

(TENDER NOTICE NO: CT- 02/2014-15)

**TECHNICAL SPECIFICATIONS & TERMS OF PAYMENT**  
**SUPPLY AND ERECTION OF HDPE PIPES & FITTINGS including Transportation,**  
**Loading & Unloading, Laying, Alignment, Welding, Hydraulic Pressure Testing,**  
**Thermal Insulation, Sand Cement Plastering in Underground Trenches**

-----

1. All Pipes shall be BIS marked, High Density Polyethylene (HDPE) pipes, conforming to IS: 4984/1995 or latest revision, pressure rating PN6 and grade PE100. Pipes shall be supplied in straight standard six metre length approximately with wall thickness as per BIS. Approved Makes: Duroline / Reliance.
2. All "Bends" shall be HDPE. plain square ended conforming to IS:8360/1977 or latest revision, Part I&III specifications. HDPE Bends shall be factory fabricated, segment welded, mitre bends and tested quality.
3. All "Flanged Collars / HDPE Stub Ends" shall be HDPE, square ended conforming to BIS 8008/2003, Part: I&IX.
4. All "Slip-on Flanges" shall be made of MS plate and shall conform to BIS:6392/1971, PN 10 rating and supplied with corresponding size bolts & nuts be as per BIS:10238.
5. The Contractor is required to erect the pipeline in excavated trenches and under culvert of about 1.5 to 2.0 metre depth as per Purchaser's requirement. Jointing of pipe to pipe and pipe to Bends & fittings shall be with Electro-fusion Butt welding using automatic or semi-automatic hydraulically operated Electro-fusion Machine. Prior to welding pipe and fitting ends shall be perfectly faced, square-cut and smoothed.
6. Excavation of trenches of about 1.5 to 2.0 metres depth, construction of brick pedestals, other cement concrete work, culvert and back filling of trenches shall be arranged by Purchaser ie., NIT, Rourkela.
7. **Thermal Insulation of Pipeline :-** Entire pipeline shall be covered with thermal insulation. Thermal insulation shall be Expanded Extruded Polystyrene TF quality / Poly Urethane Foam of 24Kg/CuM density, pre-moulded rigid half-pipe section matching outer diameter of pipeline, conforming to BIS:13204/1991 or later revision. Insulation shall be continuous over the entire piping and fittings. Before applying insulation, the pipeline shall be brushed, thoroughly cleaned and dust free. Insulation half-pipe section shall be fixed to pipeline with bitumen and firmly covered with polyethylene Vapour Barrier Sheet and chicken wire mesh. Over and

above, a final coat of sand cement plaster of 12mm thick shall be provided with smooth neat cement punning finish. Approved Makes: Beardsell / Astha Polymer / UP Twiga.

8. **Hydraulic Pressure Testing** :- After welding and erection of HDPE pipelines and fittings, hydraulic testing shall be carried out at testing pressure of 9.0 kg/sq.cm (g) for a duration of 24 hours. All materials such as hydraulic pumps, flanges, hose, valves, nipples, pressure gauges etc. required for hydraulic testing shall be arranged & brought to site by the Tenderer at his own cost and responsibility.
9. The quantities indicated in BOQ are estimated and tentative quantities only. The item prices/rates quoted shall remain valid for any variation of BOQ quantities against individual items by twenty-five +/- (25) percent as required at site for the completion of the work. However, quantities for Bends & fittings may vary depending on site layout. Payment shall be made based on actual quantities supplied and erected as per approved layout plan.
10. **Site Visit** : - The Tenderer before submission of his tender shall inspect the site at his own cost in consultation with Engineer In-charge of NIT and shall satisfy himself with regard to the site condition, nature and extent of the work involved, existing facilities etc. and shall collect any other information which may be required before submitting the tender. Any claim afterwards by the Tenderer shall not be entertained on account of the ignorance of the site conditions.
11. **Quality of Materials and Workmanship** :- All the materials supplied by the contractor shall be new and best of their respective kinds. All materials shall of reputed & proven make and same shall have to be approved by the Purchaser ie., Engineer In-charge, NIT before procurement. The Contractor shall furnish Manufacturer's test certificates with each consignment.

The Contractor shall be liable for rectifying the defects / replacement which may subsequently appear or be detected during testing and commissioning or subsequent operation during guarantee period. After rectification of the defects or replacement, the pipeline shall be re-tested to the satisfaction of Engineer In-charge of Purchaser ie, NIT, Rourkela.

12. **Construction & Erection Facilities** :- Water and power at site shall be provided to the Contractor free of cost. The Contractor has to make his own arrangement to draw necessary pipeline & electric cable to the site.

Open space for storage of materials and fabrication shall be provided free of cost. But safety, watch & ward, insurance, protection from weather and pilferage of materials shall be the responsibility of the contractor and no extra payment shall be made on account of this.

13. **Tools & Tackles :-** Tools, tackles, lifting equipments, instruments and all other necessary components required for erection, testing & commissioning shall be arranged by the Contractor at his own cost.
14. **Safety Measures :-** All safety measures for the personnel and equipments must be taken care by the Contractor. Any safety hazard occurring during the contract period shall be sole responsibility of the contractor. The Purchaser ie., NIT, Rourkela shall in no way be liable for any incident occurring during or in connection with the contract.
15. **Completion Schedule :-** The time is the essence of this contract. The entire job is to be completed within **two (2) months** from the date of issue of work order.
16. **Guarantee :-** The Contractor shall guarantee the materials, quality, workmanship and the satisfactory performance of all the supply, pipes, fittings and insulation materials under his scope of work for a period of **twelve (12) months** from the date of commissioning. Any defects noticed during the guarantee period shall be replaced / rectified immediately without any extra cost to the Department.
17. **Tender Price :-** Prices quoted shall be inclusive of all taxes & duties such as Customs Duty, VAT, Entry Tax, Sales Tax, Income Tax, Cess and any other taxes and levies etc. as applicable and same shall indicate in their quotation.

The quoted price shall be 'firm' during the entire contract period and no escalation shall be admissible, even if there is significant rise in cost of input of man and materials.

The quantities indicated in BOQ are estimated and tentative quantities only. The item prices/rates quoted shall remain valid for any variation of BOQ quantities against individual items by twenty-five +/- (25) percent as per requirement at site for the completion of the work. However, quantities for Bends & fittings may vary depending on site layout. Payment shall be made as per actual quantities supplied and erected as per approved layout plan.

Rates for any extra items, if executed during the contract period, if not covered under the contract and schedule shall be settled mutually.

- 18.0 **Security Deposit :-**
- 18.1 Security Deposit (SD) at the rate of ten (10) percent of the total contract value shall be retained by the Purchaser which shall be refunded to the Contractor after successful completion of work as stated below.

- 18.2 On placement of Work Order, the Contractor shall deposit an amount equal to two (2) percent of the contract value towards "Initial Security Deposit (ISD)". The Earnest Money Deposit (EMD) may be adjusted towards this two (2) percent ISD.
- 18.3 Balance Security Deposit amount at the rate of eight (8) percent shall be deducted from each running Bill submitted by the Tenderer.
- 18.4 Total Security Deposit shall be refunded to the contractor without any interest on completion of ninety (90) days after successful completion of total work. However, the SD amount can also be released against submission of Bank Guarantee of equal amount from a nationalised bank, scheduled at Rourkela with validity period as above.
19. **Terms of Payment :-**
- a) Ninety (90) percent of price including 100% taxes & duties against pro-rata on "Receipt" of materials at site alongwith copies of manufacturer's test certificates and other relevant documents.
  - b) Ninety (90) percent of price on pro-rata after "Completion of Erection" on certification of joint measurement as per price break-up.
  - c) Balance ten (10) percent of "Supply & Erection" price as per price break-up on completion of ninety (90) days after successful completion of total work.

- - X - -