REF: PH/PSA/076/2016-17

Date: 28th February 2017

Dear Sir,

Kindly send your best quotation for the following item on CIP Bangalore basis. Your quotation should clearly indicate the terms of delivery, delivery schedule, E.D., payment terms etc. The tender should be submitted in two separate sealed envelopes - one containing the technical bid and the other containing the commercial bid, both of which should reach us, duly signed on or before 1700 hours,20th March 2017. Please quote separately for **Item1** and **Item2**.

Please enclose a compliance certificate along with the technical bid.

Yours Sincerely,

Chairman

Department of Physics

Item1: Glove Box Work Station system with spin coater
Quantity: two numbers.

Specifications of the product:

A. Inner Box with the following minimum specifications:

1. Dimensions of the box 900 mm by 1200 mm by 750 mm
2. Front panel made of Polycarbonate material with additional coating for chemical and scratch resistance.
3. Side panels made of polished stainless steel of minimum thickness 2.5 mm.
4. Two Polymer 'O' ring sealed glove ports**,** 220mm diameter.

a. One pair of Butyl Gloves of 0.4 mm.
b. Dust filter for 0.3 micron (class H13).

5. Three height adjustable, stainless steel shelves.
6. Automatic control of box pressure over the range -15mbar to +15mbar.
7. Equipped with non-oil based pressure relief valve.
8. Provision for generation and control of positive pressure without vacuum pump.
9. Two DN 40 feed throughs, one of them for electrical cables, the other blanked off for user purpose.
10. Front mounted fluorescent lamp with provision for auto switch-off.
11. Appropriate stand with castor wheels and feet.

B. Cylindrical Ante-chamber with the following minimum specifications:

1. Chamber dimensions: 390mm diameter and 600mm length.
2. Made of polished stainless steel of minimum thickness 2.5mm.
3. Anodized aluminium door, 10 mm thick with appropriate spindle lock.
4. Sliding stainless steel tray.

C. Mini Anti-chamber with the following minimum specifications:

1. Chamber dimensions: 150 mm diameter and 400 mm length.
2. Made of polished stainless steel of minimum thickness 2.5mm.
3. Manual valve for venting/evacuation of anti-chamber.
4. Sliding stainless steel tray.

D. Filtration system

1. Closed loop gas re-circulation system with integrated heater.
2. Minimum purity level less than 0.1 ppm for both H_2O and oxygen over the entire pressure range and needs to be demonstrated in the lab.
3. Capacity for removal of oxygen minimum 35L and moisture minimum 1200 g.
4. Integrated blower with circulation rate more than 80 m^3/h or better, automatic control of blower speed depending on oxygen and moisture level.
5. Rotary pump with minimum speed of 12 m^3/h for nitrogen, equipped with oil mist filter and automatic gas ballast control.
6. Solid state oxygen sensor with minimum operation range 0- 500 ppm, along with appropriate electrical cabling.
7. Solid state moisture sensor with minimum operation range 0- 500 ppm, along with appropriate electrical cabling.
8. Solvent adsorption unit with minimum 5 kg activated carbon with both inline & bypass modes.
9. System for the automatic regeneration of chamber.

E. Automatic control and remote monitoring system:

1. Touch panel PLC for control of glove box functions.
2. Integrated graphical display of chamber pressure, oxygen and moisture levels.

F. Spin coater:

1. Suitable for substrate sizes up to 8 " wafer.
2. Solvent resistant process bowl with transparent lid.
3. Spinning speed controllable from 0 up to 10,000 rpm with +/- 1rpm accuracy.
4. Minimum spinning acceleration of 0 to 10,000 rpm in 1 seconds.
5. Minimum spinning deceleration 10,000 rpm to 0 in 3 seconds.
6. Parameters like speed, acceleration and process time should be programmable.
7. Provision for storing process recipes.
8. Two vacuum chuck for substrates.
9. Appropriate pumping system for holding substrates during spinning.
10. Integration of spin coater on box bottom with mechanical, electrical and pumping system.
11. Control panel outside the glove box.
12. Food paddle for on/off operation of the spin coater.

Optional items:

1. Dry scroll pump in place of oil pump.
2. Glove Box should be integrated with heat exchanger
3. Adapter for attaching a stereo microscope (Leica DM2700 M or equivalent) to front panel of the glove box
4. Provision for remote monitoring of glove parameters.
5. Provision for transmitting alerts and notifications regarding system maintenance.

Item2: Glove Box Work Station system
Quantity: one number

Specifications of the product:

G. Inner Box with the following minimum specifications:

1. Dimensions of the box 900 mm by 1200 mm by 750 mm.
2. Front panel made of Polycarbonate material with additional coating for chemical and scratch resistance.
3. Side panels made of polished stainless steel of minimum thickness 2.5 mm.
4. Two Polymer 'O' ring sealed glove ports**,** 220mm diameter.

a. One pair of Butyl Gloves of 0.4 mm.
b. Dust filter for 0.3 micron (class H13).

5. Three height adjustable, stainless steel shelves.
6. Automatic control of box pressure over the range -15mbar to +15mbar.
7. Equipped with non-oil based pressure relief valve.
8. Provision for generation and control of positive pressure without vacuum pump.
9. Two DN 40 feed throughs, one of them for electrical cables, the other blanked off for user purpose.
10. Front mounted fluorescent lamp with provision for auto switch-off.
11. Appropriate stand with castor wheels and feet.

H. Cylindrical Ante-chamber with the following minimum specifications:

1. Chamber dimensions: 390mm diameter and 600mm length.
2. Made of polished stainless steel of minimum thickness 2.5mm.
3. Anodized aluminium door, 10 mm thick with appropriate spindle lock.
4. Sliding stainless steel tray.

I. Mini Anti-chamber with the following minimum specifications:

1. Chamber dimensions: 150 mm diameter and 400 mm length.
2. Made of polished stainless steel of minimum thickness 2.5mm.
3. Manual valve for venting/evacuation of anti-chamber.
4. Sliding stainless steel tray.

J. Filtration system

1. Closed loop gas re-circulation system with integrated heater.
2. Minimum purity level less than 0.1 ppm for both H_2O and oxygen over the entire pressure range and needs to be demonstrated in the lab.
3. Capacity for removal of oxygen minimum 35L and moisture minimum 1200 g.
4. Integrated blower with circulation rate more than 80 m^3/h or better, automatic control of blower speed depending on oxygen and moisture level.
5. Rotary pump with minimum speed of 12 m^3/h for nitrogen, equipped with oil mist filter and automatic gas ballast control.
6. Solid state oxygen sensor with minimum operation range 0- 500 ppm, along with appropriate electrical cabling.
7. Solid state moisture sensor with minimum operation range 0- 500 ppm, along with appropriate electrical cabling.
8. Solvent adsorption unit with minimum 5 kg activated carbon with both inline & bypass modes.
9. System for the automatic regeneration of chamber.

K. Automatic control:

1. Touch panel PLC for control of glove box functions.
2. Integrated graphical display of chamber pressure, oxygen and moisture levels.

Terms and conditions:

1. The vendor should have a track record of having previously supplied at least five similar equipment in India (please furnish the details).
2. The vendor should have qualified technical service personnel for the equipment based in Bangalore.
3. The payment will be through confirmed irrevocable Letter of Credit.
4. The lead time for the delivery of the equipment should not be more than four months from the date of receipt of our purchase order.
5. The instrument must carry a comprehensive warranty of 3 years from the date of installation.

Attn: Professor P.S. Anil Kumar
Department of Physics, Indian Institute of Science
Bangalore 560012