



Biscuit, cookie and cracker lines



a complete service for reliable production

# Process knowledge and engineering expertise

**Baker Perkins' comprehensive range of equipment for biscuit, cookie and cracker manufacture is founded on 100 years experience and expertise. From mixing to sandwiching, every machine is designed to maximise profitability through reliability, ease of cleaning and ease of use.**

Baker Perkins provides the widest range of equipment to the industry, and has the largest installed base. From the start, we have built our business on technical excellence and innovation, firmly grounded in unrivalled process knowledge and engineering expertise.

An Innovation Centre enables us to test and develop new technologies and end products. Finding better ways to make current products, for the financial benefit of our customers, and developing new biscuits that attract consumers are continuing aims of our technical team.

Because we supply full lines, from mixing and forming to baking and sandwiching, we possess complete process knowledge. This awareness of what is happening throughout the operation enables us to give unparalleled backing to our customers, from planning, through designing, building and commissioning, and on to complete lifetime support.



# Reliability via Lifetime Support

**Baker Perkins understands that biscuit manufacturers need production stability, and that this can come only through working with reliable machinery designed for minimum downtime. Baker Perkins has developed a range of services to maximise that dependability.**

Lifetime Support includes a range of services that maintain peak plant performance through proper maintenance and repair. Fundamental functions of asset care, such as the supply of replacement parts and rapid reaction to emergency breakdowns, are backed by a variety of other services to ensure systems are kept in optimum condition.

Many customers opt for regular inspection and maintenance contracts, designed to identify and fix problems before they cause plant downtime and loss of profit.

Support stretches a stage further to improvement via upgrades, adaptations and refurbishment. Baker Perkins offers cost-effective methods of upgrading and adapting plant in mid-life, to make an expanded product portfolio, or meet the latest performance, hygiene and safety standards.



## Lifetime Support services include

- Replacement parts
- Service and inspections
- Moulding and cutter rolls
- Upgrades
- Adapting lines for new products
- Rebuilding / refurbishing
- Plant relocation
- Training



Lifetime Support



## Equipment overview



### Mixing

The upgraded range of Baker Perkins high-speed, multi-purpose batch mixers is suitable for both hard and soft dough. Excellent dispersion and rapid dough development contribute to the consistent quality that is the foundation of cost-effective production. Automatic operation and a choice of controls also contribute to operational efficiency.



### Soft dough forming

Baker Perkins offers a portfolio of rotary moulders, wirecuts and extruders for the complete range of cookies, soft dough biscuits and filled bars. Reliability and versatility, with a low cost of ownership, are the design focus. Precise weight control on every machine minimises giveaway and waste, contributing to fast payback.

### Ovens

Baker Perkins ovens, which fulfil every need within the sector, are based on a rigorous understanding of the principles of heat transfer acquired through continuous investment in practical research and theoretical analysis. The result is a range of uncomplicated but highly effective ovens that are easy to use and provide energy-efficient, cost-effective operation through short bake times and optimised controls.





## Sheet forming and cutting

Baker Perkins sheet forming and cutting lines produce many leading brands of crackers, snacks and hard sweet biscuits. Tightly controlled, efficient, easy to use systems trigger the financial benefits of low waste and negligible unplanned downtime, with the added advantage of minimal labour requirement.

## High quality, rapid payback

The entire range of Baker Perkins equipment for the biscuit, cookie and cracker sector is designed and engineered with the customer's profit in mind.

### Reliability

Proven designs using high-quality components ensure trouble-free operation for long periods.

### Efficiency

Well-informed design targeting the industry's specific needs minimises product waste and energy consumption, maximises product consistency and quality.

### Ease of use

Continual application of the latest control techniques makes better use of operators' time and reduces the overall labour requirement.

### Easy to maintain

Ease of access for cleaning and hygiene, plus routine maintenance, cuts labour costs.

### Superior manufacture

Across the board application of 3D CAD, and investment in the latest manufacturing techniques, contribute to 'right first time' manufacture, saving time and expense at the installation and commissioning stage.



## Sandwiching

Sandwiching provides a range of options for efficient high-volume production and added-value brand extension. Baker Perkins supplies a series of systems covering a broad variety of product, speed and packaging possibilities. All bring the benefits of minimal waste, tight weight control, high efficiency and ease of use.

# Mixing and forming - designed to reduce costs

**Rapidly rising ingredient and energy costs are threatening many companies' profitability. To minimise the impact Baker Perkins looks carefully at how labour, downtime and waste can be reduced to deliver savings in ingredients and energy. By designing machines that are easier to use and clean, more reliable and easier to maintain, all these vital areas are addressed.**

Systems that can measure equipment performance and alert operators to potential problems play a key role; factories of the future may employ fewer but more highly skilled operators anticipating and averting problems rather than reacting to them. This approach will keep lines running at maximum efficiency for longer, and minimise costs.

## **Designed for reliability**

All Baker Perkins biscuit equipment is designed to operate well within its capability. An uncompromising approach to the reliability and durability of every component contributes to low downtime and long life.

## **Top quality components**

Baker Perkins insists on the use of best-in-class components throughout its range. Key parts such as motors and control items come from suppliers recognised for dependability, with worldwide service and support.



High speed mixers

Wirecut machines

Rotary moulders





### High speed mixers

Suitable for both developed and soft dough, the unique shaftless blade achieves thorough dispersion and rapid development that lead to uniform dough consistency, smooth processing and negligible waste. The 150° tilting bowl and easy access for cleaning reduce downtime and labour requirements.

### Rotary moulders

The EM390 rotary moulder includes the features most frequently requested by customers for making standard products. For more demanding applications special features can be added or the larger Series2, which offers the ultimate in adjustability and output, can be specified.

Both machines are proven designs that offer reliability and durability with simple controls, easy cleaning and low maintenance to minimise production costs.

### Wirecuts

The HS, SM and Werner Wirecuts produce soft dough cookies and bars with outputs from 140 to 300 rows/min. All feature the unique die and filler block technology that guarantees precise weight control. Variance is just +/-1% on plain dough and +/-2% on dough with inclusions.

Labour, downtime and waste are minimised by quick changeover, rapid cleaning and clear, intuitive controls.

### Sheet forming and cutting

Series2 sheet forming and cutting lines are used for every type of developed dough, including crackers, snack crackers and hard sweet biscuits:

A typical line includes a laminator, sheeter (or the unique combination unit), gauge rolls and a rotary cutter. They are designed to control costs in five main areas.

**Weight control** – precise sheeting and laminating followed by low-deflection gauge rolls (standard or heavy duty) ensure constant sheet thickness.

**Easy to clean** – Stainless steel gauge rolls, no horizontal surfaces between frames and good access to all parts of the line make the Series2 quick and simple to clean.

**Easy to use** – the line is controlled by a single, integrated system with operator interfaces on every unit. Changes made to one are automatically cascaded to the others.

**Reliability** – decades of design experience and millions of running hours ensure that the Series2 will provide dependable service over many years.

**Easy to maintain** – very little routine maintenance is required and easy access to all major components ensures that minimal time is spent on maintenance.

Series2 laminator line



# Baking – the science of baking biscuits

**Wide-ranging technical research into fundamental issues such as airflow, temperature distribution, heat flux and heat transfer is the basis for today's Baker Perkins oven range. This accommodates every type of product, fuel and customer preference. Research has delivered significant progress in bake time, capital cost and energy reduction, plus significant quality, consistency and reliability improvements.**

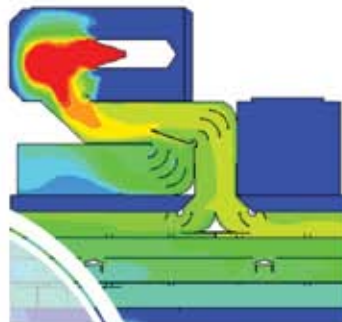
For biscuit makers, baking has been simplified: Baker Perkins has taken oven operation out of the age of the 'black art', relying largely on staff experience, and delivered a precise, responsive process that can be supervised with minimal operator involvement.

Baker Perkins' research into the dynamics of biscuit baking is not based on empirical, "trial and error" engineering but on scientific research.

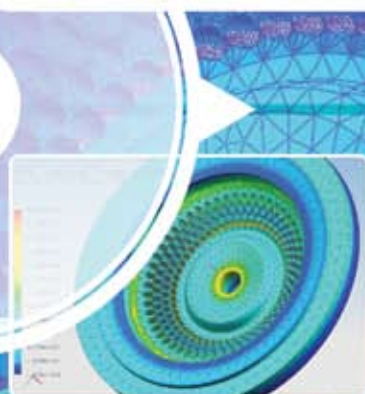
**The Thermal Performance Research Oven (TPRO)** enables replication of tunnel oven baking whilst employing sophisticated monitoring and logging techniques to better understand the process. The TPRO is used with customers to reduce baking costs on existing and future projects by optimising airflow and heat transfer, reducing energy input, and increasing throughput.

**Computational Fluid Dynamics (CFD), Finite Element Analysis (FEA) and Dynamic Element Modelling (DEM)** are used for design purposes. They can, for example, predict temperature, air flow, heat flux and component stress, and discover design options for increasing energy efficiency through insulation, radiation material, energy recovery and extraction design.

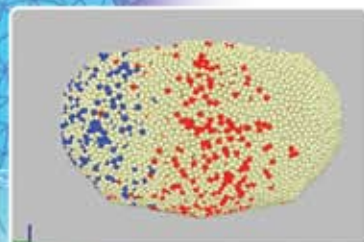
The purpose of this technology is to design a range of ovens that bake predictably, efficiently and reliably, while being supremely easy to operate and maintain.



**CFD**  
analysis of airflow and temperature in a Jetcirc oven



**FEA**  
analysis of component structure



**DEM**  
analysis of fluid mixing



### Jetcirc convection oven

The latest Baker Perkins biscuit oven is the result of extensive study that created a dependable and stable airflow within the baking chamber – solving a problem that always influenced the efficiency and profitability of biscuit baking.

This means that related advances in areas such as control software and vision systems can be maximised: the Jetcirc marks a significant step towards precise analysis and regulation of the baking process. In its three versions, the Jetcirc handles virtually the entire biscuit, cookie and cracker range. The Direct Convection is the most powerful and cost-effective; Indirect Convection offers a greater choice of fuel types and optimum humidity control; Direct Recirculating is ideal for a 'home baked' appearance.

### Direct Gas Fired (DGF) oven

This has long been the most popular biscuit baking oven, based on a combination of flexibility and outstanding baking characteristics. Operators appreciate visibility of the burners, which simplifies understanding of the process and improves control.

### Hybrid ovens

An oven combining the most appropriate heat transfer method for each stage of the baking process is an increasingly popular choice. DGF, direct convection and indirect convection all have characteristics that are ideal for one part of the process, but not necessarily all of it. Combining the benefits of two types of oven creates a unit that exactly matches a specific need.

The most common hybrid ovens have DGF for the first phase of baking and indirect convection for the rest. This gives maximum versatility at the start of the bake - for everything from soft cookies to crackers - and maximum efficiency at the end.



Jetcirc convection oven



Direct Gas Fired oven



Hybrid ovens



# Adding value via cream sandwiching

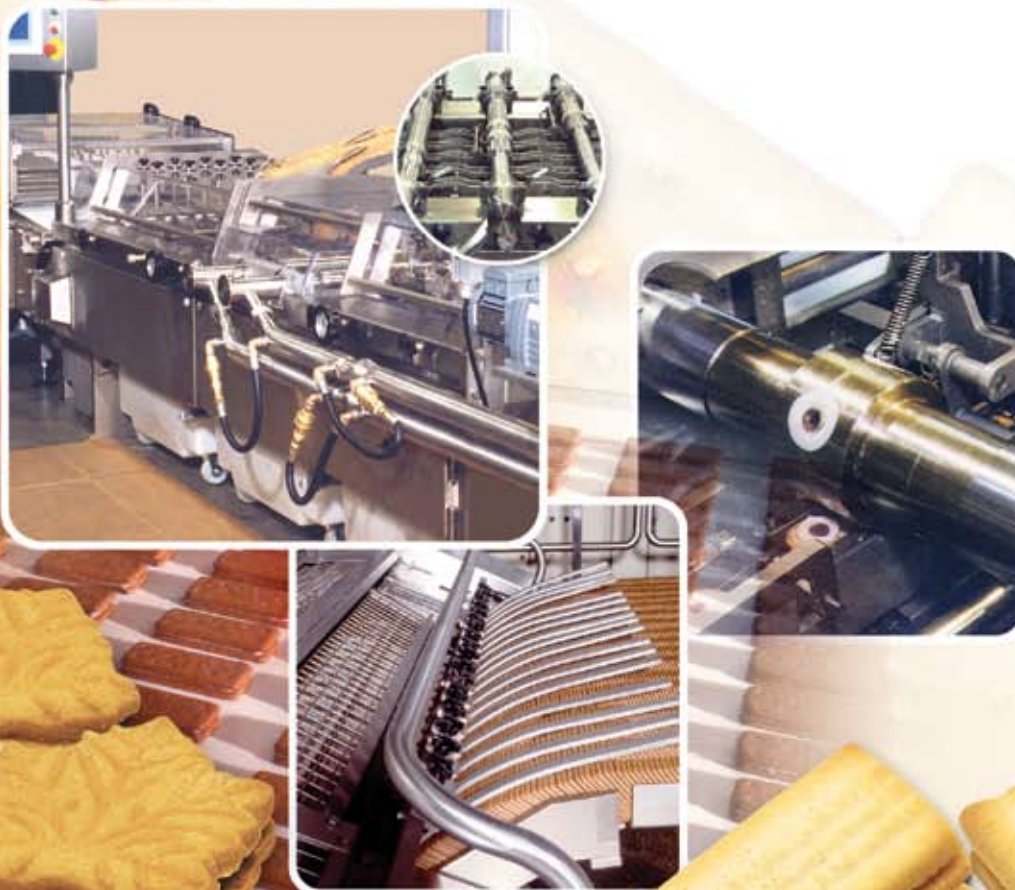
**Biscuit makers around the world apply sandwiching technology to widen a range, add interest to the product, and improve financial performance. Baker Perkins provides a selection of systems covering a range of product, speed and presentation possibilities: they all incorporate high-efficiency, easy-to-use attributes that ensure consistent quality levels over prolonged periods of operation. These are complete, automatic systems from cream feed through to lane multiplication.**

The **high speed creamer** can be specified to match a wide array of plant layouts. Available in 2, 3, 4, 5 or 6 lane configurations, it can be supplied with a number of infeed and outfeed solutions.

The **pile pack creamer** uses an in-line version of the high speed creamer process to produce piles of two sandwiches. These are collated into pack lengths of 1-6 piles and fed directly into a wrapping machine. The absence of both cooling and complicated mechanical handling make this a very cost-effective and efficient machine for both vend and retail packs.

**Full width creaming** is an in-line option for situations where the creamer lanes can be equal to the number of oven lanes. It is especially appropriate for countlines and enrobed products.

An interesting option is the **co-deposit stencil**, which allows two fillings to be deposited simultaneously. Imaginative, highly differentiated products are achievable.





# Testimonials

## Ad Jaffa, Serbia

**Baker Perkins installed a flexible, automatic biscuit production plant that enabled Ad Jaffa to expand its product range. The line produces Petit Beurre and savoury crackers, and was part of Ad Jaffa's Euro 20 million investment in a new factory to add capacity.**

Their previous portfolio consisted of Jaffa Cake, Munchmallow and 'O'Cake' (a crunchy biscuit with rolled oats), all in a variety of flavours.

Ad Jaffa's business policy to use only the highest quality equipment led to the choice of Baker Perkins for this phase of business expansion. They opted for a complete system, from mixing to baking and cooling, that gives them the ability to make two distinct biscuit styles on one line, and also provides flexibility for further expansion in the future.



## Piraquê, Brazil

**Leading Brazilian food producer Piraquê invested in a complete new production line from Baker Perkins to expand biscuit production. Piraquê employs over 3,000 people in a modern production facility in Rio de Janeiro where they make a wide variety of biscuits, cookies, crackers and wafers, as well as pasta, margarine and corn oil.**

Baker Perkins supplied a high-output 1.5m wide plant, automated from mixing through to baking and cooling. It was specifically designed to make hard sweet biscuits, and enabled Piraquê to increase output of existing Marie, Maizena and Biscoito Leite brands, as well as introducing a new Petit Beurre to their range.

The line incorporates a Baker Perkins sheeting system to sheet, gauge and cut dough pieces – the industry standard for hard and semi-sweet products such as Marie and Petit Beurre. Precise control of dough piece size and weight is a key benefit, thanks to solid gauge rolls and new technology ensuring accurate speed control.







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