HPOIL GAS PRIVATE LIMITED
(A JOINT VENTURE OF HPCL & OIL)

SUPPLY OF COMMERCIAL DIAPHRAGM GAS METER AND REGULATOR AT AMBALA-KURUKSHETRA AND KOLHAPUR GA

TECHNICAL VOLUME

TENDER NO. HOGPL/2025-26/C&P/016
DATE: 22.08.2025

MATERIAL REQUISITION:

Design, detail engineering, manufacturing, assembly, supply, factory testing, inspection (as defined in specification) of Commercial Natural Gas Meters/Regulators, including marking, packing, forwarding, insurance, handling, transportation, loading/ unloading at sites/ design at ed store, documentation. The above activities are complete in all aspects, as per Technical Specification.

SR No	Product	UOM	Quantity
PART A: COMMERCIAL REGULATOR AT AMBALA-KURUKSHETRA GA			
1.1	Commercial Gas Regulator: Inlet 0.5 to 6bar, Outlet -300 mbar & Flow - 10SCMH	Nos	26
1.2	Commercial Gas Regulator: Inlet 0.5 to 6bar, Outlet -300 mbar & Flow - 16SCMH	Nos	21
1.3	Commercial Gas Regulator: Inlet 0.5 to 6bar, Outlet -300 mbar & Flow - 40SCMH	Nos	9
1.4	Commercial Gas Regulator: Inlet 0.5 to 6bar, Outlet -300 mbar & Flow - 100SCMH	Nos	7
1.5	Commercial Gas Regulator: Inlet 0.5 to 6bar, Outlet -500 mbar & Flow - 16SCMH	Nos	7
1.6	Commercial Gas Regulator: Inlet 0.5 to 6bar, Outlet -500 mbar & Flow - 25SCMH	Nos	3
1.7	Commercial Gas Regulator: Inlet 0.5 to 6bar, Outlet -500 mbar & Flow - 40SCMH	Nos	11
1.8	Commercial Gas Regulator: Inlet 0.5 to 6bar, Outlet -1 bar & Flow - 25SCMH	Nos	1
PART B: COMMERCIAL DIAPHRAGM GAS METER AT AMBALA-KURUKSHETRA GA			
2.1	Commercial Diaphragm Gas Meter G6(500mbar) wall mounted with adapter	Nos	24
2.2	Commercial Diaphragm Gas Meter G10(500mbar) wall mounted with adapter	Nos	26
2.3	Commercial Diaphragm Gas Meter G10 (1bar) wall mounted with adapter	Nos	1
2.4	Commercial Diaphragm Gas Meter G25(500mbar) wall mounted with adapter	Nos	7
PART C: COMMERCIAL REGULATOR AT KOLHAPUR GA			
3.1	Commercial Gas Regulator: Inlet 2 to 4 bar, Outlet Pressure – 1-2 bar & Flow – 100 SCMH	Nos	23

Note:

Bidders to note that, Third Party Inspection is to be included in the quoted prices. Arranging Third Party Internationally recognized Inspection agencies like Lloyds, ABS, SGS, TUV, DNV, BV, Engineers India Limited, or any other Third-Party Inspection agency only with prior approval of HPOIL Gas, for witnessing inspection and testing at the works of the manufacturer is in the scope of the bidder.

GENERAL TERMS:

1. **COMPLIANCE WITH SPECIFICATION**
The vendor shall be completely responsible for the design, materials, fabrication, testing, inspection, preparation for shipment and transport of above equipment strictly in accordance with the Material Requisition and all attachments thereto.

2. **VENDOR'S SCOPE**
Vendor scope of work includes the equipment with all internals and accessories shown on the data sheets, specifications and all unmentioned parts necessary for satisfactory operation and testing except those which are indicated to be out of the Vendor's supply.

3. **INSPECTION**
Vendor shall appoint anyone of the following TPIA for inspection purpose after approval by purchaser:
   a) Lloyd Register of Industrial Services
   b) Technische Ulierwachungs Verein (TUV) SUD South Asia
   c) International Certification Service Pvt. Ltd
   d) TQ Services
   e) Moody International (India) Pvt. Ltd
   f) Bureau Veritas (India) Pvt. Ltd
   g) SGS
   h) Quality Services and Solutions Pvt. Ltd.
   i) Velosi Certification Services
   j) Certification Engineers International Ltd
   k) Edlipse

Apart from inspection by TPIA, inspection shall also be performed by HPOIL Gas delegate, as set out and specified in the codes and particular documents forming this MR.

4. **APPLICABLE DOCUMENTS**
General prescriptions, requirements and information are listed in Annexure of this Material Requisition.

5. **VENDOR'S DOCUMENTS:**
Vendor shall supply the documentation listed under Documents & Data Requirements of Material Requisition. All documents shall be supplied in English language.

SCOPE OF SUPPLY:

The Scope of SUPPLY shall be as set out at Material Requisition, Data Sheet sand Technical Specifications given in Volume-II of tender document and supplemented by all stipulation in the total tender document.

Seller's scope shall include:

(a) Design, detail engineering, manufacturing of items as per Material Requisition technical Specifications,
(b) Preparation of Quality Assurance / Quality control program.
(c) Obtaining Owner's approval;
(d) Arranging Inspection and testing certification;
(e) Inspection by Purchaser's/ Agency Designated by Purchaser, as applicable as per bid document and obtaining Inspection Release Note;
(f) Obtaining dispatch clearance;
(g) Packing;

(h) Loading on truck/ trailer and Unloading of Gas Regulators at Project site; Providing all related services as detailed in the technical specification.
Since, the Supply requirement is immediate HPOIL GAS will accept the items from Ex stock, provided Materials will meet the tender technical specifications.

QUALITY ASSURANCE/ QUALITY CONTROL:

The Contractor shall "prepare a detailed quality assurance plan for the execution of Contract for various facilities, which will be mutually discussed and agreed to.

The Contractor shall establish document and maintain an effective quality assurance system outlined in recognized codes.

The Purchaser while agreeing to a quality assurance plan shall mark the stages where they would like to witness the tests; review any or all stages of work at shop/site as deemed necessary for quality assurance.

SCOPE OF SUPPLY & TECHNICAL SPECIFICATIONS

1.0 SCOPEOF WORK/ SUPPLY

Supplier's scope of work shall include Design, detail engineering, manufacturing, assembly, factory testing, inspection (as applicable as per bid document), marking & packaging, supply of Regulators, handling, transportation, loading/ unloading at sites/ designated store, documentation etc. & commissioning spares.

2.0 REFERENCE STANDARDS

Unless otherwise specified, the latest edition of the standards mentioned herein this specification, including all addenda and revisions, shall apply. All pressures mentioned in this specification are gauge pressures. The vendor shall furnish (along with the technical bid) a copy of the approval documents, certificates (in English language only) for each of the offered model, for compliance to the requirements of EN 88/ EN 334 standard.

Compliance to EN88 standard shall be confirmed for all commercial gas regulators. Leak test for all regulators shall be performed complying to EN 13611.

3.0 PERFORMANCE REQUIREMENT AND STANDARD FEATURES

a) Satisfactory operation of regulator for the inlet & outlet pressure as specified in the data sheet.
b) Inlet/ Outlet connection (to be specified by the vendor) has to be approved by HPOIL GAS/its TPI and should be of screwed type as per ISO 7 Part 1: 1994 or any other type of connection (only with prior approval of HPOIL GAS/ its TPI).
c) Suitable for use with natural gas at nominal specific gravity of 0.65 & operating in ambient temperature of up to 45degC.
d) Over Pressure Shut off (OPSO) device to protect against downstream over pressure and creep relief valve to protect against downstream over pressure at low flows or in the event of valve seat malfunction, as indicated in the data sheets.
e) Under Pressure Shut off (UPSO) device to protect against downstream under pressure with a pressure settings indicated in the data sheet.
f) The regulator shall be also capable of operating either in the vertical or horizontal plane & shall be constructed to be fully resistant to corrosion when installed in outdoor locations in the environment of Ambala & Kurukshetra region.
g) Variant design (if any) offered by the party has to be duly approved by HPOIL GAS/its TPI. For specific requirements, refer data sheets.
h) HPOIL GAS/its TPI shall approve the regulator type & model to be supplied & full technical details shall be supplied along with the technical bid.

4.0 MARKING & PACKAGING

The regulator body shall be clearly marked with the following details:

- Capacity of the regulator
- Inlet pressure range
- Outlet pressure range
- Regulation accuracy
- Direction of flow
- Name of the manufacturer and the name of the model
- Serial number of the regulator

- Month and year of manufacturing

Each regulator shall be sealed properly before dispatch, such that the factory setting cannot be changed on site. Each regulator (along with the instruction manual) is to be individually packed in a transparent plastic cover (of adequate thickness) to protect the regulator from ingress of dirt and water, and the same shall be packed in an individual box. The description of the contents of each of these boxes shall be clearly mentioned on each of the individual box. A set of these individual boxes (5-10 Nos., as the case may be) shall be packed in a larger box; and the description of the contents of the larger box shall also be clearly mentioned on the box. The quantity of the regulators in the larger box shall be such that the box can be easily handled and stored, and it does not get damaged during the same.

5.0 QUALITY ASSURANCE

The Supplier will provide details of their quality assurance procedures during the assembly of the units and for final inspection following testing.

HPOIL GAS/ its TPI reserves the right to visit the Supplier's facilities without prior notice, and inspect test records and witness assembly and testing in progress.

6.0 TECHNICAL EVALUATION REQUIREMENTS

a) The Supplier is required to submit to HPOIL GAS/ its TPI the details of the regulator to be supplied, including the manufacturing standards, compliance to EN 334/ EN 88 standard (type test certificate),model number, performance curve i.e., outlet pressure v/s flow at different inlet pressures, accuracy specifications, capacity at maximum and minimum inlet pressures, technical catalogues along with bid for our technical evaluation of bid. All the technical documents/ catalogues, etc., to be submitted along with technical bid shall be in English Language only.
b) Any deviations from the specification should be highlighted and vendor may also quote advanced/ latest models to reduce overall cost asana ternate.
c) The data sheet should be filled up completely and should be enclosed with the Technical Bid.
d) Compliance with Technical Specifications will be taken for granted if deviations are not specifically mentioned.
e) Quality assurance Plan (QAP) format of the items quoted shall be submitted by bidder along with technical bids.

7.0 INSPECTION PLAN

i) Testing & Inspection shall be carried out as per the Technical Specifications of HPOIL GAS / its TPI, EN 88/ EN 334 (Commercial regulator) at the works of the manufacturer as per approved QAP.
ii) Inspection as per approved QAP shall be carried out on each lot by a reputed third-party inspection agency like Lloyds, ABS, SGS, TUV, DNV, BV, EIL, or any other Third-Party Inspection agency with prior approval of HPOIL GAS/ its TPI.
iii) HPOIL GAS/ its TPI representative appointed by HPOIL GAS/ its TPI, if any may again carry out inspection during manufacturing/ final inspection at the works of the manufacturer.
iv) Third Party Inspection shall be included in the quoted prices of all the bidders irrespective of Indian or Indian with foreign manufacturing facility or foreign bidders. Arranging Third Party Internationally Recognized Inspection agencies like Lloyds, ABS, SGS, TUV, DNV, BV, Engineers India Limited, or any other Third-Party Inspection agency with prior approval of HPOIL GAS/its TPI, for witnessing inspection and testing at the works of the

manufacturer is in the scope of the bidder.

v) Vendor shall furnish all the material test certificates, internal test / inspection reports as per the Approved QAP at the time of inspection of each supply lot of material.

vi) Review of Calibration certificates for all the measuring instruments at the time of inspection, i.e., used for checking and testing, along with the Master calibration certificate of the measuring instruments from which the instruments is calibrated.

vii) All regulators should be wired up and sealed properly by the manufacturer after final inspection clearance and before dispatch. Regulators found in an unsealed condition will not be accepted at HPOIL GAS stores.

viii) Even after third party inspection, HPOIL GAS/its TPI reserves the rights to select a sample of regulators randomly from each manufacturing batch & have these independently tested for compliance with HPOIL GAS/its TPI Technical Specifications like dimensional tolerances, leakage testing, performance, accuracy, etc. Should the results of these tests fall outside the limits specified in HPOIL GAS/ its TPI technical specification, then HPOIL GAS/ its TPI reserves the rights to reject all production supplied from the batch.

ix) If the performance of any of the sample regulators is not in compliance with the acceptance norms of the respective standards, then that lot of regulators will be rejected.

8.0 DOCUMENTS TOBE FURNISHED WITH SUPPLY (Minimum 3 sets):

Following is the list of documents required to be sent to HPOIL GAS/ its TPI along with the first lot of regulators:

a) Performance specification and test certificates (100%, for each of the regulators).
b) GA & Construction drawings, Material specifications and technical data sheets, QAPs. (In English language only).
c) Installation, operation, maintenance, recommendations and instruction manual in detail.
d) Any other relevant documents required by HPOIL GAS/TPI.

9.0 TECHICAL SPECIFICATIONS:

NATURAL GAS REGULATORS-COMMERCIAL REGULATORS (For Part A)		
GENERAL	Service	Natural Gas
	Qty	As per SOR/ Material Requisition of Tender
	Design	Direct acting spring control pressure regulator with in-built **two** stage pressure reducing valve type balance regulating unit to ensure a constant outlet pressure having excess pressure slam shut device, in sufficient downstream pressures lam shut device & relief valve.
	Connections Orientation	Inline Inlet and Outlet connection.
	Installation	Suitable for Outdoor Installation, Tamper proof and corrosion resistance for a life period of 20 years.
	Installation position	Horizontal/ Vertical.
FLOW,PRESSURE,TEMPERATURE	Capacity	6/10/16/25/40 cum/hr (Actual).
	Inlet Pressure	0.5 to 6 bar(g).
	Design Pressure	6 bar(g).
	Outlet pressure set point	300 mbar(g) (Factory Set Point) for items 1 to 4 & 500 mbar(g) for items 5 to 8 (Bidder shall necessarily submit the performance curve

		and available spring range).
	Over pressure cut off point	400 mbar(g) for items 1 to 4 & 750 mbar(g) for items 5 to 8 (Bidder shall submit Spring Range).
	Under pressure cut off point	100 mbar(g) (Bidder shall submit Spring Range).
	Creep Relief Valve	360 mbar(g) for items 1 to 4 & 560 mbar(g) for items 5 to 8 (Bidder shall submit Spring Range) the position of the atmospheric venting shall not be towards vertically top to avoid entry off foreign material into the regulator.
	Operating Temperature	0°C to 45°C, Design 60°C
	Casing	Casing and Body of Die cast aluminum/ Ductile Iron/ steel conforming to ASTM A216 WCB and water-weatherproof IP 65 / corrosion resistant for outdoor installation.
	End Connections	1" NPT (Female loose nut with suitable washers) inlet and 1" NPT (Female loose nut with suitable washers) outlet confirming to ANSIB1.20.1 All the end connections/ fittings including loose nuts, etc. shall be of Brass material. In case of end connection size are differing bidder to provide suitable adaptors, fittings, etc. of Brass as per IS:319 of approved quality to meet the specified end connections.
	Fire Resistance	As applicable
INTERNALS	Diaphragm	Synthetic rubber
	Internals	Internal parts shall be Stainless steel, Brass seal of Nitrile rubber or aluminum.
	Filter	Essential (Inbuilt) (if not in-built, same shall be supplied separately)
OTHERS	Accuracy Class (%)	AC 5/ RG 5 complying to EN 334 (or) Equivalent
	Closing (lockup) pressure	SG 10 complying to EN 334 (or) Equivalent
	Failure Position	Closed
	Type of Reset	Manual/ Auto (Vendor to confirm)
Notes:		
1.	The regulator body shall be indelibly and clearly marked with Max. Flow, Inlet & Outlet Pressure Range, Accuracy, Flow Direction, Manufacturer Name & Model, Serial No., Manufacturing Month & Year, etc.	

2.	Successful Vendor shall submit following documents during detail engineering/ supply of material a) Regulator data sheet with make & model number and technical literatures b) GA dimensional drawing with mounting details, model number, part list. c) Performance curve d) Testing and Inspection procedure e) Test, calibration and certificate from statutory bodies. f) Installation, Operation and Maintenance Instruction Manual.
3.	SS tubing of appropriate size for impulse connection of regulator and slams hut valve to be supplied with suitable connectors wherever applicable.
4.	End Connections shall be provided by Plastic Caps.
5.	Flow capacity in SCMH shall be calculated considering Maximum Outlet Pressure & Operating Temperature

Technical Datasheet for Commercial Gas Regulator (Part C)		
General Information		
Sr. No	**Parameters**	**Specification**
1	Design	Direct acting spring control pressure regulator with in-built two stage or single stage pressure reducing valve type balance regulating unit to ensure a constant outlet pressure and with pressure slam shut device for insufficient downstream pressure & relief valve.
2	Service	Natural Gas
3	Governing Standard	EN88-2 / EN 334 / EN 14382
4	Installation Orientation	Outdoor Horizontal / Vertical
5	Line Size & Schedule	N/A
6	Connection Orientation	Inlet and Outlet shall be inline
7	Fluid State	Natural Gas
Process Data		
8	Inlet Pressure Range	2 - 4 bar(g)
9	Flow Capacity	Refer Table below
10	Outlet Pressure Set Range	Refer Table below (Note-2)
11	Over Pressure Shut Off (OPSO)	Required (Refer Note -12)
12	Under Pressure Shut Off (UPSO)	Required (Refer Note -12)
13	CRV Set Point	Required (Refer Note -12)
14	Operating Temperature	0 - 60°C
15	Type of Regulator	Direct actuating with spring control & diaphragm with in-built pressure balance
16	Body Size / Port Size	*
17	End Connection	Flanged as per ANSI / ASME B1.20.1 (Refer Note - 8) (Refer table below)
18	Flange to Flange Dimension	Refer Table below
Body		
19	Body Material	Die-Cast Aluminium alloy or ASTM A216 WCB or Spheroidal graphite cast iron as per standard EN 334 confirming water - weather proof IP 65 & corrosion resistant for outdoor installation for a lifespan 20 years. (Refer Note-11)

20	Internal Parts	Stainless Steel and Brass, Seal of Nitrile Rubber or Aluminium as required for service
21	Diaphragm Material	Synthetic / Nitrile Rubber
22	Accuracy Class	AC 10 complying to EN 334 or Better
23	Closing Pressure	SG 20 complying to EN 334 or Equivalent
24	Failure Position	Close
25	Type of Reset	Manual
26	Accessories	Refer Note - 7
Miscellaneous		
27	Make	*
28	Model No.	*

Flow and Cut-off Pressure Data

Sr. No	Flow Quantity (SCMH)	Regulator Outlet Setpoint (Factory Set)	End Connection	F-F Distance (mm)	OPSO	UPSO	CRV Set Point
1	100	1-2 bar(g)	DN25 X DN25 Flanged end connection	Mfr Std	Required (Refer Note-12)	Required (Refer Note-12)	Required (Refer Note-12)

Notes
1. Vendor to specify *.
2. The regulator shall be indelibly marked with details of maximum flow, inlet and outlet pressure range, direction of flow, certification, manufacturer name, model name & number, unique serial number, month & year of manufacturing, etc.
3. Vendor shall submit detailed GA drawing along with part names and MOC of the parts along with datasheets.
4. Pressure regulator shall be suitable for outdoor installation, tamper-proof, and corrosion-resistant for a lifespan of 20 years.
5. Pressure regulator shall be direct-acting spring control type with an in-built pressure reducing valve and balance regulating unit to ensure a constant outlet pressure.

6. Refer to Standard Specification for Gas Regulators, Document No. VPC-SPC- 5602 for more details.
7. Accessories: Filter (inbuilt or a separate strainer of 20 micron), manual reset with lever, relief valve (integrated automatic) and plastic end caps for end connections protection.
8. Code Compliance Certificate/Type approval/Examination Certificate conforming to the governing standard is required.
9. In case end connections differ, the bidder must provide suitable brass adaptors to meet the specified end connections.
10. The regulator shall be a double-stage pressure regulator.
11. If die-cast aluminum alloy is used as the body material, coating is not required but it should be weatherproof & corrosion-resistant for a lifespan of 20 years.
12. Set points must be specified by the vendor.
13. All end connections/fittings, including loose nuts, shall be made of brass and provided by the vendor.
14. Outlet Pressure will be 1-2 bar. Other set points of the regulators should be suitable for the inlet & outlet pressure.

10.0 COMPLIANCE WITH SPECIFICATION

The vendor shall be completely responsible for the design, materials, fabrication, testing, inspection, preparation for shipment and transport of above equipment strictly in accordance with the Material Requisition and all attachments thereto.

11.0 VENDOR'S SCOPE

Vendor scope of work includes the equipment with all internals and accessories shown on the data sheets, specifications and all unmentioned parts necessary for satisfactory operation and testing except those which are indicated to be out of the Vendor's supply.

12.0 INSPECTION

Vendor shall appoint anyone of the following TPIA for inspection purpose after approval by purchaser:

k) Lloyd Register of Industrial Services
l) Technische Ulierwachungs Verein (TUV) SUD South Asia
m) International Certification Service Pvt. Ltd
n) TQ Services
o) Moody International (India) Pvt. Ltd
p) Bureau Veritas(India) Pvt. Ltd
q) SGS
r) Quality Services and Solutions Pvt. Ltd.
s) Velosi Certification Services
t) Certification Engineers International Ltd

Apart from inspection by TPIA, inspection shall also be performed by HPOIL GAS delegate, as set out and specified in the codes and particular documents forming this Material Requisition.

13.0 APPLICABLE DOCUMENTS

General prescriptions, requirements and information are listed in Annexure of this Material Requisition.

14.0 VENDOR'S DOCUMENTS:

Vendor shall supply the documentation listed under Documents & Data Requirements of Material Requisition. All documents shall be supplied in English language.

SCOPE OF SUPPLY: COMMERCIAL NATURAL GAS METERS.

1.0 INTRODUCTION

This technical specification covers the requirement of commercial gas Meters for City Gas Distribution Network at Ambala-Kurukshetra GA.

2.0 SCOPE OF WORK/SUPPLY:

Bidder's scope includes design, engineering, manufacture, assembly, inspection, supply, testing of the Gas Meters complete in all respects and satisfactory stable operation of commercial gas meters (compatible for smart metering). Bidder's scope of work shall include the following: -

1. Design, engineering, manufacturing, assembly, factory testing, inspection (as defined in the specification), marking & packaging, supply of Commercial Natural Gas Meters having provision to install MIU/ AMR of any manufacturer and make compatible for Smart Metering including forwarding & packaging, insurance, handling, transportation, loading / unloading at sites / designated store, documentation.
2. Bidder shall supply required mounting accessories.
3. Providing training to Purchaser's personnel pertaining to handling of meters.
4. The bidder shall comply with PNGRB, OIML, local statutory regulations of Legal metrology during contractual period.
5. All documentation including manuals & final as-built documents.
6. Hiring of Third Party Inspection Agency (TPIA) for factory inspection as per approved QAP.

3.0 EXCLUSIONS

Installation of the gas meter.

4.0 CODES AND STANDARDS

All meters shall comply with the requirements of PNGRB guidelines. In case of conflict between PNGRB and other codes, PNGRB guidelines shall prevail. Unless otherwise specified, the latest editions of the standards mentioned herein this specification, including all addenda and revisions, shall apply. The Bidder shall furnish (along with the technical bid) a copy of the approval documents, certificates (in English language only) for each of the offered model, for compliance to the requirements of following standards.

4.1 Natural Gas Meter (Document shall be submitted along with the bid)

a) Diaphragm Meters shall comply with EN-1359:2006 (or latest). Incompliance of the respective standards, the Bidder shall submit all the relevant documents / type evaluation certificates /reports.

b) Model approval certificates from legal metrology - Weights and Measurement Department in India for the natural gas meters shall be produced.
c) For imported natural gas meters, import reregisters at inform weights and measurement department of India to be submitted.
d) IP Certificate of the natural gas meters.

5.0 DESIGN BASIS

Commercial gas meters shall have the facility / provision to install MIU / AMR of any manufacturer in the future and make the meter compatible for Smart Metering System.

6.0 TECHNICAL SPECIFICATION

A. NATURAL GAS METER

1. Natural gas meters shall be of compact size, confirm long term accuracy and reliability, robust, maintenance free.
2. Commercial gas meters shall be G6, G10, G25 diaphragm type suitable for commercial metering (meeting the requirement of flow, accuracy, range ability, pressure, etc. As per data sheet

-Refer MR and Data sheets).

3. Meter Index shall be compatible for implementing automatic meter system and shall be factory fitted.
4. Metering equipment shall have physical seal to prevent tampering.
5. Meter shall have pulse generating mechanism compatible to AMR. The Pulse generating mechanism/ Meter reading not affected by an external magnet avoid missing pulse and deviation/ mis-match in index & billing data. Bidder shall furnish the confirmation. The same may be verified at any stage before/ during/ after installation of AMR in meter.
6. The meters shall have corrosion resistant powder coated (inside and outside) steel casing. Enclosure protection of all meters shall confirm to IP-54 or better.
7. Meters shall have in-built reverse counters tractor.
8. The meters shall be supplied with all mounting accessories i.e. tamper-proof seals, screws, wall- mounting brackets etc. End connection shall be protected by Plastic caps.
9. The life of the meter shall be at least 20years.

7.0 MARKING & PACKAGING:

Each device (Meter) shall be marked in legible characters which are permanently visible (stickers to be avoided) with at least the following information:

- Name and logo of the Manufacturer, along with the model
- Serial number
- Month and year of manufacture
- CE marking, EN-1359 or applicable standard Marking
- Maximum Flow Q max and minimum flow Q min (For Metering Units)
- Maximum operating pressure
- Accuracy class of the meter, e.g. Class1.5
- Direction of flow
- Name and Logo of the Client

Each device shall be sealed properly before dispatch, such that the factory setting cannot be changed on site. Each meter (along with the instruction manual) is to be individually packed in a transparent plastic cover (of adequate thickness) to protect the meter from ingress of dirt and water, and the same shall be packed in an individual box. The description of the contents of each of these boxes including meters serial number shall be clearly mentioned on individual box. A set of these individual boxes (5-10 Nos., as the case may be) shall be packed in a larger box;

and the description of the contents of the larger box's hall also be clearly mentioned on the box. The quantity of the meters in the larger box shall be such that the box can be easily handled and stored, and it does not get damaged during the same.

8.0 QUALITY ASSURANCE

The Supplier will provide details of their quality assurance procedures during the assembly of the units and for final inspection following testing.

The Bidders shall gets the QAP approved by the HPOIL GAS/ its TPI before the Inspection.

HPOIL GAS/ its TPI reserve the right to visit the Supplier's facilities without prior notice, and inspect test records and witness assembly and testing in progress.

9.0 TECHNICAL EVALUATION REQUIREMENTS

a) The bidder is required to submit to HPOIL GAS/ITS TPI the details of the items to be supplied, including the manufacturing standards, model number, accuracy specifications along with bid for our technical evaluation. All the technical documents / catalogues etc., to be submitted along with technical bid shall be in English Language only.

b) The data sheet should be filled up completely and should be enclosed with the Technical offer.

c) Compliance with the Technical Specifications must be confirmed by the bidder.

10.0 INSPECTION PLAN

Testing & Inspection shall be carried out as per the Technical Specifications of HPOIL GAS/its TPI& EN1359 / OIML / MID for Natural gas meters at the works of the manufacturer as preapproved QAP.

i) Third Party Inspection is to be included in the quoted prices. Inspection as per approved QAP shall be carried out on each lot by a reputed third party inspection agency like Lloyds, ABS, SGS, TUV, DNV, BV, EIL, or any other Third Party Inspection agency with prior approval of HPOIL GAS/its TPI.

ii) HPOIL GAS/its TPI representative or Third party inspection agency appointed by HPOIL GAS/its TPI, if any, may also carry out inspection again during manufacturing/ final inspection at the works of the manufacturer.

iii) Bidder shall furnish all the material test certificates, internal test / inspection reports for 100% material at the time of inspection of each supply lot of material.

iv) Each natural gas meter shall be calibrated for at least three point calibrations, in line with the requirement of EN-1359/OIML/ applicable standards and the test results shall be satisfactory in line with EN-1359 /OIML/ applicable standards.

v) Review of Calibration certificates for all the measuring instruments at the time of inspection, i.e., used for checking and testing, along with the Master calibration certificate of the measuring instruments from which the instruments is calibrated.

vi) All meters should be sealed properly by the manufacturer after final inspection clearance and before dispatch. Meters found in an unsealed condition will not be accepted at HPOIL GAS stores.

vii) Even after third party inspection, HPOIL GAS/its TPI reserves the rights to select a sample of meter/MIU randomly from each manufacturing batch & have these independently tested for compliance with HPOIL GAS/its TPI Technical Specifications like dimensional tolerances, leakage testing, performance, accuracy, etc. Should the results of these tests fall outside the limits specified in HPOIL GAS/its TPI technical specification, then HPOIL GAS/its TPI reserves the rights to reject all production supplied from the batch.

viii) If the performance of any of the sample meter/MIU is not in compliance with the acceptance norms of the respective standards, then that lot of respective item will be

rejected.

ix) The Inspection shall include the following tests/ reviews, but not limited to:

a) Visual: Facia Plate marking, Arrow marking, Meter Index reading, Seal, Construction & Workmanship, Color & appearance.

b) Dimensional: Meter Size, End connections (threading), Centre to centre distance of inlet & outlet connection, Powder coating thickness.

c) Fitment & alignment.

d) Calibration: 3 point calibration (Qmin,0.2 Qmax,Qmax), Accuracy testing

e) Functional & Operational tests: Total mean pressure absorption, Pressure (max. pressure & opr. pressure), Max. Flow, Meter Index, Valve, AMR compatibility.

f) Leak Test: Body Leak Test

g) Physical properties/ Chemical analysis: Body & internal parts

h) Enclosure protection: IP certification for Meters

i) Statutory Approvals: Fire resistance type approvals, W&M approval, PESO approval

j) The inspection procedure (testing and reviewing procedures) for the above shall be finalized during approval of QAP.

11.0 DOCUMENTS TO BE FURNISHED WITH SUPPLY (Minimum 3 sets)

Following is the list of documents required to be sent to HPOIL GAS/ its TPI along with the first lot of smart metering system:

a) Performance specification and test certificates, calibration certificates (100% for each of the Meter).

b) Technical data sheets, Testing & Inspection procedures, QAPs. (In English language only)

c) Installation, operation, maintenance, recommendations and instruction manual in detail.

d) Any other relevant documents required by HPOIL GAS/ its TPI.

12.0 TECHICAL SPECIFICATIONS

COMMERCIAL NATURAL GAS METERS (PART B)		
GENERAL	Service	Natural Gas
	Type	Diaphragm meter suitable for commercial metering
	Reference	Diaphragm meters- Compliance as per EN-1359:2006 (or latest), PNGRB regulatory, OIML R137-1&2
	Standard	As indicated in Clause 4.0-Codesand Standards
	Make & Model No.	Vendor to specify
	Installation	Suitable for outdoor/ Indoor installation, tamper proof, corrosion resistant for life period of 20 years
	Mounting	Wall/ Pole mounted.
	Mounting Accessories	Required. Shall be provided with the meter
	Flow/ Service	G6:Qmax: 10m3/hr, Qmin:0.06m3/hr, Qty. : As per MR
	Flow/ Service	G10:Qmax: 16m3/hr, Qmin:0.10m3/hr, Qty.: As per MR
	Flow/ Service	G25:Qmax: 40m3/hr, Qmin:0.25m3/hr, Qty.: As per MR
	Accuracy	Class1.5 [Qmin to 0.1Qmax±3%, 0.1 Qmax to Qmax±1.5%]
	Rangeability	150:1 or better
	Cyclic Volume	Minimum (Vender to specify)
	Normal Working Pressure	0.3 bar(g)
	Max. Working Pressure	0.5 bar(g) & 1 bar for item no. 4

	Design Pressure	0.5 bar(g) & 1 bar for item no. 4
	Max. Allow able pressure drop	3 mbar or as per EN-1359:2006 (or latest)
	Density Kg/ Sm3	0.73
	Operating Temperature	0ºC to 45ºC Design 60ºC
	Flow Direction	As per MR and to be marked on meter body.
BODY	Case work/ Body	Suitable for outdoor/ Indoor Installation, tamper proof and corrosion resistant powder coated steel casing.
	Corrosion protection	Suitable coating on inside and outside of casing.
	End Connections (Two-pipe version)	1"NPT (M) inlet and outlet confirming to ANSI B1.20.1 (In case the end connection size are differing, bidder to provide suitable adapters of Brass to meet the specified end connections)
	Fire resistance	Asper EN 1359/ equivalent
INDEX	Max. Index reading	999999.99 Index with auto reset facility
	Unit	CM (Cubic meter)
	Ingress protection	IP 54 or better
	Facility	Index should be compatible for installing AMR / MIU of any manufacturer and implementing smart metering system
	Pulse output type	Diaphragm Meters: Inductive/ Magnetic
INTERNALS	Diaphragm	Diaphragm Meter: Polyester fabric coated with rubber on either side of equipment for an endurance life cycle of 80,000 cum.
	Valve between inlet and outlet	NA
	Power supply to valve	NA
	Centre to center distance between inlet and outlet connections	To be specified by vendor
	Other internals	All meter internals shall be non-metallic to prevent from tampering with magnet
OTHERS	Leak Testing	Meter pressurized withairat1.5 MAOP of the meter, immersed in water for observance of leakage
	Sealing arrangement	Provision to be made by vendor
	Marking on the meter	Required
	EN/ MID marking on the meter	Required
	Reverse flow deterrents	Reverse count restrictor to be provided. Reverse rotation of index is not allowed.