

BHARAT HEAVY ELECTRICALS LIMITED

Piping Engineering/HPBP/Trichy

**Technical Specification Document
PIP ENGG : TSP : 82PMS:005 Rev 00
For Supply of CW/LP Piping Materials
4-80-999-A1154**

REVISION HISTORY

RE V. NO	PAGE	REVISION HISTORY	DATE	PRPD	CHED	APPD
00	ALL	ORIGINAL RELEASE	26-05-26	I.D.B.Raju	P Suresh	Venkata Ramana E
01						
02						

Clause No.	DESCRIPTION
1.0	Scope of Work in brief
1.1	Work content involves Supply of materials for indicated Input Drawings/BOM's (Bill of Materials) in respective PGMA's by BHEL.
1.2	The vendor will be issued fabrication drawings/Part drawings/BOM by BHEL. Input Drawings provided by BHEL for applicable cases includes Item numbering of pipes, fittings & related components, Bill of material details, design of component/attachments, relevant production & erection notes etc. and attachment details for Instrument connections, Drains, Vents & Piping Supports with detailing. Wherever fabrication drawing is not provided, vendor to supply the piping components as per BOM. Vendor shall follow relevant piping standard for such cases. A sample Input Fabrication drawing/Part drawings is attached as Annexures-B for reference.
1.3	Deliverables from Vendor given below
1.3.1	Manufacturing & Supply based on input Fabrication drawings/Part drawings/BOM.
1.4	Work scope Details
1.4.1	It is the responsibility of the Contractor to collect all relevant input from PIPING ENGG/FB, BHEL design office and get any doubts clarified prior to taking up the work
1.4.2	It is the responsibility of the Vendor to understand the BOM, input Fabrication drawings & reference part drawings/documents and detailing practice of BHEL
1.4.3	Pipes/Fittings/components shall be supplied in exact length requirement as per the input Fabrication Drawing/Part drawing (for applicable cases)/BOM with Edge Preparation at Vendor works. Vendor to Follow BHEL EP standard Drawing for Pipes & Fittings. Edge Preparation Value (d1) indicated in the Fabrication Drawing/Part drawing for Pipes/Fittings shall be followed. Pipe Sizes of 1000 NB & above of IS3589 shall be IS2062-Gr E250B-Rolled & Butt welded confirming to IS3589 and same shall be supplied in exact length as indicated

	in BOM. Tolerance on length for 1000 NB & above of IS3589 specification Pipes shall be maintained as +/-10mm. Vendor to follow BHEL EP drg no-4-80-468-84546 for Pipe Sizes of 1000 NB & above of IS3589 and follow BHEL EP drg no-3-80-300-19825/R04 for other Pipes/Fittings of Size 1000NB below. For Running meter cases, specific Length of Pipe shall be in the range of 6-10M. However, additional Butt joint with 100% RT can be followed for economic/optimum utilization of raw material Pipes with Prior permission from BHEL for applicable cases. All components for instrument connections, attachment details for drains, vents & piping supports shall be welded to the main Pipe at Vendor Works & Supplied as an assembly (i.e. as Dispatchable Unit) as per the Fabrication Drawings provided by BHEL. Fittings shall be supplied as per standard B16.9/B16.11/IS1239 (Heavy)/IS3589 as applicable with BHEL Edge Preparation details as per the Drawing 3-80-300-19825 to site. Fittings shall be Socket Welded for size NB50 & Below and Butt welded with EP for Size above NB50. Material Specification shall be followed as per Input Drawings provided by BHEL. For the cases of BOM items with no fabrication/part drawing i.e. running meter BOM, Vendor can proceed with Specific Length of 6-10M with EP at Vendor works as per BHEL drg 3-80-300-19825.
1.4.4	BOM will be Furnished along with the Input Drawings & Tender Specification. Quantity Indicated in the BOM is per Unit Unless otherwise mentioned. Suitable Cushion +/-15 % in Quantity/Weight shall be considered by the Vendor in Tender. Pipe Size/Pipe Thickness/Specification mentioned in the Drawing/BOM may vary for very few cases during issue of Final drawings at PO stage. All Input Drawings are attached along with BOM in Tender. Vendor shall follow latest applicable material standards for material supply.
1.4.5	Pipe OD, Thickness, specification shall be followed as per input drawings/BOM. Material substitutions if any shall be taken up with BHEL on case to case basis. However, BHEL Shall reserve the right to take final decision regarding acceptance for substitutions based on requirements of the subject contract. And the price implication is not envisaged for material substations proposed by vendor. Heavy grade shall be followed for All piping/fittings of IS1239. Seamless construction shall only be followed for Pipes/Fittings of material

	specifications SA106GRB, SA106GRC, SA335P22 & corresponding fittings. Seamless construction is also technically acceptable in place of welded for all the sizes of IS1239 & IS3589 and 65NB & above sizes of SA312TP304H & SA312TP316L. However Seamless construction shall only be followed for Pipes/Fittings of Sizes NB50 & below of SA312TP304H & SA312TP316L.
1.4.6	Pipe/Fittings Weight indicated in the tender drawings are based on T-Nominal and are finished weights. Same will be followed in Group Manufacturing specification/Shipping list by BHEL. Vendor to follow/consider the same for quotation/billing.
1.4.7	 Flag symbol indicates site weld. All other welds indicated in fabrication drawing for stub/attachment welding other than the flag symbol welds are in Vendor scope. Weld Size for all attachment welding at Vendor works shall be maintained as per the drawing. Any Excess/shortage in weld size for attachment welding other than indicated in fabrication drawing during manufacturing stage shall report to BHEL for review & approval. Electrode specification details shall be provided by Vendor for all attachment welding shown in the fabrication drawing.
1.4.8	Indicator-A in drawing/BOM represents Attested i.e. IBR category. Indicator-C in drawing/BOM represents Certified i.e. Non-IBR category
1.4.9	Orientation of Stubs/attachments/branch connections on main pipe for assembly at vendor works shall be maintained as per the BHEL fabrication drawings.
1.4.10	Length/dimensions indicated for Pipes/Bends/fittings/components in fabrication drawings are finished dimensions. Total quantity requirement of Raw material for Pipes/Bends/fittings/components of each size considering cutting plan, cutting allowance, machining, thinning, Bend process allowance, etc., shall be taken care by Vendor during raw material procurement to maintain the final dimensions as per the fabrication drawings/BOM provided by BHEL.
1.4.11	Lifting Lug & Spider arrangement shall be provided by Vendor for Pipe sizes NB1000 & above. Refer BHEL Drawing nos- 3-80-468-A0848 & 3-80-468-A1172 for the same. Being a temporary arrangement, Material for the Lifting lug & Spider arrangement is not covered in BOM/Main Drawing. Vendor shall take care of the same.
1.4.12	Material substitution of equivalent/higher grade specification for stubs, components, Support pipes, plates, etc. is technically acceptable. However same shall be taken up with BHEL for approval before procurement/manufacturing.

1.4.13	Suitable end protection cover shall be provided at Pipe/fittings ends after manufacturing for storage & transportation
1.4.15	Vendor Shall follow applicable TDC (Technical Delivery Conditions for Material Procurement, Fabrication QP (for Manufacturing, Inspection & Testing) & Painting schemes applicable for the Project/Tender. Dimensional Tolerances as per applicable standard unless otherwise specified. outside surface shall be painted as applicable for underground piping or over ground piping as per the applicable approved quality plan.
1.4.16	In case of any discrepancy between the Drawing & BOM, PGMA specific input drawing furnished stands final. However, Vendor can contact Engineering for such clarifications/confirmation on drawings/BOM. Any other details/clarifications/reference documents required for manufacturing & supply shall be obtained from BHEL by the Vendor during Tender execution stage
1.5	Technical requirements.
1.5.1	Knowledge of ASME/IBR/IS1239/IS3589 & Equivalent standard codes are essential
1.6	Infrastructure facilities: Vendor shall possess the following infrastructure:
1.6.1	Vendor should have/demonstrate the necessary infrastructure for carrying out piping fabrication.
1.6.3	All documents provided by BHEL, including drawings, standards etc., must be treated as strictly confidential and shall not, under any circumstances, be disclosed to third parties or used by them in any manner. Such documents shall be returned to us on demand after completion. This secrecy clause is binding on the employees of the vendors also. Action against defaulting subcontractors shall be taken in accordance with BHEL latest Guidelines for Suspension of Business dealings with suppliers/ contractors. Refer link http://www.bhel.com/vender_registration/vender.php.
1.7	Statutory requirements
1.7.1	Vendor shall confirm his compliance with all statutory requirements, rules, regulations, notifications in relation to employment of his employees issued from time to time by the concerned authorities. Getting IBR approval for fabrication

	drawings/part drawings for applicable cases is in BHEL scope. However, Preparation & submission of Docs/supporting calculation sheets/ other relevant Docs for getting Approval for procurement, manufacturing & Supply from IBR is in Vendor Scope.
1.8	Schedule of the job completion Schedule of the job completion is to be strictly adhered to, any repeated failure in meeting the schedule will result in termination of the contract.
1.9	All the final Input drawings will be issued at the time of Tendering

TECHNICAL BID

The Technical bid shall contain the following details:

- 1) Name and address of the bidder
- 2) Telephone no and e-mail details
- 3) Following supporting drawings are to be furnished:
 - a) Copy of the orders received & completed invoice from companies for the Supply for Utility thermal power plants

Enclosures-

Annexure – A - Edge Preparation Drawing

Annexure – B -Sample Fabrication/Part drawings