Baker Perkins

Cream Sandwiching Systems

The art of cream sandwiching is combining speed with accuracy. The precision engineering in the Baker Perkins range of sandwiching systems ensures that the process of placing an accurately metered cream deposit between two delicate shells moving at high speed is performed reliably and consistently. The result is very little waste or giveaway leading to high efficiency and low production costs. A wide range of input and output lane configurations, as well as product size variants, further contribute to a smooth process flow that reduces capital costs by simplifying upstream and downstream handling.

Low Waste/Low Giveaway

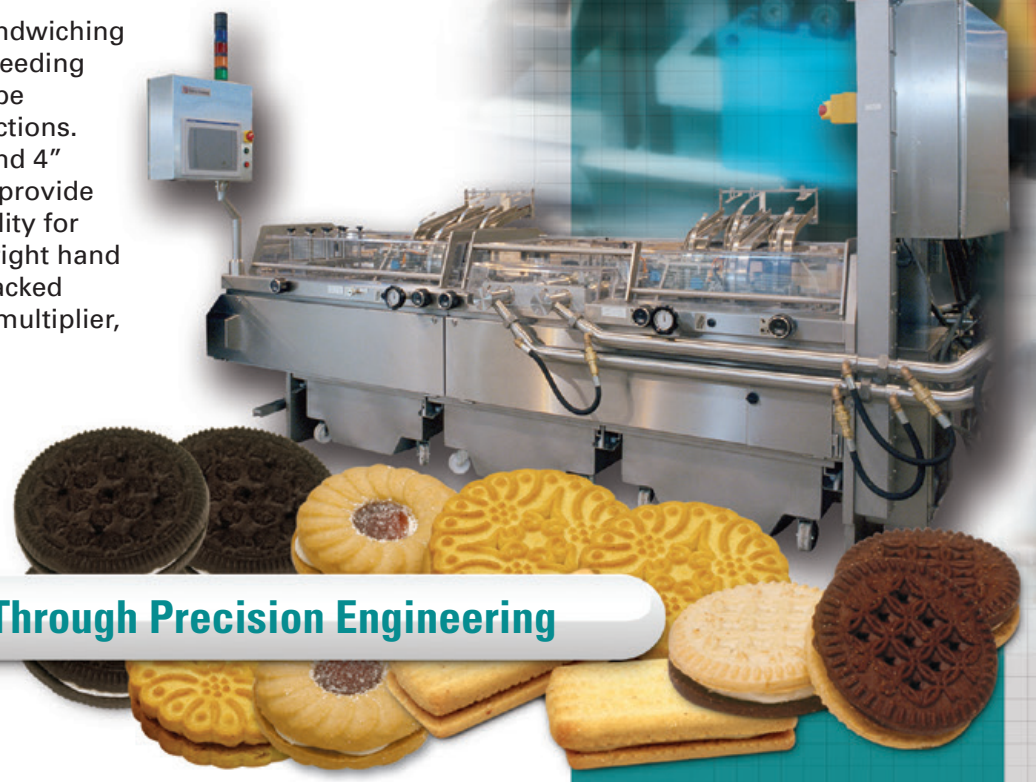
Rigid pin chain construction and stable product support ensure continuous operation. A gentle start/stop facility reduces waste by keeping the shells in place and under full control while responsive product sensors help operators to deal promptly with magazine jams. Giveaway is minimised by controlling the feed of cream to each stencil outlet with individual variable speed pumps.

Stay Clean/Easy Clean

Achieving clean operation starts before the machine is even turned on with a simple but effective system for ensuring that no cream is deposited onto the mechanism while the stencils are being purged. Once the machine starts, an air blast and rotary brush keep the pin chain clean during normal operation and an automatic reject system prevents contamination of the multiplier or other downstream equipment by broken shells. Large, wide-opening covers give excellent access for cleaning and there is full wash down capability in the product area with water and debris being collected in large wheeled tubs

Flexible Specification

2, 3, 4, 5 or 6 lane versions of the sandwiching machine with automatic or manual feeding enable the full output of an oven to be handled with no awkward lane reductions. Pin chain pitch can be between 2” and 4” with a variety of widths available to provide optimum throughput and shell stability for virtually any product size. Left and right hand versions are available with flat or stacked discharge, or direct-linked to a lane multiplier, count feeder or tray loader.

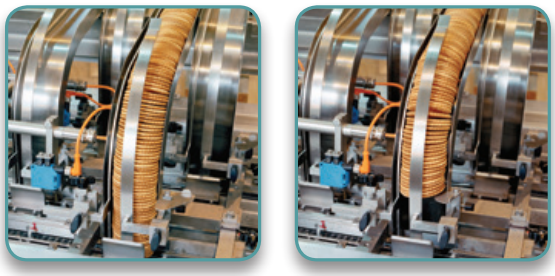


High Efficiency Through Precision Engineering

BP Sandwiching Machine Range

Shell Feed & Transport

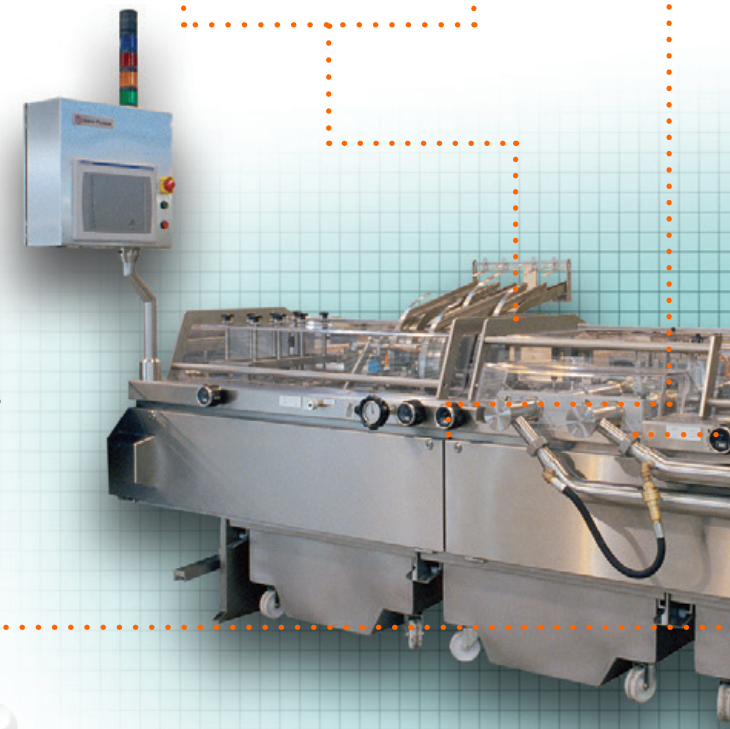
- Fully adjustable infeed magazines and side guides accommodate a wide range of standard product sizes
- Magazine base includes flip-down gate and stack support for quick and easy clearing of jams
- Optional fixed-size magazines with trim adjustments for dedicated lines or special product sizes
- Shell sensors with quick connectors detect missing shells and trigger controlled shutdown
- Sandwich presser consolidates and gauges sandwiches to correct thickness



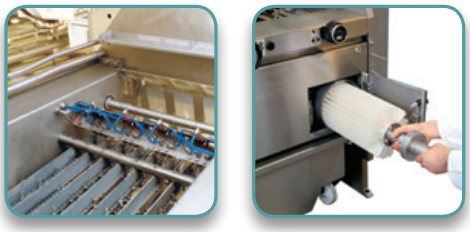
Magazines with flip-down gate and stack support

Controls

- Swivelling control station with touch screen HMI
- Includes full process visualisation, with operator controls and alarm handling
- Light stack to indicate status of machine (Running, Alarm, Stopped, Ready)
- A controlled shutdown sequence avoids build-up of pressure in cream pipes and subsequent surge on restart. It also maintains product positioning in the machine to ensure trouble-free start-up
- Reject mechanism operates automatically on start to clear out-of-spec product. Can also be operated manually
- Jog facility for cleaning and set-up



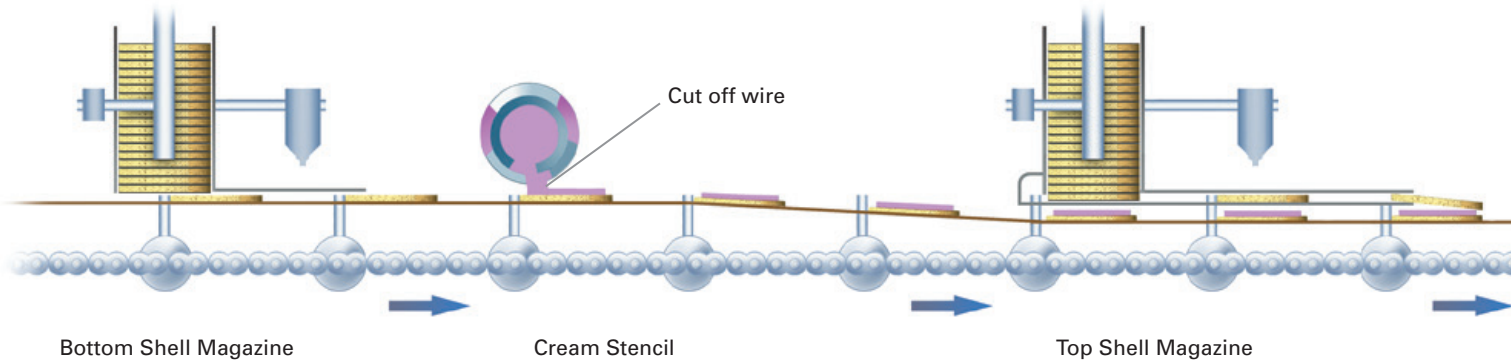
BP4 Sandwiching Machine



Air blast and rotary brush cleaners

Pin Chains

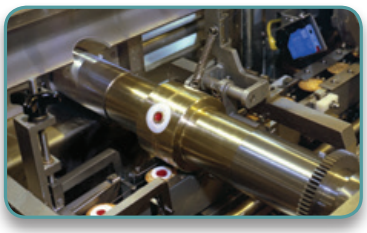
- Single main drive shaft with variable speed AC motor keeps pin chains aligned
- Various widths and pitches available to provide optimum speed and stability for product range
- Chain clamps under stencils keep pins vertical for reliable strip-out
- Lubrication-free
- Air blast on start up to clean pins - two nozzles per pin
- Rotary brush pin cleaner easily removed for cleaning



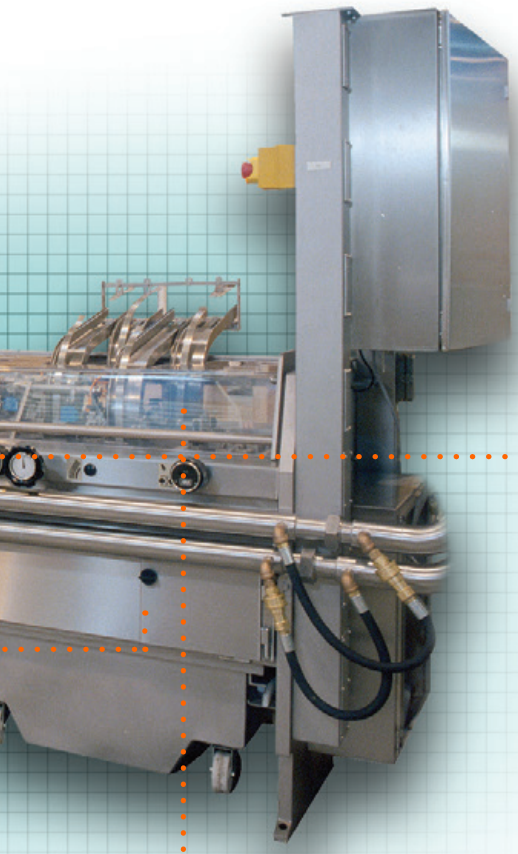
On-the-Run Adjustments

- Side guides
- Support wire height
- Stencil phasing
- Cream cut-off wires
- Sandwich presser

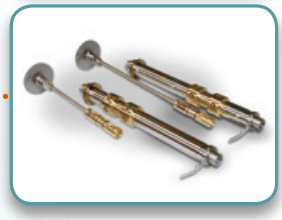
On-the-run adjustments



Co-deposit stencil



Stencils



Stencil assemblies

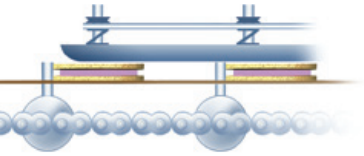
- Two outlets per stencil fed by separate pumps for independent control of deposit weight
- Purge facility enables stencils to be primed without depositing any cream on the machine
- Easily removed and disassembled for cleaning
- On-the-run phasing and cut-off wire adjustment for accurate positioning and clean transfer of deposit
- Jacketed pipework with hygienic dairy fittings and quick-release water connections
- Co-deposit option to simultaneously deposit two different creams or cream and jam with perfect registration

Cleaning

- Wide-opening polycarbonate covers provide excellent visibility of the process and full access for quickly clearing jams and for cleaning
- Access slots in covers enable product accumulations to be cleared using an air line without stopping the machine
- Product area is designed for low pressure wash-down with water or chemicals
- Debris and wash-down water is collected in wheeled scrap tubs under the machine for easy disposal

On-the-run cleaning

Scrap tubs



Sandwich Presser

Process Description

Biscuit shells are stripped from the infeed magazines by individually matched pairs of pin chains and pushed through the sandwiching machine on support wires. The bottom shell has cream deposited onto it by a pump-fed rotary stencil before passing under a second infeed magazine where addition of the top shell takes place. Final thickness is controlled by an adjustable presser.

Lane Multiplier

A Lane Multiplier may be used at the end of a sandwiching machine to increase the number of lanes prior to cooling, chocolate coating and/or wrapping. Multiplying the lanes allows cooling tunnels to be shorter, less costly and more efficient, as well as preparing the products for subsequent enrobing or wrapping operations.

Until the sandwiches have been cooled they remain extremely delicate so the Lane Multiplier has been specifically designed to carry out the task as gently as possible. The products are repositioned on the conveyor belt very gradually to ensure that registration of the top and bottom shells is maintained and breakages are avoided.

Gentle Handling

- Products are carried through the multiplier on a conveyor belt and gently displaced sideways by pins set into sliding blocks.
- There are no potential obstructions that could lead to breakages or jams
- Slow movement and gentle acceleration ensure top and bottom shells remain aligned
- Speed is synchronised with sandwiching machine to avoid disruptive speed changes
- Handwheel adjustment of phasing between pin blocks and sandwiches

Hygienic Design

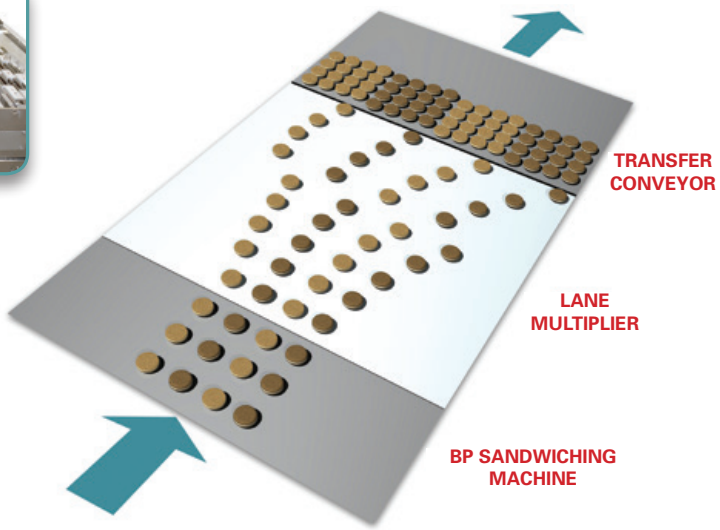
- Mechanism is overhead to avoid collecting cream or shell debris
- Any debris is carried through the machine on the conveyor belt and removed with a scraper at the delivery end
- Overhead mechanism can be raised for access to the product area and for cleaning
- Interlocked polycarbonate guards give full access to pin blocks for cleaning

Custom Specification

- 2, 3, 4, 5 or 6 input lanes
- Multiplication ratios to give up to 24 output lanes
- Flat or stacked discharge
- Up to 800 sandwiches per minute per input lane

Process Description

A Lane Multiplier is direct-linked to the discharge of a sandwiching machine to increase the number of lanes prior to cooling. The multiplication takes place by pushing the sandwiches across a conveyor belt with pin blocks that slide on large diameter rods and follow diverging tracks. Product is discharged from the multiplier in a slightly staggered formation.



Cream Feed

The Cream Feed provides an accurately metered supply of cream to a sandwiching machine. An independently controlled pump for each lane of the sandwiching machine ensures accurate weight control while extensive water-jacketing of the hopper and pipework keeps the cream in optimum condition, even if the line stops.

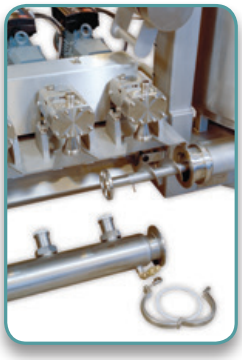
The machine is designed for hygiene with food-grade plastic and stainless steel used throughout the product contact areas. All the parts that require cleaning regularly are easily accessible and the machine is portable to enable it to be taken to an off-line wash-down area if required.

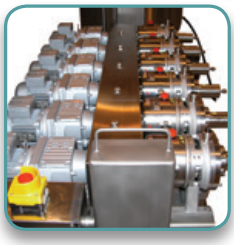
Accurate Weight Control

- Each cream pump feeds one lane of a sandwiching machine and is independently controllable for accurate control of deposit weight
- Hopper agitator comprising stirrer and scrapers keeps cream in optimum condition
- Independently-driven auger maintains constant pressure and flow in manifold
- Positive displacement tri-lobe pumps and jacketed pipework deliver a consistent flow rate to stencils

Hygienic Design

- All parts are made from stainless steel or food-grade plastic
- Manifold and screw feed are easily removed for efficient cleaning
- Mounted on wheels and with quick release water and electrical connections to allow off-line cleaning
- Dairy-standard hygienic fittings used for all cream pipework connections





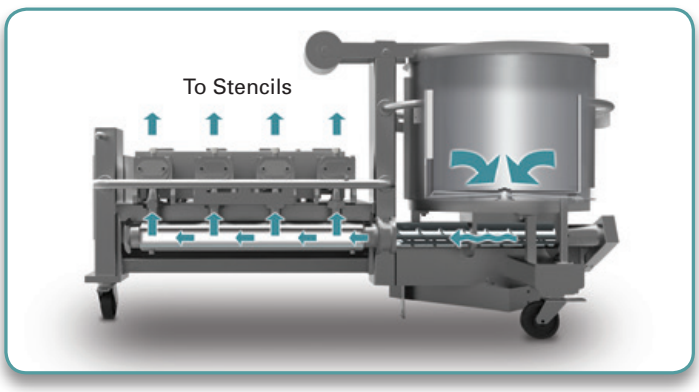
Easy to Use

- Control system and operator HMI are integrated with sandwiching machine
- Cream feed speed follows sandwiching machine
- Interlocked stainless steel grid for safe loading of cream while the machine is running
- Fully automatic water heater for jacketed hopper and pipework

Process Description

Mixed cream is held in a water-jacketed hopper with an agitator, sidewall scraper and two bottom scrapers to keep it in a workable condition.

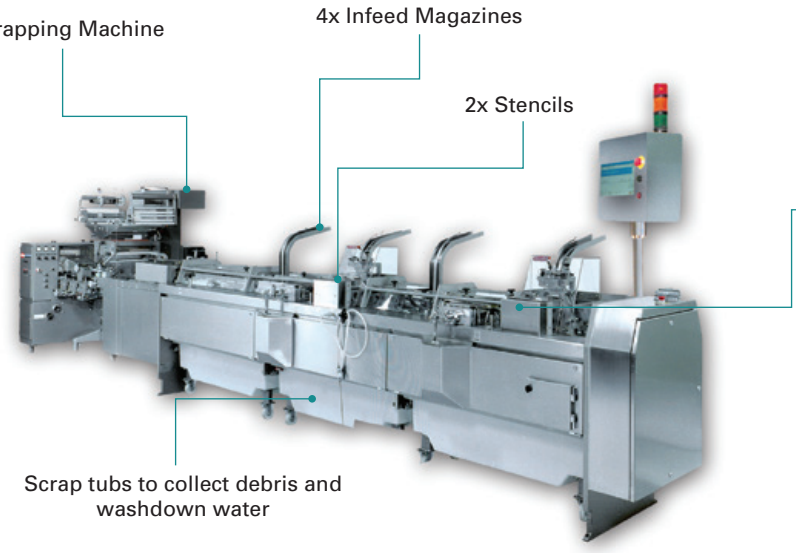
An auger screw transfers the cream from the hopper to a manifold that feeds the cream pumps. There is one pump for each lane of the sandwiching machine, each with its own variable speed drive. This allows the cream feed to each stencil to be controlled individually for accurate and independent weight control.

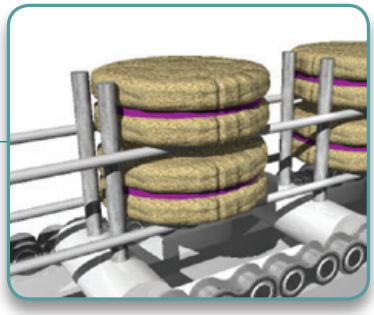


Pile Pack Sandwiching Machine

The Pile Pack Sandwiching Machine is a specialised application of the sandwiching process for two-high piles of sandwiches packed end-to-end. The main use is for vend packs of between one and six piles, although longer retail packs with a card insert are also possible. The Pile Pack Sandwiching Machine is direct-linked to a flow-wrap machine to form a compact and efficient system for sandwiching, handling and wrapping.

The core process is identical to the BP Sandwiching Machines so shares the same benefits of high efficiency, accurate deposit weights and stay clean/easy clean. In addition, direct-linking to the wrapping machine eliminates completely the need for complex and costly cooling and handling systems. By keeping the product under control at all times, downtime and waste caused by broken or misaligned products are eliminated so overall efficiency is extremely high.

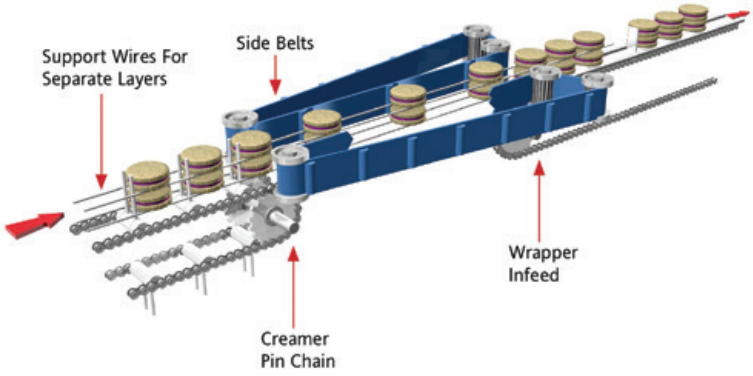


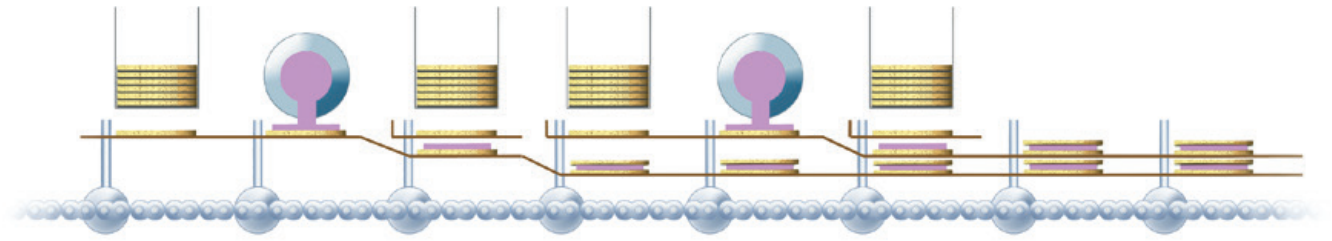


Pusher pins are longer in order to accommodate two-high piles. To enhance rigidity the pins are mounted in solid plastic blocks that connect the two drive chains

Process Description

The process of assembling the sandwiches is exactly the same as the BP Sandwiching Machines. The unique feature of the Pile Pack is that a second sandwich is assembled directly above the first. The two sandwiches are supported by separate sets of wires but kept in alignment by a single pair of pins. The piles are picked up by a pair of side belts for the transfer to the wrapping machine where the lugs of the infeed chain determine the number of piles in each pack.





Specification / Machine Range

Output	250 to 800 sandwiches/lane/min with 3.5" chain pitch (product dependent)
Number of lanes	2, 3, 4, 5 or 6 (Pile Pack is two lanes, vertically arranged)
Pin chain pitch	2", 2.5", 3", 3.5", 4"
Product size	25 to 70mm diameter 25 to 79mm rectangular Machine modifications are available to accommodate sizes outside these ranges
Discharge (BP Range)	Flat, stacked or direct to Lane Multiplier, Biscuit Count Feeder or Tray Loader
Lane multiplication	Up to 24 output lanes (BP Sandwiching Machine only)
Protection	IP55
Cream Hopper Capacity	2 lanes and Pile Pack - 100l 3 to 6 lanes - 300l

Materials of Construction

Side frames & side covers	Stainless steel
Top covers	Polycarbonate and nickel plated steel
Scrap tubs	Stainless steel
Cream pipes and stencils	Stainless steel
Pipe fittings	Hygienic dairy fittings with no rubber seals or 'O' rings

Options

- Fixed-size magazines
- Flat or stacked discharge
- Additional stencils and/or stencil drums
- Co-deposit stencils
- Additional scrap tubs
- Stacked discharge from Lane Multiplier
- Direct connection of cream feed manifold to ring main
- Flavour injection port on cream feed plus static inline mixers in cream feed pipes

Lifetime Support

Old machinery can reduce productivity and increase costs through poor weight control, slow changeovers, decreased uptime and extended cleaning: the overall effect is a severe hit on the bottom line. All of these can be addressed by purchasing a new machine but when this is not possible Baker Perkins offers upgrades and rebuilds for existing equipment. This brings many of the benefits of a new machine at a fraction of the cost.

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