



GOA NATURAL GAS PVT. LTD.

**A Joint Venture of Bharat Petroleum Corporation Limited
(BPCL) & GAIL GAS LIMITED**

CITY GAS DISTRIBUTION PROJECT

**BID DOCUMENT
FOR**

**PE PIPES
(On Annual Rate Contract (ARC) Basis of Two Years)**

DOMESTIC COMPETITIVE BIDDING

Bid Document No.: 05/51/23SA/GNGPL/028A

VOLUME – II OF II



**PREPARED AND ISSUED BY
MECON LIMITED**

**(A Govt. of India Undertaking)
Delhi, India**



GNGPL

**TENDER FOR PROCUREMENT PE PIPES FOR
CNG AND CGD NETWORK IN NORTH GOA
FOR
GOA NATURAL GAS PRIVATE LIMITED**

Bid No.



MECON LIMITED

VOLUME - II OF II

CONTENT

- Section-I** : Material Requisition
Section-II : Technical Specification
Section-III : Quality Assurance Plan for PE Pipes



GNGPL

**TENDER FOR PROCUREMENT PE PIPES FOR
CNG AND CGD NETWORK IN NORTH GOA
FOR
GOA NATURAL GAS PRIVATE LIMITED**

Bid No.



MECON LIMITED

**SECTION -I
MATERIAL REQUISITION**



GNGPL

**TENDER FOR PROCUREMENT PE PIPES FOR
CNG AND CGD NETWORK IN NORTH GOA
FOR
GOA NATURAL GAS PRIVATE LIMITED**

Bid No.



MECON LIMITED

MATERIAL REQUISITION

(MR No. : MEC/23SA/05/28//M/001/PE/SU/0001)

Project : Procurement of PE Pipes for City Gas Distribution project for

Client : M/s GNGPL

Items : PE PIPES

MECON's TS No. : MEC/TS/05/62/028

1.0 Scope of supply:

Manufacture and supply of Polyethylene Pipe, pipes on 2 years Annual Rate Contract (ARC) including transporting and handling of all pipes to storage yard and as per details given in table 1 below :

TABLE-1:

Sl. No.	Size (OD) mm	Grade of Material	Standard Dimensions (SDR)	Ratio	Total Quantity (Mtrs)
1.	Ø 125	PE-100	11		35000
2.	Ø 90	PE-100	11		35000
3.	Ø 63	PE-100	11		30000
4.	Ø 32	PE-100	11		10000
5.	Ø 20	PE-100	11		10000

2.0 Notes:

1. Vendor has to appoint TPI Agency (Third Party Inspection Agency) for inspection at manufacturer's works as per approved QAP. No separate payment for the same shall be paid.
2. Evaluation of PE Pipes will be on item wise basis.
3. Raw Material for PE 100 compound (Orange) shall be purchased from the following, as recommended by PE100+ Association:

Product	Manufacturer
Borsafe™ HE 3492-LS-H (orange)	Borealis
Borsafe™ HE 3492-LS-H (orange)	Borouge
ELTEX® TUB 125 N2025 (orange)	INEOS O&P
ELTEX® TUB 125 N6000 (orange)	INEOS O&P
Hostalen CRP 100 orange	Lyondell Basell



GNGPL

**TENDER FOR PROCUREMENT PE PIPES FOR
CNG AND CGD NETWORK IN NORTH GOA
FOR
GOA NATURAL GAS PRIVATE LIMITED**

Bid No.



MECON LIMITED

4. Marking on the pipe shall be as given below:

“GNGPL”. Manufacturer’s Name PE 100 DN-X-(W.T.) MM- SDR-GAS
IS:14885:2001 ISI CM/L- Batch or Coil no.-Sequential Meter
Marking“

Legend:

DN - Nominal Diameter

W.T.- Wall Thickness

SDR - Standard Dimensions Ratio

3.0 Inspection:

The Successful Vendor shall propose minimum four (4) nos. of TPIA’s from the below listed TPIA’s along with QAP submission. GNGPL/MECON shall approve any one TPIA out of the four (4) nos. proposed TPIA’s. The Successful Vendor shall appoint the approved TPIA for inspection purpose and mention name of the approved TPIA in QAP.

- i. Det Norske Veritas (DNV)
- ii. Germanischer Lloyd
- iii. Bureau Veritas
- iv. Moody International
- v. SGS
- vi. Certification Engineer International Ltd(CEIL)
- vii. Technische Ulierwachungs Verein (TUV)
- viii. Velosi
- ix. American Bureau Services (ABS)
- x. AB-Vincotte
- xi. Lloyd Register of Industrial Services
- xii. Meenar Global
- xiii. VCS Quality Services Private Limited

The inspection shall be carried out as per the QAP enclosed in the tender.



GNGPL

**TENDER FOR PROCUREMENT PE PIPES FOR
CNG AND CGD NETWORK IN NORTH GOA
FOR
GOA NATURAL GAS PRIVATE LIMITED**

Bid No.



MECON LIMITED

4.0 DOCUMENTS & DATA REQUIREMENTS

The table hereunder specifies the quantities and the nature of the documents to be submitted by the CONTRACTOR. The documents required at the inquiry stage and to be included in the bid are listed under column A.

The documents required after award of the AGREEMENT and subject to the written approval of the PMC / Client are listed under column B.

The final and certified documents are listed under column C. Any document, even when preliminary, shall be binding and therefore duly identified and signed by the CONTRACTOR.

THE DOCUMENTS ARE FULLY PART OF THE SUPPLY WHICH SHALL BE COMPLETE ONLY IF AND WHEN THE DOCUMENTS COMPLYING FULLY WITH THE MATERIAL REQUISITION REQUIREMENTS ARE RECEIVED BY THE PMC / CLIENT.

Item	Documents and Data	A	B		C	
		Number of copies	Number of copies	Required date	Number of copies	Required date
1	Details of Raw Material Manufacturer	-	2	2 weeks	2	Along with dispatch/ Shipment
2	Inspection and Test Procedure (ITP)	-	2	2 weeks	2	Along with dispatch/ Shipment
3	Manufacturer's Test certificates	-	-	-	2	Along with dispatch/ Shipment
4	Material certificate	-	-	-	2	Along with dispatch/ Shipment
5	Final technical file	-	-	-	2	Before Claim of final payment

NOTES

1. Durations in column B (Required date) are weeks after Purchase Order date Durations in column C (Required date) are weeks after document approval. Due date of each document may be proposed.



GNGPL

**TENDER FOR PROCUREMENT PE PIPES FOR
CNG AND CGD NETWORK IN NORTH GOA
FOR
GOA NATURAL GAS PRIVATE LIMITED**

Bid No.



MECON LIMITED


SECTION –II

TECHNICAL SPECIFICATION

TECHNICAL SPECIFICATION
FOR
POLYETHYLENE PIPES
(TS NO. : MEC/TS/05/62/028)




MECON LIMITED
(A Govt. of India Undertaking)
15th Floor, SCOPE Minar, North Tower
Laxmi Nagar District Centre, **DELHI –**
110 092

MECON LIMITED DELHI	PROCESS & PIPING DESIGN SECTION NEW DELHI	TECHNICAL SPECIFICATION POLYETHYLENE PIPES	
TECHNICAL SPECIFICATION NO. : MEC/TS/05/62/028		REV-0	Page 1 of 3

CONTENTS

<u>Sl.No.</u>	<u>Description</u>	<u>Page No.</u>
1.0	INTENT OF SPECIFICATION	2
2.0	SCOPE OF WORK	2
3.0	INSTRUCTION TO THE TENDERER	2

PREPARED BY :	CHECKED BY :	APPROVED BY :
GURDEEP SINGH Date	A.K. SARKAR Date	A.K. JOHRI Date

MECON LIMITED DELHI	PROCESS & PIPING DESIGN SECTION NEW DELHI	TECHNICAL SPECIFICATION POLYETHYLENE PIPES	
TECHNICAL SPECIFICATION NO. : MEC/TS/05/62/028		REV-0	Page 2 of 3

1.0 **INTENT OF SPECIFICATION**

2.1 The intent of this specification is to establish minimum requirements to manufacture and supply of Polyethylene Pipes used for supply of natural gas.

2.0 **SCOPE OF WORK**

2.2 The scope of the tenderer will include manufacture/ supply, inspection/ testing/ marking/ packaging/ handling and despatch of polyethylene pipes, of grade & thickness as indicated in the Material Requisition & Schedule of Rates, meeting all the requirements as laid down in IS:14885 (Specification for Polyethylene Pipes for the supply of gaseous fuels), as indicated in SOR including those for material used, dimensions, surface finish, performance, test sampling/ frequency/ conformity etc.

2.3 All codes and standards for manufacture, testing, inspection etc. shall be of latest edition.

2.4 Purchaser reserves the right to delete or order additional quantities during execution of order, based on unit rates and other terms & conditions in the original order.

3.0 **INSTRUCTION TO THE TENDERER**


3.1 Length of the Pipes and their supply will be as per following :-

- 20mm OD – In each Coils of 100 mtrs. length
- 32mm OD – In each Coils of 100 mtrs. length
- 63mm OD – In each Coils of 100 mtrs. Length
- 90mm OD – In each Coils of 100 mtrs. Length
- 125mm OD – In each Coils of 50 mtrs. length

3.2 Protection

- i) The ends shall be protected by proper end caps to prevent from shocks and ingress of the foreign body.
- ii) Coils shall be covered by black PVC/ PE Film to prevent exposure to direct sun light.

3.3 The successful bidder shall submit following for approval of Purchaser/ Consultant after placement of order

MECON LIMITED DELHI	PROCESS & PIPING DESIGN SECTION NEW DELHI	TECHNICAL SPECIFICATION POLYETHYLENE PIPES	
TECHNICAL SPECIFICATION NO. : MEC/TS/05/62/028		REV-0	Page 3 of 3

- a) The Quality Assurance Plan (QAP & Sampling Plan)
- b) Certified test result of PE Compound (clause 5 of IS:14885)
- c) Performance Requirements (clause 8 of IS:14885)
- d) Type Test (clause 9.1.2 of IS:14885).

3.4

MARKING

The pipe shall be marked in continues length in addition to the requirement of the applicable code.

SECTION –III

Quality Assurance Plan for PE Pipes



MECON Limited
(A Govt. of India
Enterprise)

**QUALITY ASSURANCE PLAN
FOR
PE PIPES**

PROJECT: CGD Network at North Goa
PACKAGE NAME : PE Pipes
QAP NO.:
Page 1 of 4

Sl. No.	Component/ Operation	Type/ Method of Check	Extent of Check	Equipment Used	Ref. Standard	Acceptance Norms	Format of Record	Agency			Remarks	
								M	T	PMC / CLIENT		
A	RAW MATERIAL											
(i)	Density	Review of TC	For each lot/ batch of Raw material used	Electronic Balance	IS:7326:1992 raw material mfr. Test Certificate	As per clause 8.3 of IS 14885:2001	RMTC	V/P	W	R	Review of Raw Material Test Certificate will be provided	
(ii)	Melt Flow Rate	Review of TC		MFR Tester	IS:2530:1963 & raw material mfr. Test Certificate	As per clause 8.4 of IS 14885:2001	RMTC	V/P	W	R		
(iii)	Thermal stability (OIT)	Review of TC		OIT Tester	IS 14885:2001	As per clause 8.5 of IS 14885:2001	RMTC	V/P	W	R		
(iv)	Pigment Dispersion	Review of TC		Dispersion Tester	IS 14885:2001	As per clause 5.4 of IS 14885:2001	RMTC	V/P	W	R		
(v)	Volatile matter content	Review of TC		Electronic Balance & Oven	IS 14885:2001	As per clause 8.6 of IS 14885:2001	RMTC	V/P	W	R		
(vi)	Resistance to Gas Constituents	Review of TC		-	IS 14885:2001	As per clause 5.5 of IS 14885:2001	RMTC	R	R	R		
(vii)	Anti oxidant	Review of TC		-	IS 14885:2001	As per clause 5.2 of IS 14885:2001	RMTC	R	R	R		
(viii)	U.V. Stabilizer	Review of TC		-	IS 14885:2001	As per clause 5.3 of IS 14885:2001	RMTC	R	R	R		
(ix)	Classification of PE compound	Review of TC		-	IS 14885:2001	As per clause 4.2 of IS 14885:2001	RMTC	R	R	R		
(x)	Calibration	Review of Certificates		-	-	Certificates	Certificates	-	V/R	R		R
B	In process inspection											
1	Appearance											
(a)	Colour	Visual	Randomly as per Table 10 of IS 14885	Visual	The colour of the pipe shall be Orange	As per clause 4.4 of IS 14885:2001	Test Report	P	W	W/R		
(b)	Finish of the pipe	Visual		Visual	IS 14885:2001	As per clause 7 of IS 14885:2001	Test Report	P	W	W/R		
2	Dimension of Pipe											
(a)	Outside Diameter	Measurement		PI Tape/ Vernier Caliper	IS 14885:2001	As per IS 14885:2001	Test Report	P	W	W/R		
(b)	Wall Thickness	Measurement		Ball Ended Micrometer	IS 14885:2001	As per IS 14885:2001 as per Table 4 & 5	Test Report	P	W	W/R		
(c)	Ovality	Measurement		Vernier	IS 14885:2001	As per	Test	P	W	W/R		



MECON Limited
(A Govt. of India
Enterprise)

**QUALITY ASSURANCE PLAN
FOR
PE PIPES**

PROJECT: CGD Network at North Goa
PACKAGE NAME : PE Pipes
QAP NO.:
Page 2 of 4

Sl. No.	Component/ Operation	Type/ Method of Check	Extent of Check	Equipment Used	Ref. Standard	Acceptance Norms	Format of Record	Agency			Remarks
								M	T	PMC / CLIENT	
				Caliper		IS 14885:2001	Report				
3	Marking	Visual		Visual	IS 14885:2001	Indelible marking by Ink Jet Printing as per clause 10 of IS 14885:2001 as given below	Test Report	P	R	R	
4	Length	Measurement		As per PO	IS 14885:2001	As agreed by the purchaser	Test Report	P	R	R	
C	Final Inspection										
1	Colour	Visual	As per Table 10 of IS 14885	Visual	The colour of the pipe shall be Orange	As per clause 4.4 of IS 14885:2001	Test Report	P	W	W/R	
2	Finish of the pipe	Visual		Visual	IS 14885:2001	As per clause 7 of IS 14885:2001	Test Report	P	W	W/R	
3	Dimension of Pipe										
(a)	Outside Diameter	Measurement		PI Tape/ Vernier Caliper	IS 14885:2001	As per IS 14885:2001	Test Report	P	W	W/R	
(b)	Wall Thickness	Measurement		Ball Ended Micrometer	IS 14885:2001	As per IS 14885:2001 as per Table 4 & 5	Test Report	P	W	W/R	
(c)	Ovality	Measurement		Vernier Caliper	IS 14885:2001	As per IS 14885:2001	Test Report	P	W	W/R	
4	Marking	Visual		Visual	IS 14885:2001	Indelible marking by Ink Jet Printing as per clause 10 of IS 14885:2001 as given below	Test Report	P	R	W/R	
5	Length	Measurement	As per PO	IS 14885:2001	As agreed by the purchaser	Test Report	P	R	W/R		
6	Hydraulic Pressure resistance for 165 Hrs 80°C (Plain Pipe)	Visual	As per Table 11 of IS 14885	Hydrostatic Pressure Tester	IS 14885:2001	As per clause No. 8.1 No failure or leakage for 165 Hrs at 5.5 MPa induced stress as per Table 7 of IS 14885:2001	Test Report	P	W	W/R	
7	Hydraulic Pressure resistance for 165 Hrs 80°C (63mm dia and above) (Notched Pipe)	Visual		Hydrostatic Pressure Tester	IS 14885:2001	As per clause No. 8.1 No failure or leakage for 165 Hrs at 4.6 MPa induced stress as per Table 7 of IS 14885:2001	Test Report	P	W	W/R	
8	Squeeze – Off Test (Type Test)	Visual		Hydrostatic Pressure Tester	IS 14885:2001	As per clause No. 8.9 No failure or leakage for 165 Hrs at 5.5 MPa induced	Test Report	P	W	R	Review internal test report



MECON Limited
(A Govt. of India
Enterprise)

**QUALITY ASSURANCE PLAN
FOR
PE PIPES**

PROJECT: CGD Network at North Goa
PACKAGE NAME : PE Pipes
QAP NO.:
Page 3 of 4

Sl. No.	Component/ Operation	Type/ Method of Check	Extent of Check	Equipment Used	Ref. Standard	Acceptance Norms	Format of Record	Agency			Remarks
								M	T	PMC / CLIENT	
						stress as per Table 7 of IS 14885:2001					
9	Hydraulic Pressure resistance for 1000 Hrs 80°C (Plain Pipe) (Type Test)	Visual		Hydrostatic Pressure Tester	IS 14885:2001	As per clause No. 8.1 No failure or leakage for 1000 Hrs at 5.0 MPa induced stress as per Table 7 of IS 14885:2001	Test Report	P	R	R	Review with RM supplier's TC
10	Hydraulic Pressure resistance for 100 Hrs 20°C (Plain Pipe) (Type Test)	Visual		Hydrostatic Pressure Tester	IS 14885:2001	As per clause No. 8.1 No failure or leakage for 100 Hrs at 12.5 MPa induced stress as per Table 7 of IS 14885:2001	Test Report	P	R	R	Review with RM supplier's TC
11	Reversion	Measurement		Vernier Caliper & Oven	IS 14885:2001	As per clause No. 8.2 IS 14885:2001 reversion shall not be greater than 3%	Test Report	P	W	W/R	
12	Density	Measurement	As per Table 11 of IS 14885	Electronic balance	IS:7328:1992 raw material mfr. Test	As per clause 8.3 of IS 14885:2001	Test Report	P	W	W/R	
13	Melt flow Rate	Measurement		MFR Tester	IS:2530:1953 & raw material mfr. Test Certificate	As per clause 8.4 of IS 14885:2001, Change of MFR by processing shall not be more than 25%	Test Report	P	W	W/R	
14	Pigment Dispersion	Visual		Dispersion Tester	IS 14885:2001	As per clause 5.4 of IS 14885:2001	Test Report	P	W	W/R	
15	Thermal stability (OIT)	Measurement		OIT Tester	IS 14885:2001	As per clause 8.5 of IS 14885:2001	Test Report	P	W	W/R	
16	Tensile yield strength	Measurement		Tensile & Elongation Tester	IS 14885:2001	As per clause 8.7 of IS 14885:2001	Test Report	P	W	W/R	
	Elongation at break	Measurement		Tensile & Elongation Tester	IS 14885:2001	As per clause 8.7 of IS 14885:2001	Test Report	P	W	W/R	
17	Volatile Matter Content	Measurement		Electronic Balance & Oven	IS 14885:2001	As per clause 8.6 of IS 14885:2001	Test Report	P	W	W/R	
18	Resistance to Weathering	Review		-	-		As per supplier's TC	RMTC	R	R	R
19	Calibration	Review of Certificates	-	-	Certificates	Certificates	-	V/R	R	R	



MECON Limited
(A Govt. of India
Enterprise)

**QUALITY ASSURANCE PLAN
FOR
PE PIPES**

PROJECT: CGD Network at North Goa
PACKAGE NAME : PE Pipes
QAP NO.:
Page 4 of 4

Sl. No.	Component/ Operation	Type/ Method of Check	Extent of Check	Equipment Used	Ref. Standard	Acceptance Norms	Format of Record	Agency			Remarks
								M	T	PMC / CLIENT	
20	Supply, Packing Handling and Transportation of PE Pipe	Visual	-	-	IS 14885:2001	As per clause 11 of IS 14885:2001	Test Report	P	W	W/R	

Legend:

M – Manufacturer of PE Pipes , T – Third Party Inspection Agency , PMC – Project Management Consultant , R – Document Review , P – Perform , W – Witness, V – Verification of documents , RMTC – Raw Material Test Certificate

NOTES:

1. In case of volatile matter ≥ 250 mg/kg and ≤ 350 mg/kg, Water Content Test as per EN: 12118 / ISO: 760 shall be performed and witnessed by TPI and reviewed by PMC / Client.
2. All Type tests shall be reviewed with raw material suppliers' test certificate
3. All external labs, if used for testing, shall be NABL accredited.
4. TPIA/PMC shall check the material while opening and the raw material shall be loaded in the hopper in their presence. Additionally, PMC / CLIENT reserves the right to inspect randomly or review the record prior to giving clearance for dispatch.

For CONTRACTOR/ SUB-CONTRACTOR

(Stamp & Signature)