VCS Quality Services Private Limited

CITY GAS DISTRIBUTION PROJECT OF NORTH GOA GAS

RATE CONTRACT FOR SUPPLY OF GAS REGULATORS FOR INDUSTRIAL & COMMERCIAL UNITS

TENDER NO: GNGPL/C&P/T-54
DOCUMENT NO: VCS/GNGPL/1023/PRC/2023/004

Issued Date: 08/09/2023

Goa Natural Gas Pvt.Ltd.
A Joint Venture of GAIL Gas Ltd & BPCL

GOA NATURAL GAS PRIVATE LIMITED (GNGPL)

PMC

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FOR INDUSTRIAL & COMMERCIAL UNITS

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RATE CONTRACT FOR SUPPLY OF GAS REGULATORS FOR INDUSTRIAL & COMMERCIAL UNITS

INTRODUCTION

C1	08.09.2023	ISSUED FOR BID	MR	RA	KNC
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1. INTRODUCTION

M/s Goa Natural Gas Pvt. Ltd. is a Joint Venture (JV) of Bharat Petroleum Corporation Limited (BPCL), A Govt. of India Enterprise and GAIL Gas Limited, a fully owned subsidiary company of GAIL (India) Limited, has been set up to provide PNG (piped Natural Gas) to industrial, domestic, commercial sectors and CNG to automobile sector in North Goa GA.

VCS Quality Services Pvt. Ltd. (VCS has been appointed as Project Management Consultant for providing consultancy services for CGD Expansion Project for PNG & CNG in North Goa (hereinafter referred as Consultant), by GNGPL.

The present document covers the technical specifications for the enquiry.

2. TECHNICAL SPECIFICATIONS

The technical specifications for this present tender enquiry are as listed in Material Requisition (Ref. No.1023-CD-IC-MR-001 Rev.C1).

Energising Quality	**MATERIAL REQUISITION**	Goa Natural Gas Pvt.Ltd. A Joint Venture of GAIL Gas Ltd & BPCL

MATERIAL REQUISITION FOR COMMERCIAL & INDUSTRIAL REGULATOR				**TOTAL SHEETS**	07
DOCUMENT NO	1023	CD	IC	MR	002

GOA NATURAL GAS PVT. LIMITED

RATE CONTRACT FOR SUPPLY OF GAS REGULATORS FOR INDUSTRIAL & COMMERCIAL UNITS

MATERIAL REQUISITION FOR COMMERCIAL & INDUSTRIAL REGULATORS

C1	08.09.2023	ISSUED FOR BID	MR	RA	KNC
REV	**DATE**	**DESCRIPTION**	**PREP**	**CHK**	**APPR**

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1. DESCRIPTION OF GOODS AND / OR SERVICES

The scope of work shall cover design, engineering, manufacturing, testing, inspection, preparation for shipment and transportation of the Gas Meters, EVC, and Regulators as per technical requirements/specification for City Gas Distribution project…

Sl No.	Description as per MR	Quantity (Nos.)
1.0	SUPPLY OF COMMERCIAL & INDUSTRIAL GAS REGULATORS :- Design, Engineering, Manufacturing, Inspection, Shop testing, submission & approval of design calculation, drawings & transportation of gas regulators at site with all its accessories as per technical specification requirements, MR and scope of work.	
GROUP-A		
1.1	COMMERCIAL REGULATOR - 10 SCMH (INLET PRESSURE-: 1-6 BAR. OUTLET PRESSURE-: 300 mbar, FLOW-: 10 m3/hr.)	50
1.2	COMMERCIAL REGULATOR - 16 SCMH (INLET PRESSURE-: 1-6 BAR. OUTLET PRESSURE-: 300 mbar, FLOW RATE: 16 m3/hr.)	10
GROUP-B		
1.3	COMMERCIAL REGULATOR - 25 SCMH (INLET PRESSURE-: 1-6 BAR. OUTLET PRESSURE-: 500 mbar, FLOW RATE: 25 m3/hr.)	5
1.4	COMMERCIAL REGULATOR - 65 SCMH (INLET PRESSURE-: 1-6 BAR. OUTLET PRESSURE-: 500 mbar, FLOW RATE-: 65 m3/hr.)	10
GROUP-C		
1.5	INDUSTRIAL REGULATOR- 25 SCMH (INLET - 4-6 BAR OUTLET: 0.5 - 2 BAR, FLOWRATE: 25 M3/HR.)	50
1.6	INDUSTRIAL REGULATOR- 65 SCMH (INLET - 4-6 BAR OUTLET: 0.5 - 2 BAR FLOWRATE: 65 M3/HR.)	25

NOTES:

1. Accessories for Meter/Regulators shall be supplied as specified in the Specifications attached with the material requisition.
2. Bidder has to quote full quantity of quoted item mentioned above; partial quotation for the item shall be liable to rejection.

2 REMARKS / COMMENTS

2.1 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:

We certify that our bid is fully complying with your enquiry dated ……and referenced…… ,

Compliance with this Material Requisition in any instance shall not relieve the Vendor of his responsibility to meet the specified performance.

2.2 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 Supplier's Scope

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

2.4 Applicable Documents

General descriptions, requirements and information are listed in Annexure "C" of this Material Requisition.

2.5 Supplier's Documents

Supplier shall supply the documentation as listed under Annexure "D" of this Material Requisition.

All documents shall be supplied in English language.

3 LIST OF ATTACHMENTS

The table below lists the documents which are integral part of this Material Requisition. The applicable revision index of each document is mentioned in the column below the current Material Requisition revision index.

When the Material Requisition revision index is “A” or “1”, all listed documents are attached. For other Material Requisition revision index, only modified or new documents are attached.

DOCUMENTS	DOCUMENT NO.	REVISION OF DOCUMENTS		
Material Requisition	1023-CD-IC-MR-002	C1		
Annexure – 1	-	C1		
Standards Specification for Gas Regulators	VPC-SPC-5602	C1		
Instrument Datasheets	1023-PL-IC-DS-002	C2		
Quality Assurance Plan for Commercial Regulators	1023-CD-IC-QAP-001	C1		
List of TPIA	-	C1		

4 DOCUMENTS & DATA REQUIREMENTS

1. The table hereunder specifies the quantities & nature of the documents to be submitted by the Supplierto Company.
2. The documents required at the inquiry stage to be included in the bid are listed under column A.
3. The documents required after award of the agreement and subject to the written approval of the Company are listed under column B.
4. The final & certified documents are listed under column C.
5. Any document even when preliminary shall be binding and therefore duly identified & signed by the Supplier. It shall bear the Company's project reference, the MR number and identification number.
6. The documents are fully part of the Supply which shall be complete only if and when the documentscomplying fully with the material requisition requirements received by the Engineer.

Item	Documents and Data	A	B		C	
		Number of copies	Number of copies	Required date	Number of copies	Required date
1.	Data sheet, catalogue, etc. documents submittal schedule	1	4	1 week	4	1 week
2.	Detail GA Drawing, Fabrication, testing and delivery schedule (per item) and for all accessories.		4	1 week	4	1 week
3.	Pressure drop calculations, Capacity sizing calculations	1	4	1 week	4	1 week
4.	Code compliance certificate	1	4	1 week	4	1 week
5.	Detailed QA/QC program	1	4	1 week	4	1 week
6.	Meter index format and regulator tag/nameplate format		4	1 week	4	1 week
7.	Material certificate EN 10204, Cert. 3.2		4	2 weeks	4	1 week
8.	List of special test equipment/tools required for maintenance		4	1 week	4	1 week
9.	2 years operation Spare part list		4	1 week	4	1 week
10.	Inspection and test procedures		4	1 week	4	1 week
11.	Test / Calibration/Inspection certificates/reports		4	1 week after test	4	1 week
12.	Installation, operation and maintenance manuals, catalogues with part list for meters and regulators along with software CD and calibration reports.		4	2 weeks before shipping	4	1 week

13.	Painting system description	1	4	1 week	4	1 week
14.	Packing/shipping list w/weights and dimensions. (Note-5)		4	2 weeks before shipping	4	
15.	Final technical file (containing all final drawings and documents listed in column „c")		4	2 weeks before shipping		
16.	Type approval from weights & measures	1	2	1 week	4	1 week
17.	ATEX approval certificates	1	2	*	4	1 week

NOTES:

1. Duration in column B (required date) are weeks after purchase order date (=T0).
2. Duration in column C (required date) are weeks after document approval.
3. Due date of each document may be proposed.
4. Final technical file shall be supplied in hard copy as indicated, and in electronic format (pdf) on two (2) CD-ROMS.
5. The selected Vendor shall provide Calibration certificates of each meter.
6. The packing boxes for each flow meter, regulator, EVC etc. (Each Item which is been packed independently) shall carry the item calibration certificate within the packing box.
7. * Incase, the bidder is not having ATEX certificate, then Bidder shall submit undertaking at the time ofthe bid submission and first supply shall be done along with ATEX certificate.

ANNEXURE-1

(SERIAL NUMBERING FORMATS FOR REGULATORS)

Serial No. should be defined as:

XXX-AABBBBCCCCCC = 16 Characters

Where XXX Means: First 3 Letters of Vendor Name (ITR for ITRON, RAY for Raychem, APS for APS Securities, TUL- TULIP, ANO- Anolytic Power etc.)

AA Means: First 02 Digits of Contract (76,77etc.)

BBBB Means: Last 04 Digits of Contract (4152,5210,4586,2130 etc.)

CCCCCC Means: Serial No. Series (0 to 999999)

Let us take an example:

Contract No. 7600000759 of M/s Anolytic Power

Then Serial Nos should be written as: ANO-760759000001

ENERGISING QUALITY

VCS QUALITY SERVICES PVT. LTD.

STANDARD SPECIFICATION
FOR
GAS REGULATORS

VCS-SPC-5602

Rev. No	Date	Purpose	Prepared By	Checked By	Approved By	Approved By
00	10.12.2018	ISSUED AS STANDARD	ND	VB	KP	AD

ABBREVIATION

ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
CV	Valve Coefficient
FAT	Factory acceptance Test
FCI	Fluid Controls Institute
FM	Factory Mutual
ISA	Instrument Society of America
ISO	International Organization for Standardization
NACE	National Association of Corrosion Engineers
NPT	Nominal Pipe Thread
SAT	Site Acceptance Test
SS	Stainless Steel

CONTENTS

1.0 SCOPE

This Standard Specification, together with the data sheets attached herewith, establishes the minimum technical and functional requirements for design, engineering, materials, fabrication, painting, inspection and testing, documentation, marking, packing and shipping of gas regulators along with its accessories used in commercial and industrial applications in CGD industry.

2.0 DEFINITIONS

For the purpose of this document, the words and expressions listed below shall have the meanings assigned to them as follows:

Owner/ Purchaser/ Company	Owner of the particular Project (Project Specific).
Consultant	The party which comes out all or part of the engineering, procurement, construction, pre- commissioning and assistance for commissioning, monitors and controls the overall project management.
Bidder/ Manufacturer / Supplier / Vendor	The party(s) which manufactures and / or supplies material, equipment, technical documents / drawings and services to perform the duties specified byContractor.
Works/ Shop	The place where the ITEM / UNIT is fabricated and tested and transported to Purchaser.
Datasheet	Technical data provided by the Purchaser / Owner / Company.
Standard Specification	Specifications Developed as Standard by the Company.
Job Specification	Specifications Developed pertaining to particular project / Job in regard.
Material Requisition	Requisition as raised to Supplier for Quotation of the item
Purchase Requisition	Requisition as raised to Supplier for Procurement of the item
Purchase Order	Legal Order supplied to Supplier for procurement of the Engineered Item
Site	The work place where the equipment is installed and commissioned.

3.0 REFERENCE DOCUMENTS

3.1 Codes & Standards

The related standards referred to herein and mentioned below shall be of the latesteditions prior to the date of the Purchaser's enquiry.

American Petroleum Institute (API)

ASME B 16.10	Face to Face and End to end dimensions for valves
ASME B 16.20	Ring joint Gasket, and groves for Steel Pipe Flanges
ASME B16.5	Pipe flange and flange fittings
ASME B1.20.1	Pipe Threads
ASME B 16.34	Valves Flanged, threaded and weld ended
EN 334 / BS EN 13785	Gas pressure regulator for inlet pressure up to 100 Bar
EN 14382	Safety devices for gas pressure regulating stations and installations. Gas safety shut-off devices forinlet pressures up to 100 bar
API 598	Valve Inspection and testing
API 6D	Specification for Pipeline valves
BS 6755	Testing of Valves
FC170-2	Control Valve seat leakage Classification
MSS SP-25	Standard Marking System for Valves, Fittings, Flanges and Unions
DIN-50049	Document on Material Testing
ISA-S-75.03	Face to Face Dimensions for Flanged Globe-StyleValve Bodies.

3.2 Order of Precedence

In the event of conflict between specifications, data sheets, related standards, codes etc., and the order of precedence shall be as follows:

a. Data sheets

b. Job Specifications

c. Standard Specifications

d. Codes and Standards

Vendor shall refer the matter to the Purchaser for clarification and only after obtainingthe approval in writing, the same should proceed with the manufacture of the items inquestion.

4.0 TECHNICAL REQUIREMENTS

Regulator shall be double stage pilot pressure loading. The regulators shall be provided with built-in slam shut off device having over and under pressure shut-off. If required, actual flow rates provided for regulators can be converted into SCMH based on downstream pressure for selection of regulators.

These regulators have fail-open and fail-close configuration. Direct acting regulator is fail-to-open type as per requirements and as defined in EN334 standard. However, when equipped with integrated slam shut-off valves, it is treated as fail-to close dueto presence of SSV.

Direct acting pressure regulator with spring control & diaphragm with in-built pressure balance regulating unit to ensure a constant outlet pressure. Pressure sensing shall be internal, external sensing is not acceptable. Regulators shall have Integral Filter. If external filter is supplied, then filter should not cause a pressure loss of more than 5%of line pressure.

Materials selection of the valve shall be in accordance with the Data Sheets and Company's Standard specifications. For corrosive service, the material selected shall be in compliance with the requirements of NACE MR-0175 / IS0-15156 latest editions.

Casing and body shall be of cast Aluminum alloy or WCB (or as per EN 334), all the wetted parts including actuating mechanism shall be suitable for the fluid being handled.

Diaphragm material shall be synthetic rubber and water proof / corrosion resistant for outdoor installation. Pressure parts of the valve shall be suitable for shut-off pressure. Regulators for downstream regulation shall be provided with integral relief valve.

Supplier shall indicate the set range for OPSO, UPSO and relief pressures. Theregulators shall be factory-set to the pressures indicated in the respective datasheets.

Vendor shall use suitable material parts, provide proper surface finish, hardness and clearances, wherever possibilities of galling exists.

The regulator body rating shall be equal to or better than the flange rating specified in the data sheets.

Flow direction shall be stamped or cast on the body.

Unless otherwise mentioned, end connection details shall be as below:

a. Threaded end connections shall be NPT as per ANSI/ASME B 1.20.1;

b. Flanged end connections shall be as per ANSI / ASME B16.5;

c. Flanged face finish as specified in the Data Sheets shall have cone serrations asfollows:

Serrated	250 to 500 AARH
125 AARH	125 to 200 AARH
63AARH	32 to 63 AARH

Face to face dimensions of flanged valves shall be in accordance with ISA S75.03.The allowable error in dimensions shall be ±2mm.

The term "trim' covers those parts of body assembly (excluding the body, bonnet and bottom flange) which are exposed to and in contact with the line medium consisting ofbut not limited to the seat ring, plug stem, plug, plug guide, guide bushing and cage.

Single seated valves shall have heavy top guiding. Double seated valves shall have top and bottom or cage guiding and shall be of the pressure balanced type. Guide bushing shall be of a sufficiently hard material to resist side thrust on the plug.

Vendor shall furnish the sizing calculations for minimum, normal and maximum flow. Cv selected shall also be indicated. Droop for regulator shall not be more than 5 % over set point. Noise level shall be limited to 85 dB.

The regulators are meant for installation at various Client's premises, where space availability is the main constraint. The model shall be selected in such a way that it is compact and robust to suit the site conditions. Client has right to reject any model, proposed by the bidder, considering the size and shape of the regulator offered by them.

Refer the attached datasheet of regulator for further details.

4.1 Name Plate

All Regulators shall be marked as per Manufacturer's standard and shall have a permanently attached stainless steel plate with the following, as a minimum detail:

a. Certification;

b. Manufacturer's Name and Identification Mark;

c. Serial Number, Model Name and Model Number;

d. Body and port sizes in inches;

e. Stem travel in millimeters;

f. Regulation upstream / downstream;

g. Set Pressure;

h. Nominal end connection size in inches and rating in Ibs;

i. Flow Direction;

j. Area Classification;

k. Standard for body / trim materials;

l. Accuracy Class;

m. Month & Year of Manufacture.

Owner unique serial number shall be marked on the regulator as per the standard procedure followed by Owner, which will be communicated to the successful bidder.

5.0 FABRICATION AND PAINTING

Vendor shall obtain approval in writing from the Purchaser before start of fabrication of regulators. Vendor shall submit relevant specification, drawings & documents for approval. Also Vendor shall refer the relevant codes and standards for manufacturing herein.

Vendor shall submit painting specification for Client's approval, prior to start of regulator manufacturing. Painting scheme shall be suitable to environmental conditions prevailing at the place of installation of regulator.

6.0 INSPECTION AND TESTING

Vendor shall perform all inspection and testing as per project specification requirements and as per relevant codes, prior to shipment. The inspection and testing for regulators shall be carried out as per approved Inspection and Test Plan.

Vendor shall submit the Inspection and Testing Plan for proprietary items / special items for Client approval, before commencing production. Vendor shall submit the testcertificates to the Company for the tests conducted during the manufacturing process such as hydro test, material test, hazardous area certification test and calibration test.

For any control, test or examination required under the supervision of TPIA / Owner / Owner's representative later shall be informed in writing one (1) week in advance by vendor about inspection date and place along with production schedule.

Supplier shall hire Third Party Inspection Agency (to be approved by the Client) to perform inspection work. This agency shall inspect all the equipment/material and issue all inspection certificates / reports as per specifications and codes.

Supplier shall furnish all the material test certificates, proof of approval/ license from specified authority as per specified standard, if relevant, internal test/ inspection reports, accuracy test report for individual meter, as per technical specification and specified code for 100% material, at the time of final inspection of each supply lot of material.

Vendor to provide calibration certificates for review of all the measuring instrumentsat 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.

All regulators shall be sealed properly by the Manufacturer after final inspection clearance and before dispatch. Regulators found in an unsealed condition shall not be accepted.

If the performance of any of the sample regulator is not in compliance with the acceptance norms of the respective standards then that the lot of respective item will be rejected.

Leak testing shall be carried out by pressurizing the body with air at 1.5 MAOP of the regulator, immersed in water for observance of leakage. The Supplier shall carryout calibration for 100% quantity.

The regulators shall be tested as per EN334 and relevant international standards.

Even after third party inspection, Client reserves the right to select a sample randomly from each manufacturing batch and have these independently tested. Should the results of these tests fall outside the limits specified in Client Technical specification, then Client reserves the right to reject all production supplied from the batch.

6.1 Visual Inspection

A visual inspection and physical check shall be made for compliance of the material with requirements of the specifications of the original Purchase Order and all subsequent change orders including the relevant attachments and with Manufacturer's catalogue description and certified drawings furnished. Included are:

a. Check for satisfactory workmanship, materials compliance and freedom fromsurface defects and broken glass;

b. Check for compliance with certified drawings including dimensions;

c. Check for all accessories on Purchase Order;

d. Check paint for imperfections.

Verify that each component has a tag of corrosion resistant material permanently fastened to the unit and stamped with information

6.2 Functional Testing

Each regulator shall be accurately calibrated and tested by the Manufacturer at the normal working conditions specified in the attached data sheet. All test equipment used for testing shall have traceability to national standards.

6.3 Installation, Testing & Commissioning

The Supplier shall assist during erection, testing and commissioning of regulator at site. The bidders shall indicate separate pricing for this purpose in their offers, if applicable.

6.4 Guarantee / Warranty

Vendor shall guarantee that the complete scope of supply shall be safely and reliably meet all of the requirements of this Company Specification.

Generally the Vendor shall provide warranty support for a period of 12 months from the date of supply or 18 months from the date of manufacturing. Warranty shall apply to defective material workmanship and facility design. The cost of correction / replacement of any warranty items shall be borne by the Vendor.

The job specifications / data sheets shall be referred for any specific warranty / guarantee.

7.0 MARKING, PACKING AND SHIPMENT

Vendor responsible for regulator and its accessories shall ensure that all equipment, associated materials and accessories are designed properly, marked and packed, and secured for transit to site without damage.

Supplier / Vendor shall provide a detailed packing list for all the items been supplied. Necessary accessories supplied shall be packed in the main package box for which accessories are been supplied.

The calibration certificates of each item shall be enclosed within the package box. Each package box shall be tagged with the Purchase Order number (unique identification is required).

The package box shall be suitable for INLAND transport or seaworthy (if imported). Necessary precautions and pre-requisites shall be considered by supplier for package delivery to the concern client site / location / workshop.

Vendor shall provide and submit his standard “Marking, Packing and Shipping Procedures” for review by Client.

Vendor shall specify any conditions, normal or special, to be verified in intermediate storage and during transport.

Equipment shall be suitably packed including any dismantling, transit fastening and bracing necessary to prevent distortion or damage during transit.

Adequate protection shall be provided to prevent mechanical damage and atmosphericcorrosion in transit and at the job site.

Preparation for shipment and packing will be subject to inspection and rejection by Company's inspectors. All costs occasioned by such rejection shall be to account of theVendor.

8.0 SPARES AND ACCESSORIES

The following spare philosophy shall be followed in case it is not covered in Job Specification.

The Vendor shall include with the bid, recommended spare parts list for start-up, pre-commissioning and two years operation as per the following:

a. Itemized recommended spare parts list for start-up and pre-commissioning.

b. Itemized recommended spare parts list for two years operation.

Vendor shall submit recommend accessories and special tools required for operation and maintenance of regulators for Company review.

All the spare parts furnished by Vendor shall be wrapped and packaged to preserve anoriginal as-new condition under normal conditions of storage. The same parts shall be properly tagged with stainless steel tags and coded so that later identification as to their intended equipment usage shall be clear.

All items supplied shall be packaged separately and clearly marked as "Spare Parts" and shipped with the equipment.

9.0 DOCUMENTATION

The following documentation requirements shall be fulfilled by the Vendor at various stages of bidding and execution of order.

Whenever Client and/or Client's representative's review and/or approval is requested on a document to be submitted by the Contractor / Supplier or before an action is implemented by the Contractor / Supplier, such review and/or approval shall always be requested in writing by the Contractor / Supplier to the Client and/or the Client's representative before any action subject of this review and/or approval is taken.

Client and/or Client's representative approval shall always be given in writing.

9.1 Documentation Required with Technical Bid

During bidding stage, Vendor shall submit in his offer the following documents as a minimum:

a. Specification, Data Sheets along with sizing calculations;

b. Bill of Materials including Vendor List, Details for third party items;

c. Catalogues and manuals;

d. Quality Assurance Plan;

e. Weights & Measures Approval Certificate;

f. Type approval / Compliance / Examination Certificate confirming to the governingstandard;

g. Pressure Drop Calculations;

h. Performance Curves;

i. Deviations from technical specification, if any, with proper justification;

j. Supplies against major orders for natural gas application (PTR).

The Vendor shall provide at the time of tendering a complete detailed engineering package in accordance with the Purchaser's data requirement and shall include but notnecessarily be limited to the same.

9.2 Documentation Required for Approval

Upon placement of Purchase Order, Vendor shall submit as a minimum the following drawings, documents and specifications for the Company's approval:

a. Datasheets of regulators and all accessories supplied;

b. Bill of materials including Vendor list, details for third party items;

c. Catalogue and Technical literature of regulators in English;

d. Weights & Measures Approval Certificate;

e. Type approval / Compliance / Examination Certificate confirming to the governingstandard;

f. Installation, Operation and Maintenance Manual;

g. Sizing Calculations;

h. Assembly drawings with overall dimensions;

i. Detailed sectional drawings showing all parts with reference numbers and material specifications of regulators and all accessories supplied;

j. Welding, heat treatment, inspection and testing procedures;

k. Painting Specification;

l. Calibration Certificates;

m. Material Test Certificates;

n. Quality Assurance Plan;

o. Any other documents.

Upon approval and completion of testing, full set of above documentation shall be submitted to Client in 2 sets of hardcopy format and 1 no. of CD in soft copy (PDFs) format.

GOA NATURAL GAS PRIVATE LIMITED (GNGPL)

SUPPLY OF COMMERCIAL & INDUSTRIAL REGULATORS

INSTRUMENT DATASHEETS

INDEX				Rev.
S.NO	**ITEM DESCRIPTION**	**SHEET NUMBER**	**REMARKS**	
1	Industrial Gas Regulator	Sheet 3 of 4		C1
2	Commercial Gas Regulator	Sheet 4 of 4		C1

Energising Quality	CLIENT:	GOA NATURAL GAS PRIVATE LIMITED (GNGL)					
			C2	01.06.23	MR	RA	KNC
	PROJECT:	SUPPLY OF COMMERCIAL & INDUSTRIAL REGULATORS	C1	22.05.23	MR	RA	KNC
			REV.	**DATE**	**PRP**	**CHKD**	**APPD**

Industrial Regulator						Rev.
General	1	Quantity		Refer Table below		
	2	Service		Natural Gas		
	3	Governing Standard		EN 334 / BS EN 13785 / EN 14382 (Latest)		
	4	Installation	Orientation	Outdoor	Horizontal / Vertical	
	5	Line Size & Schedule		N/A		
	6					
Process Data	7	Fluid	State	Natural Gas	Gas	
	8	Inlet Pressure Range		4 - 6 bar		
	9	Flow capacity		Refer Table below		
	10	Outlet Pressure set range		Refer Table below		
	11	Over Pressure Shut Off (OPSC)		Refer Table below		
	12	Under Pressure Shut Off (UPSC)		Refer Table below		
	13	Operating Temp.		0 - 60 DegC		
	14					
Regulator	15	Type of Regulator		Direct actuating with spring control & diaphragm with in-built pressure balance and integral slam shut valve system		
	16	Body / Port Size	Construction	*	*	
	17	End Connection		Flanged (Refer Table Below)		
	18	Flange to Flange dimension (mm)		Refer Table below		
	19	Body Material		Cast aluminum alloy or WCB (As per EN 334)		
	20	Internal parts		Stainless Steel and Brass		
	21	Diaphragm Material		Synthetic Rubber		
	22	Shut-off Class		Class V or better as per FCI 70.2		
	23	Accuracy Class		AC 10 complying to EN 334 or Equivalent		
	24	Closing Pressure		SG 20 complying to EN 334 or Equivalent		
	25	Manual Reset		Required		
	26	Failure Position		Close		
	27	Filter		In-built		
	28	Sealing of set point adjustment device		Required		
	29					
Misc.	30	Make		*		
	31	Model No.		*		

S No.	Flow (At actual conditions)	Quantity	Regulator outlet setpoint (Factory set)	Size and Rating	F - F Distance (mm)	Cut-off Pressure (mbar)			Rev.
						OPSC	UPSC	CRV set point	
1	25 m^3/hr	50	2 bar	1" X 2", 150# Flanged	Mfr Std	2.3	1.7	2.4	2
2	65 m^3/hr	25	2 bar	1" X 2", 150# Flanged	Mfr Std	2.3	1.7	2.4	2

Notes:

1. Vendor to specify. *
2. Tag plate (SS 316) stamped with instrument tag number and service in 10mm characters shall be attached via SS wire (1 mm).
3. Direct acting regulator is fail-to-open type as per requirements and definition in EN334. However, when equipped with integrated slam shut-off valves, it is treated as fail-to close due to presence of SSV.

Energising Quality	CLIENT:	GOA NATURALGAS LIMITED (GNGPL)	C2	01.06.23	MR	RA	KNC
	PROJECT:	SUPPLY OF COMMERCIAL GAS METERS AND REGULATORS	C1	22.05.23	MR	RA	KNC
			REV.	DATE	PRPD	CHKD	APPD

Document No. : 1023-CD-IC-SP-002

Commercial Regulator						Rev.
General	1	Quantity		Refer Table below		
	2	Service		Natural Gas		
	3	Governing Standard		EN 334 / BS EN 13785 / EN 14382 (Latest)		
	4	Installation	Orientation	Outdoor	Horizontal / Vertical	
	5	Line Size & Schedule		N/A		
	6					
Process Data	7	Fluid	State	Natural Gas	Gas	
	8	Inlet Pressure Range		1 – 6 bar		C2
	9	Flow capacity		Refer Table below		
	10	Outlet Pressure set range		Refer Table below		
	11	Over Pressure Shut Off (OPSC)		Refer Table below		
	12	Under Pressure Shut Off (UPSC)		Refer Table below		
	13	Operating Temp.		0 - 60 Deg C		
	14					
Regulator	15	Type of Regulator		Direct actuating with spring control & diaphragm with in-built pressure balance and integral slam shut valve system		
	16	Body / Port Size	Construction	*	*	
	17	End Connection		Flanged (Refer Table Below)		
	18	Flange to Flange dimension (mm)		Refer Table below		
	19	Body Material		Cast aluminum alloy or WCB (As per EN 334)		
	20	Internal parts		Stainless Steel and Brass		
	21	Diaphragm Material		Synthetic Rubber		
	22	Shut-off Class		Class V or better as per FCI 70.2		
	23	Accuracy Class		AC 10 complying to EN 334 or Equivalent		
	24	Closing Pressure		SG 20 complying to EN 334 or Equivalent		
	25	Manual Reset		Required		
	26	Failure Position		Close		
	27	Filter		In-built		
	28	Sealing of set point adjustment device		Required		
	29					
Misc.	30	Make		*		
	31	Model No.		*		

S No.	Flow (At actual conditions)	Quantity	Regulator outlet setpoint (Factory set)	Size and Rating	F - F Distance (mm)	Cut-off Pressure (mbar)			
						OPSC	UPSC	CRV set point	
1	10 m^3/hr	50	300 mbar(g)	1" X 1.5", NPTF	Mfr Std	399±5	195±5	363±5	2
2	16 m^3/hr	10	300 mbar(g)	1" X 1.5", NPTF	Mfr Std	399±5	195±5	363±5	2
3	25 m3/hr	5	500 mbar(g)	1" X 1.5", NPTF	Mfr Std	665±5	325±5	605±5	2
4	65 m3/hr	10	500 mbar(g)	1" X 1.5", NPTF	Mfr Std	665±5	325±5	605±5	2

Notes:

1. Vendor to specify. *
2. Tag plate (SS 316) stamped with instrument tag number and service in 10mm characters shall be attached via SS wire (1 mm).
3. Direct acting regulator is fail-to-open type as per requirements and definition in EN334. However, when equipped with integrated slam shut-off valves, it is treated as fail-to close due to presence of SSV.

Energising Quality

CLIENT:	GOA NATURALGAS LIMITED (GNGPL)
PROJECT:	SUPPLY OF COMMERCIAL GAS METERS AND REGULATORS

REV.	DATE	PRPD	CHKD	APPD
C2	01.06.23	MR	RA	KNC
C1	22.05.23	MR	RA	KNC

Document No. : 1023-CD-IC-SP-002

Energising Quality

Goa Natural Gas Pvt.Ltd.
A Joint Venture of GAIL Gas Ltd & BPCL

QUALITY ASSURANCE PLAN FOR GAS METERS

Project: RATE CONTRACT FOR SUPPLY OF GAS METERS FOR INDUSTRIAL & COMMERCIAL UNITS

Client : GNGPL

Consultant : VCS Quality Services

QAP. No.: 1023-CD-IC-QAP-001-01 Rev: 0

Prepared By: ND CHK: VB Approved: KP

Date 29.11.18

S.No	Components & Operations	Description of Test	Category	Extent of Check	Ref. Doc. & Cl.no.	Acceptance Criteria	Format of Record	Inspection		Remark
								Manufacturer	TPIA	
1	**Body & internal parts**	Material of Body & Trim	Physical properties/ Chemical composition	1 sample per heat	Approved data sheet	Applicable Material std.	Material test Reports	P	R	
2	**Assembly**	Dimension-Size,rating,end connection	visual	100%	Approved drwg/doc	Approved drwg/doc	Inspection Format	P	R	
		Degree of protection	Test	10%	Approved data sheet	Applicable stdard.	Test report	P	R	
		Body Hydro Test	Test	100%	Approved data sheet	No leakage	Test report	P	R/W	At least 5% to be witnessed by TPIA
		Calibration, accuracy	Test	100%	Approved data sheet	Approved data sheet	Test report	P	R/W	At least 5% to be witnessed by TPIA
		Functional test	Test	100%	Approved data sheet	Approved data sheet	Test report	P	R/W	At least 5% to be witnessed by TPIA

LEGENDS: R - Review, W - Witness, P - Perform, TPIA - Third Party Inspection Agency, R/W-Review and witness

Notes: -

1) The above mentioned testing and acceptance criteria are minimum requirements, however, supplier shall ensure that the product also comply with the additional requirements as per technical specifications and data sheets.
2) The supplier shall submit their own detailed QAP prepared on the basis of the above for approval of Owner / Owner's representative and TPIA.
3) TPIA shall have right to inspect minimum 10% of all manufacturing activities on each day or as specified above.
4) TPIA along with Owner / Owner's representative shall review / approve all the documents related to QAP / Quality manuals Drawings etc. submitted by supplier.
5) TPIA shall also review the test certificates submitted by the manufacturer.
6) Supplier shall in coordination with sub vendor shall issue detailed production and inspection schedule indicating the dates and the locations to facilitate Owner / Owner's representative to organize Inspection.
7) Supplier shall submit their own Detailed QAP and meter index format Duly Signed and Stamped.
8) TPIA shall review all the reports 100%.

Energising Quality	**PROJECT:**	RATE CONTRACT FOR SUPPLY OF GAS REGULATORS FOR INDUSTRIAL & COMMERCIAL UNITS	Goa Natural Gas Pvt.Ltd. A Joint Venture of GAIL Gas Ltd & BPCL
	CLIENT:	GOA NATURAL GAS PRIVAT E LIMITED (GNGPL)	
	CONSULTANT:	VCS QUALITY SERVICES PVT. LTD.	

LIST OF RECOMMENDED THIRD PARTY INSPECTION AGENCY (TPIA)

SL. NO	NAME OF TPI	ADDRESS	PHONE NO	FAX NO
1	Tata Projects Ltd.	22,Sarvodaya Society,Nizampura,Baroda-390002	0265-2392863	0265-2785952
2	Bax counsel Insepection Bureau Pvt. Ltd.	303, Madhava,Bandra Kurla Complex, Bandra(E),Mumbai-400051	022-26591526,022-26590236	022-26591526
3	Germanischer Lloyd	4th Floor, Dakshna Building, Sec-11, Plot NO.2, CBD Belapur, Navi Mumbai 400 614	022-4078 1000	022-4024 2935
4	ABS Industrial Verification Ltd., Mumbai	404,Mayuresh Chambers,Sector-11,CBD Belapur(E),Navi Mumbai-400614	022-27578780 /1 /2	022-27578784 / 5
5	Certification Engineers International Ltd.	EIL Bhavan,5th floor,1,Bhikaji Camma Place,New Delhi-110066	011-26167539,26102121	011-26101419
6	Dalal Mott MacDonald	501, Sakar -II, Ellisbridge,Ahemedabad-380006	079-26575550	079-6575558
7	International Certification Systems	E-7,Chand Society, Juhu Road, Juhu, Mumbai-4000049	022-26245747	022-226248167
8	SGS	SGS India Pvt. Ltd.,SGS House,4B,A.S.Marg,Vikhroli(W),Mumbai-400083	022-25798421 to 28	022-25798431 to 33
9	Intertek Moody	9th Floor, Kanchenjunga Building, 18-Barakhamba Road, New Delhi-110001	011-4713 3900	011-4713 3999
10	TUV SUD South Asia	C-153/1, Okhla Industrial Ara, Phase-1, New Delhi-110020	011-3088 9611/9797	011-3088 9598
11	TUV Rheinland (India) Pvt. Ltd.	F-51, Kailash Complex GF, Veer Savarkar Marg, Vikhroli Park Site, Vikhroli(W), Mumbai-400079	022-4215 5435	022-4215 5434
12	Vincott International India Assessment Service Pvt. Ltd.	C-301, Mangalya Premises Cooperative Soc. Ltd, Off. Marol Maroshi Road, Andheri(E), Mumbai-400959	022-4247 4100	022-4247 4101
13	Meenar Global Consultants	Mr. Nitin Taneja (Project Manager)	M: +91-9711212783 T: +91-129-4072836	Web : www.meenaar.in Email : nitin.taneja@meenaar.in