

Laboratory & Industrial Furnaces



SAFTherm



WHO ARE WE ?

SAFTHERM is one of the leading electric heat furnace manufacturers in China.

The company designs, manufactures and sells kinds of electric resistance furnaces and provides the professional solutions for customers in lab and heat industry.

SAFTHERM has delivered its furnaces to more than 85 countries and the team is fully dedicated to working for their beloved career.

For more information in web : www.saftherm.com

www.saftherm.com



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Chamber Muffle Furnace >>



The overview of chamber muffle furnace

SAFTHERM chamber muffle furnace range has a maximum operating temperature of 1800 °C and chamber capacities up to more than 2000 liters. It is mainly used in the Universities, Colleges, Laboratories, Institutions of higher learning, Scientific research institutions, Factory enterprises and apply to new material fields such as metal material, ceramic material, nano material, semiconductor material applications etc.

- > Chamber furnaces generally has a much larger working chamber size and suitable for different size and type of samples for heating.
- > For special usage of experiment process, it is better to consider fully to check the function or whether need to choose other type of furnace.
- > When choosing a furnace, also need to consider whether the special parts for samples. Like powders in crucibles and other tools.



HRE Resistance Wire



N-Type Thermocouple



PID Temperature Control

How to choose a Muffle Furnace ?

What is the operate temperature ?

- > SAFTherm muffle furnace mainly with range of 1200°C, 1400°C, 1700°C and OEM 1800°C.
- > When real operating lower than 1200°C, we generally use high grade HRE spiral wire coils as heating element.
- > When real operating lower than 1400°C, we generally use high grade SIC (Silicon Carbide Heaters) heating element.
- > When real operating lower than 1700°C, we generally use high grade MoSi2 (Molybdenum Disilicide Heaters) heating element.
- > Continuous operating temp will be 100°C below the max temp design and right using will extend the furnace service life.
- > Furnaces are designed to operate at high temperatures. Operation below temperatures of approximately 600 °C will be less accurate and continuous use at low temperatures may reduce the element life of some furnaces, ie MoSi2 heated furnaces.

What is the chamber size required ?

- > SAFTherm definite and real working chamber size with Width (W) , Depth (D) and Height (H) and you will see the specification with : W*D*H (mm).
- > SAFTherm has wide range of working chamber size for chamber furnaces.

What is the temp controller ?

- > SAFTherm standard furnaces controlled by SHIMADEN (Japan) 32 segments digital PID (proportional, integral and derivative) controller with accurate control .
- > Multi-segments and/or multi-program controllers are available as an option on most models or any other brand models as customer want to have.
- > The Furnace built-in RS485 digital communications port and USB adaptor as optional setting , allowing the user to connect to a PC for remote control and monitoring of the furnace. You can also save or export test results.

What is electric parts used ?

- > SAFTherm furnace all use international parts to keep safety and quality.
- > Main Electric parts use France SCHNEIDER electronics parts.
- > Main Control use USA Crydom Solid Relay or German SEMIKRON SCR control.

What is your OEM furnace service ?

- > SAFTherm has professional designers team and can design different furnaces according to customer technical request.
- > SAFTherm will confirm the OEM design with customers before final manufacturing.

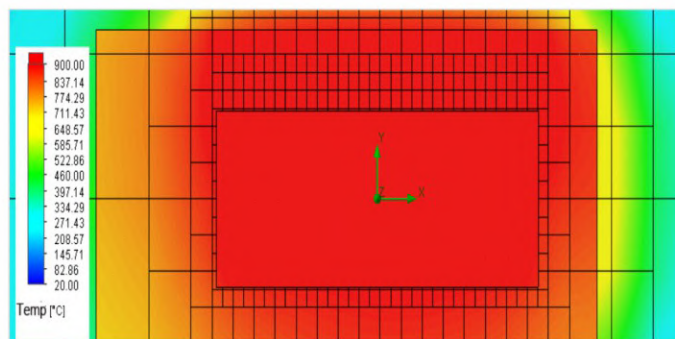


STM-8-12

1200°C Chamber Muffle Furnace

Main Features

- >Integrated Structure with elegant design.
- >Chamber Materials: Vacuum forming ceramic fiber, which has the advantage of no powder drops off with high temperature, and saving energy more than 50%.
- >SHIMADEN (Japan) Microprocessor based self-tuning PID control provides optimum thermal.
- >Long life type N thermocouple.
- >CE compliant.
- >Built-in RS485 port and USB adaptor as optional setting for computer control, it needs to add extra fees.



Heat Distribution Profile Diagram



- 01 Ceramic Insulation Door
- 02 HRE Resistance Wire
- 03 Shimaden Temperature Controller
- 04 N Type Thermocouple
- 05 SS304 Safty Buckle
- 06 Sound -light Alarm
- 07 Schneider Air Switch
- 08 Operating Buttons

Technical Parameters

Model	STM-1-10	STM-3-12	STM-6-12	STM-8-12	STM-12-12	STM-18-12	STM-30-12	OEM
Inner Dimension (WxDxH)mm	100x100x100	150x150x150	180x230x150	200x300x120	200x300x200	250x300x250	300x500x200	Any size
Outer Dimension (WxDxH)mm	250x240x350	430x465x620	460x570x660	480x630x630	480x630x710	550x635x780	600x870x735	
Type	Benchtop							
Furnace Structure	Alumina Ceramic Chamber, Temperature control system, Heating element, Furnace shell ,Main Electric Parts and other relative accessories							
Max Temperature	1000°C	1200°C						
Continue Temp	950°C	1100°C						
Power Supply	220V/1.2KW	220V/2.5KW	220V/3KW	220V/3KW	220V/4KW	220V/6KW	380V/7.5KW	
Heating Element	High quality alloy resistance wire (HRE)							
Chamber Material	High temperature polycrystal alumina ceramic fiber plate							
Temp Precision	±1°C							
Thermocouple	N type							
Temp Controller	SHIMADEN (Japan) brand intelligent microcomputer PID controller can program 4 groups 32 segments							
Electronic Parts	SCHNEIDER (France) electronics brand							
Heating Rate	≤ 25°C/min (suggest 15-20°C/min for longer life using of furnace)							
Safety Potection	Overheat and Thermocouple-break Alarm							
Certification	ISO9001 /CE/ SGS							
Furnace Shell	High quality cold-rolled steel sheets CNC processing							
Insulation	High quality thermal insulation material to ensure a good uniformity							
Accessories	One pair of high temperature gloves, One pair of crucible tongs, one catalog and operation manual							
Optional	Paperless recorder, Stainless steel exhaust chimney, Quartz /Alumina crucible							

STM-8-14

1400°C Chamber Muffle Furnace

Main Features

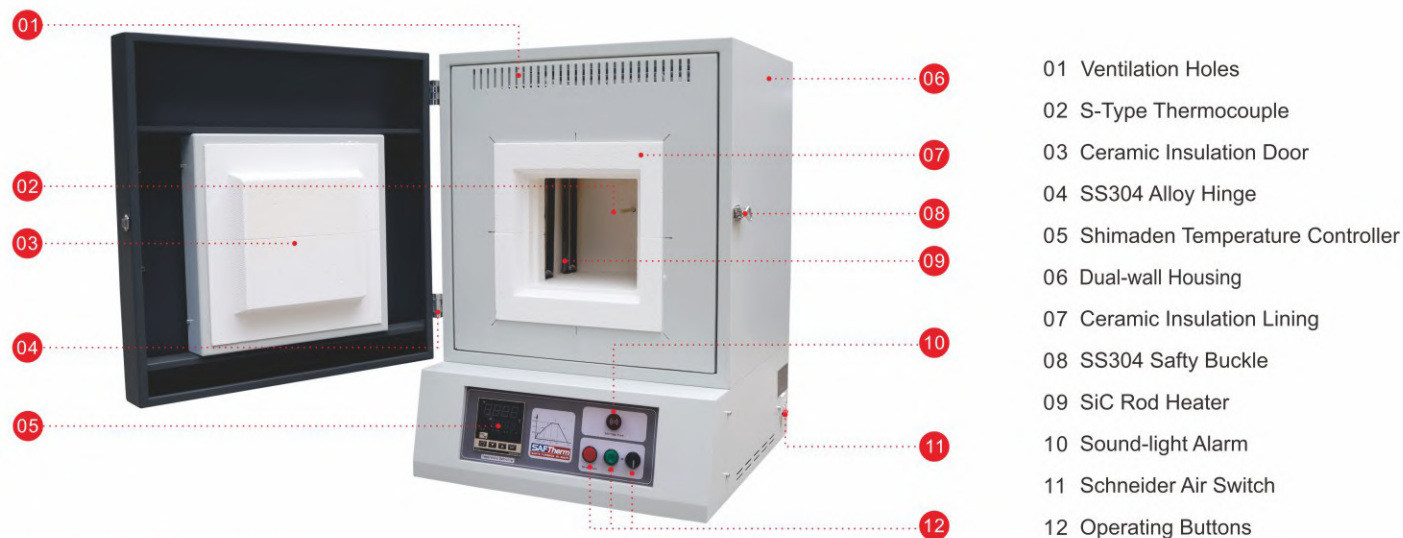
- > Integrated Structure with elegant design.
- > Chamber Materials: Vacuum forming ceramic fiber with advantage of no powder drops off in high temperature and energy saving.
- > Heater: It uses high grade SiC (Silicon Carbide Heaters) heating element.
- > SHIMADEN (Japan) Microprocessor based self-tuning PID control provides optimum thermal.
- > Long life type S thermocouple.
- > CE compliant.
- > Built-in RS485 port and USB adaptor as optional setting for computer control, it need to add extra fees.



SiC Heating Element



Furnace Inner Picture



Technical Parameters

Model	STM-3-14	STM-8-14	STM-12-14	STM-18-14	STM-27-14	STM-36-14	OEM
Inner Dimension (WxDxH)mm	150x150x150	200x200x200	200x300x200	250x300x250	300x300x300	300x400x300	Any size
Outer Dimension (WxDxH)mm	490x530x750	575x610x825	590x680x835	610x700x860	650x670x900	660x800x910	
Type	Benchtop						
Furnace Structure	Alumina Ceramic Chamber, Temperature control system, Heating element, Furnace shell ,Main Electric Parts and other relative accessories						
Max Temperature	1400°C						
Continue Temp.	1300°C						
Power Supply	220V/3KW	220V/5KW	220V/5KW	220V/6KW	380V/9KW	380V/12KW	
Heating Element	High quality Silicon Carbide Rod (SiC) heater						
Chamber Material	High temperature 1500 Type polycrystal alumina ceramic fiber material						
Temp Precision	±1°C						
Thermocouple	S type						
Temp Controller	SHIMADEN (Japan) brand intelligent microcomputer PID controller can program 4 groups 32 segments						
Electronic Parts	SCHNEIDER (France) electronics brand						
Heating Rate	≤ 25°C/min (suggest 15°C/min for longer life using of furnace)						
Safety Protection	Overheat and thermocouple-break alarm						
Certification	ISO9001 /CE/ SGS						
Furnace Shell	High quality cold-rolled steel sheets CNC processing						
Insulation	High quality thermal insulation material to ensure a good uniformity						
Accessories	One pair of high temperature gloves, One pair of crucible tongs, one catalog and operation manual						
Optional	Paperless recorder, Stainless steel exhaust chimney, Quartz /Alumina crucible						

STM-12-17

1700°C Chamber Muffle Furnace

Main Features

- >Integrated Structure with elegant design.
- >Chamber Materials: Vacuum forming ceramic fiber with advantage of no powder drops off in high temperature and energy saving .
- >Heater: It use high grade MoSi2 (Molybdenum Disilicide Heaters) heating element.
- >YUDIAN brand Microprocessor PID controller or any other brand as option.
- >Long life type B thermocouple.
- >CE compliant.
- >Built-in RS485 port and USB adaptor as optional setting for computer control,it need to add extra fees.



MoSi2 Rod Heater



Furnace inner picture



- 01 Ventilation Holes
- 02 Dual-wall Housing
- 03 Ceramic Insulation Door
- 04 Zinc Alloy Hinges
- 05 Temperature Controller
- 06 Ceramic Fiber Lining
- 07 SS304 Safty Buckle
- 08 MoSi2 Rod Heater
- 09 Amp&Volt Meters
- 10 Schneider Air Switch
- 11 Operating Buttons

Technical Parameters

Model	STM-1-17	STM-3-17	STM-8-17	STM-12-17	STM-20-17	STM-36-17	OEM
Inner Dimension (WxDxH)mm	100x120x100	150x150x150	200x200x200	200x300x200	250x320x250	300x400x300	Any size
Outer Dimension (WxDxH)mm	383x432x660	510x560x870	600x620x920	600x693x920	610x730x970	1040x840x1250	
Type	Benchtop						
Furnace Structure	Alumina Ceramic Chamber, Temperature control system, Heating element, Furnace shell ,Main Electric Parts and other relative accessories						
Max Temperature	1700°C						
Continue Temp.	1600°C						
Power Supply	220V/2KW	220V/4KW	220V/5KW	220V/6KW	380V/7KW	380V/13KW	
Heating Element	High quality Molybdenum Disilicide (MoSi2) heater						
Chamber Material	High temperature 1800 Grade polycrystal alumina ceramic fiber material						
Temp Precision	±1°C						
Thermocouple	B type						
Temp Controller	YUDIAN brand 518P Microprocessor PID controller as standard or any other brand as option						
Electronic Parts	SCHNEIDER (France) main electronic parts /High quality electric transformer						
Heating Rate	≤ 15°C/min (suggest 10°C/min for longer life using of furnace)						
Safety Protection	Overheat and thermocouple-break alarm						
Certification	ISO9001 /CE/ SGS						
Furnace Shell	High quality cold-rolled steel sheets CNC processing						
Insulation	High quality thermal insulation material to ensure a good uniformity						
Accessories	One pair of high temperature gloves, One pair of crucible tongs, one catalog and operation manual						
Optional	Paperless recorder, Stainless steel exhaust chimney, Quartz /Alumina crucible						

Tube Furnace >>



Overview

Tube Furnace is a compact heating equipment widely used in so many fields like metallurgy, glass heat treatment, lithium battery, positive and negative electrolyte, abrasive tools and other industries. It is used to measure the structural state of materials at a certain temperature for small samples. It is generally used in colleges and universities, industrial and mining enterprises, research institutions, etc. Tube furnace also has the advantage of providing a vacuum and atmosphere working environment for heating easily with lower cost.



HRE Resistance Wire



N-Type Thermocouple



PID Temperature Control

The factors to select a suitable tube furnace :

What is the Operating temperature ?

- > SAFTHERM tube furnace mainly with range of 1200°C, 1400°C, 1700°C and OEM 1800°C.
- > When real operating lower than 1200°C, we generally use high grade HRE spiral wire coils as heating element.
- > When real operating lower than 1400°C, we generally use high grade SIC (Silicon Carbide Heaters) heating element.
- > When real operating lower than 1700°C, we generally use high grade MoSi2 (Molybdenum Disilicide Heaters) heating element.
- > Continuous operating temp will be 100°C below the max temp design and right using will extend the furnace service life.
- > Furnaces are designed to operate at high temperatures. Operation below temperatures of approximately 600 °C will be less accurate and continuous use at low temperatures may reduce the element life of some furnaces, ie MoSi2 heated furnaces.

Split type or Non-split type.

- > For 1200°C tube furnaces, we generally do with Split type as standard with easily replace tube and also fast cooling.
- > For the 1400°C tube furnaces, we generally do with Non-split type as standard, but also we can do split type.
- > For the 1700°C tube furnaces, we generally do with Non-split type as standard, but also we can do vertical split type.

Horizontal or Vertical Tube need?

SAFTHERM have horizontal and vertical tube furnace for choosing. Also we can do it according to your special request for both combined using.

What is the outer diameter of the working tube ?

- > For the working tube, we generally has quartz tube and alumina ceramic tube two types. Also some customer will use their own design specially steel tubes for specially using.
- > Quartz tube used for temperature lower than 1200°C. The standard quartz tube OD : Φ25mm, Φ40mm, Φ50mm, Φ60mm, Φ80mm, Φ100mm, Φ120mm, Φ150mm or more larger size.
- > Alumina Ceramic Tube generally used in temp over than 1200°C tube furnaces with standard size tube OD : Φ40mm, Φ60mm, Φ80mm, Φ100mm, For other alumina tube sizes, please check with us for confirm.

What is the heating zone length of the tube furnace ?

SAFTHERM manufacture different heating zones tube furnace.

Single Heating zone. Standard heating zone length : 300mm. OEM length is available.

Dual heating zones : Standard heating zone length : 300+300=600mm. OEM length is available.

Three heating zones: Standard heating zone length : 300+300+300=900mm. OEM length is available.

Multi-heating zones : different zones and different heating length.

More heating zones, the tube will have a much better central constant heating zone length.



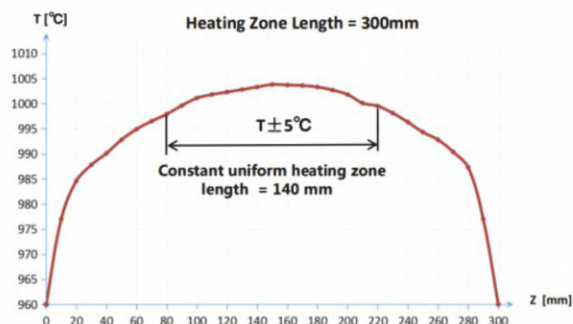
STG-60-12

1200°C Single Zone Split Tube Furnace

Main Features

- > Integrated compact structure with elegant design.
- > Chamber Materials: Vacuum forming ceramic fiber, which has the advantage of no powder drops off with high temperature, and saving energy more than 50%.
- > SHIMADEN (Japan) Microprocessor based self-tuning PID control provides optimum thermal.
- > Long life N type thermocouple.
- > CE compliant.
- > Built-in RS485 port and USB adaptor as optional setting for computer control. It need to add extra fees.

Temperature Distribution Profile



- 01 Top Cover
- 02 Hydraulic Rod
- 03 Mechanical Vacuum Gauge
- 04 Gas Inlet
- 05 SS304 Sealing Flanges
- 06 Quartz Tube
- 07 Flange Support
- 08 Shimaden Temperature Controller
- 09 Zinc Alloy Handle
- 10 Ceramic Fiber Lining
- 11 HRE Resistance Wire
- 12 SS304 Safty Buckle
- 13 Sound-light Alarm
- 14 Operating Buttons

Technical Parameters

Model	STG-25-12	STG-40-12	STG-60-12	STG-80-12	STG-100-12	STG-120-12	OEM
Reactor Quartz Tube (OD)	Φ25mm	Φ40mm	Φ60mm	Φ80mm	Φ100mm	Φ120mm	Any size
Heating Zone Length (mm)	300mm	300mm	300mm	300mm	300mm	300mm	
Type	Benchtop						
Furnace Structure	Alumina Ceramic Chamber, Temperature control system, Heating element, Furnace shell ,Main Electric Parts and other relative accessories						
Max Temperature	1200°C						
Continue Temp.	1100°C						
Power Supply	220V/1.8KW	220V/1.8KW	220V/2.6KW	220V/2.6KW	220V/2.6KW	220V/4KW	
Heating Element	High quality alloy resistance wire (HRE)						
Chamber Material	High temperature 1500 Type polycrystal alumina ceramic fiber material						
Temp Precision	±1°C						
Thermocouple	N type						
Temp Controller	SHIMADEN (Japan) brand intelligent microcomputer PID controller can program 4 groups 32 segments						
Electronic Parts	SCHNEIDER (France) electronics brand						
Heating Rate	≤ 25°C/min (suggest 15°C/min for longer life using of furnace)						
Safety Protection	Overheat and thermocouple-break alarm						
Certification	ISO9001 /CE/ SGS						
Furnace Shell	High quality cold-rolled steel sheets CNC processing						
Insulation	High quality thermal insulation material to ensure a good uniformity						
Accessories	One pair of high temperature gloves, one pcs of furnace hook, one catalog and operation manual						
Optional	Paperless recorder, Stainless steel exhaust chimney, Quartz /Alumina boat						

STG-80-14

1400°C Single Zone Non-Split Tube Furnace

Main Features

- >Integrated compact Structure with elegant design.
- >Chamber Materials: Vacuum forming ceramic fiber, which has the advantage of no powder drops off with high temperature, and saving energy more than 50%.
- >SHIMADEN (Japan) Microprocessor based self-tuning PID control provides optimum thermal.
- >Long life type S thermocouple.
- >CE compliant.
- >Built-in RS485 port and USB adaptor as optional setting for computer control. It need to add extra fees.



Sealing Flanges



Shimaden PID Temp



- 01 Carbon Steel Cover with Louver
- 02 Fire-resisting Stainless Steel Cover
- 03 Mechanical Vacuum Gauge
- 04 Gas Valve
- 05 Stainless Steel Flange
- 06 Shimaden PID Controller
- 07 Gas Inlet / Outlet Port
- 08 Flange Support
- 09 Sound-light Alarm
- 10 Operating Buttons

Technical Parameters

Model	STG-40-14	STG-60-14	STG-80-14	STG-100-14	OEM
Reactor Alumina Tube (OD)	Φ40mm	Φ60mm	Φ80mm	Φ100mm	Any size
Heating Zone Length (mm)	300mm	300mm	300mm	300mm	
Type	Benchtop				
Furnace structure	Alumina Ceramic Chamber, Temperature control system, Heating element, Furnace shell ,Main Electric Parts and other relative accessories				
Max temperature	1400°C				
Continue Temp.	1300°C				
Power Supply	220V/2KW	220V/3KW	220V/4KW	220V/5KW	
Heating Element	High quality Silicon Carbide Rod (SIC) heater				
Chamber Material	High temperature 1500 Type polycrystal alumina ceramic fiber material				
Temp Precision	±1°C				
Thermocouple	S type				
Temp controller	SHIMADEN (Japan) brand intelligent microcomputer PID controller can program 4 groups 32 segments				
Electronic Parts	SCHNEIDER (France) electronics brand				
Heating rate	25°C/min (suggest 15°C/min for longer life using of furnace)				
Safety protection	Overheat and thermocouple-break alarm				
Certification	ISO9001 /CE/ SGS				
Furnace shell	High quality cold-rolled steel sheets CNC processing				
Insulation	High quality thermal insulation material to ensure a good uniformity				
Accessories	One pair of high temperature gloves, one pcs of furnace hook, one catalog and operation manual				
Optional	Paperless recorder, Stainless steel exhaust chimney, Alumina boat				

STG-60-17

1700°C Single Zone Non-Split Tube Furnace

Main Features

- >Integrated compact Structure with elegant design
- >Chamber Materials: Vacuum forming ceramic fiber with advantage of no powder drops off in high temperature and energy saving.
- >YUDIAN brand Microprocessor PID controller or any other brand as option Long life type B thermocouple.
- >CE compliant.
- >Built-in RS485 port and USB adaptor as optional setting for computer control. It need to add extra fees.



Alumina Ceramic Tube



Digital Vacuum Gauge (Optional)



Technical Parameters

Model	STG-40-17	STG-60-17	STG-80-17	OEM
Reactor AluminaTube (OD)	Φ40mm	Φ60mm	Φ80mm	Any size
Heating Zone Length (mm)	300mm	300mm	300mm	
Type	Benchtop			
Furnace Structure	Alumina Ceramic Chamber, Temperature control system, Heating element, Furnace shell ,Main Electric Parts and other relative accessories			
Max Temperature	1700°C			
Continue Temp.	1600°C			
Power Supply	220V/3KW	220V/4KW	220V/5KW	
Heating Element	High quality Molybdenum Disilicide (MoSi2) heater			
Chamber Material	High temperature 1800 Type polycrystal alumina ceramic fiber material			
Temp Precision	±1°C			
Thermocouple	B type			
Temp Controller	Yudian 518P brand intelligent microcomputer PID controller can program 30 segments			
Electronic Parts	SCHNEIDER (France) electronics brand			
Heating Rate	15°C/min (suggest 6-10°C/min for longer life using of furnace)			
Safety Protection	Overheat and thermocouple-break alarm			
Certification	ISO9001 /CE/ SGS			
Furnace Shell	High quality cold-rolled steel sheets CNC processing			
Insulation	High quality thermal insulation material to ensure a good uniformity			
Accessories	One pair of high temperature gloves, one pcs of furnace hook, one catalog and operation manual			
Optional	Paperless recorder, Stainless steel exhaust chimney, Alumina boat			

Dual Zones Split Tube Furnace

Main Features

- >Chamber Materials: Vacuum forming ceramic fiber, which has the advantage of no powder drops off with high temperature, and saving energy more than 50%.
- >The furnace installed two sets thermocouples, two sets controllers and heating system.
- >Each heating zone can be controlled separately and it can get two different temperature areas.
- >Built-in RS485 port and USB adaptor as optional setting for computer control, it need to add extra fees.



1200°C Split Tube Furnace



1200°C split tube furnace



1200°C split tube furnace



1400°C split tube furnace



1400°C split tube furnace

Technical Parameters

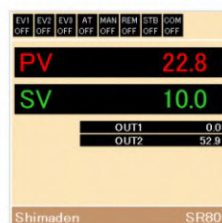
Model	Heating Zone length (mm)	Reactor Tube	Tube OD (mm)	Max Temp	Operate Temp	Voltage	Power
STG-40-12-2	300+300=600mm	Quartz Tube	Φ40mm	1200°C	1100°C	220 V	3.6 KW
STG-60-12-2	300+300=600mm	Quartz Tube	Φ60mm	1200°C	1100°C	220 V	5.2 KW
STG-80-12-2	300+300=600mm	Quartz Tube	Φ80mm	1200°C	1100°C	220 V	5.2 KW
STG-100-12-2	300+300=600mm	Quartz Tube	Φ100mm	1200°C	1100°C	220 V	5.2KW
STG-40-14-2	300+300=600mm	Alumina Tube	Φ40mm	1400°C	1300°C	220 V	4 KW
STG-60-14-2	300+300=600mm	Alumina Tube	Φ60mm	1400°C	1300°C	220 V	6 KW
STG-80-14-2	300+300=600mm	Alumina Tube	Φ80mm	1400°C	1300°C	380 V	8 KW
STG-100-14-2	300+300=600mm	Alumina Tube	Φ100mm	1400°C	1300°C	380 V	10 KW
STG-40-17-2	300+300=600mm	Alumina Tube	Φ40mm	1700°C	1600°C	220 V	6 KW
STG-60-17-2	300+300=600mm	Alumina Tube	Φ60mm	1700°C	1600°C	380 V	8 KW
STG-80-17-2	300+300=600mm	Alumina Tube	Φ80mm	1700°C	1600°C	380 V	10 KW



Horizontal Three Zones Tube Furnace

Main Features

- >Chamber Materials: Vacuum forming ceramic fiber, which has the advantage of no powder drops off with high temperature, and saving energy more than 50%.
- >The furnace installed three sets thermocouples, three sets controllers and heating system.
- >Each heating zone can be controlled separately and it can get three different temperature areas.
- >Built-in RS485 port and USB adaptor as optional setting for computer control, it need to add extra fees.



Computer Remote Control system is available



1200°C OEM three zones split tube furnace



1200°C three zones split tube furnace



1700°C three zones Non-split tube furnace



1200°C Three Zones Split Tube Furnace

Technical Parameters

Model	Heating Zone length (mm)	Tube OD (mm)	Reactor Tube	Max Temp	Operate Temp	Voltage	Power
STG-40-12-3	300+300+300=900mm	Φ40mm	Quartz Tube	1200°C	1100°C	220 V	5.4 KW
STG-60-12-3	300+300+300=900mm	Φ60mm	Quartz Tube	1200°C	1100°C	380V	7.8KW
STG-80-12-3	300+300+300=900mm	Φ80mm	Quartz Tube	1200°C	1100°C	380V	7.8KW
STG-100-12-3	300+300+300=900mm	Φ100mm	Quartz Tube	1200°C	1100°C	380V	7.8KW
STG-40-14-3	200+200+200=600mm	Φ40mm	Alumina Tube	1400°C	1300°C	220V	5KW
STG-60-14-3	200+200+200=600mm	Φ60mm	Alumina Tube	1400°C	1300°C	380V	8KW
STG-80-14-3	200+200+200=600mm	Φ80mm	Alumina Tube	1400°C	1300°C	380V	9KW
STG-40-17-3	200+200+200=600mm	Φ40mm	Alumina Tube	1700°C	1600°C	380V	6KW
STG-60-17-3	200+200+200=600mm	Φ60mm	Alumina Tube	1700°C	1600°C	380V	9KW
STG-80-17-3	200+200+200=600mm	Φ80mm	Alumina Tube	1700°C	1600°C	380V	12KW

Vertical Tube Furnace

Main Features

Vertical tube furnace is mainly used in metallurgy, glass, heat treatment, lithium battery positive and negative electrode materials. It is a certain atmosphere professional equipment to test material features in new energy, abrasive tools and other industries.

The advantage of vertical tube furnace?

- > Vertical tube furnace has a small footprint and can be used for rapid heating / quenching processes.
- > High temperature and high vacuum vertical tube furnace with crucible or heating materials suspended in the tube can be rotated under vacuum for uniform sintering, and the crucible can be manually lifted to easily replace the sample.
- > Mature technology, Simple furnace structure, Easy to operate, easy to control, and continuous production.

How to operate vertical tube furnace?

- > According to the requirements of the laboratory, intermittent manual way is used for loading and unloading samples.
- > When loading the material, place the material box on the material bowl support, open and take out the sealed end cover of the furnace tube, put it into the material box support with the material box, install the sealed end cover on the furnace tube flange and tighten the clamp bolt.
- > Then the process atmosphere is introduced until the oxygen content in the furnace tube reaches the process requirements and the temperature for sintering.
- > After the product sintering process is completed, a small amount of process atmosphere should be introduced and the temperature should be reduced until the furnace temperature is lower than the process requirements, and then the sealed end cover of the furnace tube can be opened to take out the heated product.



Technical Parameters

Model	Heating Zone length (mm)	Tube Size OD*L (mm)	Max Temp	Operate Temp	Voltage	Power	Heating Element	Temperature Accuracy
STGL-40-12	300mm	Φ40*1000mm	1200°C	1100°C	220 V	1.8 KW	HRE wire	±1°C
STGL-60-12	300mm	Φ60*1000mm	1200°C	1100°C	220 V	2.6KW	HRE wire	±1°C
STGL-80-12	300mm	Φ80*1000mm	1200°C	1100°C	220 V	2.6KW	HRE wire	±1°C
STGL-100-12	300mm	Φ100*1000mm	1200°C	1100°C	220 V	2.6KW	HRE wire	±1°C
STGL-40-14	300mm	Φ40*1000mm	1400°C	1300°C	220 V	2KW	SIC ROD	±1°C
STGL-60-14	300mm	Φ60*1000mm	1400°C	1300°C	220 V	3KW	SIC ROD	±1°C
STGL-80-14	300mm	Φ80*1000mm	1400°C	1300°C	220 V	4KW	SIC ROD	±1°C
STGL-100-14	300mm	Φ100*1000mm	1400°C	1300°C	220 V	5KW	SIC ROD	±1°C
STGL-40-17	300mm	Φ40*1000mm	1700°C	1600°C	220 V	3KW	MoSi2 Rod	±1°C
STGL-60-17	300mm	Φ60*1000mm	1700°C	1600°C	220 V	4KW	MoSi2 Rod	±1°C
STGL-80-17	300mm	Φ80*1000mm	1700°C	1600°C	220 V	5KW	MoSi2 Rod	±1°C

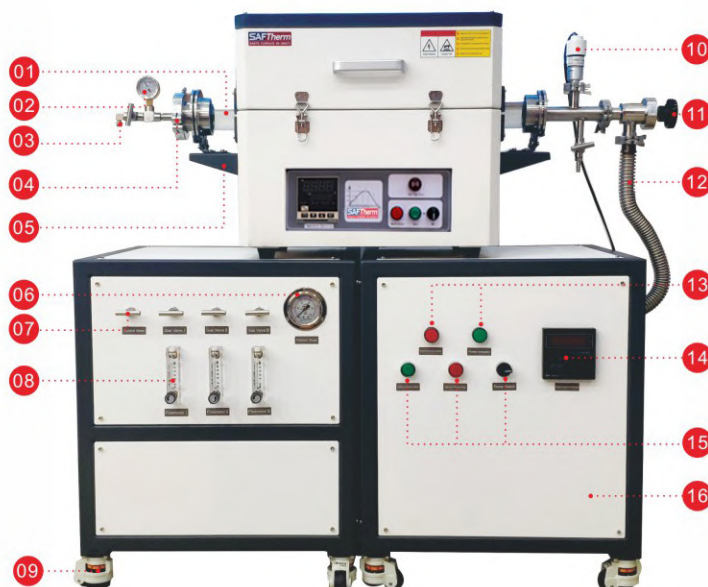
STGC-60-12

1200°C CVD Tube Furnace

Main Features

- >Includes Quartz glass tube with a set of stainless steel vacuum sealing flanges with valves and silicon O rings, fittings for connection of gas vacuum components.
- >Dual flanges support ensures better sealing and longer tube life.
- >One year warranty (consumable parts are not included), lifetime technical support.

- | | |
|------------------------------|-------------------------------|
| 01 Quartz Tube | 09 Height Adjustable Wheel |
| 02 Mechanical Vacuum Gauge | 10 Digital Vacuum Gauge |
| 03 Gas Inlet | 11 Vacuum Angle Valve |
| 04 KF Sealing Flanges | 12 SS304 Flexible Bellow |
| 05 Flange Support | 13 Pump Operating Buttons |
| 06 Mechanical Pressure Gauge | 14 Digital Vacuum Gauge Panel |
| 07 Gas Valve | 15 Electronic Buttons |
| 08 Gas Flow Meter | 16 Built-in Vacuum Pump |



Chemical Vapor Deposition (CVD) tube furnaces feature a chamber with high quality alumina fiber insulation and high quality vacuum formed insulation resistance wire heating element, which ensures fast heat up, excellent temperature control and short cool down times;

The CVD gas path system can be selected from one or three-way gas mass flow meters, and the gas mixing system can also be single-input and single-out. Accurate control of gas digital control, flow switch and flow time can be automatically controlled by touch screen to achieve unattended air control, accuracy: $\pm 1\%$ F.S, response time: $\leq 4\text{sec}$; The vacuum system adopts a vacuum pump.

The vacuum measurement uses a digital composite vacuum machine or a Pirani vacuum gauge. The measuring instrument is integrated on the temperature control panel for easy operation. Furnace operation is controlled by Shimaden® (Japan) 32-segment digital controller with built-in RS485 digital communications port and USB adaptor, allowing the user to connect to a PC for remote control and monitoring of the furnace. You can also save or export test results. All our furnaces are CE compliant.

Technical Parameters

Model	STGC-25-12	STGC-40-12	STGC-60-12	STGC-80-12	STGC-100-12	STGC-120-12	OEM
Reactor Quartz Tube (mm)	Φ25mm	Φ40mm	Φ60mm	Φ80mm	Φ100mm	Φ120mm	Any size
Heating Zone Length (mm)	300mm	300mm	300mm	300mm	300mm	300mm	
Type	Benchtop						
Furnace Structure	Alumina Ceramic Chamber, Temperature control system, Heating element, Furnace shell ,Main Electric Parts and other relative accessories						
Max Temperature	1200°C						
Continue Temp.	1100°C						
Power Supply	220V/1.8KW	220V/1.8KW	220V/2.6KW	220V/2.6KW	220V/2.6KW	220V/4KW	
Heating Element	High quality alloy resistance wire (HRE)						
Chamber Material	High temperature 1500 Type polycrystal alumina ceramic fiber material						
Temp Precision	$\pm 1^\circ\text{C}$						
Thermocouple	N type						
Temp Controller	SHIMADEN (Japan) brand intelligent microcomputer PID controller can program 4 groups 32 segments						
Electronic Parts	SCHNEIDER (France) electronics brand						
Heating Rate	$\leq 25^\circ\text{C/min}$ (suggest 15°C/min for longer life using of furnace)						
Safety Protection	Overheat and thermocouple-break alarm						
Certification	ISO9001 /CE/ SGS						
Furnace Shell	High quality cold-rolled steel sheets CNC processing						
Insulation	High quality thermal insulation material to ensure a good uniformity						
Accessories	One pair of high temperature gloves, One pair of furnace hook, one catalog and operation manual						
Optional	Paperless recorder, Quartz /Alumina crucible, Mass flowmeter, Digital Vacuum Gauge						

STGX-300-12

1200°C Rotary Tube Furnace

Description

Rotary tube furnace (Tilting is optional) is specially designed for calcining inorganic compound with better uniformity, especially excellent for preparing Li-ion battery cathode materials with conductive or protective coating on powder, such as, LiFePO_3 , LiMnNiO_3 , etc in R&D laboratory.

Main Features

- > Rotary tube to keep uniform heating
- > Tube rotating Speed 15 RPM Max (reversible)
- > Angle of inclination 0~30° (optional)
- > High Vacuum Sealing flanges with gas inlet/outlet ports
- > High quality quartz glass tube
- > Ceramic fiber lining board with embedded HRE heating wire



Technical Parameters

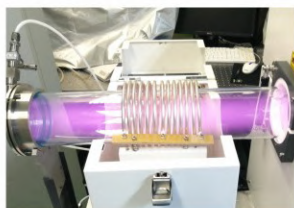
Model	Heating Zone length (mm)	Tube Size OD*L (mm)	Max Temp	Operate Temp	Voltage	Power	Heating Element	Temperature Accuracy
STGX-40-12	300mm	Φ40*1000mm	1200°C	1100°C	220 V	1.8 KW	HRE wire	±1°C
STGX-60-12	300mm	Φ60*1000mm	1200°C	1100°C	220 V	2.6KW	HRE wire	±1°C
STGX-80-12	300mm	Φ80*1000mm	1200°C	1100°C	220 V	2.6KW	HRE wire	±1°C
STGX-100-12	300mm	Φ100*1000mm	1200°C	1100°C	220 V	2.6KW	HRE wire	±1°C
STGX-150-12	500mm	Φ150*1200mm	1200°C	1100°C	380 V	12KW	HRE wire	±1°C
STGX-200-12	500mm	Φ200*1200mm	1200°C	1100°C	380 V	15KW	HRE wire	±1°C

PECVD Tube Furnace >>



Product Application:

PECVD system consists of tube furnace, vacuum acquisition, flow control, and RF power supply. With 13.56Mhz radio frequency output, the gas containing the atoms of the film is ionized to form plasma in the vacuum body. The strong chemical activity of the plasma is used to improve the reaction conditions and make the film composed of The gaseous substance undergoes a chemical reaction to realize a new preparation technology for the growth of thin film materials, and finally a few pieces of the desired thin film are deposited, which is suitable for the deposition of SiO₂ and SiN_x thin films at 1200C.



Product Application:

- > Tube furnace can choose different tube diameter and length of constant temperature zone, both ends of furnace tube are equipped with high vacuum stainless steel sealing flange;
- > Vacuum system can choose different vacuum pumps according to test requirements, rotary vane vacuum pump vacuum≤5Pa, molecular pump vacuum unit 1x10⁻⁴Pa;
- > The gas supply system can choose 3-channel float manual and 3-channel automatic mass flow system.
- > Vacuum measurement is digital compound vacuum machine or Pirani vacuum gauge.
- > Power output optional 200W,300W,and 500W
- > The thermostat has built-in RS485 digital communication port and USB adapter for optional configuration, which can be connected to PC for remote control and monitoring, the control and monitoring system can also save or export the test results

Technical Parameters

Model	STGP-40-12	STGP-60-12	STGP-80-12	STGP-100-12
Reactor Quartz Tube (mm)	Φ40X1200mm	Φ60X1200mm	Φ80X1200mm	Φ100X1200mm
Type	Benchtop			
Max Temperature	1200°C			
Continue Temp.	1100°C			
Heating Zone	300mm/440mm			
Power Supply	220V/1.8KW	220V/1.8KW	220V/2.6KW	220V/2.6KW
Heating Element	HRE Resistance Wire			
Chamber Material	Polycrystalline inorganic alumina ceramic fiber material prepared by wet vacuum filtration molding			
Tube Material	Quartz tube			
Temp Precision	±1°C			
Thermocouple	N type			
Temp Controller	SHIMADEN(Japan)brand intelligent microcomputer PID controller can program 4 groups 32 segments			
Heating Rate	1-25°C/min Free adjustment			
Furnace Structure	Furnace temperature control integrated structure, furnace opening and closing; double shell, air circulation heat insulation			
Sealing Performance	Both ends of the furnace tube are equipped with stainless steel metal flanges and matched with high-temperature PTFE gaskets, which can work under vacuum with a vacuum degree of ≤5pa (rotary vane vacuum pump)			
Rf Power Supply	Frequency: 13.56 MHz±0.005%, power: 5-500W, power stability: ±0.5%			
Gas Control	Optional 3-channel float manual flow meter, range 60-600ml/min; 3-channel automatic mass flow meter, range 1-500sccm			
Atmosphere Performance	Both ends of the flange are equipped with air inlets and outlets. The pressure gauge. The precision needle valve can adjust the short-term and air output. It can pass in protective gases			
Safety Protection	Equipped with an air circuit breaker on the equipment, it will automatically bounce when a short-circuit leakage occurs, which can protect the safety of equipment and operators			
Furnace Shell	High quality cold-rolled steel sheets CNC processing			
Certification	ISO9001 /CE/ SGS/TUV			

OEM Tube Furnace show



STGR-60-12

The vertical tube type thermal shock experiment furnace is used for the thermal shock performance test of metal, glass and other materials. The maximum temperature is 1200°C. The upper and lower ends of the tube furnace are equipped with sealing flanges, which can work under vacuum and atmosphere protection. The top of the flange It is equipped with an electromagnet. There is a metal material basket under the electromagnet. The electromagnet can be released by a button during the heat treatment process, and then the basket and the material will freely fall and move downward. After the vacuum baffle valve is opened, the material will fall into the lower part. In the water tank or oil tank, the material is quickly cooled to realize the analysis of the thermal shock performance of the material, and it can also be used for the quenching of metal materials. **Type:** Vertical **Heating Zone size:** 300mm

Tube Outer Diameter: φ60x1000mm **Maximum Temperature:** 1200°C **Continuous Temperature:** 1100°C **Thermocouple:** N-type **SHIMADEN PID Controller:** 32-segment program **Vacuum Degree:** ≤5pa



STH-3-12

The muffle furnace is a chamber furnace with a quartz tube. It can work as a simple muffle furnace with the ceramic blocks. Meanwhile it can be vacuumed and input the atmosphere to act as a tube furnace.

Type: Hybrid **Chamber Size:** 150x150x150mm. **Tube Outer Diameter:** φ50 **Maximum Temperature:** 1200°C **Continuous Temperature:** 1100°C **Thermocouple:** N-type **SHIMADEN PID Controller:** 32-segment program **Vacuum Degree:** ≤5pa



STGX-100-12

This rotary tube furnace adopts metal tube and make the sintering material inside uniform heat. The products are applicable to the laboratories of colleges and universities, scientific research institutes, factories and enterprises, and are used in the field of high-temperature heat treatment of new materials such as metallurgy, glass, lithium battery anode and cathode materials, two-dimensional materials and so on. **Type:** Rotary Furnace **Heating Size:** 300mm. **Tube Outer Diameter:** φ100 **Maximum Temperature:** 1200°C **Continuous Temperature:** 1100 °C **Thermocouple:** N-type **SHIMADEN PID Controller:** 32-segment program **Vacuum Degree:** ≤5pa



STGO-273-12-6

This product is a 6-heating zone tubular resistance furnace with a maximum operating temperature of 1200 °C. Mainly applied to the quantity-production for the industrial enterprises , can work under vacuum, and can also work under a protective atmosphere. In addition, it could be customized according to customer's tubular size/diameter.

Type: Horizontal, Benchtop **Chamber size:** 1500mm **Tube Diameter:** φ273*2300mm **Max. Temperature:** 1200°C **Continuous Temperature:** 1100°C **Thermocouple:** N type **Shimaden PID Controller:** 4 groups 8 segments



STGL-336-12-3

This vertical custom-made tube furnace can load 10 pieces of tubes work together, which increase the production a lot. The products are applicable to the laboratories of colleges and universities, scientific research institutes, factories and enterprises, and are used in the field of high-temperature heat treatment of new materials such as metallurgy, glass, lithium battery anode and cathode materials, two-dimensional materials and so on.

Type: Vertical Furnace **Maximum Temperature:** 1200°C **Continuous Temperature:** 1100°C **Thermocouple:** N-type **SHIMADEN PID Controller:** 32-segment program **Vacuum Degree:** ≤5pa

OEM Lab Furnaces

STRO-3-17

High Temperature Aluminum / Glass / gold / metal / electric melting furnace with 1600°C

Widely used in ceramics, metallurgy, electronics, glass, chemicals, machinery, refractory materials, development of new materials, specialty materials, building materials and other fields of production and experimental.

The chamber insulation material(inner working zone) adopts imported Mitsubishi ceramic fibers and it is energy-saving. inside crucibles volume with 1L, 3L, 5L, 10L, 20L capacity



STM-50-12-2

The double chamber furnace can work at the same time with different temperature. The 1200 °C double chamber manual door muffle furnace can be used for quenching, tempering, annealing, normalizing and other heat treatment processes of metal materials, as well as sintering of non-metallic ceramic materials. It is very suitable for small batch production and pilot test in laboratories and factories.

Type: Double Chamber Furnace **Chamber Size:** 360x460x300mm. **Tube Outer Diameter:** φ50

Maximum Temperature: 1200°C **Continuous Temperature:** 1100°C **Thermocouple:** N-type

SHIMADEN PID Controller: 32-segment program



STJ-20-12

Well furnace is mainly used for metal annealing, quenching, tempering and other processes. It can also be used for melting aluminum with graphite crucible; The well furnace is a manual up door structure. If a large volume well furnace is selected, the door opening mode can be designed as electric translation side opening, the resistance wires are distributed around the furnace, and the furnace bottom is designed with a burning plate, which can directly put the materials into the furnace. If the materials are heavy, it can also assist tools such as crown crane to enter and exit the materials; The furnace material is ceramic fiber or mullite brick, the furnace is square or annular design, and the temperature field is uniform. **Type:** Well Type Furnace **Chamber Size:** 250x400x200mm

Tube Outer Diameter: φ50 **Maximum Temperature:** 1200°C **Continuous Temperature:** 1100°C

Thermocouple: N-type **SHIMADEN PID Controller:** 32-segment program



STGL-100-12-3

This product is a 3-heating zone Vertical tubular resistance furnace with a maximum operating temperature of 1200°C.

Mainly applied to the physical analysis of laboratory powder materials, element determination, can work under vacuum, and can also work under a protective atmosphere. In addition, there is an amazing function in this furnace namely it can be adjusted horizontal or vertical in different experimental using

Heating zone length : 300+300+300=900mm **Tube Diameter:** φ100*L1400mm **Max. Temperature:** 1200°C

Continuous Working Temperature: 1100°C **Thermocouple:** N type **Shimaden PID Controller:** 4 groups 8 segments



STG-40-12-2

The tubular furnace conducts heat treatment on the sample under vacuum or protective atmosphere. The product adopts new ceramic fiber material as the furnace material. The stainless steel flanges at both ends of the furnace tube are sealed. There are air inlet and air outlet on the flange, which can be filled with protective gas. The precision needle valve can adjust the air inlet flow. The furnace has two independent temperature zones, each of which can work independently. The tubular furnace is equipped with two independent temperature control systems, the bottom is designed with sliding rails, which can move the distance between the two tubular furnaces, and the furnace cover is open structure. **Type:** Double Tube Furnace **Heating Zone:** 300mm **Tube Outer Diameter:** 60

Maximum Temperature: 1200°C **Continuous Temperature:** 1100°C **Thermocouple:** N-type **SHIMADEN PID Controller:** 32-segment program



Bottom Loading Furnace>>



Overview of Bottom Loading Furnace

Saftherm ceramic bottom loading furnace mainly experts in 1200°C furnace as well as 1400°C and 1700°C Furnace. Also a customized bottom loading system furnace is available to meet clients individual needs. Mainly provides high-temperature heat treatment environment for, scientific research institutes and other industrial laboratories. Widely used for zirconia sintering in the denture processing industry, and can also be used for sintering and annealing of high-temperature materials in the powder metallurgy industry.

What is the advantage by choosing SAFTHERM Bottom Loading Furnace ?

- > High-tech heating materials equally inside the firing chamber for better heat surroundings
- > The most advanced insulation chamber materials provide excellent firing system results
- > Temperature operating accuracy stable at $\pm 1^{\circ}\text{C}$
- > Automatic temperature operating store functions release operator on duty
- > Vacuum pump is flexible chosen depends on experiment
- > LCD touch Screen with soft manual equipped
- > Double shell design with cooling fan function ensures end-user safety
- > USB interface optional for upgrading to connect computer programmable

The factors to select a suitable bottom loading furnace :

What is the Operating temperature ?

- > SAFTHERM bottom loading furnace mainly supply 1200°C, 1400°C, 1700°C choice based on the special technology request.
- > When real operating lower than 1200°C, we generally use high grade HRE spiral wire coils as heating element.
- > When real operating lower than 1400°C, we generally use high grade SIC (Silicon Carbide Heaters) as heating element.
- > When real operating lower than 1700°C, we generally use high grade MoSi₂ (Molybdenum Disilicide Heaters) heating element.
- > Continuous operating temp will be 100 °C below the max temp design and right using will extend the furnace service life.
- > Furnaces are designed to operate at high temperatures. Operation below temperatures of approximately 600 °C will be less accurate and continuous use at low temperatures may reduce the element life of some furnaces, ie MoSi₂ heated furnaces.

What is the heating diameter and height of the Bottom Loading Furnace ?

SAFTHERM manufactures different heating chamber bottom loading furnace based on the tray size.

The most popular size of the tray in the field is $\phi 120\text{mm}$ $\phi 150\text{mm}$ $\phi 200\text{mm}$ $\phi 300\text{mm}$.

The height for the qty of the trays differs among 120mm, 150mm, 200mm, 300mm.

Simply choose standard compact size which can meet you request and system with superb cost-effectiveness.

Thanks to SAFTHERM strong technical support, the innovative concept enables users to achieve the perfect custom solution when considering their own firing system.

SAFTHERM is constantly to improve what is required by the hard-working on technology and service.

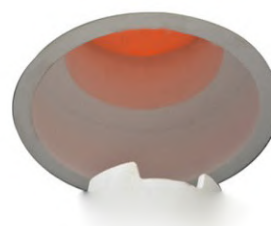


STS-120-17

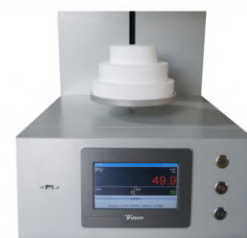
Small Bottom Loading Furnace

Main Features

- >Integrated compact Structure with elegant design
- >Chamber Materials: Vacuum forming ceramic fiber,which has the advantage of no powder drops off with high temperature , and saving energy more than 50%.
- >Yudian LCD Touch Screen Microprocessor based self-tuning PID control provides optimum thermal.
- >CE compliant.
- >Built-in RS485 port and USB adaptor as optional setting for computer control. it need to add extra fees.



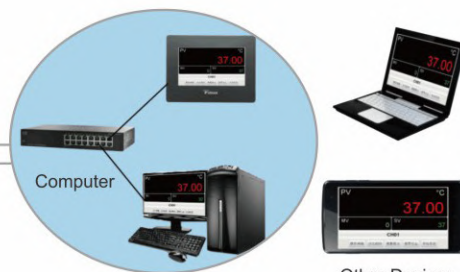
Inside Chamber



PID Controller and Electronics



- 01 Dual-wall Housing
- 02 Lifting System
- 03 Three-step platform
- 04 USB device
- 05 Touch-screen Panel
- 06 Operating Buttons



Intelligent Furnace Remote Control System

Technical Parameters

Model	Volume(L)	Chamber Size Dia*H(mm)	Max Temp(°C)	OperateTemp(°C)	Voltage(V)	Power(KW)	Heating Element	Controller Accuracy
STS-120-12	2 L	Φ120x120	1200°C	1100°C	220 V	2 KW	HRE	±1°C
STS-150-12	3 L	Φ150x150	1200°C	1100°C	220 V	3 KW	HRE	±1°C
STS-200-12	6 L	Φ200x200	1200°C	1100°C	220 V	4 KW	HRE	±1°C
STS-300-12	20 L	Φ300x300	1200°C	1100°C	380 V	6 KW	HRE	±1°C
STS-120-14	2 L	Φ120x120	1400°C	1300°C	220V	3 KW	SIC Rod	±1°C
STS-150-14	3 L	Φ150x150	1400°C	1300°C	220 V	4 KW	SIC Rod	±1°C
STS-200-14	6 L	Φ200x200	1400°C	1300°C	220 V	5 KW	SIC Rod	±1°C
STS-300-14	20 L	Φ300x300	1400°C	1300°C	380 V	6 KW	SIC Rod	±1°C
STS-120-17	2 L	Φ120x120	1700°C	1600°C	220 V	3 KW	Mosi2 Rod	±1°C
STS-150-17	3 L	Φ150x150	1700°C	1600°C	220 V	4 KW	Mosi2 Rod	±1°C
STS-200-17	6 L	Φ200x200	1700°C	1600°C	220 V	4 KW	Mosi2 Rod	±1°C
STS-300-17	20 L	Φ300x300	1700°C	1600°C	380 V	8KW	Mosi2 Rod	±1°C

Larger Bottom Loading Furnace >>



The Overview Of Larger Bottom Loading Furnace

Bottom Loading Furnace are mainly used for the most demanding annealing of coiled wires and sheets, as well as of small forgings and pressings made of steel and nonferrous metals.

Electrical resistance bell furnace are more economic and less heat loss, more efficient and cost effective. Its bottom floor is available to load in all sides and smoothly moved to the correct position along the track by using the manual or automatic crane .The bottom floor rises into the furnace chamber and lifts the load into the heated zone The crane is strong enough to support the weight of the loaded bottom floor ,which will help operators do their job far more efficiently, cost-effectively and safely.

Main Features

- > Manual Elevator or Electric lift bell type.
- > Integrated Structure with elegant design.
- > Vacuum forming ceramic fiber chamber or high solid refractory brick as chamber materials.
- > Heaters: HRE resistance wire/SiC Rod /Mosi2 rod with different operating temperature.
- > SHIMADEN (Japan) Microprocessor Digital PID controller or any brand controller are available.
- > Exhaust chimney valve is available for gas emission.
- > Bottom floor available for all sides loading.
- > CE compliant.



1200°C Bell Furnace



1400°C Lift bell furnace



1700°C Lift Furnace



Model No.	Chamber size (mm)(W × L × H)	Volume(L)	Max Temp	Operate Temp	Voltage	Heating Element
STS-96-12	400X600X400	96L	1200°C	1100°C	380 V	HRE
STS-288-12	600X800X600	288L	1200°C	1100°C	380 V	HRE
STS-640-12	800X1000X800	640L	1200°C	1100°C	380 V	HRE
STS-1200-12	1000X1200X1000	1200L	1200°C	1100°C	380 V	HRE
STS-96-14	400X600X400	96L	1400°C	1300°C	380 V	SiC rod
STS-288-14	600X800X600	288L	1400°C	1300°C	380 V	SiC rod
STS-640-14	800X1000X800	640L	1400°C	1300°C	380 V	SiC rod
STS-1200-14	1000X1200X1000	1200L	1700°C	1600°C	380 V	SiC rod
STS-96-17	400X600X400	96L	1700°C	1600°C	380 V	MoSi2 rod
STS-288-17	600X800X600	288L	1700°C	1600°C	380 V	MoSi2 rod
STS-640-17	800X1000X800	640L	1700°C	1600°C	380 V	MoSi2 rod

Vacuum Atmosphere Chamber Furnace >>



The Overview Of Vacuum atmosphere furnace

Vacuum atmosphere furnace is widely used for heat treatment of hard alloy, ceramic, powder metallurgy materials under low vacuum, reducing and protective atmosphere. It also can be used for quenching, annealing and brazing of high-speed steel, alloy grinding tools, soft magnetic alloys and other materials.



HRE Resistance Wire



N-Type Thermocouple



PID Temperature Control

The factors to select a suitable vacuum furnace :

What is the Operate temperature ?

- > SAFTherm vacuum furnace mainly with range of 1200°C, 1400°C, 1700°C and OEM 1800°C.
- > When real operating lower than 1200°C, we generally use high grade HRE spiral wire coils as heating element.
- > When real operating lower than 1400°C, we generally use high grade SIC (Silicon Carbide Heaters) heating element.
- > When real operating lower than 1700°C, we generally use high grade MoSi2 (Molybdenum Disilicide Heaters).
- > Continuous operating temp will be 100 °C below the max temp design and right using will extend the furnace service life.

What is the chamber size required ?

- > SAFTherm definite and real working chamber size with Width (W), Depth (D) and Height (H) and you will see the specification with : W*D*H (mm) .
- > SAFTherm has wide range of working chamber size also can be customized according to the actual needs of users.

What is the gas system do you need ?

The gas system has two types: Gas float flowmeter control and Mass Flow Control. Mass flow meter can accurately display the gas flow, and can automatically control the flow with variable range but it will be expensive.

What is the vacuum degree do you need ?

- > It can be evacuated, and the valve control is equipped with an intake valve, an exhaust valve, and a vacuum valve. It can pass argon, nitrogen and other gases. The vacuum system uses multi-stage O-rings, heat-resistant rubber pads to ensure reliable sealing, small vacuum leakage, mechanical pressure display in the furnace pressure, higher vacuum can be equipped with digital composite vacuum gauge LED digital display. With vacuum interface conditions, easy to operate.
- > Vacuum system: we can equip different type of vacuum pump and different models to meet your vacuum degree level. Different vacuum degree level with different vacuum system, price will be large difference. Generally molecular pump, diffusion pump, roots pump, mechanical pump can meet various vacuum requirements.
- > The required air intake and vacuum during work can be controlled centrally through the touch screen control system, which is convenient and quick.



STZ-8-12

1200°C Vacuum Chamber Furnace

Main Features

- > Integrated stand Structure with vacuum system and gas supply system
- > Chamber Materials: Vacuum forming ceramic fiber with good temperature insulating effect and energy-saving.
- > SHIMADEN (Japan) Microprocessor based self-tuning PID control provides optimum thermal.
- > Long life type N thermocouple.
- > Built-in RS485 port and USB adaptor as optional setting for computer control. it need to add extra fees.
- > Vacuum pump : Generally molecular pump, diffusion pump, roots pump, mechanical pump can be chosen to meet various vacuum degree level requirements.
- > The furnace shell equipped gas intake valve, gas exhaust valve, and a vacuum port can through argon, nitrogen and other gases.



Technical Parameters

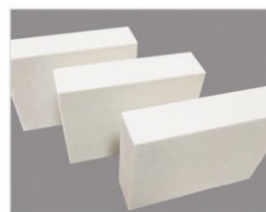
Model	STZ-3-12	STZ-6-12	STZ-8-12	STZ-12-12	STZ-18-12	STZ-30-12	OEM
Inner Dimension (WxDxH)mm	150x150x150	180x230x150	200x200x200	200x300x200	250x300x250	300x500x200	Any size
Type	Stand Type						
Furnace Structure	Alumina Ceramic Chamber, Temperature control system, Heating element, Round Furnace shell ,Main Electric Parts and other relative accessories						
Max Temperature	1200°C						
Continue Temp.	1100°C						
Power Supply	220V/2.5KW	220V/3KW	220V/5KW	220V/4KW	220V/6KW	380V/7.5KW	
Heating Element	High quality alloy resistance wire (HRE)						
Vacuum Degree	as per requested						
Chamber Material	High temperature polycrystal alumina ceramic fiber plate						
Temp Precision	±1°C						
Thermocouple	N type						
Temp Controller	SHIMADEN (Japan) brand intelligent microcomputer PID controller can program 4 groups 32 segments						
Electronic Parts	SCHNEIDER (France) electronics brand						
Heating Rate	≤ 25°C/min (suggest 15-20°C/min for longer life using of furnace)						
Safety Protection	Overheat and Thermocouple-break Alarm						
Certification	ISO9001 /CE/ SGS						
Furnace Shell	High quality cold-rolled round steel sheets CNC processing with good sealing effect						
Insulation	High quality thermal insulation material to ensure a good uniformity						
Accessories	One pair of high temperature gloves, One pair of crucible tong, one catalog and operation manual						
Optional	Paperless recorder, Gas supply system, Vacuum system, Digital vacuum gauge						

STZ-45-14

1400°C Vacuum Chamber Furnace

Main Features

- >Integrated stand Structure with vacuum system and gas supply system
- >Chamber Materials: Vacuum forming ceramic fiber with good temperature insulating effect and energy-saving.
- >SHIMADEN (Japan) Microprocessor based self-tuning PID control provides optimum thermal.
- >Long life type S thermocouple.
- >Built-in RS485 port and USB adaptor as optional setting for computer control. it need to add extra fees .
- >Vacuum pump : Generally molecular pump, diffusion pump, roots pump, mechanical pump can be chosen to meet various vacuum degree level requirements.
- >The furnace shell equipped gas intake valve, gas exhaust valve, and a vacuum port can through argon, nitrogen and other gases.



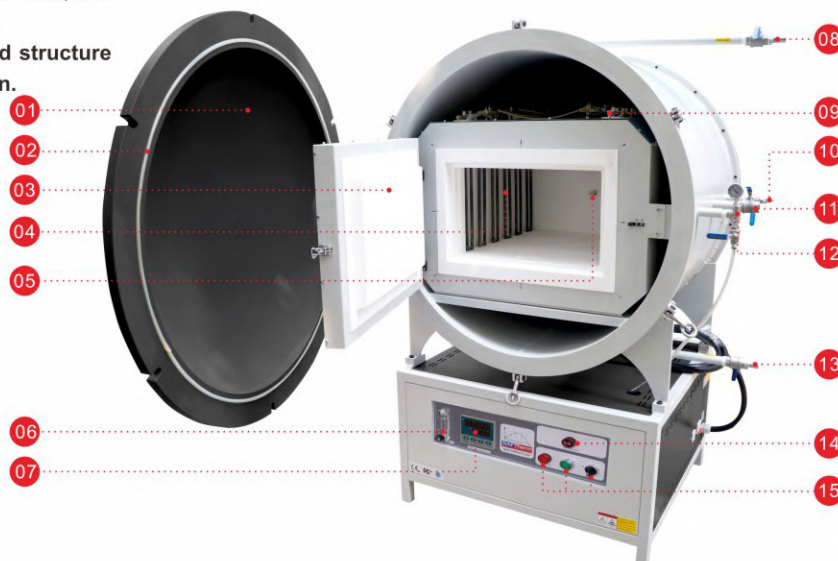
High Alumina Ceramic Fiber



Rotary Vacuum Pump (Optional)

Notice : 1400°C vacuum furnace with double shell round structure must equip water circulating system for normal operation.

- | | |
|------------------------------------|------------------------|
| 01 Outer Steel Door | 09 Alumina Belt |
| 02 O-shape Sealing Rubber Ring | 10 Gas Outlet |
| 03 Inner Insulation Door | 11 Vacuum Port |
| 04 SiC Rod Heater | 12 Gas Inlet |
| 05 S-type Thermocouple | 13 Cooling Water inlet |
| 06 Gas Flow Meter | 14 Sound-light Alarm |
| 07 Shimaden Temperature Controller | 15 Operating Buttons |
| 08 Cooling Water Outlet | |



Technical Parameters

Model	STZ-3-14	STZ-8-14	STZ-12-14	STZ-18-14	STZ-36-14	STZ-45-14	OEM
Inner Dimension (WxDxH)mm	150x150x150	200x200x200	200x300x200	250x300x250	300x400x300	300x500x300	Any size
Type	Stand Type						
Furnace Structure	Alumina Ceramic Chamber, Temperature control system, Heating element, Round Furnace shell ,Main Electric Parts and other relative accessories						
Max Temperature	1400°C						
Continue Temp.	1300°C						
Power Supply	220V/2KW	220V/5KW	220V/5KW	220V/6KW	380V/12KW	380V/14KW	
Heating Element	High quality Silicon Carbide Rod (SIC) heater						
Vacuum Degree	as per requested						
Chamber Material	High temperature polycrystal alumina ceramic fiber plate						
Temp Precision	±1°C						
Thermocouple	S type						
Temp Controller	SHIMADEN (Japan) brand intelligent microcomputer PID controller can program 4 groups 32 segments						
Electronic Parts	SCHNEIDER (France) electronics brand						
Heating Rate	≤ 25°C/min (suggest 15-20°C/min for longer life using of furnace)						
Safety Protection	Overheat and Thermocouple-break Alarm						
Certification	ISO9001 /CE/ SGS						
Furnace Shell	High quality cold-rolled round steel sheets CNC processing with good sealing effect						
Insulation	High quality thermal insulation material to ensure a good uniformity						
Accessories	One pair of high temperature gloves, One pair of crucible tong, one catalog and operation manual						
Optional	Paperless recorder, Gas supply system, Vacuum system, Digital vacuum gauge						

STZ-36-17

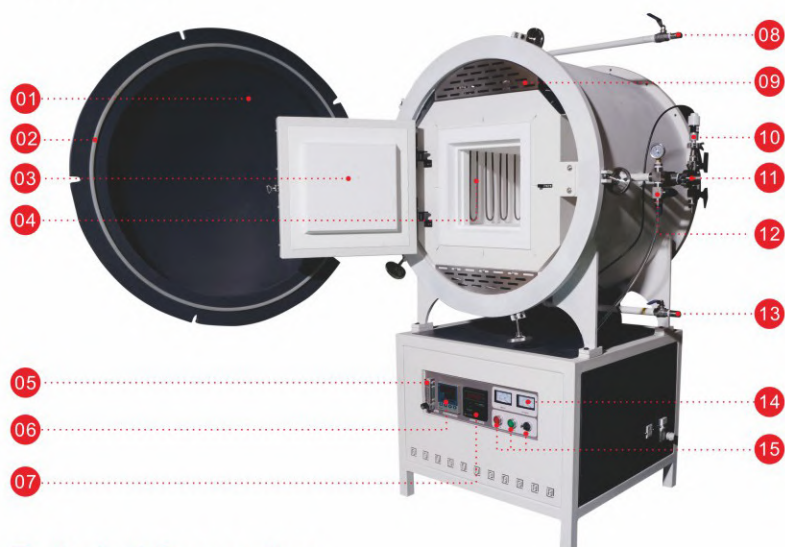
1700°C Vacuum Chamber Furnace

Main Features

- > Integrated stand Structure with vacuum system and gas supply system.
- > Chamber Materials: Vacuum forming ceramic fiber with good temperature insulating effect and energy-saving.
- > YUDIAN brand Microprocessor PID controller or any other brand as option.
- > Vacuum pump : Generally molecular pump, diffusion pump, roots pump, mechanical pump can be chosen to meet various vacuum degree level.
- > The furnace shell equipped gas intake valve, gas exhaust valve, and a vacuum port can through argon, nitrogen and other gases.
- > 1700°C furnace installed the high quality transformer with high voltage and low current.

Notice :

- > 1700°C vacuum furnace with double shell round structure must equip water circulating system for normal operation.
- > 1700°C furnace with MoSi2 rod heaters ,it should be use with low heat speed for long life because its special features.



Alumina Crucibles



Vacuum Pump (Optional)

- | | |
|--------------------------------|-------------------------|
| 01 Outer Steel Door | 09 Safty SS304 Board |
| 02 O-shape Sealing Rubber Ring | 10 Digital Vacuum Gauge |
| 03 Inner Insulation Door | 11 Vacuum Port |
| 04 MoSi2 Rod Heater | 12 Gas tube |
| 05 Gas Flow Meter | 13 Cooling Water Inlet |
| 06 PID Temperature Controller | 14 Amp&Voltmeter |
| 07 Vacuum Gauge Panel | 15 Operating Buttons |
| 08 Cooling Water Outlet | |

Technical Parameters

Model	STZ-3-17	STZ-8-17	STZ-12-17	STZ-20-17	STZ-36-17	OEM
Inner Dimension (WxDxH)mm	150x150x150	200x200x200	200x300x200	250x320x250	300x400x300	Any size
Type	Stand Type					
Furnace Structure	Alumina Ceramic Chamber, Temperature control system, Heating element, Round Furnace shell ,Main Electric Parts and other relative accessories					
Max Temperature	1700°C					
Continue Temp.	1600°C					
Power Supply	220V/4KW	220V/5KW	220V/6KW	380V/7KW	380V/13KW	
Heating Element	High quality Molybdenum Disilicide (MoSi2) heater					
Vacuum Degree	as per requested					
Chamber Material	High temperature polycrystal alumina ceramic fiber plate					
Temp Precision	±1°C					
Thermocouple	B type					
Temp Controller	YUDIAN brand 518P Microprocessor PID controller as standard or any other brand as option					
Electronic Parts	SCHNEIDER (France) electronics brand					
Heating Rate	≤ 15°C/min (suggest 6-8°C/min for longer life using of furnace)					
Safety Protection	Overheat and Thermocouple-break Alarm					
Certification	ISO9001 /CE/ SGS					
Furnace Shell	High quality cold-rolled round steel sheets CNC processing with good sealing effect					
Insulation	High quality thermal insulation material to ensure a good uniformity					
Accessories	One pair of high temperature gloves, One pair of crucible tong, one catalog and operation manual					
Optional	Paperless recorder, Gas supply system, Vacuum system, Digital vacuum gauge					

Low Vacuum Atmosphere Furnace >>

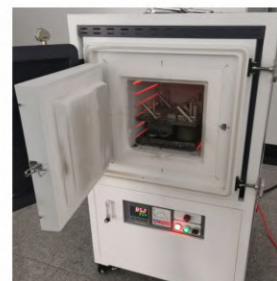


Overview of Low Vacuum Atmosphere Furnace :

Atmosphere furnace is designed for material synthesis under controlled inert gas atmosphere up to 1600 °C with better temperature uniformity. It is an ideal heating equipment for preparing new materials which requires inert gas or oxidizing gas.

Advantage of Low Vacuum Atmosphere Furnace

- > Better leak tightness and better heating preservation.
- > Atmosphere can be controlled. Max vacuum can up to 20000Pa.
- > Fast heating, Safety and explosion prevention.
- > Precise temperature control and excellent heat-Insulation.
- > It is much cost-effective and cheaper one than high vacuum furnace.



01 Ventilation Holes	05 HRE Heating Elements	09 Gas Inlet	13 Gas Valve
02 O-Shape Sealing Rubber Ring	06 PID Temperature Controller	10 Vacuum Pump Inlet	14 Stainless Steel Sealing Screw
03 Ceramic Insulation Lining	07 Operating Buttons	11 N type Thermocouple	15 Air Switch
04 Ceramic Insulation Door	08 Mechanical Vacuum Gauge	12 Gas Outlet	16 Sound-light Alarm

Main Struction Features

- > The Chamber insulation material adopts high purity alumina ceramic fiber lining board, insulation is good and energy-saving.
- > Heavy duty double layer structure with cooling fan to keep furnace exteriors safe to touch.
- > Double furnace doors: inner door block the fire and outer door is sealed with flanges.
- > High temperature PTFE gasket is installed on the outer furnace door to ensure the reliable sealing of the furnace.
- > The furnace body is equipped with an air outlet, which used for extracting air and get vacuum environment.
- > Vacuum degree ≤ 20000Pa
- > The furnace equipped gas inlet and outlet port in back side.
- > The furnace (1400°C, 1700°C) equipped water inlet and outlet port for water cooling system (1200°C not included).

Low Vacuum Atmosphere Furnace >>



1700°C Vacuum Chamber Furnace

Main Features

1700°C Atmosphere Chamber Furnace is widely used in special ceramic industry, 3D materials sintering and so on. High grade alumina ceramic fiber materials as chamber materials with good temperature uniformity in chamber. It has vacuum port, gas inlet and outlet port and cooling water inlet and outlet for water circulation.



- | | | | |
|--------------------------------|----------------------------|----------------------|-------------------------------|
| 01 Ventilation Holes | 05 MoSi2 Rod Heater | 09 Gas Inlet | 12 SS304 Door Sealing Screw |
| 02 O-Shape Sealing Rubber Ring | 06 Amp&Voltmeter | 10 Vacuum Pump Inlet | 13 Schneider Air Switch |
| 03 Ceramic Insulation Lining | 07 Operating Buttons | 11 Gas Outlet | 14 PID Temperature Controller |
| 04 Ceramic Insulation Door | 08 Mechanical Vacuum Gauge | | |

Technical Parameters

Model No.	Chamber size WxDxH(mm)	Capacity	Max Temp	Operate Temp	Voltage	Power	Heating Element
STQ-8-12	200x300x120	8L	1200°C	1100°C	220V	3KW	HRE
STQ-18-12	250x300x250	18L	1200°C	1100°C	220V	5KW	HRE
STQ-30-12	300x500x200	30L	1200°C	1100°C	380V	7.5KW	HRE
STQ-45-12	300x500x300	45L	1200°C	1100°C	380V	12KW	HRE
STQ-64-12	400x400x400	64L	1200°C	1100°C	380V	15KW	HRE
STQ-8-14	200x200x200	8L	1400°C	1300°C	220V	5KW	SiC rod
STQ-18-14	250x300x250	18L	1400°C	1300°C	220V	6KW	SiC rod
STQ-36-14	300x400x300	36L	1400°C	1300°C	380V	12KW	SiC rod
STQ-45-14	300x500x300	45L	1400°C	1300°C	380V	14KW	SiC rod
STQ-64-14	400x400x400	64L	1400°C	1300°C	380V	18KW	SiC rod
STQ-8-17	200x200x200	8L	1700°C	1600°C	220V	5KW	MoSi2 rod
STQ-20-17	250x320x250	20L	1700°C	1600°C	380V	7KW	MoSi2 rod
STQ-36-17	300x400x300	36L	1700°C	1600°C	380V	13KW	MoSi2 rod
STQ-64-17	400x400x400	64L	1700°C	1600°C	380V	18KW	MoSi2 rod

Industrial Heat Treatment Furnace >>



How to Choose a industrial furnace ?

- > According to the requirements of heat treatment process or technical requirements of parts: common heat treatment furnace can be selected such as quenching and tempering, annealing, normalizing process, etc. If surface oxidation and decarburization are required, strictly controllable atmosphere furnace, vacuum furnace, etc.
- > Choosing it according to cost budget: The common box chamber furnace generally has lower cost, while the vacuum furnace, controllable atmosphere furnace and large trolley furnace are costly, which can be selected according to the timing budget given.
- > Select according to the shape of the heat parts: choose a box furnace for the discs, choose a mesh belt furnace for large quantity small parts, and use a trolley furnace to feed and discharge heavy large materials.
- > According to the batch selection of processed parts, large batches choose continuous operation furnaces, such as mesh belt furnaces and roller hearth furnaces, and small batches choose general industrial furnaces with periodic operations.
- > Choose according to customer requirements: Customers sometimes require specific furnaces for heat treatment, and can communicate with us to specify a reasonable heat treatment plan.

What is the Operate temperature ?

SAFTHERM industrial furnace mainly with range of 200-1200°C, 1400°C, 1700°C.

Overview of Industrial Heat Furnace

In order to choose the right heat treatment furnace equipment, we must first understand what products we will heat and what process requirements it must be meet. Then we can consult the heat treatment furnace equipment manufacturer which equipment should be selected according to our own needs. SAFETHERM mainly provide small and large heat treatment equipment, including small industrial furnaces, large industrial furnaces, Lift Bell Furnace, Hot air Convention furnace, car bottom trolley / Bogie hearth furnace, large belt continuous furnace and other kinds of OEM furnace.

What is the chamber size required ?

- > SAFETHERM definite and real working chamber side with Width (W) , Depth (D) and Height (H) and you will see the specification with : W*D*H (mm) .
- > SAFETHERM has wide range of working chamber size for chamber furnaces.

What is the temp controller ?

- > SAFETHERM standard furnaces controlled by SHIMADEN (Japan) or other brand digital PID (proportional,integral and derivative) controller with accurate control.
- > Multi-segments and/or multi-program controllers are available as an option on most models or any other brand models as customer want to have.
- > The Furnace built-in RS485 digital communications port and USB adaptor as optional setting , allowing the user to connect to a PC for remote control and monitoring of the furnace. You can also save or export test results.

What is electric parts used ?

- > SAFETHERM furnace all use international parts to keep safety and quality.
- > Main Electric parts use France SCHNAIDER electronics parts.
- > Main Control use USA Crydom Solid Relay or German SEMIKRON SCR control.

What is your OEM furnace service ?

- > SAFETHERM has professional designers team and can design different furnaces according to customer technical request
- > SAFETHERM will confirm the OEM design with customers before final manufacturing .



STD-64-12

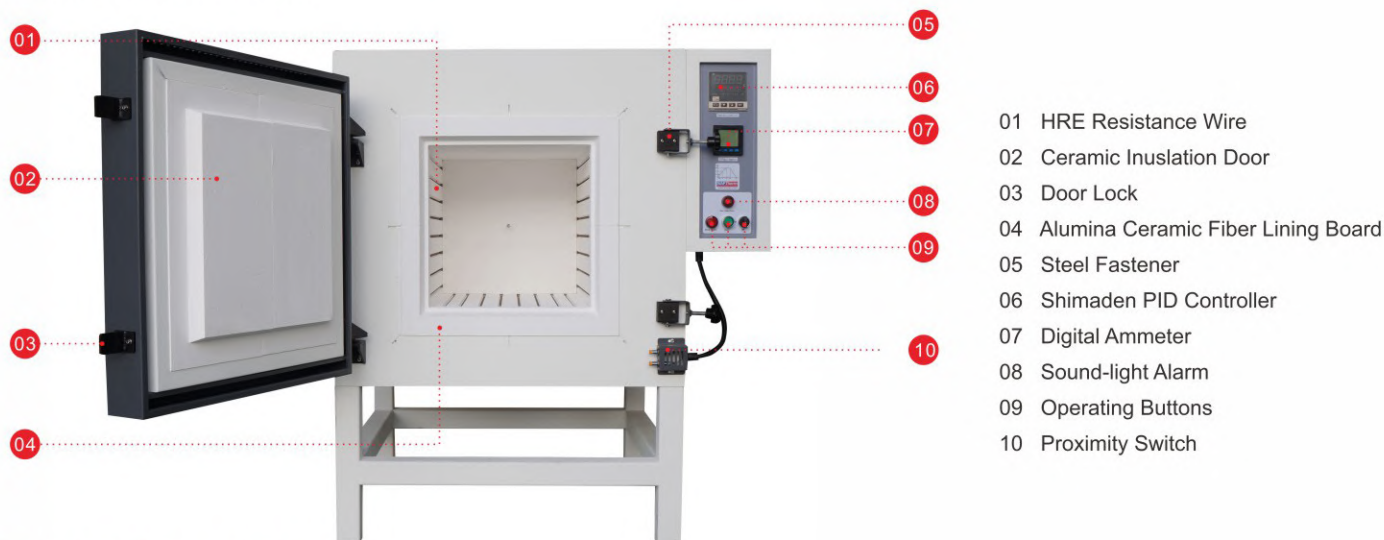
1200°C little Industrial Furnace

Main Features

- >Integrated Structure with elegant design.
- >Chamber Materials: Vacuum forming ceramic fiber,which has the advantage of no powder drops off with high temperature , and saving energy more than 50%.
- >SHIMADEN (Japan) Microprocessor based self-tuning PID control provides optimum thermal.
- >Long life type N thermocouple.
- >CE compliant.
- >Exhaust chimney is an optional device and available for customer.
- >The furnace can be equipped with inert gas devices with float flowmeter.
- >Built-in RS485 port and USB adaptor as optional setting for computer control, it need to add extra fees.



Furnace Inner Chamber with Sample Loading



- 01 HRE Resistance Wire
- 02 Ceramic Insulation Door
- 03 Door Lock
- 04 Alumina Ceramic Fiber Lining Board
- 05 Steel Fastener
- 06 Shimaden PID Controller
- 07 Digital Ammeter
- 08 Sound-light Alarm
- 09 Operating Buttons
- 10 Proximity Switch

Technical Parameters

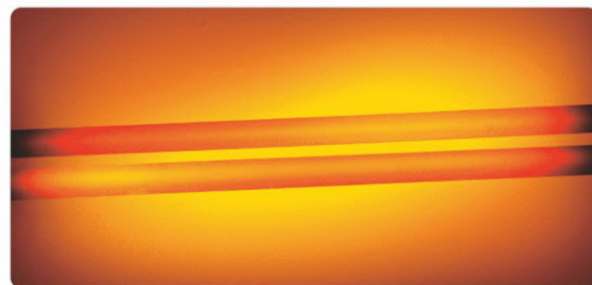
Model	STD-45-12	STD-64-12	STD-80-12	STD-96-12	STD-150-12	OEM
Chamber Size (WxDxH)mm	300x500x300	400x400x400	400x500x400	400x600x400	500x600x500	Any size
Type	Stand Box type heat treatment equipment					
Usage	Ideal for tempering, hardening, gravimetric analysis, sintering, quantitative analysis and other heat treatment processes					
Furnace Structure	Alumina Ceramic Chamber, PID Temperature control system, Heating elements, Furnace shell ,Main Electric Parts and other relative accessories					
Max Temperature	1200°C					
Continue Temp.	1100°C					
Power Supply	380V/12KW	380V/15KW	380V/15KW	380V/18KW	380V/20KW	
Heating Element	High quality alloy resistance wire (HRE)					
Chamber Material	High temperature polycrystal alumina ceramic fiber plate					
Temp. Precision	±1°C					
Thermocouple	N type, tested from the back-wall center of the chamber					
Temp Controller	SHIMADEN (Japan) brand intelligent microcomputer PID controller can program 4 groups 32 segments					
Electronic Parts	SCHNEIDER (France) electronics brand					
Heating Rate	≤ 25°C/min (suggest 15-20°C/min for longer life using of furnace)					
Safety Protection	Overheat and Thermocouple-break Alarm; Leakage circuit breaker					
Certification	ISO9001 /CE/ SGS					
Furnace Shell	High quality cold-rolled steel sheets CNC processing					
Insulation	High quality thermal insulation material to ensure a good uniformity					
Standard Packing	One pair of high temperature gloves, One pair of crucible tongs, one catalog and one English operation manual					
Optional	Paperless recorder, Stainless steel exhaust valve, Quartz /Alumina crucibles					
Warranty	One year, life long technical supports (Consumable parts such as thermocouple and heating elements are not covered by the warranty, please order replacements at related products respectively					

STD-80-14

1400°C little Industrial Furnace

Main Features

- >Integrated Structure with elegant design.
- >Chamber Materials: Vacuum forming ceramic fiber,which has the advantage of no powder drops off with high temperature , and saving energy more than 50%.
- >SHIMADEN (Japan) Microprocessor based self-tuning PID control provides optimum thermal.
- >Long life type S thermocouple.
- >CE compliant.
- >Exhaust chimney is an optional device and available for customer.
- >The furnace can be equipped with inert gas devices with float flowmeter.
- >Built-in RS485 port and USB adaptor as optional setting for computer control. it need to add extra fees.



SiC Rod heater heating

- 01 SiC Rod Heater
- 02 Ceramic Insulation Door
- 03 SS304 Door Handle
- 04 Alumina ceramic fiber lining board
- 05 Steel fastener
- 06 Shimaden PID controller
- 07 Ammeter
- 08 Timer (Optional)
- 09 Sound-light alarm
- 10 Operating Buttons
- 11 5mm thickness mild steel sheet



Technical Parameters

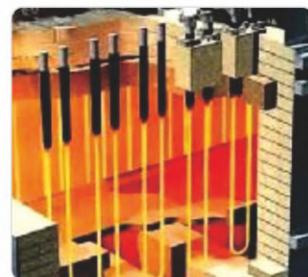
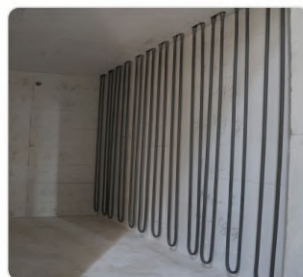
Model	STD-36-14	STD-45-14	STD-64-14	STD-80-14	STD-96-14	OEM
Chamber Size (WxDxH)mm	300x400x300	300x500x300	400x400x400	400x500x400	400x600x400	Any size
Type	Box type heat treatment equipment					
Usage	Ideal for tempering, hardening, gravimetric analysis, sintering, quantitative analysis and other heat treatment processes					
Furnace Structure	Alumina Ceramic Chamber, PID Temperature control system, Heating elements, Furnace shell ,Main Electric Parts and other relative accessories					
Max Temperature	1400°C					
Continue Temp.	1300°C					
Power Supply	380V/12KW	380V/15KW	380V/18KW	380V/20KW	380V/21KW	
Heating Element	Silicon Carbide Rods (SiC)					
Chamber Material	High temperature polycrystal alumina ceramic fiber plate					
Temp. Precision	±1°C					
Thermocouple	S type, tested from the back-wall center of the chamber					
Temp Controller	SHIMADEN (Japan) brand intelligent microcomputer PID controller can program 4 groups 32 segments					
Electronic Parts	SCHNEIDER (France) electronics brand					
Heating Rate	≤ 25°C/min (suggest 15-20°C/min for longer life using of furnace)					
Safety Protection	Overheat and Thermocouple-break Alarm; Leakage circuit breaker					
Certification	ISO9001 /CE/ SGS					
Furnace Shell	High quality cold-rolled steel sheets CNC processing					
Insulation	High quality thermal insulation material to ensure a good uniformity					
Standard Packing	One pair of high temperature gloves, One pair of crucible tongs, one catalog and one English operation manual					
Optional	Paperless recorder, Stainless steel exhaust valve, Quartz /Alumina crucibles, extra Heaters					
Warranty	One year, life long technical supports (Consumable parts such as thermocouple and heating elements are not covered by the warranty, please order replacements at related products respectively)					

STD-36-17

1700°C Small Industrial Furnace

Main Features

- >Integrated Structure with elegant design.
- >Chamber Materials: Vacuum forming ceramic fiber with advantage of no powder drops off in high temperature and energy saving.
- >Heater : It use high grade MoSi2 (Molybdenum Disilicide Heaters) heating element.
- >YUDIAN brand Microprocessor PID controller or any other brand as option.
- >Long life type B thermocouple.
- >CE compliant.
- >Exhaust chimney is an optional device and available for customer.
- >The furnace can be equipped with inert gas devices with float flowmeter.
- >Built-in RS485 port and USB adaptor as optional setting for computer control, it need to add extra fees.



1700°C MoSi2 Rod Heater Chamber

- 01 Alumina ceramic fiber lining board
- 02 Ceramic Insulation Door
- 03 Digital PID Controller
- 04 Optional SS304 lining
- 05 MoSi2 Rod Heaters
- 06 Door steel fastener
- 07 Voltmeter& Ammeter
- 08 Operating Buttons



Technical Parameters

Model	STD-36-17	STD-45-17	STD-96-17	OEM
Chamber Size (WxDxH)mm	300x400x300	300x500x300	400x600x400	Any size
Type	Box type heat treatment equipment			
Usage	Ideal for tempering, hardening, gravimetric analysis, sintering, quantitative analysis and other heat treatment processes			
Furnace Structure	Alumina Ceramic Chamber, PID Temperature control system, Heating elements, Furnace shell ,Main Electric Parts and other relative accessories			
Max Temperature	1700°C			
Continue Temp.	1600°C			
Power Supply	380V/15KW	380V/18KW	380V/24KW	
Heating Element	MoSi2 Rods			
Chamber Material	High temperature polycrystal alumina ceramic fiber plate			
Temp. Precision	±1°C			
Thermocouple	B type, tested from the back-wall center of the chamber			
Temp Controller	YUDIAN brand Microprocessor PID controller or any other brand as option			
Electronic Parts	SCHNAIDER (France) electronics brand			
Heating Rate	≤ 15°C/min (suggest 10°C/min for longer life using of furnace)			
Safety Protection	Overheat and Thermocouple-break Alarm; Leakage circuit breaker			
Certification	ISO9001 /CE/ SGS			
Furnace Shell	High quality cold-rolled steel sheets CNC processing			
Insulation	High quality thermal insulation material to ensure a good uniformity			
Standard Packing	One pair of high temperature gloves, One pair of crucible tongs, one catalog and one English operation manual			
Optional	Paperless recorder , Stainless steel exhaust valve, Quartz /Alumina crucibles, extra Heaters			
Warranty	One year, life long technical supports (Consumable parts such as thermocouple and heating elements are not covered by the warranty, please order replacements at related products respectively)			

STD-200-12A

Large Size Industrial Furnace

Main Features

- >For large size industrial furnace we have 1200°C ,1400°C , 1700°C type
- >Integrated Structure with elegant design, We generally use electric lift upwards door for large size door, but manual door is available.
- >Chamber Materials: high solid refractory brick with shock resistance
- >Long life type N/S/B thermocouple according to different temperature.
- **Three Sides Heating : Left + Right + Bottom**
- **Five Sides Heating : Left + Right + Bottom+Rear+Door**
(With best temperature uniformity in chamber)



Five Sides Heating Furnace



1200°C Industrial Furnace



1400°C Industrial Furnace

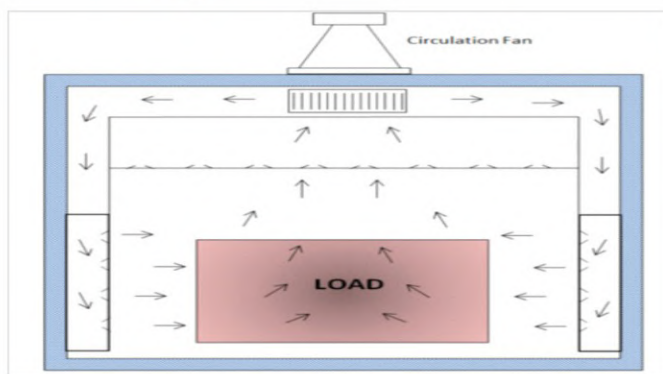


1700°C Industrial Furnace

Technical Parameters

Model	Chamber Size W*D*H(mm)	Volume(L)	Max Temp(°C)	OperateTemp(°C)	Voltage(V)	Heating Element	Controller Accuracy
STD-150-12A	450*530*590	150L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STD-200-12A	500*530*720	200L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STD-300-12A	550*700*780	300L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STD-450-12A	600*750*1000	450L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STD-660-12A	600*1100*1000	660L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STD-1000-12A	800*1000*1250	1000L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STD-1500-12A	900*1200*1400	1500L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STD-2200-12A	1000*1400*1600	2200L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STD-96-14	400*600*400	96L	1400°C	1300°C	380 V	SIC ROD	±1°C
STD-150-14	450*530*590	150L	1400°C	1300°C	380 V	SIC ROD	±1°C
STD-200-14	500*530*720	200L	1400°C	1300°C	380 V	SIC ROD	±1°C
STD-64-17	400*400*400	64L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STD-96-17	400*600*400	96L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STD-150-17	450*530*590	150L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STD-200-17	500*530*720	200L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STD-288-17	600*800*600	288L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C

Hot Air Circulation Furnace >>



Hot Air Circulation System

Main Features

- > SAFTherm air circulation furnace can heat up to be Max 850°C.
- > The structure can be customized to be manual axially door, auto lifting door, car bottom loading, double door design etc. according to users' technical process.
- > Chamber material can be chosen between ceramic fiber modules and light mullite brick.
- > Furnace top install hot circulation fan and an can make the forced circulation.
- > On the left and right side in the chamber, stainless steel deflector installation strengthen the convection and insulation effect.
- > SAFTherm has wide range of working chamber size also can be customized according to the actual needs of users.

The Overview Of Hot Air Circulation Furnace

Air circulation furnace is equipped with thermal circulation fan and stainless steel deflector in the working chamber. This kind of design provide a perfect temperature uniformity for heated product. Therefore it is an ideal choice for hardening, tempering, annealing etc heat treatment. And most welcomed by metal models and other metal materials.



Maintenance of air circulation furnaces

- > Furnace operators should understand the simple structure and working characteristics of air circulation furnaces.
- > The heat treatment furnace must cut off the heating power when loading and unloading the workpiece to ensure the safety of the operator.
- > The oxides and other residues in the furnace should be removed frequently and the maintenance work should be performed at least once every two weeks.
- > It is strictly forbidden to heat the workpiece with corrosive, volatile and explosive atmosphere in the furnace, so as not to cause unnecessary accidents.
- > Transmission parts should be checked frequently and lubricated.
- > Regularly record the condition of the parts including thermocouples, heating element, chamber lining and motor fan, contact with manufacturer for professional suggestions when necessary.

Model	STDR-96-10	STDR-288-10	STDR-640-10	STDR-1200-10	STDR-2160-10
Chamber Volume	96L	288L	640L	1200L	2160L
Chamber Size WxLxH (mm)	400x600x400	600x800x600	800x1000x800	1000x1200x1000	1200x1500x1200
Max Temperature	850°C				
Continue Temp.	750°C				
Heating Element	High quality Alloy Resistance Wire (HRE)				
Chamber Material	High quality light-weight mullite brick				
Temp Controller	SHIMADEN (Japan) brand PID controller can program 4 groups 32 segments or any brand				
Electronic Parts	SCHNEIDER (France) electronics brand				
Heating Rate	< 25°C/min (suggest 15°C/min for longer life using of furnace)				
Safety Protection	Overheat and thermocouple-break alarm				
Furnace Shell	high quality cold-rolled steel sheets CNC processing				
Insulation	High quality thermal insulation material to ensure a good uniformity				

Manual Trolley Furnace >>



Main Application

The manual small trolley furnace is suitable for the heat treatment of medium and small workpieces. It has the advantages of large furnace loading, convenient workpiece access, low heat treatment cost etc. Processes include heat treating, homogenizing, annealing, preheating and stress relieving. Industries served are aerospace, oil drilling, steel mills, automotive, military and many more. Materials processed include aluminum, steel, cast iron, titanium and others. Saftherm manual car bottom furnace can be also customized for each individual application.

Main Features

- > Manual trolley furnace bottom can be pulled out easily with the design to be free steering system
- > The manual trolley furnace can load and unload the sintering materials easier
- > Four universal wheel achieve wholly pulled function out of the furnace, and the two front can brake to fix the position
- > Five sides heating increase the temperature uniformity largely
- > Electric auto exhaust cover on the top can be freely set according to the temperature



Technical Parameters

Model	Chamber Size W*D*H(mm)	Volume(L)	Max Temp(°C)	OperateTemp(°C)	Voltage(V)	Heating Element	Controller Accuracy
STT-150-12	450x530x590	150L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STT-200-12	500x530x720	200L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STT-300-12	550x700x780	300L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STT-450-12	600x750x1000	450L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STT-660-12	600x1100x1000	660L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STT-1000-12	800x1000x1250	1000L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STT-1500-12	900x1200x1400	1500L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STT-2200-12	1000x1400x1600	2200L	1200°C	1100°C	380 V	HRE WIRE	±1°C
STT-96-14	400x600x400	96L	1400°C	1300°C	380 V	SIC ROD	±1°C
STT-150-14	450x530x590	150L	1400°C	1300°C	380 V	SIC ROD	±1°C
STT-200-17	500x530x720	200L	1400°C	1300°C	380 V	SIC ROD	±1°C
STT-64-17	400x400x400	64L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STT-96-17	400x600x400	96L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STT-150-17	450x530x590	150L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STT-200-17	500x530x720	200L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STT-288-17	600x800x600	288L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C

Bogie Hearth Furnace >>



Main Features

A bogie-hearth resistance furnace, which comprises a car trolley and a furnace body. During the working process, the electric heating element on the furnace body and the electric heating element below the car bearing refractor layers are simultaneously switched on, so that the temperature balance at each angle, including the bottom.

1200°C/ 1400°C/ 1700°C car bottom furnace (box type resistance furnace) mainly provides high temperature heat treatment environment for industrial, research institutes, factories and other industrial, and is applied to carburization new materials such as metal materials, ceramic materials, nano materials, and semiconductor materials and so on.

Equipment Description

- >Furnace consists of furnace chamber material, heat insulation material and heating elements and car roll-out basement.
- >It is mounted on a trolley with a burning plate, and the trolley can enter and come out of the furnace along the track.
- >Furnace body and Temperature controller system box with separate design with safety.
- >Auto lifting upwards door or door integrated with car bottom, the operation button on the separate control box.

Heating Zone and Heating Element & Chamber material

- >Heating Zone: The whole furnace can be divided with different temperature zones and more points temperature control.
- >Heating Element:

—1200°C bogie hearth furnace with high-purity alumina ceramic fiber module block chamber material, High quality alloy resistance band arranged in the furnace three sides with good temperature uniformity.



Alloy resistance wire



Furnace Chamber

—1400°C bogie furnace with high strong solid refractory brick chamber or alumina ceramic fiber. SAFTherm generally use high quality SIC rod as heating element. It is easily for replacing.



Furnace Chamber



Alloy resistance band



SIC Rod Heater



Furnace Chamber

— 1700°C bogie furnace with high strong solid refractory brick chamber or alumina ceramic fiber. SAFTHERM generally use high quality MoSi2 rod as heating element. It is easily for replacing.



Furnace Appearance

- >The shell of the furnace is machined by high-quality cold-rolled steel plate CNC machine tool, after welding, grinding, polishing, phosphating and acid.
- >After washing and spraying plastic powder on the surface, it is baked at high temperature. The color matching is reasonable and the appearance is novel.
- >Appearance color: ripple grey or silver, can be customized.

Temperature Control System

- >Japan SHIMADEN or Yudian intelligent microcomputer PID temperature control instrument.
- >Germany SEMIKRON SCR controller thyristor phase shift voltage control, PID parameter self-tuning function, over temperature alarm and break alarm function.
- >Temperature control with automatic temperature rise, automatic heat temp preservation, automatic stop and can meet the requirements of continuous constant temperature and temperature control.
- >SCR thyristor phase shift trigger voltage control method and heating temperature fluctuations are small with good temperature stability.
- >When the load current exceeds the current limit value it will limit the output current of the voltage regulator within the rated current range to ensure the output and regulator work properly.
- >The protection of the heating element avoids the impact of excessive current and voltage, and achieves safe and reliable control effect and control precision.

Furnace Structure

- >Furnace Chamber consists of furnace material, thermal insulation material and heating elements.
- >Temperature control system consists of temperature control instruments, control elements and thermocouples.
- >Furnace body and temperature control center designed in separate structure.
- >The trolley is designed in a rectangular shape. The electric drive of the trolley move forward or backward and the limit switch is designed to automatically stop. The trolley control button is integrated on the temperature control cabinet panel.
- >There is a burning board on the trolley. The material of the burning board is stainless steel or silicon carbide ceramic.

Safety Protection

- >Modular control, which can send out sound and light alarm signals when over-temperature and breakage occur in the working process, and automatically complete the protection movement.
- >Equipped with an open circuit breaker on the equipment, it will pop up automatically in case of short circuit leakage, which can protect the equipment and safety of operating staff.

Model	Chamber Size W*D*H(mm)	Volume(L)	Max Temp(°C)	OperateTemp(°C)	Voltage(V)	Heating Element	Controller Accuracy
STT-96-12	400x600x400	96 L	1200°C	1100°C	380 V	HRE WIRE/BAND	±1°C
STT-288-12	600x800x600	288 L	1200°C	1100°C	380 V	HRE WIRE/BAND	±1°C
STT-640-12	800x1000x800	640 L	1200°C	1100°C	380 V	HRE WIRE/BAND	±1°C
STT-1200-12	1000x1200x1000	1200 L	1200°C	1100°C	380 V	HRE WIRE/BAND	±1°C
STT-2160-12	1200x1500x1200	2160 L	1200°C	1100°C	380 V	HRE WIRE/BAND	±1°C
STT-96-14	400x600x400	96 L	1400°C	1300°C	380 V	SIC ROD	±1°C
STT-288-14	600x800x600	288 L	1400°C	1300°C	380 V	SIC ROD	±1°C
STT-640-14	800x1000x800	640 L	1400°C	1300°C	380 V	SIC ROD	±1°C
STT-1200-14	1000x1200x1000	1200 L	1400°C	1300°C	380 V	SIC ROD	±1°C
STT-2160-14	1200x1500x1200	2160 L	1400°C	1300°C	380 V	SIC ROD	±1°C
STT-96-17	400x600x400	96 L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STT-288-17	600x800x600	288 L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STT-640-17	800x1000x800	640 L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STT-1200-17	1000x1200x1000	1200 L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C
STT-2160-17	1200x1500x1200	2160 L	1700°C	1600°C	380 V	MoSi2 ROD	±1°C

Continuous Mesh Belt Heat Treatment Furnace >>



Overview of Continuous Furnace

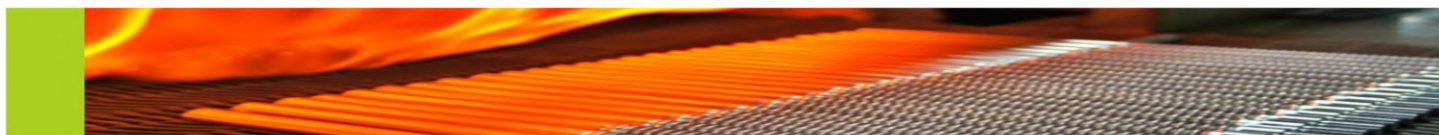
- > Continuous Conveyor Mesh belt furnace is generally a sintering furnace for continuous conveyance in the furnace by mesh belts for heating parts.
- > The whole set of equipment consists of furnace body, mesh belt transmission system and temperature control system. The furnace body is composed of a feed section, a pre-sintering section, a sintering section, a slow cooling section and a discharge section. The mesh belt transmission system is composed of high temperature resistant mesh belt and transmission. The running speed of the mesh belt is adjusted by a frequency converter; The temperature control system is with thermocouples and PID temp controller for controlling.
- > The heating element adopts high quality alloy resistance wire with ceramic rod or others. Frequency conversion stepless speed regulation and heat-resistant steel mesh belt transmission make furnace stable running.

Application :

It is mainly used for batch small and medium mechanical parts such as standard parts, bearings, chains, self-tapping screws, textile hardware, hand tools, spring pads, various types of textile needles, and sewing needles for sintering and tempering and quenching working process .

Main Features

- > Tempering time range (the residence time of the workpiece in the furnace) can be designed according to customer requirements.
- > Each segment of the furnace installed a hot air fan for hot air circulating to get a better uniform of temperature. The hot air fan is vertically installed and placed in the center of roof of the furnace.
- > Large-sized tempering furnaces can be designed with large and small supporting mesh belt rolling as electric drive; The mesh belt with stable smooth moving without shaking.
- > Gear rotation of electric reducer with converter motor. Rotational speed can be adjustable. The trolley track moving speed according to customer request.
- > The height of the furnace can be designed according to customer requirements;
- > The furnace temperature can be adjusted arbitrarily within 600°C, and
- > The power consumption is about 30% after constant temperature. It will meet the requirements of energy saving and environmental protection.
- > It is suitable for continuous tempering, drying and shaping of springs, hardware products, spare parts, enameled wires and other batch workpieces. Stainless steel mesh belt runs smoothly and stepless speed regulation, which can greatly increase labor productivity and reduce labor intensity.



Spare Parts Display >>



Alumina Crucibles& Boats



Alumina Tray



Quartz Boat



Alumina Tube



Quartz Tube



Crucible Tong



Gas Float Meter



High Temperature Gloves



Vacuum Flanges



MoSi2 Rod Heaters



SiC Rod heater



Temperature Controller



Paperless Recorder



Rotary Vacuum Pump



Molecular Pump



Water Chiller



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www.saftherm.com

Henan Sante Furnace Technology Co.,LTD
No. 6 Qingcheng Road, Luoyang | 471000, China
Tel: +86-379-64882996/ Fax :+86-379-64883966
Email: sales@saftherm.com