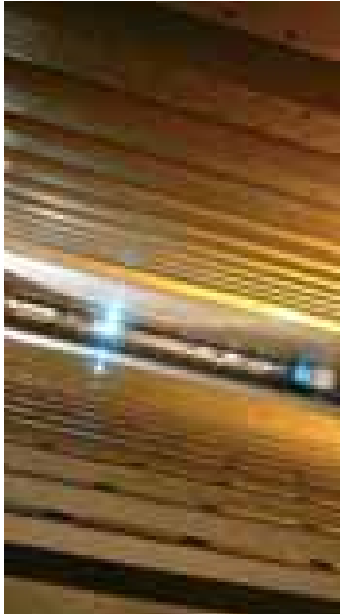
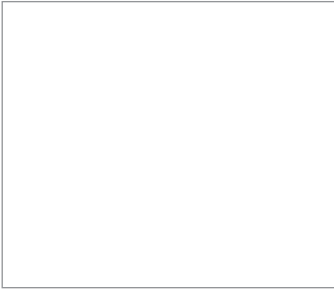
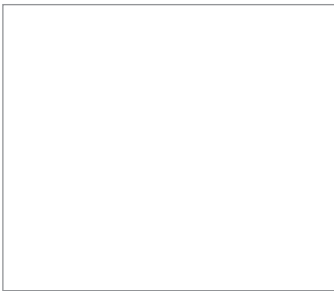




Food Processing Equipment

Innovative Proving, Baking and Cooling Solutions for the Food Industry



Leadership through innovation in forced convection technology



Food Processing Equipment

Spooner Industries offers unparalleled experience in the design, manufacture and after-sales service of food processing equipment. The organisation can boast more than 70 years' experience in forced convection technology serving a range of industries including food, paper, metals and converting.

Spooner's sophisticated R&D facility is constantly working on new and innovative technologies for baking and cooling.





Why work with Spooner Industries?

- Spooner has extensive knowledge and experience of the food industry.
- We have a worldwide reputation for innovation in all our industry areas and are constantly developing new technologies, often in conjunction with our customers.
- Our company culture is one of flexibility. We believe we have the right resources and the right attitudes to make us a responsive, innovative and high quality supplier.

- Spooner offers cost effective systems, providing value for money solutions.
- Our extensive trial procedure ensures we are a low risk solution.
- Comprehensive project management, engineering, support and service keep us close to our customers.

Key Products and Services:

Provers
Ovens
Coolers
Process Controls
Technical Services

Key Applications:

Biscuits
Bread
Morning Goods
Confectionery
Cereals
Pies
Savoury/Meat
Fast Foods
Pastry/Cakes/Gateaux
Ingredients
Hot Plate Goods
Pet Foods

Company Philosophy

Spooner is dedicated to a culture of creativity and innovation to maintain its position at the forefront of forced convection food industry technology

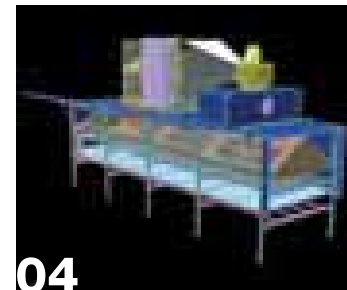
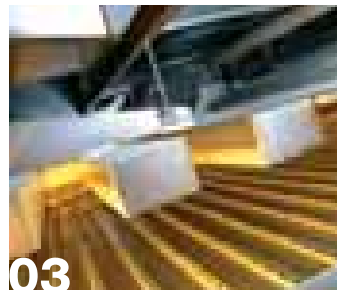
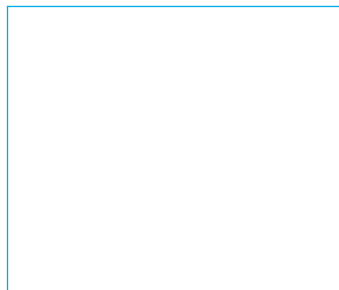


01

Spooner Forced Convection Systems – Provers, Ovens and Coolers



02



Provers

Spooner Industries custom-designed provers create the optimum proving environment in the best configuration for the customer's plant. All Spooner provers incorporate the Spooner airflow system to ensure even temperature, humidity and airflow throughout. The heating and humidity generation methods are bespoke to each customer and can include gas burners, steam heaters and steam injection. Accurate control of the prover conditions ensures consistent, repeatable performance, with all products experiencing the same environment.

Spooner offers a range of prover types to suit the product and plant layout:

- Tunnel provers
- Swing provers
 - Box type
 - 'L' type configuration
 - Combination box and 'L' type

Ovens

Spooner baking ovens are based on forced convection technology. This ensures flexible, reliable operation and ease of control. Radiant effect heating can be included for enhanced machine flexibility, enabling a wide range of products to be processed on a single oven. This ensures the optimum colour, texture and dryness are achieved.

Features of the Spooner baking oven include:

- Optimised heat transfer rates and nozzle designs
- Energy efficient designs
- Integral heat recovery to minimise running costs
- Even temperatures across the oven result in an even bake
- Rapid warm-up and quick temperature changes with direct-fired ovens
- No flash heat when there are gaps in production
- Fan location to suit space available – top or side mounted
- Designed for ease of cleaning and maintenance, ensuring a hygienic, food safe environment

Innovative access designs are available giving complete oven access

Spooner baking oven types include:

- Direct fired
- Indirect fired

- Hybrid
- Solid band or stone bake type conveyor
- Ladder design

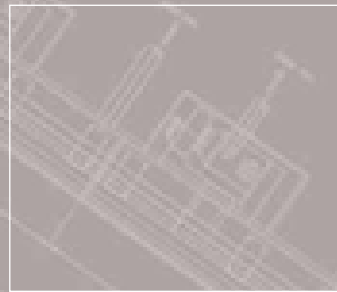
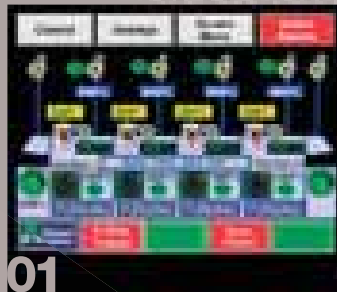
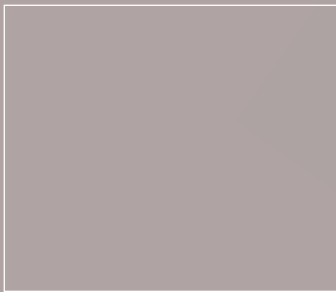
Coolers

Cooling the product, whether it be bread, confectionery or cereal based, is an important and essential element of the food processing industry. Spooner Industries extends the same high performance airflow and control technologies to its coolers as it does to its ovens and provers. Coolers can use ambient or chilled air or a combination to achieve the correct product exit temperature. Air systems can be all-in/all-out, or recirculating with the proportion of recirculation and fresh air controlled to maintain the correct cooling air temperature.

Spooner offers a range of cooler types to suit the product and plant:

- Tunnel coolers
 - High performance nozzle system
 - Ambient air
 - Chilled air
 - Combination
- Rack Coolers
 - Ambient air
 - Humidity control systems

01 Savoury pies at exit of Spooner oven
 02 Bread loaves at entry of Spooner oven
 03 Herringbone top nozzle system
 04 3D image of tunnel cooler



Process Controls

Spooener Industries offers a range of process controls to suit your application.

Automation systems include:

- Multiple PLCs with SCADA
- Single PLC with Operator Panel
- Traditional hard-wired control systems

Typical Automation features include:

- Recipe Systems
- Fully Automated Start-up and Shutdown

- Energy Efficiency Modes
- Data Recording and Charting
- Comprehensive Diagnostic Information
 - Prioritised Alarms
 - Maintenance Control
 - Purge and Burner Interlocks Status

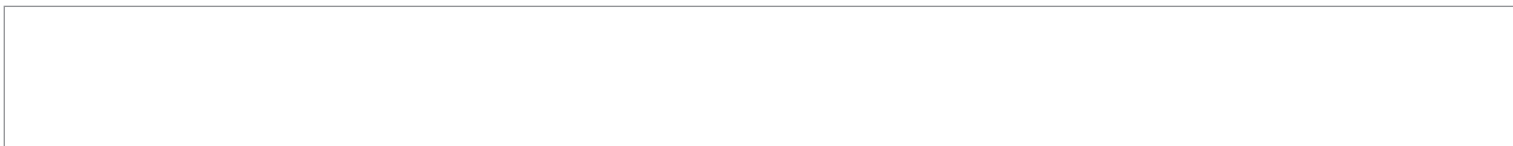
Independent control of temperature and impingement air velocity for each section provides maximum flexibility.

- Adjustable burner controls for each oven section allowing independent control of temperature in each section

- Adjustable top and bottom baking damper controls to permit variation in the air-flow in each section and the direction of the internal air-flow

- Adjustable exhaust damper to regulate exhaust rate and control humidity

These measures allow the equipment to be set to suit the particular product being processed, with the optimum temperature gradient, baking heat and humidity along the oven length.



Technical Services

Spooner Technical Services combines essential process skills and machine building knowledge in order to maximise the performance of existing process equipment. A range of services is offered. These include assessing current dryer and cooler parameters and optimising them in order to enhance product quality, improve machine reliability or increase throughput. Full technical audits are carried out that assess the condition of existing equipment. Other services include advising on upgrades, reviewing compliance with National and International standards, undertaking pre-engineering feasibility studies, technical training, reviewing ways of improving product quality and optimising control systems.

- Plant Inspection
- Process Audit
- Technical Training
- Refurbishment Projects
- Spare Parts
- Test Centre Development Work

R&D and Test Centre Facilities

Spooner has extensive facilities where customers can test recipes and baking processes. The parameters and operating conditions determined during these trials validate the oven specification and allow Spooner to supply equipment designed specifically for each customer's application. This process optimisation prior to order minimises risk for the customer and can reduce downtime and product wastage on site.

Advanced pilot machines are used for the in-depth study of oven processes. These machines are extremely versatile and adaptable, and can simulate most commercially available systems. They are used extensively in the development of Spooner systems.

Worldwide Support and Service

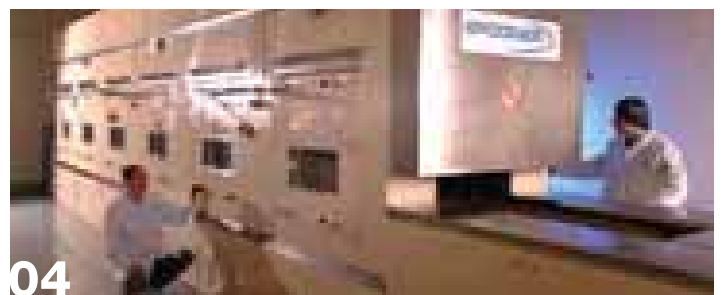
The food team at Spooner is vastly experienced.

After-sales service is close at hand, allowing rapid response to enquiries and ensuring easy accessibility to Spooner's support facilities.

Spooner offers its food industry customers a comprehensive after-sales maintenance and spare parts service, as well as technical support based on over 70 years' experience in Forced Convection Systems.

Design Benefits of Spooner Equipment

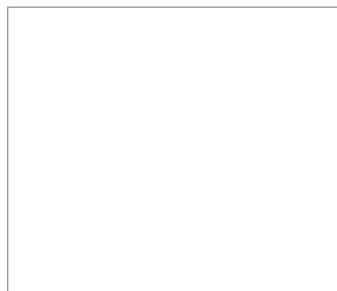
- Safe operating conditions and food safe equipment
- Hygienic
- Reliable equipment with long life expectancy
- Even temperature distribution for an even bake
- Energy efficient designs
- Excellent process control, ease of operation and maintenance
- High throughput levels
- Excellent access for cleaning and maintenance



04



05



06

- 01 Typical control screen
- 02 Oven monitoring
- 03 Spooner control panel
- 04 Pilot oven in Spooner Test Centre
- 05 Spooner technical services
- 06 3D image of alternative access solution



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