





RASHTRIYA ISPAT NIGAM LIMITED VISAKHAPATNAM STEEL PLANT

**COKE OVEN BATTERY NO. 5 COMPLEX WITH
BY PRODUCT & OTHER FACILITIES**

**TECHNICAL SPECIFICATION
FOR
SPIRALLY WELDED STEEL PIPES
FOR INTER-PLANT PIPELINES OF COB #5**



**MECON LIMITED
RANCHI – 834 002**

	TECHNICAL SPECIFICATION FOR SPIRALLY WELDED STEEL PIPES FOR INTER-PLANT PIPELINES OF COB #5	
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CONTENTS

CHAPTER NO.	DESCRIPTION	PAGE NO.
01	GENERAL	1
02	SCOPE OF WORK	1
03	INSTRUCTIONS TO TENDERER	1
04	TECHNICAL SPECIFICATION OF SPIRALLY WELDED STEEL PIPE	3
05	SPECIAL INSTRUCTION TO TENDERER	4
06	PERFORMANCE GUARANTEE	5
07	MARKING & PACKING	5
08	PAINTING	6
09	DELIVERY	6
10	INSPECTION AND TESTING	6
ENCLOSURES	QAP FOR MECHANICAL & STRUCTURAL EQUIPMENT	(2 SHEETS)

REV. No.	DATE	PREPARED BY	CHECKED BY	APPROVED BY
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TECHNICAL SPECIFICATION FOR SPIRALLY WELDED STEEL PIPES FOR INTER-PLANT PIPELINES OF COB #5



01 GENERAL

Visakhapatnam Steel Plant (VSP) located in the state of Andhra Pradesh, India and owned by Rastriya Ispat Nigam Ltd. (RINL) intend to expand their existing plant 3.0 million tons per year (MTPY) liquid steel capacity by increasing the annual hot metal production capacity to 6.5 MT and the annual liquid steelmaking capacity to 6.3 MT.

02 SCOPE OF WORK

The scope of work of the Tenderer shall cover manufacture, shop testing, packing and supply of pipes for interplant gas piping network for VSP site basis. The list of pipes indicating sizes, type, standard, length, etc. of the pipes to be supplied by Tenderer is listed at Clause No. 4.2.

03 INSTRUCTIONS TO TENDERER

03.01 General



This specification shall be read in conjunction with the Invitation to tender (ITT).

The Purchaser reserves the right to place order for only one or more items in part or full quantity on particular supplier. The tenderer shall confirm his agreement to accept part order.

03.02 Documents to be supplied by the Tenderer along with offer – in 10 sets

The following information / documents are to be submitted by the Tenderer along with the offer:

- Make
- Type & Standards with Grade
- Material of construction
- Nominal sizes in 'mm'.
- OD and thickness in 'mm'.
- Weight in kg per running meter
- Estimated length of a piece of pipe for each size.

	<p align="center">TECHNICAL SPECIFICATION FOR SPIRALLY WELDED STEEL PIPES FOR INTER-PLANT PIPELINES OF COB #5</p>	
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- Total length in 'm'.
- Leaflets / catalogues
- Standards being followed for design, dimensions, material, manufacture & testing of offered items
- Time bar chart of delivery
- Quality assurance plan (QAP) duly filled in the formats as per Form no. 11.20.(DQM)F-09, Rev-0 enclosed
- Deviations, if any
- Exclusions list, if any
- All other technical information / drawings / documents, mentioned in the Technical Specification

03.03 Documents to be supplied after placement of order – in 10 sets

03.03.01 The Successful Tenderer shall submit the following documents.



- Test /inspection reports including IBR certificates, as applicable.
- Test and warranty certificate for each item offered
- Detailed manuals / catalogues, special precautions to be followed during storage.
- Any other relevant documents as requested by CLIENT/ CONSULTANT.

03.03.02 The Successful Tenderer shall furnish the quality assurance plan (QAP) duly filled in the formats as per Form no.11.20.(DQM)F-09, Rev-0 enclosed.

03.04 Quality and Workmanship

03.04.01 The material used shall be new and best of its kind available and shall conform to relevant Indian and international standards.

03.04.02 Workmanship and materials shall be of good quality suitable for the purpose intended and in accordance with the highest standards and practices.

	<p align="center">TECHNICAL SPECIFICATION FOR SPIRALLY WELDED STEEL PIPES FOR INTER-PLANT PIPELINES OF COB #5</p>	
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04 TECHNICAL SPECIFICATION OF SPIRALLY WELDED STEEL PIPE

4.1 Pipes shall strictly conform to the following specifications.

4.1.1 All Spirally Welded Pipes shall be manufactured by automatic continuous Submerged Arc Welding (SAW) process conforming to specified standard.

4.1.2 The pipes shall be supplied in standard length of minimum 6 meters but not exceeding 12 meters.

4.1.3 The quantity variation for supply shall be +5%.

4.1.4. Pipes shall be hydraulically tested at a calculated pressure based on the following formulae:

$$P = (2 \times S \times T)/D$$

Where, P = Test Pressure in MPa

D = Specified outside Diameter of pipe in mm

T = Specified wall thickness of the pipe in mm



S = Stress 60% of specified minimum yield stress in MPa

Test pressure shall be applied and maintained for a period of 15 seconds.

Any pipe showing leakage/burst shall be rejected/cutoff/repared, depending on the severity of the defect followed by re-hydro testing as per the original procedure.

4.2 Material, size and quantity of pipes:

Sl. No.	Size OD x Thk.(mm)	Standard/ Description	Qty. (Meters)
i	DN2000 2032 x 10	Spirally welded pipe conforming to IS: 3589 fabricated from IS:2062 Gr.B plate having copper content 0.25 – 0.35 %.	1400
ii	DN1800 1829 x 10	Spirally welded pipe conforming to IS: 3589 fabricated from IS:2062 Gr.B plate having copper content 0.25 – 0.35 %.	2060
iii	DN1000 1016 x 9.52	Spirally welded pipe conforming to IS: 3589, Gr.410	1365

	<p style="text-align: center;">TECHNICAL SPECIFICATION FOR SPIRALLY WELDED STEEL PIPES FOR INTER-PLANT PIPELINES OF COB #5</p>	
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05 SPECIAL INSTRUCTION TO TENDERER

- 05.01 The pipes shall conform to the latest revision of Indian Standards (IS) and ASME/ASTM as applicable in respect of dimension, tolerance, sizes, material of construction, chemical composition, physical properties, manufacturing, heat treatment, testing, marking and packaging procedures. Deviations, if any, shall be indicated.
- 05.02 The Tenderer shall include completely new and unused items in the offer.
- 05.03 The Tenderer shall not off-load the contract or part thereof to any sub-contractor without written permission of the Owner. In case, sub-letting of any part of the work is permitted by the Owner, the fact that such permission has been accorded shall not establish any contractual relationship between approved sub-contractor and the Owner nor shall release the Contractor from any of his obligations and liabilities under the contract.
- 05.04 Metric system shall be followed and English shall be the language of all communication.
- 05.05 The Tenderer shall clearly indicate the items, if any, excluded from his scope of work & supply, failing which it will be deemed that the scope of work & supply shall be in conformity with the requirements of this specification.
- 05.06 This specification is issued for procurement of the specified items preferably manufactured in India and using maximum quantity of indigenous materials. In case of import of items and / or its component, the Tenderer shall indicate foreign exchange component. In case of need, the Tenderer shall make arrangement of foreign exchange by himself.
- 05.07 Pipes made of steel produced by acidic Bessemer process shall not be acceptable.
- 05.08 Test reports shall be supplied for all mandatory tests as per the applicable material specifications. Test reports shall also be furnished for any supplementary tests as specified by the Purchaser.
- 05.09 Material test certificates (Physical properties, chemical composition & heat treatment reports) shall be furnished for pipes.
- 05.10 Pipe with beveled ends shall be in accordance with ANSI B 16.25.
- 05.11 Specified heat treatment for carbon steel pipes shall be carried out after weld repairs. Number of weld repairs at the same spot shall be restricted to maximum 2 (two) by approved repair procedure.



TECHNICAL SPECIFICATION FOR SPIRALLY WELDED STEEL PIPES FOR INTER-PLANT PIPELINES OF COB #5



06 PERFORMANCE GUARANTEE

- 06.01 The guarantee shall also cover faulty design/ materials/ workmanship. All rectification or replacement under the guarantee shall be done by the supplier free of cost.
- 06.02 The approval of drawings wherever applicable and / or inspection by Purchaser or their authorized representative does not absolve or relieve the supplier from any of his obligations under this contract and he shall be wholly and solely responsible for the satisfactory operation and guaranteed performance of his supply. The supplier is solely responsible and accountable for any defects and subsequent delays in supply due to re-inspection.
- 06.03 The Supplier shall warrant for satisfactory performance of the items for a period of 18 months from the date of receipt at site by the Purchaser or 12 months from the date of commissioning of plant, whichever is earlier.

07 MARKING & PACKING



- 07.01 All pipes shall be marked in accordance with the applicable codes, standards and specifications. In addition, purchase order No. & special conditions shall also be marked, as applicable. Marking element i.e paint/ink shall be free from harmful element like zinc, lead or copper.
- 07.02 Pipes shall be dry, clean and free from moisture, dirt and loose foreign materials of any kind.
- 07.03 Pipes shall be protected from rust, corrosion, and mechanical damage during transportation, shipment & storage.
- 07.04 Both ends of pipes shall be protected with following materials.

Plain ends	:	Plastic cap
Bevel ends	:	Wire metal or plastic cover
Threaded ends	:	Metal or plastic threaded cap.

End protectors to be used on beveled ends shall be securely and tightly attached with belt or wire.

08 PAINTING

Inner (For gas pipelines of DN1800 and above) and outer surface of all pipes shall be applied with two (2) coats of red oxide primer (40 micron DFT/coat) as per IS: 2075-2000 after pre-dispatch inspection and before dispatch from the supplier's works.



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09 DELIVERY

The delivery of the entire items and accessories shall be completed within 3 (Three) months from the date of issue of purchase order.

10 INSPECTION AND TESTING

- 10.01 Inspection will be carried out by the Purchaser / Purchaser's authorized representative.
- 10.02 The Tenderer shall submit Quality Assurance Plan (QAP) duly filled in as per the format enclosed in this document indicating the tests and examinations to be conducted. However, the QAP will be finally approved by the Purchaser / Purchaser's authorized representative and inspection for all items will be carried-out as per approved QAP. The Tenderer shall confirm adherence of the same during submission of their offer.
- 10.03 No equipment or part item shall be dispatched without provisional acceptance certificate and dispatch instructions issued by the Purchaser.
- 10.04 The Purchaser and/or their authorized representatives shall have the option to visit the place of manufacture for stage inspection and / or final inspection before dispatch of the equipment. The Supplier will make all arrangements for providing the necessary man power, tools, tackles and instruments free of cost to carry-out the inspection. The Supplier shall extend all facilities for the inspection purpose free of cost.
- 10.05 The supplier shall send their inspection requests two weeks in advance in the prescribed format, duly completed in all respects. Calls with incomplete or erroneous information and without internal inspection report/test certificates etc. shall not be considered. Inspection requests/calls shall be sent directly to the Office of the Inspecting Agency, nearest to the place of manufacture/inspection. The inspection call shall be sent along with copies of internal / shop test reports and acceptance, material test certificates from a Govt. approved test laboratory (physical & chemical), etc. as stated in the inspection procedure format.
- 10.06 The Tenderer shall furnish the copies of calibration certificates for various measuring instruments, testing machines, gauges, etc. with the inspection calls or at the time of inspection, issued by appropriate recognized authorities.
- 10.07 The Tenderer shall submit painting system, degree of surface preparation, dry film thickness (DFT), etc. to Inspection authorities.
- 10.08 Inspection Notice will be sent in 5 copies to the Purchaser. Inspection notice will specify the following details :

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- a) Items offered
- b) Qty offered
- c) Stage of inspection i.e. Final / Stage

10.09 The Tenderer will be solely responsible and accountable for delays and defects due to re-inspection.

10.10 Post Inspection activity : Inspection certificate/memo will be issued by the inspecting Agency indicating Acceptance or Rejection. In case of rejection, reasons will be mentioned on the Inspection memo in the remarks column. No item shall be dispatched without obtaining Inspection clearance from the Inspection Agency and Dispatch clearance from the customer.

	CONTRACTOR		QUALITY ASSURANCE PLAN FOR STRUCTURAL & MECHANICAL EQUIPMENTS						PROJECT																																																																																																																																									
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ABBREVIATIONS USED : CONTR : CONTRACTOR MFG : MANUFACTURER							CODES FOR EXTENT OF INSPECTION, TESTS, TEST CERTIFICATES & DOCUMENTS : <table border="0"> <tr> <td>Code</td> <td>Description</td> <td>Code</td> <td>Description</td> <td>Code</td> <td>Description</td> <td>DOCUMENTS :</td> </tr> <tr> <td>1.</td> <td>Visual(Welding etc.)</td> <td>19.</td> <td>Sponge test</td> <td>34.</td> <td>Internal inspection report by Contractor</td> <td>D1. Approved GA drawings</td> </tr> <tr> <td>2.</td> <td>Dimensional</td> <td>20.</td> <td>Dust/Water Ingress test</td> <td>35.</td> <td>Hardness test</td> <td>D2. Information and other reference drg / stamped drgs released for mfg.</td> </tr> <tr> <td>3.</td> <td>Filletment & Alignment</td> <td>21.</td> <td>Friction Factor Test</td> <td>36.</td> <td>Spark test for Lining</td> <td>D3. Relevant catalogues</td> </tr> <tr> <td>4.</td> <td>Physical Test(Sample)</td> <td>22.</td> <td>Adhesion Test</td> <td>37.</td> <td>Calibration</td> <td>D4. 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