



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)
HIGH PRESSURE BOILER PLANT
PURCHASE DEPARTMENT - FOSSIL BOILERS
THIRUCHIRAPALLI - 620014
TAMILNADU (INDIA)

Page
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PHONE :2577419
GRAMS : BHARATELEC
FAX NO: 2520719
E-mail: cmuthuvel@bheltry.co.in
Web:

429-002/A

Enquiry No	Enquiry Date	Due Date for Quotation
1901500092 - 27	13.03.2015	30.03.2015
Please quote Enquiry No, Date and due date in all correspondences. This is only a request for quotation and not an order		

Item	Description	Unit	Quantity	Delivery Quantity	Schedule Date
10	417044003600 SPLIT PIN-4x36 -IS:549/LATEST	NO	20000.000	20,000.00	31.05.15
20	419020007000 EXT CIRCLIP 70X2.5-N IS:3075(P1)/LATEST	NO	1000.000	1,000.00	31.05.15
30	417070406000 HARDENED CYLINDRICAL PIN M4X60-Typ-B IS:6689/LATEST	NO	1000.000	1,000.00	31.05.15
40	414050091000 SPRING WASHER B10 IS:3063/LATEST CAD(10-12MIC)	NO	20000.000	20,000.00	31.03.15
50	414060092000 MACHINED WASHER 21 IS:2016/LATEST CAD (10-15 MIC)	NO	15000.000	15,000.00	31.03.15
60	414050003000 SPRING WASHER-B30 -IS:3063/LATEST	NO	5000.000	5,000.00	31.05.15
70	414050090600 SPRING WASHER-B 6 -IS:3063/LATEST GALV	NO	2000.000	2,000.00	31.05.15
80	414060000400 MCN WASHER-M 4 -IS:2016/LATEST	NO	15000.000	15,000.00	31.05.15
90	414060001600 MCN WASHER-M16 -IS:2016/LATEST	NO	50000.000	50,000.00	31.05.15
100	414180002400 WASHER M24-TDC 5/211/Rev 01/19.04.2012	NO	50000.000	50,000.00	31.05.15
110	413244006000 HEX NUT M60X4 GR B BPS 41324/03 T525-565	NO	500.000	500.00	31.05.15
120	413244006400 HEX NUT M64 X 4 SA194GR7 BPS: 41324/03	NO	500.000	500.00	31.05.15

The offers should reach us 30 minutes before the time of opening of tenders.
The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening. Late and delayed offers are liable to be rejected.

Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED

N. SHANMUGASUNDARAM
MANAGER / PURCHASE OFFICER
(FOSSIL BOILERS) / Purchase / PSS
Yours faithfully,
THIRUCHIRAPALLI - 620 014.



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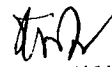
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1901500092 / 13.03.2015

130	413244009500 HEX NUT M95X4 GR B BPS 41324/03 T525-565	NO	900.000	900.00	31.05.15
140	413244504200 HEX NUT M42x4.5 - BPS 41324/03.	NO	500.000	500.00	31.05.15
150	413245004800 HEX NUT M48 X 5 SA194GR7 BPS 41324/03	NO	700.000	700.00	31.05.15
160	412213016000 HEX HD BOLT M30X160-4.6 IS:1363(P-1)/LATEST	NO	500.000	500.00	31.05.15
170	412010496500 CHS HD SCREWS M4X65-4.8 IS:1366/LATEST(CAD)	NO	1500.000	1,500.00	31.05.15
180	412220892500 HEX HD SCREW M8X25-4.6 IS:1363(P-2)/LATEST CAD	NO	1500.000	1,500.00	31.05.15
190	412221093500 HEX HD SCR U M10X35-4.6 IS:1363(P-2)/LATEST CAD	NO	2500.000	2,500.00	31.05.15
200	412221695000 HEX HD SCR U M16X50-4.6IS:1363(P-2)/LATEST CAD	NO	12000.000	12,000.00	31.05.15
210	412222094500 HEX HD SCR U M20X45-4.6 IS:1363(P-2)/LATEST CAD	NO	10000.000	10,000.00	31.05.15
220	412222406500 HEX HD SCR U M24X65-4.6 IS:1363(P-2)/LATEST	NO	1000.000	1,000.00	31.05.15
230	413044005600 HEX NUT M56X4-14H IS:3138/LATEST	NO	1800.000	1,800.00	31.05.15
240	413044006000 HEX NUT M60X4-14H IS:3138/LATEST	NO	1500.000	1,500.00	31.05.15
250	413050091000 WING NUT A M10 IS:2636/LATEST (CAD)	NO	1000.000	1,000.00	31.05.15
260	412221204000 HEX HD SCR U-M12x40 -4.6-IS1363(P2)/LATEST	NO	200000.000	200,000.00	31.05.15

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Yours faithfully,
For **BHARAT HEAVY ELECTRICALS LIMITED**


N. SHANMUGASUNDARAM
MANAGER / PURCHASE OFFICER
(FOSSIL BOILERS)
Yours faithfully,
MUNICIPALITY / PURCHASE / P&S
DUEL, TRICHY - 620014.



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270	412221604000 HEX HD SCRUM16x40 -4.6-IS:1363(P2)/LATEST	NO	30000.000	30,000.00	31.05.15
280	412221605500 HEX HD SCRUM16X55-4.6 IS:1363(P-2)/LATEST	NO	90000.000	90,000.00	31.05.15
290	413040001600 HEX NUT -M16 -CL4-IS1363(P3)/LATEST	NO	600000.000	600,000.00	31.05.15
300	413040002000 NUT -M20 -CL4-IS:1363(P3)/LATEST	NO	80000.000	80,000.00	31.05.15
310	413043003600 HEX NUT M36X313-4 IS:1363(P-3)/LATEST	NO	6000.000	6,000.00	31.05.15
320	413040091600 HEX NUT M16-4 IS:1363(P-3)/LATEST CAD (10-12MIC)	NO	30000.000	30,000.00	31.05.15

General Note:

THIS ENQUIRY IS A TWO PART BID ENQUIRY.

VENDORS HAVE TO PROVIDE CONFIRMATION TO EACH ITEM SPECIFICATION AS GIVEN IN THE ENQUIRY.

ALL THE PAGES OF YOUR OFFER AND BHEL TENDER DOCUMENTS (INCLUDING DRAWING) ARE TO BE SIGNED AND SEALED BY THE BIDDER.

ENCLOSURES:


1. ANNEXURE - A
2. ANNEXURE - B
3. ANNEXURE - C
4. ANNEXURE - I
5. PRICE BID.
6. TECHNICAL DELIVERY CONDITIONS.

Enclosures:

"LD clause has to be confirmed without fail."

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Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED


M. SHANMUGASUNDARAM
MANAGER / PURCHASE OFFICER
(FOSSIL BOILERS) Purchase / PSS
Yours faithfully,
THIRUCHIRAPALLI - 620 014.

BHARAT HEAVEY ELECTRICALS LIMITED

TIRUCHIRAPPALLI - 620 014

ANNEXURE - A

TERMS AND CONDITIONS OF THE ENQUIRY (TWO PART BID)

1. The tender will be operated on two part bid basis i.e. (I). *Techno-Commercial Bid* & (II). *Price Bid*.
2. The offer is to be submitted in a single envelope containing two envelopes. i.e. Part - I (Technical & Commercial Bid) and Part - II (Price Bid).

2.1. Techno-Commercial Bid:

- a) Duly signed Annexure – A & Tender document.
- b) Duly filled and signed Techno Commercial Bid (Annexure – B)
- c) Duly signed Annexures – C for new vendors (Enclose a copy of supporting documents wherever necessary)
- d) Sample should be submitted along with technical bid in the cases where sample is insisted, if sample is not received for the cases where BHEL is insisted, that offer will be summarily rejected).
- e) Un priced bid duly signed.

This Part – I document should be sealed in a separate envelop by clearly marked “Part I – Technical and Un-priced commercial bid” indicating Enquiry No., Due Date., address & reference of the bidder.

- 2.2. Price Bid: Price bid with price details. *(This price bid should be sealed in a separate envelope by clearly marked “Part II – Price bid” indicating Enquiry No., Due Date., Address & reference of the bidder).*

You are requested to put the above two envelopes (Techno-Commercial Bid & Price Bid) inside a separate larger sealed envelope and this envelope shall be super scribed as “Techno-Commercial Bid and Price Bid “ for Enquiry No:Dt.: Due Dt.:

3. Your offer should be addressed to: *The Manager,
Purchase Department / PSS,
Materials Management / Raw Materials,
24 Building (4th Floor),
Bharat Heavy Electricals Limited,
Tiruchirappalli - 620 014.*

4. Please submit point wise compliance to our specifications, terms and conditions. Otherwise it will be presumed that you are accepting BHEL's terms and conditions.

5. The offer should reach this office on or before the due date as mentioned in the enquiry by 14.00 Hrs. Tenders received after 14.00 Hrs will not be considered for evaluation.

6. **Validity of quoted rates shall be valid minimum at least 90 days from the date of price bid opening. The quoted/Finalized rates shall be Firm till completion of the supplies.**

7. The rates are to be quoted on **F.O.R. destination basis only** (Inclusive of Packing, Forwarding, and Freight and Transit Insurance charges to supplier account. Other delivery conditions *like Ex-works / Ex-godown will be rejected.*

8. Unloading at BHEL Site has to be done by the suppliers and BHEL will not be in a position to provide any handling / unloading facilities.

9. Payment Terms (Indigenous)

Payment term is 100% direct payment after 45 days from the date of receipt and acceptance of materials. **Any deviation in the above payment term will attract loading as mentioned below.**

“Base rate of SBI (as applicable on the date of bid opening. Techno-commercial bid opening in case of two part bids) + 6% shall be considered for loading for the period of relaxation sought by bidders.

10. Liquidated Damages / Penalty:-

(Any deviations in the LD shall attract loading to the extent of relaxation sought to which it is not agreed by the bidder at offered value).

- a. In case of single delivery schedule, if the Supplier fails to deliver the P.O quantity within the period specified in the contract the Purchaser shall deduct liquidated damages, 0.5% of the total order value per week of delay or part thereof subject to a maximum of 10% of the total order value.
- b. In case of staggered delivery schedule, if the Supplier fails to deliver the quantity of any line item of the P.O within the period specified in that line item, Purchaser shall deduct Liquidated Damages, 0.5% of the undelivered portion per week delay or part thereof subject to maximum of 10% of the total order value.

11. Each tender should be sealed with tenderer's distinctive seal and super scribed with correct tender no., item of supply and due date of opening. Two or more quotation should not be sent in one cover but the quotation against each tender should be sent separately to avoid confusion. Tender should not be addressed to any individual's name but only by designation.

12. Tenders should be free from CORRECTION AND ERASURES. Corrections if any must be attested; all amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall only be considered.

12.1. Discrepancy in "Words "& "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.

13. No revision of prices will be entertained after tenders are opened.

14. If any sales tax is payable as extra to the quoted price it should be specifically stated in quotations along with CST & VAT Number failing which the purchaser will not be liable for payment of sales tax. Our TIN 33243560005 dt.01.01.2007 & CST no 239383 DT, 11.06.1991.

15. On the due date of tender opening, only the technical bids will be 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. The price bids of techno-commercially suitable bidders will be opened on a later date with prior intimation to respective bidders.

16. Ranking L-1, L-2 etc. shall be done for individual items for the techno-commercially acceptable offers on landed cost to BHEL, Trichy basis and BHEL reserves the right to place order for individual items with different vendors.

17. BHEL reserves the right to increase or decrease the tendered quantity and split the tender quantity in the ratio as indicated below,

- 20% of the tendered quantity is earmarked for MSE suppliers in this tender. If L1 offer is from a Micro / Small enterprise, this provision is not applicable.
- Out of the 20% tendered quantity reserved for MSE suppliers, 4% shall be earmarked for procurement from MSE owned by SC / ST entrepreneurs. In event of failure of such Micro and Small enterprises to participate in the tender process or meet the tender requirements and the L1 price, the 4% sub-target for procurement earmarked MSE owned by SC / ST entrepreneurs shall be met with other MSE enterprise/s.
- In case MSE vendor participating in the tender quotes within the price band of L1 + 15%, they will be allowed to supply the portion of the requirement subject to acceptance of L1 price by MSE vendor. In case of more than one such MSE, the supply shall be shared proportionately.

- MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either EM II certificate having deemed validity (five years from the date of issue in acknowledgement in EM II) or valid NSIC certificate or EM II certificate along with attested copy of a CA certificate (Format enclosed as per Annexure I where deemed validity of EM II certificate of five years have 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 bids at par with other bidders. No benefits shall be applicable for the enquiry if any deficiency in the above required documents is not submitted before the 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. This provision for MSE will apply subject to the condition that the participating MSE meets the tender requirements.

- In case of any change in the MSE status of the bidder, it shall be the responsibility of the bidder to notify the change as a part of the bid document. If at a later date it comes to the knowledge of BHEL, that the change in the status has not been intimated by the bidder and the order is obtained under the premise of an MSE then BHEL would cancel the pending order against this tender and take necessary steps for suspension of the business dealing with the bidder as per the procurement policy of BHEL.

- In case after the bid opening it is seen that no MSE has become L1, then depending on the nature of the item, if it is not possible to split the tendered items / quantities on account of reasons like customer contract requirements of supplying one make for a given project or technical reasons like tendered items being a system, tendered quantity being low etc., then BHEL would not counter offer the L1 prices even though there may be MSE bidders within the +15% band of L1.

18. a. 20% of the tendered quantity is earmarked for MSE suppliers in this tender. The earmarked 20% quantity will be counter offered to the MSE vendors whose rate is within L1+15% band & up to H1 of MSE. In case of non-acceptance of the counter offering of 20% reservation to MSE vendors, the total tender quantity will be ordered as mentioned in 18 (c). For the balance 80% of the tendered quantity, BHEL reserves the right to split the tender quantity in the ratio of 70% on L1 and 30% on L2/L3 at matched L1 F.O.R rate. Counter offering of L1 rate will not be made with any H1 vendor of Non-MSE. If L2/L3 vendor do not match L1 rate, the 15% quantity will also be ordered on L1 vendor.

b. If L1 or L2 is from a Micro / Small enterprise, the 20% earmarking provision is not applicable and order will be split in the ratio of 70:30 (between L1 , L2 / L3 at matched L1 F.O.R rate in the order of commercial ranking). Counter offering of L1 rate will not be made with any H1 vendor of Non-MSE.

c. If there is no response form MSE vendors the above split up of 18 (a) & 18 (b) will not be applicable and the total tender quantity will be split and ordered in the ratio of 70:30 (between L1 , L2 / L3 at matched L1 F.O.R rate in the order of commercial ranking .

d. In case of counter offering rate does not accepted by the L2 as well as L3 vendor, such counter offer quantity also will be ordered on L1 vendor.

19. In the event of more than one vendor becoming L1 for any of the item / items, the enquiry quantity for those item / items will be shared equally among all the L1 vendors. For such item / items splitting will be done among L1 vendors alone and not as mentioned in the point no 18 above.

20. Lowest price received against BHEL tenders need not be the technically acceptable one and in that case BHEL reserves the right not to consider the same. The purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any tender in part or full without assigning any reason whatsoever.

21. BHEL reserves the right to negotiate or refloat the tender opened if L1 price is not the lowest acceptable price to them inter-alia other reasons.

22. **PACKING AND MARKING:** The supplier shall arrange for securely protecting and packing the materials to avoid loss or damages during transit.

23. **RISK PURCHASE:** Alternatively the purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitutes therefore. The supplier shall be liable for any loss, which the purchaser may sustain by reason of such risk purchases in addition to penalty at the rate mentioned in our LD clause.

24. CENVAT CREDIT: If any Excise Duty is payable, the Chapter Head / Sub-head reference and the rate of the duty should be quoted. If the Tenderer is availing CENVAT credit for this input material, the effect of Proforma credit should be passed on to the purchaser. Tenderer under "CENVAT" shall be preferred.

25. Any other conditions which might have been quoted by the seller and are in contravention to the terms prescribed in the order and which have not been specifically accepted in by purchaser will not be applicable to the contract.

26. Bidders not confirming to the enquiry specification mentioned will be disqualified.

27. Any corrigendum related to the enquiry will be hosted in the BHEL website only, Bidders should visit the website(s) to keep themselves updated.

28. The correspondence between the bidder and BHEL through email is 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.

29. Bidders participating in the tender should declare in their technical bid whether they have been black-listed / kept on hold / given Business holiday for a specified period by any Public Sector Undertaking or Government Departments. The reasons for such action with details and the current status of such hold shall be clearly furnished to BHEL. If no such details are mentioned in the offer, it will be construed that the bidder is not under any such hold. However, at a later date if it comes to the notice of BHEL about any such hold under enforcement, BHEL reserves the right to reject the offer at any point of time and also under any stage of the finalization of the tender. Such bidders will not be permitted to participate in the further tender proceedings and will be communicated suitably.

30. Conditional offers will be rejected.



Mr. S. K. Singh
General Manager
BHEL, Hyderabad
2011-12-17-10:00 AM

**COMMERCIAL TERMS CONFIRMATION REQUIRED FROM THE SUPPLIERS
TO BE SUBMITTED ALONG WITH PART – I (TECHNO COMMERCIAL BID)**


ANNEXURE – B

S. NO	DESCRIPTION	BHEL REQUIREMENTS	SUPPLIER CONFIRMATION / DEVIATION (STRIKEOUT WHICHEVER IS NOT APPLICABLE)
1	VALIDITY	90 DAYS FROM DATE OF PRICE BID OPENING	NON DEVIATABLE
2	PRICE QUOTED	FOR-DESTINATION BHEL STORES / TRICHY	NON DEVIATABLE
3	EXCISE DUTY WITH CESS	SUPPLIER OPTION	INCLUSIVE / EXTRA (PLEASE QUOTE % BELOW) _____ %
4	VAT / CST AGAINST FORM 'C'	SUPPLIER OPTION	INCLUSIVE / EXTRA (PLEASE QUOTE % BELOW) _____ %
5	DELIVERY SCHEDULE	IMMEDIATELY ON ISSUE OF PURCHASE ORDER AS AND WHEN REQUIRED BY BHEL	NON DEVIATABLE
6	PAYMENT TERMS	AFTER 45 FROM THE DATE OF RECEIPT AND ACCEPTANCE OF MATERIALS AT BHEL (FOR DETAILS PLEASE READ S.NO:9 OF "ANNEXURE – A")	ACCEPTED / NOT ACCEPTED
7	LD CLAUSE	(FOR DETAILS PLEASE READ S.NO:10 OF "ANNEXURE – A")	NON DEVIATABLE
8	RISK PURCHASE CLAUSE	(FOR DETAILS PLEASE READ S.NO:23 OF "ANNEXURE – A")	NON DEVIATABLE
9	CONTACT PERSON DETAILS	NAME: MOBILE NO: EMAIL :	
10	ACCEPTENCE FOR SUPPLYING FASTENERS AS PER STANDARDS INDICATED FOR EACH ITEM.		YES / NO
11	MSE / NSIC VENDOR SHUOLD SUBMIT A COPY OF CERTIFICATE AS FOLLOWS, (Attested copies of either EM II certificate having deemed validity (five years from the date of issue in acknowledgement in EM II) or valid NSIC certificate or EM II certificate along with attested copy of a CA certificate (Format enclosed as per Annexure I where deemed validity of EM II certificate of five years have expired) applicable for the relevant financial year (latest audited).		YES / NO
12	BIDDERS HAVE TO CONFIRM THAT WHETHER THEY HAVE BEEN BLACK-LISTED / KEPT ON HOLD / GIVEN BUSINESS HOLIDAY FOR A SPECIFIED PERIOD BY ANY PUBLIC SECTOR UNDERTAKING OR GOVERNMENT DEPARTMENTS/ANY OTHER UNITS OF BHEL. (WITH REFERENCE TO S.NO.29 OF ANNEXURE – A).		YES / NO

(Offers not received with the above document will not be considered for evaluation and liable for rejection)

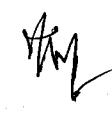
(BIDDERS SHOULD SUBMIT THEIR OFFER IN THE BHEL FORMAT ONLY, OTHER FORMATS WILL NOT BE CONSIDERED)

SIGN AND SEAL OF
AUTHORIZED PERSON


N. SHANMUGASUNDARAM
 Purchase Officer
 MM / MFG / Purchase / PSS
 BHEL, TRICHY - 620 014.

Annexure - C (For NEW VENDORS only)

SI No	Details	Document submission
1	Nature of ownership & relevant documents. (Proprietorship-Professional Tax Regn & Municipal Regn; Partnership firm – Partnership Deed; Co-operative society – Society rules & bye laws ; Private/Limited Company – memorandum & Articles of Association)	YES / NO
2	Manufacturing range & facilities: • List down the product range & specification details. • List of Manufacturing facilities/equipment's (including material handling facility)	YES / NO
3	Licence details of the factory	YES / NO
4	<ul style="list-style-type: none"> • Permanent Account No • Central Sales Tax registration number • State sales Tax / TIN number • Excise duty registration number • Excise control code number • Service tax registration number • Regn number of category as per MSMED Act (If applicable) 	YES / NO YES / NO YES / NO YES / NO YES / NO YES / NO YES / NO
5	If registered with any other BHEL unit • Letter of registration with BHEL unit (If applicable)	YES / NO
6	Proof for successfully executed orders in supplying FASTENERS item in the past two years along with completion certificate.	YES / NO
7	Accreditation certificate for ISO:9001 / TOC of Quality System manual / ISO:14000 / OHSAS ISO 18000 (If applicable)	
8	Balance Sheet for the last three years along with the audit report	2012-13 2013-14 2014-15



Certificate by Chartered Accountant on letter head

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

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

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

(Strike off whichever is not applicable)

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

Or

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


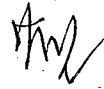
Date:

(Signature)

Name -

Membership number -

Seal of Chartered Accountant



N. SHANMUGASUNDARAM
Purchase Officer
MM / MFG / Purchase / PSS
BHEL, TRICHY - 620 014.



PLANT STANDARD

HPBP TIRUCHIRAPPALLI

BPS 41324

Rev. No. 03

PAGE 1 OF 2

NUTS FOR HIGH TEMPERATURE USE

(For medium of temperature from 525°C to 565°C)

1.0 SCOPE

Covers the requirements of hexagon nuts for use in medium of temperature from 525°C to 565°C and in the size M10 to M95x4.

2.0 SPECIFICATION AND REFERENCE STANDARDS

Dimensions and preferred sizes	Fig 1 & Table 1 of this standard	
Tolerance	Product grade	A for nuts with $d \leq M16$ B for nuts with $d > M16$
	Indian Standard	IS: 1367 :Part 2
Thread	Pitch	Table 1 of this standard
	Tolerance	6H
	Indian Standard	IS 4218: Part 3
Material	Steel to ASTM A194 Gr 7 certified in quenched and tempered condition	
General requirements	Nuts shall comply with TDS:5:166 in respect of requirements not covered in this standard except for cadmium plating.	

2.1 Referred standards (Only current versions are applicable)

IS 1367: Part 2	Technical supply conditions for threaded steel fasteners
IS 4218: Part 3	ISO metric screw threads
ASTM A194	Specification for carbon and alloy steel nuts for bolts for high pressure and high temperature service
TDC:5:166	Carbon & Alloy Steel Nuts to Specification SA 194 Gr2H/2HM/Gr4/Gr7 for Valves, Oil Field Equipment & other applications.

3.0 DESIGNATION

A Grade 'A' hexagon nut to this standard of thread size M10 shall be designated as:

3.1 On Drawings

i) Material Specification column	ASTM A 194 Gr 7
ii) Description Column	HEX NUT GR A T525 - 565 M10
iii) Drawing Number Column	BPS 41324
iv) Material Code column:	4132400010

Revision 03 Sizes M36x4, M42x4.5, M48x5, M56x4 & M64x4 Added			Approved STANDARDS SECTION I.T. SOLUTIONS & SERVICES HPBP, TIRUCHIRAPPALLI		
Rev. No. : 03	Amd. No.	Reaffirmed	Prepared	Issued	Dt of 1st Issue
Dt. 24-04-2012	Dt.	Year	STANDARDS	STANDARDS	FEB 1990

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BHEL - Quality Assurance Department. TECHNICAL DELIVERY CONDITION

TDC:5:166 Rev.No.:04 Effective Dt.:13/01/99

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CARBON & ALLOY STEEL NUTS TO SPECN SA 194 Gr2H/2HM/Gr4/Gr7
for VALVES, OIL FIELD EQUIPMENT & OTHER APPLICATIONS**Revision record:**

Rev:00/11.04.90 : First issue

Rev:01/21.06.90 : Editorial corrections

Rev:02/21.04.91 : TC for nuts added

Rev:03/20.10.96 : NDT, Acid pickling added & rewritten

Rev:04/13/01/99 : Studs/bolts changed as nuts in Cl.5,7.1,7.2

1.0 MATERIAL SPECIFICATION - SA 194 Gr2H/Gr2HM/Gr4/Gr7{latest on date of Purchase Order (P.O)}

2.0 GENERAL

This TDC is applicable for API 6A applications including NACE MR-01-75 cl.II & cl.III also. Shall be manufactured to the relevant drawing and P.O.requirements.

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. If made from round bars, the bars shall be machined to remove 2mm from surface, (ie 4mm in dia) to remove all surface defects. Atleast 10% of the machined bars shall be MT tested to ensure that the surface defects are fully removed.

Nuts shall be heat treated to meet the requirements of SA194 only in a salt bath, or controlled atmosphere furnace. After HT the threads shall be thoroughly cleaned to remove all deposits. When acid pickling is done for cleaning it shall be done as per Cl 7.3.

Cadmium plating as per (Cl 7.1) if specified in drg/P.O. or rust preventive fluid coating as per (Cl 7.2) shall be done.

3.0 CHEMICAL & MECHANICAL PROPERTIES

Mill certificate for chemical composition from steel manufacturer for conformance to the specification heat-wise. Additionally, product analysis shall be done for one piece/heat by the nut manufacturer.

HARDNESS

For SA194 2H, Gr4, & Gr7

Hardness check on finished nut as per SA194, using sampling plan (Cl.7.4).Hardness in the finished nut shall be 24 to 35 HRC or 248 to 352 BHN.

For SA194 Gr2HM:

Hardness check on 100% of nuts.Hardness must be within 159 to 237 BHN.

Proof load test shall be done as per SA194 for all grades.

After final heat treatment, sample nuts shall be heat treated as below and meet the corresponding hardness requirements.

Grade	Temp	Time	Cooling	Hardness at room temp.
2H	540°C	24Hrs	Slow cool	179 BHN (min)
2HM	540°C	-do-	Slow cool	159 BHN (min)
Gr4/Gr7	590°C	-do-	Slow cool	201 BHN (min)

CONE STRIPPING TEST: This test shall be performed as per SA194 in case of visible surface discontinuities. On such cases Proof load shall be as per ASTM A194 (latest std).

4.0 FINAL INSPECTION

All inspection shall be as per drawing and SA194.

The threads shall be checked with calibrated plug gauge in the final heat-treated condition for black variety and in final plated condition for the plated variety.

Visual and Dimensional checks in the finished nuts and their acceptance shall be as per IS 2614 Table-I(latest).

5.0 MARKING & PACKING

Punch/emboss each finished nuts with material grade (2H/2HM/Gr4/Gr7); supplier's emblem.

Punch/emboss Sl.no also in 2HM nuts in addition to the above to co-relate with hardness. In addition, the grade symbol shall be underlined.

Pack in wooden box of convenient size for easy handling & transportation. Mark quantity in each box.

6.0 **CERTIFICATION**

The manufacturer shall provide TC (ref. page 3) duly countersigned by the Authorised Inspecting Authority nominated by BHEL in P.O. (if specified) along with Raw Material TC from Steel Maker. Manufacturer's TC shall contain P.O.No.heat no., Chem & Mech properties, HT parameters, surface coating with coating thickness, baking details and certify soundness & confirmation to P.O. requirements.

7.0 **SPECIAL REQUIREMENTS**

7.1 **CADMIUM PLATING REQUIREMENTS**

Clean the nuts to make it free from rust, grease, oil, scale, etc., before plating.
 When pickling is considered essential, it shall be done as per Cl 7.3.
 Apply Cadmium Plating to the specified thickness on specified areas.
 After plating, Bake the parts at 175 Deg.C to 205 Deg.C for a minimum period of 3 hours. The elapsed time between plating and baking shall not exceed 8 hours.
 Apply a Chromate Conversion coating after plating and baking.

7.2 **RUST PREVENTIVE COATING REQUIREMENTS**

Clean the nuts to make it free from rust, grease, oil, scale, etc., before applying protective coating.
 When pickling is considered essential it shall be done as per Cl 7.3.
 One coat of rust preventive fluid of any of the following vendors shall be applied.

CHEMICAL	VENDOR
1. BONITA-RPF	M/s Bonita Chemicals, 64, Industrial Estate, Nunhai, Agra-282 006.
2. CHAMPION-RPF	M/s Guardian Chemicals, 8, Rajaji Ind 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, Pudukkotai.
7. WICOR-P	M/s Western India Paint and Color Co P. Ltd, Madras-600 017

7.3 **ACID PICKLING**

When pickling is considered essential for cleaning, it shall be done using Hydrochloric acid of 5 to 10% acid concentration at 50 deg C with inhibitor.
 The concentration and type of inhibitors shall be as recommended by any of the following vendors.
 1) M/s Agromore Ltd. Bangalore. 2) M/s Prosol Corporation, Hyderabad. 3) M/s Guardian Anti-corrosives, Madras. 4) M/s Mascat Chemicals, Bombay.
 After pickling thorough rinsing shall be carried out with water to remove acid residues.
 Immediately after pickling, the components shall be dried and baked at 175 to 205 deg C for 3hours before taking up the next operation.

7.4 **SAMPLING PLAN FOR HARDNESS CHECK AFTER HT**

The following double sampling plan shall be used. Hardness values shall be 25 to 34 HRC after HT. IS 2500 (Double Sampling) Normal Inspection, Level 2.

No. of Pieces in the lot	Acceptable Quality Level (2.5%)							
	First sample (n1)	Acceptance number (Ac)	Reject numbers (Rc)	Second sample (n2)	Combined sample (n1+n2)	Acceptance number (Ac)	Rejection number	
0 - 500	32	1	4	32	64	4	5	
501 - 1200	50	2	5	50	100	6	7	
1201 - 3200	80	3	7	80	100	8	9	
3201 - 10000	125	5	9	125	250	12	13	
10001 - 35000	200	7	11	200	400	18	19	

Ac:-Acceptance number: Max. no. of defectives allowed in the sample for the acceptance of the lot.

Rc:-Rejection number: Min.no. of defectives in the sample resulting in the lot's rejection.

PROCEDURE FOR OPERATING THIS PLAN : Suppose the lot size is 1,000. From table chose the class, which includes 1,000 viz 501 - 1200. Hence, use the sampling plan given against this class. Take a sample of 50 pieces and test for hardness.

