

Bharat Heavy Electricals Ltd.

Piping Centre, Chennai – 600 017

Enq No: 4102200055 dt 23.09.2022 - Supply of Khurja and Sagradhighi CS & AS Fittings

Covering Letter

Dear Sir / Madam,

Sub: Procurement of BW Fittings (CS & AS) as per BHEL Enquiry- 4102200055 dt 23.09.2022

We are pleased to inform that Global Open Tender Enquiry has been floated for the “**Procurement of BW Fittings (CS & AS)**” as per BHEL Enquiry No : 4102200055 dt 23.09.2022. Prospective suppliers are requested to submit their offer thru BHEL's E-Procurement portal (<https://eprocurebhel.co.in>) in Two Parts basis (Part I- PQR & Techno-Commercial bid; Part II- Price bid) on or before **03.10.2022 IST on 14:00 Hrs (IST)**

Part I bid will be opened on **15:00 Hrs (IST)** on the tender due date.

All corrigenda, addenda, amendments, time extensions, clarifications etc (if any) will be hosted on BHEL's E-procurement portal of NIC. Such corrigenda, addenda, amendments, time extensions, clarifications etc will not be published in newspapers or any other media. Bidders shall regularly visit the above websites to keep themselves updated.

The following are enclosed for information-

1. PQR
2. Terms and conditions - Techno commercial requirements
3. Technical Delivery Conditions
4. Quality Plan
5. Technical Deviation Format
6. Packing Procedure
7. Applicable items list- Unpriced bid
8. Make in India declaration format
9. Drawings
10. Integrity Pact
11. Non- disclosure agreement (NDA) format

Bids on Two Part basis shall be submitted in line with the Terms & Conditions of the NIT. Care shall be given to submit the following documents along with Part I offer without fail-

- Duly filled in Part I bid, ie. PQR Bid & Supporting documents.
- Duly filled in Terms and conditions - Techno commercial requirements
- Duly filled in Technical deviation format (Deviation if any)
- Duly filled in unpriced bid (Mandatory- Based on which Technical Evaluation is done)
- Duly filled in MII declaration format (applicable for indigenous vendors only);
- UDYAM Certificate in case of MSE
- Duly filled in Integrity Pact
- Duly filled in NDA

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Any clarification on technical specifications can be obtained from BHEL before tender opening. Suppliers are welcome to have pre-bid meeting with BHEL Engineers for better understanding our requirements. Please note that as per BHEL's Policy, **BHEL cannot allow price impact post Part I opening for the requirement / scope of supply which is a part of specifications of our Enquiry.** Hence, please read specification / documents thoroughly and submit your offer as per specifications of Enquiry. In case of any query / un-clarity on any of the clause / requirement of specification, please get them clarified from BHEL before submission of offer. No deviation & request regarding un-clarity / contradictory conditions / ambiguity of specifications would be entertained after opening of Part I bid. Vendors are required to thoroughly understand the scope of supply and submit their quotation before the Enquiry due date indicated above.

In the event of any Technical or Commercial queries, the same may please be addressed to the following concerned before Part I opening-

- M.Nirmal Kumar, DM/Purchase – mnirmalkumar@bhel.in, +91-044-28161212
- Shreelekha S Chandar, DM /Purchase -shreelekha@bhel.in, +91-044-28161385

In the event of any queries during submission of the tender thru BHEL's E-Procurement NIC portal, you may pls contact-

- NIC Customer Care- support-eproc@nic.in, 0120-4001002, 0120-4001005, 0120-6277787

General Note-

- BHEL reserves the right to cancel the tender or reject a bidder inline with Government of India policy changes from time to time.

Pre – Qualification Requirement (PQR) for BW Fittings (CS & AS)

SI No	PQR description	Documents to be submitted	Bidder response (Submitted / Not submitted / NA)
1	Bidder shall be a regular manufacturer or authorized agent of manufacturer for BW fittings (Traders / distributors / dealers are not acceptable). Agents of foreign principals not to represent more than one firm.	Proof for being a manufacturer of BW fittings like valid copy of ISO 9001:2015 certificate, IBR certificate and product catalogue.	
2	IBR qualification.	<ol style="list-style-type: none"> 1. In case of indigenous bidders- Firm should have been approved by IBR. IBR certificate/Form-IIIC to be enclosed. 2. In case of Foreign bidders- Latest Copy of any Form-III C signed by recognised inspecting / competent authorities. 	
3	Availability of in-house facility for manufacturing of fittings.	<ol style="list-style-type: none"> 1. List of machinery facilities available for manufacturing BW fittings. 2. Valid Furnace calibration report for the temperature for CS & AS Items mentioned in TDG 102 rev 09 	
4	<p>Bidder shall have prior experience in successful manufacture and supply of formed fittings to Carbon Steel (SA234WPB/SA234WPC)/ Alloy Steel (P22) specification.</p> <p>Experience for supply of Tee will qualify for Elbow and reducers also. Experience in Elbow/reducer supply will qualify for the respective supplied item (Elbow/ reducer) only.</p> <p>Experience submitted in Carbon steel Grade will qualify only for Carbon steel fittings. Experience in higher Grades like P22/P91/P92 will qualify for all carbon steel (SA234WPB/SA234WPC) and Alloy Steel (P22) Grade of fittings of tender.</p> <p>Supply experience being furnished shall not be prior to 4 years from the date of the Enquiry.</p>	<ol style="list-style-type: none"> 1. Copy of PO, MTC's, invoice, packing list and Lorry way Bill No/ Bill of Ladding. 2. In case of Foreign bidder, supporting MTC's to experience cited shall be witnessed / reviewed by any reputed Third Party Inspection agency as listed by IBR like Lloyds, BV, TUV etc. In lieu of the above, proof of at least one export supply made (outside domestic market preferably Europe or USA or India) shall be furnished. 	
5	Bidder should have carried out design proof test (Burst test) as per ASME B16.9 for quoted items (Tee/Elbow/reducer). Bidder will be qualified only for the items (Tee/Elbow/reducer) for which burst test report is qualified.	Design proof test (burst test) report witnessed by Third Party Agency / customer.	

SDGM / Purchase
(Priya Balaji)

AGM / MM
(K Rajitha)

DGM / Finance
(Jesila T Rani)

AGM/ Q&BE
(KV Ramani)

Pre – Qualification Requirement (PQR) for BW Fittings (CS & AS)

SI No	PQR description	Documents to be submitted	Bidder response (Submitted / Not submitted / NA)
6	<p>Firm should have made a turnover of at least Rs. 3.5 Crore for anyone of last 4 audited Financial Years (FY 2021-22, 2020-21, 2019-20, 2018-19). In case of foreign bidder, financial turnover shall be an equivalent of Rs. 3.5 Crore in their regional currency.</p> <p>For foreign bidder, exchange rate as on the date of Part I opening will be considered for arriving equivalent turn over in INR.</p>	<p>1. Indigenous bidders shall submit audited Company Financial statement- Balance Sheet and P&L statement for the past 4 years (FY 2021-22, 2020-21, 2019-20, 2018-19) meeting financial turnover criteria.</p> <p>2. In case of foreign bidder, recent credit rating report issued by any reputed third party rating agencies like D&B / Credit reform will be accepted in place of the above. Credit rating report shall have financial data.</p>	
7	Bidder to submit all supporting documents in English language. If documents submitted by bidder are in a language other than English, a self-attested English translated document shall also be submitted.	Translated documents (if applicable).	

Note-

1. Only the bids fulfilling PQR will be considered for further Techno-Commercial evaluation.
2. Bidders can quote depending on their manufacturing capability and design proof test qualification as indicated. Bids will be considered only for size range (OD / Thk), specification and construction based on following criteria.
 - a. Sizes (OD & Thk) qualified based on the burst test done as per Clause 9 of ASME B16.9.
 - b. One OD size (NPS) and One Schedule thickness more than that supplied by vendor in the past (PO copy and supply proof is required).
 - c. Experience shall be counted based on the least of a & b indicated above.
 - d. Experience in CS will qualify only for CS items, whereas that in AS will qualify for both CS & AS.
 - e. Details of experience shall be filled in the Annexure-1 for consideration by BHEL.
3. For indigenous Startups and MSE bidders, financial turnover criteria as per SI No 6 and prior experience criteria as per SI No 4 are relaxed as follows subject to bidder meeting technical and quality criteria of the PQR-
 - a. Financial turnover criteria w.r.t sl. No. 6 of PQR – Relaxed to **Rs. 1.75 Crore**.
 - b. Prior experience criteria- Experience w.r.t Sl. No. 4 of PQR is relaxed as not to be prior to 5 years from the date of the Enquiry.
4. Bidders proposing to avail said relaxation for experience and Turnover shall submit applicable documentary proof along with Pre-Qualification bid. In case the required documents are not submitted by the bidder, no relaxation will be provided.
 - a. For Startups – Certificate of Recognition by Department of Industrial Policy & Promotion.
 - b. For MSE – Copy of UDHYAM registration certificate.
5. Notwithstanding anything stated above, BHEL reserves the right to check the authenticity of the PQ details furnished and to assess the capabilities and capacity of the bidder to perform the contract in the overall interest of BHEL.

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(Priya Balaji)

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ANNEXURE-1 - EXPERIENCE DETAILS TO BE FURNISHED BY THE SUPPLIER FOR BW-CS/AS FITTINGS - ENQ. No. 4102200055 dt 23.09.2022

Name of the company:								Dt:		
Sl no	ITEM DESCRIPTION (Elbow /Tee /Reducer)	Quoted Sizes of the tender (items)	Burst test report* (certificate number)	Third party who has approved the burst test	Burst test size	Size qualification based on burst test	PO number, date*	IBR form III-C (number)*	Inspection report (number)*	Size of the supplied item
(for CS fittings)										
1	Elbow	...	...					
1 (a)	...	...	...				
1(b)	...									
2	Tee									
	...									
	...									
3	Reducer									
	...									
	...									
(for AS fittings upto WP22)										
1	Elbow	...	...					
1 (a)	...	...	...				
1(b)	...									
2	Tee									
	...									
	...									
3	Reducer									
	...									
	...									

Note : * kindly ensure that copies of the various supporting documents are provided in proof of the experience and burst tests.

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Piping Centre, Chennai – 600 017.

Note: This Annexure has to be mandatorily filled & signed by the manufacturer (or) mill and submitted along with Technical bid. Any deviation to the below mentioned terms shall be stated specifically in the comments column for each term and also in case of acceptance to our terms, it will be construed that the whole term is understood and agreed in totality without any deviation. (If otherwise mentioned).

S.No	BHEL Requirements, Terms and conditions	Bidders comments (Accepted/ Not accepted)
1	Bidders Name	
2	Quotation no	
3	Quotation date	
4	Currency of quote (Import vendors should quote only in foreign currency)	
5	Applicable GST % shall be indicated (Import vendors may indicated "Not applicable")	
6	Technical requirements <ul style="list-style-type: none"> TDG 102 Rev 09 is applicable. QPG 46 Rev 01 is applicable. Drawing/Standard ASMEB16.9 and D1 Values mentioned in the Items details shall be followed. Packing procedure shall be as per PC-PKG-01. EP shall be as per DRG 3-80-301-19825/04 if not indicated explicitly in the drawing. Fittings tolerance shall be as per drawing 4-80-301-26192 Rev 01. Forgings as Raw material is technically acceptable, provided dimensions/tolerances shall be maintained as per the applicable part Drgs/ASMEB16.9 (for Part drg not applicable cases) and same shall be manufactured in conformance with ASMEB16.9 Standard 	
7	Bid validity 90 days from the date of Part I bid opening or 60 days from date of Reverse Auction whichever is later	
8	Delivery period 4 months from LOI / PO date .	
9	Inspection: Inspection by BHEL/BHEL authorized TPIA/customer (if applicable)/Any reputed Third Party Inspection agency as listed by IBR. Inspection shall be as per Drawing, ASME, BHEL TDG and Quality Plan.	
10	Delivery Terms Indigenous Suppliers: The quote shall be on FOR TRICHY/SITE basis inclusive of inspection, packing, forwarding, Freight. Import Supplier: The quote shall be on 'CFR' Chennai port (all inc of P&F, inspection charges, freight etc). Import vendors to submit offers on CFR (Cost & Freight), Chennai port (LIFO – Liner in Liner Out) basis for all the packages. Port of loading should be indicated. Port of discharge should be Chennai.	

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11	<p>Liquidated Damage</p> <ul style="list-style-type: none"> Time is the essence of the contract. The ordered items shall be delivered as per the delivery period mentioned in the Purchase Order. In case the supplier supplies the ordered items beyond the delivery period specified, Liquidated Damages - LD - as detailed below shall be levied on the supplier without prejudice to any other relief /compensation available to BHEL, Piping Centre under any other condition of the contract/applicable legal provisions. Failure to dispatch the materials in the time as per the delivery quoted in our Purchase Order(PO) would make the supplier liable to an un-conditional LD at the rate of 0.5% per week of the delay or part thereof subject to a maximum of 10% of the undelivered portion. Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value). Indigenous: For "FOR Delivery terms", Lorry way bill date will be taken for LD calculation for cases where E way bill is not mandatory. Wherever E Way Bill is involved, the date of commencement of movement of vehicle as reflected in E way Bill [the 'Valid from' date in the E way Bill] will be taken for LD calculation. Import: For CFR terms, BL date will be considered for LD calculation. 	
12	<p>Evaluation & Ordering</p> <ul style="list-style-type: none"> Evaluation will be done on par for both indigenous and foreign bidders. For foreign bidders, inland freight from Chennai port to BHEL Trichy, miscellaneous charges as applicable and net customs duty shall be loaded on the quoted rates. For the purpose of evaluation, Exchange Rate (SBI TT Selling rate) as on the date of Part I bid opening will be considered. Item wise evaluation and ordering will be resorted to. There shall be variation in tender quantity of items (full/partial) which shall be communicated to bidders before Price bid opening. Minimum Order Quantity (MOQ) / Minimum Order Value (MOV) condition will not be accepted. Bids of such bidders (if any) insisting for MOQ / MOV will be rejected. Evaluation currency for this tender will be INR. 	
13	<p>Container detention period-</p> <p>For foreign bidders, 14 days free container detention period for cargo clearance shall be provided.</p>	
14	<p><u>Payment term-</u></p> <p>No advance payment shall be made by BHEL.</p> <p><u>Indigenous Suppliers</u></p> <p>For Micro & Small Enterprises vendors, BHEL Payment term is 100% direct EFT payment within 45 days from the date of receipt and acceptance of materials.</p> <p>For Medium Enterprises vendors, BHEL Payment term is 100% direct EFT payment within 60 days from the date of receipt and acceptance of materials.</p> <p>For Non MSME vendors, BHEL Payment term is 100% direct EFT payment within 90 days from the date of receipt and acceptance of materials.</p>	

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	<p><u>Import Suppliers:</u></p> <p>BHEL Payment term is 100% payment on CAD basis within 90 days from the date of receipt of documents, specified in PO / Enquiry, at BHEL bank. Respective bank charges to respective account.</p> <p>If bidder insists for LC, only Usance LC with 90 days' credit will be opened one month prior to material readiness, further loading @ 1.5% on offered value will be considered. Hence supplier shall intimate the material readiness accordingly with MTC copies for opening of L.C.</p> <p>LC validity period will be 90 days and for any extension, applicable charges will be to supplier's account.</p> <p>For payment by LC, loading @ 1.5% on the quoted price will be considered.</p> <p>No other payment terms will be accepted. If bidders propose for any other payment term other than indicated above, such bids will be rejected.</p>	
15	<p>Price Finalization through Reverse Auction</p> <p>Finalization of prices will be thru Reverse Auction after opening of Part II price bids. Bidder shall confirm acceptance for participation in Reverse Auction</p> <p><i>"BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among all the techno-commercially qualified bidders.</i></p> <p><i>Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking."</i></p>	
16	<p><u>Risk Purchase</u></p> <p>a. In the event of any successful Tenderer's failure to fulfil any of the tender / Contract obligations including supply of whole or any part of the ordered items as per Contract / Agreement, BHEL has the right to terminate the contract and purchase from elsewhere, at the risk and cost of the defaulted supplier, either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the time stipulated in the contract or if the same were not available, the best and nearest available substitute thereof. The supplier shall be liable for the additional expenditure/difference in Cost, if any, including consequential losses which BHEL may sustain by reason of risk purchase in addition to the applicable LD as per the Purchase order/contract.</p> <p>b. The decision of BHEL with regard to the additional expenditure / difference in cost and consequential losses incurred by BHEL shall be final and binding on the supplier.</p> <p>c. The amount recoverable under risk purchase shall be recovered from the defaulted supplier in all or any of the following manners:</p> <ul style="list-style-type: none"> ▪ From dues available in the form of Bills payable to defaulted supplier, SD, BGs against the same contract. ▪ from the dues payable to defaulted supplier against other contracts in the same Region/Unit /any other region/unit ▪ In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against defaulted supplier. 	

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17	<p><u>Purchase Preference for MAKE IN INDIA</u> Margin of Purchase Preference is L-1+ 20%.</p> <p>"For this procurement, the local content to categorize a supplier as a Class I local supplier/ Class II local Supplier/ Nonlocal Supplier and purchase preference to Class I local supplier, is as defined in Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT. In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before finalization of contract / PO / WO against this NIT". In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and / or local content in respect of this procurement, same shall be applicable.</p> <p>'Local content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the Item procured (excluding net domestic indirect taxes) minus the value of imported. Content in the item (including all customs duties) as a proportion of the total value, in percent.</p> <p>'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%, as defined under this Order.</p> <p>'Class-II local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under this Order.</p> <p>'Non-Local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than or equal to 20%, as defined under this Order.</p> <p>In case item is divisible, following procedure will be followed-</p> <ul style="list-style-type: none"> • Among all qualified bids, the lowest bid will be termed as L1. If L1 is 'Class-I local supplier', the contract for full quantity will be awarded to L 1. • If L1 bid is not a 'Class-I local supplier', 50% of the order quantity' shall be awarded to L1. Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to local supplier's quoted price falling within the margin purchase preference, and contract for that quantity shall be awarded to 'Class-I local supplier' subject to matching the L 1 price. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some Quantity is still left uncovered on Class-I local suppliers, then such balance quantity may also be ordered on the L 1 bidder. <p>In case item is not divisible, following procedure will be followed-</p> <ul style="list-style-type: none"> • Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a 'Class-I local supplier', the contract will be awarded to L1. • If L1 is not from a local supplier, the lowest bidder among the 'Class-I local supplier', will be invited to match the L1 price subject to 'Class-I local supplier's' quoted price falling within the margin of purchase preference, and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price. • In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the 'Class-I local 	
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	<p>supplier' within the margin of purchase preference matches the L1 price, then the contract may be awarded to the L1 bidder.</p> <ul style="list-style-type: none"> Any item wherein the net quantity is less than 2 (i.e. if qty is 1 No.) will be considered as not divisible for the purpose of operating purchase preference. <p>"Class-II local supplier" will not get purchase Preference in any procurement.</p> <p>Document certifying local content and penal action in case of wrong declaration by suppliers.</p> <ul style="list-style-type: none"> The 'Class-I local supplier'/ 'Class-II local supplier' at the time of tender, bidding or solicitation shall be required to provide self-certification on their letter head certified by the authorized signatory of the bidder that the item offered meets the minimum local content and shall give details of the location(s) at which the local value addition is made. In cases of procurement for a value in excess of Rs. 10 crores, the local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content. False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law. A supplier who has been debarred by any procuring entity for violation of this order shall not be eligible for preference for procurement by any other procuring entity for the duration of the debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities, the debarment takes effect prospectively from the date of uploading on the website(s) of The Department of Expenditure, GOI in such a manner that ongoing procurements are not disrupted. The onus of submission of appropriately certified documents lies with the bidder and BHEL shall not have any liability to verify the contents and will not be responsible for the same. However, in case BHEL has any reason to doubt the authenticity of the Local Content, BHEL reserves the right to obtain the complete back up calculations before award of contract failing which the bid shall be rejected. 	
18	<p><u>Purchase Preference for MSE Suppliers.</u></p> <ul style="list-style-type: none"> Margin of Purchase Preference is L-1+ 15%. Purchase preference for local MSE's quoting in the tender will be 25%. Within the 25% reservation for local MSE's, 3% reservation will be applicable for women owned MSE's and 6.25% reservation will be applicable for MSE's owned by SC / ST. Payment for MSE Indigenous vendors will be as per MSMED Act, 2006 <p>Document to be submitted as proof of MSE.</p> <p>MSE suppliers can avail the intended benefits only if they submit UDHYAM CERTIFICATE along with the offer.</p> <p>Non submission of documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for the Enquiry if any deficiency in the above required documents are not submitted before price bid opening. However, credentials of all MSE suppliers will be verified before considering the intended benefits for MSE suppliers at the time of tender evaluation.</p>	

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In case item is divisible, following procedure will be followed-

- Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a MSE supplier, the contract for full quantity will be awarded to L1.
- If L1 is not from a MSE supplier, the lowest bidder among the MSE suppliers, will be invited to match the L1 price subject to MSE supplier's quoted price falling within the margin of purchase preference, and 25% of the order quantity' shall be awarded to such MSE supplier subject to matching the L1 price.
- In case such lowest eligible MSE supplier fails to match the L1 price, the MSE supplier with the next higher bid within the margin of MSE preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the MSE suppliers within the margin of purchase preference matches the L1 price, then the contract may be awarded to the L1 bidder.

In case item is not divisible, following procedure will be followed-

- Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a MSE supplier, the contract will be awarded to L1.
- If L1 is not from a MSE supplier, the lowest bidder among the MSE suppliers, will be invited to match the L1 price subject to MSE supplier's quoted price falling within the margin of purchase preference, and the contract shall be awarded to such MSE supplier subject to matching the L1 price.
- In case such lowest eligible MSE supplier fails to match the L1 price, the MSE supplier with the next higher bid within the margin of MSE preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the MSE suppliers within the margin of purchase preference matches the L1 price, then the contract may be awarded to the L1 bidder.
- Any item wherein the net quantity is less than 2 (i.e. if qty is 1 No.) will be considered as not divisible for the purpose of operating purchase preference.

Note : Make In India purchase preference will get precedence over MSE purchase preference.

19 Integrity Pact

Signed copy of Integrity Pact shall be submitted.

Integrity Pact (IP) attached is an integral part of commercial terms and conditions of this Enquiry. IP shall be signed and submitted along with the Part I bid as a token of acceptance of the conditions of the pact. IP is applicable as per Govt. guidelines & all bidders shall submit duly signed and stamped IP to qualify for further processing of the bid.

IP is a tool to ensure that activities and transactions between the Company and its Bidders / Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

SI No	IEM	Email
1	Shri Otem Dai, IAS (Retd.)	iem1@bhel.in
2	Shri Bishwamitra Pandey, IRAS (Retd.)	iem2@bhel.in
3	Shri Mukesh Mittal, IRS (Retd.)	iem3@bhel.in

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The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with Techno-Commercial bid (Part-I, in case of two / three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.

Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

No routine correspondence shall be addressed to the IEM (phone / post / email) regarding the clarifications, time extensions or any other administrative queries, etc on the tender issued. All such clarification / issues shall be addressed directly to the tender issuing department's officials whose contact details are provided below-

Name	M.Nirmal Kumar	Priya Balaji	K Rajitha
Dept.	DM/Purchase	SDGM/Purchase	AGM/MM
Phone	044-28161212	044-28161244	044-28161354
Email	mnirmalkumar@bhel.in	pb@bhel.in	krj@bhel.in

While submission of IP, following requirements shall be adhered to-

- Authorized signatory of the bidder should sign along with seal on all the pages of the IP.
- Bidder should mention their full name with address on first page of the IP.
- Authorized signatory of the bidder should sign along with seal on the last page of the IP.
- Witness shall sign with name and address on the last page of the IP.

20 Modality for tie items (if any) during price evaluation

In the eventuality of any tie item / items during price evaluation, L1 vendor will be ascertained as follows and the same will be intimated to all the vendors thru NIT-

- Snap bids will be invited from the applicable vendors and the same will be opened in presence of finance and vendor representatives (if available). Revised CS will be prepared and L1 will be arrived accordingly.
- In case tie remains even after the snap bid, paper lot / lottery system will be resorted to for ascertaining the L1 vendor.

21 Warranty

supplier shall give warranty against manufacturing defect and non - compliance with technical specifications in the enquiry, in respect of the entire scope of supply for a period of 24 months from the date of dispatch or 18 months from the date of commissioning / putting into use whichever is earlier

If any defect is noticed during the above period, the same shall be rectified / replaced free of cost by the supplier on FOR destination basis within a reasonable time, maximum limited to the agreed delivery period from defect notification date. To this effect a warranty certificate should be sent along with the dispatch documents in the event of an order. No deviation in this regard shall be accepted.

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22	<p><u>Force Majeure</u></p> <p>a. Notwithstanding the provisions contained in other clauses, the supplier shall not be liable for imposition of any such sanction so long the delay and/or failure of the supplier in fulfilling its obligations under the contract is the result of an event of Force Majeure. For purposes of this clause, Force Majeure means an event beyond the control of the supplier and not involving the supplier's fault or negligence and which is not foreseeable and not brought about at the instance of the party claiming to be affected by such event and which has caused the non – performance or delay in performance. Such events may include, but are not restricted to, wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes excluding by its employees, lockouts excluding by its management, freight embargoes and Acts of GOD.</p> <p>b. If a Force Majeure situation arises, the supplier shall promptly notify the Purchaser/Consignee in writing of such conditions and the cause thereof within twenty-one days of occurrence of such event. Unless otherwise directed by the Purchaser/Consignee in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.</p> <p>c. If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period exceeding sixty days, either party may at its option terminate the contract without any financial repercussion on either side.</p> <p>d. In case due to a Force Majeure event the Purchaser/Consignee is unable to fulfil its contractual commitment and responsibility, the Purchaser/Consignee will notify the supplier accordingly and subsequent actions taken on similar lines described in above sub-paragraphs.</p>	
23	<p><u>Resolution of Disputes</u></p> <p>The Parties agree that if at any time (whether before, during or after the arbitral or judicial proceedings), any Disputes (which term shall mean and include any dispute, difference, question or disagreement arising in connection with construction, meaning, operation, effect, interpretation or breach of the contract/tender which the Parties are unable to settle mutually), arise inter-se the Parties, the same may, be referred by either party to Conciliation to be conducted through Independent Experts Committee to be appointed by competent authority of BHEL from the BHEL Panel of Conciliators.</p> <p><u>Notes:</u></p> <ul style="list-style-type: none"> ▪ No serving or a retired employee of BHEL/Administrative Ministry of BHEL shall be included in the BHEL Panel of Conciliators. ▪ Any other person(s) can be appointed as Conciliator(s) who is/are mutually agreeable to both the parties from outside the BHEL Panel of Conciliators. ▪ The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in Annexure to this Terms and conditions ▪ The Annexure together with its appendices will be treated as if the same is part and parcel hereof and shall be as effectual as if set out herein in these Terms and conditions. <p>Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the parties, in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract ; or , in any manner touching upon the Contract, then, either Party may , by a</p>	

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	<p>notice in writing to other Party refer such dispute or difference to sole arbitration of an arbitrator appointed as per the Arbitration and Conciliation Act, 1996 (India) or statutory modification or re-enactment thereof and the rules made thereunder and for the time being in force.</p> <p>The contract shall be governed, construed and interpreted in accordance with the laws of India.</p> <p>The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the parties. Subject as aforesaid, the provision of Arbitration & Conciliation Act 1996 (India) or statutory modification or re-enactment thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceeding under this clause.</p> <p>The seat of arbitration shall be Chennai, Tamil Nadu, India. The cost of arbitration shall be borne as per the award of the Arbitrator. Subject to arbitration in terms of clause above, the Courts at Chennai, Tamil Nadu, India shall have exclusive jurisdiction over any matter arising out of or in connection with this Contract.</p> <p>Notwithstanding the existence or any dispute or difference and/or reference for the arbitration, the vendor shall proceed with and continue without hindrance the performance of its obligation under this Contract with due diligence and expedition in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.</p> <p><u>In Case of Contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:</u></p> <p>In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs)/Port Trusts inter se and also between CPSEs and Government Departments/Organizations (Excluding disputes concerning Railways, Income Tax, Customs & Excise Departments, such dispute or difference shall be taken up by either party for resolution through AMRCD as mentioned in DPE OM No. 4(1)/2013 –DPE (GM)/FTS-1835 dated 22-05-2018.</p>	
24	<p><u>Set-Off clause</u></p> <p>BHEL shall have the right to recover any money which in the sole opinion of BHEL is due from the Supplier from any money due to the Supplier under this Contract or any other contract or from the Security Deposit / BG furnished by the Supplier under this Contract or any other contract.</p>	
25	<p><u>Non-Disclosure Agreement (NDA)</u></p> <p>The bidders shall enter into the Non-disclosure agreement totally voluntarily, with full knowledge of its meaning and without duress. (Format attached).</p>	
26	<p><u>Cartel Formation:</u></p> <p>The Bidder shall not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines. If any such instance is observed during this tender will attract disciplinary action as per BHEL policies.</p>	

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27	<p><u>Suspension of Business Dealing</u></p> <p>The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com.</p> <p>If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India or does anything which is actionable under the Guidelines for Suspension of Business dealings, action may be taken against such bidder/ supplier/ contractor as per extant guidelines of the company available on www. bhel.com and/or under applicable legal provisions. Guidelines for suspension of business dealings is available in the webpage.</p>	
28	<p><u>Integrity commitment, performance of the contract and punitive action thereof:</u></p> <p>Commitment by BHEL BHEL commits to take all measures necessary to prevent corruption in connection with the tender process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.</p> <p>Commitment by Bidder/ Supplier/ Contractor</p> <ul style="list-style-type: none"> ▪ The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India. ▪ The bidder/ supplier/ contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL. ▪ The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL. <p>If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post execution stage indulges in any act, including but not limited to, mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or tampers the tendering process or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India or does anything which is actionable under the Guidelines for Suspension of Business dealings, action may be taken against such bidder/ supplier/ contractor as per extant guidelines of the company available on www. bhel.com and/or under applicable legal provisions. Guidelines for suspension of business dealings is available in the webpage https://bhel.com/supplier-registration.</p>	
29	<p><u>Fraud Prevention Policy</u></p> <p>The Bidder along with their associates / collaborators / sub-contractors / sub-vendors / consultants / service providers shall strictly adhere to BHEL fraud prevention policy displayed on BHEL website at <u>www.bhel.com/pdf/BHEL_Fraud_Prevention_Policy.pdf</u> and shall immediately bring to the notice of BHEL management about any fraud or suspected fraud as soon as it comes to their notice.</p>	

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30	<p><u>Forwarding of Test Certificates & Inspection Reports</u></p> <p>Test certificates (TC) along with Inspection Reports (IR) as called for in the TDC (Three ink signed originals) / approved Quality Plan shall be sent to Manager / Purchase (Fittings), BHEL Piping Centre immediately after the shipment / dispatch of items. Forthcoming section may please be refereed for detailed list of documents to be submitted to respective agencies in BHEL.</p> <p>TC & IR shall be furnished for each batch of shipment / dispatch. If entire PO quantity is manufactured in one lot but dispatched in phased manner, original "IBR Form" should be submitted with the first consignment. For subsequent consignments, attested Xerox copy of IBR along with copies of TC and IR indicating invoice detail against which original TC and IR was handed over to BHEL shall be submitted. Soft copies of the all the test certificates shall also be submitted through email.</p> <p>Year of code for the technical standards shall be latest and the specific year shall be indicated in the MTC's as well as applicable IBR Forms.</p> <p>Additionally, foreign vendors shall indicate the item description as "Boiler Components- Fittings" in all the dispatch documents like Bill of Lading, Invoice, Packing list, Country of origin certificate etc. Vendor shall negotiate the documents with bank only "For the net shipment value" (ie. invoice value excluding the LD value).</p>	
31	<p><u>Intellectual Property Right</u></p> <p>The supplier shall, at all times, indemnify and keep indemnified the purchaser, free of cost, against all claims which may arise in respect of goods & services to be provided by the supplier under the contract for infringement of any intellectual property rights or any other right protected by patent, registration of designs or trademarks. In the event of any such claim in respect of alleged breach of patent, registered designs, trademarks etc. being made against the purchaser, the purchaser shall notify the supplier of the same and the supplier shall, at his own expenses take care of the same for settlement without any liability to the purchaser.</p>	
32	<p><u>Payment Documents</u></p> <p><u>In case of indigenous vendors</u></p> <p>Payment shall be made against submission of the following documents-</p> <ol style="list-style-type: none"> Original GST compliant invoice and 2 copies of the same. Original site acknowledged Lorry Receipt (Goods Receipt (GR) date for in case of BHEL Trichy stores). Original inspection report and all original documents as called for in TDC / approved QP. If one original certificate / LR is applicable for more than one invoice quantity / invoice, Xerox copy is acceptable with original correlation details on the Xerox copy with attestation by suppliers Quality in charge. <p><u>In case of foreign vendors</u></p> <p>Payment shall be made against presentation of the following documents thru bank-</p> <ol style="list-style-type: none"> Original Bill of Lading (BL). Original Invoice. Packing List. Country of origin certificate. 	

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	<p>The following documents shall be forwarded to SDGM / Purchase directly-</p> <ol style="list-style-type: none"> Original inspection report. Original test certificates. Guarantee certificate. 	
33	<p><u>Acceptance of materials supplied:</u></p> <p>The supply shall strictly as per the specifications in the tender /purchase order.</p> <p>Delivery of the ordered items as per the delivery terms in the Purchase Order does not automatically constitute acceptance of the delivered items.</p> <p>In case of rejection of the delivered items, either part or full, the vendor shall replace the rejected items as per the specification in the Purchase order/tender at their cost within specified days/months of communication of rejection to the supplier.</p> <p>In case of rejection of the delivered items, either part or full, if the supplier fails to replace the rejected items within the specified days/months of communication of the rejection, the same shall be treated as failure to execute the contract and actions as per the Guidelines for Suspension of Business Dealings with Suppliers /Contractors available in the webpage: http://www.bhel.com/vender_registration/vender.php. would be taken against such supplier.</p>	
34	<p><u>GST compliance-</u></p> <p>Indigenous supplier</p> <ol style="list-style-type: none"> Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GST registration No (GSTIN) which should be clearly mentioned in the offer. If the dealer is exempted from GST registration, a declaration with due supporting documents need to be furnished for considering the offer. Dealers under composition scheme should declare that he is a composition dealer supported by the screen shot taken from GST portal. The unregistered dealer as well as the composition dealer has to submit an undertaking stating that they will not claim GST during the execution of the contract even if their status under GST changes to regular tax payer. The dealer has to submit necessary documents if there is any change in status under GST. Supplier shall mention their GSTIN in all their invoices (incl. credit Notes, Debit Notes) and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No. which is linked/uploaded in GSTN network shall be clearly indicated), Billed to party (with GSTIN) & Shipped to party details, item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, Place of Supply etc. Wherever E-Invoice is applicable, the tax invoice/ CN / DN submitted by the vendor must contain the QR code generated in E-Invoice Portal & IRN. All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code). Invoices will be processed only upon completion of statutory requirement and further subject to following: <ol style="list-style-type: none"> Vendor declaring such invoice in their GSTR-1 Return/ IFF Receipt of Goods or Services and Tax invoice by BHEL 	

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	<p>e. As the continuous uploading of tax invoices in GSTN portal (in GST ANX-1) is available for all (i.e. both Small & Large) tax payers under proposed new GST Return System, all invoices raised on BHEL may be uploaded immediately in GST portal on dispatch of material /rendering of services. The supplier shall ensure availability of Invoice in GST portal before submission of invoice to BHEL. Invoices will be admitted by BHEL only if the invoices are available in GSTN portal (in BHEL's GSTR-2A/ GSTR-2B).</p> <p>f. In case of discrepancy in the data uploaded by the supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note or debit note (details also to be uploaded in GSTN portal) for the shortages or rejections in the supplies or additional claims, within the calendar month informed by BHEL.</p> <p>g. In cases where invoice details have been uploaded by the vendor but failed to remit the GST amount to GST Department (Form PMT-08 or Form GST RET-01 to be submitted) within stipulated time, then GST paid on the invoices pertaining to the month for which GST return not filed by the vendor will be recovered from the vendor along with the applicable interest(currently 24% p.a) and all subsequent bills of the vendor will not be processed till filing of the GST return by the vendor</p> <p>h. In case GST credit is denied to BHEL due to non-receipt or delayed receipt of goods and/ or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount claimed in the invoice shall be disallowed to the vendor.</p> <p>i. Where any GST liability arising on BHEL under Reverse Charge (RCM), the vendor has to submit the invoices to BHEL well within the timeline prescribed in GST Law, to enable BHEL to discharge the GST liability. If there is a delay in submission of invoice by the vendor resulting in delayed payment of GST by BHEL along with Interest, then such Interest payable or paid shall be recovered from the vendor.</p> <p>j. GST TDS will be deducted as per Section 51 of CGST Act 2017 and in line with Notification 50/2018 – Central Tax dated 13.09.2018. GST TDS certificate which will be generated in GST portal subsequent to vendor accepting the TDS deduction in the GST portal, will be issued to the vendor.</p>	
35	<p><u>Forwarding of Dispatch Documents (Applicable for Foreign Vendors)</u></p> <p>Dispatch documents and Test Certificates shall be forwarded as indicated below (details indicated are as applicable as on date and any revision to the same shall be communicated along with PO)-</p> <p>A. BHEL Regional Operating Division (ROD)-</p> <p>Copy of Invoice, Bill of Lading, Packing List, Country of origin certificate, Test Certificate (selected documents namely TPI covering letter, IBR Form IIIC and MTC only) to be mailed to the following persons in BHEL ROD for material clearance at Chennai Port-</p> <ol style="list-style-type: none"> R.B.Maheshwari - Phone no – 044 24589844, rbmaha@bhel.in S P Velmurugan - Phone no –044-24589845, vels@bhel.in A Srinivasalu - Phone no – 044-24374329, asvasalu@bhel.in <p>Mail copy mail shall also be sent to the following persons in Piping Centre.</p> <ol style="list-style-type: none"> Mrs Priya Balaji – pb@bhel.in 	

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	<p>b. Mr V Sundaram – vsundaram@bhel.in c. Mrs M Ramya – mramya@bhel.in</p> <p>The following Email to be entered in Notify party in the BL - imports.chennai@bhel.in All dispatch documents including BL shall be signed by competent authorities.</p> <p>B. BHEL Piping Centre- Copy of Invoice, Bill of Lading, Packing List, Country of origin certificate, Credit note for LD value (if LD is applicable) shall be mailed to the following persons at BHEL Piping Centre, Chennai- a. Mrs Priya Balaji – pb@bhel.in b. Mr V Sundaram – vsundaram@bhel.in</p> <p>Copies of Invoice, Bill of Lading, Packing List, Country of origin certificate, Credit note for LD value (if LD is applicable) along with one complete set of Original Test Certificates along with one copy shall be sent thru courier to Mr Indrajit Biswas, Manager / Purchase, Piping Centre, Chennai.</p> <p>Scanned copies of complete set of Test Certificates (TPI covering letter, IBR Form IIIC, MTC and all Inspection reports as called for in BHEL TDC / approved QP) shall be mailed to- a. Mrs Priya Balaji – pb@bhel.in b. Mr V Sundaram – vsundaram@bhel.in</p> <p>C. Bank- Three sets of original Invoice & Packing list, one set of original Bill of Lading and Country of origin certificate, Credit note for LD value (if LD is applicable) along with one complete set of Test Certificate shall be forwarded thru Bank. The documents shall be negotiated with Bank only for the 'Net shipment value'. Net Shipment Value = Invoice value – LD value.</p>	
36	<p><u>Bill of Entry Filing (Applicable for Foreign Vendors)</u></p> <p>Indian Customs has imposed a penalty on late filing of Bill of Entries (Air / Sea Shipments) by the importer @ INR 5,000/- per day (for Initial 03 days) & INR 10,000/- per day (thereafter). The maximum free time allowed for filing Bill of Entry is 24 hrs from the time of arrival of cargo at final port of discharge. The amount indicated is as prevailing on date. The actual penalty amount as prevailing on the date clearance shall be levied on the vendor if applicable.</p> <p>The vendor should furnish the Non-Negotiable Documents (Air Way Bill / Bill of Lading, Error free Commercial Invoice, Packing List, Certificate of Origin) by mail and by post / courier to BHEL well in advance (ie. minimum 5 days prior to landing in case of sea and 2 days prior to landing in case of Air) at final port of discharge.</p> <p>Vendor will be held responsible for the penalty arising against the late filing of Bill of entry due to-</p> <ol style="list-style-type: none"> Non-availability of Non-Negotiable Documents (NND's) before the cargo arrival Discrepancy in documents Short landing of consignments (For shipments on CFR Chennai Port) <p>For all shipments for the contracts (PO's) finalized on CFR Chennai Port basis-</p> <ol style="list-style-type: none"> Delivery Orders involving multiple agencies like liners / freight forwarders are not allowed. There must be a single agency office at the final discharge Port (Chennai) for issuing the Delivery Order to BHEL. Detention / demurrage charges arising due to the delay in collection of Delivery Orders from multiple agencies of liner / freight forwarder also whose offices are not at available Chennai, the same amount will be deducted from vendor's bills only. Bill of Lading should clearly endorse the detention free period and the same should be honoured by 	

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	<p>the freight forwarder and liner. Detention / demurrage if any due to non-acceptance of detention free period indicated in bill of lading will be to vendors account only.</p> <p>Apart from the normal charges like Terminal Handling Charges, Container cleaning Charges, Delivery Order Charges at final port of discharge, other charges* indicated in delivery order will not be borne by BHEL. The liner / freight forwarders should be properly communicated by the vendor not to claim such charges for issuing Delivery Order. If the liner / freight forwarder claims such charges in their invoices, the same amount will be deducted from the vendor bills without any prior intimation in order to avoid the delay in Customs clearance.</p> <p>*The likely additional / hidden costs or other charges (not payable by BHEL) as indicated above are:</p> <ol style="list-style-type: none"> CIC - Container Imbalance Charges / Surcharges EIC - Equipment Imbalance Charge / Surcharges CAF - Container / Currency Adjustment Factor BAF - Bunker adjustment Factor RDS - Rupee Depreciation Surcharge CDS - Currency Depreciation Surcharge ISPS - International Ship and Port Facility Security charges OHS - Origin handling Charges Port Congestion Charges Interim surcharge Chennai Trade charge 	
37	<p>Technical deviations (if any)-</p> <p>Bidders may note that except for the deviations listed in the 'Technical Deviation Format', the bid shall be deemed to comply with all the requirement in the bidding documents and the bidders shall be required to comply with all terms, conditions and specifications of the bidding documents irrespective of any mention to the contrary, anywhere else in the bid. Deviations taken by vendors (if any) are subject to BHEL approval. If deviation format is not submitted by bidder, it will be construed that the bidder complies to all the technical requirements of BHEL without any deviation.</p>	
38	<p>Mandatory Documents to be submitted:</p> <ol style="list-style-type: none"> Duly filled in Part I bid, ie. PQR Bid & Supporting documents. Duly filled in Terms and conditions - Techno commercial requirements Duly filled in Technical deviation format (Deviation if any) Duly filled in unpriced bid Duly filled in MII declaration format (applicable for indigenous vendors only); UDHAYAM Certificate in case of MSE Duly filled in Integrity Pact Duly filled in NDA 	
39	<p>Declaration by Bidder:</p> <p>The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s).</p> <p>This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.</p>	

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40	<p>Restrictions for Procurement from a country sharing land border with India</p> <p>For this procurement, Restrictions under rule 144 (xi) of general financial rules 2017 and OM No. F.4/32/2022-PPD dated 06.09.2022 from DoE is applicable. In case of subsequent Orders issued, the same shall be applicable even if issued after issue of this NIT.</p>	
41	<p>Duty benefits for Import Vendors</p> <ul style="list-style-type: none"> ▪ In case CEPA or any other agreement/treaty between respective Governments/Countries exists for the enquired Items/tender, which entails concessional custom duty or any other benefits for importing the same in India, supplier shall declare/ mention it in their offer. Pls confirm whether any such concessional duty for importing in India is applicable or not. ▪ For such cases, pls mention the Concessional Customs Duty (% of Basic custom duty) for the offered item/s. Pls mention in percentage only. ▪ Documentary proof for the applicable Concessional Customs Duty (e.g. CEPA or other agreement) shall be submitted along with the Part-1 bid. ▪ Relevant documents to avail the above concessional duty benefits by BHEL shall be submitted by the supplier along with dispatch documents. Confirm your acceptance. ▪ In the event of seller failing to provide appropriate documents along with dispatch documents for purchasers to avail disclosed concessional duty benefits in India, financial loss, so incurred, will be to the seller's account. <p>Note: Evaluation of the Price bids will be based on the above details. Unless specifically mentioned/furnished by the supplier in the offer document, Customs Duty benefit may not be applied for evaluation purposes.</p>	
42	<p>Role of Agents:</p> <ul style="list-style-type: none"> ▪ BHEL will deal directly with manufacturers only. Offers from Traders & Stockist will not be considered. ▪ BHEL strongly discourages the engagement of Agents in India by foreign principals, to deal with BHEL, in BHEL's tenders. ▪ In case of foreign suppliers representing through their Indian/foreign agents, agency agreement should be submitted, else offer is liable for rejection. Agency agreement requirements attached as separate file and full compliance to it shall be ensured while submitting the same. ▪ BHEL, due to business reasons would ban, would have banned Indian agents from dealing with BHEL. Any foreign principal who engages such a banned agent, or an employee of the banned agency, or any other person connected with the banned agency, at any time during the tender proceedings, would be disqualified from the tender proceedings. The decision of BHEL in this regard shall be final and be binding on the OEM. Hence in their own interests, prospective tenderers may check with BHEL. The list of banned firms is available on BHEL website www.bhel.com. ▪ Vendors/ principals proposing to deal with BHEL by engaging and through an Indian Agent does so at their own risk. BHEL shall in no way be responsible for any consequences that may arise to the foreign principal on account of the antecedents / actions of their Indian agent. ▪ One agent cannot represent two or more suppliers or quote on their behalf in a particular tender. If so found at any stage, BHEL Piping Centre is likely to cancel bids of such suppliers. Further, such Indian Agent is likely to be de-listed (Black listed for business from BHEL). 	

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43	<p>Agency Commission:</p> <ul style="list-style-type: none"> ▪ If overseas principal has any tie-up with any third party/ agents, it should be declared while submitting offers. ▪ In respect of offers from overseas suppliers, agency commission, if any, payable to their agents in India, shall invariably be shown separately in the Performa invoice & shall be declared in techno-commercial offer itself and this will be paid by us in India, in Indian rupees, on satisfactory completion of the contract. ▪ For calculation of rupee equivalent for agency commission, exchange rate as prevailing on the date of order will be taken. ▪ Agency commission, if any should be clearly given in the offer (% on CFR Chennai inclusive). 	
44	<p>General note</p> <ul style="list-style-type: none"> ▪ Any disparity to BHEL's terms and conditions indicated above and vendors offer, only the agreed terms and conditions above shall stand valid. Vendor's terms and conditions which are in conflict will be ignored and will not be taken into consideration by BHEL. ▪ Vendors shall confirm acceptance to the terms and conditions of the tender, Quality Plan and TDC. ▪ Prices shall be firm throughout the contract. ▪ In the event of our customer order covering this tender being cancelled /placed on hold / otherwise modified, BHEL would be constrained to accordingly cancel / hold / modify the tender at any stage of execution. ▪ BHEL reserves the right to increase or decrease the tendered quantity and split the tendered quantity. ▪ BHEL may negotiate the L1 rate, if not meeting our budget / estimated cost. BHEL may re-float the tender opened, if L1 price is not acceptable to BHEL. Any deviation in specified commercial terms, will lead to rejection of offer. ▪ BHEL reserves its right to reject an offer due to unsatisfactory past performance by the respective Vendor in the execution of any contract to any BHEL project / Unit. <p>Any other Techno –Commercial Terms indicated by the vendor in their offer elsewhere will be ignored. BHEL will proceed with tender evaluation as per Terms and conditions only.</p>	
On behalf of BHEL		<p>To be filled & Signed by Original Manufacturer/Mill</p> <p>Name of the mill / Principal:</p> <p>Signature: (Affix Seal)</p> <p>(All conditions were read & clearly understood and agreed in totality with the mentioned deviations only)</p>

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Note :

Bidders can quote depending on their manufacturing capability and design proof test qualification as indicated. Bids will be considered only for size range (OD / Thk), specification and construction based on following criteria.

- a. Sizes (OD & Thk) qualified based on the burst test done as per Clause 9 of ASME B16.9.
- b. One OD size (NPS) and One Schedule thickness more than that supplied by vendor in the past (PO copy and supply proof is required).
- c. Experience shall be counted based on the least of a & b indicated above.
- d. Experience in CS will qualify only for CS items, whereas that in AS will qualify for both CS & AS.
- e. Details of experience shall be filled in the Annexure-1 for consideration by BHEL.

Enq 4102200055 dt 23.09.2022 for Procurement of Khurja and Sagradhighi CS & AS Fittings
Unpriced Bid - Item Details

Enq Item No	Material Code	Description	PR Qty	Specification	Fitting Type	Technical Requirements	Fitting D1 value	Drawing No	Quoted / Regretted
1	925044780000	B16.9 BW LR ELL 30DEG 368X50 SA234WPC	5	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/271.1	ASMEB16.9	
2	925044610000	B16.9BW LR 30DEG OD 406.4X60 SA234WPC	4	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1	ASMEB16.9	
3	925044720000	B16.9 BW LR 45DEG ELL OD355.6X70SA234WPC	2	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/222.6	ASMEB16.9	
4	925044750000	B16.9 BW LR ELL 45DEG 406.4X60 SA234WPC	2	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1	ASMEB16.9	
5	925044770000	B16.9 WB LR ELL 45DEG OD610X90 SA234WPC	6	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/438.6	ASMEB16.9	
6	925044520000	BW16.9 ELL BW 60 DEG OD368X50 SA234WPC	5	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/271.1	ASMEB16.9	
7	925044590000	B16.9BW LR 60DEG ELL OD406.4X60 SA234WPC	2	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1	ASMEB16.9	
8	925044740000	B16.9 BW LR ELL 60DEG 406.4X60 SA234WPC	30	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1	ASMEB16.9	
9	925044640000	B16.9BW LR 90DEG ELL OD273X40 SA234WPC	21	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/197.5	ASMEB16.9	
10	925044620000	B16.9BW LR90DEG ELL OD 323.9X46 SA234WPC	2	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/235.6	ASMEB16.9	
11	925044670000	B16.9BW LR 90DEG ELL OD323.9X61 SA234WPC	3	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/203.6	ASMEB16.9	
12	925041860000	BW LR 90DEG ELBOW OD323.9X62 SA234WPC	20	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P-206	ASMEB16.9	
13	925044700000	B16.9 BW LR 90DEG ELL OD355.6X70SA234WPC	24	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/222.6	ASMEB16.9	
14	925044510000	B16.9 BW ELL LR 90DEG OD368X50 SA234WPC	28	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	271.1	ASMEB16.9	
15	925044730000	B16.9BW LR ELL 90DEG OD406.4X60 SA234WPC	138	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1	ASMEB16.9	
16	925044540000	B16.9BW LR 90DEG ELL OD 406.4X60SA234WPC	24	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1	ASMEB16.9	
17	925044650000	B16.9BW LR 90DEG ELL OD 457X85 SA234WPC	26	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/295.7	ASMEB16.9	
18	925044690000	B16.9 BW LR 90DEG ELL OD 457X90 SA234WPC	22	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/286.2	ASMEB16.9	
19	925044680000	B16.9BW LR 90DEG ELL OD508X70 SA234WPC	8	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/375	ASMEB16.9	
20	925044760000	B16.9 BW LR ELL 90DEG ID405X70 SA234WPC	10	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/405	4-80-425-84624/00	
21	925044530000	B16.9 BW LR 90DEG ELL OD 559X77 SA234WPC	3	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/412.5	ASMEB16.9	
22	925045200000	B16.9 BW LR ELL 90DEG OD610X90 SA234WPC	12	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P-438.6	ASMEB16.9	
23	925044660000	B16.9BW LR 90DEG ELL OD610X114 SA234WPC	2	SA234WPC	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P/393	ASMEB16.9	
24	925246300000	BWLR90DEGELBOW OD 508 X 25 SA234WP22CL1	2	SA234WP22CL1	Elbow	TDG:102 Rev 09 and QPG 46 Rev 01	P463	ASMEB16.9	
25	921175490000	B16.9BW CONNREDOD406.4X60/323.9X46SA23WPC	16	SA234WPC	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1/235.6	ASMEB16.9	
26	921175920000	B16.9BW CONNREDOD406.4X60/323.9X45SA234WPC	3	SA234WPC	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1/237.7	ASMEB16.9	
27	921178610000	B16.9BW CONNRED OD406.4X60/273X40SA234WPC	2	SA234WPC	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1/197.5	ASMEB16.9	
28	921175480000	B16.9BW CONN RED OD508X70/368X50SA234WPC	2	SA234WPC	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	P/375/271.1	ASMEB16.9	
29	921175900000	B16.9BW CONNRED OD558X77/406.4X60SA234WPC	1	SA234WPC	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	P/412.5/288.1	ASMEB16.9	
30	921178520000	B16.9BW CONN RED OD559X77/368X50SA234WPC	2	SA234WPC	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	P/412.5/271.1	ASMEB16.9	
31	921178590000	B16.9BW CONNREDOD610X90/406.4X60SA234WPC	8	SA234WPC	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	P/438.6/288.1	ASMEB16.9	
32	921178390000	B16.9BW CONNREDOD610X114/457X85SA234WPC	2	SA234WPC	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	P/393.0/295.7	ASMEB16.9	
33	921178410000	B16.9BW CON RED OD610X114/508X70SA234WPC	1	SA234WPC	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	P/393.0/375.0	ASMEB16.9	
34	921178530000	B16.9BW CONNRED OD610X116/457X90SA234WPC	2	SA234WPC	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	P/389.2/286.2	ASMEB16.9	
35	921178560000	B16.9BW CONNREDOD610X116/355.6X70SA234WPC	2	SA234WPC	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	P/389.2/222.6	ASMEB16.9	
36	921171900000	BW RED OD965X37/OD914X50 SA234WP22CL1	1	SA234WP22CL1	Concentric Reducer	TDG:102 Rev 09 and QPG 46 Rev 01	STY P - 894/ 820	ASMEB16.9	
37	921052720000	B19.6 BW EQUAL TEE OD406.4X60SA234WPC	1	SA234WPC	Equal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1	ASMEB16.9	
38	921052710000	B19.6 BW EQUAL TEE OD 508X70 SA234WPC	3	SA234WPC	Equal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/375	ASMEB16.9	
39	921052740000	B16.9 BW EQUAL TEE ID405X70 SA234WPC	2	SA234WPC	Equal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/405	3-80-425-37083/00	
40	921052750000	B16.9 BW EQUAL TEE OD610X90 SA234WPC	2	SA234WPC	Equal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/438.6	ASMEB16.9	
41	921052730000	B19.6 BW EQUAL TEE OD 610X114 SA234WPC	1	SA234WPC	Equal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/393.0	ASMEB16.9	
42	925053490000	B16.9BW UNEQTEEDOD406.4X60/273X40SA234WPC	2	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1/197.5	ASMEB16.9	
43	925053520000	B16.9BWUNEQT OD406.4X60/323.9X45SA234WPC	1	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/288.1/237.7	ASMEB16.9	
44	925053570000	B16.9BWUNEQTEE OD457X85/273X60SA234WPC	2	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/295.7/154.9	ASMEB16.9	
45	925053600000	B16.9 BW UNEQT OD457X90/355.6X62SA234WPC	4	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/286.2/233.1	ASMEB16.9	
46	925053560000	B16.9BWUNEQTEE OD508X70/323.9X61SA234WPC	1	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/375/203.6	ASMEB16.9	
47	925053640000	B16.9BWUNEQTEE ID405X70/406.4X60SA234WPC	8	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/405/288.1	3-80-425-37093/00	

Enq 4102200055 dt 23.09.2022 for Procurment of Khurja and Sagradhighi CS & AS Fittings Unpriced Bid - Item Details									
Enq Item No	Material Code	Description	PR Qty	Specification	Fitting Type	Technical Requirements	Fitting D1 value	Drawing No	Quoted / Regretted
48	925053480000	B16.9BW UNEQTEED559X77/355.6X50SA234WPC	2	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/412.5/258.4	ASMEB16.9	
49	925053500000	B16.9BW UNEQTEE OD559X77/406.4X60SA234WPC	1	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/412.5/288.1	ASMEB16.9	
50	925053590000	B16.9BW UNEQTEED610X90/406.4X60SA234WPC	2	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/438.6/288.1	ASMEB16.9	
51	925053620000	B16.9BW UNEQTEED610X116/355.6X70SA234WPC	2	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/389.2/222.6	ASMEB16.9	
52	925053510000	B16.9BW UNEQTEE OD610X114/457X85SA234WPC	1	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/393/295.7	ASMEB16.9	
53	925053550000	B16.9BW UNEQTEED610X114/323.9X61SA234WPC	1	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/393.0/203.6	ASMEB16.9	
54	925053630000	B16.9BW UNEQTEE OD610X116/457X90SA234WPC	2	SA234WPC	Unequal Tee	TDG:102 Rev 09 and QPG 46 Rev 01	P/389.2/286.2	ASMEB16.9	
Grand Total			481						

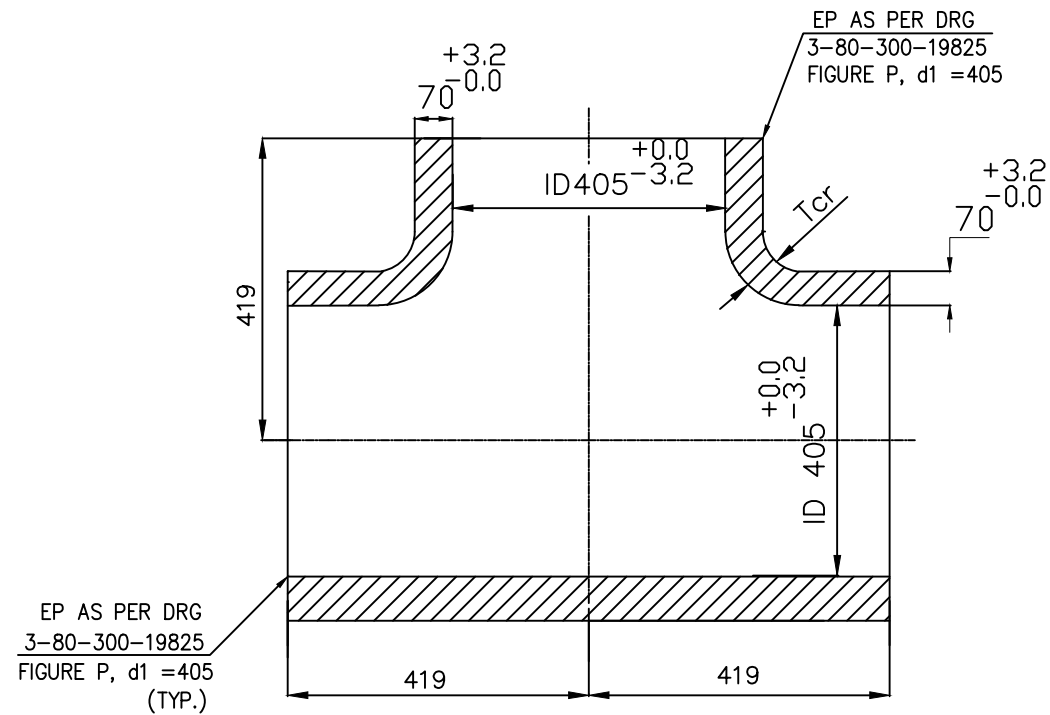
Bidders to Fill below details

No of Items Quoted

No of Items Regretted

Total

DRAWING NO

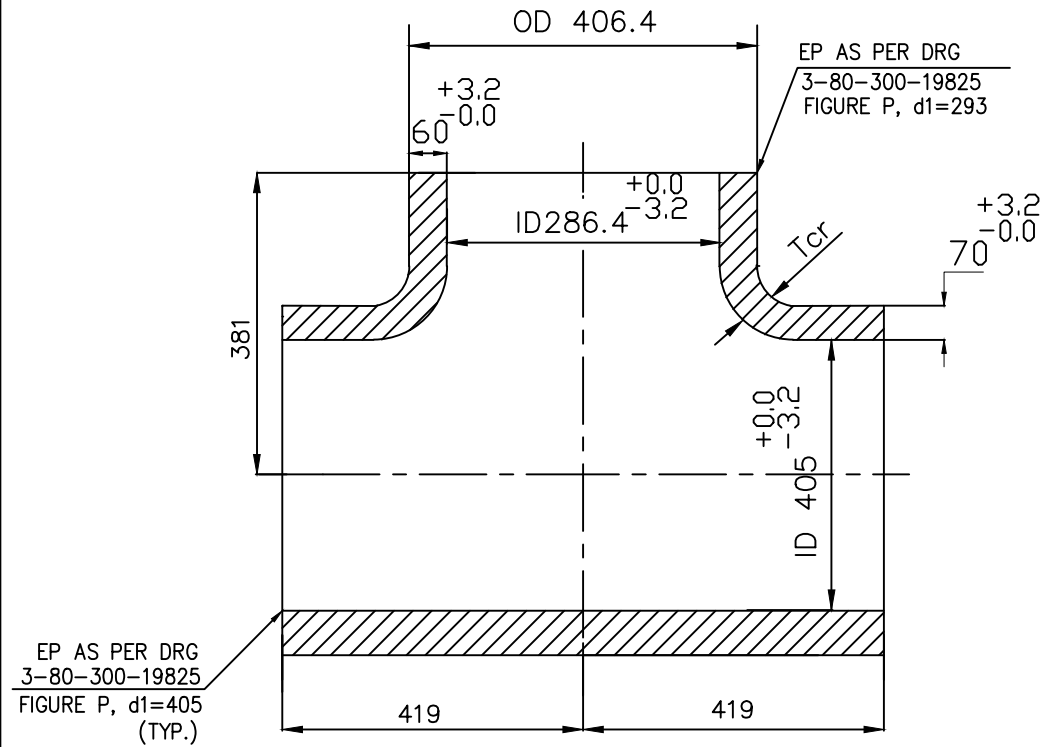


01. DESIGN PRESSURE : 390 kg/sq.cm.(g)
02. DESIGN TEMPERATURE : 315° C
03. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
04. MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR, ASME B16.9 AND SA234.
05. FITTING TO COMPLY WITH ASME B16.9 AND DIMENSIONS ARE AS PER THIS DRAWING.
06. FOLLOW APPLICABLE TDG (LATEST VERSION) FOR THE PROJECT
07. WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.
ACTUAL WEIGHT, DIMENSIONS & THICKNESS DETAILS INCLUDING CROTCH THK. (Tcr) TO BE FURNISHED BY FITTING SUPPLIER.
08. CONSTRUCTION SHALL BE SEAMLESS
09. AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE
10. DETAILED DIMENSIONS SHALL BE SUBMITTED FOR REVIEW
11. MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
12. CONNECTING PIPE SIZE –PIPE ID405x70.

[illegible]

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DRAWING NO



01. DESIGN PRESSURE : 390 kg/sq.cm.(g)
02. DESIGN TEMPERATURE : 315° C
03. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
04. MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR, ASME B16.9 AND SA234.
05. FITTING TO COMPLY WITH ASME B16.9 AND DIMENSIONS ARE AS PER THIS DRAWING.
06. FOLLOW APPLICABLE TDG (LATEST VERSION) FOR THE PROJECT
07. WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.
ACTUAL WEIGHT, DIMENSIONS & THICKNESS DETAILS INCLUDING CROTCH THK. (T_{cr}) TO BE FURNISHED BY FITTING SUPPLIER.
08. CONSTRUCTION SHALL BE SEAMLESS
09. AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE
10. DETAILED DIMENSIONS SHALL BE SUBMITTED FOR REVIEW
11. MATERIAL SPECIFICATION SHALL BE SA234WPC(A)
12. CONNECTING PIPE SIZE –PIPE ID405x70/OD406.4x60

[illegible]

SIZE A3

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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL.

CAUTION:

REV	DATE	ALTERED :
01		CHD & APPD :

NOTES:

- 1) DESIGN PRESSURE : 390 Kg/Cm² (g)
- 2) DESIGN TEMPERATURE : 315 °C
- 3) WORKING MEDIUM : WATER
- 4) FOLLOW TDC No. : AS APPLICABLE
- 5) ALL DIMENSIONS ARE FINISHED DIMENSIONS
- 6) DESIGN, MANUFACTURING, INSPECTION, TOLERANCES AND TESTING SHALL BE AS PER IBR, ASME B16.9 & SA234
- 7) CONNECTING PIPE SIZE IS PIPE ID405 X 70
- 8) MATERIAL SPECIFICATION SHALL BE SA234WPC
- 9) CONSTRUCTION SHALL BE SEAMLESS
- 10) WEIGHT GIVEN IN BOM IS INDICATIVE ONLY.
- 11) AVERAGE INSIDE DIAMETER ON FITTING BODY TO GUARANTEE FLOW AREA MIN 90% OF THE CIRCULATION AREA OF THE CONNECTING PIPE

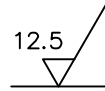
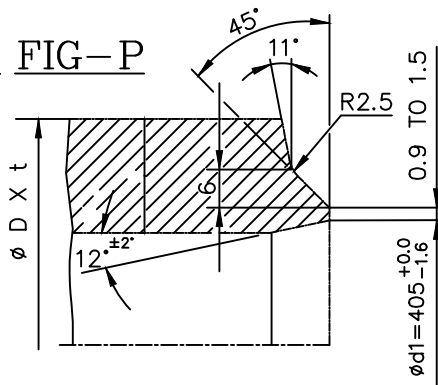
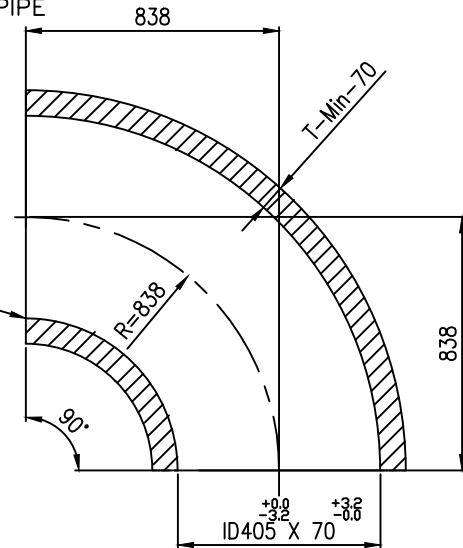


FIG-P



REF FIG-P
(TYP)



-	BW LR 90DEG ELBOW ID405 X 70	92 504 476 0000 SA 234 WPC	A	1079	316
VAR No.	DESCRIPTION	MATERIAL CODE MATERIAL SPECN	A/C/P UNIT	UNIT WT. (KG)	QUANTITY



BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	K.SAHITHYA	-SD-	27.06.22
CHD	I.D.B.RAJU	-SD-	27.06.22
APPD	SARAVANAN.C	-SD-	27.06.22

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 1079.316	REF TO ASSY / OLD DWG -
CODE					
TITLE BW LR 90DEG ELBOW ID405 X 70				DRAWING NO : 4-80-425-84624	REV 00

3-80-300-19825
DRAWING No.

NOTES: — 01. APPLICABLE FOR P91/P92
03 i) STRAIGHT WITH STRAIGHT/FITTING
03 ii) BEND WITH BEND/FITTING

- 04 02. FOR OD MISMATCH, REFER FIGURE-Xa
04 03. REFER STYLE-DL FOR THICKNESS <14.2mm (FOR ALL OD/ID)
04 04. REFER STYLE-PL
i) WHEN THICKNESS IS ≥ 14.2 mm & <20mm (FOR ALL OD/ID)
ii) WHEN THICKNESS ≥ 20 mm & OD <219.1mm.
04 05. $\alpha = 6^\circ$ FOR WALL THICKNESS ≥ 20 mm AND ≤ 30 mm
06. $\alpha = 10^\circ$ FOR WALL THICKNESS > 30 mm

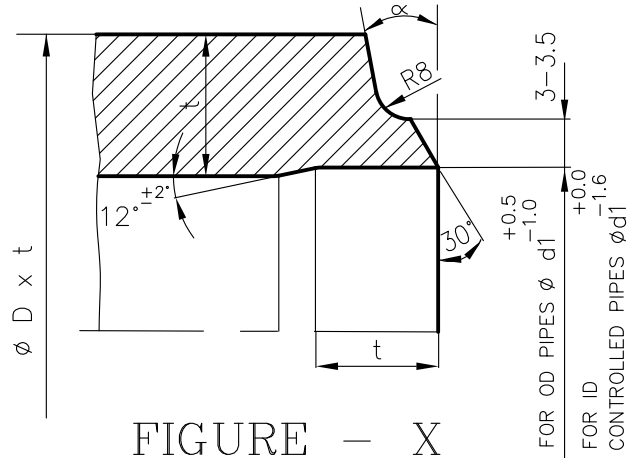


FIGURE - X

- MATCHING EDGE PREPARATION
02 FOR MISMATCH OD APPLICABLE FOR
BENDS/FITTINGS OF P91/P92 MATERIALS 03
NOTES: —
01. OD OF STRAIGHT TO BE PHYSICALLY MEASURED/VERIFIED.
02. t = THK OF CONNECTING PIPE (STRAIGHT)

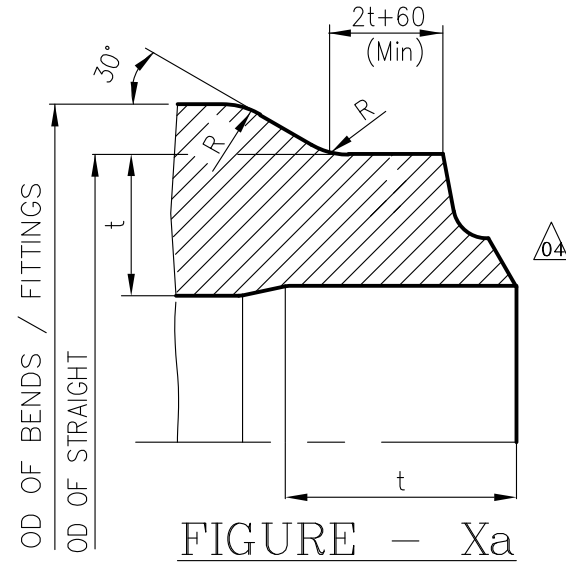
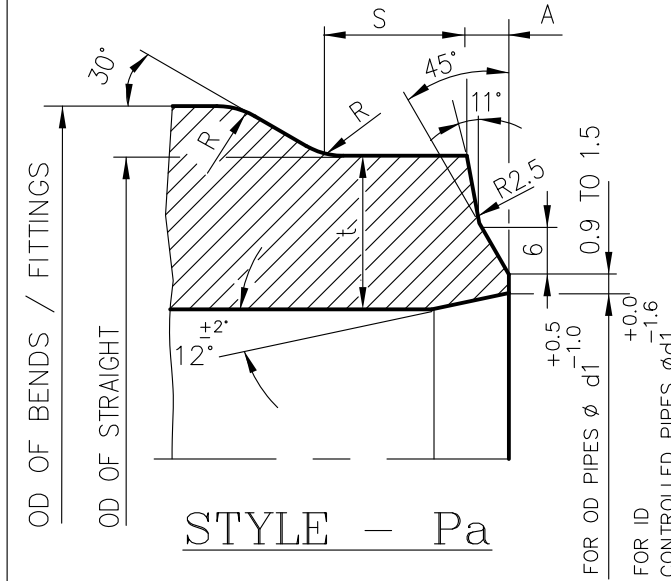


FIGURE - Xa

- MATCHING EDGE PREPARATION FOR MISMATCH OD
DIAMETRICALLY GREATER THAN 8 mm
(ie OD1 - OD2 > 8mm) APPLICABLE FOR
BENDS/FITTINGS OTHER THAN P91/P92 MATERIALS
NOTES: —
01. OD OF STRAIGHT TO BE PHYSICALLY MEASURED/VERIFIED.
02. WHEN $t < 65$, $S+A = 65$ Min. & $t > 65$, $S=65$ Min.
WHERE t=THK OF CONN.PE(STRAIGHT).



STYLE - Pa

- MATCHING EDGE PREPARATION FOR MISMATCH OD
DIAMETRICALLY GREATER THAN 8 mm
(ie OD1 - OD2 > 8mm) APPLICABLE FOR
ELBOWS OTHER THAN P91/P92 MATERIALS
NOTES: —
01. OD = OUTSIDE DIA OF CONN. PIPE (STRAIGHT)
TO BE PHYSICALLY MEASURED/VERIFIED.
02. t = THK OF CONN.PE(STRAIGHT)
03. t = THK OF CONN.PE(STRAIGHT)

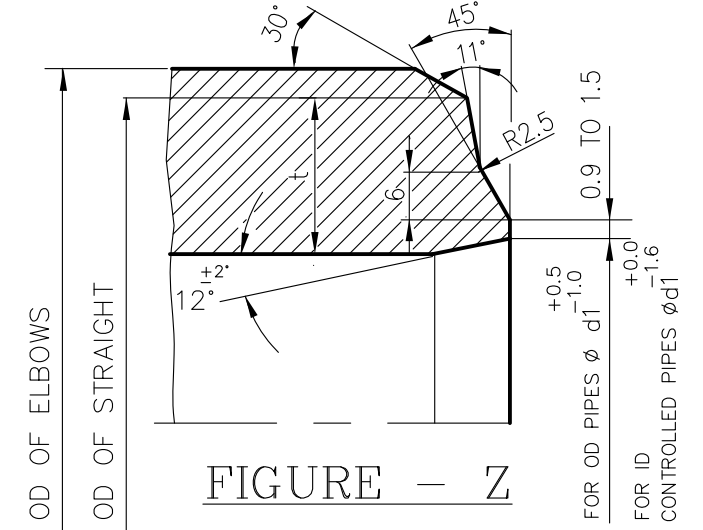
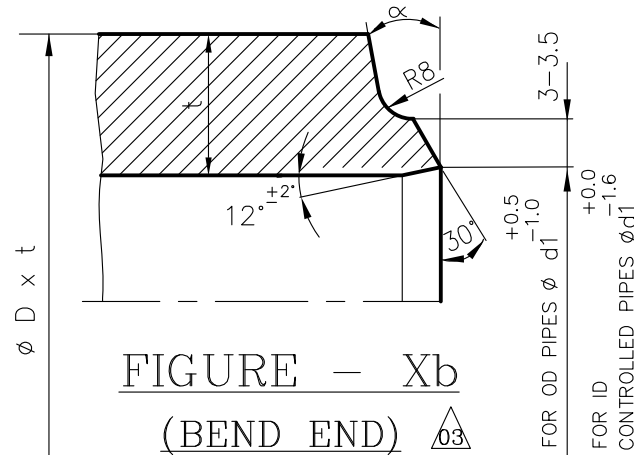
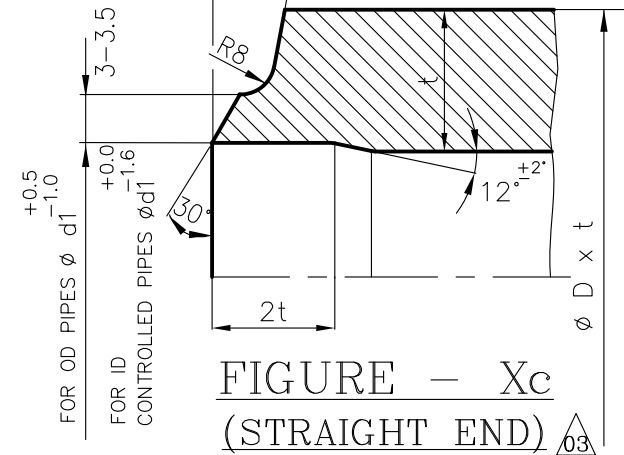
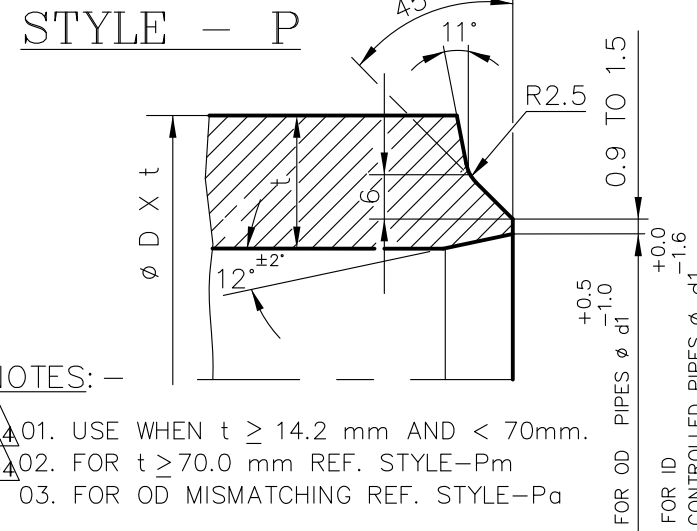


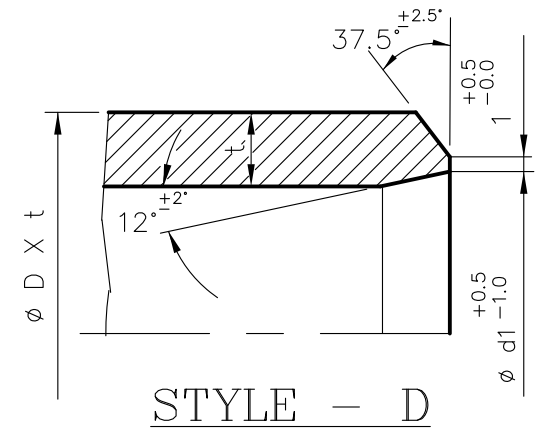
FIGURE - Z

- NOTES: — 01. APPLICABLE FOR P91/P92 ZERO ARM PIPEBEND WELDED WITH P91/P92 STRAIGHT PIPE
02. FOR OD MISMATCH, REFER FIGURE-Xa
03. REFER STYLE-DL FOR THICKNESS <14.2mm (FOR ALL OD/ID)
04. REFER STYLE-PL
i) WHEN THICKNESS IS ≥ 14.2 mm AND <20 mm FOR ALL OD/ID.
ii) WHEN THICKNESS ≥ 20 mm AND OD < 219.1 mm.
05. $\alpha = 6^\circ$ FOR WALL THICKNESS ≥ 20 mm AND ≤ 30 mm
06. $\alpha = 10^\circ$ FOR WALL THICKNESS > 30 mm

FIGURE - Xb
(BEND END)FIGURE - Xc
(STRAIGHT END)

- NOTES: —
01. USE WHEN $t \geq 14.2$ mm AND < 70mm.
02. FOR $t \geq 70.0$ mm REF. STYLE-Pm
03. FOR OD MISMATCHING REF. STYLE-Pa

- NOTES: —
01. USE WHEN $t < 14.2$ mm.



STYLE - D

TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT

STANDARD

GENERAL NOTES :

01. THE MINIMUM THICKNESS AT WELD END SHALL NOT BE LESS THAN
a) 0.875 TIMES t NOM. FOR OD PIPES.
b) t MIN. FOR ID CONTROLLED PIPES.

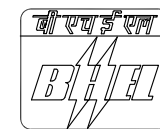
02. t NOM & t MIN SHALL BE AS PER SPECIFIED PIPE SIZE.

03. SHARP CORNERS SHALL BE ROUNDED OFF WHEREEVER 'R' IS INDICATED.

NOTES FOR WELDING:

01. WELD REINFORCEMENT TO BE FLUSH GROUND AND MERGED WITH
PARENT METAL WITHOUT ANY UNEVENNESS.

REV 04	DATE 07.12.16	ALTERED: P SURESH APPROVED: R SESHAGIRI
ZONE	SHEET 2 OF 2 IS ADDED. NOTES ADDED, MODIFIED AND DELETED IN FIGURE-X, Xa, Xb, Xc AND STYLE-P	
REV 03	DATE 10.04.13	ALTERED: M.R.K APPROVED: C.K.N
ZONE	FIG Xb AND FIG Xc ADDED. IN FIG.X, NOTE 01 MODIFIED. IN FIG.Xa, STY-Pa, FIG.Z, P92 MATERIAL ADDED	
REV 02	DATE 10.01.13	ALTERED: M.R.K APPROVED: C.K.N
ZONE	IN FIG.Xa, NOTE 04 ADDED. GENERAL NOTES 03 ADDED. IN FIG.Xa, 8MM OD MISMATCH IS REMOVED	
REV 01	DATE 11.05.04	ALTERED: R.SENDHIL APPROVED: A.VELAYUTHAM
ZONE	PROJECT NAME REMOVED AND STANDARD INCORPORATED IN TITLE BLOCK	

BHARAT HEAVY ELECTRICALS LTD.,
PIPING CENTRE, MADRAS

DEPT.

GRADE OF
UN TOL. DIM

CODE

C/M/F

TITLE

EDGE PREPARATION
DETAILS

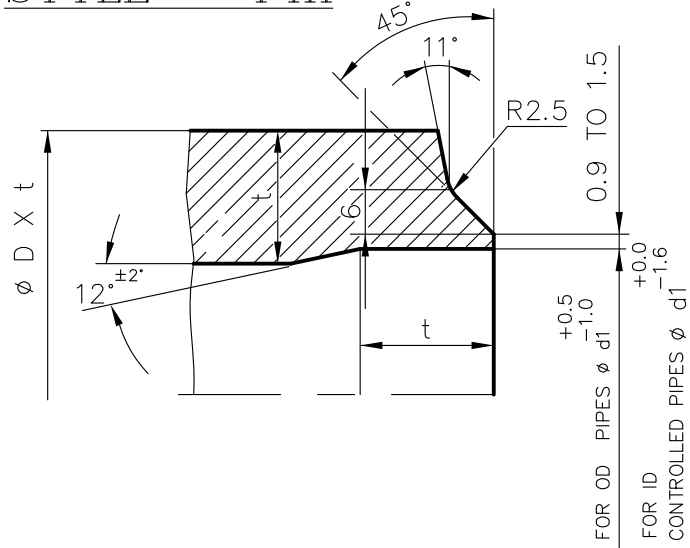
DRN	NAME K.B.RAGUNATH	SIGN	DATE 11.10.01	NO OF ITEMS
CHD	M.C.SEKARAN		11.10.01	
APPD	A.VELAYUTHAM		11.10.01	
DEPT.	GRADE OF UN TOL. DIM	SCALE	WEIGHT (Kg).	NAME OF ORIGINAL ORGANISATION
CODE	C/M/F			
TITLE	EDGE PREPARATION DETAILS	CARD CODE U 01	DRAWING No. 3-80-300-19825	REV 04
			SHEET 1 OF 2	

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3-80-300-19825

DRAWING No.

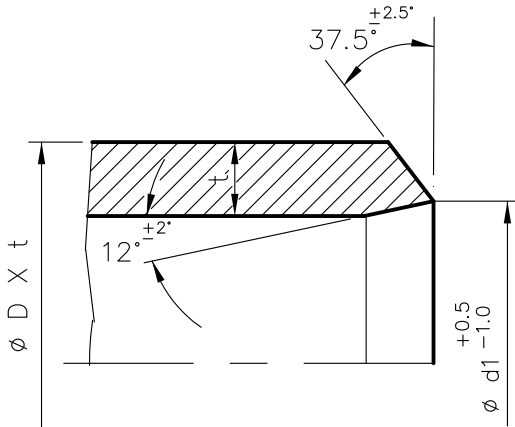
STYLE - P_m



NOTES: -

01. USE FOR SA106GRC PIPES WHEN $t \geq 70.0$ mm.
02. FOR OD MISMATCHING REF. FIGURE-P_a
03. FOR FITTINGS USE STYLE-P.

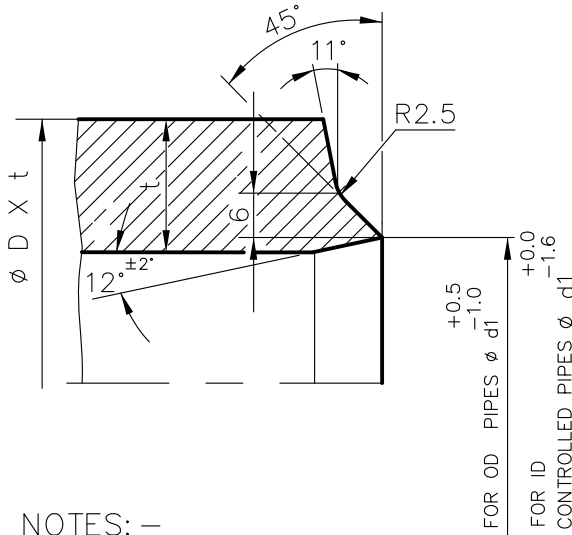
STYLE - D_L



NOTES: -

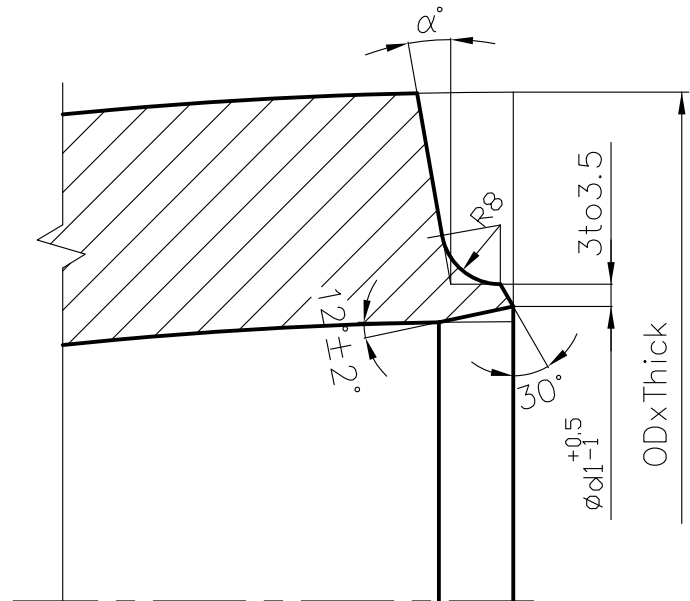
01. USE FOR P91 / P92 PIPES AND FITTINGS WHEN $t < 14.2$ mm (ALL OD/ID).

STYLE - P_L



NOTES: -

01. USE FOR P91 / P92 PIPES AND FITTINGS
i) WHEN THICKNESS IS ≥ 14.2 mm AND < 20 mm FOR ALL OD/ID.
ii) WHEN THICKNESS ≥ 20 mm AND OD < 219.1 mm.
02. FOR OD MISMATCHING REF. FIGURE-P_a



01. USE FOR P91 / P92 FITTINGS
02. REFER STYLE-D_L FOR THICKNESS < 14.2 mm FOR ALL OD/ID.
03. REFER STYLE-P_L
i) WHEN THICKNESS IS ≥ 14.2 mm AND < 20 mm FOR ALL OD/ID.
ii) WHEN THICKNESS ≥ 20 mm AND OD < 219.1 mm.
04. $\alpha = 6^\circ$ FOR WALL THICKNESS ≥ 20 mm AND ≤ 30 mm
05. $\alpha = 10^\circ$ FOR WALL THICKNESS > 30 mm.
06. FIGURE-Xf IS APPLICABLE FOR ALL BUTT WELDED FITTINGS NOT COVERED IN NOTES 02 & 03

FIGURE-Xf

NOTE :

01. FOR GENERAL NOTES AND NOTES FOR WELDING REFER SHEET 1 OF 2.

TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT

STANDARD

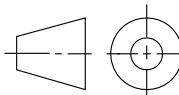


BHARAT HEAVY ELECTRICALS LTD.,
PIPING CENTRE, MADRAS

DRN	NAME	SIGN	DATE	NO OF ITEMS
CHD	P SURESH		07.12.16	
APPD	R SESHAGIRI		07.12.16	
	C KARUNAKARAN		07.12.16	

DEPT.

GRADE OF
UN TOL. DIM



SCALE

WEIGHT (Kg).

NAME OF ORIGINAL
ORGANISATION

ITEM
No.

TITLE

EDGE PREPARATION
DETAILS

CARD
CODE

U 01

DRAWING No.

3-80-300-19825

SHEET 2 OF 2

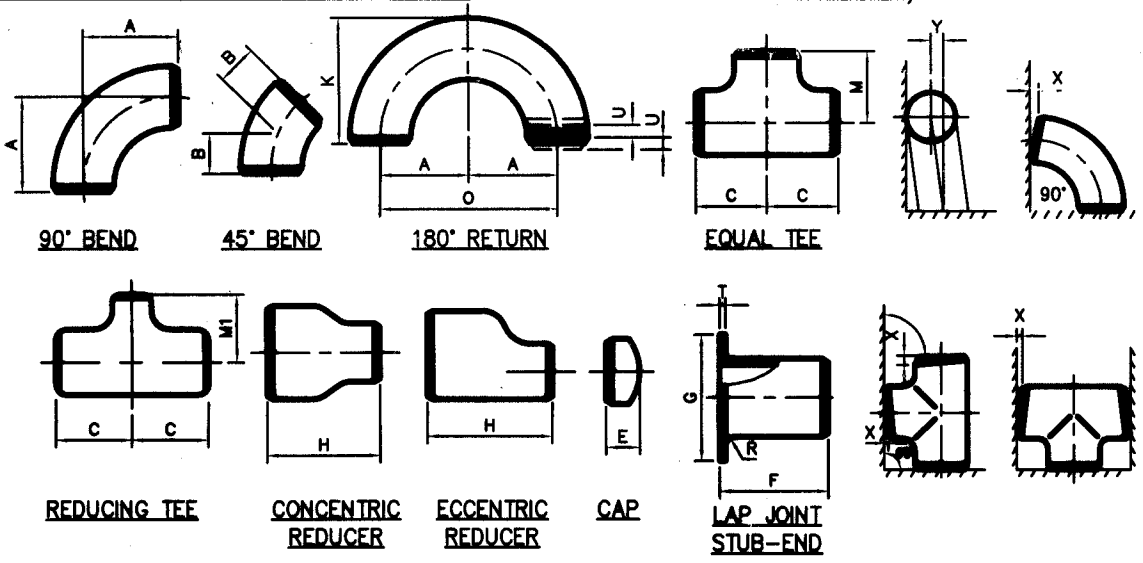
REV

04

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

REV	DATE	ALTERED
01	05.02.05	APPROVED APMK
TITLE BLOCK AND DRAWING ALTERED		

(REFERENCE : IBR ,REG.NO 361(A) INCLUDED IN AMENDMENT)



ALL FITTINGS				90°&45° ELBOWS AND TEES	REDUCER	180° RETURNS			CAPS	LAP-JOINT		STUB END	
DN.	O.D AT BEVEL	I.D AT END	WALL THICKNESS	CENTER TO END A,B,C,M,M1	OVERALL LENGTH H	CENTER TO CENTER O	BACK TO FACE K	ALIGNMENT OF END U	OVER ALL LENGTH E	END TO END F	RADIUS R	DIA OF LAP G	THICKNESS OF LAP
15 TO 65	+1.6 -0.8	±0.8	NOT LESS THAN 87 1/2% OF NOMINAL THICKNESS	±1.6	±1.6	±6.4	±6.4	±0.8	±3.2	±1.6	+ 0 -0.8	+ 0 -0.8	+1.6 - 0
80 TO 90	±1.6	±1.6		±1.6	±1.6	±6.4	±6.4	±0.8	±3.2	±1.6	+ 0 -0.8	+ 0 -0.8	+1.6 - 0
100	±1.6	±1.6		±1.6	±1.6	±6.4	±6.4	±0.8	±3.2	±1.6	+ 0 -0.8	+ 0 -0.8	+1.6 - 0
125 TO 200	+2.4 -1.6	±1.6		±1.6	±1.6	±6.4	±6.4	±0.8	±6.4	±1.6	+ 0 -0.8	+ 0 -0.8	+1.6 - 0
250 TO 400	+4.0 -3.2	±3.2		±2.4	±2.4	±9.5	±6.4	±1.6	±6.4	±2.4	+ 0 -1.6	+ 0 -1.6	+1.6 - 0
500 & ABOVE	+6.4 -4.8	±4.8		±2.4	±2.4	±9.5	±6.4	±1.6	±6.4	±2.4	+ 0 -1.6	+ 0 -1.6	+1.6 - 0

OFF-SQUARE TOLERANCES		
NOMINAL SIZE OF FITTING	OFF SQUARE TOLERANCE, X	OFF SQUARE TOLERANCE, Y
UP TO AND INCLUDING 100	0.8	1.6
125 TO 150	1.2	2.4
200 TO 550	1.6	3.2
600 & ABOVE	3.2	6.4

NOTES : 1. ALL DIMENSIONS ARE IN MILLIMETRES

STANDARD

		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	NAME	SIGN	DATE	NO.OF VAR
				CHD	ENG.G.ENTERPRISES	Sd	15.10.1986	
				APPD	R.ANANTH	Sd	15.10.1986	
DEPT	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS
CODE	C / M / F		N.T.S	-	-		-	
TITLE				CARD CODE	DRAWING NO.			REV
TOLERANCES ON FITTINGS				U 01	4-80-301-26192			01

BHARAT HEAVY ELECTRICALS LIMITED

PIPING CENTRE, PURCHASE

BHEL / CHENNAI – 600 017

THIRD PARTY NON-DISCLOSURE AGREEMENT

I, _____, on behalf of the _____ (Name of Company), acknowledge that the information received or generated, directly or indirectly, while working with BHEL, Piping Centre, Chennai on contract is confidential and that the nature of the business of the BHEL, Piping Centre, Chennai is such that the following conditions are reasonable, and therefore:

I warrant and agree as follows:

I, or any other personnel employed or engaged by our company, agree not to disclose, directly or indirectly, any information related to the BHEL, Piping Centre, Chennai Without restricting the generality of the foregoing, it is agreed that we will not disclose such information consisting but not necessarily limited to:

- Technical information: Methods, drawings, processes, formulae, compositions, systems, techniques, inventions, computer programs/data/configuration and research projects.
- Business information: Customer lists, project schedules, pricing data, estimates, financial or marketing data.

On conclusion of contract, I, or any other personnel employed or engaged by our company shall return to BHEL, Piping Centre, Chennai all documents and property of BHEL, Piping Centre, Chennai, including: drawings, blueprints, reports, manuals, computer programs/data/configuration, and all other materials and all copies thereof relating in any way to BHEL, Piping Centre, Chennai's business, or in any way obtained by me during the course of contract. I further agree that I, or any others employed or engaged by our company shall not retain copies, notes or abstracts of the foregoing.

This obligation of confidence shall continue after the conclusion of the contract also.

I acknowledge that the aforesaid restrictions are necessary and fundamental to the business of the BHEL, Piping Centre, Chennai and are reasonable given the nature of the business carried on by the BHEL, Piping Centre, Chennai I agree that this agreement shall be governed by and construed in accordance with the laws of country.

I enter into this agreement totally voluntarily, with full knowledge of its meaning, and without duress.

Dated at _____, this ____ day of _____, 20__.

Name

Company

Signature



**BHARAT HEAVY
ELECTRICALS LIMITED**
PIPING CENTRE, MADRAS - 17
QUALITY ASSURANCE & CONTROL DEPT.

STANDARD QUALITY ASSURANCE PLAN FOR BUTT WELDED FITTINGS CONFORMING TO ASME SA 234

QP NO : QPG: 46

REV.NO : 01

DATE : 13-10-2015

REF: BHEL TDC No. : TDG:102 (latest revision)

SL . NO.	COMPONENT OR OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	TYPE OF RECORD		AGENCY		REMARKS
									D*	M	B	
1	2	3	4	5	6	7	8	9	10	11	12	15
1.0	Raw material sources for P91 shall be as per QCP:19(Latest Revision); Any other source proposed by the vendor shall be subjected to BHEL approval.. The Test Certificate for all material specifications received from RM manufacturer shall meet IBR requirements.											
1.1	Seamless Pipe	Chemical Composition, Mechanical Properties & HT/UT	Major	Verification of MTC & Ladle Analysis Report	100%	As per Required Material (ASME) Specification	MTC	X	P	V/R	Refer Note:1 MTC - Mill Test Certificate	
1.2		Surface defect	Major	Visual	100%	As per Required Material (ASME) Specification	Report	X	P	V		
1.3		Dimensions Outer Dia.,Thk.etc	Major	Measurement	100%	As per Spec	Report	X	P	V		
1.4		Pipe Check (chemical)	Major	PMI	100%	As per Required Material (ASME) Specification	Report	X	P	R/W*	*For 1st off trial at random	
1.5		Hardness Test for P91 material	Major	Measurement	100%	As per Spec	Report	X	P	R/W*		
1.6	Plates	Co-relation & verification of Mill TCs for										
1.7		a) Chemical Composition & b) Mechanical Properties	Major	Verify	100%	BHEL Drawing , Material Spec.	Mill TCs	X	P	V		
1.8		c) Soundness	Major	UT	100%	SA578						
1.9		d) Dimension & Surface finish	Major	Measurement & Visual	100%	BHEL Drawing , Material Spec.						



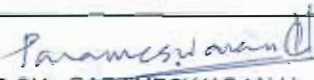
LEGEND: M:- Manufacturer; B:- BHEL/ BHEL Nominated Agency;
D* - Documents required if marked "X"

P - Perform; V - Verification; R-Review; W - Witness; H - Hold.

PREPARED & REVIEWED BY: VIVEKANANDA YELLU

APPROVED BY: PARAMESWARAN.H

PAGE : 1 of 5

 BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE, MADRAS - 17 QUALITY ASSURANCE & CONTROL DEPT.		STANDARD QUALITY ASSURANCE PLAN FOR BUTT WELDED FITTINGS CONFORMING TO ASME SA 234							QP NO : QPG: 46 REV.NO : 01 DATE : 13-10-2015						
REF: BHEL TDC No. : TDG:102 (latest revision)															
SL. NO.	COMPONENT OR OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	TYPE OF RECORD		AGENCY			REMARKS		
									D*	M	B				
1	2	3	4	5	6	7	8	9	10	11	12	15			
2.0	IN PROCESS INSPECTION														
2.1	Fitting Forming Procedure	procedure qualification	Major	Review	100%	ASME SA 234 & BHEL TDG:102 Refer Note : 5	Appd. Procedure	X	P	V	Forming Procedure shall be approved by BHEL.				
2.2	MT Procedure	Procedure Review	Major	Review	100%	ASME SA 234 & BHEL TDG:102	Appd. Procedure	X	P	V	MT - Magnetic Particle Test				
2.3	UT Procedure	Procedure Review	Major	Review	100%	ASME SA 234 & BHEL TDG:102	Appd. Procedure	X	P	V	UT - Ultrasonic Test				
2.4	RT Procedure	Procedure Review	Major	Review	100%	ASME SA 234 & BHEL TDG:102	Appd. Procedure	X	P	V	RT - Radiography Test				
2.5	Forming of pipe fittings	Process parameters	Major	Temperature, Measurement & Visual	100%	ASME SA 234 & Appd.Procedure	Internal report	X	P	---					
2.6	Heat Treatment	Rate of Heating, Rate of Cooling & Soaking time	Critical	Temp & Time graph	100%	ASME SA 234 & BHEL TDG:102 Refer Note : 2	HT Chart	X	P	V/ W*	W* : For 1st off trial at random				
2.7	Test Piece Marking (TPM)	Selection of Test coupons	Major	Measurement & Marking	One Sample / Heat / Size / HT Batch	As per ASTM A370	Internal report	X	P	V/ W*					
3.0	TESTS														
3.1	Finished product	YS, UTS, % Elongation (Mandatory)	Major	Tensile Strength,	One Sample / Heat / Size / HT Batch	ASME SA 234 & BHEL TDG:102	Test Report	X	P	V					
3.2		Hardness	Major	Hardness test	100% / 10%	ASME SA 234 & BHEL TDG:102	Test Report	X	P	W	100% for WP91 ; 10% for others				
LEGEND: M:- Manufacturer; B:- BHEL/ BHEL Nominated Agency; P - Perform; V - Verification; R-Review; W - Witness; H - Hold. D* - Documents required if marked "X"															
PREPARED & REVIEWED BY: VIVEKANANDA YELLU 										APPROVED BY: PARAMESWARAN.H 				PAGE : 2 of 5	



**BHARAT HEAVY
ELECTRICALS LIMITED**
PIPING CENTRE, MADRAS - 17
QUALITY ASSURANCE & CONTROL DEPT.

STANDARD QUALITY ASSURANCE PLAN FOR BUTT WELDED FITTINGS CONFORMING TO ASME SA 234

QP NO : QPG: 46

REV.NO : 01

DATE : 13-10-2015

REF: BHEL TDC No. : TDG:102 (latest revision)

SL. NO.	COMPONENT OR OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	TYPE OF RECORD		AGENCY		REMARKS
									D*	M	B	
1	2	3	4	5	6	7	8	9	10	11	12	15
3.3		Volumetric Defect	Major	NDE - UT	100% / 10%	ASTM E213 - longitudinal notch of 5% - For Pipe Fittings		Test Report	X	P	W	100% for WP91 ; 10% for others
3.4		Sub-surface Defect	Critical	NDE - MT	100% / 10%	ASTM E709	ASME B31.1 Cl. 136.4.3	Test Report	X	P	W	100% for WP91 ; 10% for others
3.5		Volumetric Defect - Welded Fittings	Major	NDE - RT	100%	ASME SEC-V & ASME SecVIII Div-1, UW-51		Test Report	X	P	W	
3.6		Microstructure (Applicable for WP 91 Fittings)	Major	Metallographic test	One Sample / Heat / Size/ HT Batch	No micro fissures. Microstructure shall show tempered martensite. Grain growth if any has to be examined further.		Test Report (Magnification at 500x) Refer Note :9	X	P	W	Actual magnification shall be indicated in the photomicrograph. Photomicrographs shall be provided as records for review & acceptance and future in-service reference.
3.7	Supplementary tests as per TDC on Finished Product	Product Analysis	Major	Chemical Composition	One Sample / Heat / Size	ASME SA 234 & BHEL TDG:102		Test Report	X	P	V/ W*	
		YS, UTS, % Elongation	Major	Tensile Strength,	One Sample / Heat / Size/ HT Batch	ASME SA 234 & BHEL TDG:102		Test Report	X	P	V/ W*	
3.8	PMI for AS fittings	Chemical	Major	PMI	100%	ASME SA 234 & BHEL TDG:102		Test Report	X	P	W	

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PREPARED & REVIEWED BY: VIVEKANANDA YELLU

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PAGE : 3 of 5



**BHARAT HEAVY
ELECTRICALS LIMITED**
PIPING CENTRE, MADRAS - 17
QUALITY ASSURANCE & CONTROL DEPT.

STANDARD QUALITY ASSURANCE PLAN FOR BUTT WELDED FITTINGS CONFORMING TO ASME SA 234

QP NO : QPG: 46
REV.NO : 01
DATE : 13-10-2015

REF: BHEL TDC No. : TDG:102 (latest revision)

SL . NO.	COMPONENT OR OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	TYPE OF RECORD		AGENCY			REMARKS
										D*	M	B	
1	2	3	4	5	6	7	8	9	10	11	12	15	
3.9	Burst Test	Performance & Design Proof	Critical	Hydro Test	One / Type (on similar Fitting ^s)	ASME B 16.9 & ASME SA 234 Refer Note : 3		Test Report	X	P	R /W#	\$ - As allowed in relevant standard # - WITNESS -If size is not qualified as per Burst Test Report available.	
4.0	FINAL INSPECTION												
4.1		Surface check, Bend angle, Radius, End-to-end dimn, Ovality, Thickness, Wrinkles, d1 at ends, Edge preparation & other dimensions as per Drg.	Major	Visual & Measurement	100%	ASME B16.9, BHEL Drg.. & P.O.		Report	X	P	W	Refer Note : 12	
4.2		IBR Certification	Major	all tests as per IBR	100%	IBR		FORM-IIIC	X	P	IBR		
4.3		Marking / Color coding	Critical	Visual	100%	BHEL TDG:102 & P.O.		Report	X	P	V	Refer Note : 17	
4.4		Surface Protection, Preservation & Packing	Critical	Visual	100%	BHEL TDG:102 & P.O.		Report	X	P	V	Refer Note : 13 & 16	
5.0	Inspection clearance	Documentation	Critical	Verification	100%	All reports as required in this QAP		Report	X	P	H		
NOTES :-													

NOTES :-

- 1.0 (a) If the raw materials are received directly from RM Manufacturer's works, the material shall be accepted based on (i) correlation of Heat number on material with TC and (ii) verification of TCs.
(b) If the materials are received through Dealers place, check test (Chemical and Mechanical tests on one sample per Heat/ size) shall be done in addition to the above for accepting the material

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PREPARED & REVIEWED BY: VIVEKANANDA YELLU

APPROVED BY: PARAMESWARAN.H

PAGE : 4 of 5



**STANDARD QUALITY ASSURANCE PLAN FOR BUTT WELDED FITTINGS
CONFORMING TO ASME SA 234**

QP NO : QPG: 46

REV.NO : 01

DATE : 13-10-2015

REF: BHEL TDC No. : TDG:102 (latest revision)

SL. NO.	COMPONENT OR OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	TYPE OF RECORD		AGENCY			REMARKS
									D*	M	B		
1	2	3	4	5	6	7	8	9	10	11	12	15	
2.0	POST FORMING HEAT TREATMENT :- For P91 materials : Normalise at 1040 - 1060 deg.C & Temper at 750-770 deg.C; Soaking shall be 2Hrs minimum for thickness upto 50mm and 4Hrs minimum for thickness 51-100mm Normalising and Tempering shall be carried out within 72 hours after completion of forming. The items shall be kept dry and stress free. The temperature shall be brought down to room temperature after hot forming before normalizing and also after normalizing before tempering. Normalising and tempering of Gr91 shall be done encompassing the entire component. SA234 WPB : As per Specn; SA105 & SA234WPC : Normalised; SA234 WP11/WP12/WP22 : Normalised & Tempered.												
3.0	BURST TEST (Type test) : Burst test procedure shall be submitted by the vendor to BHEL for approval. Burst test will be witnessed by BHEL. After successful completion of the burst test regular production may be permitted.												
4.0	Seal transfer on pieces to be cut shall be done by BHEL inspector & IBR for Gr-91 materials and IBR for other than Gr-91 materials.												
5.0	Welded Fittings shall be made from Two - Halves.												
6.0	Chemical & Mechanical tests shall be performed at in-house or NABL approved laboratories.												
7.0	Welding consumables shall be approved by BHEL.												
8.0	All NDE procedures shall be submitted to BHEL for review. NDE procedures shall have Level-III certified personnel approval incase of in-house. Incase of non-availability of inhouse facility NDE shall be performed by NABL approved laboratories.												
9.0	Items shall be visually checked. No hard scales shall be present on inside & outside surfaces.												
10.0	Gas cutting & Plasma cutting are prohibited for Gr91 material.												
11.0	3 replicas in one fitting. 1 replica for the size Nb 80 & below. Actual magnification shall be indicated in the photomicrograph. Photomicrographs shall be provided as records for review & acceptance and future in-service reference.												
12.0	Minimum thickness measured at any location on the finished fitting shall be not less than 0.875 of the specified nominal thickness.												
13.0	All fittings shall be Painted as below when not specified in the P.O./Drawing:- Three coats of 20 microns each of total DFT 60 microns minimum of Heat Resistance Aluminium Paint to IS 13183 Gr II, after surface preparation by Blast cleaning (SSPC-SP10).												
14.0	All items shall be inspected and cleared by BHEL / BHEL authorised Inspection agency & IBR authorities.												
15.0	Necessary IBR Requirements shall be fulfilled and IBR documents to be submitted.												
16.0	Machined ends shall be well protected using end caps and suitably packed to avoid transit & other damages. Tack welding is prohibited on P91 material.												
17.0	Marking :- a) Items dispatched to Stores : The finished components shall be punched & paint stencilled with Material code, Heat number, material specification, maker's emblem, Inspectors seal and Statutory authorities seal (as applicable) b) DTS (Direct to Project Site) Items :- DTS shall be hard punched and paint stencilled with DU code (14 digit work order du detail) as given by purchase in addition to marking done as per 15 (a). Colour coding : Red for WPB ; Blue for WPC ; Blue & Red for WP22; Brown & Red for WP91.												
18.0	If the thickness of the fitting is less than 6 mm, punching is not permitted and the above details shall be paint stencilled. Fittings of size up to 2" (50mm) shall be tied together and the above details shall be punched / engraved in a separate tag and tied to it.												

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PREPARED & REVIEWED BY: VIVEKANANDA YELLU

APPROVED BY: PARAMESWARAN.H

PAGE : 5 of 5



1.0 SCOPE: -

The fittings shall meet Indian Boiler Regulations (IBR), unless otherwise specified, and the following requirements in addition to the standards specified in the Purchase Order (PO).

2.0 RAW MATERIALS: -

- All fittings shall be of seamless construction unless otherwise specified in the purchase order. Pipes used for manufacturing of seamless fittings shall be seamless pipes or forgings only.
- All pipes used for fittings shall meet the respective specification. The test certificate shall be furnished with Traceability
- For Gr-91 Pipes:** Shall be procured from the Mills listed in document ref.QCP:19(latest revision). For pipe sources not listed in QCP:19, credentials shall be submitted by the vendor along with offer for BHEL review and approval. Indigenous vendors shall procure the raw material for Alloy Steel other than SA 335 P91 from IBR approved "creep resistance steel makers".
- Raw material Steel for IBR forging items to be inspected at Mill & test certificate countersigned by IBR approved Authority, if the mill is not approved under IBR as well-known steel maker.
- For Gr-91 Forgings:** The raw material shall be procured from the Mills listed in document ref.QCP:18(latest revision). For raw material sources not listed in QCP:18, credentials shall be submitted by the vendor along with offer for BHEL review and approval. Indigenous vendors shall procure the raw material for Alloy Steel other than SA182 F91 from IBR approved sources.

3.0 MANUFACTURING & TESTING REQUIREMENTS:

3.1 MANUFACTURING PROCESS :

(i) Seamless Fittings:-

A) Tees & Reducers : Upto 80mm thickness : Formed Type.

Above 80mm thickness Formed or Forged type.

B) Elbows : Formed type for all thickness

(ii) **Welded Fittings:-** Supplied only if indicated in P.O and shall be of **Two-Half construction**.

3.2 Machined Fittings (Max size permitted 4"- directly from bar) – Reducers, Couplings & End Caps : Fittings machined from Castings are **prohibited**.

Starting material	Heat treatment	CS – Normalised AS – Normalised & Tempered SS & Duplex SS (UNS32205) – Solution Annealed
Rolled or Forged Bars (Killed Steel)	NDE – UT	To be done after Heat treatment. For size above 40mm – to be done as per ASTM A 388 Acceptance to - ASME Sec.VIII Div.2 Cl.3.3.4. Actual measured notch depth to be specified in Test Certificate.
Finished fitting (after machining)	Heat treatment	Not required
	NDE (for all sizes)	<ul style="list-style-type: none"> MT (100%) - Procedure - As per ASTM E709. No linear indications are acceptable (Linear Indication : Length \geq 3XWidth) For WP91 Wet MPI shall be done LPI – SS & Duplex SS (UNS32205): Shall be done as per ASTM E165. No linear indications are acceptable.
	Hardness	Base material Hardness for. WPB, WPC, WP11, WP12, WP22 – 197 HBW max. WP91 - 190-250 HBW – 100% to be checked Duplex SS (UNS32205) – 300BHN max
	Dimension	ASME B16.9 or as per Engineering Drawing indicated in Purchase Order.
	Bend Test (for IBR items)	Specimen: 19mm. Thickness (t) x 25.4mm width - cold bent 180 deg. over thin section without fracture, mandrel radius: CS : \leq 6.35 mm. AS, SS : \leq 1.5 times specimen thick.

Vivekananda Yellu / QA	Rajitha K / MM	C. Karunakaran / Engg	Madhavankutty.A.P / Quality
Prepared by	Reviewed by		Approved by



3.3 Seamless Formed Fittings – Ells, Tees, Reducers, Dished end (End cover / Cap)

Starting material:	Heat treatment shall be as per starting material specification	CS – Normalised AS – Normalised & Tempered SS & Duplex SS (UNS32205) – Solution Annealed																																
1)Tube & Pipe	NDE – UT	UT shall be done as per - ASTM E 213 with longitudinal notch of 5% wall thickness with max.1.5mm and min. 0.3mm. Actual measured notch depth to be specified in Test Certificate.																																
2) Forged blank (For End covers)	NDE – UT	For size above 40mm UT shall be done as per - ASTM A 388 In acceptance to - ASME Sec.VIII Div.2 Cl.3.3.4. Actual measured notch depth to be specified in Test Certificate.																																
3) Plate	NDE – UT	For size above 10mm SA 578, Acceptance Level – B. Actual measured notch depth to be specified in Test Certificate.																																
Finished fitting (cold/hot forming)	Heat treatment after forming	Shall be done as per SA234 and follow below table for heat treatment values. <table><tr><td rowspan="2">Material</td><td colspan="2">Heat Treatment Temp,°C</td><td colspan="2">Soaking time, hr/in</td></tr><tr><td>Normalising</td><td>Tempering</td><td>Normalising</td><td>Tempering</td></tr><tr><td>CS- WPB & WPC</td><td>870-900</td><td>-</td><td>1/2</td><td>-</td></tr><tr><td>AS-WP11 & WP12</td><td>920-960</td><td>640-670</td><td>1/2</td><td>1</td></tr><tr><td>AS-WP22</td><td>920-960</td><td>680-710</td><td>1/2</td><td>1</td></tr><tr><td>AS- WP91</td><td>1040-1080</td><td>760-780</td><td>1/2</td><td>1</td></tr></table> Stainless Steel - All grades & Duplex SS (UNS32205): - Solution Annealed: 1050-1100 Deg C Soaking time : ½ hr per inch with minimum 15 minutes Note: Normalising shall be done for a minimum time of 30 min while tempering to be done for a minimum time of 60min for all materials except SS & Duplex SS (UNS32205).				Material	Heat Treatment Temp,°C		Soaking time, hr/in		Normalising	Tempering	Normalising	Tempering	CS- WPB & WPC	870-900	-	1/2	-	AS-WP11 & WP12	920-960	640-670	1/2	1	AS-WP22	920-960	680-710	1/2	1	AS- WP91	1040-1080	760-780	1/2	1
	Material	Heat Treatment Temp,°C		Soaking time, hr/in																														
		Normalising	Tempering	Normalising	Tempering																													
	CS- WPB & WPC	870-900	-	1/2	-																													
	AS-WP11 & WP12	920-960	640-670	1/2	1																													
	AS-WP22	920-960	680-710	1/2	1																													
	AS- WP91	1040-1080	760-780	1/2	1																													
	NDE (for all sizes) – Except for Plate formed Dished end	• MT (100%) - Shall be as per - ASTM E709 No linear indications are acceptable. For WP91 Wet MPI shall be done. • LPI – SS & Duplex SS (UNS32205): Shall be done as per ASTM E165. No linear indications are acceptable.																																
NDE–for Plate formed Dished end	For Plate Formed Dished end – 100% MT as per - ASTM E709 on both inner and outer surfaces of Knuckle radius and weld ends. No linear indications are acceptable. UT shall be as per A578 Level-B. Actual measured notch depth to be specified in Test Certificate.																																	
NDE – UT For OD >= 200mm or W.T >= 6mm	If made from Pipe & Tube – Shall be done as per - ASTM E 213 with longitudinal notch of 5% wall thickness with max.1.5mm and min. 0.3mm. Actual measured notch depth to be specified in Test Certificate. If made from Forging - Shall be as per - ASTM A 388 In acceptance to - ASME Sec.VIII Div.2 Cl.3.3.4. Actual measured notch depth to be specified in Test Certificate.																																	
Hardness	Base material Hardness for WPB, WPC, WP11, WP12, WP22 – 197 HBW max. WP91 - 191-250 HBW – 100% to be checked Duplex SS (UNS32205) – 300HBW max																																	
Dimension	ASME B16.9, As per Engineering drawing indicated in Purchase Order. The ends of reducers shall have a straight portion of Minimum 13mm.																																	
Bend Test (if starting material is forged blank) (for IBR items)	Specimen: 25.4 mm x 19 mm thick - cold bent 180 deg. over thin section without fracture, internal radius of bend: CS :<=6.35 mm. AS, SS: <=1.5 times specimen thick.																																	

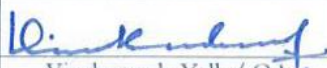
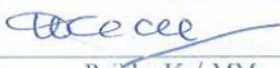

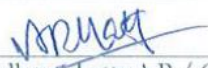
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3.4 Forged Fittings –Tees, Reducers, Couplings, Flanges & Dished End (End cover/Cap)

Shall be forged to the shape with a minimum forge reduction ratio of 1:4. Fitting shall not be machined from a forged block.

Starting material: Rolled or Forged Bars, Blooms, Billets (Killed steel)	Heat treatment shall be as per starting material specification	CS – Normalised AS – Normalised & Tempered SS & Duplex SS (UNS32205) – Solution Annealed				
	NDE – UT	To be done for diameter or thickness above 40mm Procedure - As per ASTM A388 In acceptance to - ASME Sec.VIII Div.2 Cl.3.3.4. Actual measured notch depth to be specified in Test Certificate.				
Finished fitting	Heat treatment After forging (cold/hot forging)	Shall be done as per SA234 and follow below table for heat treatment values.				
		Material	Heat Treatment Temp,°C		Soaking time, hr/in	
			Normalizing	Tempering	Normalizing	Tempering
		CS- WPB & WPC	870-900	-	1/2	-
		AS–WP11 & WP12	920-960	640-670	1/2	1
		AS–WP22	920-960	680-710	1/2	1
	AS- WP91	1040-1080	760-780	1/2	1	
	Stainless Steel - All grades & Duplex SS (UNS32205): - Solution Annealed: 1050-1100 Deg C Soaking time : ½ hr per inch with minimum 15 minutes Note: Normalising shall be done for a minimum time of 30 min while tempering to be done for a minimum time of 60min for all materials except SS & Duplex SS (UNS32205).					
	NDE – UT For OD >= 200mm or W.T >= 6mm	UT shall be done as per - ASTM A388 In Acceptance to - ASME Sec.VIII Div.2 Cl.3.3.4. Actual measured notch depth to be specified in Test Certificate.				
	NDE (for all sizes)	MT- (100%) Shall be done as per ASTM E709. No linear indications are acceptable. For WP91 Wet MPI shall be done. LPI – SS & Duplex SS (UNS32205): Shall be done as per ASTM E165. No linear indications are acceptable.				
Hardness	WPB, WPC, WP11, WP12, WP22 – 197 BHN max. WP91 - 191-250 BHN – 100% to be checked Duplex SS (UNS32205) – 300BHN max					
Dimension	ASME B16.9 or ASME B16.5 or as per Engineering drawing indicated in Purchase order.					
Bend Test (for IBR items)	Specimen: 19mm. Thickness (t) x 25.4mm width - cold bent 180 deg. over thin section without fracture, mandrel radius: CS :<=6.35 mm. AS, SS : <=1.5 times specimen thick.					

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3.5 Welded Fittings– Ells, Tees, Reducers (Two-Half construction):

Pipe made from plate and long seam welded shall not be used as a starting material.

Starting material: Plate	NDE – UT	For thickness above 10mm SA 578, Acceptance Level – B.				
Finished fitting	Heat Treatment After forming	Shall be done as per SA234 and follow below table for heat treatment values.				
		Material	Heat Treatment Temp,°C		Soaking time, hr/in	
			Normalizing	Tempering	Normalizing	Tempering
		CS- WPBW & WPCW	870-900	-	1/2	-
		AS–WP11W & WP12W	920-960	640-670	1/2	1
		AS–WP22W	920-960	680-710	1/2	1
		AS- WP91W	1040-1080	760-780	1/2	1
	Stainless Steel - All grades & Duplex SS (UNS32205): - Solution Annealed: 1050-1100 Deg C Soaking time : ½ hr per inch with minimum 15 minutes					
	Post Weld Heat Treatment (PWHT)	PWHT shall be done as indicated below.				
		Material	Heat Treatment Temp,°C		Soaking time	
CS- WPB-W & WPC-W If weld thk>19mm			595-635		2.5min per mm of weld thk; Minimum 30minutes.	
AS–WP11-W&WP12-W		650-680		2.5min per mm of weld thk; Minimum 60minutes.		
AS–WP22-W		690-710				
AS- WP91-W		760-780				
NDE (for all sizes)	• MT (100%)- Procedure - As per ASTM E709. No linear indications are acceptable For WP91 Wet MPI shall be done • LPI – SS & Duplex SS (UNS32205) : Shall be done as per ASTM E165. No linear indications are acceptable.					
NDE – for Weld	• RT (100%)- Acceptance norm shall be UW 51 of ASME Sec VIII DIV-1.					
Hardness	Base material Hardness for WPB, WPC, WP11, WP12, WP22 – 197 BHN max. WP91 - 191-250 BHN – 100% to be checked Duplex SS (UNS32205) – 300BHN max Weld Hardness WP91 - 300 BHN max. – 100% to be checked					
Dimension	ASME B16.9 or as per Engineering drawing indicated in Purchase order.					
Bend Test (for IBR items)	Specimen: 19mm. Thickness (t) x 25.4mm width - cold bent 180 deg. over thin section without fracture, mandrel radius: CS :<=6.35 mm. AS, SS : <=1.5 times specimen thick.					

4.0 GENERAL REQUIREMENTS:

- Carbon < or = 0.25% for WPB (all thickness) and WPC (thickness < or = 20mm)
- Carbon < or = 0.30% for WPC (thickness > 20mm)
- If UT not done on the starting material, the same shall be done by the fitting manufactures before forming / fabrication.**

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- d) **Mechanical Testing** –Test samples shall be tested in the Heat treatment of fitting delivered condition.
1. **Tensile Test**:- One sample of each specification, heat, heat treatment lot and size shall be subjected to Tension Test as per applicable standard.
 2. The following **supplementary tests** shall be carried out for specifications namely SA 234 WPC / WP11 / WP12 / WP22 / WP91 (No supplementary test applicable for SA 234 WPB)
 - i) Product analysis – one / heat / size.
 - ii) Tension test – one / heat / heat treatment lot / size
- e) **Photomicrograph test for WP91**:- Photomicrograph test shall be carried out on one per heat, per size. Acceptance norms - The Material shall be free from any micro fissures. Microstructure shall show tempered martensite and also to be examined for any grain growth. Photomicrograph with 500x (Min) magnification along with Photomicrograph report to be provided. The actual magnification shall be indicated.
- f) In case of welded fittings, WPS, PQR & welder qualification shall be approved by BHEL, prior to start of welding.
- g) Unless otherwise specified in the P.O SA 234 WP 11/12/22 fittings shall be supplied as per class1.
- h) **Stainless Steel (SS) & Duplex SS (UNS32205)** : Finished fittings shall be checked for radioactive contamination and reported. Survey meter shall be used to measure at 5cm near the surface. Acceptance limits: Shall be less than 0.1 milli Rontgen (MR) per hr or 1 micro Sievert per hr.

5.0 POSITIVE MATERIAL IDENTIFICATION (PMI) FOR ALLOY STEEL FITTINGS.

Each alloy steel fitting shall be checked for the correctness of the material during manufacturing and final inspection using X-ray fluorescence principle or spark emission spectrography.

6.0 WORKMANSHIP, FINISH AND REPAIR

All items shall have smooth, workman like finish, and to be free from scale & defects like laps, seams, folds, cracks, etc. Pickled & Passivated as per ASTM A380 for SS items & Duplex SS (UNS32205). Surface defects can be removed by mechanical means and defective areas smoothly dressed up with the adjacent surface. Minimum dimension after repair shall meet drawing / Specification. Repairs by fusion welding are prohibited.

Flatness on curved surfaces of fittings shall be limited to 6% of nominal OD.

Thickness: Outer Diameter & Transition: Variation shall be merged smooth to min 1:4 taper.

7.0 PAINTING, COLOUR CODING & MARKING

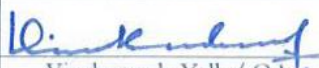
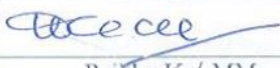

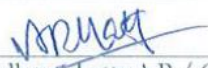
- 7.1 **PAINTING**: All fittings (except stainless steel and galvanized) shall be **painted** on the external surface as given below (unless otherwise specified): -
- a) **Surface preparation**: Blast cleaning
 - b) **Primer coat**: One coat of 60 microns of In-Organic Ethyl Zinc Silicate primer.
 - c) **Finish coat**: Two coats of 20 microns each of Heat Resistance Aluminium paint to IS13183 Gr-1.
 - d) **Total DFT**: 100 microns minimum.
 - e) **Shade**: Aluminium -- for all fittings.

The internal surface shall be protected with rust preventive coating or rust inhibitor.

Stainless steel and Duplex SS (UNS32205) fittings need not be painted.

- 7.2 **COLOUR CODING**: All fittings shall be colour coded circumferentially at all ends as given below:

Material Specification	Colour Code
WPB	Red
WPC	Blue
WP11	Green & White

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SA 234	WP12	Black & Red
	WP22	Blue & Red
	WP91	Brown & Red
SA 403	WP304	Blue & Yellow
	WP304H	Black, Blue & Yellow
	WP316	Black & Green
	WP316L	Blue, Brown & Yellow
	WP321	Blue & Brown
	WP347	Yellow & Black
SA815 (Duplex Stainless Steel)		Red, White & Green

7.3 MARKING (In English only):

7.3.1 The fittings dispatched to **BHEL Stores** shall be hard punched / etched with Material code, Heat number, material specification, maker's emblem, Inspectors seal, Running Serial number for the P.O. quantity and Statutory authorities seal as applicable.

In addition, the above details along with size shall be paint stencilled on the fittings. If the thickness of the fitting is less than 6 mm, punching is not permitted and the above details shall be paint stencilled. Fittings of size up to 2" (50mm) shall be tied together and the above details shall be punched / engraved in a separate tag and tied to it.

7.3.2 In case of fittings dispatched directly to project site as **DTS**, material code shall be replaced with DU code (14-digit work order du detail) as given by purchase during DTS advice. All other details shall be hard punched & stencilled as indicated in Para 7.3.1.

Sample format for Punching & Stencilling is given below.

Vendor code & Name	:	<div>Makers Emblem Insp. Authority Stamp</div>
Material code / DU details :	:	
Melt No.	:	
Material Specification	:	
Qty.	:	
Serial No	: (Example : 1,2,3,.....& 25)	
Weight.	:	

8.0 PACKING AND END PROTECTION:

Machined ends of the fittings shall be well Protected using end caps and fittings shall be suitably packed in box / crate as per the Packaging procedure PC: PKG: 01 to avoid transit & other damages.

9.0 INSPECTION & CERTIFICATION (In English only): -

9.1 All fittings are to be Inspected at the manufacturer's works by the Inspection agencies / authorities as per IBR and as indicated in the P.O. Inspection certificate in IBR Form III C & Form III-I for Dished Ends shall be submitted along with the Work Test Certificate countersigned by the above authorities and shall include the following (Three ink signed originals required).

1. Test Certificate Number & date.
2. BHEL P.O Number & Amendment Number
3. BHEL P.O. Serial Number
4. BHEL TDC Number
5. Size-wise Quantity
6. Specification, Grade & Year of code.

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7. Heat/Melt Number
8. Starting material details with traceability.
9. Steel making process
10. Ladle Analysis of Raw Material and product analysis of fitting.
- *11. Supplementary Test (Product analysis, Tension test.) results.
12. Tensile Test Report
- *13. Guarantee of HTP shall be given as follows:- "Fittings are capable of withstanding without failure, leakage or impairment of their serviceability a hydrostatic test pressure equal to that prescribed for the specified matching pipe of equivalent material".

*Details furnished in the Tests certificate in lieu of chart/report is acceptable.

9.2 The following reports shall be **furnished separately** along with the IBR Forms & MTC indicated in para 9.1 above.

- i. NDE reports for MT, RT, UT (UT Reports in soft copy + hard copy). Actual measured UT-notch depth to be specified in Test Certificate.
- ii. Positive Material identification (PMI) report for Alloy steel.
- iii. Heat Treatment Chart.
- iv. Hardness Test report.
- v. Photomicrograph test report along with photomicrograph with minimum 500x magnifications.
- vi. Dimensional report (as built drawing with dimensions)
- vii. Thickness Measurement Report for Elbows & Tees as per Doc No : TDG102:001 & TDG102:002

9.3 For CE marking items if indicated in P.O. the TCs with details specified above shall be submitted as per EN-10204 (Latest).

- i. For pressure parts test certificates of type 3.1 or 3.2 is acceptable.
Type 3.1 – Suppliers shall have ISO 9001-2008/2015 (with validity as applicable) certification certified by Notified Body recognized by European Community and test certificate certified by suppliers authorized inspection representative.
Type 3.2 – Components inspected and test certificates certified by both the supplier's authorized inspection representative and Notified Body recognized by European Community.
- ii. For non-pressure parts test certificates of type 2.2 is acceptable.
Type 2.2 – Suppliers test certificates certified by the supplier's authorized inspection representative with test results as required by this TDG.

10.0 AUDIT CHECKS AT BHEL

BHEL reserves the right to carry out audit checks for Chemistry, HT condition, Mechanical test and NDT on fittings.

Supplies found defective during check at BHEL are liable for rejection.

11.0 RECORDS OF REVISION:-

Rev 01 : a) Fully revised for better clarity.

b) Para 2.0 (e) added.

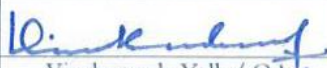
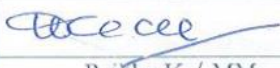

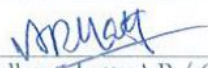
Rev 02 : a) Para 2.0 (c): UT acceptance norms revised from level A to B.

Rev 03 : a) Fully revised for better clarity.

b) Para 4.2, 6.0, 8.0 (11) added.

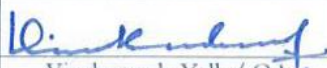
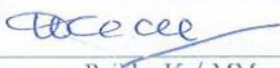

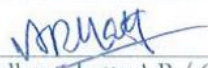
c) Para 2 (d), 4.1, 5 (d) are revised.

Rev 04 : a) Para 5.0 (g), 7.0 and 8.0 (17) are revised.

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- Rev 05 :** a) New material specification SA 815 Duplex Stainless Steel included.
b) Para 4.1, 4.2, 5.0 (d), 7.1 & 7.2 are revised.
c) 5.0 (a), (b), (c), (e), (f), (g), 7.3.1 & 7.3.2 are modified for better clarity.
- Rev 06 :** a) Para 8.2 added.
b) Para 5.0(d), 5.0(g), 7.1, & 8.1 are revised.
c) Para 1.0 & 7.2 are modified.
- Rev 07 :** Para 8.2 - vii added.
- Rev 08 :** a) Title revised for better clarity
b) Para 1.0,2.0(a),5.0(c),8.4,9.1(8) & 9.2(vi) are revised.
c) From Para 3.0(f),4.2,5.0(d),(f),(g),7.2 forging spec removed
d) Para 2.0(c),(f),3.0(a),7.0 & 10.0 added
e) Para 3.0(e) deleted
f) Document no.TDG102:002 Rev.00 added.
- Rev 09 :** Fully revised for better clarity

 Vivekananda Yellu/ QA	 Rajitha K / MM	 C. Karunakaran / Engg	 Madhavankutty.A.P / Quality
Prepared by	Reviewed by		Approved by



THICKNESS MEASUREMENT REPORT FOR ELBOW

Doc No: TDG102:001 Rev.00

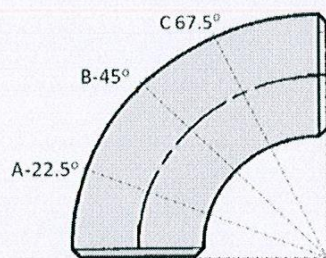
Date: 03.02.2014

PO Number:

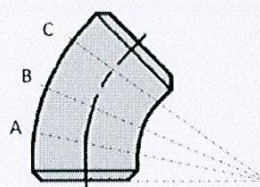
Work order/Du:

Heat no:

Size:



90° Elbow



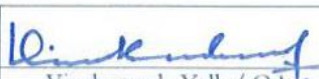
Less than 90°

Measurement (Extrados) points

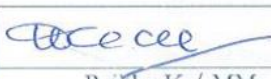
Angle	A	B	C
90	22.50°	45.00°	67.50°
60	15.00°	30.00°	45.00°
45	11.25°	22.50°	33.75°
30	NA	15.00°	NA

Description of item :
Material Spec :
Material Code :


No	Wall thickness at ends		Wall Thickness at angle			Remarks
	End 1	End 2	A	B	C	
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

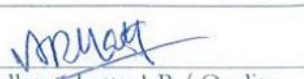

Vivekananda Yellu/ QA

Prepared by


Rajitha K / MM

Reviewed by


C. Karunakaran / Engg


Madhavankutty.A.P / Quality

Approved by



THICKNESS MEASUREMENT REPORT FOR TEE's

Doc No: TDG102:002 Rev.00

Date: 20.06.2015

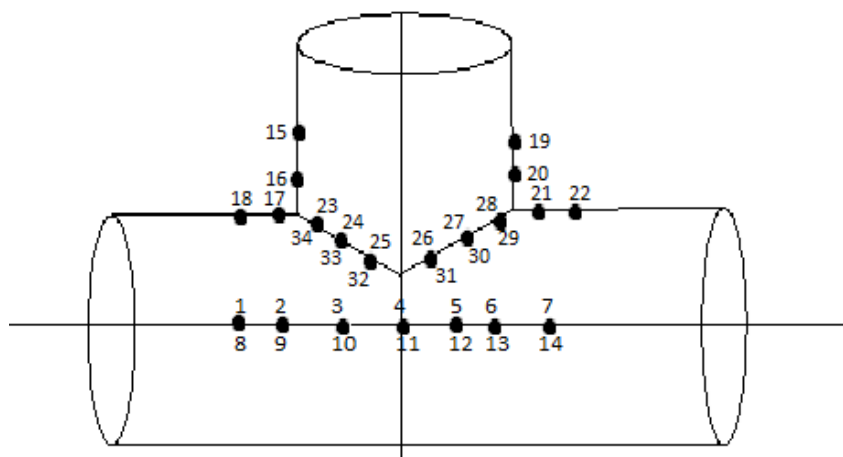
PO Number:

Description of Material:

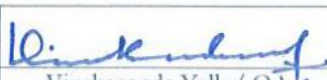
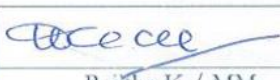

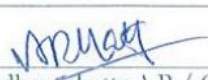
Size:


Material Spec.

Work order/Du:



Location	Thickness (mm)	Location	Thickness (mm)	Location	Thickness (mm)
1		13		24	
2		14		25	
3		15		26	
4		16		27	
5		17		28	
6		18		29	
7		19		30	
8		20		31	
9		21		32	
10		22		33	
11		23		34	
12		24			

 Vivekananda Yellu/ QA	 Rajitha K / MM	 C. Karunakaran / Engg	 Madhavankutty.A.P / Quality
Prepared by	Reviewed by		Approved by



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PACKAGING INSTRUCTIONS FOR PIPING COMPONENTS

PC: PKG: 01

Revision summary


Rev No	Revision Details	Issued on
00	Fresh issue	28-05-2014

Prepared by	Reviewed & Approved by
	
S.ARUN KUMAR	K.VEDAPRASAD

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1. Scope
2. Packaging
3. Criteria for Selection of Packaging
4. Types of packaging
5. Sling protections
6. Marking and Labelling
7. Packing list
8. General Instructions for packaging
9. Reference drawings
10. Cautionary symbols
11. Packing reference table
12. Check list

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1. SCOPE

This procedure elicits the general requirements to be complied with for packaging of piping components. The packaging is intended to preserve and protect the contents.

The handling, storage, cleaning, packaging, and preservation of items shall be controlled to prevent damage or loss and to minimize deterioration.

2. PACKAGING

This procedure contains requirements for packaging of items for protection against corrosion, contamination, physical damage, or any effect that would lower the quality or cause the components to deteriorate during the time they are shipped and stored at sites.

Items shall be inspected for cleanliness immediately before packaging. Dirt, oil, residue, metal chips or other forms of contamination shall be removed.


Adequate protection shall be provided against mechanical damage and atmospheric corrosion in transit and, for equipment suitable for outside storage, for prolonged storage at the site prior to installation.

Water proof barrier material – high density polythene shall be used as a resistant to grease and water; it shall protect items from airborne and windblown soils.

Desiccants like silica gel to be used inside pipe components. Silica gel shall conform to IS 3401. The gel is to be packed in sachets placed at different positions inside the components for absorbing moisture. The quantity of silica gel shall be adequate for storage period of one year.

Components to be placed in such a way that metal to metal contact is avoided.

For mechanical components, (1) all openings shall be covered or plugged with substantial (1/2 inch minimum thick) one piece plywood or metal closures, securely fastened and suitable for prolonged exposure prior to final installation; (2) all tapped openings in equipment shall be plugged with plastic plugs to protect internal threads; and (3) all welding end connections shall be provided with adequate weld bevel protectors to protect from corrosion and physical damage.

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Austenitic stainless steel and nickel-based alloy materials shall be handled in such a manner that they are not in direct contact with carbon steel materials or with materials containing halogen, sulphur, zinc and lead.

Each components/item of stainless steel materials should be wrapped with high density polythene.

All equipment shall be packed, securely anchored (skid mounted when required) and weather protected for the shipment method adopted.

Temporary bracing or supports, marked and tagged for removal after equipment installation, shall be provided to prevent damage during shipment and shall be painted bright, fluorescent yellow.

3. Criteria for Selection of Packaging:

Packages are to be made according to categories listed in Table-6 (see page – 24), depending on the type of materials and size.

4. TYPES OF PACKAGING:

4.1 CRATES

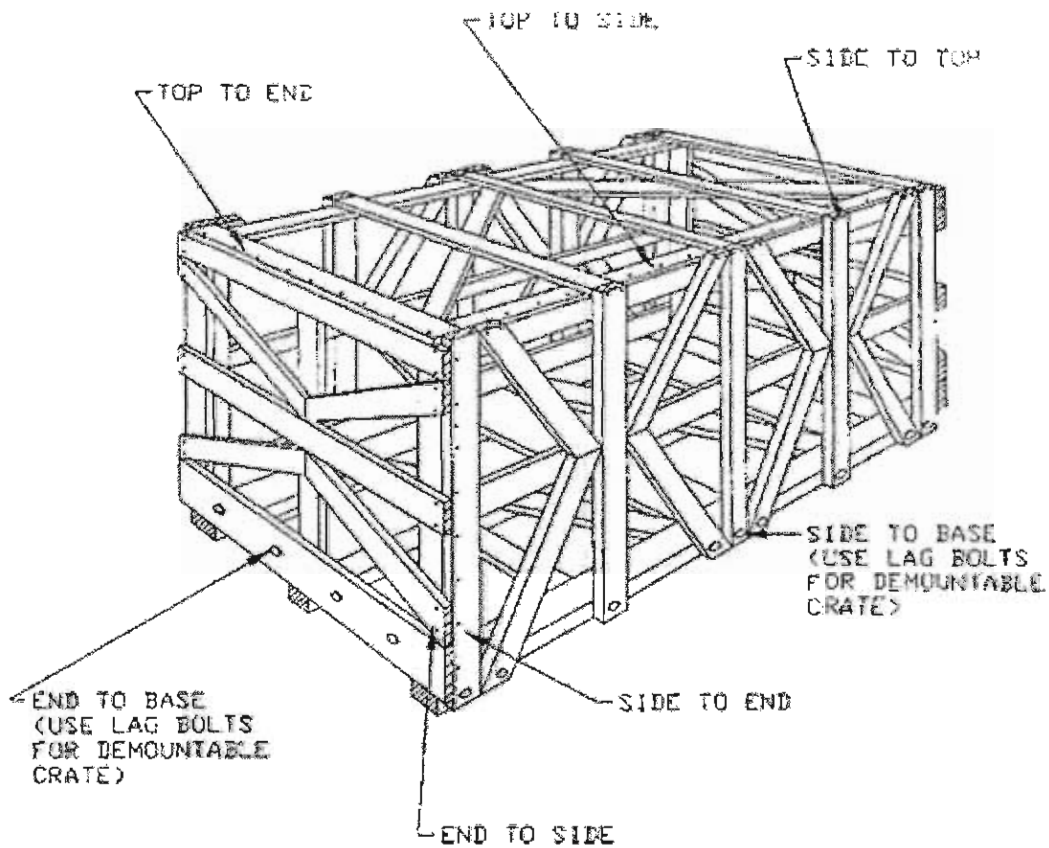
- These are to be made of seasoned wood and are intended for packaging heavy materials Viz., straight pipes and pipes with attachments.
- The crates are to be lined with hi-density polythene, to prevent entry of moisture.
- The dimensions of the crates are to be restricted to 20 x5x5 feet.
- Pipes up to OD 350mm are to be crated.
- Pipes are to be stacked inside the crate so that the weight of the pipe does not rest on branch stubs or carrier plates.
- Contents of the crate should not come in contact with each other or with the crating, and should be adequately cushioned to preserve the painting.
- The gross weight of the crate should not exceed 2 Tons.
- For further instructions refer ASTM D6039 Standard Specification for Open and Covered wood Crates.

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WOODEN CRATE



Max Net Load (KGS)	Length (mm)	Width (mm)	Height (mm)
2000	6096	1524	1524

All the dimensions shown in the above table are maximum inside dimensions.

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4.3 SADDLES

- Saddles are defined as profiled supports made of wood, and are used to cradle and support Tanks, pipe bends and pressure vessels.
- Ensure that the end chamfering of the bends are duly protected for the transit.
- Tanks are to be completely drained and dried.
- Adequate amount of the specified desiccant is to be placed inside the tank/ vessel.
- Ensure that all openings are covered and /or plugged.

4.4 CASES

- Other components such as fittings and Mitres are to be packed inside wooden cases.
- The insides of the cases are to be lined with hi-density polythene.
- Air vents to be provided in the cases for ventilation.
- Components to be placed in such a way that metal to metal contact is avoided.
- Small components like Fasteners, gaskets are to be packed in high density polythene covers and placed inside the wooden cases.
- Holes to be provided in the case floor to act as drains.

4.5 BUNDLES

- Bundles are transportable units where a large number of straight pipes of the same diameter and even lengths are arranged securely and are fit to be lifted by cranes and also stacked.
- Pipe ends should be covered fully with plastic end caps.
- Pipes can be bundled only when they can bear the stack compression load without additional support.
- Clamps made of wood or steel clamps with wooden inserts are to be used.
- Clamps must be locked firmly so that the pipes cannot slide out of bundle.
- Bundle must be held together by at least three sets of clamps as indicated in the diagram.

**Packaging Instructions for Piping
Components**

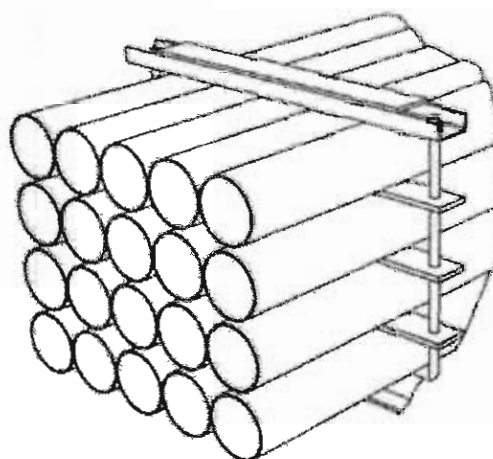
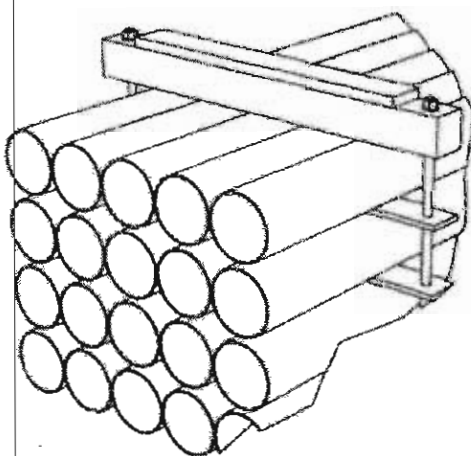
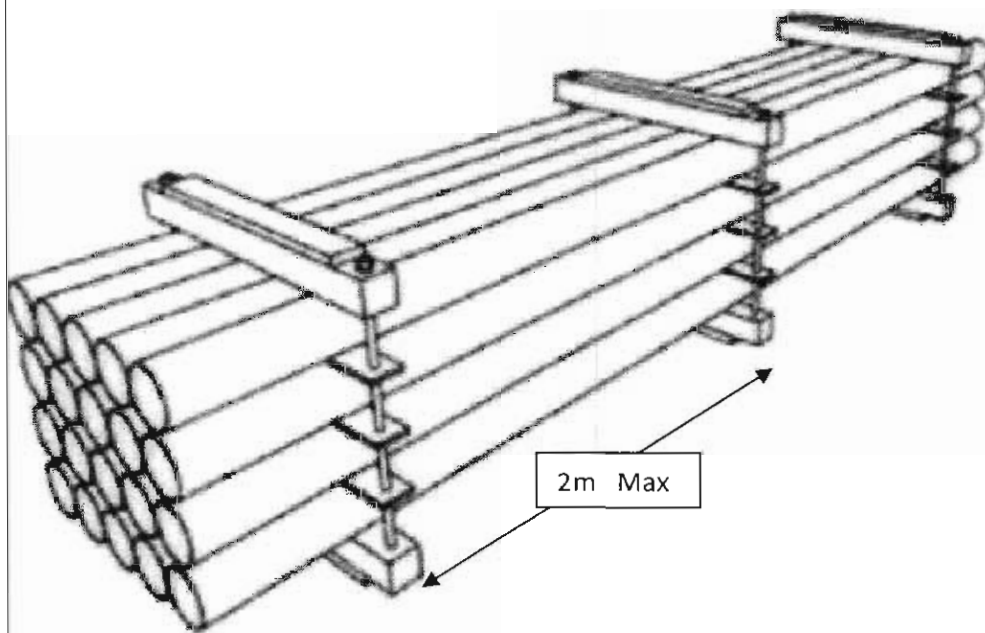
Doc. No


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5. SLING PROTECTIONS

The lifting points of the case or crate or bundle must be equipped with sling protections suitable to the respective package gross weight.


6. MARKING AND LABELLING

Components and their containers shall be identified by marking. Shipping marks shall be on all sides of package. The shipping marks shall be at least 3 inches high where space permits. Markings are to be in black paint or ink depending on shade of the package surface.

Cautionary symbols to be stencilled in red waterproof paint or ink.

7. PACKING LIST

One complete packing list inside a watertight envelope must be affixed outside of each package and be covered by sheet metal. One more copy of the packing slip wrapped in polyethylene bag is to be kept inside the box at the pertinent place.

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8. General Instructions for packaging

- The quantity of Slides / Runners is selected depending upon the weight and over-all dimension of the Load, to be carried. Table-1 and 2 details out the number of Slides, length and cross sections of the Slides to be provided with their carrying capacity.
- The construction of bottom frame is as shown in the Figure-2.
- The construction of the top frame is, as shown in the figure -3.
- Thickness of the boards, used for sheathing for the top, sides and end panels, shall be 25 mm.
- The top of the Box consist of Beam supported on top traverse bar and sheathing, as shown in the figure- 3.
- The dimension of items 1, 2 f figure -3 shall be as table -3.
- Diagonal braces shall be used in packing cases with height, exceeding 600 mm as shown in the figure- 4.
- The angle between the lower (or) upper horizontal supports and diagonal braces, shall be in the range of 20° to 60° and if possible, this angle preferably be kept at 45°.
- If the height of the box exceeds more than 1400 mm the diagonal braces, shall cross each other and when this dimension exceeds 1800mm additional horizontal supports shall be provided as shown in figure-5 and figure- 6.
- Size of upper and lower horizontal supports and vertical supports, shall be as per Table 4 refer figure 7, 8, 9 & 10 for the arrangement.
- The cross section of end traverses bar (item -1) and thickness of bottom boards (item-2), shall be used as per table -5.
- All boxes measuring more than 600 mm height shall be constructed by assembling end, side and top shook's on a bottom, forming a complete enclosed Box (refer figure-11).
- Angle iron cleats shall be used for strengthening the joints, as indicated in figure -12.
- Boxes will be strengthened by steel bands to withstand transit damages.

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9. Reference drawings

1. SLIDE
2. LONGITUDINAL UNDER
SLIDE BOARD.
3. BOTTOM BOARD
4. CARRIER TRAVERSE BAR
5. INTERMEDIATE VERTICAL SUPPO
6. HORIZONTAL BRACING
7. DRAINAGE HOLES
8. BATTEN
9. SLING PLATE
10. NUT BOLT WASHER
11. END TRAVERSE BAR
12. WATER PROOF LINING OF
BITUMANISED PAPER
13. VERTICAL SUPPORTS
14. END SHEETING BOARD
15. SIDE SHEATING BOARD
16. TOP SHEATING BOARD
17. LONGITUDINAL SUPPORT
18. TOP HORIZONTAL BEAM
19. TOP SHEATING BOARD
20. TOP CORNER STRIPS
(FOR STRENGTHENING)
21. OUT SIDE DOCUMENTS
CONTAINER.

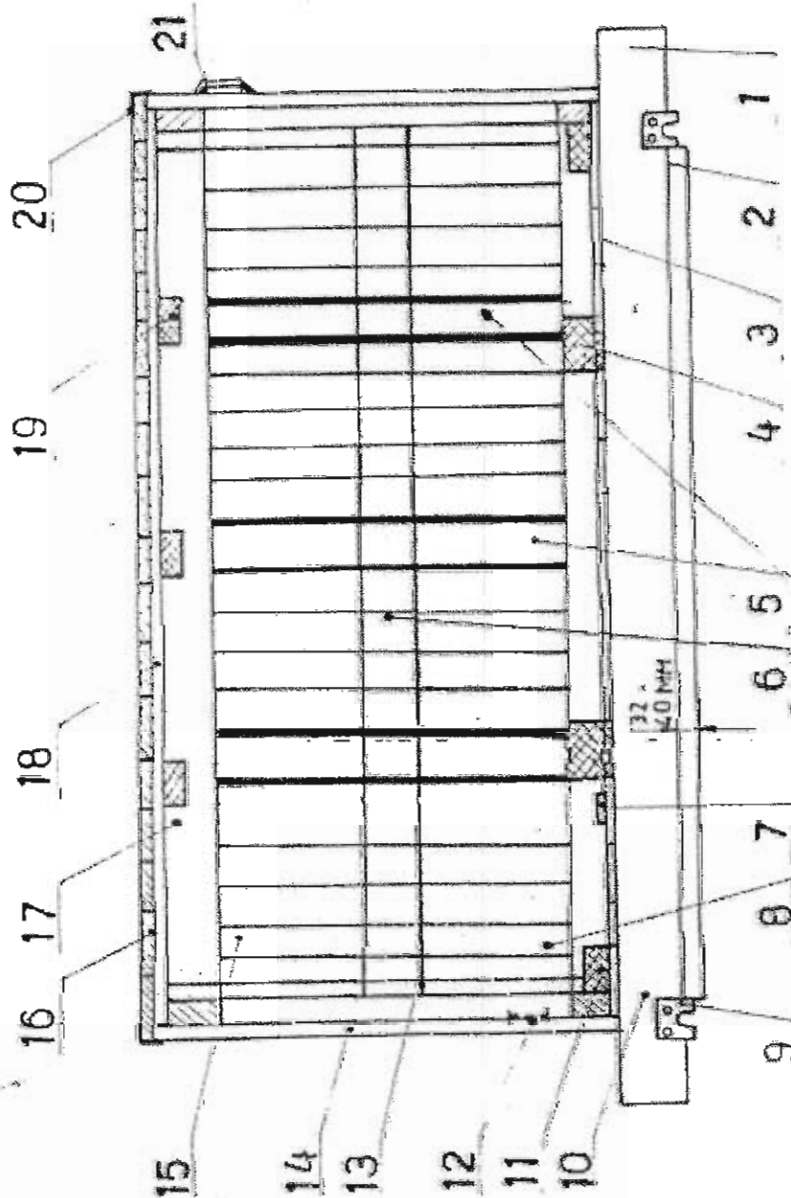


Fig. 1

NOMENCLATURE OF PARTS OF PACKING

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**BOTTOM FRAME ARRANGEMENTS FOR TYPES
633, 654, 966, 1296, 1122, 1144, 1399, 1577**

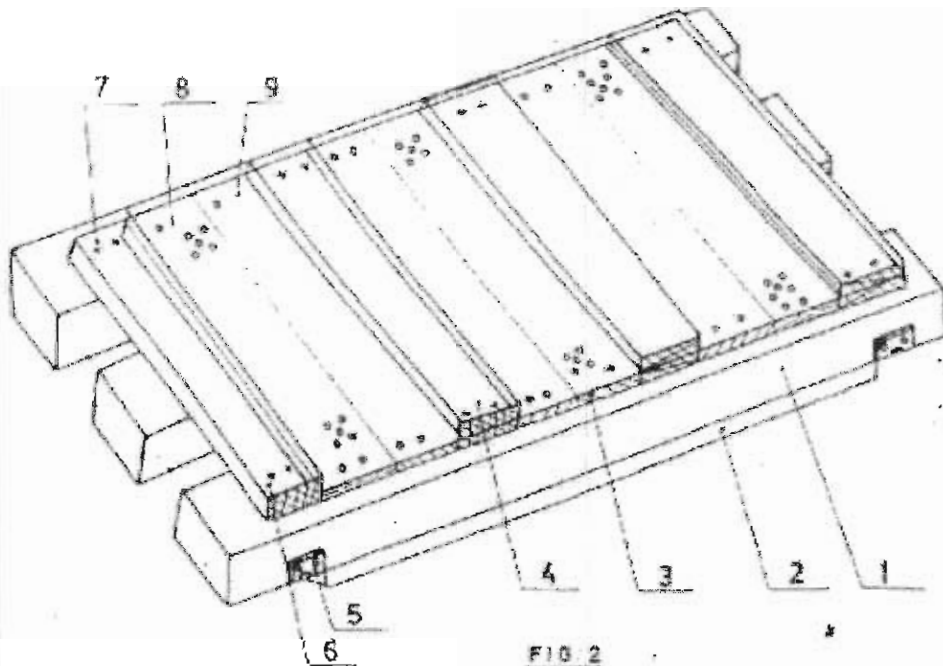


FIG. 2

- 1. SLIDE
- 2. UNDER SLIDE BOARD
- 3. BOTTOM BOARD
- 4. CARRIER TRAVERSE BAR
- 5. SLING PLATE
- 6. TRAVERSE BAR
- 7. BOLT, NUT & WASHER
- 8. DRAINAGE HOLES
- 9. NAILS

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TOP FRAME ARRANGEMENT FOR TYPES
633, 654, 966, 1296, 1122, 1144, 1399 & 1577

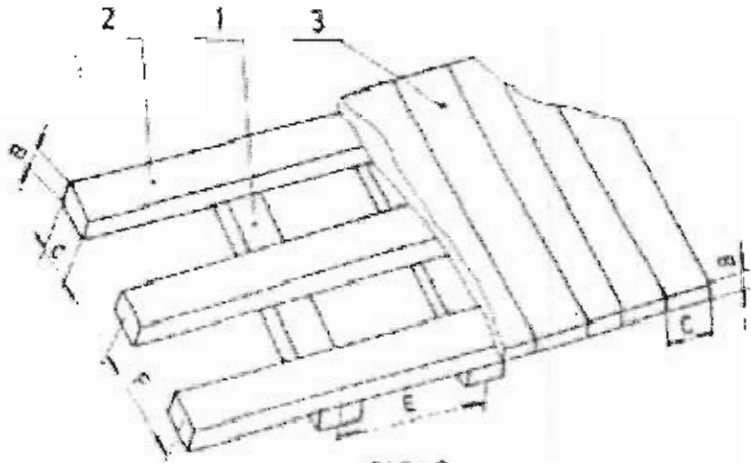
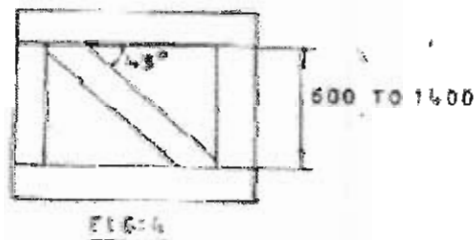


FIG-3

- 1 - Traverse Bars
- 2 - Horizontal Scans
- 3 - Top Board

PROVISION OF DIAGONAL BRACING ARRANGEMENT



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ARRANGEMENT OF DIAGONAL BRACING &
HORIZONTAL SUPPORT

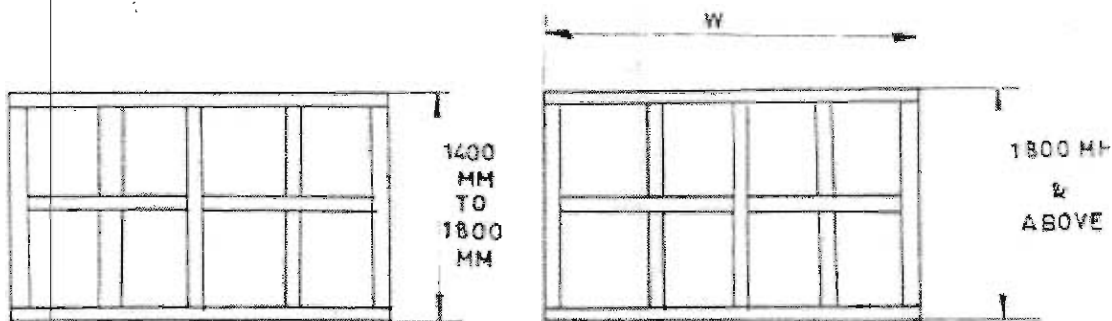


FIG. 5

FIG. 6

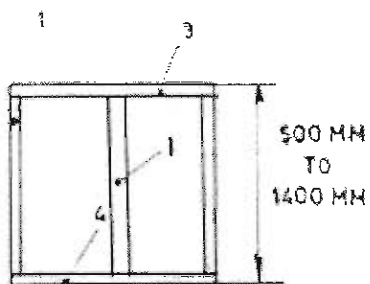


FIG. 7

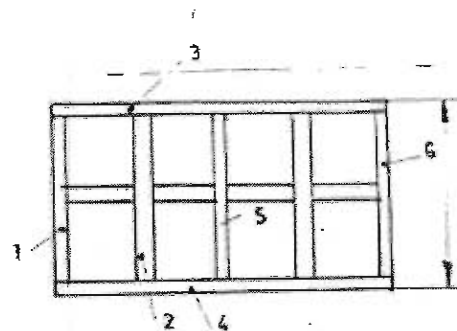


FIG. 8

1. VERTICAL SUPPORT


1, 2, 5, 6 - VERTICAL SUPPORT

3. UPPER HORIZONTAL SUPPORT

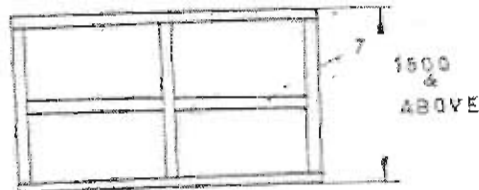
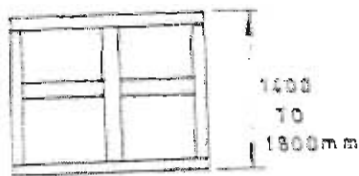
3 - UPPER HORIZONTAL SUPPORT

4. LOWER HORIZONTAL SUPPORT


4 - LOWER HORIZONTAL SUPPORT

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ARRANGEMENT OF DIAGONAL BRACING AND HORIZONTAL SUPPORT



7 – MIDDLE HORIZONTAL SUPPORT

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ARRANGEMENT OF PACKING CASE

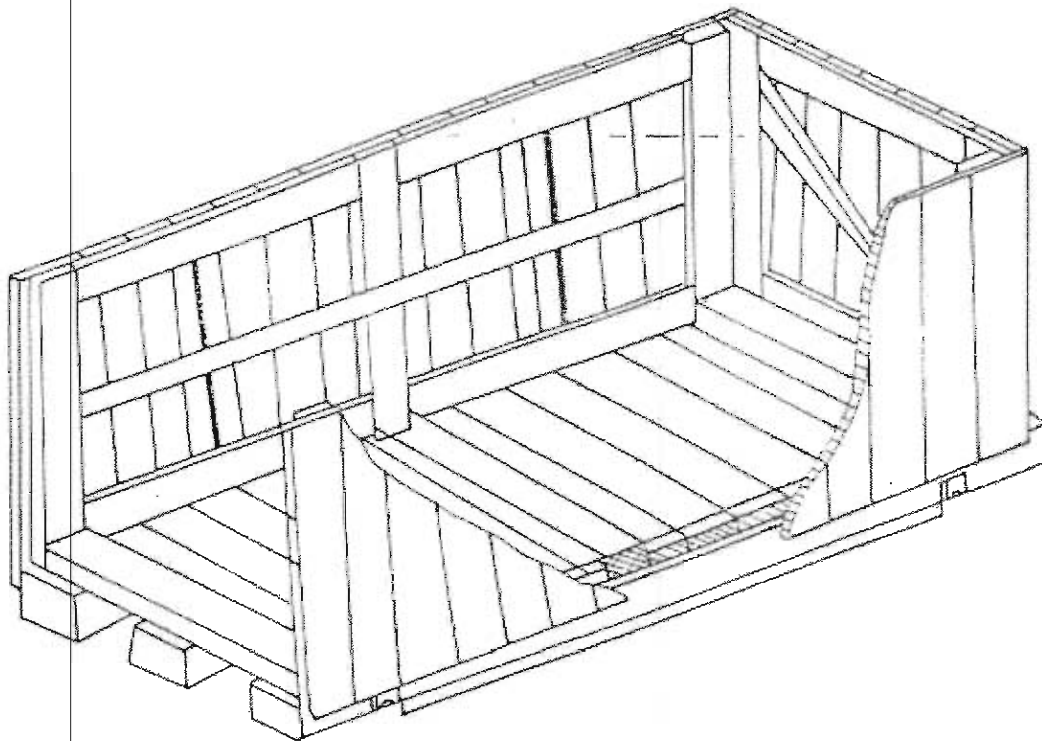


FIG : 11

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ARRANGEMENT OF ANGLE IRON CLEATS

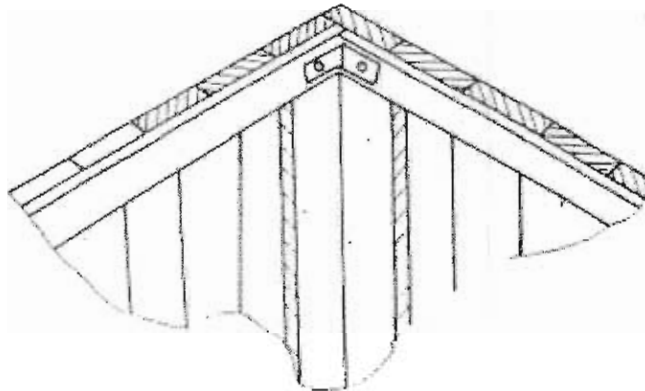


FIG :12

ARRANGEMENT OF C-CLAMPS AROUND CASES

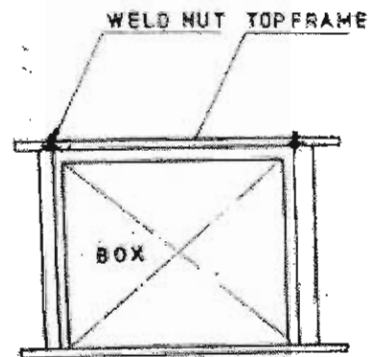
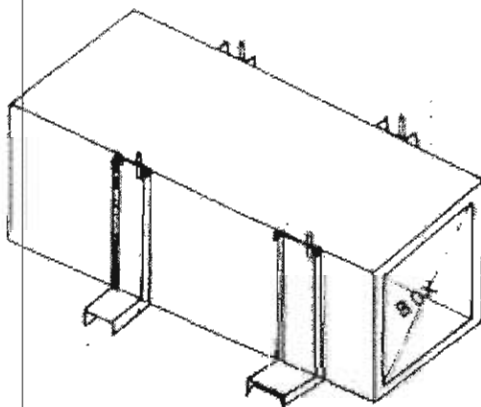


FIG:13

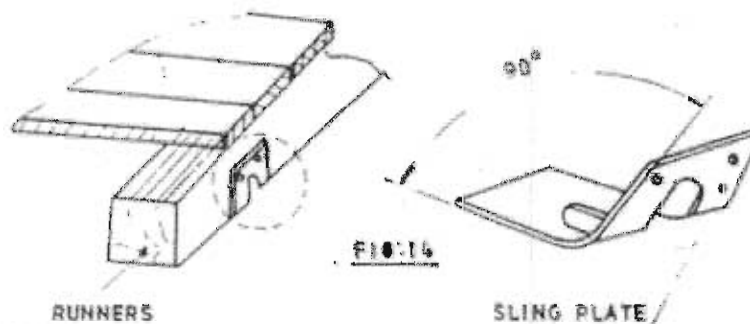
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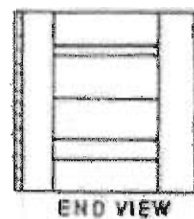
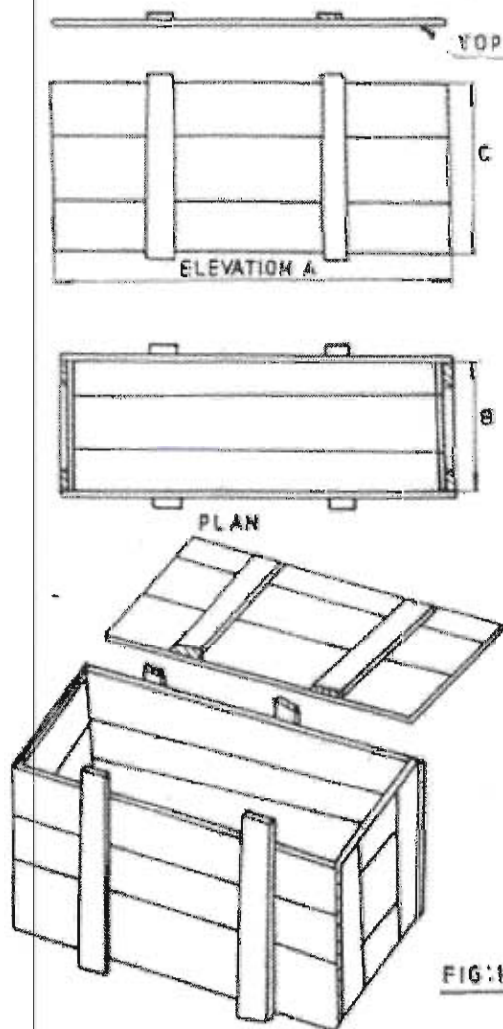
**ARRANGEMENT OF SLING - PLATE ON
CASES**



RUNNERS

SLING PLATE

ARRANGEMENT OF SMALL CASES



TYPE 654, 633

DMS TYP	A	B	C
654	600	500	400
633	600	300	300

IN MM ONLY

1. BOTTOM BOARD
 2. CROSS TRAVERS BOARD
- A. UNIFORMLY DISTRIBUTED
B. CONCENTRATED LOAD



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The sizes of boxes given below are indicative. Actual sizes may vary according to size and positioning of component inside.

ANNEXURE – A
WOODEN BOXES

TYPE	L X B X H (MM)	CARRYING CAPACITY IN KGS
633	600x300x300	200
654	600x500x400	500
966	900x600x600	1000
1296	1200x900x600	2000
1122	100x200x200	300
1144	110x400x400	300
1399	1300x900x900	2500
1577	1500 X 700 X 700	1500

TABLE - 1

No. of slides	Length of slides	Weight in (kgs)	Types of loading
2	600 - 1800 mm	0 - 1000	Two slides for central loading near the ends or uniformly distributes load.
3	1801 - 2500 mm	1001 - 5000	Three slides with load concentrates near the end or uniformly distributed load.


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TABLE - 2

LOAD	Length of slides						
	600	800	1000	1200	1300	1500	2000
	CROSS SECTION						
	B x C		c				
			b				
500	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100
800	30 x 100	30 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100
1000	30 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100
1500	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100
2000	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100
2500	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	120 x 150	120 x 150
3000	100 x 100	120 x 150	120 x 150	120 x 150	120 x 150		

TABLE – 3

Distance between top horizontal scans dim 'f'	Distance between the axis of the traverse bar dimension 'E' in fig -3				
	500	600	700	800	900
	Size b x c				
700 – 1000 mm	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100


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TABLE-4

End and side panels	Width of the panels	Distance Between Longitudinal Support DIM 'D'						
		600	800	1000	1200	1400	1600	1800
		Cross section (b x c) Item 1 to 7						
Fig - 7	600 to 1200	30 x 100	30 x 100	30 x 100	30 x 130	30 x 130	30 x 130	30 x 130
Fig - 8	1201 to 1600	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130
Fig - 9	1601 to 2000	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130
Fig - 10	2001 to 3000	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	40 x 150
	3001 to 4000	30 x 130	30 x 130	40 x 150	40 x 150	40 x 150	40 x 150	40 x 150


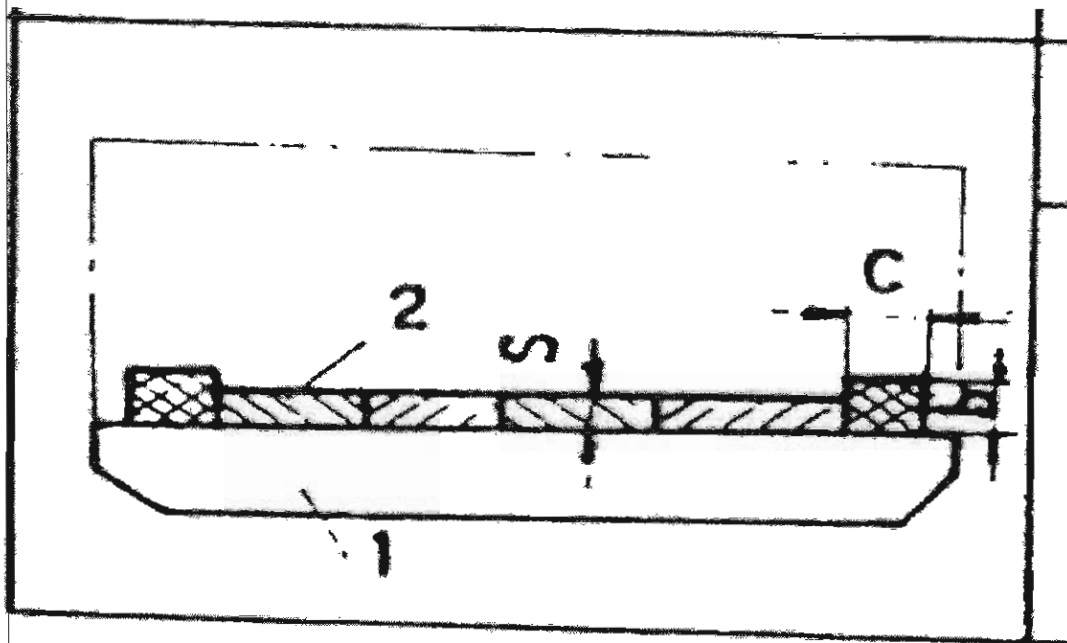

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TABLE-5

BOTTOM TRAVERSE:



Cross section of end traverse bar item 1 fig. X and thickness of bottom board (item – 2)			
Load in kg	Width of the box	Cross section	S
Up to 3000	Above 1000 mm	100 x 100	25

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10. Cautionary symbols



FRAGILE, HANDLE WITH CARE



PROTECT FROM HEAT AND RADIOACTIVE SOURCES



USE NO HOOKS

NOTE: The design of heavy goods packages cannot always resist top lifting by grabhooks.



KEEP DRY

NOTE: Not all cases have waterproof internal liners; plywood used in the construction may not have a waterproof gluing.



THIS WAY UP

NOTE: Certain designs of small cases make it difficult to distinguish top from bottom.



CENTRE OF GRAVITY

NOTE: This should be stencilled as a minimum on the two longest case sides (this information will normally be supplied by the manufacturer of the item(s) packed).



KEEP AWAY FROM HEAT

... kg max.



STACKING LIMITATION

NOTE: The maximum load in kilograms should be marked above the arrow.



International 'slings here' symbol



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11. Packing Reference Table

TABLE-6

No	Packing Method ->	Wooden Crates	Bundles	Saddle supports	HD Polythene Sheet Wrapping	Wooden boxes (Cases)	Spider	Remarks
	Description							
1	Straight Pipes	✓	✓					Crates for random length
2	Pipes with attachments	✓						
3	Pipes with Fittings	✓						
4	Tanks			✓				
5	Mitre bends			✓		✓		Saddle or cases to be used
6	Fasteners					✓		
7	Hanger components					✓		
8	Clamps					✓		
9	Fittings >nb200/ Flanges					✓		Fittings <200 shall be packed in boxes
10	Plates(Cut to size)					✓		
11	SS Pipes		✓		✓			Wrap SS pipes before bundling
12	SS fittings / Flanges	✓				✓		Fittings <200 shall be packed in boxes
15	SS Fasteners					✓		
16	CW piping(>900mm)						✓	To maintain circularity of pipes
17	CW fittings(>900mm)						✓	
18	CW fittings(<900mm)							
19	Structurals(<200mm)		✓					

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12. CHECK LIST

S No	VENDOR TO PROVIDE DETAILS	
1	On despatch of components/items , vendor has to provide the following information for each package of despatched items: 1. Contents of package (Packing list) 2. Corrosion Prevention: Rust-preventive coating /protective painting/Silica gel/ other corrosion inhibitors (please mention) 3. Lifting Instructions: Crane using slings/Fork lift/any other means (please mention) 4. Dimensions (LxBxH) mm: 5. Gross Weight (Kgs): 6. Net Weight (kgs):	
S No	VENDOR TO CONFIRM	
1	Where ever items are despatched as a bundle, they should be clamped together with bolted timber block clamps or bolted steel section clamps with timber block inserts. Adequate number of clamps should be provided along the length of the bundle with sufficient projection of the clamps beyond the width and height of the bundle.	
2	Only such materials which can withstand corrosion and environmental conditions are allowed to be packed in wooden crates or bundles.	
3	In case of wooden packing, planks of 20-25 mm thick and 100-150mm wide needs to be suitably placed at close intervals for giving rigidity to packing appropriately.	
4	Wood used for packing should be seasoned & shall be free of termites.	
5	Damages, if any, resulting due to improper/inadequate packing will be to vendors account. It will be the responsibility of the vendor to identify suitable and adequate packing for his supplies to protect it from damage and/or deterioration during storage, stacking, transport and handling.	
6	All packing should be suitable for loading/unloading by cranes/forklifts & suitable for transport by road. Suitable marking should be made on the packing indicating the lifting positions.	



**PURCHASE / MM / BOI
ENQUIRY DEVIATION**

429-024

PAGE

**SCHEDULE OF DEVIATION TO
BOI ENQUIRY NO:**

4102200055 dt 23.09.2022

DATE

23.09.2022

DESCRIPTION

BW Fittings -CS & AS

SPECIFICATION

Drawing No

QUALITY PLAN

PACKING PROCEDURE

PC-PKG-01 Rev 00

DOCUMENT REFERENCE

BHEL CALLED FOR

FIRM'S ALTERNATIVE OFFER

CERTIFIED THAT OTHER THAN THE ABOVE DEVIATIONS, WE ARE ACCEPTING ALL THE OTHER SPECIFICATIONS AND REQUIREMENTS IN FULL TO YOUR ENQUIRY.

STATION:

DATE:

SIGNATURE OF FIRM'S REPRESENTATIVE

FIRM SEAL

NOTE 1. Deviations should be taken only in the extreme case.

2. If necessary, use additional sheets with page control number.

INTEGRITY PACT**Between**

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for _____
Enq 4102200055 dt 23.09.2022 Supply of Khurja and Sagradhighi CS & AS Fittings

_____ (hereinafter referred to as "Contract"). The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint panel of Independent External Monitor(s) (IEMs), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -
 - 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 - Commitments of the Bidder(s)/ Contractor(s)

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. The Bidder(s)/ Contractor(s) commits himself to observe the following principles during participation in the tender process and during the contract execution.

- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and shall await their decision in the matter.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process, terminate the contract, if already awarded, exclude from future business dealings and/ or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder (s) from the tender process before award / order acceptance according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal is entitled to terminate the Contract according to Section 3, or terminates the Contract in application of Section 3 above, the Bidder(s)/ Contractor (s) transgression through a violation of Section 2 above shall be construed breach of contract and the Principal shall be entitled to demand and recover from the Contractor an amount equal to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher, as damages, in addition to and without prejudice to its right to demand and recover compensation for any other loss or damages specified elsewhere in the contract.

Section 5 - Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 (three) years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason or action can be taken as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 6 - Equal treatment of all Bidder (s)/ Contractor (s) / Sub-contractor (s)

- 6.1 The Principal will enter into Integrity Pacts with identical conditions as this Integrity Pact with all Bidders and Contractors.
- 6.2 In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor(s) and ensure that all Sub-contractors also sign the Integrity Pact.
- 6.3 The Principal will disqualify from the tender process all Bidders who do not sign this Integrity Pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 -Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible panel of Independent External Monitor (s) (IEMs) for this Integrity Pact. The task of the IEMs is to review independently and objectively, whether and to what extent the parties comply with the obligations under this Integrity Pact.
- 8.2 The IEMs are not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The IEMs shall be provided access to all documents/ records pertaining to the Contract, for which a complaint or issue is raised before them as and when warranted. However, the documents/records/information having National Security implications and those documents which have been classified as Secret/Top Secret are not to be disclosed.
- 8.4 The Principal will provide to the IEMs sufficient information about all meetings among the parties related to the Contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the IEMs the option to participate in such meetings.

- 8.5 The advisory role of IEMs is envisaged as that of a friend, philosopher and guide. The advice of IEMs would not be legally binding and it is restricted to resolving issues raised by a Bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some Bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process or during execution of Contract, the matter should be examined by the full panel of IEMs jointly, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to the CMD, BHEL at the earliest. They may also send their report directly to the CVO, in case of suspicion of serious irregularities requiring legal/ administrative action. Only in case of very serious issue having a specific, verifiable Vigilance angle, the matter should be reported directly to the Commission. IEMs will tender their advice on the complaints within 30 days.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the IEMs and its terms and conditions.
- 8.9 IEMs should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the Principal should be looked into by the CVO of the Principal.
- 8.10 If the IEMs have reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code / Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the IEMs may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 After award of work, the IEMs shall look into any issue relating to execution of Contract, if specifically raised before them. As an illustrative example, if a Contractor who has been awarded the Contract, during the execution of Contract, raises issue of delayed payment etc. before the IEMs, the same shall be examined by the panel of IEMs. Issues like warranty/ guarantee etc. shall be outside the purview of IEMs.
- 8.12 However, the IEMs may suggest systemic improvements to the management of the Principal, if considered necessary, to bring about transparency, equity and fairness in the system of procurement.
- 8.13 The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

- 9.1 This Integrity Pact shall be operative from the date this Integrity Pact is signed by both the parties till the final completion of contract for successful Bidder, and for all other Bidders 6 months after the Contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.
- 9.2 If any claim is made/ lodged during currency of this Integrity Pact, the same shall be binding and continue to be valid despite the lapse of this Pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

- 10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.
- 10.2 Changes and supplements as well as termination notices need to be made in writing.
- 10.3 If the Bidder(s)/ Contractor(s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.
- 10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.
- 10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract. The fees/expenses on dispute resolution through mediation shall be shared by both the parties. Further, the mediation proceedings shall be confidential in nature and the parties shall keep confidential all matters relating to the mediation proceedings including any settlement agreement arrived at between the parties as outcome of mediation. Any views expressed, suggestions, admissions or proposals etc. made by either party in the course of mediation shall not be relied upon or introduced as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of mediation proceedings. Neither of the parties shall present IEMs as witness in any Alternative Dispute Resolution or judicial proceedings in respect of the dispute that was subject of mediation.

**MAHADEVAN
NIRMAL
KUMAR**

Digitally signed by MAHADEVAN NIRMAL KUMAR
DN: c=IN, o=BHARAT HEAVY ELECTRICALS LIMITED, ou=NA,
2.5.4.20=d56a730a92f58b772ba4f7bd1590c59a0dad01a286
ca9758115fb6247e2f020, postalCode=620014, st=TAMIL
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serialNumber=748786a17b3426451798e06ac7493ab1fe1d8
95535d2798b569ed9fe28ebdf5, cn=MAHADEVAN NIRMAL
KUMAR, email=TRUCHIRAPPALLI,
pseudonym=235d5f01267b4e0ebaba1b1ece395205,
email=MNIRMALKUMAR@BHEL.IN
Date: 2022.09.16 15:15:02 +05'30'

For & On behalf of the Principal
(Office Seal)

Place _____
Date _____

**SHREELEKHA S
CHANDAR**

Digitally signed by SHREELEKHA S CHANDAR
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95535d2798b569ed9fe28ebdf5, cn=SHREELEKHA S CHANDAR,
email=TRUCHIRAPPALLI,
pseudonym=235d5f01267b4e0ebaba1b1ece395205,
email=SHREELEKHA@BHEL.IN
Date: 2022.09.16 11:16:57 +05'30'

Witness: _____
(Name & Address) _____

For & On behalf of the Bidder/ Contractor
(Office Seal)

Witness: _____
(Name & Address) _____

Declaration to be issued on Company letter head

In line with Government Public Procurement Order (Preference to Make in India) Order (PPP-MII Order), 2017 vide No. P-45021/2/2017-PP (BE-II) dated 04.06.2020, issued by DPIIT, Ministry of Commerce and Industry, we hereby certify that we, (Supplier name) are

- a) 'Class-I local supplier' meeting requirement of local content equal to or more than 50%,
- b) 'Class-II local supplier' meeting requirement of local content more than 20% but less than 50%,
- c) 'Non local supplier' meeting requirement of local content equal to or less than 20%,

(Strike off whichever is not applicable)

As defined under above referred Order for the following Enquiry Item SI Nos of BHEL Enquiry No 4102200020 dt 02.04.2022

- Enquiry Item No./ (s) -

Details of location at which local value addition will be made is as follows:

.....
.....

By issuing this declaration, we understand and are in acceptance to the following-

- False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.
- In case of debarment by any procuring entity for violation of the provisions of the Public Procurement (Preference to Make in India), Order 2017 we shall not be eligible for preference for procurement by any other procuring entity for the duration of the debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities, the debarment takes effect prospectively from the date of uploading on the website(s) of The Department of Expenditure, GOI in such a manner that ongoing procurements are not disrupted.
- We undertake the onus of responsibility of submission of appropriately certified documents. We understand that BHEL is not at liability to verify the contents and will not be responsible for the declaration made by us. However, in case BHEL has any reason to doubt the authenticity of the local content, BHEL reserves the right to obtain the complete back up calculations before award of contract and we are liable to submit the same if requested by BHEL. We also understand that our bid is liable for rejection in case we fail to submit the details as requested by BHEL.

Seal and Signature of authorized signatory

Special Note-

In cases of procurement for a value in excess of Rs. 10 crores, the local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.