

BHARAT HEAVY ELECTRICALS LIMITED
MM / RM / PURCHASE / C&F
BHEL / TRICHY-620 014.

ANNEXURE-A Rev 01
ENQ.No.1402000028

Dt.06-10-2020

Enquiry Terms & Conditions for Supply of Forged Finned Elbows

Note: This Annexure has to be mandatorily filled & signed by the manufacturer (or) mill and submitted along with Technical bid.

Any deviation to the below mentioned terms shall be stated specifically in the comments column for each term and also in case of acceptance to our terms, it will be construed that the whole term is understood and agreed in totality without any deviation. (If otherwise mentioned).

Sl No	BHEL Requirements	Supplier Comments
01	<u>Material specification:</u> Supply of Forged Finned Elbows shall be made strictly as per Specifications, drawing, TDC as mentioned in the enquiry.	
02	<u>Specification, Size & Quantity:</u> - All the Forged Finned Elbows are to be supplied fully meeting the applicable TDC 404/19 and Drawings. If there is any deviation, the same should be mentioned clearly in the offer itself. - Burst Test is required, as indicated in the drawings. - Forged Finned Elbows as shown in the drawings, is a single integral forged unit. Forging the Elbows separately and joining with fins by welding is not acceptable. Confirmation for Pre-Qualification Requirements (PQR) along with all necessary documents shall be submitted. - Supply of Forged Finned Elbows shall be as per latest IBR amendment dt.15.04.15. - Inspection by authorized inspection agency as listed in the annexure enclosed. - Ends shall be protected with suitable End covers. - Quantity shall be as given in enquiry.	
03	<u>Offer Submission:</u> ➤ Offer is to be submitted in TWO part bids system (Technical bid + Price bid) in the E-Procurement portal. Scan copy of the filled Annexure-A, Tender documents etc., shall be uploaded in the EPS portal. ➤ The offer is to be submitted within 2.00 P.M on or before the due date. ➤ After the scrutiny of technical bids, price bids of only techno-commercially qualified offer shall be opened with prior intimation.	
04	<u>Authorization for participation in EPS portal through DSC:</u> <u>E-Tender Participation requirements</u> Either Principal or authorized agent shall register their Digital Signature Certificate (DSC) (Class 3- SHA2-2048 BIT- SIGNING & ENCRYPTION). Suppliers are advised to go through the FAQ available in the web portal (www.bhel.abcprocure.com). DSC shall be registered for the authorized person and all transaction done using that DSC against our tenders shall be taken as valid communication and shall be binding on principal/agent and is valid legally.	
05	<u>Validity:</u> The offers shall be kept open for acceptance for 90 days from the date of Tender opening. Once the tenders are submitted, rates cannot be changed on any grounds.	

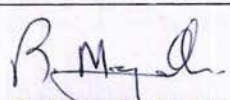
06	<u>Delivery:</u> The offer shall clearly indicate delivery period in fixed number of weeks/Months from the date of Purchase Order.	
07	<u>Goods and Service Tax (GST)</u> <u>Indigenous suppliers:</u> 1. Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GST registration No (GSTIN) which should be clearly mentioned in the offer. If the dealer is exempted from GST registration, a declaration with due supporting documents need to be furnished for considering the offer. Dealers under composition scheme should declare that he is a composition dealer supported by the screen shot taken from GST portal. The dealer has to submit necessary documents if there is any change in status under GST. 2. Supplier shall mention their GSTIN in all their invoices (incl. credit Notes, Debit Notes) and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No. which is linked/uploaded in GSTN network shall be clearly indicated), Billed to party (with GSTIN) & Shipped to party details, item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, Place of Supply etc. 3. All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code). 4. Invoices will be processed only upon completion of statutory requirement and further subject to following: a. Vendor declaring such invoice in Form GST ANX-1 b. Receipt of Goods or Services and Tax invoice by BHEL 5. As the continuous uploading of tax invoices in GSTN portal (in GST ANX-1) is available for all (i.e. both Small & Large) tax payers under proposed new GST Return System, all invoices raised on BHEL may be uploaded immediately in GST portal on despatch of material /rendering of services. The supplier shall ensure availability of Invoice in GST portal before submission of invoice to BHEL. Invoices will be admitted by BHEL only if the invoices are available in GSTN portal (in BHEL's GST ANX-2). 6. In case of discrepancy in the data uploaded by the supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note or debit note (details also to be uploaded in GSTN portal) for the shortages or rejections in the supplies or additional claims, within the calendar month informed by BHEL. 7. In cases where invoice details have been uploaded by the vendor but failed to remit the GST amount to GST Department (Form PMT-08 or Form GST RET-01 to be submitted) within stipulated time, then GST paid on the invoices pertaining to the month for which GST return not filed by the vendor will be recovered from the vendor along with the applicable interest (currently 24% p.a) and all subsequent bills of the vendor will not be processed till filing of the GST return by the vendor 8. In case GST credit is denied to BHEL due to non-receipt or 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 claimed in the invoice shall be disallowed to the vendor. 9. Where any GST liability arising on BHEL under Reverse Charge (RCM), the vendor has to submit the invoices to BHEL well within the timeline prescribed in GST Law, to enable BHEL to discharge the GST liability. If there is a delay in submission of invoice by the vendor resulting in delayed payment of GST by BHEL along with Interest, then such Interest payable or paid shall be recovered from the vendor. 10. Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contracts. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Tax Invoice will be issued by BHEL indicating the respective supply invoice number. 11. GST TDS will be deducted as per Section 51 of CGST Act 2017 and in line with Notification 50/2018 – Central Tax dated 13.09.2018. GST TDS certificate which will be generated in GST portal subsequent to vendor accepting the TDS deduction in the GST portal, will be issued to the vendor.	
08	<u>Terms of Delivery:</u> <u>A. INDIGENOUS:</u> a) Bidders should submit their offer for FOR Destination -BHEL Stores, Trichy. The quote should be inclusive of all charges, including testing, packing & forwarding, inspection, Insurance etc. Ex-Works and other terms of delivery will not be considered. b) The soft copies of the Invoice, LR copy & Test certificates shall be forwarded to BHEL immediately after dispatch.	

09	<u>Payment terms:</u> <u>Indigenous:</u> BHEL Payment term is 100% direct EFT payment after 60 days from the date of receipt and acceptance of materials.	
10	<u>Liquidated Damage:</u> 1. Penalty will be levied @ 0.5% of the undelivered portion per week of delay or part thereof subject to a maximum of 10% of the total order value. 2. Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value). 3. Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contractors. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Debit note will be issued by BHEL indicating the respective supply invoice number. 4. INDIGENOUS: For "FOR Delivery terms", Lorry way bill date will be taken for LD calculation.	
11	<u>Risk Purchase clause:</u> BHEL at its option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or despatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitute thereof. The supplier shall be liable for any loss which BHEL may sustain by reason of such risk purchases in addition to LD at the maximum rate mentioned in the LD clause above. Confirm your acceptance.	
11	<u>Warranty / Guarantee:</u> Supplier to accept guarantee/warranty of "18 months from dispatch or 12 months from commissioning, whichever is earlier". Any deviation to this may lead to rejection of the offer.	
13	<u>Non-Disclosure Agreement(NDA):</u> The bidders shall enter into the Non-disclosure agreement totally voluntarily, with full knowledge of its meaning and without duress. (Format attached).	
14	<u>Patent Right:</u> The supplier shall, at all times, indemnify and keep indemnified the purchaser, free of cost, against all claims which may arise in respect of goods & services to be provided by the supplier under the contract for infringement of any intellectual property rights or any other right protected by patent, registration of designs or trademarks. In the event of any such claim in respect of alleged breach of patent, registered designs, trademarks etc. being made against the purchaser, the purchaser shall notify the supplier of the same and the supplier shall, at his own expenses take care of the same for settlement without any liability to the purchaser.	
15	<u>Evaluation Criteria:</u> The offers of both import vendors and indigenous vendors will be evaluated on total landed cost to BHEL, Trichy. The evaluation details with respect to the import & indigenous vendors is detailed below: I) <u>Indigenous Vendors:</u> Total Landed cost = FOR Rate in INR (A) + Applicable Taxes (B) + Loading for payment term & LD (C) – Applicable input tax credit (D) A. Indigenous vendors submit offers on Free on Road (FOR), Trichy in INR. B. (SGST, CGST, UGST & IGST) on (BASE PRICE+GST) and any other charges quoted by indigenous vendors will be added to the base price. C. Loading for payment terms & non-acceptance of Liquidated Damages (LD) will be added to the FOR value for arriving the landed rate. D. However, input credit is availed for GST taxes, hence the same is excluded for arriving at the landed cost. Note: "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. 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 bidders or their representatives. Ranking will be done accordingly. BHEL decision in such situations shall be final and binding".	

16	<u>General condition:</u> - In addition to TCs in relevant IBR forms corresponding mill TCs should also be provided along with dispatch of Forged Finned Elbows. Two sets of original and one copy of all such TCs are to be provided to BHEL, Trichy. - Material is to be inspected by third party inspection agency as approved by IBR and test certificate are to be countersigned by respective Inspection agency in case the Mill is not approved by IBR. - We require the shipment of the Forged Finned Elbows to be as per the dates mentioned against the individual items in the enquiry. - No revision of prices will be entertained after the tenders are opened. - For the evaluation purposes, exchange rate (TT selling rate of SBI) as on schedule date of tender opening (Part I, i.e technical bid, in case of two part bid) shall be considered. - BHEL will consider the ranking after the loading is applied as referred above wherever deviations are observed. - Lowest price received against BHEL tenders need not be the technically acceptable one and in that case, BHEL reserves the right not to consider the same. - BHEL reserves the right to negotiate L1 rate or re-float the tender opened if L1 price is not the lowest acceptable price to them inter-alia other reasons. - In the event of our customer order covering this tender being cancelled / placed on hold / otherwise modified, BHEL would be constrained to accordingly cancel / hold / modify the tender / your purchase order at any stage of execution. - Offer will be evaluated based on Landed cost to BHEL- Trichy on item basis. - No payment will be made for the excess quantity. - Offer should be submitted only as per the Unit of Measurement (UOM) specified in the enquiry. - The offers of the bidders who are on the banned list as also the offer of bidders who engage the services of the banned firms, shall be rejected. The list of banned firms is available on the BHEL website - www.bhel.com. - Documents not signed and stamped by the authorized signatory of the bidder shall not be accepted and considered for registration / evaluation of the bid etc. - Any additional documents submitted by supplier / bidder, during processing of registration application / tender or after placement of order, shall not be accepted unless it is submitted with forwarding letter and duly signed and stamped as mentioned above. - The bidder shall submit his response through bid submission to the tender on e-procurement platform at http://bhel.abcpurchase.com. The bidder would be required to register on the e-procurement market place https://bhel.abcpurchase.com and submit their bids online. SEALED COVER BIDS / E-MAILS / FAX / MANUAL OFFERS WILL NOT BE ACCEPTED.	
17	<u>Fraud Prevention Policy</u> “The bidder along with its associate/collaborators/sub-contractors /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 fraud or suspected fraud as soon as it comes to their notice.”	
18	<u>Cartel Formation:</u> All the firms should desist from forming cartel as the practice is prohibited under Section 3(3) (a) & (d) of the competition Act 2002. If any such instance is observed during this tender will attract disciplinary action as per BHEL policies.	



19	<u>Resolution of Disputes:</u> a. If dispute or difference of any kind shall arise between the Purchaser/Consignee and the supplier in connection with or relating to the contract, the parties shall make every effort to resolve the same amicably by mutual consultations. b. If the parties fail to resolve their dispute or difference by such mutual consultation within 30 days of its occurrence, then, unless otherwise provided in the contract, either the Purchaser/Consignee or the supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided the applicable arbitration procedure will be as per the Arbitration and Conciliation Act, 1996 of India. In the case of a dispute or difference arising between the Purchaser/Consignee and a domestic Supplier relating to any matter arising out of or connected with the contract, such dispute or difference shall be referred to the sole arbitration of an officer in BHEL Trichy, appointed to be the arbitrator by the General Manager/MM BHEL Trichy. The award of the arbitrator shall be final and binding on the parties to the contract subject to the provision that the Arbitrator shall give reasoned award in case the value of claim in reference exceeds Rupees One lakhs (Rs. 1,00,000/-) c. Venue of Arbitration: The venue of arbitration shall be the place from where the contract has been issued, i.e., BHEL Trichy. d. Jurisdiction of the court will be from the place where the tender enquiry document has been issued, i.e., Trichy, India.	
20	<u>In the event of Force Majeure:</u> a. Notwithstanding the provisions contained in other clauses, the supplier shall not be liable for imposition of any such sanction so long the delay and/or failure of the supplier in fulfilling its obligations under the contract is the result of an event of Force Majeure. For purposes of this clause, Force Majeure means an event beyond the control of the supplier and not involving the supplier's fault or negligence and which is not foreseeable and not brought about at the instance of the party claiming to be affected by such event and which has caused the non – performance or delay in performance. Such events may include, but are not restricted to, wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes excluding by its employees, lockouts excluding by its management, freight embargoes and Acts of GOD. b. If a Force Majeure situation arises, the supplier shall promptly notify the Purchaser/Consignee in writing of such conditions and the cause thereof within twenty-one days of occurrence of such event. Unless otherwise directed by the Purchaser/Consignee in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. c. If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period exceeding sixty days, either party may at its option terminate the contract without any financial repercussion on either side. d. In case due to a Force Majeure event the Purchaser/Consignee is unable to fulfil its contractual commitment and responsibility, the Purchaser/Consignee will notify the supplier accordingly and subsequent actions taken on similar lines described in above sub-paragraphs.	
21	<u>Execution of the order:</u> a. BHEL will have the option to pre-inspect the materials at Supplier's works by BHEL's own inspector or by third party agency appointed by BHEL or BHEL's end customer/s. The mere act of the pre-dispatch inspection (PDI) does not absolve the Supplier from giving the specifications as agreed upon in the Purchase Order. b. In the case of overseas suppliers Inspection call for carrying out the inspection shall be given 30 days before the scheduled contract delivery date. The Inspection date/s given by the Supplier shall be on firm basis. For local Suppliers the Notice period of Inspection shall be 10 working days In the event of any short supply, it shall be the responsibility of the supplier to deliver such short supplied/ missing items on Free-of-Cost basis at BHEL stores, including customs clearances at Indian Ports in the case of foreign supplier.	
22	<u>Special Provisions for Micro and Small Enterprises (MSE) bidders registered as per MSME act:</u> (Subject to participating MSE vendors should meet the tender requirements of BHEL) ➤ 25% of the tendered quantity is earmarked for MSE suppliers in this tender.	

	➤ Out of the 25% tendered quantity reserved for MSE suppliers, 6.25% shall be earmarked for procurement from MSE owned by SC/ST entrepreneurs and 3% shall be earmarked for procurement from MSE owned by women. ➤ In case MSE vendor participating in the tender quotes within the price band of L1 + 15%, they will be allowed to supply the portion of the requirement subject to acceptance of L1 price by MSE vendor. In case of more than one such MSE vendor within the "L1+15% price band", the supply shall be shared proportionately. ➤ MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either valid EM II certificate having deemed validity (five years from the date of issue of acknowledgement in EM II). Date to be reckoned for determining the deemed validity will be the date of bid opening (Part 1 in case of two-part bid) or valid NSIC certificate or UAM certificate along with attested copy of a CA certificate 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 are not submitted before price bid opening. Documents should be notarized or attested by a Gazetted officer. However, credentials of all MSE suppliers will be verified before considering the intended benefits for MSE suppliers at the time of tender evaluation. Non submission of such documents will lead to consideration of their bids at par with other bidders and MSE status of such suppliers shall be shifted to Non MSE supplier till the supplier submits these documents. ➤ In case of any change in the MSE status of the bidder, it shall be the responsibility of the bidder to notify the change as a part of the bid document. If at a later date it comes to the knowledge of BHEL, that the change in the status has not been intimated by the bidder and the order is obtained under the premise of an MSE, then BHEL would cancel the pending order against this tender and take necessary steps for suspension of the business dealing with the bidder as per the procurement policy of BHEL. ➤ In case after the bid opening, it is seen that no MSE has become L1, then depending on the nature of the item, if it is not possible to split the tendered items / quantities on account of reasons like customer contract requirements of supplying one make for a given project or technical reasons like tendered items being a system etc., then BHEL would not counter offer the L1 prices even though there may be MSE bidders within the L1+15% band. ➤ If the L1 vendor happens to be a MSE vendor against any item code, then 100% of the qty (for the respective item code) shall be proposed to order on the L1 (MSE) vendor, even though there may be other MSE vendors within the "L1+15%" price band. ➤ Payment for MSE Indigenous vendors will be as per MSMED act, 2006	
23	<u>Preference to Make in India:</u> ➤ For this procurement, the local content to categorize a supplier as a class I local supplier/class II local supplier /Non-local supplier and purchase preference to class I local supplier, is as defined in Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT. In case of subsequent Orders issued by the respective Nodal Ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of part II bids against this NIT.	
24	<u>Enclosures:</u> a) Enquiry b) TDC 404/19 c) Inspection Authorities list d) NDA Format e) IBR Amendment f) Drawings	
 R. MEGANATHAN Dy. Manager MM / RM / Purchase / C&F BHEL, Bhopal - 462014 <u>SIGNED BY MANUFACTURER / MILL</u> Name of Mill: Designation / Department: Seal & Signature		

BHARAT HEAVY ELECTRICALS LIMITED, TRICHY-14
MATERIALS MANAGEMENT

PQR: C&F/CFFFE: Rev.00 – SAGARDIGHI

Date: 01.10.2020

Pre-Qualification requirements (PQR) for the procurement of SA182F12CL2 Forged Finned Elbow

(as per TDC: 404/19)

A) Organizational Capability:

1. Manufacturers having manufacturing facilities for forged finned elbows are only eligible to participate. Offer from traders, fabricators and stockists are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the firm. Product catalogue shall be submitted.
2. Suppliers shall submit facility report for manufacturing of forged finned elbows. Suppliers without basic manufacturing facilities in-house, shall not be considered for evaluation. In house facilities for Heat treatment & Non-Destructive Testing are mandatory requirements for consideration of the offer.
3. Source of raw material for the manufacturing shall be from IBR approved well known steel maker or certified by IBR approved inspecting authority (Form-IV / Form III G to be attached). The supplier shall confirm that the raw material test certificate/s will be furnished along with product test certificate/s.
4. Chemical, Mechanical testing shall be done in house or at Labs certified as per ISO 17025 or Government approved labs.
5. Suppliers shall submit a valid ISO 9001 certificate or Quality management system certificate or Written down procedure.
6. BHEL/End customer reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.
7. BHEL/End customer reserves the right to inspect the sample at vendor's works for giving clearance before bulk production.
8. BHEL reserves the right to visit supplier's works to audit and inspect to ensure the capability for technical evaluation

B) Technical Competence:

1. Point by point confirmation to the TDC requirements is mandatory for consideration of offer and signed TDC shall be submitted.
2. Suppliers shall submit manufacturing process flow chart (Raw material to finished product) & Manufacturing Quality Plan (MQP) to meet the TDC requirements along with technical bid.

BHARAT HEAVY ELECTRICALS LIMITED, TRICHY-14
MATERIALS MANAGEMENT

PQR: C&F/CFFE: Rev.00 – SAGARDIGHI

Date: 01.10.2020

3. Supplier shall confirm creep test and burst test requirements for forged finned elbows as indicated in the drawing.
4. Suppliers shall submit the experienced manpower details specific to Manufacturing, Quality and NDE requirements.

C) Past Experience/ Performance:

1. Suppliers shall indicate their annual installed capacity for supply of fittings covered in the tendered specifications & it shall be more than the tendered quantity.
2. Suppliers shall have supplied Elbows, Tees, Reducers in the tendered specification. Details of supplies made in recent past detailing the quantity, specification, size & customer details along with the unpriced PO copies, proof of supply (such as invoice and test certificates) covering minimum and maximum sizes either in SA182F12 / SA 182 F22 meeting the tendered size requirements shall be submitted.

D) Financial Soundness:

1. Indigenous suppliers shall submit Audited copies of annual reports (Balance Sheets), Profit & Loss statement for last four years (or from date of incorporation whichever is less). Proprietary and partnership firms shall submit IT returns for last four years (or from date of incorporation whichever is less).

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. BHEL also reserves the right to have on-site assessment of the facilities at supplier's works during the bid evaluation.

Prakash
01/10/20
Prakash Tantuwai
DM/MM/RM

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Technically reviewed
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01/10/2020
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SHYAMALADEVI .S
Deputy Manager
Quality Assurance
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Product: Carbon, Alloy & Stainless Steel Forgings (Boilers And Valves)

Revisions Record:

Rev 09: New materials F23, F91 & F92 requirements added in Cl.1.0, Cl.2.0, and Cl.4.0 to Cl.6.0. CE marking certification clarity included in Cl.10.

Rev 10: Cl 1:F6a Class 2 added, Code case corrected. Cl 2: Steel makers names removed and requirement for creep testing added as per IBR Reg 4, Cl 4: Tempering temperature and soaking time modified for SA 182 F91, F92 & F23. Cl 4 & 10: Photomicrograph requirement added for F91 & F92 forgings, Cl 2, 6 & 10: modified for SS, Cl 5: Bend test Clarified, Cl 6: Wet MPI added.

Rev 11: Cl 2 Pt 3, 4, 5 modified. Cl 6 – Wet MPI for CS, AS added, Cl 10.1 – IBR Forms indicated

Rev 12: Cl 1, 2, 4, 6 and 7 – requirements for grades SA 182 F1, SA 336 F1, F12, F22 Cl 3 and F91 added (for Neyveli Project). Creep test criteria in-line with BHEL R&D included. Cl 2 Pt 8 modified. Cl 6 Pt 1 – SA388 changed to ASTM A 388 based on ASME Sec II Ed 2013.

Rev 13: Dt: 17/11/2014: Cl 2 Cl 4 Cl 10 Cl 12 modified.

Rev 14: Dt: 06/10/2015: Cl.4.3, 5.2, 5.8, 10.1.b.9 added; Cl 1.0, 2.1, 2.2, 2.3, 4.1, 4.2, 5.3, 6.2, 9.0, 10 modified.

Rev 15: Dt: 23/12/2015: Cl 1, 2, 3, 5, 6, 7, 10, 11 & 12 modified.

Rev 16: Dt: 06/02/2017: Cl 1 changed to indicate the use of latest revisions of referred codes, standards, specifications, drawings, procedures, etc; Tempering temperature added for F12 material in Cl 4, Requirements of API 6D removed from Cl 1, 2, 4, 5, 10, 12 since the API 6D certificate license was not applied for; Definitions for relevant, linear and rounded indications provided in Cl 6; Type 3.2 certification changed as per BS EN 10204-2004 in Cl 10.2.

Rev 17: Dt: 27/11/2017: Cl 1, 4 modified to include SA 266 & SA 336 F92 materials; Cl 5 modified to include 100% hardness testing & Creep testing requirements; Cl 6 changed to include UT for forgings above 40 mm; Cl 10 modified suitably.

Rev 18: Dt: 21/02/2018 – Material SA182 F51 added in Cl 1 based on Engineering/Valves input and minor corrections made in Cl 4 & 5.

Rev 19: Dt: 05/12/2018 – Material SA182 F11 Class 3 & SA182 F60 added in Cl 1 based on Engineering/Valves input, Tolerance in Cl 3 modified based on guidance from corporate standard AA 102 08 Rev07, Cl 4 modified to include F11.

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 105, SA 266, SA 350 LF 2

Alloy Steel (AS) : SA 182 F12 Class 2, F22 Class 3, SA 182 F23 (Code case: 2199), SA182 F11 Class 3
SA 182 F91 & SA182 F92 (Code Case: 2179), SA 182 F1, SA 336 F1, SA 336 F12,
SA 336 F22 Cl 3, SA 336 F91, SA 336 F92 (Code Case: 2179)

Stainless Steel (SS) : SA 182 F6a Class 2, F6a Class 3, SA 182 Gr. F 304, 304L, 316, 316L, 316H, 321, 321H,
347 & 347H; F51; F60
AISI 410 for TOA Gland and bushings.

Additional Requirement : As listed below (Supplementary to above material specifications)

Size and Quantity : As per Purchase order & Drawing.

2. CHEMICAL COMPOSITION & PROCESS

1) Melting: fully killed.

Product analysis per heat: CS: C ≤ 0.25% , AS: SA182 F23: Si: 0.25-0.50% & Cu: 0.25max

SA182 F92: Si: 0.10-0.50%, Ni: 0.30 max & Cu:0.25% max

2) Raw material Steel for IBR forging items to be inspected at Mill & test certificate countersigned by IBR approved inspecting authority, if the mill is not approved under IBR as well known steel maker.

3) Forging: Hot working to ensure uniformity of structure & strength with reduction ratio in area 4:1 min from ingot to final forging, close to final size & shape. Flow lines to be parallel to axis of openings. Forged Items ordered to this TDC shall be forged to the nearest shape before machining to final dimensions as per respective drawing.

4) Blooms / Billets used for forgings (Side Length or Dia ≥ 50mm) shall be UT tested. For Acceptance criteria refer Cl.6.0. For finished bars, this can be done at final stage.

5) SS: All raw materials used in steel making including incoming scrap shall be checked by supplier to ensure freedom from radioactivity.

6) Tolerance for chemistry shall be as per the applicable material specifications/standards specified in Cl 1.

3. DIMENSIONS AND TOLERANCES

Dimensions & their tolerances shall be as per drawing.

For untoleranced dimensions: **CS & AS:** as per SA 29 for diameters upto 114.3mm. For diameters above 114.3mm and upto 300mm, tolerances shall be minus 0 plus 8 mm; **SS:** as per SA 484

4. HEAT TREATMENT(HT)

1) Heat treatment shall be as per applicable drawing. Unless otherwise specified, the following heat treatment shall be following:

CS: SA 105: Normalised; SA 266: As per material specification;

SA 350 LF 2: Normalised at 880-900°C & Tempered at 620-640°C.

AS: Normalised and Tempered. For F11, F12: Tempering at 650°C (min).

For SA 182 F91, F92 & F23, SA336 F91, SA 336 F92: Normalising at 1050-1080°C & Tempering at 750-780°C.

SS: As per applicable material specification & grade.



Product: Carbon, Alloy & Stainless Steel Forgings (Boilers And Valves)

AISI 410: Supply in Quenched & Tempered condition as below.

Quenching at 955-1010°C in air or water or oil or Polymer. Soaking 30 mts/inch maximum thk. Tempering at 663°C.min. Soaking :60 mts/inch maximum thickness and air cool.

- 2) Photomicrograph test for F91 & F92 forgings - one per heat treatment lot per size and shall be reported in test certificate.
Acceptance – The material shall be free from any micro fissures. Microstructure shall show lathe tempered martensite and also to be examined for grain growth. Photomicrograph with 400x (Min) magnification along with Photomicrograph report to be provided. The actual magnification and result of actual microstructure shall be certified/indicated.

5. MECHANICAL TESTS

- 1) Extent of test: One Specimen for each size/heat/HT batch from sample product or identical test coupon.
- 2) **Tensile test:** The test specimens shall be removed from a test coupon (TC) after the final heat-treatment cycle.
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.

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.

- 3) **Additional requirements for SA182 F23, F91 & F92:**
F91: Yield: (0.2% offset): Min 450 MPa; Tensile: Min 630 MPa, Max 850 MPa; Hardness (HBW): Min 195, Max 248.
F92: Tensile: Min 630 MPa, Max 850 MPa; Hardness (HBW): Min 191, Max 269
F23: Tensile: Min 510 MPa, Max 730 MPa; Hardness (HBW): Min 150, Max 220
Hardness testing shall be **100%** as per ASTM E10 or E18.
- 4) AISI 410: Hardness (**100%** testing shall be as per ASTM E10 or E18): 197-235 HBW. No other mechanical test required.

Additional requirements of tests: (Other than AISI 410 Only)

- 5) **Bend test: Acceptance as per IBR**
CS: Sample 19mm.Thick(t) x 25.4mm width to be bent 180 deg. around mandrel of radius 6.35 mm.
AS, SS: Sample 19mm.Thick(t) x 25.4mm width to be bent 180 deg. Around mandrel of radius =1.5 x t.
- 6) **Impact test for QCNR Valves & CRHNR Valves:** CS, AS and SS: 1 / HT batch. As per ASTM A370, 2mm Charpy-U notch, at Room temperature. Acceptance: Avg of 3 specimens: 36 Joules, Min Single value: 24 Joules
- 7) **For PED 2014/68/EU (CE-marking) items:** Charpy- V impact test at 20°C as per ASTM A370, Acceptance: Avg of 3 specimens: 40 Joules, Min. single value: 27 Joules.
- 8) Creep testing & reporting shall be carried out as per SIP:RM:01 (latest revision) whenever indicated in the Enquiry/Purchase Order/Engineering Drawing.

6. NON DESTRUCTIVE TEST

- 1) Extent of test: for each product. Stage of test : After heat treatment.
- 2) **Volumetric NDE - UT:** As per ASTM A388. All finished forgings of dia/wall thickness **> 40 mm**;
All Body & yoke of special class valves & all forgings of SA 182 F91, F92 & F23, SA 336 F91.
Acceptance: ASME Sec.VIII Div. 2 Cl.3.3.4.
- 3) **Surface NDT -**
 - a) **Relevant indication:** Surface-rupture NDE indication with major dimensions > 1.6 mm (1/16 in).
 - b) **Linear indication:** Surface NDE indication whose length is $\geq$ three times its width.
 - c) **Rounded indication:** Surface NDE indication whose length is < three times its width.
 - d) **MPI for CS & AS :** 100% : As per ASTM A275.
Dry MPI: CS, AS (other than SA 182 F91, F92, F23, SA 336 F91) : all sizes.
Wet MPI : SA 182 F91, F92, F23; SA 336 F91: all sizes.
Acceptance: ASME B16.34 Appendix II. Linear Indications like cracks, folds & other injurious defects are unacceptable.
 - e) **LPI for SS:** 100%: ASTM E165. **Acceptance:** No linear indications acceptable.
- 4) **SS:** Finished forgings shall be checked for radioactive contamination and reported. Survey meter shall be used to measure at 5 cm near the surface. Acceptance limits: Shall be less than 0.1 milli Rontgen (MR) per hr or 1 micro Sievert per hr.

7. WORKMANSHIP AND FINISH

Forged items to spec SA336 shall be machined in the inside surface as it is meant for steam application. Items to be proof machined as per drawing or shot blasted for CS/AS; Pickled & passivated as per ASTM A380 for SS, & be free from scales & defects like laps, seams, folds, cracks, etc. Machined items (except SS) to be coated with a layer of transparent rust preventive before despatch.

	BHEL – Tiruchirappalli - 620014, India. Quality Assurance Department TECHNICAL DELIVERY CONDITIONS	DOC No: TDC:0:404 Rev: 19 Effective Date: 05/12/2018 Page: 3 of 3
Product: Carbon, Alloy & Stainless Steel Forgings (Boilers And Valves)		

8. REPAIR

Repairs by fusion welding are prohibited. Surface defects can be removed by mechanical means and defective areas smoothly dressed up with the adjacent surface. Minimum thickness after repair to meet drawing / Specification.

9. MARKING AND PACKING

Details of stamping on each item with low stress stamps: Heat/melt number; material specification, grade & class; Code case number (for Gr 92 & 23); Maker's emblem/code & Inspection Authority's seal. Forgings to be properly packed and dispatched to avoid damage during transit.

10. INSPECTION AND CERTIFICATION

10.1 For IBR Items:

- Products shall be inspected at supplier's works/mill and the applicable IBR Form must be countersigned by the Inspecting Authority as indicated below in case the supplier's works/mill is not recognised as a "Well known Forger/Steel maker" 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 in India.
- Certification in IBR Form III-G for IBR items from "IBR-Well Known Forger" or "Inspecting Authority", as applicable, to be submitted. IBR Form III-G and a separate **manufacturer** Test certificate in English language with following details, shall accompany the product (including proof machined):
 - Purchase Order No.(BHEL), TDC No & its revision no, Test certificate no & date.
 - Specification, Grade & Class with applicable year of code, Code case number (for Gr 92 & 23), Heat Number, Drawing No., Quantity & Size.
 - Supplier of the steel used in making the finished product (well known and others in IBR Form IV).
 - Melting & forging process, Chemistry with incidental elements-Heat wise, Product analysis, Carbon Equivalent (CE).
 - Heat treatment details of the material and test bars. For F91, F92 supplies – Photomicrograph at 400x resolution.
 - Mechanical test results- Tensile (UTS, YTS (0.2% offset), % elongation, % reduction in area), Bend, Impact, Hardness and NDE test results with reference & acceptance standards.
- Repair details if any, Certified copy of TC for starting material.
- For SS:** Measured Radioactivity levels shall be reported in the Mill Test Certificate (not to be recorded in IBR Form).
- Creep test report as per SIP:RM:01 (latest revision) whenever indicated in the Enquiry/Purchase Order/Engineering Drawing.

10.2 For PED 2014/68/EU (CE-marking) items, the test certificates with details specified in Cl 10 (b) shall be submitted as per BS EN 10204.

- For pressure parts**, test certificates of type 3.1 or 3.2 are acceptable.
Type 3.1 – Suppliers shall have ISO 9001-2008/2015 certification certified by Notified Body recognized by European Community and test certificate certified by supplier's 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.
- For non-pressure parts**, test certificates of type 2.2 are acceptable.
Type 2.2 – suppliers test certificates signed by suppliers authorized inspection representative with test results as required by this TDC.

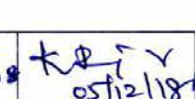
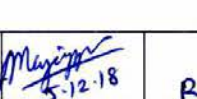
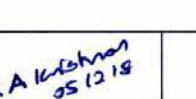
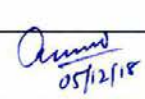
11. AUDIT CHECKS AT BHEL

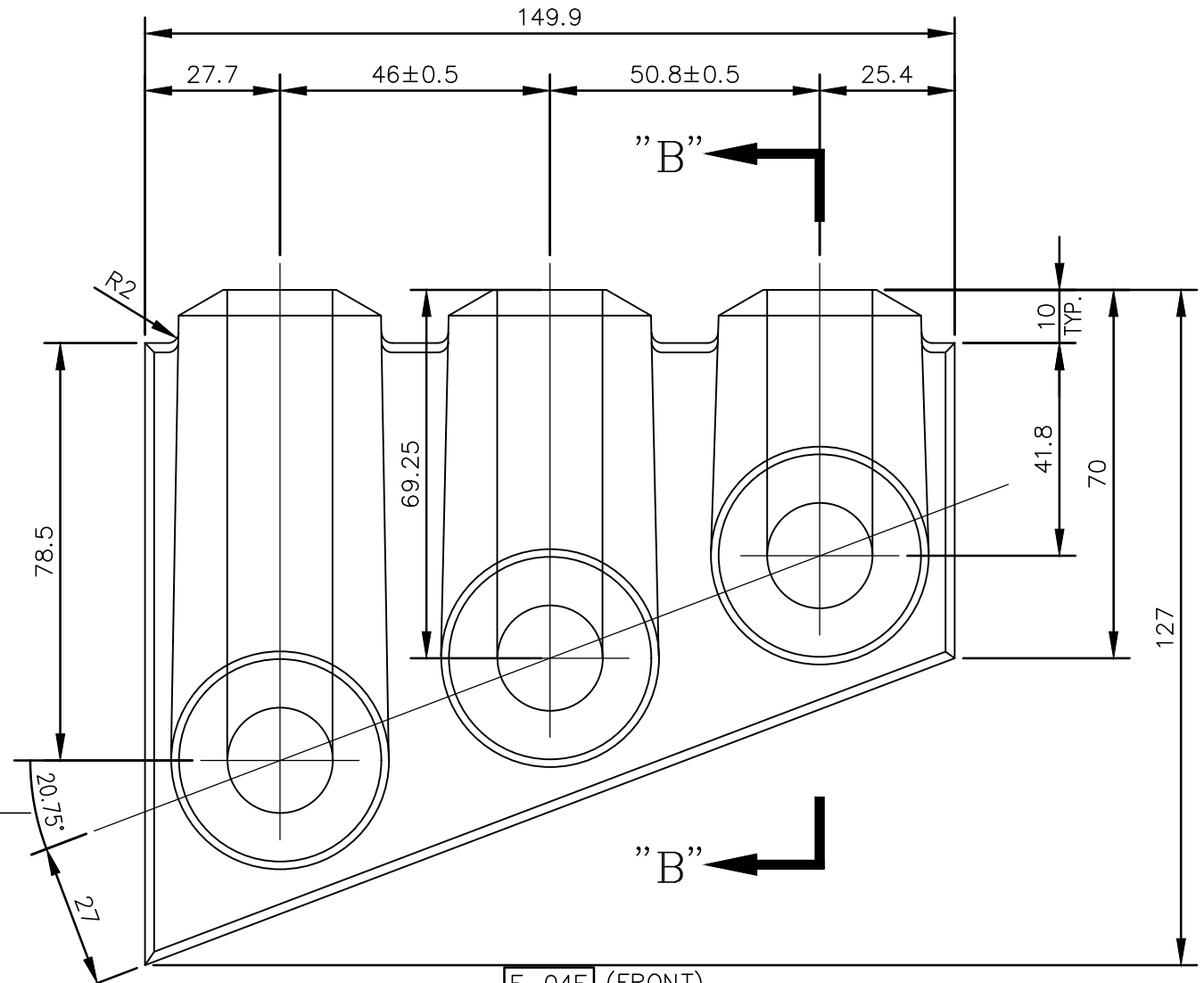
BHEL reserves the right to carry out audit checks for chemistry, HT condition, mechanical test and NDT on representative test bars or job. Supplies found defective during check or subsequent processing at BHEL will be rejected.

12. END USE

Valve bodies, bonnets, discs, socket ends, body guides, etc., Pressure part fittings in boilers & low, high temperature service like discs, socket weld tees, elbows, weld neck flanges & stubs (except drum nozzles) meeting IBR, ASME Section I, ASME B16.34 and PED 2014/68/EU.

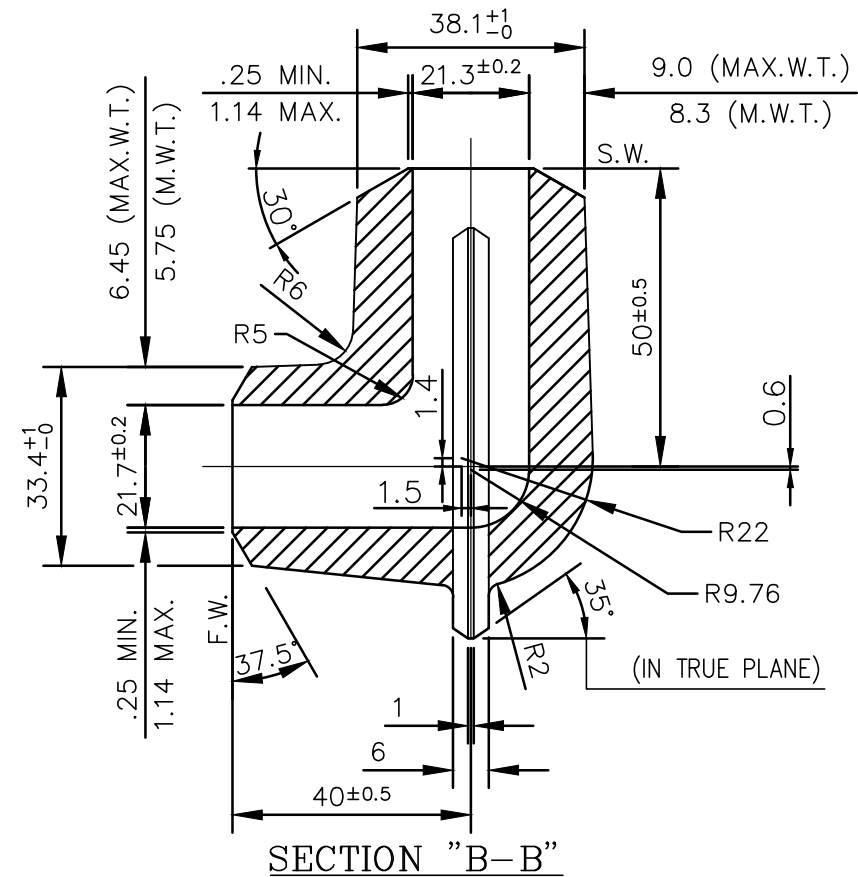
Non pressure part items in boilers and valves: For these, requirements on starting material, bend test and inspection by IBR are not required.

 05/12/2018	 05/12/18	 5/12/18	 05/12/18	 5-12-18	 05/12/18	 05/12/18
Abdur Rahman Sr.Engineer/ QA	G. Panneer Selvam DGM/QA	S. Anand Kumar SDGM/PE/ FB	K. Rajasekaran DGM/Valves/ Engg	R. Rajappan SDGM/MM	R. Ananthakrishnan AGM/Valves/ Purchase	Amit Roy AGM/QA& BE
Prepared By	Reviewed By					Approved By



F-04F (FRONT)
F-10F (REAR)
F-19F (SIDES)

TYPICAL FORGED ELBOW FOR FURNACE VERTICAL
SIDE WALL



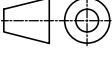
SECTION "B-B"

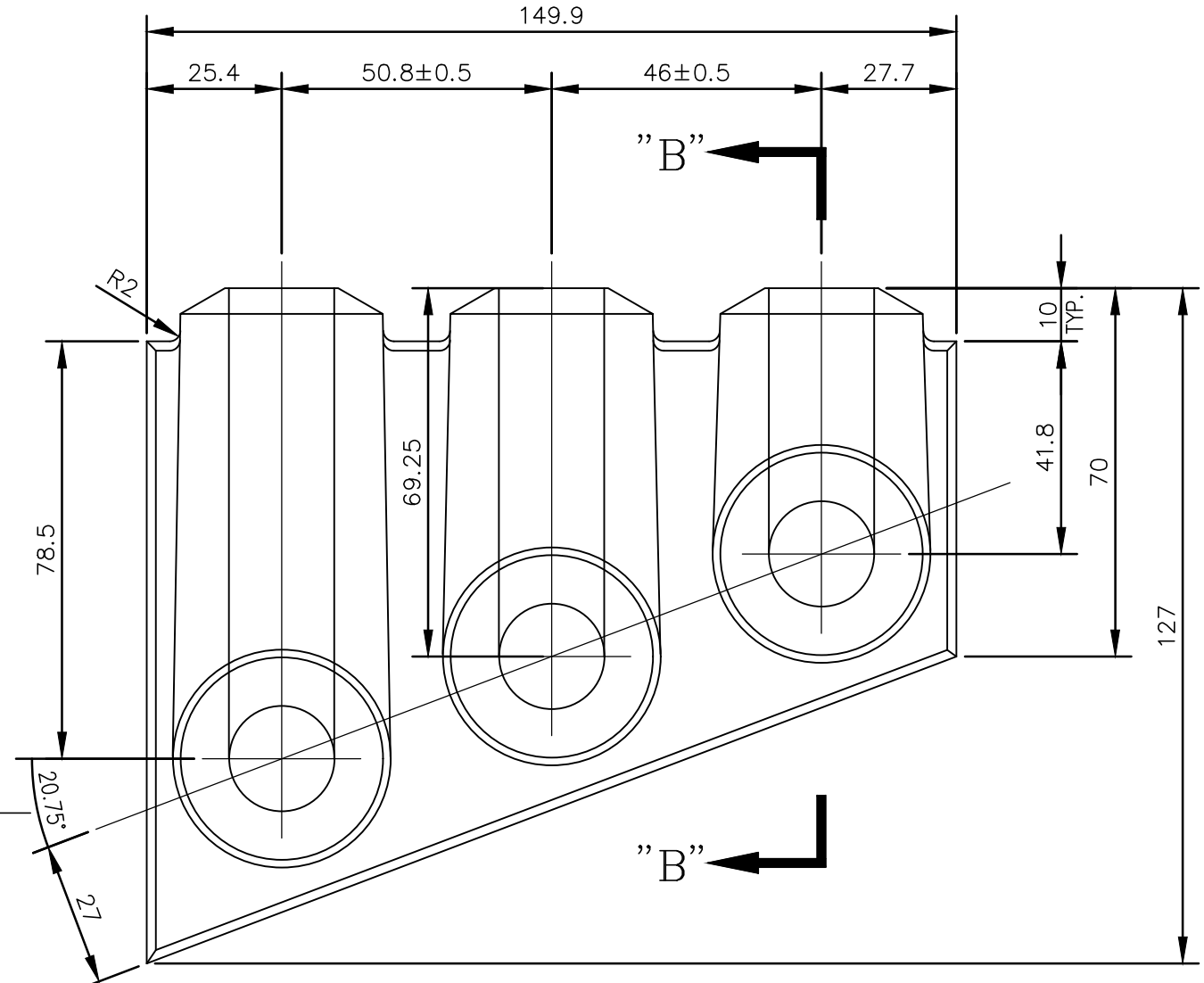
NOTES:

- 1.MATERIAL: SA-182 F12, CL2(ATTEST)
- 2.EXAMINATION:
 - 100% CHECK FOR MATERIAL INCLUSIONS
 - 100% HARDNESS TEST
 - 100% MAGNETIC PARTICLE TEST
 - 100% STAMPING BY SHOP Q.C.
 - IMPACT TEST AND TENSILE TEST
- 3.FINISH MUST BE WELDABLE PAINTING
- 4.THE RULES FOR CONSTRUCTION OF FORGED ELBOWS SHALL COMPLY TO THE ASME POWER BOILER CODE SECTION I.
- 5.BURST TESTS WILL BE REQUIRED PER ASME 2017 SECTION 1, APPENDIX A-22.6.3 BURSTING TEST
- 6.QUANTITIES REQUIRED TO BE 8 PER UNIT
- 7.F.W. = FIELD WELD
S.W. = SHOP WELD
M.W.T = MINIMUM WALL THICKNESS
- 8.DESIGN, MANUFACTURE AND INSPECTION AS PER IBR
- 9.DESIGN PRESS : 329.8 kg/cm² (g)
DESIGN TEMP : 453 °C
- 10.MATERIAL CODE : 921044480000
- 11.CREEP TEST TO BE DONE AS PER SIP:RM:01/01

REV	DATE	ALTERED :
01		CHD & APPD:
ZONE		

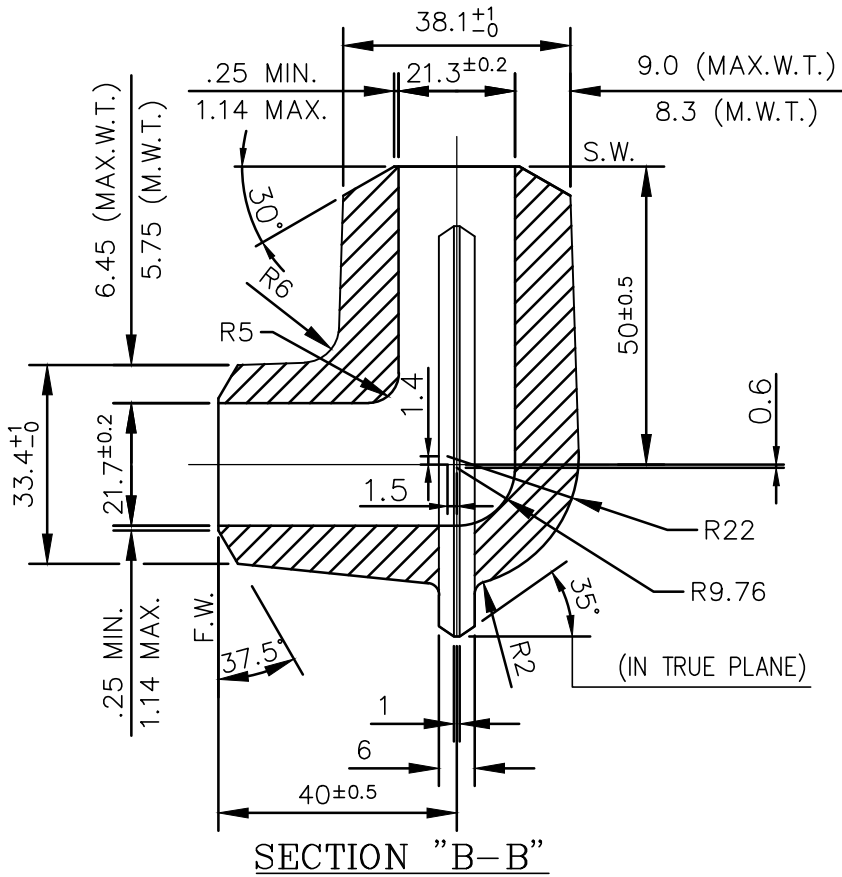
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT						
 355-055	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	NAME MOHAMMED	SIGNATURE	DATE 27.06.19
			CHD	MELVIN		27.06.19
			APPD	S.A.K		28.06.19
DEPT PP	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 2.420	REF TO ASSY / OLD DWG 3-06-735-14615/00	
CODE 121			TITLE FORGED ELBOW (ø33.4x5.59/ø38.1x9.1)		DRAWING NO : 3-06-735-16085 REV 00	



- F-04F (FRONT)
- F-10F (REAR)
- F-19F (SIDE)

TYPICAL FORGED ELBOW FOR FURNACE VERTICAL
REAR WALL & FRONT WALL

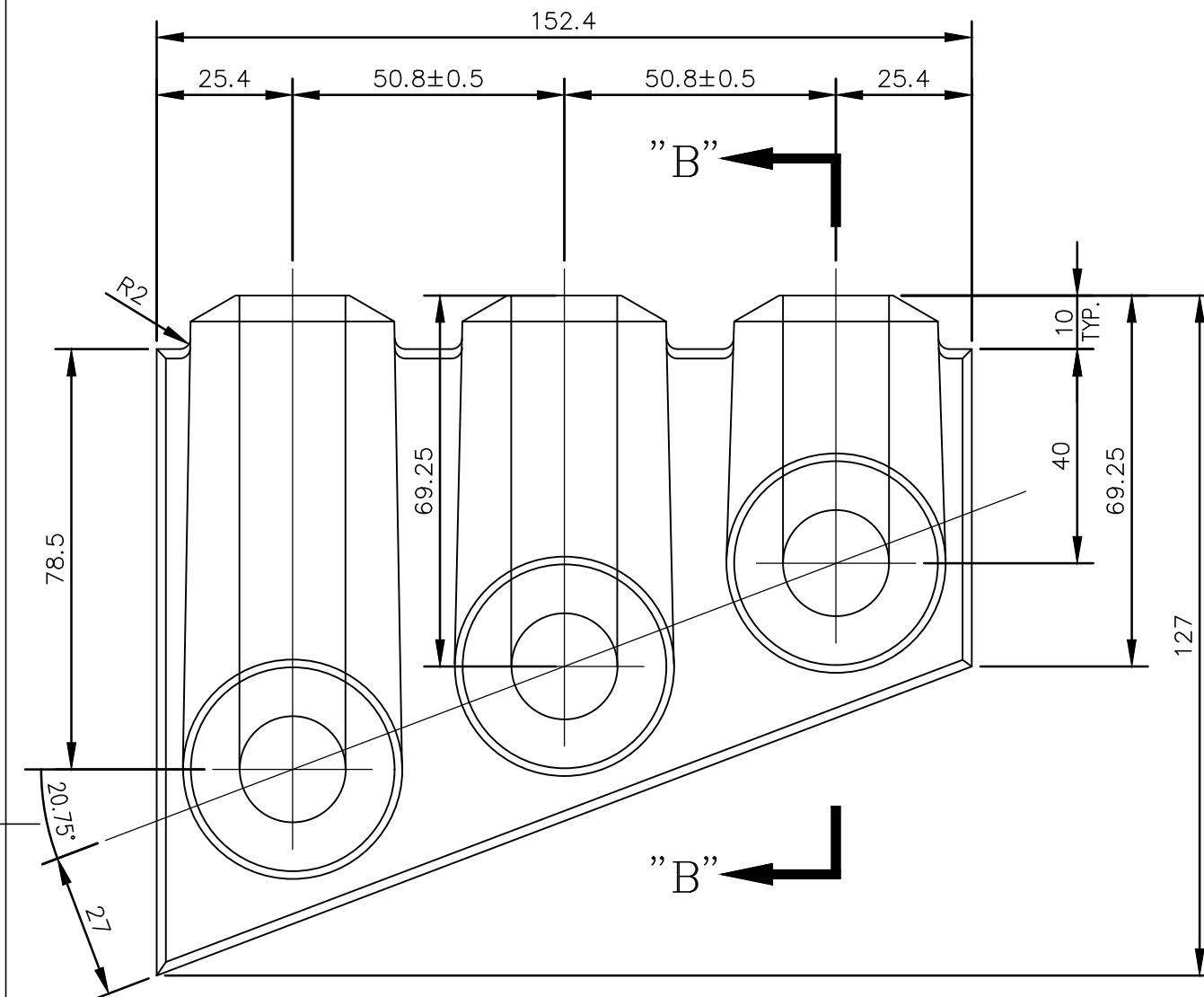


NOTES:

- 1.MATERIAL: SA-182 F12, CL2(ATTEST)
- 2.EXAMINATION:
 - 100% CHECK FOR MATERIAL INCLUSIONS
 - 100% HARDNESS TEST
 - 100% MAGNETIC PARTICLE TEST
 - 100% STAMPING BY SHOP Q.C.
 - IMPACT TEST AND TENSILE TEST
- 3.FINISH MUST BE WELDABLE PAINTING
- 4.THE RULES FOR CONSTRUCTION OF FORGED ELBOWS SHALL COMPLY TO THE ASME POWER BOILER CODE SECTION I.
- 5.BURST TESTS WILL BE REQUIRED PER ASME 2017 SECTION 1, APPENDIX A-22.6.3 BURSTING TEST
- 6.QUANTITIES REQUIRED TO BE 8 PER UNIT
- 7.F.W. = FIELD WELD
S.W. = SHOP WELD
M.W.T = MINIMUM WALL THICKNESS
- 8.DESIGN, MANUFACTURE AND INSPECTION AS PER IBR
- 9.DESIGN PRESS : 329.8 kg/cm² (g)
DESIGN TEMP : 453 °C
- 10.MATERIAL CODE : 921044490000
- 11.CREEP TEST TO BE DONE AS PER SIP:RM:01/01

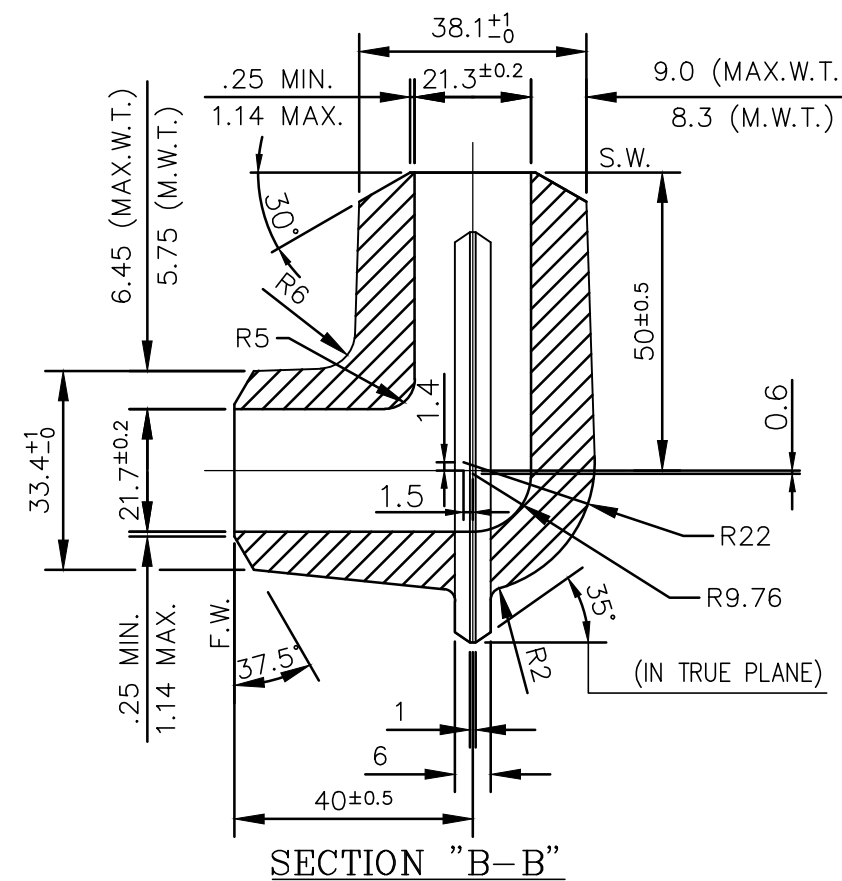
REV	DATE	ALTERED :
01		CHD & APPD:
ZONE		

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.		TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT						
		 355-055	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	NAME MOHAMMED	SIGNATURE	DATE 27.06.19
			DEPT	PP	CHD	MELVIN		27.06.19
			CODE	121	APPD	S.A.K		28.06.19
		ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 2.420	REF TO ASSY / OLD DWG 3-06-735-14616/00		
		TITLE FORGED ELBOW (ø33.4x5.59/ø38.1x8.13)				DRAWING NO : 3-06-735-16086		REV 00



F-04F (FRONT)
F-10F (REAR)
F-19F (SIDE)

TYPICAL FORGED ELBOW FOR FURNACE VERTICAL
REAR WALL & FRONT WALL



NOTES:

- 1.MATERIAL: SA-182 F12, CL2(ATTEST)
- 2.EXAMINATION:
 - 100% CHECK FOR MATERIAL INCLUSIONS
 - 100% HARDNESS TEST
 - 100% MAGNETIC PARTICLE TEST
 - 100% STAMPING BY SHOP Q.C.
 - IMPACT TEST AND TENSILE TEST
- 3.FINISH MUST BE WELDABLE PAINTING
- 4.THE RULES FOR CONSTRUCTION OF FORGED ELBOWS SHALL COMPLY TO THE ASME POWER BOILER CODE SECTION I.
- 5.BURST TESTS WILL BE REQUIRED PER ASME 2017 SECTION 1, APPENDIX A-22.6.3 BURSTING TEST
- 6.QUANTITIES REQUIRED TO BE 400 PER UNIT
- 7.F.W. = FIELD WELD
S.W. = SHOP WELD
M.W.T = MINIMUM WALL THICKNESS
- 8.DESIGN, MANUFACTURE AND INSPECTION AS PER IBR
- 9.DESIGN PRESS : 329.8 kg/cm² (g)
DESIGN TEMP : 453 °C
- 10.MATERIAL CODE : 921044470000
- 11.CREEP TEST TO BE DONE AS PER SIP:RM:01/01

REV	DATE	ALTERED :
01		CHD & APPD:
ZONE		

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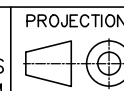
TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT



Bharat Heavy Electricals Ltd
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620014

DEPT PP
CODE 121

ALL
DIMENSIONS
ARE IN MM



SCALE

N.T.S

WEIGHT (Kg)

2.420

REF TO ASSY / OLD DWG

3-06-735-14614/00

TITLE

FORGED ELBOW
(ø33.4x5.59/ø38.1x8.13)

DRAWING NO :

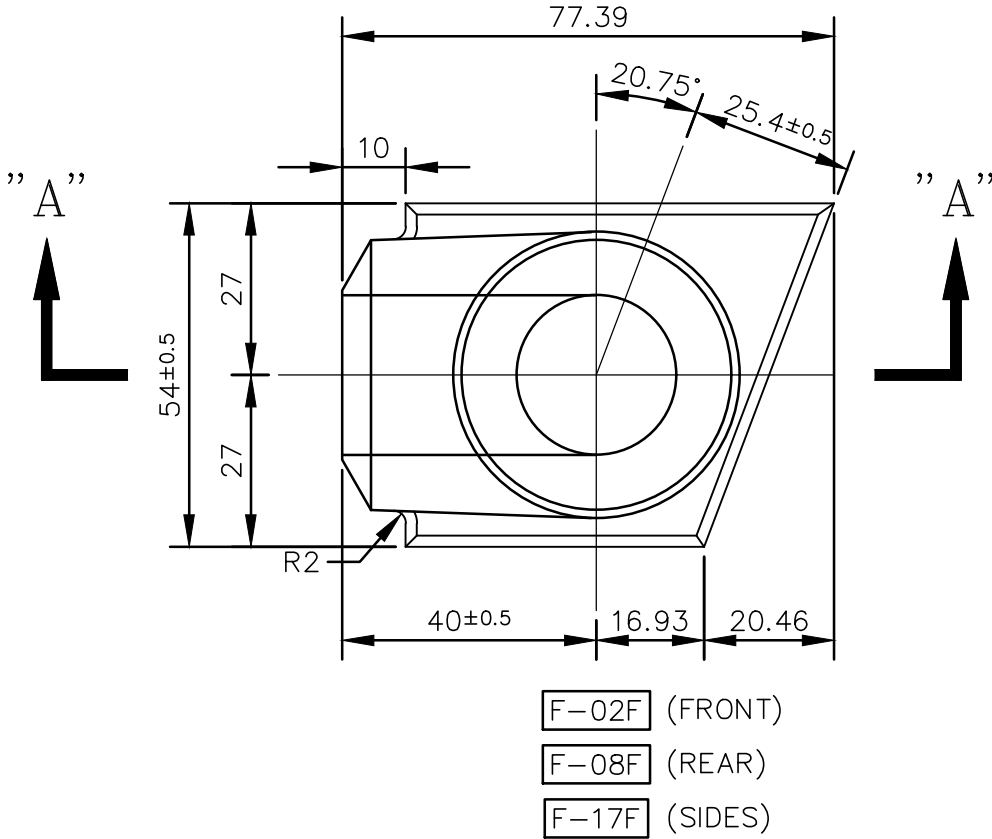
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REV

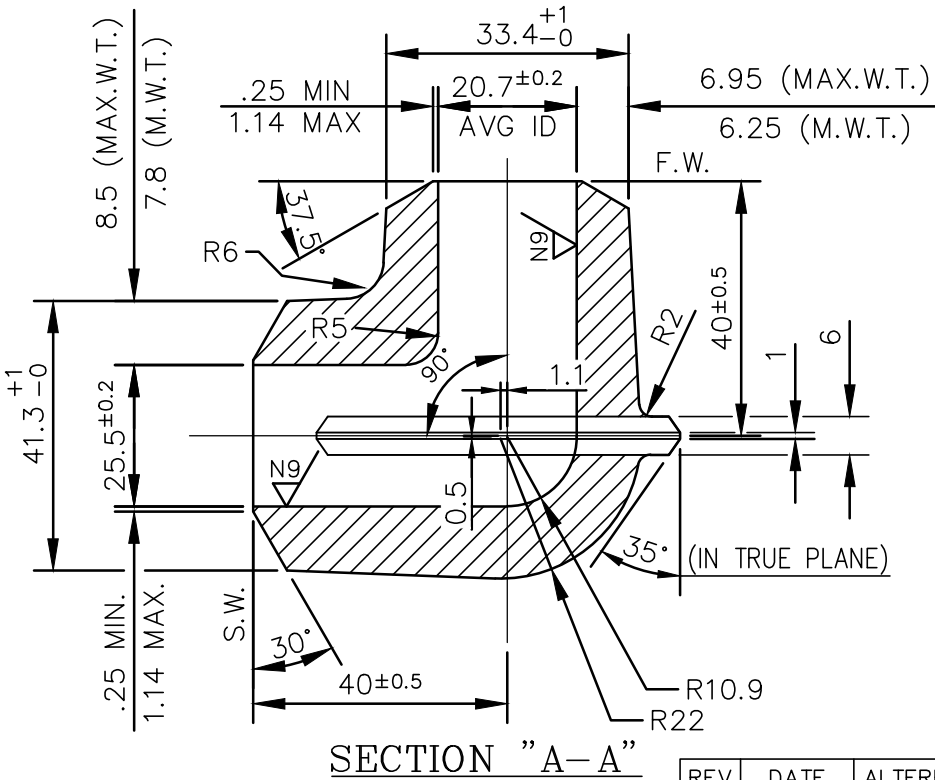
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NOTES:

1. MATERIAL: SA-182 F12, CL2(ATTEST)
2. EXAMINATION:
100% CHECK FOR MATERIAL INCLUSIONS
100% HARDNESS TEST
100% MAGNETIC PARTICLE TEST
100% STAMPING BY SHOP Q.C.
IMPACT TEST AND TENSILE TEST
3. FINISH MUST BE WELDABLE PAINTING
4. THE RULES FOR CONSTRUCTION OF FORGED ELBOWS SHALL COMPLY TO THE ASME POWER BOILER CODE SECTION I.
5. BURST TESTS WILL BE REQUIRED PER ASME 2017 SECTION 1, APPENDIX A-22.6.3 BURSTING TEST
6. QUANTITIES REQUIRED TO BE 520 PER UNIT
7. F.W. = FIELD WELD
S.W. = SHOP WELD
M.W.T = MINIMUM WALL THICKNESS
8. DESIGN, MANUFACTURE AND INSPECTION AS PER IBR
9. DESIGN PRESS : 330.5 kg/cm² (g)
DESIGN TEMP : 453 °C
10. MATERIAL CODE : 921044450000
11. CREEP TEST TO BE DONE AS PER SIP:RM:01/01



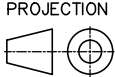
TYPICAL FORGED ELBOW FOR FURNACE SPIRAL SIDE
WALLS, REAR WALL & FRONT WALL



SECTION "A-A"

REV	DATE	ALTERED :
01		CHD & APPD:
ZONE		

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT							
 355-055		Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	NAME MOHAMMED	SIGNATURE	DATE 27.06.19
				CHD	MELVIN		27.06.19
				APPD	S.A.K		28.06.19
DEPT PP	ALL DIMENSIONS ARE IN MM		PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE 121				N.T.S	0.600	3-06-735-14620/00	
TITLE FORGED ELBOW (ø41.3x7.65/ø33.4x6.1)						DRAWING NO : 3-06-735-16088	REV 00

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FORGE SHOP

- 1.00.00 Name of Company, Address
- 2.00.00 Type & No. of Forging Press : Forging hammer
Capacity - (Tonnes)
- 3.00.00 Max. size of Material that can be handled
dimensions, weight and type of materials.
- 4.00.00 Production with relevant standards (for last three years)
Carbon Steel
Stainless Steel
Alloy steel
Inconel -
- 5.00.00 Heating Facilities -
- 5.10.00 Furnace - No. and capacity
- 5.10.10 Type - Oil Fired, Gas Fired, Electric
heating
- 5.10.20 Dimensions
- 5.10.30 Mode of Temperature control & extent
of automation.
- 5.10.40 Temperature recording facilities
- 5.20.00 Distance of heating furnace from Forging Press
- 5.30.00 Handling Facilities - Crane/Truck/Manual/ any other
indicate list of such facility.
- 6.00.00 Availability of in-house Heat Treatment facility Yes/No
- 6.10.00 If yes: Type of heat treatment possible



FORGE SHOP

- 6.20.00 If no, source of Heat Treatment with relevant details.
- 6.20.10 Annealing -
- 6.20.20 Normalising -
- 6.20.30 Stress Relieving -
- 6.20.40 Quenching: - Water/Oil
Any other Heat treatment? -
- 6.20.50 Type & No. of Furnace -
- 6.20.60 Dimensions, Type of Temp. Control,
Temp - Time Recording facilities.
- 7.00.00 Source of Raw Materials -

Indigenous/imported (Indicate source and quantity of
material procured during last three years)
- 8.00.00 Machining Facilities -

List of machines installed
- 9.00.00 Cutting facilities - Type & No. of Machine
- 10.00.00 Availability of testing facilities Yes/No
- 10.10.00 If no - Indicate source of testing with relevant details
- 10.20.00 If yes :-
- 10.20.10 Chemical Analysis: Method
- 10.20.20 Mech. Testing
- 10.20.21 Hardness testing
- 10.20.22 Metallorgraphy
- 10.20.23 Universal Tensile Testing M/C -
Ambient Low Temp.
- 10.20.24 Any other tests -
- 10.30.00 Non-destructive
- 10.30.10 Radiography



FORGE SHOP

- 10.30.20 Ultrasonic Test
- 10.30.30 Dye Penetration
- 10.30.40 MPI
- 10.30.50 Any other NDE
- 11.00.00 Experience with Third Party/Statutory Agency:
Indicate the agency
- 12.00.00 Source of procurement of Dies & availability for
Machining of such dies.
- 13.00.00 Consistency in supply:
- 13.10.00 Has the vendor produced items of similar nature in
past?
- 13.20.00 Has the vendor maintained delivery commitments in
past?
- 13.30.00 Has there been frequent labor trouble in past?
- 13.40.00 Has there been major upset due to faulty
material management?
- 13.50.00 Is the system of planning & scheduling resilient
enough to overcome temporary setbacks & make
up lost time?
- 13.60.00 Has the vendor got standby arrangement for power?
- 13.70.00 Can the vendor quickly offload the work to other
reliable sub-vendor?
- 13.80.00 Total order booked till date.
- 14.00.00 Remarks:

PLACE:

SIGNATURE WITH SEAL

DATE:

No.P-30016/37/2019-Boiler
भारत सरकार
वाणिज्य और उद्योग मंत्रालय
(उद्योग संवर्धन और आंतरिक व्यापार विभाग)
उद्योग भवन, नई दिल्ली – 110 011
GOVERNMENT OF INDIA
MINISTRY OF COMMERCE AND INDUSTRY
(DEPTT. FOR PROMOTION OF INDUSTRY AND INTERNAL TRADE)
(Boiler Section)

UDYOG BHAWAN, NEW DELHI-110 011

दिनांक/Dated the 19th December, 2019

To

1. All the members of the Central Boilers Board
2. All the Inspecting Authorities

Subject: List of recognised Inspecting/Competent Authorities, Well Known Steel Makers, Foundries/Forgings units, Tube/Pipe Makers, Material Testing Laboratories and Remnant Life Assessment Organizations under Indian Boiler Regulations as on 30th November, 2019

Sir,

I am to forward herewith a copy each of the list of recognised Inspecting/Competent Authorities, Well Known Steel Makers, Foundries/Forgings units, Tube/Pipe Makers, Material Testing Laboratories and Remnant Life Assessment Organizations under Indian Boiler Regulations, 1950, as on 30th November, 2019 for your reference and record.

Thanking you,

Yours faithfully,



(S. K. Jain)

Development Officer &
Assistant Secretary, Central Boilers Board
E-mail: sushilk.jain@nic.in
Tel. No.011-23063166

Encl: "As above"

INSPECTING AUTHORITIES

Sl. No.	Name of Inspecting Authority	Area of Operation
1.	Director of Boilers, Andhra Pradesh	Andhra Pradesh
2.	Chief Inspector of Boiler, Arunachal Pradesh	Arunachal Pradesh
3.	Chief Inspector of Boilers, Assam	Assam
4.	Chief Inspector of Boilers, Bihar	Bihar
5.	Chief Inspector of Boilers, Chhattisgarh	Chhattisgarh
6.	Chief Inspector of Boilers, Daman & Diu and Dadra & Nagar Haveli	Daman & Diu and Dadra & Nagar Haveli
7.	Chief Inspector of Boilers, Delhi	N.C.T.D.
8.	Chief Inspector of Boilers, Goa	Goa
9.	Director of Boilers, Gujarat	Gujarat
10.	Chief Inspector of Boilers, Haryana	Haryana & Chandigarh
11.	Chief Inspector of Boilers, Himachal Pradesh	Himachal Pradesh
12.	Chief Inspector of Boilers, Jharkhand	Jharkhand
13.	Director of Boilers, Karnataka	Karnataka
14.	Director of Boilers, Kerala	Kerala
15.	Director of Boilers, Madhya Pradesh	Madhya Pradesh
16.	Director of Boilers, Maharashtra	Maharashtra
17.	Chief Inspector of Boilers, Meghalaya	Meghalaya
18.	Chief Inspector of Boilers, Manipur	Manipur

Sl. No.	Name of Inspecting Authority	Area of Operation
19.	Chief Inspector of Boilers, Mizoram	Mizoram
20.	Chief Inspector of Boilers, Nagaland	Nagaland
21.	Director of Boilers, Odisha	Odisha
22.	Director of Boilers, Punjab	Punjab
23.	Chief Inspector of Boilers, Puducherry	Puducherry
24.	Chief Inspector of Boilers, Rajasthan	Rajasthan
25.	Director of Boilers, Tamil Nadu	Tamil Nadu
26.	Director of Boilers, Telangana	Telangana
27.	Chief Inspector of Boilers, Tripura	Tripura
28.	Director of Boilers, Uttar Pradesh	Uttar Pradesh
29.	Chief Inspector of Boilers, Uttarakhand	Uttarakhand
30.	Director of Boilers, West Bengal	West Bengal
31.	Chief Inspector of Boilers, Andaman & Nicobar Islands	Andaman & Nicobar Islands
32.	M/s Lloyd's Register Asia 63-64, Kalpataru Square, 6 th Floor, Kondivita Lane, Off. Andheri-Kurla Road Andheri(E), Mumbai-400059	Whole of India
33.	Bureau Veritas (India) Private Limited 72 Business Park, 8th floor, Marol Industrial Area, Opposite Seepz Gate No. 2, MIDC CrossRoad "C", Andheri - (East), Mumbai - 400 093, INDIA	Whole of India
34.	M/s ABS Industrial Verification(India) Pvt. Limited 6 th Floor, Lakhani's Centrum,	Whole of India

Sl. No.	Name of Inspecting Authority	Area of Operation
	Sector 15, Plot No. 27, CBD Belapur (E), Navi Mumbai 400 614	
35.	M/s TÜV India Pvt. Limited (TUV Nord Group) 801, Raheja Plaza-1, L.B.S. Marg, Ghatkopar(W), Mumbai-400 086	Whole of India
36.	M/s Intertek India Pvt. Limited E-20, Block-B1, Mohan Co-operative Industrial Estate, Mathura Road, New De lhi-110 044	Whole of India
37.	M/s TÜV SÜD South Asia Pvt. Ltd. TÜV SÜD House, Off Saki Vihar Road, Saki Naka, Andheri (East), Mumbai-400 072	Whole of India
38.	M/s Apave Assessments India Pvt. Ltd. A-49, FIEE Complex, Okhla Industrial Area Phase-II, New Delhi-110 020	Whole of India
39.	M/s HSB International (India) Private Limited, Unit 404, 4 th Floor, “Ozone”, Vikram Sarabhai Mills Compound, Sarabhai Road, Vadodara-390 003 Gujarat	Whole of India
40.	M/s DNV-GI Business Assurance India Pvt. Ltd., Equinox Business Park, Tower 3, 6 th Floor, LBS Marg, Kurla (W), Mumbai-400070	Whole of India
41.	M/s IRCLASS Systems and Solutions Pvt. Ltd., 4th floor , 52-A Adi Shankaracharya Marg, Powai, Mumbai-400072	Whole of India
42.	M/s ASTRON Certification India Pvt Ltd., 406, A Wing Shiv Chambers, Plot No. 21, Sector 11, CBD Belapur Navi Mumbai- 400614	Whole of India
43.	M/s TÜV Nord Systems GmbH Co.KG Langemarckstr 20, D-451141 Essen, GERMANY	Europe, Brazil, China, Korea, Middle East countries, Thailand & Turkey
44.	M/s British Engineering Services Limited 5, New York Street, Manchester, M1 4JB, United Kingdom	Europe

Sl. No.	Name of Inspecting Authority	Area of Operation
45.	M/s Japan Inspection Company Limited RBM Higasghi Yaesu Bldg. 10F, No. 2-9, I-Chome, hatchobori, Chou-ku Tokyo, 104-0032, Japan	All countries in Asia except India
46.	M/s S.G.S. Korea Company Ltd. Industrial Division, 50, sinsan-ro 29 beon-gil Saha-gu, Busan, Korea (604-838)	Korea & Japan
47.	M/s Bureau Veritas Le Triangle de l'Arche, 8, Cours du Triangle, CS 90096, 92937 La Defense Cedex, France	All countries except India
48.	M/s Lloyds Register Verification Ltd. 71, Fenchurch Street London EC 3M, U.K	All countries except India
49.	M/s Velosi certification Bureau Limited Unit 4 Bennet Court, Bennet Road, Reading, Berkshire, RG2 0QX, United Kingdom	Europe, China, Malaysia, Middle East countries & USA
50.	M/s TÜV Rheinland AG Am Grauen Stein, D-51105 Koln Germany	All countries except India
51.	M/s OOO "TekhnoLogicheskieEnergosistime" 109, Vezelskaya, Belgorod, 308015 Russia	Russia, Ukraine, USA, Germany, China & Italy
52.	M/s Engineering Bureau Franke International Limited 55, Amurskaya St., Dnepropetrovsk 49108, Ukraine	Ukraine, Belarus, Belgium, China, Czech Republic, Iran, Poland, Romania, Russia, South Korea, Turkey & Uzbekistan
53.	M/s ARISE Boiler Inspection & Insurance Insurance Company Risk Retention Group Grand Bay 1,7000 South Edgerton Road Suite 100, Breeksville OH 44141 USA	USA & Canada
54.	M/s Tata Projects Limited SBG Services, Splendid Tower, 6 th Floor, H.No. 1-8-364, 437, 438 & 445, Begumpet Hyderabad-500 003 Telangana	All countries except India
55.	M/s TÜV SUD Industrie Service GmbH Westendstr, 199 80686 Munich Germany	All countries except India

Sl. No.	Name of Inspecting Authority	Area of Operation
56.	M/s TÜV Thüringen e.v., Service Centre Erfurt, Melchendorfer Str. 64 99096 Erfurt, Germany	Europe & China
57.	M/s SGS-CSTC Standards Technical Services Co. Ltd. 9 th Building No. 69, KangQiao Industrial Park, Block 1159, KangQiao East Road, Pudong District, Shanghai-201 319 China	China
58.	M/s Intertek Inspection Services UK Limited 5 th Floor, 35 Perrymount Road, Haywards Heath, West Sussex, RH16 3BW, United Kingdom	All countries except India
59.	M/s ABSG Consulting Inc 16855 Northchase Drive Houston, TX 77060 United States of America	All countries except India
60.	M/s Hartford Steam Boiler Inspection and Insurance Company, One State Street, P.O. Box 5024, Hartford, CT 06102-5024 U.S.A.	All countries except India
61.	M/s SGS-TÜV Saar GmbH Am TUEV 1, D-66280 Sulzbach Germany	Europe
62.	M/s Korean Register of Shipping 36, Myeongji Ocean City 9-ro, Gangseo-gu, Busan, Republic of Korea	All countries in Asia except India
63.	M/s AIB-Vincotte International sa Jan Olieslagerslaan 35, 1800 Vilvoorde, Belgium	Europe
64.	M/s TUV-Thuringen-PromService, 5 th Noviy St., B.106, Taganrog, 347943, Russia	Ukraine, Belarus, Belgium, China, Czech Republic, Iran, Poland, Romania, Russia, South Korea, Turkey & Uzbekistan

Note: As per IBR-1950, Regulation 4H(2)(v), an Inspecting Authority may also work as a Competent Authority for in-house certification of welders.

 BHEL - TRICHY	THIRD PARTY NON-DISCLOSURE AGREEMENT		Doc.No. : ISMS-04/TP/011
			Ver. No: 3.0 Rev. No: 00
	Date : 27 - 10 - 14		

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, Trichy on contract is confidential and that the nature of the business of the BHEL, Trichy 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, Trichy 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, Trichy all documents and property of BHEL, Trichy, including: drawings, blueprints, reports, manuals, computer programs/data/configuration, and all other materials and all copies thereof relating in any way to BHEL, Trichy '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, Trichy and are reasonable given the nature of the business carried on by the BHEL, Trichy 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