THERMANSYS®

Only Quality!

Introducing Our Furnaces

Having as central strategy to provide a fresh market alternative that is one step ahead the commercial state of the art, Thermansys® designs, develops and manufactures electrical furnaces with unique features and specifications.

External design combines stainless steel parts with corrosion resistant RAL painted finish parts for an excellent esthetic result. A professional tool can still be beautiful.

Ergonomy - Quality - Safety - Energy Saving

- Having in mind user convenience and daily work facilitation, Thermansys® is moving ahead of the conventional temperature controller restricted capability operator interface environment. We equip all our furnaces with a touch screen computer running our special windows architecture RYROLOGISM software.
- We use only the best available heaters and heat insulators around the world.
- Starting and ending our design aspects with the highest safety standards.
- Watchdog over-temperature controller is standard included in all models.
- As energy becomes more valuable and its consumption reduction means a lot for our environment the cost of furnacing is becoming globally more and more a major argument. Thermansys® combining the remarkable properties of advanced lightweight insulation material with the in-house developed Power Consistent Control (PCC) close loop management platform and consistently focusing in heat recovery techniques is providing furnaces that will give a fast payback of your investment in terms of energy savings.
- **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.**

Pyrologism Software

A friendly human machine interface with unlimited control, monitoring and data acquisition features.

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Hellenic product

CHAMBER FURNACES

Chamber/Box Furnaces covering a broad range of maximum **continuous** temperature (1100 -1800C) are useful for many users including manufacturers of metal parts, glass, ceramics and cement, jeweler and pottery manufacturers and technicians as also research and analytical laboratories, schools and universities. According application, Thermansys uses resistors from FeCrAl, SiC or $MoSi_2$.

- All Chamber/Box models are equipped with Touch Screen Computer running **Pyrologism** software as human machine interface**.** Flow control possibility (Nitrogen or/and Air optional flow controller addition).
- **All models are designed with** double wall ceramic insulation and providing pre-heating of the incoming air through adjustable opening providing energy savings and uniform thermal distribution

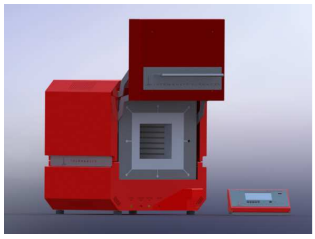
Model Families BOX-AM10 and BOX-AM20

- Maximum Continuous Temperature 1600, 1700 or 1800 ˚C.
- $MoSi_2$, exposed type resistors.
- Available models heated volume from 2 to 38 litters.
- Highly resistant in thermal shock at high temperatures can provide high temperature raise rate.
- Special models family RF available for translucent dental Zirconia sintering.
- A powerful and durable furnace can cover almost every need for the demanding laboratory.

Model Families BOX-AS10 and BOX-AS20

- Maximum Continuous Temperature 1400 or 1550 ˚C.
- SiC, exposed type resistors.
- Available models heated volume from 2 to 38 litters.
- Highly resistant in thermal shock.
- Perfect choice for Zirconia heat treatment.
- Excellent price per performance ratio. – Low cost.

Model Families BOX-BW10 and BOX-BW20



- Maximum Continuous Temperature 1100 or 1200 ˚C.
- FeCrAl exposed type resistors.
- Available models heated volume from 2.6 to 1000 litters.
- Remote control unit.
- Highly resistant in thermal shock.
- Perfect choice for ceramics, jeweler and dental restoration manufacturers and technicians.

Model Families BOX-AW10 and BOX-AW20

- Maximum Continuous Temperature 1150 ˚C.
- FeCrAl exposed type resistors.
- Available models heated volume from 8 to 16 litters (higher volumes on request).
- General Purpose.
- Highly resistant in thermal shock.
- Extremely low density thermal insulation – remarkably high heat up energy savings.
- Perfect choice for fast thermal cycling applications (reduced heating – cooling time)

BOX-CW10-1100

- Maximum Continuous Temperature 1100 ˚C.
- FeCrAl embedded resistors.
- Available models heated volume 8 and 10 litters.
- Heavy duty model. Constructed with seamless, hard, glass-like refractory with embedded resistors provides the highest degree of protection against harsh gaseous environments, molted metals splashes and carbon or other deposits.
- Heated from four sides of the chamber performs excellently in terms of temperature uniformity.

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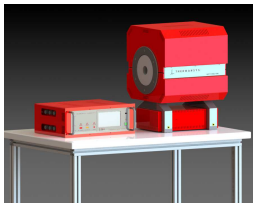
TUBE/REACTOR FURNACES

Tube/Reactor Furnaces are suitable for controlled atmosphere, continuous duty processes and applications. Thermansys Tube/Reactor models and accessories cover a wide temperature range from 1150 to 1800 ˚C and are equipped with the remote and expandable, special **PYROMODULAR** Power Supply, Control and Data Acquisition system.

RCT-AM2-T-1700/1800

- Closed tube construction.
- Maximum Temperature: 1700 or 1800.
- Hanging from the top $MoSi_2$ resistors.
- High temperature rate, highly resistant in thermal shock.
- Low density thermal insulation.
- Optionally three zone construction upon request.
- Preselected vertical or horizontal operation.

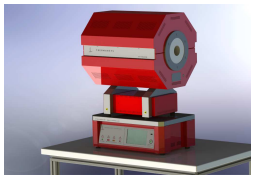


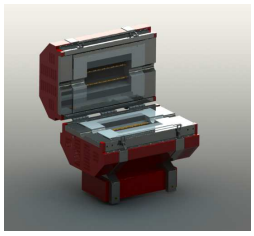
RCT-AM1-T-1500 and RCT-AM1-O-1650

- Hinged split tube or closed tube construction.
- Maximum Continuous Temperature: 1500 ˚C for closed tube, 1550 ˚C for horizontal split tube and 1650˚C for vertical split tube.
- Helical or corrugated type $MoSi_2$ resistors. Excellent radial temperature distribution.
- Extremely high temperature rate. Highly resistant in thermal shock.
- Extremely low density thermal insulation – remarkably high heat up energy savings.
- Three zone models available for extended length uniform axial thermal distribution.
- Closed tube models: Universal vertical and horizontal operation.
- Split tube models: Preselected vertical or horizontal operation.

RCT-AS1-O-1500 and RCT-AS1-T-1500

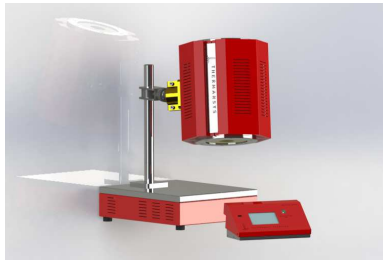
- Maximum Continuous Temperature 1500 ˚C.
- Hinged split tube or closed tunnel construction.
- SiC, exposed type resistors.
- Highly resistant in thermal shock.
- Universal, vertical and horizontal operation.
- Excellent price per performance ratio. – Low cost.





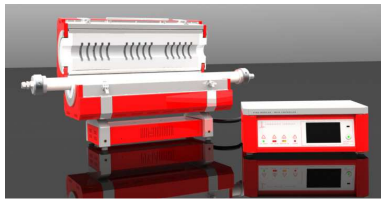
RCT-BW1-1200

- Hinged split tube or closed tube construction.
- Maximum Continuous Temperature 1200 ˚C.
- FeCrAl resistors. Uniform radial thermal distribution.
- Excellent price per performance ratio. Best seller model for the R&D laboratory.
- Bench top model with stand allowing unlimited positioning flexibility. Available with an automated lifting mechanism.
- Universal, vertical and horizontal operation.
- Optionally three zone construction upon request.
- Comes with integrated controller and remote interface unit.



RCT-AW1-O-1150 and RCT-AW1-T-1300

- Hinged split tube or closed tube construction.
- Maximun Continuous Temperature 1150 ˚C for hinged and 1300 ˚C for closed tube models.
- Universal, vertical and horizontal operation.
- Extremely low density thermal insulation – remarkably high heat up energy savings.
- Three zone models available for extended length uniform axial thermal distribution.



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Pyromodular – The Tube Furnaces Control and Acquisition Expandable System

Operated through the specially developed **PYROLOGISM** software and equiped with a touch screen computer **RYROMODULAR** is a state of the art control, monitoring and data acquisition **system.**
Thermansys develops this remote and expandable power supply and control system to equip all its tube reactor type furnaces. Understanding that in most circumstances a tube furnace is used for a process reactor heat up we wanted to provide a solution that can cover many aspects of your application.

- Touch Screen 7΄΄ Computer embedded running user friendly operator **Pyrologism** sotware human-machine interface.
- 3 user process thermocouple inputs available (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
- Power and true RMS Current measuring circuits
- Stand-alone over-temperature limiter (Watchdog) with manual reset in accordance with EN 60519-2 to protect the oven and load for each heat zone(s). Overrides main controller and cut off heater power if user adjustable high limit is reached.
- Alarm event output (dry contact 3A/250V AC/DC).
- RJ45 and USB port for connection to PC

Pyromodular Main Controller optional add on Modules:

PM-GFP module - Gas flow and Pressure control and monitoring module. Up to 4 precise thermal Mass Flow Controllers manifold for analytical grade fluid handling.
PM-GA module - Gas analyzer module. Up to 3 gases measurement and monitoring (CO, CO2, HC or O2 / NOx).
PM-V module - Vacuum module. Rough (up to 10^{-3} torr) and High (up to 10^{-7} torr) complete automatic vacuum systems.

All optional modules features are fully integrated with the software

Tube Furnaces Accessories.

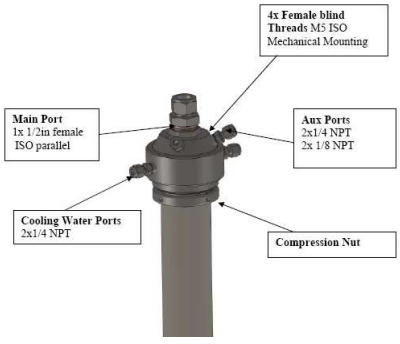
Work-tubes.

Several work tube materials to choose from:

- 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® APMTM/APMT metallic (FeCrAl based) work-tubes to serve under vacuum or pressure up to 1250˚C.

End Gas Sealing Flanges and Manifolds.

Suitable for vacuum or pressure conditions. Supplied with hydraulic thread Main Port or with Clamp Flange (CF) main port.



- 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΄΄.
- 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).

Mounting Stands.

Assembled and constructed using BOSCH-REXROTH® structural profile systems these stands provide the ideal solution for vertical furnace positioning plus reactor and instrumentation mounting.
Using the commercially available accessories, tubing and cable routing is easy and professionally accomplished.
Stands with electronically actuated furnace move-up and down provide a solution for heating zone moving along the reactor length.

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