



## BOX TYPE FURNACES

### 1550 °C Max. Temperature –Large Volume- SiC resistors – Zirconia Sintering

Model family: **BOX-AS20-1600**

### Description.

**BOX-AS20-1600** model family designed to give repeatable and reliable results in the most aggressive high temperature processes up to **1550 °C continuously**. Utilizing the unique high density Kanthal SiC resistors this furnace has superior performance in terms of resistance to oxidation and chemical attack, highly extending the workable life of your investment.

Equipped with a **touch screen computer, running the specially developed PYROLOGISM 2.0** software, these furnaces present a truly unique and friendly, windows architecture, operation environment.

Optional addition up to two **embedded flow controllers** the user can prepare flow mixtures with preset concentrations of Oxygen in Nitrogen or work under fully inert (Nitrogen) atmosphere



Model shown is **BOX-AS20-18-1600**.



The well recognized absence of chemical interaction between SiC and Zirconia makes this model an ideal choice for Zirconia sintering. Zirconia samples unafraid treated inside the chamber without the need for covering or providing other protection means.

All SiC heating resistors will increase in resistance over time at elevated temperatures. Due to the unique nature of the high density Kanthal SiC resistors this effect is severally suppressed. Moreover, **Thermansys PPC** (Power Consistent Control) platform automatically compensate this effect enabling direct power control, instead of conventional control strategies, assuring that the furnace performance will remain unchanged without the need of any operator action or periodical check through the entire life of the equipment.

Having as major priority the economical operation this furnace was designed with double wall ceramic insulation serving from one hand as a heat exchanger preheating the incoming air and from the other as a heat barrier improving the overall thermal insulation. Constructed using the highest quality fibrous low mass density thermal insulation leads to important energy savings. With adjustable air opening in the back side and an exhaust chimney at the top, creating a strong natural convection, the entire volume of the chamber can be refreshed several times per minute. The preheated incoming air is entering and exiting the chamber through multiple holes creating a smooth and temperature uniform laminar air stream through the sample

### Key features.

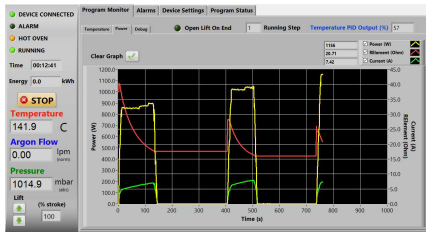
- Control strategy based on Thermansys® PCC (Power Consistent Control) platform insures silent operation and compliance with EMC standards.
- PID control. Accurate temperature profiles.
- Modern double wall construction keeps external surfaces temperature low emphasizing in operator safety.
- Lift up door keep hot surfaces away from operator. Door open interlock
- Touch Screen Computer running PYROLOGISM 2.0 software human-machine interface.
- 3 user process thermocouple inputs available (B, E, J, K, N, R, S, T type- software configurable).
- Stand-alone over-temperature limiter (Watchdog) with manual reset in accordance with EN 60519-2 to protect the oven and load. Overrides main controller and cut off heater power if user adjustable high limit is reached. Alarm event output (dry contact 3A/250V AC/DC).

#### Contact details

Ath. Stagiriti 7- Pilea, Thessaloniki Greece, 55534  
tel. 0030 2310 942346, fax. 0030 2310 942336  
e-mai: [info@thermansys.com](mailto:info@thermansys.com)  
[www.Thermansys.com](http://www.Thermansys.com)

Information and data contained in this document was considered correct at the time of publication. Thermansys® is reserving the right to make modifications as a result of design improvements.

# PYROLOGISM control and monitoring software.



Description	Status	Reset
Open Thermocouple	OK	Over Alarm Reset
Open Circuit	OK	Over Alarm Reset
Short Circuit	OK	Over Alarm Reset
LIR Calibration	OK	LIR Alarm Reset
Low Argon Flow	OK	Argon Low Flow Alarm Reset
Vacuum Leak	OK	Vacuum Leak Alarm Reset
Over Temperature Watchdog	OK	Watchdog Alarm Reset
Watchdog Temperature (C)	0.0	Watchdog Active Set Point (C)

- Quick setting of a single ramp rate to a set point -run on timer function.
- Set-point programming with up to 15 ramp and constant temperature programming steps – graphical inspection of programming.
- Storage and reload of unlimited number of distinct programs.
- Real time chart illustrating control temperature, running set point and user process temperatures with dynamic zoom.
- Real time true-RMS Current (A), Voltage (V) and Power (W) measurements.
- Real time actual Power (W) and totalized Energy (kWh) chart.
- Saves all data on local memory.
- Tools for manual PID tuning and auto-tuning.
- Virtual keyboard, alarm and event message tab.
- Watchdog over temperature limiter monitor/configuration.
- Heater failure, open control thermocouple detection, door open alarms and interlocks. Alarms and events front panel led array.
- Gas flow, monitoring and control interface pages activated if corresponding optional modules are enabled.
- Versions running at Microsoft® Windows are available for control by a PC through USB port.
- Remotely monitoring and control through network connection.

## Specifications and Ordering Information.

### Standard features:

- Maximum continuous temperature 1550 °C.
- Operating Power: 208 /240VAC – 50/60HZ.
- Two in depended B type embedded thermocouples for controller and over-temperature limiter feedback.
- Temperature control accuracy ±1 °C.
- 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

### Optional features:

- Flow controllers:  
Number of lines: 1 or 2  
Line 1 gas type calibration: Air  
Line 2 gas type calibration: Nitrogen (N<sub>2</sub>)  
Flow range: 0.01-20 std L/min  
Accuracy: ±2% of reading for Air  
±3% of reading for N<sub>2</sub>  
Typical Control stability: ± 0.1 std L/min.  
Temperature (0-50°C), Pressure (0-15 psig) comp.  
Filtration: Not provided, user supplied HEPA grade

**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.**

**TABLE1. BOX-AS20-1600 Family Models**

Model Part Number	Max. Cont. Temp. °C x Heat up time* min	Furnace internal dim. WxHxD mm	Heated Volume liters	Furnace external dim. WxH**xD mm	Nominal Max. Power (W)
BOX-AS20... _V18-1600	1550 x 60	200x260x340	17.7	640x940x700	8000
_V28-1600	1550 x 60	260x260x420	28.4	700x940x780	10000
_V38-1600	1550 x 60	300x300x420	37.8	740x980x780	12000

\* Furnace working with no load.

\*\* Plus 100 mm for chimney

### IMPORTANT ORDERING NOTES:

- Models Part Number listed in Table 1 concern complete turn key systems without flow controllers included.

#### Ordering Examples:

- BOX-AS20\_V18-1600: This Part Number includes one BOX-AS20-1600 family furnace having 200x260x340 mm internal chamber dimensions including all standard features.
- To order the furnace with one flow controller add at the end of the part number the suffix “LINE X”,  
e.g: BOX-AS20\_V18-1600-LINE1 for air calibration or BOX-AS20\_V18-1600-LINE2 for Nitrogen calibration
- To order the furnace with two flow controllers add at the end of the part number the suffix “LINE 1/2”,  
e.g: BOX-AS20\_V18-1600-LINE1/2.

### Contact details

Ath. Stagiriti 7- Pilea, Thessaloniki Greece, 55534  
tel. 0030 2310 942346, fax. 0030 2310 942336  
e-mai: info@thermansys.com  
[www.Thermansys.com](http://www.Thermansys.com)

Information and data contained in this document was considered correct at the time of publication. Thermansys® is reserving the right to make modifications as a result of design improvements.