



GOA NATURAL GAS PVT. LTD.

{A Joint Venture of GAIL Gas Ltd & Bharat Petroleum Corporation Limited (BPCL)}

CONTRACT FOR SUPPLY OF MDPE PIPE OF 20MM AND 32 MM FOR GOA NATURAL GAS PVT. LTD., NORTH GOA & PONDA, GOA.

Tender No: GNGPL/PROJ/C&P/2026/T-27 Dated 24/09/2026

Limited Domestic Tender

(BID SUBMISSION ONLY THROUGH EMAIL)

**TECHNICAL VOLUME
(Volume II of II)**

1. SCOPE OF WORK / SUPPLY

The supplier shall have the single point responsibility of Manufacturing and Supply of the MDPE pipe to GNGPL at Goa site.

The scope of the supplier shall include Design, Engineering, Manufacturing, TPI / Inspection, Testing, Marking, Packaging, Handling and dispatch of polyethylene pipes, of grade & thickness as indicated in below Table-I & Schedule of Rates, meeting all the requirements as laid down in IS:14885

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

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.

TABLE-1:-

Sl. No.	Size (OD) mm	Grade of Material	Standard Dimensions Ratio (SDR)	Total Quantity required (in Meters)	Destination/ Store (M/s GNGPL designated yard)
1.	Ø 32	PE-100	11	10000	GOA
2.	Ø 20	PE-100	11	10000	GOA

The supplier shall submit following documents for approval from purchaser/consultant after placement of order

- Filled in Quality Assurance Plan (QAP) for Purchaser's/ Consultant's approval.
- Certified test results of PE compound
- Performance requirements
- Type Test certificate
- Inspection & test reports for all mandatory tests as per the applicable code as well as test reports for any supplementary tests

2. APPROVED MANUFACTURER FOR RAW MATERIAL (PE-100)

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

3. LENGTH OF THE PIPES :-

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

20mm OD – In each Coils of 100 mtrs. length
32mm OD – In each Coils of 100 mtrs. length

4. PROTECTION: -

The end shall be protected by proper end caps to prevent from shocks and ingress of the foreign body. Coils shall be covered by black PVC/PE film to prevent exposure to direct sunlight.

5. MARKING: -

All pipes shall be permanently and legibly marked in continues length in addition to the requirement of the applicable code.

Marking details shall be formed in such a way that marking does not initiate cracks or other type of failure and in such a way that with normal storage weathering and processing and permissible method of installation use, legibility shall be maintained for the pipe

Marking on the pipe shall be as given below: -

GOA NATURAL GAS PVT LTD.

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

6. COLOR

The pipe shall be of ORANGE colour, when the pipe shall be manufactured from PE-100 grade of raw material.

7. TOLERANCE

Tolerances for Random Length of Pipes

- Tolerances for each rolled pipes - 0/+0.5m
- Tolerances for each straight pipes - 0/+0.05m •

Tolerances on Nominal wall thickness at any points of pipe shall be in accordance with IS-14885: 2001 or equivalent codes / standards.

8. FINISH

The internal and external surfaces of the pipes shall generally be smooth, clean and free from cavities and other surface defects, which may affect pipe performance. The pipe ends shall be cut cleanly and square to the axis of the pipe and shall be within the tolerances of ends.

9. WALL THICKNESS

Wall Thickness shall be in accordance with IS-14885: 2001

10. OVALITY

Ovality shall be in accordance with IS-14885: 2001

11. DESIGN CODES/STANDARDS REFERENCES

The following National & international codes/ standards/ references (Latest edition) shall be applicable for PE-100 material as well as Polyethylene pipe.

ISO-14885	Polyethylene pipes for supply of Gaseous Fuels
ISO-4437	Buried Polyethylene pipe for supply of Gaseous fuels – metric Series-Specification
ISO-2530	Methods of test for PE moulding materials and PE compound
ISO-11830	Plastic: Methods for determining the density of non-cellular plastic ISO-1872- 28 Plastic: polyethylene (PE) moulding and extrusion material.
ISO- 527	Plastics: Determination of tensile properties.
ISO-1133	Plastics - determination of the melt-mass flow rate (MFR) and melt volume flow rate (MVR) of thermoplastic.
EN 1555-7	Gaseous fuels supply polyethylene (PE)

12. LIST OF RECOMMENDED TPIA

Vendor has to appoint TPI Agency (Third Party Inspection Agency) for inspection at manufacturer's works as per approved QAP. Third Party Inspectors shall be deployed by the bidder at their own cost

The Vendor shall propose minimum four (4) nos. of TPIA's from the below listed TPIA's along with QAP submission. GNGPL 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.

- 1) Tata Projects Ltd.
- 2) Germanischer Lloyd
- 3) ABS Industrial Verification India Pvt Ltd.
- 4) Certification Engineers International Ltd.
- 5) International Certification Services

- 6) SGS India Pvt. Ltd
- 7) Intertek India Pvt Ltd
- 8) TUV SUD South Asia Pvt Ltd
- 9) TUV Rheinland (India) Pvt. Ltd.
- 10) Meenar Global Consultants
- 11) TUV India Pvt Ltd (TUV Nord Group)
- 12) DET NORSKE VERITAS (DNV)
- 13) LLOYD Register
- 14) Bureau Veritas (Ind.) Pvt. Ltd
- 15) Gulf Lloyds Industrial Services (India) Pvt. Ltd (GLISPL)
- 16) Competent Inspectorate and Consultants LLP
- 17) American Bureau Services (ABS)
- 18) Lloyd Register of Industrial Services

13. TEST AND INSPECTION

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

All the tests either on the field or at outside laboratories concerning the execution of the work and supply of materials by the Bidder shall be carried out by Bidder at his own cost.

The work is subject to inspection at all times by the GNGPL. The Bidder shall carry out all instructions given during inspection and shall ensure that the work is being carried out according to the technical specifications of this tender, the technical documents and the relevant codes of practice furnished to him during the performance of the work.

Any supply not conforming to the specifications or codes shall be rejected forthwith and the Bidder shall carry out the rectifications/replacement at his own cost

All results of inspection and tests will be recorded in the inspection reports for approval of GNGPL. These reports shall form part of the completion documents.

All inspections and tests shall be made as required by the specifications forming part of this contract. Bidder shall advise GNGPL in writing at least 7 days in advance of the date of final inspection/tests (FAT). Signed copy of FAT report after carrying out internal inspection shall be submitted by the bidder along with the FAT call. Manufacturer's inspection or testing certificates for equipment and materials supplied may be considered for acceptance at the discretion of GNGPL. All costs towards testing etc. shall be borne by the bidder within their quoted rates. All inspection of various items shall be carried out based on Quality Assurance Plan, which will be submitted by the Bidder and duly approved by GNGPL

Inspection and acceptance of the supplies shall not relieve the Bidder from any of his responsibilities under this Contract

14. SUPPLY, PACKAGING, HANDLING AND TRANSPORTATION OF PE-100 PIPES

Packaging shall be done in Hessian cloth (Jute) with polyethylene sheet wrapped around the pipe to avoid direct sunlight and facilitate out-door storage. Packing size to be mentioned to ensure uniformity in delivery conditions of the pipe being procured. Bidder shall submit the packaging details during offer

and also complied with at the time of delivery. Manufacturer shall make an arrangement for unloading of pipes at Owner's premises at his own cost

PE pipe is relatively light and flexible however; it is susceptible to damage from sharp objects and stones. It should not be dragged, dropped or subjected to rough handling during loading or unloading, transport, storage or actual installation.

When being transported, care should be taken to ensure pipes are not restrained in such a manner as to cause damage to them. Sharp sections bearing against the pipes should be avoided so as to minimize the chance of indentation or scoring of the pipe wall.

Pipes with end treatment should be stacked or supported in such a way that the ends are free from loading. Pipe ends, particularly ends cut for jointing, should be given special attention at all times to ensure they are free from damage.



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15. QUALITY ASSURANCE PLAN (QAP)

Vendor to submit their own QAP along with offer based on indicative QAP enclosed in this tender. However, the same QAP shall be submitted for approval to the Owner I Owner's representative.

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										
1	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
2	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	
3	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	
4	Pigment Dispersion	Review of TC		Dispersion Tester	IS 14885:2001	As per clause 5.4 of IS 14885:2001	RMTC	V/P	W	R	
5	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	
6	Resistance to Gas Constituents	Review of TC		—	IS 14885:2001	As per clause 5.5 of IS 14885:2001	RMTC	R	R	R	

7	Anti-oxidant	Review of TC		–	IS 14885:2001	As per clause 5.2 of IS 14885:2001	RMTC	R	R	R		
8	U.V. Stabilizer	Review of TC		–	IS 14885:2001	As per clause 5.3 of IS 14885:2001	RMTC	R	R	R		
9	Classification of PE compound	Review of TC		–	IS 14885:2001	As per clause 4.2 of IS 14885:2001	RMTC	R	R	R		
10	Calibration	Review of Certificates	–	–	Certificates	Certificates	–	V/R	R	R		
B	IN PROCESS INSPECTION											
1	Appearance											
a	Color	Visual	Randomly as per Table 10 of IS 14885	Visual	The color 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 Caliper	IS 14885:2001	As per IS 14885:2001	Test Report	P	W	W/R		

3	Marking	Visual		Visual	IS 14885:2001	Indelible marking by Ink Jet Printing as per clause 10 of IS 14885:2001 as given	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	Color	Visual	As per Table 10 of IS 14885	Visual	The color 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	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	Hydro-static Pressure Tester	IS 14885:2001	As per clause No. 8.1. No failure or leakage for 165Hrs 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		Hydro-static Pressure Tester	IS 14885:2001	As per clause No. 8.1. No failure or leakage for 165Hrs 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	As per Table 11 of IS 14885	Hydro-static Pressure Tester	IS 14885:2001	As per clause No. 8.9. 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	R	Review internal test report

9	Hydraulic Pressure resistance for 1000 Hrs 80°C (Plain Pipe) (Type Test)	Visual		Hydro-static 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		Hydro-static 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	

