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TENDER NO. CBS/CA019 - 043/PUB

December 10, 2019

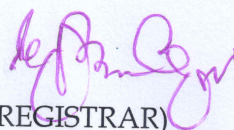
Notice Inviting Tender (One Part Tender) for the following item:

Sr. No.	Item Description	Qty
1	Automated Gas Line & Exhaust System for two CVD Tool for various gases. 1. Methane (CH ₄) 2. Hydrogen (H ₂) 3. Hydrogen generator line 4. Nitrogen (N ₂) 5. Oxygen (Ar/O ₂) (Details as per attached specifications)	01 Set

Published on	11/12/2019
Type of Tender	One Part Limited Tender
Estimated Cost	Rs.24/-Lakh (approx.)
Last date for Submission of Bid	30/12/2019 on or before 13.00 hours
Date of Opening Bids	30/12/2019 at 14.00 hours
Tender Fees	Rs.500/- by DD favoring UM-DAE CBS

Tender should be submitted in One sealed envelope duly superscribed with the Tender No., Due Date in Bold Letters, addressed to Register, CEBS. A DD of Rs. 500/- favoring **UM-DAE CBS** may be enclosed in the "Technical Bid".

Please refer to "Terms and Conditions"


(REGISTRAR)

Automated Gas Line & Exhaust System for two CVD System

1. Brief description of the required gas pipeline

Semiconductor grade gas pipes are required for two CVD systems for process gas Hydrogen, Methane, Argon & Nitrogen. Total 4 no's of gas pipe lines are required in addition to one line from hydrogen generator inside the process lab. Each line requires two stages of pressure reduction and regulation. One regulator is fixed near the cylinder and another one is fixed at the control panel, near the tool. The gas pressure is also mentioned below. The following are to be followed.

- Operating gas pipe lines 1. H₂ from Cylinder station Pressure reduction shall be from 0 to 150 to 10 bar and at secondary Regulator it shall be from 0 to 10 Bar to 0 to 6 Bar.
- Operating gas pipe lines 2. CH₄ from Cylinder station Pressure reduction shall be from 0 to 150 to 10 bar and at secondary Regulator it shall be from 0 to 10 Bar to 0 to 6 Bar.
- Operating gas pipe lines 3. AR/O₂ from Cylinder station Pressure reduction shall be from 0 to 150 to 10 bar and at secondary Regulator it shall be from 0 to 10 Bar to 0 to 6 Bar.
- Operating gas pipe lines 4. N₂ from Cylinder station Pressure reduction shall be from 0 to 150 to 10 bar and at secondary Regulator it shall be from 0 to 10 Bar to 0 to 6 Bar.
- The stand by Hydrogen Gas line from Hydrogen Gas generators connection is also required near the Tools Area with Operating pressure 0-10 Bar.
- The Gas Cylinders will be supply by end user.
- The Pressure regulators at Gas cylinders shall be have the Purge, vent and Isolation Provision.
- Secondary Regulators shall be fixed separately for two Tools.
- The Exhaust piping should be taken from Tools and Gas cabinet to atmosphere.
- All the Gas lines shall be identified with Tagging as per International Standards (ASME13.1)

2. Pipeline specifications

- Tube size-1/4" (6.24mm) with wall Thickness shall be 0.89 mm.
- Tube shall be Electro polished (SS316L: 20 Ra) inside.
- Joining of gas pipelines: The welding of the pipe lines shall strictly be of ORBITAL WELDING (ASME Section-IX)

- All the Regulators and fitting shall be suitable for gas purity Grade 6. (ASTM A312 TP316: EN std.)
- The Piping installation shall be properly by using PP clamps, Supports, Clamps fixing U channels with side covers and Supports.
- Piping Supports shall be Aluminium or GI, NO MS should be used.
- Gas Pipe Line shall be tested for pressure pneumatic test as well as Helium Leak test for the Leak Rate 10^{-6} Torr.
- Leak proof exhaust line of the tool and gas cabinet should also be installed and connected to central exhaust system.

3. Safety Requirements for Flammable Gases

- For Hydrogen & Methane Gas precautions shall take care during the installation of the system with respect pipes routing, installation procedures, testing, and commissioning.
- Flash arresters should be installed to arrest flash into cylinders.
- The Hydrogen, Methane & Argon Cylinder shall fix inside the Gas Cabinet. Gas Cabinet shall have the Exhaust provision at top of the Cabinet and lovers at bottom of the Cabinet.
- The Nitrogen Cylinder shall fix at side of the Gas cabinet and shall have the Pressure reducing regulator protection cover for Rain and Dust.
- Gas Leak Detectors should be installed (BS EN 50073: 1999) for Flammable gases (Hydrogen & Methane). It shall be at Tools area as well as Gas cabinet.
- The safety shut off system is required to shut of the Gas supply from Gas cabinet in the event of Gas leak sensed by Gas leak Sensors. All this shall be interfaced in auto mode.
- Mitigation system i.e. in case of gas leaks (especially for H₂ & CH₄) should function automatically. The Gas supply shall be shut off from Gas station through the pneumatically actuated Actuators. All these safety system should be having Manual mode also.

