NOTICE INVITING e-TENDERS

eproc.punjab.gov.in

Directorate, Animal Husbandry, Punjab , Livestock Complex, Sector-68, SAS Nagar.

e-Tender/ Notice 2/2019-20

The Department of Animal Husbandry, Punjab, Livestock Complex, Sector-68, SAS Nagar, invites e-tender on Double bid system for following items as per terms and conditions detailed below:-

S. No	Name of Item	Quantity
1	Chiller along with distribution system	One
2	Oil Lubricated Rotary Screw Air Compressor along with Distribution System	One

Sr. No	Name of Item	Quantity
3	Oxygen and Nitrogen cylinder having 18 kg gas along with distribution system	6 each
4	Lyophilizer	2 Nos.

1. The e-tenders should be submitted online till 24/10/2019 upto 5:00 pm and the same will be opened on 25/10/2019 at 11:00 am. For other term and conditions, please visit website ***http://eproc.punjab.gov.in*.**
2. E- Tender details can also be obtained from the Departmental website ***www.husbandrypunjab.org***
3. Corrigendum , if any will be upload on above websites only.

FAX No: 0172-2217084
Telephone No. 0172- 2217083
Website www.husbandrypunjab.org

Director Animal Husbandry,
Punjab.

Tendering Procedure.

It will be a two stage tendering. The technical tenders and financial/commercial tenders will have to be submitted AS PER E -TENDERING PROCEDURE.

The Technical Bids should contained detail information on the following: -

- Nature of Ownership.
- Composition of the Firm.
- Bankers Name & Address.
- GST No.
- PAN/TAN No.
- Tax clearance.
- Whether Manufacturer/Sole Selling Agent/Distributor/Authorized Dealer.
- Experience in line.
- Capability/Capacity to service the requirement.
- Details of relevant infrastructure.
- Arrangements of after sale service.
- List of Clients.
- Quality Assurance/Monitoring system followed.

Certificates where needed should be attached duly attested.

Financial/ Commercial Bids.

Financial Bid should contain the price quoted per unit. The following information should be clearly given in the Financial Bid:-

- Price per Unit.
- Place of Delivery.
- Status of Taxation/Duties etc.
- Lead time/Delivery Period.
- Packing & forwarding.
- Mode of Transportation.
-
- Payment condition.
- Warranty/Guarantee.
- Validity of Offer.
- Acceptance of Terms of N.I.T.
- Details of Earnest money attached.

Financial Bids will be opened only of those tenderers, who qualify and are found suitable during the processing of Technical Bids.

TERMS AND CONDITIONS

1. E-Tenders are invited for the supply of the items listed from 1 to 4 for the department through the e-tendering process of Govt. of Punjab. For additional details such as items

specifications, important dates etc visit the website: ***http://eproc.punjab.gov.in*** Tender form, specifications, terms and condition can be obtained from this website on payment of Rs. 1000/-(online payment) as per e-tendering procedure.

2. Tender shall be accepted only from manufacturers/authorized dealers.
3. Authorization for Specific tender/ item with no. and date should be submitted for the tender in question .
4. The tender will be in double bid system i.e. Technical/Pre-qualification Bids and Financial/Commercial Bids .The Technical Bid should contain comprehensive technical details of the item (Brochure/Catalogue), profile of the manufacturer/supplier, main current clients, experience, tentative delivery period. Financial/Commercial Bids should contain the price (inclusive GST), terms and conditions. Technical Bids would be opened first and Commercial Bids will be opened subsequently of only those tenders who qualify in the Technical Bids. Incomplete/conditional Tenders not received as per e-tendering procedure will be out rightly rejected.
5. The bidder must enclose attested copies/proof of consisting, Pan Card, TIN No., Service Tax No., GST, EPE, Registration/Authorization of the firm etc.
6. The bidder firm should not be black listed/debarred by any department/ organization
7. The e-tenders should be submitted online till 24/10/2019 upto 5:00 pm and the same will be opened on 25/10/2019 at 11:00 am.
8. The e-tender must be accompanied with earnest money amounting Rs. 20,000/- (Rs. Twenty Thousand Only) (online payment) as per e-tendering procedure.
9. Tenderers are also required to submit a hard copy of the technical bids of this tender on or before the closing date 24/10/2019, upto 5:00 pm at the Directorate, Animal Husbandry, Punjab ,Livestock Complex, Sector-68, SASNagar.
10. The Director, Animal Husbandry, Punjab, SAS Nagar reserves the right to accept or reject one or all offers/tenders and holds the discretion to increase/decrease the quantity of any or all the items.
11. Successful tenderers will have to submit a Security deposit of 10 % of the ordered value within the stipulated period of time after issuance of orders.
12. For participating in the above e-tender, the contractors shall have to get themselves registered with ***http://eproc.punjab.gov.in.*** and get user ID & password. Bidders who have not registered with e-procurement portal need to get registered by paying the requisite registration fee for e-tender participation and obtain Class 3 Digital Signature Certificate (DSC) which are mandatory to participate in the e-tendering process. For any clarification/difficulty regarding e-tendering Process please contact on helpdesk at Punjab State e Governance Society, Plot No. D-241, Industrial Area, Phase 8, Sector 74, Mohali , Phone No. 0172-2970263 & 0172-2970284. E-mail: **eproc@ punjab.gov.in and niceproc.punjab@gmail.com**
13. Bidders are also required to pay tender processing charges of Rs. 2,280/- or an estimated amount as per tender which are to be deposited. (This tender processing fee/charges are other than the firm registration amount for Digital Signature Certificate DSC).
14. E-Tender details can also be obtained from the Departmental website **www.husbandrypunjab.org.**
15. Rates should be quoted in Indian Rupees only, FOR anywhere in Punjab/Chandigarh.
16. All applicable taxes should be included in the quote.
17. Brochure/leaflets/catalogues for equipments/ items should be submitted alongwith tender.
18. Trouble free performance of the equipment for a minimum period of two years from date of commissioning should be guaranteed . Any defect intimated should be attended to and rectified wihin 15 days of receipt of such communication within guarantee period. The guarantee shall include cost of spares and labour.
19. The supplier should give an undertaking that they will be responsible to carry out the preventive maintenance and to repair the equipment during guarantee and post guarantee period.
20. Full details of after sale service offered during the post guarantee period should be furnished along with tender specified.
21. Information of actual users of the equipment in India supported with evidences and performances should be furnished alongwith tender.
22. If required the working of the equipment must be demonstrated in any place to be specified by the supplier.
23. The supplier shall train to the satisfaction of the purchaser one or two technicians at site/factory for operating, servicing and undertaking minor repairs without extra cost.

Detailed Specification for E-tender notice no. 2/2019-20

(1) Chiller One

Along with distribution system

(Blue Star, Voltas, Reynalds, Thermo Fisher)

- **Unit should be used for cooling 800 Lit and 80 lt fermenter and inactivation vessel between 4 to 8 deg. C**
- **The Chiller shall be Air Cooled type with multiple / Single Compressors, Air Cooled Condenser, In-built weather proof Electrical Panel, Electrical Isolators, all electrical parts to conform IP-55, transformer for control circuit, service modem connectivity, open protocol master panel for hook up with BMS with network ready, server centric and web base Client Compatibility.**
- **Capacity 35 Tr**
- **Refrigerant must be R-410A / R-407C**
- **Temperature Range of the chiller should be from -5º to 50º C**
- **Cooling capacity at 20°C 230V 50 Hz should be 8,500 Watts**
- **Heating Capacity should be 6 kW @ 460 V or better**
- **Temperature Stability required is +/- 0.1º C**
- **The condenser should preferably be Air cooled**
- **The unit should have a suitable reservoir made of SS 316L with heating and cooling partitions.**
- **All contact parts of the chiller alongwith distribution system must be of SS 316L.**
- **The unit should have a centrifugal pump made of 316L, SS which operates at 50 Hz with the below specifications;**
  10 gpm @ 20 psid (37.9 lpm @ 1.4 bar
- **The unit should contain a flow control with flow read out that allows adjusting the flow to meet the application requirements & monitor the flow rate to application and set flow alarms via controller.**
- **The controller should house an LCD multi line alphanumeric display.**
- **The controller should also have an LCD level indicator to identify the level of internal fluid.**
- **Anti Drain back feature should be available that prevents fluid from flowing back to the reservoir when the chiller is installed.**
- **Auto Refill feature should be available that ensures automatic refilling from a facility-supplied water source to ensure that the proper fluid level is maintained.**
- **Analog and digital communications option should be available for remote operation, monitoring and data logging. It should include sensor port which allows for remote temperature control of an application when used with a remote sensor (optional accessory)**
- **Should include a Full flow filter to ensure clean fluid to protect the application and maximize recirculation system life**
- **Should have an easily removable condenser grill and air filter allow for quick and simple cleaning to optimize chiller performance and maximize component life.**
- **Should house an integrated funnel fill for easy filling.**
- **A Drain port should be located at the back of the unit for operator convenience.**
- **Design should allow two sides of the unit to be blocked, allowing placement in a corner while maintaining full refrigeration performance.**
- **Noise level of the unit should be less that <58dBA**
- **The unit should come with standard lockable casters.**

- **There should be external piping and fittings from chiller to external reservoir to process and back, top up line for reservoir and drain line from the reservoir, non return valve, solenoid valve, pressure gauges etc. And piping to the all the vessels of use along with the return piping. All the welding should be orbital welding.**
- **Civil/structural work included in the installation and commissioning.**
- **Compliance - CE**
- **2 years warranty.**

The Scope of the work include the following:

a. Supply, Design Installation and Commissioning of the Chiller Unit, interconnection piping & fitting (external piping and fittings from chiller to external reservoir to process and back, top up line for reservoir and drain line from the reservoir, Non Return Valve, Solenoid Valve, Pressure gauges etc. And piping to the all the vessels of use along with the return piping.) including the base frames or brackets & Control Panel etc.

b. The generation system must be along with the distribution system for Connectivity of pipe from the generation system to other rooms where fermentor and other equipments are installed, which requires chilled water supply minimum piping required approximately 2500 ft, it should include the quote. However for additional piping separate rate for supply line could be quoted per ft., so that in the event of increase or decrease, payment on actual is given .

- Utility equipment supplier of chiller to provide utility piping with insulation

wherever

required with terminal valve up to 1 (One) meter. near the equipment location.

- Equipment supplier will connect the last 1 (One) meter. connection to the equipment.

- The rates for supply line should be quoted per ft. and the actual will be paid or

measurement.

- Pendent if needed to be provided by the vendor.

c. Supply of all necessary instrumentation.
d. Civil / Structural work included in the installation and commissioning.
e. Vendor shall quote the necessary essential spares required for one year along with the offer.
f. Provide service in case of breakdown within 48hrs of call.

Provide preventive maintenance once a month during the warranty period.

Inspection and testing

A. The system shall be offered for visual performance trials & hydrotest at the manufacturer's premises for inspection by client / authorized representative.

B. Client / authorized representative shall at all times have an access to supplier's / suppliers sub contractor's workshop to witness fabrication stages.

C. Internal inspection record shall be maintained by supplier / suppliers sub-contractor at all times, if any stages are found lacking by way of proper records, client reserves the right to ask supplier to modify / amend the fabrication stage at no extra cost.

D. **All material test certificates shall be reviewed by client during FAT which will be conducted at vendor's manufacturing facility at the expenses of manufacturer/vendor by at least three representatives of Animal Husbandry department, Punjab.**

E. **Performance trial shall be done at Vendors premises with qualified water and shall be performed at site after installation.**

Guarantee

A. **The system supplied shall be guaranteed for trouble free operation for the period of 24 months from the date of commissioning. All defects due to faulty design, material and workmanship and also the performance deficiencies which may come up during guarantee period shall be rectified by the vendor at his cost and to the purchaser's satisfaction.**

B. **All guarantees from equipment suppliers will be vested in the client.**

C. **Where damage is caused to any other item by any failure of the item guaranteed, then the guarantee shall also include the costs incurred in rectifying that damage.**

Documentation:

A. **P&ID clearly demarcating Battery limit terminations.**

B. **GA Drawing.**

C. **Equipment Layout.**

D. **Foundation Drawings.**

E. **Quality Assurance Plan.**

F. **SLD for electrical circuit.**

G. **GA & wiring diagram of control panel.**

H. **PLC control logic, OIU Screens. Operators guide & Ladder logic.**

I. **Piping drawing within battery limit.**

J. **Design Qualification Document**

During commissioning activities:

K. **Operation & maintenance manual for all mechanical, electrical & instrumentation items.**

L. **Characteristic performance curves for all pumps, blowers.**

M. **Calibration certificates for all instruments.**

N. **Operation & ladder logic details for PLC.**

O. **Internal inspections & acceptance reports.**

P. **Test & Guarantee certificates.**

Q. **Operation Manual for programming software of PLC & OIU.**

R. **D.Q,I.Q, & P.Q documents of items system being supplied by tenderer.**

VENDOR QUALIFICATION

- **Trouble free performance of the project for a minimum period of two years from date of commissioning should be guaranteed. Any defect intimated should be attended to and rectified within 15 days of receipt of such communication within guarantee period. The guarantee shall include cost of spares and labor.**
- **Vendor should have been manufacturing and supplying the system for atleast last 3 financial years**

- **User reference list of clients complying with GMP**
- **Vendor should be either manufacturer or authorized agent of the manufacturer and should submit authority letter from the manufacturer to participate in this particular tender with no. and date.**

(2) OIL LUBRICATED ROTARY SCREW AIR COMPRESSOR--- One **ALONG WITH DISTRIBUTION SYSTEM**

(Make : Kirloskar, Ingersoll Rand, Elgi Equipments, Atlas Copco, Kaeser)

The air cooled, silenced, rotary screw compressor with completely wired and equipped with all interconnecting pipe work and fittings. include a direct driven compressor element, a totally enclosed fan-cooled electric motor, together with lubrication, cooling and regulation systems. Compressed air is used in Fermentor systems, Autoclaves, Filling machine

CAPACITY : 2500 SLPM i.e. 88.3 CFM

WORKING PRESSURE : 7.5 to 8 bar

The compressors enclosed in a sound-insulated bodywork. The front panel comprises of an electronic control module including the start and stop buttons. An emergency stop button is also provided . it should be provided with an air dryer which removes moisture from the compressed air by cooling the air to near freezing point and automatically draining the condensate.

All rotating components should be totally enclosed and protected against contamination to ensure long and reliable operation. The compressor cooling system is sized to run perfectly in ambient temperatures up to 46°C/115°F.

AIR COMPRESSOR TECHNICAL SPECIFICATIONS		
Sr.No.	Particulars	Requirement Specifications
1.1	**EQUIPMENT**	**a. Type: Single stage, Oil lubricated, Air cooled Rotary Screw Compressor** **b. Quantity: 1** **c. Service: Continuous** **d. Working pressure: 7.5 to 8 bar** **e. Air quality should be suitable for pharmaceutical industry**
1.2	**PURPOSE**	**Compressed air is used in Fermentor systems, Autoclaves, Filling machine, Washing machine etc.**

1.3	**SCOPE OF THE WORK**	**Scope of the work include the following:** **a. Supply, Design Installation and Commissioning of Air Compressor system including oil lubricated rotary screw compressors, air receiver, refrigerated air dryers, interconnection piping & fitting, control panel etc.** **b. Supply of all necessary instrumentation.** **c. Vendor shall quote the necessary critical spares required for one year along with the offer.** **d. Provide service in case of breakdown within 48hrs of call.** **e. Provide preventive maintenance once a month during the warranty period.**
1.4	**SYSTEM REQUIREMENT**	a. **Single skid mounted** b. **Single stage, Air Cooled, Oil lubricated, Rotary Screw Air Compressor, Pharma grade Air Quality** c. **Suction Air filter** d. **Full load and no-load regulator** e. **Acoustic Canopy/Inlet Silencer & Discharge Silencer to reduce circulation noise and vibration** f. **Inter and after cooler for cooling the air** g. **Common Refrigerated air dryer (which removes moisture from the compressed air by cooling the air to near freezing point and automatically draining the condensate) & Air Receiver Tank for compressor** h. **Refrigerated Cooler to be provided** i. **The compressor cooling system is sized to run perfectly in ambient temperatures up to 46°C/115°F**

Sl.No.	Particulars	Requirement Specifications
		j. **The system shall be equipped with suitable Anti vibration pads, if required** k. **Three-phase squirrel cage Induction motors with VFD for load control** l. **All working parts of the compressor shall have easy accessibility for inspection /maintenance.**
1.5	**POWER SUPPLY**	**Electric Power: 415VAC ±5%, 3 Phase +N+E, 50 Hz**
1.6	**STANDARDS/ REGULATIONS/ GUIDELINES**	a. **International Electro Technical Commission (IEC) standards** b. **All electrical components shall be housed in a sheet steel enclosure (IP 55)** c. **Air receiver shall be as per the Pressure vessel design code IS: 2825** d. **Air compressor shall be designed as per latest code & standard**
1.7	**SUCTION AIR FILTER**	**Vendor has to specify the following:** **a. Type of filter** **b. Pressure drop across the filter** **c. MOC of filter**

1.8	**DUPLEX FILTER**	• **1st stage: duplex type filters (before air dryer)** **a. Pore size: 3 microns (Gradient filters)** **b. Filters shall be suitable for operating pressure of 8 kg/cm^2 (g) max.** **c. Filter housing shall be SS 304** • **2nd Stage: duplex type filters (after air dryer)** **a. Pore size: 1.2 micron** **b. Filters shall be suitable for operating pressure of 8 kg/cm^2 (g) max.** **c. Filter housing shall be SS 304** • **3rd Stage: duplex type filters (after air receiver)** **a. Pore size: 0.45 micron** **b. Filter housing shall be of SS 304.** **c. Filters shall be suitable for operating pressure of 8 kg/cm^2 (g) max.** **Vendor must specify the following:** **a. Type of filter** **b. Filter size** **c. Pressure drop across the filter** **d. MOC of filter cartridge**

Sl.No.	Particulars	Requirement Specifications
1.9	**CONDENSER**	**a. Type: Air cooled condenser** **Vendor to specify the following:** **a. Type of condenser** **b. Power rating & type of condenser fan motor** **c. Suitable starter for fan motor** **d. MOC of condenser**
2.0	**AIR DRYER**	**a. Type: Refrigerant type air dryer** **b. Refrigerant: R 134A Or Vendor To Specify**
2.1	**AIR RECEIVER**	**a. Volume of air receiver: 1000 liters** **b. Air receiver MOC shall be MS with automatic drain and other accessories (safety relief valve, pressure gauge etc.)**
2.2	**CONTROL PANEL**	a. **Electric Power: 415VAC ±5%, 3 Phase +N+E, 50 Hz** b. **The front panel comprises of an electronic control module including the Start and Stop buttons** c. **An Emergency Stop button should also be provided** d. **The following specifications for the Control Panel shall be met:** • **Suitable Star Delta Starter with contractor and relays.** • **Dryer On/Off button.** • **Regulator with Timer and Relays.** • **Hour-meter to indicate total hours of operation.** • **Start/Stop button with lamp indicating compressor operation.** • **Indicator for auto operation.** • **Dew point indicator.** • **Easy access for service points.**

2.3	**ALARMS & SAFETY FEATURES**	**The control panel of Air Compressor shall have following alarms and safety features:** **a. Motor overload** **b. Outlet air temp. high**
2.4	**RECOMMENDED MAKES**	• **ELGI** • **ATLAS COPCO** • **KAESER** • **IR**

The Scope of the work include the following:

g. Supply, Design Installation and Commissioning of the compressor Unit, interconnection piping & fitting
h. The generation system must be along with the distribution system for Connectivity of pipe from the generation system to other rooms where fermentor and other equipments are installed, which requires compressed air supply minimum piping (as per GMP standard) required approximately 1000 ft, it should include the quote. However for additional piping separate rate for supply line could be quoted per ft., so that in the event of increase or decrease, payment on actual is given.

- Utility equipment supplier of compressor to provide utility piping

required with terminal valve up to 1 (One) meter. near the equipment location.

- Equipment supplier will connect the last 1 (One) meter. connection to the equipment.

- The rates for supply line should be quoted per ft. and the actual will be paid or

measurement.

- Pendent if needed to be provided by the vendor.

i. Supply of all necessary instrumentation.
j. Civil / Structural work included in the installation and commissioning.
k. Vendor shall quote the necessary essential spares required for one year along with the offer.
l. Provide service in case of breakdown within 48hrs of call.

Provide preventive maintenance once a month during the warranty period.

Inspection and testing

A. The system shall be offered for visual performance trials & hydrotest at the manufacturer's premises for inspection by client / authorized representative.

B. Client / authorized representative shall at all times have an access to supplier's / suppliers sub contractor's workshop to witness fabrication stages.

C. Internal inspection record shall be maintained by supplier / suppliers sub-contractor at all times, if any stages are found lacking by way of proper records, client reserves the right to ask supplier to modify / amend the fabrication stage at no extra cost.

D. All material test certificates shall be reviewed by client during FAT which will be

conducted at vendor's manufacturing facility at the expenses of

manufacturer/vendor by at least three representatives of Animal Husbandry

department, Punjab.

E. Performance trial shall be done at Vendors premises with qualified water and shall be performed at site after installation.

Guarantee

A. The system supplied shall be guaranteed for trouble free operation for the period of 24 months from the date of handing over. All defects due to faulty design, material and workmanship and also the performance deficiencies which may come up during guarantee period shall be rectified by the vendor at this cost to the purchaser's satisfaction.

B. All guarantees from equipment suppliers will be vested in the client.

C. Where damage is caused to any other item by any failure of the item guaranteed, then the guarantee shall also include the costs incurred in rectifying that damage.

Documentation:

A. P&ID clearly demarcating Battery limit terminations.

B. GA Drawing.

C. Equipment Layout.

D. Foundation Drawings.

E. Quality Assurance Plan.

F. SLD for electrical circuit.

G. GA & wiring diagram of control panel.

H. Piping drawing within battery limit.

I. Design Qualification Document

During commissioning activities:

J. Operation & maintenance manual for all mechanical, electrical & instrumentation items.

K. Characteristic performance curves for all pumps, blowers.

L. Calibration certificates for all instruments.

M. Internal inspections & acceptance reports.

N. Test & Guarantee certificates.

O. Operation Manual for programming software of PLC & OIU.

P. As built drawings as listed in item B.

Q. D.Q, I.Q, O.Q, & P.Q documents of items system being supplied by tenderer.

VENDOR QUALIFICATION

- **Trouble free performance of the project for a minimum period of two years from date of commissioning should be guaranteed. Any defect intimated should be attended to and rectified within 15 days of receipt of such communication within guarantee period. The guarantee shall include cost of spares and labor.**
- **Vendor should have been manufacturing and supplying the system for atleast last 3 financial years**
- **User reference list of clients complying with GMP**
- **At least one site visit by client to the manufacturer establishment.**
- **Vendor should be either manufacturer or authorized agent of the manufacturer and should submit authority letter from the manufacturer to participate in this particular tender with no. and date.**

(3) Oxygen and Nitrogen cylinder along with distribution system 06 Nos. each

12 cylinders capacity 1.25 cubic meters (18kg gas) , test pressure 250 bar , working pressure 140 bar. Cylinders along with regulators.

There must be 99.99% purity of both the oxygen and nitrogen gases

There should be independent distribution system of O2 and N2 gas upto the utility point i.e. seed fermenter and production fermentor.

The distribution piping in clean room area must be SS316L.

the distribution Piping for Connectivity of pipe (as per GMP standard) from the cylinders to other rooms where fermentors and other equipments are installed required approximately 250 ft, it should include the quote. However for additional piping separate rate for supply line could be quoted per ft., so that in the event of increase or decrease, payment on actual is given .

- The cylinder supplier to provide utility piping required with terminal valve up to 1 (One) meter. near the equipment location.

- Equipment supplier will connect the last 1 (One) meter. connection to the equipment.

- The rates for supply line should be quoted per ft. and the actual will be paid or measurement.

- Vendor should be either manufacturer or authorized agent of the manufacturer and should submit authority letter from the manufacturer to participate in this particular tender with no and date.

4. Lyophilizer 2 Nos.

(Martin Christ,Virtis Lyophilizer,Lyophilisation Systems Inc.)

Capacity:Vial capacity of standard 5ml. Vials approximately 500 in number for freeze drying at one time.

Product Chamber and Condenser Chamber:Should be made of SS316L.
It should be rated for high vacuum.
Finish quality should be 220 grit.

Shelf Temperature: Low - 60^{o}C

High + 60^{o}C

Uniformity across -+1^{o}C

Uniformity among -+1^{o}C
Minimum cooling time to reach - 40^{o}C maximum 60 minutes.
Safety for over temperature should be provided.
Minimum one sensor should be provided per shelf.

Chamber Doors: Should give full view and should be made of acrylic of minimum thickness of 35mm

Condenser: Cool down time to - 40^{o}C not more than 20 minutes.

Corrosion resistant vacuum pump should be provided. It should have a minimum capacity of 10m^{3}/hr. Pump down time to 100m torr should be less than 20 minutes.
Exhaust filter should be provided.

Control: Programmable logic controls with required analog and digital modules should be able to run user defined modules.

Defrosting: Automatic defrosting facility with hot gases.

Back Filling of Gases: Should be available.

1. Voltage Stabilizer and other accessories needed for the smooth running of the machine should be provided.
2. PC with software of machine.
3. Computer table.

For Supply, Installation, testing, validation, training and commissioning of Lyophilizer with the following technical specifications

Sr.No	***Technical Specifications***	
01	Vial Capacity of Base Diameter of 23mm and having height of 58mm Vial Capacity 10ml	**450-500 Nos**
02	*Product Chamber and Condenser Chamber* 1. Single Chamber System	
	2. Rated for High Vacuum	YES
	3. Material of Construction	SS316L
	4. Finish Quality	220 Grit
04	*Product Shelves*	
	1. No Of Shelves	3 + 1 Radiant
	2. Total Available shelf area	0.33m^{2}
	3. **Inter distance Minimum**	**65 mm**
	4. **Radiant Top Plate**	**YES**
	5. No of product sensors	Three
05	***Stoppering***	
	1. Mounting	Bottom Up
	2. Operation	By Pushbutton

	3. Design	Adjustable stoppering pressure relief Valve
06	***Doors***	
	1. Chamber Door	Full View Acrylic
	2. Material	Acrylic Min Thickness 35mm
07	***Shelf Temperature and Fluid system***	
	1. Shelf Ultimate Low	-60°C
	2. Shelf High Temperature	+60°C
	3. Shelf Uniformity Across	+/- 1.0°C
	4. Shelf Uniformity Among	+/- 1.0°C
	5. Cooling time to –40°C	With in 60 Min
	6. Control type	Heater/Solenoid Valve type
	7. Over temperature Safety	Provided
	8. No of Sensors	One for shelf In
	9. Fluid Reservoir	YES
	10. Fluid Type	Silicon Oil 5CST
	11. Heating	Immersion Heater 1 KW
08	***Condenser***	
	1. Ice capacity Total	8 Kgs
	2. Ice Capacity /24 Hours	6 Kgs
	3. Ice Condenser Temperature	-80°C
	4. Construction	Coil
	5. Cool Down time to –40°C	20 Minutes
09	***Refrigeration System***	
	1. Compressor	Hermitically Sealed Cascade Refrigeration Make : Copeland/Bitzer /Carlyle
	2. Design	Standard
	3. Refrigerant	R 404A/R508B/R23
	4. Environmental Friendly	CFC/HCFC Free
	5. Filter Drier	YES
	6. Oil Separator	YES
	7. Control Valves	Danfoss
	8. Cooling	Air Cooled
10	***Fluid circulation***	
	1. Type	Magnetic Driven, Make Grundfos
11	***Vacuum System***	
	1. Vacuum Pump 2. Corrosion Resistant	Pfeiffer Vacuum/Edwards/Leybold YES
	3. Capacity	Min 10m3/Hour
	4. Pump down time to 100mTorr	Less than 20 Minutes
	5. Vacuum Sensor	Pirani
	6. Exhaust Filter	Provided
	7. Ultimate Low Vacuum	10 mTorr
	8. Control Range by injecting Nitrogen	10 to 1000 mTorr in combination with Needle Valve and solenoid valve
12	**Controls and Hardware**	
	1. Programmable logic Controller with required analog and digital modules	OPTO 22/Allen Bradely/Siemens
	2. Software	User defined
	3. PLC Configuration	YES
	4. **Operation (cGMP Feature)**	**Complete** **SCADA**

		with work Station
	5. Electric Controls	TC
	6. Automatic Operation for • Fully automatic controlled recipe for product freeze drying with data storage • Defrosting • System Test	YES
	7. Semi Automatic Operation for • Shelf temperature • Vacuum • Condenser • Control • Vent	YES
	8. Data Storage	Complete Data storage in Graphical and Data in the computer system
	9. List of alarms • Condenser Over load • Vacuum Over Load • Long and short power outage • Shelf sensor Open • Condenser Sensor open • Vacuum Timed out • Condenser Timed out	YES
	10. Computer System	DELL/HP , Latest Configuration
	11. Data Printer	HP
	12. UPS for Computer	APC or Equivalent
13	***Defrosting***	Automatic defrosting facility by Hot Gas
14	***Back Filling***	Available with set point control for backfilling the nitrogen after cycle is completed. This facility is essential for sensitive vaccines
15	***Venting***	Fully automatic and time based
16	***Accessories (Included)***	Removable bottom type loading trays Qty: 3
17	***Spares***	Set of Gaskets Vacuum Pump Oil – 10 Ltrs Thermal Fluid – 5 Ltrs
18	***Documentation***	DQ/IQ/OQ
19	***Extra Accessories to be included***	
	Suitable Capacity Servo Stabilizer	Standard Make

- **Vendor should be either manufacturer or authorized agent of the manufacturer and should submit authority letter from the manufacturer to participate in this particular tender.**

HEAVY DUTY GENERATOR BD 50 EV
Key Features and Operating Characteristics :

It has a 7-position high voltage control switch, which is part on an electronic circuit, making its output more precise and repeatable. Circuitry is fused with ON/OFF switch, and isolating transformer for added safety protection. The matter control unit has a carrying handle and non- skid rubber feet. The high voltage prove is made of durable plastic, with a 6 ft. cord. A certificate of calibration is optional furnished upon request. Output voltage is adjustable from 20,000 to 50,000 in 11 steps. Output frequency is 500 kHHz. Output current is approximately 0.1 mA maximum. Separate models operate from either 115 or 230 VAC, 50/60 Hz. Overall dimensions: 7x5.5x6.5 in. with 11x2.5 in handle. Weight :9 lbs.