

ANNEXURE-A

PRE-QUALIFICATION REQUIREMENT FOR FABRICATION OF GR-91 CLAMPS WITH BHEL MATERIALS

Questionnaire to be filled up by vendor and sent along with necessary documentary evidence.

ENQ 4601900001 / 21.09.2019

SL. NO	DESCRIPTION	DETAILS OF DOCUMENTS TO BE ENCLOSED	YES / NO
1a	Availability of in-house facility for hot forming of SA387Gr.91 material clamps of plate thickness upto 40 mm.	List with required details to be furnished (Press, tools, dies etc)	
1b	Availability of in-house facility for hot forming of SA387Gr.91 material clamps of plate thickness upto 65mm.	List with required details to be furnished (Press, tools, dies etc)	
2	Availability of in-house facility for welding of SA387Gr.91 material	List with required details to be furnished	
3	Availability of in -house facility for heat-treatment using a furnace calibrated upto 1100 deg.C to carry out normalising, tempering and PWHT for P15E-Gr1 material. Calibrated Furnace size should be such that it accommodates Clamp Size: 3500 x 1500 x 1500 in mm.	List with required details to be furnished (Details of no. of furnaces, furnace dimensions, furnace capacity and furnace type, Calibration report to be enclosed.)	
4	Vendor shall have experience in forming of either SA387Gr.22 or SA387Gr.91 material of thickness minimum 25mm.	Experience List for previous 3 years to be furnished	
5	Vendor shall have experience in welding of items of SA387 Gr91 / 92(P15 E) or SA387 Gr 22 (P5A) material of thickness minimum 25mm.	Experience List and WPS-PQR* to be furnished	
6	Vendor shall be willing to execute revolving Bank Guarantee for Rs 25 Lakhs and corporate indemnity bond for 1 crore to take care of material cost of SA387Gr.91 material in case of loss/ damage valid for the complete duration of the execution of the contract.	—	
7	Vendor shall have average financial turnover for the past 3 years as Rs. 0.85 crores per annum.	Audited Balance sheets for the financial years from 2016-17 to 2018-19 to be enclosed.	
8	Vendor shall have a separate Covered storage area for storing.	Details of Covered area availability to be furnished	

*1. WPS- Welding procedure specification. 2. PQR - Procedure Qualification record

*Supporting documents to be enclosed without fail.

Note –

- i. Bids fulfilling the above criteria will be considered for further techno-commercial evaluation.
- ii. Only techno-commercially accepted will be considered for price bid opening.
- iii. For Start-ups and MSE vendors, Annual Financial Turnover criteria (Sl. No:7 above) is relaxed to Rs 0.5 Crores given above, during any of the Financial year in the past 3 years. Relaxation is subject to vendors meeting technical and quality criteria.

iv. Vendors proposing to avail relaxation in financial criteria as above need to submit necessary document proof along with Pre-Qualification bid.

a) Startups - Certificate of Recognition by Department of Industrial Policy & Promotion

b) MSE - UAM No. (Printed copy of UAM No) for MSE registration along with CA certificate

v. Bidders 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.

vi. Indigenous vendors referred to BIFR or Firms having strictures / hold by any other Government agencies will not be considered.

SIGNATURE OF THE AUTHORISED PERSON WITH SEAL

Name of the contact person	
Name of the Firm	
Contact Number	
Email ID	

ANNEXURE-B : TECHNO COMMERCIAL REQUIREMENTS FOR GR-91 CLAMPS OPEN TENDER ENQUIRY - FA-2019-20		
ENQ 4601900001 / 21.09.2019		
TECHNO COMMERCIAL OFFER		
SNO	DESCRIPTION	ACCEPTANCE [YES / NO]
1	Vendor shall agree for the broad scope of work as below: A) COLLECTION OF RAW MATERIALS FROM BHEL, TRICHY/THIRUMAYAM STORES AT VENDORS OWN COST AND STORAGE OF RAW MATERIALS UNDER SEPARATE COVERED AREA. B) CUTTING PLAN SUBMISSION. C) MANUFACTURE OF Gr.91-CLAMPS AS PER THE APPLICABLE DRAWING AND QUALITY PLAN. D) INSPECTION BY BHEL / THIRD PARTY INSPECTORS AUTHORISED BY BHEL / CUSTOMER. E) DELIVERY OF FINISHED PRODUCTS TO ANY BHEL SITE IN INDIA / BHEL TRICHY/THIRUMAYAM. F) RETURNING OF OFF-CUTS TO BHEL AFTER INSPECTOR SEAL, TRICHY/THIRUMAYAM STORES AT VENDOR'S COST. G) SCRAP / OFF-CUT NORMS, RECOVERY COST FOR SCRAP / OFF-CUT AS PER BHEL STANDARDS / PRACTICES. (AS PER EXISTING RC TERMS & CONDITIONS)	
2	ACCEPT TO MANUFACTURE CLAMPS AS PER BHEL QP REF.: QPG:76 REV.:03 AND BHEL DRAWING. ANY DEVIATION W.R.T. ABOVE QP SHALL BE ADDRESSED FOR CLARIFICATIONS BEFORE PRICE BID OPENING.	
3	DELIVERY TERMS: DESPATCH TO RESPECTIVE BHEL SITE IN INDIA / BHEL TRICHY/THIRUMAYAM WITHIN 5 MONTHS FROM THE DATE OF PURCHASE ORDER ISSUED BY BHEL OR 3 MONTHS FROM THE LAST MATERIAL CLEARANCE DATE, WHICHEVER IS LATER.	
4	FINISHED GOODS TO BE DESPATCHED TO ANY PROJECT SITE IN INDIA / STORES IN BHEL TRICHY / THIRUMAYAM BY THE VENDOR AT HIS COST [FREIGHT AND INSURANCE IN VENDOR'S SCOPE].	
5	OFFCUTS [AS PER STANDARD NORMS OF BHEL] ARE TO BE RETURNED TO BHEL, TRICHY STORES BY THE VENDOR AT HIS COST.IF OFFCUTS ARE NOT RETURNED TO BHEL THEN COST OF THE MATERIAL AS PER BHEL PREVAILING RATES INCLUSIVE OF TAXES & DUTIES (AS PER NORMS) WILL BE RECOVERED FROM THE VENDOR.	
6	COST OF SCRAP [AS PER BHEL APPROVED CUTTING PLAN] SHALL BE RECOVERED FROM THE VENDOR AT BHEL'S APPLICABLE RATES	
7	VENDOR SHALL HAVE KNOWLEDGE OF HEAT TREATMENT CYCLES INVOLVED IN MANUFACTURING OF THESE CLAMPS	
8	PAYMENT TERMS : 90 % AGAINST PROOF OF DELIVERY OF MATERIAL AT SITE AND 10% AFTER MATERIAL ACCOUNTING.	
9	BG : REVOLVING BANK GUARANTEE FOR A TOTAL AMOUNT OF RUPEES TWENTY FIVE LAKH TO BE FURNISHED FOR ALL THE PURCHASE ORDERS PLACED AGAINST OUR ENQUIRY (BG validity = Rate contract period (18 months) + Warranty period (24 Months) + 60 days + 3 months claim period)	

ANNEXURE-B : TECHNO COMMERCIAL REQUIREMENTS FOR GR-91 CLAMPS OPEN TENDER ENQUIRY - FA-2019-20		
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TECHNO COMMERCIAL OFFER		
SNO	DESCRIPTION	ACCEPTANCE [YES / NO]
10	ACCEPTANCE FOR CORPORATE INDEMNITY BOND SIGNED BY THE CEO/PROPRIETOR/MD OF THE COMPANY COVERING A VALUE OF RUPEES ONE CRORE AS PER THE FORMAT ENCLOSED,VALID TILL THE COMPLETION OF THE ORDERS IN ALL ASPECTS (MINIMUM THREE YEARS FROM THE DATE OF CONTRACT FINALISATION)	
11	VENDOR SHALL FURNISH ACCEPTANCE FOR RECOVERY OF COST OF MATERIAL (INCLUDING APPLICABLE TAXES & DUTIES) IN CASE OF DAMAGE / DEFECT DURING TRANSIT / HANDLING / FAULTY FABRICATION / LOSS OF MATERIAL.	
12	LD : 0.5% PER WEEK SUBJECT TO A MAXIMUM OF 10 % OF THE FULL PO VALUE.	
13	VENDOR SHALL INDICATE THE INSTALLED CLAMP PRODUCTION CAPACITY PER MONTH FOR ALLOY STEEL (in MT)	
14	VALIDITY OF THE OFFER : 3 MONTHS FROM THE DATE OF PRICE BID OPENING.FRAMEWORK AGREEMENT SIGNED SHALL BE VALID FOR ORDERING UPTO A PERIOD OF 18 MONTHS FROM THE DATE OF SIGNING FA.	
15	MEETING THE PACKING CONDITIONS : AS PER QP. NO : PC:PKG-01 DT.28.05.2014	
16	AVAILABILITY OF GST REGISTRATION (COPY OF CERTIFICATE TO BE ENCLOSED)	
17	SCOPE OF WORK/MANUFACTURING PROCESS IS INDICATIVE ONLY AND NOT EXHAUSTIVE	
18	CUTTING PLAN SHOULD BE SUBMITTED TO BHEL FOR APPROVAL BEFORE CUTTING OF PLATE. CUTTING / MACHINING ALLOWANCE WILL BE AS PER BHEL STANDARD PRACTICE.	
19	PRICES WILL BE FINALISED THROUGH REVERSE AUCTION MODE / PRICE BID OPENING BASIS	
20	GST AT THE RATE OF 18% WILL BE APPLICABLE. BHEL WILL PROVIDE GST SUPPLY INVOICE FOR FINISHED GOODS TO DESPATCH TO SITE.	
21	PRICE IS TO BE FINALISED ON RATE PER KG BASIS. 'GMS' WEIGHT ONLY WILL BE CONSIDERED FOR DETERMINING THE WEIGHT OF EACH CLAMP.	
22	A SET OF ALL POSSIBLE SIZE OF CLAMPS IN EACH OF THE 5 TYPES OF CLAMPS IS ENCLOSED WHICH IS INDICATIVE ONLY. FABRICATION OF ORDERED CLAMPS TO BE DONE AS PER APPLICABLE DRAWING / ENGG DOCUMENTS [GMS].	
23	INTEGRITY PACT ENCLOSED SHOULD BE SIGNED AND SUBMITTED ALONG WITH THIS OFFER.	
24	SPLIT PIN AND WASHER FOR LOAD PIN WILL BE ON VENDORS SCOPE.	
25	ON RECEIPT OF MATERIAL AT VENDORS WORKS, RAW MATERIAL VERIFICATION (PMI) WILL BE CARRIED OUT BY BHEL QUALITY/ THIRD PARTY.	
26	FOR NEW VENDORS, FIRST OFF TRIAL (FOT) FOR EACH TYPE OF CLAMP WILL BE WITNESSED BY BHEL QUALITY & ONLY AFTER ACCEPTANCE VENDOR TO PROCEED FOR BULK MANUFACTURING.	

ANNEXURE-B : TECHNO COMMERCIAL REQUIREMENTS FOR GR-91 CLAMPS OPEN TENDER ENQUIRY - FA-2019-20

ENQ 4601900001 / 21.09.2019

TECHNO COMMERCIAL OFFER	
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SNO	DESCRIPTION	ACCEPTANCE [YES / NO]
27	FOR VENDORS NOT HAVING WPS PQR OF GR 91 (P15E) , A TRIAL ORDER SHALL BE PLACED AND ONLY AFTER SUCCESSFUL COMPLETION OF THE TRIAL ORDER , THEY WILL BE CONSIDERED FOR FURTHER LOT ORDERING.IN CASE VENDOR FAILS TO ESTABLISH WPS_PQR WITHIN 3 MONTHS FROM THE DATE OF TRIAL ORDER, BHEL WILL NOT CONSIDER SUCH VENDORS FOR FURTHER LOT ORDERING. SPLIT RATIO WILL BE CONSIDERED AMONG OTHER ELIGIBLE VENDORS IN THEIR ORDER OF RANKING WITHOUT INCLUDING SUCH VENDORS.	
28	ALL CONSUMABLES WILL BE ON VENDOR'S SCOPE.	
	SIGNATURE OF THE AUTHORISED PERSON WITH SEAL	

INDEMNITY BOND

- 01 THIS DEED OF INDEMNITY made thisth day of , by M/s
....., in favour of M/s BHARAT HEAVY ELECTRICALS LIMITED, PIPING CENTRE,
– 600017, having its Registered Office: BHEL House, Siri Fort, NEW DELHI – 110 049.
- 02 WHEREAS M/s. BHARAT HEAVY ELECTRICALS LIMITED (hereinafter called the “COMPANY”) is desirous to place a Purchase order (hereinafter called the “CONTRACTOR”) for fabrication on M/s , hereinafter called the “CONTRACTOR”) and the said fabrication shall be made from the raw materials made and to be made by the company in pursuance of the Contract.
- 03 AND WHEREAS one copy of the conditions precedent for placing such contract is that the contractor shall furnish the company an Indemnity Bond to an extent of Rs: /- (Rupees Only) in lieu of Cash/Bank Guarantee towards the security deposit for the raw materials supplied and to be supplied in pursuance of the contract and also for the satisfactory performance and completion of work and of the terms and conditions of the said Contract.
- 04 NOW, THEREFORE, these present witness that we M/s , by the hand of the Shri. its lawfully and duly constituted attorney, do hereby undertake to pay without demur to the afore said company a sum of Rs...../- (Rupees Only) on demand being made by the said company indemnified to the extent of Rs...../- By virtue of this Indemnity against any loss/damage caused to / suffered by the said company, by reason of any breach by the afore said contractor of any of the terms and conditions, or for any other reasons not attributable to the company (The decision regarding the breach, loss, damage or payment due being solely in the discretion of the said company). We undertake to indemnify the said loss/damage and we further undertake to pay the aforesaid amount in lump sum on demand without demur or such part thereof as the company may demand from time to time. The liability shall obligation of the contract under this indemnity shall not be affected or suspended or superseded by any dispute(s) between the company and the contractor and the payment under this indemnity would not wait till the disputed have been decided by any court or Tribunal or in the Arbitration proceedings or by any other authority.
- 05 The contractor shall be Responsible for the safe custody and protection of the raw materials that been supplied and to be supplied by company under the contract against all risks till they are delivered back as finished products to BHEL. As per terms and conditions of contract or as they may direct and until such time the contractor shall hold the raw

materials in trust for BHEL. The raw materials shall always remain the property of company and the contractor shall indemnify BHEL against the loss, damage or deterioration whatsoever in respect of the said raw materials while in the possession of the Contractor. The materials of BHEL should always be open for inspection by any officer authorized by BHEL. The liability under this indemnity is a continuing one covering the entire contract and should any loss or damage occur on account of the breach of the terms and conditions of the said contract by the contractor or should any surplus raw materials become due to the company under the contract and remains undelivered to the company, the contractor shall indemnify the company for loss/damage for the value of raw materials to an extent of Rs...../- (Rupees Only) and this is without prejudice to any other remedies which may be otherwise available to the company by deduction from any sum due or any sum which at any time hereinafter become due from the contractor under this or any other contract.

- 06 THE AFORESAID Indemnity will remain in full force and shall be liable under the same, irrespective of any extension of time being granted by the said company to the contractor in or for fulfilling the said contract between contract and the company and the Indemnity will remain in full force irrespective of any change of terms, conditions or stipulations or any variations in the terms of the said contract and the claim to receive notice or any change and/or variation of the terms and/or conditions of the said contracts hereby specifically waived by us. Further, we shall not be released from this Indemnity by any forbearance or the exercise of any of the power/or rights under the said contract by the said company against the contractor.
- 07 THE Indemnity herein contained shall not be determined or affected by the liquidation or winding up or insolvency of or change in the constitution of the contractor but shall in all respects and for all purpose by binding and operative until all payments of all moneys due or that may hereinafter become due to the said company are settled irrespective of any liability or obligation of the contractor under the said contract(s).
- 08 We, further agree that the Indemnity herein contained shall remain in full force and effect during the period that would be taken, for the performance of the said contract and that it shall continue to the enforceable till the dues of the company under or by virtue of the said contract have been fully paid and its claims satisfied or discharged or till the company certifies that the terms and conditions of the said contract have been fully and properly carried out by the said contractor and accordingly discharges the Indemnity, subject, however, to the condition that the company shall have no rights under this Indemnity unless a claim or demand in writing in respect of this Indemnity has been preferred by the company with the contractor on or before But where such a claim or demand has been preferred by the company with the contractor before the expiry of the said date, the claim shall be enforceable notwithstanding the fact that the said enforcement is effected after the said date.

- 09 This indemnity is subject to jurisdiction only.
- 10 AND lastly, the contractor undertakes not to revoke this Indemnity during its currency except with the previous consent of company in writing.
- 11 The contractor declares that it has powers to issue this Indemnity under their memorandum and Articles of Association and the undersigned has full powers to do so on its behalf granted to him by the proper authorities of the contractor.

Dated thisth day of

Witnesses:
(Signature & Address

SIGNATURE AND SEAL OF THE FIRM

1.

2.

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 4601900001/21.09.2019 Fabrication of Pipe Clamps SA 387 Gr 91 material on conversion basis with BHEL material - Framework Agreement for 18 months

_____. 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 Independent External Monitor(s), 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. He commits himself to observe the following principles during his 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 IPC/ PC 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 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.

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 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 from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

Section 5 – Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 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.

Section 6 – Equal treatment of all Bidders/ Contractors/ Sub-contractors

- 6.1 The Bidder(s)/ Contractor(s) undertake(s) to obtain from all subcontractors a commitment consistent with this Integrity Pact and report Compliance to the Principal. This commitment shall be taken only from those sub-contractors whose contract value is more than 20 % of Bidder's/ Contractor's contract value with the Principal. The Bidder(s)/ Contractor(s) shall continue to remain responsible for any default by his Sub-contractor(s).
- 6.2 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.
- 6.3 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 – Criminal Charges against violating Bidders/ Contractors /Sub-contractors

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 Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

- 8.2 The Monitor is 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 Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality.
- 8.4 The Principal will provide to the Monitor 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 Monitor the option to participate in such meetings.
- 8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- 8.6 The Monitor will submit a written report to the CMD, BHEL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
- 8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC / PC 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

Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

8.10 The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

9.1 This Pact begins and shall be binding on and from the submission of bid(s) by bidder(s). It expires for the Contractor 12 months after the last payment under the respective contract and for all other Bidders 6 months after the contract has been awarded.

9.2 If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 – Other Provisions

10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement 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 agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

For & On behalf of the Principal

(Office Seal)

For & On behalf of the Bidder/ Contractor

(Office Seal)

Place-CHENNAI-----

Date-21.09.2019-----

Witness: _____

(Name & Address) _____

Witness: _____

(Name & Address) _____

BANK GUARANTEE FOR SUPPLY FREE ISSUE MATERIAL

Bank Guarantee No:

Date:

NAME OF ISSUING BANK

& ADDRESSES OF THE BENEFICIARY

NAME OF ISSUING BANK

& ADDRESS

BANK EMAIL ID:

BANK PHONE NO:

SFMS Serial No* :

AUTHORISED SIGNATORIES CELL PHONE NO:

BANK FAX NO:

IFSC AND MICR CODE

Dear Sirs,

1. In consideration of Bharat Heavy Electricals Limited¹ (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____¹ through its Unit at.....(name of the Unit) having awarded to.....² (Name of the Vendor / Contractor / Supplier) (**VENDOR CODE**), with its registered office at _____² (hereinafter called "the Vendor/Contractor/Supplier" which expression shall include its successors and permitted assigns) a contract Ref No.....dated³valued at Rs.....(Rupees -----) -----)/FC.....(in words.....) for⁴(hereinafter called the 'Contract')

AND WHEREAS the Employer having agreed as per the terms and conditions of the Contract to supply free issue materials for the manufacture/fabrication of the equipment at the 'Contractor/Supplier/Fabricator's' site on furnishing of a Bank Guarantee for Rs. _____ (Rupees.....)⁵ in the manner hereinafter specified for the due safeguard of the free issue material,

2. we,, (hereinafter referred to as the Bank), having registered/Head office at and inter alia a branch at being the Guarantor under this Guarantee, hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount but not exceeding Rs ----- (Rupees -----) without any demur, merely on a demand from the Employer and without any reservation, protest and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

3. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

4. We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the 'Contractor/Supplier/Fabricator in any suit or proceeding pending before any Court or Tribunal or Arbitrator or any other authority, our liability under this present being absolute and unequivocal.
5. The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment hereunder and the 'Contractor/Supplier/Fabricator' shall have no claim against us for making such payment.
6. We theBank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and till the reconciliation of the free issue material has been carried out and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.
7. We Bank further agree that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said 'Contractor/Supplier/Fabricator' from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Contractor/Supplier/Fabricator and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said 'Contractor/Supplier/Fabricator' or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said 'Contractor/Supplier/Fabricator' or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.
8. The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor/Supplier/ Fabricator and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's/Supplier's/ Fabricator's liabilities.
9. This Guarantee shall remain in force upto and including.....⁶ and shall be extended from time to time for such period as may be desired by Employer.
10. This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor/ Supplier/ Fabricator but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.
11. Unless a demand or claim under this guarantee is made on us in writing on or before the **claim period last date** we shall be discharged from all liabilities under this guarantee thereafter.
12. Any claim or dispute arising under the terms of this document shall only be enforced or settled in the Courts at Tiruchirappalli/Chennai.

13. We, BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....⁵
- b) This Guarantee shall be valid up to⁶
- c) Unless the Bank is served a written claim or demand on or before (minimum 3 to 6 months from the expiry date)⁷ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

14. We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated.....

Place of Issue.....

¹ NAME AND ADDRESS OF THE EMPLOER. i.e Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER AND VENDOR CODE ASSIGNED BY BHEL . . .

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

⁴ PROJECT/SUPPLY DETAILS AND CONTRACT VALUE

⁵ BG AMOUNT IN FIGURES AND WORDS

⁶ VALIDITY DATE (dd /mmm /yyyy)

⁷ DATE OF EXPIRY OF CLAIM PERIOD (dd /mmm /yyyy)

*** Structured Financial Messaging System (SFMS)** has been/ is being implemented by the Banks as per the Ministry of Finance's instructions for Sending and receiving Bank Guarantee and also Inland Letter of Credit Instruments. The SFMS provides a platform for secure communication within the Bank and between Banks. As such, SFMS can prove to be an excellent IT enabled platform for getting secure confirmations from the Banks in respect of Bank Guarantees issued in favor of BHEL.

List of Consortium Banks

Sl. No	Nationalised Banks	Sl. No	Public Sector Banks
1	State Bank of India	18	IDBI
2	Allahabad bank		
3	Andhra bank	Sl. No	Private banks
4	Bank of Baroda	19	Axis Bank
5	Canara Bank	20	HDFC
6	Corporation bank	21	ICICI
7	Central bank	22	The Federal Bank Limited
8	Indian Bank	23	Kotak Mahindra Bank
9	Indian Oversea Bank	24	Indusind Bank
10	Oriental bank of Commerce	25	Yes Bank
11	Punjab National Bank		
12	Punjab & Sindh Bank	Sl. No	Foreign banks
13	Syndicate Bank	26	CITI Bank N.A
14	UCO Bank	27	Deutsche Bank AG
15	Union Bank of India	28	HSBC
16	United Bank of India	29	Standard Chartered Bank
17	Vijaya Bank	30	J P Morgan

Enquiry for Fabrication of Pipe Clamps-SA387 Grade-91 material
on Conversion Basis with BHEL Material
ENQ 4601900001 / 21.09.2019

ANNEXURE-F DECLARATION

FIRM NAME & ADDRESS:

DECLARATION:

I / We M/s. do hereby undertake the following:

- 1) I/We declare that I/We have not been presently put on hold, banned or black-listed by any of the BHEL units
- 2) I/We declare that I/We have read and understood all the terms & conditions specified under this NIT and Annexures & Appendices forming part of the tender to be signed with BHEL and agree to abide by the terms & conditions. It is confirmed that I/we have not taken any deviation to any of the terms & conditions as mentioned in the NIT
- 3) I/We accept to the terms and conditions of this NIT and upload the mandatory documents forming part of Techno-commercial/Part-I bid evaluation process as required by BHEL.
- 4) I/We declare that I/We have not been booked by CBI and/or indicted by a court of law in any criminal case during last 5 years.
- 5) I / We accept to provide the Bank Guarantee against materials issued by BHEL as per conditions detailed in NIT and as per the format given along with this NIT
- 6) I/We have understood that, by submitting the duly signed Annexures/ Sections against this tender enquiry, it is presumed by BHEL that our firm is accepting all tender terms & conditions including all the Annexures & Sections of this Tender enquiry.
- 7) I/ We are aware that, in case it comes to notice of BHEL during the finalization of Tender / after placement of Contract and while executing the Contract, that we have given incomplete, false, incorrect, suppressed information & data, forged documents, fake documents / certificates, fake Certificates or any information prejudicial to BHEL's interest, action shall be taken against us under the BHEL guidelines for suspension of business dealings.

FIRM'S AUTHORISED SIGNATORY

WITH SEAL

Bharat Heavy Electricals Ltd., Piping Centre, Chennai – 600 017		
Packaging Instructions for Piping Components	Doc. No PC: PKG:01	
	Rev No: 00 Date : 28 /05/ 2014	No of Sheets : 24

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

Bharat Heavy Electricals Ltd., Piping Centre, Chennai – 600 017		
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Contents

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

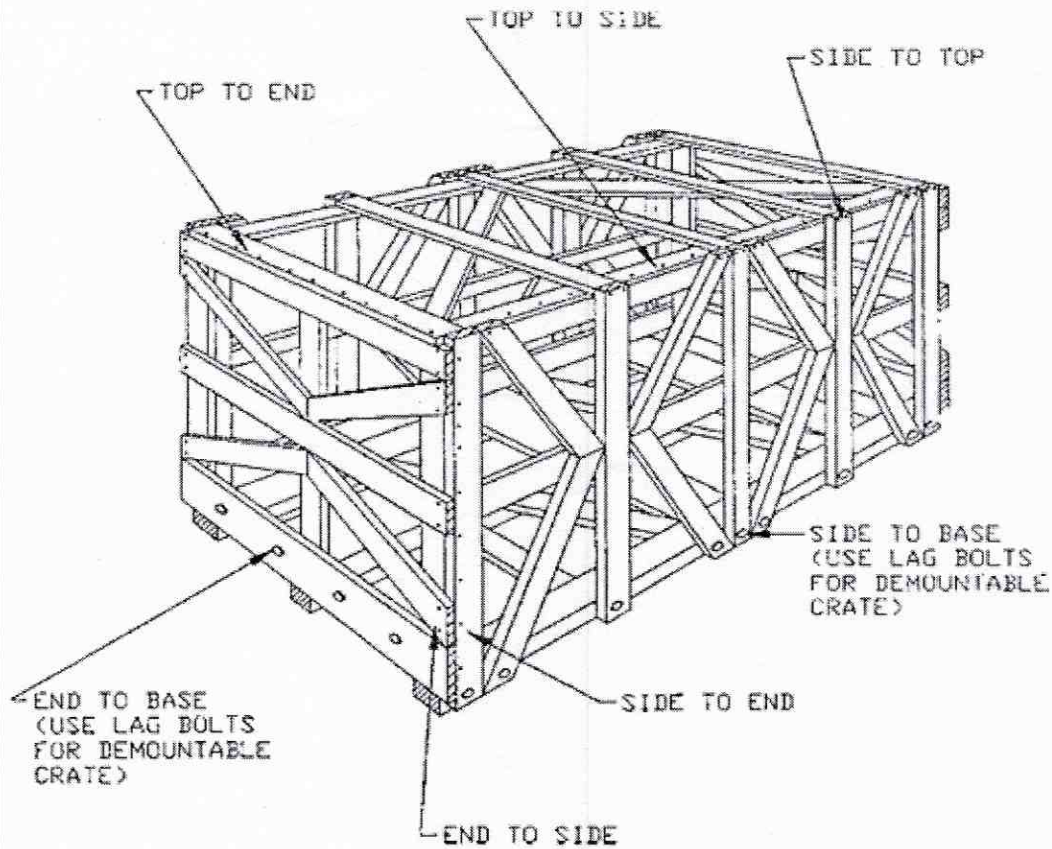
- These are to be made of seasoned wood and are intended for packaging heavy materials Viz., straight pipes and pipes with attachments.
- The crates are to be lined with hi-density polythene, to prevent entry of moisture.
- The dimensions of the crates are to be restricted to 20 x5x5 feet.
- Pipes up 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**

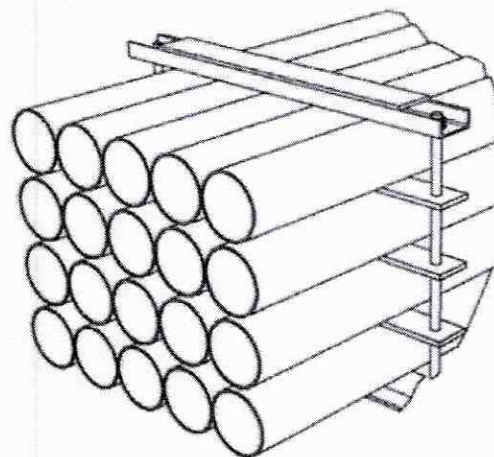
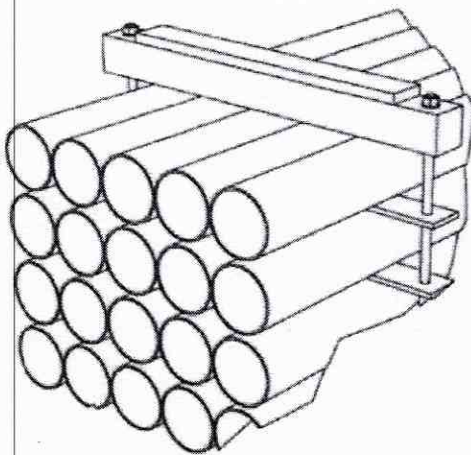
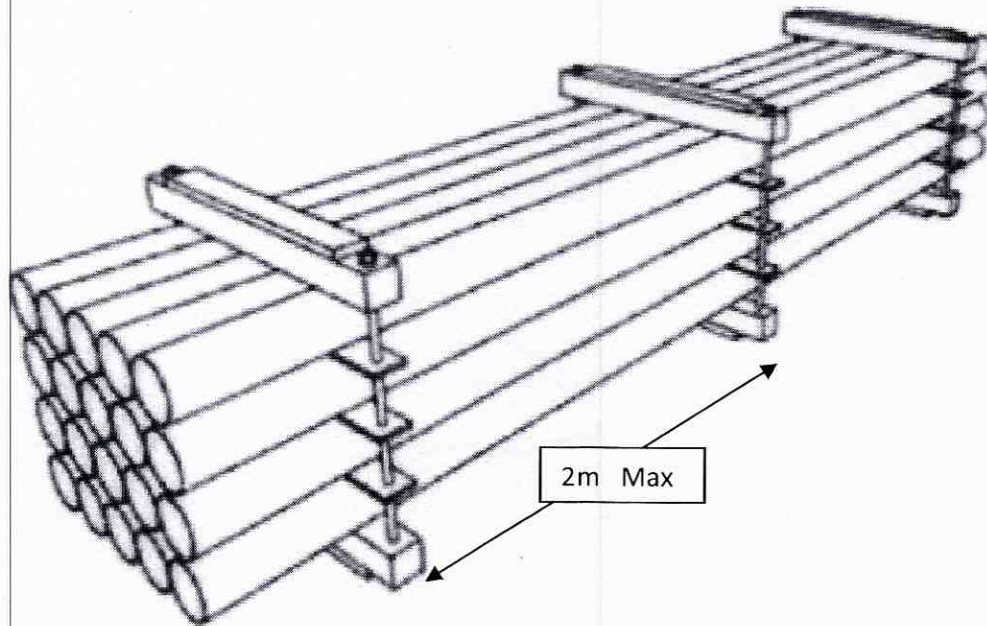
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5. SLING PROTECTIONS

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.

Packaging Instructions for Piping Components

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9. Reference drawings

1. SLIDE
2. LONGITUDINAL UNDER SLIDE BOARD.
3. BOTTOM BOARD
4. CARRIER TRAVERSE BAR
5. INTERMEDIATE VERTICAL SUPPORT
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.

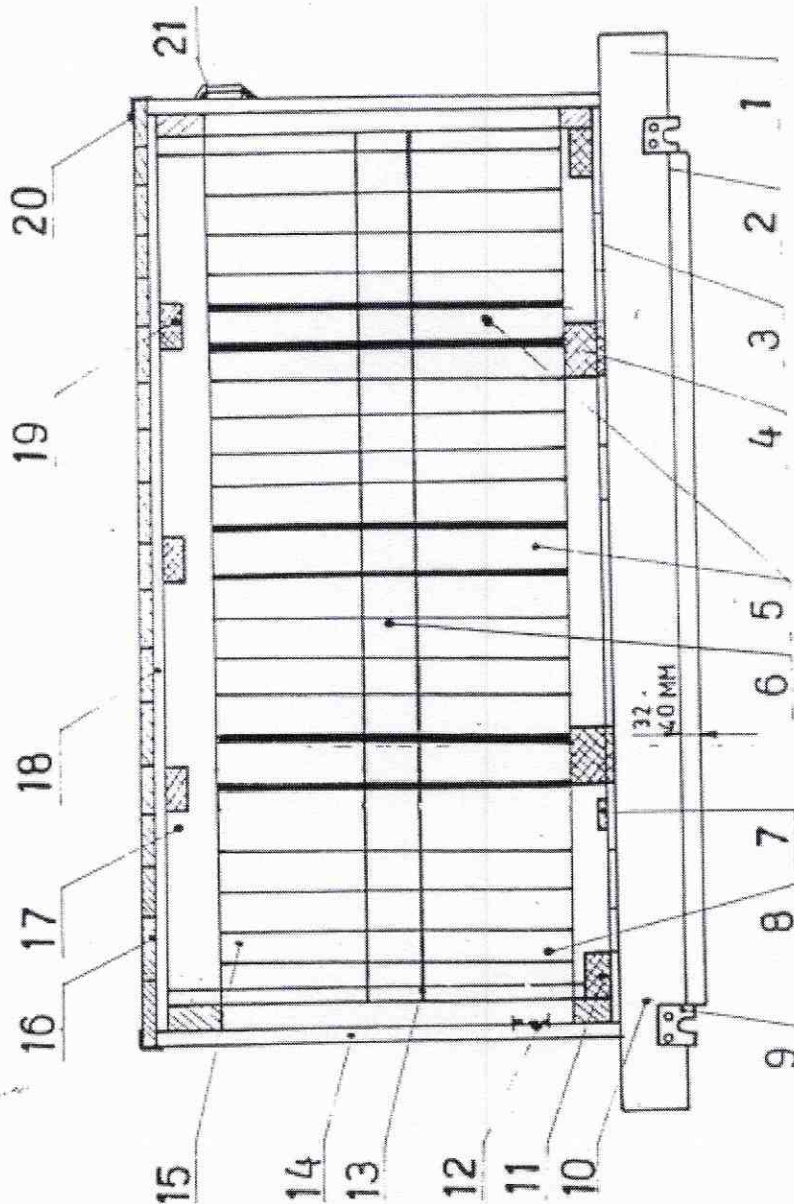


FIG. 1

NOMENCLATURE OF PARTS OF PACKING

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

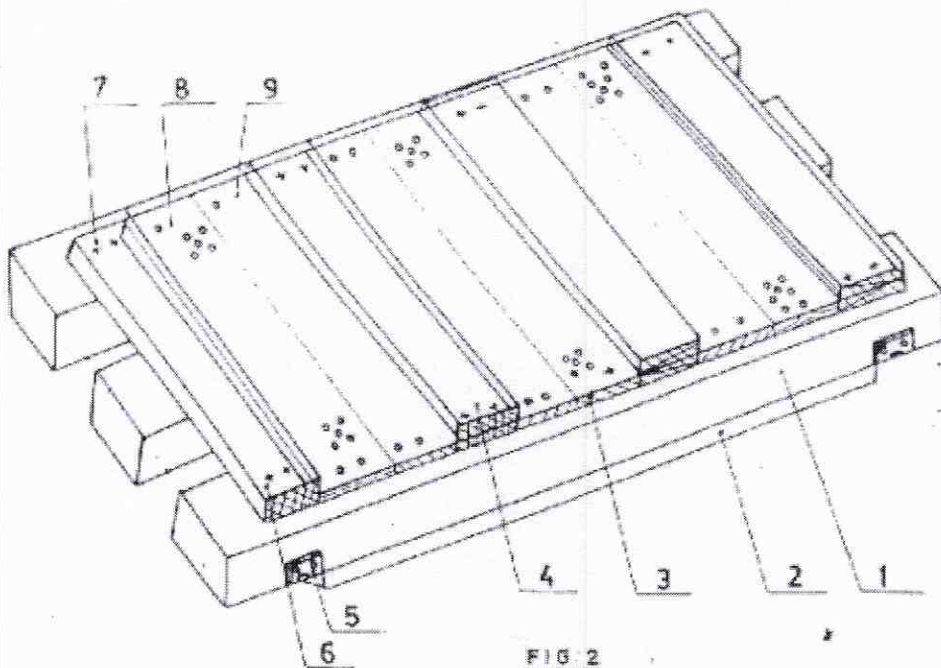


FIG 2

- 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

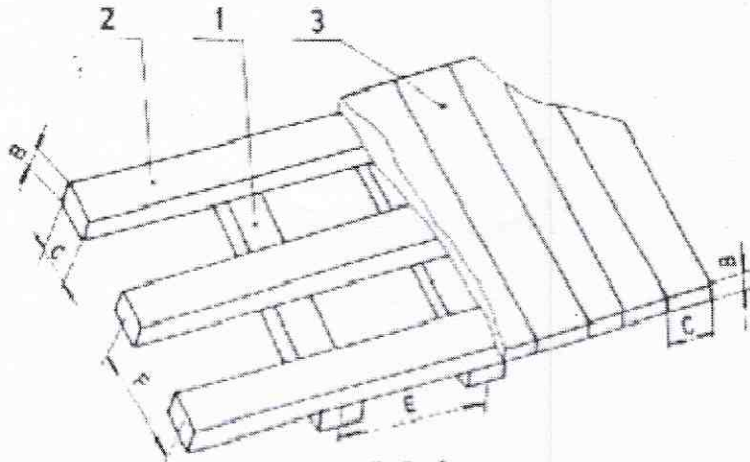


FIG - 3

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

PROVISION OF DIAGONAL BRACING ARRANGEMENT

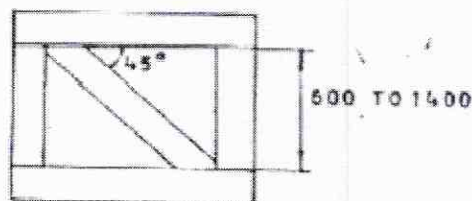


FIG-4

**Packaging Instructions for Piping
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ARRANGEMENT OF DIAGONAL BRACING &
HORIZONTAL SUPPORT

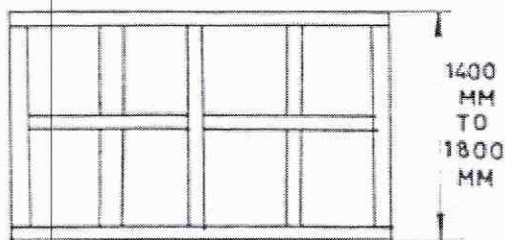


FIG. 5

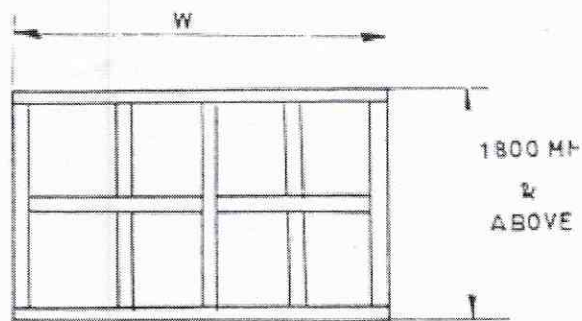


FIG. 6

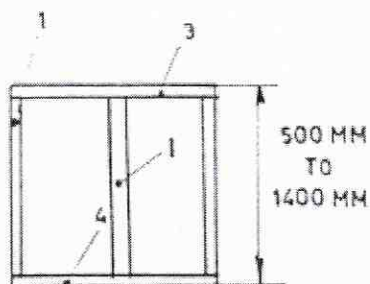


FIG : 7

1. VERTICAL SUPPORT

3. UPPER HORIZONTAL SUPPORT

4. LOWER HORIZONTAL SUPPORT

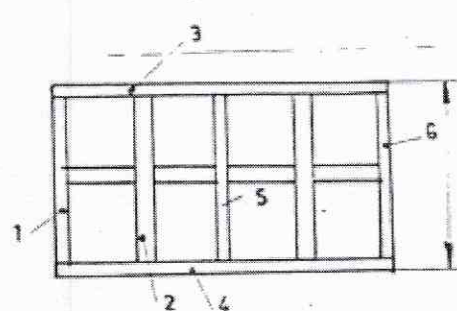


FIG: 8

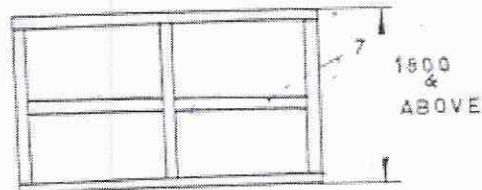
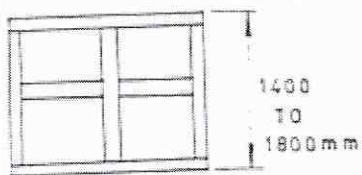
1, 2, 5, 6 - VERTICAL SUPPORT

3 - UPPER 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

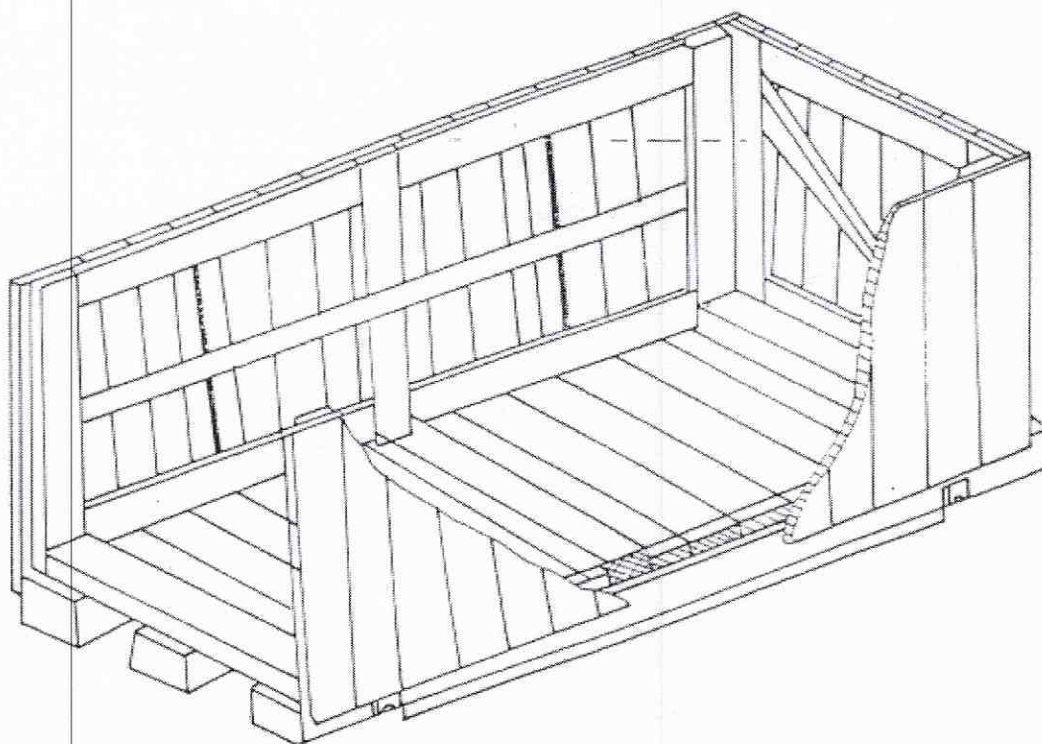


FIG : 11

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ARRANGEMENT OF ANGLE IRON CLEATS

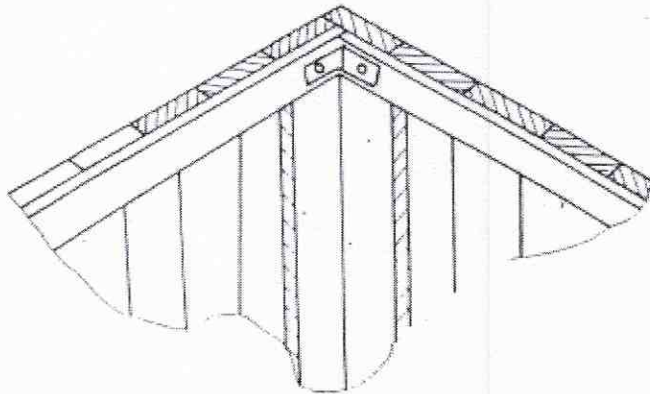


FIG : 12

ARRANGEMENT OF C-CLAMPS AROUND CASES

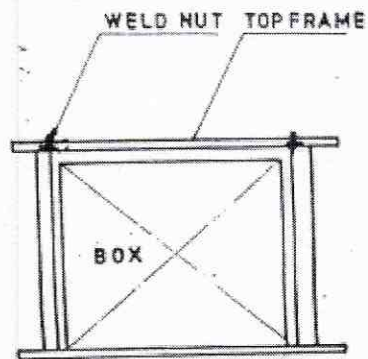
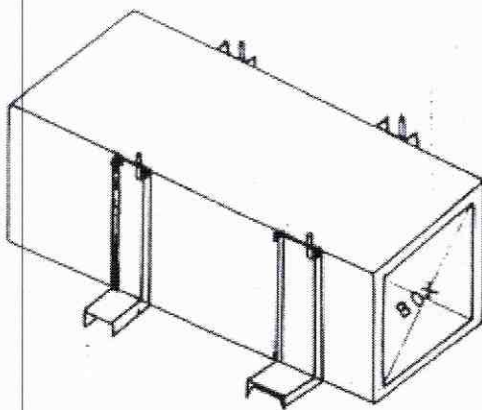


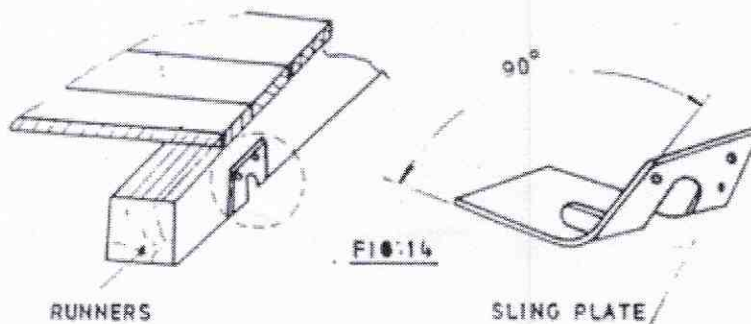
FIG: 13

**Packaging Instructions for Piping
Components**

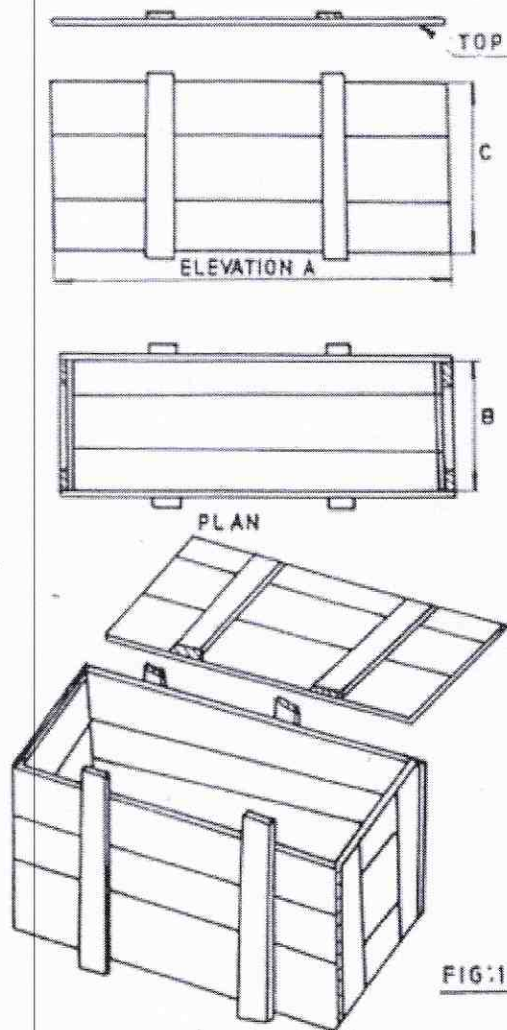
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ARRANGEMENT OF SLING - PLATE ON
CASES



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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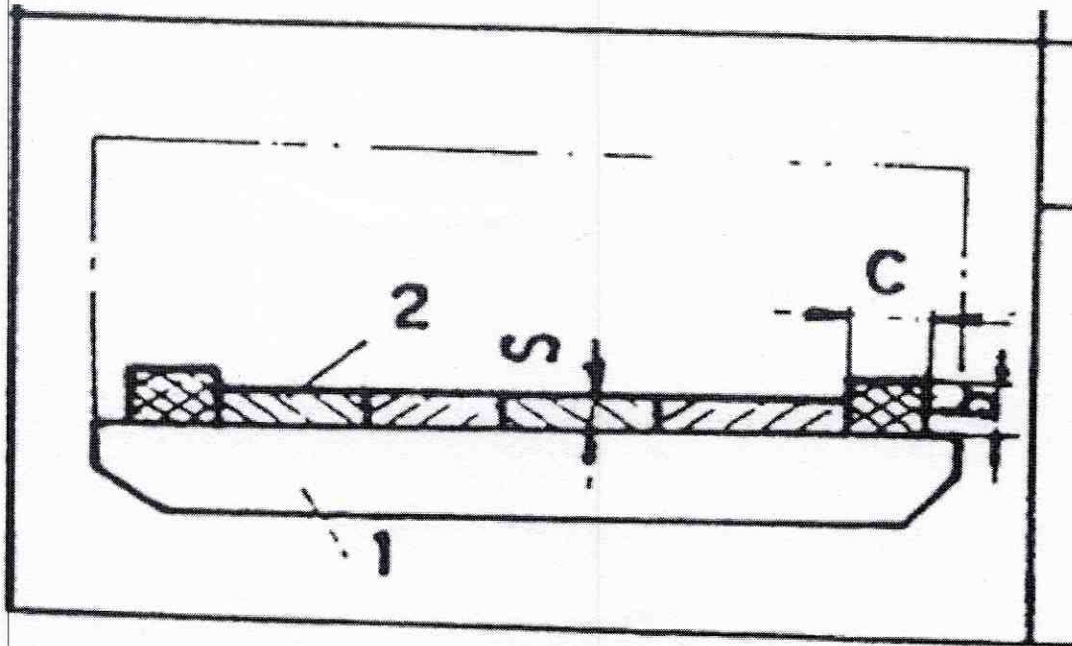
TABLE-4

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:



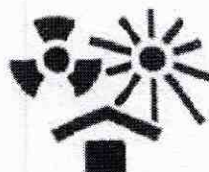
Cross section of end traverse bar item 1 fig. X and thickness of bottom board (item – 2)			
Load in kg	Width of the box	Cross section	S
Up to 3000	Above 1000 mm	100 x 100	25

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10. Cautionary symbols



FRAGILE, HANDLE WITH CARE



PROTECT FROM HEAT AND
RADIOACTIVE SOURCES



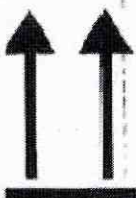
USE NO HOOKS

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



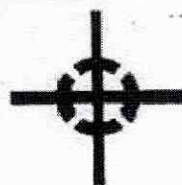
KEEP DRY

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



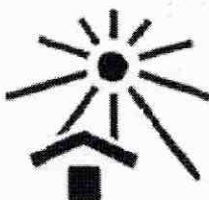
THIS WAY UP

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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Packaging Instructions for Piping Components	Doc. No PC: PKG:01	
	Rev No: 00 Date : 28 /05/ 2014	No of Sheets : 24

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.	

ENQ 4601900001 / 21.09.2019**LIST OF ITEMS FOR THE GRADE 91 CLAMPS FA - 2019-20****ENQ SL NO. TYPE WISE TOTAL QUANTITY FOR GRADE-91 CLAMPS**

ENQ SL NO.	CLAMP TYPE	Approx Quantity WEIGHT IN KG
1	BEARING CLAMP - Clamp Plate Thickness up to 40 mm	36000
2	BEARING CLAMP - Clamp Plate Thickness above 40mm up to 65 mm	4000
3	HORIZONTAL CLAMP-Clamp Plate Thickness up to 40 mm	129600
4	HORIZONTAL CLAMP -Clamp Plate Thickness above 40 up to 65 mm	14400
5	RISER CLAMP-Clamp Plate Thickness up to 40 mm	180000
6	RISER CLAMP -Clamp Plate Thickness above 40 up to 65 mm	20000
7	SHOCK ABSORBER CLAMP -Clamp Plate Thickness up to 65 mm	72000
8	TRUNNION CLAMP - Clamp Plate Thickness up to 65 mm	288000

ANNEXURE -H2 - ENQ 4601900001 / 21.09.2019

Bearing Clamp		Horizontal Clamp		Riser Clamp	
CLAMPS		CLAMPS		CLAMPS	
	OPERATION		OPERATION		OPERATION
1	Clamp plate plasma cutting per piece	1	Clamp plate plasma cutting per piece	1	Clamp plate plasma cutting per piece
2	Straightening of plasma cut plate	2	Straightening of plasma cut plate	2	Straightening of plasma cut plate
3	Heating for forming/Pressing	3	Heating for forming/Pressing	3	Heating for forming/Pressing
4	Pressing per clamp	4	Pressing per clamp	4	Pressing per clamp
5	Normalising & Tempering	5	Normalising & Tempering	5	Normalising & Tempering
6	Skew correction of pressed clamps	6	Skew correction of pressed clamps	6	Skew correction of pressed clamps
7	Shot blasting	7	Shot blasting	5	Shot blasting
8	MARKING FOR EXTRA ST PORTION AND DRILL	8	MARKING FOR EXTRA ST PORTION AND DRILL	6	MARKING FOR EXTRA ST PORTION AND DRILLIN
9	Extra Straight portion cutting/milling per clamp	9	Extra Straight portion cutting/milling	7	Extra Straight portion cutting/milling
10	Drilling for M24	10	Drilling for M39 and dia 63	8	Drilling for M45 and dia 51 holes
				RIB PLATES	
SIDE PLATE, BOTTOM PLATE & STIFFENER		Spacer Ring		1	Plates plasma cutting per piece
1	Plates plasma cutting	1	Saw Cut the rod	2	Straightening of plasma cut plate
2	Straightening of plasma cut plate	2	Face both ends & Through Drill	3	FOR END Milling of HAZ per piece
3	Milling of HAZ				
4	Gas cutting of bottom plate			Spacer Ring	
5	Grinding of gac cutted edges	ASSEMBLY		1	Saw Cut the rod
ASSEMBLY		OPERATION		2	Face both ends & Through Drill
	OPERATION	1	Match the clamps with stud & pins		
1	Fitup of Side plates,Bottom Plate & Stiffener plate	2	Painting & H/O	ASSEMBLY	
2	Welding of side plates, Bottom plate & Stiffener plate				OPERATION
4	Final PWHT			1	Fitup of Rib plate with clamp
5	NDE(MPI)			2	Welding of RIB Plate on clamp
6	Shot blasting			3	PWHT
7	Painting & H/O			4	NDE(MPI)
				5	Shot blasting
				6	Assy
				7	Painting & H/O

ANNEXURE -H2 - ENQ 4601900001 / 21.09.2019

Shock Absorber Clamp		Trunion Clamp	
U Rod	OPERATION	Clamp plates	OPERATION
1	Rods Saw cutting	1	Plates plasma cutting per piece including the oblong holes&218 hole
2	Rods threading per rod	2	Straightening of plasma cut plate
3	Threaded Rods EP	3	Milling of edges per piece
4	Rod heating for U pressing	Box Plates	OPERATION
5	Pressing	1	Gas cutting of all 8 box plates
6	Normalising & Tempering	2	Straightening of plasma cut plate
7	Skew correction of pressed clamps	3	Milling of HAZ per piece
8	Shot blasting	4	Stopper plate cutting (all 8 pieces)including 150x189 oblong hole
9	EP of U Rod	5	Grinding
10	U & Threaded rod fitup		
11	Welding one side	ASSEMBLY	
12	Inter stage SR		OPERATION
13	Backside Grinding	1	Fitup of Box Plates (per box)
14	Other Side welding	2	Welding of box plates (per box)
15	PWHT	3	FLUSH GRINING OF WELDMENT AND BOW CORRECTION /BOX
Pad plates	OPERATION	4	Welding of Stopper plate on clamps
1	Plates plasma cutting per piece	5	PWHT of Clamp & Stopper Assy
2	Straightening of plasma cut plate	6	Shot blasting
3	Milling of edges per piece	7	NDE
4	Rolling in Press brake per piece	8	Assy with Box plates & Tacking
SIDE PLATE, BOTTOM PLATE & STIFFENER		9	Painting & H/O
	OPERATION		
1	Plates plasma cutting per piece		
2	Straightening of plasma cut plate		
3	Grinding/Milling of HAZ per piece		
4	Fixing Plate Drilling		
5	Gas cutting of bottom plate		
6	Grinding of gac cutted edges		
ASSEMBLY			
	OPERATION		
1	Fitup of Side plates,Bottom Plate & Stiffener plate		
2	Welding of side plates, Bottom plate & Stiffener plate		
3	PWHT of Plate Assy		
4	Shot blasting		
5	Assy		
6	Painting & H/O		



SUBCONTRACTING MACHINING (MFG)

SCM:MAS:

Dt: 17-10-2013

Sub: Uniform Cutting Plan Norms

Ref: Meeting held on 21-09-2013

Consequent to the meeting held on 21-09-13 on the above subject, the revised cutting plan norms is enclosed for your information and necessary implementation.


P. MUTHUVEERAN
SDGM / SCM / MFG

To

All Expediting & MAS Staff

All Executives

General Cutting Plan Instructions

- a) Cutting Plans are to be made mandatory for all Gate passes.
- b) Cutting Plan are to be followed uniformly for all Products irrespective of the manufacturing process style
- c) Cutting Plans are to be submitted for approval in SCMC with working details within 15 days of Material Collection
- d) For Profile Cut Jobs / Odd Shapes, Cutting Plans are to be submitted in graph sheets. "Profile-to-Profile" Cutting plans should be submitted by vendors for Cams and other intricate shapes.
- e) Materials are to be cut only as per the approved cutting plan.
- f) Exceptions in Cutting Plans are to be separately reviewed by the Expeditors and on physical verification the same may be approved with appropriate reasons.
- g) Big size Scrap Sizes are also to be booked as Excess in the Cutting Plans. SCM may consider scrap as offcut under special circumstances
- h) The Meager quantity difference between the RSV booked by the vendor and the RSVs accounted by Stores, is to be treated as Offcut / Scrap as per the Section wt. norms. Presently the meager difference in quantity is treated as Offcut. .

1.0. Allowances for Plates and Sheets (Squares and Rectangles)

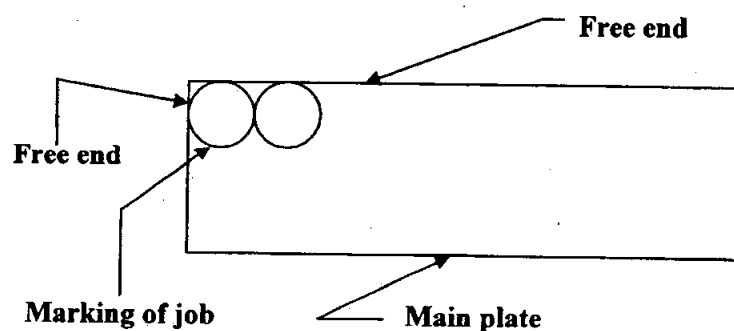
Normally shearing allowances are not allowed for plates up to thickness of 10mm. As a special case, firms which do not have shearing facilities, a gas cutting allowance of 3mm may be allowed.

Size of plates	Cutting allowance only (per job)	Gas cutting + Grinding allowances	Cutting+Machining allowance
Upto 12 mm	3 mm	4 mm	7 mm
Above 12 mm and up to 20mm	4 mm	5 mm	8 mm
Above 20 mm and up to 32mm	4 mm	5 mm	9 mm
Above 32 mm and up to 50mm	5 mm	6 mm	11 mm
Above 50 mm and up to 80mm	6 mm	8 mm	13 mm
Above 80 mm and up to 100mm	8 mm	10 mm	16 mm
Plate 125 and above	10 mm	12 mm	20 mm

Gas cutting of round shapes from plates.

Earlier for getting round plates from the supplied rectangular/square parent materials, double the allowance was permitted assuming the gas torch nozzle negotiates on the already marked circle on both the sides circumferentially.

The above practice may be dispensed with and the same allowance as given for cutting square/rectangular plates may be adopted by following the below mentioned system of marking and gas cutting. Cutting allowance mentioned applicable to one job.

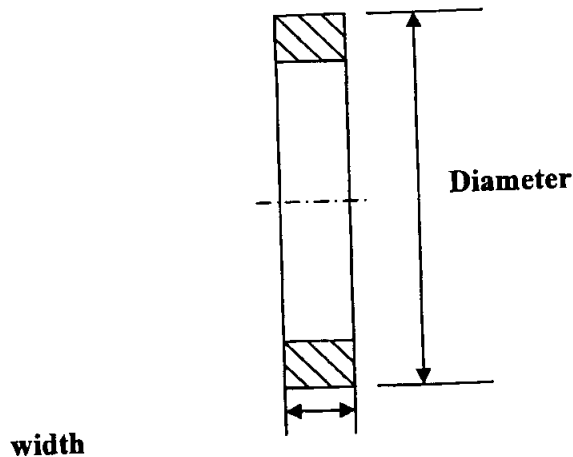


The free ends(left and top sides) of the main plate do not need cutting allowance and become the sides of round job. The gas cut edges(right and bottom sides) on the main plate after cutting the first job, become the 'free ends' for the next job and so on and hence single cutting allowance is enough.

1.1 Prebending/Rolling allowance for plates

In addition to the cutting/machining allowance, prebending/rolling allowance of minimum 20mm to a maximum of 100 mm may be allowed (to be added only in the developed length) depending upon the thickness and length & breadth of the job. Examples are given below.

For Rings, Collars, Spacers etc. (For plate thickness up to 25mm)



Diameter	Width/Breadth of Job	Prebending/rolling allowance
Upto 250 mm dia	30mm to 50mm	Developed length + 20mm
Upton 250mm dia	Above 50mm & up to 100mm	Developed length + 25mm
Upton 250mm dia	Above 100mm & Upto 150mm	Developed length + 30mm
Above 250 ,up to 500	30mm to 50mm	Developed length + 25mm
Above 250 ,up to 500	Above 50mm & Upto 100mm	Developed length + 30mm
Above 250 ,up to 500	Above 100mm & Upto 150mm	Developed length + 40mm
Above 500 mm	30mm to 50mm	Developed length + 30mm
Above 500 mm	Above 50mm & Upto 100mm	Developed length + 40mm
Above 500 mm	Above 100mm & Upto 150mm	Developed length +50mm

For plate thicknesses more than 25 mm, 1.25 times of the above allowance may be added to the developed length.

1.2 Allowances for Shells, Skirts, Plate formed pipes etc.

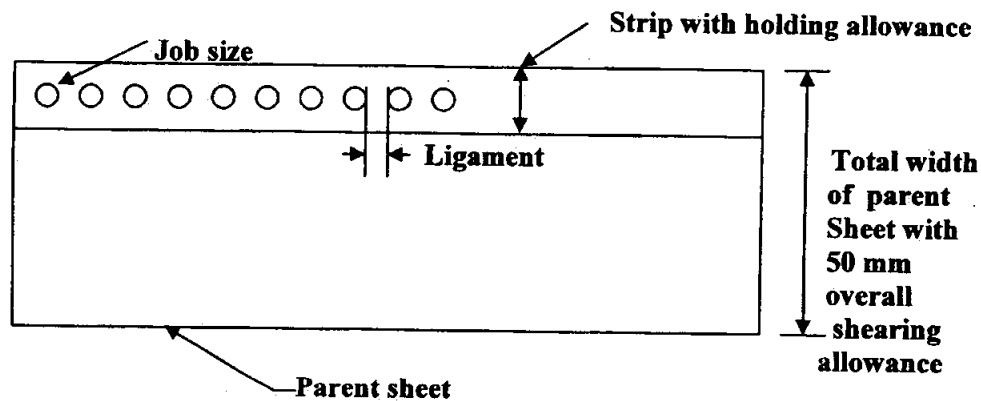
Prebending/Rolling allowance of Minimum 50mm to a maximum of 100 mm and as a special case a Maximum of 125mm may be allowed. Examples are given below:

Diameter	Thickness	Allowance
Upto 750mm	Upto 12mm	Developed length +50mm
Upto 750mm	Above 12mm & Upto 25mm	Developed length +60mm
Upto 750mm	Above 25mm & Upto 40mm	Developed length +80mm
Above 750, upto 1500	Upto 12mm	Developed length +60mm
Above 750, upto 1500	Above 12mm & Upto 25mm	Developed length +80mm
Above 750, upto 1500	Above 25mm & Upto 40mm	Developed length +90mm

Above 1500 mm, 100 mm may be allowed and for thicknesses more than 40mm a maximum of 125 mm may be allowed.

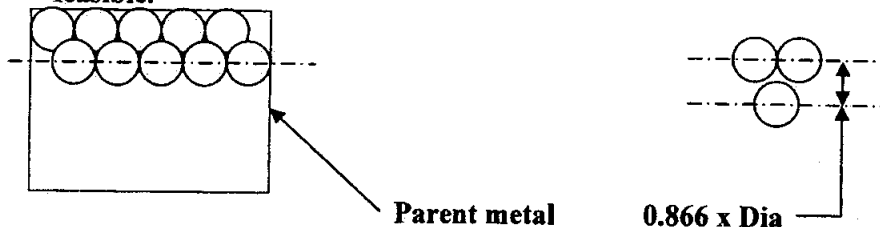
1.3 Allowances for Sheets (Upto 3.15mm)

For All sheets no shearing allowance is allowed. To facilitate further operations after shearing like punching, blanking, piercing, a total of 50 to 60 mm for the whole parent sheet (as end bit after shearing) may be allowed. The ligament thickness between successive blanking a maximum of 0.5mm (Not compulsory) may be allowed.



The round pieces from plates can also be cut by inserting them at the middle as shown in fig. feasible.

→ If this distance is more than half the dia of job, insert cutting is



2.0 Allowances for Rods

Normally, rods having diameters more than 40mm are cut in Hacksaw before machining. But, when operations like internal boring/ internal threading/ internal reaming etc. is/ are involved, the pieces are parted from the main Bar in lathes itself.

Hence either parted in lathes or hacksaw cut, the cutting and machining allowances for rods are given hereunder as guidelines.

Diameter / Rolled Size	Cutting Allowance	Cutting+Machining Allowance
Upto 12mm	2mm	5 mm
16mm,20mm&22mm	3mm	6 mm
25mm &32mm	4mm	8 mm
36mm,40mm& 50mm	5mm	9 mm
56mm to 80 mm	6mm	11 mm
100mm to 125 mm	8mm	15 mm
165 mm	9mm	18 mm
200 mm	10mm	20 mm
250 mm	12mm	22 mm

2.1 Tubes & Pipes

<u>Tubes</u> Diameter	Cutting allow.	Cutting+Machining allowance
Dia 14 to 25.4	2 mm	4 mm
Dia 25.5 to 38.1	3 mm	5 mm
Dia 38.2 to 51	4 mm(Max)	7 mm
Dia 51.1 to 76.1	4 mm	8 mm(Maximum)
<u>Pipes</u>		
Dia 88.9, 108, 114	5mm	10 mm
Dia 127,168	6mm	12 mm
Dia 127,168	7mm	14 mm
Dia 219.1, 244	8mm	15 mm
Dia 323.9,368	9mm	17 mm
Dia 406.4, 457	10mm	20 mm
Dia 508, 558	12mm	22 mm
Dia 615	14mm	24 mm
Dia 711	14mm	25 mm

Note For allowing extra cutting allowances in plates, sheets, pipes and rods while performing operations like prebending, bending, rolling and centering in rods & holding allowances, the same may be determined and allowed in consultation and approval from Head of Dept through concerned expeditors.

Allowances for Coils, Panels and Headers

Coils

Hydro allowance (Including final cutting and EP after Hydro test) 25 – 30 mm (Maximum) at end limbs of coils.

Panels(Manual Welding)

Shrinkage Allowance - 3mm per metre length

Hydro allowance (Including final cutting and EP after Hydro test) 25 – 30 mm (Maximum) per side.

Panels(Machine welding)

Start of Arc allowance - 75 mm (one side only)

Shrinkage Allowance - 6 mm(Maximum) per metre length of Panel tube

Cutting + chamfering allowance – 10 mm (for joints)

Hydro allowance (Including final cutting and EP after Hydro test) 25 – 30 mm (Maximum) per side.

Stubs & Nipples welding on Headers

Upto Dia 76.1mm Tubes	- Cutting+Grinding+Hydro (including EP)	- 20 mm
Above 76.1 & Upto Dia 127 Pipes	- Cutting+Grinding+Hydro (including EP)	- 25 mm
Above 127 & Upto Dia 219 Pipes	- Cutting+Grinding+Hydro (including EP)	- 30 mm
Above 219 & Upto Dia 323 Pipes	- Cutting+Grinding+Hydro (including EP)	- 35 mm
Above 323 & Upto Dia 406 Pipes	- Cutting+Grinding+Hydro (including EP)	- 40 mm
Above Dia 406	- Cutting+Grinding+Hydro (including EP)	- 50 mm

Allowances for any other typical cases, if arises, can be discussed separately and course corrections can be included in consultation with Expediting staff and Dept HOD

Clarifications :-

Query 1- Please clarify the allowances if the job has threaded end at one/ both the ends (job will be made from Rod)

Reply - Cutting + Machining allowance given for the respective sizes of rods itself takes care of threaded end jobs. No need for extra allowance for lengthy threaded rods (more than 70 mm length of thread) machined by "between centres" process as these centres need not be necessarily machined off after threading. If warranted, an extra allowance of 3mm may be allowed.

Query 2 - - Please clarify the allowances for Equal Tee / Unequal Tee manufacturing made out of Pipes .

Reply - Forming / Pressing of pipes are not usually offloaded. Anyway, the processing allowance for Pressing of pipes to form Equal Tee/Unequal Tee may be given as follows.

Length of Run End of Tee + Developed length of Branch End + 150 mm (processing allowance) + 45 mm (machining allowance)

Query 3 - In some jobs, drill holes were made in a plate. Up to what dia, the hole will be made by drilling. If the hole size is bigger, the hole may be formed either by boring, drilling or gas cutting and boring.

Reply - Drilling can be done in plates up to 63 mm hole

Query 4 - The flat materials are issued from stores along with packing materials. The materials' weights are being calculated with packing materials. How we have to calculate the packing material weight. .

Reply - Length of flats can be calculated after deducting the Packing weight from the issued wt. (packing wt. of coiled flats to be ascertained for each case -- Earlier, a maximum of 30 kg was deducted as packing wt. from issued wt. for 5mm coiled flat flats).

**** && & ****

STANDARD QUALITY PLAN

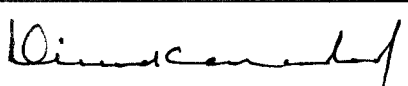
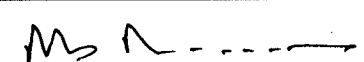
ITEM : PIPE CLAMPS MADE OF Gr91 MATERIAL

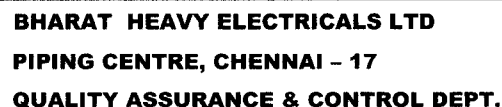
(With BHEL Material)

QP No : QPG:76

Rev No : 03

Date : 04.10.2013

S.No	COMPONENT & OPERATIONS	CHARACTRISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY		REMARKS	
									M	B		
1	2	3	4	5		7	8	9	D*	** 10	11	
1.0	Material											
1.10	Plates & Rods : (SA387 Gr91 Class 2 & SA182 F91)	Co-relation & verification of Mill TCs for a) Chemical Composition. b) Mech. Properties c) Heat Treatment d) Hardness e) Soundness f) Dimension & Surface finish	Major	Verification	100%	BHEL drg & Material Spec		Mill TCs	√	P	V	TC - Test Certificate
1.11	Possitive Material Identification.	Chemical check	Major	Spectro/X-Ray fluorescence	100%	Material Specification.		Report	√	P	--	
1.20	Plates & Rods for attachments(SA515 Gr70, SA387 Gr22, etc..)	Co-relation with BHEL's material issue document.	Major	Verification	100%	BHEL Drawing, Material Spec.				P	V	
1.21	Possitive Material Identification for AS items.	Chemical check	Major	Spectro/X-Ray fluorescence	100%	Material Specification.		Report	√	P	--	
1.30	Fasteners (Nut, Bolt, Pin, Stud, Spacer ring etc...)	Co-relation with BHEL's material issue document.	Major	Verification	100%	BHEL Drawing.				P	V	
1.31	Possitive Material Identification for AS items.	Chemical check	Major	Spectro/X-Ray fluorescence	100%	Material Specification.		Report	√	P	--	
2.0	IN-PROCESS INSPECTION											
2.1	Material receiving inspection	Marking & transfer of identification	Major	Visual	100%	BHEL Drawing		HC		P	W	Note 1
2.2	Forming of clamps	Procedure for Hot Forming shall be submitted by Vendor for various types viz..Plate type (Main clamp plate and Pad Plates), Rod type, etc... for BHEL approval and forming shall be carried out as per approved procedure. First lot for each type of clamp shall be witnessed by BHEL.										HC - History card
			LEGEND: * RECORDS, INDENTIFIED WITH "TICK" (√) SHALLBE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER ; B: BHEL P: PERFORM W: WITNESS R: REVIEW AND V: VERIFICATION									
PREPARED BY VIVEKANANDA YELLU SR.ENGR / QA								APPROVED BY M.S.MURALIDHARAN MGR / QA				
SIGNATURE			PAGE 01 OF 04									



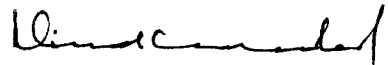
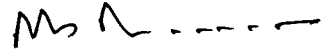
ITEM : PIPE CLAMPS MADE OF Gr91 MATERIAL

(With BHEL Material)

OP No : QPG:76

Rev No : 03

Date : 04.10.2013

S.No	COMPONENT & OPERATIONS	CHARACTRISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY		REMARKS
										M	B	
1	2	3	4	5		7	8	9	D*	**	10	11
2.2.1	Heat Treatment	ROH., ROC, Soaking temp & Soaking time	Major	Review of HT Chart / Log	100%	Refer Note 2		HT Chart	√	P	W*/V	W*: Witness for First of Trail (FOT).
2.2.2	Hardness	Hardness	Major	Measurement	100%	190-250 BHN		Report	√	P	W*/V	
2.2.3	Dimensions	Dimensions	Major	Measurement & Visual	100%	BHEL Drawing		HC	√	P	W*/V	
2.2.4	Bend area	a) Surface quality	Major	Wet MPI	100%	ASME Sec V / ASME B31.1 cl.136.4.3		Report	√	P	W	
		b) Micro Structure	Minor	Insitu Micro	##	No micro fissures, Tempered Martensite structure		Report@@	√	P	V	
2.3 Attachment Welding												
2.3.1	Welding / Welder Qualification	Procedure & Performance Qualification details	Major	Verfication	100%	ASME Sec. IX		WPS , PQR	√	P	V	WPS, PQR shall be approved by BHEL
2.3.2	NDE on EP For Gr91	Discontinuities	Major	LPI/MPI	100%	ASME Sec V / ASME B31.1 cl.136.4.4 / ASME B31.1 cl.136.4.3		Report	√	P	W*/V	
2.3.3	Weld Inspection	Weld profile, Size & Surface quality	Major	Measurement & Visual	100%	BHEL Drawing		HC	√	P	V	
2.3.4	Post Weld Heat Treatment	ROH., ROC, Soaking temp & Soaking time	Critical	Review of HT charts	100%	Refer Note 6		HT chart	√	P	W*/R	
2.3.5	Hardness on Weld	Hardness	Critical	Measurement	100%	245 BHN max for Gr22 & 300 BHN max for Gr91		Report	√	P	W	
2.3.6	NDE after PWHT for Fillet Welds	Soundness	Critical	Wet MPI	100%	ASME Sec V / ASME B31.1 cl.136.4.3		Report	√	P	W	
			LEGEND: * RECORDS, INDENTIFIED WITH "TICK" (√) SHALLBE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER ; B: BHEL P: PERFORM W: WITNESS R: REVIEW AND V: VERIFICATION									
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SIGNATURE			PAGE 02 OF 04									



BHARAT HEAVY ELECTRICALS LTD
PIPING CENTRE, CHENNAI - 17
QUALITY ASSURANCE & CONTROL DEPT.

STANDARD QUALITY PLAN

ITEM : PIPE CLAMPS MADE OF Gr91 MATERIAL
(With BHEL Material)

QP No : QPG:76

Rev No : 03

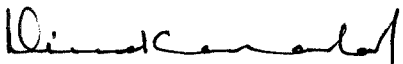
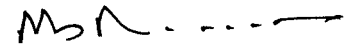
Date : 04.10.2013

S.No	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	D*	AGENCY		REMARKS
										M	B	
1	2	3	4	5		7	8	9		**	10	11
3.0	FINAL INSPECTION											
3.1	Dimensional Inspection	Overall Dimensions	Major	Measurement	100%	As per BHEL Drawing. Also refer Note 7 for Tolerance.		Report	√	P	W	IR - Inspection Report
3.2	Positive Material Identification for all AS components.	Chemical check	Major	Spectro/X-Ray fluorescence	100%	As per Required Material (ASME) Specn.		Report	√	P	W	
3.3	Identification & Painting	Identification, Appearance & DFT.	Major	Visual & Measurement	100%	Painting as per Note 9 & Marking as per Note 10		IR	√	P	W	
3.4	Packing & Protection	Protection	Major	Visual	100%	BHEL Drawing & PO. Also refer Note 11		IR	√	P	V	
4.00	DOCUMENTATION	Verification of Records	Major	Compilation of Records.	100%	As per QPG 76		RM TC, Reports(NDE, Hardness, PMI), HT Charts, IR	√	P	V	

NOTES:

- Seal transfer on pieces to be cut shall be done by BHEL inspector.
- POST FORMING HEAT TREATMENT For SA387 Gr91** : Normalise at 1040 - 1060 deg.C (minimum soaking time 30 min / inch)& Temper at 750-770 deg.C (minimum soaking time 60 min / inch)
For Gr91, normalizing and tempering shall be carried out within 72 hours after completion of forming.
The clamps 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.
Tempering shall not be clubbed with PWHT. Normalising and tempering of Gr91 shall be done encompassing the entire component.
a) **The rate of heating & cooling shall be as below.**

Thickness of Material	Max. rate of heating & cooling above 300deg.C
Upto 25mm	220° C/Hr
Over 25-50mm	110° C/Hr
Over 50-75mm	75° C/Hr
Over 75mm	55° C/Hr

 PREPARED BY VIVEKANANDA YELLU SR.ENGR / QA SIGNATURE	LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER ; B: BHEL P: PERFORM W: WITNESS R: REVIEW AND V: VERIFICATION	 APPROVED BY M.S.MURALIDHARAN MGR / QA



BHARAT HEAVY ELECTRICALS LTD
PIPING CENTRE, CHENNAI - 17
QUALITY ASSURANCE & CONTROL DEPT.

STANDARD QUALITY PLAN

ITEM : PIPE CLAMPS MADE OF Gr91 MATERIAL
(With BHEL Material)

QP No : QPG:76
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S.No	COMPONENT & OPERATIONS	CHARACTRISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY		REMARKS
									M	B	
1	2	3	4	5		7	8	9	D*	** 10	11

- 3) The product shall be manufactured as per BHEL drawing .
 4) Welding Electrodes and Paints used shall be of BHEL approved make
 5) All items shall be inspected and cleared by BHEL/BHEL approved inspecting agencies & Customer (If applicable)

6) **Preheat, Post heat and Post weld heat treatment (PWHT) temperatures (Deg. C) for Gr91 welds**

Base Material	Thickness	Attachment material	Preheat	Post Heat	PWHT	Soaking Time
SA387 Gr91	All	P5A group (Gr22 material)	220 \$\$	280 for 2 Hrs	730-770	1 hour per Inch (min. 1 hour)
		SA387 Gr91	220 \$\$	280 for 2 Hrs	750-770 \$\$	1 hour per Inch (min. 2 hours for Gr91)

\$\$: Pre heat shall be maintained for SA387 Gr91 till welding is completed. After Post heating, Gr91 weldments shall be brought to a temperature of 80-100 deg.C and kept for minnum one hour.

The PWHT shall commence immediately thereafter. Rate of heating & cooling shall be as per Para 2 (a) above.

- 7) Dimensional tolerances shall be as per drawing / P.O. when not specified in drawing / P.O. the tolerances shall be as below:
 a) Radius of curvature. : - 1mm + 1mm
 b) Distance between both hole centers : - 0mm + 2 mm
 c) Over all length : - 0 mm + 2 mm
 d) Axis variation of holes : - 0 mm + 1mm
 e) Slot width : - 0 mm + 1mm
- 8) Cutting of Gr91 plates & rods shall be done by any one of the following method.
 a) Band saw cutting followed by machining (Grinding not allowed).
 b) Water jet cutting followed by machining (Grinding not allowed).
- 9) All Clamps shall be Painted as below when not specified in the P.O./Drawing:-
 Two coats of 20 microns each of Heat Resistance Aluminium Paint to IS 13183 Gr I, after surface preparation by power tool cleaning (SSPC-SP3).
- 10) The finished components shall be punched with DU code (16 digit work order du details),Heat number, material specification, maker's emblem and Inspectors seal.
 In addition, the DU code, Heat no. and Material specification shall also be paint stencilled.
- 11) Threaded portions of the fasteners shall be applied with rust preventive oil to avoid rusting. The total clamp assembly shall be well packed to avoid transit & other damages.

PREPARED BY
 VIVEKANANDA YELLU SR.ENGR / QA

SIGNATURE PAGE 04 OF 04

LEGEND:

* RECORDS, INDENTIFIED WITH "TICK" (✓) SHALLBE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

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APPROVED BY
 M.S.MURALIDHARAN MGR / QA

ANNEXURE-H6 - ENQ 4601900001 / 21.09.2019							
SA387 GR-91 CLAMPS							
INDICATIVE DETAILS OF VARIOUS TYPES OF CLAMPS							
SL.NO	CLAMP TYPE	CAT	APPROX DIA. (MAX)	APPROX LENGTH (MAX)	THK.	MIN.WT	MAX.WT
1	BEARING CLAMP	BRG	864	1170	25	211.226	334.342
2	HORIZONTAL CLAMP	HOR	711	1398	65	114.538	486.992
3	RISER CLAMP	RIS	864	3496	65	395.09	2129.088
4	SHOCK ABSORBER CLAMP	SA	711	820	40	218.54	1514.28
5	TRUNNION CLAMP	TRU	864	3364	40	366.804	1478.772
	ALL DIMENSION IN MM			ALL WEIGHT IN KG			

CAT	CLAMP TYPE
BRG	BEARING CLAMP
HOR	HORIZONTAL CLAMP
RIS	RISER CLAMP
SA	SHOCK ABSORBER CLAMP
TRU	TRUNNION CLAMP

 BHEL - TRICHY	THIRD PARTY NON-DISCLOSURE AGREEMENT		Doc.No. : ISMS-04/TP/011
			Ver. No: 3.0 Rev. No: 00
	Date : 27 - 10 - 14		

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, Trichy on contract is confidential and that the nature of the business of the BHEL, Trichy 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, Trichy 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, Trichy all documents and property of BHEL, Trichy, including: drawings, blueprints, reports, manuals, computer programs/data/configuration, and all other materials and all copies thereof relating in any way to BHEL, Trichy '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, Trichy and are reasonable given the nature of the business carried on by the BHEL, Trichy 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

Certificate by Chartered Accountant on letter head

This is to Certify that M/S
(hereinafter referred to as 'company') having its registered office at
is registered under MSMED Act 2006, (Entrepreneur
Memorandum No (Part-II) dtd:.....
Category: (Micro/Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the latest audited financial year as per MSMED Act 2006 is as follows:

1. **For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No.S.O.1722(E) dated October 5, 2006 :
Rs.....Lacs
2. **For Service Enterprises:** Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:
Rs.....Lacs

(Strike off whichever is not applicable)

The above investment of Rs.....Lacs is within permissible limit of Rs.....Lacs forMicro / Small (Strike off which is not applicable)
Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/ Small) (Strike off which is not applicable) and the date of graduation of such enterprise from its original category is (dd/mm/yyyy) which is within the period of 3 years from the date of graduation of such enterprise from its original category as notified vide S.O. No. 3322(E) dated 01.11.2013 published in the gazette notification dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

Name -

Membership number -

Seal of Chartered Accountant