

Tender Enquiry No	2223-029E
Enquiry date	06.08.2022
Last time and date of tender submission	14:00 Dt.12.08.2022
Tender opening time and date	15:30 Dt.12.08.2022
Quotation Parts	<i>Two-part</i>
Item Description	<i>Misc. FASTENERS</i>
Delivery schedule (In days)	Within 90 days from PO date
Validity of offer (In days)	<i>70 days from date of tender opening</i>
Counter Offer	<i>No counter offer is applicable</i>
Quantity Variation	<i>+/-10% may be acceptable with prior consent of BHEL in writing</i>
Documents required along with supply of material	
Test Certificate and other Quality related documents	<i>Required as per QP/BPS/IS /TDCs/Drawings mentioned in list of items</i>

M/s Winware Enterprise Kolkata-700150 is not allowed to participate in this tender enquiry.

Reverse auction will not be conducted in this tender. The Item sl. no. 1&2 are reserved for MSE and item sl.no. 3&4 are not reserved for MSE. MSE document is mandatory for eligibility in MSE reserved items.

There is no counter offer in this tender enquiry including /MSE counter offer clause. Items will be reserved for Class-1 local supplier with minimum local content requirement is 50% for Class-1 local suppliers. Rates quoted should be F.O.R. BHEL Goindwal basis only.

The evaluation i.e. Comparison and procurement shall be done for Individual item of L1 bidder will be done item wise i.e. where one bidder is found to L1, then for individual quantity PO will be released and bidders have to execute the order what so ever be the quantity and PO value

This is a two-part tender i.e. Part-1 and Part2. Part-1 is techno-commercial bid evaluation and Part-2 is price bid comparison. The Part-1 qualified bidders will only be eligible for part-2 opening.

Quotation Submission

This tender is through e-procurement mode for supply of “Misc. Fasteners” as per specifications mentioned in tender terms. Interested bidders / suppliers shall submit their offer through e-procurement mode at <https://eprocurebhel.co.in/>. Offers in any other mode will not be accepted. In case of any difficulty faced while registering on BHEL’s e-Procurement portal developed by NIC, queries may be addressed to 0120-4001002, 0120-4001005 and 0120-6277787; email: support-eproc@nic.in. These details are also available on ‘Contact Us’ page of the portal.

Pre-Qualification terms for participating in the tender

Supplier can be manufacturer/trader. Supplier shall submit customer Purchase Orders for supply of fasteners with minimum cumulative value of Rs. 15000.00 (Rs. fifteen thousand only Only) as proof. Purchase Order/s date should be 01.08.2019 or afterwards and up to 01.08.2022.

Start-ups shall be exempted from this criterion of Purchase order submission without any relaxation in quality standards or technical parameters as per D.O. No. 5(4)/2016-BE-I dated 15.02.2017. For claiming Start-Up exemption, vendors have to submit DPIIT (Dept. of Promotion of Industry and Internal Trade)/DIPP (Department for Industrial Policy and Promotion) recognition certificates.

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.

Special Tender Terms

1. SCOPE OF SUPPLY:

Material shall be supplied as per the applicable latest Material Standard requirements/BPS/Drawing and other requirement as given in the Purchase Order/list of items. National & International material standards shall have to be arranged by vendors themselves. The bidders have to arrange latest applicable IS standards by their own.

Inspection will be done by BHEL/TPI.

2. LIST OF ITEMS:

Following items are there in this tender enquiry:

Sl. No.	MATL_NO	DESCRIPTION	Qty in No.	DRG No/Rev No Or BPS No
1	415011402500	PL KEY-14x9x25 -IS2048-A	200	IS2048-A, BPS-41501
2	964650030000	BOLT-M24x75 -B7-0016	60	3V001620728/00
3	411011296000	DE STUD-M12x60 -6.6-IS1862-ATL72-CAD	500	IS-1862, BPS-41101
4	964657840000	HEX.BOLT-M12 X1.75X100-B8M	300	3V000125708/01

3. PACKAGING & SUPPLY:

All material has to be dispatched in packing boxes only i.e. wooden or carton or cardboards with material code, description, grade and quantity. Box must have TAG containing Purchase Order No., Material Code, Material Description (as mentioned in PO) along with Unit weight of each item and Total weight of Box and Total Quantity in Box. No cost for these boxes will be given separately and must be included in prices only.

4. VALIDITY OF OFFERS AND CONTRACT:

The offers shall be kept open for acceptance **for 70 days from** the date of opening of the tender. In case of extension of tender opening date, the validity shall be suitably revised.

5. DELIVERY SCHEDULE:

The material shall be supplied **within 90 days from** the date of purchase order. If supplier fails to supply items within PO delivery date, BHEL reserves the right to cancel the PO and initiate risk purchase against failed supplier as per BHEL risk purchase guidelines.

6. PART-I: TECHNO-COMMERCIAL BID should contain *all the documents/confirmations as per following details:*

- a) Duly filled and signed part-1 format.
- b) Documents as per pre-qualification terms.
- c) Duly filled Annexure-A (Declaration for RESTRICTIONS UNDER RULE 144(XI)).
- d) Duly filled Annexure-B (Non-Disclosure Agreement).

These Special terms & conditions and GCC collectively are the part of tender terms and conditions All Special terms will overrule GCC.



General Contract Conditions (GCC) of MM Tenders

BHARAT HEAVY ELECTRICALS LIMITED

Industrial Valve Plant: 433, Industrial Complex,
Goindwal Sahib, Dist. Tarn Taran,
Punjab-143422 (INDIA)

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1. INSTRUCTION TO BIDDER

Quotations shall be submitted before due date and time. Late offers are liable to be rejected, so please ensure to submit bid well within due date and time. Techno-commercial part will be opened on due date.

Based on evaluation of techno-commercial offers, Price bids of bidders who qualify from techno-commercial evaluation shall be opened. BHEL may decide to open the Price bid same day at 1700 hrs. If not opened on the same day, all qualifying bidders shall be notified for date of opening of Price bids by email/fax/post/courier/E-procurement system generated email.

1.1 Instruction to Bidder (In case of Non-E-Procurement / Paper/ Manual/ Hard Copy based tenders)

Sealed Tenders can be dropped in the tender box labeled as 'Tender box for MM contracts'. This tender box is located at the entrance of Admin block BHEL Goindwal. Quotations can also be submitted through e-mail at tendermm_ivp@bhel.in. Offers received in time shall be considered only when offers are complete in all respects. In case of bulky tenders, please handover quotation to Sh. Rakesh Kumar/ SDGM - Head-MM or Sh. Sumeet Bansal / Sr. Manager - MM [Contact: 01859 224 615 / 628]. Bid can be sent to following address:

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

1.2 Instruction to bidder (In case of E-Procurement)

- Interested bidders / suppliers shall submit their offer through e-procurement mode at <https://eprocurebhel.co.in/>.
- Offers in any other mode will not be accepted.**
- Procedure for submission of tender is available in the "Bidder Manual Kit" at e-tender portal <https://eprocurebhel.co.in/>.
- In case of any difficulty faced while registering on BHEL's e-Procurement portal developed by NIC, queries may be addressed to 0120-4001002, 0120-4001005 and 0120-6277787; email: support-eproc@nic.in. These details are also available on 'Contact Us' page of the portal.
- Before uploading scanned documents if any, the bidders shall sign on all the statements, documents, certificates uploaded by him, owning responsibility for their correctness / authenticity.
- Disclaimer clause:** Neither the Organization (Bharat Heavy Electricals Ltd.) nor the service provider is responsible for any failure of submission of bids due to failure of internet or other connectivity problems or reasons thereof.

2. SCOPE OF SUPPLY

Material shall be supplied as per the applicable latest Technical Delivery Conditions (TDC)/ Material Standard requirements/BPS/Drawing and other requirement as given in the Tender Enquiry. National





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& International material Standards shall have to be arranged by vendors themselves. Latest applicable revisions of standards/procedures to be referred.

All required tests as called in referred material standard/BHEL/TDC/drawing etc. shall be carried out by vendor at no extra cost. Material Test Certificates (MTC), inspection reports and Compliance/Guarantee Certificate are to be provided along with the supplies.

3. PRICE BASIS

1. Order of enquiry item sl. no. shall be maintained in the quotation.
2. The rates quoted shall be firm and fixed. No price variation is proposed and allowed.
3. Rates quoted should be FOR BHEL Goindwal basis. The offers quoted on other than FOR Goindwal basis are liable to be rejected.

In case bidder has quoted Ex-works prices, then he/she will be given an opportunity to accept price basis as FOR Goindwal either by accepting delivery as FOR Goindwal in same quoted price or by providing loading factor on his/her quoted ex-works prices to make them FOR prices.

Variation in GST or any other statutory levies during contractual delivery period shall be to BHEL's account.

4. DISCREPANCY IN WORDS AND FIGURES

1. 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.
2. 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
3. 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.
4. 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.
5. 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.
6. All overwriting/cutting, etc will be numbered by bid opening officials and announced during bid opening.

5. EVALUATION IN CASE OF MORE THAN ONE L-1 BIDDER

In the course of evaluation, if more than one bidder happens to occupy L1 status, effective L1 will be decided by soliciting discounts from the respective L1 bidders.





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In case more than one bidder happens to occupy the L1 status even after soliciting discounts, the L1 bidder shall be decided by a toss / draw of lots, in the presence of the respective L1 bidder(s) or their representative(s).

Ranking will be done accordingly. BHEL's decision in such situations shall be final and binding.

6. REVERSE AUCTION

In case, it is declared in special terms & conditions of tender enquiry that RA is applicable for the NIT, then RA will be conducted as per following clause:

BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on <https://www.bhel.com/>) for this tender. RA shall be conducted among the techno-commercially qualified bidders as per RA guidelines.

Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for 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.

7. VALIDITY OF OFFERS

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

8. SUPPLIED MATERIAL ADJUSTMENT

Item/s pending in previous PO has to be billed in previous PO only. Otherwise, BHEL will be free to adjust the supplies in previous PO. Any implication of tax will be on supplier's account. For this it is desirable that vendor should reconcile the pending PO statement every month/frequently with BHEL. Vendor can also view these details at Portal (<https://trichy.bhel.com/mm/index.jsp>).

9. DELIVERY SCHEDULE

Supplies shall be affected and completed as per schedule mentioned in special terms and conditions. **Further, BHEL may release delivery schedule from time to time based upon our requirement with mutual understanding.** Vendor shall be required to complete the order as per the BHEL schedule requested. Commencement of delivery period shall be reckoned from the date of PO / LOI or any other agreed milestone.

10. LIQUIDATED DAMAGES (LD) 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.





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In case of Ex-works delivery terms for indigenous supplies, the document date (Invoice/Challan date) in Goods Receipt (GR) document shall be reckoned for LD deduction. In case of FOR Delivery terms for Indigenous supplies, the posting date in GR document shall be reckoned for LD deduction.

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

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

11. PAYMENT TERMS

1. Due payment against supplies received shall be due after 30 days of receipt and acceptance of material and shall be paid within next 15 days' period. In case of any deviation from standard payment term mentioned, BHEL at its discretion may load on the item price at 'Base rate of SBI (as applicable on the date of bid opening; Techno-commercial bid opening) + 6% shall be considered for loading for the period of relaxation sought by bidders.
2. Documents to be submitted (if applicable)
 - i) Tax invoice (Invoice shall be GST compliant and should contains all the required information such as GST No, HSN code etc.)
 - ii) Transporter copy along with material/consignment.
 - iii) Material Test Certificates (MTC) and
 - iv) Compliance Certificate.
3. GST registration number is to be submitted by qualified vendor as per GST law.
4. It is mandatory to mention proper material codes in the invoices and separate invoices to be raised for different POs.
5. **BHEL releases payment through EFT mode ONLY. Necessary details may please be submitted by filling required format before release of payment.**

12. TAXES & DUTIES

Payment of GST portion will be released to vendor only upon completion of statutory requirement and further subject to following:

- a) Vendor declaring such invoice in his GSTR-1 and
- b) Receipt of goods and Tax invoice by BHEL and
- c) Confirmation of payment of GST thereon by vendor on GSTN portal.
- d) Above is subject to receipt of goods/service and tax invoice thereof along with vendor declaring invoice in his return and paying GST within timeline prescribed for availing ITC by BHEL.

Following may please be noted for availing Input Tax Credit (ITC) by BHEL:





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

13. 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.

14. ACCESS TO MANUFACTURING PREMISES

While Purchase Orders placed on the vendor are under execution, authorized representatives of BHEL shall be allowed free access to the manufacturing facilities for the purpose of inspection or monitoring the progress of purchase orders. This access will also be extended to representatives of BHEL's customers accompanying the authorized representative/s of BHEL (which shall be intimated in advance), if our contractual requirements with our customers call for the same.

15. INSPECTION

1. The seller shall give adequate notice, of 1 week or as mutually agreed period, in writing to the Purchaser about the date and place at which the goods will be ready for inspection/ testing, as provided for in the contract.
2. Purchaser or his authorized representative shall be entitled to carry out inspection of material and workmanship/Surveillance Audit at Seller's premises or at his sub-contractor's premises at all reasonable times during execution of contract; Such inspection, examination and testing, if made, shall not absolve the Seller from his obligations under the contract. No additional charges shall be claimed for such inspections. Moreover, all required infrastructure (testing, tools etc) have to be arranged by supplier.
3. Any inspection carried out before supply by vendor/incoming stage at BHEL notwithstanding, if any defect/non-conformity is noted during processing, the same shall be attended/replaced by vendor at no extra cost.
4. BHEL representative from unit or CQ is authorized to carry out audits along with TPIA at vendor's works before clearing the items for dispatch.





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5. Necessary tooling including thread gauges etc. have to be arranged by vendor. Only in exceptional cases, based on BHEL discretions item/nature, BHEL may consider request to provide gauges if available with BHEL. But in no case this shall be linked with delivery of material.

16. GUARANTEE / WARRANTEE AND CORRESPONDING REPAIR / REPLACEMENT OF GOODS

Goods shall comply with the specifications for material, workmanship and performance. Unless otherwise specified, vendor shall give a guarantee / warrantee for a period of 18 months from the date of receipt. In case of non-acceptance of this term, bid shall be liable for rejection.

If the delivery is found non-compliant during the warranty period, leading to rejection, the Seller shall arrange free replacement / repair of goods, within one month from the date of intimation or any mutually agreed period. Corresponding quantity shall be treated as unsupplied against respective purchase order till replacement is received at BHEL.. In the event of the Seller's failure to comply, Purchaser may take action as appropriate, including repair / replenish rejected goods, at the risk & cost of the Seller.

Lifting of rejected material is under Supplier's scope. BHEL will inform related invoice, quantity etc. to supplier. Supplier has to give advance intimation / plan (Transporter, Vehicle details) for the lifting of material. Further supplier has to provide requisite documents (such as Credit Note, e-Way Bill etc.) to lift the rejected material. Material should be lifted within one month from date of intimation. After one-month, BHEL will not be responsible for rejected material and BHEL shall have the right to dispose off such rejected material.

17. 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.

18. SUB-CONTRACT

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

19. RISK PURCHASE

Risk & Cost Clause, in line with Conditions of PO may be invoked in any of the following cases:

- i) Supplier's poor progress of the supply vis-à-vis delivery/execution timeline as stipulated in the Contract, backlog attributable to supplier including unexecuted portion of supply that does not appear to be executable within balance available period
- ii) Withdrawal from or abandonment of the supply by contractor before completion as per contract.
- iii) Non-supply by the Supplier within scheduled completion/delivery period as per Contract or as extended from time to time, for the reasons attributable to the supplier.





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- iv) Termination of Contract on account of any other reason (s) attributable to Supplier.
- v) Assignment, transfer, subletting of Contract without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.
- vi) Non-compliance to any contractual condition or any other default attributable to Supplier.

The value shall be calculated as follows:

$$\text{Risk \& Cost Amount} = [(A-B) + (A \times H/100)]$$

Where,

A= Value of Balance scope of Supply (*) as per rates of new contract

B= Value of Balance scope of Supply (*) as per rates of old contract being paid to the supplier at the time of termination of contract i.e. inclusive of PVC, if any.

H = Overhead Factor shall be taken as 5

In case (A-B) is less than 0 (zero), value of (A-B) shall be taken as 0 (zero).

*** Balance Scope of Supply:** Difference of Contract Quantities and Executed Quantities as on the date of issue of Letter for 'Termination of Contract', shall be taken as balance scope of Supply for calculating risk & cost amount.

Contract quantities are the quantities as per original contract. If, Contract has been amended, quantities as per amended Contract shall be considered as Contract Quantities.

Recoveries from the supplier on whom Risk & Cost has been invoked shall be made from following:

- (i) Dues available in the form of Bills payable to supplier, SD, BGs against the same contract.
- (ii) Dues payable to supplier against other contracts in the same Unit of BHEL.
- (iii) Dues payable to supplier against other contracts in the different Regions / Units of BHEL.
- (iv) Legal options for recovery of dues payable by the supplier.

20. FORCE MAJEURE

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





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21. NON-DISCLOSURE AGREEMENT

All Drawing and technical documents relating to the product or it's manufacture submitted by one party to the other, prior or subsequent to the formation of contract, shall remain property of the submitting party. Drawing, technical documents or other technical information received by one party, shall not without the consent of the other party, be used for any other purpose than that, for which they were provided. Such technical information shall not without the consent of the submitting party, otherwise be used or copied, reproduced, transmitted or communicated to a third party. Patterns supplied by BHEL will remain BHEL's property which shall be returned by the bidder on demand to BHEL. Bidder shall in no way share or use such intellectual property of BHEL to promote his own business with others. ***BHEL reserves the right to claim damages from the bidder, or take appropriate penal action as deemed fit against the bidder, for any infringement of the provisions contained herein.***

22. CLARIFICATIONS

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

23. PREFERENCES FOR MICRO AND SMALL ENTERPRISES (MSEs)

Preferences as mentioned in “Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012” & “Public Procurement Policy for Micro and Small Enterprises (MSEs) Amendment Order, 2018”, or as per latest guidelines issued by government shall be given to Micro and Small enterprises.

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

- 25% Procurement of the tender value shall be made from MSE (Micro, Small Enterprises) firms.
- 25% of the 25% quantity (i.e. 6.25% of the tender quantity) offered to the MSE's shall be reserved for MSE's owned by SC/STs. Failure to participate by any MSE owned by SC/ST's; this 6.25% quantity shall be procured from other MSEs.
- 3% from within the 25% quantity offered to the MSE's shall be reserved for women owned MSE's. Failure to participate by any MSE owned by women; this 3% quantity shall be procured from other MSEs.
- EMD shall be exempted for MSE's. All these benefits are subject to production of all statutory documents





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- In tender, participating Micro and Small Enterprises quoting price within price band of L1+15 per cent shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a Micro and Small Enterprise and such Micro and Small Enterprise shall be allowed to supply up to 25 per cent of total tendered value. In case of more than one such Micro and Small Enterprise, the supply shall be shared proportionately (to tendered quantity).

MSE suppliers can avail the intended benefits only if they submit **Udyam Registration Certificate** along with the offer. No other document shall be considered for availing MSE benefits. Non-submission of such document 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 cleared before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required document is to be uploaded on the portal.

Note: It may however be noted that MSE guidelines as on date (Date of Technical Bid Opening Part-I) shall prevail.

24. PREFERENCE TO MAKE IN INDIA

This procurement shall be governed by notification no. P-45021/2/2017-PP (BE-II) dated 16.09.2020 of Government of India issued by DPIIT and subsequent circulars issued afterwards. Accordingly, the minimum local content, the margin of purchase preference and the procedure for purchase preference to make in India shall be adhered.

25. RESTRICTIONS UNDER RULE 144(XI) OF THE GENERAL FINANCIAL RULES (GFRs), 2017

All provisions of Order No. F.No.6/18/2019-PPD of Department of Expenditure (DoE) shall be applicable for this tender enquiry (Order copy is available at <https://doe.gov.in/procurementpolicy-divisions>). Accordingly, any bidder from a country which shares a land border with India (except the countries to which the Govt. of India has extended lines of credit or in which the Govt. of India is engaged in development projects for which list is available at <https://www.mea.gov.in/>) will be eligible to bid in this tender only if the bidder is registered with the Competent Authority as specified in Annex I of the said Order of DoE.

Updated list of the countries to which lines of credit have been extended or in which development projects are undertaken are available on the Ministry of External affairs website (<https://www.mea.gov.in/>)

For the purpose of this order, definition of Bidder from a country which shares a land border with India shall be same as defined in the Annex III of the said order.

Registration with the competent authority as stipulated in the said order is responsibility of bidder. **Bidder has to submit a certificate certifying following along with offer:**

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country,





General Contract Conditions (GCC) of MM Tenders

BHARAT HEAVY ELECTRICALS LIMITED

Industrial Valve Plant: 433, Industrial Complex,
Goindwal Sahib, Dist. Tarn Taran,
Punjab-143422 (INDIA)

has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered. [*Where applicable, evidence of valid registration by the Competent Authority shall be Attached*].”

26. DISPUTES

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

27. JURISDICTION

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

28. 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 <https://www.bhel.com/>.

29. FRAUD PREVENTION POLICY

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

30. PREVENTIVE CHECKS TO ELIMINATE SUSPECTED CARTEL FORMATION

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

31. 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 <https://www.bhel.com/>.

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

1.1. Commitment by BHEL:





General Contract Conditions (GCC) of MM Tenders

BHARAT HEAVY ELECTRICALS LIMITED

Industrial Valve Plant: 433, Industrial Complex,
Goindwal Sahib, Dist. Tarn Taran,
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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 commits to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India.

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

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

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

32. GENERAL

1. BHEL will not be bound by any power of attorney granted by the vendors or by changes in the composition of the firm made subsequent to the execution of the contract. They may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the vendor concerned.
2. 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.
3. 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.
4. 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.
5. BHEL may increase/decrease item/s based on BHEL requirement before price bid opening. Suitable price implication may be asked from suppliers.
6. 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.





General Contract Conditions (GCC) of MM Tenders

BHARAT HEAVY ELECTRICALS LIMITED

Industrial Valve Plant: 433, Industrial Complex,
Goindwal Sahib, Dist. Tarn Taran,
Punjab-143422 (INDIA)

7. 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.
8. In case of unscheduled holiday on opening day of tender, the next working day will be treated as scheduled prescribed day of opening of tender.
9. On the due date of tender opening, only technical bids will be opened. The opened technical bids will be evaluated by us and clarifications required, if any, will be called for from the bidders on technical and commercial points. If no reply is received from the vendor for the clarification raised by BHEL with in the final cut-off date, those vendors offer will be processed with the documents available / submitted against this tender. Offers not meeting the required specification and technical condition will be summarily rejected. The price bids of technically suitable bidders will be opened on a later date with prior intimation to techno-commercially suitable bidders.
10. Ranking L-1, L-2 etc. shall be done for individual item for the techno-commercially acceptable offers on landed cost to BHEL, IVP Goindwal basis and BHEL reserves the right to place order for individual items with different vendors.
11. BHEL reserves the right to negotiate with L1 vendor or re-float the tender for items where, L1 price is not the lowest acceptable price; BHEL reserves the right to increase or decrease the tender quantity.
12. If supplier is mentioning delivery destination within state/ outside state depending upon his location of factory, Free on Road etc. these are assumed as on FOR Goindwal. If supplier is wishing to give delivery on Ex works basis, then he has to clearly mention about it.
13. The bidder has to keep track of any changes by viewing the addendum(s) / 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.
14. Unregistered suppliers, who are techno-commercially qualified against the open tender, are requested to register with BHEL as permanent supplier by submitting the Supplier Registration Form (SRF). SRF is available at <https://www.bhel.com/supplier-registration>.
15. Any term in special tender terms and conditions will supersede the GCC.



ANNEXURE-A

RESTRICTIONS UNDER RULE 144(XI) OF THE GENERAL FINANCIAL RULES (GFRs), 2017

(The bidders are required to print this on their company's letterhead & sign, stamp and submit with offer documents)

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that bidder (... Name of Bidder) is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that bidder (.....Name of bidder) fulfils all requirements in this regard and is eligible to be considered.

If the bidder is from such country which shares a land border with India evidence of valid registration by the Competent Authority shall also be attached along with offer.”

With regards


Signature with company seal

Name–

Company / Organization

Designation within Company / Organization

Address of Company / Organization

 <p>BHEL – GOINDWAL</p>	<p>THIRD PARTY NON-DISCLOSURE AGREEMENT</p> <p>(TENDER ENQUIRY NO. 2223-029E dated 06.08.2022)</p>
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ANNEXURE B: THIRD PARTY NON-DISCLOSURE AGREEMENT

I, _____, on behalf of the _____ (Name of Company), acknowledge that the information received or generated, directly or indirectly, while working with BHEL, Goindwal on contract is confidential and that the nature of the business of the BHEL, Goindwal is such that the following conditions are reasonable, and therefore:

I warrant and agree as follows:

I, or any other personnel employed or engaged by our company, agree not to disclose, directly or indirectly, any information related to the BHEL, Goindwal. Without restricting the generality of the foregoing, it is agreed that we will not disclose such information consisting but not necessarily limited to:

- Technical information: Methods, drawings, processes, formulae, compositions, systems, techniques, inventions, computer programs / data / configuration and research projects.
- Business information: Customer lists, project schedules, pricing data, estimates, financial or marketing data,

On conclusion of contract, I, or any other personnel employed or engaged by our company shall return to BHEL, Goindwal all documents and property of BHEL, Goindwal, including: drawings, blueprints, reports, manuals, computer programs/data/configuration, and all other materials and all copies thereof relating in any way to BHEL Goindwal's business, or in any way obtained by me during the course of contract. I further agree that I, or any others employed or engaged by our company shall not retain copies, notes or abstracts of the foregoing.

This obligation of confidence shall continue after the conclusion of the contract also.

I acknowledge that the aforesaid restrictions are necessary and fundamental to the business of the BHEL, Goindwal and are reasonable given the nature of the business carried on by the BHEL, Goindwal. I agree that this agreement shall be governed by and construed in accordance with the laws of country.

I enter into this agreement totally voluntarily, with full knowledge of its meaning, and without duress.

Dated at _____, this ____ day of _____, 20__.

Name

Company

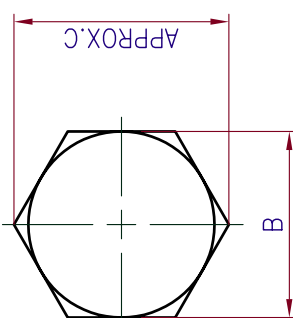
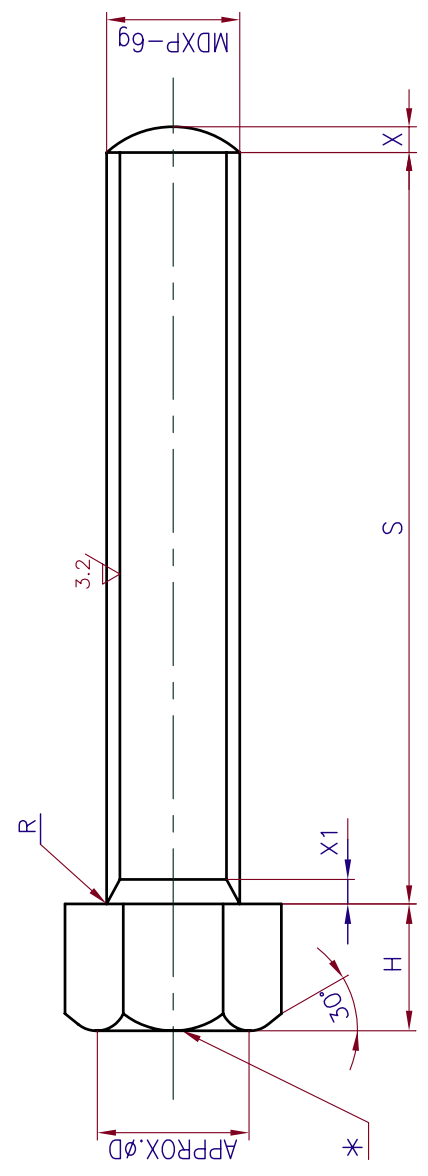
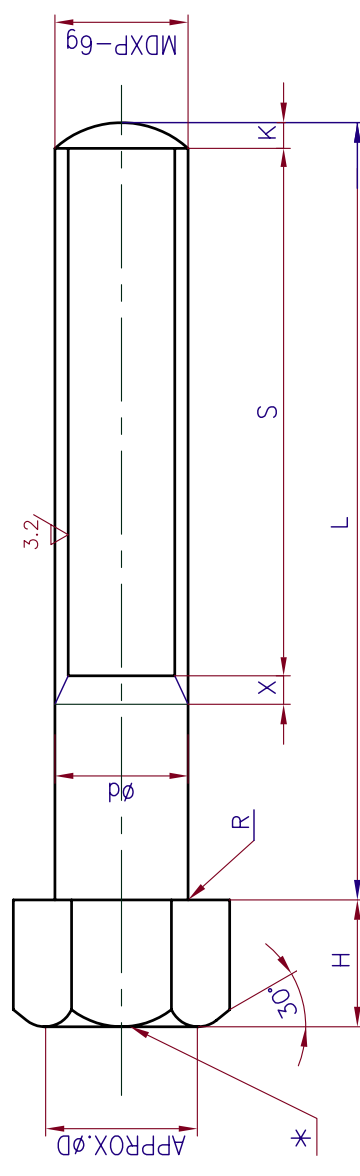
Signature

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP.

1 | 8ZL0Z-0000-A-3
DRAWING NO.

12.5 / 3.2 /

SL No.	DRAWING NO.	COMP. CODE	MATL. SPECN.	DIMENSIONS													NET WT (Kgs)	REMARKS
				MD	P	L	S	H	K	X	X1	R	ød	øD	B	C		
01	3-V-0001-20728/02	964524380000		M16	2	70	70	10	-	4	6	0.6	16	23	24	27.7	0.14	
02	3-V-0002-20728/02	964524390000		M39	4	120	80	25	4	8	-	1.2	39	57.5	60	69.3	1.73	
03	3-V-0003-20728/02	964524400000		M14	2	120	30	10	2	4	-	0.6	14	20	21	24.2	0.11	
04	3-V-0004-20728/02	964526840000		M5	0.8	25	25	3.5	-	2	2	0.2	5	7	8.3	9.2	0.01	
05	3-V-0005-20728/02	964528590000		M30	3.5	80	45	19	4	7	-	1.0	30	44	46	53.1	0.57	
06	3-V-0006-20728/02	964529810000		M20	2.5	70	50	13	5	5	-	0.8	20	29	30	34.6	0.27	
07	3-V-0007-20728/02	964530600000		M6	1	16	16	4	-	2	3	0.25	6	9.8	10	11.5	0.01	
08	3-V-0008-20728/02	964531710000		M20	2.5	95	40	13	5	5	-	0.8	20	29	30	34.6	0.33	
09	3-V-0009-20728/03	964531720000		M24	3	85	50	15	6	6	-	0.8	24	34	36	41.6	0.40	
10	3-V-0010-20728/02	964605960000	ASTM A193 B7	M8	1.25	20	20	5.5	-	2.5	3.75	0.5	8	12.6	13	15.0	0.011	
11	3-V-0011-20728/02	964605970000	CERTIFY	M8	1.25	25	25	5.5	-	2.5	3.75	0.5	8	12.6	13	15.0	0.012	
12	3-V-0012-20728/02	964532250000		M24	3	120	60	15	6	6	-	0.8	24	34	36	41.6	0.55	
13	3-V-0013-20728/02	964533230000		M36	4	100	60	23	4	8	-	2	36	53	55	63.5	1.30	
14	3-V-0014-20728/01	964534120000		M16	2	120	70	10	4	4	-	0.6	16	23	24	27.7	0.22	
15	3-V-0015-20728	964535410000		M16	2	20	20	10	-	4	6	0.6	16	23	24	27.7	0.04	
16	3-V-0016-20728	964650030000		M24	3	75	40	15	6	6	-	0.8	24	34	36	41.6	0.34	
17	3-V-0017-20728	964535780000		M20	2.5	110	60	13	5	5	-	0.8	20	29	30	34.6	0.38	
18	3-V-0018-20728	964535900000		M36	4	130	80	23	4	8	-	2	36	53	55	63.5	1.54	



NOTES:

- * PUNCH MATERIAL MARK B7 FOR A193 B7.
- QUALITY REQUIREMENTS SHALL BE AS PER LATEST TDC.5:164

TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT

RETRACED WITH REV.10 DATED 01.02.03



BHARAT HEAVY ELECTRICALS LTD.,
UNIT: HIGH PRESSURE BOILER PLANT.
TIRUCHIRAPALLI-620014.

DEPT	VL	SCALE	WEIGHT (KG)	REFERENCE INFORMATION
CODE 320		/	-	PT-42 CAD REF.3V020728
TITLE	CARD CODE	DRAWING NO.		
	U 01			

BOLT

3-V-0000-20728 11

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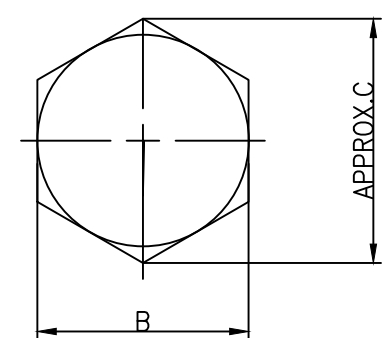
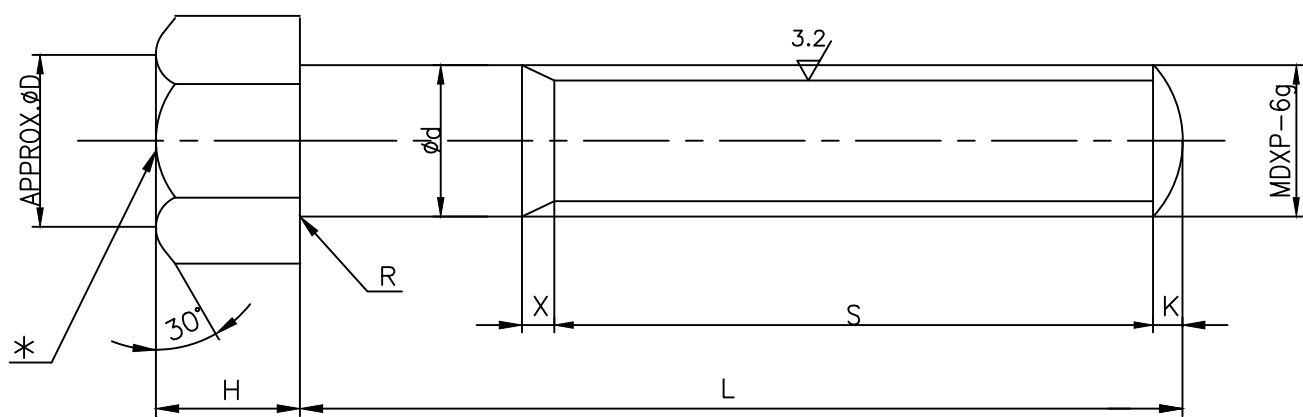
REV	DATE	ALTERED VB	REV	DATE	ALTERED VB
11	27.04.05	CHD & APPD KRS & MRK	10	01.02.03	CHD & APPD
SL. NO.18 INCLUDED.			SL. NO.17 INCLUDED.		

IN CASE OF FULL THREAD

80757-0000-V-3
DRAWING NO.

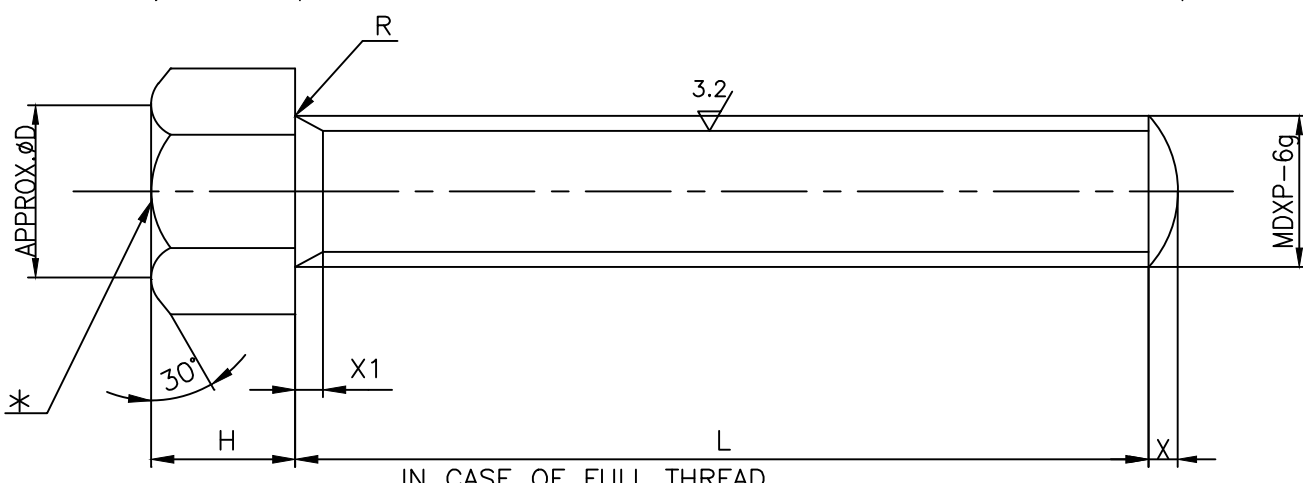
12.5 / 3.2

SL No.	DRAWING NO.	COMP. CODE	MATL. SPECN.	DIMENSIONS													FINISHED WT IN KGS
				Md	P	L	S	H	K	X	X1	R	ød	øD	B	C	
01	3-V-0001-25708/1	964657840000	ASTM A193-B8M CL.2; CERTIFY	M12	1.75	100	65	8	-	3.5	5	0.6	12	18	19	21.9	0.1
02	3-V-0002-25708/1	964658920000		M12	1.75	60	30	8	-	3.5	5	0.6	12	18	19	21.9	0.07



NOTES:

- * PUNCH MATERIAL MARK B8M FOR A193-B8M.
- QUALITY REQUIREMENTS SHALL BE AS PER LATEST TDC 5:164.



NO OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No
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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI_620014.	DRN	T.SANGEETHA	SIGN	DATE	NO.OF VAR.
	CHD	S.SATHEES		02.02.17	
	APPD	K.RAJASEKARAN		02.02.17	

DEPT VL	SCALE	WEIGHT (KG).	REFERENCE INFORMATION	NO. OF ITEMS
CODE 320	NTS	-	PT-42	
TITLE	CARD CODE	DRAWING NO.	REV	
HEX BOLT	U 01	3-V-0000-25708	02	

REV	DATE	ALTERED	R.P.SINGH	REV	DATE	ALTERED	R.P.SINGH
02	26.06.20	CHD & APPD	SAMEER & SSK	01	31.08.18	CHD & APPD	SSK & KRS
MATL. SPECIFICATION UPDATED.				SL. No. 2 INCLUDED.			

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PLANT STANDARD

BPS 41101

Rev. No. 00

PAGE 01 of 03

HPBP TIRUCHIRAPPALLI

STUDS – TYPE A

(AS PER IS: 1862 - 1975)

1.0 SCOPE: Covers the requirement of STUDS - TYPE A in the size range M3 to M39x3

2.0 SPECIFICATION AND REFERENCE STANDARDS

MATERIAL	STEEL
DIMENSION AND PREFERRED SIZES	FIG 1 & TABLE 1 OF THIS STANDARD
PREFERRED LENGTH, SIZE COMBINATION	TABLE 2 OF THIS STANDARD
THREAD	PITCH AS PER TABLE – 1, TOLERANCE 6g, STANDARD IS: 4218 PART - 3,5&6
MECHANICAL PROPERTIES	CLASS 6.6, AS PER IS:1367 PART-3
TOLERANCE	PRODUCT GRADE- A, AS PER IS:1367 PART-2
SAMPLING AND ACCEPTIBILITY	IS:2614
GENERAL REQUIREMENTS	STUDS SHALL COMPLY WITH IS: 1862 IN RESPECT OF REQUIREMENTS NOT COVERED IN THIS STANDARD.

2.1 Referred standards (Only current versions are applicable)

IS: 1862	Specification for Studs.
IS: 1367	Technical supply conditions for threaded steel fasteners.
IS: 2614	Methods for sampling of fasteners.
IS: 4218	ISO Metric screw threads.

3.0 Designation

A Grade A Stud to this standard of thread size M10 and nominal length 25 mm shall be designated as:

3.1 On Drawings

i) Material Specification column	IS: 1862 - A
ii) Description column	STUD A GR. A 6.6 M10x25
iii) Drawing number column	BPS 41101
iv) Material Code Column	41101 10025 00

3.2 Order Description

For placing indents, issuing enquiries and on purchase order, ordering description given below shall be followed.

Stud A M10x25, IS: 1862 – A 6.6

Revisions

Approved

STANDARDS SECTION
ITSS, HPBP, TIRUCHIRAPPALLI

Rev. No.00

Amd. No.

Reaffirmed

Prepared

Issued

Dt of 1st Issue

Dt.

Dt.

Year

STANDARDS

STANDARDS

18.10.2013

4.0 ADDITIONAL INFORMATION

4.1 Property class 5.6 or 6.8 may also be accepted on agreement between the purchaser and supplier.

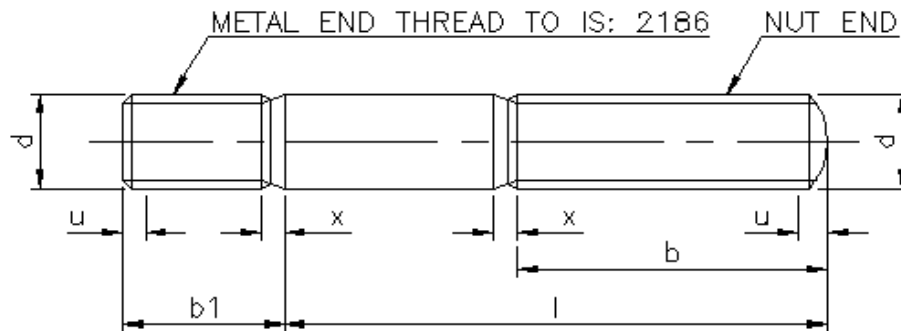
4.2 For Cadmium plated studs, refer BPS: 41141.

4.3 These studs are recommended for use in steel.

4.4 For studs for use in cast iron, refer BPS: 41102.

4.5 Studs with cut threads are also acceptable.

FIG. 1 DIMENSION FOR STUDS
(All dimensions are in millimeters)



u according to IS:1368 – Dimensions of ends of bolts and Screws

x according to IS:1369 – Dimensions of Screw thread runouts and undercuts

(Table 1. All dimensions are in millimeters)

Thread Size d (h13)	b + 2p *			b1 (js 16)		
	1≤125	125<1≤200	1>200	Nom	Max	Min
M3	12	-	-	3	3.3	2.7
M4	14	-	-	4	4.38	3.62
M5	16	-	-	5	5.38	4.62
M6	18	-	-	6	6.38	5.62
M8	22	-	-	8	8.45	7.55
M10	26	32	-	10	10.45	9.55
M12	30	36	-	12	12.55	11.45
M16	38	44	57	16	16.55	15.45
M20	46	52	65	20	20.65	19.35
M24	54	60	73	24	24.65	23.35
M30	66	72	85	30	30.65	29.35
M36x3 (M39x3)	78 84	84 90	97 103	36 39	36.8 39.8	35.2 38.2

Note:

1. Sizes in brackets are non-preferred.

* 2. P is pitch of thread.



PLANT STANDARD

HPBP TIRUCHIRAPPALLI

BPS

41101

Rev. No.

00

PAGE

03 of 03

Table 2 – Preferred length – size combinations for studs
(All dimensions are in millimeters)

Nominal Length 'l'	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24	M30	M36X3	(M39x3)
14													
16													
20													
25						17.8							
30													
35						24.2							
40							41						
45						29.4							
50								92.7					
55													
60								108					
65													
70													
75													
80									224				
85													
90													
100									271				
110													
120													
130													
140													
150													
160													
170													
180													
190													
200													
225													
250													
275													
300													

NOTE:

1. Preferred lengths are between the bold stepped lines.
2. Weights are given in kg per 1000 numbers only.
3. For stocked sizes refer BPS components booklet.
4. For studs with length above the stepped bold line, thread length $b \sim 1 - (x+3)$



PLANT STANDARD

HPBP TIRUCHIRAPALLI

BPS:41501

PAGE : 1 OF 5

Based on IS: 2048

PARALLEL KEYS – TYPE-A

1.0 SCOPE:

Covers the requirements for keys with bolt ends round (type A)

2.0 SPECIFICATION AND REFERENCES STANDARDS

Dimensions and tolerances	Table 1 of this standard	
Preferred length and Size combination	Table 2 of this standard	
Material	Steel of tensile strength not less than 600 MPa	
Finish	Natural finish	
Sampling and Acceptability	Indian standard	IS: 6821
General requirements	Keys shall comply with IS :2048 in respect of requirement not covered in this standards	

2.1 Referred standards (only the current version are applicable)

IS: 2048 Specification for parallel keys and keyways

IS: 6821 Methods for sampling non-threaded fasteners

Revisions			Approved Standing Committee		
Rev. No.	Amd. No.	Reaffirmed	Prepared	Issued	Dt of 1st Issue
Dt.	Dt.	Year	Standards	Standards	06.11.2013

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3.0 DESIGNATION:

A parallel key to this standard of width 12mm, height 8mm and length 56mm shall be designated as:

3.1 On Drawings:

- 1) material specification column : IS: 2048-A
- 2) Description column : KEY PRL RND END 12X8X56
- 3) Drawing number column : 4150108056
- 4) Material code column : 4150112056

3.2 Ordering Description:

For placing indents, issuing enquiries and on purchase order, the ordering Description given below shall be followed:

parallel key A 12x8x56

4.0 ADDITIONAL INFORMATION:

4.1 for keyways to these keys refer IS: 2048 or AA 023 15 08.

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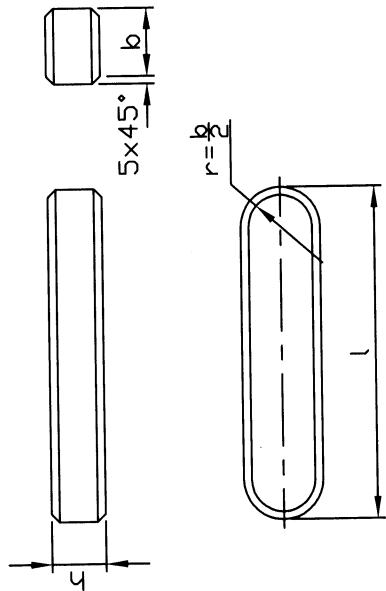
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TABLE 1 – DIMENSIONS FOR PARALLEL KEYS



NOTE:

- * 1.Tolerance on 'h': square section-h9 rectangular section-h11

ALL DIMENSIONS ARE IN MILLIMETRES

WIDTH	2	3	4	5	6	8	10	12	14	16	18	20	22	25	28	32	36	40	45	50	56	63	70	80	90	100
b																										
TOL ON b	0.16	0.16	0.16	0.25	0.25	0.25	0.36	0.40	0.40	0.40	0.40	0.40	0.60	0.60	0.60	0.60	0.60	1.00	1.00	1.00	1.60	1.60	1.60	2.50	2.50	2.50
H9	-0.025	-0.025	-0.030	-0.030	-0.030	-0.036	-0.043	-0.043	-0.043	-0.043	-0.043	-0.052	-0.052	-0.052	-0.052	-0.052	-0.062	-0.062	-0.062	-0.074	-0.074	-0.074	-0.087	-0.087	-0.087	
HEIGHT	2	3	4	5	6	7	8	8	9	10	11	12	14	14	16	18	20	22	25	28	32	32	36	40	45	50
h																										
TOL ON h*	0.16	0.16	0.16	0.25	0.25	0.25	0.30	0.30	0.30	0.30	0.30	0.30	0.40	0.40	0.40	0.40	0.40	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
h* see note-1	-0.025	-0.025	-0.030	-0.030	-0.030	-0.036	-0.043	-0.043	-0.043	-0.043	-0.043	-0.052	-0.052	-0.052	-0.052	-0.052	-0.062	-0.062	-0.062	-0.074	-0.074	-0.074	-0.087	-0.087	-0.087	
Min																										
Max																										
RANGE OF KEY LENGTH 'l'	6	6	8	10	14	18	22	28	36	45	50	56	63	70	80	90	100	110	125	140	160	180	200	220	250	280
Min																										
Max																										

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TABLE 2- PREFERRED LENGTH-SIZE COMBINATION FOR PARALLEL KEYS

(ALL DIMENSIONS ARE IN MILLIMETERS)

Preferred length (l)	WEIGHTS														
	2x2	3x3	4x4	5x5	6x6	8x7	10x8	12x8	14x9	16x10	18x11	20x12	22x14	25x14	
10															
12			1.402												
14															
16															
18															
20				3.709	5.286		13.1								
22															
25				4.719		10.245			21.6						
28															
32			3.412		8.676			22.16							
36										41.0					
40				7.639	10.936				36.63		56.7	66.0			
45						19.045									
50										58.49					
56					15.436										
63									59.33						
70															
80									76.13						205.3
90															
100															
110															
125															
140															

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TABLE 2- PREFERRED LENGTH-SIZE COMBINATION FOR PARALLEL KEYS (CONT.)

(ALL DIMENSIONS ARE IN MILLIMETERS)

Preferred length (l)	22X14	25X14	28X16	32X18	36X20	40X22	45X25	50X28	56X32	63X32	70X36	80X40	90X45	100X50
63														
70														
80		205.3												
90														
100														
110														
125														
140														
160														
180														
200														
220														
250														
280														
320														
360														
400														

WEIGHTS

NOTE:

1. weights are given in kg per 1000 numbers only.
2. for stocked sizes refer BPS components book-let.
3. Preferred length are in between the stepped bold lines.

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