THERMANSYS®

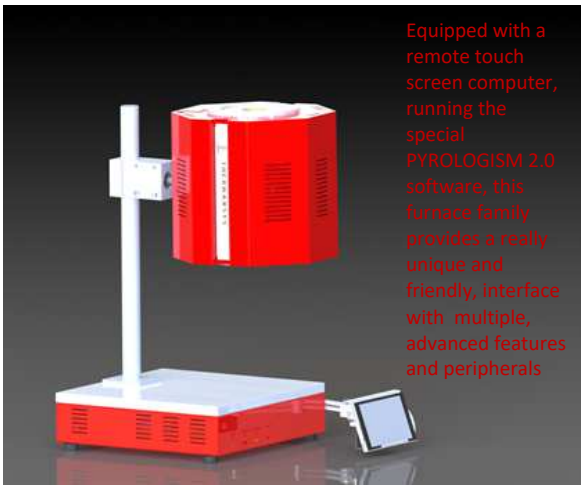
REACTOR TYPE FURNACES
Max. Temperature 1200 ˚C – Vertical & Horizontal mounting Orientation
Closed Tunnel or Hinged models

Model family: **RCT-BW1-1200**

Description.

RCT-BW1-1200 furnace family was designed to provide a flexible and functional laboratory solution. This model family is suitable for harsh and demanding thermal processes environment up to **1200 ˚C.** The furnace can operate in a vertical, horizontal or any intermediate angle position with no restriction.

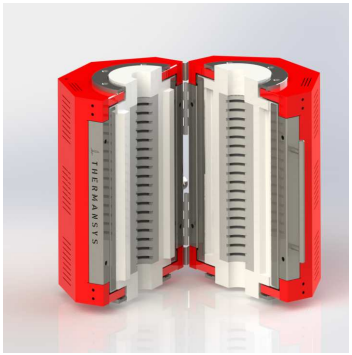
The hot zone is constructed from high resistance, low porosity ceramic materials. The low density fibrous back insulation allows for rapid heat up and cool down rates while, in conjunction with the double wall design, minimizing energy consumption. The semi-exposed dense structure of metallic resistance (FeCrAl) yielding in extremely uniform thermal distribution profiles. Combined with suitable high heat resistant tube this furnace model is an excellent choice for a number of demanding processes, like combustion-incineration, metal melting under inert or hydrogen atmosphere, fluidized or fixed bed reactions, catalyst testing etc.



All RCT-BW1-1200 are supplied with a stand anchored to the controller box providing a turn key bench top instrument ready for use.

A special ball type mechanism allows unlimited angles of mounting orientation.

Hinged Models Available providing convenience to the heated tube installation and setting up access



The furnace main body can be released from the main controller, with or without the mounting mechanism, and placed at the best position serving the process.

Key features.

- Control strategy by Thermansys PCC (Power Consistent Control) insures compliance with EMC standards.
- Modern double wall construction keeps external surfaces temperature low, emphasizing in operator safety.
- Ergonomic design with no protruding edges, bolts or other features combines stainless steel parts with painted finish parts for an improved esthetic result.
- Conduits connecting the furnace body with the controller ending in detachable connectors allowing easy movement
- Accurate and uniform temperature profiles.
- KANTHAL® FeCrAl resistors.
- Touch screen computer running the user friendly, PYROLOGISM 2.0 software.
- 3 channel thermocouple inputs software configurable (B, E, J, K, N, R, S, T type).
- Power and true RMS Current measuring circuits.
- Heater failure, open control thermocouple detection alarms and interlocks.
- Stand alone over-temperature limiter (Watchdog) with
- manual reset in accordance with EN 60519-2 to protect the heater and load. Alarm event output (dry contact 3A/250V AC/DC).

Contact details:
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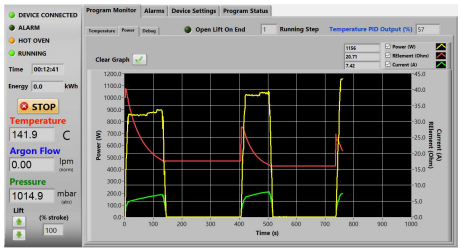
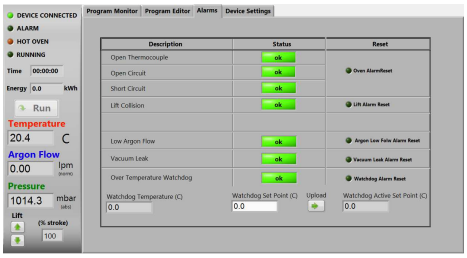
PYROLOGISM control and monitoring software.

Having in mind user's convenience and daily work facilitation, THERMANSYS ® designed and developed a special windows architecture software providing a friendly human machine interface solution with advanced features:



- Set point programming with ramp and constant temperature programming steps
- Storage and reload of unlimited number of distinct programs.
- Graphical inspection of programming.
- User Thermocouple configuration page
- Run on timer function

- Real time chart illustrating control temperature, running set point and user process temperatures with dynamic zoom.
- Real time actual Power (W) and totalized Energy (kWh) chart.
- Saves all data on local memory and on external USB memory stick.
- Virtual keyboard.
- Events and alerts messaging.



- Tools for PID tuning.
- Watchdog over temperature limiter monitor/configuration page.
- Heater failure, control circuit failure, open thermocouple detection and messaging, alarms and interlocks
- Versions running at Microsoft® Windows or Linux operation systems are available for remote control by a PC through USB port.

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Accessories Available.

Model shown RCT-BW1_D5.2L23-1200 with optional mounting stand and electronically actuated Lifter.

Mounting Stands.

Assembled and constructed using BOSCH-REXROTH® structural profile systems these stands provide the ideal solution for vertical furnace stand alone positioning plus reactor and instrumentation mounting. Using the commercially available accessories, tubing and cable routing is easy and professionally accomplished.

Stand equipped with electronically actuated Lifter allows furnace body up/down linear motion.

Motion is manually actuated through side keyboard and through PYROLOGISM software.

Automated motion programming is possible through PYROLOGISM

Work-tubes.

- Dense ceramic Alumina work-tubes for the highest temperature applications.
- Quartz work-tubes for maximum chemical inertia and for aggressive environments to work under vacuum or low pressure conditions up to 1100 ˚C continuously.
- KANTHAL® APM™/APMT metallic (FeCrAl based) work-tubes to serve under vacuum or pressure up to 1250 ˚C.

End Gas Sealing Flanges and Manifolds.

THERMANSYS® is providing work-tube End Gas Sealing Flanges for vacuum or pressure conditions.

These flanges are provided with Main Port either with hydraulic thread port or with Clamp Flange (CF) port for gases inlet/outlet-connection to the tubing network. Cooling fluid recirculation compartment is standard and is removable. Up to four peripheral threads are available serving as ports for instrumentation mounting (e.g thermocouples, pressure sensors).

Versions with Clamp Flange (CF) port design provide quick-open loading port and optionally a quartz sight window.

THERMANSYS® End Gas Sealing Flanges are supplied for work tubes diameters from 1´´ το 3´´. Their design allows use with tubes having diameter tolerance ±10%.

Standard versions material of construction is Stainless Steel ASME 304. Optionally for corrosive applications Stainless Steel ASME 316 is available and Aluminum for a light weight solution (recommended for thin wall Quartz tube reactors).

Please contact our sales team for detailed information and ordering on our Tube Furnace Accessories optional equipment.

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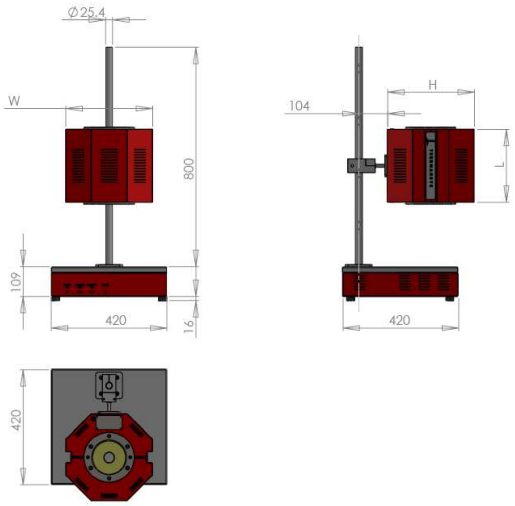
Technical Drawings.



Drawing 1. RCT-BW1-1200 Furnace Body

Specifications and Ordering Information.

- Maximum continuous temperature 1200 ˚C.
- Operating Power: 208 /240VAC – 50/60Hz.
- S type embedded thermocouples for main and watchdog controller.
- Temperature control accuracy ±1 ˚C.
- Semi-Exposed resistors type.
- Thermocouple inputs: 3 chan. - B, E, J, K, N, R, S, T type -software configurable 24 bit A/D conversion, 0-45°C cold junction compensated. Typical accuracy ±0.2% f.s @ 25 , resolution 0.1 °C.

CE Certified. Compliant with **Low Voltage Directive 2006/95/EC** (harmonized referenced standard EN 61010-1: 2001 and EN 61010-2-010:2003) and **EMC Directive 2004/108/EC** (harmonized referenced standard EN 61326-1:2006).
*Produced in **GREECE** following **ISO 9001:2008 quality management system** and **ISO 14001:2004 environmental management system.***

TABLE 1. RCT-BW1-1200 Models

Model Part Number RCT-BW1-T…(tunnel) RCT-BW1-O…(hinged)	Max. Cont. Temp. ˚C x Heat up time* min	Furnace I.D. mm x Heated length mm x Total length mm	Uniform Temp. length mm ± 10 ˚C approx. **	Furnace external dim. WxHxL mm	Nominal Max. Power (W)
_D2.6/L12-1200	1200 x 60	26x120x200	40	300x300x200	700
_D2.6/L18-1200	1200 x 60	26x180x280	80	300x300x260	800
_D2.6/L23-1200	1200 x 60	26x230x330	130	300x300x340	1000
_D3.8/L18-1200	1200 x 60	38x180x280	80	316x316x260	1000
_D3.8/L23-1200	1200 x 60	38x230x330	130	316x316x340	1200
_D5.2/L18-1200	1200 x 60	52x180x280	80	330x330x260	1200
_D5.2/L23-1200	1200 x 60	52x230x330	130	330x330x340	1600
_D6.4/L18-1200	1200 x 60	64x180x280	80	340x340x260	1400
_D6.4/L23-1200	1200 x 60	64x230x330	130	340x340x340	1800
_D7.8/L23-1200	1200 x 60	78x230x330	130	355x355x340	2000

* *Furnace working with no load and both ends closed*
** *Simulated indicative data. Valid for dense alumina process reactor fit to furnace diameter and with both ends plugged. Actual performance may vary depending on orientation, load mass and placement, reactor size and process gas flow existence.*

Ordering example:
- RCT-BW1-T_D5.2/L23-1200: This Part Number includes one RCT-BW10-1200 family furnace having 52mm internal diameter, 230mm heated zone and is not hinged. The respective hinged model is RCT-BW1-O_D5.2/L23-1200.
- To order only the furnace add at the end of the part number the suffix **"Single"**, e.g. RCT-BW1-T- D5.2/L23-1200_**Single**.

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