, and could bring a big change in attitudes towards cook-chill technology. While chilled meals are now widely sold in German retailing, scepticism is still attached to the use of cook-chill in Industrial catering.

When German people hear words like Cook and Chill, they think in terms of prepared and reheated food that gives them an adverse emotional reaction rather than thinking it through logically. In fact, a lot of successful companies such as Mövenpick in Switzerland and Marks and Spencer in the UK have been applying forms of Cook and Chill for many years but these systems are not normally identified in the same way.

Introduction of the new system has therefore been the subject of a detailed programme of research, information and promotion, in consultation with workers' representatives. The biggest issue with a major change like this is to get all those involved to understand what is happening. One important change is the need for greater flexibility since changes in working patterns mean that the times when workers take meals are now much more variable. The employees can also expect greater variety that has been difficult to provide using traditional cook and serve methods.

In the view of VW management, the arguments in favour of Cook-Chill are plain. With the old, decentralised kitchens, there were always big differences in quality standards in every kitchen.

VW quote: "It is very difficult to ensure very high quality when you start cooking at 8 o'clock and the customer does not arrive until 12 or 1 o'clock."

Regeneration of small batches of ready-prepared Cook-Chill food close to service times represents a significant improvement. It also provides new attitudes to staff feeding and gives restaurant staff greater scope to concentrate on customer service. The VW worker is their customer and they have to be more customer orientated.

The new system will also make it possible to provide night shift workers - of which there are 7000 at the Wolfsburg plant alone - with hot meals. The average take-up of meals across VW of around 15,000 meals is projected to rise to 25,000 over the next few years. During this time VW have also developed additional business for a potential 15,000 meals per day for service to external customers.

The cook-chill system consists for about 60-70 per cent of meals served, with the rest comprising salads and other items not subjected to the system.
Present meal subsidies, which are based on agreements between the company and its unions, will not change after implementation of the new system. Of the average cost paid for a meal, VW contributes 40 per cent. Sales at each of the 15 Satellites are increasing and customer feedback about quality is very positive.

The Training need.

Cook-Chill specialist Robert Croft has been responsible for training all relevant VW staff in accordance with the UK/EU guidelines. He designed the test kitchen and trained all the staff to operate the system to a very high quality and according to the strict Guidelines. Between 300 and 400 recipes were fully tested over a period of 6 months. This training also included off-site training at a similar cook-chill operation developed at other equally prestigious projects such as the BASF AG industrial concern in Ludwigshafen. Croft was also responsible for implementing the training at BASF (12,500 meals production per day). Visits to see the systems available in the UK – Paisley, Greenock, London, Cambridge and Manchester by clients such as VW and BASF and many others from countries such as Japan and Italy, have been enormously valuable as a learning curve to those who will eventually operate their own systems. While many German caterers have been 20 years behind the UK in developing systems like Cook-Chill, they now lead the rest of Europe in many ways.

PORTUGAL & ITALY

Robert Croft has been involved with the development of over 200 Cook-Chill Systems in the UK since 1979 and internationally since 1986. He is recognised as the specialist consultant for major Cook-Chill/Freeze Systems. The following synopsis describes systems development and how the evaluation takes place.

ITALY - HOSPITAL SYSTEM

The CPU design was based on the refurbishment of a warehouse with 1200m² space. The most difficult aspects of this system were that –

1. The hospital insisted on the implementation of the UK Guidelines to Cook-Chill/Cook-Freeze Systems (not difficult for UK systems but revolutionary for Italy!) and
2. That the system could regenerate Pasta the way the Italians wanted it – twice a day!!

A test kitchen was set up in an area of an existing kitchen with total independence from any of the existing equipment except the Pasta cooker – which no self-respecting Italian Chef would be without.

Robert Croft designed the test kitchen and trained all the staff to operate the system according to the Guidelines.

Between 400 and 500 recipes were fully tested over a period of 6 months. This involved the full process including simulated ward regeneration with a tasting panel to give an opinion of quality and especially the very important Pasta!

The development of Recipes is on-going and it is expected that between 30–50 Hospitals in Italy will adopt the Cook-Chill system in the next 2 to 3 years on the same basis as the Udine Project.

PORTUGAL – COMMERCIAL RESTAURANTS

Croft also implemented the first Cook-Chill System in Lisbon in 1986 - a small but very influential system for about 600 meals per day for a Catering and Restaurant group in the popular district of Gare Maritima near the Marina.

The system has shown how others in Portugal could make their business more cost-effective and enhance quality in Hotels.
Various systems were implemented in Funchal, Madeira - particularly the Hotel school there.

Robert Croft was responsible for the Feasibility study and complete design of a Cook-Chill system with a capacity of 30,000 meals per day in Alfragides, Lisbon. This system was comparable in size to the VW system in Germany.

The project has the capacity of 15,000 Tonnes production per day, and is based on the use of very similar equipment to that used in the VW plant. Although this system began development in 1996, it was only implemented in July 2001.

The priority for all Cook-Chill users is similar to those in Germany, Portugal and Italy – the system must be able to produce food that can comply with the different national food cultures. In the UK and most of Europe this is about 90%.

Surprisingly, in Japan, 80% of the Japanese food culture is suitable for processing through Cook-Chill. For this reason the system is rapidly expanding each year in all catering sectors in Japan.

Sous Vide is another closely related system that is currently successfully used by Hotels and Restaurants in Japan, Europe and especially the UK.

There is no such thing as a 100% Cook-Chill system anywhere in the world.

All projects require very careful calculation and the equipment technology must be as modern as possible, to provide speed, quality and quantity batch cooking and chilling.