

RAPID THERMAL PROCESSING (RTP)

Rapid visible/IR light heating for lab-scale samples

OVERVIEW

RTP-1SX is a tube furnace with irradiation heating of samples and low heat capacity body, facilitating rapid heating and cooling of samples. The heating temperature and time can be set, and the atmosphere can be controlled, i.e. inert gas or vacuum. The irradiation is provided by maximum of 4 halogen lamps, each 1000 W. The trapped light inside the tube provides high energy concentration for rapid heating of samples.

FEATURES

- Heating rate up to 900 °C/min
- Max temperature up to 700 °C
- Easy replace of heating elements
- Heating in controlled atmosphere
- Selection of heating power up to 4000 W



SPECIFICATIONS

RTP Technical Specifications			
Model		RTP1-SV	RTP1-SW
Furnace structure	Double layer Aluminum or Steel casing with air cooling keeps furnace surface temperature lower than 70°C. Without any extra insulating	√	√
	Aluminum casing with water and air cooling keeps furnace surface temperature lower than 70°C. Without any extra insulating	-	√
Heating Elements	1000 W halogen lamps (4x) Dia. = 10 mm, L=190 mm, Heated Length =225mm Standard working life: 2000 hrs (halogen lamp is consumable)	√	√
Heating zone	150 mm length with 100 mm constant temperature zone within ± 5 C uniformity	√	√
Working Temperature	for < 4 minute (Note: For this temperature, you should be careful about your quartz tube quality that can be stable at this temperature near softening point of quartz glass - Available by 4 lamps and light graphite box)	700 °C Max.	850 °C Max.
	for < 8 minutes (Available by 4 lamps)	650 °C Max.	800 °C Max.
	for < 20 minutes for < 60 minutes	600 °C Max.	750 °C Max.
	for < 60 minutes	550 °C Max.	-
	for Continuous	450 °C Max.	700 °C Max.
Max. heating rate	700 °C/min (Dependent on heat capacity and light absorption of the holder ,number of lamps that are on appropriate to electrical network capacity)	√	√
Max. Cooling rate	150 °C/min (Dependent on heat capacity and light absorption of holder and gas inserted into the tube)	√	√
Temperature control	Proportional-Integral-Derivative (PID) controller	√	√

RTP Technical Specifications (Continued)

RTP Technical Specifications (Continued)		RTP1-SV	RTP1-SW
Model		RTP1-SV	RTP1-SW
Quartz Tube & Sample Holder	Quartz Tube Size: 800 mm Length - O.D and I.D >> The graphite sample holder is removable from the flange for using the RTP furnace for other purposes.	38 mm O.D 36 mm I.D	60 mm O.D 55 mm I.D
Sample holder	Optional: Graphite sample holder for samples not larger than 1.4 cm in size.	√	√
Max sample size	(depending on thickness of sample holder) for direct use without sample holder	19x 14 mm ²	55x 100 mm ²
Power input	220 AC, 50 Hz single phase or 3 phase (25 A)V	√	√
Water circulation system for body cooling		-	√
Flow-meter (Optional)	One flow meter is installed on the front panel for adjusting the gas flow from 1000-50 sccm	Optional	Optional
Atmosphere		Air, Vacuum, Gas static, Gas flow	Air, Vacuum, Gas static, Gas flow
Accessories (Optional)	Vacuum pump, Vacuum Gage, special Graphite box, Flow-meter, Programmable PID controller	√	√
Safety	Thermal Safety system for auto-deactivate setup when the temperature of setup body increase more than acceptable temperature Residual Current Devices (RCD)	√	√