

Indian Institute of Technology Kanpur

Department of Materials Science & Engineering



Enquiry No: IITK/MSE/KB/NC/02

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Last Date: 11.04.2015

Specifications for Furnace 1500°C

Construction:-

Constructed on heavy angle iron frame of not less than 1.5mm thick and outer body is made of thick gauge M.S. sheet, which is reinforced with thick front steel plate of not less than 10mm thick. Outer body is welded and bolted nicely with angle iron frame and strong enough to take the thrust of heat arc. The Construction is of double walled with external body fitted with air circulation blower which maintains just skin temperatures at external surface. The Furnace is mounted on a Heavy angle iron stand duly painted of suitable height for easy operation.

Door:-

Rectangular well insulated door made of thick Gauge M.S. Sheet having centre hole with sliding window for viewing the furnace chamber while in operation and to pass air/gas whenever necessary. The door is of swing aside parallel mountain type for easy operation and smooth working. Automatic cut-off system of limit-switch is provided for power cut-off to system when door is opened.

Chamber base & Insulation:-

It is made from high purity special refractory material of proper thickness so that it can withstand the working load at maximum temperature. Adequate Low Thermal Mass insulation of Asbestos free, light weight, effective, ceramic fibre board & blanket is provided from all sides of furnace which provide rapid heating rate inside the chamber. Proper insulation provides minimum outer skin temperature, which prevent thermal radiation losses, thus utilising low power significantly and making the furnace cost-effective.

Heating Elements:-

Silicon Carbide heating elements with sufficient load rating uniformly placed on left and right side inside the chamber in vertical direction for working temperature up to 1500° C. Uniform Placement of heating element produces constant temperature through-out the chamber.

Ventilation:-

Gas ventilation system is provided at the back side going upto top of the body for proper discharge of gases, which increases the life of heating elements as gas retention time inside the chamber is minimum.

Temperature Control & Programming:-

It is done by Fully automatic Microprocessor based auto tuned digital PID Profile Programmer with dual display , one for set temperature value and other Process Temperature display. The Programmer is having Two programmes each having 8 steps thus total 16 steps for heat rate control and Hold time control, The Programmer is having soft feather touch panel and display indication of T.C broken & other facilities display. The controller is backed with sensitive pt-pt-Rh 13% thermocouple in high purity alumina sheath and Programmer is also equipped with Phase angle fire SCR controlled Thyristor power supply for long life, high accuracy , power saving and to safe guard the heating elements.

Control Panel:-

Nicely finished and painted control box placed conveniently consists of mains MCB switch, Digital PID Programmer, voltmeter & Ampere meter, indicator lights, connecting power cord, suitable for 230 V AC Single Phase Operation.

Inner Chamber Size: - 150 mm (W) x 150mm (H) x 300mm (D)

Continuous working temperature: - ambient to 1500° C.

Rating; 45 Amp

Warranty:	12 months from the date of installation.
Service:	Additional 12 months free service.
Installations:	Free
Delivery period:	4 weeks
Payments:	The payment will be as per IIT Kanpur norms.

The quotation should reach the following address later than April 11, 2015.

Thanking you

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