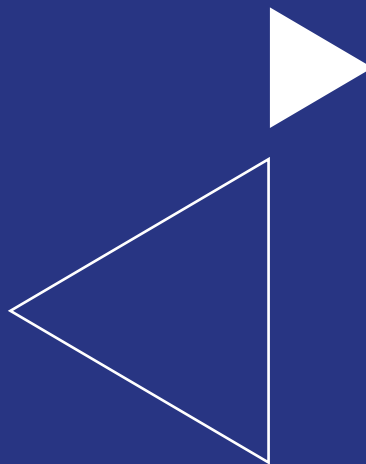
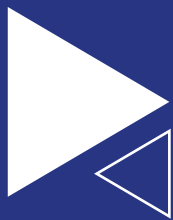
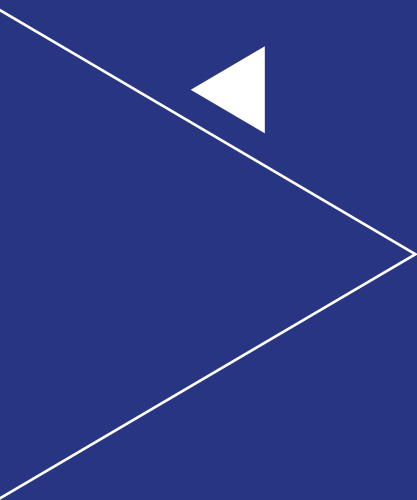


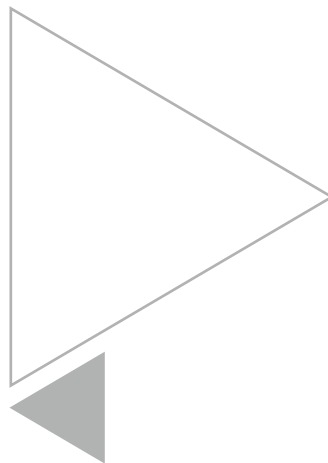


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HIGH TEMPERATURE TECHNOLOGY

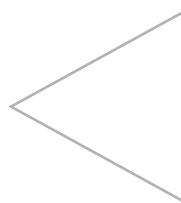
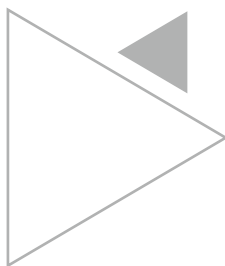


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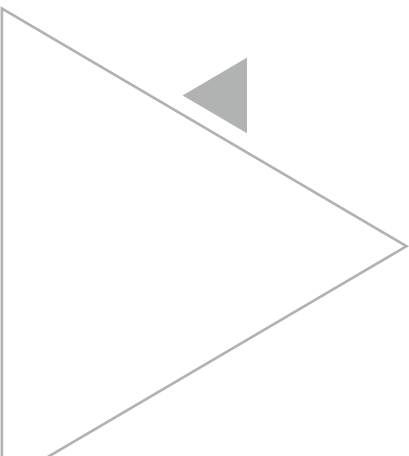


Termolab
HIGH TEMPERATURE TECHNOLOGY





More than
30 years
of experience
with furnaces
installed all over
the world



High Temperature Furnaces



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High Temperature

TECHNOLOGY



About Us


THE COMPANY TERMOLAB



TERMOLAB has been producing furnaces for the past four decades with customers spread across the five continents.

The company is specialized in manufacturing a wide range of customized solutions for various applications both in the industrial, laboratorial and R&D fields.

From 25°C to 2500°C, with metallic, SiC, MOSi₂, graphite or molybdenum/tungsten heating elements and using the best available vacuum, power and temperature control technologies, a wide range of solutions can be found to suit your application.





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Chamber Furnaces up to 1380°C



Maximum Operating
Temperature:
1100° / 1200° / 1380°C



Temperature Control
with Eurotherm
Temperature Controllers



Insulation with Rigid
Ceramic Fibre



Dimensions from
3 up to 1000 litres



Heating elements with
Kanthal metallic alloys
(Kanthal A1 or Kanthal APM)



Power Control through Solid
State Relays or Thyristor Units
(phase angle fired)



Options:

- Possibility of data acquisition through Eurotherm Software 'I-Tools';
- Over temperature protection;
- Possibility of multi-zone temperature control;
- Possibility of door opening system through horizontal axis;
- Gas control accessories;

Model	T. Máx. (°C)	Useful Dimensions (WxHxD) (mm)	Volume (l)	Power (kW)	Voltage (V)
MLM 12/6	1200	150x150x250	6	2.5	230
MLM 12/9	1200	200x150x300	9	3.5	230
MLM 12/12	1200	200x200x300	12	3.75	230
MLM 12/25	1200	250x250x400	25	8.5	400
MLM 12/47	1200	360x260x500	47	10	400
MLM 13/12	1350	200x200x300	12	4	230
MLM 13/25	1350	250x250x400	25	9.5	400
MLM 13/47	1350	360x260x500	47	10	400

Chamber Furnaces from 1400° up to 1600°C



Maximum Operating
Temperature:
1400° / 1500° / 1600°C



Temperature Control
with Eurotherm
Temperature Controllers



Insulation with Rigid
Ceramic Fibre - Fast heat
up and cool down rates



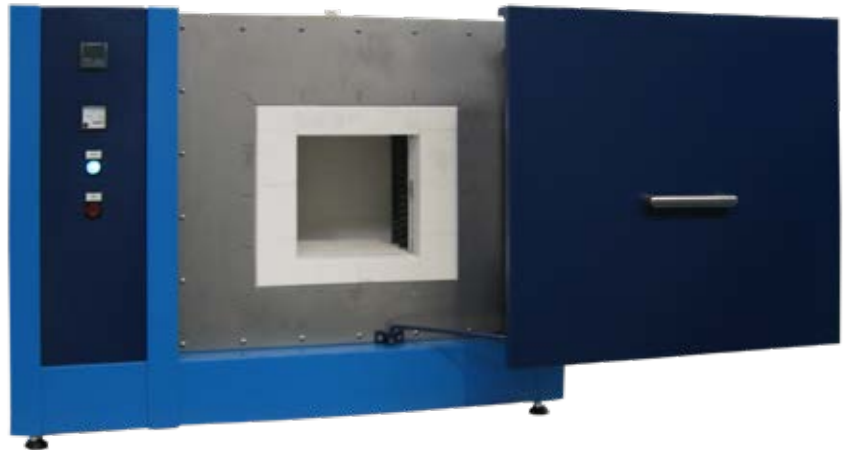
Dimensions from
3 up to 500 litres



Kanthal Silicon carbide
heating elements



Power Control through Solid
State Relays or Thyristor Units
(phase angle fired)



Options:

- Possibility of data acquisition through Eurotherm Software 'I-Tools;
- Over temperature protection;
- Possibility of multi-zone temperature control;
- Possibility of door opening system through horizontal axis;
- Gas control accessories;

Model	T. Máx. (°C)	Useful Dimensions (WxHxD) (mm)	Volume (l)	Power (kW)	Voltage (V)
MLR 16/5	1600	140x160x200	5	4	230
MLR 16/6	1600	140x160x250	6	5	230
MLR 16/12	1600	200x200x300	12	6	230
MLR 16/31	1600	260x300x400	31	12	400

Chamber Furnaces from 1600° to 1800°C



Maximum Operating
Temperature:
1600° / 1700° / 1800°C



Temperature Control
with Eurotherm
Temperature Controllers



Insulation with Rigid
Ceramic Fibre - Fast heat
up and cool down rates



Dimensions from
3 up to 1000 litres



Kanthal Super heating
elements (MoSi2)



Power Control through Thyristor
Units (phase angle fired)



Options:

- Possibility of data acquisition through Eurotherm Software 'I-Tools';
- Over temperature protection;
- Possibility of multi-zone temperature control;
- Possibility of door opening system through horizontal axis;
- Gas control accessories;

Model	T. Máx. (°C)	Useful Dimensions (WxHxD) (mm)	Volume (l)	Power (kW)	Voltage (V)
MLM 16/5	1600	150x160x210	5	4.5	230
MLM 16/12	1600	200x200x300	12	9	400
MLM 16/16	1600	200x260x300	16	10	400
MLM 17/5	1700	150x160x210	5	4.5	230
MLM 17/12	1700	200x200x300	12	7.5	400
MLM 17/16	1700	200x260x300	16	10	400
MLM 17/3.5	1700	135x160x160	3.5	4.5	230
MLM 17/4.5	1700	135x160x210	4.5	5	230
MLM 18/5	1800	150x160x210	5	4.5	230
MLM 18/12	1800	200x200x300	12	8	400
MLM 18/16	1800	200x260x300	16	10	400

Bottom Loading Furnaces up to 1800°C



• The bottom loading furnaces have the advantages of easy loading/unloading and tight sealing;

• The bottom hearth has pneumatic, hydraulic and motorized smooth movement;

• The heating elements are installed in all walls, resulting in excellent temperature uniformity;



Maximum Operating Temperature:
1100° / 1200° / 1300° / 1500°
/ 1600° / 1700° / 1800° C



Insulation with Rigid
Ceramic Fibre - Fast heat
up and cool down rates



Temperature Control
with Eurotherm
Temperature Controllers



Power Control through Solid
State Relays or Thyristor Units
(phase angle fired)



Heating elements with Kanthal
metallic alloys, Kanthal silicon
carbide or Kanthal Super (MoSi₂)

Compact Elevator Furnaces up to 1800°C



The main features of this furnace are:

- Lifting system with smooth movement and without any vibration;
- Possibility of integrating Kanthal Super heating elements in qualities 1700/1800/1900 for oxidizing atmospheres and HT, ER and RA qualities for reducing atmospheres and vacuum;
- Kanthal Super HT quality ensures that the elements do not contaminate or stain the samples to be treated;



Maximum Operating Temperature: 1800°C



Thermal Insulation with rigid ceramic fibre



Heating elements: Kanthal Super (MoSi₂)



Temperature Control with Eurotherm Temperature Controllers



Power: 2,5 kW



Power Control through Solid State Relays or Thyristor Units (phase angle fired)



Useful Dimensions: Ø 130 mm;
Hot Zone Height: 150 mm



External Dimensions:
650x850x500 mm (WxHxD)

Top Hat Furnaces up to 1800°C



The main features of this furnace are:

- The top hat furnaces have the advantage of easy loading/unloading and tight sealing;
- The furnace chamber has pneumatic, hydraulic or manual actuated movement. The bottom earth is fixed;
- The heating elements are installed in all walls, resulting in excellent temperature uniformity;



*Maximum Operating Temperature:
1100° / 1200° / 1300° / 1500°
/ 1600° / 1700° / 1800° C*



Thermal Insulation with rigid ceramic fibre - Fast heat up and cool down rates



Temperature Control with Eurotherm Temperature Controllers



Power Control through Solid State Relays or Thyristor Units (phase angle fired)



Heating elements with Kanthal metallic alloys, Kanthal silicon carbide or Kanthal Super (MoSi2)

Tubular Furnaces up to 1800°C



Options:

- Possibility of data acquisition through Eurotherm Software I-Tools;
- Over temperature protection;
- Possibility of multi-zone temperature control
- Possibility to work in horizontal or vertical position;
- Vacuum or/ and gas control accessories;
- Alumina recrystallized, mullite, or quartz tubes, with cooled flanges sealed by Viton O'rings, to work under vacuum or controlled atmosphere;
- Insulation plugs and radiation shields to avoid heat loss and increase temperature uniformity;



Maximum Operating Temperature:
1200° / 1300° / 1500° / 1600°
/ 1700° / 1800° C



Thermal Insulation with rigid ceramic fibre - Fast heat up and cool down rates



Temperature Control with Eurotherm Temperature Controllers



Power Control through Solid State Relays or Thyristor Units (phase angle fired)



Heating elements with Kanthal metallic alloys, Kanthal silicon carbide or Kanthal Super (MoSi2)

Tubular Furnaces "Split" up to 1700°C



Options:

- Possibility of data acquisition through Eurotherm Software 'I-Tools;
- Over temperature protection;
- Possibility of multi-zone temperature control;
- Possibility to work in horizontal or vertical position;
- Vacuum or/ and gas control accessories;
- Alumina recrystallized, mullite, or quartz tubes, with cooled flanges sealed by Viton O-rings, to work under vacuum or controlled atmosphere;
- Insulation plugs and radiation shields to avoid heat loss and increase temperature uniformity;



Maximum Operating Temperature:
1100° / 1200° / 1300° / 1500°
/ 1600° / 1700° C



Temperature Control
with Eurotherm
Temperature Controllers



Heating elements with Kanthal
metallic alloys, Kanthal silicon
carbide or Kanthal Super (MoSi₂)



Thermal Insulation with rigid
ceramic fibre - Fast heat up
and cool down rates



Power Control through Solid
State Relays or Thyristor Units
(phase angle fired)

Split Furnaces are vertical or horizontal furnaces with the capability of opening the chamber in two halves. They can work as tubular furnaces or to be installed in tensile testing systems.

Rotary Tube Furnaces up to 1800°C



The main features of this furnace are:

- Rotary tube furnaces are used for continuous processing of powders under controlled atmospheres;
- They can be supplied with an automatic feeding device;
- Adjustable tube rotation;
- Adjustable tube tilting angle;
- Adjustable feeding rotation;



*Maximum Operating Temperature:
1100° / 1200° / 1300° / 1500°
/ 1600° / 1700° / 1800° C*



*Thermal Insulation
with rigid ceramic fibre*



*Temperature Control
with Eurotherm
Temperature Controllers*



*Power Control through Solid
State Relays or Thyristor Units
(phase angle fired)*



*Heating elements with Kanthal
metallic alloys, Kanthal silicon
carbide or Kanthal Super (MoSi2)*

Retort Furnaces from 1000° to 1150°C



The main features of this furnace are:

• Furnaces with refractory steel chambers to work under vacuum or controlled atmosphere;



Maximum Operating Temperature:
1000° / 1150°C



Insulation with Rigid
Ceramic Fibre



Temperature Control
with Eurotherm
Temperature Controllers

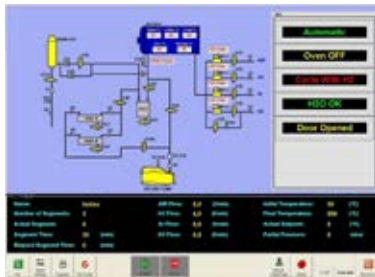


Power Control through Solid
State Relays or Thyristor Units
(phase angle fired)



Heating elements with
Kanthal metallic alloys
(Kanthal A1 or APM)

Debinding Retort Furnaces up to 1700°C



Additional features

- Flow control with flowmeters or mass flow controllers;
- Primary vacuum (rotary pumps) or High vacuum (diffusion or turbo-molecular pumps);
- Burn-off system in the end of the gas line (for H₂);
- Debinding system (condensation of the binders through traps and cold pots);
- Partial pressure control;
- Possibility to control the process via dedicated PC Panel with touch screen;



Maximum Operating Temperature: 1500°C



Thermal Insulation with rigid ceramic fibre



Temperature Control with Eurotherm Temperature Controllers



Power Control through Solid State Relays or Thyristor Units (phase angle fired)



Heating elements with Kanthal metallic alloys, Kanthal silicon carbide or Kanthal Super (MoSi₂)

Graphite Furnaces up to 2500°C



Main applications

- Sintering of AlN (aluminium nitride) tooling plates;
- Surface cleaning of SiC (silicon carbide) tooling plates;
- Annealing of sapphire parts;
- Sinter MIM parts of stainless steel and others metals;
- Heat treatment / annealing of metals;
- Carbonisation;
- Materials research, i.e. Boron carbide, carbon/carbon, SiC, etc;

The applications are almost infinite as long as the work is compatible with a graphite hot zone; Flexible design can be customize for numerous applications.



Maximum Operating Temperature: 2500°C - (vacuum, inert or reduction atmospheres)



Graphite hot zone



Can be easily used for a variety of high temperature processes




Accurate user-friendly controls

Model	T. Máx. (°C)	Zone Zone Diameter (mm)	Hot Zone Height (mm)	Power (kW)	Voltage (V)
G1	2000/2500	100	150	25	400
G2	2000/2500	150	200	40	400
G3	2000/2500	200	250	50	400
G4	2000/2500	200	300	50	400

Hot Presses up to 2500°C



• This systems are designed for high temperature and high pressure consolidation of powder materials in oxidizing, high vacuum, inert or reducing atmosphere;

 The system includes the following components:

- Standard force up to 25 tons;
- Furnace;
- Press Frame;
- Heat Zone;
- Power Supply Unit;
- Hydraulic System;
- Vacuum or inert gas systems (optional);

 Main applications:

- Ceramic Processing;
- Metal Processing;
- Powder Densification;
- Powder Metal Forming;
- Sintering;
- HMor Tests;



This furnaces can reach temperatures up to 2500°C



Metallic Kanthal heating alloys, SiC or MoSi₂, graphite and molybdenum/tungsten heating elements

High Vacuum Furnaces

up to 2300°C



- It's a cold wall furnace, with cylindrical water cooled vessel and windows for visualisation;

- The hot zone (heating elements and shielding assembly) are produce in refractory metals (Tungsten and Molybdenum);

- The introduction of the sample in the hot zone can be done by the top or by the bottom through a manually or motorized lifting device;

- The vacuum is achieved by a rotary pump and a diffusion or turbo molecular pump;



The system includes the following components:

- Furnace;
- Lifting System (manual or electrically operated);
- Control Unit;
- Gas Control Accessories;
- Vacuum system;



Maximum operating temperature: 2300 °C



Secondary Vacuum up to 10⁻⁶ mbar



Atmospheres: Vacuum, Inert or Reducing

Special Furnaces

Refractory Tests System



• System for Fire Tests on Electric Cables under the standards:

**EN 50267-1,
EN 50267-2-1,
EN 50267-2-2**

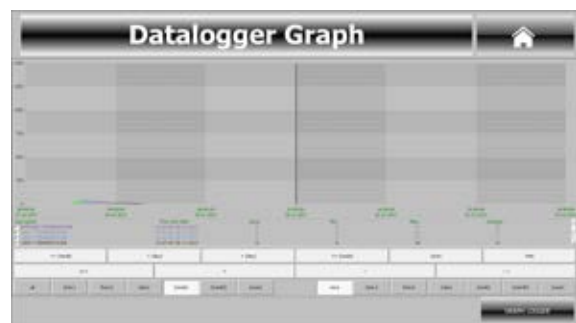
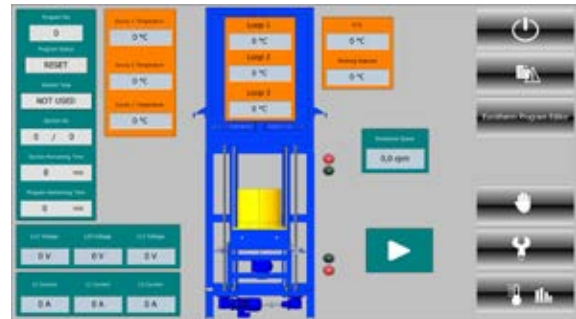
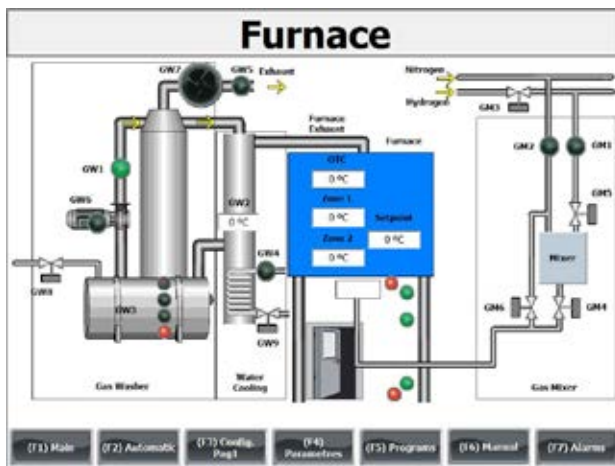
• Equipament to perform common test methods for cables under fire conditions;



Other Products

Customized control solutions

• For special applications, customized solutions can be developed with PLC / touch screen interface and full data logging and remote control. Temperature, flow and pressure can be all managed through a centralized interface;



Heating Elements

• Kanthal metallic alloys (A1 and APM), Kanthal Silicon Carbide (SiC), Kanthal Molybdenum Disilicide (MOSi₂) heating elements;

Other Products

- Ceramic Fibres
- Mass flow controllers
- Vacuum pumps and gauges
- Sensors (thermocouples, optical pyrometers, pressure transducers, etc)
- Ceramic and quartz tubes
- Technical graphite pieces
- Graphite heating elements

Control Options

Termolab offers a wide range of control solutions depending on the type of furnace and heat treatment process.

Eurotherm controller 3200

• A simple controller from Eurotherm that, depending on the model, can store up to 5 programs with 8 segments each (4 ramps + 4 dwells);



Eurotherm controller EPC3000

• An intermediate controller that has more features than the 3200 series and can store up to 10 programs with 24 segments each;



Eurotherm controller EPC3500

• An advanced controller from Eurotherm with a lot of features and the possibility to store 10 programs with 50 segments each. It can also have two control loops for two-zones temperature control. Cascade control is also available;



Over-temperature controller P116

• The over-temperature controller works as a protection of the furnace (or the load) against over-heating;



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