

Tender ID-423374



**TECHNICAL SCOPE FOR THE FABRICATION AND SUPPLY OF 110 MBAR
(G25 & G40 DIAPHRAGM) INDUSTRIAL METERING SKID**

Document No : GGL/TS/IMS-110MBAR/2018/001

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1. OVERVIEW

Gujarat Gas Limited, hereinafter referred to as GGL, is a Group Company of Gujarat State Petroleum Corporation Ltd., (Government of Gujarat undertaking) supplies natural gas to automobile, industrial, commercial and domestic consumers including CNG stations in various Geographical Areas as per authorisation from Petroleum and Natural Gas Regulatory Board (PNGRB). GGL procures Industrial Metering Skid (hereinafter referred to as IMS) and installs it for supplying natural gas to Industrial customers.

This specification is intended to establish the minimum technical requirements to fabricate and supply Industrial Metering Skid with outlet pressure 110 mbar for the pressure class ANSI 150.

The scope of document includes design, material selection, manufacture, supply, inspection, testing, marking, packaging, handling, despatch of IMS.

2. DEFINITIONS

In the Bid / Contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires.

- a. The **"GGL"** or **"Company"** or **"Owner"** shall mean GUJARAT GAS LIMITED (GGL), incorporated under company's Act 1956 having its registered office at Gujarat Gas CNG Station, Sector5/C, Gandhinagar-382006, Gujarat, hereinafter mentioned as **"OWNER"** which expression shall, unless repugnant to the context or meaning or meaning thereof, include all its successors, administrators, executors and assigns.
- b. The **"Bid"** shall mean the offer submitted by the CONTRACTOR for acceptance by the GGL. The **"Contract"** shall mean the agreement and all other documents between the company and the contractor for providing the services mentioned herein.
- c. The **"Vendor"** shall mean the person or persons, firm or Company whose Bid has been accepted by GGL
- d. The **"Supervisor" OR "work in charge"** shall mean the person deployed by the contractor for control & supervision of the work of his work force, as per the Scope of work mentioned and to receive instructions from OWNER's Engineer-In-Charge or his representative.
- e. The **"GGL Engineer-In-Charge"** or **"GGL's representative"** shall mean the person designated as such by the Gujarat Gas Limited and shall include his authorized nominee or agent, provided however that the GGL's Representative to be so designated by GGL may be one person for certain aspects of this agreement and another person for other aspects of work covered by this Bid / Contract.

- f. **"Stores"** shall mean the Companies Stores located at various location of Gujarat.
- g. The **"Specification"** shall mean all directions, the various technical specifications, provisions attached and referred to in the Bid documents which pertain to the method and manner of performing the work or works to the quantities and qualities of the work or works and the materials to be furnished under the contract or works or works as may be amplified or modified by the COMPANY during the performance of Contract in order to provide the unforeseen conditions or in the best interests of the work or works. It shall also include the latest edition of relevant standard specifications including all addenda / corrigenda published before entering into the contract.
- h. **"Guarantee"** shall mean the period and other conditions governing the warranty / guarantee in respect of the work as detailed in section hereunder.
- i. **"HSE"** shall mean Health, Safety & Environment.
- j. **"GGL's Premises"** or **"Owner's Premises"** shall mean company's premise or its customer's premises where work is to be executed.
- k. **"OEM"** shall mean Original Equipment Manufacturer

3. REFERENCE CODES AND STANDARDS

Unless otherwise specified in this document or elsewhere in tender, the vendor shall take reference of latest version of following codes and standards.

PNGRB Pipeline Standard :	Technical standard and specifications for Natural Gas Pipelines (T4S-Pipeline)
ASME B 31.8	: Gas Transmission & Distribution piping systems
IGE/TD/13	: Pressure regulating installations for Natural Gas, Liquefied Petroleum Gas and Liquefied Petroleum Gas/Air
EN 14382	: Safety devices for gas pressure regulating stations and installations – Gas safety shut-off devices for inlet pressures up to 100 bar
EN 88-2	: Pressure regulators and associated safety devices for gas appliances. Pressure regulators for inlet pressures above 500 mbar up to and including 5 bar

4. DESIGN PROCESS PARAMETERS FOR IMS

The Industrial skid shall be designed for the process conditions as per enclosed Annexure-17

5. PROCESS ENGINEERING FOR IMS:

The Industrial Metering Skid (IMS) shall consist of following equipment's and shall be as attached P & ID.

A. VENDOR's SCOPE OF SUPPLY:

Below materials are in vendor scope and same shall be supplied as per GGL approved datasheet, GGL Piping material specification and from GGL approved vendor-

- Brass Ball Valves
- Pressure Gauge
- Base frame with FRP canopy
- Strainer
- Pipes, fittings and flanges
- PE-Steel Transition Fitting
- Regulator

B. GGL SCOPE OF SUPPLY:

- Diaphragm Meter for 110 mbarg skid (G25 & G40)

Note:-

- Inlet and outlet line sizes of IMS are sized considering limiting velocity as per Annexure-17.
- Diaphragm Meter will be issued to Vendor by GGL. Meter to be installed at the Vendor premises. It shall be responsibility of vendor, after taking custody from GGL, to ensure safe & proper handling, storage and assembly without hampering integrity and performance.

SKID PROCESS:

The systems are continuous operation type for Natural Gas Conditioning. The skid can be basically considered to be in 2 sections:

➤ **Section-1: Pressure Regulation**

Pressure reduction from 0.5 to 5.5 barg to 110 mbarg using regulator.

➤ **Section-2: Metering**

Flow measurement is carried out using Diaphragm meter at maximum 110 mbar as per requirement.

6. VENDORS SCOPE OF WORK AND SUPPLY:

- The VENDOR shall be responsible for material selection, design, engineering, fabrication, FAT (Factory Acceptance Test), supply including loading and unloading at site, supply of documentation of skids comprising of complete assembly, NDT report, excluding free issue material supply by GGL i.e. diaphragm meter.
- VENDOR at no additional cost to GGL shall arrange the class room as well as field training for GGL O&M personnel.
- Vendor shall be responsible for stage wise in-process and final Inspection upto dispatch clearance of IMS as per GGL approved QAP.
- Vendor shall supply integrated IMS along with meter, regulator and transition fitting.

- VENDOR shall be responsible for collecting the meter from GGL store. Once the vendor will take custody of free issue materials from GGL store, it shall be his/her responsibility to ensure to ensure safe & proper handling, storage and assembly without hampering integrity and performance of products. Transportation of meter (including transit assurance) from GGL store to VENDOR workshop is under the scope of VENDOR. No additional charges will be paid by GGL for transportation and installation of meter.
- VENDOR shall be sole responsible for the material selection, design, engineering, and supply to the designated delivery point and performance testing of IMS as per the data sheet and specification furnished and taking into consideration successful operation, safety as per the established international standards.
- VENDOR shall perform all the inspection and tests as per the GGL approved QAP.
- VENDOR shall perform applicable Non-destructive examinations as per ASME section V, ASME B 31.3 & GGL approved QAP.
- VENDOR has to supply the general items as per below minimum specifications and approval of detail specification shall be taken by the VENDOR during document approval stage-
 - a) U Clamp shall be PVC coated. Bolt size shall be 8 mm.
 - b) Tag plate dimension shall be 25mm x 15mm with thickness 0.5 mm and material of tag plate shall be Aluminum.
 - c) Silicon Jelly shall be used for sealing.
 - d) HDPE sheet of thickness 5 mm shall be used as Insulation pad.
- VENDOR shall provide proper tagging for IMS and all other equipment associated to the IMS Skid.
- VENDOR shall ensure that all the design details along with the manufactures name with serial no's are incorporated while tagging is done.
- VENDOR shall ensure that the tagging plates are painted/platted with dry granule type material which shall be preventive to any type of corrosion.
- VENDOR shall provide TPI review certification along with release note to get approval for material dispatch.
- VENDOR shall be responsible for replacement/repairing of skids if any part of skid are found damaged during unloading at site or store with no cost to GGL.
- VENDOR shall provide all test certificate and inspection reports of supplied/ bought out materials.
- VENDOR shall design a skid in such a way that all equipment's & valves of the assembly shall be easily accessible for O&M.
- Functional testing of the skid shall be carried out as per the GGL approved functional test procedure.
- VENDOR shall supply the necessary repair kit and consumables required as part of commissioning process with no cost to GGL.
- Any soft material used shall be able to retain its functional properties for minimum period of 18 months from the date of dispatch.
- VENDOR shall adopt standard operating procedures for fabrication of skids.

- VENDOR shall provide proper packaging of all equipment, piping, appurtenances and styrene packing to safeguard all components of the skid during transportation.
- Inlet / outlet connections as well as opening are to be closed using plastic caps/ covers.
- VENDOR shall furnish the details of foundation and grouting pockets requirement. Supply of foundation bolts of adequate strength is in the scope of the VENDOR.

7. SPECIAL NOTES

- Isolation valves for PG shall be ½" Ball Valve (NPT).
- Supply of foundation bolts is under Bidder's Scope. Supplier to provide Foundation Bolt Hole size and location details.
- Lifting lugs shall be provided properly as per Centre of gravity of the skid. Lifting Procedure to be recommended by the Vendor and approved by GGL prior to Dispatch.
- For equipment not manufactured by the Bidder, OEM accredited Certification is required for consent on service, supports, spare & maintenance.
- Sound pressure levels shall be limited to the values prescribed by Environmental Authorities but in no case it shall exceed 70 dbA. VENDER shall provide noise suppression treatment to limit the noise level.
- Vendor shall provide earthing provision (Earthing boss of material SS304) at Base frame of the skid.
- Factory Acceptance Test (FAT) for the Skid shall be witnessed by TPIA.
- The general arrangement of the skid shall be of compact design.
- TPI for regulator inspection will be in scope of bidder at regulator manufacturer's premise.
- The canopy shall be designed in such a way that it shall accommodate the metering block and shall have ease for O&M activities. The design of canopy shall be such that all possibility of thefts or pilferage are avoided. The glass window shall be retractable and shall be sealed to water and dust proof. The canopy material shall be suitable for outdoor installation and resistant from all-weather environment.
- All piping, pipe fittings & fasteners to be used are hot dip galvanized.
- Size of the base-frame and Canopy shall be as per the enclosed GAD. Base frame and Support shall be provided as per the enclosed GAD. However, vendor shall submit GAD to GGL for approval.

Base frame drawing shall be submitted with minimum following details-

- a) Base frame plan with location of Support, Earthing Bole, Lifting Lug plate, Support base plate, foundation base plate etc.
- b) Support drawing for each type of support
- c) Lifting lug drawing
- d) Earthing Bole
- e) Foundation base plate
- f) Support base plate

- Vendor shall provide Copper jumper plate at all flange joints of the skid as per the dimensions given below-

Nominal Pipe Size (mm/Inch)	150 Class Flange		
	Copper plate length (mm)	Copper Strip Width (mm)	Copper Strip Thickness (mm)
15 (1/2")	115	25	3
20 (3/4")	120	25	3
25 (1")	120	25	3
40 (1 1/2")	125	25	3
50 (2")	135	40	3

8. QUALITY ASSURANCE

The Vendor shall submit below tabulated documents after getting firm order from Owner for review and approval as per the requirement mentioned in the table. VENDOR shall be responsible for the submitting all drawing and technical documents including QAP to Gujarat Gas Limited for approval **within 15 days after placement of order**.

S. No.	Document	Requirement
Engineering		
1	P& I Diagram	GGL Approval
2	GAD Drawing (IMS and Regulator both)	GGL Approval
3	Bill of Material	GGL Approval
4	Painting Specification	GGL Approval
5	WPS/PQR	TPI Approval
Quality		
1	Quality Assurance Plan	GGL Approval
2	Factory Acceptance Test Procedure and Report	GGL Approval
3	Hydrotest Procedure & report	GGL Approval
4	Non Destructive Examination	GGL Approval
Civil & Structural		
1	Detail of Base Frame including size	GGL Approval
2	Name Plate	GGL Approval
3	Canopy Drawing	GGL Approval
Other items		
1	Specifications for general items like U clamp sleeve, tagging, insulation padding, canopy window glass, sealant jelly	GGL Approval

- Prior to dispatching of materials, Vendor shall offer material to GGL/GGL representative for final acceptance test as per GGL approved QAP at their premise following for review of GGL/GGL representative at the time of final inspection at Vendor premise prior to dispatch of materials.
- The vendor is entirely responsible for the quality, integrity and performance of the skid manufactured by them.

- VENDOR shall provide all testing report as mentioned in Quality Assurance Plan (QAP) for review during FAT. Also all tests to be certified out during FAT shall be witnessed by GGL/GGL representative.
- VENDOR shall provide WPS & PQR before commencement of fabrication job for approval.
- VENDOR shall procure bought out items from approved Vendors with Gujarat Gas Limited.
- For any control test or examination required under the supervision of GGL/GGL representative, Vendor shall inform in writing 10 GGL working days in advance about inspection date & place along with production schedule.
- **Third Party Inspection (TPA)** for in-process and final Inspection upto dispatch clearance of IMS as per GGL approved QAP and Technical Specification is in GGL scope.

9. DOCUMENT HANDOVER

MANUFACTURER shall also submit the 1 sets hard copies and one (1) digital copy on Compact Disc of following documents along with shipment of skid and one (1) digital copy to GGL HO.

- Approved Bill Of Material;
- Approved P&I Diagram;
- Approved Cross Section Drawing;
- Approved Quality Assurance Plan;
- Material test certificates (physical property, chemical composition, make, heat treatment report, etc.) as applicable for items in nicely bound volumes.
- Traceability Records (including welding rods);
- Statutory test certificates, as applicable.
- WPS, PQT & WQT records wetted by TPIA;
- Dimensional Check Report;
- Non Destructive Test Report: RT, UT & MPT
- Pressure Testing Certificate: Hydrostatic & Pneumatic Test;
- Performance / Functional test Certificate;
- Painting Specification and Report;
- Inspection & test reports for all mandatory tests duly certified by Gujarat Gas Limited authorized TPI/representative after review/witness as per the applicable code as well as test reports for any supplementary tests, in nicely bound volumes.
- VENDOR shall provide Purchase orders of bought out items along with all TCs.
- Mechanical Gauge / Instrument Calibration Certificates;
- Warranty Certificate;
- FAT Procedure and Report;
- TPI approved Inspection Release Note;
- Equipment Design, sizing & Calculation Documents;
- Valve Documentation;
- Equipment & Instrument Data Sheets;
- Operation and maintenance instruction manual & requirements;

- Typical Noise Assessment & Control Report;
- Typical Hazardous Area Classification;
- Original Equipment / instrument catalogues;
- Un-priced Purchase order of all the bought out items;
- Compliance certificate in line with GGL Bid;
- Other information which MANUFACTURER seems necessary.
- Consolidate Exception / Deviation Report;
- Start-up and Commissioning Procedure;
- Summary report which includes all the test as per QAP, TC/Report number, Observed values of tests

10.WARRANTY PERIOD

WARRANTY periods are defined as 12 Months from the date of commissioning of IMS (or) 18 months from the date of delivery of IMS.

Note:

- No additional charge will be paid during warranty period for supply and replacement of any item in the skid.

11.ANNEXURES

ANNEXURE-01	TYPICAL PIPING & INSTRUMENTATION DIAGRAM (P&ID)
ANNEXURE-02	TYPICAL GENERAL ARRANGEMENT DRAWING (GAD)
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