INSTITUTE FOR PLASMA RESEARCH

An Aided institute of department of Atomic Energy, Govt. of India)
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MINOR FABRICATION WORKS
ENQUIRY

Office Copy

ENQUIRY NO :IPR/MFW/20-21/79
Date : 07-10-2020
Due Date : 04-11-2020 13:00 IST
Extended Due Date : 18-11-2020

Please send your offer in sealed envelope specifying Inquiry No, Date & Due Date, ALONG WITH your credentials for the following items:

Important Note:

Please note that e-mail quotations are not acceptable however you may send your queries (if any) to **rkumar@ipr.res.in**

Please Ensure that your sealed quotation reaches this office not later than above mentioned due date and time.

Kindly go through the following document properly before Quoting which are available on the IPR web portal i.e., http://www.ipr.res.in/documents/tenders.html/ attached here with.

1. Technical specification as enclosed.
2. Instruction to the bidders & terms and Condition (refer Form NO:**IPR-MFW-01-V1**)
3. Bidding format(refer Biddingformat MFW-Bid.pdf)

GST fro Goods and Services (IGST/CGST/SGST TAX BENEFITS): PLEASE REFER clause no:8 of Form No:**IPR-MFW-01-V1**

QUOTATION SHOULD BE ADDRESSED TO **RAJESH KUMAR** ONLY.

Sr.No.	Description	Quantity	Rate
1	Fabrication of various gas distribution system	1	No.

Free Issue Material

Sr.No.	Description	Quantity	Unit	Value

Note : Please quote with complete technical details (Technical Compliance sheet and product data sheet)

Encl:As per attachment

Sd/-

RAJESH KUMAR
Scientific Officer-G

प्लाज़्मा अनुसंधान संस्थान
(भाट, इन्दीरा पल के पास, गांधीनगर382428 - , गजरात) भारत
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Phone: +91-79-23962000 Fax: +91-79-23962277 Website: www.ipr.res.in

Form No: IPR-MFW-01.V1

INSTRUCTIONS TO BIDDERS AND TERMS AND CONDITIONS

1. The Quotation and any order resulting from this enquiry shall be governed by our Conditions of Work Order and Contractor quoting this enquiry shall be deemed to have read and understood the same completely.
2. Where counter terms and conditions have been offered by the Tenderer, the same shall not be deemed to have been accepted by IPR unless our specific written acceptance thereof is obtained.
3. **Quotation:** Quotation should be submitted in the prescribed QUOTATION FORMAT attached with this Enquiry and the same should be submitted in a sealed envelope super-scribing the same with our enquiry No., date, due date and brief description of item on or before the due date. Late/delayed/incomplete/unsigned quotations will not be considered. Envelopes received without Enquiry number, date, due date and brief description of item may be rejected. The quoted prices should be firm for a period of 90 days from due date for placing order. IPR is not bound to accept lowest rate/s. IPR reserves the right to place on one or more parties. The scope of supply includes insurance by the Contractor.
4. **Specifications:** Goods should be offered strictly confirming to our specifications/drawings. Deviation, if any, should be clearly indicated by the contractor in their quotation. The Tenderer should also indicate the Make/Type number of the goods offered and catalogues, technical literature and samples, wherever necessary should accompany the quotation. Clarification/s on drawings should be obtained before submitting quotation.
5. **Terms of Prices:** Quotation should be submitted on door delivery basis without extra charge wherever possible. For quotations on Ex-Works, Ex-godown basis the approximate packing and forwarding charges should be indicated by the contractor. In the case of local contractors, the goods are to be delivered at our stores free of charge.

5.1 In respect of tenders on Ex-works basis, in case the tenderer has not mentioned in the offer packing, forwarding and transportation charges for safe delivery up to Purchaser's site, 2% of the price quoted towards packing (in respect of both local and outstation firms), 1% of the basic price quoted towards safe delivery charges in respect of local tenderer and 3% of the basic price quoted towards safe delivery charges in respect of outstation firm will be added for comparison of offers on safe door delivery at Purchaser's site.

5.2 Prices are required to be quoted according to the units indicated in the tender form/Enquiry. When Quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished

6. Tender should be free from Correction and Erasures. Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail. Unsigned quotations will summarily be rejected. If there is a discrepancy between the unit price and total price, unit price shall prevail.
7. IPR shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered and the tenderers shall supply the same at the rate quoted.
8. **Goods & Services Tax (GST):** The details of Taxes/GST and other levies legally applicable and intended to be claimed should be clearly indicated in the tender. Where this is not done, no claim on these accounts would be admissible later.

   a) GST for Goods (IGST/CGST/SGST TAX BENEFITS):

   IPR is entitled to avail tax benefit as per the following notifications issued by Ministry of Finance, Department of Revenue, Government of India:

   (1) No: 47/2017-INTEGRATED TAX (RATE) DATED 14/11/17 for IGST
   (2) No: 45/2017-CENTRAL TAX (RATE) DATED 14/11/17 for CGST

   And,

   IPR is entitled to avail tax benefit as per the following notifications issued by Finance Department, Government of Gujarat:

   (1) No. 45/2017-STATE TAX (RATE) DATED 15/11/17 for SGST

   As per above notifications IPR will bear only 5% IGST for procurement of goods from outside Gujarat & 2.5% CGST and 2.5% SGST (total 5%) for procurement of goods within Gujarat. Vendors are required to charge tax as per these notifications while quoting/supplying the goods. Deviations, (if any) should be clearly mentioned in the quotation/offer.

   Please specify the HSN codes while quoting.

   b) GST for Services:

   As applicable. **Specify the SAC codes wherever services are involved**.

9. **Delivery Date:** Delivery period is essence of the Contract. Contractor must indicate the firm delivery date by which the goods will be dispatched or delivered by them from the date of our order. Delivery period shall be clearly indicated against each item separately.
10. **Price/ Purchase Preference:** Purchase/Price preference to industries will be given as per the policy of the Government of India in force at the time of evaluation provided their offer is in compliance with the conditions of the policy.

11. **Liquidated Damages:** The successful Vendor/Bidder should pay liquidated damages @ ½% (half percent) of the total work order value for the delay of each week in the scheduled date of completion of the work envisaged in the Work Order subject to a maximum of 5% (Five percent) of the total Work Order value.
12. **Inspection**: Goods on its arrival at IPR will be inspected by Stores, and his decision in the matter will be final. However, where the items are required to be inspected at the Contractors Premises, Contractor has to give advance notice regarding readiness of the Goods to enable us to depute our representative for inspection.
13. **Payment**: Payment will be arranged for accepted goods only within 30 days from the date of receipt of goods at IPR and bills in our accounts section, completed in all respects.
14. No correspondence will be entertained within 30 days from the date of receipt of good and bills, whichever is later.
15. **Guarantee**: The Stores offered should be guaranteed for a minimum period of twelve months, from that date of acceptance, against defective Goods, design, workmanship, operation or manufacture. For defects noticed and communicated during the Guarantee period, replacement/rectification should be arranged free of cost within a reasonable period of such notifications. In case where our specifications call for a guarantee period more than 12 months specifically, then such a period shall apply.
16. **Performance Bank Guarantee**: If demanded by IPR, the successful bidder will have to furnish Performance Bank Guarantee for 10% of the order value (basic price) from a Nationalized/Scheduled Bank/State Bank of India, valid throughout the Guarantee/Warranty period. The scheduled banks approved by IPR are Axis Bank, HDFC Bank, ICICI Bank and IDBI Bank. Bank Guarantees submitted other than from banks approved by IPR will not be accepted.
17. **Security Deposit:** If demanded the successful Bidder will have to furnish to the Purchaser an interest free security deposit for 10% (Ten percent) of the order value in the form of Bank Guarantee of an equivalent amount from a nationalized/ scheduled Bank/State Bank of India within 15 days from the date of work order and the said Guarantee should be valid till the goods are accepted by IPR. The scheduled banks approved by IPR are Axis Bank, HDFC Bank, ICICI Bank and IDBI Bank. Bank Guarantees submitted other than from banks approved by IPR will not be accepted. The Security deposit shall be forfeited in case the selected Bidder does not start the work within the time limit specified or fail to complete the work within the stipulated delivery period or fail to comply with any of the terms and conditions in the work order. On successful completion of scope of work and its acceptance by IPR, Contractor should send a letter requesting return of the original BG.
18. The Contractor shall at all times indemnify the purchase against all claims which may be made in respect of the stores for infringement of any right protected by Patent Registration of design or Trade Mark and shall take all risk of accidents or damage, which may cause failure of supply from whatever cause arising and the entire responsibility for sufficiency of all means used by him for the fulfilment of the contract.
19. **Free Issue Material (FIM):** Successful tenderer will have to arrange insurance showing beneficiary as “Institute for Plasma Research” at their risk and cost towards adequate security for the materials/property provided/issued by the Purchaser as Free Issue Material for the due execution of the contract.
20. The Director, IPR reserves the right to accept or reject any quotations fully or partly or to cancel the enquiry without assigning any reason.
21. **Jurisdiction**: The contract shall be governed by the Laws of India for the time being in force. The Courts of Gandhinagar only shall have jurisdiction to deal with and decide any legal or dispute arising out of this Contract.

(This need to be printed in Bidders letter head)

1. Please quote with complete technical details along with technical compliance sheet.
2. Quotation should be submitted in the format given below, else IPR shall not consider the offer by the vendor.

NAME OF PARTY : _____

ENQUIRY NO: _____

QUOTATION No. & DATE : _____

Currency of Quotation: **Indian Rupees**

Sr. No.	Item Description	HSN/SAC Code	Quantity	Unit Rate (Basic)	Packaging & forwarding (P&F)	Applicable GST	Rate (incl P&F and GST)	Total Value
			a	b	c	d	e = b + c + d	f = a * e
1								
2								
3								
4								
5								
6								

Sr. No.	Particular	Remarks
I.	Ex-works / FOR Destination	
II.	Freight	
III.	Insurance	
IV.	Delivery Period	
V.	Payment (IPR terms will apply)	
VI.	Guarantee / Warrantee	
VII.	Validity Period	
VIII.	Discount (if any)	
IX.	Remarks	

Place: Authority Signatory

Date: Company Seal

Note:

1. **Bidder should submit the copy of GSTIN / ARN Certificate along with the offer**
2. **Bidder should specify the SUPPLY and SERVICE rates/ charges separately wherever applicable**

Fabrication of storage and distribution system of various gases

Fabrication, Inspection, Supply, Installation and Testing of Nitrogen Trifluoride (NF_3) gas, Nitrogen (N_2) UHP gas, Argon (Ar) UHP gas and Nitrogen (N_2) Commercial gas Storage and Distribution with NF_3 gas Leak Detection System

1. Introduction:

Nitrogen Trifluoride (NF_3) gas will be used to form NF_3 plasma for etching application of Silicon / Silicon Oxide coating in a stainless steel vacuum chamber at Institute for Plasma Research (IPR), Gandhinagar.

NF_3 gas is considered as hazardous gas by the "OSHA Hazard Communication Standard" and harmful if inhaled as well as may cause damage to organs through prolonged or repeated exposure.

NF_3 gas usage needs proper gas line distribution which includes Nitrogen (N_2) purging lines, separate vent / use lines and continuous leak detection system for NF_3.

The scope of this fabrication, supply and installation work includes full setup for storage, distribution and usage of NF_3 gas including gas detection system for NF_3 gas.

2. Scope of the work:

The scope of this work comprises of supply, installation, testing and final acceptance of (1) gas storage facility, (2) gas distribution setup and (3) gas leak detection system for NF_3 gas at IPR premises, Gandhinagar.

3. Detail Specifications:

IPR, Gandhinagar requires a gas delivery system to setup NF_3 plasma etching facility for etching of Silicon / Silicon Oxide coatings in a vacuum chamber. To support this operation the system must deliver NF_3 gas, Nitrogen-UHP (N_2-UHP) gas, Argon (Ar) gas and Nitrogen-commercial grade (N_2-com) gas from gas bottles stored in gas cabinet to vacuum chamber. This full system is subdivided in to gas storage, gas distribution and gas leak detection subsystems as follows:

[1] Gas storage Facility:

Gas Cabinet with:
Total Gas Cylinder Compartments: 4 compartments for gas cylinders type 1A/3D
Quantity: 1 No.
Size/Dimension of Gas Cabinet: should be 1400 mm W x 350 mm D x 1900mm H (to accommodate 4 gas cylinders type 1A/3D).
Material of construction: Powder coated MS metal sheet
Outer shell compartment (thickness: 16 gauge or better)
Inner shell compartment (thickness: 20 gauge or better)
Wind Box compartment (thickness 18 gauge or better)
Support structure: made of 1"x1" angle or pipe of 18 gauge thickness
Exhaust/ventilation setup: exhaust flow should be 100 CFM normally and for emergence use 200 CFM (for 12" duct size). The vendor has to accordingly offer for exhaust fan model.

Features:

(1) Each compartment having mounting adjustable cylinder platform for small

cylinders, suitable cylinder clamps, lighting arrangement, plexi glass viewing window, gas connection bulk head ports, Neoprene gasket and lockable access to each door of compartment.

(2) Out let port for exhaust/ventilation to common wind box and emergency fresh air inlet with inlet filter to all compartments.

A schematic diagram (see attached Figure No. 1) of gas cabinet is attached for reference. However, vendor must provide the detail drawing of gas cabinet with all features at time of bidding.

[2] Gases distribution Setup:

Full gases distribution setup compromise of following items/parts/equipments:

(A) Cylinder valves with orifice:

Description: Cylinder valve with restrictive flow orifice, sonic flow type

Quantity: 1 No (0.01 inch dia orifice) for NF_3 gas with 1 SLPM flow

3 Nos. (Suitable dia orifice) for Argon and Nitrogen gases with10 SLPM flow

(B) Flow limiting valves (FLV) with bull Nose connector:

Description: FLV with bull Nose connector (CGA 510 or 350)

Quantity: 1 Nos. with operating flow 1 SLPM, Bleed flow 0.2 SLPM at 100 psig for NF_3 gas

1 No. with operating flow 10 SLPM, Bleed flow 1 SLPM at 100 psig for N_2-UHP gas

(C) Pneumatic valves:

Description: High pressure pneumatic shut off valve

Type: Normally Closed (NC) type

Quantity: 3 Nos.

Body material: SS 316

Operating pressure: suitable for 2000 psig at 50 C

Connections: Butt welded ¼" tube. (VCR or Swagelok type)

(D) Cross purge assembly:

Description: Cross purge assembly consist of manual valves (3 Nos.) and check valves (2 Nos.)

Quantity: 2 Nos.

Manual valve: ball valve type ¼" size equivalent to Swagelok SS-43X-S4, ¼"compression fitting connection (VCR or Swagelok type)

Check valve: 1/3 to 1 psig forward & 2000 psig reverse pressure type, SS 316 bodywith ¼" compression fitting connection (VCR or Swagelok type)

(E) Pigtail tube:

Description: Circular pigtail tube

Quantity: 4 Nos. for NF_3, N_2-UHP, Ar and N_2-com gases lines

Size/dimension: ¼" SS 316 seamless tube with 14" dia

(F) Vent / Process Valves:

Description: High pressure pneumatic shut off valve

Type: Normally Closed (NC) type

Quantity: 2 Nos.

Body material: SS 316

Operating pressure: suitable for 2000 psig at 50 C

Connections: Butt welded ¼" tube. (VCR or Swagelok type)

(G) Gas regulators:

Description: Double Stage high purity and high pressure regulators

Quantity: 4 Nos. for NF_3, N_2-UHP, Ar and N_2-com gases

Pressure range: 2000 psig inlet

25 psig outlet

-Vented Bonnet and suitable CGA connector appropriate for gas (CGA 350 or CGA 510)

-The regulators should have SS 316 diaphragm and standard safety devices such as rupture disc, over pressure valve etc.

-All components wetted parts are in SS 316.

(H) Rotary pump purge lines setup:

Description: rotary purge line setup consist of a check valve (1 No), a manual valve(1 No) and a needle valve with rotameter (1 No.)

Check valve: 1/3 to 1 psig forward & 2000 psig reverse pressure type, SS 316 body with ¼" compression fitting connection (VCR or Swagelok)

Manual valve: ball valve type ¼" size equivalent to Swagelok SS-43X-S4, ¼" compression fitting connection (VCR or Swagelok)

Needle valve with rotameter: Needle valve with flow range 20 SCCM to 10 SLPM along with rotameter

(I) Interconnecting pipe work:

Description: ¼" electro-polished seamless SS 316 pipe

Connections: ¼" compressing fittings (VCR or Swagelok type)

Identifications: all gas lines must have a label of gas name and mark with direction of flow

Surface finish roughness (Ra): should be 10 micrometers or better

Total piping work: 50 meters (1 lot)

Pipe work for:

(1) Piping work for gas supply lines from gas cabinet to vacuum chamber console for NF_3, N_2-UHP, Ar and N_2-com which includes gas cylinders connections, cross purge assemblies and vent / process setup with fitting charges, clamps and mounting devices.
(2) Rotary pump inlet Nitrogen purge lines line distribution including fitting charges, clamps and mounting devices.

-Vendor has to offer price for pipe work including labour cost as one lot considering total piping work 50 meters.

A schematic diagram (see attached figure. 2) of gas distribution lines is attached for reference. However, vender must provide the detail drawing of gas distribution lines with all safety features.

Important points for vendors/contractors:

(1) NF_3, N_2-UHP, Ar and N_2-com gas cylinders, Mass Flow Controllers for NF_3, N_2-UHP and Ar gases, vacuum chamber, turbo pump, rotary pump, gate valve and butterfly valve are not part of this scope of work.
(2) Offers must provide pricing on all items within a sub system and/or all sub systems.
(3) The vendor(s)/contractor(s) must provide complete system installation and conduct operational testing.
(4) The vendor(s)/contractor(s) must be familiar with all safety requirements and must have enough experience to setup such facilities.
(5) The Vendor has to submit detail drawing/s of gas distribution setup for final approval.

[3] NF_3 Gas Leak Detection System:

Gas for leak detection: Nitrogen Traifluoride **(**NF_3)

Leak detection range: 0-100 ppm

Gas leak detection type: Continuous emission monitoring type

Gas sampling type: remote sampling at three positions (1) at gas cabinet, (2) at near to process chamber and (3) at exhaust end

Controller cum display unit: monitor gas leak at three different positions, also display online and continuous level of gas.

Display type: Alpha numeric LCD back light type

Mounting: 19" rack type

Power supply: 240 VAC, 50 Hz

Calibration method: automatic-inbuilt in control unit

Features:

-The sampling gas should extract using a sample probe than transported via a sampling line to detection system with help of internal pump.
-The moisture and particulates should remove before being directed in to detection system with particle filter
-Leak detection should indicate on leak detection system display as well as audio and visual alarm.

4. Pre-dispatch Inspection at Vendor's Site:

-Pre-dispatch inspection will be done by IPR representative before supply of materials.

-Pre-dispatch inspection of gas cabinet and other gas distribution setup/s will be inspection for workmanship and overall quality of materials.

-After dispatch clearance only, vendor should supply materials as per work order.

5. Supply and Installation:

-Vendor should supply all sub-parts /sub-systems / materials / equipments related to this work order in single delivery at IPR, Gandhinagar site.

-Installation should be done at IPR, Gandhinagar site. Vendor should visit the site and do the planning for the scope of work before installation.

-Vendor should come with adequate trained and qualified manpower along with all the equipments, tools and other necessary items to complete this task including personal safety items.

6. Testing and Final Acceptance:

Before final acceptance at IPR premises

(1) All items/parts and piping work asked in purchase order will be checked.

(2) Leak testing: the gas lines must withstand a 24-hours static pressure test at 200 psi (minimum) internal pressure with no greater than 2 psi pressure loss.

(3) Operation testing: operation testing will be checked for performance of all vales, cross purge assemblies, gas regulators, rotary purging line, vent / process valves setup and NF3 gas leak detector.

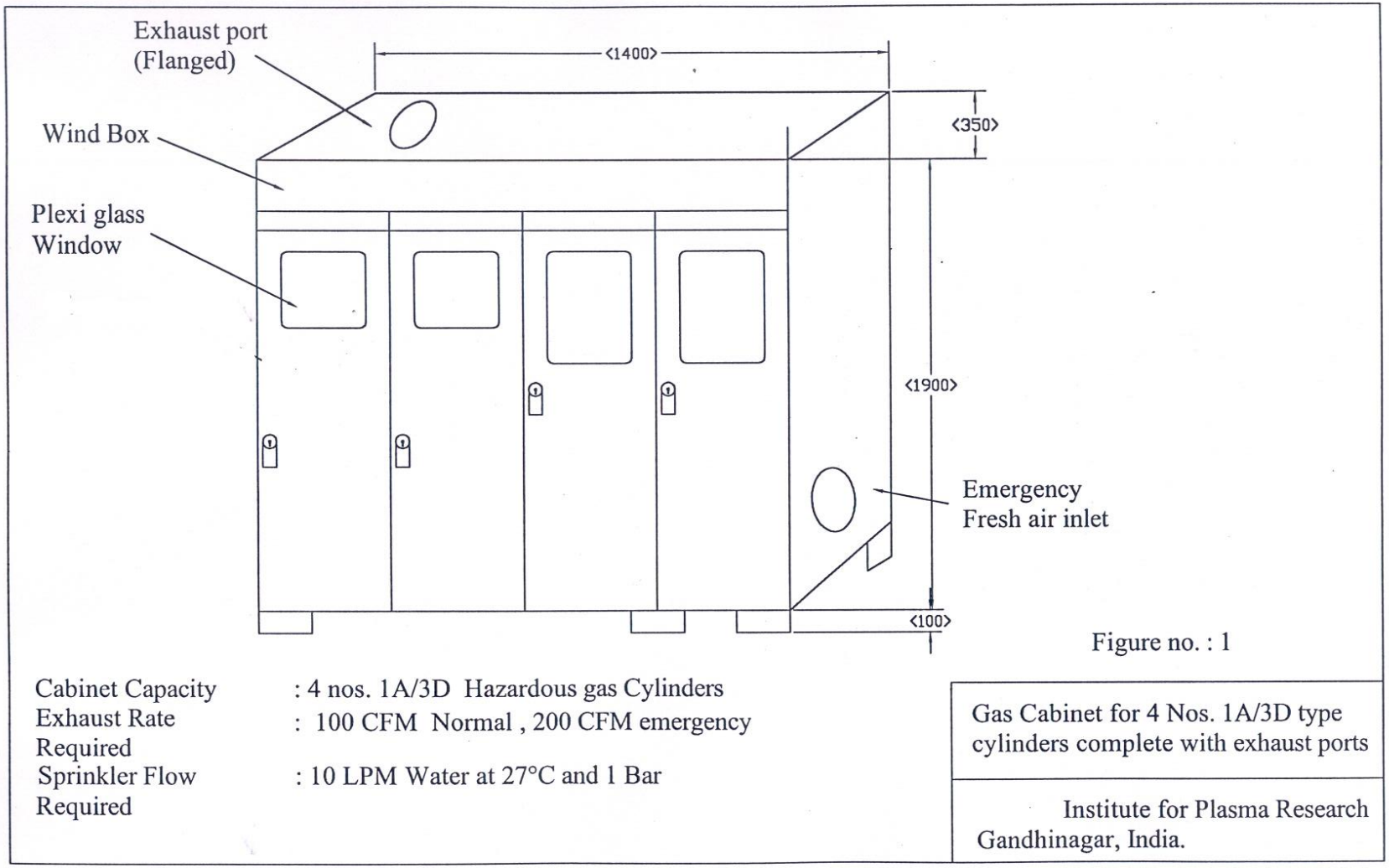

Figure no. : 1

Cabinet Capacity	: 4 nos. 1A/3D Hazardous gas Cylinders
Exhaust Rate Required	: 100 CFM Normal , 200 CFM emergency
Sprinkler Flow Required	: 10 LPM Water at 27°C and 1 Bar

Gas Cabinet for 4 Nos. 1A/3D type cylinders complete with exhaust ports

Institute for Plasma Research
Gandhinagar, India.

Fig. 1 Gas Cabinet for Cylinders

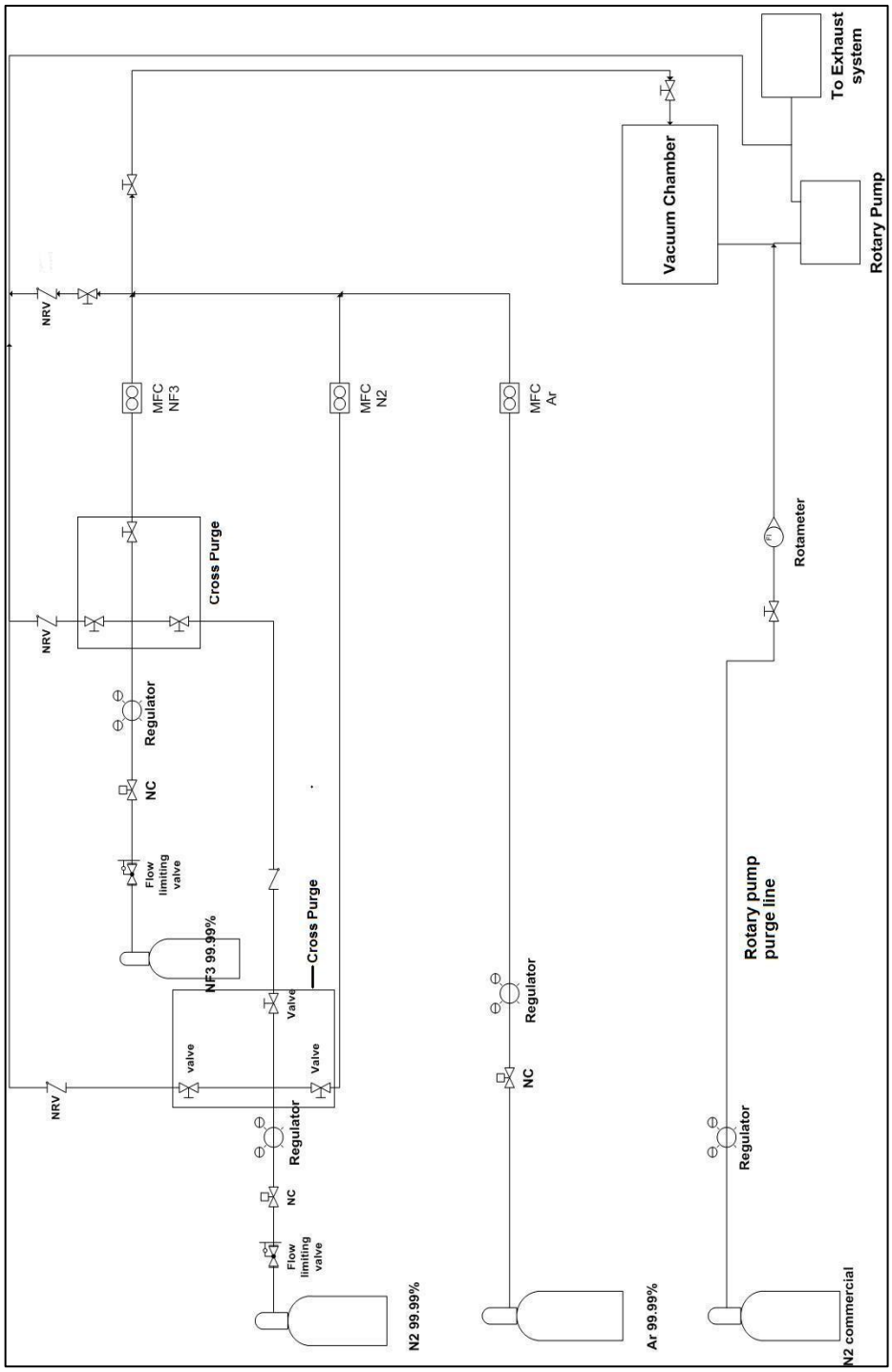

Fig. 2 Detail Gas lines distributiion