

VCS Quality Services Private Limited

TENDER FOR SUPPLY OF NATURAL GAS REGULATOR IN NORTH GOA GA

Tender ID : VCS2100005 Tender No : GNGPL/C&P/T-30 VCS Document No: VCS/GNGPL/1023/PRC/2021/002

Technical Volume Issued : 01.07.2021





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	DOCUMENT	NO	1023	CGD	IN	MR	5	002
GOA NATURAL GAS PRIVATE LIMITED (GNGPL) CITY GAS DISTRIBUTION PROJECT OF NORTH GOA GA								
	MATERIA		OF NC	ORTH GO N FOR SU	A GA			GAS
0	MATERIA	L REQUIS	OF NC	ORTH GO	A GA			GAS



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Rev



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.

2 DEFINITIONS

PROJECT	CITY GAS DISTRIBUTION PROJECT OF NORTH GOA GA
OWNER / COMPANY	GOA NATURAL GAS PRIVATE LIMITED (GNGPL)
CONSULTANT	VCS Quality Services Private Limited (VCSQSPL) the party to act for and on behalf of OWNER for the Engineering Services.
VENDOR / BIDDER	"Vendor" means the person(s), firm, company, Organization from whom contractor procures products/services.
MR	Material Requisition.

3 DOCUMENT PRECEDENCE

It shall be the responsibility of the Manufacturer / Vendor to inform the Purchaser of any errors, ambiguities, inconsistencies, discrepancies or conflict of information that may be found to exist in any document, specification or drawing submitted by the Purchaser.

In case of conflict, the order of precedence shall be as follows:

- a. Data Sheets;
- b. Technical Specifications;
- c. Basic Documents;
- d. Codes and Standards.

As a general rule in the event of any discrepancy between technical matter and local laws/ regulations (and documents above listed) the most stringent shall be applied.

Manufacturer / Vendor shall notify purchaser of any apparent conflicts between MR, specifications, related datasheets, any code and standards and any other specifications noted herein. (Resolution and / or interpretation precedence shall be obtained from



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MATERIAL REQUISITION FOR SUPPLY OF NATURAL GAS REGULATOR	1023-CGD-IN-MR-5002	C1	
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Purchaser in writing before proceeding with the design / manufacturer or completion of services.)

4 DESCRIPTION OF GOODS AND / OR SERVICES

The scope of supply covers design, engineering, manufacture, inspection, testing & supply, shipment and documentation requirements of these items in accordance with the requirements of this requisition for city gas distribution project in North Goa GA's.

GROUP	DESCRIPTION OF NATURAL GAS REGULATOR	QUANTITY
_	Domestic Regulator	
Α	Domestic Regulator, Inlet-: 6 bar, Outlet-: 21 mbar, Flow-: 6.5 m3/h	3,000 Nos.
	Meter Regulator	
В	Meter Regulator, Inlet-: 100 mbar, Outlet-: 21 mbar, Flow-: 2.5 m3/h.	3,500 Nos.
С	Service Regulator	
1.	Service Regulator, Inlet-: 6 bar, Outlet-:100 mbar, Flow-: 10 m3/h.	100 Nos.
2.	Service Regulator, Inlet-: 6 bar, Outlet-:100 mbar, Flow-: 25 m3/h.	50 Nos.
3.	Service Regulator, Inlet-: 6 bar, Outlet-:100 mbar, Flow-: 50 m3/h.	30 Nos.
4.	Service Regulator, Inlet-: 6 bar, Outlet-:100 mbar, Flow-: 100 m3/h.	10 Nos.
D	Commercial Regulator	
1.	Commercial Regulator, Inlet-: 6 bar, Outlet-:500 mbar, Flow-: 10 m3/h	45 Nos.
2.	Commercial Regulator, Inlet-: 6 bar, Outlet-:500 mbar, Flow-: 25 m3/h.	35 Nos.
3.	Commercial Regulator, Inlet-: 6 bar, Outlet-:500 mbar, Flow-: 50 m3/h.	20 Nos.
4.	Commercial Regulator, Inlet-: 6 bar, Outlet-: 03 bar max., Flow-: 25 m3/h.	10 Nos.
5.	Commercial Regulator, Inlet-: 6 bar, Outlet-: 03 bar max., Flow-: 50 m3/h.	08 Nos.
6.	Commercial Regulator, Inlet-: 6 bar, Outlet-: 03 bar max., Flow-: 100 m3/h.	04 Nos.





NOTES:

- 1. Accessories for regulator 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.
- 3. Bidder has to quote whole group of quoted item mentioned above; partial quotation for the group shall be liable to rejection.
- 4. Cost of Third Party Inspection Agency shall be in bidder/supplier scope.

5 REMARKS / COMMENTS

5.1 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 datedand referenced,

Compliance with this material requisition in any instance shall not relieve the vendor of his responsibility to meet the specified performance.

5.2 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.

5.3 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.

6 DOCUMENTS & DATA REQUIREMENTS

- 1. The table hereunder specifies the quantities & nature of the documents to be submitted by the Supplier to 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 PR number and identification number.
- 6. The documents are fully part of the supply which shall be complete only if and when the documents complying fully with the purchase requisition requirements received by the Engineer.





		Α		В		С
Item	Documents and Data	Number of copies	Number of copies	Required date	Number of copies	Required date
1.	Catalogue with part list, Detailed Data Sheet as per Tender Specifications.	1	2	1 week	2	1 week
2.	Sizing Calculation for each type of offered regulators.		2	1 week	2	1 week
3.	Detail of Raw Material Manufacturer with contact details		2	1 week	2	1 week
4.	Detail GA Drawing, Fabrication, Document Submittal Schedule, testing and delivery schedule (per item) and for all accessories.		2	1 week	2	1 week
5.	Code Compliance Certificate	1	2	1 week	2	1 week
6.	Compliance Certificate to Quality Assurance Plan	1		1 week		1 week
7.	Tag Number & Nameplate format		2	1 week	2	1 week
8.	List of special test equipment / tools required for maintenance		2	1 week	2	1 week
9.	Spare Parts List for 2 years Normal Operation		2	1 week	2	1 week
10.	Inspection and Test Procedures		2	1 week	2	1 week
11.	Test / Calibration / Inspection Certificates / Reports.		2	1 week after test	2	1 week
12.	Catalogues with part list Installation, Operation and Maintenance manuals for regulators along with software CD and calibration reports.		2	2 weeks before shipping	2	1 week
13.	Painting System Description		2	2 weeks before shipping	2	1 week
14.	Packing / Shipping list with weights and dimensions.		2	2 weeks before shipping	2	1 week
15.	Final technical file (containing all final drawings and		2	2 weeks before	2	2 weeks before



Document No.

1023-CGD-IN-MR-5002

Rev

C1



	documents listed in column `c')		shipping	shipping
16.	Deviation form, Technical specifications if any with proper justification	1		

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) DVD-ROMS.
- 5. The selected vendor shall provide calibration certificates of each item.
- 6. The packing boxes for each item. (Each Item which is been packed independently) shall carry the item calibration certificate within the packing box.

7 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			EVISION O	
Annexure – 1	-	0		
Standards Specification for Gas Regulators	VPC-SPC-5602	0		
Instrument Datasheets	1023-CGD-IN-DS-5002	C1		
Quality Assurance Plan for Gas Regulator	1023-CGD-IN-QAP-5002	C1		
List of TPIA	-	0		





VCS PROJECT CONSULTANTS PVT. LTD.

STANDARD SPECIFICATION FOR GAS REGULATORS

VPC-SPC-5602

Rev. Date	Purpose	Prepared	Checked	Approved	Approved
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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



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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 by Contractor.
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 latest editions prior to the date of the Purchaser's enquiry.

American Petroleum Institute (API)

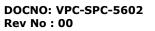
ASME B 16.10	Face to Face and End to end dimensions for valves
ASME B 16.20	Ring joint Gasket, and groves for Steel Pipe Flanges
ASME B16.5	Pipe flange and flange fittings
ASME B1.20.1	Pipe Threads
ASME B 16.34	Valves Flanged, threaded and weld ended
EN 334 / BS EN 13785	Gas pressure regulator for inlet pressure up to 100 Bar
EN 14382	Safety devices for gas pressure regulating stations and installations. Gas safety shut-off devices for inlet 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-Style Valve 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 obtaining the approval in writing, the same should proceed with the manufacture of the items in question.





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 due to 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 / ISO-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. The regulators shall be factory-set to the pressures indicated in the respective data sheets.

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 as follows:



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 ± 2 mm.

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 of but 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;
- I. 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 test certificates 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 instruments at the time of inspection, i.e., used for checking and testing, along with the Master calibration certificate of the measuring instruments from which the instruments is calibrated.

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 from surface 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 atmospheric corrosion 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 the Vendor.

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, precommissioning 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 an original 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(If any);
- c. Catalogues and GA drawings of offered model regulator;
- d. Quality Assurance Plan;
- e. Type approval / Compliance / Examination Certificate confirming to the governing standard;
- f. Pressure Drop Calculations;
- g. Performance Curves;
- h. Deviations from technical specification, if any, with proper justification;
- i. 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 not necessarily 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 GA drawing of offered model regulators;
- d. Type approval / Compliance / Examination Certificate confirming to the governing standard;



- e. Installation, Operation and Maintenance Manual;
- f. Sizing Calculations;
- g. Assembly drawings with overall dimensions;
- h. Detailed sectional drawings showing all parts with reference numbers and material specifications of regulators and all accessories supplied;
- i. Welding, heat treatment, inspection and testing procedures;
- j. Painting Specification;
- k. Calibration Certificates;
- I. Material Test Certificates;
- m. Quality Assurance Plan;
- n. 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.



SUPPLY OF NATURAL GAS REGULATOR FOR CITY GAS DISTRIBUTION PROJECT AT NORTH GOA GA



DATASHEET OF NATURAL GAS		CL	IENT	JOB No.	1023
DATASHEET OF NATURAL GAS	REGULATOR	т	DTAL	SHEETS	7
DOCUMENT No.	1023	CD	IN	DS	5002

GOA NATURAL GAS PRIVATE LIMITED (GNGPL)

SUPPLY OF NATURAL GAS REGULATOR

INSTRUMENT DATASHEET

REV	02.08.2021 DATE	ISSUED FOR CLIENT REVIEW DESCRIPTION	AS PREP	АВ СНК	AA APPR
<u>C1</u>	02.00.2021		40		

					INDEX						Rev.
S.NO	ľ	TEM DESCR	IPTION		SHEET NUMBE	ĒR		REM	ARKS		
1	Datas	heet for dome	stic regulator		Sheet 3 of 7						
2	Data	asheet for met	er regulator		Sheet 4 of 7						
3	Data	sheet for servi	ce regulator		Sheet 5 of 7						
4	Datashe	et for commer	cial regulator-1		Sheet 6 of 7						
5	Datashe	et for commer	cial regulator-2		Sheet 7 of 7						
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	e o		FOR CITY GAS	DI	JRAL GAS REGULATOR STRIBUTION PROJECT AT	C1 REV .	08.2021	AS PRP	AB CHKD	А АР	
ENERGIS	ING QUALITY		NORTH GOA G	iA		NEV.			023-CD-IN		

				Datas	sheet for Domest	tic Reg	Julator				Rev.
		Quantity			Refer MR						
F		Service			Natural Gas						
L H		Governing			EN 334/EN 14382	2					
GENERAL		Installatior		Orientation	Outdoor		Horizontal / Ve	ertical			
G	-	Line Size &			N/A						
	-		Orientation	Chata	Connection Orient	tation		itlet shall b	e inline		
∢		Fluid Inlet Press	uro Pango	State	Natural Gas 6 bar		Gas				
AT		Flow capac			Refer Table below	v					
			sure set rang	ie	21 mbar(g) (Fact		t Point) (Note-2)			
ËS			ure Shut Off		Required (Refer N			,			
PROCESS DATA	12	Under Pres	sure Shut Of	f (UPSO)	Required (Refer N	Note -1	2).				
R	13	CRV Set Po	bint		Required (Refer N	Note -1	2).				
	14	Operating [•]	Temp.		0 - 60 DegC						
	15	Type of Re	gulator		Direct actuating w	with sp	ring control & d	iaphragm w	ith in-built (oressure	
			5	Port Size	balance.						
		16 Body Size Port Size 17 End Connection Refer Table below									
				sion (mm)	Refer Table below						
		8 Flange to Flange dimension (mm) Refer Table below 9 Body Material ZAMAK - 3 or Die - Cast Aluminium Alloy									
>	15	Stainless Steel and Brass Seal of Nitrile Rubber or Aluminium as required for									
ворү	20	Internal parts service									
-	21	Diaphragm	Material		Synthetic / Nitrile	Rubh	or				
		Accuracy C									
		Closing Pre									
		Failure Pos			Close						
		Type of res		Manual							
		Accessories		Refer note - 7							
С,	27	Make			*						
MISC.	28	Model No.			*						
	_										
		Flow	Quantity	Regulator outlet			F-F	Cut-	off Pressu	re (mbar)	
S No.		11000	(Nos.)	setpoint	End Connecti	ion	Distance			CRV	
				(Factory set)			(mm)	OPSO	UPSO	Set point	
					1/2" Inlet & 3/4"	outlet				out point	
1	6	5.5 m3/h	Refer MR	21 mbar(g)	NPTF	outiet	Mfr Std	Requ	ired (Refer	Note -12).	
Notes:				ł							
1 Ven	dor t	o specify.*									
_ The	regu	lator shall	be indelibly m	narked with detail	ls of maximum flow	w, Inle	t and outlet pre	ssure range	e, direction o	of flow,	
² cert	ificat	ion, name o	of the manufa	acture, model nar	ne & no., unique s	serial n	umber, month 8	& year of m	anufacturing	etc.	
3 Ven	dor s	hall submit	detailed GA	drawing along wit	th part names and		of the parts alo	ng with data	sheets		
-								5			
		5			stallation, tamper	•					
					ntrol type with in-	-built p	ressure reducir	ig valve and	l balance re	gulating unit to	
ensi			utlet pressur			0.000	<u> </u>				
		· · ·		5 ,	Document No. VPC			ntormation.			
7 Acce	essor	ies: Filter (inbuilt), plast	ic end caps for e	nd connections pro	otectio	٦.				
8 Cod	e Co	mpliance Ce	ertificate/ Typ	oe approval/ Exar	nination Certificate	e confi	ming to the go	verning star	ndard.		
9 The	regu	lator shall	be double sta	ge pressure regu	lator.						
10 Inca	ase o	f end conne	ections are dif	ffering bidder to p	provide suitable ac	aptors	of brass mater	ial of regula	tor to meet	the specified	
end		nections.									
				•	dy material of serv		gulator, coating	is not requ	ired but it s	hould be	
wea					life period of 20	years.					
	·		cified by vend								
13 At t	he er	nd connection	ons / fittings	including loose n	uts, etc. shall be o	of brass	material and s	hall be prov	ided by ven	dor.	
		CLIENT: GOA NATURAL GAS PRIVATE									
		CLI	ENT:		1						
		CLI	ENT:	LIMITED (GNGPL	-						
		CLI	IENT:	SUPPLY OF NATU	JRAL GAS						
	G		JECT:	SUPPLY OF NATU REGULATOR FOR	JRAL GAS CITY GAS						
ENERGISING QU	JALITY			SUPPLY OF NATU	JRAL GAS CITY GAS	C1	15.07.2021	AS	AB	AA	
ENERGISING QU	JALITY			SUPPLY OF NATU REGULATOR FOR DISTRIBUTION F	JRAL GAS CITY GAS	C1 REV.	15.07.2021 DATE	PRPD	СНКД	AA APPD 23-CD-IN-DS-5	

Very Part 2 Service Natural Gas 1 Quantity Natural Gas 2 Governing Standard En Statural Gas 4 Installation Orientation 6 Concention Orientation 90 Degree 7 Fluid Statural Gas 8 Index Pressure Range 100 Index 9 Index capacity Refer Table below 10 Outed Pressure Statu Of (DPSO) Mot required. 11 Index Pressure Statu Of (DPSO) Mot required. 12 Index Pressure Statu Of (DPSO) Mot required. 13 Over Arssure Shut Of (DPSO) Mot required. 14 Operating Tems. 0 = 00 OeaC 15 Type of Regulator Derot Size 16 Oxfy Size Port Size 2 Type of Regulator Derot Size <th></th> <th></th> <th></th> <th></th> <th>Dat</th> <th>asheet for Mete</th> <th>er Regulator</th> <th></th> <th></th> <th></th> <th></th> <th>Rev</th>					Dat	asheet for Mete	er Regulator					Rev
State Result of the state is schedule Result of the state is schedule N/A 4 Installation Orientation Outdoor Herizontal / Vertical 4 Installation Orientation 90 Degree Image: Schedule N/A 7 Fluid State & Schedule N/A Image: Schedule N/A 8 Index Pressure Range 100 mbar Scas Image: Schedule Image: Schedule <td></td> <td>1</td> <td>Quantity</td> <td></td> <td></td> <td>Refer MR</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		1	Quantity			Refer MR						
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Image: state in the image: state in	R.	3	Governing	Standard		EN 334/ EN88-1,	/EN 14382					
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1 2.5 m3/h Refer MR 21 mbar(g) Threaded (Both inlet and outlet). Mr Std Not required (Refer Note required -12) Not required -12) Not outlet). Refer MR (and with details of maximum flow, Inlet and outlet pressure range, direction of flow, certification, amage of the manufacturing etc. Pressure regulator shall be direct acting spring control type with in-built pressure reducing valve and balance regulating unit to												

				Datasheet	for Service Re	egulator					Rev.
	1	Quantity			Refer MR						
AL		Service			Natural Gas						
ER		Governing			EN 334/EN 1438						
GENERAL	-	Installation		Orientation	Outdoor		Horizontal / V	ertical			
6		Line Size &			N/A		ion Talat and O	بالمام ماما	a inline		
	-	Fluid	Orientation	State	Connection Orie Natural Gas		or Inlet and OL Gas	itiet shall b	e iniine		
4	-	Inlet Press	uro Pango	State	6 bar		Gas				
AT		Flow capac		Refer Table below							
s			sure set ran	qe	100 mbar(g) (F		et Point) (Note-	2)			
CES	13	Over Press	ure Shut Off	(OPSO)	Required (Refer			,			
PROCESS DATA			sure Shut O	ff (UPSO)	Required (Refer		•				
đ		CRV Set Po			Required (Refer	r Note -12	2).				
	16	Operating ⁻	lemp.		0 - 60 DegC Direct actuating	with cor	ing control & d	ianhragm w	uith in-huilt r	roccuro	
	17	Type of Re	gulator		balance.	, with spi		iapinagin w	nui ill-built f	Jessure	
	18	Body Size		Port Size	*						
	19	End Conne	ction		Threaded as per	r ANSI / J	ASME B1.20.1	(Refer Note	- 8) (Refer	table	
					below)						
	20	Flange to F	lange dimer	ision (mm)	Refer Table belo	-					
	21	Body Mater	rial		ZAMAK - 3 or D 11).	vie - Cast	Aluminium allo	oy or ASTM	A216 WCB (Refer Note-	
ворү					Stainless Steel a	and Brac	c Sool of Nitrila	Bubbor or	Aluminium	c required	
BG	22	Internal pa	rts		for service					is required	
	23	Diaphragm	Material		Synthetic / Nitri	ile Rubbe	r				
		Accuracy C			AC 10 complyin			nt			
		, Closing Pre			SG 20 complyin	-	•				
		Failure Pos			Close						
	-	Type of res			Manual						
		Accessories		refer note - 7							
sc.	29	Make			*						
MISC.	30	Model No.			*						
								Cut-of	f Pressure	(mbar)	
			Quantity	Regulator outlet			F - F	Cut-OI	riessuie		
			Quantity								
S No.		Flow	(Nos.)	setpoint (Factory set)	End Connec	ction	Distance (mm)	0.000	UDCO	CRV	
S No.		Flow			End Conneo	ction	Distance (mm)	OPSO	UPSO	CRV Set point	
S No.	1	Flow .0 m3/h			End Connec 3/4" X 1" (N				UPSO ed (Refer No	Set point	
			(Nos.)	setpoint (Factory set)		NPTF)	(mm)	Require		Set point te -12).	
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1 2 3 4	2 5	.0 m3/h 25 m3/h	(Nos.) Refer MR Refer MR	setpoint (Factory set) 100 mbar(g) 100 mbar(g)	3/4" X 1" (N 3/4" X 1" (N	NPTF) NPTF) IPTF)	(mm) Mfr Std Mfr Std	Require Require Require	ed (Refer No ed (Refer No	Set point te -12). te -12). te -12).	
1 2 3 4 Notes:	2 5 1(.0 m3/h 25 m3/h 50 m3/h 00 m3/h	(Nos.) Refer MR Refer MR Refer MR	setpoint (Factory set) 100 mbar(g) 100 mbar(g) 100 mbar(g)	3/4" X 1" (N 3/4" X 1" (N 1" X 1.5" (N	NPTF) NPTF) IPTF)	(mm) Mfr Std Mfr Std Mfr Std	Require Require Require	ed (Refer No ed (Refer No ed (Refer No	Set point te -12). te -12). te -12).	
1 2 3 4 Notes: 1 Ven	2 5 1(.0 m3/h 25 m3/h 50 m3/h 00 m3/h o specify.*	(Nos.) Refer MR Refer MR Refer MR Refer MR	setpoint (Factory set) 100 mbar(g) 100 mbar(g) 100 mbar(g) 100 mbar(g)	3/4" X 1" (N 3/4" X 1" (N 1" X 1.5" (N 1" X 1.5" (N	NPTF) NPTF) IPTF) IPTF)	(mm) Mfr Std Mfr Std Mfr Std Mfr Std	Require Require Require Require	ed (Refer No ed (Refer No ed (Refer No ed (Refer No ed (Refer No	Set point te -12). te -12). te -12). te -12).	
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1 3 4 Notes: 1 Ven 2 The nam	2 5 10 dor to regune of	.0 m3/h 25 m3/h 50 m3/h 00 m3/h 0 specify.* Ilator shall t the manufa	(Nos.) Refer MR Refer MR Refer MR Refer MR De indelibly r	setpoint (Factory set) 100 mbar(g) 100 mbar(g) 100 mbar(g) 100 mbar(g) anarked with details of mail name & no., unique serie	3/4" X 1" (N 3/4" X 1" (N 1" X 1.5" (N 1" X 1.5" (N 1" X 1.5" (N ximum flow, Inle	NPTF) NPTF) IPTF) IPTF) et and out	(mm) Mfr Std Mfr Std Mfr Std Mfr Std tlet pressure rate of manufactur	Require Require Require Require nge, directi	ed (Refer No ed (Refer No ed (Refer No ed (Refer No ed (Refer No	Set point te -12). te -12). te -12). te -12).	
1 2 3 4 Notes: 1 Ver 2 The nan 3 Ver	2 5 10 dor to regu ne of	0 m3/h 5 m3/h 0 m3/h 00 m3/h o specify.* ilator shall t the manufa shall submit	(Nos.) Refer MR Refer MR Refer MR Refer MR De indelibly r cture, mode detailed GA	setpoint (Factory set) 100 mbar(g) 100 mbar(g) 100 mbar(g) 100 mbar(g) narked with details of max name & no., unique seriadrawing along with part r	3/4" X 1" (N 3/4" X 1" (N 1" X 1.5" (N 1" X 1.5" (N 1" X 1.5" (N ximum flow, Inle al number, mont names and MOC	NPTF) NPTF) IPTF) IPTF) et and out th & year of the pa	(mm) Mfr Std Mfr Std Mfr Std Mfr Std tlet pressure rate of manufactur rts along with o	Require Require Require Require nge, directi ing etc. datasheets.	ed (Refer No ed (Refer No ed (Refer No ed (Refer No ed (Refer No on of flow, c	Set point te -12). te -12). te -12). te -12).	
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1 2 3 4 Notes: 1 Ven 2 The nan 3 Ven 4 Pre: 5 Pres	2 5 10 dor to regu ne of dor s ssure	0 m3/h 5 m3/h 0 m3/h 0 m3/h o specify.* ilator shall t the manufa shall submit regulator s regulator s	(Nos.) Refer MR Refer MR Refer MR Refer MR De indelibly r cture, mode detailed GA	setpoint (Factory set) 100 mbar(g) 100 mbar(g) 100 mbar(g) 100 mbar(g) narked with details of max I name & no., unique seria drawing along with part r ble for outdoor installation t acting spring control typ	3/4" X 1" (N 3/4" X 1" (N 1" X 1.5" (N 1" X 1.5" (N ximum flow, Inle al number, mont names and MOC	NPTF) NPTF) IPTF) IPTF) et and out th & year of the pa and corr	(mm) Mfr Std Mfr Std Mfr Std Mfr Std tlet pressure ra of manufactur rts along with osion resistanc	Require Require Require Require nge, directi ing etc. datasheets. e for a life p	ed (Refer No ed (Refer No ed (Refer No ed (Refer No ed (Refer No on of flow, c	Set point te -12). te -12). te -12). te -12). ertification,	
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1 2 3 4 2 3 4 7 6 7 8 20 9 10	2 5 10 dor tr regu ne of dor s ssure assure er Sta er Sta essor le Cor	0 m3/h 25 m3/h 0 m3/h 0 m3/h 0 specify.* ilator shall t the manufa shall submit regulator s constant of andard Spec ies: Filter (i mpliance Ce f end conne	(Nos.) Refer MR Refer MR Refer MR Refer MR De indelibly r cture, mode detailed GA hall be suita hall be direcu utlet pressur cification for nbuilt), plas ertificate/ Ty	setpoint (Factory set) 100 mbar(g) 100 mbar(g) 100 mbar(g) 100 mbar(g) 100 mbar(g) marked with details of mail name & no., unique seria drawing along with part r ble for outdoor installation t acting spring control type. Gas Regulators, Documer tic end caps for end connection	3/4" X 1" (N 3/4" X 1" (N 1" X 1.5" (N 1" X 1.5" (N 1" X 1.5" (N ximum flow, Inle al number, mont names and MOC n, tamper proof pe with in-built p nt No. VPC-SPC-5 ections protection Certificate confi	NPTF) NPTF) IPTF) IPTF) et and out th & year of the pa and corr pressure in 5602 for n. rming to	(mm) Mfr Std Mfr Std Mfr Std Mfr Std tlet pressure rate of manufactur rts along with osion resistance reducing valve more informati	Require Require Require Require nge, directi ing etc. datasheets. e for a life p and balance on.	ed (Refer No ed (Refer No ed (Refer No ed (Refer No on of flow, c	Set point te -12). te -12). te -12). te -12). ertification, years. unit to	
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1 2 3 4 Notes: 1 2 7 3 4 7 6 7 6 7	2 5 10 dor to regu ne of dor s ssure assure assure assure assure assor le Cor asso of nection regu	0 m3/h 5 m3/h 0 m3/h 0 m3/h 0 specify.* lator shall t the manufa shall submit regulator s regulator s constant of andard Spec ries: Filter (i mpliance Ce f end conne ons. lator shall t	(Nos.) Refer MR Refer MR Refer MR Refer MR De indelibly r reture, mode detailed GA hall be suita hall be direc utlet pressur cification for nbuilt), plas ertificate/ Ty ctions are di pe double sta	setpoint (Factory set) 100 mbar(g) 100 mbar(g) 100 mbar(g) 100 mbar(g) narked with details of mail name & no., unique serie drawing along with part r ble for outdoor installation t acting spring control type. Gas Regulators, Documer tic end caps for end conner pe approval/ Examination ffering bidder to provide series age pressure regulator.	3/4" X 1" (N 3/4" X 1" (N 1" X 1.5" (N 1" X 1.5" (N 1" X 1.5" (N ximum flow, Inle al number, mont names and MOC n , tamper proof pe with in-built p nt No. VPC-SPC-5 ections protection Certificate confin suitable adaptors	NPTF) NPTF) IPTF) IPTF) IPTF) et and our of the pa and corr oressure in 5602 for n. rming to s of brass	(mm) Mfr Std Mfr Std Mfr Std Mfr Std Mfr Std tlet pressure rate of manufactur rts along with of osion resistance reducing valve more informati the governing material of reg	Require Require Require Require nge, directi ing etc. datasheets. e for a life p and balance on. standard. gulator to m	ed (Refer No ed (Refer No ed (Refer No ed (Refer No ed (Refer No on of flow, c period of 20 e regulating neet the spec	Set point te -12). te -12). te -12). te -12). ertification, years. unit to	
1 2 3 4 2 1 2 7 4 7 6 7 8 Coco 9 100 11 12	2 5 10 dor tr regu ne of dor s ssure ssure assure assure er Sta ssor le Cor ase of nection regu amak	0 m3/h 5 m3/h 0 m3/h 0 m3/h o specify.* llator shall t the manufa shall submit regulator s constant of andard Spec ies: Filter (i mpliance Ce f end conne ons. llator shall t c-3 or die ca	(Nos.) Refer MR Refer MR Refer MR Refer MR De indelibly r reture, mode detailed GA hall be suita hall be direc utlet pressur cification for nbuilt), plas ertificate/ Ty ctions are di De double sta ast aluminum	setpoint (Factory set) 100 mbar(g) 100 mbar(g) 100 mbar(g) 100 mbar(g) narked with details of mail name & no., unique serie drawing along with part r ble for outdoor installation t acting spring control type. Gas Regulators, Documer tic end caps for end conner pe approval/ Examination ffering bidder to provide se age pressure regulator. n alloy used as body mate	3/4" X 1" (N 3/4" X 1" (N 1" X 1.5" (N 1" X 1.5" (N 1" X 1.5" (N ximum flow, Inle al number, mont names and MOC n, tamper proof pe with in-built p nt No. VPC-SPC-5 ections protection Certificate confin suitable adaptors	NPTF) NPTF) IPTF) IPTF) et and out th & year of the pa and corressure oressure in 5602 for n. rming to s of brass	(mm) Mfr Std Mfr Std Mfr Std Mfr Std Mfr Std tlet pressure rate of manufactur rts along with of osion resistance reducing valve more informati the governing material of reg	Require Require Require Require nge, directi ing etc. datasheets. e for a life p and balance on. standard. gulator to m	ed (Refer No ed (Refer No ed (Refer No ed (Refer No ed (Refer No on of flow, c period of 20 e regulating neet the spec	Set point te -12). te -12). te -12). te -12). ertification, years. unit to	
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				Datasheet	-1 of 2 for Commercial Re	gulator				Rev.
	1	Quantity			Refer MR					
۲ ۲	2	Service			Natural Gas					
GENERAL	3	Governing	g Standard		EN 334/EN 14382					
Z	4	Installatio	on	Orientation	Outdoor	Horizontal /	Vertical			
5	5	Line Size	& Schedule		N/A					
	6	Connectio	on Orientatio	n	Connection Orientation for I	nlet and Outlet	shall be in	nline.		
	9	Fluid		State	Natural Gas	Gas				
≤	10	Inlet Pres	sure Range	-	6 bar					
PROCESS DATA	11	Flow capa	icity		Refer Table below					
s	12	Outlet Pre	essure set ra	nge	Refer Table Below.					
n N	13	Over Pres	sure Shut O	ff (OPSO)	Required (Refer Note -12).					
5	14	Under Pre	essure Shut (Off (UPSO)	Required (Refer Note -12).					
ž –	15	CRV Set F	Point		Required (Refer Note -12).					
	16	Operating	j Temp.		0 - 60 DegC					
	17	Type of R	egulator		Direct actuating with spring			in-built pr	ressure	
			-		balance and integral slam sl	nut valve syster	n.			
		Body Size		Port Size	*					
	19	End Conn	ection		Refer Table Below.					
	20	Flange to	Flange dime	ension (mm)	Refer Table below.					
ļ	21	Body Mat	orial		ZAMAK - 3 or Die - Cast Alu	minium alloy or	ASTM A21	L6 WCB (R	efer Note-	
ž	21	Body Mat	criui		11).					
BODY	22	Internal p	arts		Stainless Steel and Brass Se	eal of Nitrile Rub	ber or Alu	minium as	s required	
20		•			for service					
	-		m Material		Synthetic / Nitrile Rubber					
		Accuracy			AC 10 complying to EN 334					
		Closing P			SG 20 complying to EN 334	or Equivalent				
		Failure Po			Close					
		Type of re			Manual					
	28	Accessori	es		refer note - 7					
ີ ເ	29	Make			*					
MISC.	30	Model No			*					
_				Regulator			Cut off	Dressure	(mhay)	
s			Quantity	outlet		F-F	Cut-on	Pressure	. ,	
No.		Flow	(Nos.)	setpoint	End Connection	Distance	OPSO	UPSO	CRV Set	
				(Factory set)		(mm)	0F30	0F30	Jel	
1	1			(lactory set)					point	
1	2	5 m3/h	Refer MR	(I actory set)	1" X 2", 150# Flanged	Mfr Std	Required	l (Refer No	point ote -12).	
		5 m3/h 0 m3/h			1" X 2", 150# Flanged 1" X 2", 150# Flanged	Mfr Std Mfr Std		l (Refer No l (Refer No	ote -12).	
2	5	0 m3/h	Refer MR	3 bar(g) Max.	1" X 2", 150# Flanged	Mfr Std	Required	l (Refer No	ote -12). ote -12).	
2 3	5 10	-					Required	•	ote -12). ote -12).	
2 3 Notes	5 10	0 m3/h)0 m3/h	Refer MR Refer MR		1" X 2", 150# Flanged	Mfr Std	Required	l (Refer No	ote -12). ote -12).	
2 3 lotes 1 Ve	5 10 s: endor	0 m3/h 00 m3/h r to specify	Refer MR Refer MR	3 bar(g) Max.	1" X 2", 150# Flanged 1" X 2", 150# Flanged	Mfr Std Mfr Std	Required Required	l (Refer No	ote -12). ote -12). ote -12).	
2 3 lotes 1 Ve	5 10 s: endor ne re	0 m3/h 00 m3/h r to specify gulator sh	Refer MR Refer MR 7.* all be indelib	3 bar(g) Max. ly marked with d	1" X 2", 150# Flanged	Mfr Std Mfr Std	Required Required	l (Refer No	ote -12). ote -12). ote -12).	
2 3 lotes 1 Ve 2 Th na	5 10 s: endor ne re- ame o	0 m3/h 00 m3/h r to specify gulator sh of the mar	Refer MR Refer MR 7.* all be indelib nufacture, m	3 bar(g) Max. ly marked with d odel, unique seria	1" X 2", 150# Flanged 1" X 2", 150# Flanged etails of maximum flow, Inle al number, date of manufact	Mfr Std Mfr Std t and outlet pre uring etc.	Required Required ssure rang	d (Refer No d (Refer No d (Refer No ge, directio	ote -12). ote -12). ote -12).	
2 3 lotes 1 Ve 2 Th na	5 10 s: endor ne re- ame o	0 m3/h 00 m3/h r to specify gulator sh of the mar	Refer MR Refer MR 7.* all be indelib nufacture, m	3 bar(g) Max. ly marked with d odel, unique seria	1" X 2", 150# Flanged 1" X 2", 150# Flanged etails of maximum flow, Inle	Mfr Std Mfr Std t and outlet pre uring etc.	Required Required ssure rang	d (Refer No d (Refer No d (Refer No ge, directio	ote -12). ote -12). ote -12).	
2 3 lotes 1 Ve 2 Th na 3 Ve Pr	5 10 s: endor ame re- ame o	0 m3/h 00 m3/h r to specify gulator sh of the mar r shall sub	Refer MR Refer MR /.* all be indelib nufacture, m mit detailed	3 bar(g) Max. ly marked with d odel, unique seria GA drawing alon	1" X 2", 150# Flanged 1" X 2", 150# Flanged etails of maximum flow, Inle al number, date of manufact	Mfr Std Mfr Std t and outlet pre uring etc.	Required Required ssure rang	d (Refer No d (Refer No ge, direction casheets.	ote -12). ote -12). ote -12).	
2 3 Notes 1 Ve 2 Th na 3 Ve 4 Prove 20	5 10 s: endor endor endor ressu	0 m3/h 00 m3/h r to specify gulator sh of the mar r shall sub re regulato rs.	Refer MR Refer MR /.* all be indelib nufacture, m mit detailed or shall be su	3 bar(g) Max. Jy marked with d odel, unique seria GA drawing alon- uitable for outdoo	1" X 2", 150# Flanged 1" X 2", 150# Flanged letails of maximum flow, Inle al number, date of manufact g with part names and MOC or installation , tamper proof	Mfr Std Mfr Std t and outlet pre- uring etc. of the parts alor and corrosion r	Required Required ssure rang	d (Refer No d (Refer No d (Refer No de, direction casheets.	ote -12). ote -12). ote -12).	
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2 3 1 Ve 2 Th na 3 Ve 4 Pr 20 5 Pr 6 Re 7 Ac	5 10 5: endor endor ressu 0 yea ressu ogulat efer S ccess	0 m3/h 00 m3/h r to specify gulator sh of the mar r shall sub re regulate rs. re regulate ting unit to Standard S ories: Filte	Refer MR Refer MR 7.* all be indelib bufacture, m mit detailed or shall be su or shall be di o ensure a co Specification er (inbuilt), p	3 bar(g) Max. ly marked with d odel, unique seria GA drawing alon- uitable for outdoo irect acting sprin- onstant outlet pre- for Gas Regulato plastic end caps for	1" X 2", 150# Flanged 1" X 2", 150# Flanged letails of maximum flow, Inle al number, date of manufact g with part names and MOC or installation , tamper proof g control type with in-built p essure. rs, Document No. VPC-SPC- or end connections protection	Mfr Std Mfr Std t and outlet pre- uring etc. of the parts alor and corrosion r ressure reducin 5602 for more in h.	Required Required ssure rang mg with dat esistance f g valve an	d (Refer No d (Refer No d) (Ref	ote -12). ote -12). ote -12).	
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(Nos.) set) (mm) OPSO UPSO Set point 1 10 m3/h Refer MR Refer MR 1" X 1" (NPTF) Mfr Std Required (Refer Note - 12).					Datasheet-2 of 2	for Commercial	Regula	tor				Rev.
Bit Soverning Standard EN 34/EN 14382 4 Installation Orientation N/A 5 Line Size & Schedule N/A Forcention / Vertical N 6 Connection Orientation (Connection Orientation for Inite and Outlet shall be inline. N N 6 Encorection Orientation Connection Orientation for Inite and Outlet shall be inline. N 7 Fluid State Natural Gas Cas N 10 Outlet Pressure 6 bar Cas N N 10 Outlet Pressure Shut Off (OPSO) Required (Refer Note -12). N N 11 Outlet Pressure Shut Off (OPSO) Required (Refer Note -12). N N 12 Inder Pressure Shut Off (OPSO) Required (Refer Note -12). N N 13 Body Size Port Size * T N Sign Pressure Shut Off (OPSO) N 14 Indermal parts State Sale and Bass Seal of Nitrie Ruber and Auminium alley or ASTM A216 WCB KAffer Note -11. N 13 Body Material Stat		1	Quantity	y		Refer MR						
Connection Orientation Connection Orientation for Intel and Outlet shall be inline. 7 Filmid State A balance Gas State S	۹L	2				Natural Gas						
Connection Orientation Connection Orientation for Intel and Outlet shall be inline. 7 Filmid State A balance Gas State S	R	3	Governi	ng Standard	t	EN 334/EN 1438	32					
Connection Orientation Connection Orientation for Intel and Outlet shall be inline. 7 Filmid State A balance Gas State S	Ĩ	4				Outdoor		Horizontal / \	/ertical			
Y Pluid State Natural Gas Gas 8 Index Pressure 6 bar	5	5	Line Siz	e & Schedu	le	N/A						
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Project -: Supply of Natural Gas Regulator For City Gas Distribution Project At North GOA. Client -: GOA NATURAL GAS PRIVATE LIMITED (GNGPL) Consultant -: VCS Quality Services Pvt. Ltd. QUALITY ASSURANCE PLAN FOR GAS REGULATORS QAP. No. -: 1023-CD-IN-QAP-5002 Rev: C1 Prepared -: AS CHK : AB Approved: AA ENERGISING QUALITY Date -: 18.06.2021. Inspection Format of S.No Components & Operations **Description of Test** Category Extent of Check Ref. Doc. & Cl.no. **Acceptance Criteria** Remark Record Manufacturer TPIA Physical Material of Body & Properties/ 1 sample per Approved data Applicable Material Material test Р Body & internal parts R 1 Trim Chemical heat sheet std. Reports composition Dimension-Inspection Approved Ρ Size.rating.end visual 100% Approved drwg/doc R drwg/doc Format connection Body Hydro - test / External Leak Approved data Test 100% No leakage Test report Р R/W Tightness / External sheet 2 Assembly Soundness Test Witness of quantity shall be as per inspection level 1 Approved data AQL 1% as per IS 2500 100% Approved data sheet Test report Ρ R/W Calibration, accuracy Test sheet (part 1): 2000 Approved data 100% Ρ Functional test Test Approved data sheet Test report R/W sheet EGENDS: R - Review, W - Witness, P - Perform, TPIA - Third Party Inspection Agency, R/W - Random Witness. Notes: -1) The above mentioned testing and acceptance criteria are minimum requirements, However supplier shall ensure that the product also comply to 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 along with Owner / Owner's representative shall review / approve all the documents related to QAP / Quality manuals Drawings etc. submitted by supplier.

4) TPIA shall also review the test certificates submitted by the manufacturer.

5) 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 organise Inspection.

6) Supplier shall submit their own detailed QAP and regulator tag/nameplate format duly signed and stamped.

7)TPIA shall review all the reports 100%.

	PROJECT:
1 0	CLIENT:
ENERGISING QUALITY	CONSULTA

SUPPLY OF NATURAL GAS REGULATORS FOR CITY GAS DISTRIBUTION PROJECT OF NORTH GOA GA GOA NATURAL GAS PRIVATE LIMITED (GNGPL). CONSULTANT: VCS QUALITY SERVICES PVT. LTD.



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	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.		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 Services	E-7,Chand Society, Juhu Road, Juhu, Mumbai-4000049	022-26245747	022-226248167					
8	SGS India Pvt. Ltd	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					
14	Bureau Veritas (India) Pvt. Ltd.	72, Business Park, Marol Industrial Area, Cross Road 'C', Andheri East, MUMBAI 400 093	022 6274 2000	022 6274 2008					
15	TUV Nord Group	-	-	-					
16	DET NORSE VERITAS (DNV)	-	-	-					
17	LLOYD Register	-	-	-					

						Annexu	ure - 1						
Digits	1	2	3	4	5	6	7	8	9	10	11	12	
	Vendor Name/No. Serial No.				Pressure (mbar)			Flow (SCMH)					
First Row													Only this ro is to be printed
	A		ļ	В	Į.		. (Ċ			D	<u> </u>	
	,												
Digits	1	2	3	4	5	6							
	P.O. No. Hyphen					Lot No.							
Second Row					-		Only this row is to be printed						
	E -					F							
Legend : A	Vendor Nam	e/No	: 1 to 9 w	ill be pro	vided by	Owner at	the time	of Produ	ction to ^v	Vendor.			
В	Serial No. 0001 to 9999												
С	Pressure of Regulator in mbar					Will use 0021 to 2000 as per the order for different pressures							
D	Flow (SCMH)					Will use 020 to 450 as per the order for different flow rates							
E	P.O. / Contract No. : 0001 to 9999					Last 4 digits of the P.O. are to be written. In case no P.O. is given only contract no. is available, then first two and last one digit of contract no. are be written.							
F	Lot No. : 1 to 9 (as mentioned in P.O.)					Will be as per lots mentioned in P.O.							
Example : 1 mbar, 2.5 S	CMH :									10			
-	SCMH :	2	3	4	5	6	7	8	9	10	11	12	
-		2		4 al No.	5	6		8 e (mbar)	9	-	11 ow (SCN		_
-	1	2		-	5	6 0		-	9	-			