



BHEL GOINDWAL

SPECIAL TERMS AND CONDITIONS FOR
(Tender Enquiry No. 1718-054E Dated 03.08.2017 Due date 16.08.2017)

ITEM: HANDWHEELS

Tender Processed through e-procurement mode only

These special terms and Conditions and GCC collectively are the part of tender terms and conditions.

Tender Enquiry No	1718-054E
Enquiry date	03.08.2017
Last time and date of tender submission	15:00 Hrs 16.08.2017
Tender opening time and date	15:30 Hrs 16.08.2017
Quotation Parts	<u>Two-part Bid</u>
Item Description	<u>HANDWHEELS</u>
Delivery schedule (In days)	<u>120</u>
Validity of offer (In days)	<u>60</u>
Documents required along with supply of material	Applicable
1. Test Certificate	<u>Required</u>
2. Compliance Certificate	<u>Required</u>
3. Quantity Variation	+/- 10 %

THIS TENDER IS THROUGH E-PROCUREMENT MODE. Online bids in two parts are invited for the supply of "HANDWHEELS". The relevant documents can be downloaded from <https://bheleps.buyjunction.in> [Go for 'Advanced Search' >> Organization: Trichy, BHEL >> Enquiry No. 1718-054E]



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Pre-qualification Criteria

1. Bidders should primarily be engaged in manufacturing of SG Iron/ Malleable Iron/ A216 WCB (Certified) items. 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.

"Vendor has to present any customer Purchase Order of SG Iron/ Malleable Iron/A216 WCB (Certified) material with minimum cumulative value of Rs. 3,00,000.00 (Three Lakh Only) as proof. Purchase Order date should be 01.04.2014 or afterwards".

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Loading Criteria cum Counter Offer

CASE-A

- **BHEL will give counter-offer to vendors other than L1 as per provisions of CASE-A, in order to have broader vendors base for ensuring timely delivery for the items where the quantity is more than 500 nos. Following directions shall be followed when allotting the tender quantities**

1. Tender quantity shall be divided in the proportion 60:20:20 (60% for L1, 20% for L2 and 20% for MSE's) in case the L1 vendor is not a MSE subject to following conditions:

I. L2 acceptance of L1 rates.

II. In tender, participating Micro and Small Enterprises quoting price within price band of L1+15 per cent shall also be offered 20% quantity of tender quantity at L1 price in a situation where L1 price is from someone other than a Micro and Small Enterprise. In case of more than one such Micro and Small Enterprise, the supply shall be shared equally. If there are more than one MSE in the price band of L1+ 15% to whom the offer has been sent and some of them reject the offer then the remaining quantity shall be distributed equally to the MSEs accepting L1 prices.

III. 20% from the 20% quantity (i.e. 4% of the tender quantity) offered to the MSE's shall be reserved for MSE's owned by SC/STs. In event of failure of such Micro and Small Enterprises to participate in tender process or meet tender requirements and L1 price, 4 per cent quantity for Micro and Small Enterprises owned by SC/ST entrepreneurs shall be met from other Micro and Small Enterprises.

IV. In case any MSE vendor does not accept the counter offer, the above mentioned 20% quantity shall be offered to L2.

V. If there is no MSE in the Price band of L1+15% then the 20% quantity shall be offered to L2 vendor.

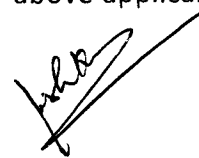
VI. If other suppliers (other than L1) are not under MSE then 60% qty shall be given to L1 and 40% qty shall be offered to L2 supplier.

2. In case if the L1 vendor is MSE then quantity shall be provided as 60 % for L1, 36% for L2 and 4% tender quantity shall be offered to the MSEs owned by SC/ST's in the price band of L1+15%. In event of failure of such Micro and Small Enterprises to participate in tender process or meet tender requirements and L1 price, 4 per cent sub-target for procurement earmarked for Micro and Small Enterprises owned by SC/ST entrepreneurs shall be met from L2 vendor.

3. In case the L1 vendor is a MSE owned by a SC/ST then the 60% qty shall be given to L1 and 40% qty shall be offered to L2 supplier.

All above offered qty are subject to acceptance of L1 rates.

In case of non- acceptance of counter offer by any vendor after above applicable provisions the whole quantity shall be given to L1 vendor.



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This ratio can be altered in case of any failure on part of L1 regarding delivery commitment/quantity/quality of material.

All above mentioned preferences shall be given to MSEs and SC/STs only on the submission of documentary evidence.

BHEL will not give counter offer to highest bidder in any case.

If there are more than one L1 bidders, quality shall be equally divided, except MSE portion.

CASE B

- **BHEL will give counter-offer to vendors other than L1 as per provisions of CASE-B, in order to have broader vendors base for ensuring timely delivery for the items where the quantity is less than or equal to 500 nos. Following directions shall be followed when allotting the tender quantities**

1. Tender quantity shall be divided in the proportion 80:20 (80% for L1 and 20% for MSE's) in case the L1 vendor is not a MSE subject to following conditions:

I. In tender, participating Micro and Small Enterprises quoting price within price band of L1+15 per cent shall also be offered 20% quantity of tender quantity at L1 price in a situation where L1 price is from someone other than a Micro and Small Enterprise. In case of more than one such Micro and Small Enterprise, the supply shall be shared equally. If there are more than one MSE in the price band of L1+ 15% to whom the offer has been sent and some of them reject the offer then the remaining quantity shall be distributed equally to the MSEs accepting L1 prices.

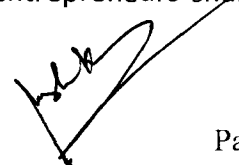
II. 20% from the 20% quantity (i.e. 4% of the tender quantity) offered to the MSE's shall be reserved for MSE's owned by SC/STs. In event of failure of such Micro and Small Enterprises to participate in tender process or meet tender requirements and L1 price, 4 per cent quantity for Micro and Small Enterprises owned by SC/ST entrepreneurs shall be met from other Micro and Small Enterprises.

III. In case any MSE vendor does not accept the counter offer, the above mentioned 20% quantity shall be given to L1.

IV. If there is no MSE in the Price band of L1+15% then the 20% quantity shall be given to L1 vendor.

V. If other suppliers (other than L1) are not under MSE then 100% qty shall be given to L1 supplier.

2. In case if the L1 vendor is MSE then quantity shall be provided as 96 % for L1 and 4% tender quantity shall be offered to the MSEs owned by SC/ST's in the price band of L1+15%. In event of failure of such Micro and Small Enterprises to participate in tender process or meet tender requirements and L1 price, 4 per cent sub-target for procurement earmarked for Micro and Small Enterprises owned by SC/ST entrepreneurs shall be met from L1 vendor.





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3. In case the L1 vendor is a MSE owned by a SC/ST then the 100 % quantity shall be loaded on L1 bidder.

In case of non- acceptance of counter offer by any vendor after above applicable provisions the whole quantity shall be given to L1 vendor.

This ratio can be altered in case of any failure on part of L1 regarding delivery commitment/quantity/quality of material.

All above mentioned preferences shall be given to MSEs and SC/STs only on the submission of documentary evidence.

BHEL will not give counter offer to highest bidder in any case.

If there are more than one L1 bidders, quality shall be equally divided, except MSE portion (if any).



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LIST OF ITEMS IN NIT

Sl. No.	Material Code	Description	Unit	Tender quantity	Drawing	TDC No./ BPS no. applicable
1	920090240000	HAND WHEEL-BPS 419026-DIA 315	NO	500	BPS 419026	BPS 419026
2	920090530000	HAND WHEEL-BPS 419027-DIA 315	NO	100	BPS 419027	BPS 419027
3	920090540000	HAND WHEEL-BPS 419027-DIA 400	NO	800	BPS 419027	BPS 419027
4	920090550000	HAND WHEEL-BPS 419027-DIA 450	NO	500	BPS 419027	BPS 419027
5	920100590000	HAND WHEEL (IMPACT)-DIA 500	NO	100	2VK65006166R/03	TDC:0:412/25
6	920100800000	HAND WHEEL-BPS 419027-DIA 250	NO	1000	BPS 419027	BPS 419027
7	920100870000	HAND WHEEL-2480- DIA 560 - RV	NO	50	3V248003010R/01	TDC:0:412/25
9	921501360000	H WHEEL_ WCB_GLV_2.5_1500- G004	NO	100	2VG00415008R/03	TDC:0:412/25
8	922005460000	HAND WHEEL (IMPACT)- DIA 630	NO	15	2VK65206166R/03	TDC:0:412/25

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

G1. INSTRUCTION TO BIDDER

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

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

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

Sealed Tenders can be dropped in the tender box labeled as 'Tender box for MM contracts'. This tender box is located at the entrance of Admin block BHEL Goindwal. Fax (01859-222061) / E-Mail (tendermm@bhelivp.in) offers received in time shall be considered only when such offers are complete in all respects. In case of bulky tender please handover quotation to Sh Harpreet Rai/ SDGM/Head-MM or Sh Gurcharan Singh / AGM-Operations & MM. [Contact: 01859 224 615/631]. Bid can be send to following address:

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

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

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

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

a. Requirements

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

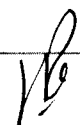
b. Mandatory Requirements:

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

For Unregistered Suppliers in EPS:

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

1. Click Register Button (Top of the Screen).
2. Please input your organization PAN No (in case of Indian supplier) or click "Foreign" in case you are an overseas Supplier.
3. Click on INTERESTED Button against the Organisation name 'Trichy, BHEL'.



General Contract Conditions (GCC) of MM Tenders

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

4. Key in your desired login id (Login Code should be 8 - 24 characters in length and can only use numeric values) If you have registered by keying in PAN No. then your desired login id will be prefixed by "OTI", In case of overseas suppliers it will be prefixed with "OTF".
5. Fill in the other details.
6. Fill in the Captcha code and click next
7. Register your Signing certificate and click next
8. Select at least one procurement category you may be dealing in.

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

NB:-

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

For Registered Supplier in EPS:

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

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

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

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

Regarding problem in e-tendering please contact the following persons: -

Contact details of M-Junction persons:

S.No.	NAME	E-Mail ID	Mobile No
1	HELP DESK	eps.customercare@mjunction.in	033-66106426/6217/6013/6046/6176 9163348283/9163348284/9163348285 /9163348286/8584008116
2	Mr. P Peter Raj	peter.raj@mjunction.in	(+91) 9500199108
3	Mr. Harish Kumar Ramu	harish.ramu@mjunction.in	09840704941

G2 OTHER IMPORTANT INFORMATION RELATED TO E-PROCUREMENT TENDERS

1. The bidder has to keep track of any changes by viewing the addendum / Corrigendum's issued by the Purchaser on time-to- time basis in the E-Procurement platform. The Company calling for tenders shall not be responsible for any claims/problems arising out of this.
2. The user should complete all the processes and steps required for bid submission. The successful bid submission can be ascertained once acknowledgement is given by the system through bid submission number after completing all the processes and steps. BHEL and mjunction Services Ltd. will not be responsible for incomplete bid submission by users. Users may also note that the incomplete bids will not be saved by the system and are not available for the Purchaser for processing.

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3. Before uploading scanned documents if any, the bidders shall sign on all the statements, documents, certificates uploaded by him, owning responsibility for their correctness / authenticity.
4. On the due date of tender opening, only technical bids will be opened. The opened technical bids will be evaluated by us and clarifications required, if any, will be called for from the bidders on technical and commercial points. If no reply is received from the vendor for the clarification raised by BHEL with in the final cut-off date, those vendors offer will be processed with the documents available / submitted against this tender. Offers not meeting the required specification and technical condition will be summarily rejected. The price bids of technically suitable bidders will be opened on a later date with prior intimation to techno-commercially suitable bidders.
5. Ranking L-1, L-2 etc. shall be done for individual item for the techno-commercially acceptable offers on landed cost to BHEL, IVP Goindwal basis and BHEL reserves the right to place order for individual items with different vendors. In the event of more than one vendor becoming L1 for the item, the enquiry quantity will be shared equally among all the L1 vendors.
6. BHEL reserves the right to negotiate with L1 vendor or re-float the tender for items where, L1 price is not the lowest acceptable price; BHEL reserves the right to increase or decrease the tender quantity.
7. **If supplier is mentioning delivery destination within state/ outside state depending upon his location of factory, Free On Road etc these are assumed as on FOR Goindwal. If supplier is wishing to give delivery on Ex works basis, then he has to clearly mention about it.**

G3 PRICE BASIS

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

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

G4 VALIDITY OF OFFERS:

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

G5 SCOPE OF SUPPLY

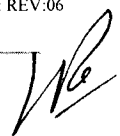
Material shall be supplied as per the applicable latest Technical Delivery Conditions (TDC)/ Material Standard requirements/BPS/Drawing and other requirement as given in the Tender Enquiry. National & International material Standards shall have to be arranged by vendors themselves.

G6 REPLACEMENT OF REJECTION

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

Lifting of rejected material is under Supplier's scope. BHEL will inform related invoice, qty etc to supplier. Supplier is expected to give the plan to lift and advance intimation when visiting to

GCC: REV:06





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lift the material. Material should be lifted within one month from date of intimation. After one month BHEL will not be responsible for rejected material. BHEL may decide to send the rejected material on to Pay basis to supplier. Any leniency/ unresponsiveness/delay on part of supplier may lead to appropriate action by BHEL. Any request to postpone in written may be considered but replacement should not be linked with lifting of material.

G7 SUPPLIED MATERIAL ADJUSTMENT

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

G8 DELIVERY SCHEDULE

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

G9 ACCESS TO MANUFACTURING PREMISES:

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

G10 TERMS OF PAYMENT:

- a. Due payment against supplies received shall be due after 30 days of receipt and acceptance of material and shall be paid within next 15 days' period. In case of any deviation from standard payment term mentioned, BHEL at its discretion may load on the item price at "Base rate of SBI (as applicable on the date of bid opening; Techno-commercial bid opening) + 6% shall be considered for loading for the period of relaxation sought by bidders.
- b. Documents to be submitted (if applicable)
 - i. Tax invoice (Invoice shall be GST compliant and should contains all the required information such as GST No, HSN code etc.)
 - ii. Transporter copy along with material/consignment.
 - iii. Material Test Certificates (MTC) and
 - iv. Compliance Certificate.
- c. GST registration number is to be submitted by qualified vendor as per GST law.
- d. It is mandatory to mention proper material codes in the invoices and separate invoices to be raised for different POs.
- e. ***BHEL releases payment through EFT mode ONLY. Necessary details may please be submitted by filling required format before release of payment.***
- f. ***Conditions relating to release of GST portion:***
Payment of GST portion will be released to vendor only upon completion of statutory requirement and further subject to following:
The reimbursement of GST portion of invoice shall be released only upon: -
 1. vendor declaring such invoice in his GSTR-1 and
 2. receipt of goods and Tax invoice by BHEL and
 3. Confirmation of payment of GST thereon by vendor on GSTN portal.
 4. Above is subject to receipt of goods/service and tax invoice thereof along with vendor

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declaring invoice in his return and paying GST within timeline prescribed for availing ITC by BHEL.

- In case GST credit is delayed/denied to BHEL due to non/delayed receipt of goods and/or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount shall be recoverable from vendor along with interest levied / leviable on BHEL.
- In case vendor delays declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from vendor/contractor along with interest levied / leviable on BHEL.

G11 AVAILING INPUT TAX CREDIT (ITC) BY BHEL:

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

G12 LIABILITY UNDER REVERSE CHARGE (RCM)

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

G13 INSPECTION

- a. All required tests as called in referred material standard/BHEL/TDC/drawing etc shall be carried out by vendor at no extra cost. **BHEL may decide to inspect itself/arrange third party at vendors' works itself as and when necessary with prior intimation to the vendor.** No additional charges shall be claimed for such inspections.
- b. Third party inspection charges will be borne by BHEL. Moreover, all required infrastructure (testing, tools etc) have to be arranged by supplier.

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- c. Vendor will give inspection call sufficiently in advance considering the delivery period stipulated in the purchase order.
- d. Material Test Certificates (MTC), Inspection reports and Compliance/Guarantee Certificate are to be provided along with the supplies.
- e. Latest applicable revisions of standards/procedures to be referred. International/National standards are to be arranged by vendor.
- f. Any inspection carried out before supply by vendor/incoming stage at BHEL notwithstanding, if any defect/non-conformity is noted during processing, the same shall be attended/replaced by vendor at no extra cost.
- g. Necessary tooling including thread gauges etc. have to be arranged by vendor. Only in exceptional cases, based on BHEL discretions item/nature, BHEL may consider request to provide gauges if available with BHEL. But in no case this shall be linked with delivery of material.
- h. BHEL representative from unit or CQ is authorized to carry out audits along with TPIA at vendor's works before clearing the items for dispatch.

G14 PREFERENCES FOR MSE's

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

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

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

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

G15 GUARANTEE/WARRANTEE

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

G16 PENALTY FOR LATE DELIVERY

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

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

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

G17 RISK PURCHASE

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

G18 SUB-CONTRACT

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

G19 FORCE MAJEURE

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

G20 DISPUTES

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

G21 JURISDICTION

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

G22 CLARIFICATIONS

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

G23 LOI (Letter of Intent)

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

G24 WORDS AND FIGURES

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

General Contract Conditions (GCC) of MM Tenders

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

G25 GENERAL

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

G26 BANNED FIRMS

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

G27 DISCLAIMER CLAUSE: (Only for E procurement)

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

G28 FRAUD PREVENTION POLICY

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

G29 REVERSE AUCTION

BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the

GCC: REV:06

General Contract Conditions (GCC) of MM Tenders

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

offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

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

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

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

G30 SUSPENSION OF BUSINESS DEALINGS WITH DEFAULTERS

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





Product: Steel Castings for Boilers & Valves

Revisions record:

Rev 16 – 27.04.2011 (1) Modified in entirety.

Rev.17 – 1) Cl 7.0 Table-1 NDE requirements. 2) Cl 7.1, Cl 9, Cl 11.0 – Revised. RT zone sketch added.

Rev.18 – 1) Cl 7.0 Table-1 Wedge NDE changed. 2) Cl 9.0 – PED requirements for welding & NDE added.

Rev. 19 – 1) Cl 2.0, Cl 7.0 & Cl 13.0 – Modified.

Rev. 20 – 1) Cl 7.0 – Acceptance limit – NDE for SS - Modified. Cl 15.0 – RT sketch for Soot Blower Valve Body changed.

Rev. 21 – 1) Cl 8 – requirements of test bar added. 2) Cl 7 Table 1 – SV, SRV and QC NRV RT quantum for body casting modified. 3) Isolating valve, product name modified. 4) Cl 8 a) clarity on need for re qualification of castings added. 5) Cl 12 modified to include drawing details, 6) Cl 13.4 A – clarity to submit IBR certificate and MTC added.

Rev. 22- Dt: 26/06/2014 1) Cl 7.0 Table 1 –RT area of QCNRV body revised. 2) Cl.8.0 a) Modified. 3) Sketch of Zones of RT – RT zones of SV and SRV base castings modified based on Engineering review.

Rev. 23 Dt: 06/10/2015: Cl. 2, 4, 5, 6, 7, 8, 13, 15 modified to incorporate API 6D 24th Edition requirements.

Rev 24 Dt: 23/12/2015: Cl 1, 2, 3,5, 6, 7, 8, 9, 10, 13, 14 & 15 modified.

Rev: 25 Dt: 11/02/2017: Cl 1 changed to indicate the use of latest revisions of referred codes, standards, specifications, drawings, procedures, etc; Requirements of API 6D removed from Cl 2, 4, 5, 7, 13 & 15 since the API 6D certificate license was not applied for; Definitions for relevant, linear and rounded indications provided in Cl 7; Cl 2 to 10, 12, 13 & 15 revised to bring better clarity; Type 3.2 certification updated as per BS EN 10204-2004 in Cl 13.2.

1. MATERIAL SPECIFICATIONS:

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

Carbon Steel (CS)	:	SA / ASTM A216 WCB, WCC & 352 LCB, LCC
Alloy Steel (AS)	:	SA / ASTM A217 WC6, WC9, C12A.
Stainless Steel (SS)	:	SA / ASTM A351 CF3M, CF8, CF8C & CF8M.
Additional Requirement	:	As listed below (Supplementary to above material specifications)
Size, Quantity, Grade/Class	:	As per Purchase Order & Drawing / Pattern.

2. CHEMICAL COMPOSITION AND PROCESS:

a) Melting: As per the Specification, Fully Killed.

Carbon= 0.25% maximum: for SA / ASTM A216 WCB only.

Carbon= 0.15% maximum: for SA / ASTM A217 WC6 & WC9 (For the castings used in QCNRV, CRHNRV, TOA Valves & Conventional valves having contours for welding).

Product Analysis on test bar for each melt including residual elements shall be carried out.

- b) All raw materials used in steel making including incoming scrap shall be checked by supplier to ensure freedom from radioactivity. (Applicable for SS material only)
- c) Tolerance for chemistry shall be as per the above applicable material specifications/standards **specified in Cl 1.**

3. DIMENSIONS AND TOLERANCES:

Dimensions & their tolerances shall be as per applicable drawings. **For** untoleranced dimensions: VL: STDC: 023.

4. HEAT TREATMENT (HT):

CS – Castings of High Pressure Valve. (Cl.1500 & above), QCNRV & CRHNRV: Shall be in Annealed Condition.

AS – Castings: Normalized and Tempered.

Normalizing Temperature: SA/ASTM A217 WC6, WC9: 920-950°C and for C12A: 1050-1080°C.

Tempering Temperature: SA/ASTM A217 WC6: 680°C min.; WC9: 720°C min.; C12A: 750-780°C.

Others: Heat treatment as per the **applicable material** specification **& grade.**

5. MECHANICAL TESTS:

Test bars to be cast integral with the casting or separately. If cast separately, they shall be cast at the same time as the castings and from the same ladle. A metal strip with heat number stamped shall be fused with the test bar during casting, to maintain traceability.

If one (1) casting is made from more than one heat, separate test bars for each cast to be poured and all test bars shall satisfy the requirements. Tests mentioned in Table 1 shall be conducted per heat / Heat treatment batch, as per ASTM A370.

Perform tensile tests at room temperature in accordance with the procedures specified in ASTM A370. Perform a minimum of one tensile test. All yield strengths shall be determined using 0.2 % offset method **of ASTM A370.** The results of the tensile test(s) shall satisfy the applicable material specification requirements. **Hardness testing shall be as per ASTM E10 or E18.**



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

Table 1.

No	TEST	MATERIAL SPECIFICATION				
		SA/ASTM A216, 217			SA/ASTM A352	SA/ASTM A 351
1	Tension Test	As per the Specification				
2	Hardness Test	As per the Specification			225 HBW max.	Not applicable
3	Bend Test Specimen 1” x ¾ “		Angle of Bend	Dia of Pin	Not applicable	S3 of SA703
		WCB	90 ⁰	2t		
		WCC	90 ⁰	2t		
		WC6	120 ⁰	3t		
		WC9	90 ⁰	3t		
		C12A	90 ⁰	2t		
4	Charpy- U Impact for all QCNRV, CRHNRV bodies for IBR.	As per IBR. At Room temperature. Acceptance: Avg /Single=36J/32J min.			Not applicable	Not applicable
5	Charpy- V Impact for CE Marking-Pressure Equipment Directive (PED) items as Specified in the Purchase Order.	At 20 Deg.C temperature. Acceptance:Avg/Single=40J/27J min.			As per Specification	Not applicable
6	Charpy- V Impact for LPBP bodies	At 20 Deg.C temperature. Acceptance: Avg/Single=27J/21J min.			Not applicable	Not applicable

6. FETTLING, DRESSING & CLEANING:

- Dressing of castings-Free from risers, in gates, notches, undercuts, deep marks etc.
- Fused wires, parting line fins, chills etc. shall be removed by grinding.
- Gas cutting if employed shall be done before Heat treatment.
- Preheat the material to 200°C. before gas cutting the Alloy steels.
- Castings shall be blast cleaned both inside and outside for the removal of fused sand, scales etc.
- Visual inspection: 100% as per MSS-SP:55. Acceptance: Type 1: none accepted; Type 2-12: A & B only accepted.

7. NON DESTRUCTIVE TESTING (NDT) AFTER HEAT TREATMENT

The NDE requirements for the castings shall meet the following as shown in Table-2 below. Castings shall be free from surface and internal defects like porosity, shrinkage, sand inclusion, crack, cold shut and other harmful defects. All castings shall be of Radiographic Quality.

1. Radiographic Testing Procedure (RT) : As per ASME B 16.34
2. Magnetic Particle Inspection (MPI) : As per ASTM E709
3. Liquid Penetrant Inspection (LPI) : As per ASTM E165

Table: 2

Product	Components	Characteristics	Type of NDE Check				
			RT	RT Area	RT Acc. Std	MT \$	MT Area
Conventional Valves (Gate, Globe & Check)	Body, Bonnet, Pr.part yoke, Cover	< 600 Class	10%#	ASME B 16.34 / On critical area as indicated in the Drawing.	As per Table: 3	--	--
	Body, Bonnet, Cover	600 Class & above	100%			--	All accessible surfaces including belly.
	Body, Bonnet, Cover	1500 Class & above	100%			100%	
	Wedge	All Special Class Valves	--	--	--	100%	All accessible surfaces
Safety Valve	Base	Flanged ends of All Castings	100%	Critical Zones as given in the Drawing/ area shown in the sketch below. The areas where RT cannot be carried out MPI shall be done.	Class 2 of ASTM E446 / E186. For Butt weld ends as per Table- 3	100%	All accessible surfaces
		Weld ends of All Castings	100%			--	--
Safety Relief Valve	Base	All	100%			--	--
	Bonnet		10%#			--	--



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	SRV Nozzle	All	100%	All area	Class-2 of ASTM E446 / E186.	--	--
QC NRV, CRH NRV	Body	150 & 300 Class	100%	Butt Weld Ends	As per Table: 3	100%	All accessible surfaces including belly.
		600 Class & above	100%	Critical Zones as given in the Drawing/ area shown in the sketch below. The areas where RT cannot be carried out MPI shall be done.	As per Table: 3	100%	
	Body (Special)	All					
Soot Blower Valve	Body	All	10%#	Critical Zones as given in the Drawing/ area shown in the sketch below. The areas where RT cannot be carried out MPI shall be done.	As per Table: 3	--	--
Isolating Valve/ device	Body	< 600 Class	100%	Critical Zones as given in the Drawing/ area shown in the sketch below. The areas where RT cannot be carried out MPI shall be done.	As per Table: 3	--	All accessible surfaces including belly.
		600 Class & above				--	
		1500 Class & above				100%	
LP Bypass Valve	Body	All	100%	Critical Zones as given in the Drawing/ area shown in the sketch below. The areas where RT cannot be carried out MPI shall be done.	As per Table: 3	--	--

\$ LPI can be substituted for MPI in all inaccessible area and for stainless steel castings # Refer Cl 7.1

Table: 3

Type Of Discontinuity	Acceptance Level Category	< 600 CLASS		≥ 600 CLASS	
		Thickness ≤2"	Thickness >2"	Thickness ≤2"	Thickness >2"
Gas Porosity	A	A2	A3	A1	A2
Sand/Slag inclusion	B	B3	B3	B2	B2
Shrink Type-1	C	CA2	CA3	CA1	CA2
Shrink Type-2	C	CB3	CB3	CB2	CB2
Shrink Type-3	C	CC3	CC3	CC2	CC2
Crack	D	NONE	NONE	NONE	NONE
Hot Tear	E	NONE	NONE	NONE	NONE
Un-fused Inserts (Chills/Chaplets)	F	NONE	NONE	NONE	NONE

a. Butt welding ends shall be free of shrinkage, crack & hot tear.

b. For butt weld ends Gas hole/Porosity and sand inclusions to be within level A1 & B1 respectively

NDE for SS material: Castings shall be checked for radioactive contamination and reported. Survey meter shall be used to measure near the surface. Acceptance limits: Shall be less than 0.1 milli Rontgen (MR) per hour or 1 micro Sievert per hour.

7.1 # 10% Sampling shall be done as follows: (Wherever specified): The vendor shall select 10% of the Casting from the lot consisting of same size and type, (along with melt number / Sl.nos of the castings covered in the lot) for Radiography. A lot to be specified as the total number of castings as above, supplied in 4 months period (Jan-Apr, May-Aug, Sep-Dec). The vendor shall radiograph these specified castings and incorporate the lot size and melt no and Sl.no in the RT reports along with the other Sl.nos of the other castings covered in the lot. If the identified casting is defective then 2 more castings shall be radiographed. If these 2 castings are defect free then the lot is acceptable. If any one of these castings is defective then all the remaining castings shall be radiographed and all defective areas shall be repaired. BHEL will carry out audit on the lots at the vendor works at any time.



7.2 Surface NDE (MPI & LPI): Testing as per ASME B16.34.

1. *Relevant indication: Surface-rupture NDE indication with major dimensions > 1.6 mm (1/16 in).*
 2. *Linear indication: Surface NDE indication whose length is $\geq$ three times its width.*
 3. *Rounded indication: Surface NDE indication whose length is < three times its width.*
- Acceptance for MPI & LPI:**
4. Cracks are not permitted.
 5. For linear indications other than cracks, indications must be separated by a distance greater than the length of an acceptable indication. Maximum allowable length of the indication shall be:
 - a) For thickness(t) up to 13mm= 8mm,
 - b) For thickness from 13 to 25mm = 13mm
 - c) For thickness above 25mm=18mm.
 6. For rounded indications, 4 or more indications in a line separated by 1.5 mm or less edge to edge are unacceptable. Maximum allowable diameter of the indication shall be:
 - a) For thickness up to 13mm =8mm
 - b) For thickness above 13mm =13mm

8. DEVELOPMENT STAGE OF CASTING:

- a) During developmental stage, of new castings or change to an existing casting on account of change in dimension which warrants pattern correction, Foundry to ensure, first sample pieces meet dimensional, NDE & Quality requirements in this TDC, before starting bulk production. Sample castings, 3 castings with nominal bore (NB) $\leq$ 100mm. & 1 casting with NB > 100 mm for each type shall be inspected for dimension and RT requirements at BHEL/Vendor works by BHEL personnel. One Test bar for each melt/heat treatment batch shall be supplied along with casting for test at BHEL. RT shall be carried out on entire area of the casting to the acceptance requirement of Table-2 & 3. In addition 100% MPI on all critical areas like change of sections, riser & in gate portions shall be carried out. Casting to be inspected for dimensions after proof machining wherever necessary. If machining operation is involved the same shall be done and defect free condition shall be ensured. If any defect noticed in RT and machining, the type of defect shall be analyzed and accordingly size of gate, runner, riser and pouring methodology to be modified to get defect free casting. Sampling shall be continued till achieving sound casting. After satisfactory development of sampling bulk production shall be started. However weld repaired areas identified in visual examination for doubtful indications to be probed by MPI. Accepted sample castings may be considered for fixing the nominal weight of the castings.
- b) During developmental stage RT on sample castings of Yoke, Yoke Clamp & Wedge/Disc shall meet Level-3 of ASTM E446/E186/E280.
- c) Radiography not required after satisfactory development of casting & production based on established method for following parts: SRV Bonnet, Disc Holder, Upper and Lower adjusting rings, Packed cap, Cover Plate, Yoke and SRV guide flanges.

9. REPAIR:

Castings with unacceptable cracks, hot tears, shrinkage, etc. to be rectified by grinding & if required by welding. Welding to be done by qualified welder and qualified procedure as per ASME Section IX. For IBR items welders shall be qualified as per IBR.

Guidelines for repair of steel castings shall be as per SIP:VS:17 for activities like defects require/ not require weld repair, welding, Post Weld Heat Treatment, NDE and surface treatment. All repaired areas after PWHT shall be NDE tested and Hardness tested. Hardness shall meet material specification.

For PED (CE-Marking) castings, permanent joining (welding and weld repair) of components must be carried out by suitably qualified personnel according to suitable operating procedures. Also Non-Destructive tests of permanent joints must be carried out by suitable qualified personnel.

The procedures and personnel must be approved by a competent third party which at the manufacturer's discretion, may be - A notified body, - A third party organization recognized by a Member State of European Community.

10. SURFACE TREATMENT:

SS castings to be pickled & passivated (after repair & HT if any) as per ASTM A380. Satisfactory passivity of the surface to be checked using SS passivity test kit (Free iron test). After passivation, rinsing & test, the rinsed demineralised water to be checked for chloride with 1% Silver nitride, which shall not exceed 0.5 PPM.

11. DIMENSIONAL CHECK:

For all QCNRV & CRHNRV Body Castings: Thickness of the body shall be checked throughout the surface on a grid of 100mm x 100mm and recorded & submitted to BHEL.



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12. MARKING AND PACKING:

Representation of Marking and identification shall be as per drawing. Also following details to be marked on each casting, on a raised pad using low stress stamps and Castings shall be suitably packed to avoid damage during transit.

1. Foundry code, 2. **Material** specification, grade & **Heat**/melt number, 3. Size and 4. Class rating.

13. INSPECTION AND CERTIFICATION:

13.1 For IBR items:

Products shall be inspected at works and the applicable IBR Form must be countersigned by the Inspecting Authority as indicated below in case the shop/*mill/foundry* is not recognised as a "Well known Foundry" under IBR:

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

Certification in IBR Form III-F for IBR items from "IBR-Well Known Foundry" or "Inspecting Authority", as applicable, to be submitted. IBR Form III-F & **separate** Test certificate in English language with following details, shall accompany the product:

1. Purchase Order No. (BHEL), TDC No & its revision no, Test certificate no & date.
2. **Material** Specification, Grade & **Class** with applicable year of code, Heat Number, Quantity & Size
3. Steel making process, Chemistry including incidental elements - Heat wise, Product analysis, Carbon Equivalent (CE).
4. Heat treatment details of the material and test bars.
5. Mechanical test results-Tensile (UTS, YTS (**0.2% offset**), % elongation, % reduction in area), Impact & Hardness and NDE test results with reference & acceptance standard.
6. Repair details including HT, if any, Cleaning & Surface treatment details.
7. Any other information like clearance of sample casting.
8. Dimensional Inspection Report, where applicable.
9. **For SS:** Measured Radioactivity levels at 5cm from the surface of the castings shall be reported in the Test Certificate stating the measured value at the specified distance (not to be recorded in IBR Form).

13.2 For **PED 2014/68/EU (CE-marking)**, test certificates of type 3.1 or 3.2, with details specified in Cl 13.1 for **separate test certificate**, shall be submitted as per BS EN 10204.

- ☐ Type 3.1 – Suppliers shall have ISO 9001-2008/**2015** certification certified by Notified Body recognized by European community and test certificate certified by suppliers authorized inspection representative.
- ☐ Type 3.2 – Components inspected and test certificates certified by **both the supplier's authorized inspection representative and** Notified Body recognized by European community.

14. AUDIT CHECKS AT BHEL:

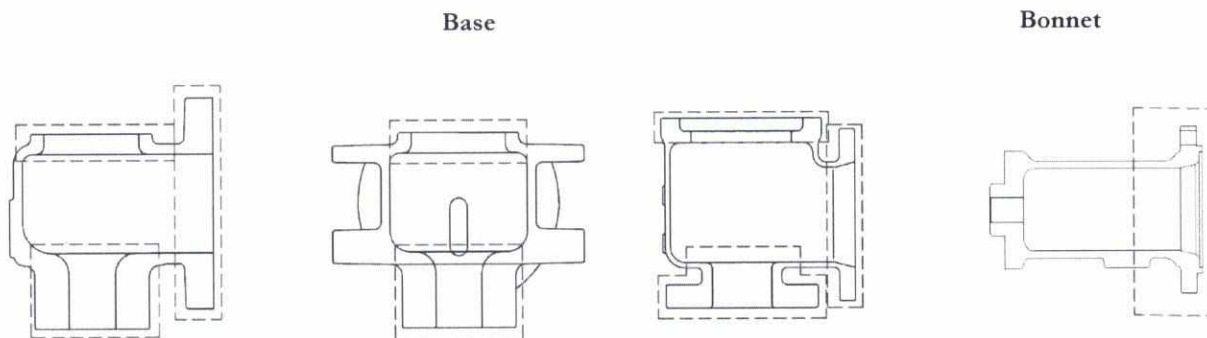
BHEL reserves the right to carry out audit checks for chemistry, HT condition, mechanical test and NDT on representative test bars or job. Items found defective during check or subsequent processing at BHEL will be rejected.

15. END USE:

For use in valves and other components like flanges, fittings etc. for high temperature & high pressure applications meeting IBR, ASME Section I, ASME B 16.34 and **PED 2014/68/EU (CE-marking)**.

Sketch of zones for RT

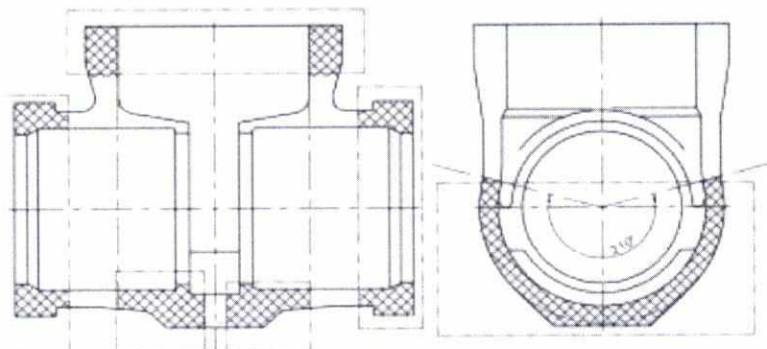
SV and SRV Base castings





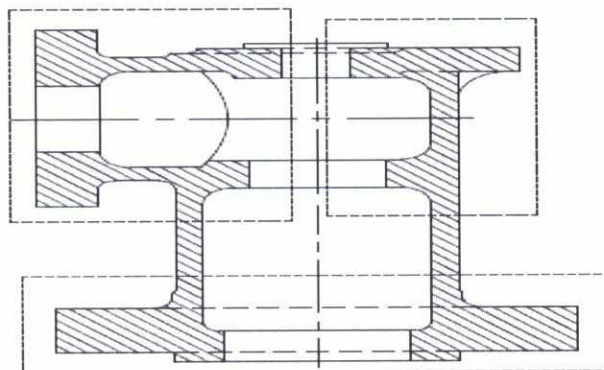
Product: Steel Castings for Boilers & Valves

Reheater Isolating Device Body



 Radiography Area

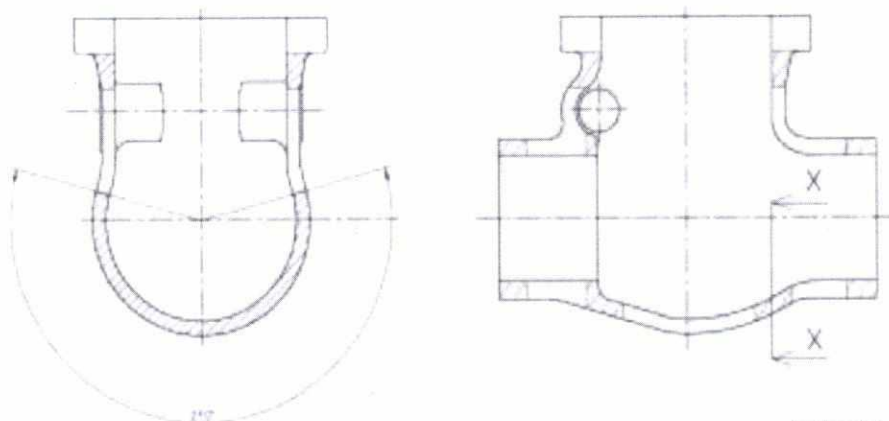
Soot Blower Valve Body



PART CODES : 920243870000, 920131810000, 920243870100, 920131810100
LRD IE, LRD IIE & WB IE - 2.5" 600#

 — RADIOGRAPHY AREA

Quick Closing Non Return Valve Body



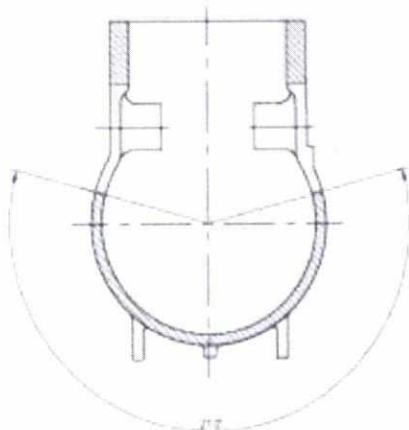
Section-XX

 Radiography Area

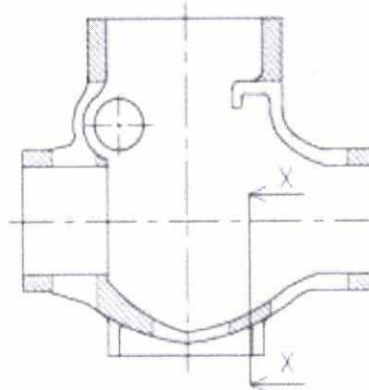


Product: Steel Castings for Boilers & Valves

Cold Reheat Non Return Valve Body

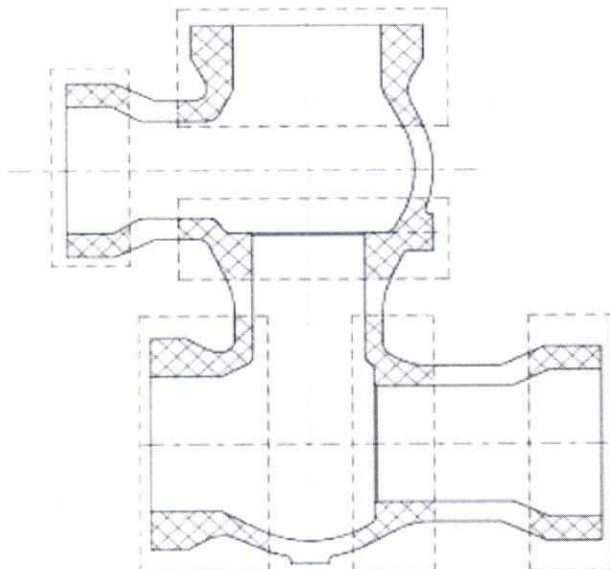


Section-XX



Radiography Area

LP Bypass Stop cum Control Valve Body



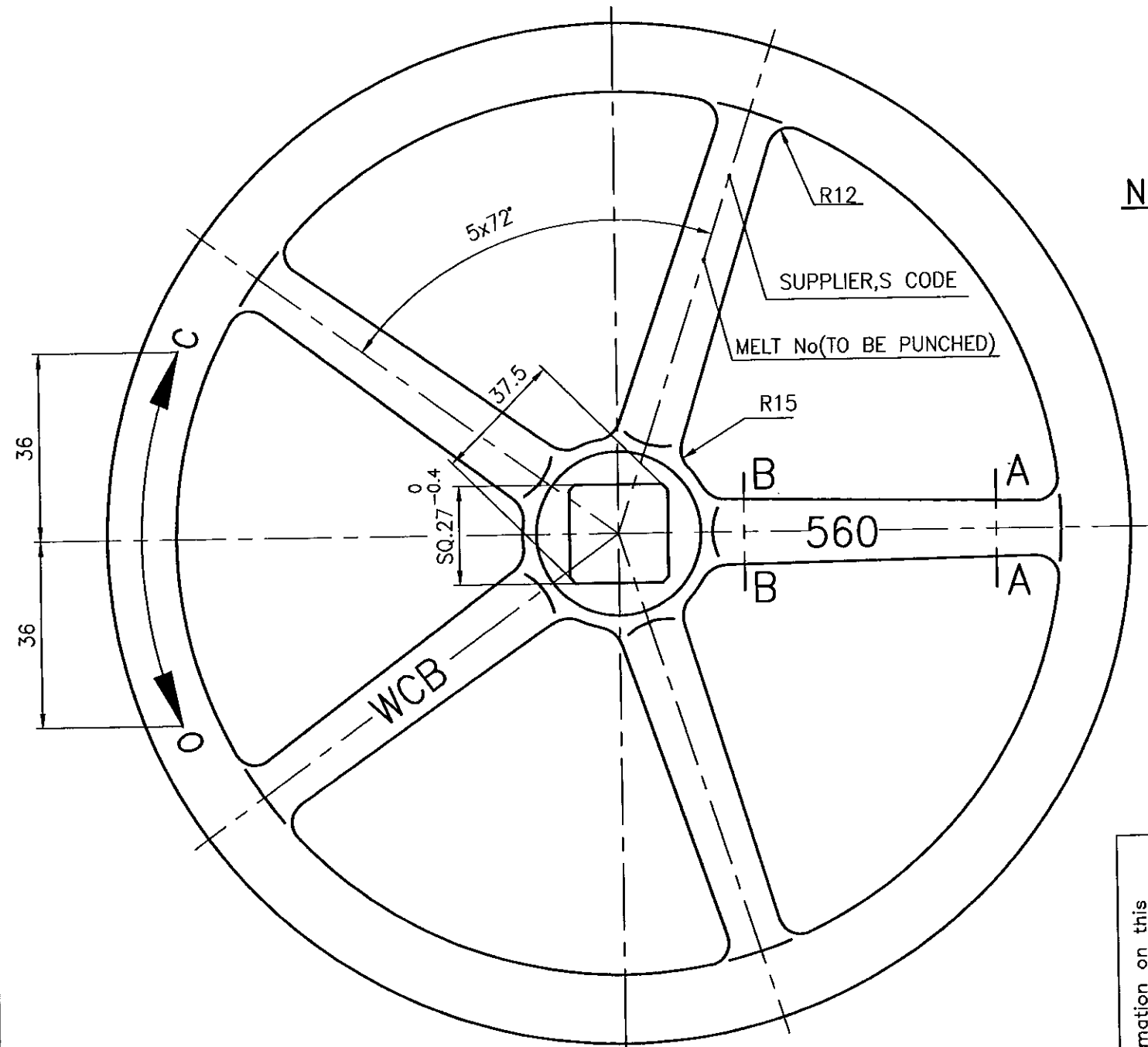
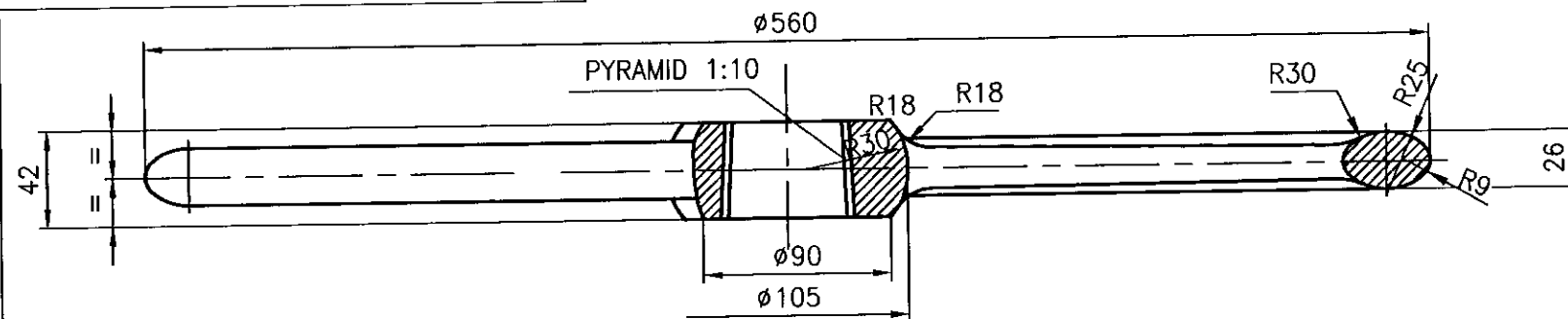
Radiography Area

 11/02/2017	 11/02/17	 11/02/17	 11/02/17	 11/02/17	 11/02/17
Venkanna Rupani Sr.Engineer /QA	G. Panneer Selvam DGM/QA	S. Selvarajan SDGM/QA	K. Rajasekaran SM/Valves/Engg	R. Ananthakrishnan AGM/Valves/ Purchase	U. Revisankaran AGM/QA&BE
Prepared By	Reviewed By				Approved By

SIZE A:

[illegible]

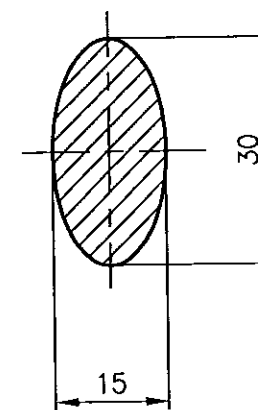
3-V-2480-03010R/01
DRAWING NO.



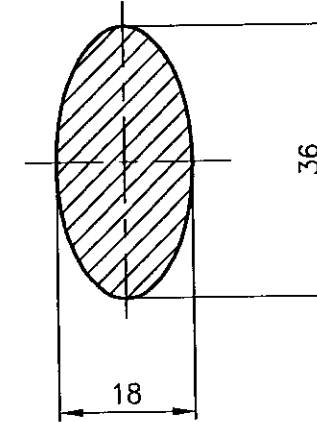
NOTE:-

1. CASTING SHALL COMPLY WITH REQUIREMENT OF APPLICABLE QUALITY PROCEDURE.
2. ALL SURFACES MUST BE OF HIGH QUALITY WITH OUT SURFACE UNEVENNESS.
3. HEIGHT OF CAST LETTERS 12 MM.
4. * TOLERANCE TO BE MAINTAINED IN THE FINISHED HAND WHEEL MAINTAINED BY FILING THE PYRAMIDAL HOLE NEATLY.
5. MATERIAL MARK, HAND WHEEL SIZE 560, OPENING & CLOSING MARK "O" & "C" AND THE ARROW MARKS ARE TO BE CAST.

SECTION-AA



SECTION-BB



NO	CASTING	92 010 087	A216 WCB CERTIFY	NR	10		14.0		
OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT									
CS									
Bharat Heavy Electricals Ltd.				DRN	NAME	SIGN	DATE	NO. OF VAR.	
UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI-620014.				CHD	N.DHANAPAL		20.06.97		
365-121				APPD	A.V.NATHAN		20.06.97		
DEPT	VL	SCALE	WEIGHT (KG).	REFERENCE INFORMATION			NO. OF ITEMS		
CODE	320	NTS	-	CAD.CODE.C303010R					
TITLE				CARD CODE	DRAWING NO.				REV
HAND WHEEL Ø560				U 01	3-V-2480-03010R/01				

REV 01 DATE 23.06.97 ALTERED T.L. CHD & APPD
MATL SPECN IS 2108 Gr.A CHANGED AS A216 WCB
REFER DCN CS: 0718

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.



PLANT STANDARD

HPBP TIRUCHIRAPPALLI

BPS 419026

Rev. No. 02

PAGE 01 OF 03

HANDWHEEL WITH PYRAMID HOLE (DIA 200 mm AND ABOVE)

0.0 SCOPE

0.1 This standard covers the requirements of off-set arm type handwheel with pyramid hole for sizes Ø 200 mm and above.

1.0 SPECIFICATION AND REFERENCE STANDARDS

Dimensions and preferred sizes	Figure 1 and Table 1 of this standard
Unspecified tolerances	As per relevant QWI
Material	Malleable Iron casting conforming to IS:14329
Surface finish	The surface should be smooth. Should be free from sharp edges and unevenness.
Marking (by embossing)	As shown in figure 1.
Manuufacture, workmanship, Packing, Preservation and other requirements	As per relevant quality procedures.

2.0 REFERRED STANDARDS (Only current versions are applicable)

IS : 14329 - Malleable iron castings.

3.0 DESIGNATION

3.1 A hand wheel of rim diameter 250 mm shall be designated as :

- i) Material spec column : -----
- ii) Description column : **HAND WHEEL 250**
- iii) Drawing No. column : **BPS 419026**
- iv) Material code column : -----

4.0 ORDERING DESCRIPTION

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

HAND WHEEL 250 TO BPS 419026

Revisions 02
Brought upto date

Approved
STANDARDS SECTION
PRODUCT ENGINEERING/ FOSSILE BOILER
HPBP, TIRUCHIRAPPALLI

Rev. No. 02	Amd. No.	Reaffirmed	Prepared STANDARDS	Issued STANDARDS	Dt of 1st Issue MAY 1977
Dt. 30-06-2000	Dt.	Year			

5.0 ADDITIONAL INFORMATION

5.1 Copies of this standard shall be sent along with purchase order.

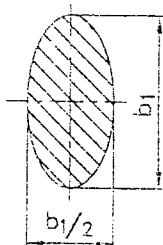
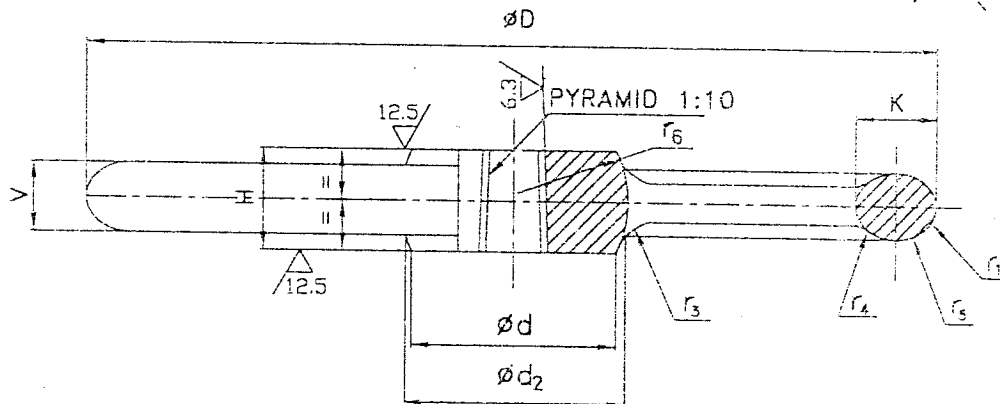
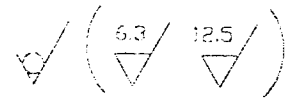
TABLE - 1

(All dimensions are in millimetres)

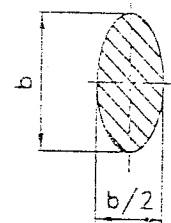
Rim ϕ of handwheel	ϕD	200	250	315	400	450	500	560	710
Dia of corresponding spindle	ϕd	20	24	28	32	36	40	44	52
Height of handwheel	H	24	28	32	37	42	47	52	62
Hub	S	15	18	21	24	27	30	33	39
		+ 0.0 - 0.3		+ 0.0 - 0.4					
	e	20.8	25	29	33.5	37.5	41.5	46	53
	ϕd_1	40	60	68	70	70	70	90	110
	ϕd_2	45	66	75	80	80	80	105	125
	r_3	10	12	12	15	15	15	15	15
Rim	r_6	28	28	30	30	30	30	30	40
	V	18	20	22	23	24	24	26	40
	k	24	26	30	34	36	36	38	60
	r_1	6	7	7	8	9	9	9	15
	r_4	16	16	18	20	22	24	24	26
	r_5	16	18	20	24	27	30	30	36
Arm	l_1	56	60	60	68	72	72	72	80
	b	18	20	22	26	30	30	30	38
	b_1	24	26	28	34	36	36	36	46
	r_2	6	8	10	11	12	12	12	15
No. of arms	N	3	3	3	4	4	4	5	7
Letter size (height) for embossing	l	8	8	10	10	12	12	12	15
Weight in Kg/piece		2.0	2.3	4.0	5.4	7.0	12.8	14.0	38.0

Figure-1

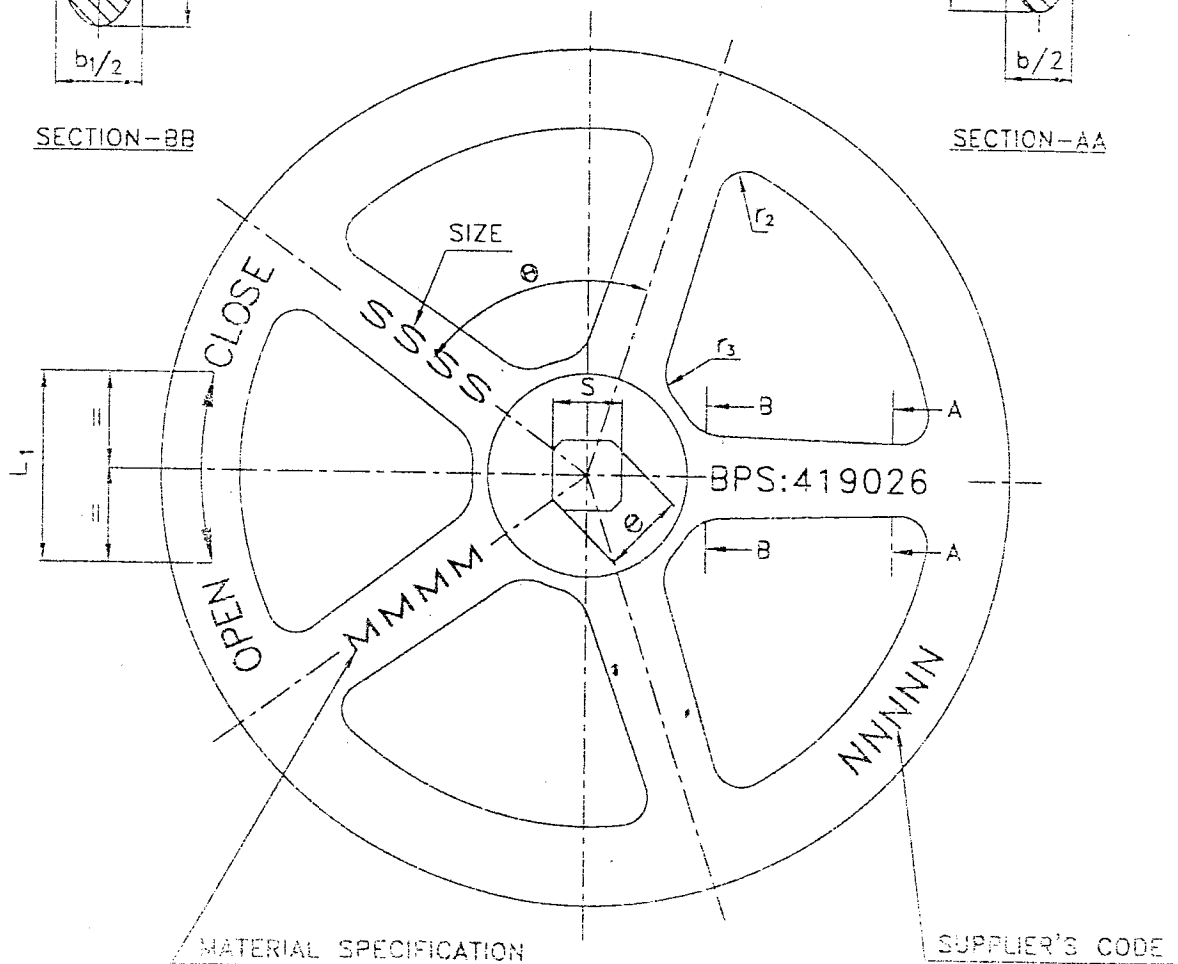
(ALL DIMENSIONS ARE IN MILLIMETRES)
(First Angle Projection)



SECTION-BB



SECTION-AA



Note : Size, Material spec and supplier's code are to be given in the purchase order for embossing.



PLANT STANDARD

HPBP TIRUCHIRAPPALLI

BPS 419027

Rev. No. 02

PAGE 01 OF 03

HANDWHEEL WITH CIRCULAR HOLE AND KEYWAY (Dia 250 mm AND ABOVE)

0.0 SCOPE

0.1 This standard covers the requirements of handwheels with circular hole for dia 250 mm and above.

1.0 SPECIFICATION AND REFERENCE STANDARDS

Dimensions and preferred sizes	Fig 1 and Table 1 of this standard
Unspecified tolerance	As per relevant QWI
Material	Malleable Iron castings conforming to IS:14329 or S.G.Iron conforming to GR. 450/10 of IS:1865
Surface finish	The surface should be smooth. Should be free from sharp edges and unevenness.
Marking (by embossing)	As shown in figure 1.
Manuufacture, workmanship, Packing, Preservation and other requirements	As per relevant quality procedures.

2.0 REFERRED STANDARDS (Only current versions are applicable)

IS : 14329 - Malleable iron castings.

IS : 1865 - Iron castings with spheroidal or nodular graphite - specification.

3.0 DESIGNATION

3.1 A hand wheel of rim diameter 250 mm shall be designated as :

- i) Material spec column : -----
- ii) Description column : **HAND WHEEL 250**
- iii) Drawing No. column : **BPS 419027**
- iv) Material code column : -----

4.0 ORDERING DESCRIPTION

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

HAND WHEEL 250 TO BPS 419027

Revisions 02 Brought upto date			Approved STANDARDS SECTION PRODUCT ENGINEERING/ FOSSILE BOILER HPBP. TIRUCHIRAPPALLI		
Rev. No. 02	Amd. No.	Reaffirmed	Prepared	Issued	Dt of 1st Issue
Dt. 30-06-2000	Dt.	Year	STANDARDS	STANDARDS	1978



PLANT STANDARD

HPBP TIRUCHIRAPPALLI

BPS 419027

Rev. No. 02

PAGE 02 OF 03

5.0 ADDITIONAL INFORMATION

5.1 Copies of this standard shall be sent along with purchase order.

Table - 1

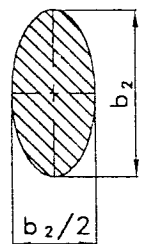
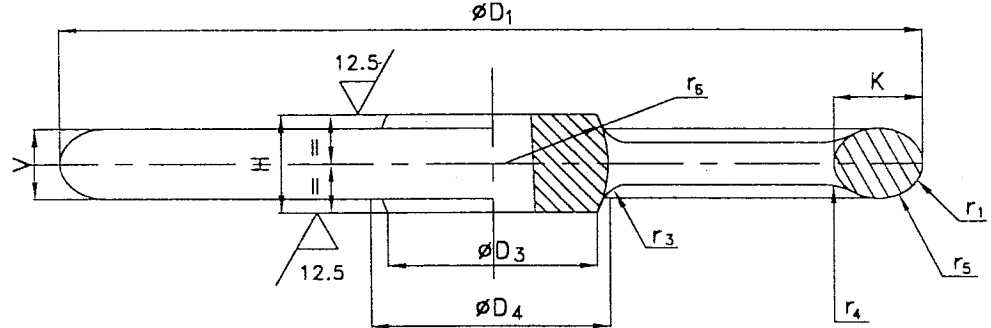
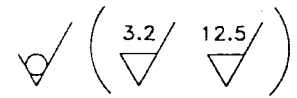
(All dimensions are in millimetres)

Rim of hand wheel	ϕD_1	250	315	400	450	500	560	710
Dia of corresponding stem		20 & 24	26 & 28	32	36 & 40	40	44	52
Hub	H	28	32	37	42	47	52	62
		40	45	52	60	65	70	80
	ϕD_2	+0.16 0.0		+ 0.190 0.0				
	ϕD_3	60	68	75	90	100	110	130
	ϕD_4	66	75	88	105	115	125	150
	r_6	28	30					40
Key Way	L_1	12	14	16	18	20	20	22
		- 0.018 - 0.061				- 0.022 - 0.074		
	L_2	43.3	48.8	56.3	64.4	69.9	74.9	85.9
		+ 0.1		+ 0.2				
Rim	V	20	22	23	24	24	26	40
	K	26	30	34	36	36	38	60
	r_1	7	7	8	9	9	9	15
	r_5	18	20	24	27	30	30	36
	L_3	60	60	68	72	72	72	80
Arm	b_1	20	22	26	30	30	30	38
	b_2	26	28	34	36	36	36	46
	r_2	8	10	11	12	12	12	15
	r_3	12		15				
	r_4	16	18	20	22	24	24	26
	θ	120°	120°	72°	72°	72°	72°	≈51.43°
Number of arms		3	3'	5	5	5	5	7
Letter size (height)	L_4	8	10	10	12	12	12	15
Weight in Kg/piece (approx)		3.8	5.7	9.18	11.57	16.3	18.00	65.00

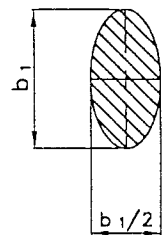
Figure-1

(ALL DIMENSIONS ARE IN MILLIMETRES)

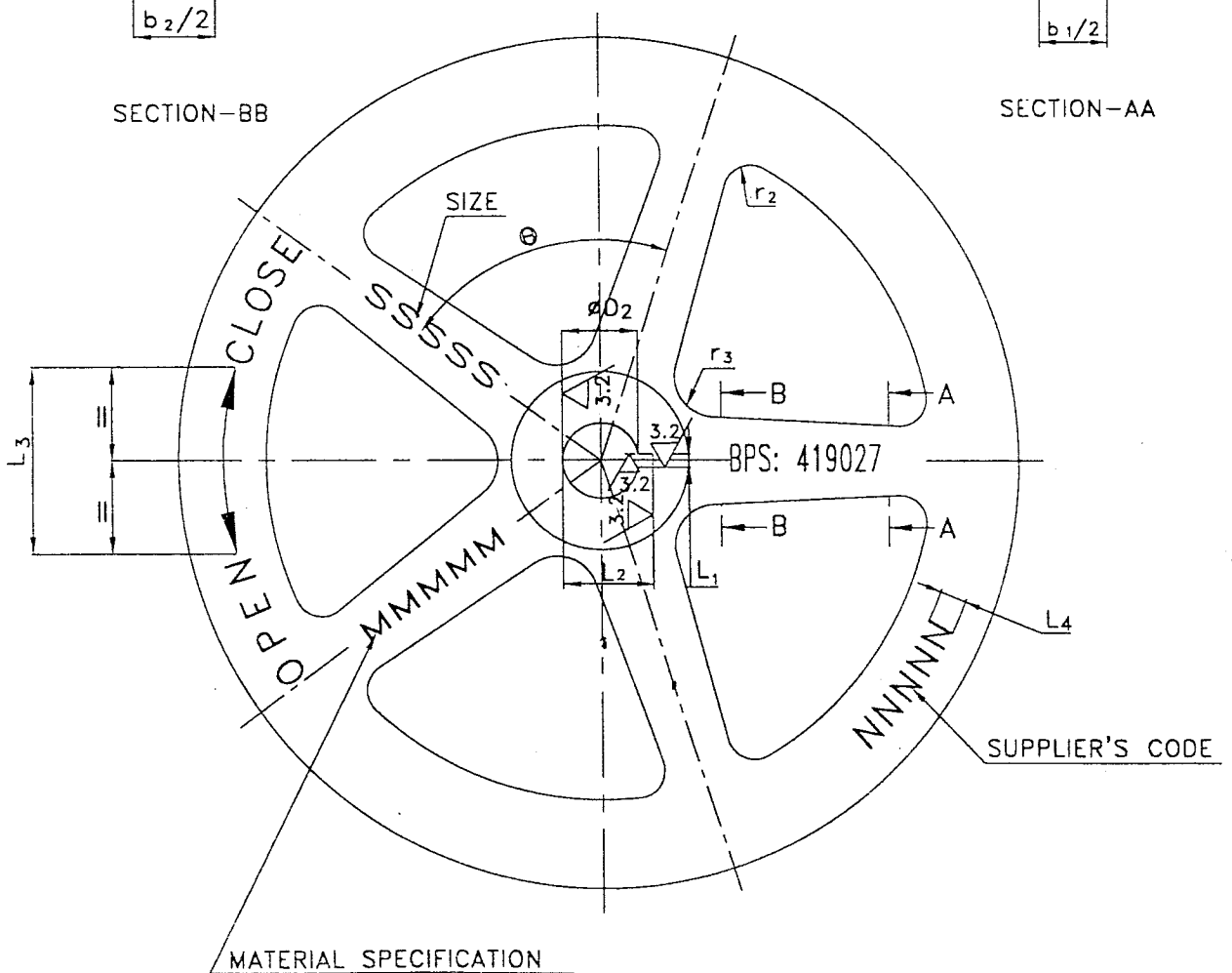
(First Angle Projection)



SECTION-BB



SECTION-AA



Note : Size, Material spec. and supplier's code are to be given in the purchase order for embossing.