

Ref: PC8021

DT: 22.10.08

To

Sir,

Sub: Enquiry No: BHE:PC:PUR:8021 dt 22.10.08 Due on 03.11.08

This is a single part bid

Kindly submit your offer for **conversion work** for the following items

**1) 90 DEG LR ELL DIA 559 X 28.58 SA234WP22CL1 Qty 40 nos
(Matl code 925244580000)**

**2) 45 DEG LR ELL DIA 559 X 28.58 SA234WP22CL1 Qty 15 nos
(Matl code 925248970000)**

PIPESIZE DIA 559 X 28.58 SA335P22 will be supplied for conversion.

Special Notes

Pipes will be supplied to vendor by BHEL as "free issue".

Vendor to specify the Length required per piece to manufacture the above fittings for evaluating the offer.

Vendor has to give cutting plan for the materials supplied by BHEL.
Off-cut/scrap are to be returned to BHEL / Trichy stores on freight paid basis by the vendor.

Supplier shall provide bank guarantee for a value of 10% of Raw material cost.

Supplier is responsible for the material received. In case of any material rejection / damages during manufacturing, the cost will be recovered from the suppliers bills at prevailing rates of BHEL.

To manufacture as per **TDG:102:03** and confirm all clauses of TDCs, No deviation is accepted. Inspection shall be done by BHEL/PC/QC.

EP shall be as per d1 value mentioned against each item and EP style as per Drg .

Please quote on **FOR Trichy/Site**. Finished elbows shall be dispatched to Trichy RPS stores /Site within 8 weeks from PO/LOI date

Please submit your offer before the due date.

Kindly submit your offer as per the Terms and conditions.

Regards,


S VARADARAJAN
Dy. Manager / Purchase

S. VARADARAJAN
Dy. Manager - Purchase
BHEL / Piping Centre
80, G.N. Road, Chennai - 600001

1) Bank guarantee format 2) EP drawing 3) Terms and conditions **4) TDC**

(TO BE STAMPED IN ACCORDANCE WITH STAMP ACT)

SUB – CONTRACTING BANK GUARANTEE

1. THIS DEED OF GUARANTEE made this..... day of(month).....(year)
By(Bank 's full address) in favour of M/s Bharat Heavy
Electricals Limited ,Piping Centre,Chennai-17 , Unit : Thiruverumbur, Tiruchirapalli
620 014, having its Registered Head Office at BHEL House, Siri Fort , New Delhi 110049.
2. WHEREAS M/s Bharat Heavy Electricals Limited (hereinafter called the "COMPANY")
have placed work order(s) which are pending as on date and also proposes to place further
work order(s)) (hereinafter called the "CONTRACT") upto..... (Date) for fabrications/
for machining/supply of pressure and non – pressure parts with
M/s.....(CONTRACTOR'S Full address) (hereinafter called the "CONTRACTOR
/SUPPLIER") and as per the terms of the contract, the company has issued /proposes to
issue raw materials to the contractor to enable them to complete the work.
3. AND WHEREAS one of the conditions for placing such contract(s) is that the Contractor/
Supplier shall provide the Company a Bank Guarantee for Rs.in lieu of cash
and towards the security deposit for the raw materials supplied and to be supplied, in
pursuance of the contract(s) already placed but pending as on date and the contract(s) to
be placed from time to time upto (Date) and also for the satisfactory
performance and completion of work/supply as per the terms and conditions of the said
contract(s).
4. AND WHEREAS the Contractor/ Supplier..... approached the
(Bank) and at their request and in consideration of the arrangement arrived at between the
said Contractor / Supplier and the said Bank,
5. We(indicate the name of the bank with full address), do hereby
undertake to pay the amounts due and payable under this guarantee without any demur,
merely on a demand from the Company stating that the amount claimed is due by way of
loss or damage caused to or would be caused to or suffered by the Company by reason of
breach by the said Contractor(s) of any of the terms and conditions contained in the said
Agreement or by the reason of the contractor(s) 'failure to perform' the said agreement.
Any such demand made on the Bank shall be conclusive as regards the amount due and
payable by the Bank under this guarantee. However, our liability under this guarantee shall
be restricted to an amount not exceeding Rs. _____.
6. We..... (Bank) , further assure that the Contractor/ Supplier shall be responsible
for the safe custody and protection of the raw materials that have been supplied/and to be
supplied by BHEL under the contract(s) already placed but pending as on date and to be
placed upto(date) against all risks till they are delivered back as
finished products to BHEL as per the terms and conditions of the Contract or as they may
direct and until such time, the Contractor/ Supplier shall hold the raw materials in trust for
BHEL and shall not alienate the same in any manner whatsoever by way of sale or
mortgage or charge or hypothecation etc. in favour of any one else including the bank herein
or any other banks /financial institutions etc.

The raw materials shall always remain the property of BHEL and the Bank shall indemnify BHEL against the loss, damage or deterioration whatsoever in respect of the said raw materials while in the possession of the Contractor/Supplier. The raw materials of BHEL shall always be open for inspection by any Officer authorised by BHEL. The liability under this Guarantee is a continuing one covering all contracts already placed but pending as on date and to be placed upto.....(date) and should any loss or damage occur on account of the breach of the terms and conditions of the said contract(s) by the Contractor/ Supplier or should any surplus raw materials become due to the Company under the Contract(s) and remains undelivered by the Company, the Bank shall indemnify the Company for the loss /damage for the value of raw materials for Rs...../- (RupeesOnly) and this is without prejudice to any other remedies which may be otherwise available to the Company by deduction from any sum due or any sum which at any time hereinafter become due from the Contractor/ Supplier under this or any other Contract(s).

7. We undertake to pay unconditionally to the Company any money so demanded notwithstanding any dispute(s) raised by the Contractor in any suit, or proceedings pending before any Court or Tribunal or Arbitration or before any other authority relating thereto our liability under this present being absolute and unequivocal. The payment under this guarantee would not wait till the disputes have been decided by any Court or Tribunal or in the arbitration proceedings or by any other authority. The payment so made by us under this Bond shall be a valid discharge of liability for payment thereunder and the Contractor(s) shall have no claim against us for making such payment.

8. We.....(indicate the name of Bank), further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Company under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till _____ Office / Department/ Division of the Company certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.

9. (i) Unless a demand or claim under this guarantee is made on us in writing on or before the _____ we shall be discharged from all the liability under this guarantee thereafter. But where such claim or demand has been preferred by the Company with the Bank before the expiry of the said date, the claim shall be enforceable notwithstanding the fact that the said enforcement is effected after the said date.

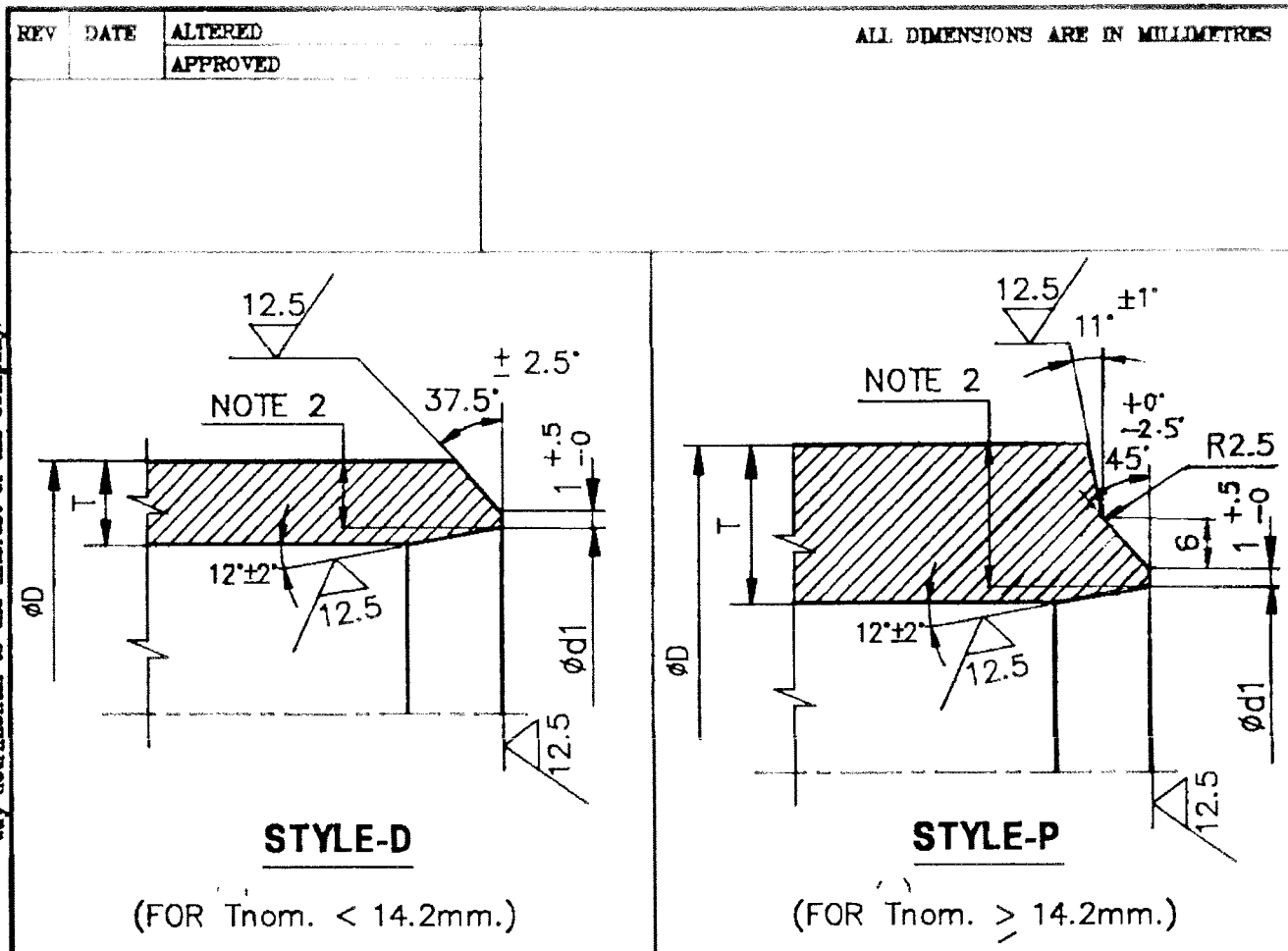
(ii) For the purpose of this clause, any letter making demand on the Bank by M/s. BHEL dispatched by Registered Post with Ack.Due or by Telegram or by any Electronic media addressed to the above mentioned address of the Bank shall be deemed to be the claim / demand in writing referred to above irrespective of the fact as to whether and when the said letter reaches the Bank, as also any letter containing the said demand or claim is lodged with the bank personally.

10. We(indicate the name of Bank), further agree with the company that the Company shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor (s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Company against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by any reason of any such variation or extension being granted to the said Contractor(s) or for

any forbearance, act or omission on the part of the company or any indulgence by the company to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating would but for this provision have effect of not so relieving us.

11. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).
12. It shall not be necessary for the company to proceed against the contractor before proceeding against the guarantor-bank and the guarantee herein contained shall be enforceable against them notwithstanding any security, which the company may have obtained or obtain from the Contractor shall, at the time when proceedings are taken against the guarantor hereunder be outstanding or unrealised.
13. Any claim or dispute arising under the terms of this document shall only be enforced or settled in the Courts at Tiruchirapalli.
14. The guarantor hereby declare that it has power to execute this guarantee and the executant has full powers to do so on its behalf under the proper authority granted to him/them by the guarantor.
15. We(indicate the name of Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the company in writing.

In witness whereof we....., (indicate the name of Bank). have hereunto setout Bank Seal the _____ day _____ month 200



NOTES:

1. WELD END DIAMETER $\phi d1$ SHALL BE AS INDICATED BELOW UNLESS OTHERWISE SPECIFIED DIFFERENTLY IN P.O.
 - a) FOR OD BASED PIPES:
 $\phi d1 = D - 2T_{nom}$ for $T_{nom} \leq 12.5\text{mm}$; $\phi d1 = 0.995D - 1.7T_{nom}$ for $T_{nom} > 12.5\text{mm}$.
 TOLERANCE ON $\phi d1$: +0.5, -1.0.
 - b) FOR ID CONTROLLED PIPES:
 $\phi d1 = ID$. TOLERANCE ON $\phi d1$: +0, -1.6.
2. MINIMUM THICKNESS AT WELD END SHALL BE AS FOLLOWS:
 - a) $0.875 \times T_{nom}$ FOR OD BASED PIPES.
 - b) T MINIMUM FOR ID CONTROLLED PIPES.
3. EDGE PREPARATION SHALL BE AS PER STYLE-D OR STYLE-P AS INDICATED ABOVE UNLESS OTHERWISE SPECIFIED DIFFERENTLY IN P.O.

STANDARD



BHARAT HEAVY ELECTRICALS LTD.

PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE
DRN	R. ANANTH	<i>R. Ananth</i>	11-04-94
CHD	S. JAYAKUMAR	<i>S. Jayakumar</i>	12-04-94
APPD	G. ROBERT	<i>G. Robert</i>	13-04-94

TITLE

BW EDGE PREPARATION
(FOR PIPES & FITTINGS)

CARD
CODE
U 01

DRAWING NO.

4-80-999-9965000

REV



TERMS & CONDITIONS FOR PROCUREMENT OF FITTINGS

SL NO	BHEL REQUIREMENT	SUPPLIER CONFIRMATION
1	<p>TYPE OF BID – Offers are invited to submit in <u>single/ Two parts</u> In case of Single Part Bid no deviation shall be taken and bids will be rejected if any deviation is taken. The order will be finalized based on price /negotiation with all other conditions being accepted by the bidder.</p> <p>In case of Two part bid, the following procedure shall be followed.</p> <p>Part-I TECHNICAL - CUM – COMMERCIAL PART :- This part of the Bid shall contain following Technical and Commercial Points only (Except Price Portion)</p> <ul style="list-style-type: none"> Acceptance to our TDC (Technical delivery condition) as given in the tender. Deviation if any shall be clearly indicated. If there is no specific indication about deviation it will be taken as totally accepted and processed. Copy of price bid without price part to know the items for which you are quoting against this tender. For items which could not be manufactured in seamless construction, vendor can give their offer for welded construction. Vendors who are able to give both may quote for both. If only one construction offered it will be treated that they are not manufacturing the other one. However BHEL reserves the right to accept or reject the offer. <p>(Money values shall not be indicated i.e.un priced bid).</p> <p>PART II PRICE PART : The unit price on FOB Sea port or C&F Chennai (foreign vendors) / FOR Destination basis (indigenous vendors) and shall include all testing, inspection , packing & Forwarding charges.</p> <p>This part of the Bid shall contain item-wise Price details against each Enquiry Sl.No. and the same shall be put in a sealed cover duly indicating Tender No, Tender Opening date, and "Price Bid" on the Sealed cover. Price quoted by the Supplier, element wise including Taxes & Duties shall be as per the format enclosed. Soft copy of the same also to be provided immediately after the price bid opening. In case of difference between the two, hard copy will prevail and binding on the supplier. Preconditions for price will not be accepted.</p> <p>Both the above referred parts of the Bid each sealed in a separate cover shall be put in a sealed outer cover duly indicating Tender No.& Date, Tender Opening date and to be sent to</p> <p style="text-align: center;">SR MANAGER / MM BHEL : PIPING CENTRE 80, G.N CHETTY STREET T.NAGAR, CHENNAI 600 017</p>	
2	If you are not interested / not in a position to participate in the tender, please send regret letter for not participating, before due date of the tender.	
3	You are requested to quote only for the sizes / spec for which you are approved by BHEL, Piping Centre.	YES/NO
4	Tolerances for dimensions other than edge preparation shall be as per ASME B 16.9/B 16.28/B 16.11:	
5	<p>Quality Documents as listed below should be sent to Purchase / Piping centre BHEL Chennai immediately after the shipment / dispatch of items and not through Bank.</p> <p>i) Three sets of original certificates item-wise (ie) Works TC, IBR Form III C, UT Report, MPI report, Dimensional report, Raw Material TC (Xerox copy)</p> <p>ii) 10 copies of IBR Form III C for each item duly attested by the makers representative who has signed in IBR Form III C. The company seal shall be</p>	

6	<p>affixed below the signature in case the ordered quantity of an item is 10 and above, (otherwise you can restrict the number of attested copies to the ordered quantity of an item). These certificates are to be dispatched along with the other TC and not through Bank.</p> <p>All the above documents are to be submitted in soft copy apart from the hard copies as above. if the materials are not ready on the date of visit by BHEL INSPECTOR against specific call for inspection by vendor, all the expenses incurred for the visit shall be liable for recovery from the invoices of the vendor. Further, this will also have an adverse bearing on the performance rating of the vendor.</p> <p>Year of Code for Viz. the standards ASME B16.9, ASME B 28 & ASME B.16.11 etc. shall be latest and the specific year is to be mentioned in the Manufacturer's test certificates, as well as in IBR Form III-C. Also the relevant Year Code for material standard and the NDT standard (ie U.T/LPI/MPI) has to be mentioned.</p>	
7	<p>VALIDITY OF THE OFFER :- The quotation shall be valid at least for a period of 90 days from the date of price bid opening date. Offer with lesser validity will not be considered.</p>	
8	<p>DELIVERY SCHEDULE :- As indicated in the Enquiry</p>	
9	<p>TERMS OF DELIVERY :- FOR SITE or Trichy / FOB or C&F Chennai</p>	
10	<p>TAXES & DUTIES :- Please indicate clearly the percentages of applicable taxes, duties like CST, Excise Duty or any other taxes / duties. See Pricing Format enclosed.</p>	
11	<p>TRANSPORT :- . For Indigenous suppliers: All the Items are to be dispatched to our Trichy Stores/Site as per PO through BHEL approved road carriers only .List of authorised transporters will be furnished at the time of entering in to contract. Changes if any, in the transporters list during contract period shall be communicated from time to time.</p> <p>For Foreign suppliers: All Items are to be shipped to Chennai Harbour – India</p>	
12	<p>PRESERVATION :- Before dispatch the ordered items shall be well covered with a good quality rust preventive material that will not become fluid and runoff at <65 Deg.C. Any other equivalent or better method of preservation can be suggested by the Vendor to prevent rusting.</p>	
13	<p>INSPECTION :-</p> <p>A) IBR & Third Party inspection agency for CS & AS materials.</p> <p>B) Third Party inspection agency for SS Materials</p> <p>C) Lloyds Inspection / SGS/BV/BHEL approved agencies</p> <p>D) BHEL / QC Inspection</p>	

SL NO	BHEL REQUIREMENT	SUPPLIER CONFIRMATION
14	<p>CERTIFICATION :- IBR TC in form III C, inspection report of BHEL Third Party inspection agency, Mfg TC, incorporating BHEL Specification requirement /ASME requirement. Mechanical / Hardness & Heat treatment and other Lab test reports to be furnished. Confirmation report to BHEL Specification to be furnished. Basic raw material (Mill) TC & other requirements as per TDC / Specs shall be submitted.</p> <p>Inspection Charges:- Inspection charges of BHEL/ Their representative are to BHEL A/c. Any other testing charges and IBR inspection charges should be included in the quoted prices.</p> <p>* Inspection charges extra* shall be furnished for each batch of dispatch / consignment. If entire P O quantity is manufactured in one lot but dispatched in phased manner, original IBR should be sent along with the first consignment and the same shall be verified for subsequent consignments with a Xerox copy.</p>	
15	IDENTIFICATION As per TDC	
16	GUARANTEE : Vendors shall guarantee the supplies for a period of 24 months from the date of dispatch of materials or 18 months from the date of their commissioning which ever is later	
17	<p>10. PENALTY :- “If the supplier fails to deliver the Raw material / Equipment / Components within the period specified in the contract the purchaser shall deduct Liquidated Damages, a sum equivalent to 0.5% of the price for each week of delay upto a maximum of 15% of the price of delayed/undelivered goods to be reckoned from the contract delivery date to cargo readiness date (i.e., final inspection agency’s signed date in the certificate)”</p>	
18	<p>TERMS OF PAYMENT :</p> <p>90% payment against presentation of following documents to our Finance Departments Directly with a copy of Invoice alone to Purchase department.</p> <ol style="list-style-type: none"> Invoice in Triplicate Delivery Challan in duplicate. Guarantee certificate in duplicate. Lorry Way Bill Copy- one copy (Original copy of LWB should be sent through the carrier) Inspection report copy – one copy IBR Form III-C- one copy ED gate pass original or copy with a confirmation that the original is sent with the goods. <p>Balance 10% will be paid on submission of Invoice along with GR reference.</p> <p>For Foreign Vendors: 100% through LC and PBG for 10% of PO Value.</p>	
19	For all other Terms & Conditions.. If the offer is not confirmed for any other terms we will load highest offer submitted by any other supplier.	
20	<p>GENERAL :-</p> <ul style="list-style-type: none"> The PO copy with all details will be given to successful bidders in soft mode also. However Hard copy will be used for record purpose. The same soft copy should be utilized by the suppliers to furnish information as called for in the format. See attached format for details. This soft copy will go up and down between BHEL and the supplier for tracking the full process and smooth closing of the PO During the Contract period, any of our sister units of BHEL Piping Centre will be entitled to place order for this item on the same terms and conditions BHEL reserves the right to cancel this tender without assigning any reasons what so ever. Other terms and Conditions not covered here are as per our standard “General Terms and Conditions of enquiry and Contract for the purchase of goods” a copy of which is enclosed herewith. Deviation taken after placement of order will not be accepted (Both technical & on delivery) Suppliers to analyze in detail, at the time of submission of offer with reference to our “delivery” requirement of fittings and confirm compliance or otherwise. 	

- To ensure correct & timely submission of all original test certificates including IBR Form III-C. There should not be any discrepancies in detail leading to time wastage in clarification and revisions.
- BHEL reserves the right to increase or decrease the tendered quantity which may vary by plus minus 15%.
- Lowest prices received against BHEL tenders does not mean order will be placed on that Supplier. BHEL reserves the right not to consider the same.
- BHEL reserves the right to negotiate or re-float the tender opened if L1 price /or other details are not acceptable to them
- BHEL reserves the right to negotiate the L1 rate.
- BHEL reserves the right to order on more than one vendor at the lowest acceptable price to BHEL
- **Pre qualification** is the criteria for consideration for other than the BHEL Approved Vendors. After qualifying for registration, the new Vendors, may be considered for future inline with their system and policy. Such Vendors will not be considered in this Enquiry.
- The new Vendors may download Vendor registration forms from BHEL Web site www.bhel.com. And submit all relevant data for formal registration.

Note : Please confirm your acceptance/other wise to all the points indicated above positively and submit this format duly filled, signed & stamped along with the technical bid.

VENDOR



1.0 CODES:-

The fittings shall meet Indian Boiler Regulations (IBR) and the following requirements in addition to the standards specified in the Purchase Order (PO).

2.0 RAW MATERIALS:-

- All pipes used for fittings shall meet the respective specification. The test certificate shall be furnished.
- All mother pipes used for fittings shall be subjected to a hydraulic test as per SA 530 or UT as per ASTM E 213 at the mill
- All plates used for fittings shall be UT tested as per S1 of SA578 and acceptance norms shall be as per Level B of SA578
- The raw material forging shall be ultrasonically tested as per SA 388 and the acceptance norm shall be as per 3.3.4 of ASME Sec VIII Div 2.
- Steel for SA182 F11, F12 & F22 if indigenously procured, to be from following manufacturers approved under IBR for creep resistant steels: i) Alloy Steel Plant Durgapur, ii) Tata Iron & Steel company, Jamshedpur & iii) Mahindra Ugine Steel Company, Mumbai..

3.0 PROCESS:-

- Process of manufacture shall conform to applicable standards.
- All fittings shall be of seamless unless otherwise specified in the purchase order.
- In case of welded fittings, WPS, PQR & welder qualification shall be approved by BHEL PC, prior to start of welding.
- All fittings shall have smooth surfaces, workman like finish and free from loose scales and defects like laps, seams, folds, cracks, pitting etc.. Repair by welding is NOT permitted.
- Dimensions shall be as per ASME B16.9 or B16.28, Butt Weld edges shall be as given in Purchase Order. The ends of reducers shall have a straight portion of Minimum 13mm.
- Unless otherwise specified in the P.O SA 234 WP 11/12/22 fittings shall be supplied as per class 1, SA 182 F11/12 shall be supplied as class 2, SA 182 F22 shall be of class 3 only.

4.0 HEAT TREATMENT:-

4.1 All fittings shall be heat treated as below.

SA 234 WP B	- As per specification
SA 105, SA 234 WP C	- Normalised
SA 234 WP 11/ WP 12/ WP 22	- Normalised & Tempered
SA 182 F11/ F12/ F22	- Normalised & Tempered
Stainless Steel :-	
SA 182 F304/ 316/ 321/ 347	- Solution annealed
SA 403 WP 304/ 316/ 321/ 347	- Solution annealed

4.2 Fittings conforming to SA 234 WP 91 and SA 182 F91 shall be normalised at 1040 to 1070 deg C (for wall thickness larger than 75 mm, accelerated cooling may be done to obtain a fully martensitic structure) and tempered at 760 \pm 10 deg C

S. Jayakumar, Engg

P. Elangovan, QA

Approved by

K. Vedaprasad, QC

K. Ganeshan, MPL



5.0 TESTING :-

- (a) Carbon content of SA 234 WPB, WPC, SA 105 fittings shall be restricted to 0.25% max.
- (b) All ferrous fittings shall be tested by MPI as per ASTM E-709 and SS fittings shall be LPI tested as per ASTM E 165.
- (c) One fitting of each specification, heat, heat treatment lot and size shall be subjected to Tension Test as per applicable standard.
- (d) All fittings of wall thickness above 6mm or NB 200mm and above shall be Ultrasonically Tested as per SA 388; acceptance norms shall be 3.3.4 of ASME section VIII Div.2.
- (e) Hardness test shall be carried out on each fittings of WP91 / F91. For other fittings hardness shall be checked on 10% of the fittings.
- (f) In case of welded fittings; all the welds shall be 100% RT tested and acceptance norms shall be UW 51 of ASME Sec VIII DIV-1
- (g) The following supplementary tests shall be carried out for specifications namely SA105, SA 182 F11 / F12 / F22 / F91, SA 234 WPC / WP11 / WP12 / WP22 / WP91 (No supplementary test applicable for SA 234 WPB)
 - a) Product analysis – one / heat / size.
 - b) Tension test – one / heat / heat treatment lot / size.
- (h) Metallography:- Metallography shall be carried out one per heat, per size, per heat treatment lot of WP91 / F91 fittings.

6.0 POSITIVE MATERIAL IDENTIFICATION (PMI) FOR ALLOY STEEL FITTINGS.

Each alloy steel fitting shall be checked for the correctness of the material during manufacturing and final inspection using X-ray fluorescence principle or spark emission spectrography.

7.0 MARKING, COLOUR CODING, PACKING AND PRESERVATION :-

- 7.1** All fittings shall be PUNCHED OR ETCHED with specification, Grade, Heat No, maker's emblem and Inspection Authorities Seal. In addition, specification, grade, heat no and size shall be stencilled on fittings of sizes above 76mm.

7.2 COLOUR CODING:-

SA 234 WPB / WPBW	=	Red
WPC / SA105	=	Blue
WP11 / SA182 F11	=	Green & White
WP12 / SA182 F12	=	Black & Red
WP22 / SA182 F22	=	Blue & Red
WP91 / SA182 F91	=	Brown & Red
SA182 / SA 403 F / WP 304	=	Blue & Yellow
316	=	Black & Green
321	=	Blue & Brown
347	=	Yellow & Black

S. Jayakumar, Engg

P. Elangovan, QA

Approved by

K. Vedaprasad, QC

K. Ganeshan, MPL



7.3 PACKING AND PRESERVATION :-

All fittings except SS to be applied with resin type rust preventive coating with visibility to punched and stenciled details on outside and either with rust preventive coating or rust inhibitor inside. SS fittings to be surface treated as per ASTM A380 both inside and outside. Ends to be closed, with end caps secured for storage and suitably packed in box/crate to avoid transit/other damages.

8.0 INSPECTION & CERTIFICATION :-

All fittings are to be Inspected at the manufacturer's works by the Inspection agencies / authorities as per IBR and as indicated in the P.O. Inspection certificate in IBR Form III C shall be submitted along with the Work Test Certificate countersigned by the above authorities and shall include the following.

1. Test Certificate Number & date.
2. BHEL P.O Number & Amendment Number
3. BHEL P.O. Serial Number
4. BHEL TDC Number
5. Size-wise Quantity
6. Specification, Grade & Year of code.
7. Heat/Melt Number
8. Starting material details.
9. Steel making process
10. Laddle Analysis of Raw Material and product analysis of fitting.
- *11. Positive Material Identification (PMI) report for Alloy steel fittings.
- *12. Supplementary Test(Product analysis, Tension test..) results.
- *13. Heat Treatment Chart.
- *14. NDE report. (VISUAL,MPI, LPI,UT)
- *15. Tensile Test Report
- *16. Hardness Test Report
- *17. Metallography as applicable.
- *18. Dimensional conformance.
- *19. RT test report / Results (for welded fittings)
- *20. Guarantee of HTP shall be given as follows:- "Fittings are capable of withstanding without failure, leakage or impairment of their serviceability a hydrostatic test pressure equal to that prescribed for the specified matching pipe of equivalent material".

*Details furnished in the Tests certificate in lieu of chart/report is acceptable.

9.0 RECORDS OF REVISION :-

Rev 01 : a) Fully revised for better clarity.

: b) Para 2.0 e added.

Rev 02 : a) Para 2.0 (c): UT acceptance norms revised from level A to B.

Rev 03 : a) Fully revised for better clarity.

: b) Para 4.2,6.0, 8.0 (11) added.

c) Para 2 (d) ,4.1, 5 (d) are revised.

S. Jayakumar, Engg

P. Elangovan, QA

Approved by

K. Vedaprasad, QC

K. Ganeshan, MRL