



TERMS & CONDITIONS FOR PROCUREMENT OF BW FITTINGS -- FOREIGN & INDIGENOUS

SL NO	BHEL REQUIREMENT	AGREE	DISAGREE
1	<p>TYPE OF BID – Offers are invited to submit in single/ Two parts</p> <p>A.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/RA with all other conditions being accepted by the bidder.</p>	NA	NA
	<p>B.In case of Two part bid, the following procedure shall be followed.</p> <p>Part-I TECHNICAL - CUM – COMMERCIAL PART (Un priced) :- 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 TDC102 rev 05 (Technical delivery condition) as given in the tender. Deviation if any shall be clearly indicated separately. All fittings shall be of SEAMLESS CONSTRUCTION only. UNDISCLOSED DEVIATIONS ARE NOT ACCEPTABLE. PO will be placed on individual L1 vendors only and not as total package. 		
	<ul style="list-style-type: none"> Copy of price bid without price part to know the items for which you are quoting against this tender. (Money values shall Not be indicated i.e.unpriced bid). 		
	<ul style="list-style-type: none"> Confirmation to supply as per drawings if any sent along with enquiry. 		
	<ul style="list-style-type: none"> Edge preparation shall be done as per drg no: 3-80-300-19825-R03 / 3-80-999-97744 rev 00 as applicable and style & d1 value shall be as mentioned against each item in the enquiry Tolerance shall be as per our drawing 48030126192 rev 01 		
	<ul style="list-style-type: none"> VENDORS ARE REQUESTED NOT TO ALTER THE DESCRIPTION AND SIZE DETAILS GIVEN IN THE TENDER. 		
	<ul style="list-style-type: none"> ALL THE REDUCERS ARE CONCENTRIC UNLESS OTHERWISE SPECIFIED. 		
	<p>PART II PRICE PART :</p>		
	<p>Foreign vendors- The unit price shall be quoted on CFR Chennai port Insurance will be borne by BHEL .</p>		
	<p>Indigenous vendors-The unit price on FOR Trichy/Site basis. (Including freight and insurance)</p>		
	<p>The price shall include all testing, inspection, packing & Forwarding charges. PLEASE DO NOT QUOTE ON EX –WORKS BASIS. This part of the Bid shall contain item-wise Price details against each Enquiry SI.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, itemwise including Taxes & Duties shall be furnished. Preconditions for price will not be accepted.</p> <p>Both the above referred parts(part I , part II) 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 align="center">MANAGER / PURCHASE (FITTINGS) BHEL: PIPING CENTRE 80, G.N CHETTY STREET T.NAGAR, CHENNAI 600 017</p>		

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	TENDER SHALL BE PROCESSED BY REVERSE AUCTION .		
	PL PROVIDE MINIMUM 2 CONTACT PERSON DETAILS FOR REVERSE AUCTION . EMAIL ID , TEL NO , MOBILE NO ETC ..		
	HOWEVER BHEL RESERVES THE RIGHT TO FINALIZE THE PRICES BY OPENING THE PRICE BIDS WHICH WILL BE INFORMED AFTER TECHNICAL EVALUATION.		
	Price Comparison shall be made by considering the Exchange rates as on Technical bid opening date.		
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 are within your manufacturing range and approved by BHEL, Piping Centre.		
4	Test certificates as called for in the TDC shall be sent to Purchase / Piping centre BHEL Chennai immediately after the shipment / dispatch of items and not through Bank. Inspection documents 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 attested Xerox copy of IBR shall be sent for subsequent consignments. Soft copy of the all the test certificates shall also be submitted through email.		
5	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.		
6	VALIDITY OF THE OFFER:- The quotation shall be valid at least for a period of 60 days from the last reverse auction date . Offer with lesser validity may not be considered		
7	DELIVERY SCHEDULE :- 4 MONTHS from LOI / PO date DELIVERY IS THE ESSENCE OF THE CONTRACT. As delivery will affect our project requirements, kindly quote for the above delivery period only.		
8	TERMS OF DELIVERY :- Indigenous vendors : FOR Trichy/Site basis Foreign vendors : CFR-Chennai port, VENDORS QUOTING ON CFR BASIS SHALL ARRANGE FOR FREE CONTAINER RETENTION PERIOD OF 21 DAYS FOR CLEARANCE OF CARGO .		
9	TAXES & DUTIES:- Please indicate clearly the percentages of applicable taxes, duties like CST, Excise Duty or any other taxes / duties.		
10	TRANSPORT:- . For Indigenous suppliers: Wherever DTS advice is given , fittings shall be directly sent to respective project sites . The remaining items shall be sent to Trichy Stores. For Foreign suppliers: All Items are to be shipped to Chennai Port India.		

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11	Preservation & Identification :- As per respective Technical Delivery Condition.		
12	INSPECTION :- Indigenous suppliers. a) IBR & BHEL/Third Party inspection agency for CS & AS materials. b) Only BHEL/Third Party inspection agency for SS Materials. No IBR inspection for SS materials.		
	Foreign suppliers SGS / BV /LLOYDS/TUV / IBR approved inspection agency.		
13	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.		
14	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 whichever is earlier.		
15	LD CLAUSE :- If the supplier fails to deliver the fittings 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 up to a maximum of 15% of the price of delayed/undelivered portion. For the purpose of LD , the delivery date will be reckoned as follows: a) For foreign/Imported vendors: Date of Bill of Lading will be taken as delivery date. b) For Indigenous sources: LR date will be taken as the delivery date.		
16	TERMS OF PAYMENT: No advance payment shall be made by BHEL.		
16.a	For indigenous vendors: 100% payment within 45 days after receipt of site acknowledged LR. : Payment shall be made against presentation of following documents to our Finance Department . However a copy of Invoice and LR shall be sent to Purchase department immediately after the dispatch is effected. A. Invoice in Triplicate B. Delivery Challan in duplicate. C. Guarantee certificate in duplicate. D. Lorry Way Bill Copy 1) Site acknowledged LR in case of DTS desptch 2) Proof of receipt of material at Trichy stores E. Inspection report copy F. IBR Form III-C copy G. ED gate pass original or copy with a confirmation that the original is sent with the goods.		
16. b1	For Foreign Vendors: 100% through CAD with PBG for 10% of PO Value.		
16.b2	For Foreign Vendors: In case 100% LC at sight is insisted , it may be noted that LC charges will be loaded @ 1.5% of quoted price. (However CAD is preferred by BHEL)		

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17	<p><u>Micro / Small Indian Enterprises: (MSE)</u></p> <p>In case the supplier belongs to MSEs (Micro Small Enterprises) – Indian vendors , Registration copy in this respect shall be submitted along with the offer. The MSE certificate shall be certified by a Chartered Accountant for the current status.</p> <p>The following is the benefit for the MSEs.</p> <p>In tender, participating MSEs quoting price within price band of L1+15% shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a MSE and such MSE shall be allowed to supply up to 20% of quantity (Item level). In case of more than one such MSE, the supply shall be shared proportionately.</p>		
18	<p><u>NO CHINA ITEMS :</u></p> <p>“ No raw material / component /other services shall be sourced from China either directly or indirectly for manufacturing or supply” for the items marked with “ * ” in the list of items provided.</p>		
19	<p>GENERAL :-</p> <ul style="list-style-type: none"> • PO will be placed on individual L1 vendors only and not as total package. • The PO copy with all details will be given to successful bidders in soft mode also. • Acknowledgement for receipt of PO shall be sent within one week from the date of receipt. • 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. • 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. • 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 		

	<ul style="list-style-type: none">• BHEL reserves the right to order on more than one vendor at the lowest acceptable price to BHEL• Risk purchase clause: In case vendor fails to meet delivery date as per Purchase order, BHEL has the right to cancel the order and order the same item on other vendor and recover the additional cost that may incur.• Unsolicited offers will not be considered for this enquiry .New Vendors may download Vendor registration forms from BHEL Web site www.bhel.com, and submit all relevant data for registration purpose.		
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Note: Please confirm your acceptance to all the points indicated above positively and submit this format duly filled, signed & stamped along with the technical bid.

VENDORS SIGNATURE & SEAL



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:-

- a) All pipes used for fittings shall meet the respective specification. The test certificate shall be furnished.
- b) 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
- c) 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
- d) 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.
- e) 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.
- f) Carbon content of SA 234 WPB, WPC, SA 105 fittings shall be restricted to 0.25% max

3.0 PROCESS:-

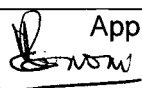
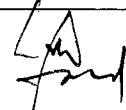
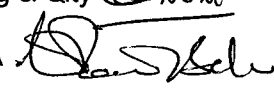
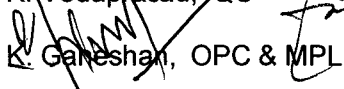
- a) Process of manufacture shall conform to applicable standards.
- b) All fittings shall be of seamless unless otherwise specified in the purchase order.
- c) In case of welded fittings, WPS, PQR & welder qualification shall be approved by BHEL - PC, prior to start of welding.
- d) All fittings shall 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.
- e) 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.
- f) 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, SA234 WP C	- Normalised
SA234 WP11/ WP12/ WP22	- Normalised & Tempered
SA182 F11/ F12/ F22	- Normalised & Tempered
Stainless Steel :-	
SA 182 F304/ 316/ 321/ 347	- Solution annealed
SA 403 WP304/ 316/ 321/ 347	- Solution annealed
SA 815 (Duplex Stainless Steel)	- Solution annealed

- 4.2 Fittings conforming to SA 234 WP91 and SA182 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 ± 10 deg C. Soaking time: 1Hr. minimum. Still air cooling.

Approved by	
G.Venkataramani, Engg & Qlty 	K.Vedaprasad, QC 
G.Panneer Selvam, QA 	K. Ganeshan, OPC & MPL 



5.0 TESTING: -

- (a) **MPI / LPI:-** 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.
- (b) **Tensile Test:-** One fitting of each specification, heat, heat treatment lot and size shall be subjected to Tension Test as per applicable standard.
- (c) **Ultrasonic Test:-** 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.
- (d) **Hardness Test:-** For WP91 / F91 & SA 815 (Duplex Stainless Steel) fittings Hardness test shall be carried out on 100% of the fittings. For other fittings hardness shall be checked on 10% of the fittings.
- (e) **Radiography Test (for Welded fittings):-** All the welds shall be 100% RT tested and acceptance norms shall be UW 51 of ASME Sec VIII DIV-1.
- (f) 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.
- (g) **Metallography:-** Metallography shall be carried out on one per heat, per size, per heat treatment lot of WP91 / F91 fittings. Acceptance norms - The Material shall be free from any micro fissures. Microstructure shall show tempered martensite and also to be examined for any grain growth. Photomicrograph with 500x (Min) magnification along with Metallography report to be provided. The actual magnification shall be indicated.

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 PAINTING, COLOUR CODING, MARKING, PACKING & END PROTECTION

7.1 **PAINTING:** All fittings (except stainless steel and galvanised) shall be painted on the external surface as given below

- a) Surface preparation: Blast cleaning
b) **Indigenous Vendor:** 50 microns of Red oxide zinc phosphate confirming to IS 12744 followed by 70 microns of Synthetic enamel paint confirming to IS2934.
c) **Foreign Vendor:** 100 microns of Sea worth Epoxy paint.
d) Shade : (i) Smoke grey – shade no 692 of IS5 for all carbon steel fittings.
(ii) Sea green – shade no 217 of IS5 for all Alloy steel fittings.

The internal surface shall be protected with rust preventive coating or rust inhibitor. Stainless steel and Galvanised fittings need not be painted.

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7.2 **COLOUR CODING:** All fittings shall be colour coded circumferentially at ends as given below

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

SA 815 (Duplex Stainless Steel) = Red, White & Green

7.3 **MARKING** (In English only):

7.3.1 The fittings dispatched to **BHEL Stores** shall be hard punched / etched with Material code, Heat number, material specification, maker's emblem, Inspectors seal and Statutory authorities seal (as applicable).

In addition, the above details along with size shall be paint stencilled on the fittings.

If the thickness of the fitting is less than 6 mm, punching is not permitted and the above details shall be paint stencilled only. Fittings of size up to 2" (50mm) shall be tied together and the above details shall be punched / etched in a separate tag and tied to it.

7.3.2 The fittings dispatched directly to project site as **DTS** shall be hard punched and paint stencilled with DU code (14 digit work order du detail) as given by purchase in addition to marking done as per Para 7.3.1.

7.4 **PACKING AND END PROTECTION:** Machined ends of the fittings shall be well protected using end caps and fittings shall be suitably packed in box / crate to avoid transit & other damages.

8.0 **INSPECTION & CERTIFICATION** (In English only): -

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.

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9. Steel making process
10. Ladle 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 Report along with photomicrograph with 500x (min) magnification.
- *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.

Rev 04 : a) Para 5.0 (g), 7.0 and 8.0 (17) are revised.

Rev 05 : a) New material specification SA 815 Duplex Stainless Steel included.

b) Para 4.1, 4.2, 5.0 (d), 7.1 & 7.2 are revised.

c) 5.0 (a), (b), (c), (e), (f), (g), 7.3.1 & 7.3.2 are modified for better clarity.

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