



- 🔥 INDUSTRIAL & LABORATORY
- 🔥 HEAT TREATMENT LINES
- 🔥 SPECIAL CERAMICS MANUFACTURER
- 🔥 AUTOMATION OF THERMAL SYSTEMS
- 🔥 TEMPERATURE CALIBRATION DEVICES

General Catalog 2022



Atra Industrial Group (Arman Tavana Rah Aria Company) relying on 28 years of experience of managers and designers with experience in designing and manufacturing industrial furnaces and ovens, works in heat treatment lines, automation of thermal systems, design and application of refractory materials.



Technical Office experts of the company with various specialties in the fields of mechanics, electricity and electronics, materials and metallurgy, industries and chemistry are serving the valuable industries of the homeland, including Aircraft construction, automobile manufacturing, aluminum industry, mineral industries, ceramics, color industry and Resin, medical and dentistry industry, jewelry industry, in order to fulfill the needs of valuable professors of universities in the country, students and respected researchers also have valuable records for designing and manufacturing research equipment and due to the continuous research and efforts of managers, engineers and active personnel in this field have achieved titles such as selection of 100 major epic machines in the country industry in 2013.

The company's wide range of products with a policy away from reverse engineering has provided a space to make all devices native from beginning to end and for this reason, it is known among foreign manufacturers as a manufacturer of style and in this regard, it has succeeded in winning the Golden Statue of European Quality in France in 2007. This honor is in the shadow of the grace of domestic customers with their confidence, they have allowed us to continue to carry a provision of experience. At present, the main activity of the company and its development plans are being carried out in Lia industrial town in Qazvin province and in 17,000 meters of indoor space located on an 8-hectare land. The prospect of its activity is the creation novel of the largest industrial group in the field of developing machinery manufacturing in the branch of heat and its side needs. It is very proud and enhanced for the Atra Industrial Group, to open up a new stage with technologies which serves to customers and new industries.





MavadKaran Engineering co



University of Tabriz



Yasouj University



Islamic Azad University



Shiraz University



University of Mazandaran



shahid beheshti University of Karman



Babol Noshirvani University of Technology

Research Institute of Petroleum Industry



Iran Polymer and Petrochemical Institute



N P C



Marun Petrochemical Company



Bakhtar Petrochemical Company



# LIST OF PRODUCTS

Ovens With Air Circulation  
Up To 450 °C



Furnaces With Air Circulation  
Up To 850 °C



Industrial Furnaces  
Up To 1700 °C



Vacuum & Under Protective  
Gas Furnaces Up to 1250°C



Melting Furnaces Of Non Ferrous  
Metals Up To 1400°C



Heat Treatment Lines Projects



Laboratory Oven & Furnace  
-50 To 1800°C





# OVEN & FURNACE



5 -- 20



21 -- 32



33 -- 46



47 -- 58



59 -- 66



77 -- 96



## The general features of the oven with hot air circulation up to 450 degrees

- \*High isothermal due to the transfer and distribution of energy by the air fluid.
- \*Using of thermal energy of gas, diesel with direct or pipe and shell converters, with a clean atmosphere and without the presence of combustion gases.
- \*Using of chrome alumel elements without insulation coating with high efficiency and based on ceramic insulators with invisible installation and without direct radiation on the work pieces.
- \*Design of fluid circulation modes in horizontal, vertical, mixed, and sprinkler formats. construction of internal walls and channels according to temperature and vapors. a process with high corrosion made of galvanized sheets, stainless steel family or sprayed metal and ceramic coatings.
- \*The exhaust is proportional to the volume of the device with an adjustable damper,
- \*Using circulator fan motor with the ability to work at high temperature as a direct coupling and air cooling design self-cooling by eliminating temperature transfer and very high efficiency and as a complete package with ease of service and maintenance,
- \*Using ceramic wool and stone fiber insulation, without the need for periodic repairs, with ease of access from the outside of the chamber.
- \*Using heat resistant silicone rubber with special forms in the sealing sections.

Selected items:

- Design with continuous operation
- Design with IR elements - complying with EX anti-explosion standard.
- Zoning according to the physical dimensions of the device
- Ability to connect to a computer or record information from the events that happened in the process
- Ability to build as a super seal to prevent the leakage of smoke and process vapors
- Ability to add an auxiliary and burn smoke by adding burn out special color coating
- Exhaust fan with high operating temperature
- Ability to burn smoke by adding burn out special color coating
- Suitable for specific environmental conditions
- Viewing window and lighting lamp inside the chamber
- Cylinder rotation system inside the chamber
- Creating local vacuum connections or charging operating gases
- Creating special conditions for special loads
- Using hot water energy, super heat steam or hot oil





ACG450RW-21000ACDU

- Automatic door and wagon
- Direct converter with gas energy
- Super Sealing room
- wagon Sealing by pneumatic system
- Combined air circulation
- Portable rail
- 10 Ton Loading

## Burning and curing hardened resins





- Two hinged doors with manual wagon
- Electrical Power
- Combined air circulation
- Adjustable wind angle
- Portable rail

## ▼ Forming airplane glasses



▲ ACE250RW-4500AHDH

- Single hinged door with Automatic wagon
- Horizontal air circulation
- Electrical Power
- Portable rail
- 1 ton of loading on shelves and trays

## Rubber parts curing operation



ACE400RW-24000ACDH



# High Efficiency

- Both sides of the door with ready-to-work wagons and portable rails
- Full automation with safety locks for doors and wagons
- Ability to schedule cooking
- Ability to deploy stand and tray
- Horizontal air circulation with high isothermal



ACE350RW-3300AHDU







**ACE400R-1000AHDH**

- automatic door
- Wagon with non-heat rubber wheels and steering capability
- Controlling the wagon carrying parts in indirect routes
- Proper sealing of the door and wagon
- Horizontal air circulation

## Catalyst Calcination ▶



- Horizontal air circulation
- Ability to deploy 24 trays in 8 floors
- high isothermal
- Programmable

## ◀ Dryer and calciner



**ACE450RW4300AHDU**



# Design according to customer needs

## ◀ ACE350R-400AVDH-S

- Vertical air circulation
- Ability to rotate and exit floors for loading from above

### Mold preheater



## AFE250R-700DHN-S ▶

- Radiation oven
- No air circulation
- Ventilation to remove moisture
- The ability to deploy simple and mesh trays

### Powder Drayer







ACE400RW-3000ACDH



- Two hinged doors
- Automatic wagon with portable rail
- 3 tons loading
- Control by two left and right thermal zones
- Mixed air circulation

▲ Stress relieving

- Two cells with four doors
- Gas burner with tube and shell exchanger
- Loading as a hanging hook from the roof rail

▼ Softening the Plexiglas bathtub and jacuzzi before vacuuming



ACE250-SP





**ACG450RW-25000ACDH**

- Gas burner with direct converter
- Three independent thermal zones
- Rail and drive located in the foundation
- 20 tons loading with automatic wagon
- Mixed air circulation

## Tensioning the tank and welded structures



## ACE250R-1000ACDH-S

- Mixed air circulation
- Automatic coupling for drum rotation
- The ability to record the temperature time diagram



- Radiant oven with rotating drum
- Ability to control the atmosphere inside the chamber (clean room)
- Filtered ventilation
- Ability to fully wash the chamber
- Super sealing
- Drum carrying trolley carrier



**AFE250R-1000DH-S**

 Heat treatment of silicone o-rings of dialysis bags



# Responding to the needs of researchers



ACE250-S

- Automatic movement of the oven compartment and closing of the doors
- Save time and energy
- Mixed hot air circulation

## ◀ Varnishing operation of generator core plates

- Entry and exit of loaded trays on a wheeled trolley
- 200 degree temperature with galvanized wall and horizontal circulation
- A tray with mesh doors to remove moisture

## Powder baking of industrial adhesives ▶



ACE200R-4800AHDH





- Electric continuous oven
- Moving floor with rotating movement
- Loading and unloading parts in one position
- Save energy and time

## Forming motorcycle Plexiglas



ACE250R-S



# Production variety



**ALE300-7000S**

- Electric continuous oven
- Charging parts on the floor conveyor with adjustable speed
- Three thermal zones with continuous cooling

◀ **Cooking casting muscles**

- Gas continuous oven
- Two independent heating zones with miniature burners
- Charge parts on stainless steel mesh belt

**Preheat parts for adaptive expansion** ▶



**ALG250-4500S**



ALG350-22000S



- Gas continuous oven
- Direct converter with the presence of combustion products
- 7 adjustable heat zones
- Mixed hot air circulation
- One ton per hour Capacity

## Dacromate coating





# Process Analysis

## ALE100RA-2000S

- Electric continuous oven
- Automatic and adjustable feeder
- The ability to control the amount of output by rotating and tilting the drum

### ◀ Catalyst dryer



- Electric continuous oven
- Movement of carriages carrying parts in a carousel format
- Loading and unloading in an isolated position without disturbing other parts

### Aniling car lights ▶



## ALE100RC-2500S







# Industrial Oven





## General characteristics of furnace with hot air circulation up to 850 degrees

- \*High isotherm due to energy transfer and distribution by air fluid
- \*Use of thermal energy of gas, diesel with direct converters or radiation tubes with a clean atmosphere and without the presence of combustion gases.
- \*The use of chromium-alumel elements without insulating coating with high efficiency and located on ceramic insulators with invisible installation and without direct radiation on the work pieces.
- \*Design of fluid circulation modes in horizontal, vertical, mixed and spray formats
- \*Construction of internal walls and channels according to the temperature and highly corrosive process vapors made of ceramic refractories, stainless steel family or sprayed ceramic and metal coatings
- \*Exhaust according to the volume of the device and adjustable damper
- The use of circulator fan motors with the ability to operate at high temperatures as a direct coupling and the design of self-cooling air cooling with the elimination of temperature transfer and very high efficiency and as a complete package with ease of service and maintenance.
- The use of ceramic wool and stone fiber insulation, without the need for periodic repairs, with easy access from the outside of the enclosure
- Use of woven and heat-resistant fireproof fibers with special shapes in sealing sections
- \*Selected items:
  - Design with continuous function
  - Design with IR elements
  - Complying with EX anti-explosion standard.
  - Zoning according to the physical dimensions of the device
  - The ability to connect to a computer or record information about the events that happened in the process
  - The ability to build as a super seal to completely prevent the leakage of smoke and process vapors
  - Ability to add auxiliary exhaust fan with high operating temperature
  - Ability to burn smoke by adding Burn Out
  - Special color coating suitable for special environmental conditions
  - Viewing window and lighting lamp inside the compartment
  - Cylinder rotation system inside the chamber
  - Creating local vacuum connections or charging operational gases
  - Creating special conditions for special loads





ACG600R-35000AHDU2



- Gas furnace with pipe and shell exchanger
- Clean atmosphere with hot air circulation of 600 degrees
- Three independent thermal zones
- Two automatic doors at the beginning and end
- No floor and loading from both sides by electric stacker
- Electric stacker

## Welding electrode coating



- 800 Degree electric furnace
- Horizontal hot air circulation
- Loading 2 tons on a handcart
- Fireproof floor with the ability to load in unexpected places

## ◀ Heat treatment of steel



ACE800RW-3300AHDH

- 800 Degree electric furnace
- Horizontal hot air circulation
- Loading one ton on a fixed floor
- Fireproof floor with the ability to load in unexpected places

## ▼ Heat treatment of steel



ACE800R-2900AHDH



# High Efficiency

ACE800R-1300AHDH



- 800 Degrees electric furnace
- Horizontal hot air circulation
- Loading on mesh trays and associated stands

◀ Calcination of car exhaust catalyst



ACE600RW2-4000AHDU2

- 600 Degrees electric furnace
- Horizontal hot air circulation
- With two doors at the beginning and at the end
- with a ready-to-work wagon
- Loading on a simple stand and tray

◀ Mineral processing



▲ **ACE800RW-1700AHDU**

- 800 Degrees electric furnace
- Horizontal hot air circulation
- Automatic door and wagon



- 650 Degrees electric furnace
- Horizontal hot air circulation
- Hinged door with automatic wagon
- Fireproof floor with the ability to deploy undistributed load

▼ Stress relieving heat treatment



**ACE650RW2500AHDH**





# Design according to customer needs

- 800 Degree gas furnace with direct converter
- Automatic door and wagon
- Internal walls of fireproof composition with stainless steel fireproof channeling

## Heat treatment of spring for railway industry ▼



**ACG700RW-3800AHDU**

- 700 Degree gas furnace with direct converter
- Horizontal air circulation (front to back)
- Pneumatic door with automatic carriage
- Loading on a tray and portable stand with a forklift

## ▲ Annealing of car brake oil pipes



**ACG800RW-2000ACDU**



- 600 degree electric furnace
- Mixed hot air circulation
- The ability to load one ton from the automatic door under the machine
- Ability to unload in less than 5 seconds
- It has an independent stand for loading and unloading when the machine is working
- Elevator powered by gearbox engine
- Capable of heat treatment on hanging parts
- Mobile furnace with the ability to move directly on the quench tank located in the foundation

**Heat treatment of T-six solution on T6 aluminum sections**

**ACE600RW-5000ACDD**



- Fixed furnace with dual energy of gas and electricity
- Mixed hot air circulation
- Quench wagon with mechanical movement and the ability to carry an additional stand
- Loading and unloading two tons of cargo in two positions by hydraulic system and lifting chains

## T-six solution heat treatment on the car's aluminum cylinder head

- Mixed hot air circulation
- Fixed gas furnace with direct converter of 600 degrees and double format

 (The image before installation in the original installation position of the device)



ACG600R2-6700ACDD



ACE&G600R-6700ACDD

- Twin electric furnace and oven with temperatures of 250 and 600 degrees
- Loading the carriage carrying parts by a wheeled carrier
- Ability to cover the carriage carrying parts from inside the oven to the furnace through the middle door

▼ Titanium coating on the electrode

ACE250/600RZ-2200S



ACE800P-650ACDR



- 800 Degrees Electric furnace
- Mixed hot air circulation
- The door opens with the power of a manual lever
- Ability to download from above

▲ Tempering of steel parts





- 700 Degree continuous electric furnace
- Mixed hot air circulation
- By placing it on the floor mesh belt
- Loading tank with adjustable charging height
- Three adjustable heat zones

## ◀ Annealing of aluminum flakes

- Continuous 650 degree gas furnace
- Mixed hot air circulation
- Seven thermal zones with shell and tube exchanger
- The ability to charge neutral gas and guide the exit of process vapors

## ▼ Catalyst Calcinary







# Furnace With Air Circulation



## General characteristics of industrial furnaces up to 1700 degrees

- \*Creation of high isotherm by distribution and zoning of heat generators inside the furnace
- \*Using thermal energy of gas, diesel or using thermal elements with different temperature grades
- \*Design and arrangement of burners to create a rotating turbulence for proper energy transfer
- \*The design and implementation of the layers of the inner walls of the furnace according to the physical conditions of the dimensions, required mechanical resistance, tolerance of thermal shocks and the temperature level of insulating or dense ceramic blocks, molded masses, ceramic fiber and ceramic boards, module Pre-compressed ceramic fiber and family of heat-resistant stainless steels and superalloys
- \*Exhaust according to the volume of the device and adjustable damper
- \*The use of circulator fan motors with the ability to work at high temperatures as a direct coupling and the design of self-cooling air cooling with the elimination of temperature transfer and very high efficiency as a complete package with ease of service and maintenance
- \*The use of fiber insulation, ceramic wool and stone, without the need for periodic repairs, with ease of access from the outside of the enclosure
- \*The use of woven and heat-resistant fireproof fibers with special shapes in the sealing sections or the use of seals and mechanical arms to block the heat.
- \*Selected items:
  - Continuous performance design
  - Zoning according to the physical dimensions of the device
  - The ability to connect to a computer or record information about the events that happened in the process
  - The ability to add an auxiliary exhaust fan to reduce the resistance of the exhaust path
  - Ability to burn smoke at low temperatures by adding Burn Out
  - Special color coating suitable for special environmental conditions
  - Creating special conditions for special loads



- 1250 Degrees gas furnace
- Automatic door with hydraulic mechanism
- Automatic wagon with high thermal shock tolerance

## Heat treatment of cast parts ▶

**AFE1200RW-3000DU**



- 1200 Degrees Electric furnace
- Automatic wagon with 2 tons of loading
- Automatic door with counter balance weights
- Pneumatic sealing

## ▶ Preheating of steel forging operations



**AFG1250RW-4500DU**



- 1000 Degree gas furnace
- Fixed floor with automatic door
- Two independent thermal zones
- The inner wall and roof are made of ceramic fiber modules
- Floor with 3 ton load capacity made of dense bricks
- Parts lifting and automatic quenching with equipment located at the installation site

### Hardening operation of oil industry valves

AFG1000R-19000DU



**AFG1100R-800DU/S**

- 1100 Degree gas furnace
- Semi-opening automatic door with pneumatic system
- Fixed floor with the ability to place 45 crucible

Coupling mineral sketches 



- 1100 Degrees Electric furnace
- Semi-opening automatic door
- Carriage floor with automatic movement

 Cupellation mineral sketches



**AFE1100RW-1050DU/S**

- 1250 Degrees Electric furnace
- Automatic door and wagon
- Ability to load 2 tons
- High shock resistance

## Heat treatment of steel parts ▶



- 1200 Degrees electric furnace
- Two doors at the beginning and end
- It has a second wagon ready for use
- Ability to charge neutral gas and control the cooling process

## ◀ Baking ceramic pieces



- 1100 Degree gas furnace
- Elevator movement of furnace with hydraulic system
- It has two wagons with a capacity of 10 tons and automatic movement
- Exhaust outlet from the floor with adjustable vents
- Isothermal  $8\pm$  degrees at the time of balance

## Baking ceramic parts

AFG1100B-25000S



**AFE1200R-1000DH**



- 1200 Degrees electric furnace
- Fixed floor with neutral gas charging capability
- 5 directions for putting elements with high isothermal

◀ **Baking industrial ceramic parts**

- 1250 Degrees electric furnace
- Fixed floor with automatic door with pneumatic system
- Large display for temperature possible to read up to 20 meters' distance

**Baking ceramic molds for accurate casting** ▶



**AFE1250R-4000DU/S**



# High Efficiency

- 1100 degrees two half-opening electric furnace
- Ability to charge neutral gas into the rotating cylinder
- Fast cooling capability with ambient air blowing
- The ability to deploy a stainless steel cylinder with controllable rotation

## Heat treatment of catalyst powder ▶



ATE1100I-220H80SR

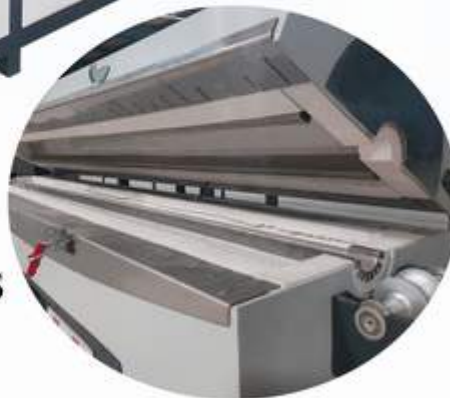


- 800 Degrees electric furnace, two half-opening
- Stainless steel muffle
- Has idle rollers at the beginning and end

## ◀ Baking silicone wire and cable coating

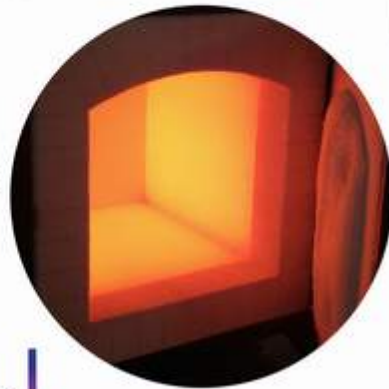


ATE800I-160H250S





**AFE1100R-480DHM**



**AFE1250R-125DHN**

- 1250 Degrees non-muffle furnace
- Inserting elements in the side walls
- Solid floor with dense refractory material



- 1100 degrees muffle electric furnace
- Hinged door with high shock resistance
- High isothermal by installing elements in the walls and floor

**General usage**



# Design according to customer needs



- 1450 Degree gas furnace
- Placement of burners on the side and upward platforms
- Carriage floor with manual movement
- Door with compound hinge
- All interior refractories and roof are made of 1600 degree bricks

**AFG1450R-2000DH**

**Baking industrial ceramics**



**AFE1700B-50DU**

- 1700 Degrees electric furnace
- High shock resistance
- Ability to load on dense refractory floor
- Ability to charge neutral gas with adjustable rotameter
- Soft upwards elevator electro-mechanical movement of the furnace



**AFE1700B-50DU/S**

Secondary door to keep the furnace at a high temperature







**AFE1700L-27DH**

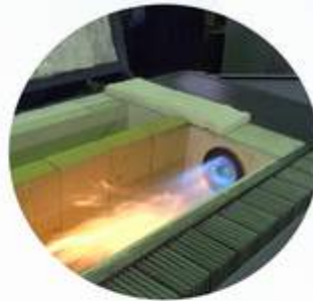
- 1700 degrees electric furnace
- Base format and ground installation

◀ Baking ceramic pieces

**AFE1700B-480DU/S** ▶

- 1700 Degrees electric furnace
- Fixed floor with heavy load capability
- Ability to program the cooling process
- Two independent thermal zones
- 1800 Degree molybdenum Silicide elements
- Soft elevator movement of the furnace upwards with hydraulic system







# Industrial Furnace



## General characteristics of furnaces operating up to 1250 °C under atmospheric pressure and vacuum conditions

- Modify isotherms through energy distribution and zoning according to load type.
- Use of chromium alloy, SIC or MoSi<sub>2</sub> elements distributed by the use of gas thermal energy or radiation from the outside to the steel walls of the inner chamber

Construct the heating chamber (retort) from heat-resistant steel or super alloy with a reinforced format.

- Thermal insulation or dense ceramic blocks, castable masses, ceramic fiber modules, ceramic plates, furnace walls suitable for absorbing thermal shocks from a series of heat, physical conditions, required mechanical strength, temperature and process vapors and build a load-bearing insulation layer - durable stainless steel

It has a water or air cooled flange with a silicone seal in the door sealing area.

Standard vacuum fittings and pathways for conducting atmospheric gases

Selected items:

- Fast cooling option from back of chamber with ambient air blow control
- Quick connection into the chamber is possible by controlling the ingress of neutral gas
- Adding necessary equipment to use H<sub>2</sub> gas
- Zoning according to the physical dimensions of the device
- Add water cooling package when industrial chilled water is not available
- Ability to connect to a computer or record information about events that occur during the process
- Ability to burn smoke at lower temperatures by adding burnout
- Special color coating suitable for special environmental conditions
- Creation of channels for filling and preheating and distribution of working gas
- Create special conditions for special loads



- 1100 Degrees electric furnace
- Equipped with a rotating operating cylinder made of stainless steel
- Ability to charge neutral gas with rotating adjustable rotameter
- The door with graffiti sealing
- Adjustable angle of drum axis with hydraulic system for ease of loading and unloading
- Openable two-half furnace
- Ability to control the cooling process by blowing ambient air around the cylinder
- Refractory and internal insulation made entirely of ceramic board with high shock resistance

## Heat treatment of NANO powders



**AFE1100RAA-250S**





## ◀ AFE1100CA-190DH

- 1100 Degrees electric furnace
- Three independent thermal zones
- Controllable atmosphere equipped with rotameter
- It has two doors at the beginning and the end
- The ability to cover the boat carrying parts between zones without opening the door

- 1100 Degree vacuum electric furnace
- Elements distributed in the outer chamber around the cylinder
- Silicone sealing with water flow flange
- Ability to cool the operating cylinder from the outer shell
- Neutral gas charging system with preheat path

Nitration, carburizing, brazing, sintering ▶



AFE1100CV-180DH





**AFE1100CA-315DH**

- 1100 Degrees electric furnace
- Cubic chamber with neutral gas charging system
- Element distributed in the furnace chamber in the area of walls and floor
- Hinged door with reinforced fireproof and composite armature

**◀ Mold hardening**



**AFE1000CA2-75DH**

- 1000 degrees electric furnace
- Twin format with independent function
- Ability to charge neutral gases

**Coating on steel bars ▶**

- 800 Degrees continuous electric furnace
- Three independent thermal zones
- Operating chamber made of stainless steel 316
- Fire curtain at the entrance and exit
- It has neutral gas inlet and safety system for H<sub>2</sub> gas
- Mesh belt movement system with adjustable speed
- Loading and unloading stand

## Research and academic affairs



ALE800RA-2500S





# Calculations, Design, Implementation

- 1450 Degrees continuous electric furnace
- 5 independent heating zones
- Operating compartment made of silicon carbide(SiC)
- Fire curtain at the entrance and exit
- Neutral gas inlet and safety system for H<sub>2</sub> gas
- Ability to move electromechanically upwards for the furnace for service and maintenance
- Pusher movement system with adjustable speed
- Unloading and loading stand

## Research and academic affairs



ALE1450RA-2500S



- 1000 degree continues electric furnace
- 4 independent heating zones
- Operating chamber made of 310 steel
- 310 steel mesh belt transmission system
- It has several input channels for charging neutral gas or H2 with H2 safety system
- Fire curtain at the entrance and exit
- Ability to supply process gas required by generator or ammonia cracker
- Optional coloration requested by the buyer

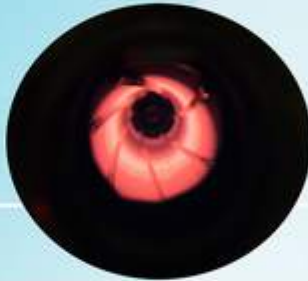
## Brazing operation



ALE1000RAA-12000S



# Engineered Art



- 1100 Degrees Continuous electric furnace
- Two halves with the ability to quickly separate peripheral equipment
- Operating cylinder with axial rotation and graphite sealing
- Screw feeder with adjustable speed
- Controllable atmosphere from the feed tank to the collection vessel
- Controlling the amount of output according to the distance and the adjustable installation angle

## Production of active carbon



**ALE1100RAA-2000S**

- 900 Degree electric furnace
- Controllable atmosphere and oxygen level monitoring system
- Opening door with combined movement and pneumatic system
- It has a quick quench inside the chamber by a nitrogen shower
- Automatic loading and unloading system by sliding lifting mechanism
- 4 independent thermal zones with isothermal accuracy of  $\pm 2$  degrees Celsius

## Brazing of aluminum radiators



AFE900RA-1100DU/S



# High Efficiency



- 600 Degree continuous gas furnace
- 6 thermal zones with tube and shell exchanger
- Controllable atmosphere by nitrogen gas charge
- Continuous movement of parts by chain conveyor with mesh belt bottom
- Internal atmospheric circulation by centrifugal fans

Calcination of petrochemical industry catalyst





# Vacuum & Under Protective Gas Furnaces



## General characteristics of non-ferrous metal melting furnaces up to 1400 degrees

- \*Design and construction with chamber or Crucible format
- \*Design and manufacture in static or hydraulic discharge modes
- \*Using thermal energy of gas, diesel or using thermal elements with different temperature grades
- \*Design and arrangement of burners to create a rotating turbulence for proper energy transfer and minimal oxidation
- \*The design and implementation of the layers of the inner walls of the furnace according to the physical conditions of the dimensions, required mechanical resistance, melt corrosiveness and temperature level, made of insulating or dense ceramic blocks, molded masses, ceramic fiber and ceramic boards.
- \*Exhaust according to the volume of the device and adjustable damper

Selected items:

- Continuous performance design
- Installing a melt temperature display sensor
- The ability to add an auxiliary exhaust fan to reduce the resistance of the exhaust path
- Special color coating suitable for special environmental conditions
- Creating special conditions for special loads



## ▼ AME1000CT-50Mg/S

- Magnesium melting electric furnace
- The main tank is made of stainless steel 310
- Controllable atmosphere
- Alloying mixer with controllable speed
- Hydraulic draining capability



## ▲ AMG1000CT-200AL

- Aluminum smelting gas furnace
- Fixed burner and exhaust without the need to move
- Hydraulic draining capability
- The ability to install graphite crucibles and cast iron without channels



AME1400CT-150AU

- 1000 degree melting electric furnace
- Fixed graffiti crucible format

Melting and holding aluminum ▶



AME1000CF-200AL

- 1400 degree electric melting furnace
- SIC elements located around the enclosure
- Graffiti crucible with an exit
- Hydraulic draining capability

◀ Golds melting



# Elegance and Strength



AMG800CT-2000ZN

- 800 degrees melting gas furnace
- Capacity of 2 tons of zinc metal
- Cast iron crucible with outlet
- Hydraulic draining capability
- It has an emergency melt exit valve

## Melting of lead and zinc metals

AMG1000TF-1000AL



- Fixed melting gas furnace
- Chamber format with fireproof molten bath
- Ingot pneumatic door with inclined platform for preheating
- It has a pond at the outlet to collect the melt in the form of a ladle
- Temperature control of chamber and melt separately

**Melting and holding one ton of aluminum**





# Customer Orientation



**AMG1000TF-20000&10000AL**

- Gas burning furnace for melting and fixed holding
- Chamber format with fireproof molten bath
- Control of melt exit from the floor as a stopper
- Hydraulic door with a large opening for loading ingots with a forklift

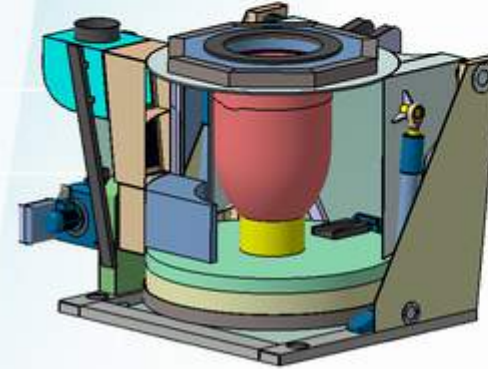
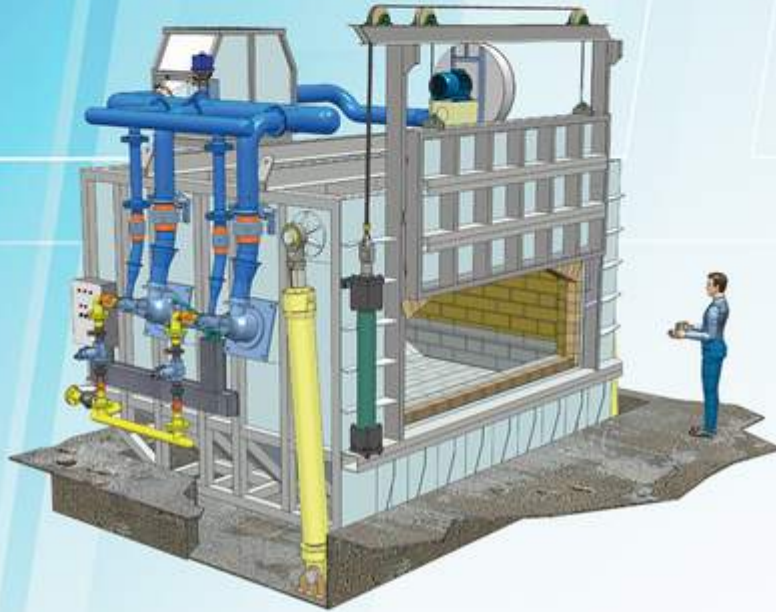
**20 Ton Melting and 10 Ton Holding Aluminum sheet rolling line**







# Melting Furnace



**ATRA engineers team is ready to meet  
all your requirement**

**So what you need?**

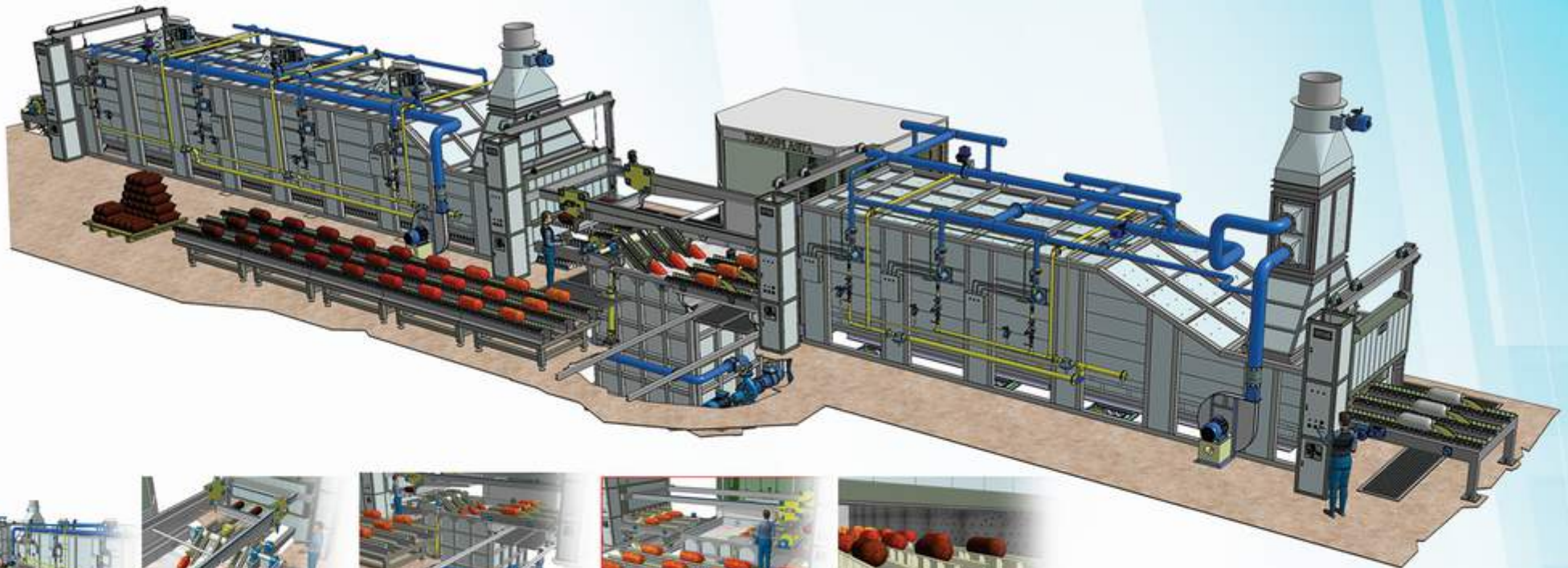


# Responding to the needs of researchers





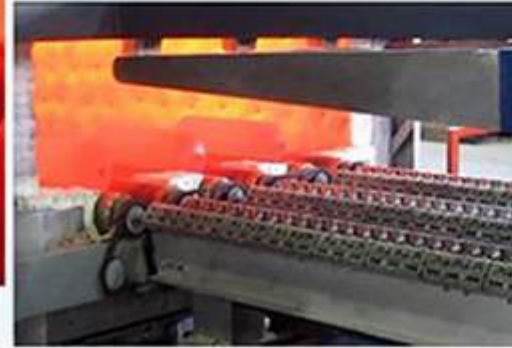
- Continuous heat treatment line for both gas and diesel fuel
- Capable of heat treatment on circular steel sections with a diameter of 160 to 420 mm and a free length of up to 1200 mm.
- Sliding pusher mechanism for charging to H.F. furnace.
- Hardening furnace with the format of moving the pieces by the walking beam mechanism
- The ability to rotate parts in the final position of leaving the machine
- Automatic quench with temperature adjustment and smart fixture
- Automatic transfer system from the quench tank to the tempering furnace
- Tempering furnace with hot air circulation of 650 degrees and chain conveyor
- Quench bypass line and transfer to the normalization platform
- Full automation with no change in mechanical set ups based on the line



ALG1100-S



# Production variety



Scan For  
Watching Video







# Process Analysis



- Continuous gas burning Heat treatment line
- Oil quench with automatic quenching mechanism
- Hardening furnace with hydraulic walking beam moving system
- Tempering furnace with hot air circulation of 650 degrees and chain conveyor mechanism
- Quench temper heat treatment of car parts with variety of shapes and sizes
- Water cooling system at the end of the route by pressurized water sprinklers



**ALG110-S**



# Engineered Art





# Easy to use

- Preheating Continuous line for pressed steel scrap
- 20 tons/hour capacity with full automation and 2.5 minute time periods
- Recycling of colored metals aggregated in the sunken floor of each wagon
- The return path from under the empty wagon to the beginning of the line (vertical loop)
- Design and implementation according to the location and elevation of the installation site
- Automatic elevator with hydraulic mechanism located at the beginning and end of the line
- Loading platform with hydraulic damping of load impact and deployment in charging position
- Hydraulic pusher system in the charging path and electro-mechanical poling at the end of the line
- 800 degree ready block output transfer by hydraulic carriage and delivery for melting near induction furnaces

## ALG1000/S









## ALG400/S



### Semi-continuous line for the calcination of petrochemical catalysts

- 400 degree hot air circulation
- Number of 960 trays located on 7 wagons stands
- Four gas heating zones with tube and shell exchanger
- The parallel line for loading and unloading includes 7 ready wagons
- Full automation in the transfer of calcined wagons with not treated wagons by hydraulic mechanisms located on the carriages at the beginning and end of the machine



## General laboratory equipment from -50 to 1800 degrees

Design and construction to create high accuracy and isothermal

Good appearance with electrostatic paint coating

Programmable control with power control capabilities and communication with PID computer

Special design to achieve the best testing method by the tester

Variation in construction and usage format with process requirement

High isotherm due to energy transfer and distribution by air fluid

Selected items:

- Continuous performance design
- Charging of neutral and regenerative gases by rotator
- Design with IR elements
- EX explosion proof standard.
- Zoning the device
- The ability to connect to a computer or record information about the events that happened in the process
- The ability to build as a super seal to prevent the leakage of smoke and process vapors
- The ability to add an auxiliary exhaust fan with high performance
- Fast cool system installation with programming capability
- Installation of fireproof steel boxes to prevent corrosion of elements surfaces and refractories
- Ability to burn smoke by adding Burn Out
- Special paint coating or special stainless steel outer wall with special environmental conditions
- Viewing window and lighting lamp inside the chamber
- Cylinder rotation system inside the chamber
- Creating local vacuum connections
- Use of hot water energy, super heat steam or hot oil
- Making preparations and installing special equipment needed by researchers



# Design according to customer needs





**ACE450L-60AHDH**



- Laboratory oven with hot air circulation
- Continuous operation of 450 degrees with stainless steel walls
- Volume 60 to 350 liters with horizontal and vertical formats
- Programmable in temperature time diagram
- Horizontal hot air circulation (front to back)
- Industrial fan with controllable speed
- Very high isotherm
- Lighting lamp inside the compartment with a double-glazed glass viewing window
- The ability to connect to a computer to program and record the temperature diagram
- The ability to install a rotating tray system
- The ability to install a weighing system to reduce the weight of parts
- Ability to charge neutral gases



## ACE150L-S

- Laboratory electric oven with horizontal hot air circulation
- Full glass door with silicone sealing
- The ability to program the time to stay in the temperature for the numbered positions
- Keys associated with the timer to reset and restart the time for each sample



## ACE300LR-80AVDH

- Laboratory oven with vertical hot air circulation
- Ability to perform thermal process on closed cylinders in rotation mode
- Controllable rotation rate



**Laboratory vacuum oven with neutral gas charging capability**  
The ability to design and build according to the user's needs

- Electric vacuum oven
- Programmable in temperature time process
- The ability to record thermal events through the computer connection port
- Vacuum pump connection and neutral gas charge
- The internal walls is all stainless steel
- Design and manufacture from 60 to 250 liters
- Ease of opening and closing and sealing the door
- Lighting lamp inside the chamber with a double-glazed window
- The pointer gage shows the amount of vacuum



**AFE200LV-60DH**



- Custom vacuum oven
- Three cells with completely separate functions
- Central vacuum pump with the ability to vacuum each cell separately
- Separate vacuum and gas charge control valves
- Programmable
- Easy to use with little space

## Sterilization and humidification of suture



AFE200LV3-S



AFE1200L-18DUN



AFE1100L-18DUM



AFE1400L-18DVN



- Laboratory furnace up to 1400 degrees
- Ability to connect to a computer
- Programmable control by PC series PID control
- Ability to install a rotameter to enter neutral gas
- The door that opens upwards is easy to use and does not require a lock
- The ability to design and install special equipment according to the needs of users
- The volume is 18 liters with the opening dimensions of 250x250 and the depth of 300 mm



# Production variety

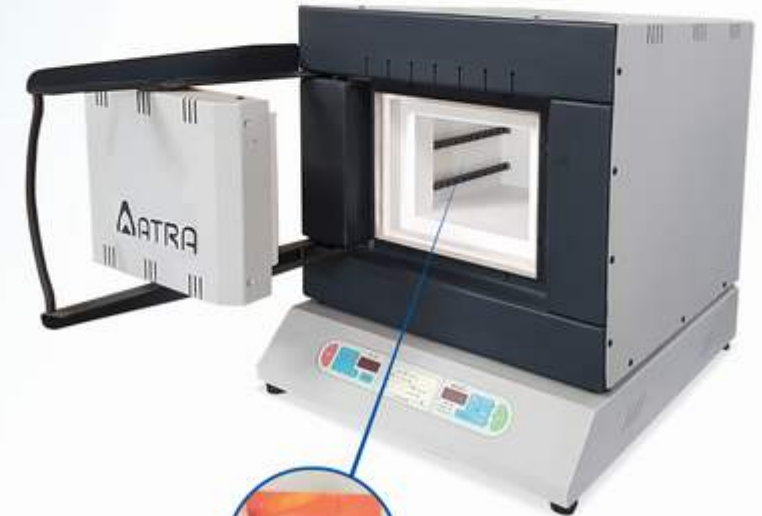
## ◀ AFE1200L-8DSN

- Desktop laboratory furnace
- Volume of 3 and 8 liters
- Tray format opening door
- Ease of use without the need for a lock



## AFE1400L-8DHN ▶

- Desktop laboratory furnace
- Volume 3 to 40 liters
- SIC double spiral elements
- Hinged opening door with format of movement parallel to the front of the device



## ◀ AFE1700L-17DHN

- Desktop laboratory furnace
- Production in volumes from 2.5 to 60 liters
- 1800 degree MoSi<sub>2</sub> Super elements
- Hinged door with the format of movement parallel to the front of the device





## ◀ AFE1200P-60DU

- Laboratory furnaces
- Top opening door
- Programmable with PC series PID control
- Production in volumes from 10 to 90 liters
- Design and production in visible element or muffle modes

## AFE1200P-S ▶

- Melting laboratory furnace
- The upwards opening door
- Floor elevator movement to exit the crucible
- Exit steering wheel with electric pedal and fast electromechanical movement





# Process Analysis



**AFE1100L-40DHM**



**AFE1400L-40DHN**



**AFE1700L-27DH**

- Laboratory furnaces with base format and installation on the ground
- Ability to connect to a computer
- Production in volumes from 40 to 360 liters
- The ability to add a rotameter to enter neutral gas
- Ability to program in the temperature time diagram
- The ability to design and equip the device according to the specific needs of users



**AFE1700B-50DU**

- Laboratory furnace with elevator movement
- of the furnace and loading on a fixed floor
- Ability to charge neutral gas
- Production in volumes from 40 to 480 liters
- Production at temperatures of 1000 to 1700 degrees

**AFE1700B-480DU/S**



**▲ AFE1700B-50DU/S**

- The ability to install a second door and remove heat caused by high radiation When the furnace is open at the maximum temperature



# Easy to use

- Laboratory furnace with floor elevator movement
- Design and production from 1000 to 1700 degrees
- Ability to program in the temperature time diagram
- Using the furnace floor as a door and loading position
- Smooth and vibration-free movement for the tested parts
- The possibility of charging neutral gases and designing and installing special equipment required by users



**AFE1200L-5DE**



**AFE1700L-3DE**

**Production of high alumina ceramic parts in different shapes, dimensions and sizes To load the samples to be tested inside the ovens**

- Gas laboratory furnace
- Explosion-proof lock wing doors
- Hot air circulation of 850 degrees
- Equipped with A3 miniature burner
- Production in volumes of 60 to 400 liters
- Complete equipment for safety and automation
- Design and construction with single-floor to three-floor formats
- Ability to collect coming out WAX from accurate casting molds
- The ability to rotate the parts located on the floor trays of each floor



ACG850L-S

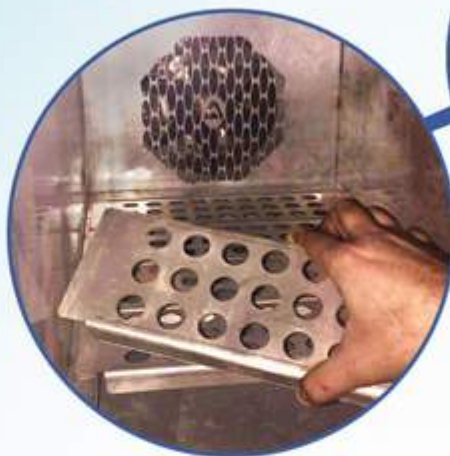




# Industrial and Efficient



- Gas-burning laboratory furnace
- Very high isotherm
- Equipped with A3 miniature burner
- 850 Degrees with hot air circulation
- Fixed floor with the ability to collect wax
- The ability to burn vapors and smoke from burning wax



**ACG850L-60DHS**



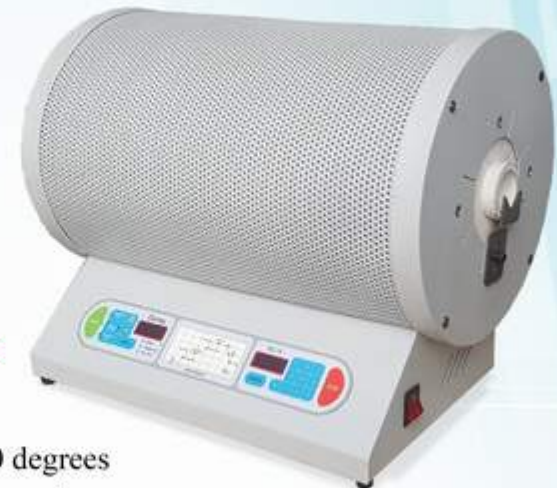
## ATE1200L/S

- Two opening halves tube furnace with a stand for the placement of Super Alloy sample parts for shock testing
- Repeating the cycle and going back and forth quickly between 80 and 1000 degrees without opening the door
- Cooling and heating speed control



## ATE1200L3-80H120S

- Two opening halves tube furnace
- Three independent and programmable heating zones
- Special flanges with vacuum or gas charging capability
- Ability to install quartz, ceramic or stainless steel tubes from 30 to 100 mm in diameter.



## ATE1100L-50H30N

- Simple tube furnace
- Integrated format up to 1100 degrees
- In horizontal and vertical usage formats
- No design and manufacturing limitations in tube diameter and length



# Elegance and Strength



## ◀ ATE1200LV-50H60S

- Two opening halves tube furnace
- Ability to install quartz, stainless steel or ceramic pipes
- The ability to rotate or operate under the operating tube angle
- The ability to vacuum or charge neutral gases by special flanges
- Portable shields to remove the furnace radiation outside the tube
- The ability to design and build in the dimensions and sizes required by users ▶



## ◀ ATE1400LV-60H40N

- 1400 degree tube furnace with full sinter alumina tubes
- Front and end flanges with vacuum capability

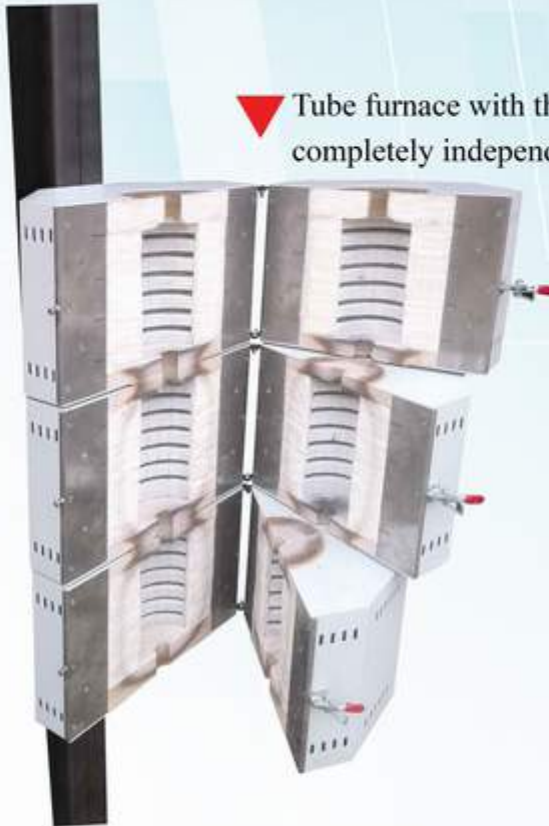




## ◀ ATE1200L-60F55SS

- Electric laboratory furnace with horizontal hot air circulation
- Full glass door with silicone sealing
- Keys associated with the timer to reset and restart the time for each sample
- The ability to program the time to stay in the temperature for the numbered positions

▼ Tube furnace with three thermal zones completely independent physically and thermally



## ATE1200L-50V45S ▼

- Two opening halves tube furnace With the ability to install vertically on a portable base







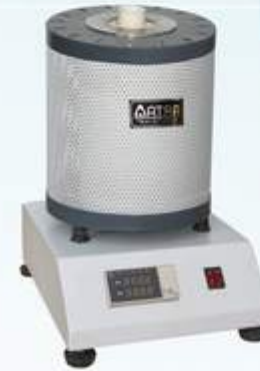
## ▲ ATE1400LV-60H50N

- 1400 Degree tube furnace with ceramic tube
- Portable board
- Vacuum and charge neutral gas

## ATE1700LV-80H75N-S ▶

- 1700 Degree tube furnace
- Programmable
- Two independent thermal zones
- Vacuum and neutral gas charging by special flanges
- Equipped with full sinter high alumina tubes with a diameter of 80 and a useful length of 750 mm







# Laboratory









**NOTE:**





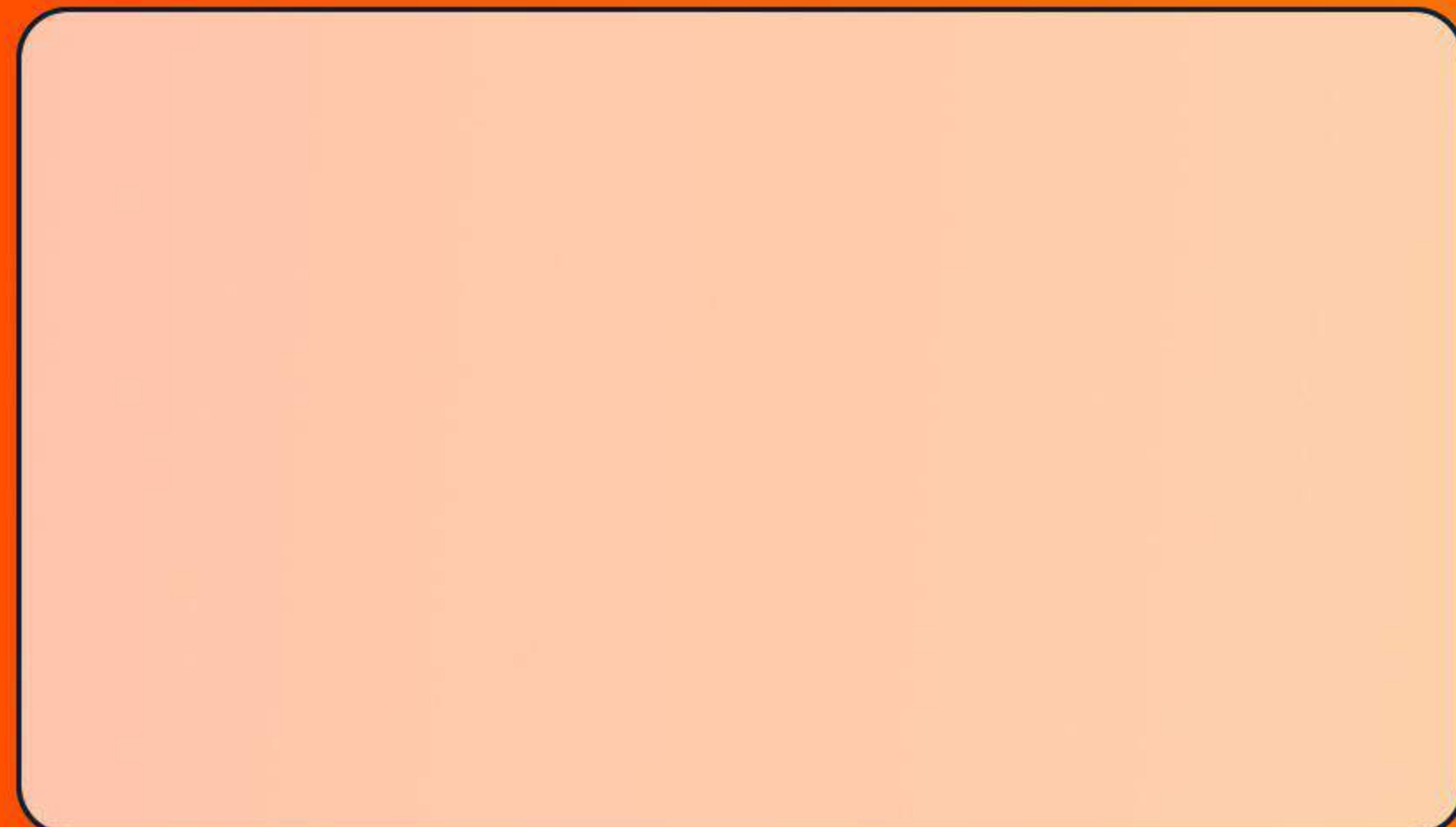
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