



BHAGYANAGAR GAS LIMITED

(A JOINT VENTURE OF HPCL & GAIL)

BID DOCUMENT FOR

PROCUREMENT OF METERS AND REGULATORS FOR SUPPLY OF PNG IN HYDERABAD

UNDER LIMITED DOMESTIC COMPETITIVE BIDDING

Bid Document No.: BGL/093/2010-11

VOLUME-II of II



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Bhayanagar Gas Ltd.

BHAGYANAGAR GAS
LIMITED

Tender for Procurement of Meters & Regulators for
supply of PNG in Hyderabad

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SECTION – 8 MATERIAL REQUISITION

MATERIAL REQUISITION

Sr No	Description	Unit	Quantity
Group A	Domestic Meter		
1	Flow capacity of 2.5m ³ /hr & design Pressure up to 200 mbar (Left site inlet & right side outlet)	Nos	5000
Group B	Commercial Meter		
1	Flow capacity of 6 m ³ /hr & design Pressure up to 6 bar Max Working Pressure 300 mbar.	Nos	20
2	Flow capacity of 10 m ³ /hr & design Pressure up to 6 bar Max Working Pressure 300 mbar.	Nos	20
3	Flow capacity of 25 m ³ /hr & design Pressure up to 6 bar Max Working Pressure 300 mbar.	Nos	20
4	Flow capacity of 40 m ³ /hr & design Pressure up to 6 bar Max Working Pressure 300 mbar.	Nos	10
5	Flow capacity of 65 m ³ /hr & design Pressure up to 6 bar Max Working Pressure 300 mbar.	Nos	10
Group C	Domestic Regulator		
1	Pressure Reduction of 100 mbar inlet to 21 mbar outlet pressure with 2.5m ³ /hr	Nos	5000
Group D	Commercial Regulator		
1	Pressure Reduction of 4 bar inlet to 100 mbar outlet pressure with 6 m ³ /hr flow	Nos	20
2	Pressure Reduction of 4 bar inlet to 100 mbar outlet pressure with 10m ³ /hr flow	Nos	20
3	Pressure Reduction of 4 bar inlet to 100 mbar outlet pressure with 25m ³ /hr flow	Nos	20
4	Pressure Reduction of 4 bar inlet to 100 mbar outlet pressure with 40 m ³ /hr flow	Nos	10
5	Pressure Reduction of 4 bar inlet to 100 mbar outlet pressure with 65 m ³ /hr flow	Nos	10

Note:

- 1) Evaluation will be done Group wise i.e. for 'A,B,C, & D' separately and order will be placed on the lowest bidder(s) in each category at lowest cost to BGL.
- 2) Inspection shall be carried out Vendor and price will be quoted in the base price.
- 3) Bidder shall submit separately a list of 2 year recommended spare with unit price (valid for Eighteen months) for each type of Meters and Regulators along with un-priced part of the offer.



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SECTION – 9 SPECIAL CONDITIONS OF CONTRACT

SPECIAL CONDITIONS OF CONTRACT

The following articles shall supplement the Instructions to Bidders and General Conditions of Contract (GCC). In case any conflict between General Conditions of Contract and Special Conditions of Contract, the latter shall prevail to the extent applicable.

1. Scope of Supply

The scope of supply shall be as given in Material Requisition and Technical Specifications

2. Quality Assurance / Quality Control

2.1 The supplier shall prepare a detailed Quality Assurance Plan for the execution of Contract for various facilities, which will be mutually discussed and agreed to BGL.

2.2 The supplier shall establish document and maintain an effective quality assurance system outlined in recognized code.

2.3 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.

3. QUANTITY VARIATION:

The tendered quantity may vary depending upon the project requirement. BGL reserves the right to decrease / increase the quantity depending upon its requirement.

4. DISPATCH INSTRUCTIONS:

4.1 Seller shall obtain dispatch clearance from the Purchaser prior to each dispatch.

4.2 Copy of Inspection Release Certificate, Dispatch Clearance and Statement showing the name of the Vessel / Trailers description and weight of the material and shipping marks etc. to be submitted along with the documents.

5. INSPECTION:

Bhagyanagar Gas Ltd. (BGL) reserves the right to engage their own personnel and or BGL's inspection agency. All the charges towards all kinds of tests shall be included in the quoted rates. No additional payment to this effect will be made. The charges towards BGL's Inspection Agency, if engaged, shall be borne by BGL.



6. REJECTION:

- 6.1 Any materials / goods covered under scope of supply, which during the process of inspection by appointed third party, at any stage of manufacture / fabrication and subsequent stages, prior to dispatch is found not conforming to the requirements / specifications of the Purchase Requisition / Order, shall be liable for immediate rejection.
- 6.2 Supplier shall be responsible and liable for immediate replacement of such material with acceptable material at no extra cost or impact on the delivery schedule to EMPLOYER.

7. Delivery Schedule

Schedule for Supply:

Delivery order shall be released by BGL in quantities required as per our target and plan. The bidder should agree to supply the quantity mentioned in the delivery order **within 12 weeks of the date of issue of the delivery order.**

Date of Delivery:

The date of receipt of material at BGL Stores shall be taken as the date of delivery.

8. Payment Terms

The terms of payment shall be as follows:

For Indian Bidders only

- 90 % (Ninety percent) payment on receipt of goods at site alongwith following despatch documents.
 - i) Cenvatable Invoice in triplicate
 - ii) Inspection Release note by Owner or his appointed or approved agency.
 - iii) GR / LR
 - iv) Packing List
 - v) Insurance cover note covering transit insurance
 - vi) A certificate from manufacturer that the all items/ equipment under supply including its component or raw material used with manufacturing are new and conform to the tender requirement. In case manufacturer is not the contractor, the contractor owning overall responsibility will duly endorse this certificate.
 - vii) Performance Bank Guarantee(s) of 10% of Contract Value. If already submitted, a copy of the same.
 - viii) Document related to CENVAT credit/VAT Set off to be claimed by Owner, if applicable.
 - ix) Documents as specified in the Technical Specifications / Material Requisitions, Vol II of II of the Bid Document.

- 10% (ten percent) within 30 (thirty) days after receipt and acceptance of goods at site alongwith submission of following documents:
 - i. Acceptance Certificate
 - ii. No Claim Certificate.

9. **Price Reduction Schedule:**

The supplier agrees that time of supply of Stores / Works shall be of the essence of the Contract. If the supplier fails to supply Stores / Works within the respective scheduled / fixed date for supply, Company may without prejudice to any other right or remedy available to the Company:-

- a. Recover from the supplier ascertained and agreed, genuine pre-estimate price reduction and not by way of penalty, a sum equivalent to 1/2% per week or part thereof for each week's delay, prorated for part thereof beyond the scheduled supply date each subject to maximum of 5% of Delivery Order value, even though the Company may accept delay in supply after the expiry of the scheduled supply date.
- b. Arrange to get supply from elsewhere on account and at the risk of the Supplier, such decision of the company being final and binding on the supplier.

OR

Terminate the contract or a portion of the supply work thereof, and if so desired, arrange for the supply in default by the supplier to be attained from elsewhere at the risk and cost of the supplier.

10. **REPEAT ORDER:**

BGL reserves the right to place a repeat order within six months of expiry of contract upto 50% of quantities on same rates, terms and conditions.

11. **Contract Period:**

The period of contract will be for one year from the date of FOI for material to be delivered within that period only i.e. the last lot will be delivered within this period only.



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SECTION 10 TECHNICAL SPECIFICATIONS

- 1) Service Regulator**
- 2) Domestic Regulator**
- 3) Gas Meters – Domestic**
- 4) Gas Meters – Commercial**

SPECIFICATION FOR SERVICE GAS REGULATORS

Document No: BGL/ENG/PE/019

1. SCOPE

This specification covers the medium pressure service regulator to operate with a maximum inlet pressure of 4 bar (g) & nominal outlet pressure of 100 mbar (g). All pressures mentioned in this specification are Gauge pressure.

2. REFERENCE

Unless otherwise specified, the latest editions of the standards mentioned herein this specification, including all addenda and revisions, shall apply. All pressures mentioned in this specification are gauge pressures.

3. PERFORMANCE REQUIREMENT AND STANDARD FEATURES

- a) Satisfactory operation over an inlet pressure range of 4 bars (maximum) to 0.5 bars (minimum), using a single orifice and nominal outlet pressure will be 100 mbar.
- b) Inlet / Outlet connection to be specified by the vendor has to be approved by BGL and should be of screwed type as per BSPT female (BS EN 10226-Part 1 : 2004 taper threads) or any other type of connection only with prior approval of Bhagyanagar Gas.
- c) Suitable for use with natural gas at nominal specific gravity of 0.6 & operating in ambient temperature of up to 45°C.
- d) Over Pressure Shut off (OPSO) device to protect against downstream over pressure preset to 160 +/- mbar and creep relief valve to protect against downstream over pressure at low flows or in the event of valve seat malfunction, preset to 140 +/- 5 mbar.
- e) Under Pressure Shut off (UPSO) device to protect against downstream under pressure with a pressure setting range 40 mbar to 65 mbar.
- f) The regulator shall be also capable of operation either in the vertical or horizontal plan & shall be constructed to be fully resistant to corrosion when installed in outdoor locations in the high temperature & environment of Andhra Pradesh.

Variant design (if any) offered by the parts has to be duly approved by BGL. For specific requirements, refer Appendix A.

Bhagyanagar Gas Limited shall approve the regulator type & model to be supplied & full technical details shall be supplied.

g) The bidder shall, at no additional cost to BGL, arrange to provide training program (covering the various aspects of operation, maintenance, troubleshooting, etc., of the offered model) BGL personnel.

4. MARKING & PACKING

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

- Capacity of the regulator (6 scmh or 10 scmh or 25 scmh or 40 scmh or 65 scmh, or as the case may be)
- 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 (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 content 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 being 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. QUALITY ASSURANCE

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

Bhagyanagar Gas reserves the right to visit the Supplier's facilities without prior notice, and inspect test records and witness assembly and testing in progress.

6. GUARANTEE PERIOD

The regulator shall be guaranteed against malfunction and degradation through corrosion or faulty workmanship for a period of eighteen months from the date of delivery or twelve months from the date of commissioning. BGL also reserves the right to charge the supplier all costs incurred by BGL for rectifying or replacing defective units within the guarantee period.

7. TECHNICAL EVALUATION REQUIREMENTS

- a) The Supplier is required to submit to BGL the details of the regulator to be supplied, including the manufacturing standards, model number, performance curve i.e., outlet pressure v/w flow at different inlet pressures, accuracy specifications capacity at maximum and minimum inlet pressures, and orifice size 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 as an alternate.
- 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.

8. INSPECTION PLAN

- i) Inspection will be carried out as per the Technical Specifications of BGL.
- ii) BGL representative or Third party inspection agency appointed by BGL shall carry out inspection during manufacturing/final inspection.
- iii) Vendor shall furnish all the material test certificates, internal test / inspection reports as per BGL technical specifications & specified code for 100% material at the time of inspection of each supply lot of material.
- iv) All regulations 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 BGL stores.



v) Following is the Test Plan for a 6 scmh service regulator.

Sl. No.	Test Description	Sample Qty	Acceptance Norm	Test Procedure/ Rema
1	Outlet pressure @ 4.0 bar (g) Inlet pressure & 12 scmh flow	10%	110 mbar(g) ($\pm 5\%$ (g))	
2	Lock Up @ 4.0 bar (g) Inlet pressure & 12 scmh Flow	10%	≤ 125 mbar (g) ± 5 mbar (g)	Gradual closing of outlet valve from above operating condition
3	Outlet Pressure @ 0.5 bar (g) Inlet pressure & 6 scmh Flow	10%	100 mbar (g) (+5, -20 mbar (g))	
4	Lock Up @ 0.5 bar (g) Inlet pressure & 6 scmh Flow	10%	≤ 125 mbar (g) ± 5 mbar (g)	Gradual closing of outlet valve from above operating condition
5	Relief Pressure @ inlet pressure 4 bar (g)	10%	140 mbar (g) ± 5 mbar (g)	By gradually applying pressure from external source to the outlet pipeline. Check relief valve operating pressure by connecting a rubber tube to regulator vent and immersing the tube in water. Continuous stream of bubbles indicates that the relief valve is functioning.
6	Over Pr. Shut off @ Inlet pressure 4 bar (g)	10%	160 mbar (g) ± 5 mbar (g)	By further increasing pressure from outside source to the outlet pipe line
7	Under Pr. Shut Off @ Inlet pressure 2 bar (g)	10%	40 to 65 mbar (g)	By closing the inlet valve and opening the outlet valve



Following is the Test Plan for a 10 scmh service regulator.

Sl. No.	Test Description	Sample Qty	Acceptance Norm	Test Procedure/ Remark
1	Outlet pressure @ 4.0 bar (g) Inlet pressure & 20 scmh flow	10%	110 mbar(g) ($\pm 5\%$ (g))	
2	Lock Up @ 4.0 bar (g) Inlet pressure & 20 scmh Flow	10%	≤ 125 mbar (g) ± 5 mbar (g)	Gradual closing of outlet valve from above operating condition
3	Outlet Pressure @ 0.5 bar (g) Inlet pressure & 10 scmh Flow	10%	100 mbar (g) (+5, -20 mbar (g))	
4	Lock Up @ 0.5 bar (g) Inlet pressure & 10 scmh Flow	10%	≤ 125 mbar (g) ± 5 mbar (g)	Gradual closing of outlet valve from above operating condition
5	Relief Pressure @ inlet pressure 4 bar (g)	10%	140 mbar (g) ± 5 mbar (g)	By gradually applying pressure from external source to the outlet pipeline. Check relief valve operating pressure by connecting a rubber tube to regulator vent and immersing the tube in water. Continuous stream of bubbles indicates that the relief valve is functioning.
6	Over Pr. Shut off @ Inlet pressure 4 bar (g)	10%	160 mbar (g) ± 5 mbar (g)	By further increasing pressure from outside source to the outlet pipe line
7	Under Pr. Shut Off @ Inlet pressure 2 bar (g)	10%	40 to 65 mbar (g)	By closing the inlet valve and opening the outlet valve



Following is the Test Plan for a 25 scmh service regulator.

Sl. No.	Test Description	Sample Qty	Acceptance Norm	Test Procedure/ Remarks
1	Outlet pressure @ 4.0 bar (g) Inlet pressure & 60 scmh flow	10%	110 mbar(g) ($\pm 5\%$ (g))	
2	Lock Up @ 4.0 bar (g) Inlet pressure & 60 scmh Flow	10%	≤ 125 mbar (g) ± 5 mbar (g)	Gradual closing of outlet valve from above operating condition
3	Outlet Pressure @ 0.5 bar (g) Inlet pressure & 25 scmh Flow	10%	100 mbar (g) (+5, -20 mbar (g))	
4	Lock Up @ 0.5 bar (g) Inlet pressure & 25 scmh Flow	10%	≤ 125 mbar (g) ± 5 mbar (g)	Gradual closing of outlet valve from above operating condition
5	Relief Pressure @ inlet pressure 4 bar (g)	10%	140 mbar (g) ± 5 mbar (g)	By gradually applying pressure from external source to the outlet pipeline. Check relief valve operating pressure by connecting a rubber tube to regulator vent and immersing the tube in water. Continuous stream of bubbles indicates that the relief valve is functioning.
6	Over Pr. Shut off @ Inlet pressure 4 bar (g)	10%	160 mbar (g) ± 5 mbar (g)	By further increasing pressure from outside source to the outlet pipe line
7	Under Pr. Shut Off @ Inlet pressure 2 bar (g)	10%	40 to 65 mbar (g)	By closing the inlet valve and opening the outlet valve



Following is the Test Plan for a 40 scmh service regulator.

Sl. No.	Test Description	Sample Qty	Acceptance Norm	Test Procedure/ Rema
1	Outlet pressure @ 4.0 bar (g) Inlet pressure & 80 scmh flow	10%	110 mbar(g) ($\pm 5\%$ (g))	
2	Lock Up @ 4.0 bar (g) Inlet pressure & 80 scmh Flow	10%	≤ 125 mbar (g) ± 5 mbar (g)	Gradual closing of outlet valve from above operating condition
3	Outlet Pressure @ 0.5 bar (g) Inlet pressure & 40 scmh Flow	10%	100 mbar (g) (+5, -20 mbar (g))	
4	Lock Up @ 0.5 bar (g) Inlet pressure & 40 scmh Flow	10%	≤ 125 mbar (g) ± 5 mbar (g)	Gradual closing of outlet valve from above operating condition
5	Relief Pressure @ inlet pressure 4 bar (g)	10%	140 mbar (g) ± 5 mbar (g)	By gradually applying pressure from external source to the outlet pipeline. Check relief valve operating pressure by connecting a rubber tube to regulator vent and immersing the tube in water. Continuous stream of bubbles indicates that the relief valve is functioning.
6	Over Pr. Shut off @ Inlet pressure 4 bar (g)	10%	160 mbar (g) ± 5 mbar (g)	By further increasing pressure from outside source to the outlet pipe line
7	Under Pr. Shut Off @ Inlet pressure 2 bar (g)	10%	40 to 65 mbar (g)	By closing the inlet valve and opening the outlet valve

Following is the Test Plan for a 65 scmh service regulator.

Sl. No.	Test Description	Sample Qty	Acceptance Norm	Test Procedure/ Rema
1	Outlet pressure @ 4.0 bar (g) Inlet pressure & 130 scmh flow	10%	110 mbar(g) ($\pm 5\%$ (g))	
2	Lock Up @ 4.0 bar (g) Inlet pressure & 130 scmh Flow	10%	≤ 125 mbar (g) ± 5 mbar (g)	Gradual closing of outlet valve from above operating condition
3	Outlet Pressure @ 0.5 bar (g) Inlet pressure & 65 scmh Flow	10%	100 mbar (g) (+5, -20 mbar (g))	
4	Lock Up @ 0.5 bar (g) Inlet pressure & 65 scmh Flow	10%	≤ 125 mbar (g) ± 5 mbar (g)	Gradual closing of outlet valve from above operating condition
5	Relief Pressure @ inlet pressure 4 bar (g)	10%	140 mbar (g) ± 5 mbar (g)	By gradually applying pressure from external source to the outlet pipeline. Check relief valve operating pressure by connecting a rubber tube to regulator vent and immersing the tube in water. Continuous stream of bubbles indicates that the relief valve is functioning.
6	Over Pr. Shut off @ Inlet pressure 4 bar (g)	10%	160 mbar (g) ± 5 mbar (g)	By further increasing pressure from outside source to the outlet pipe line
7	Under Pr. Shut Off @ Inlet pressure 2 bar (g)	10%	40 to 65 mbar (g)	By closing the inlet valve and opening the outlet valve

If the performance (in the above tests) of any of the sample regulators is not in compliance with the acceptance norms of Technical Specifications of Bhagyanagar Gas Limited, then the lot of regulators will be rejected.

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

Note: Bidders should quote separately for the inspection of regulators as per inspection plan given above which should be carried out by renowned Third Party Inspection agency like Lloyds, ABS, SGS TUV, DNV, BV, Engineers India Limited, or any other Third Party Inspection agency only with prior approval of Bhagyanagar Gas Limited.

9. DOCUMENTS REQUIRED WITH SUPPLY (Minimum 3 Sets):

Following is the list of documents required to be submit at BGL Head office, Hyderabad along with the first lot of regulators:

- a) Performance specification and test certificates (100%, for each of the regulator).
- b) Construction drawings, Material specifications and technical data sheets. (In English language only)
- c) Installation, operation, maintenance, recommendations and instruction manual in detail.
- d) Any other relevant documents required by Bhagyanagar Gas Limited.

10. SPARE PARTS

A list of spare parts should be included with the tender to cover spares requirements for the regulator unit for the first two years of operation. If this is considered unnecessary a short statement to this effect should be made. Any items listed must be priced separately.



APPENDIX A (Specific Requirements)

Data Sheet for 6 scmh regulators to be filled by vendor

Sr. No.	B G L Specification	Requirements	Party's Offer	Deviations (if any)	Remarks
1.	Maximum inlet pressure	4.0 bar			
2.	Minimum inlet pressure	0.5 bar			
3.	Nominal outlet pressure	100 mbar			
4.	Factory setting	100 mbar outlet pressure at 1 bar inlet pressure & 6 scmh flow			
5.	Maximum capacity	6 scmh flow at minimum inlet of 0.5 bar pressure, maximum outlet pressure drop allowed is 20% of nominal outlet pressure & 12 scmh flow at 4 bar inlet pressure, maximum outlet pressure elevation allowed is 5% of nominal outlet pressure.			
6.	Maximum operating temperature	45° C			
7.	Minimum operating temperature	10° C			
8.	Accuracy standard	± 5% of set outlet pressure (g)			
9.	Lock up pressure	Should be within 25% of nominal outlet pressure.			



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Data Sheet for 10 scmh regulators to be filled by vendor

Sr. No	B G L Specification	Requirements	Party's Offer	Deviations (if any)	Remarks
1.	Maximum inlet pressure	4.0 bar			
2.	Minimum inlet pressure	0.5 bar			
3.	Nominal outlet pressure	100 mbar			
4.	Factory setting	100 mbar outlet pressure at 1 bar inlet pressure & 10 scmh flow			
5.	Maximum capacity	10 scmh flow at minimum inlet of 0.5 bar pressure, maximum outlet pressure drop allowed is 20% of nominal outlet pressure & 20 scmh flow at 4 bar inlet pressure, maximum outlet pressure elevation allowed is 5% of nominal outlet pressure.			
6.	Maximum operating temperature	45° C			
7.	Minimum operating temperature	10° C			
8.	Accuracy standard	± 5% of set outlet pressure (g)			
9.	Lock up pressure	Should be within 25% of nominal outlet pressure.			



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Data Sheet for 25 scmh regulators to be filled by vendor

Sr. No	B G L Specification	Requirements	Party's Offer	Deviations (if any)	Remarks
1.	Maximum inlet pressure	4.0 bar			
2.	Minimum inlet pressure	0.5 bar			
3.	Nominal outlet pressure	100 mbar			
4.	Factory setting	100 mbar outlet pressure at 1 bar inlet pressure & 25 scmh flow			
5.	Maximum capacity	25 scmh flow at minimum inlet of 0.5 bar pressure, maximum outlet pressure drop allowed is 20% of nominal outlet pressure & 60 scmh flow at 4 bar inlet pressure, maximum outlet pressure elevation allowed is 5% of nominal outlet pressure.			
6.	Maximum operating temperature	45° C			
7.	Minimum operating temperature	10° C			
8.	Accuracy standard	± 5% of set outlet pressure (g)			
9.	Lock up pressure	Should be within 25% of nominal outlet pressure.			



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Data Sheet for 40 scmh regulators to be filled by vendor

Sr. No	B G L Specification	Requirements	Party's Offer	Deviations (if any)	Remarks
1.	Maximum inlet pressure	4.0 bar			
2.	Minimum inlet pressure	0.5 bar			
3.	Nominal outlet pressure	100 mbar			
4.	Factory setting	100 mbar outlet pressure at 1 bar inlet pressure & 40 scmh flow			
5.	Maximum capacity	40 scmh flow at minimum inlet of 0.5 bar pressure, maximum outlet pressure drop allowed is 20% of nominal outlet pressure & 80 scmh flow at 4 bar inlet pressure, maximum outlet pressure elevation allowed is 5% of nominal outlet pressure.			
6.	Maximum operating temperature	45° C			
7.	Minimum operating temperature	10° C			
8.	Accuracy standard	± 5% of set outlet pressure (g)			
9.	Lock up pressure	Should be within 25% of nominal outlet pressure.			



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Data Sheet for 65 scmh regulators to be filled by vendor

Sr. No	B G L Specification	Requirements	Party's Offer	Deviations (if any)	Remarks
1.	Maximum inlet pressure	4.0 bar			
2.	Minimum inlet pressure	0.5 bar			
3.	Nominal outlet pressure	100 mbar			
4.	Factory setting	100 mbar outlet pressure at 1 bar inlet pressure & 65 scmh flow			
5.	Maximum capacity	65 scmh flow at minimum inlet of 0.5 bar pressure, maximum outlet pressure drop allowed is 20% of nominal outlet pressure & 130 scmh flow at 4 bar inlet pressure, maximum outlet pressure elevation allowed is 5% of nominal outlet pressure.			
6.	Maximum operating temperature	45° C			
7.	Minimum operating temperature	10° C			
8.	Accuracy standard	± 5% of set outlet pressure (g)			
9.	Lock up pressure	Should be within 25% of nominal outlet pressure.			

TECHNICAL BID EVALUATION CRITERIA (TBEC):

1. Bidder should comply with all the requirements of BGL technical specifications.
2. Bidder should be the manufacturer of regulators and should furnish the manufacturer plant details along with the technical bid. In case the bidder is an authorized representative of manufacturers, bidder shall also furnish the letter of authorization, past performance and bank guarantee from original regulator manufacturer.
3. Bidder shall be ISO 9001 : 9008 certified, and should furnish a copy of the same along with the technical bid.
4. Bidder should furnish proof of past supply of similar regulators to other gas industries. Documentary evidence (in English language only) such as copy of purchase orders of past supply along with third party inspection release note, or certificate of at least one year trouble free performance (of the material supplied vide the same PO), should be furnished along with technical bid. Specific model approval of BGL in case of new model shall be furnished.
5. Bidder should furnish all the documents as per the requirements of technical specification in English language only.
6. A sample of regulator should be submitted along with the technical bid or sample approval should be obtained prior to commencement of supply.
7. BGL reserves the right to consider the offer of the bidder based on its past performance in any other CGD entities.



SPECIFICATION FOR DOMESTIC GAS REGULATORS

Document No: BGL/ENG/PE/20

SCOPE

1.0 This specification covers the Lower pressure Domestic regulator to operate with a maximum inlet pressure of 100 mbar (g) & nominal outlet pressure of 21 mbar (g). All pressures mentioned in this specification are Gauge pressure.

2.0 REFERENCE

Unless otherwise specified, the latest editions of the standards mentioned herein this specification, including all addenda and revisions, shall apply. All pressures mentioned in this specification are gauge pressures.

3.0 PERFORMANCE REQUIREMENT AND STANDARD FEATURES

- a) Satisfactory operation over an inlet pressure range of 100 mbars (maximum) to 35 m bars (minimum), using a single orifice and nominal outlet pressure will be 21 mbar.
- b) Inlet / Outlet connection to be specified by the vendor has to be approved by BGL and should be of screwed type as per BSPT female (BS EN 10226-Part 1 : 2004 taper threads) or any other type of connection only with prior approval of Bhagyanagar Gas.
- c) Suitable for use with natural gas at nominal specific gravity of 0.6 & operating in ambient temperature of up to 45°C.
- d) Under Pressure Shut off (UPS0) device to protect against downstream under pressure with a pressure setting range 14 mbar to 18 mbar.
- e) The regulator shall be also capable of operation either in the vertical or horizontal plan & shall be constructed to be fully resistant to corrosion when installed in outdoor locations in the high temperature & environment of Andhra Pradesh.

Variant design (if any) offered by the parts has to be duly approved by BGL. For specific requirements, refer Appendix A.

Bhagyanagar Gas Limited shall approve the regulator type & model to be supplied & full technical details shall be supplied.

- f) **The bidder shall, at no additional cost to BGL, arrange to provide training program (covering the various aspects of operation, maintenance, troubleshooting, etc., of the offered model) BGL personnel.**

4.0 MARKING & PACKING

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

- Capacity of the regulator 2.5m³/hr
- 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 (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 content 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 being 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. Bhagyanagar Gas 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 GUARANTEE PERIOD

The regulator shall be guaranteed against malfunction and degradation through corrosion or faulty workmanship for a period of eighteen months from the date of delivery or twelve months from the date of commissioning. BGL also reserves the right to charge the supplier all costs incurred by BGL for rectifying or replacing defective units within the guarantee period.

7.0 TECHNICAL EVALUATION REQUIREMENTS

- a) The Supplier is required to submit to BGL the details of the regulator to be supplied, including the manufacturing standards, model number, performance curve i.e., outlet pressure v/w flow at different inlet pressures, accuracy specifications capacity at maximum and minimum inlet pressures, and orifice size 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 as an alternate.
- 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.



8.0 INSPECTION PLAN

- i) Inspection will be carried out as per the Technical Specifications of BGL.
- ii) BGL representative or Third party inspection agency appointed by BGL shall carry out inspection during manufacturing/final inspection.
- iii) Vendor shall furnish all the material test certificates, internal test / inspection reports as per BGL technical specifications & specified code for 100% material at the time of inspection of each supply lot of material.
- iv) All regulations 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 BGL stores.

Data Sheet for Domestic Regulator:

Sr No	B G L Specification	Requirements	Party's Offer	Deviations (If any)	Remarks
1	Design	Single stage pressure regulator with spring control & diaphragm with inbuilt pressure balance regulating unit to ensure a constant flow			
2	Connection	Inlet & Outlet at 90 degree/inline			
3	Installation Position	Horizontal / Vertical			
4	Flow Capacity	2.5 m ³ /hr			
5	Inlet Pressure	100 Mbar			
6	Out let pressure	21 mbar(g) (Factory Set Point) (Spring Range 18-30 mbar. Bidder shall necessarily submit the performance curve)			
7	UPSO	14 – 18 mbar			
8	Operating Temperature	0 to 50			
9	Inlet & outlet connection	½” NPt & ¾” NPT			
10	Casing Material	Casing and Body of Die cast aluminum/ steel conforming to ASTM A216 WCB and water-weather proof / corrosion resistant for outdoor installation.			
11	Diaphragm	Synthetic rubber			
12	Internals	Internal parts shall be Stainless Steel, Brass seal of Nitrile rubber or Aluminium			
13	Filter	Essential (Inbuilt)			
14	Accuracy Class (%)	AC 10 / RG 10 complying to EN 334 Or Equivalent			
15	Closing (lockup) pressure	SG 20 complying to EN 334 Or Equivalent			
16	Failure Position	Closed			
17	Reset	Auto			

SPECIFICATION FOR DOMESTIC GAS METERS

Document No: BGL/ENG/PE/21

1.0 SCOPE

This specification specifies the requirements for the construction, performance and marking of positive displacement diaphragm gas meters of 2.5 m³/hr capacity for use with natural gas, having specific gravity of 0.61.

Unless modified by this specification, the requirement of BS EN 1359:1999 shall be valid.

2.0 MATERIAL

The meters shall be approved and manufactured in accordance with the requirements of BS EN 1359: 1999, or equivalent, and as per the requirements of this specification.

Material of construction should be as per BS EN 1359: 1999 or Equivalent.

The meter shall be fire resistant, in accordance with the requirement of BS EN 1359: 1999, or equivalent.

3.0 DIMENSIONAL TOLERANCE

1. Connection to be ¾" (Male), BS 746: 2005+A1: 2009.
2. Center-to-Center distance between inlet and outlet connections should be 110 mm.
3. The meter should fulfill the requirement of BGL as,

Normal Working pressure :	21 mbar (g)
Maximum flow rate :	2.5 m ³ / hr
Range Ability :	1:150 or better
Suitable to withstand pressure:	200 mbar (g)

The external flange shall be banded to prevent unauthorized dismantling, and screws, nuts and bolts, rivets or other fastening shall not be used.

4.0 PRESSURE TEST

A Pressure test point shall be fitted to the outlet of each meter, in accordance with the requirement of BS EN 1359: 1999, or equivalent.

Test certificates confirming the accuracy of registration of each meter in accordance with the requirement of Clause 5.1 of BS EN 1359: 1999 shall be submitted with each supply.

The meter index shall read in cubic metres, in accordance with the requirement of BS EN 1359: 1999, or Equivalent. The metering should be up



to 3 decimal places. The format of numbering and the serial numbers that are to be printed on each meter shall be obtained by the vendor, prior to supply of each lot of gas meters to BGL.

5.0 MARKING

Each Meter should be marked with manufacturer name or trademark.

Each meter should be marked with minimum and maximum range of gas flow.

In addition to the requirement of BS EN 1359: 1999, or equivalent, the meters shall bear the marking “**BHAGYANAGAR GAS LTD.**”. All markings shall be on the index.

6.0 COLOUR

The meter shall be in light natural color, to be approved by BGL.

7.0 PACKAGING

The meters shall be individually boxed, and packed to prevent movement during transit.

Each packaging containing meters shall carry the following stamped or written in indelible ink,

- Manufacturer name or trademark.
- Designation of Meter.
- Lot Number

8.0 INSPECTION / DOCUMENTS

Inspection shall be carried out as per BGL technical specification.

BGL representative / Third party Inspection agency approved by BGL reserves the rights to inspect (Stage wise / Final) at vendors' works.

Vendor shall submit inspection requirement (Quality Assurance Plan) approved by Third Party Inspection agency and data sheet / drawings and submit to BGL for final approval.

Alternatively party should arrange third party inspection by agency like Lloyds, DNV, BVQI, TUV, Baxcounsel, PDIL, EIL, etc., or any other agency with prior approval of BGL. Inspection to be carried out as per inspection plan given below.

INSPECTION PLAN.

- i. 5% random sample meters are to be selected from each manufacturing lot.

- ii. Visual inspection.
 - a. Checking the center-to-center distance of inlet & outlet connection.
 - b. Checking the inlet & outlet boss connection, size, threading, pressure test point, etc.
 - c. Checking the color, appearance, etc.
 - d. Checking the index of the meter.
- iii. Carry out soundness test as per specified standard.
- iv. Checking the performance like the accuracy of registration, mechanical pressure loss, mean pressure loss, etc.
- v. Verification of documents like type test certificates, Calibration certificates of the instruments & other relevant test certificates.
- vi. Even after third party inspection BGL reserves the rights to select the sample of meters randomly from each manufacturing batch & have these independently tested for soundness, performance, accuracy, pressure drop etc. Should the results of these tests fall outside the limits specified in BS EN 1359: 1999, or Equivalent then Bhagyanagar Gas reserves the right to reject all production supplied from the batch.

Acceptance of equivalence in manufacturing, approval, etc is at the sole discretion of BGL.

Bidder shall specify any deviation or variations in their offer from specified standard & acceptance of such deviations / variations shall be at the sole discretion of BGL.

Following Documents to be submitted along with technical bid:

- a. Approved certificates, against specified standard, proof / evidence certificate of equivalence, if relevant.
- b. Past performance certificate for at least one year.
- c. Details of manufacturers' quality plan, QA / QC procedure or proof of ISO certification.

9.0 Automatic Meter Reading (AMR) System

The meter shall be equipped with a mechanism to ensure retrofit of a Meter Interface Unit for future upgrade to a Remote / Automated Meter Reading System. For this purpose, the pulse generating mechanism shall be in-built into the meter and shall be based on proximity sensor or inductive principle and should remain unaffected by an external magnet to the best extent possible.

The month and year of manufacture shall be embossed clearly in legible condition and on a visible location on each of the meter, prior to dispatch to BGL. The embossing shall be in the format mm - yyyy.



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10.0 Documents to be furnished with supply includes, but not limited to the following:

- i. Performance & material test certificate, meter calibration certificate and any other relevant certificate as per Bhagyanagar Gas requirements.
- ii. Vendor / Supplier shall submit certificate of compliance against specified standard for all meters along with the supply, and Factory Acceptance Test report (witnessed by Third Party Agency) for all meters along with the supply, approval certificates for FLP / WP / EMI suppression / temperature class and other type tests such as impact / vibration test.
- iii. Supplier is required to provide a test certificate covering each Meter supplied confirming the accuracy of registration in accordance with the requirements of BS EN 1359: 1999, or equivalent.

SPECIFICATION FOR COMMERCIAL GAS METERS

Document No: BGL/ENG/PE/22

1. SCOPE.

This specification specifies the requirements for the construction, performance and marking of positive displacement diaphragm meters for use with natural gas, having specific gravity of 0.61, and normal working pressures up to 300 mbar (g). The meters shall be approved and manufactured in accordance with the requirements of BS EN 1359: 1999, or equivalent, and as per the requirements of this specification.

2. REFERENCES.

Unless modified by this specification, all the requirements of BS EN 1359: 1999 and the latest editions of the standards mentioned herein this specification, including all addenda and revisions, shall apply. All pressures mentioned in this specification are Gauge pressures.

3. METER DESIGNATIONS AND RATINGS.

Pressure ratings: Suitable to withstand maximum working pressure of 500 mbar (g).

Table I

Meter designation and ratings		
Meter Designation	Q max	Range ability
U6/G4	6 m ³ /h	1:150 or better
U10/G6	10 m ³ /h	1:150 or better
U25/G16	25 m ³ /h	1:150 or better
U40/G25	40 m ³ /h	1:150 or better
U65/G40	65 m ³ /h	1:150 or better

4. MATERIALS AND FINISH.

Material of construction should be as per BS EN 1359: 1999 or Equivalent. The meters shall be of a light neutral color, to be approved by BGL.

5. The pressure test point shall be fitted to the outlet of each meter, in accordance with the requirements of BS EN 1359: 1999, or equivalent.

6. The meter index shall read in cubic meters, in accordance with the requirement of BS EN 1359: 1999, or Equivalent. The metering should be up to 3 decimal places. The format of numbering and the serial numbers that are to be printed on each meter shall be obtained by the vendor, prior to supply of each lot of gas meters to BGL.

7. The meters shall be fire resistant, in accordance with the requirements of BS EN 1359: 1999, or equivalent.



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In addition to the requirement of BS EN 1359: 1999, or equivalent, the meters shall bear the marking “**BHAGYANAGAR GAS LTD.**”. All markings shall be on the index.

8. CONNECTIONS.

The connections will be of a size given in BS EN 1359: 1999. And meters except U65 shall be fitted with bosses in accordance with BS 746: 2005+A1: 2009. U65 Meter shall be flanged as per BS EN 1092-2:1997.

If the connections are not provided as per BS Standard, supplier shall provide suitable adapters (2 Nos.) along with each meter, free of cost. In case of U65 meters, companion flanges shall be provided by supplier, free of cost.

9. a) SOUNDNESS & PERFORMANCE

Shall comply with BS EN 1359: 1999, or equivalent.

b) ACCURACY OF REGISTRATION

Test certificates confirming the accuracy of registration of each meter should be in accordance with the requirement of Clause 5.1 of BS EN 1359: 1999 shall be submitted with each supply.

10. Acceptance of equivalence in manufacturing, approval, etc., is at the sole discretion of BGL.

11. Bidder shall specify any deviation or variations in their offer from specified standard, and acceptance of such deviations / variations shall be at the sole discretion of BGL.

12. Following documents (in English language only) are to be submitted along with technical bid:

- Approved certificates, against specified standard, proof / Evidence certificate of equivalence, if relevant.
- Past performance certificate for at least one year.
- Details of manufacturers quality plan, QA/QC procedure or proof of ISO certification.

13. AUTOMATIC METER READING SYSTEM

The gas meters should be compatible for implementing the automatic meter reading system at a later stage by retrofitting an appropriate signal transmitting device.

14. The month and year of manufacture shall be embossed clearly in legible condition and on a visible location on each of the meter, prior to dispatch to BGL. The embossing shall be in the format mm – yyyy.



15. INSPECTION.

- i. BGL representative / Third party approved by BGL reserves the rights to inspect (Stage wise / Final) at vendors' works. Vendor shall submit inspection requirement (Quality Assurance Plan) by Third Party Inspection agency and data sheet / drawings and submit to BGL for approval.
- ii. Alternatively, party should arrange third party inspection by agency like Lloyds, DNV, BVQI, TUV, Baxcouncil, PDIL, EIL etc., or any other agency with prior approval of BGL. Inspection to be carried out as per inspection plan given below. **Party should quote separately for third party inspection.**

INSPECTION PLAN

Inspection shall be carried out as per BGL technical specification No. BGL/ENG/PE/18

- A. 5% random sample meters are to be selected from each manufacturing lot.
 - i. Visual inspection.
 - a. Checking the center-to-center distance of inlet & outlet connection.
 - b. Checking the inlet & outlet boss connection, size, threading, pressure test point etc.
 - c. Checking the color, appearance, etc.
 - d. Checking the index of the meter.
 - ii. Soundness test as per specified standard.
 - iii. Checking the performance like the accuracy of registration, mechanical pressure loss, mean pressure loss etc.
 - iv. Verification of documents like type test certificates, Calibration certificates of the instruments & other relevant test certificates.
- B. Even third party inspection, BGL reserves the rights to select the sample of meters randomly from each manufacturing batch & have these independently tested for soundness performance, accuracy pressure drop etc. Should the results of these tests fall outside the limits specified in BGL technical specification, then Bhagyanagar Gas reserves the right to reject all production supplied from the batch.

15. Documents to be furnished with supply includes, but not limited to the following:

- i. Performance & material test certificate, meter calibration certificates and any other relevant certificate as per BGL requirements.



- ii. Vendor / Supplier shall submit certificate of compliance against specified standard for all meters along with the supply, and Factory Acceptance Test report (witnessed by Third Party Agency) for all meters along with the supply, approval certificates for FLP / WP / EMI suppression / temperature class and other type tests such as impact / vibration test.
- iii. Supplier is required to provide a test certificates covering each meter supplied confirming the accuracy of registration in accordance with the requirements of BS EN 1359: 1999, or equivalent.

TECHNICAL BID EVALUATION CRITERIA (TBEC)

1. Bidder should comply with all the requirements of BGL technical specifications.
2. Bidder should be a manufacturer of diaphragm gas meters.
3. Bidder should submit valid approval certificates (for compliance of the offer model of gas meter to the requirements of EN 1359) from BG, DVGW, or equivalent along with the technical bid.
4. Bidder shall be ISO 9001: 2008 certified, and should furnish a copy of the same along with the technical bid.
5. Bidder should have supplied similar type of meters to renowned gas industries.
6. Bidder should submit the documentary evidence (in English language only) such as copy of purchase orders of past supply along with third party inspection release note, or certificate of at least one-year trouble free performance (of the material supplied vide the same PO), should be furnished along with technical bid. All the documents shall be in English language only. In case the certificates / documents are in a language other than English, translated documents of the same, duly attested by a third party inspection agency, shall however be submitted along with the technical bid.
7. Unless bidder is a past supplier, a sample should be submitted for approval.
8. BGL reserves the right to consider the offer of vendor based on its past performance in any of the city gas distribution company.



Bhagyanagar Gas Ltd.
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SECTION 11 TIME SCHEDULE



Bhagyanagar Gas Ltd.
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TIME SCHEDULE

NATURAL GAS METERS & REGULATORS:

Sl. No.	Item Descriptions	Completion schedule for all type of Regulators
1	Design, Engineering, Factory Testing, Supply (FOT Site basis) including packaging forwarding, Insurance, transportation, custom clearance, Loading / Unloading, etc. at port as well as BGL sites/ designated store.	12 weeks from date of written intimation / Delivery Order from BGL

Note: Price Reduction Schedule (PRS) will be based on contract value for the items covered under this schedule.



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SECTION – 12 SCHEDULE OF RATES



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SCHEDULE OF RATES (SOR)

ITEM: NATURAL GAS METERS AND REGULATORS

PROJECT: CGD PROJECT IN HYDERABAD

TENDER NO.: BGL/093/2010-11

Sr No	Description	Quantity (In Nos.)	Unit Price Ex works including cost of raw material/components & customs duty, packaging, forwarding but excluding ED & ST on finished goods	Per unit Terminal Excise Duty	Per unit Sales tax	Per unit Freight & Insurance	Per unit FOT Site	Total FOT project Site
Group A	Domestic Meter							
1	Flow capacity of 2.5m ³ /hr & design Pressure up to 200 mbar (Left site inlet & right side outlet)	5000						
Group B	Commercial Meter							
1	Flow capacity of 6 m ³ /hr & design Pressure up to 6 bar Max Working Pressure 300 mbar.	20						
2	Flow capacity of 10 m ³ /hr & design Pressure up to 6 bar Max Working Pressure 300 mbar.	20						
3	Flow capacity of 25 m ³ /hr & design Pressure up to 6 bar Max Working Pressure 300 mbar.	20						



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Sr No	Description	Quantity (In Nos.)	Unit Price Ex works including cost of raw material/components & customs duty, packaging, forwarding but excluding ED & ST on finished goods	Per unit Terminal Excise Duty	Per unit Sales tax	Per unit Freight & Insurance	Per unit FOT Site	Total FOT project Site
4	Flow capacity of 40 m ³ /hr & design Pressure up to 6 bar Max Working Pressure 300 mbar.	10						
5	Flow capacity of 65 m ³ /hr & design Pressure up to 6 bar Max Working Pressure 300 mbar.	10						
Group C	Domestic Regulator							
1	Pressure Reduction of 100 mbar inlet to 21 mbar outlet pressure with 2.5m ³ /hr	5000						
Group D	Commercial Regulator							
1	Pressure Reduction of 4 bar inlet to 100 mbar outlet pressure with 6 m ³ /hr flow	20						
2	Pressure Reduction of 4 bar inlet to 100 mbar outlet pressure with 10m ³ /hr flow	20						
3	Pressure Reduction of 4 bar inlet to 100 mbar outlet pressure with 25m ³ /hr flow	20						



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Sr No	Description	Quantity (In Nos.)	Unit Price Ex works including cost of raw material/components & customs duty, packaging, forwarding but excluding ED & ST on finished goods	Per unit Terminal Excise Duty	Per unit Sales tax	Per unit Freight & Insurance	Per unit FOT Site	Total FOT project Site
4	Pressure Reduction of 4 bar inlet to 100 mbar outlet pressure with 40 m ³ /hr flow	10						
5	Pressure Reduction of 4 bar inlet to 100 mbar outlet pressure with 65 m ³ /hr flow	10						

Note:

- 1) Evaluation will be done Group wise i.e. for 'A, B, C0 & D' separately and order will be placed on the lowest bidder(s) in each category at lowest cost to BGL.
- 2) Inspection shall be carried out Vendor and price will be quoted in the base price.
- 3) Bidder shall submit separately a list of 2 year recommended spare with unit price (valid for Eighteen months) for each type of Meters and Regulators along with un-priced part of the offer.
- 4) Excise Duty: _____ %
- 5) Sales Tax: _____ % with Form C
- 6) Sales Tax: _____ % without Form C