

LABINDIA
EQUIPMENTS
WHERE COMMITMENT IS CULTURE

LABTHERM
laboratory *furnaces*

450°C up to 2000°C

ACF Series Atmosphere Controlled Furnaces



LABTHERM ACF series furnaces are specially designed for research and processes for larger volume products under controlled atmospheric conditions.

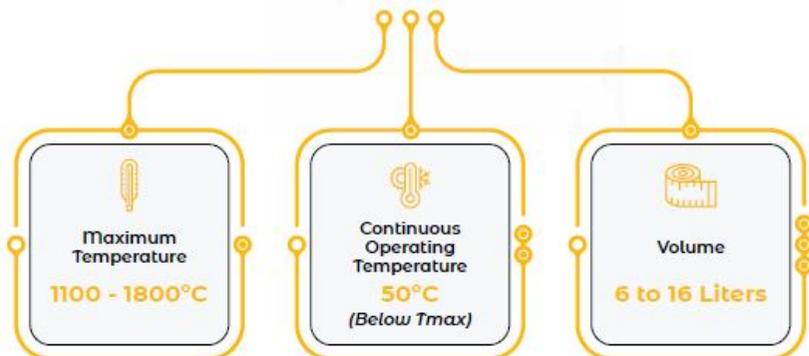
Standard ACF series furnaces cover a range from 1100°C to 1800°C, with additional standard equipment options.

Use of different heating elements, including Graphite is available for use with different gases.

The unit is equipped with galvanized coating covered epoxy painted structure, providing longer lifetime and aesthetics.

System Features:

- Sideways opening door
- Separate or integrated control system to the furnace
- High level programmable controller
- System operation with solid-state-relays
- High level temperature uniformity
- High-quality fiber material
- Intuitive controller user interface
- Electrical protection
- Special housing for high temperature stability
- High quality heating elements ensuring a long service life



Model	Maximum Temperature (°C)	Continuous Operating Temperature (°C)	Inner Volume (liters)	Inner Dimensions (HxWxD) (cm)	External Dimensions (HxWxD) (cm)	Power (kW)	Phase
ACF 110/6	1100	1050	6.3	15x21x20	182x89x93	2	1
ACF 110/10	1100	1050	10	20x20x25	182x89x93	2.7	1
ACF 100/15	1100	1050	15	23x22x30	182x89x93	3.6	1
ACF 160/4	1600	1550	3.9	14x14x20	182x89x93	4.4	1
ACF 160/8	1600	1550	8.1	18x18x25	182x89x93	7.2	3
ACF 160/12	1600	1550	12	24x20x25	188x93x98	9	3
ACF 160/16	1600	1550	15.8	24x22x30	188x93x98	11.3	3
ACF 170/4	1700	1650	3.9	14x14x20	182x89x93	4.4	1
ACF 170/8	1700	1650	8.1	18x18x25	182x89x93	7.2	3
ACF 170/12	1700	1650	12	24x20x25	188x93x98	9	3
ACF 170/16	1700	1650	15.8	24x22x30	188x93x98	11.3	3
ACF 180/4	1800	1750	3.9	14x14x20	182x89x93	4.4	1
ACF 180/8	1800	1750	8.1	18x18x25	182x89x93	7.2	3
ACF 180/12	1800	1750	12	24x20x25	188x93x98	9	3
ACF 180/16	1800	1750	15.8	24x22x30	188x93x98	11.3	3
ACF GR 180/10	1800	1750	9.7	20x22x22	182x93x100	13	3



Optional Features

- Over-temperature limiter for thermal protection
- Check valve at gas outlet
- Gas supply and blend systems for operation
- Data logger with the software
- RS422/485 communication

Furnace properties:

Heavy-duty swivel casters with individual brakes

I-bolt design for carriage of the furnace from the top via crane

Dual shell, floor-standing casing; low external temperatures and high inner temperature stability, additional cooling fan is included for cooling components.

Outer case: stainless steel frame with a water-cooling jacket.

Inner case: Galvanize coated. High quality asbestos-free fiber board insulation at the sides, ceiling of the furnace interior and the lid.

Top grade insulation brick at the furnace frame and floor increasing higher durability against spills and collisions. Low energy consumption insulation utilized for a greener product.

Chimney: positioned at the ceiling of the inner chamber for the natural ventilation of the furnace interior. There will also be a vent for discharging the Over pressure.

Over temperature alarm relay; preventing over heating of the furnace, protecting the insulation material and the heating elements. (Purpose for this alarm is not for the protection of the sample and is not user configurable.)

6 zone water cooling system for the stainless-steel outer case, including the lid. Constant temperature measurement of the water from 6 zones. Water temperature safety switch, disabling the heating of the furnace in order to protect the stainless-steel case.

Gas tight system with double stage gas feed-in facility; with analogue rotameters located at the entrance of both inert gas inputs.

Integrated voltmeter and ampere meter; enabling live reading of the energy being used by the furnace.

Integrated pressure gauge; displaying the instantaneous working atmospheric pressure conditions. Pressure safety switch, stopping the gas input to the system under the conditions that the pressure inside the furnace reaches the threshold limit of 50 millibars above 1 atm.

Automatized heating system: All heating programmes will automatic, End User will be able to pick whichever programme is required.

A small rotary vacuum pump included in the furnace is for cleansing process for a brief period before heat up starts (This procedure will be activated only for heat up to 1500C from room temperature) and cannot be used for creating a vacuum environment to be worked under.

Power Driver Unit using Thyristor Module (SCR) Top quality switchgear components.

Type S (Platin-Platin/Rhodium) ceramic sheathed corrosion resistant thermocouple

1 pc of heart (base) plate included with the unit.

Door properties:

Sideways opening stainless steel lid; with water cooling inside. . Robust door handle, designed for convenient grip with gloves.

Door safety switch: disabling current to heating elements when the furnace door is open; protects the operator from possible electric shocks.

Heating System:

High-quality molybdenum disilicide heating elements positioned on both sides of the hot zone. Special Kanthal RA type heating elements will be employed.

Optimized surface load of elements for high durability and longer lifetime

Heating element's locations offer prime temperature uniformity and best possible protection against chemical interaction between charge and heating elements and providing simple, convenient maintenance.

Straight forward and user-friendly installation and possible exchange of parts.

Temperature Control System:

PDC-100 model touch screen LED display controller will be used (related data sheet is attached)

Quality Certificates:

CE marked ISO 9001:2015

The furnace will be thoroughly tested and provided with a QA report.

Controllers

LABTHERM Furnaces provide a wide range of temperature controller options. All controllers provided by LABTHERM Furnaces have built in sockets and are easy to replace, for faster and quicker servicing.

LABTHERM Furnaces brand controllers are rugged, durable and have a user-friendly utilization. Standard controller brands provided are Eurotherm, Omron and LABTHERM PDC 100, as well as other brands on request.

Together with this catalogue our new controller PDC-100 is arriving into our set of controllers as the most sophisticated one PDC-100 has a touch screen, multi-language capability, multi stage PID definition to sensitive control and is capable of remote controlling. It arrives in 5 language as standard but also possible to upload almost any language for End User's convenience.



Temperature Control System Properties

- High durability membrane & buttons for input
- High candela screen brightness
- Compact controllers with large screen area
- Intuitive controller interface
- Multi-programmable & simple controller optionality

* For other controller brand inquiries, please contact us

No	Model Name	Control Type	Display	Program Option	Extra Features	Set/Actual Value
1	PC442T	PID Controller	Dual Display with Clear & Large Text	Auto Shut Down Function with Timer Adjustable Upto 9999 Minutes	"Hot Start" & "Delay Timer"	Set & Actual Value Compatibility
2	PC442/MP20	PID Controller	Dual Display with Clear & Large Text	20 Programs with 40 Programmable Segments	"Hot Start" & "Delay Timer"	Set & Actual Value Compatibility
3	Omron E5CC	PID Controller	Dual Display with Clear White & Large Text	Non Programmable	"Hot Start" Function	Set & Actual Value Compatibility
4	Omron E5EC-T	PID Controller	Dual Display with Clear White & Large Text	8 Programs with 32 Programmable Segments	"Hot Start" & "Delay Timer"	Set & Actual Value Compatibility
5	Eurotherm3208	PID Controller	Dual Display with Clear & Large Text	5 Programs with 8 Programmable Segments	"Hot Start" Function	Set & Actual Value Compatibility
6	Eurotherm3508	PID Controller	Dual Display with Clear & Large Text	50 Programs with 100 Segments	"Hot Start" Function	Set & Actual Value Compatibility
7	PDC-100	PID Controller	Touch Screen	30 Programs with 50 Segments		Set & Actual Value Compatibility

RETORT BOX

Retort box is an economical solution for enabling controlled atmosphere environments within the chamber furnace. Usable up to 1150 °C of working conditions, the Protherm Furnaces retort boxes can be customized depending on the customer requirement.



Furnace Volume (L)
6
<10
<30
<60
<100

EXHAUST JET FAN

Exhaust Jet Fan is used for the removal of heated air faster from the chamber in order to provide both uniformity and exchange of air.



Power (W)
2.5
4
6

ROTAMETER

Available for multiple flow rates, the Acrylic Flowmeter has a Dual Direct Reading Scale with yellow background for easy viewing. Provided with a valve and stainless steel float for operators utilization.



Measurement Range	Connection	Fitting
1000 Nl/h	1/8" FNPT	Stainless Steel

QUARTZ OBSERVATION HOLE

Observation holes are provided for operator to analyze the reactions taking place during the heating process. The standard hole sizes are provided below.



ID of hole (mm)
40
50
75

OVER TEMPERATURE PROTECTION

PC-442 T Model is used as an external over temperature protection controller as a standard. For more information regarding the unit please examine the Controller Manual.



Dimensions (HxWxD mm)	Power Supply	Communication
50x50x75	AC 85-265V, 50/60Hz	Stainless Steel

WAGON

The wagon is an optional accessory providing the operator to remove the bottom of the furnace out, for easy replacement, and observation procedures.



Suitable Furnace Volume
45
50
60
≥100

CRUCIBLE TRAY

Crucible tray is provided for different sizes for different crucibles. Please make sure to check the inner dimensions of the furnace before ordering from your authorized dealer.



Dimensions (WxD cm)
19x18
18x24
20x29
26x37
28x48

GLOVES, TONGS AND MASKS

Furnace accessories such as heat resistant gloves, glasses, masks and tongs are available for your utilization from Protherm Furnaces.



Size
Small
Medium
Large

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EQUIPMENTS

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Striving to become the best individuals, we endeavour to foster the best team. Performing sensibly, we try to achieve the best efficiency. Working innovatively, we seek to make the best products. Listening patiently, we excel to offer the best service. So, no matter what you needs are, come to us, **GET THE BEST**

LABINDIA reserve the right to change specification without notice as part of its continuous programme of product development.