



Bhagyanagar Gas Ltd.

BHAGYANAGAR GAS LIMITED

(A JOINT VENTURE OF HPCL & GAIL)

BID DOCUMENT FOR

PROCUREMENT OF PRESSURE REGULATING VALVES (PRV)

**UNDER LIMITED DOMESTIC
COMPETITIVE BIDDING**

Bid Document No.: BGL/176/2011-12

VOLUME-II of II

VOLUME-II

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SECTION – 8
MATERIAL REQUISITION (MR)

MATERIAL REQUISITION

Sr. No	Description	Location	Unit	Quantity
1	Design, Manufacture, testing, Loading at Vendor's works, Supply & Transportation, Unloading at Project site of PRV Size: 2 inch 300 class; Flanged End- Raised Face (RF); Inlet pressure: 38 to 23 Kg/cm ² ; Outlet pressure: 15 Kg/cm ² to 23 Kg/cm ² ; Flow Min: 600 SCMH, Flow normal: 1200 SCMH, Flow max.: 1500 SCMH Temp: 15 deg Cel to 50 deg cel	Vijayawada	No	4
2	Repair kit containing recommended spares like diaphragm, gasket, O-rings, disc, other soft items as applicable of main regulator & pilot for the PRV as mentioned against SOR sl no.1	Vijayawada	Set	2
3	Design, Manufacture, testing, Loading at Vendor's works, Supply & Transportation, Unloading at Project site of PRV Size: 1 inch 300 class; Flanged End- Raised Face (RF); Inlet pressure: 46 to 24 Kg/cm ² ; Outlet pressure: 15 Kg/cm ² to 24 Kg/cm ² ; Flow Min: 400 SCMH, Flow normal: 650 SCMH, Flow max.: 1200 SCMH Temp: 15 deg Cel to 50 deg cel	Vijayawada - 1 No Hyderabad - 3 No	No	4
4	Repair kit containing recommended spares like diaphragm, gasket, O-rings, disc, other soft items as applicable of main regulator & pilot for the PRV as mentioned against SOR sl no.3	Hyderabad	Set	2
5	Design, Manufacture, testing, Loading at Vendor's works, Supply & Transportation, Unloading at Project site of PRV Size: 1 inch 300 class, Flanged End- Raised Face (RF); Inlet pressure: 33 to 49 Kg/cm ² ; Outlet pressure: 17 Kg/cm ² to 26 Kg/cm ² ; Flow Min: 600 SCMH, Flow normal: 1200 SCMH, Flow max.: 1500 SCMH Temp: 15 deg Cel to 50 deg cel	Hyderabad	No	2
6	Repair kit containing recommended spares like diaphragm, gasket, O-rings, disc, other soft items as applicable of main regulator & pilot for the PRV as mentioned against SOR sl no.5	Hyderabad	Set	1

SECTION – 9
SPECIAL CONDITIONS OF CONTRACT (SCC)

SPECIAL CONDITIONS OF CONTRACT (SCC)

1.0 GENERAL

- 1.1 Special Conditions of Contract shall be read in Conjunction with the General Conditions of Contract, Specification of work, Drawing and any other documents forming part of this Contract wherever the context so requires.
- 1.2 Notwithstanding the sub-division of the documents into these separate sections and volumes every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read within the Contract so far as it may be practicable to do so.
- 1.3 Where any portion of the General Conditions of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract, unless a different intention appears, the provisions of the Special Conditions of Contract shall be deemed to over-ride the provisions of the General Conditions of Contract and shall be the extent of such repugnancy, or variations, prevail.
- 1.4 Wherever it is mentioned in the specification that the Contractor shall perform certain work or provide certain facilities, it is understood that the Contractor shall do so at his cost and the **Value of Contract** shall be deemed to have include cost of such performance and provisions, so mentioned.
- 1.5 The materials, design, and workmanship shall satisfy the relevant Indian Standard, the Job Specifications contained herein and Codes referred to. Where the job specification stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied.
- 1.6 In case of an irreconcilable conflict between Indian or other applicable standards, General Conditions of Contract, Special Conditions of Contract, Specification, Drawings or Schedule of Rates, the following shall prevail to the extent of such irreconcilable conflict in order of precedence:
 - i) Letter of Acceptance/ LOI along with Statement of Agreed Variations.
 - ii) Schedule of Rates as enclosures to Letter of Acceptance
 - iii) Special Conditions of Contract
 - iv) Drawings
 - v) Technical/ Material Specifications
 - vi) Instruction to Bidder
 - vii) General Conditions of Contract
 - viii) Indian Standards
 - ix) Other applicable standards
- 1.7 It will be the Contractor's responsibility to bring to the notice of Engineer-in-charge any irreconcilable conflict in the contract documents before starting the work(s) or making the supply with reference which the conflict exists.
- 1.8 In the absence of any Specifications covering any material, design of work(s) the same shall be performed/ supplies/ executed in accordance with Standard

Engineering Practice as per the instructions/ directions of the Engineer-in-charge, which will be binding on the Contractor.

2.0 SCOPE OF SUPPLY

2.1 General

This Specification covers, supply of PRV to be used in City Gas Distribution for Hyderabad, Vijayawada and Kakinada City in the state of Andhra Pradesh.

The scope of supply covers design, engineering, manufacture, inspection, testing, supply and documentation requirements of these items in accordance with the requirements of this Requisition.

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

2.3 REMARKS

2.3.1 Supplier's Compliance

Supplier shall submit his bid in full compliance with the requirements of this MR and attachments. Bidder shall include the following statement in his bid:
Compliance with this material Requisition in any instance shall not relieve the Vendor of his responsibility to meet the specified performance.

2.3.2 Compliance with Specification

The supplier shall be completely responsible for the design, materials, fabrication, testing, and inspection, preparation for shipment & transfer of above material to nominated delivery point strictly in accordance with the MR & all attachments thereto.

2.3.4 Performance and Inspection

Adequate data on capacity, range ability, lock -up, minimum and maximum operating pressure, dynamic performance characteristics and set point of pressure regulator etc. should be given by the manufacture in order to determine the performance of the regulators under various operating conditions. Result of such tests carried out by the manufacture to determine operational performance and thereby confirm these design data and manufacturing Test Certificate for PRV.

3.0 SPECIAL INSTRUCTIONS TO BIDDERS

- 3.1 The installation shall be designed to pass maximum designated gas flow rate at the lowest expected inlet pressure and the designed outlet pressure.
- 3.2 Suitable for the use with natural gas of specific gravity 0.6
- 3.3 The PRV must be capable of withstanding the maximum pressure resulting from a fault condition.
- 3.4 All material shall be delivered at Company's designated storage yard. The destination for delivery of items is at Hyderabad, Vijayawada and Kakinada.
- 3.5 BGL reserves the right to increase or decrease the quantity of supply item.

4.0 INFORMATION/ DOCUMENTS / DRAWINGS TO BE SUBMITTED BY SUCCESSFUL BIDDER

Successful Bidder shall submit three copies unless noted otherwise, each of the following:

- 4.1 Inspection & test reports for all mandatory tests as per the applicable code as well as test reports for any supplementary tests, in nicely bound volumes.
- 4.2 Material test certificates (physical property, chemical composition, make, heat treatment report, etc.) as applicable for items in nicely bound volumes.
- 4.3 Statutory test certificates, as applicable.
- 4.4 Filled in Quality Assurance Plan (QAP) for Purchaser's approval. These QAPs shall be submitted in four copies within 15 days from LOI/ FOI.
 - 4.5.1 Detailed completion schedule activity wise (Bar Chart), within one week of placement of Order.
 - 4.5.2 Manufacturer's drawings for bought out items if applicable, in 3 copies, for Purchaser's approval within 4 weeks.
 - 4.5.3 All approved drawings/ design calculation/ maintenance/ operating manual documents as well as inspection and test reports for Owner's record in nicely category-wise bound volumes separately.
 - 4.5.4 A list of documents to be furnished along with supply.

5.0 GUARANTEE:

24 months from date of delivery or 12 months from date of commissioning, whichever is earlier, should be provided.

Note: All drawings, instructions, catalogues, etc., shall be in English language and all dimensions shall be metric units.

6.0 **Security Deposit/ Contract Performance Guarantee:**

The successful bidder shall deposit security deposit @ 10% of the contract value (excluding taxes & duties) within 10 days of LOI/PO. The Security deposit shall be submitted in the form of an unconditional irrevocable Bank Guarantee for Warranty from any Indian Nationalized Bank/ Scheduled bank/ reputed foreign bank having office in India and registered with Reserve Bank of India acceptable to BGL for a sum equivalent to 10% of the total contract value on the name of Bhagyanagar Gas Limited, Hyderabad. Alternatively the bidder can also submit the security deposit in the form of crossed Demand Draft in favour of Bhagyanagar gas Limited, Hyderabad.

7.0 **TERMS OF PAYMENTS**

The Payment shall be made progressively against receipt of each PRV at site in the following manner.

100% of Invoice value shall be paid progressively by Owner within 15 days against receipt of materials at site and the following documents duly accepted by EIC :-

- i) 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 this certificate will duly be endorsed by the contractor owning overall responsibility.
- vii) Final technical file having documents as per Technical Specifications/ Material Requisition, Volume-II of II of the Bid Document including all test certificates
- viii) Performance Bank Guarantee(s) of 10% of Contract Value. (If already submitted, a copy of the same).

8.0 **INLAND TRANSIT INSURANCE FOR PROCUREMENT OF GOODS**

Bidder shall arrange Transit Insurance and the cost of which shall be borne by bidder. Quoted price shall be inclusive of the same. Bidder will be required to submit documentary proof for the transit insurance before dispatch.

9.0 **PRICE ESCALATION**

The Contract price shall be deemed to be FIRM and valid for the entire duration of the contract till the completion of work and shall not be subjected to any adjustment due to increase in price of raw material, utilities or any other input for performance of work and the contract except for increase/decrease in taxes and duties on account of subsequent legislation.

10.0 **DIVISION OF ORDER**

BGL reserves the right to divide the quantity among more than one bidder at BGL's sole discretion.

11.0 **QUALITY ASSURANCE / QUALITY CONTROL**

11.1 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.

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

11.3 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.

12.0 **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.

13.0 **INSPECTION**

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.

14.0 **DISPATCH INSTRUCTIONS**

14.1 Seller shall obtain dispatch clearance from Purchaser prior to each dispatch.

14.2 Copy of Inspection Release Certificate, Dispatch Clearance and Statement showing LR, packing list and weight of material and shipping marks etc. to be submitted along with the dispatch document.

15.0 **REJECTION**

15.1 Any materials/goods covered under the scope of supply, which during the process of Inspection, at any stage of manufacture/fabrication, and subsequent stages, prior to dispatch is found not conforming to the requirements/specifications of the Purchase Order, shall be liable for immediate rejection.

15.2 Supplier shall be responsible and liable for immediate replacement of such material with acceptable material at no extra cost to BGL and no extra on the delivery schedule to Employer.

16.0 **Liquidated Damages (LD):**

IN case the contractor fails to complete the supply within the stipulated delivery period then unless such failure is due to FORCE MAJEURE as defined in clause no. 29 of GCC or due to employers defaults, the ordered price shall be reduced @ **0.5%** per week of delay or part thereof subject to maximum of **5% of total undelivered portion of order value.**

Price reduction for failure to meet technical parameters as mentioned in technical specification shall be separately applicable and shall be in addition to price reduction on account of failure of completion of supply.

17.0 **REPEAT ORDER**

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

18.0 **DELIVERY**

The PRVs shall be delivered at Hyderabad, Vijayawada and Kakinada city. The location of the store shall be informed before dispatch of PRV from factory.

19.0 **VALIDITY OF CONTRACT**

The Contract / Order shall be valid for a period of Nine (09) months from the date of issue of LOI / PO.

SECTION – 10 TIME SCHEDULE

DELIVERY SCHEDULE

S. No	Item Description	Qty	Delivery Location	Completion Period
1	Design, Manufacture, testing, Loading at Vendor's works, Supply & Transportation, Unloading at Project site of PRV Size: 2 inch 300 class; Flanged End- Raised Face (RF); Inlet pressure: 38 to 23 Kg/cm ² ; Outlet pressure: 15 Kg/cm ² to 23 Kg/cm ² ; Flow Min: 600 SCMH, Flow normal: 1200 SCMH, Flow max.: 1500 SCMH Temp: 15 deg Cel to 50 deg cel	4 No	Vijayawada: 4	Vijayawada: 1 st lot of 3 No's within 10 weeks from the date of PO/LOI; 2 nd lot of 1 no. within 12 weeks from the date of intimation through email / letter by BGL
2	Repair kit containing recommended spares like diaphragm, gasket, O-rings, disc, other soft items as applicable of main regulator & pilot for the PRV as mentioned against SOR sl no.1	2 Set	Vijayawada: 2	Vijayawada: 2 sets within 12 weeks from the date of intimation through email / letter by BGL
3	Design, Manufacture, testing, Loading at Vendor's works, Supply & Transportation, Unloading at Project site of PRV Size: 1 inch 300 class; Flanged End- Raised Face (RF); Inlet pressure: 46 to 24 Kg/cm ² ; Outlet pressure: 15 Kg/cm ² to 24 Kg/cm ² ; Flow Min: 400 SCMH, Flow normal: 650 SCMH, Flow max.: 1200 SCMH Temp: 15 deg Cel to 50 deg cel	4 No	Hyderabad: 3; Vijayawada: 1	Hyderabad: 1 st lot of 1 No within 10 weeks from the date of PO/LOI. 2 nd lot of 2 nos. within 12 weeks from the date of PO/LOI. Vijayawada: 1 No within 14 weeks from the date of PO/LOI;
4	Repair kit containing recommended spares like diaphragm, gasket, O-rings, disc, other soft items as applicable of main regulator & pilot for the PRV as mentioned against SOR sl no.3	2 Set	Hyderabad: 2	Hyderabad: 2 sets within 12 weeks from the date of intimation through email / letter by BGL
5	Design, Manufacture, testing, Loading at Vendor's works, Supply & Transportation, Unloading at Project site of PRV Size: 1 inch 300 class, Flanged End- Raised Face (RF); Inlet pressure: 33 to 49 Kg/cm ² ; Outlet pressure: 17 Kg/cm ² to 26 Kg/cm ² ; Flow Min: 600 SCMH, Flow normal: 1200 SCMH, Flow max.: 1500 SCMH Temp: 15 deg Cel to 50 deg cel	2 No	Hyderabad: 2	Hyderabad: 1 st No. within 10 weeks from the date of PO/LOI. 2 nd No. within 12 weeks from the date of intimation through email / letter by BGL.
6	Repair kit containing recommended spares like diaphragm, gasket, O-rings, disc, other soft items as applicable of main regulator & pilot for the PRV as mentioned against SOR sl no.5	1 Set	Hyderabad: 1	Hyderabad: 1 set within 12 weeks from the date of intimation through email / letter by BGL

Note: Exact delivery location will be intimated after placement of award.

SECTION – 11 TECHNICAL SPECIFICATIONS

1.0 GENERAL

- 1.1 This specification together with all annexure enclosed, covers the requirements for the design, engineering, manufacturing, testing, inspection and supply of PRV along with all the accessories.
- 1.2 In the event of any conflict between this specification, datasheets, related standards codes etc., the more stringent shall apply.
- 1.3 Purchaser datasheet for Pressure regulators has been attached. However, this does not absolve the vendor of the responsibility for proper selection with respect to the fluid & its operating conditions. Proper sizing & selection of Pressure Regulators are vendor's responsibility. Sizing Calculation required for Pressure Regulators and Noise calculation required for PCVs. Process parameters for Pressure Regulators are attached. Vendor shall take single point responsibility for the design & performance of the Pressure Regulators based on the data sheet and specification furnished and taking into consideration successful operation, safety as per the established international standards for Pressure Regulators.
- 1.4 Vendor shall consider all the requirements of this specification along with those as per relevant standards and shall assume total responsibility including all aspects of engineering, design, certification etc.
- 1.5 Vendor to furnish
 - a) The maximum flow rate (in Sm³/hr) at minimum inlet pressure for all PCVs at valve full open condition.
 - b) Min. flow rate (in Sm³/hr) through each PCV without damaging the trim and valve internals at min. inlet pressure.
 - c) Flow rate vs. trim lift curve to justify the valve range ability and valve regulation characteristics.
- 1.6 All units of measurements in vendor's specification sheets shall be same as those in purchaser's data sheets. All material specification for the various parts in the vendor's specifications sheets shall be to the same standard as those in purchaser data sheets.
- 1.7 Vendor shall enclose catalogues giving detailed technical specification and other information for self-actuated pressure control valve covered in the bid. Vendor's quotation, catalogues, drawings, operating and maintenance manuals etc. shall be only in English language. Vendor shall submit subsequent to award of contract the sizing details & specification of all the instruments and piping items make and model, skid details etc. The relevant catalogue, technical literature shall also be furnished.

2.0 **SCOPE OF WORK:**

Vendor's scope shall include complete design, engineering, manufacturing, testing, Loading at Vendor's works, Supply & Transportation, Unloading at Project site of PRV as per the respective data sheets and other specifications enclosed herewith.

3.0 **TESTING AND INSPECTION:**

All materials and equipment shall be factory tested before shipment. No material shall be transported to site until all required tests have been carried out and equipment is certified as ready for shipment. Acceptance of equipment or the exemption of inspection or tests thereof, shall in no way absolve supplier of the responsibility for delivering equipment meeting the requirements of the specifications. Following tests shall be included.

1. Material test certificate, hydrostatic test certificate for self-actuated pressure control valves.
2. Testing to demonstrate the set point accuracy for self-actuated pressure control valves for the complete range of pressure and flow conditions.

a) **Hydrostatic Testing:** Hydrostatic test of regulators shall be tested.

4.0 **DOCUMENTATION:**

The Purchaser in vendor data requirement sheets indicates detailed drawings, data and catalogs required from the vendor. The required number of reproducible and prints should be dispatched to the address mentioned, adhering to the time limits attached. Final drawings from the vendor shall include dimensional details, weight, mounting details and any other special requirements etc. for the skids. All dimensions in general shall be in millimeters. Vendor shall furnish all manuals necessary to test, operate and maintain the system. The Vendor shall submit the following documents in Minimum 3 sets,

- a) Performance specification and Test certificate.
- b) Construction drawings, material specification and technical data sheets.
- c) Instructions and recommendations regarding installation, operation and maintenance of all the components of the unit.
- d) Spare part list.
- e) Material test certificate for all the pipe and fittings material.
- f) Hydrostatic and Pneumatic test certificates.

5.0 **NAME PLATE:**

Each skid and all the instruments in the skid shall have a SS nameplate attached firmly to it at a visible place furnishing the following information:

- > Tag number as per Purchaser's data sheets.
- > Body sizes in inches and the valve Cv.
- > Set pressure range or flow range.

- > Flow range in Sm³/hr
- > Rating
- > Manufacturer's Name & model number
- > No smoking or spark flame or naked flame within a radius of 1.5 meters.

6.0 **Technical Specifications of Pressure Regulator Valves (PRV)/ Pressure Control Valves (PCV)**

- 6.1 The type of PRV shall be of pilot operated self-actuated regulator design and shall be such that diaphragm does not come directly in contact with high pressure inlet process fluid.
- 6.2 The pilot operated regulator valve shall be having following characteristics: The valve shall be gas actuated and (Pilot spring type) of fail closed type; with closing time of less than one second. The valve shall have RF flanged. This valve shall be equipped with a manual reset and opening device; Actuation of the valve shall be possible by maximum and minimum pressure; the seat leakage specification shall be class 6 according to ANSI B16.104;
- 6.3 The accuracy of the trip settings shall be +/- 1%; the setting range shall be:
- for the maximum set point, 90 to 150% of the maximum outlet pressure;
 - for the minimum set point, 10 to 40% of the maximum outlet pressure. the valve shall control the outlet pressure; the maximum increase of the downstream pressure or "closing overpressure" shall not exceed 5% of the set pressure it shall be possible to modify the nominal flow by changing easily the internal restriction pieces of the valves, the control range shall be from 10% to 120 % of the maximum outlet pressure, the accuracy of the regulated outlet pressure shall be +/- 1% of the set pressure for entire flow range.

Regulator shall be design in such a way that inlet pressure does not come in direct contact with main valve diaphragm. i.e. Only loading type of regulator is acceptable.

Each pressure regulator shall be designed for maximum gas flow rate at the minimum inlet arrival pressure. Gas pressure regulators shall be with very high range-ability since high fluctuations in flow demand are expected and also the inlet pressure may vary considerably.

Pressure regulators/ monitors shall be self-actuated pilot operated with regulation accuracy of better than +/- 1% of set point.

The construction of the Regulators / monitors shall be such that there will be no continuous gas bleeding.

Leakage class for pressure control valve & slum-shut valve shall be class-VI as per ANSI B16.10

Vendor to note that the noise level for each Regulator / monitor valve shall be less than 85 dBA at one meter away from the valves. Vendor to provide Noise calculation giving full details and standards used and any assumptions considered in calculation (This calculation shall be submitted along with the bid).

Vendor shall furnish the flow rate versus trim lift curve to justify the valve range-ability and valve regulation characteristics.

The PCV/ PRV shall be designed in such a way the noise generated by these equipment's shall not interfere with the performance of the downstream equipment's.

The self-actuating Pressure regulating valve shall be designed as per EN334 and Pressure Equipment Directive PED 97/23/EC covering the production quality assurance with minimum module D certification.

Data Sheet for PRV:

Sr No.	Specification	Requirements	Vendor's Offer	Deviation, if any	Remarks
I	Regulator				
1	Make	Vendor to specify			
2	Type / model	Vendor to specify			
3	Type	Pilot acting - Loading Type			
4	Maximum operating temperature	60 deg C			
5	Minimum operating temperature	05 Deg C			
6	Regulation accuracy	+/- 2.5 % of set outlet pressure (G) or better			
7	Connection details	Flanged ends- ANSI 300#			
8	Material of construction				
a	Body	Steel ASTM A216 WCB or suitable material for withstanding pressure			
b	Internals	SS or brass or suitable material for withstanding pressure			
c	Diaphragm	Synthetic rubber or suitable material for withstanding pressure			
d	Service	PR. REDUCTION			

e	Regulation	DOWN STREAM			
f	End Conn : Flgd. Size &	300#			
g	Facing & Finish	RF 125 AARH			
h	Body Material	ASTM A216 GR. WCB			
i	Trim Material	SS 316			
j	Impulse Connecn. Int.	EXTERNAL			
k	ANSI Leakage Class	CLASS VI			
l	Failure Position	Fail closed			
m	Predicted Sound Level	< 85dBA			
n	100% Radiography	YES			
9	Standards				
A	Regulator	EN 334:2005(+A1:2009)			
B	Components for gas supply	DIN 30690-1:2006/DIN 30690-2:1980 or equivalent			
II	Relief valve protection	Against downstream over pressure at low flows			

Note:

1. * - TO BE FURNISHED BY THE VENDOR.
2. SPRING SHALL BE SUITABLE TO ADJUST SET PR. AS PER ITEM SERIAL NO. OF MR.
3. VENDOR SHALL FURNISH A SCHEMATIC INCLUDING ALL THE IMPULSE LINE CONNECTIONS. LOCATION AND SIZES TO THE MAIN VALVE AND TO THE PILOT INLET/OUTLET VALVE.
4. ACCURACY OF REGULATION SHALL BE BETTER THAN $\pm 1\%$ OF THE SET PRESSURE.
5. VENDOR SHALL FURNISH THE SIZING CALCULATIONS ALONG WITH THE QUOTE.
6. VENDOR SHALL FURNISH SPRING RANGES ALONG WITH OFFER
7. THE SELECTED SIZE & MODEL SHALL BE SUCH THAT THE PRESSURE CONTROL VALVE MUST OPERATE AND CONTROL AT BOTH MIN. AND MAX. FLOW RATE AS INDICATED WITH THE GIVEN PRESSURE CONDITIONS.
8. THE SELECTED MODEL SHALL BE OF PILOT OPERATED AS PER EN 334 & PED, EC TYPE CERTIFICATE.

SECTION – 12
SCHEDULE OF RATES (SOR)

(enclosed at *ANNEXURE – I*)