MSE TEKNOLOJİ

mse
"engineered high quality process machines"

MSE Furnace
"engineered high quality furnaces"

PRODUCTS

engineered high quality

FURNACES

Industrial Furnaces (Tmax 1800°C) & Laboratory Furnaces (Tmax 2800°C)

www.**msefurnace**.com

Chamber Furnaces (Tmax 1800°C)
-Tube Furnaces: (Tmax 1750°C)
-Metal Heat Treatment Furnace (Tmax 1500°C)
-Vertical Operation (Tmax 1750°C)
-Horizontal Operation (Tmax 1700°C)
-Split Furnaces / Multi Zone (Tmax 1200°C)
-Rapid Thermal Furnace (Tmax 1100 °C)
Burning and Melting Furnaces
-Ashing Furnaces (Tmax 1200°C)
-Burn-Out Furnace (Tmax 1800°C)
Casting Furnaces (Tmax 1100°C)
-Lift Bottom Furnaces (Tmax 1800°C)
-Glass Melting Furnaces (Tmax 1800°C)
-Frit Furnace (Tmax1600 °C)
Graphite Furnaces (Tmax 2500°C)
Die Heating Furnaces (Tmax 550 °C)
Quenching Furnace (Tmax 1100 °C)
Atmosphere Controlled Chamber or Lift Bottom Furnaces (Tmax 2800°C)
Ultra High Vacuum Furnaces (Tmax 2500°C)
Bridgman Furnace (Tmax 1700°C)
Bell-Lift Furnaces (Tmax1800°C)
Retort Furnaces (Tmax 1100°C)
Gradient Furnaces (Tmax 1400°C)
Tunnel/Roller Furnaces (Tmax 1600°C)
Biochar (Tmax 850°C)
Vacuum Induction Melting Furnaces (Tmax 1700°C)
Gas Atomization Furnaces (Tmax 1650°C)
Rotary Tube Furnace (Tmax 1200°C)
Pit Furnaces (Tmax 850°C)
Car Bottom Furnaces (Tmax 1800°C)
Salt Bath Furnaces (Tmax 850°C)
Chemical Glass Tempering Furnaces (Tmax 900°C)
High Temperature Glass Viscometer (Tmax 1600°C)
Glass and Polymer Fiber Production Furnaces

MSE Furnace
"engineered high quality furnaces"

Custom-Made Furnaces (Tmax 2800°C)
Furnace Accessories (Tubes , Crucibles, etc.)

PRODUCTS

engineered high quality

INDUSTRIAL SCALE FURNACES

Industrial Furnaces Burning and Melting Furnaces Salt Melting Furnaces Dental Furnaces
Atmosphere Controlled Furnaces Chamber Furnaces Tunnel/Roller Furnaces
Rapid Thermal Furnace Glass Melting Furnaces Burn-Out Furnace Ashing Furnaces Tubes and Pots
Lift Bottom Furnaces Tube Furnaces Gradient Furnaces Split Furnaces / Multi Zone
Rotary Tube Furnace Metal Heat Treatment Furnace Graphite Furnaces Furnace Accessories
Car Bottom Furnaces Chemical Tempering Furnaces
Salt Bath Furnaces Custom-Made Furnaces

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INDUSTRIAL SCALE FURNACES

CAR BOTTOM FURNACE

MSE car bottom furnaces are designed for the use of large parts in heat treatment and various annealing processes. These furnaces have been developed to be very reliable and cost effective in terms of heavy and continuous working conditions. It provides easier loading / unloading and easy maintenance for large parts. During loading and unloading in car furnaces, the damage to the interior of the furnace is minimized. It can perform many operations such as annealing, normalization, sintering and stress relief in car kilns. Depending on the application size and usage conditions, the door of the furnace can be integrated into the movable base, or it can be opened upwards or sidewards.

- PID contoller and ±1°C temperature display sensitivity
- Programmable temperature and dwell time
- Auto power cut when lid is open
- Observation of set and real temperature
- Temperature measurement via thermocouple
- Delayed start and program save feature
- System protection for over temperature, audio visual warning alarm
- Error display in case a breakdown
- Easier loading and unloading via drawer type bottom base
- Circulation fan for uniformity temperature
- Low energy consumption

Temperature: 800°C
Volume :1800 L

INDUSTRIAL SCALE FURNACES

CAR BOTTOM FURNACE

Designed for heat treatment of large parts and heavy loads. Car bottom furnaces are available in wide a ranges of volumes and temperatures from 300°C to 1800°C continuous use.

Temperature:600°C
Volume: 1300 L

INDUSTRIAL SCALE FURNACES

CAR BOTTOM FURNACE

Designed for heat treatment of large parts and heavy loads. Car bottom furnaces are available in wide a ranges of volumes and temperatures from 300°C to 1800°C continuous use.

Temperature: 800°C
Volume: 375 L
Fan system

INDUSTRIAL SCALE FURNACES

CAR BOTTOM FURNACE SERIES

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
MD_600_250	600	250	500	500	1000
MD_600_500	600	500	1000	500	1000
MD_600_750	600	750	500	1000	1500
MD_600_972	600	972	900	900	1200
MD_600_1000	600	1000	500	1000	2000
MD_600_1384	600	1300	1040	605	2200
MD_600_1500	600	1500	1000	1000	1500
MD_600_1755	600	1755	900	1300	1500
MD_600_2000	600	2000	1000	1000	2000
MD_600_2250	600	2250	1500	1000	1500
MD_600_2400	600	2400	1200	1000	2000
MD_600_3000	600	3000	1000	1500	2000
MD_600_3510	600	3510	900	1300	3000
MD_600_4500	600	4500	1000	1500	3000
MD_600_4800	600	4800	1500	1600	2000
MD_600_5400	600	5400	1500	1800	2000
MD_600_7020	600	7020	1800	1300	3000
MD_600_7200	600	7200	1500	1600	3000
MD_*	*	*	*	*	*

*Produced on demand by the customer.

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
MD_1000_250	1000	250	500	500	1000
MD_1000_500	1000	500	1000	500	1000
MD_1000_750	1000	750	500	1000	1500
MD_1000_972	1000	972	900	900	1200
MD_1000_1000	1000	1000	500	1000	2000
MD_1000_1384	1000	1300	1040	605	2200
MD_1000_1500	1000	1500	1000	1000	1500
MD_1000_1755	1000	1755	900	1300	1500
MD_1000_2000	1000	2000	1000	1000	2000
MD_1000_2250	1000	2250	1500	1000	1500
MD_1000_2400	1000	2400	1200	1000	2000
MD_1000_3000	1000	3000	1000	1500	2000
MD_1000_3510	1000	3510	900	1300	3000
MD_1000_4500	1000	4500	1000	1500	3000
MD_1000_4800	1000	4800	1500	1600	2000
MD_1000_5400	1000	5400	1500	1800	2000
MD_1000_7020	1000	7020	1800	1300	3000
MD_1000_7200	1000	7200	1500	1600	3000
MD_*	*	*	*	*	*

*Produced on demand by the customer.

INDUSTRIAL SCALE FURNACES

CAR BOTTOM FURNACE SERIES

			Internal Dimensions		
Product Code	**Max. Temperature (°C)**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
MD_800_250	800	250	500	500	1000
MD_800_375	800	375	500	500	1500
MD_800_500	800	500	1000	500	1000
MD_800_750	800	750	500	1000	1500
MD_800_972	800	972	900	900	1200
MD_800_1000	800	1000	500	1000	2000
MD_800_1384	800	1300	1040	605	2200
MD_800_1500	800	1500	1000	1000	1500
MD_800_1755	800	1755	900	1300	1500
MD_800_2000	800	2000	1000	1000	2000
MD_800_2250	800	2250	1500	1000	1500
MD_800_2400	800	2400	1200	1000	2000
MD_800_3000	800	3000	1000	1500	2000
MD_800_3510	800	3510	900	1300	3000
MD_800_4500	800	4500	1000	1500	3000
MD_800_4800	800	4800	1500	1600	2000
MD_800_5400	800	5400	1500	1800	2000
MD_800_7020	800	7020	1800	1300	3000
MD_800_7200	800	7200	1500	1600	3000
MD_*	*	*	*	*	*

* Produced on demand by the customer.

INDUSTRIAL SCALE FURNACES

AUTOMATIC QUENCHING

It is designed up to 1100 °C to ensure that various metals are heated under homogeneous conditions and instantly cooled in water. It is produced in different volumes according to the customer's request.

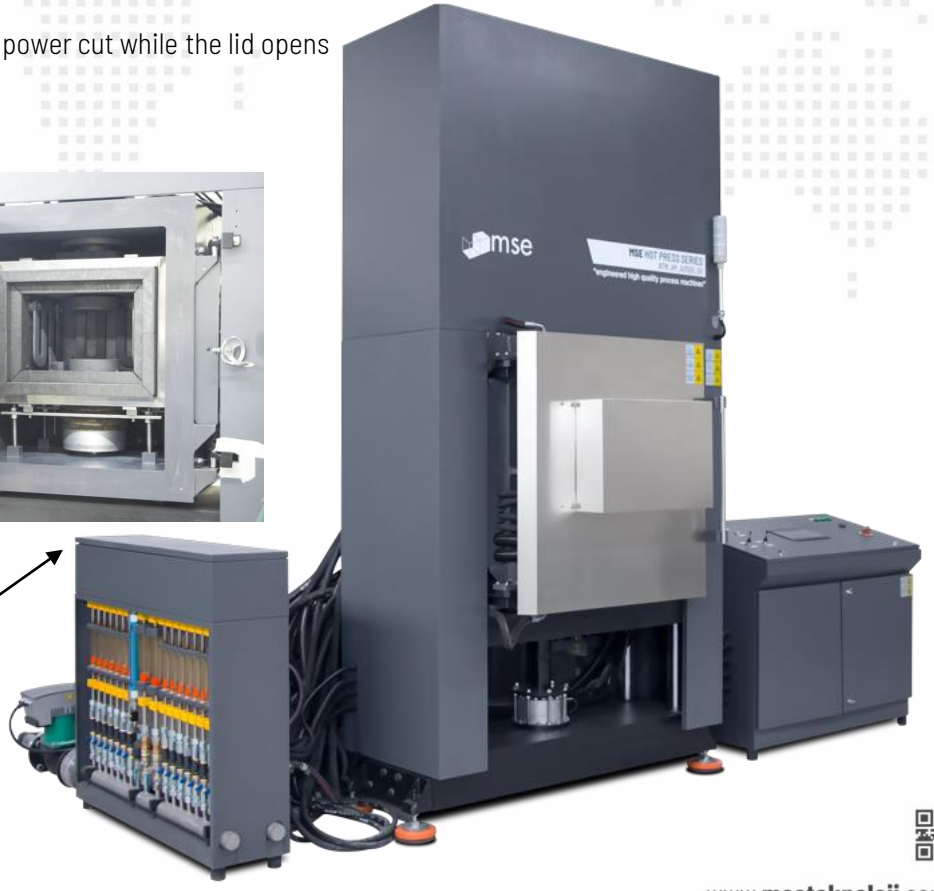
PLC controlled, Manipulator Movement Direction: Horizontal and Vertical
Furnace Effective Area Homogeneity: ± 6°C (AMS 2750 Class 2 B (±6°C) , 400-1100°C)
Working Area Dimensions: W:600 x H:600x D:900 mm
Furnace-to-Water Entry Time: Max. 5 seconds
Atmosphere: Nitrogen Gas (N2)
Automatic opening lid, water bath

INDUSTRIAL SCALE FURNACES/ SHAPING AND SINTERING

ATMOSPHERE CONTROLLED AUTOMATIC HOT PRESS

MSE Teknoloji is manufactured atmosphere controlled automatic hot press in accordance with the new requirements in the field of industry, Research And Development. Atmosphere controlled automatic hot press can making pressing and heating at the same time. Also, it has the vacuuming feature for the sweeping purpose. The whole process can be monitored on the touch screen and recorded via The Wi-Fi connected program recording . Atmosphere controlled automatic hot press can be produced at different force capacity, size and temperature on demand by the customer.

- PID controlled, PID heating, Adjustable force, waiting time, temperature and position control, stroke distance on touch screen,
- Process log display, data recording with USB
- Electronic safety system, emergency stop button, voice and display warning, auto power cut while the lid opens
- Force control via patented MSE_Servo Hydraulic system
- Atmosphere controlled water-cooled cabin, cooling temperature display
- Ability to apply force while increasing temperature at the same time
- Able to press as same every time
- Able to use separately as a furnace or a press
- Integrated load cell
- Galvanized steel construction
- Able to work at maximum temperature
- Over temperature alarm
- Epoxy shippimercoated
- Temperature measurement with thermocouple and pyrometer
- The Wi-Fi-connected program recording feature
- Hydraulic pump and hydraulic system protection
- The system doesn't allow to operating when the lid opens
- Gas flowmeter
- Entegrated vacuum pump
- Water circulated hydraulic system protection
- Graphite heating elements and graphite insulation



Atmosphere controlled single action pressing
Temperature: 2500 °C
Force Capacity: 50 tons

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INDUSTRIAL SCALE FURNACES

PIT FURNACE

Pit furnaces are preferred for the heat treatment of high and low carbon steels, copper alloys, bronze, brass etc. materials which make such as screws, wire, rods or bolts. Atmosphere control can be provided due to inside the retort the pit furnace.
Generally, pit furnace is used as embedded on the floor. So, this placing provides a much more comfortable working area. The samples are loaded to baskets inside of the retort. The basket loading is made from the upper side of the furnace by overhead crane. Pit furnaces are available in wide a ranges of volumes and temperatures from 300°C to 850°C continuous use. Please contact us for detailed information.

- Homogeneous heat distribution
- Top loading furnace design, loading via crane
- Homogeneous temperature via fan circulation inside retort

Temperature: 650°C
Volume: 560 L
Retort,
Atmosphere controlled
Heating on all side

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INDUSTRIAL SCALE FURNACES

BELL-LIFT FURNACE

Bell lift furnace is a type of furnace which is raised by on fixed base. The furnace base remains stationary. The furnace body moves up and down. This movement is provided with railed sledges. It provides an ideal condition for the heat treatment of sensitive samples. Especially, bell lift furnace can be preferred for the vertical and fragile samples which need to stop without moving constantly during heat treatment. Also, bell lift furnace can be used for burn-out processes.
Peripherally installed resistances create a more homogeneous heat distribution in the furnace. The products can be placed to base from all four sides of the furnace.
Bell lift furnace is very convenient and practical in terms of multi-part productions. Furnaces in this mechanism can be manufactured by retort, atmosphere controlled etc. other features. Bell-Lift furnace is produced at different temperatures, volumes and features (atmosphere controlled, vacuumed or with retort etc.) from 300 °C to 1800 °C.

- Depending on time; Air feeding to inside and chimney opening and closing feature

Temperature: 1750°C
Volume: 166 L

- Manual air flowmeter and conditioner

INDUSTRIAL SCALE FURNACES

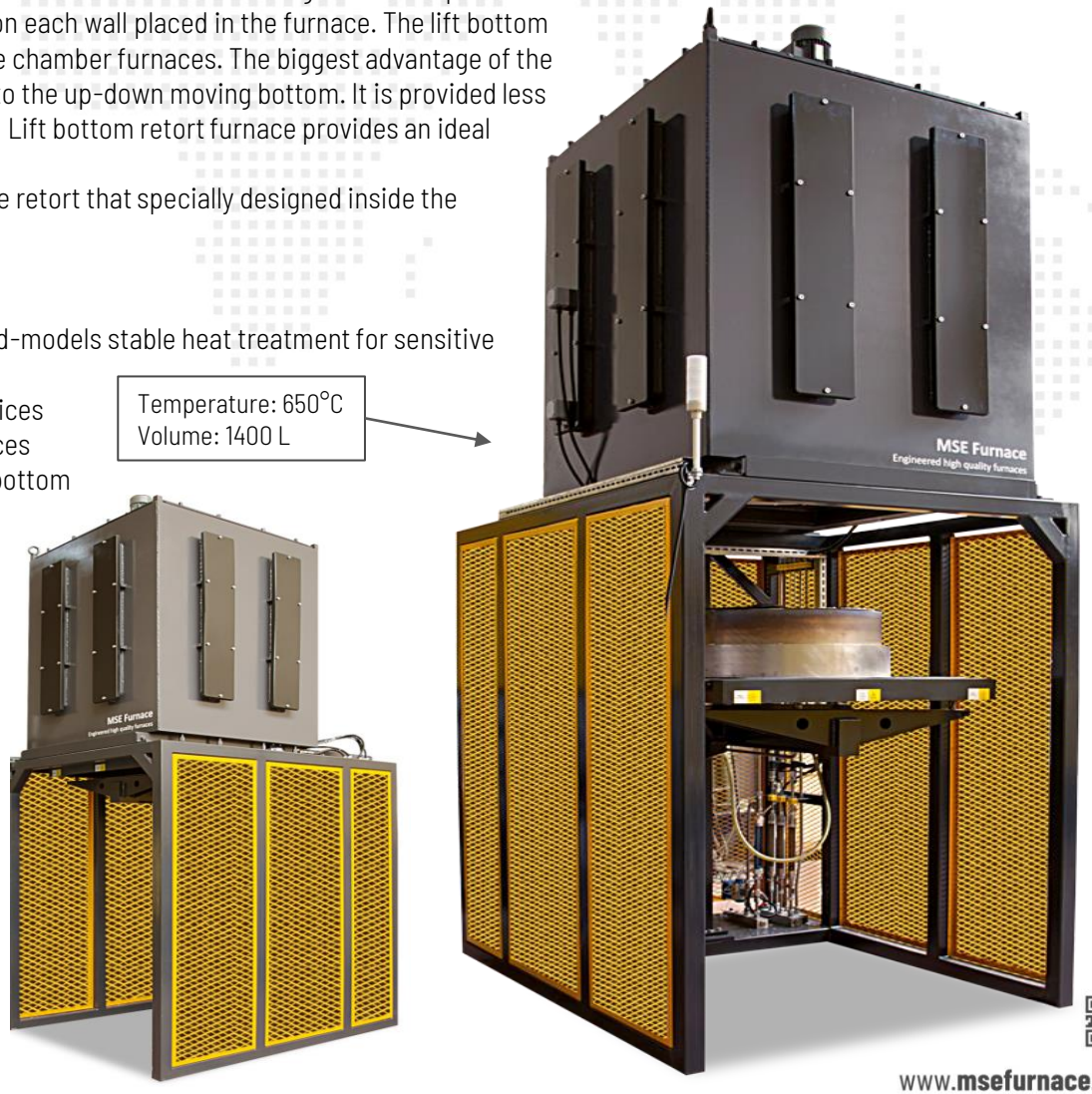
LIFT-BOTTOM RETORT FURNACE

The lift bottom retort furnace raises samples to furnace with the elevator mechanism. The homogeneous temperature distribution is provided by the fan system and also heating elements on each wall placed in the furnace. The lift bottom retort furnace is provided more homogeneous heating compare to the chamber furnaces. The biggest advantage of the lift bottom retort furnace can easily placement of the heavy samples to the up-down moving bottom. It is provided less exposure of the user to high temperature compared to the lid models. Lift bottom retort furnace provides an ideal condition for the heat treatment of stack samples (nut, bolt, etc.).
The protective atmosphere and vacuum ambient are provided with the retort that specially designed inside the furnace. For more information, please contact us.

Advantages;

- ✓ Better protection of the heating elements compared to the front lid-models stable heat treatment for sensitive samples
- ✓ The base refractory is possible to replace it without technical services
- ✓ Very homogeneous heating via environmental location of resistances
- ✓ To be able to observe the sample at desired temperature with lift bottom
- ✓ Easy placement of samples to bottom

Temperature: 650°C
Volume: 1400 L



Lift-bottom retort furnaces are available in wide a ranges of volumes and temperatures from 300°C to 850°C continuous use.

Please contact us for detailed information.

INDUSTRIAL SCALE FURNACES

BELL-LIFT RETORT FURNACE

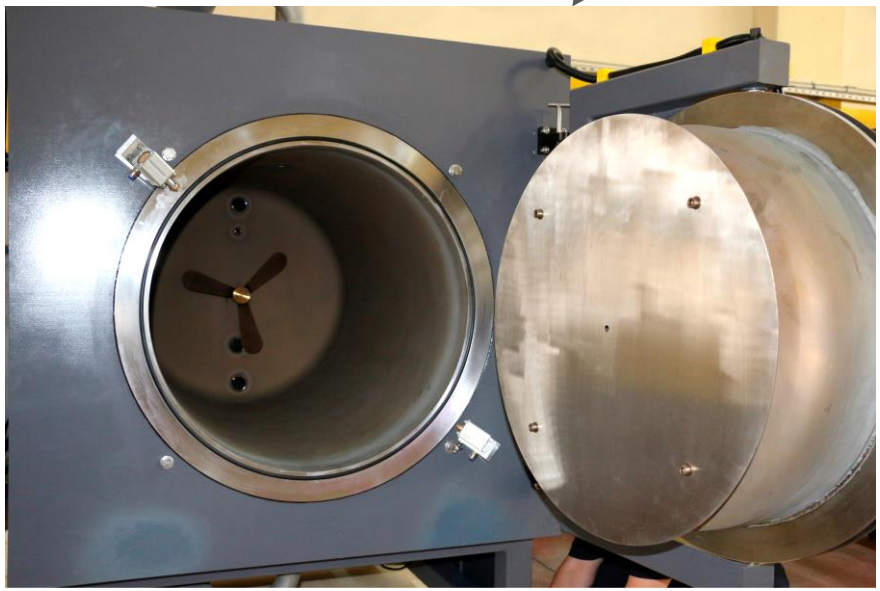
Bell lift retort furnace is a type of furnace which is raised by on fixed base. Its base remains stationary. The furnace body moves up and down. This movement is provided with railed sledges. The bell lift retort furnace provides an ideal condition for the heat treatment of stack samples (nut, bolt, etc.).
The products are placed to basket from around of bell lift furnace. Fan system and cylindrically placed resistances create a more homogeneous heat distribution in the furnace. The protective atmosphere and vacuum ambient can be provided with the retort that specially designed inside the furnace.
Retort furnaces are produced up to max. 1100 ° C.

Retort Furnace
Temperature: 850°C
Volume: 1400 L
Atmosphere control
Heating on all side

RETORT FURNACE

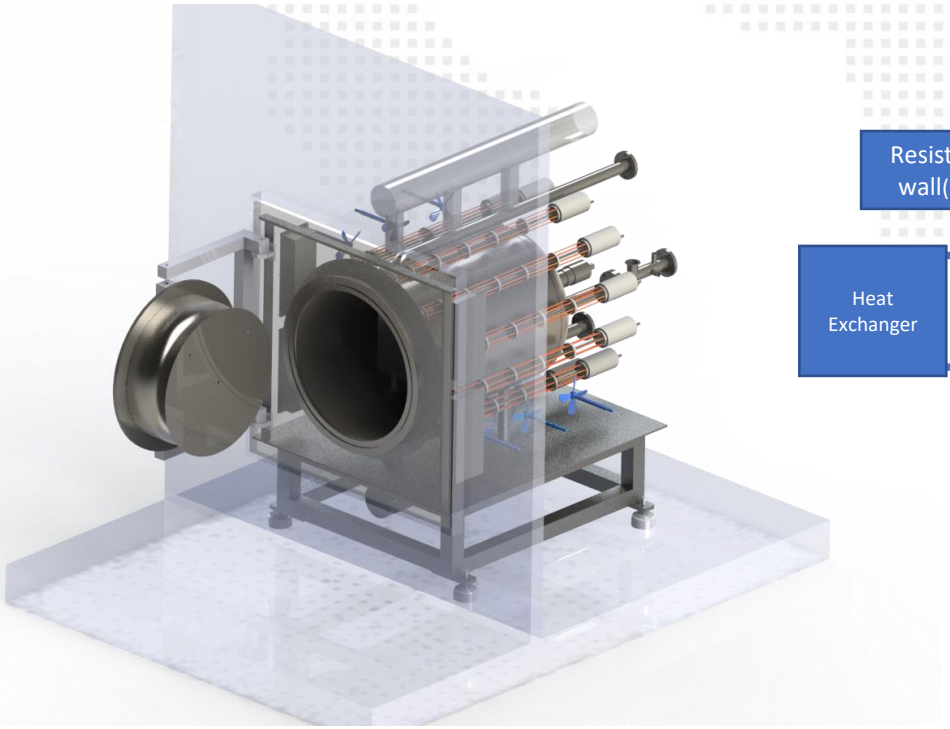
Gas-tight retort furnaces are suited for various heat treatment processes requiring a protective or a reaction gas atmosphere. At the same time, retort furnace models are designed and manufactured for heat treatment under vacuum. The lid of the retort furnace has got water-cooled sealing. Retort furnaces are also suitable for applications under reaction gases, such as hydrogen or for pyrolysis processes. There are no heating elements and insulation materials in the cylindrical chamber. By this means, the process makes under controlled conditions and non-contamination at a clean area. According to the processes that will make, the design of the models can be change. According to the processes that will make, the design of the models can be change. Retort furnaces are produced up to max. 1100 ° C.

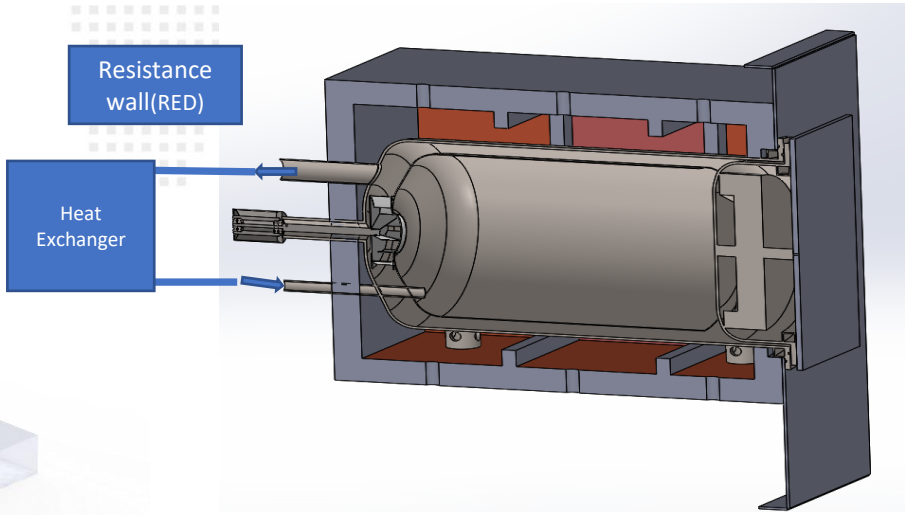
Retort Furnace
Temperature: 450°C
Diameter: 700 mm x L: 1100 mm



INDUSTRIAL SCALE FURNACES

RETORT VACUUM FURNACE





INDUSTRIAL SCALE FURNACES

DIE HEATING FURNACE

Die heating furnaces are used for heats for molds before the process. Die heating furnaces can be manufactured in wide a range of dimensions with separately adjustable heating zones chamber up to 550°C on demand by the customer. The fan system and air circulation provide very homogeneous heating. Also, there is a protective gas inlet at the furnace. Please contact us for more information about the die heating furnaces.

Adjustable temperature up to 450°C
PID controlled heating
Adjustable temperature and time
Observation of set and real temperature
System protection, audible and visual warning alarm when over temperature
Temperature measurement with thermocouple
Error display in case a breakdown
Temperature control via PID and ±1°C temperature display sensitivity
± 3°C temperature uniformity
Furnace's lid opens automatically upwards
Gas inlet
Homogeneous heating with fan and air circulation
Electric heating system
Top loading
Continuous heating system
3 heating zones (Heating and time setting for 3 zones separately)
Height adjustable, non-slip rubber feet.

INDUSTRIAL SCALE FURNACES

VACUUM FURNACE

MSE vacuum furnace is designed for the samples not to come into contact with air during the heat treatment and to complete the process with the least deformation. Also, the diffusion pump or turbomolecular pump can be selected according to customer demand.
Vacuum furnace can be made from graphite, tungsten and molybdenum according to process needs. MSE Teknoloji is produced vacuum furnace in different temperatures and volumes up to 10^-5 mbar for the heat treatment of samples under vacuum. Please contact us for ultra high vacuum furnace requests.

- PLC controlled, PID heating, touch screen,
- Able to set programmable temperature and waiting time, display of cooling water temperature, vacuum level and process details,
- Data save by USB connection
- Integrated vacuum pump
- Vacumm and gas-tight feature, water cooled and reinforced ultra high vacuum chamber
- Side-opens furnace lid
- Over-temperature alarm
- Programme temperature sensitivity ±1°C
- Tungsten heating elements

Max.Temperature: 1800°C
Continuous Use Temperature: 1600°C
Volume: 3 L
Vacuum Level: 10^-5 mbar

INDUSTRIAL SCALE FURNACES

VACUUM FURNACE

MSE vacuum furnace is designed for the samples not to come into contact with air during the heat treatment and to complete the process with the least deformation. Also, the diffusion pump or turbomolecular pump can be selected according to customer demand.
Vacuum furnace can be made from graphite, tungsten and molybdenum according to process needs. MSE Teknoloji is produced vacuum furnace in different temperatures and volumes up to 10^-5 mbar for the heat treatment of samples under vacuum. Please contact us for ultra high vacuum furnace requests.

- PLC controlled, PID heating, touch screen,
- Able to set programmable temperature and waiting time, display of cooling water temperature, vacuum level and process details.
- Data save by Wi-Fi
- Integrated vacuum pump
- Vacumm and gas-tight feature, water cooled and reinforced ultra high vacuum chamber
- Top loading
- Over-temperature alarm
- Programme temperature sensitivity ±1°C
- Graphite heating elements and insulation

Max.Temperature: 1900°C
Volume: 1 Liter
Vacuum Level: 10^-4 torr
2 qty MFC

INDUSTRIAL SCALE FURNACES

VACUUM FURNACE SERIESS

Vacuum furnaces are available in wide a ranges of pressure up to 10^(-5)mbar and temperatures from 450°C to 2500°C continuous use. The standard models of vacuum furnaces are listed below. Please contact us for detailed information.

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
VF_1100_5	1100	5	170	170	175
VF_1100_8	1100	8	200	200	200
VF_1100_12	1100	12	200	200	300
VF_1100_15	1100	15	200	250	300
VF_1100_18	1100	18	250	250	300
VF_1100_*	1100	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
VF_1200_5	1200	5	170	170	175
VF_1200_8	1200	8	200	200	200
VF_1200_12	1200	12	200	200	300
VF_1200_15	1200	15	200	250	300
VF_1200_18	1200	18	250	250	300
VF_1200_*	1200	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
VF_2200_5	2200	5	170	170	175
VF_2200_8	2200	8	180	190	245
VF_2200_*	2200	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
VF_1600_5	1600	5	170	175	170
VF_1600_8	1600	8	180	190	245
VF_1600_15	1600	15	200	200	350
VF_1600_18	1600	18	250	250	300
VF_1600_*	1600	*	*	*	*
*Produced on demand by the customer.					

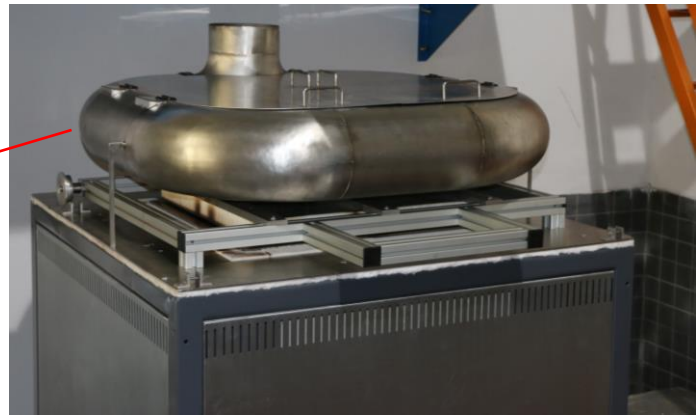
			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
VF_1700_5	1700	5	170	170	175
VF_1700_8	1700	8	180	190	245
VF_1700_15	1700	15	200	200	350
VF_1700_18	1700	18	250	250	300
VF_1700_*	1700	*	*	*	*
*Produced on demand by the customer.					

INDUSTRIAL SCALE FURNACES

SALT BATH FURNACE

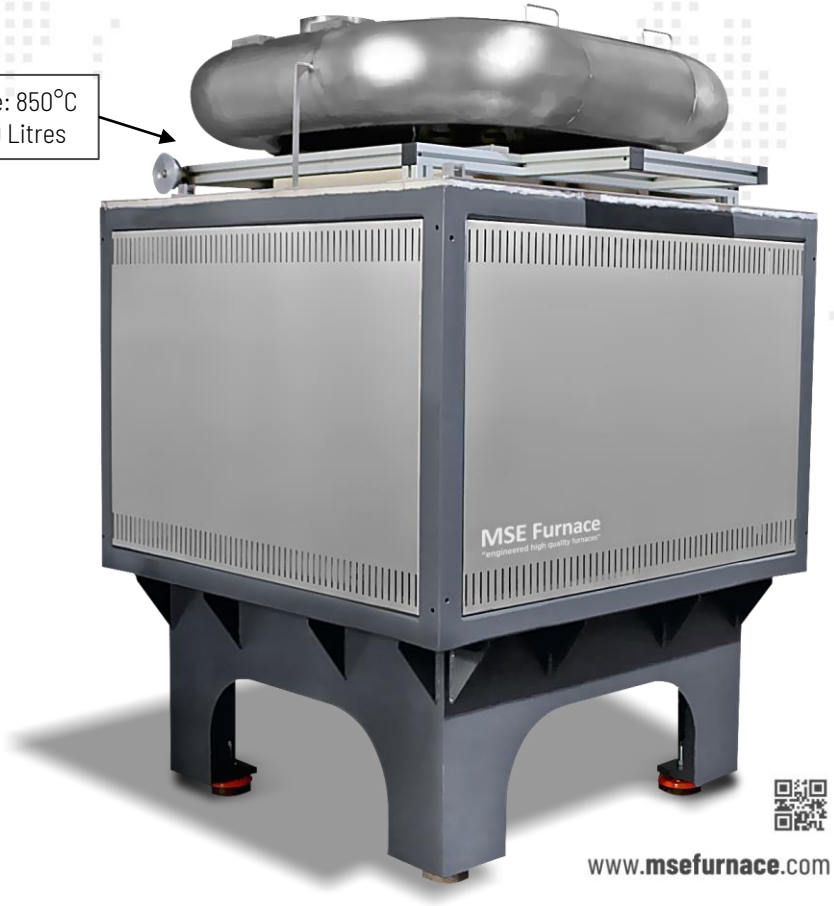
Salt bath furnace provides fast heating, controlled cooling conditions during quenching, low surface oxidation and decarburization. When parts are immersed in the molten salt of the furnace, heat is transferred directly contact to the surface. Heat transfer into parts is very rapid faster than with radiation or convection methods. The working parts that inside of the salt can't contact air. So, oxidation and decarburisation are prevented.
Additionally, by the uniform rate of heat transfer permits components having complex geometries and diverse cross-sections to be heat treated and quenched with minimal distortion. Salt bath furnace is ideal for case hardening of low carbon steels and the neutral hardening of higher carbon and alloy steels, including tool steels. Generally capital of salt bath furnace cost is low. But safe disposal of the used salt is needed. This situation due to environmental, health and safety considerations can affect to operating cost. MSE Teknoloji designs and produces salt bath furnace for the heat treatment of steels up to 1100 °C at varying volumes for industry and R&D studies.

- High corrosion resistant stainless steel bath
- System protection for over temperature. Audio visual warning alarm
- Programmable temperature
- Top mounted stainless steel fume-hood
- Temperature measurement via protected thermocouples inside of furnace and bath
- Loading on top**
- Heating on all side **



Fume-Hood

Temperature: 850°C
Volume: 250 Litres



The chemical salt which is inside the furnace must not touch with water and with damp any pieces. If the salt long-term stays, it may get solid. In this cases, it is better to pre-heating without a sample.

INDUSTRIAL SCALE FURNACES

CHEMICAL GLASS TEMPERING FURNACE

Chemical tempering is one of the methods used to increase the surface hardness of glass. In this method, it is ensured that the sodium atoms in the glass are replaced with potassium atoms in the region close to the surface. This creates a tension on the surface. It gives strength and hardness to the glass. In the glass tempering furnaces produced by our company, the glass is heated by a constant temperature increase so that the glass is not broken by thermal shocks, then it is immersed in the salt bath. After being kept in a salt bath for a sufficient time, it is cooled slowly. All this is done automatically with a pre-installed program. Chemical glass tempering furnaces are designed according to customer requirements and glass holding baskets are designed by our company. Tablet, telephone, solar panel and television glass are examples of glass produced by chemical tempering. This method is a unique method for increasing the strength of thin glasses.

In order to change the mechanical properties of the materials, it is designed and manufactured according to the needs of the tests.

- Top zone; for pre-heating and slow cooling control
- Bottom zone; for salt bath heating
- Protected automatic opens lid for salt bath, sample loading and removal
- Temperature measurement via protected thermocouples inside of furnace and bath
- Two- zone heating system
- Sample feeding system with lift
- Stainless steel sample basket

The chemical salt which is inside the furnace must not touch with water and with damp any pieces.
If the salt long-term stays, it may get solid. In this cases, it is better to pre-heating without a sample.

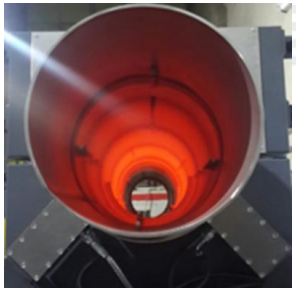
INDUSTRIAL SCALE FURNACES

ROTARY TUBE FURNACE

MSE rotary tube furnace is specially designed for the dynamic drying, sintering, calcination and other heat treatment of powders and granules. The kinetic energy during the heat treatment ensures the product is more homogeneous and in a shorter time. The residence time of the product in the furnace can be adjusted with both the rotational speed and the tilt angle. The powder grains fed into the tube with a feeder are subjected to heat treatment during the mixing along the length of the tube the effect of rotation and slope. The finished product gets out from the end of the tube.
For rotary tube furnace can be preferred as optional features that an oxygen-free, reducing atmosphere, cooling system, and automatic feeding system. The calcination process takes place at temperatures below the melting point of the materials. The material enters the furnace by the feeder system. The furnace has inclined and rotation features. Flame barriers / protective gas flow prevents oxygen. A reducing atmosphere is formed inside the furnace. These can provide in an oxygen-free environment in these furnaces.

Designed for calcination of chemical and metal powders.

Sample mixing via rotating featured special design tube
Adjustable temperature up to 850°C
Heat Treatment Length: 2500 mm
Pipe Diameter : 300 mm
Rotate speed : 0-10 rpm
Tilt Angle : 0-10°
Adjustable rotation speed and tilt angle
Controllable 5 heating zones

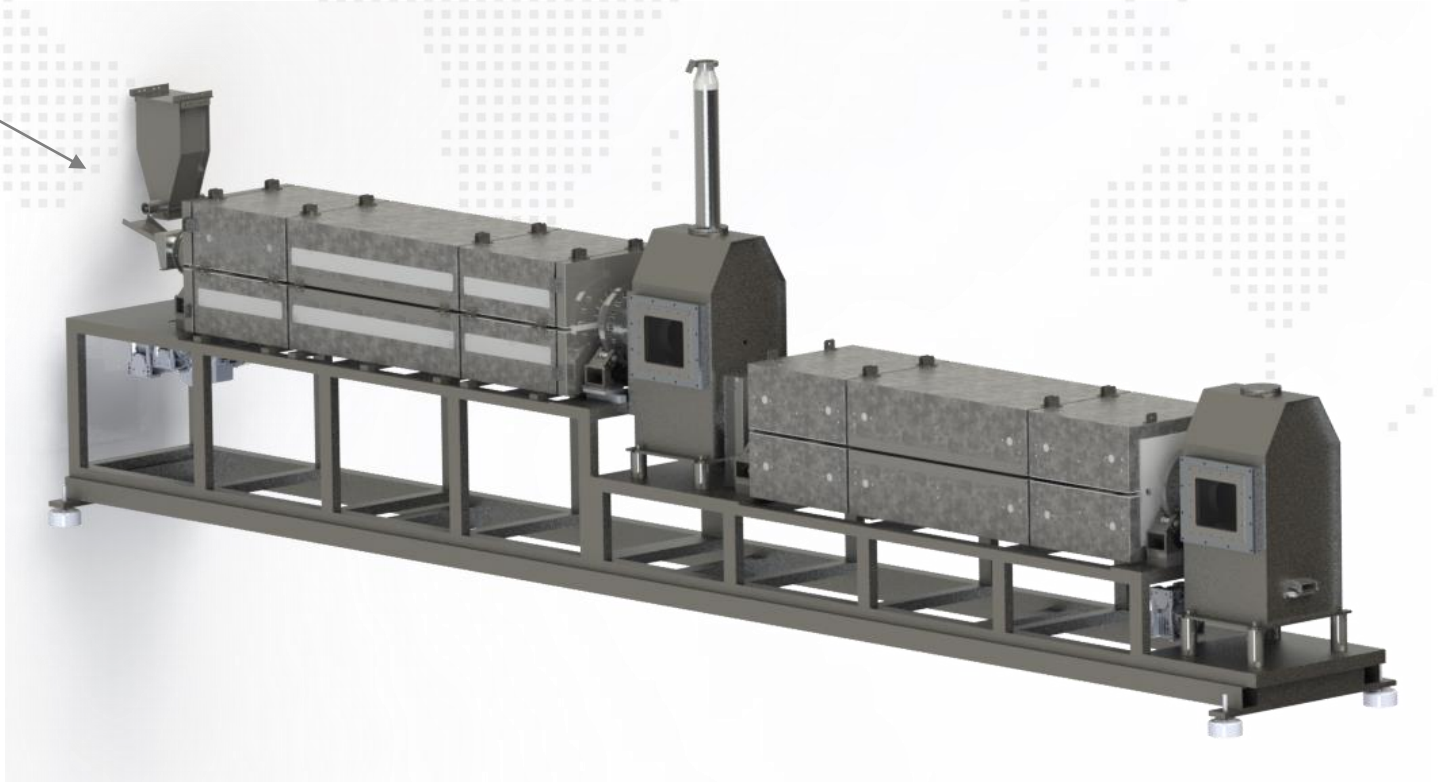


INDUSTRIAL SCALE FURNACES

ROTARY TUBE FURNACE

For rotary tube furnace can preferred optional features that an oxygen-free, reducing atmosphere, cooling system, automatic feeding system. The material enters the furnace by the feeder system. The furnace has inclined and rotation features. Flame barriers / protective gas flow are prevent oxygen. Reducing atmosphere is formed inside the furnace. Rotary tube furnaces are produced up to 1600°C according to customer request, depending on material and capacity. Please contact us for detailed information.

- Reaction input-output: 800°C - 70°C
- Inclined work
- Main Components of the System:
- Feeder
- Furnace
- High Temperature Reactor
- Reactor Rotation System
- Cooling Unit
- Unloading Unit
- Flame Curtains
- Control Board
- Connection and auxiliary equipments

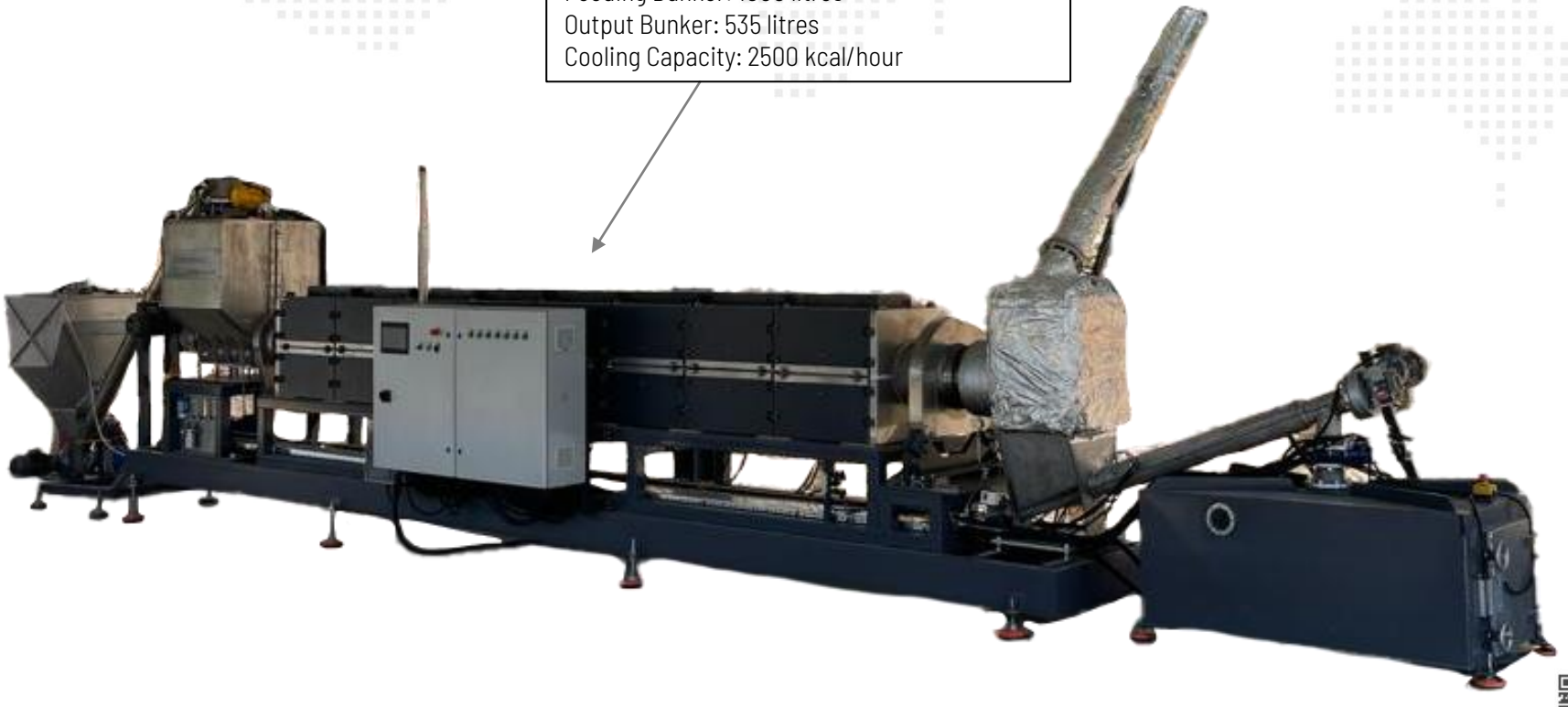


INDUSTRIAL SCALE FURNACES

ROTARY TYPE BİYOCHAR PRODUCTION FURNACE (Continuous Feed)

This system converts forest and agricultural biomass to biochar at a temperature range of from 250°C up to 600°C with a mass feed rate of up to 40 kg/h, and also the system provides cooling to ambient temperature and stores.

Max. Temperature: 600 °C
Reactor Dimension: Ø: 323 mm x L: 5900 mm
Capacity: 40 kg / hour
Feeding Bunker: 1000 litres
Output Bunker: 535 litres
Cooling Capacity: 2500 kcal/hour



INDUSTRIAL SCALE FURNACES

ROTARY TYPE BİYOCHAR PRODUCTION FURNACE (Continuously Feeding)

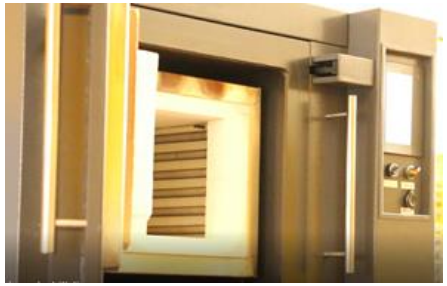
INDUSTRIAL SCALE FURNACES

ATMOSPHERE CONTROLLED CHAMBER FURNACE

Atmosphere controlled chamber furnace is prefered for where a protective environment is required such as manufacturing of dental products, heat-treatment, sintering, melting, ageing, thermal testing, powder synthesizing. MSE Teknoloji designs and produces atmosphere -controlled chamber furnace for heat treatment under the atmospheric conditions such as argon, nitrogen, vacuum, hydrogen and the like. The adjustable gas and water flow meter, high pressure relief system, overtemperature alarm and vacuum pump (to sweep the air) are integrated into the furnace as standard. The cabin of furnace is water-cooled. And cabin of the furnace consists of heating elements and high-quality alumina refractories selected according to the temperature. In addition, water cooling system pressure, cabin temperature, internal atmospheric pressure, intelligent systems are monitored by the user to make the process in safe. Atmosphere controlled chamber furnaces are produced up to 2800°C according to product, capacity and on demand At temperatures above 1800 C, graphite resistance and graphite insulation will be used. Please, review graphite furnaces for a better vacuum and metals sample workings and contact us. For the Hydrogen atmosphere please contact us.

- PLC controlled, PID heating, Touch screen panel
- Able to set programmable temperature, waiting time on touch screen
- Display of cooling water, temperature and process details
- Data save by USB
- Programmable temperature and temperature sensitivity ± 1°C
- Side-opens furnace lid
- Entegreted 10^-1 mbar vacuum pump
- Automatic energy cut while lid opening and do not able to work unless lid is closed
- High temperature alarm
- Adjustable gas flowmeter
- Water cooled and stainless steel atmosphere cabin
- High quality fiber insulation and selection of resistance according to temperature (MoSi, SiC, Kanthal A1)

Temperature: 1200 °C
Volume: 15 L



INDUSTRIAL SCALE FURNACES

ATMOSPHERE CONTROLLED CHAMBER FURNACE SERIESS

Argon, nitrogen, partial hydrogen and so on are designed for heat treatment in atmospheric conditions. Atmosphere controlled chamber furnaces are available in wide a ranges of volume and temperatures up to 1800°C continuous use. At temperatures above 1800 C, graphite resistance and graphite insulation will be used. The standard models of atmosphere controlled furnaces are listed below. Please contact us for detailed information.

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ATM_1100_4	1100	4	150	165	165
ATM_1100_5	1100	5	170	170	175
ATM_1100_8	1100	8	200	200	200
ATM_1100_12	1100	12	200	200	300
ATM_1100_*	1100	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ATM_1600_4	1600	4	140	175	165
ATM_1600_5	1600	5	170	175	170
ATM_1600_8	1600	8	180	190	245
ATM_1600_12	1600	12	200	200	300
ATM_1600_*	1600	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ATM_1700_4	1700	4	150	165	165
ATM_1700_5	1700	5	170	170	175
ATM_1700_8	1700	8	180	190	245
ATM_1700_12	1700	12	200	200	300
ATM_1700_*	1700	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ATM_2200_5	2200	5	170	170	175
ATM_2200_8	2200	8	180	190	245
ATM_2200_12	2200	12	200	200	300
ATM_2200_*	2200	*	*	*	*
*Produced on demand by the customer.					

INDUSTRIAL SCALE FURNACES

GRAPHITE FURNACE (Chamber Type)

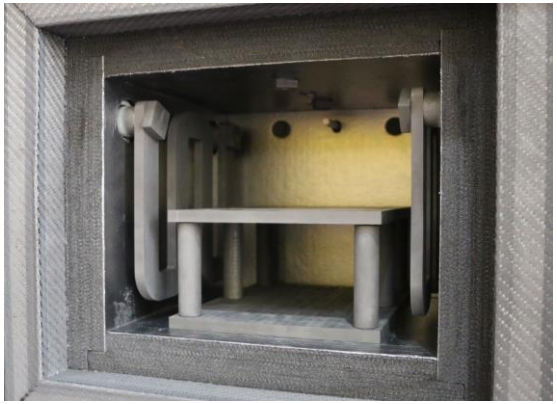
Graphite furnace is generally prefered for where a protective environment is required such as manufacturing , sintering etc. of metal products or metal powders. MSE Teknoloji designs and produces graphite furnace for heat treatment under the atmospheric conditions such as argon, nitrogen, vacuum, hydrogen and the like. The adjustable gas and water flow meter, high pressure relief system, overtemperature alarm and vacuum pump are integrated into the furnace as standard.

The cabin of furnace is water-cooled. And cabin of the furnace consists of graphite heating elements and graphite insulation. In addition, water cooling system pressure, cabin temperature, internal atmospheric pressure, intelligent systems are monitored by the user to make the process in safe. Please, review vacuum furnaces for a high vacuum and contact us. Graphite furnaces are produced up to 2800°C according to product, capacity and on demand.

- PLC controlled, PID heating, Touch screen panel
- Programmable temperature and temperature sensitivity ± 1°C
- Side-opens furnace lid
- Entegreted 10^-2 mbar vacuum pump
- Able to set programmable temperature, waiting time on touch screen
- Display of cooling water, temperature and process details
- Data save by USB
- Automatic energy cut while lid opening and do not able to work unless lid is closed
- High temperature alarm
- Adjustable gas flowmeter
- Water cooled reinforced vacuum cabin
- Graphite heating elements and graphite insulation

Optional Features : graphite shelf for sample

Temperature: 1700 °C
Volume: 18 L



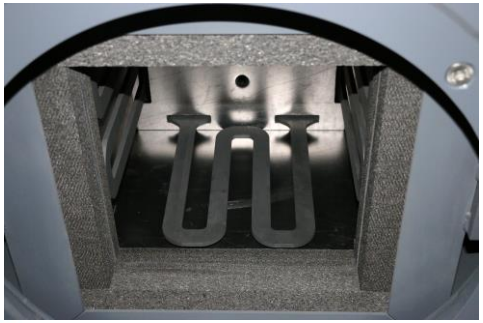
INDUSTRIAL SCALE FURNACES

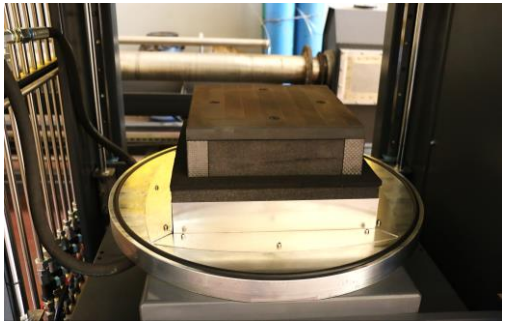
GRAPHITE FURNACE (Lift-Bottom Type)

Graphite furnace is generally prefered for where a protective environment is required such as manufacturing , sintering etc. of metal products or metal powders. MSE Teknoloji designs and produces graphite furnace for heat treatment under the atmospheric conditions such as argon, nitrogen, vacuum, hydrogen and the like. The adjustable gas and water flow meter, high pressure relief system, overtemperature alarm and vacuum pump are integrated into the furnace as standard. The cabin of furnace is water-cooled. And cabin of the furnace consists of graphite heating elements and graphite insulation. In addition, water cooling system pressure, cabin temperature, internal atmospheric pressure, intelligent systems are monitored by the user to make the process in safe. Please, review vacuum furnaces for a high vacuum and contact us. Graphite furnaces are produced up to 2800°C according to product, capacity and on demand.

- PLC controlled, PID heating, Touch screen panel
- Reinforced vacuum cabin
- Sample loading with elevator base
- Programmable temperature and temperature sensitivity ± 1°C
- Lift-bottom furnace lid
- Entegreted 10^-2 mbar vacuum pump
- Able to set programmable temperature, waiting time on touch screen
- Display of cooling water, temperature and process details
- Data save by USB
- Automatic energy cut while lift-bottom lid opening and do not able to work unless lid is closed
- Excessive temperature blocking
- Adjustable gas flowmeter
- Water cooled reinforced atmosphere cabin
- Graphite heating elements and graphite insulation

Temperature: 1750 °C
Volume: 43 L





INDUSTRIAL SCALE FURNACES

DIE HEATING FURNACE

Die heating furnaces are used for equably heating the die which is about to be used for the purpose of changing its mechanical characteristic. Die heating furnaces can be manufactured in wide a range of dimensions with separately adjustable heating zones chamber up to 550°C on demand by the customer. The fan system and air circulation provide very homogeneous heating. Also, there is a protective gas inlet at the furnace. Please contact us for the die heating furnaces.

Adjustable temperature up to 450°C
PID controlled heating
Adjustable temperature and time
Observation of set and real temperature
System protection, audible and visual warning alarm when over temperature
Temperature measurement with thermocouple
Error display in case a breakdown
Temperature control via PID and ±1°C temperature display sensitivity
± 3°C temperature uniformity inside the furnace
Furnace's lid opens automatically upwards
Inert gas inlet
Homogeneous heating with fan and air circulation
Electric heated
Top loading
Continuous heating system
3 heating zones (Heating and time setting for 3 zones separately)
Height adjustable, non-slip rubber feet.

INDUSTRIAL SCALE FURNACES

CUPELLATION FURNACE

Cupelation is the most common, accurate and ancient method used in the analysis of ores of gold, silver and some other noble metals. MSE Cupellation furnace is suitable for melting at 1100 °C after the mixing of samples with together the chemicals such as Borax (Na2B4O7.10H2O), Silica Sand (SiO2), Lead (II) Oxide (PbO), Silver Nitrate (AgNO3), Potassium Nitrate (KNO3), Carbon (C), Sodium Carbonate (NACO3), Calcium Fluoride (CaF2).

Depending on the nature of the sample, the internal bricks, heating elements and thermocouples are resistant to these conditions, against the formation of acidic, basic and neutral vapours. MSE designs and manufactures cupellation furnaces up to 1300 °C. Please contact us for detailed information.

Cupellation is a refining process in metallurgy.
Basically, The cupellation furnace removes all non-precious metals from samples of the precious alloy to be assayed.

- Resistant to acidic, basic and neutral vapours internal brick,
- Protected heating elements
- Temperature measurement with thermocouple
- Openable and closable manually controlled chimney
- Up and down moveable stainless steel furnace lid
- Adjustable / fan that makes a suction from lid zone and inner ambient
- Able to place the sample on the lid and use with the lid open

Temperature: 1300 °C
Volume: 87 L

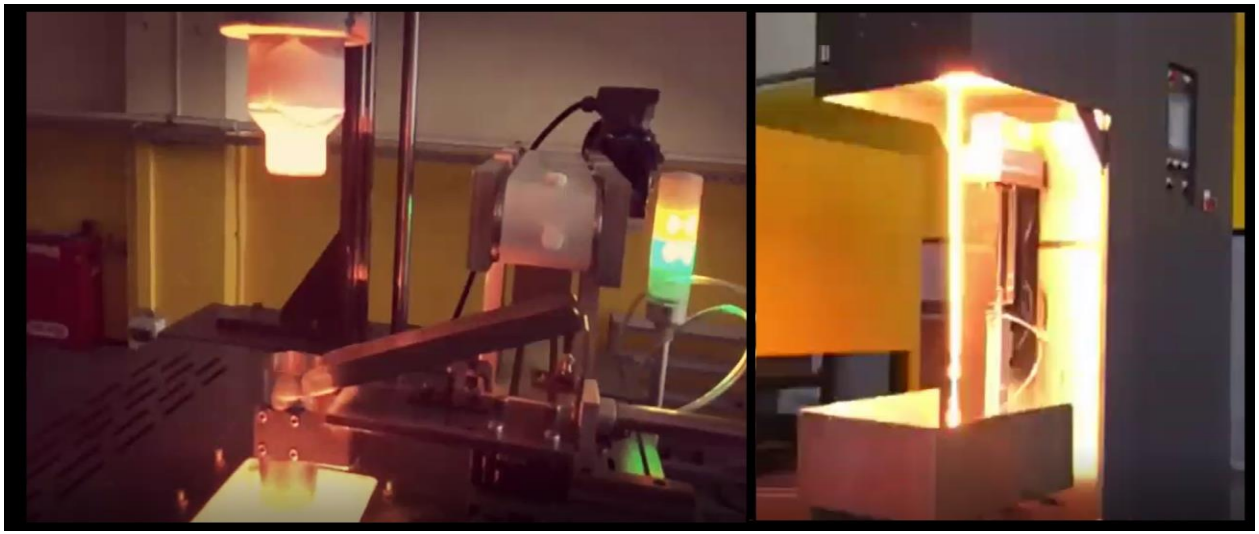
INDUSTRIAL SCALE FURNACES

FRIT FURNACE

Firstly raw materials are scale and mix according to a recipe later on these raw materials are melted at high temperature and provided a rapid cooling of the molten raw materials. Raw materials that have already been pelleted are fed into the frit furnace automatically. The melting temperature is reached with the desired program and after waiting for a certain time at this temperature, the furnace bottom cover is opened and frit is poured. The frit furnace can then perform the same cycle again and automatically. All these operations are programmed via a touch screen. In this system which provides automatic operation, frit production can be done without stopping. The furnace crucible can be removed and cleaned for different composition studies. Frit furnaces are available in wide a ranges of volumes from 1 liter to 500 litres and temperatures up to 1600°C continuous use.

- Melting crucible integrated to furnace
- Water tank and protective barrier
- Manual sample feeding system

Optional features:
-Automatic feeding system



Temperature: 1600°C
Capacity per day: 5 L

TUNNEL FURNACE

It is designed for produce flat and thin glass by melting powder or granular frit.

Tempereture: 1600°C

Temperature: 850 °C

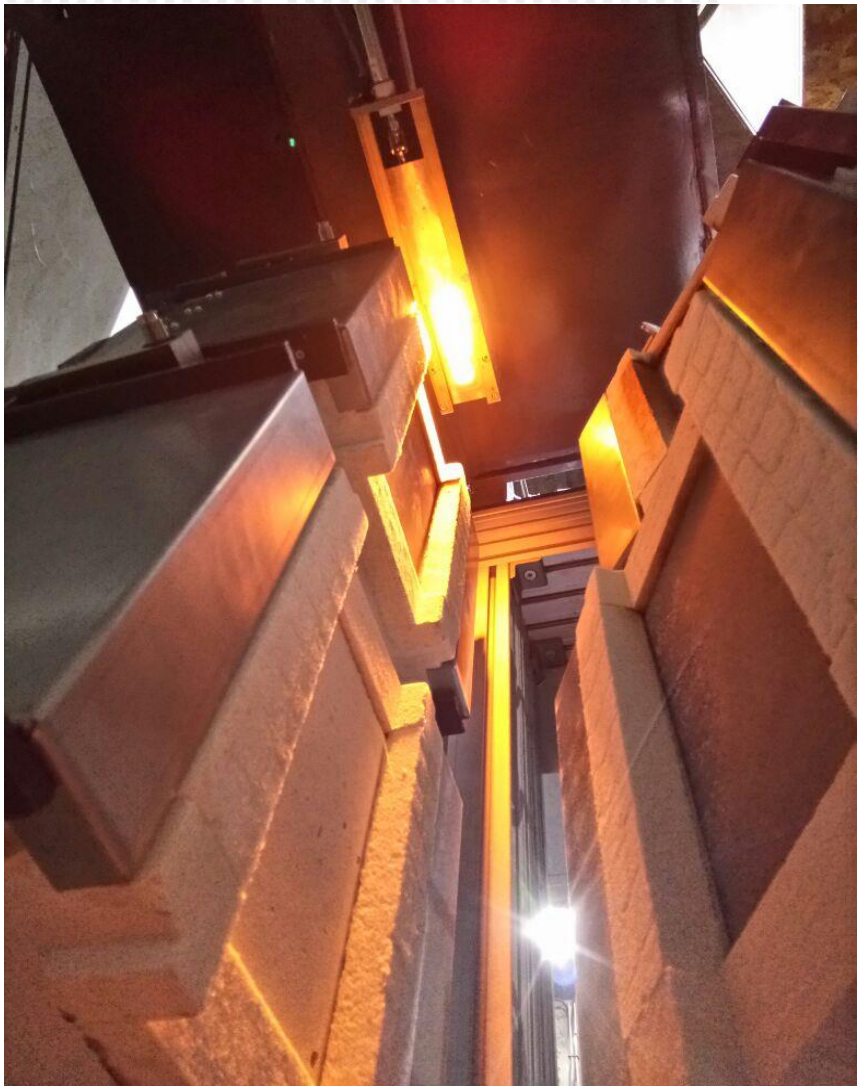
Continuous system,

Moves in only one direction

FLAT GLASS FURNACE

It is designed for produce flat and thin glass by melting powder or granular frit.

Tempereture: 1600°C



PRODUCTS

engineered high quality

LABORATORY SCALE FURNACES

Industrial Furnaces Burning and Melting Furnaces Salt Melting Furnaces Dental Furnaces
Atmosphere Controlled Furnaces Chamber Furnaces Tunnel/Roller Furnaces
Rapid Thermal Furnace Glass Melting Furnaces Burn-Out Furnace Ashing Furnaces Tubes and Pots
Lift Bottom Furnaces Tube Furnaces Gradient Furnaces Split Furnaces / Multi Zone
Rotary Tube Furnace Metal Heat Treatment Furnace Graphite Furnaces Furnace Accessories
Car Bottom Furnaces Chemical Tempering Furnaces
Salt Bath Furnaces Custom-Made Furnaces

MSE Furnace
"engineered high quality furnaces"

"engineered high quality furnaces"

www.msefurnace.com

LABORATORY SCALE FURNACES

CHAMBER FURNACE

As the name suggests, chamber furnace has an internal usage area in the form of a rectangular prism. MSE chamber furnace is designed for use at a wide temperature ranges and different volumes in order to enable users to perform melting, thermal ageing, metal heat treatment, sintering, burning, tempering, normalizing, stress relieving, chemical decomposition and so on.
Chamber furnaces are produced up to 1800°C.

- Programmable step controller via digital display
- Auto power cut when lid is open
- Temperature control via PID and ±1°C temperature display sensitivity
- Observation of set and real temperature
- Temperature measurement via thermocouple
- Delayed start and program save feature
- System protection for over temperature, audio visual warning alarm
- Error display in case a breakdown
- Heating on both sides**
- Upward opens lid**
- Exhaust gas outlet connected to inner volume
- High-quality fiber and brick insulated heat zone
- Low external surface temperature (R.Temp. + 40 °C) thanks to double-layers steel construction
- Epoxy painted galvanized-steel exterior
- Able to resume the program after the power failure
- Height adjustable, non-slip rubber feet

Optional features:
-(WG) protective gas input

(**) according to dimensions can change.

LABORATORY SCALE FURNACES

CHAMBER FURNACE SERIES

			Internal Dimensions		
Product Code	Max. Temperature °C	Volume (L)	Width (mm)	Height (mm)	Depth (mm)
M_1100_5	1100	5	170	170	175
M_1100_8	1100	8	200	200	200
M_1100_12	1100	12	200	200	300
M_1100_36	1100	36	300	300	400
M_1100_45	1100	45	360	310	410
M_1100_*	1100	*	*	*	*

*Produced on demand by the customer.

			Internal Dimensions		
Product Code	Max. Temperature °C	Volume (L)	Width (mm)	Height (mm)	Depth (mm)
M_1200_5	1200	5	170	170	175
M_1200_8	1200	8	200	200	200
M_1200_12	1200	12	200	200	300
M_1200_15	1200	15	200	250	300
M_1200_18	1200	18	250	250	300
M_1200_25	1200	25	250	250	400
M_1200_30	1200	30	300	250	400
M_1200_36	1200	36	300	300	400
M_1200_45	1200	45	360	310	410
M_1200_*	1200	*	*	*	*

*Produced on demand by the customer.

			Internal Dimensions		
Product Code	Max. Temperature °C	Volume (L)	Width (mm)	Height (mm)	Depth (mm)
M_1300_5	1300	5	170	170	175
M_1300_8	1300	8	200	200	200
M_1300_12	1300	12	200	200	300
M_1300_36	1300	36	300	300	400
M_1300_45	1300	45	360	310	410
M_1300_*	1300	*	*	*	*

*Produced on demand by the customer.

			Internal Dimensions		
Product Code	Max. Temperature °C	Volume (L)	Width (mm)	Height (mm)	Depth (mm)
M_1400_5	1400	5	170	170	175
M_1400_8	1400	8	200	200	200
M_1400_12	1400	12	200	200	300
M_1400_25	1400	25	250	250	400
M_1400_36	1400	36	300	300	400
M_1400_*	1400	*	*	*	*

*Produced on demand by the customer.

			Internal Dimensions		
Product Code	Max. Temperature °C	Volume (L)	Width (mm)	Height (mm)	Depth (mm)
M_1500_5	1500	5	170	170	175
M_1500_8	1500	8	200	200	200
M_1500_12	1500	12	200	200	300
M_1500_36	1500	36	300	300	400
M_1500_*	1500	*	*	*	*

*Produced on demand by the customer.

			Internal Dimensions		
Product Code	Max. Temperature °C	Volume (L)	Width (mm)	Height (mm)	Depth (mm)
M_1600_4	1600	4	140	175	165
M_1600_5	1600	5	170	175	170
M_1600_8	1600	8	200	200	200
M_1600_12	1600	12	200	200	300
M_1600_25	1600	25	250	250	400
M_1600_36	1600	36	300	250	450
M_1600_*	1600	*	*	*	*

*Produced on demand by the customer.

			Internal Dimensions		
Product Code	Max. Temperature °C	Volume (L)	Width (mm)	Height (mm)	Depth (mm)
M_1750_4	1750	4	150	165	165
M_1750_5	1750	5	170	170	175
M_1750_8	1750	8	200	200	200
M_1750_12	1750	12	200	200	300
M_1750_25	1750	25	250	250	400
M_1750_*	1750	*	*	*	*

*Produced on demand by the customer.

			Internal Dimensions		
Product Code	Max. Temperature °C	Volume (L)	Width (mm)	Height (mm)	Depth (mm)
M_1800_5	1800	5	170	170	175
M_1800_8	1800	8	200	200	200
M_1800_12	1800	12	200	200	300
M_1800_*	1800	*	*	*	*

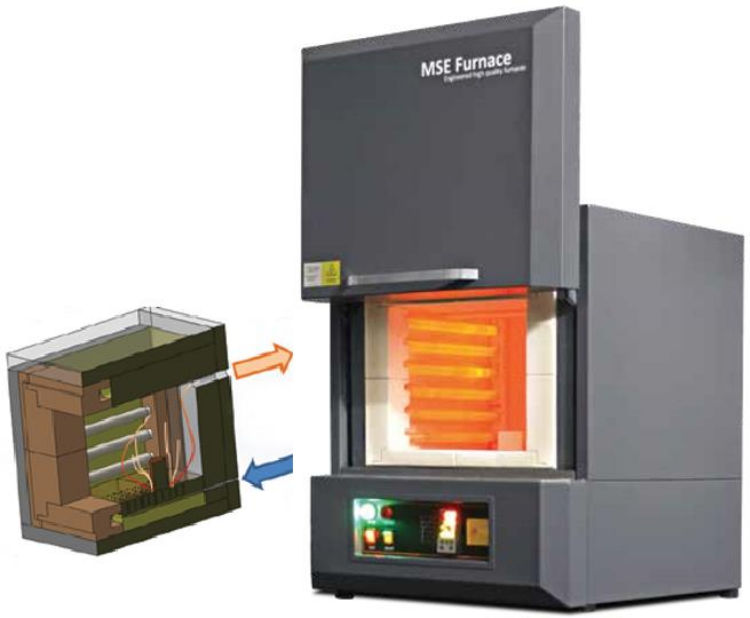
*Produced on demand by the customer.

LABORATORY SCALE FURNACES

ASHING FURNACE

One of the most common applications of laboratory furnaces is to heat combustible samples in order to analyze the ash residue. MSE ashing furnace is designed to provide optimum ash conditions to ensure complete combustion of the sample.
Ashing furnace used to remove some components from the sample by combustion reaction under atmospheric conditions are designed to feed oxygen in sufficient quantities that the reaction requires as required by the system. It can be used safely in the ash experiments with the design suitable for carbon accumulation that can occur during the burning of organic, polymer and other petroleum -based materials.
It is ideal for ash foods, plastics, coals and other hydrocarbon materials. The double layer construction keeps the exterior body cool at high temperatures and provides excellent stability. Bottom air-flown design provides an excellent air circulation required during the process. The digital PID Control is maintained temperature settings accurately. Ashing furnaces are produced up to 1200°C.

- Porous bottom plate and air duct base
- Air input: 6 bar
- Optional resistance protection
- Programmable step controller via digital display
- Auto power cut when lid is open
- Temperature control via PID and ±1°C temperature display sensitivity
- Observation of set and real temperature
- Temperature measurement via thermocouple
- Delayed start and program save feature
- System protection for over temperature, audio visual warning alarm
- Error display in case a breakdown
- Heating on both sides**
- Upward opens lid**
- Exhaust gas outlet connected to inner volume
- High-quality fiber and brick insulated heat zone
- Epoxy painted galvanized-steel exterior contruction
- Low external surface temperature (R.Temp. + 40 °C) thanks to double-layers steel construction
- Able to resume the program after the power failure
- Height adjustable, non-slip rubber feet



(**) according to dimensions can change.

LABORATORY SCALE FURNACES

ASHING FURNACE SERIES

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
KK_1100_5	1100	5	170	170	175
KK_1100_8	1100	8	200	200	200
KK_1100_12	1100	12	200	200	300
KK_1100_15	1100	15	200	250	300
KK_1100_18	1100	18	250	250	300
KK_1100_25	1100	25	250	250	400
KK_1100_30	1100	30	300	250	400
KK_1100_36	1100	36	300	300	400
KK_1100_45	1100	45	360	310	410
KK_1100_*	1100	*	*	*	*

*Produced on demand by the customer.

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
KK_1200_5	1200	5	170	170	175
KK_1200_8	1200	8	200	200	200
KK_1200_12	1200	12	200	200	300
KK_1200_15	1200	15	200	250	300
KK_1200_18	1200	18	250	250	300
KK_1200_25	1200	25	250	250	400
KK_1200_30	1200	30	300	250	400
KK_1200_36	1200	36	300	300	400
KK_1200_45	1200	45	360	310	410
KK_1200_*	1200	*	*	*	*

*Produced on demand by the customer.

LABORATORY SCALE FURNACES

QUENCHING FURNACE (for small components)

MSE quenching furnace is suitable for the treatment of steels, small parts of electrical components. At the same time, this furnace is produced in accordance with the AMS 2750 standard. Quenching furnace can be easily carried out quenching process of copper and aluminum alloys by integrating water chamber. This furnace can also be used for annealing similar products. MSE Quenching Furnaces are manufactured different sizes and temperatures on demand by the customer. Please contact us for detailed information.

- PLC controlled and PID heating
- Programmable temperature and time, display of process details momentarily on the screen, data saving by USB connection feature
- Elevator control via joystick for quenching operation
- Temperature control via PID and ±1°C temperature display sensitivity
- System protection for over temperature. Audio visual warning alarm
- Temperature measurement via thermocouple
- Error display in case a breakdown
- Heating on all side
- Exhaust gas outlet connected to inner volume
- High-quality insulated heat zone
- Low energy consumption
- Automatic energy cut while lift bottom opening and do not able to work unless lid is closed
- Integrated 10^-1 mbar standard vacuum pump with the purpose of purge the air
- Inert gas inlet and outlet
- Lid, gas and vacuum sensitivity, cooling cabin temperature alarm
- Adjustable manual gas flowmeter
- Basket for samples
- Water tank
- Sample drying unit
- Sample loading via elevator bottom to the heating zone
- Low external surface temperature (R.Temp. + 40 °C) thanks to double-layers steel construction
- Epoxy painted galvanized-steel exterior
- Height adjustable, non-slip rubber feet.
- Usage with standing

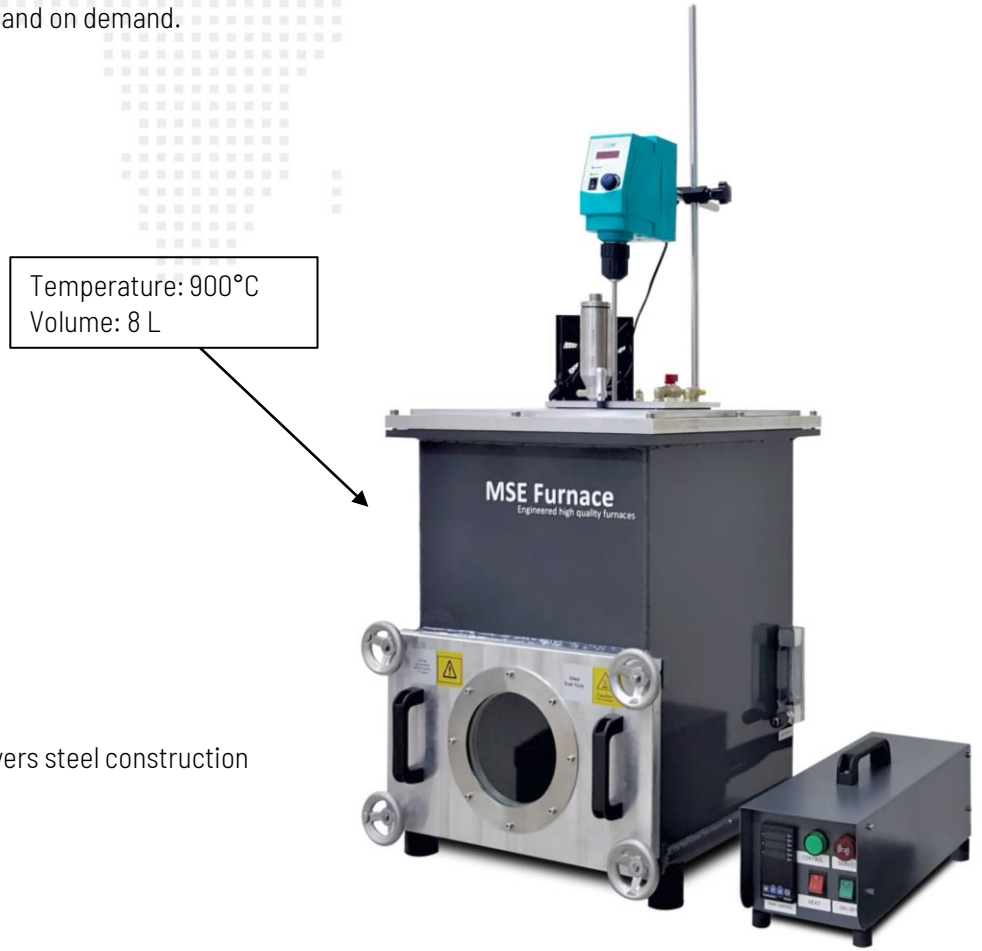
Max. Temperature: 1000°C
Volume: 12 L

LABORATORY SCALE FURNACES

CASTING FURNACE

MSE Casting Furnace is designed to the mixing, melting of the material under the temperature and fill to mould. This device can be preferred for aluminium smelting. Argon or nitrogen use as a protective gas throughout the process. Firstly, the material is heated and mixed. After, casting rod lift up, the molten material is poured into the crucible inside of the casting furnace cabin. The casting can be followed through the observation glass that in front of the furnace.
Casting furnaces are produced up to 1100°C according to product, capacity and on demand.

- Programmable step controller via digital display
- Observation of set and real temperature
- Delayed start and program save feature
- Temperature control via PID and ±1°C temperature display sensitivity
- System protection over temperature, audio visual warning alarm
- Temperature measurement via thermocouples
- Error display in case a breakdown
- Percentage of electrical energy consumption
- Able to resume the program after the power failure
- Heating elements placed on four walls
- Graphite melting crucible
- Integrated mixer
- Low energy consumption
- Manual casting system after melting
- Top-opens lid
- Protective gas inlet and outlet
- Adjustable manual gas flowmeter
- Atmosphere controlled mould chamber and casting observation window
- Low external surface temperature (R.Temp. + 40 °C) thanks to double-layers steel construction
- Epoxy painted galvanized-steel exterior
- Height adjustable, non-slip rubber feet



LABORATORY SCALE FURNACES

ATMOSPHERE CONTROLLED LIFT-BOTTOM FURNACE

Atmosphere controlled lift bottom furnace is prefered for where a protective environment is required such as manufacturing of metal products, heat-treatment, sintering, melting, ageing, thermal testing, powder synthesizing.
MSE Teknoloji designs and produces Atmosphere-controlled lift bottom furnace for heat treatment under the atmospheric conditions such as argon, nitrogen, vacuum, hydrogen and the like. Our company uses also cylindrical atmosphere cabins which are more stable than other geometries for Atmosphere-controlled lift-bottom furnace according to process. The cabin of furnace is water-cooled. And cabin of the furnace consists of heating elements and high-quality alumina refractories selected according to the temperature. Atmosphere controlled lift-bottom furnaces are produced up to 2800°C according to product, capacity and on demand. At temperatures above 1800 C, graphite resistance and graphite insulation will be used. Please, review graphite furnaces for a better vacuum and metals sample workings and contact us. For the Hydrogen atmosphere please contact us.

- Programmable step controller via digital display
- Auto power cut when elevator lid is open
- Temperature control via PID and ±1°C temperature display sensitivity
- Observation of set and real temperature
- Temperature measurement via thermocouple
- Delayed start and program save feature
- System protection over temperature, audio visual warning alarm
- Error display in case a breakdown
- Reinforced vacuum stainless and water cooled cabinet
- Programme temperature sensitivity ± 1°C
- Entegreted 10^-2 mbar vacuum pump
- Heating elements placed on four walls
- Sample loading with elevator base
- Automatic energy cut while lid opening and do not able to work unless lid is closed
- Adjustable gas flowmeter

Temperature: 2200 °C
Volume: 5 L

LABORATORY SCALE FURNACES

ATMOSPHERE CONTROLLED LIFT-BOTTOM FURNACE SERIES

Atmosphere controlled lift-bottom furnaces are available in wide a ranges of volume and temperatures up to 2800°C continuous use. Argon, nitrogen, partial hydrogen and so on are designed for heat treatment in atmospheric conditions. The standard models of atmosphere controlled chamber furnaces are listed below. Please contact us for detailed information.

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ATM_ELV_1100_4	1100	4	150	165	165
ATM_ELV_1100_5	1100	5	170	170	175
ATM_ELV_1100_8	1100	8	200	200	200
ATM_ELV_1100_12	1100	12	200	200	300
ATM_ELV_1100_15	1100	12	200	250	300
ATM_ELV_1100_45	1100	45	360	310	410
ATM_ELV_1100_*	1100	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ATM_ELV_1700_4	1700	4	150	165	165
ATM_ELV_1700_5	1700	5	170	170	175
ATM_ELV_1700_8	1700	8	180	190	245
ATM_ELV_1700_12	1700	12	200	200	300
ATM_ELV_1700_*	1700	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ATM_ELV_1600_4	1600	4	140	175	165
ATM_ELV_1600_5	1600	5	170	175	170
ATM_ELV_1600_8	1600	8	180	190	245
ATM_ELV_1600_12	1600	12	200	200	300
ATM_ELV_1600_*	1600	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ATM_ELV_2200_5	2200	5	170	170	175
ATM_ELV_2200_8	2200	8	180	190	245
ATM_ELV_2200_12	2200	12	200	200	300
ATM_ELV_2200_*	2200	*	*	*	*
*Produced on demand by the customer.					

LABORATORY SCALE FURNACES

LIFT-BOTTOM / GLASS MELTING FURNACE

MSE lift bottom furnace is ideal for dental and ceramic sintering, glass melting applications. The lift bottom furnace raises samples to furnace with the elevator mechanism. The homogeneous temperature distribution is provided by heating elements on each side placed in the furnace. The lift bottom furnace is provided more homogeneous heating compare to the chamber furnace. The biggest advantage of the lift bottom furnace can easily placement of the samples to the up-down moving bottom and the operator can easily refractory change without any technical service for damaged refractory bottom such as glass shedding or product melting.
It is provided less exposure of the user to high temperature compared to the chamber models.
MSE lift-bottom furnaces are produced up to 1800°C according to product, capacity and on demand.

Advantages;

- ✓ If the base refractory is damaged in the melting process, it is possible to replace it without technical services
- ✓ Easy placement of samples to bottom
- ✓ Better protection of the heating elements compared to the front lid-models stable heat treatment for sensitive samples
- ✓ Very homogeneous heating via environmental location of resistances
- ✓ To be able to observe the sample at desired temperature with lift bottom

- Programmable step controller via digital display
- Temperature control via PID and ±1°C temperature display sensitivity
- Observation of set and real temperature
- Temperature measurement via thermocouple
- Delayed start and program save feature
- System protection for over temperature, audio visual warning alarm
- Error display in case a breakdown
- Heating elements placed on four walls
- Sample loading from bottom side
- Exhaust gas outlet connected to inner volume
- High-quality fiber and brick insulated heat zone
- Low external surface temperature (R.Temp. + 40 °C) thanks to double-layers steel construction
- Epoxy painted galvanized-steel exterior
- Able to resume the program after the power failure
- Height adjustable, non-slip rubber feet

LABORATORY SCALE FURNACES

LIFT-BOTTOM / GLASS MELTING FURNACE SERIESS

Lift- bottom furnace series produced using brick and fiber insulation elements area suitable choice for melting, sintering and ceramic heat treatment.

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ELV_1300_4	1300	4	165	150	165
ELV_1300_5	1300	5	170	175	170
ELV_1300_8	1300	8	200	200	200
ELV_1300_12	1300	12	200	300	200
ELV_1300_18	1300	18	250	250	300
ELV_1300_25	1300	25	250	250	400
ELV_1300_36	1300	36	300	300	400
ELV_1300_*	1300	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ELV_1500_4	1500	4	165	150	165
ELV_1500_5	1500	5	170	175	170
ELV_1500_8	1500	8	200	200	200
ELV_1500_12	1500	12	200	300	200
ELV_1500_18	1500	18	250	250	300
ELV_1500_25	1500	25	250	250	400
ELV_1500_36	1500	36	300	300	400
ELV_1500_*	1500	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ELV_1600_1	1600	1	100	100	100
ELV_1600_4	1600	4	165	150	165
ELV_1600_5	1600	5	170	175	170
ELV_1600_8	1600	8	200	200	200
ELV_1600_12	1600	12	200	300	200
ELV_1600_18	1600	18	250	250	300
ELV_1600_25	1600	25	250	250	400
ELV_1600_36	1600	36	300	300	400
ELV_1600_*	1600	*	*	*	*
*Produced on demand by the customer.					

			Internal Dimensions		
Product Code	**Max. Temperature °C**	**Volume (L)**	**Width (mm)**	**Height (mm)**	**Depth (mm)**
ELV_1800_1	1800	1	100	100	100
ELV_1800_5	1800	5	170	170	175
ELV_1800_8	1800	8	200	200	200
ELV_1800_12	1800	12	200	200	300
ELV_1800_*	1800	*	*	*	*
*Produced on demand by the customer.					

LABORATORY SCALE FURNACES

TUBE FURNACE

Tube furnace is used to provide the desired atmosphere condition in a tube. In these furnaces, melting, thermal ageing, sintering, metal heat treatment, chemical decomposition, etc. can be made. Tube of furnace must be preferred to according to the continuous using temperature of the furnace. This tubes can be quartz, mullite and alumina. In tube furnace, the horizontal or vertical operation, the tube rotating, tilt operation and feeding unit, creating and controlling the different temperature zones, measurement to the temperature of the sample with an external thermocouple from the inside of the tube, various optional features and vacuum can be selected. Supply of tubes and accessories (flanges, ceramic crucibles etc.) can be obtained from our company. MSE tube furnace is produced up to 1750 °C at different diameter and heating zone length. The required atmosphere can be created inside of tubes.

- Programmable step controller via digital display
- Observation of set and real temperature
- Delayed start and program save feature
- Temperature control via PID and ±1°C temperature display sensitivity
- System protection for over temperature. Audio visual warning alarm
- Temperature measurement via thermocouples
- Error display in case a breakdown
- Percentage of electrical energy consumption
- Able to resume the program after the power failure
- Heating on both side
- High-quality insulated heat zone
- Low energy consumption
- Stainless steel gas inlet and outlet flanges**
- Manual gas flowmeter
- Sample holder, Heat shields,
- The proper tube choice according to usage temperature
- Low external surface temperature (R.T.+ 40°C) thanks to double-layers steel construction
- Epoxy painted galvanized-steel exterior
- Height adjustable, non-slip rubber feet

Optional Features:
-Different heat zones (Z2) 2 zones, (Z3) 3 zones, (Z4) 4 zones *
-(V) Vacuum pump
- Gas flanges

Temperature: 1600°C
Tube inner diameter: 73 mm
Heating Zone Length: 450 mm

MSE Furnace
"engineered high quality furnaces"

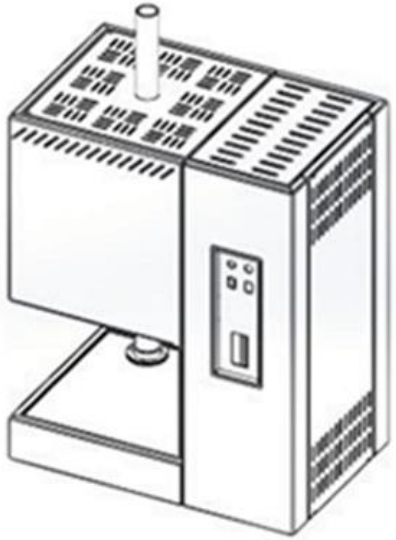
www.msefurnace.com

LABORATORY SCALE FURNACES

TUBE FURNACE

In our tube furnaces, horizontal or vertical operation can be selected, while the tube rotate, tilt operation and feeding unit, creating and controlling the different temperature zones, the sample for an external thermocouple from the inside of the tube, and various optional features such as sample temperature measurement and vacuum operation are also possible. Depending on the temperature, quartz, mullite and alumina pipes can be preferred. Supply of tubes and accessories (flanges, ceramic crucibles etc.) can be obtained from our company.

Quartz, mullite and alumina tubes are used according to working temperature.



Temperature: 1100°C
Tube inner diameter: 200 mm
Heating Zone Lenght: 450 mm
Water cooled gas tight flanges

LABORATORY SCALE FURNACES

TUBE FURNACES SERIES

The standard models of tube furnaces are listed below. Please contact us for detailed information.

Product Code	Max. Temperature °C	Inside Diameter (mm)	Heated Length (mm)	Tube
T_1100_20_250	1100	20	250	Quartz
T_1100_20_350	1100	20	350	Quartz
T_1100_20_450	1100	20	450	Quartz
T_1100_50_250	1100	50	250	Quartz
T_1100_50_350	1100	50	350	Quartz
T_1100_50_450	1100	50	450	Quartz
T_1100_50_600	1100	50	600	Quartz
T_1100_74_250	1100	74	250	Quartz
T_1100_74_450	1100	74	400	Quartz
T_1100_74_600	1100	74	600	Quartz
T_1100_100_250	1100	100	250	Quartz
T_1100_100_450	1100	100	450	Quartz
T_1100_150_250	1100	150	250	Quartz
T_1100_150_450	1100	150	450	Quartz
T_1100_200_450	1100	200	450	Quartz
T_1100_*	1100	*	*	Quartz

Product Code	Max. Temperature °C	Inside Diameter (mm)	Heated Length (mm)	Tube
T_1200_20_250	1200	20	250	Quartz
T_1200_20_350	1200	20	350	Quartz
T_1200_20_450	1200	20	450	Quartz
T_1200_50_250	1200	50	250	Quartz
T_1200_50_350	1200	50	350	Quartz
T_1200_50_450	1200	50	450	Quartz
T_1200_50_600	1200	50	600	Quartz
T_1200_74_250	1200	74	250	Quartz
T_1200_74_450	1200	74	400	Quartz
T_1200_74_600	1200	74	600	Quartz
T_1200_*	1200	*	*	*

*Produced on demand by the customer.

Product Code	Max. Temperature °C	Inside Diameter (mm)	Heated Length (mm)	Tube
T_1400_20_250	1400	20	250	Mullite
T_1400_20_350	1400	20	350	Mullite
T_1400_20_450	1400	20	450	Mullite
T_1400_50_250	1400	50	250	Mullite
T_1400_50_350	1400	50	350	Mullite
T_1400_50_450	1400	50	450	Mullite
T_1400_50_600	1400	50	600	Mullite
T_1400_74_250	1400	74	250	Mullite
T_1400_74_450	1400	74	400	Mullite
T_1400_74_600	1400	74	600	Mullite
T_1400_*	1400	*	*	*

*Produced on demand by the customer.

LABORATORY SCALE FURNACES

TUBE FURNACES SERIES

The standard models of tube furnaces are listed below. Please contact us for detailed information.

Product Code	Max. Temperature °C	Inside Diameter (mm)	Heated Length (mm)	Tube
T_1500_40_250	1500	40	250	Alumina
T_1500_40_350	1500	40	350	Alumina
T_1500_40_450	1500	40	450	Alumina
T_1500_50_250	1500	50	250	Alumina
T_1500_50_350	1500	50	350	Alumina
T_1500_50_450	1500	50	450	Alumina
T_1500_50_600	1500	50	600	Alumina
T_1500_74_250	1500	74	250	Alumina
T_1500_74_450	1500	74	400	Alumina
T_1500_74_600	1500	74	600	Alumina
T_1500_*	1500	*	*	*
*Produced on demand by the customer.				

Product Code	Max. Temperature °C	Inside Diameter (mm)	Heated Length (mm)	Tube
T_1600_40_350	1600	40	350	Alumina
T_1600_40_450	1600	40	450	Alumina
T_1600_50_350	1600	50	350	Alumina
T_1600_50_450	1600	50	450	Alumina
T_1600_50_600	1600	50	600	Alumina
T_1600_74_450	1600	74	450	Alumina
T_1600_74_600	1600	74	600	Alumina
T_1600_*	1600	*	*	*
*Produced on demand by the customer.				

Product Code	Max. Temperature °C	Inside Diameter (mm)	Heated Length (mm)	Tube
T_1700_40_350	1700	40	350	Alumina
T_1700_40_450	1700	40	450	Alumina
T_1700_50_350	1700	50	350	Alumina
T_1700_50_450	1700	50	450	Alumina
T_1700_50_600	1700	50	600	Alumina
T_1700_74_450	1700	74	450	Alumina
T_1700_74_600	1700	74	600	Alumina
T_1700_*	1700	*	*	*
*Produced on demand by the customer.				

Product Code	Max. Temperature °C	Inside Diameter (mm)	Heated Length (mm)	Tube
T_1750_40_350	1750	40	350	Alumina
T_1750_40_450	1750	40	450	Alumina
T_1750_50_350	1750	50	350	Alumina
T_1750_50_450	1750	50	450	Alumina
T_1750_50_600	1750	50	600	Alumina
T_1750_74_350	1750	74	350	Alumina
T_1750_74_450	1750	74	450	Alumina
T_1750_*	1750	*	*	*
*Produced on demand by the customer.				

LABORATORY SCALE FURNACES

SPLIT FURNACE

MSE split furnace is used to provide the desired atmosphere condition in a tube. In these furnaces, melting, thermal ageing, sintering, metal heat treatment, chemical decomposition, thermal shock test etc. can be made. MSE split furnace is produced up to 1200 °C at different diameter and can be selected more than one heating zone. Inside of the furnace is used quartz tube as commonly. In the split furnace, the horizontal or vertical operation, creating and controlling the different temperature zones, measurement to for the temperature of the sample with an external thermocouple from the inside of the tube, various optional features and vacuum can be selected. Supply of tubes and accessories (flanges, ceramic crucibles etc.) can be obtained from our company.

- 50°C/min fast heat
- Heating on both side
- Horizontal design with upward opening lid system
- Stainless steel water cooled gas inlet and outlet flanges**
- Sample holder and heat shields
- Manually adjustable gas flowmeter
- Upward opens lid
- The proper tube choice according to usage temperature
- High-quality insulated heat zone
- Programmable step controller via digital display
- Auto power cut when lid is open
- Temperature control via PID and ±1°C temperature display sensitivity
- Observation of set and real temperature
- Temperature measurement via thermocouple
- Delayed start and program save feature
- System protection for over temperature, audio visual warning alarm
- Error display in case a breakdown

Optional Features:
-Different heat zones Z2) 2 zones, (Z3) 3 zones, (Z4) 4 zones *
-(V) Vacuum pump
- Gas flanges

LABORATORY SCALE FURNACES

SPLIT FURNACE SERIES

Product Code	Max. Temperature °C	Inside Diameter (mm)	Heated Length (mm)	Tube
SPT_1100_20_250	1100	20	250	Kuvars
SPT_1100_20_350	1100	20	350	Kuvars
SPT_1100_20_450	1100	20	450	Kuvars
SPT_1100_50_250	1100	50	250	Kuvars
SPT_1100_50_350	1100	50	350	Kuvars
SPT_1100_50_450	1100	50	450	Kuvars
SPT_1100_50_600	1100	50	600	Kuvars
SPT_1100_84_250	1100	74	250	Kuvars
SPT_1100_84_450	1100	74	400	Kuvars
SPT_1100_84_600	1100	74	600	Kuvars
SPT_1100_100_250	1100	100	250	Kuvars
SPT_1100_100_450	1100	100	450	Kuvars
SPT_1100_150_250	1100	150	250	Kuvars
SPT_1100_150_450	1100	150	450	Kuvars
SPT_1100_200_450	1100	200	450	Kuvars
SPT_1100_*	1100	*	*	Kuvars

*Produced on demand by the customer.

Product Code	Max. Temperature °C	Inside Diameter (mm)	Heated Length (mm)	Tube
SPT_1200_20_250	1200	20	250	Kuvars
SPT_1200_20_350	1200	20	350	Kuvars
SPT_1200_20_450	1200	20	450	Kuvars
SPT_1200_50_250	1200	50	250	Kuvars
SPT_1200_50_350	1200	50	350	Kuvars
SPT_1200_50_450	1200	50	450	Kuvars
SPT_1200_50_600	1200	50	600	Kuvars
SPT_1200_84_250	1200	74	250	Kuvars
SPT_1200_84_450	1200	74	400	Kuvars
SPT_1200_84_600	1200	74	600	Kuvars
SPT_1200_*	1200	*	*	*

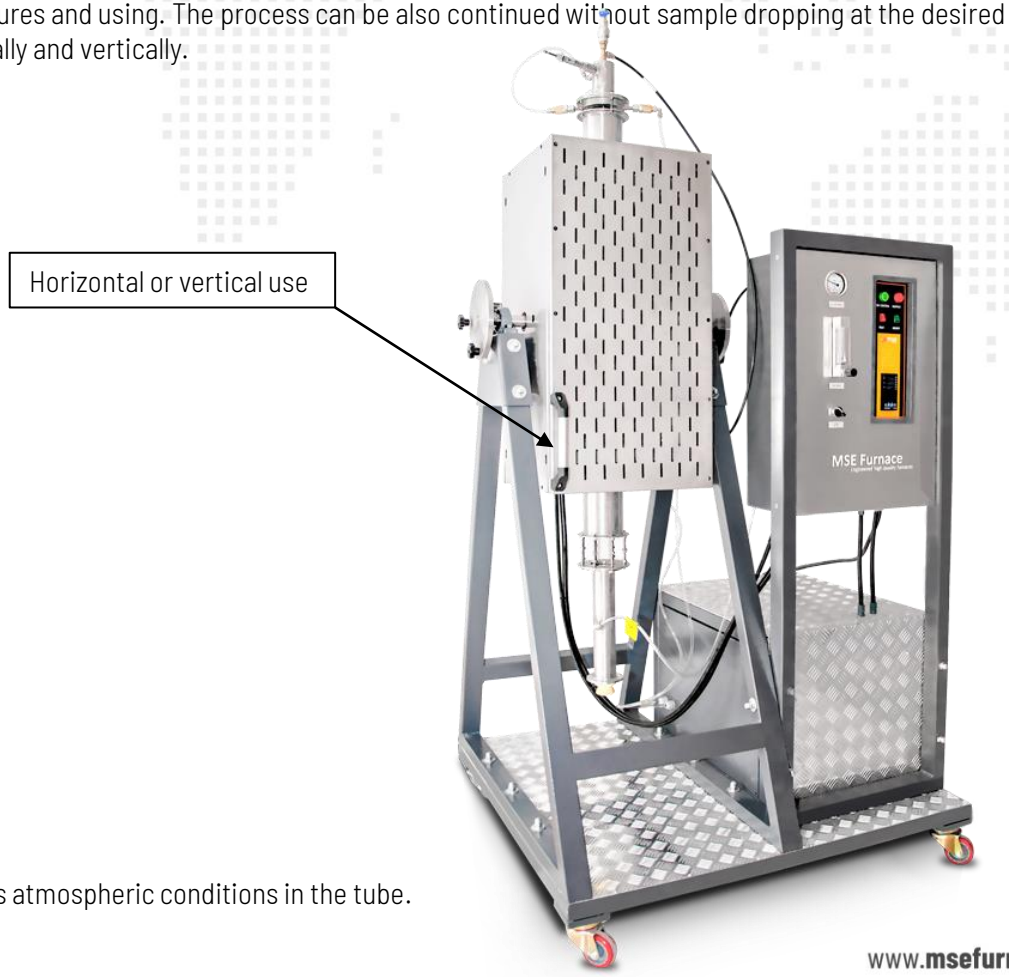
*Produced on demand by the customer.

LABORATORY SCALE FURNACES

METAL HEAT TREATMENT FURNACE

Metal heat treatment furnace is designed for making the heat treatment of various solid metal parts (hardening, tempering, quenching etc.) on a laboratory scale. Metal heat treatment furnace can be used vertically or horizontally.
If the furnace used vertical, the solid sample is placed in the middle part of the furnace by means of a wire. After the heating the solid sample which is as automatic dropped down into the liquid placed under the furnace, can be cooled suddenly. The required protective gas and vacuum atmosphere can be created inside of mullite, quartz and alumina tube that it will be chosen according to the temperatures and using. The process can be also continued without sample dropping at the desired conditions in the metal heat treatment furnace. It can use both horizontally and vertically.
Metal heat treatment furnaces are produced up to 1500°C.

- Inside diameter: 50 mm
- Heating on both side
- Moving stand
- Sample dropping system
- Horizontal or vertical usage
- Manually adjustable gas flowmeter
- Stainless steel water cooled gas inlet and outlet flanges**
- Manual djustable gas flow
- Entegreted 10^-2 vacuum pump
- Proper tube for usage temperature
- Programmable step controller via digital display
- Temperature control via PID and ±1°C temperature display sensitivity
- Observation of set and real temperature
- Temperature measurement via thermocouple
- Delayed start and program save feature
- System protection for over temperature, audio visual warning alarm
- Error display in case a breakdown



Horizontal, vertical or angled work is preferred in order to provide various atmospheric conditions in the tube.

LABORATORY SCALE FURNACES

RAPID THERMAL FURNACE

MSE rapid heat treatment furnace is suitable for heating and cooling with very high accelerations. The pre-heated rapit heat treatment furnace proceeds on the fixed tube and performs heat treatment at the desired ramp. So, the tube is stable during all process and furnace moves back and next.
Since the sample is in a quartz tube, heat treatment can be performed under the enquired atmosphere. All operations are done automatically by setting on a screen.
Graphene, carbon nanotube placement, rapid pyrolysis, rapid heat treatment, thermal shock processes can be done at rapid heat treatment furnace.
Rapid thermal furnaces are produced up to 1100°C.

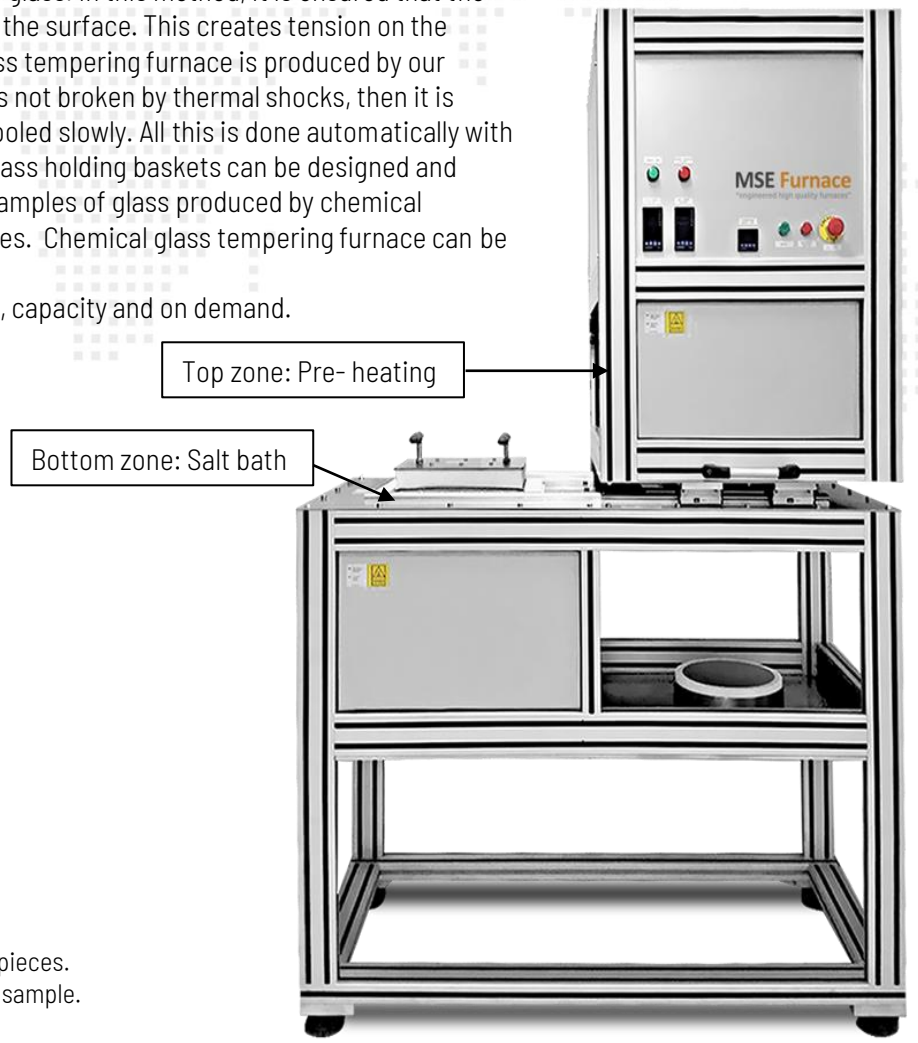
- PLC controlled, touch screen, PID heated,
- Max. Heating speed: 50°C/s
- Max. Cooling speed: from 900°C to 200 °C
  8.3°C/s (900 – 600°C);
  4.4°C/s (600°C – 500°C);
  2.8°C/s (500°C – 400°C);
  1.6°C/s (400°C – 300°C);
  0.9°C/s (300°C – 200°C);
- Tubee Material and Dimensions: Quartz Tube: Ø80mm OD x 1400mm L
- Sliding Rail System: Cr coated double-hung
- DC motor
- Sliding range : 340 mm
- Sliding system speed : 0,70 mm/s
- Power: 9 kW
- Temperature measurement via thermocouples
- Protective gas inlet and outlet
- Tube Usage Conditions:
- 1000 ° C (<1 hour)
- 800 ° C (<2 hours)
- 600 ° C (continuous)

Optional Features:
- (V) Vacuum pump

LABORATORY SCALE FURNACES

CHEMICAL GLASS TEMPERING FURNACE

Chemical tempering is one of the methods used to increase the surface hardness of glass. In this method, it is ensured that the sodium atoms in the glass are replaced with potassium atoms in the region close to the surface. This creates tension on the surface of the glass. It gives strength and hardness to the glass. In the chemical glass tempering furnace is produced by our company, the glass is heated by a constant temperature increase so that the glass is not broken by thermal shocks, then it is immersed in the salt bath. After being kept in a salt bath for a sufficient time, it is cooled slowly. All this is done automatically with a pre-installed program. At variety models, chemical glass tempering furnace and glass holding baskets can be designed and produced by our company. Tablet, telephone, solar panel and television glass are examples of glass produced by chemical tempering. This method is a unique method for increasing the strength of thin glasses. Chemical glass tempering furnace can be produced up to 900 °C.
Chemical glass tempering furnaces are produced up to 900°C according to product, capacity and on demand.



- Top zone: Pre-heating
- Bottom zone: Salt bath
- Sample's transfer with sliding rail system
- Sample feeding with elevator system
- Protective lid
- Two-zone heating
- Heating on all sides , PID controlled heating
- Automatic system
- Stainless steel sample basket
- Sample dripping pan

The chemical salt which is inside the furnace must not touch with water and with damp any pieces.
If the salt long-term stays, it may get solid. In this cases, it is better to pre-heating without a sample.

LABORATORY SCALE FURNACES

CHEMICAL GLASS TEMPERING FURNACE

Chemical tempering is one of the methods used to increase the surface hardness of glass. In this method, it is ensured that the sodium atoms in the glass are replaced with potassium atoms in the region close to the surface. This creates tension on the surface of the glass. It gives strength and hardness to the glass. In the chemical glass tempering furnace is produced by our company, the glass is heated by a constant temperature increase so that the glass is not broken by thermal shocks, then it is immersed in the salt bath. After being kept in a salt bath for a sufficient time, it is cooled slowly. All this is done automatically with a pre-installed program. At variety models, chemical glass tempering furnace and glass holding baskets can be designed and produced by our company. Tablet, telephone, solar panel and television glass are examples of glass produced by chemical tempering. This method is a unique method for increasing the strength of thin glasses. Chemical glass tempering furnace can be produced up to 900 °C. Chemical glass tempering furnaces are produced up to 900°C according to product, capacity and on demand.

- First stage: Pre-heating
- Second stage: Immersion to salt bath
- Sample feeding with elevator system
- Protective lid
- Heating on all sides
- Automatic system
- Stainless steel sample basket
- PID controlled heating

Sapmle basket

Firstly it goes down one step and it makes pre-heating for the sample.
As it moves down a second time, the sample enters the salt bath and waits in the bath.
After then samples go up.

Temperature: 520°C
Volume: 1 L

The chemical salt which is inside the furnace must not touch with water and with damp any pieces.
If the salt long-term stays, it may get solid. In this cases, it is better to pre-heating without a sample.

LABORATORY SCALE FURNACES

SALT BATH FURNACE

Salt bath furnace provides fast heating, controlled cooling conditions during quenching, low surface oxidation and decarburization. When parts are immersed in the molten salt of the furnace, heat is transferred directly contact to the surface. Heat transfer into parts is very rapid faster than with radiation or convection methods.
The working parts that inside of the salt can't contact air. So, oxidation and decarburisation are prevented. Additionally, by the uniform rate of heat transfer permits components having complex geometries and diverse cross-sections to be heat treated and quenched with minimal distortion.
Salt bath furnace is ideal for case hardening of low carbon steels and the neutral hardening of higher carbon and alloy steels, including tool steels. Generally capital of salt bath furnace cost is low. But safe disposal of the used salt is needed. This situation due to environmental, health and safety considerations can affect to operating cost.
MSE produces salt bath furnaces for operating temperatures up to 1100°C.

- Programmable step controller via digital display
- Observation of set and real temperature
- Delayed start and program save feature
- Temperature control via PID and ± 2 °C temperature display sensitivity
- System protection for over temperature. Audio visual warning alarm
- Temperature measurement via protected thermocouples inside of furnace and bath
- Error display in case a breakdown
- Percentage of electrical energy consumption
- Able to resume the program after the power failure
- Heating on all side
- High-quality insulated heat zone
- Low energy consumption
- Loading on top
- Sample basket
- High corrosion resistant stainless steel bath
- Low external surface temperature (R.T.+ 40°C) thanks to double-layers steel construction
- Epoxy painted galvanized-steel exterior
- Height adjustable, non-slip rubber feet.

Temperature: 750°C
Volume: 5 L

The chemical salt which is inside the furnace must not touch with water and with damp any pieces.
If the salt long-term stays, it may get solid. In this cases, it is better to pre-heating without a sample.

LABORATORY SCALE FURNACES

ATMOSPHERE CONTROLLED BRIGDMAN FURNACE

What is the Bridgman method? The Bridgman method involves heating polycrystalline material in a container above its melting point and slowly cooling it from one end where a seed crystal is located. The melted material moves through a decreasing temperature gradient and forms a single crystal. MSE Bridgman furnace has vertically geometry and three zones. The middle zone of the Bridgman furnace is hot. The reactor can be brought from the upper zone or bottom zone to the middle hot zone of the Bridgman furnace, and it can also be retracted from the place where it is brought.
The inner cabin of the Bridgman furnace consists of graphite insulations and graphite resistances. The sample dissolved in the graphite reactor can move to the cold zone at very slow speeds, whereby the crystal occurs. In this method known as the Bridgman method, all parameters are adjusted by means of a touch panel. During the process, the reactor position, reactor speed, thermocouple temperatures, atmospheric pressure can be monitored and recorded on the Bridgman furnace monitor.

- Cooling water temperature and process details and data save by USB
- Touch screen, PLC controlled, PID heated
- Vertical design
- 3 zones; Loading Zone, Hot Zone, Pull-out Zone
- Adjustable graphite reactor 10-0,00001 mm/s
- Gas input and output
- Programmable temperature, dwell time, reactor speed and position
- Entegrated 10^-2 mbar vacuum pump
- Side-opening lids
- Excessive temperature blocking
- Gas-tight Atmosphere controlled chambers
- Heating on around
- Programme temperature sensitivity ± 1°C
- Adjustable gas flowmeter
- Water cooled atmosphere cabin

Temperature: 1700°C
Volume: 12 L
3 zones

LABORATORY SCALE FURNACES

GLASS FIBER PRODUCTION SYSTEM (Induction heated)

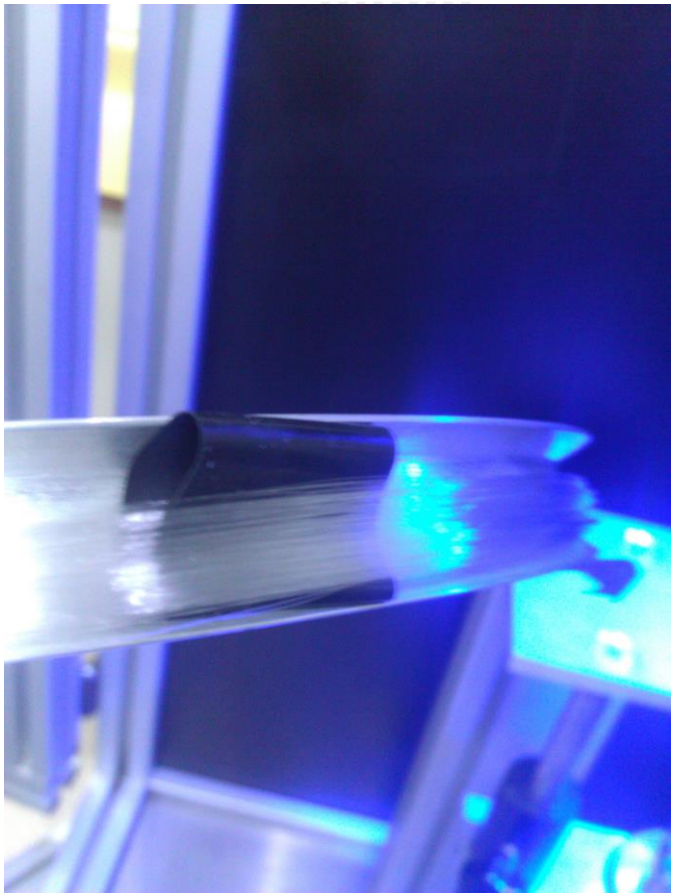
Glass fiber production system is designed to homogeneously melt the various raw materials at high temperature and then convert this melt into glass fibers. With the temperature, the melted glass is pulled and winding on the reel. The reel automatically winds fiber. When the melt is finished, the melting crucible is cleaned and new refilled with glass. MSE designs and manufactures up to 1450°C in different nozzle diameters and induction heated glass fiber production systems without sacrificing safety and quality upon customer demand.

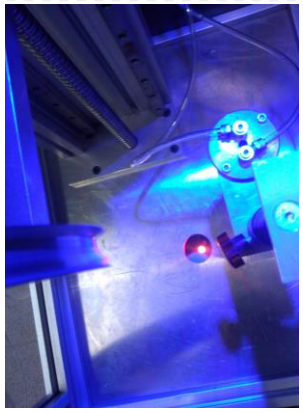
- Maximum Temperature: 1450°C
- PLC controlled and induction heated system
- Programmable temperature and speed,
- Quantity of nozzle: 5
- Diameter of nozzle: 1,5 mm

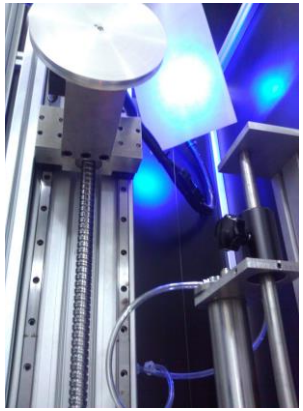
LABORATORY SCALE FURNACES

GLASS FIBER PRODUCTION SYSTEM

Glass Fiber Production Furnace System is designed to homogeneously melt the various raw materials at high temperature and then convert this melt into glass fibers. MSE is designed and produced laboratory scale or industrial glass fiber production furnace with different nozzle diameters without sacrificing safety and quality upon customer demand. The system can be designed with induction or resistance on the demand by customer. Please contact us for detailed information.





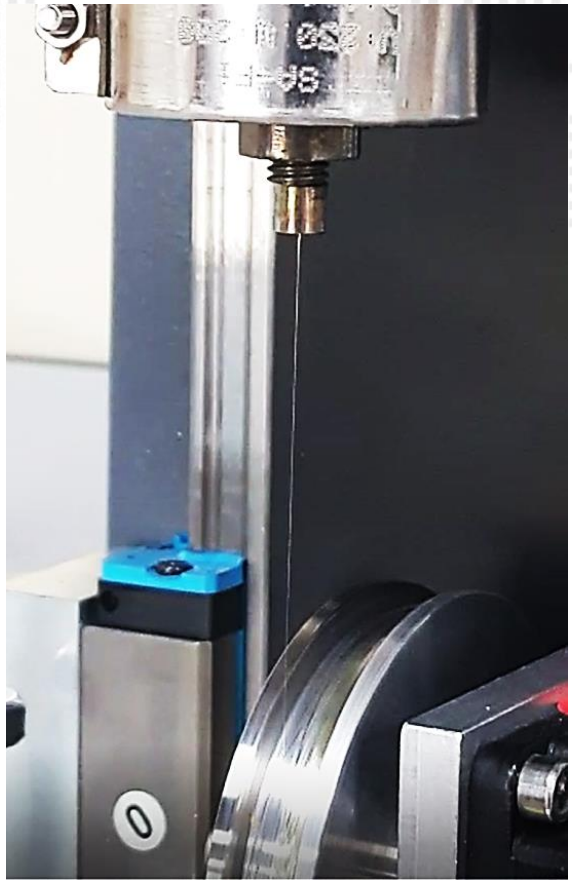


LABORATORY SCALE FURNACES

POLYMER FIBER PRODUCTION SYSTEM

Polymer fiber production system is designed to homogeneously melt the various raw materials at high temperature and then convert this melt into polymer fibers. With the temperature, the melted polymer is pulled and winding on the reel. The reel automatically winds fiber. When the melt is finished, the melting crucible is cleaned and new refilled with polymers. MSE designs and manufactures up to 450°C in different nozzle diameters polymer fiber production systems without sacrificing safety and quality upon customer demand.

- Maximum Temperature: 450°C
- PLC controlled
- Programmable temperature and speed,
- Quantity of nozzle: 1
- Diameter of nozzle: 0,5 mm



LABORATORY SCALE FURNACES

HIGH TEMPERATURE GLASS VISCOMETER FURNACE

The furnace is integrated on a ready-made viscometer. The high temperature glass viscometer furnace is produced on demand by the customer. After sales spindles and alumina crucibles are accommodable from our company.
High temperature glass viscometer furnace is designed for measure viscosity of glass at 1600 °C temperature.
The furnace is designed as suitable for the viscometer.

- Temperature: 1600°C
- Basket and Spindle
- PC connection
- Programmable step controller via digital display
- High temperature viscosity measurement for melt glass


mse
"engineered high quality process machines"


MSE Furnace
"engineered high quality furnaces"