

Prima Batch Retort Sterilisers

Flexibility in food sterilisation



From lab to full-scale: caring for your package from the beginning



The safety of your product starts at the earliest stages of the food process. This is what Levati Food Tech guarantees, by sharing with you the extensive experience gained in over 40 years of business in shelf-stable foods sterilisation. Levati Food Tech services include thermal process design and validation, temperature distribution analysis and heat penetration measurements in order to determine the optimal sterilisation recipe for your product.

Levati Food Tech thermal process experts, in cooperation with Stazione Sperimentale delle Conserve Alimentari in Parma, are able to reproduce your product behaviour using dedicated pilot sterilisation plants. Up-scalability of the lab results to the industrial systems is guaranteed.



Levati Food Tech team of specialists in food preservation can run exhaustive lab trials to validate sterilisation recipes that will match your customers' expectations: optimal sterilising solution for the selected product/package combination and precise assessment of project costs.

Optimal thermal profile for each single product is then set in accordance with the selected sterilisation technology to achieve a fast commissioning of each project.

1. Levati Food offers its laboratory facilities to test your product and container for the best sterilising solution before starting full-scale production

2. Moreno Cedroni, one of the emerging young Italian Chefs, currently uses Levati retort technology for a small top quality production of sauces and ready to eat fish specialties

3. Lab series Ø800



Cutting your production costs

- Reducing energy consumption through in-lab tests aimed at optimising the sterilisation cycle for every product recipe
- Dimensioning retort size to perfectly match your needs and to eliminate utilities overspending
- Providing flexible combined solutions for the most effective, energy wise sterilising cycle of your products
- Guaranteeing excellent temperature distribution

- through its ES2D (Energy Saving Distribution Design) modeling system for customised solutions
- Maximising the usage of internal retort volume through its specially designed trolleys & baskets, resulting also in low floor space usage systems
- Vertical opening access door (available as an option) can further optimise your space requirements

Range of models and applications



Flexibility in food sterilisation

Levati Food Tech offers a wide range of sterilisation retort models that share the same technological platform and are suitable for future upgrading. “Prima” retorts are designed to match the highest food industry standard performances in terms of:

1. Package integrity
2. Homogeneous temperature distribution and reduced cycle time
3. Controlled and gentle transition from sterilisation to cooling to avoid pressure drops and thermal shocks
4. Homogeneous treatment throughout the whole internal treatment environment
5. Respect of the organoleptic properties of your products

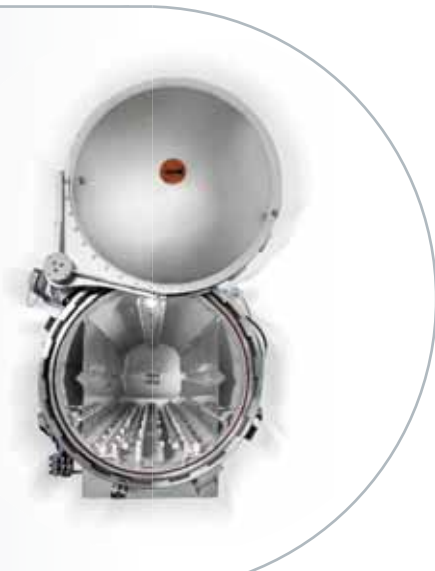
Levati Food Tech retorts are available in different versions depending on the direct sterilising medium:

1. Steam (S)
2. (*) Steam/ Air (fan systems) with THS -Total Homogeneous System - (SA)
3. Rain water (WR)
4. Water immersion (WI)

Levati Food Tech portfolio thus includes the optimal technology for every sterilisation project. Levati Food Tech retorts are built for heavy duty production cycles (24 hour’s production).

	Length max	Width max	Height	Diameter	Kw	Weight Kg
8/8/D S-WR	2,240	1,420	1,800	800	1.5	700
8/8/D WR-SA S-WR-SA	2,320	1,420	1,800	800	3.5	750
8/8/D S-WR-SA ROT	2,400	1,670	1,800	800	4.0	950
8/8/D S-WR CASING	2,530	2,020	2,010	800	1.5	800
8/8/D S-WR-SA CASING	2,530	2,020	2,010	800	3.5	850
8/8/D S-WR-SA ROT CASING	2,530	2,020	2,010	800	4.0	1,000
8/15/D S-WR	2,940	1,420	1,800	800	2.0	900
8/15/D WR-SA S-WR-SA	3,020	1,420	1,800	800	4.0	1,000

(*) THS (Total Homogeneous System). A fan is used during both sterilisation and cooling process to produce a horizontal flow of steam and water micro-drops through the baskets. Temperature variations in different areas during the sterilisation phase are less than 0.5 °C



Static Retorts: the sterilising technology at its essential



Prima static retorts

“Prima” retort in its static application provides a wide range of units for higher productivity, reliability, sanitation, flexibility and safety.

Prima robust structure retort is designed for easy

maintenance and flexible usage.

Prima guarantees perfect sterilisation of in-container food products and is capable to handle cans, glass jars, retortable carton, pouches and plastic containers.



Multi-clamp patented door closure; highest operator safety and reduced wear and tear on main door seal.



External water filter; security against clogging of treatment nozzles. Easy maintenance



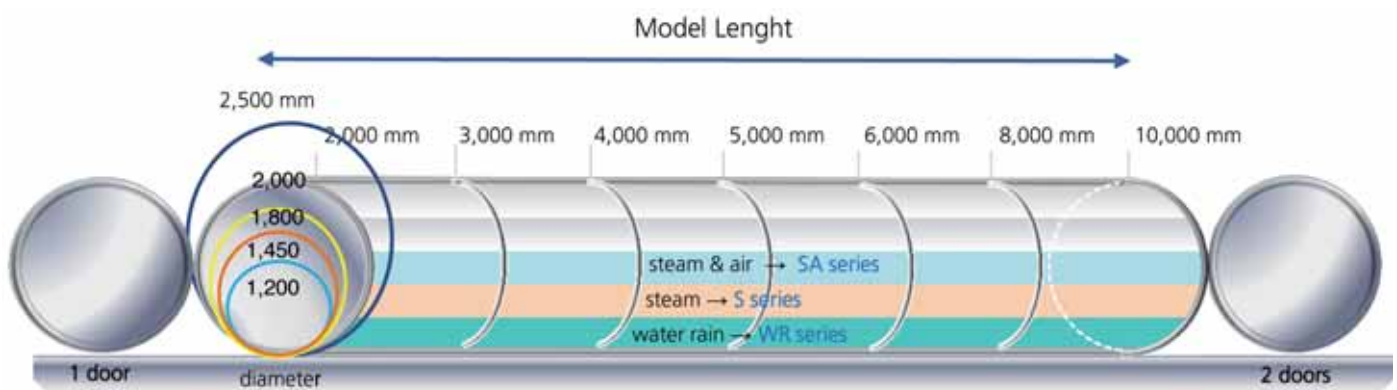
No internal moving parts; highest reliability and maintenance free continuous operations

Levati Food retorts are suitable for fragile and flexible containers such as glass jars and pouches. A soft cooling temperature profile is applied after sterilisation; steam is progressively condensed; pressure is kept constant by adding compressed air.



Range of models and applications

	S (Steam)		WR (Water Rain)		SA (Steam & Air)	
Metal cans up to 150 mm diameter	Optimal	No can oxidation, homogeneous temperature distribution - Max product thermal heat exchange	Good	Reduced can oxidation Higher water consumption Energy saving system No product recontamination	Medium	Can Oxidation Not optimised load. Not suitable for thermal sensitive products
Metal cans over 150 mm diameter	Not suitable	No counter pressure	Optimal	No can and seam deformation No product recontamination The most gentle cycle Energy saving system	Medium	Can Oxidation Not optimised load. Not suitable for thermal sensitive products
Glass containers	Not suitable	No counter pressure	Optimal	No jars opened No product recontamination No thermal shock risks Energy saving system	Medium	Thermal shock risks Not optimised load. Not suitable for thermal sensitive products
Paperboard	Not suitable	No counter pressure	Optimal	Paper's perfect preservation No product recontamination The most gentle cycle Energy saving system	Medium	Not suitable for thermal sensitive products
Flexible pouches	Not suitable	No counter pressure	Good	Need of special oversized trays to improve hot water distribution, non optimised load	Optimal	Max product heat exchange Shortest cycles Economic use of energy
Plastic containers	Not suitable	No counter pressure	Good	Need of special oversized trays to improve hot water distribution, non optimised load	Optimal	Max product heat exchange Shortest cycles Economic use of energy



Rotary Retorts: advanced solutions for your needs



SRC rotary retorts

The new **SRC rotary retort** is a totally new concept in sterilization and pasteurization technology. The patented system represents a step change in retort design that reduces processing time, thereby helping to ensure the quality of the sterilized product and significantly improving productivity when compared with ordinary rotary or static retorts.

The SRC is the only retort to combine both fixed and rotating nozzles to achieve the best possible temperature distribution throughout the retort and significantly

reduce the processing time. The possibility to balance the water flow between the static and rotary nozzles gives an excellent opportunity to optimize sterilization recipes. As the angle of the water jets is constantly changing within the retort with respect to the product, the SRC is able to achieve a much faster and more uniform heat penetration. This reduces the level of cold spots, reduces the processing time and avoids the damaging of product through excessive heat treatment, significantly improving product's overall quality.

Special basket design

Levati Food Tech basket design matches with your product and container needs. A special basket version is available for your stand up pouches. The long-time- experience of Levati Food Tech in the sterilisation process is instrumental in achieving excellent temperature distribution, short process cycle and optimised process efficiency.

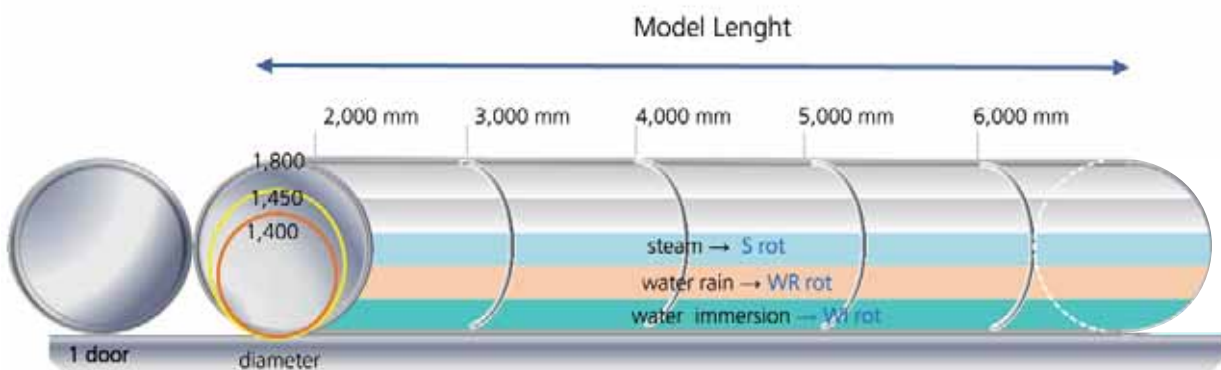




Range of models and applications

Water Immersion Rotary System

	S-ROT (Steam)		WR-ROT (Water Rain)		SA-Rot (Steam & Air)	
Metal cans up to 80 mm diameter	Optimal	No can oxidation Homogeneous temperature distribution Economic use of energy Max product thermal heat exchange	Good	Reduced can oxidation Energy saving system No product recontamination Gentle cycle Best cooling performance	Suitable Alternative	Reduced can oxidation No product recontamination The most gentle cycle Most expensive solution
Metal cans over 80 mm diameter	Not suitable	No counter pressure	Optimal	Reduced can oxidation Energy saving system No product recontamination Gentle cycle Best cooling performance	Suitable Alternative	Reduced can oxidation No product recontamination The most gentle cycle Most expensive solution
Glass containers	Not suitable	No counter pressure	Optimal	Cap and serigraphy preservation with special S-rubber interlayer Best cooling performance Energy saving system	Good	Perfect cap and serigraphy preservation with special S-rubber interlayer (Archimedes' principle) Not suitable for cold filling product Most expensive solution
Flexible pouches	Not suitable	No counter pressure	Optimal	Max. load for every packaging, Energy saving system No product recontamination Gentle packaging handling Best cooling performance	Suitable Alternative	Max. load for every packaging, No product recontamination Gentle packaging handling Most expensive solution
Plastic containers	Not suitable	No counter pressure	Optimal	Max. load for every packaging, Energy saving system No product recontamination Gentle packaging handling Best cooling performance	Suitable Alternative	Max. load for every packaging, No product recontamination Gentle packaging handling Most expensive solution

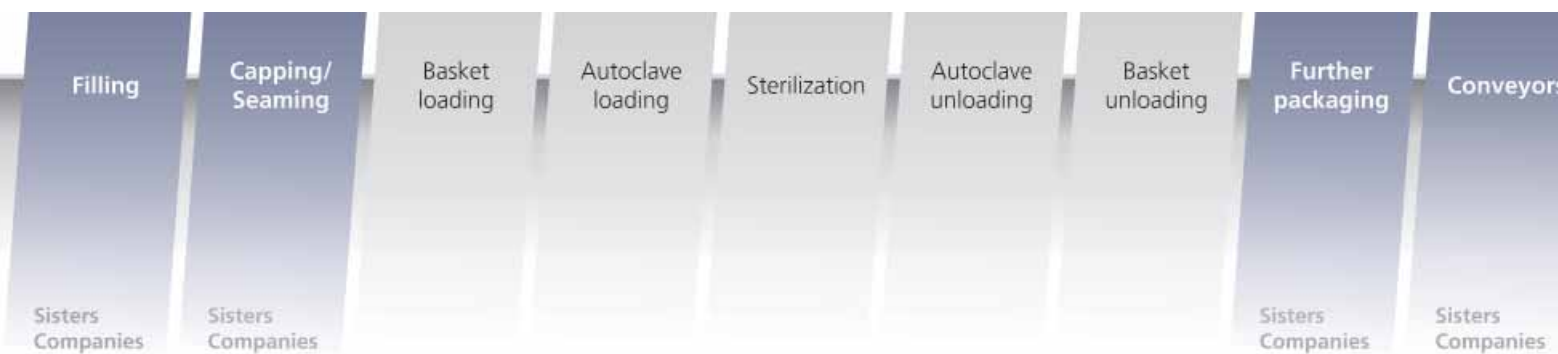


Integrated solutions: Automated Sterilisation Systems and Solutions for the



Levati Food Tech provides solutions for integrated turnkey projects. A solid background in preparation lines, years of experience in designing and manufacturing food machineries allow **Levati Food Tech** to offer its customers **best-in-class complete lines for the food industry**. Project management core competences include project scheduling optimisation, operators training and know-how transfer. Levati's after sales network is at your disposal for technical assistance during the entire lifecycle of your processing line. **Levati Food Tech**

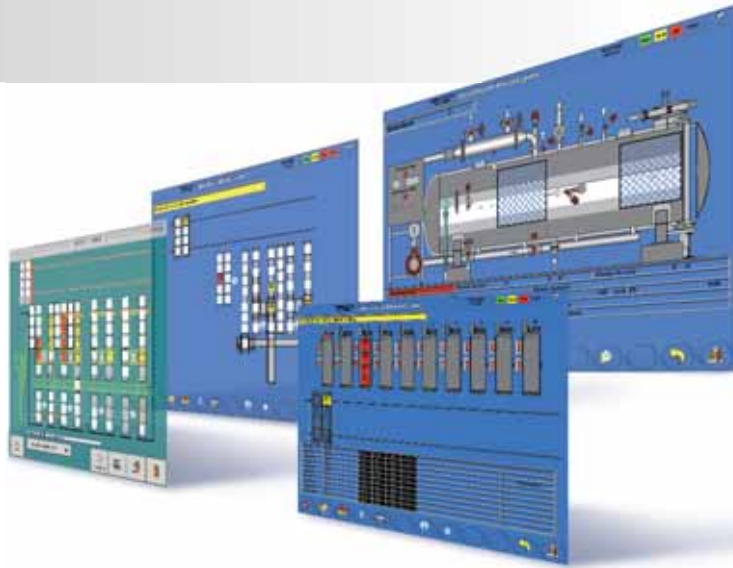
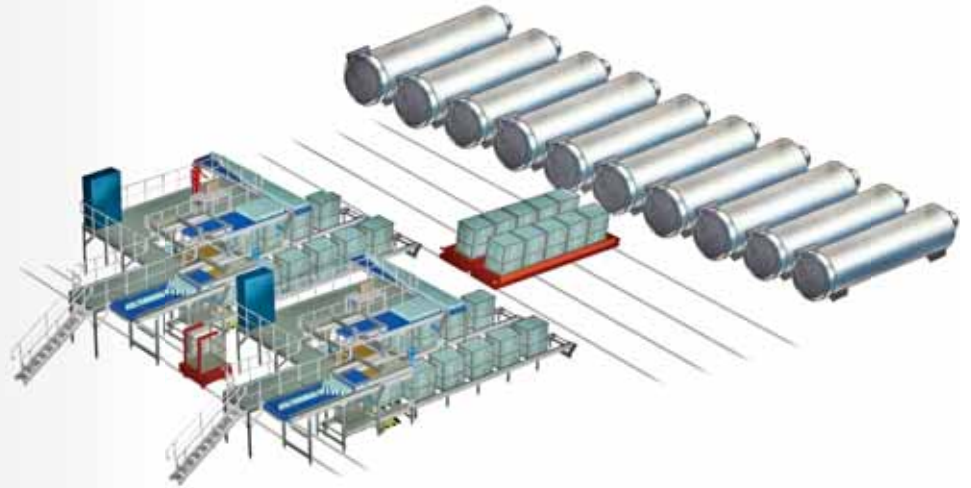
multiple retort sterilization system provides integrated fully automated sterilisation solutions for complete food processing plants. Modular design and construction allow future system upgrades and adaptability to new products and containers. **Levati Food Tech's** integrated solutions are designed to work with multiple products and containers simultaneously to achieve optimised and cost-effective operations. Ring-based or shuttle-based systems can be designed according to specific project requirements and layout constraints.



Food industry

Comby space-saving basket loading/unloading integrated unit

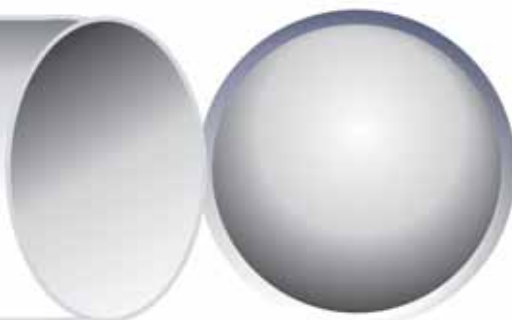
- Single layer pad warehousing
- Dual basket shuttle
- Space saving design for complex system installations
- Minimal moving parts: reduced maintenance cost
- Single operator controls the entire system
- Stainless steel sanitary design



PC-based sterilization system control

- Up to 20 retorts can be managed from a single control panel
- Fully automated control system supervises sterilisation recipe selection by product basket
- QTM Automated Control of pre-set maximum holding time between filling and sterilisation phases: preserves product from loss of organoleptic proprieties and keeps minimal bacteria load before thermal process
- FIFO basket monitoring record for full product traceability
- Diagnostic control of the whole system
- Synoptical panel of the line
- Video Alarm with statistical analysis according to MTBA (Mean time between alarms), average restart time, localisation of alarms
- Remote line control

Installation,
commissioning,
after sales



Safety and sustainability



Sustainability

Levati solutions are optimised to achieve the lowest environmental impact:

- *Treatment water recovery tank* allows re-use of process water on different sterilisation batches
- *Low water level* during sterilisation cycle
- *Tailored solutions* allow optimisation of product sterilisation cycles to minimise consumption of energy and water
- *Indirect heat exchanger design* allows full recovery and re-use of condensated steam water
- *Levati Laboratory* allows sterilisation recipe optimisation to minimise energy consumption
- *Retorts* are equipped with insulation coating to minimise thermal dispersion

Safety: your major concern, our major guarantee

- *The control software* is designed to achieve optimal control of the temperature profile during sterilisation with automatic calculation and thermal ramp adjustment
- *Safety control systems* on internal pressure and water level avoid accidental opening of retort during process cycle
- *CIP / SIP cycle* before start of production guarantees the highest product safety right from the very first sterilisation cycle
- *Redundant feedback systems* are used to certify pressure and temperature during the sterilisation process
- *Non-return valves* are used on all utilities supply pipes: no pressure loss in case of process breaks; sterilisation process can be resumed automatically
- *Indirect heat exchange design* is used to avoid possible contamination to packages from treatment water
- *Control software* logs temperature and pressure data of each sterilisation process. Temperature and pressure log data are protected
- *Control software* records all sensitive data for future full traceability (who, what, when, where)
- *Levati Food Tech retorts* can be designed according to USA Code of Federal Regulations title 21 (Food and Drug), Chapter 1 (food and Drug administration, Department of Health and Human service), Part 113 (Thermally processed low acid foods packaged in hermetically sealed containers)
- *Radiographic inspection* are carried out before delivery to ensure integrity of the pressure vessel
- *Levati Food Tech retorts* comply with the following standards: P.E.D., CE, GHOST, ASME

Advanced software interface: everything under control

Software features

- Process Automation based on a PLC Siemens S7. SCS (*Smart Control System*) software performs *in-line fo calculation (optional)*. In case of sterilizing cycle interruptions due to utilities & energy breakdowns, the software can automatically reset the sterilizing parameters to the system restart to regularly complete the sterilization cycle of the product.
- *Recipe-based process configuration software*: more than 100 recipes can be easily stored and recalled from the control panel.
- *User-friendly operators interface* with graphical diagram. All the western languages, traditional and simplified Chinese, Cyrillic are supported.
- *Synoptic panel visualization* of the machine showing in real time the utilities and the process cycles state.
- *Secured electronic records*, filed on memory cards.
- *Personalised reporting* including traceability & quality control data, sterilisation diagrams.
- *High speed data network* using Ethernet/Profibus standard.
- *Multi-level password protection*.
- *Real-time visualisation* of analog and digital inputs and outputs.
- *Real-time event and alarm log*.
- *User adjustment of sterilising cycle* needs supervisor protection password.



Video-graphic recorder

- The video-graphic recorder allows taking the normal sterilization process (pressure, temperature, time).
- Equipped with a Flash memory to guarantee the data integrity
- The data are stored in block containing a Checksum
- Standard equipment up to 6 recording channels
- In compliance with FDA 21 CR
- IP66 NEMA4x environmental protection



Uniform temperature distribution inside the retort to achieve fast heat penetration and reduced cycle time



Visual analogic instrument for continuously measuring the level of the water inside the retort



New generation of independent wheels to support the rotor: reliability-tested and easy maintenance

At the forefront of sterilization technology for more than 40 years

Levati Food Tech was established in 1966 as a processing line manufacturer for fruit and vegetable transforming industry. The next milestone in the company's history was the development of the static retorts for the sterilization of pre-packaged food. 1974 saw the turning point, the construction of the first rotary retort thanks to cooperation with the most important Italian food producers. Just a few years later in 1983 the company delivered the first completely automatic retort sterilization system.

After being for 5 years part of German GEA Group, in July 2013 Levati becomes wholly Italian owned again as part of Gruppo Prologic, leader in industrial automation.

Levati Food Tech present approach to market aims at continuous innovation as a result of passion in new technologies and ability to listen to Customer needs.

Levati Food Tech srl

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