

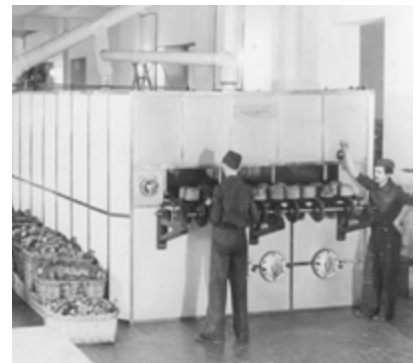


INDUSTRIAL OVENS



BISCUITS, CRACKERS
AND SPONGE CAKES

POLIN SINCE 1929



OUR NAME WORLDWIDE

OUR LONG HISTORY BEGINS IN 1929. SINCE THEN THE INTRODUCTION OF GREAT QUALITY PRODUCTS AND CONTINUOUS TECHNOLOGICAL INNOVATION HAS DRIVEN OUR GROWTH AND MOTIVATED OUR EXPANSION.

Today our peculiarity is to propose solutions and to implement medium and large industrial systems for bakery products. We design each stage of a production line: dough mixing, make-up, cooling and of course baking. We bring around the world the quality and the great performance of our technology with the goal of always assure maximum benefits to our Customer, matching his each special requirement in terms of production, timing and cost effectiveness.

TUNNEL OVENS



**MORE THAN 1000 OVENS IN MORE THAN 100 COUNTRIES
WORKING WIDTHS FROM 600mm TO 1800mm**

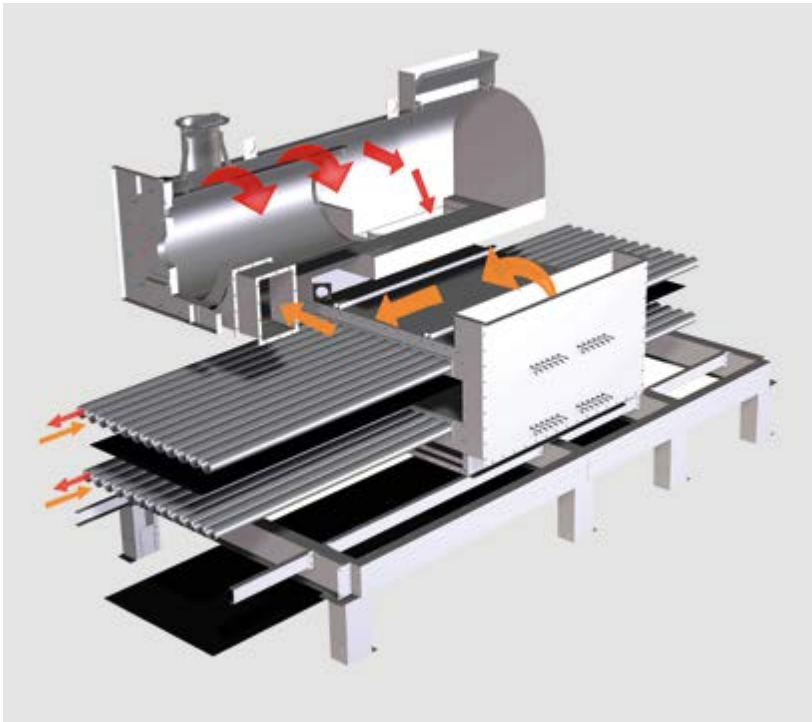
We have designed, manufactured and installed more than 1,000 continuous tunnel ovens of different type all around the world. Our plants are present in over 100 countries, baking crackers, biscuits and cookies, muffins, croissants, bread, pizza and other yeast-raised products, such as “Pandoro”, “Panettone”. Our deep experience of tunnel ovens of different type, allows us to design and implement optimum baking systems for each group of products. We offer our Customers different heating system solutions: Cyclothermic, Convection, Direct Gas Fired, Electric, Hybrid. Biscuit oven width can match Customer’s needs, ranging between 600 and 1800 mm.

CYCLOTHERM



This is one of the most common ovens. The heating system is indirect, via the tube bundles inside baking chamber (top & bottom) where combustion flue gases circulate. It can reach temperatures up to 280 °C, so it is suitable for baking any kind of biscuits and sponge dough also.

Cross temperature profile and vapours quantity inside baking chamber can be adjusted and managed.



FEATURES

BAKING CHAMBER

- Baking chamber divided into zones with independent temperature adjustment
- Independent adjustment of each radiant tube (heat flow control across the baking chamber)
- Top and bottom heat adjustment
- Steam exhaust ducts with adjustable dampers and forced exhausting fans at automatic variable speed
- Stainless steel suction hoods on the two oven ends, with independent steam extraction ventilator in the delivery end

CONSTRUCTION MATERIALS

- Baking chamber of aluminized carbon steel
- High temperature resistant fans for fume flow
- High quality insulation materials for best reducing heat losses

FUNCTIONALITY

- Baking conveyor mechanical or pneumatic tensioning system to compensate thermal and mechanical expansion
- Baking conveyor automatic tracking system
- Baking chamber provided with inspection windows on the control side and cleaning hatches on opposite side (both sides on demand)
- Belt cleaning brushes / scrapers
- Emergency discharge device

TOUCH SCREEN OPERATOR PANEL



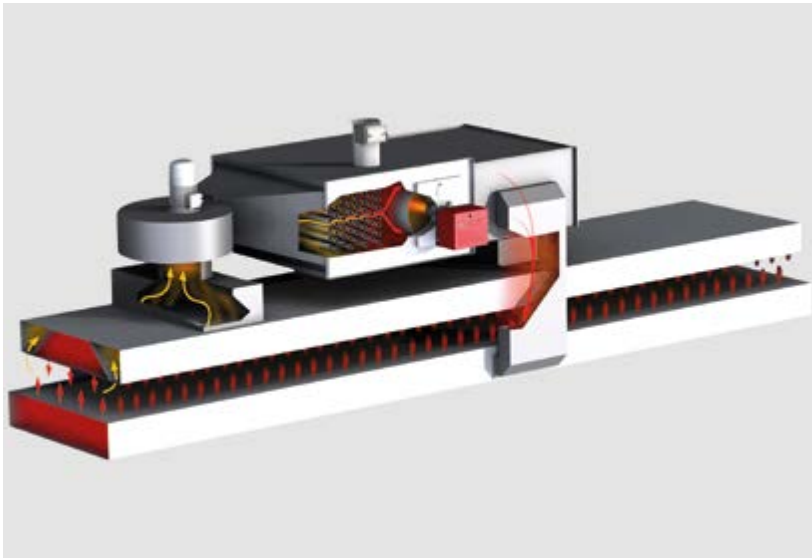
ON DEMAND

- Double radiant tubes vertically to increase heat exchange
- Turbulence units to increase thermal exchange and to grant uniform baking conditions, improving bake time and efficiency
- Stainless steel cladding
- Support of conveyor belt in baking chamber by rollers with outside bearing (always present on longer oven of 30m)
- Steel belt greasing unit and graphiting unit
- Motorized oven regulation damper
- Pressure / Humidity sensors

CONVECTION



In this oven “clean” air, which is heated by a flue/gas heat exchanger, is blown directly on the product. Suitable for baking any kind of biscuits, mainly in the last stage (drying), due to its levelling effect on product boundary conditions all across the section, in particular of the moisture content and of surface colouring.



FEATURES

BAKING CHAMBER

- Baking chamber divided into zones with independent temperature adjustment
- Top and bottom air flow
- Stainless steel suction hoods on the two oven ends, with independent steam extraction ventilator in the delivery end
- Dumper for new dry air balance and humid air evacuation

CONSTRUCTION MATERIALS

- Baking chamber of aluminized carbon steel
- Heat exchanger made of heat resistant stainless steel
- High temperature resistant fans
- High quality insulation materials for best reducing heat loss

FUNCTIONALITY

- Adjustable heated air flow rate by inverter
- Baking conveyor mechanical or pneumatic tensioning system to compensate thermal and mechanical expansion
- Baking conveyor automatic tracking system
- Baking chamber provided with inspection windows on the control side and cleaning hatches on opposite side (both sides on demand)
- Belt cleaning brushes / scrapers
- Emergency discharge device

TOUCH SCREEN OPERATOR PANEL



ON DEMAND

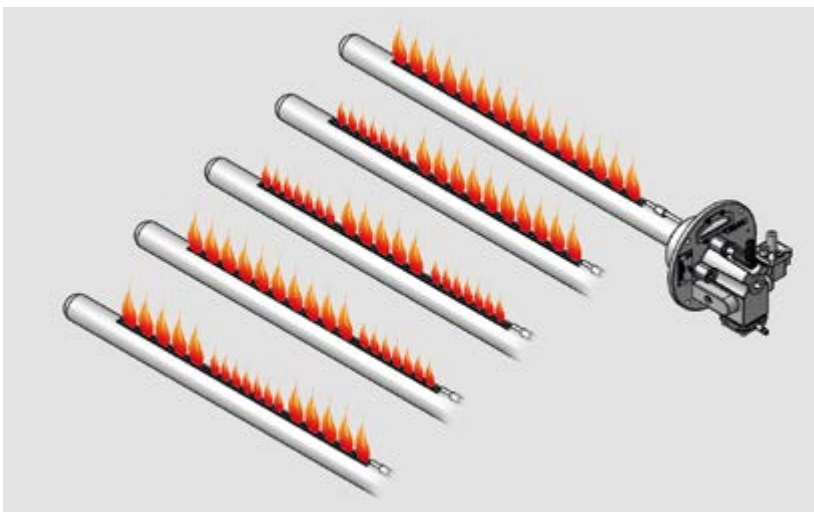
- Stainless steel cladding
- Support of conveyor belt in baking chamber by rollers with outside bearing (always present on longer oven of 30m)
- Steel belt greasing unit and graphiting unit
- Motorized oven regulation dampers
- Pressure sensors
- Humidity sensors

DIRECT GAS FIRED



The direct gas fired oven can reach temperatures of 350 °C and more, so it is especially suitable for baking crackers and special products.

The ribbon burners inside the baking chamber and their freely distribution all along the zone allow better management of the lengthwise baking profile.



FEATURES

BAKING CHAMBER

- Baking chamber divided into zones with independent temperature adjustment
- Electronic control of each burner by dedicated single microprocessor units
- Top and bottom heat adjustment
- Zero gas pressure burner system connected to a self-modulating flow and pressure of the air from the combustion air fan stations placed along the oven
- Stainless steel suction hoods on the two oven ends, with independent steam extraction ventilator in the delivery end
- Steam exhausting ducts with adjustable dampers and forced exhausting fans at automatic variable speed

CONSTRUCTION MATERIALS

- Baking chamber of aluminized carbon steel
- High quality insulation materials for best reducing heat loss

FUNCTIONALITY

- Baking conveyor mechanical or pneumatic tensioning system to compensate thermal and mechanical expansion
- Baking conveyor automatic tracking system
- Baking chamber provided with inspection windows on the control side and cleaning hatches on opposite side (both sides on demand)
- Belt cleaning brushes / scrapers
- Emergency discharge device

TOUCH SCREEN OPERATOR PANEL



ON DEMAND

- Baking chamber of stainless steel for special products
- Stainless steel cladding
- Support of conveyor belt in baking chamber by rollers with outside bearing (always present on longer oven of 30m)
- Steel belt greasing unit and graphiting unit
- Conveyor preheating
- Motorized oven regulation dampers
- Pressure / Humidity sensors

HYBRID



The hybrid oven puts different oven sections one after the other; the most common are “direct gas fired plus convection”, direct gas fired plus cyclotherm”, “cyclotherm plus convection”. Such a configuration combines the peculiar characteristics of each oven type, and allows an adequate approximation of optimal baking parameters for each product, so all the chemical/physical transformations will occur at the moment and at the conditions as better as possible.



FEATURES

BAKING CHAMBER

- Baking chamber divided into zones with independent temperature adjustment
- Top and bottom heat adjustment
- Stainless steel suction hoods on the two oven ends, with independent steam extraction ventilator in the delivery end
- Steam exhaust ducts with adjustable dampers and forced exhausting fans at automatic variable speed

CONSTRUCTION MATERIALS

- Combustion chamber in special steel, high temperature resistant, with safety hatches
- Baking chambers of aluminized carbon steel
- High temperature resistant fan for fume flow
- High quality insulation materials for best reducing heat loss

FUNCTIONALITY

- Baking conveyor mechanical or pneumatic tensioning system to compensate thermal and mechanical expansion
- Baking conveyor automatic tracking system
- Baking chamber provided with inspection windows on the control side and cleaning hatches on opposite side (both sides on demand)
- Emergency discharge device

TOUCH SCREEN OPERATOR PANEL



ON DEMAND

- Baking chamber of stainless steel for special products
- Stainless steel cladding
- Support of conveyor belt in baking chamber by rollers with outside bearing (always present on longer oven of 30m)
- Steel belt greasing unit and graphiting unit
- Conveyor belt preheating
- Motorized oven regulation dampers
- Pressure sensors
- Humidity sensors

ELECTRIC



This kind of oven offers all advantages of the direct gas fired oven, giving in addition the possibility to manage the vapours presence and quantity inside the baking chamber, like in the cyclothermic oven.



Flat ceramic heaters



Ribbon heaters



FEATURES

BAKING CHAMBER

- Baking chamber divided into zones with independent temperature adjustment
- Top and bottom heat adjustment
- Stainless steel suction hoods on the two oven ends, with independent steam extraction ventilator in the delivery end
- Steam exhaust ducts with adjustable dampers and forced exhausting fans at automatic variable speed

CONSTRUCTION MATERIALS

- Baking chamber of aluminized carbon steel
- Baking chamber of stainless steel for special products
- High quality insulation materials for best reducing heat loss

FUNCTIONALITY

- Baking conveyor mechanical or pneumatic tensioning system to compensate thermal and mechanical expansion
- Baking conveyor automatic tracking system
- Baking chamber provided with inspection windows on the control side and cleaning hatches on opposite side (both sides on demand)
- Belt cleaning brushes / scrapers
- Emergency discharge device

TOUCH SCREEN OPERATOR PANEL



ON DEMAND

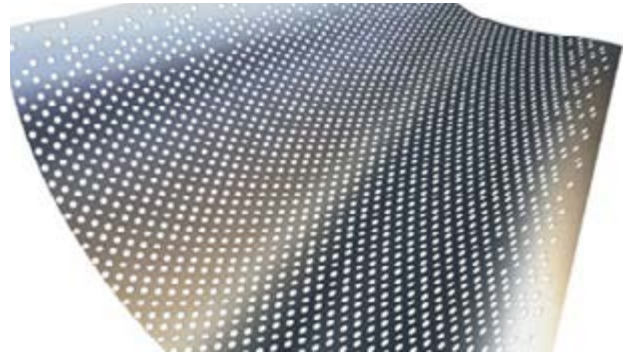
- Conveyor band preheating
- Turbulence units to increase thermal exchange and to grant uniform baking conditions, improving bake time and efficiency
- Stainless steel cladding
- Support of conveyor belt in baking chamber by rollers with outside bearing (always present on longer oven of 30m)
- Steel belt greasing unit and graphiting unit
- Motorized oven regulation damper
- Pressure / Humidity sensors

BAKING CONVEYORS



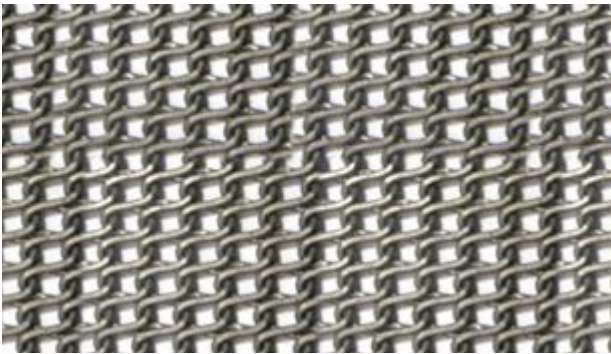
SOLID STEEL BELT

For rotary moulded soft biscuits and deposited wire-cut cookies, layer cakes. Up to 1500 mm width.



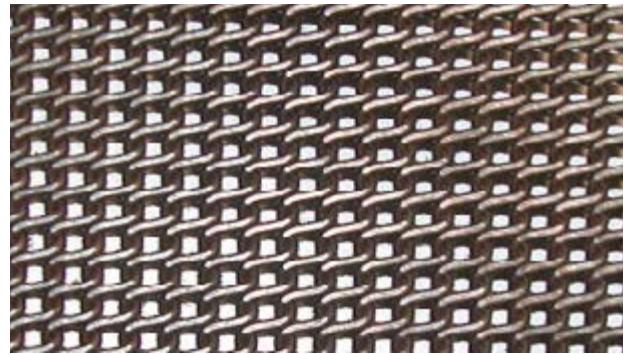
PERFORATED STEEL BELT

For rotary moulded soft biscuits and deposited wire-cut cookies, layer cakes. Up to 1500 mm width.



LIGHT WIRE-MESH

For soft and hard sweet biscuit. Up to 1800 mm width.



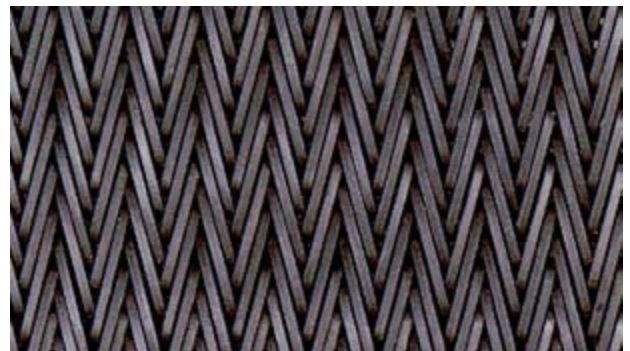
MEDIUM WIRE-MESH FOR BISCUITS

For soft and hard sweet biscuit and for particular snack crackers. Up to 1800 mm width.



MEDIUM WIRE-MESH

For soft and hard sweet biscuits and snack cracker. Up to 1800 mm width.



HEAVY WIRE-MESH

For cream crackers and soda crackers. Up to 1,800 mm width.

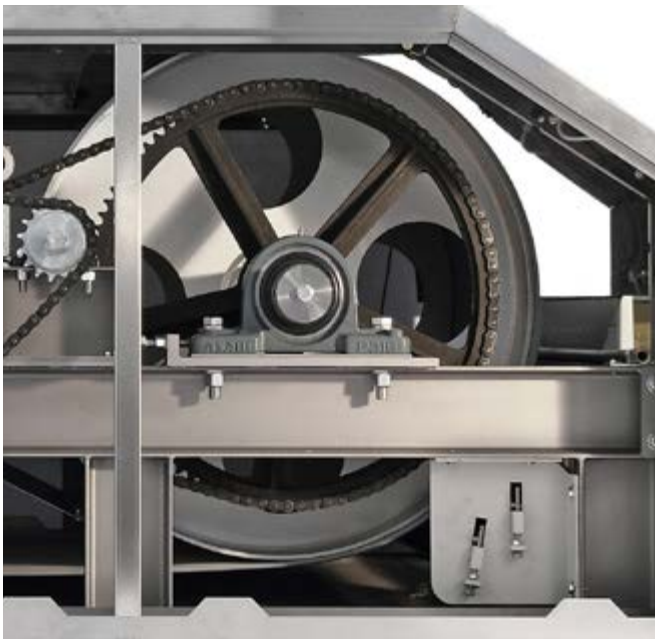
OVEN HEADS



FEED END

Tensioning station, that provides an even tension to the baking band and ensures troublefree function of the band under varying temperature conditions.

Oven band tension is carried out by a couple of pneumatic cylinders or by a set of springs (for oven less than 30 m long) that moves the driven drum on a gear-rack system on both sides, assuring the perfect perpendicularity of the drum axis in respect of the oven axis. In case of malfunction there is an acoustic alarm which is displayed on the operator panel.. Driven drum of 1.000 mm diameter for any oven. Equipped with an automatic built-in greasing system for steel belts.



DELIVERY END

Drive station by means of a frequency-controlled infinitely variable gear motor, with a special driving architecture by direct gear-boxes and chains to achieve a smooth run of the conveyor band in any condition.

Equipped with manual discharge device to move out the product from the baking chamber in case of power failure.

Products are released from the baking band by a scraper and are fed to the Take-off conveyor, that has a reject point of the product not to be processed further, equipped with a container underneath or an orthogonal conveyor to collect the scraps.

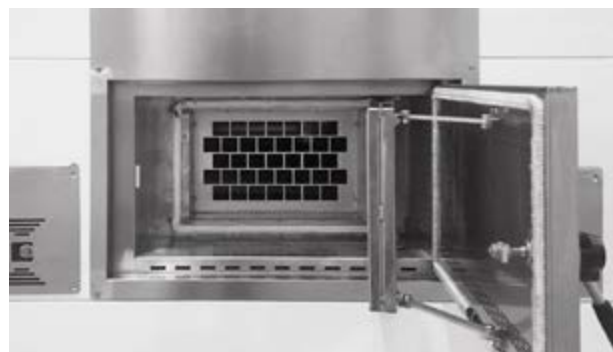
Drive drum of 1.000 mm diameter for any oven, to achieve a perfect running of the conveyor bands.

GENERAL COMPONENTS



HATCHES FOR CLEANING AND MAINTENANCE

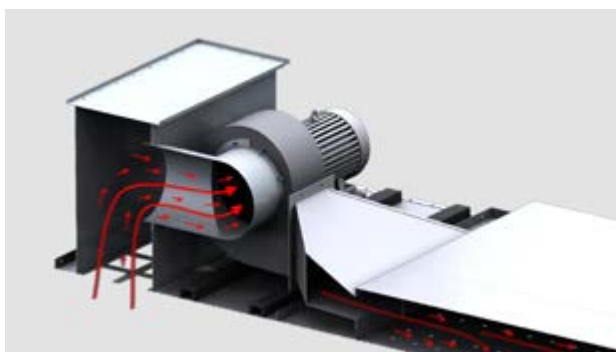
Along the oven on the side opposite to controls, for cleaning and maintenance purposes.



INSPECTION WINDOW

Along the oven on the control side, to check the baking progress.

Provided with mobile lamp for inspection.



TURBULENCE UNIT

To be used in Cyclothermic and Electric ovens, when a better heating distribution is requested to improve power and product moisture/colour control.



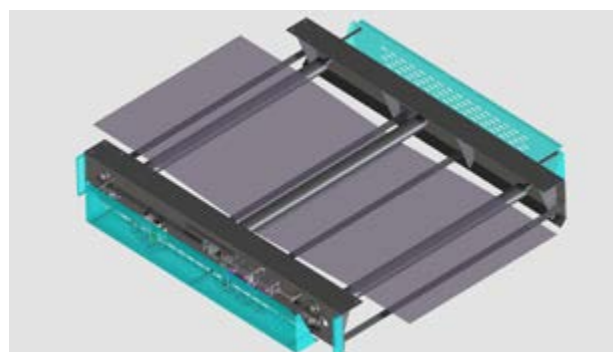
CLEANING BRUSHES

For cleaning of conveyor wire-meshes by means of single or double brush unit provided of relevant debris recovery drawer.



BAND GUIDES

Spring loaded rolls for safety of wire-mesh and steel belts, inside the baking chamber and in conveyor return.



TRACKING UNITS

Three rolls unit to control automatically the tracking of steel belts and wire-meshes. Single or double units in accordance to the length of the ovens.

STEEL BELT OVEN EQUIPMENT



BELT GREASER

For a continuous distribution of heated oil on the steel belt by a rotating brush at variable speed and an alternating felt for an even application.



BELT SCRAPER UNIT

On mobile trolley for continuous cleaning of steel belts with vertical scrapers underneath on return of belt.



GRAPHITIZING UNIT

To keep a continuous graphite film on the lower surface of the steel belt.

CONTROL SYSTEM

CONTROL SYSTEM

Polin provides a range of Control Systems for complete Biscuit, Crackers and Layer cake lines, or individuals units of machinery.

Whether it is semi or fully automatic recipe control, or higher level with SCADA (Supervisory Control and Data Acquisition) coupled to the ERP and MES of the Clients, Polin's control system has a clear, simple "Touch Screen" Operator Panel or PC screen as HMI (Human Machine Interface), to allow the operators to keep quality and easy to operate handling, by visualizing all the oven settings in a single location.

Recipe-driven set-up and clear alarm messages reduce changeover time, downtime and waste.

Full knowledge of internationally recognized propriety PLC, such as Siemens, Allen-Bradley, Omron, Telemecanique, just to mention a few, but in any case at disposal of Clients for any brand request.

OPERATOR INTERFACES

Colour "Touch screen" Operator panels or industrial PC. The HMI display panels set new standards for functionality, open systems and design. Their outstanding features include: state-of-the-art processor technology for maximum data security and handling really complex applications, high-resolution, new ergonomic design, comprehensive communications support and extremely easy connectivity with a full range of interfaces and ports.

Software package to suit all customers' requests, with different level of management and supervisory access, passing from Baking chamber temperature control to Exhaust temperature control. Store and management of any number of recipes.



MAIN FEATURES

- Functioning tests, trials and simulation at our Test bakeries
- Control and Structured Software Systems
- Full Recipe Handling and Management as standard
- Performance historic trends
- Alarm monitoring and handling
- Predictive and routine maintenance management
- Different level of controls to suit clients requirements
- All international brand components
- Control system easy to operate
- Up-to-date links for Teleservice, as remote control, provided via Internet as VPN, direct dial-up pr GMS modem to get immediate access and assist with problem solving

SUPERVISORY PAGES

- General synoptic of the ovens
- Zone pages
- Recipe managing
- Oven running
- Active alarms
- Previously occurred alarms
- Oven parameters
- Oven variables

OVEN CONTROL AND MONITORING

- Automatic start-up and shut-off
- Purge cycles
- Burners ignition and control
- Zone top / bottom control
- Product idle and bake mode setting
- Automatic vapour and exhaust damper position
- Automatic tracking system of oven bands

OPTIONS

- Oven humidity sensors inside bake chambers
- Temperature data logger
- Colour trend control



Technology on demand for pastry, biscuit and bread industry

Since 1929 our philosophy has been innovation and creation of quality. Today our peculiarity is the design and creation of medium to large scale industrial systems for pastry, biscuits and bread industry; our goal is providing our customers with both products and service. We wish to take our talented technology all over the world.



Ing. Polin e C. S.p.A.

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