Request for Quote for Supply, Installation, Testing and Commissioning of "Fully Automated Gas cabinet for specialty gas

The GEECI (Gallium Nitride Ecosystem Enabling Centre and Incubator) at SID-Indian Institute of Science is seeking bids from qualified industries for a Nitrogen gas generator with accessories

• Companies need to submit two bids, a technical bid and a commercial bid, in two separate sealed envelopes. The bids should be submitted no later than 21 days from the date of posting of this tender, as listed on the website date/time stamp, and by 5 pm on the 21st day or next weekday in case the 21st day falls on a weekend or a national holiday.

• Both technical and commercial bids should be addressed to "The Chief Executive, SID, IISc, Bangalore 560012."

• The envelopes should be addressed to "Prof. Srinivasan Raghavan, CeNSE, IISc, Bangalore, 560012" and submitted to the office at CeNSE, IISc in Room No. GF 15 between 9 am and 5 pm.

• All questions regarding this tender should be addressed to Prof. Srinivasan Raghavan at the email address sraghavan@iisc.ac.in

• Post such submission all vendors should send an email to sraghavan@iisc.ac.in with the subject line: "GEECI_Bidder's name Tool Name" to intimate him of the submission within one day.

• Deviations from the technical specifications requested are allowed. Such deviations must be highlighted and justified. Their acceptance or rejection will be left to the discretion of the technical committee.

• The equipment sought will be placed at the Centre for Nano Science and Engineering (CeNSE), Indian Institute of Science (IISc). IISc is India's No. 1 institution on higher learning and the Center for Nano Science and Engineering is home to one of the best academic fabs in the world.

• Please find the **Annexure-1** for Technical requirements.

• The technical response, corresponding to the tool being offered, should be in the form of a compliance table with at least 5 columns.

Serial number in column 1. Each of the numbered technical items below should be addressed in a separate row of the table in column 2. Compliance to this requirement, in Yes/No, deviation from it and justification should be provided in the neighboring columns 3-5. Post the opening of a hard copy of the technical bid the committee will request for a soft copy of the files for further processing. Companies should NOT mail soft copies of the files unless specifically requested for.

• Detailed technical specifications of the system being offered should be included.

• Any additional capabilities or technical details, that you would like to bring to the attention of the purchase committee, can be listed at the end of the technical table.

• If multiple systems can fulfill the requirements, vendors can submit multiple bids.

• Vendors are encouraged to highlight the advantages of their system over comparable systems from the competitors.

• The commercial bid should be broken up to the maximum extent possible into separate items with a cost against each to enable better comparison of price for various configurations across the bidders. As an option, please provide itemized cost for any suggested accessories/addons that may enhance the usability, capability, accuracy or reliability of the system. Vendors are encouraged to quote for as many add-ons as their system portfolio permits.

The quotes should be split into a line item indicating the base price and then each optional item should be listed separately with its pricing.

Procedure

1. Only vendors who are compliant with the technical requirements will be considered for commercial comparison. The bid is awarded to the lowest cost vendors (referred as L1).
2. The commercial comparison is made as per Government of India rules, specifically GFR 2017. Note that GFR has recently been amended. As per recent edits to the GFR, there are three classes of vendors distinguished by their "local content". In the cover letter, vendors must mention which applies to them:
    a. Class 1 supplier: Goods and services have a local content of equal to or more than 50%.
    b. Class 2 supplier: Goods and services have a local content more than 20% but less than 50%
    c. Non-local supplier: Goods and services have a local content of equal to or less than 20%
3. This tender will only apply entertain Class 1 or Class 2 suppliers. Vendors must provide a self-declaration of what Class they belong to.
4. In the commercial bid, please provide an itemized cost of the system and required accessories, such as dryer, filters, piping, buffer vessel, receiver tank etc.,
5. As an option, please provide itemized cost for any suggested accessories/add-ons that may enhance the usability, capability, accuracy or reliability of the system. Vendors are encouraged to quote for as many add-ons as their system portfolio permits.
6. Quote should come only from Indian Original Equipment Manufacturer (OEM). The quotations should be in INR only and must include shipping cost.
7. Mention GST separately. IISc will be taxed at 5%. IISc will provide the GST exemption certificate against invoice.
8. Please indicate the warranty provided with the Generator or system. Warrant of 3 years or more is required.
9. As an option, provide itemized cost for required spares for 2 years of operation from the time of installation.
10. Clarify if periodic (preventive) maintenance be done by a trained on-site engineer or requires a specialist from the OEM.
11. The technical proposal must include references from 5 previous installations in India. Please provide the names and contact addresses of the referees so that the committee can contact them independently.

Annexure- 1

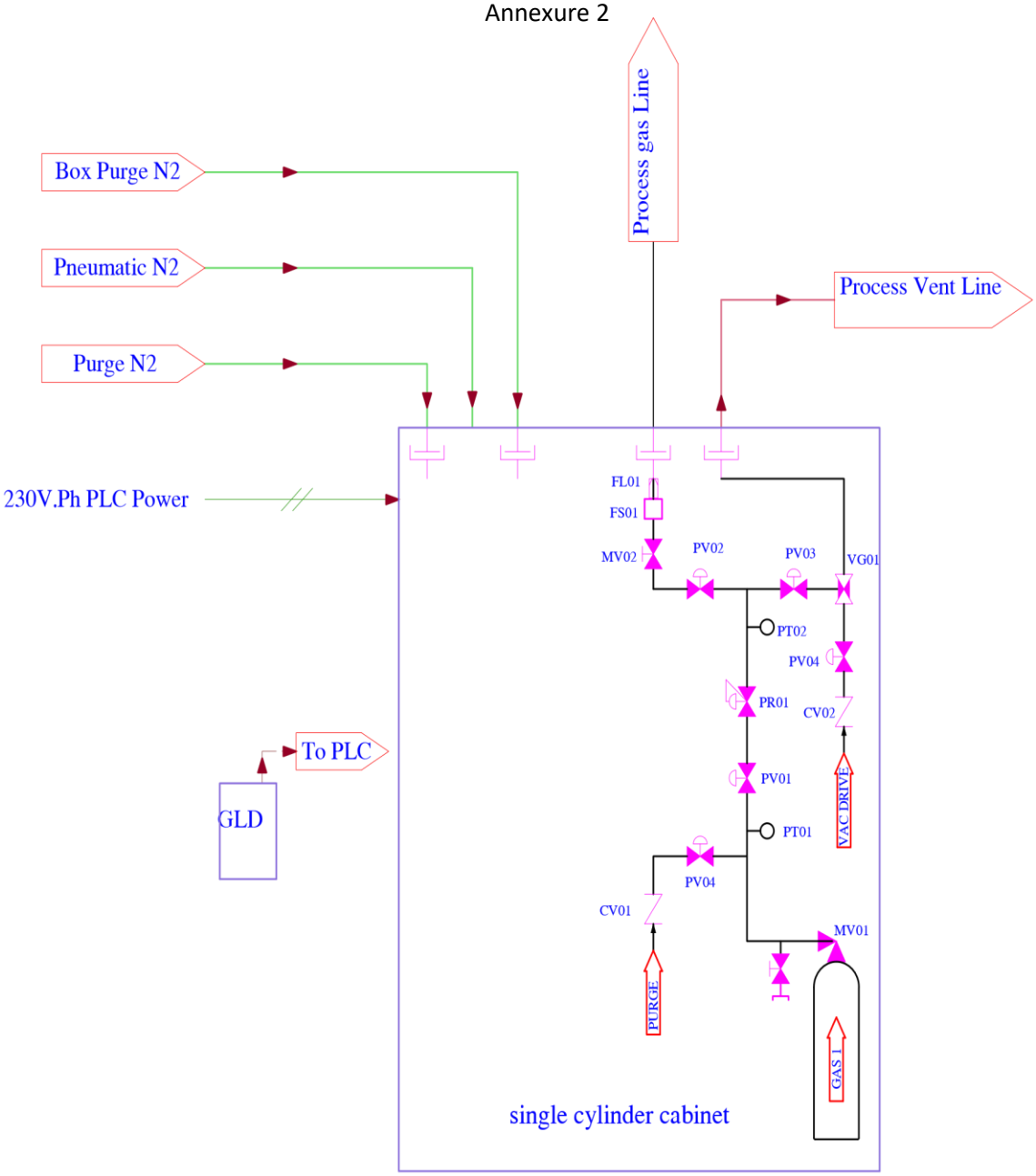
Technical Requirements

1	Application	Gas cabinets for a semiconductor foundry	
2	Industry type	Semiconductor lab	
3	Type	Fully Automated UHP Gas Cabinet	
4	Power	110-230 VA/3A, 50/60Hz (Wiring practices must comply with NFPA 70 and NFPA 496).	
5	Gases	NH3	Dual cylinder auto changeover panel
		C2H4	Single cylinder
		Sicl4	Single cylinder
6	Delivery Configuration	Independent Out	
7	Purge Configuration	External Purge Source	
8	Operating Temperature	0 to 50 deg. C	
9	**Cabinet Enclosure** : The cabinet Enclosure should meet the following specifications	a) The cabinet Enclosure should be of 11-gauge cold rolled steel. All seams must be fully welded.	
		b) The cabinet must be painted in rugged, corrosion resistant, textured, powder coated, light -gray polyurethane.	
		c) Automatic doors equipped with a self-closing, self-latching door, Lockable, fully gasket sealed doors.	
		d) Access door: Lockable, fully gasket sealed for internal manual adjustments	
		e) Windows: Fire rated, wire reinforced, transparent viewing windows	
		f) Quick response sprinklers designed to flow a minimum of 30 gpm (114 L/min).	
		g) Contoured cylinder clamps with limited slip cylinder straps.	
		h) Adjustable, perforated "flow through" cylinder shelves for flexible cylinder positioning.	
		i) 6" OD exhaust stub.	
		j) Filtered Intake louvers at the bottom of each door.	
		k) Anchor holes in all four corners of cabinet floor for bolts.	
10	**Control Enclosure**: The Control Enclosure should meet the following specifications	a) The control enclosure should be on top of the cabinet enclosure.	
		b) It must contain PLC and other electronics that automate, control, and monitor gas cabinet functions.	
		c) A constant "Z" purge to be provided for prevention against environment, fire and explosion hazards.	
		d) The control Interface used by operator should be in front of the control enclosure and holds the touch screen interface.	
		e) One highly visible locking mushroom button type EMO to be provided for immediately power down the cabinet.	

		f) Valve lockout switch for closing all the pneumatic valves with lock out and tag out option.
11	**Process Gas panel** : The Process Gas panel should meet the following specifications	a) The panel must be constructed of high quality, ultra-high-purity 316L or Hastelloy C-22 components and fittings.
		b) All components and other connections must be UHP orbital welded with strategic VCR® break.
		c) Components on panel must include pneumatically operated valves, excess flow sensors, Pressure regulator, Pressure gauges, Pressure transducers, vacuum venturi devices, check valves, inline gas filters, Pigtail with DISS/CGA, flow restricting orifices and weld fittings. As per **Annexure 2**
		d) All pneumatic valves are normally closed and rated for high pressure use.
		e) Excess flow sensors are proof-pressure rated to 5000 PSIG.
		f) Regulators are tied-diaphragm type and specified for HCL gas type.
		g) diaphragm valves should be springless.
		h) Transducers are NEMA 3 rated at a minimum and are proof-pressure rated for 1.2X of full scale.
		i) All UHP Components, subassemblies and final assemblies must be fabricated and tested in a class 100 or class 10 cleanroom
		j) Panel should pass the Helium leak tested to 1.0 x 10-9 atm*cc/s
12	Control Features	a) System should have a PLC which control of all critical functions
		b) Bright color touch screen interface with size >10”
		c) Proven auto-sequenced routines for all aspects of operations and maintenance
		d) User settable limits for all process and alarm parameters
		e) Exhaust pressure monitor
		f) On-screen warnings, alarms, prompting and instructions
		g) Gas cabinet should be equipped to generate all sorts of alarms and warnings to alert the user/people near the cabinet with sound and flash the lights on control panel.
		h) Gas cabinet should be able to communicate with Process equipment or a remote monitoring station (SCADA).
		i) Emergency Gas OFF (EGO) to be part of PLC input. Whenever required should be able to stop the delivery of Process gas and put the cabinet to safe condition.
		j) Gas leak inputs to be part to communications.
		k) Multi-level password protection for Maintenance mode and operation mode. Both the password should be shared.
		l) Cylinder weighting scale to be part of cabinet and weights to be display on main screen.

13	Gas leak Detection	The Gas cabinet should come with an onboard self-contained Gas Leak Detector which communicates with PLC. Preferable Make: COSMOS/HONEYWELL
14	Installation, Testing & commissioning	a) The Installation should be carried out by trained technicians.
		b) The Installation, testing and documentation procedure followed should be compliant to semiconductor standards.
		c) Necessary reports like Function test, Analytical test, Final QA and Transducer/Sensor/GLD/Scale calibration reports to be submitted.
		d) All electrical/circuit /piping schematic drawings to be submitted.
		e) Two set of User manual to be submitted.
15	Safety at site	The installation technician should follow all site safety terms. (Mandatary PPE: Safety helmet with face shield, electrical insulated gloves, electrical insulate Safety shoes.)
16	Standards to be followed for Machine.	a) Welding Qualification: **ASME Section IX**
		b) Safety Guidelines for Semiconductor Manufacturing Equipment : **SEMI® S2**
		c) Electrical standard : **NFPA® 79, 496, 70 [NEC®]**
		d) safety and property loss prevention : **Factory Mutual®**
		Vendor must submit the copy of certificate with technical bid.
17	Recommendation	a) The Vendor must submit references from at least 3 previous installations in similar scale semiconductor labs.
		b) The names and contact addresses of the referees must be submitted with the proposal, so the purchase committee can contact them independently. (Active mail ID and Phone Number is must).
18	After sales Service(during warranty Period)	a) The Gas cabinet must be checked for its proper functioning and if any defect is found the same must be rectified.
		b) The entire Gas cabinet piping system must be checked for any leak and attended to if necessary.
		c) Safety controls/logics will be tested for proper functioning and in case of any malfunctioning they will be either rectified or replaced accordingly.
		d) Main PLC board and software will be checked for their correctness and rectified.
		e) Breakdown calls must be attended within 48 hours.
		f) Software/PLC systems must be reliable and support for next 10 years.
19	Approved makes for gas components	a) Pressure Regulators: Parker, swagelok
		b) Diaphragm valves: Swagelok
		c) VCR: Swagelok
		d) Welded elbows: Swagelok
		e) Tubing: Swagelok
		f) Pressure Gauges: Wika
		g) Pressure transducers: Wika
		h) Inline filter: Pall
		i)Excess flow switch: Swagelok

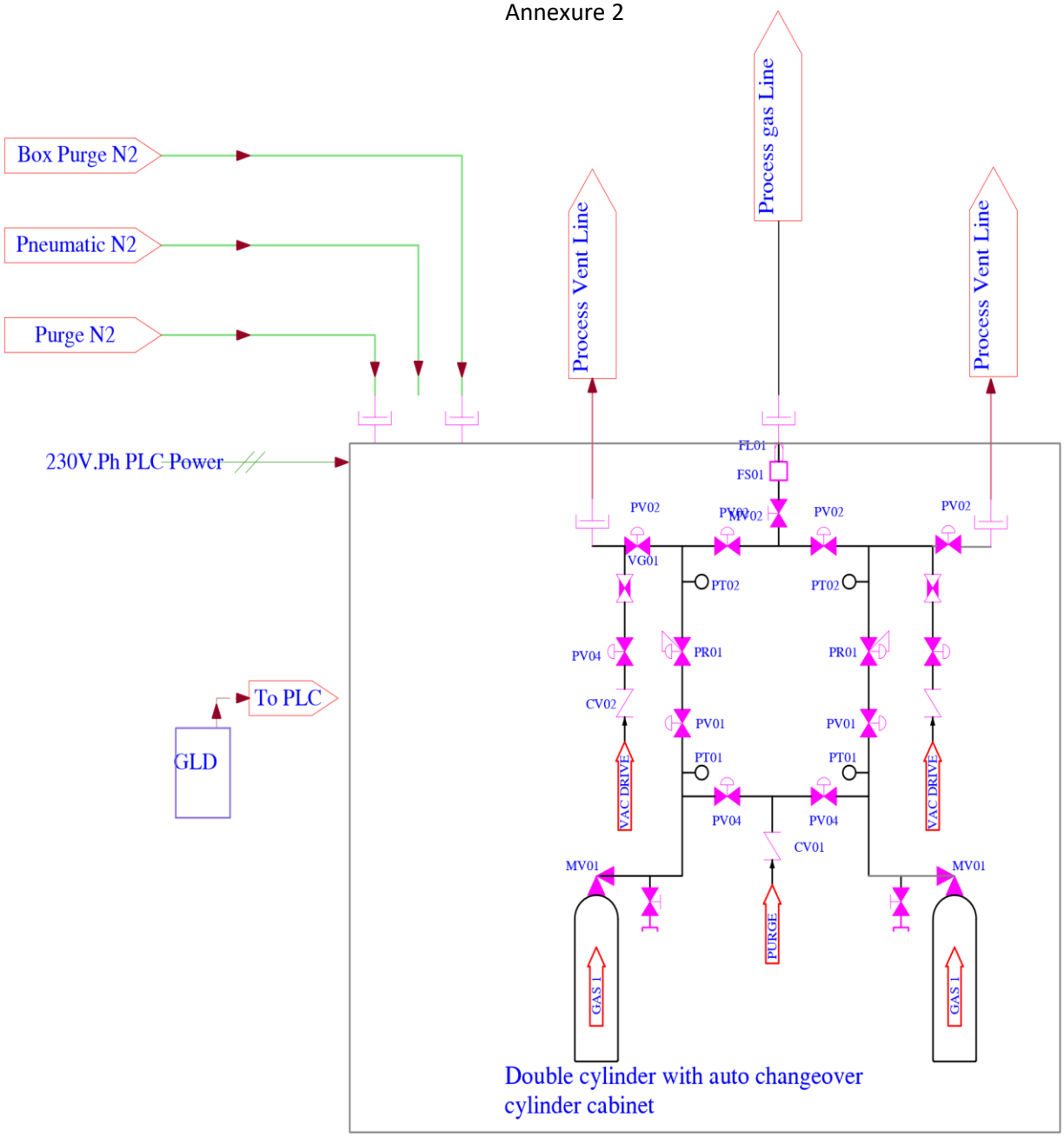
Annexure 2



LEGENDS:	DESCRIPTION
	Diaphragm Valve pneumatic
	NRV
	Pressure transducer
	Excess flow switch
	Pressure Gauge
	Filter
	Diaphragm Valve
	Ball Valve
	Gas regulator
	VCR Connector

PROJECT:-	Gas cabinet NNFC. CeNSE			
TITLE:-	Proposed P&ID FOR GAS CABINET			
this is a proposed P&ID for tender purpose.				
SCALE N.T.S.	NAME	DESG.	DATE	CLIENT
PREP. BY	GAJA	TM	16.06.22	

Annexure 2



LEGENDS:	DESCRIPTION
	Diaphragm Valve pneumatic
	NRV
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	Filter
	Diaphragm Valve
	Ball Valve
	Gas regulator
	VCR Connector
	HCL Gas Tube

PROJECT:-	Gas cabinet NNFC. CeNSE			
TITLE:-	Proposed P&ID FOR GAS CABINET			
this is a proposed P&ID for tender purpose.				
SCALE N.T.S.	NAME	DESG.	DATE	CLIENT
PREP. BY	GAJA	TM	16.06.22	
CHKD. BY	Savitha	CEO	16.06.22	
DWG. NO. GC_02			SH. NO. 01	REV. 01

Note:-

1. Vendor must submit **P&ID and GA** drawings for approval before fabrication.
2. Any type of Civil / Structural works such has making of wall openings/closing for the passage of pipes, supports, frame work etc.,will be in vendor/Contractor's scope.
3. Any Work permit/shutdown required for work must be intimated prior 5-6 days before start of work.

Thanking you,