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,Econnect Id : 15443 Approved by: Nagendra Kishore Verma on 27/08/2020
Approval Note Ref No:GGL/TS/2020/AUG/04

1. INTRODUCTION

Gujarat Gas Ltd, is a Group Company of Gujarat State Petroleum Corporation Ltd., (State Government undertaking), is in business of distributing Natural Gas to Industrial/Commercial and Domestic Customers and CNG Stations in various cities authorized to GGL by PNGRB Viz: in the state of Gujarat, Maharashtra, Punjab, Haryana, Rajasthan, Madhya Pradesh and Union Territory of DNH etc.

The present document covers the minimum specified requirement for supply of CNG dispenser prover meter and accessories.

2. DEFINITION

Definitions of the terms used in this bid document, (unless the context otherwise requires), shall have the same meaning as respectively assigned hereunder.

The "**GGL**" or "**Company**" or "**Owner**" shall mean GUJARAT GAS LIMITED (GGL), incorporated under company's Act 1956, having its Corporate Office at Ahmedabad 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.
The "**Bid**" shall mean the Bid submitted by the service provider/ bidder for acceptance by the GGL.
The "**Contract**" shall mean the agreement and all other documents between the company and the bidder/ service provider for the execution of the works including supplies mentioned herein.
The "**Bidder**" shall mean the person or persons, firm or Company whose Bid has been accepted by GGL and includes the Service Provider's legal representatives, his successors and permitted assigns.
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.
The "**Vendors**" shall mean a manufacturer/company who engaged agreement between the GGL and the Manufacturer for supplying the Material at GGL Designated store or Site through the transporter with required documents.
"**Stores**" shall mean the GGL Stores located across GGL working areas.
"**Site**" shall mean the various CNG Stations/ lands/ other places where work is to be carried out for the purpose of contract.
"**Approved**" shall mean approved in writing including subsequent written confirmation of previous verbal approval and `**Approval**' means approved in writing including as aforesaid.
"**Third Party Inspection Agency**" (TPIA) shall mean outside inspection agency approved by the GGL.
"**Third Party Inspector**" shall mean outside inspector from GGL approved third party inspection agency.
"**Guarantee**" means the period and other conditions governing the warranty/ guarantee in respect of the work as detailed in section hereunder.

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3. SCOPE OF SUPPLY:

Design, Manufacturing, Testing at works, Inspection, Packaging, Dispatch of portable type CNG Dispenser prover meter with master mass flow meter. Minimum requirement is as follows;

3.1 Flow meter to be provided shall be Micro motion/Endress and Hauser type with Calibration certificate for master meter suitable for CNG application.

3.2 Prover body should be made of either aluminium or SS.

3.3 Glycerine filled pressure gauge with 4” or 63 mm dial and 0-400 barg pressure range.

3.4 Inlet of prover meter consists of three fix type of connections/receptacle, one each for NZS type, NGV 1 type Car nozzle & NGV1 type Bus Nozzle (as per pic. shown below).

3.5 Non Return valve to be provided after each type of connections/receptacle at Inlet of the Prover Meter (as per dia.1).

3.6 Outlet of prover meter consists of quick release coupling with male connector.

3.7 3.8 meter long ½” dia. electrical conducive hose with NGV1 type nozzle fitting for Bus Filling (OPW CT 5000 series/ WEH) at one end and quick release coupling with female at another end of the hose.

3.8 One 3.8 meter long 3/8” dia electrical conducive hose with 3-way ball valve and NZS nozzle at one end and quick release coupling with female connector at another end of the hose.

3.9 Isolation valve at Inlet & Outlet of prover meter.

3.10 All hoses, tubes & fittings, connections, valves and other parts should be tested at 5000 psig and suitable for operation at 3600 psig.

3.11 Construction of Material for Prover meter carry case/body shall be light in weight at the same time it should comply the required Area classification as mentioned in the below clause.

3.12 Prover meter shall be suitable for area classification: Hazardous area, Class 1, Division 1, Group D as per NEC or Class 1, Zone 1, Group IIA/IIB as per IS/IEC, Temperature Class T3, And completely enclosed in a securely lockable dispenser cabinet.

3.13 Chargeable battery to be provided along with the Prover meter to provide power to mass flow meter.

3.14 Suitable charger and charging arrangement to be provided with the prover meter.

3.15 Bidder to provide all test certificates including calibration certification for mass flow meter

3.16 Bidder to submit FCRI calibration certificate for mass flow meter and other applicable calibration certificate suitable for CNG applications in India.

3.17 Validity of calibration certificates should be one year from the date receipt of material at GGL site/ store.

3.18 Bidder to provide all test certificates for high pressure hose, tubes & fittings.

3.19 Bidder to provide area classification certificate for mass flow meter & other electrical parts and all area classification certificate should be reviewed by TPI.

3.20 Bidder to provide conformity certificate for suitability for use of high pressure & area classification and conformity certificate should be reviewed by TPI.

3.21 Bidder to provide the operation and troubleshooting manual with prover.

3.22 Bidder shall provide the provision for earthling of prover body.

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4. Quality Assurance (QA)

i. The Contractor/Manufacture /Vendor shall submit bill of material, P&ID, GAD and QAP after getting firm order from Owner prior to inspection for their review and approval. Prior dispatching of materials, vendor shall carry out final acceptance test at their premise.

ii. The manufacturer is entirely responsible for the quality of the Mass flow meter prover manufactured by them.

iii. All control checks prescribed above do not relieve him of his responsibility.

iv. Third party inspection agency cost shall be borne by the bidder. **Third Party Inspection (TPA)** for in-process and final Inspection upto dispatch clearance as per GGL approved QAP and Technical Specification is in GGL scope.

v. Bidder shall preform all functional check in the presence of TPI and/or GGL representative.

vi. Bidder to provide all area classification certificate during inspection and all area classification certificate should be reviewed by TPI.

vii. Material TC should be reviewed by TPI and Bidder shall submit all materials test certificate (TC) to GGL before dispatch clearance.

viii. Bidder need to submit inspection release note issued by TPIA to GGL for dispatch clearance.

ix. Bidder to demonstrate the calibration / proving activity at site for at least one mass flow meter/dispenser.

x. Bidder shall preform hydro test in presence on TPI and/or GGL representative. Hydro test pressure should be more than 1.5 time working pressure (i.e. working pressure 255 bar).

5. DOCUMENT HANDOVER

Bidder shall also submit the following documents to GGL, but not limited to.

- Approved P&I Diagram and GAD;
- Approved Bill Of Material;
- Approved Quality Assurance Plan;
- Material test certificates (physical property, chemical composition, make, heat treatment report, etc.) as applicable for items in nicely bound volumes.
- PESO or any other statutory test certificates, as applicable.
- Dimensional Check Report;
- Hydro test report
- Pressure Testing Certificate: Hydrostatic & Pneumatic Test;
- Performance / Functional test Certificate;
- Inspection & test reports for all mandatory tests duly certified by Gujarat Gas Limited authorized representative after review/witness as per the applicable code as well as test reports for any supplementary tests.
- Mechanical Gauge / Instrument Calibration Certificates (wherever applicable);
- Warranty/Guarantee Certificate;
- FAT Report;
- TPI approved Inspection release Note;
- SS Tubing, fittings and Valve Documentation;

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- Operation and maintenance instruction manual & requirements;
- Compliance certificate in line with GGL Bid;
- Other information which MANUFACTURER seems necessary.
- Summary report which includes all the test as per QAP, TC/Report number, Observed values of tests

Mass Flow Meter Prover Data Sheet

Sr. No.	Description	Required Specification
1.00	**General**	
1.01	CNG pressure at inlet of Prover	255 kg/cm^2(g) Max.
1.02	Fill Pressure	200 kg/cm^2(g)
1.03	CNG operating temperature	0° C to + 58° C max.
1.04	CNG temperature of filling	Ambient
2.00	**Mass flow meter**	
2.01	Metering principles	Coriollis type with local display. Local display shall be locked for local setting
2.02	Make	Mircomotion, Endress+ Hauser
2.03	Model	*
2.04	Batch delivery accuracy	± 0.5% of batch
2.05	Mass flow accuracy for gas meter	±0.5 % (Inclusive of linearity, hystersis and repeatability errors)
2.06	Repeatability	0.25%
2.07	Calibration traceability	To NIST as per ISO 5168
2.08	Process temperature effect influence	±0.01% of nominal flow rate per degree C on zero offset
2.09	Surge and frequency transient effect	Shall be in compliance with ANSI/EEE (EFT)c 62.41
2.10	EMI effect on sensor and transmitter	To the requirement of EMC directive 89/336/EEC,EN 50081-1 , IEC/EN 61326
2.11	Vibration effect	As per SAMA PMC 31.1
3.00	**Electrical**	
3.01	Area Classification	Hazardous area, Class 1,Division 1, Group D as per NEC or Class 1, Zone1, Group IIA/IIB as per IS/IEC, Temperature Class T3
3.02	Battery	Rechargeable; suitable for Hazardous area & relevant standards.
3.03	Battery Back-up	Minimum 5 hr
3.04	Power required for battery	AC 230 volts ± 10%, 50Hz + 3%

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3.05	Instruments	IEC 60079 and the Latest relevant Standard
4.00	**End Connections of Prover**	
4.01	Inlet at Prover-1	Receptacles for NZS type for car
4.02	Inlet at Prover-2	Receptacles for NGV1 type for Car
4.03	Inlet at Prover-3	Receptacles for NGV1 type for Bus
4.04	Outlet at Prover	Quick Release Coupling-Male type
4.05	Pressure Rating barg	250
5.00	**Hoses**	
5.01	Applicable standard for hoses for CNG dispensing	CSA 12.52, CSA 12.54 and NZS
5.02	Approved make for hose	Parker or Swagelok or Synflex (Eaton) or SSP
5.03	Type	Steel Reinforced, electrically conducive; temp :-40 'F to 150' F; NGV hose, ANSI/ IAS
5.04	Pressure rating(Kg/cm2 g)	350
5.05	Size	3/8 " ID for Car 1/2" ID for Bus
5.06	Length of Hose (length higher or lower than what is specified shall not be acceptable)	3.8 meters each
6.00	**End Connection of Hoses**	
6.01	Filling end - Car	With 3-way ball valve & NZS probe
6.02	Filling end - Bus	NGV1 nozzle for Buses(OPW CT-5000,WEH or similar)
6.03	Receiving end	Quick Release Coupling-Female type.
7.00	**Fill Nozzle**	
7.01	Nozzle Type for Car	NZS type with NGV 1 – Type 2 Class A compatible adaptor
7.02	Nozzle Type for Bus	NGV fill nozzle for bus
7.03	Make for Car Nozzle	Standard/Staubli
7.04	Make for Bus Nozzle	OPW/WEH
8.00	**Non Return Valve (NRV)**	
8.01	Make	**Parker, Swagelok, TGT/ Compac/ SSP**
8.02	Pressure Rating in psi	6000
8.03	Size	1/2" OD
9.00	**Quick Release Coupling**	

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9.01	Make	**Parker/ Eaton/ Swagelok**
9.02	Pressure Rating in psi	6000
9.03	Size	3/8" OD
10.00	**SS Fittings and Ball Valve**	**Swagelok/ Parker/ SSP USA/ Ham-let/ Hylok**
11.00	**SS Tube 1/4", 1/2", 3/4"**	**Sandvik/ Tubacex**
12.00	**Third Party Inspection Agency**	**Lloyds/ KPMG/ SGS/ BVQI/ DNV/ TUV/Davy Power Gas/ GLIS/ICS/GGL Approved TPI**

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