

TENDER TERMS AND CONDITIONS

Supply of HSFG BOLT and NUTS

[Enquiry No. 2021-031E Dt.15.09.2020, Due Date-26.09.2020]

Tender Enquiry no.	2021- 031E
Enquiry date	15.09.2020
Last time and date of tender submission	14:00 Dt.26.09.2020
Tender opening time and date	14:30 Dt.26.09.2020
Quotation Parts	Two-part Bid
Item Description	HSFG Bolt, Nuts and Washers
Delivery schedule	As per Annexure C
Validity of offer (In days)	90 days from date of tender opening
Test Certificate and other Quality related documents	As per Annexure C

This Enquiry is a two-part E-Procurement Enquiry. Offer from any other mode will not be accepted. Any techno commercial or Price changes after submission of Bids in EPS informed through any other mode will not be considered. ***The items are reserved for MSE vendors only, so please submit your MSE documents*** (as per Clause 26 of Annexure B) along with part-1 of the tender. So please only ***MSE bidder submit quotation*** in this enquiry.

Bid Parts and Processing

This Open Tender is floated as a **Two-Part Bid** tender with:

- a) **Part – I** - Pre-Qualification Criteria & Techno Commercial Bid
- b) **Part – II** - Price Bid.

BID PART – I

On the due date of tender opening, only part-1 will be opened. The offers will be evaluated on the basis of Pre-Qualification Criteria and techno-commercial bid. Clarifications required, if any, will be called for from the bidders. If no reply is received from the bidders for the clarification raised by BHEL with in the final cut-off date those bidder's offer will be processed with the documents available / submitted against this tender. Offers not meeting the required Pre-Qualification Criteria and technical & commercial points will be rejected. Those Bidders whose offers are qualified in Part-I will only be considered for further processing. Following documents are mandatory to be attached in bid Part-I:

- I. Annexure A and its relevant Documents (PQC – Pre Qualification Conditions)
- II. MSE supporting documents (Clause 26 of Annexure B)

BID PART – II

The BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among all the techno-commercially bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their price bid along with applicable loading, if any, shall be considered for further processing. For detailed RA process please go at www.bhel.com and open supplier registration link.

NOTE: All Documents to be duly signed, scanned and to be uploaded in respective BID.

ANNEXURE - A (Pre-Qualification Criteria)

ENQUIRY NO. 2021-031E Dt.15.09.2020, Due date: 26.09.2020

Material: HSFG BOLTS, NUTS and Washers

Sl.No	PRE QUALIFICATION CRITERIA	OPTIONS	VENDOR'S RESPONSE (Explicit response is Mandatory). All columns have to be Mandatorily filled.
01	Supplier shall be manufacturer of High strength structural steel Bolts, Nuts and washers (Grade 8.8 or 10.9). Offers from Traders/Dealers/Stockists/agents will summarily be rejected. (Submission of Certificate of Registration or UAM/Udyam Certificate for proof as a manufacturer is mandatory)	ENCLOSED / NOT ENCLOSED	
02	Bidder has to submit one or more purchase order/s of Similar Bolts & Nuts and Washers (Grade 8.8 or 10.9) from any customer with minimum cumulative value of Rs.10000000.00 (1 crore) as proof. PO date should be 01.09.2017 or afterwards"	ENCLOSED / NOT ENCLOSED	
03	Suppliers shall submit Audited copies of annual reports (Balance Sheets), Profit & Loss statement for last three years (or from date of incorporation whichever is less). Minimum average annual turnover for last 3 years should be Rs. 2 crores/year.	ENCLOSED / NOT ENCLOSED	
04	Offers from Manufacturers with a production capacity of minimum 100 MT per month for HSFG Bolts & Nuts (Grade 8.8 or 10.9) will only be acceptable. Bidder should have minimum separable capacity of 75 MT/month of Similar HSFG Bolts & Nuts (Grade 8.8 or 10.9) to BHEL GOINDWAL.	ACCEPTED / NOT ACCEPTED	
05	The MSE supporting documents (As per latest govt. notifications)	ENCLOSED / NOT ENCLOSED	

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 dis-qualified.

NOTE: - Only Offers meeting the above prequalification criteria points will be evaluated further. Otherwise it will summarily be rejected. For start-up bidders, the above condition Sr. no. 2&3 is not applicable. These relaxations and exemptions are in line with D.O. No. 5(4)/2016-BE-I dated 15.02.2017. For claiming Start-Up exemption, bidders have to give documentary evidence or undertaking. However there is no compromise on technical ground.

Declaration: -

All the information given above are true to the best of our knowledge and belief.

SIGN AND SEAL OF AUTHORIZED PERSON

Annexure-B

[Enquiry No. 2021-031E Dt.15.09.2020, Due date 26.09.2020]
Supply of HSFG BOLT and NUTS

1. GENERAL CONDITIONS:

- a) The tender will be evaluated on FOR site basis only. The item wise details (Material code & Size wise Quantity and Project site/Destination details) are shown in Annexure-C. Bidders are requested to quote their prices on F.O.R destination Site basis mentioned in the Annexure-C. Freight charges, packing & forwarding and Transit Insurance for Respective Project Sites will be in bidder account only. **Offers indicating only Incoterms "Ex-works" will not be accepted.**
- b) No charges shall be indicated as "Lump sum" or "Approximate" in absolute value. All charges like taxes and duties should be clearly specified as "percentage" of the basic price quoted.
- c) 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.
- d) 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. Also, note that the incomplete bids will not be saved by the system and are not available for the Purchaser for processing.
- e) Before uploading scanned documents, if any, the bidders shall sign and affix Office seal on all the statements, documents, certificates uploaded by him, owning responsibility for their correctness /authenticity.

2. OFFER VALIDITY:

Offers should have a validity of minimum 90 days from the date of Tender opening. The quoted/Finalized rates shall be Firm till completion of the supplies including amendment/deviation/extension if any in quantity / date.

3. QUANTITY VARIATION CLAUSE:

In addition to the requirement mentioned in NIT, BHEL can further increase total tender value up to 10% based as per BHEL requirement. The purchase orders for this additional 10% will be placed within delivery schedule of respective site and delivery schedule for such purchase orders will be within 2 months from the date of purchase order or actual PO delivery whichever is later. Quantity may be decreased based upon mutual consent between BHEL and supplier.

4. SECURITY DEPOSIT:

In order to start the supply of material at the earliest, Security deposit of the value for 2% of the total purchase order value will be taken from respective successful suppliers. The supplier has to submit the security deposit within 15 days from the date of placement of Purchase Order. The security Deposit will not carry any interest. Security deposit shall be kept valid until 30 days after the completion of order. If the supplier fails to submit the security deposit within stipulated time, BHEL reserves the right to cancel PO and offer the material to other bidders.

Modes of Deposit:

The security deposit of 2% of total purchase order may be submitted in the following forms:

- i. Cash (as permissible under the extant Income Tax Act)

Annexure-B

[Enquiry No. 2021-031E Dt.15.09.2020, Due date 26.09.2020]
Supply of HSFG BOLT and NUTS

- ii. Local Cheque of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favor of BHEL
- iii. Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL
- iv. Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL)
- v. Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Supplier furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favor of BHEL)

5. OFFER RANKING AND COUNTER OFFERING:

- 1) There will be no counter offer in items required for Bhusawal project.
- 2) For Patratru project, counter offer will be given only in item Sl.no. 3 of Annexure-C i.e. M24x110 HSFG BOLTS & NUTS Grade 8.8.
- 3) For Sagardighi project, counter offer will be given in two items Sl. no. 1&2 of Annexure-C i.e. M24x90 HSFG BOLTS & NUTS Grade 8.8 and M24x130 HSFG BOLTS & NUTS Grade 8.8.

In Sl. no. 3 of Annexure-C for Patratru project and Sl. no. 1&2 of Annexure-C for Sagardighi project, the quantity will be divided in the ratio L1:L2 as 60:40. 60% of the item wise quantity will be offered to L1 bidder. 40% of the item wise quantity will be counter offered to L2 bidder. On acceptance of L1 FOR rates, 40% quantity will be finalized with L2. In case counter offering rate is not accepted by L2 bidder then such counter offered quantity will be ordered on L1 bidder. BHEL reserves the right to negotiate with L1 bidder or re-float the tender for items where, L1 price is not the lowest acceptable price. If there are only two qualified bidders, then counter-offer will not be given.

If any of the L1 or L2 bidders fail to supply the material at any stage, then it's share may be given to other bidder (out of L1 and L2) after invoking risk purchase (Note-1) and security deposit may be forfeited. If both L1 and L2 fails to supply, then risk purchase clause will be invoked against both of them and Security deposit of both may be forfeited.

Note-1 Risk Purchase clause may be invoked immediately after the expiry of the delivery date for the undelivered portion of the PO qty.

6. SCOPE OF SUPPLY:

Material shall be supplied as per the applicable TDC. National & International material Standards shall have to be arranged by bidders themselves. The material is to be supplies direct to site and detail of sites is mentioned in annexure-C.

In case any new bidder/s (The bidder who has not supplied similar fasteners to any of the BHEL units in last 3 years. i.e. on or after 01.09.2017) becomes L1 or L2, then material will first be offered to Third Party Inspection (TPI) and after TPI clearance, BHEL will identify some samples from TPI cleared 1st lot and identified samples will be sent to BHEL Trichy lab for testing by the bidder. Only after clearance from BHEL Trichy Lab, the dispatch clearance for offered lot will be given and if material gets rejected at BHEL Trichy Lab then whole lot will be rejected and bidder has to offer new material. It will be bidder's responsibility to send these samples to BHEL Trichy lab and it will take around 7 days for testing at BHEL Trichy Lab. Any delay on this account will be in bidder scope only so bidder has to plan accordingly.

Bidders will submit TPI (Third party inspection) report to BHEL IVP after TPI inspection. Then based on TPI report, BHEL will give dispatch clearance and then only the material shall be supplied to the site by bidder. It may take up to 5 days for clearance. Along with clearance, BHEL will send DU material code

Annexure-B

[Enquiry No. 2021-031E Dt.15.09.2020, Due date 26.09.2020]

Supply of HSFG BOLT and NUTS

in addition to PO/item material code. These DU material codes along with PO/item material code have to be printed in the packing list. The packing list will be a part of invoice only and is important document in order to identify the DU at Site.

Packing

- a) In case of **Patratru** and **Bhusawal Site**, all gunny bags containing HSFG bolts shall be packed in **wooden crates** for easy unloading and proper storage at site.
- b) In case of **Sagardighi** Site, the packing of material will be done as per applicable TDC.
- c) Packing should be such that there should not be any damage in transit.
- d) BHEL work order no and DU no should be written on the boxes for easy identification of material.

Documents forwarding

- a) LWB(Lorry Way bill no.), packing slip (indicating BHEL PGMA & DU and customer material number) and GST invoice (transporter copy) shall be sent to the consignee along with the vehicle.
- b) Original tax invoice along with original LWB along with packing slip indicating BHEL PGMA & DU and customer material number shall be sent to MM department of BHEL IVP Goindwal.
- c) Acknowledged LWB to be sent to BHEL IVP Goindwal.

7. TERMS OF PAYMENT:

Payment term is 30-45 days from the date of receipt and acceptance of materials at the respective project site. It will be bidder's responsibility to send the "receipt of acceptance of material" at respective project site to BHEL IVP GOINDWAL through email/FAX or any other mode. After dispatch of material to site bidder has to send original invoice and original LWB copy to BHEL IVP GOINDWAL, which is, must for payment.

8. DETENTION CHARGES:

The detention charges shall be payable @ Rs.1500/- for trucks (A1, A2, A3 and D) per vehicle per day and Rs. 2500/- for Trailers (C1, C2, C3) per vehicle per day. These detention charges shall be applicable beyond a period as below:

DAY OF ENTRY + DAY OF EXIT

Detention of transporter's vehicle because of non- compliance required documents and packing slip will be natural and BHEL will not be responsible for such abnormal detentions. Immediately on reaching the site, transporter shall have to inform the reaching/site entry date. In case they are not allowed inside the site/works, then they will inform through email and GPS data shall be provided by the transporter.

The vehicle should report at SITE for unloading from 10:00 Hrs to 15:00 Hrs. If the vehicle reports after 15:00 Hrs. the date of reporting shall be taken as next working day for the purpose of payment of detention charges. However, in such cases transporter will have to submit proof of entry and exit timings of vehicle in the site.

Annexure-B

[Enquiry No. 2021-031E Dt.15.09.2020, Due date 26.09.2020]
Supply of HSFG BOLT and NUTS

Sl. No.	Truck Category	Detail
1	A1 Category	Smalls Up to 5.5 MT
2	A2 Category	5.5 MT to 7MT
3	A3 Category	7MT to 15MT
4	D Category	Mini Truck Load up to 5 MT
5	C1 Category	Above 15MT – 21MT
6	C2 Category	Above 21MT – 27MT
7	C3 Category	Above 27MT – 35MT

9. QUOTATIONS:

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. **It will be bidder responsibility to arrange DSC on time and there will be no extension of tender due to non-availability of DSC because of any reason.**

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 select your “country” in case you are an overseas Supplier.
3. Select Units to participate in.

Annexure-B

[Enquiry No. 2021-031E Dt.15.09.2020, Due date 26.09.2020]

Supply of HSFG BOLT and NUTS

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 "OTI"**.
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.abcprocure.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

Annexure-B

[Enquiry No. 2021-031E Dt.15.09.2020, Due date 26.09.2020]

Supply of HSFG BOLT and NUTS

10. ACCESS TO MANUFACTURING PREMISES:

While Purchase Orders placed on the bidder 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.

11. 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, bidder 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 bidder 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 bidder along with interest levied/leviable on BHEL.

Further, in case bidder 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 bidder/contractor along with interest levied/leviable on BHEL.

12. 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.

13. INSPECTION:

- a) All required tests as called in referred material standard/BHEL/TDC/drawing etc shall be carried out by bidder at no extra cost. **BHEL may decide to inspect itself/arrange third party at bidders' works itself as and when necessary with prior intimation to the bidder.** 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 and gauges etc) have to be arranged by supplier.
- c) **Bidder will give inspection call sufficiently in advance considering the delivery period stipulated in the purchase order.**

Annexure-B

[Enquiry No. 2021-031E Dt.15.09.2020, Due date 26.09.2020]
Supply of HSFG BOLT and NUTS

- 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 bidder.
- f) Any inspection carried out before supply by bidder/incoming stage at BHEL notwithstanding, if any defect/non-conformity is noted during processing, the same shall be attended/replaced by bidder at no extra cost.
- g) Necessary tooling including thread gauges etc. have to be arranged by bidder. Only in exceptional cases, based on BHEL discretions item/nature, BHEL may consider request to provide gauges if available with BHE 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 bidder's works before clearing the items for dispatch.

14. GUARANTEE/WARRANTEE:

Bidder 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.

15. 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% of the undelivered portion per week of the delay or part thereof subject to a maximum of 10% of the undelivered portion. In this tender the date of invoice shall be reckoned for LD deduction.

If any bidder does not accept LD 10% of the supply for each week of delay subject to a maximum of 10%, 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 purchase order. 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.

16. 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 bidder, 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. Bidder shall be liable for the losses, which BHEL may sustain by way of such risk purchase.

17. DISPUTES:

In the event of any dispute and/or difference arising between the Bidder and BHEL as to interpretation and/or execution of the contract and/or the respective rights and liabilities of the parties, such

Annexure-B

[Enquiry No. 2021-031E Dt.15.09.2020, Due date 26.09.2020]
Supply of HSFG BOLT and NUTS

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.

18. 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.

19. 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.

20. 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.

21. 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.

22. FRAUD PREVENTION POLICY:

The Bidder along with its associate / collaborators / sub-contractors / sub-bidders / consultants / service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website

Annexure-B

[Enquiry No. 2021-031E Dt.15.09.2020, Due date 26.09.2020]
Supply of HSFG BOLT and NUTS

<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.

23. REVERSE AUCTION:

BHEL shall be resorting to Reverse Auction (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among all the techno-commercially qualified bidders.

Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking. “

For detailed RA [process](#) please go at www.bhel.com and open supplier registration link.

<http://www.bhel.com/index.php/vender>

24. 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/

Annexure-B

[Enquiry No. 2021-031E Dt.15.09.2020, Due date 26.09.2020]

Supply of HSEFG BOLT and NUTS

supplier/ contractor as per extant guidelines of the company available on www. bhel.com and/or under applicable legal provisions.

25. 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.

26. PREFERENCES FOR MSE's:

“MSE suppliers can avail the intended benefits only if they submit along with the offer Udyam Registration Certificate or UAM (Udyog Aadhaar Memorandum) or attested copies of 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. **Udyam Certificate / UAM need not required to be notarized or attested.**”

27. OTHER CONDITIONS:

1. Conditional offers are likely to be rejected.
2. The correspondences between the bidder and BHEL through email are considered as valid document legally though not signed. It is treated as valid confirmations made on behalf of the respective company and comes under the legal ambit of the business transaction and hence binding on both the parties.
3. Disclaimer Clause: 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.
4. Bidders not confirming to the enquiry specifications will be disqualified.
5. If Guarantee / Warranty period is applicable as per tender specification, no deviation permitted and deviated offers are liable for rejection.
6. The Tender Due date falling on public holiday due to any circumstances, the tender will be opened on next working day.
7. BHEL will not be bound by any power of attorney granted by the bidders 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 bidder concerned.
8. 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.

Annexure-B

[Enquiry No. 2021-031E Dt.15.09.2020, Due date 26.09.2020]

Supply of HSFG BOLT and NUTS

9. 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.
10. 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.
11. 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.
12. 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.
13. BHEL reserves the right to negotiate with L1 bidder/s.

Annexure-C List of items/Site detail/Delivery schedule

ENQUIRY NO. 2021-031E Dt.15.09.2020, Due Date 26.09.2020

Material: HSFG BOLTS, NUTS and Washers

(A) Site - Bhusawal

Delivery- Within 3 months from date of purchase order

Destination address:-

MSPGCL BHUSAWAL UNIT 6 - 1 x 660 MW ,
BHUSAWAL THERMAL POWER STATION PROJECT , Dist. Jalgaon (MS)-425307 , Maharashtra

Sl. No.	Material Code	Description	Site	Quantity, Nos.	TDC/Drawings
1	412402407000	M24x70 HSFG BOLTS & NUTS Grade 8.8	Bhusawal	410	TDC:5:211/REV 02
2	412402409000	M24x90 HSFG BOLTS & NUTS Grade 8.8	Bhusawal	8800	TDC:5:211/REV 02
3	412402410000	M24x100 HSFG BOLTS & NUTS Grade 8.8	Bhusawal	4050	TDC:5:211/REV 02
4	412402411000	M24x110 HSFG BOLTS & NUTS Grade 8.8	Bhusawal	850	TDC:5:211/REV 02
5	412402412000	M24x120 HSFG BOLTS & NUTS Grade 8.8	Bhusawal	3200	TDC:5:211/REV 02
6	412402413000	M24x130 HSFG BOLTS & NUTS Grade 8.8	Bhusawal	350	TDC:5:211/REV 02
7	412402415000	M24x150 HSFG BOLTS & NUTS Grade 8.8	Bhusawal	1000	TDC:5:211/REV 02
8	414180002400	M24 WASHER Grade 8.8	Bhusawal	12600	TDC:5:211/REV 02

(B) Site –Patratru

Delivery - For Patratru unit - Supply within 3 months from date of purchase order

Destination address:-

Patratu Vidyut Utpadan Nigam Ltd, (PVUNL)
Phase I 3x800 MW Project
PO. PATRATU TPS, Distt- Ramgarh-829119,
Jharkhand

Sl. No.	Material Code	Description	Site	Quantity, Nos.	TDC/Drawings
1	412400010000	M24x70 HSFG BOLTS & NUTS Grade 8.8	Patratru	2000	TDC:5:215/00 , Drg 3-35-700-06802
2	412400020000	M24x90 HSFG BOLTS & NUTS Grade 8.8	Patratru	1000	TDC:5:215/00 , Drg 3-35-700-06802
3	412402411000	M24x110 HSFG BOLTS & NUTS Grade 8.8	Patratru	23000	TDC:5:211/REV 02
4	412402413000	M24x130 HSFG BOLTS & NUTS Grade 8.8	Patratru	1900	TDC:5:211/REV 02
5	412402415000	M24x150 HSFG BOLTS & NUTS Grade 8.8	Patratru	2200	TDC:5:211/REV 02
6	412402417000	M24x170 HSFG BOLTS & NUTS Grade 8.8	Patratru	1050	TDC:5:211/REV 02
7	412413012000	M30x120 HSFG BOLTS & NUTS Grade 10.9	Patratru	1400	TDC:5:211/REV 02
8	412413013000	M30x130 HSFG BOLTS & NUTS Grade 10.9	Patratru	400	TDC:5:211/REV 02
9	412413015000	M30x150 HSFG BOLTS & NUTS Grade 10.9	Patratru	1200	TDC:5:211/REV 02

Annexure-C List of items/Site detail/Delivery schedule

ENQUIRY NO. 2021-031E Dt.15.09.2020, Due Date 26.09.2020

Material: HSFG BOLTS, NUTS and Washers

(C) Site – Sagardighi project

Delivery - For Sagardighi project - Supply within 3 months from date of purchase.

Destination address - Sagardighi Power Plant, Near Sagardighi, West Bengal (The detail Address will be intimated at the time of dispatch).

Sl. No.	Material Code	Description	Site	Quantity, Nos.	TDC/Drawings
1	412400020000	M24x90 HSFG BOLTS & NUTS Grade 8.8	Sagardighi	68000	TDC:5:215/00 , Drg 3-35-700-06802
2	412400030000	M24x130 HSFG BOLTS & NUTS Grade 8.8	Sagardighi	55800	TDC:5:215/00 , Drg 3-35-700-06802
3	412413012000	M30x120 HSFG BOLTS & NUTS Grade 10.9	Sagardighi	3000	TDC:5:211/REV 02
4	412413016000	M30x160 HSFG BOLTS & NUTS Grade 10.9	Sagardighi	9000	TDC:5:211/REV 02
5	414180002400	M24 WASHER Grade 8.8	Sagardighi	185000	TDC:5:211/REV 02
6	414190003000	M30 WASHER Grade 10.9	Sagardighi	12800	TDC:5:211/REV 02

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

Revision record:

Rev 00: 18/10/2011 Fresh Issue released and Test Sampling Plan Rev 00

Rev 01: 19/04/2012 Cl 2: Requirement if the Carbon content is below 0.6% - Added for Bolts; Mn for Nuts: limited to 0.25 min instead of 0.25 max. Cl 5: Hardness of Bolt & Nut: Acceptance values changed. Cl 7: Preservation and Packing added and Test Sampling Plan Rev 01

Rev 02: 28/10/2014 Property class Bolt 10.9 and Nut 10 and its requirements added (for Neyveli 2x500MW Tower boiler) in all clauses and Test Sampling Plan Rev 02

1. SCOPE:

This technical delivery condition covers the requirements for the High strength structural steel bolts, Nuts and Washers applicable for boiler structures and shall be procured from the BHEL approved manufacturers only. The mandatory requirements, test methods and procedures from the applicable IS standards to confirm a product to its relevant latest IS standard shall be met with. TDC is in addition to specification.

Size, Specification and Qty: As per the BHEL Purchase order (PO) / BHEL Drawing. The bolts, nuts and washers shall be supplied in the dull black heat treated condition with residual coating of light oil.

For Bolts: IS: 3757 (Latest) Property class: 8.8 or 10.9. Product Grade C of IS Specification IS: 1367 Part 2 (Latest).

For Nuts: IS: 6623 (Latest) Property class: 8 or 10, Product Grade B

For Washers: IS: 6649 (Latest) Material: 45C8, Type-A: Plain hole Circular Washers. Grade: Ordinary

2. RAW MATERIAL:

- Bolts and Nuts: Rolled/Forged bar of Carbon steel. Washer: as per IS 1571 Part 2 (Latest)
- Chemical composition:** Shall be checked on receipt of raw material at supplier works for every heat
Bolts: Plain Carbon Steel, Carbon steel with additives (eg Br, Mn or Cr) – As per Table 2 of IS: 1367 Part 3 (Latest)
Nuts: As per Table 4 of IS 1367 Part 6 (Latest)
Washers: As per IS 1570 Part 2 and Sulphur, Phosphorous <0.06% in check analysis

3. DIMENSIONS AND TOLERANCES:

- Process: Cold/Hot Forging with Dies and tools clean of loose scale and sheet particles.
- Threads on the bolts shall be checked with a properly calibrated ring gauge with a tolerance class 6g. Threads on the nuts shall be checked with a properly calibrated plug gauge with tolerance class 6H (in an NABL accredited LAB).
- Dimensions of the Bolts shall be as per the table given in IS 3757 (Latest)
- Dimensions of the Nuts shall be as per the table given in IS: 6623 (Latest)
- Dimensions of the Washers shall be as per the table given in IS 6649 (Latest)

Note: The washers shall be flat with a maximum deviation not exceeding 0.25 mm from the straight edge laid along a line passing through the center of the hole. The hole of the washer shall be concentric with the outside dimensions within 0.50 mm. washers are required to be clipped to provide clearance, the clipped edge shall not be closer to the center of the washer than 0.9 of the bolt diameter.

4. Post Forming Heat Treatment (HT):

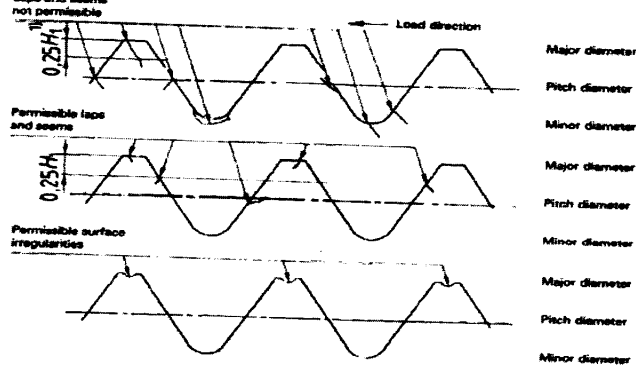
- Bolt: After forming shall be quenched (HT at AC 3 temperature, with soaking time 30minutes per inch followed by quenching) and tempered (at 425°C min, 60 minutes per inch). There should be a sufficient hardenability to ensure a structure consisting of approximately 90 % martensitic in the core of the threaded sections for the fasteners in the as-hardened condition before tempering.
- Nut: Shall be hardened and then tempered (at a temperature of 425°C minimum).
- Washer: Shall be hardened and tempered. Carburized washers are not permitted.

5. CHEMICAL & MECHANICAL & NDE: (on Heat Treated finished product)

Sample Size for Mechanical test: & NDE: As per Sampling Plan

BOLT :

Sl	Test	Test Method - As per Table 3 of IS: 1367 Part 3 (Latest)	Acceptance
1	Chemistry	Spectro / Wet Analysis Method – One sample for every heat Of raw material and One sample/HT batch on product	As per Cl 2.0 of this TDC
2	Hardness Test	Note: Surface hardness shall not be more than 30 Vickers above the measured core Hardness on the product when readings of both surface and core are carried out at HV 0.30. For property class 10.9, any increase in hardness at the surface which indicates that the surface hardness exceeds 390 HV is not acceptable.	8.8 – Min 255 HV Max 335 HV 10.9 – Min 320HV, Max 380HV
3	Minimum Tensile Strength, %Elongation on 5.65√A, % Reduction in Area after fracture	*if wedge load test is satisfactory the axial tensile test is not required	8.8 – 830N/mm ² , 12 min, 52% min 10.9 – 1040 N/mm ² , 9 min, 48% min
4	Proof Load Test	8.8 – Proof Load of M16(91KN), M20 (147KN), M24 (212KN), M30 (337KN), M36 (490KN); 10.9 – Proof Load of M16(130KN), M20 (203KN), M24 (293KN), M30 (466KN), M36 (678KN) shall be applied axially to the bolt in a calibrated tensile testing machine for 15sec.	Length of the bolt after loading shall be the same as before loading within a tolerance of ± 12.5 µm allowed for measurement error.
5	Strength under Wedge load test	IS: 1367 Part 3 (Latest)	8.8 – < 830N/mm ² 10.9 – < 1040 N/mm ²
6	Decarburization Test at 200X min magnification	Determination of the following by MICROSCOPIC Method a)Minimum Height of non decarburized thread zone – E b)Maximum depth of complete decarburization – G	E = 2/3 H1 G = 0.015 mm
7	Hardness after Retempering	IS: 1367 Part 3 (Latest) # test not mandatory, to be applied in case of dispute only	Reduction of hardness 20 HV max.
8	NDE for Surface Integrity	before machining – For bar Diameter ≥ 40 mm: UT as per ASTM A388. For bar Diameter < 40 mm: MPI as per ASTM E 709 After machining – MPI as per ASTM E 709 or as per ISO 6157 Part 3 (Latest)	UT – ASME SEC-VIII. Div-II Part: 3.3.4 (Latest). MPI – Linear indications like cracks, folds & other injurious defects are not acceptable.

9	Micro Examination for Surface Integrity – Laps at threaded region. If any defectives found in visual and NDE examinations, the extent of defect can be determined by micro examination. 	Max depth of laps in thread = 0.41 mm Laps of any depth or length are not permitted in the following places: - at the root of the thread - at the loaded flank of screw thread below the pitch diameter, even if they start beyond the pitch diameter. The following laps are permissible : - laps in the crest of the threads of 0.25 H1 max.; - crest of the threads not entirely rolled out, maximum half a turn on one thread; - laps below the pitch diameter, if they run on the non-loaded flank towards the major diameter and not deeper than 0.25 H1 and not longer than half a turn on one thread.
---	--	---

NUT: (on Heat Treated finished product)

Sl	Test	Test Method	Acceptance Value
1.	Chemistry	Spectro / Wet Analysis Method – For every heat Of raw material and, One sample/HT batch on product	As per CI 2.0 of this TDC
2.	Hardness Test	Hardness of the test mandrel shall be minimum 45 HRC.	8S – Min 188 HV Max 372 HV 10S – Min 272 HV Max 372 HV
3.	Proof Load Test	Proof Load of 8S – M16(168.9KN), M20 (263.4KN), M24 (379.5KN), M30 (603.1KN), M36 (878.3KN) 10S – M16(195.5KN), M20 (305KN), M24 (439.5KN), M30 (698.4KN), M36 (1017.2KN) shall be applied axially to the nut in a tensile testing machine for 15sec.	The nut shall resist the load without failure by stripping or rupture, and shall be removable by the fingers after the load is released.
4.	NDE for Surface Integrity	Before coating, as per IS 1367 Part 10 Cl 4.2 (Latest)	Linear indications like cracks, folds & Other injurious defects are not acceptable.

WASHER: As per IS 5369. The washers shall be free from cracks, burrs, pits and other defects. All sharp edges shall be removed. **(on Heat Treated finished product)**

Sl	Test	Test Method	Acceptance Value
1.	Chemistry	Spectro / Wet Analysis Method – For every heat Of raw material and One sample/HT batch on product.	As per CI 2.0 of this TDC
2.	Hardness Test	IS 1586 (latest)	Min 35 HRC Max 45 HRC

6. MARKING, PRESERVATION AND PACKING:

The following to be hot stamped or embossed on the top surface of the bolt and nut:

Bolt – Manufacturer's Identification Symbol and 8.8S/10.9S

Nut – Manufacturer's Identification Symbol and 8S/ 10S

Washers – Shall be identified by – the provision of 2 nibs and manufacturers identification symbol being placed as near to the outer edge as possible.

The following details shall be clearly indicated in the tags tied to the bundle:

1) Customer Name 2) Manufacturer's Name 3) Vendor Code 4) Purchase Order No and Supplier internal W.O No 5) Quantum and Weight

6) BHEL Material Code 7) Item Description with diameter, length

Shall be packed in bituminous coated Polythene lined Hessian Cloth/Bag. Each bag shall contain only the same size of bolts/ nuts/ washers respectively and the same shall be indicated in the tags.

7. INSPECTION AND CERTIFICATION:

All the finished components shall be visually and dimensionally inspected as per sampling plan. All the test results shall be documented and maintained. Products to be inspected at works & test certificates (in English) shall be submitted with the following details counter signed by BHEL/BHEL Authorized Inspection agency as indicated in the PO. Manufacturers Test certificate (MTC) shall contain the following:

- Purchase Order No. (BHEL), TDC No, Specification and Grade.
- Name of raw material bar supplier.
- Forming process
- Dimensional reports for each product.
- Chemistry including incidental elements on the raw material and final product checked in NABL lab/ suppliers own lab.
- HT details of materials temperature, soaking time, ROH/ROC medium etc.
- All Mechanical test result report including hardness.
- MPI, Micro examination and decarburization test report with the reference & acceptance standard.
- TC of raw material, UT/MPI report done on raw material shall accompany the MTC.

8. AUDITS AT BHEL:

BHEL reserve the right to reject any item found to be not meeting the requirements during tests at supplier works or during subsequent processing at BHEL.

Haritha.C QA	Venkanna Rupani QA	Kalyanaraman.V QA	Viswanathan.D Engineering	Sekar.S QC	Balachandran.K.S MM	Revisankaran.U QA
Prepared By			Reviewed By			Approved By

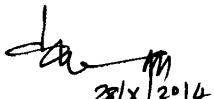
BHEL: TRICHY – 14

TEST SAMPLING PLAN FOR HSFG BOLTS, NUTS & WASHERS AS PER BHEL TDC: 5:211 Rev 02

Lot Size (In nos.)	SAMPLE SIZE										Remarks
	Visual (nos.)	Dimensional (nos.)	MPI (nos.)	Physical Tests							
				Total nos.	Hardness (nos.)	Hardness after Re-tempering (nos.)	Proof Load (nos.)	Wedge Load (nos.)	Min Tensile Strength (nos.)	Decarb (nos.)	
Upto 100	20	8	15	5	5	5	2	2	2	1	
101 to 300	32	13	15	5	5	5	2	2	2	1	
301 to 500	50	20	15	5	5	5	2	2	2	1	
501 to 1000	80	32	15	5	5	5	2	2	2	1	
1001 to 3000	125	50	25	8	8	8	2	4	2	1	Upto 1500 nos. 15 nos. for MPI
3001 to 10000	200	80	50	13	13	13	2	6	2	1	Upto 5000 nos. 25 nos. for MPI
10001 to 35000	315	125	75	20	20	20	4	10	4	2	Upto 15000 nos. 50 nos. for MPI
Above 35000	500	200	100	32	32	32	6	15	6	3	Upto 50000 nos. 75 nos. for MPI
Inspection by BHEL/BHEL AIA	W	W	W		W	W	W	W	W	W	

Remarks:

- Acceptance Number is zero. If the sample is having deviations in Visual, Dimensional and MPI then the entire lot shall be 100% inspected. In case of deviations in Physical tests a second sample of twice the sample size of initial sample shall be taken. The lot will get rejected if the second sample fails.
- Preservation & Packing: The bolts shall be supplied in the dull black heat treated condition with a residual coating of light oil. Finished products shall be packed in a bituminous coated Polythene lined Hessian cloth/bag. Each bag shall contain only the same size of bolts/nuts/washers respectively and the same shall be indicated in the tags.
- Inspection by BHEL / BHEL AIA shown as "W" shall be witnessed for the sample size indicated against the lot size.

				
Haritha.C QA	Venkanna Rupani QA	Kalyanaraman.V QA	Sekar.S QC	Revisankaran.U QA
Prepared By		Reviewed By		Approved By

	BHEL – Tiruchirappalli - 620014, India. Quality Assurance Department TECHNICAL DELIVERY CONDITIONS	DOC No: TDC:5:215 Rev: 00 Effective Date: 14/11/2019 Page: 1 of 3
Product: Extended Thread High Strength Friction Grip Fasteners For Structurals (Property class Bolt 8.8/ Nut 8)		

Revision record:

Rev 00: 14/11/2019 – Fresh issue

1. SCOPE:

This technical delivery condition covers the requirements for the High strength structural steel bolts, Nuts and Washers applicable for boiler structures and shall be procured from the BHEL approved manufacturers only. The mandatory requirements, test methods and procedures from the applicable IS standards to confirm a product to its relevant latest IS standard shall be met with. TDC is in addition to specification.

Size, Specification and Qty: As per the BHEL Purchase order (PO) / BHEL Drawing. The bolts, nuts and washers shall be supplied in the dull black heat treated condition with residual coating of light oil.

For Bolts: As per BHEL drawing no. 3-35-700-06802 (Latest revision applicable on the date of Purchase order) and IS: 3757 (Latest) Property class: 8.8. Product Grade C of IS Specification IS: 1367 Part 2 (Latest).

For Nuts: IS: 6623 (Latest) Property class: 8, Product Grade B

For Washers: IS: 6649 (Latest) Material: 45C8, Type-A: Plain hole Circular Washers. Grade: Ordinary

2. RAW MATERIAL:

- **Bolts and Nuts:** Rolled/Forged bar of Carbon steel. Washer: as per IS 1571 Part 2 (Latest)
- **Chemical composition:** Shall be checked on receipt of raw material at supplier works for every heat
Bolts: Plain Carbon Steel, Carbon steel with additives (e.g. Br, Mn or Cr) – As per Table 2 of IS: 1367 Part 3 (Latest)
Nuts: As per Table 4 of IS 1367 Part 6 (Latest)
Washers: As per IS 1570 Part 2 and Sulphur, Phosphorous <0.06% in check analysis

3. DIMENSIONS AND TOLERANCES:

- **Process:** Cold/Hot Forging with Dies and tools clean of loose scale and sheet particles.
- Threads on the bolts shall be checked with a properly calibrated ring gauge with a tolerance class 6g. Threads on the nuts shall be checked with a properly calibrated plug gauge with tolerance class 6H (in an NABL accredited LAB).
- Dimensions of the Bolts shall be as per BHEL drawing no. 3-35-700-06802 (Latest revision applicable on the date of Purchase order).
- Dimensions of the Nuts shall be as per the table given in IS: 6623 (Latest)
- Dimensions of the Washers shall be as per the table given in IS 6649 (Latest)

Note: The washers shall be flat with a maximum deviation not exceeding 0.25 mm from the straight edge laid along a line passing through the center of the hole. The hole of the washer shall be concentric with the outside dimensions within 0.50 mm. washers are required to be clipped to provide clearance, the clipped edge shall not be closer to the center of the washer than 0.9 of the bolt diameter.

4. Post Forming Heat Treatment (HT):

- **Bolt:** After forming shall be quenched (HT at AC 3 temperature, with soaking time 30minutes per inch followed by quenching) and tempered (at 425°C min, 60 minutes per inch). There should be a sufficient hardenability to ensure a structure consisting of approximately 90 % martensitic in the core of the threaded sections for the fasteners in the as-hardened condition before tempering.
- **Nut:** Shall be hardened and then tempered (at a temperature of 425°C minimum).
- **Washer:** Shall be hardened and tempered. Carburized washers are not permitted.

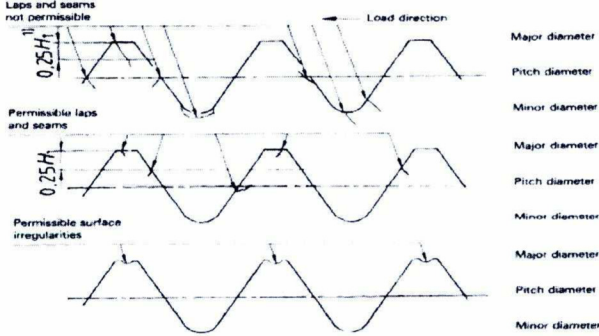
5. CHEMICAL & MECHANICAL & NDE: (on Heat Treated finished product)

Sample Size for Mechanical test: & NDE: As per Sampling Plan

BOLT :

Sl	Test	Test Method - As per Table 3 of IS: 1367 Part 3 (Latest)	Acceptance
1	Chemistry	Spectro / Wet Analysis Method – One sample for every heat Of raw material and One sample/HT batch on product	As per Cl 2.0 of this TDC
2	Hardness Test	Note: Surface hardness shall not be more than 30 Vickers above the measured core Hardness on the product when readings of both surface and core are carried out at HV 0.30.	8.8 – Min 255 HV Max 335 HV

	BHEL – Tiruchirappalli - 620014, India. Quality Assurance Department TECHNICAL DELIVERY CONDITIONS	DOC No: TDC:5:215 Rev: 00 Effective Date: 14/11/2019 Page: 2 of 3
Product: Extended Thread High Strength Friction Grip Fasteners For Structurals (Property class Bolt 8.8/ Nut 8)		

3	Minimum Tensile Strength, %Elongation on 5.65VA, % Reduction in Area after fracture	*if wedge load test is satisfactory the axial tensile test is not required	8.8 – 830N/mm ² , 12 min, 52% min
4	Proof Load Test	8.8 – Proof Load of M20 (147KN), M24 (212KN), M30 (337KN), M36 (490KN)	Length of the bolt after loading shall be the same as before loading within a tolerance of $\pm 12.5 \mu\text{m}$ allowed for measurement error.
5	Strength under Wedge load test	IS: 1367 Part 3 (Latest)	8.8 – $\nless 830\text{N/mm}^2$
6	Decarburization Test at 200X min magnification	Determination of the following by MICROSCOPIC Method a) Minimum Height of non decarburized thread zone – E b) Maximum depth of complete decarburization – G	E = 2/3 H1 G = 0.015 mm
7	Hardness after Retempering	IS: 1367 Part 3 (Latest) # test not mandatory, to be applied in case of dispute only	Reduction of hardness 20 HV max.
8	NDE for Surface Integrity	before machining – For bar Diameter ≥ 40 mm: UT as per ASTM A388. For bar Diameter < 40 mm: MPI as per ASTM E 709 After machining – MPI as per ASTM E 709 or as per ISO 6157 Part 3 (Latest)	UT – ASME SEC-VIII. Div-II Part: 3.3.4 (Latest). MPI – Linear indications like cracks, folds & other injurious defects are not acceptable.
9	Micro Examination for Surface Integrity – Laps at threaded region.	If any defectives found in visual and NDE examinations, the extent of defect can be determined by micro examination. 	Max depth of laps in thread = 0.41 mm Laps of any depth or length are not permitted in the following places: - at the root of the thread - at the loaded flank of screw thread below the pitch diameter, even if they start beyond the pitch diameter. The following laps are permissible : - laps in the crest of the threads of 0.25 H1 max.; - crest of the threads not entirely rolled out, maximum half a turn on one thread; - laps below the pitch diameter, if they run on the non-loaded flank towards the major diameter and not deeper than 0.25 H1 and not longer than half a turn on one thread.

NUT: (on Heat Treated finished product)

Sl	Test	Test Method	Acceptance Value
1.	Chemistry	Spectro / Wet Analysis Method – For every heat Of raw material and, One sample/HT batch on product	As per Cl 2.0 of this TDC
2.	Hardness Test	Hardness of the test mandrel shall be minimum 45 HRC.	Min 272 HV Max 372 HV
3.	Proof Load Test	Proof Load of M20 (305KN), M24 (439.5KN), M30 (698.4KN), M36 (1017.2KN) shall be applied axially to the nut in a tensile testing machine for 15sec.	The nut shall resist the load without failure by stripping or rupture, and shall be removable by the fingers after the load is released.
4.	NDE for Surface Integrity	Before coating, as per IS 1367 Part 10 Cl 4.2 (Latest)	Linear indications like cracks, folds & Other injurious defects are not acceptable.

	BHEL – Tiruchirappalli - 620014, India. Quality Assurance Department TECHNICAL DELIVERY CONDITIONS	DOC No: TDC:5:215 Rev: 00 Effective Date: 14/11/2019 Page: 3 of 3
Product: Extended Thread High Strength Friction Grip Fasteners For Structurals (Property class Bolt 8.8/ Nut 8)		

WASHER: As per IS 5369. The washers shall be free from cracks, burrs, pits and other defects. All sharp edges shall be removed.
(on Heat Treated finished product)

Sl	Test	Test Method	Acceptance Value
1.	Chemistry	Spectro / Wet Analysis Method – For every heat Of raw material and One sample/HT batch batch on product.	As per Cl 2.0 of this TDC
2.	Hardness Test	IS 1586 (latest)	Min 35 HRC Max 45 HRC

6. MARKING, PRESERVATION AND PACKING:

The following to be hot stamped or embossed on the top surface of the bolt and nut:

Bolt – Manufacturer's Identification Symbol and 8.8S

Nut – Manufacturer's Identification Symbol and 8S

Washers – Shall be identified by – the provision of 2 nibs and manufacturers identification symbol being placed as near to the outer edge as possible.

The following details shall be clearly indicated in the tags tied to the bundle:

1) Customer Name 2) Manufacturer's Name 3) Vendor Code 4) Purchase Order No and Supplier internal W.O No 5) Quantum and Weight 6) BHEL Material Code 7) Item Description with diameter, length

Colour coding: To be done only on bolt head as per BHEL drawing no. 3-35-700-06802 (Latest revision on the date of Purchase order).

Shall be packed in bituminous coated Polythene lined Hessian Cloth/Bag. Each bag shall contain only the same size of bolts/ nuts/ washers respectively and the same shall be indicated in the tags.

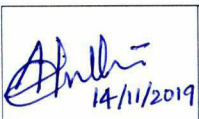
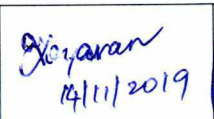
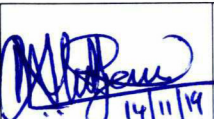
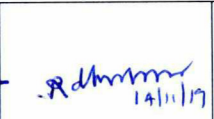
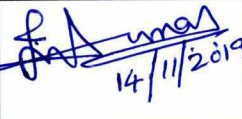
7. INSPECTION AND CERTIFICATION:

All the finished components shall be visually and dimensionally inspected as per sampling plan. All the test results shall be documented and maintained. Products to be inspected at works & test certificates (in English) shall be submitted with the following details counter signed by BHEL/BHEL Authorized Inspection agency as indicated in the PO. Manufacturers Test certificate (MTC) shall contain the following:

- 1) Purchase Order No. (BHEL), TDC No, Specification and Grade.
- 2) Name of raw material bar supplier.
- 3) Forming process
- 4) Dimensional reports for each product.
- 5) Chemistry including incidental elements on the raw material and final product checked in NABL lab/ suppliers own lab.
- 6) HT details of materials temperature, soaking time, ROH/ROC medium etc.
- 7) All Mechanical test result report including hardness.
- 8) MPI, Micro examination and decarburization test report with the reference & acceptance standard.
- 9) TC of raw material, UT/MPI report done on raw material shall accompany the MTC.

8. AUDITS AT BHEL:

BHEL reserve the right to reject any item found to be not meeting the requirements during tests at supplier works or during subsequent processing at BHEL.

					
Abdur Rahman Sr. Engr/QA	M. Jeyaram DM/QA	N. Murugan AGM/Engg	R. Dharmar AGM/ QC	S Karunanidhy DGM/ MM	J.V.V. Aruna Kumar SDGM/QA
Prepared By		Reviewed by		Approved By	

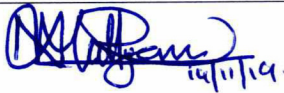
BHEL: TRICHY – 14

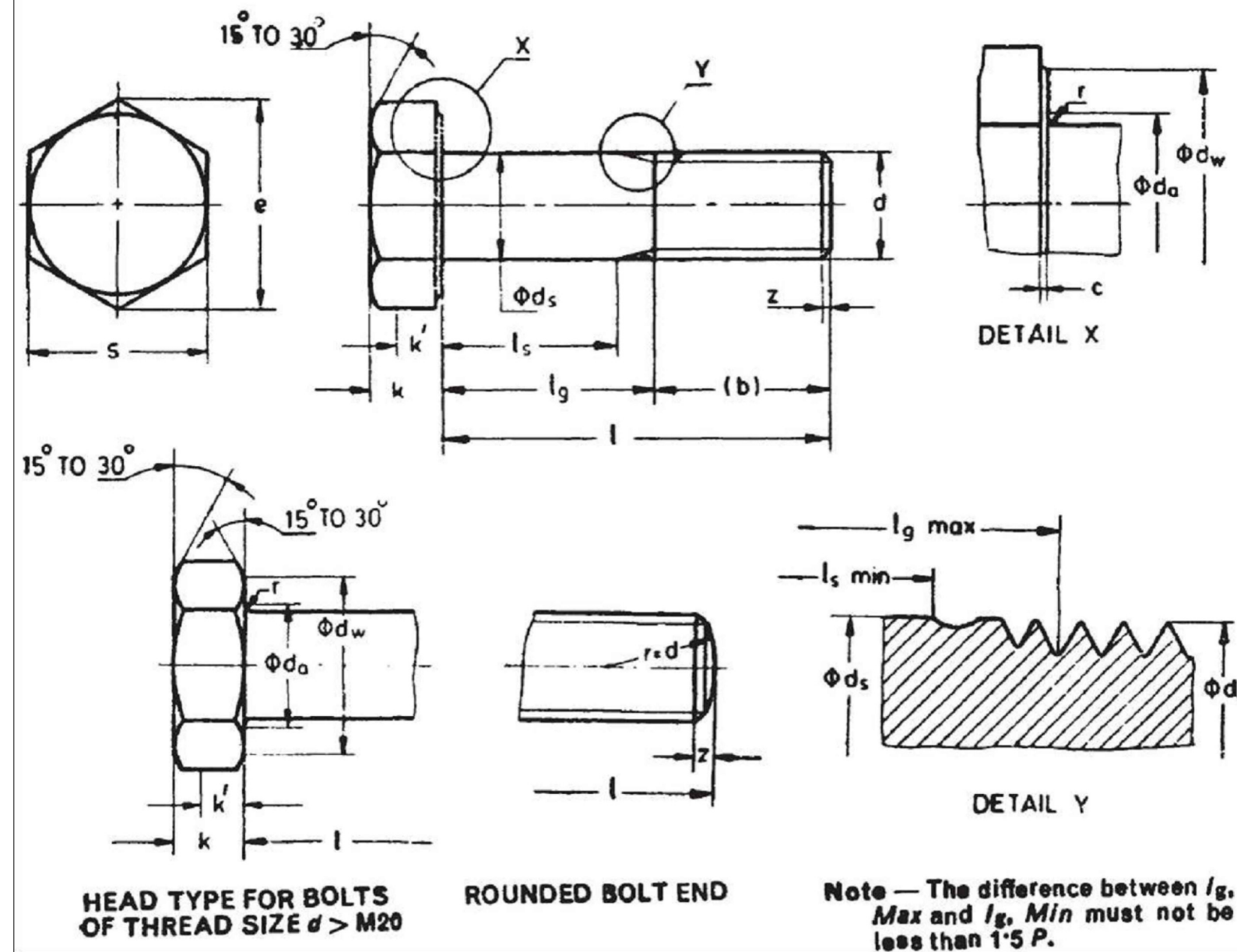
TEST SAMPLING PLAN FOR HSFG BOLTS, NUTS & WASHERS AS PER BHEL TDC: 5:215 Rev 00

Lot Size (In nos.)	SAMPLE SIZE										Remarks
	Visual (nos.)	Dimensional (nos.)	MPI (nos.)	Physical Tests							
				Total nos.	Hardness (nos.)	Hardness after Re-tempering (nos.)	Proof Load (nos.)	Wedge Load (nos.)	Min Tensile Strength (nos.)	Decarb (nos.)	
Upto 100	20	8	15	5	5	5	2	2	2	1	
101 to 300	32	13	15	5	5	5	2	2	2	1	
301 to 500	50	20	15	5	5	5	2	2	2	1	
501 to 1000	80	32	15	5	5	5	2	2	2	1	
1001 to 3000	125	50	25	8	8	8	2	4	2	1	Upto 1500 nos. 15 nos. for MPI
3001 to 10000	200	80	50	13	13	13	2	6	2	1	Upto 5000 nos. 25 nos. for MPI
10001 to 35000	315	125	75	20	20	20	4	10	4	2	Upto 15000 nos. 50 nos. for MPI
Above 35000	500	200	100	32	32	32	6	15	6	3	Upto 50000 nos. 75 nos. for MPI
Inspection by BHEL/BHEL AIA	W	W	W		W	W	W	W	W	W	

Remarks:

- Acceptance Number is zero. If the sample is having deviations in Visual, Dimensional and MPI then the entire lot shall be 100% inspected. In case of deviations in Physical tests a second sample of twice the sample size of initial sample shall be taken. The lot will get rejected if the second sample fails.
- Preservation & Packing: The bolts shall be supplied in the dull black heat treated condition with a residual coating of light oil. Finished products shall be packed in a bituminous coated Polythene lined Hessian cloth/bag. Each bag shall contain only the same size of bolts/nuts/washers respectively and the same shall be indicated in the tags.
- Colour coding: To be done only on bolt head as per BHEL drawing no. 3-35-700-06802 (Latest revision on the date of Purchase order).
- Inspection by BHEL / BHEL AIA shown as "W" shall be witnessed for the sample size indicated against the lot size.

 14/11/2019	 14/11/2019	 14/11/19	 14/11/19	 14/11/19	 14/11/2019
Abdur Rahman Sr. Engr/QA	M. Jeyaram DM/QA	N Murugan AGM/Engg	R. Dharmar AGM/ QC	S Karunanidhy DGM/ MM	J.V.V. Aruna Kumar SDGM/QA
Prepared By		Reviewed By			Approved By



HSFG BOLT FIGURE AS GIVEN IN IS-3757 STANDARD

Sl.No	Bolt Variant	l (mm)	b (mm)	l _g (mm)	Bolt head color
1	M24X70-Extended	70	65	5	Red
2	M24X90-Extended	90	70	20	Green
3	M24X130-Extended	130	80	50	Orange
4	M24X170-Extended	170	80	90	Blue

NOTES:

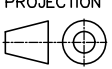
1. THE THREADED PORTION AND SHANK LENGTH ARE TO BE FOLLOWED AS PER TABLE
2. OTHER DIMENSIONS ARE AS PER IS-3757 STANDARD
3. BOLTS PROPERTY CLASS 8.8.

REV	DATE	ALTERED : K.PRAKASH
04	01.11.2019	CHD & APPD: YUVARAJ.S
TABLE UPDATED WITH COLOR REQUIREMENT ON BOLT HEAD		

REV	DATE	ALTERED : K.S.PANDIAN
03	25-04-2019	CHD & APPD: MUTHU.S
SKETCH RESIZED		
REV	DATE	ALTERED : SHAILESH
02	16.08.2018	CHD & APPD: MPN/MUTHU.S
NOTES NO.03 ADDED.		

REV	DATE	ALTERED : MUTHU
01	21.07.2018	CHD & APPD: SARAVANA
DIMENSIONS UPDATED IN FIGURE		

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			
 355-055	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		
	DRN	NAME SHAILESH	SIGNATURE DATE 08.06.18
	CHD	MPN/MUTHU	08.06.18
DEPT ST	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE
CODE 122	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
TITLE M24X70,90,130 170-EXTENDED THREAD-HSFG BOLTS			REV 04
DRAWING NO : 3-35-700-06802			