

Technical Specification

Name of Equipment: High Temperature Tubular Furnace

S. No	Feature	Specification
1.	Operating temperature	<ol style="list-style-type: none"> 1. Maximum temperature: 1200 °C or more. 2. Continuous Operation temperature: 1000°C for 24 hours and 7 days.
2.	Heating element	<ol style="list-style-type: none"> 1. Enough number of SiC heating elements should be arranged to ensure excellent temperature uniformity throughout the hot zone length and the required heating rate of 1°C/min to 5°C/min. 2. Heating elements should be installed parallel to the working tube. 3. Isolation of heating elements from furnace atmosphere by providing high quality recrystallized alumina tube which will withstand the maximum temperature attained through high heating rate.
3.	Controller	<ol style="list-style-type: none"> 1. Furnace should be supplied with heating rate control facility from 1°C/min to 5°C/min. Temperature should be controlled uniformly throughout the hot zone with feedback obtaining from the thermocouples. 2. PID based Microprocessor temperature controller or better advanced technique with LCD display. Silent Solid State power control Relays with control system & switchgear built within the furnace. 3. Over temperature limiter with adjustable cut-out temperature for thermal protection to protect the furnace & load.
4.	Working tube:	<ol style="list-style-type: none"> 1. The working tube should be of standard gas purging design with stainless steel flanges. 2. The heating tube shall be made of high-quality recrystallized alumina that can withstand the temp of 1200 °C with a minimum uniform thickness of 5 mm. 3. Tube Dimensions of Length 1200 to 1500 mm with OD(Ø) 85mm or more and ID (Ø) 75mm or more 4. 2 gas-tight, stainless-steel flanges with O rings & seals with fittings for inert gas. 5. Mounting support system with Brackets on furnace for the tube/ flanges. 6. 2 x Ceramic insulation plug for dust free applications. Ceramic plugs include metallic hangers which allow vertical use and a groove for thermocouple access. The shields supplied will be appropriate for the furnace and application. 7. 10 mm gland with PTFE seal and blanking plug to suit optional type probe thermocouple assembly. 8. 2 installation plugs for air 9. 1 boat/crucible each for operation at 1200 °C in sizes of 100 ml, 250 ml and 500 ml should be provided. 10. Crucible Plate for each of the above sizes: 1 No. 11. Tongs to take the samples out of the furnace - 1 Nos. 12. Gloves for use up to 400 °C - 1 pair

5.	Other features	<ol style="list-style-type: none"> 1. High Quality fibre insulation to be used as insulation material in the furnace. The high-grade insulation materials should guarantee low energy consumption and high heating rates due to their low thermal conductivity. 2. Suitable heat shields/ radiation shields for safety from high temperature need to be provided. Vendor should provide good quality insulation to ensure that the maximum external surface furnace wall temperature during continuous operation shall not exceed 60 °C as per BSEN 61010 standards/IS with documentation. 3. The furnace should have Single phase input power sources for better synchronization of furnace in performance with controller features.
6.	Dimensions & Weight	Dimensions (m) and weight (kg) shall be mentioned clearly
7.	Thermocouple Type	R type thermocouple to provide long life
8.	Power consumption & Input Supply	Power consumption shall be mentioned clearly in the technical specifications
9.	Flow Meter	Gas system for One non-flammable protective gas (Ar/N2/O2 etc.). The system should be supplied with one flow meter for fine dosing (Volume 110 lit/min, with a least count not less than 01 lit /min).
10.	Warranty	1 Years warranty from successful installation
11.	Delivery time	Delivery shall be made in 45 days from date of issuance of Purchase order
12.	Payment Conditions	<ol style="list-style-type: none"> 1. Amount shall include packaging, transportation/delivery, installation charges 2. 100% payment will be made after successful installation