

Tender Enquiry No	2021-059E
Enquiry date	Dt. 02.01.2021
Last time and date of tender submission	14:00 Dt.13.01.2021
Tender opening time and date	16:00 Dt.13.01.2021
Quotation Parts	<i>Two-part</i>
Item Description	<i>FASTENERS</i>
Delivery schedule (In days)	Within 60 days from PO date
Validity of offer (In days)	<i>45 days from date of tender opening</i>
Counter Offer	<i>No counter offer is applicable in this tender</i>
Quantity Variation	<i>+/-10% may be acceptable with prior consent of BHEL in writing</i>
Documents required along with supply of material	
Test Certificate and other Quality related documents	<i>Required as per BPS/IS /TDCs/Drawings mentioned in list of items</i>

Reverse auction will not be conducted in this tender .The Items are reserved for MSEs. Order will be released only after receiving of required MSE documents as per clause G14 of GCC.

Quotation Submission

This tender is through e-procurement mode for supply of “**Fasteners**” as per specifications mentioned in below tender terms. Please ignore clause no. G1.2 in “General Contract Conditions (GCC) of MM tenders”, regarding instructions to bidder for submission of offer for e-procurement tender.

Interested bidders / suppliers shall submit their offer through e-procurement mode at <https://eprocurebhel.co.in/>. Offers in any other mode will not be accepted.

In case of any difficulty faced while registering on BHEL’s e-Procurement portal developed by NIC, queries may be addressed to 0120-4001002, 0120-4001005 and 0120-6277787; email: support-eproc@nic.in. These details are also available on ‘Contact Us’ page of the portal.

PRE-qualification Terms

Bidders should primarily be engaged in **manufacturing of fasteners** (grade B8M/B7). BHEL may carry out evaluation of bidder’s capability. 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. Any fact found deviating from bids during evaluation shall make the bidder liable to be disqualified. **“Vendor has to submit one or more purchase orders of Fasteners equivalent to grade B8M/B7 with minimum cumulative value of Rs.4,00,000.00 (four lakh Only) as proof. PO date should be 01.01.2018 or afterwards”.**

Special Tender Terms

1. 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 Purchase Order/list of items. National & International material Standards shall have to be arranged by vendors themselves. **Comparison of rates quoted by vendors shall be done as per SET (as per column G of list of items below), i.e. studs**

along with required number of nuts. The quotation where bidders have quoted for both Studs and nuts shall only be considered. The material should be supply in assembled condition wherever unit of measurement is set.

Material shall be offered to third party inspection (TPI). The QAP is also attached. The material shall be dispatched by vendor only after dispatch clearance from BHEL IVP (based on TPI report). TPI inspection charges will be borne by BHEL. The vendor has to arrange their own gauges for inspection.

Note that these Items are reserved for MSEs. Order will be released only after receiving of required MSE documents as per clause G14 of GCC.

2. LIST OF ITEMS :

Following items are there in this tender enquiry.

Sl. No.	Material Code	Description	Drawing /BPS/TDC	Quantity , Nos.	Units (F)	Unit of measurement/ Comparison will be done as (G)
1	964656390000	FT STUD-3/4"-10UNC-2A-120-B8M	3V000523248/01	500	Number	Set
2	964656500000	HEX NUT-3/4"-10UNC-2B-GR.8M	3V000323249/00	1000	Number	
3	964658310000	FT STUD-M20x2.5x130 -B8M	3V000325897/01	600	Number	Set
4	964658390000	NUT -M20 -8M	4V000227368/00	1200	Number	
5	964658930000	FT STUD-M24x3x150 -B8M	3V000725897/01	2600	Number	Set
6	964658960000	NUT -M24x3 - 8M	4V000727368/00	5200	Number	
7	964658340000	FT STUD M27X3 X180-B8M	3V000525897/01	250	Number	Set
8	964658400000	NUT -M27 -8M	4V000327368/00	500	Number	
9	964658330000	FT STUD-M30x3.5x185 -B8M	3V000625897/02	300	Number	Set
10	964658410000	NUT -M30 -8M	4V000427368/00	600	Number	
11	964658300000	FT STUD-1 1/8"X140-B8M	3V001623248/01	50	Number	Set
12	964656530000	HEX NUT-1.1/8"-8UN-2B-GR.8M	3V000623249/00	100	Number	
13	964658940000	FT STUD-M33x3.5x220 -B8M	3V000825897/01	60	Number	Set
14	964658970000	NUT -M33x3.5 - 8M	4V000627368/00	120	Number	
15	964656380000	FT STUD-5/8"-11UNC-2A-118-B8M	3V000423248/01	500	Number	Set
16	964656490000	HEX NUT-5/8"-11UNC-2B-GR.8M	3V000223249/00	1000	Number	
17	964656410000	FT STUD-7/8"-9UNC-2A-150-B8M	3V000723248/01	400	Number	Set
18	964656510000	HEX NUT-7/8"-9UNC-2B-GR.8M	3V000423249/00	800	Number	
19	964659130000	FT STUD-1-3/8"X235-B7-P788	3VP78806875/00 TDC:5:164	120	Number	Set
20	964536670000	NUT -1-3/8" -2H -N848	3VN84806876/00 TDC:5:164	240	Number	

Note- Rates to be quoted in price bid format (part-II) as per column F but evaluation will be done as per column G. L1 rate/bidder will be decided based on the rates of column G.

3. PACKAGING & SUPPLY

All material has to be dispatched in packing boxes only i.e. wooden or carton or cardboards with material code, description, grade and quantity. Preferable is to supply no of packing boxes with



small quantities e.g. if 500 Bolts are to be supplied then it may be supplied in 10 boxes containing 50Pcs. Box must have TAG containing Purchase Order No., Material Code, Material Description (as mentioned in PO) along with Unit weight of each item and Total weight of Box and Total Quantity in Box. No cost for these boxes will be given separately and must be included in prices only.

It should be noted that where Bolts/Studs are mentioned in sets with Nuts, Supply must be done in sets and in assembled condition only otherwise BHEL can reject the material. Gate receipt will be given to transporter if Test Certificates and Invoices with proper material identification are supplied.

4. VALIDITY OF OFFERS AND CONTRACT:

The offers shall be kept open for acceptance for **45 days** from the date of opening of the tender. In case of extension of tender opening date, the validity shall be suitably revised.

5. DELIVERY SCHEDULE:

The material shall be supplied within 60 days from the date of purchase order. If supplier fails to supply items within PO delivery date, BHEL reserves the right to cancel the PO and risk purchase will be initiated against failed supplier as per BHEL risk purchase guidelines. Vendor shall be required to complete the order as per the BHEL schedule requested.

6. PREFERENCE TO MAKE IN INDIA

For this procurement, the local content to categorize a supplier as a Class-I local supplier / Class-II local supplier / Non-local supplier and purchase preference to Class I local supplier, is as defined in Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIT. In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of Part-II bids against this NIT.

7. PREVENTIVE CHECKS TO ELIMINATE SUSPECTED CARTEL FORMATION

The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.

8. REVERSE AUCTION

Reverse auction will not be conducted in this tender

There is no counter offer in this tender enquiry.

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_jvp@bhel.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 Rakesh Kumar/ SDGM/Head-MM or Sh Gurcharan Singh / AGM-Operations & MM. [Contact: 01859 224 615/631]. Bid can be send to following address:

**BHEL, Industrial Valve Plant,
#433, Industrial Complex,
Goindwal Sahib, Distt. Tarn Taran,
Punjab-143422.**

G1.2 INSTRUCTION TO BIDDER (In case of E-Procurement)

Interested bidders/Suppliers shall submit their offer through e-Procurement mode at <https://bhel.abcpurchase.com>. 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. Computer with good Internet Connection.
2. Operating System should be Windows Vista / Windows 7 and above.
3. Web Browsers: Internet Explorer 9.0 (32-bit Browser only) & above

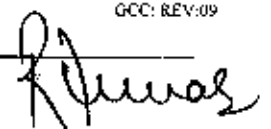
b. Mandatory Requirements:

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 a Class-II/III Digital Signature Certificate (DSC) for Signing & Encryption (Required both digital signature certificate; Signing & Encryption) of bids issued by any of the valid Certifying Authorities (approved by Controller of Certifying Authorities) in India. Valid Digital Signature Certificate (DSC) must be installed in a computer system from where you want to access the website.

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).





General Contract Conditions (GCC) of MM Tenders

[Address: BHEL Industrial Valve Plant: 433, Industrial Complex, Goindwal Sahib, Distt Tarn Taran, Punjab-143422]

2. Please input your organization PAN No (in case of Indian supplier) or select your "country" in case you are an overseas Supplier.
3. Select Units to participate in.
4. Fill up Company details.
4. Key in your desired login id 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 also prefixed with "OTT".
5. Fill in the Captcha code & agree to the terms & conditions and privacy policy of this website and click SUBMIT.

Once the above steps are completed, contact to M/s eProcurement Technologies Limited for ID Activation. M/s e Procurement Technologies limited, Ahmedabad will activate your ID 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 Login in with their user id and password
3. Search the RFQ ID and views it.
4. Attaches themselves to the RFQ by clicking the "I/We wish to participate".
5. Supplier fills the bid template and makes necessary attachments
6. Supplier submits their bid by clicking Sign, Encryption & Save button.

In any problem is faced by supplier while login/registration in EPS (<https://bhel.abeprocure.com>) and any other assistance, please contact the support team of M/s e Procurement Technologies limited, Ahmedabad as per details mentioned in table below: -

Name	Contact Nos.	e-mail ID	Role	Location
Mukunthan	+91 6353215001	Trichy.bhel@eptl.in	Support Executive	Trichy
Swapnil Hamilton	+91 7940270549	swapnil.h@eptl.in	Support Executive	HO - Ahmedabad
Hardik Oza	+91 7940270560	Hardik.oza@eptl.in	Support Executive	HO - Ahmedabad
Ankur Bhatt	+91 7940270590	ankur.bhatt@eptl.in	Support Executive	HO - Ahmedabad
Prashant Rajyaguru	+91 7940270545	prashant@eptl.in	Asst. Manager - Implementation & Support	HO - Ahmedabad
Dharam Rathod	+91 7940270596	dharam@eptl.in	Manager - Implementation & Support	HO - Ahmedabad
Pradip Parmar	+91 7940270532	pradip@eptl.in	Sr Mgr - Implementation & Support	HO - Ahmedabad
Devang Patel	+91 7940270576	devang@eptl.in	Sr Manager - Implementation & Support	HO - Ahmedabad

G2 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 M/s e Procurement Technologies limited 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/ outside 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. Order of enquiry item sl. No. shall be maintained in the quotation.
- b. The rates quoted shall be firm and fixed. No price variation is proposed and allowed.
- c. 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 GST 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

GCC: REV-09



General Contract Conditions (GCC) of MM Tenders

[Address: BHEL Industrial Valve Plant: 433, Industrial Complex, Goindwal Sahib, Distt Tarn Taran, Punjab-143422]

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 tax 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 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:

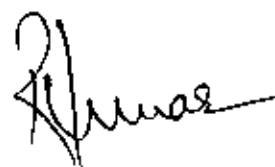
- a. Due payment against supplies received shall be due after 30 days of receipt and acceptance of material and shall be paid within next 15 days' period. In case of any deviation from standard payment term mentioned, BHEL at its discretion may load on the item price at "Base rate of SBI (as applicable 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. Tax invoice (Invoice shall be GST compliant and should contains all the required information such as GST No, IISN code etc.)
 - ii. Transporter copy along with material/consignment.
 - iii. Material Test Certificates (MTC) and
 - iv. Compliance Certificate.
- c. GST registration number is to be submitted by qualified vendor as per GST law.
- d. It is mandatory to mention proper material codes in the invoices and separate invoices to be raised for different POs.

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- e. **BHEL releases payment through EFT mode ONLY. Necessary details may please be submitted by filling required format before release of payment.**
- f. **Conditions relating to release of GST portion:**
Payment of GST portion will be released to vendor only upon completion of statutory requirement and further subject to following:
The reimbursement of GST portion of invoice shall be released only upon: -
1. vendor declaring such invoice in his GSTR-1 and
 2. receipt of goods and Tax invoice by BHEL and
 3. Confirmation of payment of GST thereon by vendor on GSTN portal.
 4. Above is subject to receipt of goods/service and tax invoice thereof along with vendor declaring invoice in his return and paying GST within timeline prescribed for availing ITC by BHEL.
- In case GST credit is delayed/denied to BHEL due to non/delayed receipt of goods and/or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount shall be recoverable from vendor along with interest levied / leviable on BHEL.
- In case vendor delays declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from vendor/contractor along with interest levied / leviable on BHEL.

G11 AVAILING INPUT TAX CREDIT (ITC) BY BHEL:

1. Since ITC can be availed only when BHEL is in possession of GST Tax invoice and after receipt of goods. Thus, vendor to ensure timely dispatch of goods and Tax invoice. It may be noted that in case of any delay in receipt of Tax Invoice and/or receipt of goods, the ITC availment by BHEL will get delayed thus entailing additional cash outflow & may even get denied if ITC availment timelines are breached.
2. Further ITC can be availed only when vendor has declared such invoice in his outward supply Return GSTR-1 and after GST thereon has been paid by him at the time of filing of monthly Return.
3. If GST credit is delayed/denied to BHEL due to non/delayed receipt of goods and/or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount shall be recoverable from vendor along with interest levied/leviable on BHEL.
4. Further, in case vendor delays declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from vendor/contractor along with interest levied/leviable on BHEL.



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G12 LIABILITY UNDER REVERSE CHARGE (RCM)

Any GST liability arising on BHEL under Reverse Charge (RCM) before actual receipt of goods and/ or Invoice thereof would be subject to recovery of Interest leviable for the period between the date of such liability and actual date of eligibility of ITC based on receipt of goods, receipt of Invoices and other conditions specified in GST Law as applicable.

G13 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 discretion 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.
- h. BHEL representative from unit or CQ is authorized to carry out audits along with TPIA at vendor's works before clearing the items for dispatch.

G14 PREFERENCES FOR MSE's

Preferences as mentioned in "Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012" & "Public Procurement Policy for Micro and Small Enterprises (MSEs) Amendment Order, 2018", shall be given to Micro and Small enterprises.

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

- 25% Procurement of the tender value shall be made from MSE (Micro, Small Enterprises) firms.
- 25% of the 25% quantity (i.e. 6.25% of the tender quantity) offered to the MSE's shall be reserved for MSE's owned by SC/STs. Failure to participate by any MSE owned by SC/ST's; this 6.25% quantity shall be procured from other MSEs.
- 3% from within the 25% quantity offered to the MSE's shall be reserved for women owned MSE's. Failure to participate by any MSE owned by women; this 3% 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 25 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 UAM (Udyog Aadhaar Memorandum), 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.

G15 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.

G16 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).

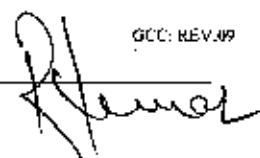
BHEL reserves the right to receive or not receive the material after the due date of PO. Applicable GST shall also be recovered from suppliers/contractors on LD amount. For this Debit note will be issued by BHEL indicating the respective supply invoice number.

G17 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.

G18 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.



General Contract Conditions (GCC) of MM Tenders

[Address: BHEL Industrial Valve Plant: 433, Industrial Complex, Goindwal Sahib, Distt
Tarn Taran, Punjab-143422]

G19 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.

G20 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.

G21 JURISDICTION

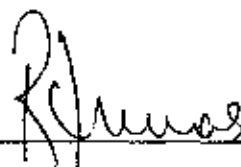
The court of the place from where the purchase order is issued during the contractual period shall alone have jurisdiction to decide any dispute arising out of or in connection with the purchase order.

G22 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.

G23 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.



G24 WORDS AND FIGURES

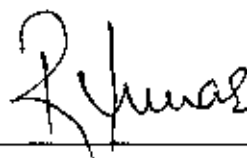
- a. If, in the price structure quoted for the required goods/ services/ works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion 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.
- e. Bids should be free from correction, overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else shall be liable for rejection.
- f. All overwriting/cutting, etc will be numbered by bid opening officials and announced during bid opening.

G25 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. BHEL reserves the right to negotiate with L1 bidder/s.

G26 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.

 GCC: REV:00

G27 DISCLAIMER CLAUSE: (Only for E procurement)

Neither the Organization (Bharat Heavy Electricals Ltd.) nor the service provider (M/s e Procurement Technologies limited) is responsible for any failure of submission of bids due to failure of internet or other connectivity problems or reasons thereof.

G28 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.

G29 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).

G30 SUSPENSION OF BUSINESS DEALINGS WITH DEFAULTERS

The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com.

1.0 Integrity commitment, performance of the contract and punitive action thereof:

1.1. Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the tender process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.

1.2. Commitment by Bidder/ Supplier/ Contractor:

1.2.1. The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India.

1.2.2. The bidder/ supplier/ contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL.

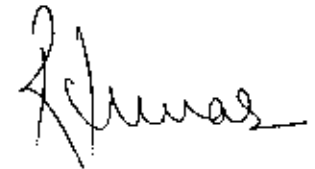
1.2.3. The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL.

If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ contractor as per extant guidelines of the company available on [www. bhel.com](http://www.bhel.com) and/or under applicable legal provisions

G31 PREFERENCE TO MAKE IN INDIA

For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017, 28.05.2018 & 29.05.2019 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT before finalization of contract/PO/WO against this NIT.

In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and / or local content in respect of this procurement, same shall be applicable.



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-11) 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

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-11) 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

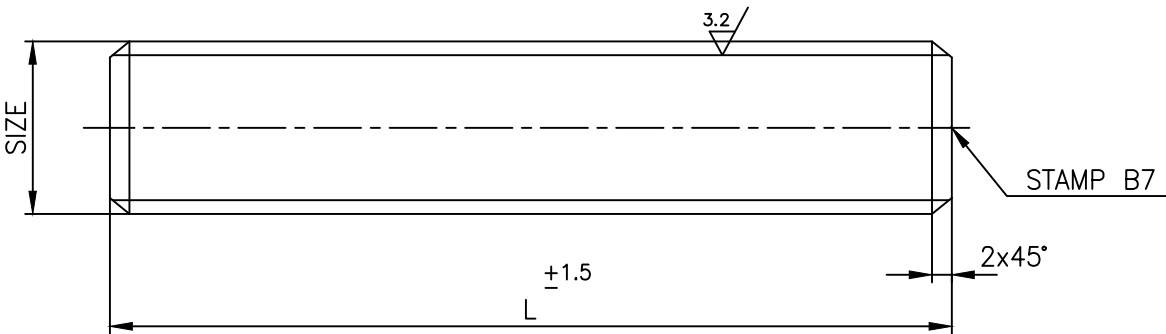
3-V-0000-06875-02
DRAWING NO.

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02	3-V-N081-06875/02		964562680000	1/2"-13UNC-2A	80	0.08	2"-300
03	3-V-N025-06875/02		964562690000	5/8"-11UNC-2A	86	0.13	3"-150
04	3-V-N001-06875/02		964562700000	5/8"-11UNC-2A	94	0.15	4"-150 6"-150
05	3-V-N009-06875/02		964562710000	5/8"-11UNC-2A	105	0.16	8"-150 3",4"-300
06	3-V-N017-06875/02		964562720000	5/8"-11UNC-2A	118	0.18	6"-300
07	3-V-N057-06875/02		964562730000	3/4"-10UNC-2A	112	0.25	10"-150
08	3-V-N041-06875/02		964562740000	3/4"-10UNC-2A	120	0.27	12"-150
09	3-V-N089-06875/02		964562750000	3/4"-10UNC-2A	133	0.30	8"-300
10	3-V-N065-06875/02		964562760000	1"-8UNC-2A	158	0.63	10"-300
11	3-V-N105-06875/02		964562770000	1.1/8"-8UN-2A	180	0.91	12"-300
12	3-V-N106-06875/02		964562780000	1.1/8"-8UN-2A	140	0.71	12"-300
13	3-V-N224-06875/02		964562290000	1"-8UNC-2A	170	0.71	20"-150
14	3-V-1387-06875/02		964564270000	1"-8UNC-2A	135	0.54	16"-150
15	3-V-N204-06875/02		964564280000	3/4"-10UNC-2A	105	0.25	6"-150

SL.No	DRAWING No.	MATERIAL	MATL. CODE	SIZE	L	WEIGHT IN Kgs.	SIZE/RATING
16	3-V-N206-06875/02	ASTM A193 B7, HT, CERTIFY	964564290000	7/8"-9UNC-2A	115	0.35	10"-150
17	3-V-N207-06875/02		964564300000	7/8"-9UNC-2A	125	0.38	12"-150
18	3-V-N212-06875/02		964564560000	7/8"-9UNC-2A	150	0.45	8"-300
19	3-V-F505-06875/01		964566800000	1.1/4"-8UN-2A	215	1.34	8"-600
20	3-V-F506-06875/01		964566810000	1.1/8"-8UN-2A	220	1.41	10"-600
21	3-V-F507-06875/02		964566820000	1.1/4"-8UN-2A	250	1.74	12"-600
22	3-V-N361-06875/01		964567040000	1.1/4"-8UN-2A	150	0.94	24"-150& 16"-300
23	3-V-N437-06875/01		964567430000	1.3/8"-8UN-2A	190	1.44	20"-300
24	3-V-N847-06875		964536630000	1.1/4"-8UN-2A	195	1.23	28"-150
25	3-V-N848-06875		964536640000	1.3/8"-8UN-2A	210	1.58	30"-150
26	3-V-N827-06875		964536650000	1.1/2"-8UN-2A	220	1.96	32"-150
27	3-V-N846-06875/01		964536660000	1.3/4"-8UN-2A	240	2.9	36"-150
28	3-V-NE97-06875		964653420000	1.1/2"-8UN-2A	260	2.32	26"-300
29	3-V-NK44-06875		964659010000	1.5/8"-8UN-2A	270	2.84	28"-300
30	3-V-NK45-06875		964659050000	2"-8UN-2A	275	4.38	28"-600
31	3-V-P788-06875		964659130000	1.3/8"-8UN-2A	235	1.59	14"-600

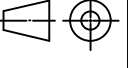
NOTE:-

FOR QUALITY REQUIREMENTS REFER LATEST APPLICABLE TDC:5:164



REV	DATE	ALTERED	R.P.SINGH	REV	DATE	ALTERED	R.P.SINGH
14	12.06.19	CHD & APPD	SSK & KRS	13	08.12.18	CHD & APPD	SSK & KRS
	SL.No 31 INCLUDED.				SL.No 29 & 30 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.

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 BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI-620014.					DRN	NAME	SIGN	DATE	NO.OF VAR.
					CHD	S.SATHEESHKUMAR		31.12.09	
					APPD	K.RAJASEKARAN		31.12.09	
DEPT VL			SCALE	WEIGHT (KG).	REFERENCE INFORMATION				NO. OF ITEMS
CODE 320			N T S		CAD .3-V-0000-06875-0-0				
TITLE					CARD CODE	DRAWING NO.			REV
STUD					U 01	3-V-0000-06875			14

3-V-0000-23249 DRAWING NO												
SL. No.	DRAWING No.	COMP. CODE	MATL. SPECN.	S		e		m		øD	MATL. MARK	NET WT. (Kg.)
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.			
01	3-V-F522-23249/02	96 456 888 0000	ASTM A194 – Gr.7	36.52	35.41	42.16	40.37	22.47	21.16	7/8”–9 UNC –2B	GR.7	0.11
02	3-V-F523-23249/02	96 456 889 0000	ASTM A194 – Gr.7	31.75	30.78	36.65	35.10	19.25	18.03	3/4”–10 UNC –2B	GR.7	0.08
03	3-V-F524-23249/02	96 456 890 0000	ASTM A194 – Gr.7	41.28	40.01	47.65	45.62	25.70	24.28	1”–8 UNC –2B	GR.7	0.17
04	3-V-F525-23249/02	96 456 891 0000	ASTM A194 – Gr.7	50.80	49.23	58.65	56.11	31.78	30.15	1.1/4”–8 UN –2B	GR.7	0.27
05	3-V-F526-23249/02	96 456 892 0000	ASTM A194 – Gr.7	46.02	44.60	53.16	50.85	29.93	27.41	1.1/8”–8 UN –2B	GR.7	0.22
06	3-V-0001-23249	96 465 648 0000	ASTM A194 – Gr.8M	22.22	21.59	25.65	24.61	12.80	11.79	1/2”–13 UNC –2B	GR.8M	0.02
07	3-V-0002-23249	96 465 649 0000	ASTM A194 – Gr.8M	26.97	26.19	31.17	29.85	16.03	14.91	5/8”–11 UNC –2B	GR.8M	0.03
08	3-V-0003-23249	96 465 650 0000	ASTM A194 – Gr.8M	31.75	30.78	36.65	35.10	19.25	18.03	3/4”–10 UNC –2B	GR.8M	0.08
09	3-V-0004-23249	96 465 651 0000	ASTM A194 – Gr.8M	36.52	35.41	42.16	40.37	22.47	21.16	7/8”–9 UNC –2B	GR.8M	0.11
10	3-V-0005-23249	96 465 652 0000	ASTM A194 – Gr.8M	41.28	40.01	47.65	45.62	25.70	24.28	1”–8 UNC –2B	GR.8M	0.17
11	3-V-0006-23249	96 465 653 0000	ASTM A194 – Gr.8M	46.02	44.60	53.16	50.85	29.93	27.41	1.1/8”–8 UN –2B	GR.8M	0.22
12	3-V-0007-23249	96 465 654 0000	ASTM A194 – Gr.8M	50.80	49.23	58.65	56.11	31.78	30.15	1.1/4”–8 UN –2B	GR.8M	0.27
13	3-V-0008-23249	96 465 847 0000	ASTM A194 – Gr.2HM	22.22	21.59	25.65	24.61	12.80	11.79	1/2”–13 UNC –2B	GR.2HM	0.02
14	3-V-0009-23249	96 465 848 0000	ASTM A194 – Gr.2HM	26.97	26.19	31.17	29.85	16.03	14.91	5/8”–11 UNC –2B	GR.2HM	0.03
15	3-V-0010-23249	96 465 849 0000	ASTM A194 – Gr.2HM	31.75	30.78	36.65	35.10	19.25	18.03	3/4”–10 UNC –2B	GR.2HM	0.08
16	3-V-0011-23249	96 465 850 0000	ASTM A194 – Gr.2HM	36.52	35.41	42.16	40.37	22.47	21.16	7/8”–9 UNC –2B	GR.2HM	0.11
17	3-V-0012-23249	96 465 851 0000	ASTM A194 – Gr.2HM	41.28	40.01	47.65	45.62	25.70	24.28	1”–8 UNC –2B	GR.2HM	0.17
18	3-V-0013-23249	96 465 852 0000	ASTM A194 – Gr.2HM	46.02	44.60	53.16	50.85	29.93	27.41	1.1/8”–8 UN –2B	GR.2HM	0.22
19	3-V-0014-23249	96 465 853 0000	ASTM A194 – Gr.2HM	50.80	49.23	58.65	56.11	31.78	30.15	1.1/4”–8 UN –2B	GR.2HM	0.27

12.5/3.2

STAMP MAT. MARK (REF. TABLE)
MAKERS MARK.

NOTE:

1. FOR QUALITY REQUIREMENTS REFER LATEST APPLICABLE QUALITY PROCEDURE.

2. SUITABLE OIL PRESERVATIVE SHALL BE APPLIED.

REV 04	DATE 09.06.18	ALTERED R.P.SINGH CHD & APPD SSK & KRS	REV 03	DATE 27.02.15	ALTERED A.MARIMUTHU CHD & APPD MS & SSK
	SL. No. 13 TO 19 INCLUDED			SL. No. 06 TO 12 INCLUDED	
REV 02	DATE 28.05.01	ALTERED T.R.R.MURTHY CHD & APPD K.S.RAMAN	REV 01	DATE 27.09.99	ALTERED M.SRINIVASAN CHD & APPD K.S.RAMAN
	A194 Gr.4 REVISED TO A194 Gr.7		DCN:CS:1039	IN NOTE 2 GALVANISING ELIMINATED AND OIL PRESERVATIVE INCLUDED.	
	REFER DCN.CS:1147				

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.

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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									
 365-121					DRN	NAME M.SRINIVASAN	SIGN	DATE 22.04.96	NO.OF VAR.
BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI-620014.					CHD	N.DHANAPAL		23.04.96	
					APPD	A.VISWANATHAN		23.04.96	
DEPT VL			SCALE NTS	WEIGHT (KG).	REFERENCE INFORMATION				NO. OF ITEMS
CODE 320				REF. TABLE	CAD: F323249				
TITLE						CARD CODE	DRAWING NO.		REV
HEX NUT						U 01	3-V-0000-23249		04

3-V-0000-25897

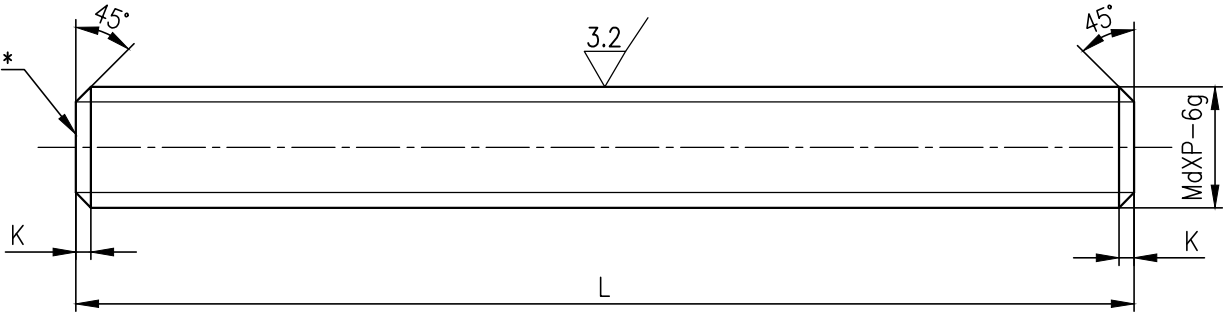
DRAWING NO.

12.5 / 3.2

SL.NO.	DRAWING NO.	COMP. CODE	MATL. SPECN.	DIMENSIONS				NET WT. (IN KGS.)
				Md	P	L	K	
1.	3-V-0001-25897/01	964658350000	ASTM A193-B8M CL.2, CERTIFY	M10	1.5	55	2	0.034
2.	3-V-0002-25897/01	964658360000		M16	2	55	2.5	0.087
3.	3-V-0003-25897/01	964658310000		M20	2.5	130	2.5	0.320
4.	3-V-0004-25897/01	964658320000		M20	2.5	150	2.5	0.370
5.	3-V-0005-25897/01	964658340000		M27	3	180	2.5	0.809
6.	3-V-0006-25897/02	964658330000		M30	3.5	185	2.5	1.027
7.	3-V-0007-25897/01	964658930000		M24	3	150	2.5	0.55
8.	3-V-0008-25897/01	964658940000		M33	3.5	220	2.5	1.5

NOTES :

1. * PUNCH MATERIAL MARK B8M FOR A193 – B8M
2. QUALITY REQUIREMENTS SHALL BE AS PER LATEST APPLICABLE QUALITY WORK INSTRUCTION.



REV 03	DATE 26.06.20	ALTERED R.P.SINGH CHD & APPD SAMEER & SSK	REV 02	DATE 13.11.19	ALTERED R.P.SINGH CHD & APPD SAMEER & SSK
	MATL. SPECIFICATION UPDATED.			M30 PITCH 3.5 WAS 3.	

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.

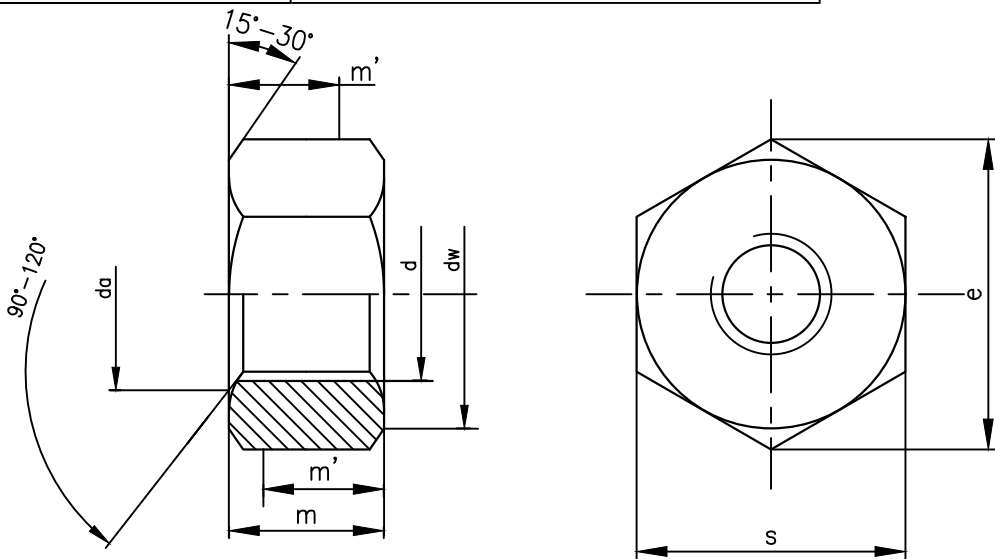
NO OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT									
BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI_620014. 365-121 DEPT VL CODE 320 TITLE STUD					DRN	NAME R.P.SINGH	SIGN	DATE 27.03.18	NO.OF VAR.
					CHD	S.SATHEES		27.03.18	
					APPD	K.RAJASEKARAN		27.03.18	
				SCALE NTS	WEIGHT (KG).	REFERENCE INFORMATION			NO. OF ITEMS
						CARD CODE U 01	DRAWING NO. 3-V-0000-25897		REV 03

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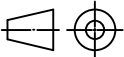
FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP/QP

ALL DIMENSIONS ARE IN MILLIMETRES.

REV	DATE	ALTERED	BY	DATE	ALTERED
01	29.10.18	CHD & APPD SSK & KRS			CHD & APPD
MATERIAL SPECIFICATION CHANGED FROM B8MA TO Gr.8M					
GROUP No. 0006 & 0007 ADDED					



NOTE:- FOR OTHER DIMENSIONS/DETAILS REFER IS:1364.

MATERIAL CODE		DRAWING NO	Thread Size	da		dw	e	m		m'		S	WEIGHT
			d	Min	Max	Min	Min	Max	Min	Min	Max	Min	
964658380000		4-V-0001-27368	M10	10	10.8	14.6	17.77	10	9.64	7.7	16	15.73	0.0108
964658390000		4-V-0002-27368	M20	20	21.6	27.7	32.95	20.7	19.40	15.5	30	29.16	0.0645
964658400000		4-V-0003-27368	M27	27	29.16	38	45.2	24.7	22.6	18.1	41	40	0.185
964658410000		4-V-0004-27368	M30	30	32.4	42.7	50.85	30.7	29.10	23.3	46	45	0.253
964658440000		4-V-0005-27368	M12	12	13.0	16.6	20.03	12	11.57	9.30	18	17.73	0.0165
964658970000		4-V-0006-27368	M33	33	35.6	46.6	55.37	33	31.4	25.1	50	49	0.30
964658960000		4-V-0007-27368	M24	24	25.9	33.2	39.55	24.2	22.9	18.3	36	35	0.11
HEXAGON NUT		ASTM A194 Gr.8M, CERTIFY											
NO OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT		SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No		ITEM No		
 BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI 620014.						DRN	NAME	SIGN		DATE	NO.OF VAR		
						CHD	R.P.SINGH			16.04.18			
						APPD	S.SATHEES			16.04.18			
DEPT VL			SCALE		WEIGHT (KG).		REFERENCE INFORMATIONS				NO. OF ITEMS		
CODE 320			NTS		REFER TABULATION		---						
TITLE						CARD CODE	DRAWING NO.					REV	
HEX NUT						U 01	4-V-0000-27368					01	



Product: CARBON & ALLOY STEEL FASTENERS (STUDS, BOLTS & NUTS) FOR VALVES, OIL FIELD EQUIPMENT (OFE) AND OTHER APPLICATIONS

Revision Record: 00: 17.01.90: First issue. Rev: 01:21.06.90 Editorial corrections. Rev 02:21.04.91 TC for studs/bolts added. Rev 03: 04.04.96: Annexure I amended. CI 3.3.3 & 5.3 modified. Rev 04:20.10.96: NDT, Acid pickling added & re-written. Rev 05: 28.04.98: CI 3 modified to include MPI, certificate modified & CI 7.4 deleted. Rev 06:15.06.99: Title, CI 1 to 5 & 7.1 modified. CI 7.2 changed to CI 7.3. CI 7.3 changed to 7.4 and modified. CI 7.2 Galvanizing added. Test certificate sample format modified.

Rev 07: 15/06/2017: TDC: 5:166 for CS & AS Nuts has been merged with this TDC. Totally revised in line with changed requirements and Xylan coating requirements added.

Rev 08: 14/09/2019: CI 1.0, 2.0, 3.0, 4.0, 5.0 modified in line with API 6A 21st Ed 2018 Errata 1 and for better clarity.

1.0 MATERIAL SPECIFICATIONS:

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

Studs/Bolts - Alloy Steel	:	ASME/ASTM SA/A 193 Gr B7, B7M & B16.
Nuts - Carbon Steel	:	ASME/ASTM SA/A 194 Gr 2H & 2HM
Alloy Steel	:	ASME/ASTM SA/A 194 Gr 4 & 7
Additional Requirements	:	As listed below (Supplementary to the above material specifications)
Size and Quantity	:	As per Purchase Order (PO) & Applicable Drawing

2.0 GENERAL REQUIREMENTS:

- i. This TDC is applicable for Valves, OFE (API 6A 21st Ed 2018 Errata 1 & 16C 2nd Ed 2015 Addendum 1 Errata 4) and other applications including NACE MR0175 / ISO 15156:2015 Parts 1, 2 & 3. The products shall be manufactured to the relevant requirements specified in the applicable drawings, specifications, PO & this TDC.
- ii. *Studs / Bolts / Nuts used for OFE application:*
 - a. *Studs / Bolts / Nuts shall be qualified and manufactured in accordance with BSL 1 of API 20E. The qualification & requalification records as per API 20E shall be maintained by the Supplier. The supplier shall prepare and Manufacturing Process Specification(MPS) to include as a minimum allowable levels for all Studs/Bolts/Nuts manufacturing parameters including process control variables and heat treatment parameters as per API 20E and this TDC.*
 - b. *Raw material shall be fully wrought. Reduction ratio based on starting material diameter shall be a minimum of 4:1. The steel shall conform to the respective material specifications. Intentional addition of Boron is not allowed. All elements intentionally added to the heat shall be reported in the Test Certificate.*
 - c. *Furnace calibration shall be in accordance with API 6A Annex M; SAE AMS 2750; or SAE AMS H6875. For induction or direct resistant heat treatment, calibration shall be in accordance with manufacturer's written procedure. For forging furnaces, calibration shall be in accordance with manufacturer's written procedure*
- iii. Nuts shall be hot/cold forged or manufactured from hot rolled/cold drawn bars. If made from hexagonal bars, 100% MT is to be done on bars as per ASTM E709 to ensure freedom from surface/sub-surface defects.
- iv. Hot rolled & cold drawn bars, if used (for studs/bolts or nuts), shall be machined at least 2 mm (minimum) in radius (i.e. 4 mm in diameter) to remove the seams completely. After machining, at least 10% of the bars shall be tested by MPI as per ASTM E709 to ensure freedom from surface/sub-surface defects.
- v. Heat treatment of finished studs/bolts shall be carried as per the material specification requirements for corresponding grades. For heat treatment of finished components, salt bath



Product: CARBON & ALLOY STEEL FASTENERS (STUDS, BOLTS & NUTS) FOR VALVES, OIL FIELD EQUIPMENT (OFE) AND OTHER APPLICATIONS

or controlled atmosphere furnace shall be used. After heat treatment, the threads shall be thoroughly cleaned to remove all deposits. If acid pickling is done for cleaning, it shall be as per Cl. 6 (v) of this TDC.

- vi. Cadmium Plating (Cl 6 (i) of this TDC), Electroplating (Cl 6 (ii) of this TDC) and/or Xylan Coating (Cl 6 (iii) of this TDC) shall be done on the fasteners if specified in Drawing/PO. For all other cases, rust preventive coating (Cl 6 (iv) of this TDC) shall be done.

3.0 CHEMICAL, MECHANICAL PROPERTIES & NDE:

- i. Mill certificate from steel manufacturer for conformance to chemistry heat-wise shall be submitted. Additionally, product analysis shall be done on one sample/heat by the stud/bolt/nut manufacturer. *Methods and practices for chemical analysis shall be in accordance with ASTM A 751.*
- ii. *The microstructure and macrostructure shall conform to the requirements of the respective material specifications.*

- iii. **Tensile Testing for Studs/Bolts:** One tensile test/heat/size/ HT batch shall be carried out in the finished heat treated condition as per SA / A 193 and shall meet the material specification requirements for corresponding grades.

iv. **Hardness Testing for Studs/Bolts:**

Hardness testing, including specimen preparation, shall be performed in accordance with ASTM A 370 including Annex A3, except that testing shall also be in conformance with ASTM E10 or ASTM E18.

- a) **For SA / A 193 Gr B7 & B16:** Hardness check shall be carried out on finished stud/ bolt as per SA / A 193, at least on 10% of the finished studs/bolts.
Gr B7: Hardness: 25 to 34 HRC or 253 to 319 HBW.
Gr B16: Hardness: 25 to 35 HRC or 253 to 321 HBW.

- b) **For SA / A 193 Gr B7M:**
Hardness check on 100% of studs/bolts as per SA193.
Gr B7M: Hardness: 94 to 99 HRB or 201 to 235 HBW.

v. **Mechanical Testing for Nuts:**

- a) **For SA / A 194 Gr 2H, Gr 4, & Gr 7:**
Hardness check on finished nuts shall be as per SA / A 194 (including quantum of testing).
Gr 4: Hardness: 24 to 35 HRC or 248 to 327 HBW.
Gr 2H & Gr 7: Hardness: 24 to 34 HRC or 248 to 319 HBW.

- b) **For SA / A 194 Gr 2HM:**
Hardness check on 100% of finished nuts shall be carried out as per SA / A 194.
Gr 2HM: Hardness: 159 to 235 HBW.

- c) **Proof load test shall be done as per SA / A 194 for all grades of nuts** and shall meet the requirements of corresponding grades of the material specification.

- d) After final heat treatment, sample nuts shall be heat treated as per Table 1 and meet the corresponding hardness requirements.

Table 1.

Grade	Temperature (°C)	Soaking Time (Hr)	Cooling	Minimum Hardness (HBW) at room temperature
2H	540	24	Slow Cool	179
2HM	540	24	Slow Cool	159
4, 7	590	24	Slow Cool	201

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e) **Cone Stripping Test:** This test shall be performed as per SA / A 194 in case of visible surface discontinuities. On such cases Proof load shall be as per SA / A 194.

vi. **NDE:**

Magnetic particle inspection shall be carried out as per ASTM E709 in at least 10% of the finished studs/bolts of all grades. Cracks, linear indications (length $\geq$ 3 times its width) are unacceptable.

4.0 SAMPLING INSPECTION:

All inspection shall be in accordance with relevant drawing or BPS (Boiler Plant Standard), PO, this TDC and SA / A 193 for studs/bolts and SA / A 194 for nuts. The threads shall be checked with calibrated ring gauges for studs/bolts & plug gauges for nuts in the final heat treated condition for black variety and in final plated/coated condition for the cadmium plated/electroplated/ xylan coated items.

Visual, dimensional checks and their acceptance shall be as per applicable drawing and ASME SA / A 193 for studs/bolts & SA / A 194 for nuts.

5.0 MARKING & PACKING:

- i. Punch/emboss each finished component with applicable material grade (B7/ B7M/ B16 for studs/bolts; 2H/2HM/4/7 for nuts) and supplier's emblem. Studs/bolts of grade B7M and nuts of Gr 2HM shall have a line under the grade symbol.
- ii. Punch/emboss serial number also in B7M studs/bolts and Gr 2HM nuts in addition to the above, to correlate with hardness. Protect the threaded ends with plastic end caps. Pack in wooden box/ gunny bag of convenient size for easy handling and transportation. Mark quantity in each box/gunny bag.
- iii. *In addition to the above, studs / Bolts / Nuts for OFE applications shall marked with unique heat lot identification and followed by "20E1". Each piece 1 in. nominal diameter and larger shall be marked. For studs / Bolts / Nuts less than 1 in. nominal diameter, the studs / Bolts / Nuts shall be securely containerized to maintain heat lot identification and traceability. Multiple heat lots shall not be mixed in a single container. Containers used in the processing, storing, and shipping of studs / Bolts / Nuts not individually marked shall be clearly labeled with all marking information required by the relevant material specifications and API 20E.*

6.0 SPECIAL REQUIREMENTS:

i. CADMIUM PLATING:

- a) Clean the fasteners to make them free from rust, grease, oil, scale, etc., before plating. When pickling is considered essential, it shall be done as per CI 6 (v) of this TDC.
- b) Apply Cadmium Plating to the specified thickness on specified areas. Thickness shall be measured on 5% of the PO quantity of fasteners.
- c) After plating, bake the parts at 175°C to 205°C for a minimum period of 3 hours. The elapsed time between plating and baking shall not exceed 8 hours.
- d) Apply a Chromate Conversion coating after plating and baking.

ii. ELECTROPLATING OF ZINC CHROMATE:

- a) Clean the fasteners to make them free from rust, grease, oil, scale, etc., by suitable organic solvents/ hand tool methods before electroplating. Then, pickling shall be done as per CI 6 (v) of this TDC.
- b) The fasteners shall then be electroplated as per the method and to the minimum coating thickness specified in the applicable drawing. Thickness shall be measured on 5% of the PO quantity of fasteners.

iii. XYLAN COATING:

- a) Clean the fasteners by blast cleaning to Sa2.5 to make them free from rust, grease, oil, scales, etc., before xylan coating.
- b) The fasteners shall then be xylan coated as per the requirements and to the minimum coating thickness specified in the applicable drawing.



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c) Tests for Xylan Coating:

The following test shall be carried out on Xylan coated fasteners and results to be reported in the Test certificate (in addition to the Test Certificate for the fastener material and other inspections requirements):

i) Thickness measurement:

Dry film thickness of Xylan coating to be measured using a magnetic induction or Eddy current type electronic gauge and the reading shall meet the drawing/PO requirement for thickness of coating of Xylan 1070. The thickness measurements shall be made in accordance with ASTM D7091. Thickness shall be measured on 5% of the PO quantity of fasteners.

ii) Cure Test:

This test method is for ensuring the completeness of cure of Xylan 1070 coating by evaluating the resistance of the cured coating to a solvent known to attack uncured film. The testing method shall be as per Whitford test method 115B (as recommended by the Xylan coating supplier).

Acceptance criteria: No white precipitate or stain shall be available after the test.

iii) Adhesion Test using Cross-hatch and Cello Tape:

Test as per ASTM D-3359 Method B for measuring Adhesion by Tape Test.

Acceptance Criteria: No loss of adhesion (5B Classification).

iv) Salt Spray Test:

Xylan coated fasteners should pass a minimum requirement of 500 hours of salt spray test as per ASTM B117. Certificate of compliance for meeting the salt spray test requirements shall be provided.

iv. RUST PREVENTIVE FLUIDS/COATING REQUIREMENTS:

a) Clean the fasteners to make them free from rust, grease, oil, scale, etc., by hand tool/ manual cleaning method.

b) Apply one coat of rust preventive fluid, of any of the following brands of the suppliers (Table 2), to obtain dry film thickness of 20 microns minimum:

Table 2. Rust Preventive Fluid/Coatings Brands

SI No	Brand/Chemical	Supplier Name and Address
1	BONITA-RPF	M/s Bonita Chemicals, 64, Industrial Estate, Nunhai, Agra-282 006
2	CHAMPION-RPF	M/s Guardian Chemicals, 8, Rajaji Hind st, West Lake Area, Nungambakkam, Madras-600 034
3	ECONOL RPF (non-drying type)	M/s Process Aids, Bangalore
4	TECTYL 506	M/s Plastipeel Chemicals and Plastics (P) Ltd, Thane-400 604
5	TRPF	M/s Sundaram Paints Pvt. Ltd., Thanjavur-613 004
6	TRPF	M/s Solar Paints, Pudukkotal.
7	WICOR-P	M/s Western India Paint and Color Co P. Ltd, Madras-600 017

Use of any other brand/chemical shall be done with the prior approval of BHEL.

v. ACID PICKLING:

a) Wherever pickling done, it shall be done using Hydrochloric acid of 5-10% concentration for a period of 5 to 10 minutes at room temperature with suitable inhibitor.

b) After pickling thorough rinsing shall be carried out with water to remove acid residues & further DM water rinsing. After thorough rinsing with DM water, the rinsing shall not show any red color (free acidity) when tested with methyl orange indicator.

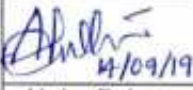
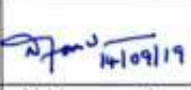
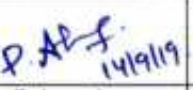
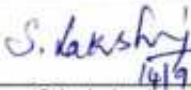
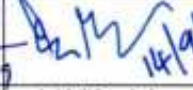


Product: CARBON & ALLOY STEEL FASTENERS (STUDS, BOLTS & NUTS) FOR VALVES, OIL FIELD EQUIPMENT (OFE) AND OTHER APPLICATIONS

7.0 CERTIFICATION:

The manufacturer shall provide Test Certificates (TC) duly countersigned by the Authorized Inspecting Authority nominated by BHEL in P.O. (if specified) along with raw material TC from Steel Maker. Manufacturer's TC shall contain the following details as per the sample format attached as Annexure-1 to this TDC:

- BHEL PO No & PO Date
- Technical Delivery Condition (TDC) No & its Revision No, Drawing & its revision no
- Melt/Heat No, Serial No (if applicable)
- Raw Material TC Number and Date
- Chemical and Mechanical properties for Studs/Bolts and Nuts
- Heat treatment details (temperature, time, cooling medium, etc.)
- NDE Results with reference and acceptance criteria
- Type of Surface coating & its coating thickness – Cadmium Plating, Chromate conversion coating, Electroplating, Xylan Coating, Rust preventive coating, etc.
- Test methods and results on Xylan Coating
- Baking details for cadmium plating, electroplating & Xylan coating
- Manufacturers' identification mark
- Certify soundness & confirmation to PO requirements.

 4/09/19	 14/09/19	 14/09/19	 14/09/19	 14/09/19	 14/09/19
Abdur Rahman Sultan	N Nagamuthu Pandian	P Arun kumar	S Lakshmi	A Wilfred Joseph	J V V Aruna Kumar
SQAE/QA	DM/QA	SPE / Valves Engg	DGM/QA	AGM / Valves Purchase	SDGM / QA
Prepared By		Reviewed By			Approved By



BHEL – Tiruchirappalli - 620014, India.
Quality Assurance Department
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Annexure-1. Test certificate for Studs/Bolts & Nuts– Sample format

TC No:	Date:
Customer :	PO No./ Amd :
TDC No./Rev.:	DC No. :
Product :	Drg. No./Rev :
Description : (Spec, dia, pitch, length)	Thread Spec. :
Quantity :	
Requirement :	<u>Records/ Observation</u>
Size of bar - Before machining :	
- After machining :	
Type of furnace used for hardening :	

TDC Clause no.	Raw Material mill TC No: Melt/Heat Number:	TC Date:																																												
2.0 & 3.0	a) Heat Treatment Details: Hardening Temperature: °C; Soaking time: Cooling Medium: Tempering Temperature: °C; Soaking time: Cooling Medium: b) Additional Tempering for Nuts (after final tempering): Temperature: °C; Soaking time: Cooling Medium:																																													
3.0	a) Product analysis for chemistry Report No & Date: <table border="1"> <tr> <td>Spec</td> <td>C</td> <td>Mn</td> <td>P</td> <td>S</td> <td>Si</td> <td>Cr</td> <td>Mo</td> <td>V</td> <td>Ni</td> <td>Others</td> </tr> <tr> <td>Min.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Max.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Actual</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		Spec	C	Mn	P	S	Si	Cr	Mo	V	Ni	Others	Min.											Max.											Actual										
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	Min.																																													
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	Actual																																													
	b) Tensile test after H & T and final drying (Finished heat treated condition) – For Studs/Bolts <table border="1"> <tr> <td></td> <td>UTS (MPa)</td> <td>YS (MPa)</td> <td>%Elongation</td> <td>%Red in Area</td> </tr> <tr> <td>Reqd/Spec Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Test result</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>Spec Value</td> <td>Test result</td> <td colspan="2">Remarks</td> </tr> </table>			UTS (MPa)	YS (MPa)	%Elongation	%Red in Area	Reqd/Spec Value					Test result						Spec Value	Test result	Remarks																									
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	Reqd/Spec Value																																													
	Test result																																													
		Spec Value	Test result	Remarks																																										
c) Hardness Test Result (for Studs/Bolts, Nuts):																																														
d) Hardness Test Result (for Nuts after 24 hrs of tempering):																																														
e) Proof load (kN) for nuts & result																																														
f) Result of Cone Stripping test for nuts																																														
g) NDE Result for Studs/Bolts:																																														
4.0	Visual and dimensional checking as per applicable drawing and ASME SA193 for studs/bolts & SA194 for nuts:																																													
5.0	Punching details (identification): End cap for threaded portion:																																													
6.0	a) Type of coating: Cadmium Plating /Chromate Conversion / Electroplating/ Xylan /Rust preventive coating (Tick applicable coating) Coating thickness/DFT:																																													
	b) Tests for Xylan Coating Results <table border="1"> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> </table>																																													
c) Pickling Acid: Concentration: Drying after pickling. Temperature: °C; Soaking time:																																														
This is to certify that the above results are correct and the parts meet specification and PO requirements.																																														
Signature with date Supplier: In-charge of Quality		Signature with date BHEL / Authorized Inspection Agency																																												

Note: Additional Sheets may be attached, if required.



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का साधक)
इंडस्ट्रियल वाल्वस प्लांट
Bharat Heavy Electricals Limited
(A Govt. of India Undertaking)
Industrial Valves Plant

Quality Assurance Plan for Fasteners*:
NUT, BOLT (INCL EYE BOLT, LIFTING EYE BOLT), STUD

BHEL/QAP/FAS:02
Dt:15.03.2019

SN	Stage of inspection	Inspection type		Ref doc	Quantum of check	Format of Record	Agency	
							M	BHIL/IPIA
1	Raw material	Chemical/Mechanical properties		Material test certificate	100%	MTC report	V	V
		Chemical Analysis	Chemical composition	Material specification in org	one sample per heat	Annex 1 of TDC	P	W
			Tensile strength		one sample per heat			
		Mechanical Properties	Mechanical testing for nut	Material specification in dig	10% or 20 nos hardness check at manufacturer end, one sample each type per heat for TPIA or BHEL**	Annex 1 of TDC	P	W
2	Finished product							
		Dimension	As per drawing, Thread with GO/ NO GO Gauge	Material org/BPS	10% or 20 nos/type.	Inspection report	P	P
		Visual	Free from burrs, physical damages		100%	Annex 1 of IDC	P	P
		MPI	ASTM F709	As per procedure	10% or 20 nos/type.	MPI report	P	W
		Marking/Identification	Material grade/supplier name or symbol	As per PO/Drawing/ IDC	10%	Annex 1 of IDC	P	W

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भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का उपक्रम)
इंडस्ट्रियल वाल्वस प्लांट
Bharat Heavy Electricals Limited
(A Govt. of India Undertaking)
Industrial Valves Plant

3	Rust preventive oil	As per TDC:5:164	100%	Annex 1 of TDC	P	W
	Packing	Packed in wooden/cardboard box with layer to layer cushioning material.	10%	Annex 1 of TDC	P	W
	Test certificate	MIC		Annex 1 of TDC	P	V

M-Manufacturer, V-Verification, W-Witness, P-Perform

- * QAP IS PREPARED TO MEET REQUIREMENT OF TDC:5:164 (latest)...PLS REFER IT, IN CASE OF AMBIGUITY ARISES.
- ** TPIA/BHEL MAY INCREASE SAMPLE QTY UP TO 10%.

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15/03/19

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Prepared

Samir Shandilya
15/03/19

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