

DEENDAYAL PORT AUTHORITY
MECHANICAL ENGINEERING DEPARTMENT

Date: _____

QUOTATION

Subject: Procurement of Nitrogen Cylinders and Pressure Reducing Skid System for 1 MW Hydrogen Plant Project at Kandla.

Sr. No.	Description	Unit	Qty.	Rates (Rs.)	Amount (Rs.)
1.	<p>Supply, Installation, Testing, Commissioning of Nitrogen Pressure Reducing Skid System along with Nitrogen Cylinders suitable for Nitrogen Gas flow: 110 Nm³, Cylinder outlet Pressure: 200 kg/cm²(g) or 150 kg/cm²(g) and Skid Outlet Pressure: 8 kg/cm²(g).</p> <p>Number of Cylinders: As required to meet the required flow, considering following as minimum requirement.</p> <ul style="list-style-type: none">(a) Manifolds(b) Pigtails(c) Hose Pipe(d) Isolation Block Valves(e) Pressure Reducing Valves(f) Safety Relief Valves(g) Non-return Valves(h) Pressure Gauges(i) Piping & Fitting(j) Structural support & Cylinders stand with Chain and Hook arrangement(k) Strainer(l) Ball Valve(m) Sunshade for Skid shall be provided for skids and cylinders(n) Counter flanges with necessary hardware for all the flange and connections(o) Tag plate as per requirement	Lot	01		

2	Nitrogen Cylinders for 110 Nm ³ . with Cylinders Outlet Pressure: 200 kg/cm ² (g) or 150 kg/cm ² (g) Number of Cylinders (Including Working + Spare): As required to meet the required flow.	No.	Bidder to Indicate		
3	Suitable Cylinder Rack with Sunshade for loose Cylinders No. of Rack shall be decided by Bidder.	Lot	01		
4	Mobile Trolley suitable for handling of four Cylinder	No.	01		
5	Painting of Skid shall be as per OEM standard Vendor to consider saline atmosphere for selection of painting.	LS	LS		
6	Hydro Test of Skid	LS	LS		
Total Amount (Rs.) (Excluding GST)					
GST Amount @ _____%					
Total Amount (Rs.) (Including GST)					

Total Amount in words:

Seal & Signature of the Agency

Note:

- 1. The bidder or agency may please note that two separate offers with N2 cylinders outlet Pressure 200 kg/cm²(g) and 150 kg/cm²(g) shall be submitted.**
- Items though not specifically mentioned but are required to make the system complete and safe trouble-free operation should be considered as included in the scope of bidder and must be mentioned in the offer unless otherwise specifically excluded in the offer.
- Any deviation from to be clearly indicated (Annexure – III).
- The Bidder shall submit the deviation, otherwise, it will be considered that the offer is in line with the mentioned specifications.
- All calculations/data sheets shall be submitted in soft editable (word, excel, AUTO-CAD or other tool) format.
- At all flanged terminal connections (wherever applicable) companion flanges together with gaskets & fasteners shall be supplied by the bidder.

TERMS & CONDITIONS

The subject work is for Supply, Installation, Testing and Commissioning of Nitrogen Cylinders and Pressure Reducing Skid System intended to be deliver and installed inside oil jetty no.07, Kandla.

Necessary statutory permit/approval along with fee, if required for Nitrogen Cylinders and Pressure Reducing Skid System shall be obtained by the bidder. Supplied cylinders must follow the applicable rules & regulation and certificate of the same shall be furnished by the bidder.

SCOPE & DESIGN REQUIREMENTS:

The scope of work covers Supply, Installation, Testing and Commissioning of Nitrogen Cylinders and Pressure Reducing Skid System and shall include design, engineering, manufacturing, shop painting, testing at manufacturer's works, proper marking & packaging (for transportation to site), loading of equipment and supervision of commissioning of Nitrogen cylinder along with pressure reducing skid.

INTENT OF SPECIFICATION:

This specification is intended to cover the minimum requirement for complete system design, engineering, manufacturing, material, shop inspection, testing at manufacturer's works, painting, packing for transportation, Supervision of Testing and Commissioning at site, site painting (if any), performance guarantee test of Nitrogen cylinder along with pressure reducing skid, with all equipment and accessories.

DESIGN & CONSTRUCTION REQUIREMENT:

Following are the system specific requirements, bidder's need to confirm during submission of offer (Annexure-II). However, bidder is free to offer anything over and above the minimum stated requirement based on design requirements.

The purity of Nitrogen gas shall be as below,

Humidity: < 1 ppm

Particles: < 0.1 mg/m³

Size: < 1 µm

The Block Flow Diagram (Attachment - I) illustrates the flow of nitrogen gas from a high-pressure cylinder, regulated by a pressure reducing skid, to the downstream process.

The Nitrogen Pressure Reducing System is to supply N₂ at controlled pressure to 1 MW Green Hydrogen Plant to preserve it in shutdown condition.

APPLICABLE CODES AND STANDARD:

All equipment, systems and services covered under this specification shall comply with all currently applicable statutes, regulations and safety codes in the area where the equipment will be installed. The equipment and systems shall also conform to the latest applicable standards specified. All codes and standards referred to in the specification shall be understood to be the latest version on the date of offer made by the bidder unless otherwise indicated. Nothing in this specification shall be construed to relieve the bidder of this responsibility. Publications of the following nationally recognized organization are applicable to the design, manufacture, and testing of the equipment included in the specification to the extent specified therein. Design, manufacture and testing of the Nitrogen cylinder and components thereof shall, unless specifically stated otherwise, conform to the following specific codes and standards as applicable, including its latest amendments subsequent to the date of publication as mentioned below.

- National Fire Protection Association (NFPA)
- International Standards Organisation (ISO)
- Bureau of Indian Standards
- Indian Explosives Act.
- Indian Factories Act
- All pipe to conform with ANSI/ASME/ASA pressure piping code and seamless type.
- Any other statutory codes / standards / regulations.

Pressure Measurement:

1. Performance Test Code for pressure measurement - ASME PTC 19.2 latest edition
2. Bourdon tube pressure and vacuum gauges - IS 3624, IS 3602, ASME B 40.1

Process Connection and Piping:

3. Codes for power piping ASME B31.1
4. Seamless carbon steel pipe ASTM A-106.
5. Forged and Rolled Alloy steel pipe flanges, forged fittings, valves and parts - ASTM A-182.
6. Material for socket welded fittings - ASTM A-105.
7. Seamless ferrite alloy steel pipe - ASTM A-335.
8. Pipe fittings of wrought carbon steel and alloy steel - ASTM A-234.
9. Composition bronze or metal castings - ASTM B-62.
10. Seamless copper tube, bright annealed ASTM B-168.

11. Seamless copper tube - ASTM B-75.
12. Dimensions of fittings - ANSI B-16.11.
13. Valves flanged and butt-welding ends - ANSI B16.34.
14. Nomenclature for Instrument tube fittings ISA-RP-42.1 - 1982.

The codes and standards specified above are indicative but not exhaustive. Any other equivalent code, subject to purchaser's approval. In case of any contradiction between the above standards and data specification sheets, the stipulation in the data sheets prevails and shall be binding on the bidder. Standards not indicated in the specification are acceptable subject to the approval of purchaser/ owner, if they are established to be equal or superior to the standards indicated in the specification. Metric units / SI units shall be used in all data / drawings submitted for this package.

BIDDER'S DOCUMENTS SUBMISSION:

- It is the responsibility of the bidder to get the required approval for all the drawings / documents submitted by the bidder to Employer.
- Approval of Drawings / documents does not absolve the bidder from the responsibilities for correctness of Design, Workmanship, Guarantee Performance, complete technical and contractual obligations / requirements.
- Any discrepancy / deviation / defect in the material or part thereof if noticed in future or the System / Equipment fails to comply with the requirements stated in various parts of technical specifications, the same shall have to be replaced / rectified by the bidder without any financial implication to the employer.

GENERAL CONDITIONS:

1. The work shall be completed within 10 days from the date of issue of work order. Successful agency has to immediately complete the procedures for issuing the gate pass from CISF on his own cost.
2. Liquidate Damage: In case of delay in completion of work, liquidate damage (LD) may be levied Rs.1000/- per day of delay or part thereof, subject to the maximum of 10% of the work order value.
3. The work order will be issued to the agency who quotes lowest amount.
4. All the Rules & Regulations governing Deendayal Port Authority will be applicable.

5. **Defect Liability Period:** The warranty period shall be valid up to twelve (12) months with effect from the date of completion of the work. The agency has to furnish undertaking in this regard.
6. The Performance Guarantee/Security Deposit equal to 5 % of the work order value shall be recovered from First & Final Bill. The same shall be refunded not later than 14 days from completion of defect liability period of 06 (six) months.
7. The complete responsibility for safe working of their staffs will be borne by the Agency. DPA will not be responsible for any loss, damage or accident to any of the staff.
8. The rates quoted shall be inclusive of all labour, materials, loading, unloading, certification of verification duties, taxes, levies, Transportation, tools, tackles, jigs and fixers etc. Except GST and no extra payment will be made for whatsoever reasons by Deendayal Port Authority.
9. The Agency shall quote the price exclusive of GST. The Contractor shall quote prevailing GST rate separately. GST shall be paid as per actual at the time of release of payment. All other duties, taxes, cess applicable, if any, shall be borne by the Contractor.
10. The payment shall be released, through RTGS/NEFT after completion of the work including its certificate of verification issued by the Legal Metrology Department within 30 days for which party has to submit the invoice and bank details also in triplicate. The bills must have GSTIN No. of the party (if registered under GST) as well as GST No. of DPA (GSTIN No. of DPA is 24AAALK0046N1Z6).
11. Income tax/Education cess as applicable shall be deducted at source.

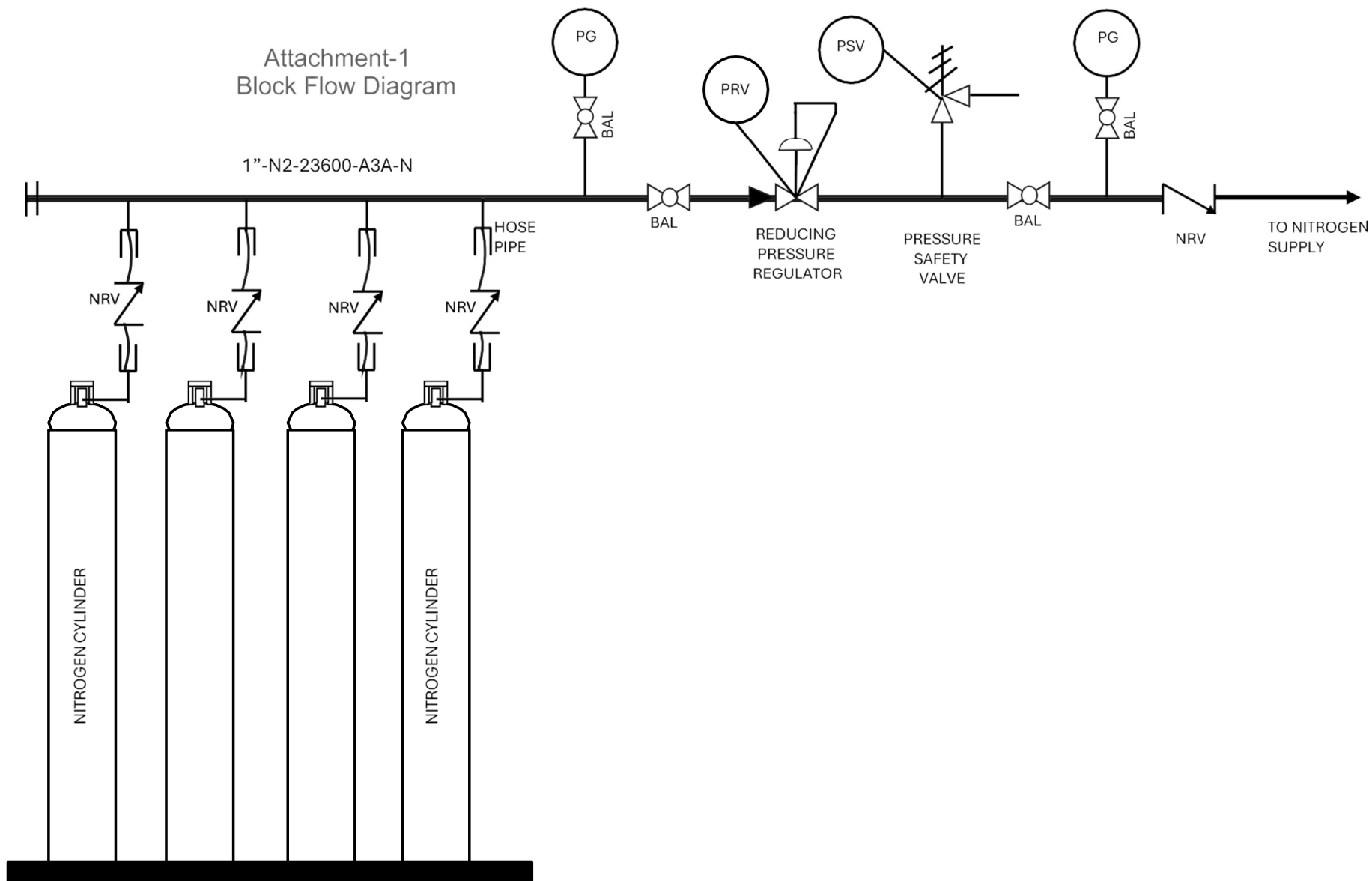
Sd/-

**Superintending Engineer(E)
Deendayal Port Authority**

Seal and Signature of Govt. Authorized

Repairer/Agency

Attachment-1
Block Flow Diagram



ANNEXURE - II

Sr. No.	Requirement	Bidder's Confirmation
1	Nitrogen Pressure Reducing System is used to reduce the pressure from 200 kg/cm ² (g) or 150 kg/cm ² (g) at which it is stored in cylinders to the required outlet pressure [8 kg/cm ² (g)] with flow rate of 110 Nm ³ .	
2	Duplex type seamless manifold shall have provision to connect all number of cylinders at a time for given skid capacity. Manifold shall be fitted with cylinder isolating valves to facilitate the connection/disconnection of cylinders without interrupting the supply of gas.	
3	Manifold shall be fitted with pressure gauge and isolation block valve.	
4	Manifold shall connect to N ₂ cylinders by using hose pipe.	
5	Hose pipe shall have a regulator connection and a connection to a manifold with a non-return valve.	
6	The pressure of N ₂ shall be reduced to desired pressure reducing valve (PRV).	
7	Safety relief valve shall be provided after PRV for safety of piping system against over pressurization.	
8	Pressure gauge shall be provided after pressure reduction.	
9	After pressure reduction there shall be NRV and isolation valve.	
10	The entire interconnecting pipe shall be of seamless type.	
11	For holding the cylinders, structural support/stand in MS with chain & hook arrangement shall be provided.	
12	Nitrogen Skid including cylinders shall be designed for the capacity of 110 Nm ³ [at 8 kg/cm ² (g)] to meet the required flow and balance as loose supply in bidder scope of supply.	
13	All valves and specialties shall have permanent stainless steel tag plate fixed on the body, indicating the service for which these will be used and the primary pressure and temperature rating & tag number as per Name plate procedure.	
14	All piping and fittings will be tested hydrostatically at the shops where manufactured, to test pressures which are given in the respective codes mentioned herein and elsewhere. All piping systems shall be tested hydrostatically after erection as per the data sheet mentioned elsewhere.	
15	Pipe supports, guides, anchors, including all structural steel sub-framing are in Supplier's scope of supply and the Supplier shall furnish the required drawings and BOQ for the above. Structural steel shall conform to ASTM/IS standard.	
16	The purchaser will provide two earthing points for the skid, while the rest of the interconnections inside the skid will be the responsibility of the bidder.	

ANNEXURE - III

[illegible]