

THERMADOR SHORTFACTS

TECHNICAL DATA

THERMADOR							
Belt width	mm	2.000	2,500	3,000	3,300	3,750	4,000*
Effective width	mm	1.950	2,450	2,950	3,250	3,700	3,950
Oven width*	mm	3.005	3,555	4,005	4,305	4,755	5,005
Length of baking chamber**	mm	10,500–60,000					
Inlet rack length	mm	1,400					
Discharge rack length	mm	1,650/1,950/2,550					
Oven end	mm	200					
Belt height	mm	760 (plate conveyor 860)					
Height of burner zone / oven zone	mm						
CYCLOTHERM		2,500/1,900					
DUOTHERM		2,750/1,900					
Plate conveyor (stone / steel / grid)		2,600 mm/2,000 mm					
Height of baking chamber	mm	260					
Passage below steam zone	mm	Min. 165–210					
Lengths/version of steam zone							
Head of the oven 6 m		SZ 1,500 mm/6 pipes SZ 900 mm/4 pipes SZ 750 mm / 2 pipes					
Heating medium		Natural gas, liquid gas, fuel oil or electricity					
Baking time control		At a ratio of 1:3 (others on request)					
Drive unit		Frequency-controlled gear motor					
Conveyor load	kg/m ²	30–90 (higher loads on request)					
Belt version		50 (higher loads on request)					
Cyklotherm		Round-wire link belt, stone plate belt					
Duotherm		Wide-meshed flat-wire link belt					
		* Not applicable to stone & grid					
		** The combination of baking chamber width and length depends on the conveyor carrying the goods to be baked					

FAST AMORTISATION OF INVESTMENT COSTS THANKS TO // LOW OPERATIONAL COSTS // PROCESS CONTROL
// RELIABILITY // LASTING VALUE

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THERMADOR
 Efficient, modular and versatile

THERMADOR DETAILS

THE PHILOSOPHY

Achieving premium quality in baking processes in line with the requirements imposed by each product calls for individual temperature, heat transfer and moisture profiles. The WP solution for achieving perfect baking results along with optimised energy use has a name: THERMADOR.

This reliable tunnel oven for continuous production of the entire range of products unites the latest baking technology and high economic efficiency with reliability and durability.

// INDIRECT HEATING

Perfect baking results are achieved thanks to the closed CYCLOTHERM heating gas circulation system. This is an indirect heating process, i.e. the heating gases are separate from the baking chamber and do not come in contact with the baked goods. Heat is transferred to the baked articles by radiation, convection and heat conduction. For this purpose, each control zone can be separately adjusted for top and bottom heat.

// HYGIENE

The oven systems comply with hygiene requirements as specified in DIN EN 1672-2 standards: extra large, removable, subdivided cleaning and inspection doors as well as a self-cleaning feature on the wire-mesh belt. No combustion gases are produced in the baking chamber.

// AFTER SALES

Ease of maintenance: Premium quality, durable design and minimal maintenance requirements ensure high availability. Remote maintenance is possible.

// INDIVIDUAL OVEN CONFIGURATIONS

The control zone design enables the oven to be adapted to individual product requirements, achieving an optimal baking curve for the product. The THERMADOR oven system provides extremely fine grading options so that temperature and moisture act on the baked goods at the right time during the baking process and to the extent needed.



// PRODUCT VARIETY

Pan bread // tin bread // toast // bread rolls // soft rolls // ciabatta bread // cake // white bread // baguettes // bagels // croissants // wheat and rye bread // flat bread // wholegrain bread // parbaked products

// SPECTRA INFRARED TECHNOLOGY

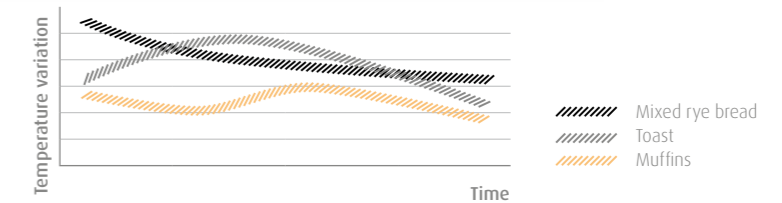
This technology moves thermal radiation into the infrared range. Consequently, the baked goods reach the required core temperature faster, which reduces baking time and saves energy. However, any undesired browning of the surfaces is avoided, the product retains a higher degree of moisture while offering improved volume and enhanced taste properties, as well as staying fresh for longer. All oven types can be equipped with this technology

// MODULAR DESIGN

The unique modular design of the THERMADOR oven system enables individual oven configurations as well as total flexibility to combine cyclotherm, Duootherm, infrared and Quattro zones as required:

- // closely stepped modular system between 10.5 and 60 metres for product-related zone division
- // can be flexibly combined and is universal

Example of baking curves



THERMADOR VARIANTS

THERMADOR CONVEYOR SYSTEMS

VARIANTS



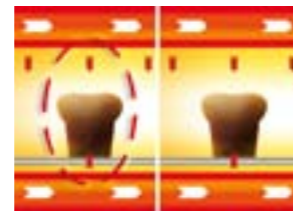
// 01 THERMADOR CYCLO

Classic universal oven with closed CYCLOTHERM heating gas circulation system. Heat transfer to the bakery products is ensured indirectly by radiation. Optimal moisture is always achieved in the baking chamber by targeted humidity control processes, avoiding any uncontrolled moisture extraction. The top and bottom heat in each control zone can be regulated separately. Steady baking atmosphere.



// 02 THERMADOR DUO

With DUOTHERM in all oven zones - including the burner zone - the heat transfer is quick and intensive. Recirculation in the baking chamber is vertical, in addition to this the intensity is adjustable. High efficiency of heat transfer, i.e. short baking times. Can also be used as a pure radiation oven. Crust characteristics can be precisely monitored. No uncontrolled moisture extraction.



// 03 THERMADOR VARIO

Combination of oven sections with radiation only (CYCLOTHERM) as well as one or more oven sections with recirculation unit for the baking chamber (DUOTHERM). Large product variety, improved browning of the products due to less intensive thermal radiation at the beginning and more intensive thermal radiation at the end of the baking process.



// 04 THERMADOR QUATTRO

Intensified heat transfer as a result of doubling the circulation volume. Further reductions of baking times and additional energy savings are thus possible. Suitable for specific pan-baked products. Frequency-controlled fans are available as a further option.

MODULARITY - OVERVIEW OF ZONES

Radiation Burner Radiation Radiation



CYCLO // Wheat and rye bread, bread rolls, baguettes, rye bread, white bread, cup cakes, muffins, pound cake, puff pastry, Danish pastry dough, ciabatta, soft rolls



VARIO // Wheat and rye bread, bread rolls, baguettes, white bread, rye bread, Danish pastries with filling (low water content), sandwich bread



DUO // Toast



QUATTRO // Sandwich bread, crustless, open top



CYCLO Spectra // Wheat and rye bread, bread rolls, baguettes, white bread, ciabatta bread (all products also available as semi-baked articles)



VARIO Spectra // Wheat and rye bread, bread rolls, baguettes, white bread, Danish pastry with filling with water content, semi-baked products



DUO Spectra // Open top, white bread on baking sheets Examples of the modular configuration of the production lines.

*flexible burner zone

CONVEYOR SYSTEMS



// THERMADOR with wire-mesh belt

Various models



// THERMADOR Stone with stone-plate belt

Industrial premium-quality produced by gentle baking processes. High heating capacity as well as uniform heat distribution by means of direct heat transfer from the stone plate to the product. Complies with high hygienic standards. For products on which good, crunchy crusts are desired.



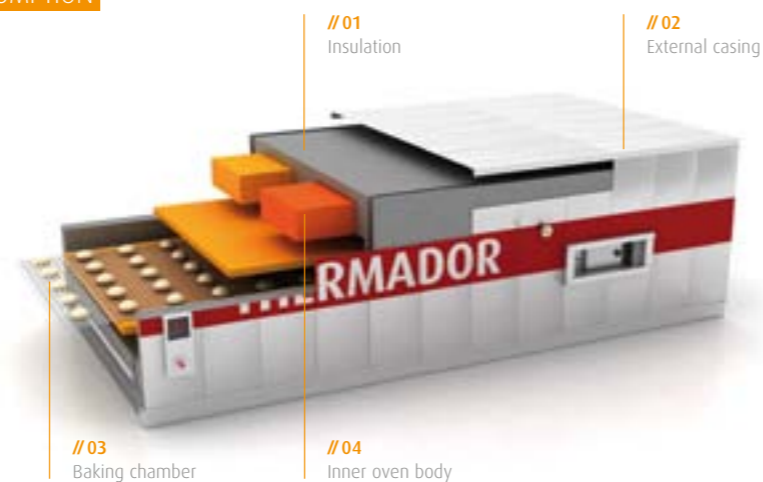
// THERMADOR Grid

Improved hygiene. Belt abrasion is avoided by installing a chain-guided frame carrier, consequently ensuring improved hygienic conditions. This system is particularly suitable for products baked on sheets and higher charging per m².

THERMADOR ENERGEE

THERMADOR TECHNOLOGIE

**HIGH ENERGY UTILISATION // ENERGY CONSUMPTION
REDUCED BY UP TO 35%**

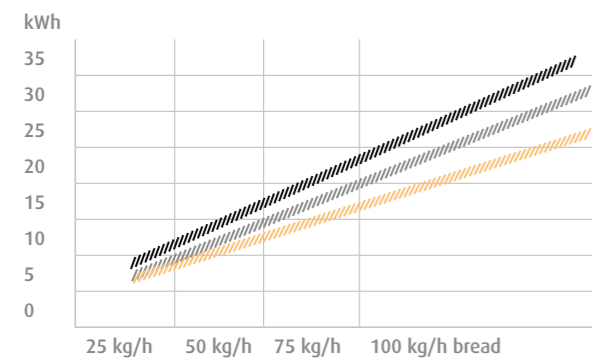


ENERGY OPTIMISATION

Since energy costs nowadays present a continuously increasing proportion of the overall manufacturing costs for bakery products, Werner & Pfleiderer have developed appropriate concepts that reduce energy consumption thus saving energy costs, while at the same time manufacturing reproducible premium quality products:

- Process control and monitoring
- No surface losses thanks to optimum module design and highly efficient heat insulation
- Use of energy-efficient materials
- DUO fans with increased performance
 - Quattro System
- Controlled amount of steam supply tailored to individual needs
- Low exhaust gas temperatures
- Reduced baking times.

ENERGY CONSUMPTION IN COMPARISON



Adapted heating system, quick heat transfer, efficient steam supply and moisture regulation as well as short baking times ensure the manufacturing of premium quality products with optimised energy input.

- ▨ Directly heated ovens
- ▨ Ovens supplied by competitors
- ▨ WP THERMADOR

OVEN AUTOMATION

Rising labour costs and competitive constraints call for automated solutions. For this reason, THERMADOR is equipped with either semi-automatic or fully automatic control systems. In this, Werner & Pfleiderer rely on

state-of-the-art digital control technology. User-friendly touch-screens that can be easily understood together with logic avoid operating errors



PROCESS OPTIMISATION

Semi- or fully-automatically controlled

- Baking time
- Heating gas temperature / zone temperatures (separate for top and bottom heat)
- Amount of vapour and moisture
- Temperatures of the radiation wall
- Automatic conversion to new process data with change of product type
- Gap detection and automatic corrective adjustments of zones for top and bottom heat
- Speed and direction of rotation of DUO fans.
- The automatic activation of the DUO fans prevents the oven from overheating in case of suboptimal charging states. Heating gas and steam dampers are electrically driven and integrated in the control system.

RELIABLE

- Zero error technology: The system is self-regulating
- 99 different recipes can be stored
- Display of all operating data and of temperature profile along all oven zones
- Reproducibility and product traceability
- Display of all events and alarms
- Comprehensive user service level for operational start-up included in the user level,
- Service & maintenance possible without needing an additional programming device
- Remote diagnostics via Internet & telephone