

 BHEL GOINDWAL	SPECIAL TERMS AND CONDITIONS FOR (Tender Enquiry No. 1718-045E Dated 02.06.2017 Due date 13.06.2017) ITEM: Forging Seat Rings
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Tender Enquiry No	1718-045E
Enquiry date	02.06.2017
Last time and date of tender submission	14:00 Hrs 13.06.2017
Tender opening time and date	15:30 Hrs 13.06.2017
Quotation Parts	<u>Two-part</u>
Item Description	<u>Forging Seat Rings</u>
Delivery schedule (In days)	<u>90</u>
Validity of offer (In days)	<u>90</u>
Documents required along with supply of material	<u>Applicable</u>
Test Certificate	<u>Required</u>

This tender is through E procurement mode only. Hard copy based quotations are not acceptable. Bidders need to see procedure in our General Contract conditions i.e. GCC for submitting quotation through E procurement system

The relevant documents can be downloaded from <https://bheleps.buyjunction.in> [Go for 'Advanced Search' >> Organization: Trichy, BHEL >> Enquiry No. 1718-045E]

PREQUALIFICATION TERMS

P1. Technical

1. Bidders should primarily be engaged in manufacturing and supply of material grade as required by BHEL in forging seat rings. Vendor has to give undertaking that he is manufacturing these material grades.
2. Suppliers not engaged in manufacturing of forgings will not be considered. Vendor has to give any one proof that he is manufacturer e.g copy of ECC (Excise control Code) Number/MSME certificate/VAT Registration number (If applicable), List of forging facilities etc.
3. Machining Facility (for proof machining) can be in-house or outsourced. In case of in-house machining facility – details to be provided. In case of outsourcing of Machining facilities BHEL intends to satisfy itself that party has suitable arrangement for machining. A document for the tie-up/MOU/Purchase order on machining house(s) has to be provided with the details of machining facility available with the attached machining house.

BHEL reserves the right to accept/reject any offer based on evaluation of bidder's capability. For verification of data presented for pre-qualification bid, BHEL may decide to visit the bidder(s) works.

P2. Earnest Money Deposit (EMD)

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The bidder shall be required to deposit earnest money of Rs. 5,000/- (Rupees five thousand only)
 The EMD/Tender Fee may be accepted only in the following forms:

1. Cash deposit as permissible under the extant Income Tax Act (before tender opening)
2. Electronic Fund Transfer credited in BHEL account (before tender opening). The BHEL Account number to be used for purpose of EMD is **Punjab National Bank, Goindwal (IFSC CODE PUNB0193200), Account Number 1932009300002270.**
3. Banker's cheque / Pay order/ Demand draft(DD), in favour of Bharat Heavy Electricals Limited (before tender opening) and payable at PNB/SBI/HDFC/UNION BANK/PUNJAB & SIND BANK/ Allahabad Bank Goindwal Sahib only.

Following shall be exempted from submitting EMD:-

1. PSUs of Central Government/State Governments (proper evidence had to be submitted).
2. Micro and Small Enterprises (documents required as per as per tender terms G.12 of General Contract Conditions).

EMD given by all unsuccessful bidders shall be refunded normally within 15 days of placing PO/Contract to successful bidder. EMD by the Bidder will be forfeited as per Tender Documents if, the successful bidder/vendor refuses to accept or acknowledge the Order after award of the same on him and/or withdraws his bid and /or unilaterally changes the offer and/or any of its terms & conditions within the validity period. EMD shall not carry any interest.

The EMD of successful bidder shall be returned after completion of purchase order.

SPECIAL TERMS

S1. QUOTATION SUBMISSION

Bid	Details	Required
Part-I	PART-I: "Pre-qualification cum Techno-Commercial Bid" Tender Enquiry no. 1718-045 Dated 02.06.2017 Due date of opening: <u>13.06.2017</u>	1. Acceptance of all terms and conditions. 2. EMD/Proof of exemption 3. Proof of manufacturer 4. Undertaking for material grades manufacturing
Part-II	PART-II: "Price Bid" Tender Enquiry no. 1718-045 Dated 02.06.2017	Price bid

S2. LOADING CRITERIA CUM COUNTER OFFER

BHEL reserves the right to negotiate with L1 or re-float the tender in case the quoted prices are not acceptable. BHEL will not give counter-offer to vendors for this tender except MSE benefits mention in GCC of MM Tenders. In case of two or more L1 vendors, the tender quantity shall be divided equally among L1 vendors.

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S3. ADVANCE TAX

If any Advance tax is applicable on these forgings at Punjab border then Supplier has to deposit advance tax by himself which will be reimbursed on submission of documentary proofs (Copy of entry tax receipt/online transfer details duly verified). Present rate of advance tax is 3.50%.

Documents submitted with the offer shall be signed and stamped in each page by authorized representative of the bidder.

G1. INSTRUCTION TO BIDDER

Quotations shall be submitted before due date and time. Late offers are liable to be rejected, so please ensure to submit bid well within due date and time. Techno-commercial part will be opened on due date. **Based on evaluation of techno-commercial offers, Price bids of bidders who qualify from techno-commercial evaluation shall be opened. BHEL may decide to open the Price bid same day at 1700 hrs. If not opened on the same day, all qualifying bidders shall be notified for date of opening of Price bids by email/fax/post/courier/E-procurement system generated email.**

G1.1 INSTRUCTION TO BIDDER (In case of Non-E-Procurement/Paper/Manual/Hard Copy based tenders)

Sealed Tenders can be dropped in the tender box labeled as 'Tender box for MM contracts'. This tender box is located at the entrance of Admin block BHEL Goindwal. Fax (01859-222061) / E-Mail (tendermm@bhelivp.in) offers received in time shall be considered only when such offers are complete in all respects. In case of bulky tender please handover quotation to Sh Harpreet Rai/ DGM/Head-MM or Sh Tajinder Singh/AGM/HR,Civil,MM. [Contact : 01859 224 615/621].

G2.1. INSTRUCTION TO BIDDER (In case of E-Procurement)

Interested bidders/Suppliers shall submit their offer through e-Procurement mode at <https://bheleps.buyjunction.in>. **Offers in any other mode will not be accepted.**

For Enterprise Procurement System (EPS) Bidders/Suppliers are requested to follow these steps:

a. Requirements

1. A PC with Internet connectivity.
2. DSC (Digital Signature Certificate) (Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION)
3. The site is best viewed in Internet Explorer 9.0. If you are using Internet Explorer 10 or above then enable compatibility view available under Tools menu.
4. Install Java 1.8 Update 67/72/79/77 (32 OR 64 Bit)

b. Mandatory Requirements:

Suppliers interested for registration for BHEL Open Tenders should have a valid DSC (Digital Signature Certificate) before Proceeding forward for Registration. Herein a Valid DSC refers to an Active and unexpired Signing and Encryption Certificate, with specification Class III SHA 2 2048 bit.

For Unregistered Suppliers in EPS:

Procedure for Online Registration in EPS for Open Tender Suppliers for BHEL. Please follow the below steps for registration: -

1. Click Register Button (Top of the Screen).
2. Please input your organization PAN No (in case of Indian supplier) or click "Foreign" in case you are an overseas Supplier.
3. Click on INTERESTED Button against the Organisation name 'Trichy, BHEL'.
4. Key in your desired login id (Login Code should be 8 - 24 characters in length and can only use numeric values) If you have registered by keying in PAN No. then your desired login id will be prefixed by "OTI", In case of overseas suppliers it will be prefixed with "OTF".
5. Fill in the other details.
6. Fill in the Captcha code and click next
7. Register your Signing certificate and click next
8. Select atleast one procurement category you may be dealing in.





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Once the above steps are completed, your profile will be activated by mjunction within 2 business hours. After registering follow the steps provided in "For Registered Supplier" to view RFQ.

NB:-

1 BHEL Administrator or user will have no role for approving Registration and Open Tenders and DSC for Any supplier who has registered himself from the front END which is in case of OT.

For Registered Supplier in EPS:

1. Supplier visits EPS home page
2. Supplier signs in with their user id and password
3. Selects the RFQ Code and views it.
4. Attaches themselves to the RFQ by clicking the interested button
5. Supplier fills the bid template and makes necessary attachments
6. Supplier submits their bid by clicking CONFIRM.

In case of any assistance, please call the following Nos for support:

033-6601 1717(From 9:30am to 5:30pm)

9163348280/83/84/85/86, 8584008116, 8584008205, 8336925964 (From 5:30pm to 8:30pm)

G2.2. OTHER IMPORTANT INFORMATION RELATED TO E-PROCUREMENT TENDERS

1. The bidder has to keep track of any changes by viewing the addendum / Corrigendum's issued by the Purchaser on time-to- time basis in the E-Procurement platform. The Company calling for tenders shall not be responsible for any claims/problems arising out of this.
2. The user should complete all the processes and steps required for bid submission. The successful bid submission can be ascertained once acknowledgement is given by the system through bid submission number after completing all the processes and steps. BHEL and mjunction Services Ltd. will not be responsible for incomplete bid submission by users. Users may also note that the incomplete bids will not be saved by the system and are not available for the Purchaser for processing.
3. Before uploading scanned documents if any, the bidders shall sign on all the statements, documents, certificates uploaded by him, owning responsibility for their correctness / authenticity.
4. On the due date of tender opening, only technical bids will be opened. The opened technical bids will be evaluated by us and clarifications required, if any, will be called for from the bidders on technical and commercial points. If no reply is received from the vendor for the clarification raised by BHEL with in the final cut-off date, those vendors offer will be processed with the documents available / submitted against this tender. Offers not meeting the required specification and technical condition will be summarily rejected. The price bids of technically suitable bidders will be opened on a later date with prior intimation to techno-commercially suitable bidders.
5. Ranking L-1, L-2 etc. shall be done for individual item for the techno-commercially acceptable offers on landed cost to BHEL, IVP Goindwal basis and BHEL reserves the right to place order for individual items with different vendors. In the event of more than one vendor becoming L1 for the item, the enquiry quantity will be shared equally among all the L1 vendors.
6. BHEL reserves the right to negotiate with L1 vendor or re-float the tender for items where, L1 price is not the lowest acceptable price; BHEL reserves the right to increase or decrease the tender quantity.
7. If supplier is mentioning delivery destination within state/ out side state depending upon his location of factory, Free On Road etc these are assumed as on FOR Goindwal. If supplier is wishing to give delivery on Ex works basis then he has to clearly mention about it.

G3. PRICE BASIS

- a. CST, VAT & Excise duty + any cess on ED at the rates applicable shall be payable extra against ED Gate Pass valid for CENVAT benefit.



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- b. Order of enquiry item sl. No. shall be maintained in the quotation.
- c. The rates quoted shall be firm and fixed. No price variation is proposed and allowed.
- d. Rates quoted should be F.O.R Goindwal basis. If bidder has quoted Ex Works, loading shall be done as per BHEL discretion for tender evaluation.

Variation in excise duty, sale tax/ vat or any other statutory levies during contractual delivery period shall be to BHEL's account

G4. VALIDITY OF OFFERS:

The offers shall be kept open for acceptance 'for number of days mentioned in special terms and conditions' from the date of opening of the tender. In case of extension of tender opening date, the validity shall be suitably revised.

G5. SCOPE OF SUPPLY

Material shall be supplied as per the applicable latest Technical Delivery Conditions (TDC)/ Material Standard requirements/BPS/Drawing and other requirement as given in the Tender Enquiry. National & International material Standards shall have to be arranged by vendors themselves.

G6. REPLACEMENT OF REJECTION:

If the material is rejected due to defective workmanship during inspection or at the time of actual use, within the guarantee period (i.e. as per clause 13), the rejected material shall be replaced by the supplier. Corresponding quantity shall be treated as unsupplied against respective purchase order till replacement is received at BHEL. If the material is found defective and rejected during use for which payment has already been released the rejected quantity shall be supplied free of cost by the vendor within a month of intimation of the rejection by BHEL.

Lifting of rejected material is under Supplier's scope. BHEL will inform related invoice, qty etc to supplier. Supplier is expected to give the plan to lift and advance intimation when visiting to lift the material. Material should be lifted within one month from date of intimation. After one month BHEL will not be responsible for rejected material. BHEL may decide to send the rejected material on To Pay basis to supplier. Any leniency/ unresponsiveness/delay on part of supplier may lead to appropriate action by BHEL. Any request to postpone in written may be considered but replacement should not be linked with lifting of material.

G7. SUPPLIED MATERIAL ADJUSTMENT:

Item/s pending in previous PO has to be billed in previous PO only. Otherwise BHEL will be free to adjust the supplies in previous PO. Any implication of Excise, VAT etc will be on supplier's account. For this it is desirable to reconcile the pending PO statement every month/frequently. BHEL will give pending PO statement every month. This can also be viewed at Portal (<http://vis.bheltry.co.in/mm/index.jsp>).

G8. DELIVERY SCHEDULE:

Supplies shall be affected and completed as per schedule mentioned in special terms and conditions. Further, BHEL may release delivery schedule from time to time based upon our requirement with mutual understanding. Vendor shall be required to complete the order as per the BHEL schedule requested.

G9. ACCESS TO MANUFACTURING PREMISES:

While Purchase Orders placed on the vendor are under execution, authorized representatives of BHEL shall be allowed free access to the manufacturing facilities for the purpose of inspection or monitoring the progress of purchase orders. This access will also be extended to representatives of BHEL's customers



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accompanying the authorized representative/s of BHEL (which shall be intimated in advance), if our contractual requirements with our customers call for the same.

G10. TERMS OF PAYMENT:

- a. Due payment against supplies received shall be due after 30 days of receipt and acceptance of material and shall be paid within next 15 days period. In case of any deviation from standard payment term mentioned, BHEL at it's discretion may load on the item price at "Base rate of SBI (as applicable on the date of bid opening; Techno-commercial bid opening) + 6% shall be considered for loading for the period of relaxation sought by bidders.
- b. Documents to be submitted (if applicable)
 - i. Commercial invoice (in duplicate)
 - ii. Excise invoice (in duplicate) valid for claiming CENVAT credit
 - iii. Original VAT invoice valid for claiming input tax credit,
 - iv. Transporter copy along with material/consignment.
 - v. Material Test Certificates (MTC) and
 - vi. Compliance Certificate.
- c. Above documents should include your Registration numbers such as ECC no, PAN no, CST no, TIN/ VAT nos. etc.
- d. If excise claim document is not received within time for claiming excise benefit as per restriction in availment of CENVAT Credit within 12 months of date of Invoice (Amendments in Union Budget 2015), the implication of this will be paid by supplier.
- e. It is mandatory to mention proper material codes in the invoices and separate invoices to be raised for different POs.
- f. ***BHEL releases payment through EFT mode ONLY. Necessary details may please be submitted by filling required format before release of payment.***

G11. INSPECTION:

- a. All required tests as called in referred material standard/BHEL/TDC/drawing etc shall be carried out by vendor at no extra cost. **BHEL may decide to inspect itself/arrange third party at vendors' works itself as and when necessary with prior intimation to the vendor.** No additional charges shall be claimed for such inspections.
- b. Third party inspection charges will be borne by BHEL. Moreover all required infrastructure (testing, tools etc) have to be arranged by supplier.
- c. **Vendor will give inspection call sufficiently in advance considering the delivery period stipulated in the purchase order.**
- d. Material Test Certificates (MTC), Inspection reports and Compliance/Guarantee Certificate are to be provided along with the supplies.
- e. Latest applicable revisions of standards/procedures to be referred. International/National standards are to be arranged by vendor.
- f. Any inspection carried out before supply by vendor/incoming stage at BHEL notwithstanding, if any defect/non-conformity is noted during processing, the same shall be attended/replaced by vendor at no extra cost.
- g. Necessary tooling including thread gauges etc have to be arranged by vendor. Only in exceptional cases, based on BHEL discretions item/nature, BHEL may consider request to provide gauges if available with BHEL. But in no case this shall be linked with delivery of material.

G12. PREFERENCES FOR MSE's:

Preferences as mentioned in "Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012" shall be given to Micro and Small enterprises.

Main points which are mentioned in the above order are as follows:

- 20% Procurement of the tender value shall be made from MSE (Micro, Small Enterprises) firms.
- 4% from the above mentioned 20% procurement quantity shall be procured from MSE's owned by SC /ST's. Failure to participate by any MSE owned by SC/ST's this 4% quantity shall be procured from other MSEs.
- EMD shall be exempted for MSE's. All these benefits are subject to production of all statutory documents
- In tender, participating Micro and Small Enterprises quoting price within price band of L1+15 per cent shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a Micro and Small Enterprise and such Micro and Small Enterprise shall be allowed to supply up to 20 per cent of total tendered value. In case of more than one such Micro and Small Enterprise, the supply shall be shared proportionately (to tendered quantity).

"MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either EM II certificate having deemed validity (five years from the date of issue of acknowledgement in EM II) or valid NSIC certificate or EM II certificate along with attested copy of a CA certificate (Format enclosed at Annexure -1 where deemed validity of EM II certificate of five years has expired) applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the date of bid opening (Part 1 in case of two part bid). Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry if any deficiency in the above required documents is not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted officer."

G13. GUARANTEE/WARRANTEE:

Vendor shall give a guarantee of 18 months from the date of dispatch or 12 months from date of receipt, against manufacturing defects, whichever is earlier. In case of non-acceptance of this term bid will be rejected.

G14. PENALTY FOR LATE DELIVERY:

'Time is the essence of the contract'. As such, delivery of goods specified in the Purchase Orders released under the scope of this contract shall be made within the time limit prescribed therein. Penalty for late delivery will be applicable @ 0.5% per week or part thereof subject to a maximum of 10.0 %.

If any vendor does not accept LD ½% of the supply for each week of delay subject to a maximum of 5%, their offer is likely to be rejected by BHEL and the price bid shall not be opened. Bidders accepting for 10% LD shall not be loaded on account of LD. However bidders who offer any other % LD [between 5% to 10%] shall be loaded @ % deviation from 10% and their accepted %.e.g. If a bidder accepts for a max of 7% LD only, their offer would be loaded @ 3% (10 – 7 = 3).

BHEL reserves the right to receive or not receive the material after the due date of PO.





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G15. RISK PURCHASE:

BHEL shall be entitled to terminate the contract/pending POs at any stage and to purchase elsewhere at the risk and cost of the vendor, either the whole of the goods or any part thereof which the supplier has failed to deliver or dispatch within the time stipulated as aforesaid. Vendor shall be liable for the losses, which BHEL may sustain by way of such risk purchase.

G16. SUB-CONTRACT:

The purchase order or any part thereof shall not be sub-contracted, assigned or otherwise transferred without previously obtaining the BHEL's consent in writing.

G17. FORCE MAJEURE:

If at any time during the continuance of the contract, the performance in which or in any part by either party of any obligations under the contract are prevented or delayed by reason of any war, hostilities, acts of public enemy, civil commotion, sabotage, fires, explosions, epidemics, quarantine restrictions, or acts of God (hereinafter referred to "an events" then provided the notice of happening of any such event is given by either party to the other within 21 days of the occurrence thereof, neither party shall by reason of such event be entitled to terminate the contract nor shall either party have any claim for damages against the other in respect of such non-performance and delay in performance and delivery under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist. If the performance in whole or part of any obligation under the contract is prevented or delayed by reason of any such event, claims of extension of time shall be granted for periods considered reasonable by BHEL subject to prior notification by the vendor to BHEL of the particulars of the event and supply to BHEL, if required, of any supporting evidence. Any waiver of time in respect of partial installment shall not be deemed a waiver of time in respect of remaining deliveries.

G18. DISPUTES:

In the event of any dispute and/or difference arising between the Vendor and BHEL as to interpretation and/or execution of the contract and/or the respective rights and liabilities of the parties, such disputes and/or differences shall be referred to the sole arbitrator nominated by BHEL. The provisions of the Indian Arbitration Act and the rules there under shall apply to such arbitration. The award passed by the arbitrator shall be final and conclusively binding on all the parties.

G19. JURISDICTION:

The court of the place from where the purchase order is issued during the contractual period shall alone have jurisdiction to decide any dispute arising out of or in connection with the purchase order.

G20. CLARIFICATIONS

The correspondence exchanged against the tender from both tenderer and BHEL through email/e-procurement are considered as valid document legally though it is not signed. It is treated as valid confirmations made on behalf of the respective company and very much comes under the legal ambit of the business transaction and hence it is binding on both the parties to the business. Any transaction pertaining to the tender from both the parties of business done round the clock irrespective of the office or business hours of the companies, are valid legally and binding on both the parties. This applies to the extent only in such cases where deadline time for transaction is not specifically declared by either or both the parties to the business.



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G21. LOI (Letter of Intent)

BHEL may issue LOI prior to the PO for any reason whatsoever. The LOI in such cases is to be treated as PO for all practical purposes and all the Terms & Conditions of the tender shall be applicable from the date of issue of LOI.

G22. WORDS AND FIGURES

- a. If, in the price structure quoted for the required goods/ services/ works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.
- b. If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- c. If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject of (a) and (b) above.
- d. If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.

G23. GENERAL:

- a) BHEL will not be bound by any power of attorney granted by the vendors or by changes in the composition of the firm made subsequent to the execution of the contract. They may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the vendor concerned.
- b) BHEL reserves the right to extend the due date of opening, which shall be informed. Validity of offer shall be deemed to be revised accordingly.
- c) BHEL reserves the right to accept or reject any part or whole of the tender of a bidder by assigning a valid reason thereof. BHEL reserves the right to cancel the tender without assigning any reason thereof and without any obligation before any commitment.
- d) If possible, please submit soft copy of price quotation [copied on a blank CD of standard make] put in the sealed offer.
- e) Acceptance of all terms and conditions, in the form of signed copy of T&C or confirmation separately written, shall be submitted along with quotation. If nothing is mentioned, it shall be concluded that terms and conditions are acceptable.
- f) BHEL may increase/decrease item/s based on BHEL requirement before price bid opening. Suitable price implication may be asked from suppliers.
- g) BHEL may drop item/items from tender at any stage of tender before placing PO. BHEL may also delete PO with consent with supplier within delivery date of PO.
- h) After releasing PO, it is assumed that supplier has accepted PO if we do not receive acknowledgement from supplier within 5 days of date of PO.
- i) Any term is special tender terms and conditions will supersede the GCC.
- j) If advance tax is applicable at Punjab border. Supplier has to deposit this advance tax by himself which will be reimbursed on submission of documentary proofs (Copy of entry tax receipt/online transfer details duly verified).
- k) BHEL reserves the right to negotiate with L1 bidder/s.

G24. BANNED FIRMS:

The offers of the bidders who are on the banned list as also the offer of the bidders, who engage in the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL website www.bhel.com.

G25. DISCLAIMER CLAUSE: (Only for E procurement)

Neither the Organization (Bharat Heavy Electricals Ltd.) nor the service provider (mjunction Services Ltd.) is responsible for any failure of submission of bids due to failure of internet or other connectivity problems or reasons thereof.

G26. FRAUD PREVENTION POLICY:

The Bidder along with its associate/collaborators/sub-contractors/sub-vendors/consultants/service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL management about any fraud or suspected fraud as soon as it comes to their notice.

G27. REVERSE AUCTION:

BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder.

This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).

The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.

If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).

G28. SUSPENSION OF BUSINESS DEALINGS WITH DEFAULTERS

BHEL shall take action against suppliers by way of suspension of business dealings, who either fail to perform or are in default without any reasonable cause, cause loss of business/ money/ reputation, indulge in malpractices, cheating, bribery, fraud or any other misconduct or formation of cartels so as to influence the bidding process or influence the price etc. Such action under Suspension of Business Dealings could be in the form of "Hold" or "Banning" a supplier or a bidder or an applicant for registration as a registered supplier. The detailed guidelines are available at our www.bhel.com.



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

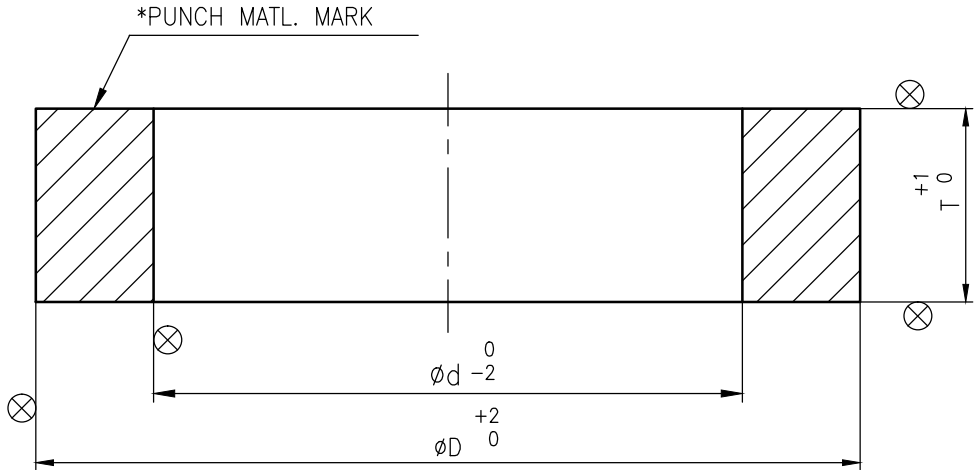
1		2		3		4		5		6		7		8			
DRAWING NO. 2-V-0000-14526P		ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP															
A	SL. No.	DRAWING NUMBER	MATL.SPECN.	*MATL. MARK	MATERIAL CODE	Wt.(kg)	DIMENSIONS			APPLICABLE VALVES							
							øD	ød	T								
	01	2-V-N025-14526P	A105 NR, CERTIFY	A105	92 201 913	0.62	98	70	23	3"-150C-GV							
	02	2-V-N033-14526P	A105 NR, CERTIFY	A105	92 201 914	1.06	132	94	20	4"-300C-GV							
	03	2-V-N001-14526P	A105 NR, CERTIFY	A105	92 201 915	1.90	178	145	30	6"-150C-GV							
	04	2-V-N009-14526P	A105 NR, CERTIFY	A105	92 201 916	2.70	232	195	29	8"-150C-GV							
B	05	2-V-N057-14526P	A105 NR, CERTIFY	A105	92 201 917	3.63	286	246	29	10"-150C-GV							
	06	2-V-N041-14526P	A105 NR, CERTIFY	A105	92 201 918	4.40	338	297	29	12"-150C-GV							
	07	2-V-N017-14526P	A105 NR, CERTIFY	A105	92 201 919	2.50	188	145	30	6"-300C-GV							
	08	2-V-N089-14526P	A105 NR, CERTIFY	A105	92 201 920	3.5	242	195	29	8"-300C-GV							
	09	2-V-N065-14526P	A105 NR, CERTIFY	A105	92 201 921	5.24	302	246	29	10"-300C-GV							
	10	2-V-N105-14526P	A105 NR, CERTIFY	A105	92 201 922	5.60	348	297	29	12"-300C-GV							
C	11	2-V-N297-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 923	1.06	132	94	20	4"-150C-GV							
	12	2-V-N306-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 924	1.9	178	145	30	6"-150C-GV							
	13	2-V-N274-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 925	2.70	232	195	29	8"-150C-GV							
	14	2-V-N305-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 926	3.63	286	246	29	10"-150C-GV							
	15	2-V-N258-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 927	0.62	98	70	23	3"-300C-GV							
	16	2-V-N229-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 928	2.5	188	145	30	6"-300C-GV							
D	17	2-V-N230-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 929	3.5	242	195	29	8"-300C-GV							
	18	2-V-N304-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 930	5.24	302	246	29	10"-300C-GV							
	19	2-V-N309-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 931	5.60	348	297	29	12"-300C-GV							
	20	2-V-F502-14526P	A105 NR, CERTIFY	A105	92 201 932	0.98	102	60	27	3"-600C-GV							
	21	2-V-F532-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 933	0.98	102	60	27	3"-600C-GV							
	22	2-V-F503-14526P	A105 NR, CERTIFY	A105	92 201 934	1.67	130	86	30	4"-600C-GV							
E	23	2-V-F533-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 935	1.67	130	86	30	4"-600C-GV							
	24	2-V-F504-14526P	A105 NR, CERTIFY	A105	92 201 936	3.8	184	136	42	6"-600C-GV							
	25	2-V-F534-14526P	A182 F22CL3. NT, CERTIFY	F22	92 201 937	3.8	184	136	42	6"-600C-GV							
	26	2-V-F505-14526P	A105 NR, CERTIFY	A105	92 201 938	5.88	232	184	50	8"-600C-GV							
	NOTES:- 1. FORGING SHALL BE MADE IN SUCH A WAY THAT MACHINING CAN BE DONE IN THE SPECIFIED DIMENSION SHOWN IN TABULAR COLUMN. 2. ⊗ INDICATES THE SURFACES WHICH ARE TO BE MACHINED FURTHER. 3. FORGING SHALL BE COMPLY WITH REQUIREMENTS OF LATEST APPLICABLE QUALITY WORK INSTRUCTIONS.																
F	REV 01		DATE 30.01.16	ALTERED A.VSMANIAN													
	ZONE		SL. No. 53 TO 64 INCLUDED.														
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.		TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		CS		BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI -620014.		DRN CHD APPD		NAME M.SARAVANAN S.SATHEES M.RAJAKUMAR		SIGN		DATE 18.01.10 18.01.10 18.01.10		NO.OF VAR. -	
		DEPT VL		SCALE NTS.		WEIGHT (KG).		REFERENCE INFORMATION						NO. OF ITEMS -			
		CODE 320		TITLE SEAT RING (PROOF MACHINED FORGING)		CARD CODE U 01		DRAWING NO. 2-V-0000-14526P						REV 01			
1		2		3		4		5		6		7		8		Size A2	

3-V-0000-24490P
DRAWING NO.

SL.No.	DRAWING NO.	MATL. SPECN.	PUNCH MATL. MARK	MATERIAL CODE	WT (Kg)	DIMENSIONS			APPLICABLE VALVES
						∅D	∅d	T	
01	3-V-5171-24490P	ASTM A105 NORMALISED CERTIFY	A105	92 201 623	0.8	106	74	23	3"-C150 & C300 FV
02	3-V-5172-24490P		A105	92 201 624	1.3	135	100	26	4"-C150 - FV 4"-C300 - FV
03	3-V-5170-24490P		A105	92 201 625	3.2	235	201	35	8"-C150 - FV
04	3-V-5175-24490P		A105	92 201 626	0.7	85	50	23	2"-C150 & C300 FV
05	3-V-5173-24490P		A105	92 201 627	2.8	190	145	30	6"-C300 - FV
06	3-V-5174-24490P		A105	92 201 628	4.2	245	201	35	8"-C300 - FV
07	3-V-Z017-24490P		A105	92 201 629	8.3	300	242	43	10"-C300 - FV
08	3-V-Z018-24490P		A105	92 201 630	8.4	340	290	43	12"-C300 - FV
09	3-V-2477-24490P		A105	92 201 631	0.8	85	48	25	2"-C300 - RV
10	3-V-2478-24490P		A105	92 201 632	1.7	98	58	43	3"-C300 - RV
11	3-V-2479-24490P		A105	92 201 633	2.7	133	78	38	4"-C300 - RV
12	3-V-2480-24490P		A105	92 201 634	3.7	176	128	41	6"-C300 - RV
13	3-V-2670-24490P		A105	92 201 635	6.5	232	173	44	8"-C300 - RV
14	3-V-3244-24490P/1	ASTM A182 F91 N&T, CERTIFY	F91	92 201 682	23.5	670	583	35	700MM-C900-RHID
15	3-V-3316-24490P		F91	92 201 875	40.8	760	642	40	750MM-C900-RHID
16	3-V-3319-24490P		F91	92 202 068	68.6	780	640	56	800MM-C1500-RHID
17	3-V-3314-24490P	ASTM A105 NR, CERTIFY	A105	92 202 072	68.6	780	640	56	800MM-C600-RHID
18	3-V-NG86-24490P	ASTM A182 F91 N&T, CERTIFY	F91	92 203 046	9.5	379	314	36	14"-C300-GV
19	3-V-3393-24490P	ASTM A105 NR, CERTIFY	A105	92 203 277	40.8	760	642	40	750MM-C900-RHID

			REV	DATE	ALTERED	RAVINDHAR
			06	09.04.14	CHD & APPD	SSK & KRS
					SL.No 19 INCLUDED	
			REV	DATE	ALTERED	M.SRINIVASAN
			05	09.10.13	CHD & APPD	SSK & KRS
					SL. No. 18 INCLUDED.	
					IN DRAWING NUMBER 3V324424490P DIMENSION 35 WAS 25	
					DCP:801625	

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NOTES:

1. THE FORGING SHALL BE PROOF MACHINED TO THE DIMENSIONS INDICATED IN THE TABULATION
2. CHAMFER THE SHARP CORNERS TO 1x45°
3. ⊗ INDICATES THE SURFACES WHICH ARE TO BE MACHINED FURTHER
4. FORGINGS SHALL COMPLY WITH REQUIREMENTS OF LATEST APPLICABLE QUALITY PROCEDURE.

-	-	-	-	-	-	-	-	-	-
NO OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT									
 365-121					DRN	NAME A.S.PANDY	SIGN	DATE 01.11.06	NO.OF VAR.
					CHD	T.R.RAMAMURTHY		01.11.06	-
					APPD	P.BoomInathan		01.11.06	
DEPT VL			SCALE NTS.	WEIGHT (KG).	REFERENCE INFORMATION				NO. OF ITEMS
CODE 320				-	CAD:C324490P				-
TITLE SEAT RING (PROOF MACHINED)						CARD CODE U 01	DRAWING NO. 3-V-0000-24490P		REV 06

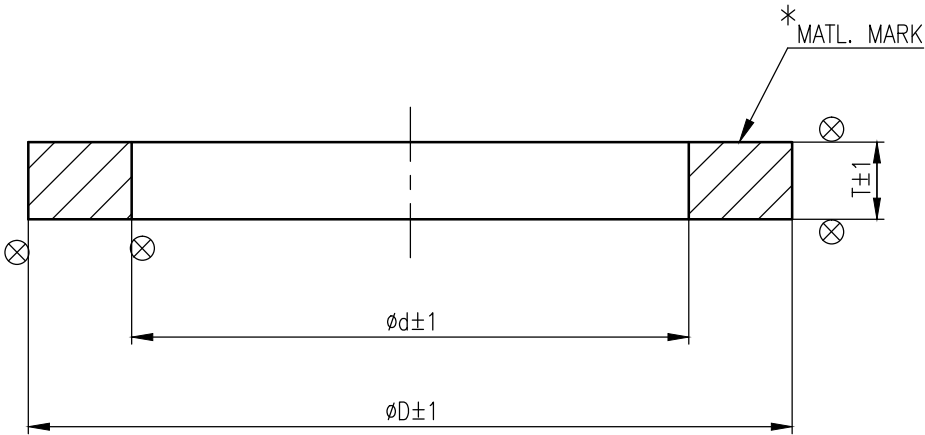
3-V-0000-24946P
DRAWING NO.

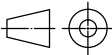
12.5/

SL No.	DRAWING NUMBER	MATL. SPECN.	MATERIAL CODE	WT IN (KG)	DIMENSIONS			* MATL. MARK	SIZE - RATING
					øD	ød	T		
01	3-V-3200-24946P	ASTM A105, NR, CERTIFY	92 202 022 0000	9.6	496	434	27	A105	450-C500
02	3-V-3201-24946P	ASTM A182 F22 CL.3, NT, CERTIFY	92 202 023 0000	9.6	496	434	27	F22	500-C900
03	3-V-3208-24946P	ASTM A182 F22 CL.3, NT, CERTIFY	92 202 024 0000	9.1	570	518	26	F22	550-C900
04	3-V-3204-24946P	ASTM A105, NR, CERTIFY	92 202 025 0000	11.7	726	674	26	A105	700-C500
05	3-V-3205-24946P	ASTM A182 F22 CL.3, NT, CERTIFY	92 202 026 0000	11.7	726	674	26	F22	700-C900
06	3-V-3244-24946P	AISI 4140 QT, CERTIFY	92 202 027 0000	11.7	726	674	26	AISI 4140	700-C900 (C12A)
07	3-V-3245-24946P	ASTM A182 F22 CL.3, NT, CERTIFY	92 202 028 0000	23.1	846	776	33	F22	750-C900
08	3-V-3319-24946P	AISI 4140 QT, CERTIFY	92 202 073 0000	31.2	903	821	36	AISI 4140	800-C1500
09	3-V-3314-24946P	ASTM A105 NR, CERTIFY	92 202 076 0000	31.2	903	821	36	A105	800-C600
10	3-V-3316-24946P	AISI 4140 QT, CERTIFY	92 203 250 0000	23.1	846	776	33	AISI 4140	750-C900

NOTES:

1. FORGING SHALL BE MADE IN SUCH A WAY THAT MACHINING CAN BE DONE IN THE SPECIFIED DIMENSION SHOWN IN TABULAR COLUMN.
2. ⊗ INDICATES THE SURFACES WHICH ARE TO BE MACHINED FURTHER.
3. FORGING SHALL BE COMPLY WITH REQUIREMENTS OF LATEST APPLICABLE QUALITY WORK INSTRUCTIONS.



-	-	-	-	-	-	-	-	-	-
NO OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT									
 BHARAT HEAVY ELECTRICALS LTD. UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI 620014. 365-121				DRN	NAME S.KOMALA	SIGN	DATE 27.07.10	NO.OF VAR.	
				CHD	M.SRINIVASAN		27.07.10		
				APPD	M.RAJAKUMAR		27.07.10		
DEPT VL			SCALE	WEIGHT (KG).	REFERENCE INFORMATION			NO. OF ITEMS	
CODE 320			N T S	REF. TABLE					
TITLE					DRAWING NO.			REV	
SUPPORTING RING (PROOF MACHINED FORGING)					CARD CODE U 01	3-V-0000-24946P 01			

REV 01	DATE 26.03.14	ALTERED CHD & APPD SSK & KRS	RAVINDHAR
SL.No. 10 INCLUDED			

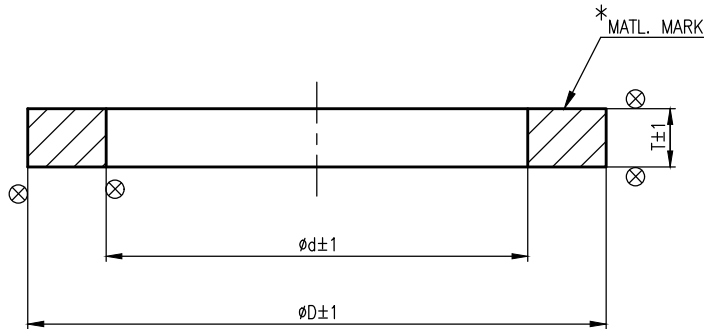
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

3-V-0000-24947P
DRAWING NO.

SL No.	DRAWING NUMBER	MATL. SPECN.	MATERIAL CODE	WT IN (KG)	DIMENSIONS			* MATL. MARK	SIZE-RATING
					ØD	Ød	T		
01	3-V-3200-24947P	ASTM A105, NR, CERTIFY	92 202 029 0000	12.3	523	440	25	A105	450-C500
02	3-V-3203-24947P	ASTM A105, NR, CERTIFY	92 202 030 0000	14.8	523	440	30	A105	500-C500
03	3-V-3201-24947P	ASTM A182 F22 CL3, NT, CERTIFY	92 202 031 0000	14.8	523	440	30	F22	500-C900
04	3-V-3208-24947P	ASTM A182 F22 CL3, NT, CERTIFY	92 202 032 0000	31.3	610	522	51	F22	550-C900
05	3-V-3204-24947P	ASTM A105, NR, CERTIFY	92 202 033 0000	63.1	796	688	64	A105	700-C500
06	3-V-3205-24947P	ASTM A182 F22 CL3, NT, CERTIFY	92 202 034 0000	63.1	796	688	64	F22	700-C900
07	3-V-3245-24947P	ASTM A182 F22 CL3, NT, CERTIFY	92 202 035 0000	88.5	894	776	73	F22	750-C900
08	3-V-3244-24947P	AISI 4140 QT, CERTIFY	92 202 036 0000	63.1	796	688	64	AISI 4140	700-C900 (C12A)
09	3-V-3319-24947P	AISI 4140 QT, CERTIFY	92 202 074 0000	174.2	981	821	98	AISI 4140	800-C1500
10	3-V-3314-24947P	ASTM A105 NR, CERTIFY	92 202 075 0000	174.2	981	821	98	A105	800-C600
11	3-V-LS01-24947P	AISI 4140 QT, CERTIFY	92 203 137 0000	14.1	403	294	30	AISI 4140	SLBV - 660MW
12	3-V-3316-24947P	AISI 4140 QT, CERTIFY	92 203 249 0000	88.5	894	776	73	AISI 4140	750-C900
13	3-V-3390-24947P	AISI 4140 QT, CERTIFY	92 203 477 0000	31.3	610	522	51	AISI 4140	550-C900

NOTES:

- FORGING SHALL BE MADE IN SUCH A WAY THAT MACHINING CAN BE DONE IN THE SPECIFIED DIMENSION SHOWN IN TABULAR COLUMN.
- ⊗ INDICATES THE SURFACES WHICH ARE TO BE MACHINED FURTHER.
- FORGING SHALL BE COMPLY WITH REQUIREMENTS OF LATEST APPLICABLE QUALITY WORK INSTRUCTIONS.



REV	DATE	ALTERED	R.ANITHA
3	30.09.16	CHD & APPD	SSK & KRS
SL.No. 13 INCLUDED.			
REV	DATE	ALTERED	RAVINDHAR
2	26.03.14	CHD & APPD	SSK & KRS
SL.No. 12 INCLUDED.			
REV	DATE	ALTERED	ARUN
01	16.08.12	CHD & APPD	MRAJAK
SL. NO. 11 INCLUDED.			

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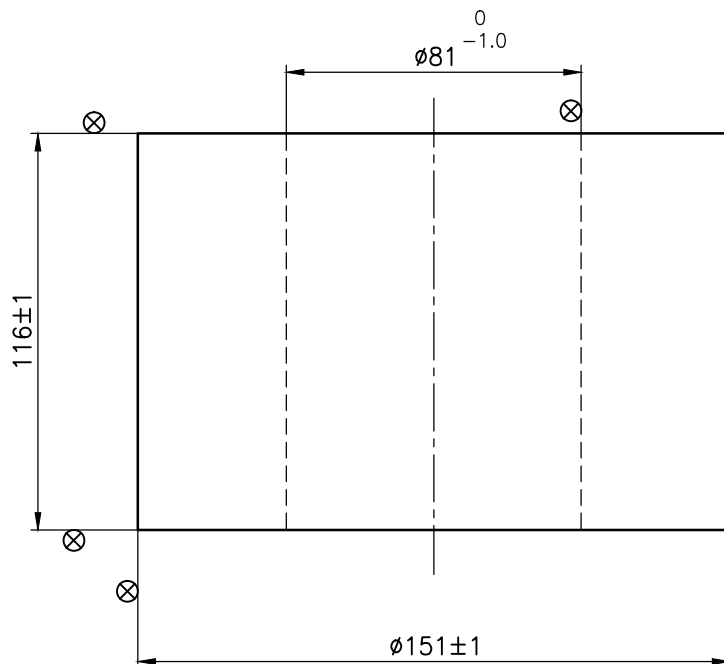
-	-	-	-	-	-	-	-	-	-
NO OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT									
BHARAT HEAVY ELECTRICALS LTD. UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI 620014.						DRN	NAME S.KOMALA	SIGN	DATE 27.07.10
						CHD	GANESH BARLA		DATE 27.07.10
						APPD	M.RAJAKUMAR		DATE 27.07.10
DEPT VL	365-121	SCALE	WEIGHT (KG).	REFERENCE INFORMATION				NO. OF ITEMS	
CODE 320		N T S	REF. TABLE						
TITLE						CARD CODE	DRAWING NO.	REV	
SPLIT RING (PROOF MACHINED FORGING)						U 01	3-V-0000-24947P	3	

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FOR TOLERANCES OF UNTOLERANCED DIMENSIONS

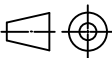
ALL DIMENSIONS ARE IN MILLIMETRES.
DURING MANUFACTURE REFER RELEVANT QCP/QP

REV	DATE	ALTERED
		CHD & APPD



NOTES:-

1. FORGING SHALL BE MADE IN SUCH A WAY THAT MACHINING CAN BE DONE AS PER DRAWING DIMENSIONS.
2. CHAMFER THE SHARP CORNER TO 1x45°
3. ⊗ INDICATES THE SURFACES WHICH ARE TO BE MACHINED FURTHER
4. FORGING SHALL COMPLY WITH THE REQUIREMENTS OF APPLICABLE LATEST TDC

		922031860000	A182 F91 CERTIFY	NT		—	11.4	—	—
NO OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No
 365-122 BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI 620014.					DRN	NAME V.BAIRAVAN	SIGN	DATE 06.09.13	NO.OF VAR
					CHD	S.SATHEES		06.09.13	
					APPD	K.RAJASEKARAN		06.09.13	
DEPT VL			SCALE	WEIGHT (KG).	REFERENCE INFORMATIONS				NO. OF ITEMS
CODE 320			N T S						
TITLE DISC NUT				CARD CODE U 01	DRAWING NO. 4-V-NH60-27056P				REV

Size A4

PRODUCT ATTEST



01. **FORGING** SHALL BE MADE IN SUCH A WAY THAT MACHINING CAN BE DONE IN THE SPECIFIED DIMENSION SHOWN IN TABULAR COLUMN.
02. CHAMFER THE SHARP CORNERS TO 1x45°
03. ⊗ INDICATES THE SURFACES WHICH ARE TO BE MACHINED FURTHER.
04. FORGING SHALL BE COMPLY WITH REQUIREMENTS OF THE LATEST APPLICABLE QUALITY PROCEDURE.

TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT

SEAT
(PROOF MACHINING DRG.)



Product: Carbon, Alloy & Stainless Steel Forgings (Boilers And Valves)

Revisions Record:

Rev 09: New materials F23, F91 & F92 requirements added in Cl.1.0, Cl.2.0, and Cl.4.0 to Cl.6.0. CE marking certification clarity included in Cl.10.

Rev 10: Cl 1:F6a Class 2 added, Code case corrected. Cl 2: Steel makers names removed and requirement for creep testing added as per IBR Reg 4, Cl 4: Tempering temperature and soaking time modified for SA 182 F91, F92 & F23. Cl 4 & 10: Photomicrograph requirement added for F91 & F92 forgings, Cl 2, 6 & 10: modified for SS, Cl 5: Bend test Clarified, Cl 6: Wet MPI added.

Rev 11: Cl 2 Pt 3, 4, 5 modified. Cl 6 – Wet MPI for CS, AS added, Cl 10.1 – IBR Forms indicated

Rev 12: Cl 1, 2, 4, 6 and 7 – requirements for grades SA 182 F1, SA 336 F1, F12, F22 Cl 3 and F91 added (for Neyveli Project). Creep test criteria in-line with BHEL R&D included. Cl 2 Pt 8 modified. Cl 6 Pt 1 – SA388 changed to ASTM A 388 based on ASME Sec II Ed 2013.

Rev 13: Dt: 17/11/2014: Cl 2 Cl 4 Cl 10 Cl 12 modified.

Rev 14: Dt: 06/10/2015: Cl.4.3, 5.2, 5.8, 10.1.b.9 added; Cl 1.0, 2.1, 2.2, 2.3, 4.1, 4.2, 5.3, 6.2, 9.0, 10 modified.

Rev 15: Dt: 23/12/2015: Cl 1, 2, 3, 5, 6, 7, 10, 11 & 12 modified.

Rev 16: Dt: 06/02/2017: Cl 1 changed to indicate the use of latest revisions of referred codes, standards, specifications, drawings, procedures, etc; Tempering temperature added for F12 material in Cl 4, Requirements of API 6D removed from Cl 1, 2, 4, 5, 10, 12 since the API 6D certificate license was not applied for; Definitions for relevant, linear and rounded indications provided in Cl 6; Type 3.2 certification changed as per BS EN 10204-2004 in Cl 10.2.

1. MATERIAL SPECIFICATIONS:

All the codes, standards, specifications, drawings & procedures, etc., referred in this TDC shall be of latest revision as on the date of Enquiry/Purchase Order, whichever is earlier, unless specified otherwise.

Carbon Steel (CS)	:	SA 105, SA 350 LF 2
Alloy Steel (AS)	:	SA 182 F12 Class 2, F22 Class 3, SA 182 F23 (Code case: 2199), SA 182 F91 & SA182 F92 (Code Case: 2179), SA 182 F1, SA 336 F1, SA 336 F12, SA 336 F22 Cl 3, SA 336 F91
Stainless Steel (SS)	:	SA 182 F6a Class 2, F6a Class 3, SA 182 Gr. F 304, 304L, 316, 316L, 316H, 321, 321H, 347 & 347H; AISI 410 for TOA Gland and bushings.
Additional Requirement	:	As listed below (Supplementary <i>to above material</i> specifications)
Size and Quantity	:	As per Purchase order & Drawing.

2. CHEMICAL COMPOSITION & PROCESS

- Melting: fully killed.
Product analysis per heat: CS: C ≤ 0.25% , AS: SA182 F23: Si: 0.25-0.50% & Cu: 0.25max
SA182 F92: Si: 0.10-0.50%, Ni: 0.30 max & Cu:0.25% max
- Raw material Steel for IBR forging items to be inspected at Mill & test certificate countersigned by IBR approved inspecting authority, if the mill is not approved under IBR as well known steel maker.
- Forging: Hot working to ensure uniformity of structure & strength with reduction ratio in area 4:1 min from ingot to final forging, close to final size & shape. Flow lines to be parallel to axis of openings. Forged Items ordered to this TDC shall be forged to the nearest shape before machining to final dimensions as per respective drawing.
- Blooms / Billets used for forgings (Side Length *or* Dia ≥ 50mm) shall be UT tested. For Acceptance *criteria* refer Cl.6.0. For finished bars, this can be done at final stage.
- SS: All raw materials used in steel making including incoming scrap shall be checked by supplier to ensure freedom from radioactivity.
- Tolerance for chemistry shall be as per the applicable material specifications/standards *specified in Cl 1*.

3. DIMENSIONS AND TOLERANCES

Dimensions & their tolerances shall be as per drawing. For untoleranced dimensions: CS & AS: as per SA 29; SS: as per SA 484.

4. HEAT TREATMENT(HT)

- Heat treatment shall be as per applicable drawing. Unless otherwise specified, the following heat treatment shall be following:
CS: SA 105: Normalised; SA 350 LF 2: Normalised at 880-900°C & Tempered at 620-640°C.
AS: Normalised and Tempered. *For F12: Tempering at 650°C (min).*
For SA 182 F91, F92 & F23, SA336 F91: Normalising at 1050-1080°C & Tempering at 750-780°C.
SS: As per material specification.
AISI 410: Supply in Quenched & Tempered condition as below.
Quenching at 955-1010°C in air or water or oil or Polymer. Soaking 30 mts/inch maximum thk. Tempering at 663°C.min. Soaking :60 mts/inch maximum thickness and air cool.



Product: Carbon, Alloy & Stainless Steel Forgings (Boilers And Valves)

- 2) Photomicrograph test for F91 & F92 forgings - one per heat treatment lot per size and shall be reported in test certificate. Acceptance – The material shall be free from any micro fissures. Microstructure shall show lathe tempered martensite and also to be examined for grain growth. Photomicrograph with 400x (Min) magnification along with Photomicrograph report to be provided. The actual magnification and result of actual microstructure shall be certified/indicated.

5. MECHANICAL TESTS

- 1) Extent of test: **One Specimen** for each size/heat/HT batch from sample product or identical test coupon.
2) Tensile test: The test specimens shall be removed from a test coupon (TC) after the final heat-treatment cycle. Perform tensile tests at room temperature in accordance with the procedures specified in ASTM A370. Perform a minimum of one tensile test. All yield strengths shall be determined using 0.2 % offset method **of ASTM A370**. The results of the tensile test(s) shall satisfy the applicable material specification requirements.

If the results of the tensile test(s) do not satisfy the applicable requirements, two additional tests on two additional test specimens (removed from the same TC with no additional heat treatment) may be performed in an effort to qualify the material. The results of each of these tests shall satisfy the applicable requirements.

3) **Additional requirements for SA182 F23, F91 & F92:**

F91: Yield: (0.2% offset): Min 450 MPa; Tensile: Min 630 MPa, Max 850 MPa; Hardness (HBW): Min 195, Max 248.

F92: Tensile: Min 630 MPa, Max 850 MPa; Hardness (HBW): Min 191, Max **269**

F23: Tensile: Min 510 MPa, Max 730 MPa; Hardness (HBW): Min 150, Max 220

Hardness testing shall be as per ASTM E10 or E18.

- 4) AISI 410: Hardness (**testing shall be as per ASTM E10 or E18**): 197-235 HBW. No other mechanical test required.

Additional requirements of tests: (Other than AISI 410 Only)

- 5) **Bend test: Acceptance as per IBR**
CS: Sample 19mm.Thick(t) x 25.4mm width to be bent 180 deg. around mandrel of radius 6.35 mm.
AS, SS: Sample 19mm.Thick(t) x 25.4mm width to be bent 180 deg. Around mandrel of radius =1.5 x t.
6) **Impact test for QCNR Valves & CRHNR Valves:** CS, AS and SS: 1 / HT batch. As per ASTM A370, 2mm Charpy-U notch, at Room temperature. Acceptance: Avg of 3 specimens: **36 Joules**, Min Single **value: 24 Joules**
7) **For PED 2014/68/EU (CE-marking) items:** Charpy- V impact test at 20°C as per ASTM A370, Acceptance: Avg of **3 specimens**: 40 Joules, Min. single value: 27 Joules.

6. NON DESTRUCTIVE TEST

- 1) Extent of test: for each product. Stage of test : After heat treatment.
2) **Volumetric NDE - UT:** As per ASTM A388. All finished forgings of dia/wall thickness $\geq 50\text{mm}$; All Body & yoke of special class valves & all forgings of SA 182 F91, F92 & F23, SA 336 F91.
Acceptance: ASME Sec.VIII Div. 2 Cl.3.3.4.
3) **Surface NDT -**
a) **Relevant indication: Surface-rupture NDE indication with major dimensions $> 1.6\text{ mm}$ (1/16 in).**
b) **Linear indication: Surface NDE indication whose length is $\geq$ three times its width.**
c) **Rounded indication: Surface NDE indication whose length is $<$ three times its width.**
d) **MPI for CS & AS : 100% : As per ASTM A275.**
Dry MPI: CS, AS (other than SA182 F91, F92, F23, SA 336 F91) : all sizes.
Wet MPI : SA 182 F91, F92, F23; SA 336 F91: all sizes.
Acceptance: ASME B16.34 Appendix II. Linear Indications like cracks, folds & other injurious defects are unacceptable.
e) **LPI for SS: 100%: ASTM E165. Acceptance:** No linear indications acceptable.
4) SS: Finished forgings shall be checked for radioactive contamination and reported. Survey meter shall be used to measure at 5 cm near the surface. Acceptance limits: Shall be less than 0.1 milli Rontgen (MR) per hr or 1 micro Sievert per hr.

7. WORKMANSHIP AND FINISH

Forged items to spec SA336 shall be machined in the inside surface as it is meant for steam application. Items to be proof machined as per drawing or shot blasted for CS/AS; Pickled & passivated as per ASTM A380 for SS, & be free from scales & defects like laps, seams, folds, cracks, etc. Machined items (except SS) to be coated with a layer of transparent rust preventive before despatch.

8. REPAIR

Repairs by fusion welding are prohibited. Surface defects can be removed by mechanical means and defective areas smoothly dressed up with the adjacent surface. Minimum thickness after repair to meet drawing / Specification.

	BHEL – Tiruchirappalli - 620014, India. Quality Assurance Department TECHNICAL DELIVERY CONDITIONS	DOC No: TDC:0:404 Rev: 16 Effective Date: 06/02/2017 Page: 3 of 3
Product: Carbon, Alloy & Stainless Steel Forgings (Boilers And Valves)		

9. MARKING AND PACKING

Details of stamping on each item with low stress stamps: Heat/*melt* number; *material* specification, grade & *class*; Code case number (for Gr 92 & 23); Maker's emblem/code & Inspection Authority's seal. Forgings to be properly packed and dispatched to avoid damage during transit.

10. INSPECTION AND CERTIFICATION

10.1 For IBR Items:

- a) Products shall be inspected at *supplier's* works/*mill* and the applicable IBR Form must be countersigned by the Inspecting Authority as indicated below in case the *supplier's* works/*mill* is not recognised as a "Well known Forger/Steel maker" under IBR:

- ☐ **Imported Items:** Inspecting Authority approved by IBR for the Country of origin.
☐ **Indigenously Supplied items:** Director of Boilers/Chief Inspector of Boilers/Inspecting Authority approved by IBR, for the respective state *in India*.

- b) Certification in IBR Form III-G for IBR items from "IBR-Well Known Forger" or "Inspecting Authority", as applicable, to be submitted. IBR Form III-G and *separate* Test certificate in English language with following details, shall accompany the product (including proof machined):

1. Purchase Order No.(BHEL), TDC No & its revision no, Test certificate no & date.
2. Specification, Grade & *Class* with applicable year of code, Code case number (for Gr 92 & 23), Heat Number, Drawing No., Quantity & Size
3. Supplier of the steel used in making the finished product (well known and others in IBR Form IV).
4. Melting & forging process, Chemistry with incidental elements-Heat wise, Product analysis, Carbon Equivalent (CE).
5. Heat treatment details of the material and test bars. For F91, F92 supplies – Photomicrograph at 400x resolution.
6. Mechanical test results- Tensile (UTS, YTS (*0.2% offset*), % elongation, % reduction in area), *Bend*, Impact, Hardness and NDE test results with reference & acceptance standards.
7. Repair details if any, Certified copy of TC for starting material.
8. **For SS:** Measured Radioactivity levels shall be reported in the Mill Test Certificate (not to be recorded in IBR Form).

10.2 For PED *2014/68/EU* (CE-marking) items, the test certificates with details specified *in Cl 10 (b)* shall be submitted as per BS EN 10204.

1. **For pressure parts**, test certificates of type 3.1 or 3.2 *are* acceptable.
Type 3.1 – Suppliers shall have ISO 9001-2008/*2015* certification certified by Notified Body recognized by European Community and test certificate certified by supplier's 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.
2. **For non-pressure parts**, test certificates of type 2.2 *are* acceptable.
Type 2.2 – suppliers test certificates signed by suppliers authorized inspection representative with test results as required by *this* TDC.

11. AUDIT CHECKS AT BHEL

BHEL reserves the right to carry out audit checks for chemistry, HT condition, mechanical test and NDT on representative test bars or job. Supplies found defective during check or subsequent processing at BHEL will be rejected.

12. END USE

Valve bodies, bonnets, discs, socket ends, body guides, etc., Pressure part fittings in boilers & low, high temperature service like discs, socket weld tees, *elbows*, weld neck flanges & stubs (except drum nozzles) meeting IBR, ASME Section I, ASME B 16.34 *and PED 2014/68/EU*. **Non pressure part items in boilers and valves:** For these, requirements on starting material, bend test and inspection by IBR are not required.

 06/02/2017	 06/02/17	 06/02/17	 06/02/17	 06/02/17	 06/02/17
Venkanna Rupani Sr.Engineer /QA	G. Panneer Selvam DGM/QA	S. Selvarajan SDGM/QA	K. Rajasekaran SM/Valves/Engg	R. Ananthakrishnan AGM/Valves/ Purchase	U. Revisankaran AGM/QA&BE
Prepared By	Reviewed By				Approved By