Qualifying Criteria: The BIDDER has to meet the following requirements to get qualified for considering the technical offer. Use separate sheet wherever required

Sl.No.	Requirements	Vendor's Response
1	The Technical offer should be supported by product Catalogues & Data sheets.	
2	Details of service facility in India including the address of Agents/Service centres in South India.	
3	 Customer reference details Name and postal address of at least 3 customers or companies wherein similar product is installed & under operation. 	
4	Attached compliance report must be submitted along with offer.	

Technical Details of the Quartz Tube Reactor Assembly

Ref : BHE: CRC:CLCPIR:01

Dt:09.01.2019

Description of Quartz Tube Reactor Assembly

Quartz Tube Reactor (QTR) Assembly consists of

- Quartz tube holder (item-1 of drawing No: 3-CR-CLC-00001)
- Quartz tube (item-2 of drawing No: 3-CR-CLC-00001)

The QTR assembly consists of a quartz tube in which quartz tube holder is placed coaxially.

One end of the quartz tube holder (Item-1) has an outer diameter of 25 mm with thickness 3 mm and the other end has an outer diameter of 48 mm with thickness 2.5 mm as shown in the drawing 3-CR-CLC-00001 and is made of quartz. The larger diameter end of quartz tube holder is sealed with a perforated quartz plate of minimum 5 mm thickness with holes of maximum 1 mm diameter. The details of these tubes are shown in drawing 3-CR-CLC-00001.

The quartz tube (Item-2) is straight made of quartz and of uniform outer diameter of 55mm throughout. The thickness of quartz tube is 2.5 mm throughout.

Application:

The quartz tube holder helps in keeping sample and holes on the plate allows air to pass through the bottom of plate into the sample. Tests will be conducted repeatedly hence the quartz tube and holder undergoes repeated cooling and heating cycles. Therefore, quartz tube holder fusing is to be prepared noting these points, our previous experience shows that the holder top plate is broken quickly. These quartz tubes must be transparent in nature and usual operating temperature is around 900 - 1100 $^{\circ}$ C.

The quartz tube is held in water cooled SS flange from top and both quartz tube holder & quartz tubes are held in a SS flange at bottom by means of silica made O-rings. The dimensions of the both tube are to be accurate within ± 0.25 mm for proper fit into these flanges. The SS flanges and silica made O-ring are already available at test facility at BHEL.

The <u>"Technical Bid"</u> shall have vendor's responses along with Product Catalogue, Data Sheets in ORIGINAL and complete technical details.

Technical Details of the Quartz Tube Reactor Assembly

All Technical terms can be here. NO PRICE DETAIL IS ENTERTAINED HERE.

Any deviation from the specifications may be brought-out clearly by the supplier in the technical bid

Sl.No	Description	BHEL's Specification/requirement	Supplier's Offer (With complete details)
		Quartz Tube Assembly consists of	
1	Item	 Quartz tube holder Quartz tube 	
2	Material of quartz tube assembly	Transparent Quartz	
3	Temperature that quartz tube assembly will be able to withstand	1400 °C	
4	Mechanical strength	Quartz tube holder and quartz tube both must not be buckled, melted or deformed at the temperature of 1400°C and gas pressure 1.25 bar (absolute).	
5	Gas pressure in-side the quartz tube and quartz tube reactor	1.25 bar (absolute)(The quartz tube holder and quartz tube must withstand the said pressure at normal operating condition temperature).	
6	Normal Operating condition temperature of the quartz tube assembly	900-1100°C	
7	Repeated temperature Cycle	The Quartz Tube Assembly must withstand the repeated cooling and heating cycles.	
8	Mode of heating of quartz tube	Quartz tube assembly will be heated electrically heated coils. The Quartz tube assembly must not be affected by the electrical mode of heating.	
9	Dimension of quartz tube holder.	The detail dimension of the quartz tube holder is provided in the drawing #3-CR-CLC-00001(Item-1). The vendor has to meet the dimensional requirement as mentioned in the drawing #3-CR-CLC-00001.	

10	Perforated disc	The larger diameter end of quartz tube holder is sealed with a perforated quartz plate of minimum 5 mm thickness with holes of maximum 1 mm diameter. The holes must be uniformly distributed as specified in the drawing 3-CR-CLC-00001. The joint of perforated plate and quartz tube holder must withstand a temperature of 1400°C and gas pressure as specified 1.25 bar.	
11	Dimension of quartz tube	The quartz tube is straight and of uniform outer diameter of 55 mm throughout and of 2.5 mm thickness. The detail dimension of the quartz tube is provided in the drawing #3- CR-CLC-00001(Item-2). The vendor has to meet the dimensional requirement as mentioned in the drawing #3-CR-CLC-00001.	
12	Tolerance	±0.25 mm, unless it is mentioned in the drawing #3-CR-CLC-00001	
13	The gap between quartz tube a 1 mm. The quartz tube hold coaxially and can be taken ou		
14	Vendor must ensure the safe to BHEL, Trichy. • If any quartz tube is vendor must replace to		
15	Payment shall be made to ven to 1400 ^o C and cooling to room Test facility • Vendor can participat		
16	If any/all quartz tube or qu described in Sl. No 15, the sar cost		
17	Pre-delivery inspection by BI the items to BHEL.		