Sub : Minor Fabrication - invitation of quotations.

1. Quotations are invited for the minor fabrication job, as per the enclosed specifications.
2. Bidder shall quote for fabrication of the items as per specifications.
3. Taxes shall be quoted separately.
4. The quotations must reach to the Head, TPD within 19 days of the date of this letter and must be sent by Indian Speed post / Indian Post only in a sealed envelope superscripted with the above reference number and due date given above.
5. The address on the envelope should read:
   Head,
   Technical Physics Division
   Bhabha Atomic Research Centre
   PURNIMA Labs., Trombay, Mumbai 400085.

6. The bidder shall have to take an insurance policy against any material issued to him by the purchaser.
7. The fabrication work shall be subject to inspection by our representative. The finished components shall not be dispatched prior to approval by our representative at the bidder's works. Necessary inspection facilities should be provided to our engineers during fabrication at bidder's premises.
8. The bidder shall deliver the finished item and install it after approval by our representative, within 90 days from the date the firm purchase order issued to the bidder. The finished item shall be delivered to Technical Physics Division, Purnima Labs, BARC, Mumbai - 400085.
9. Head, TPD, BARC, reserves the right to accept/reject any or all quotations without assigning any reason.
10. The bidder should furnish the GST, PAN and TIN numbers in their quotations without which the quotations will be rejected.
11. Quote for each part separately.
12. Detailed drawing will be made available after issue of order.
13. Clarifications for executing the order can be sought after issue of order.

   Head,
   TPD
Description and specification of different items of
Work order ref: TPD/NSRPS/MF/2020/15

Fabrication & Supply of fused silica quartz tubes, ceramic spacers and accessories

Specifications:
1. Fused Silica Quartz tubes of following dimensions
   1) Quartz tube ID = 34mm (±0.1mm), wall thickness = 2mm (±0.02mm), length 1000mm (±1mm) – Quantity 2nos
   2) Quartz tube ID = 50mm (±0.1mm), wall thickness = 2mm (±0.02mm), length 1000mm (±1mm) – Quantity 2nos
   3) Quartz tube ID = 29mm (±0.1mm), wall thickness = 1.5mm (±0.02mm), length 1000mm (±1mm) – Quantity 2nos
   4) Quartz tube ID = 45mm (±0.1mm), wall thickness = 1.5mm (±0.1mm), length 1000mm (±1mm) – Quantity 2nos

   Unless otherwise stated the Quartz tube should have following specifications
   • Clear transparent glass appearance with no color
   • Working temperature – 1100°C
   • Melting temp – 1580°C
   • Linear Expansion Coefficient – 0.58x10^-6 per °C
   • Transmission – > 90% for 200nm to 750nm wavelength
   • Maximum allowable elemental impurities (by weight %) – Al ~ 13.5, Ca~ 0.5, Mg- 0.1 MAX, Cr-0.01 MAX, Fe~ 0.1, Ni-0.01 MAX, Mn-0.005 MAX, Li- 0.4, Na- 0.05 MAX, K- 0.15 MAX, Ti- 1.2, B- 0.1 MAX (Certificate of elemental composition to be provided along with material)

2. Ceramic Spacers
   Material – Al2O3 (~95% purity)
   Dimension – 22mm +0.0/-0.2) OD x 18mm(+0.1/-0.0) ID x 32mm length – 5mm x 17mm (+0.05/-0.00) dia step
   Quantity – 20nos

3. High temperature low outgassing two part Ceramic bonding compound – Quantity – 3set of 400gms each
   • Working Temperature ~1750°C
   • Two part type
   • Material – MgO
   • Specific gravity – 1.9 to 2.2 gm/cc
   • Dielectric Strength – 91 Volts/mil
   • Solvent – Water
   • Cure setting – Room temperature to 200°C

4. Low vapor pressure high vacuum two part epoxy – Quantity – 3nos (weight of each not less than 115 gms)
   • Usable Vacuum - <10^-9 torr
   • Two part epoxy consisting of resin and hardener
- Flash point – 175 degrees Celsius
- Out gassing characteristics -
  - at 25°C – 1hr : 1x10⁻⁵ torr
  - at 25°C – 40hr : 7.5x10⁻⁷ torr
- Volume resistivity : 3.52 X 10¹⁴ohms/cm (at 25° C)
- Dielectric Strength – 350 volts/mil
  
5. High temperature ultra high vacuum two part epoxy
   Specific Gravity – 1.2
   Curing temperature - 150°C at 1hour
   Glass transition temperature ≥ 90°C
   Shore hardness : 85
   Volume resistivity ≥ 1.8 × 10¹³ ohm-cm
   **Quantity – 200gms**
   **To be supplied in <5gm sealed packages**
   Should be supplied with suitable 50nos of dispensers of ~3cc capacity each

**Note: All items should be quoted simultaneously otherwise offers will be rejected.**

**Bidder Qualification:**

All the items shall be brand new from reputed manufacturers procured from their authorized agents/principals. Used materials/ recycled items/damaged items will not be acceptable and will be rejected.

**WARRANTY:** Warranty for a minimum period of one year after final acceptance shall be provided.

**Acceptance criteria**

- Quartz tubes will be tested as per required specifications at user’s site before final acceptance. Parameters such as dimensions, transparency and color will be checked.
- Dimension of the Ceramic Spacer will be checked as per specification
- Ceramic bonding compound and low vapor pressure epoxy should be supplied in sealed form. They will be checked for working temperature as per specifications
- Low vapor pressure epoxy should be supplied in sealed form.
- High temperature ultra high vacuum two part epoxy should be supplied in sealed form.