#### Food Process Systems



### Welcome to BCH Limited

Established in 1835, BCH has developed a world-wide reputation as a manufacturer of high quality process systems for the food and confectionery industries.

By investing in engineering technology and process knowledge, our skilled engineers together with food technologists, have created a technical centre of confectioner expertise at BCH.

### Complete turnkey solutions backed by over 180 years of experience

BCH specialise in turnkey systems for the manufacture of a large range of food and confectionery products. Our process equipment including advanced cook/cool technology is ideal for the production of chilled and frozen meals, soups, sauces, sweet and savoury fillings, dips and dressings, jams, preserves and fruit toppings.

Our extensive range of skills, machinery and workshops enable us to undertake bespoke and tailor made equipment to be built within strict completion deadlines.

We offer a total 'in-house' service for the design, manufacture, installation and commissioning of complete process systems, incorporating the most up-to-date modern process and control technology available.

Full turnkey or stand-alone equipment is available from laboratory size to full scale production.



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### Investing In The Future

To assist our worldwide customers with meeting the many challenges faced in today's fast changing food industry, our unique Innovation Centre is available for assistance with new product and process development, as well as equipment evaluation before initial investment.

The Centre houses a wide range of equipment services and facilities, all of which are supported by in-house personnel with a wealth of knowledge to provide support in process design, food science, engineering and software.

BCH

BCH know-how enables all of our clients to develop new and exciting products, to test feasibility, then up-scale production – ultimately enabling the end product to reach the wider marketplace at a much faster pace.

### Cooking Kettles

Our range of kettles have been designed to meet the stringent quality assurance and hygiene requirements of the food manufacturing industry. They cover a wide variety of food cooking, mixing and blending applications across a whole range of products for the food, pet food, confectionery and pharmaceutical industries. An impressive basic build specification is complimented by an extensive choice of optional features, adding yet further processing versatility.



#### Standard Features

- Fabricated throughout in stainless steel
- Steam jacket pressures of up
- to 7 bar G
- Built to PED or ASME Standards
- Working capacities range between 10 and 5000 litres
- Custom sizes available Engineered in line with the latest safety standards
- Atmospheric, pressure & vacuum versions available
- Premix System & Open Pansalso available



#### Optional Features

- Agitation Styles
- Direct Steam Injection
- Load Cells
- Liquid Metering
- High Shear Mixing & Homogenising
- Starch Slurry Systems
- Pumping Systems
- Fat Melting
- Product Recovery
- Bin Hoists
- Ingredient Handling

A range of atmospheric standard steam jacketed kettles fitted with a 4/6 bar G steam jacket, available with a variety of mixer and processing configurations.

All kettles are fully complaint with the latest PED regulations and are manufactured in accordance with PD5500.





### Orbiter Kettles

BCH's Orbiter range was designed for start-up food producers, as well as industrial manufacturers who require a kettle for smaller batch sizes.

#### Sauce Cooking Kettle

A robust and sturdy construction enables these kettles to meet the varied performance requirements of today's busy food service kitchen environment.

These highly versatile kettles are jacketed for use on either steam or thermal oil and are provided with a simple operator friendly control interface. An electrically heated version is also now available.

The kettles come in standard sizes of 100 / 200 / 300 / 400 / 500 litres and are ideal for the production of a wide range of products including soups and sauces.



#### Technical Specification

- High quality stainless steel construction throughout.
- Control interface with:
- Programmable temperature controller
- Agitator controls with variable speed options
- Hygienic design.
- Pressure jacket suitable for operating at up to 6 bar steam pressure enabling a fast and energy efficient heat up time.
- Insulated steam jacket, providing operator protection and improved thermal efficiency.
- Electrically operated on/off jacket service control valves enable automatic control of the jacket heating process.
- Stainless steel variable speed agitator with horizontal lift and fold action, fitted with food grade scrapers.
- Fully hinged, spring loaded safety interlock lid fitted with viewing cover.
- Hand-wheel operated tilting mechanism
- Integrated pouring lip.
- Emergency stop and local mains isolation
- Kettles are designed to meet UK & International safety standards.
- Wiring and Circuit design to meet UK & International standards.
- Jacket design meets UK, European and North American pressure vessel regulations (PESR, PED & ASME).



All electric option also available

#### Optional Features

- 60mm diameter liquid drain off point, fitted with flow control valve and manual control lever
- Automatic water addition via a flow meter and automatic valve
- Lift out sieve plate fitted to kettle spout, ideal for draining cooked vegetables before discharge
- Recipe Management System (RMS)

### Vacuum Cookers

BCH Vacuum Cooking process solutions are suitable for wide range of high quality products.

From a standalone machine, to a full turnkey system with premixing, cooking, holding and final treatment, the process can be matched to the users exact requirements.

#### Standard Features

- High quality stainless steel construction
  throughout Steam Jacket Pressures up to 10 bar G
- Built to PED or ASME standards
- Working capacities range from 10 to 3000 litres

### Typical Products

- Jams and Preserves
- Relishes and Chutneys
- Marinades
- Stock Preparation
- Concentrated Fruit Purees
- Vapour Reduction
- Bakery Caramel and Toffee





### Bratt Pans

The term "Bratting" is usually associated with the rapid sealing or searing of meat and vegetables.

#### Developing The Flavour

Bratting is also referred to as pan frying, stir frying or sautéing. This quick, hot cooking method seals in the flavours of the foods, as well as their colour and texture.

BCH's Bratt Pans can be utilised for a wide range of cooking functions including shallow or stir frying, braising, boiling, steaming, poaching or stewing. This versatile pan is also used extensively in the ethnic ready meal industry for cooking basmati and pilau rice using the total absorption method. It can also be used for the production of curry sauces.





#### Technical Specification

- Flat heated base with vertical or sloping front face, which enables all cooked products to be easily discharged into trays.
- Tips both ways forwards into high care for product discharge and backwards into low risk for removal of wash water via the liquid output valve.
- A second outlet valve can be fitted so liquids can be drained easily into high care.
- Hinged cover option to retain heat and minimise steam emissions.
- Simple operation the pan is manually tilted using manual or powered hydraulic pump and cylinder.
- Manual stirring operation
- Temperature control either manually or using one of the control options available.
- Automatic temperature and timer option.
- Option for PLC control with recipe manager.

#### The Equipment

The Bratt Pan comprises of a flatbed, rectangularshaped vessel with a jacket on the underside for heating the product. Liquid draw-off valves are provided front and rear, and the vessel is supplied with hinged covers to retain heat and minimise steam emission.

Heating is achieved using either a high pressure steam supply, or thermal oil media.

Two standard sizes are available:

- 100 litre working volume (200L brim capacity)
- 200 litre working volume (400L brim capacity)

### Optima Processing System

The All-In-One Processing System

More than simply a mixing vessel - the BCH Optima is the ultimate all-in-one system with more processing options than ever before.

Suitable for all your food manufacturing requirements, the Optima provides customers with the freedom to become independently creative with their own unique process and products. Equipped with both tilting and pump-out options, the machine can handle an impressive range of viscosities and consistencies; anything from smooth liquids to dry cake mixes with inclusions.

The BCH Optima is a batch process machine which can be relied upon to perform an extensive range of process steps - all brought together in a single machine.

Ideal for the manufacture of a countless variety of food products including confectionery, convenience foods and spreads. The list of current and future possibilities is as endless and diverse as our customers' imagination.

#### Process Options Include:

Jacket Heating / Jacket Cooling / Pressure Cooking / Vacuum Cooking / Vacuum Frying / Vacuum Chill / Cutting / Blending / Dissolving / Pasteurisation / Emulsifying / Powder Wetting



## Vacuum Cooling

BCH Vacuum Cooling System ensures a complete high performance system, providing the fastest and most effective means of heat removal from a batch process.

BCH's Vacuum Cooling System can typically cool products from 90°C to 5°C within 45 minutes, without the need for expensive refrigeration used with scrape surface pouch cooling and traditional blast chilling rooms.

A vacuum cooling system operates at around 30% of the cost of comparable refrigeration systems. The vacuum system can be supplied with a seal water recovery system, thus reducing operating costs further.

The speed of cooling in a sealed environment offers food safety attributes and swift passage through the temperature danger zone.

The combination of BCH Cooking and Vacuum Cooling into one complete system means you can guarantee foods are cooked and cooled rapidly with repeatability and food safety in mind. Manufacturers can also benefit from a smaller footprint with reduced labour and energy costs.

#### Technical Specification

- High quality stainless steel construction throughout
- Working capacities range from between 10 and 5000 Litres
- Vacuum and over pressure options
- Variable agitation function for maximum product quality
- Indirect cooling plant
- Designed for full CIP application
- Fully Automated with recipe control Engineered in line with the latest safety
- standards



### RotaChill

The BCH RotaChill Pouch Cooling System is a high efficiency, rotary tumble chilling unit designed for use with freshly cooked products which have been deposited into pre-packed pouches or bags. It is ideal for products requiring an extended shelf-life within the manufacturing process, for example sauces, soups, casseroles, fillings, desserts, ethnic meals and toppings.

The RotaChill is available as a turnkey package in 300/ 500/ 750/ 1000 or 1500 litre batch configurations.

#### Technical Specification

- Incorporates a bag filling and clipping system
- User-friendly operation
- Hygienic design
- Factory tested
- Robust stainless steel construction
- Remote water chiller system and controls included
- Self-contained pre-wired controls
- Pre-piped internal cooling system
- Automatic coolant recovery storage



# Combined Cook / Cool Systems

BCH have developed a range of industrial combined cook and cool systems to meet the challenges presented across a wide range of products.

The equipment incorporates all the features and benefits that can be gained from the independent cook and cool machinery, including atmospheric, pressure and vacuum cooking, direct culinary steam injection, vacuum and jacket cooling.

#### Typical Products

- Savoury Pie & Pasty Fillings
- Sweet Fillings
- Absorption Cooked Rice
- Mashed Potato
- Spring Roll & Samosa Filling
- Soups & Sauces
- Pet Food
- Stock Preparation



# Mixing & Blending

BCH can provide a wide range of mixing and blending solutions for heating, cooling and ambient processes.

- Horizontal ring agitator
- Vertical anchor/gate agitator
- Propeller mixers
- In-tank recirculation high shear mixers
- High pressure homogenisation
- Powder entrainment option

#### Typical Products

- Pizza sauces & salsas
- Cheese sauces
- Quiche fillings
- Mayonnaise
- Condiments (Ketchup)
- Sweet & savoury toppings
- Hummus
- Batter



# Ingredient Dosing & Handling

BCH can provide a wide range of dosing and handling equipment to complement customer projects. These can be standalone solutions or integrated into automated systems.

### Typical Solutions

- Metered liquid feeds, chilled or heated from existing or new bulk storage tanks or IBC delivery stations.
- Granular / powder handling systems using a wide variety of solutions to match the product.
- Hoist Loading systems using hygienic bins up to 1000kg capacity.
- Colour and flavour dosing systems.







### Process Automation

Calling on our vast experience in the industry, our electrical and software engineers develop control systems using the most up-to-date technology available.

The system will specifically match the process requirements of any individual plant, whether it is a standalone basic relay control panel or an intelligent networked plant requiring a turnkey solution.

The software can be developed for use on any of the leading PLC manufacturers' equipment. A full package can be added to include recipe management, real time and historical trending, batch and CIP reports, and cloud based monitoring/data storage if required.

- System design from basic concept
- Control panel design and building
- Software design and development
- In-house testing and pre-commissioning
- On-site installation
- On-site commissioning
- Technical support and training (local or remote)









# CIP Systems

Built to recognised industry codes of practice, BCH work in conjunction with our customers ensuring that every system is tailored to meet the specific process application, whether it be a simple once through total loss rinse system - or a fully automated multi-channel recovery system.

Many BCH CIP systems have been supplied specifically for the sanitary standards required in the ready meals industry, with a typical washing process consisting of several rinsing cycles where the cleaning material is circulated through the pipework, valves, pumps, cooking, cooling and holding equipment. High levels of plant cleanliness are required as minimum standard.

Integrated CIP systems can offer efficiencies in terms of increasing the line production time available, reduction of cleaning materials (water, detergent and manpower) and effluent charges.



#### Technical Specification

- Stainless steel construction throughout sanitary design principles
- Up to 10,000 litre capacity feed and recovery tanks
- Fully automated sequencing of the cleaning process along with complete integration with the core food process
- On-board HMI controls with standalone PLC connected to the main process plant via Ethernet Selectable and configurable cleaning recipes via the HMI - different cleaning sequences for different parts of the plant
- Automatic detergent dosing, with full monitoring of outgoing and incoming detergent strength (pH conductivity probes)
- Multi-channel options, each with variable speed delivery pump and temperature control
- Automatic monitoring of water flow rate and temperature on the flow return feed of each individual channel provided
- On-board steam heated heat exchanger systems complete with modulated steam control
- Optional waste product recovery tank





**BCH Ltd** Spring Place Millfold Whitworth Lancashire OL12 8DN UK T +44 (0)1706 852122E info@bchltd.comW www.bchltd.com