



# BHARAT HEAVY ELECTRICALS LIMITED

( A Government of India Undertaking )  
HIGH PRESSURE BOILER PLANT  
PURCHASE DEPARTMENT - FOSSIL BOILERS  
THIRUCHIRAPALLI - 620014  
TAMILNADU (INDIA)

PHONE :2577447  
GRAMS : BHARATELEC  
FAX NO: 2520719  
E-mail: agk@bheltry.co.in  
Web:

Page  
1/4

Enquiry No	Enquiry Date	Due Date for Quotation
1501200042	20.08.2012	25.09.2012

Please quote Enquiry No, Date and due date in all correspondences.  
This is only a request for quotation and not an order

Item	Description	Unit	Quantity	Delivery Quantity	Schedule Date
10	D13130302003 J tubes As per Drg 4-93-170-05083/00 and as per specification DIN 17175 -15Mo3 and DIN17175-test classIII- in normalized condition and UT tested as per SEP1915,1918,1919.Hydrotested at 80 bar.With plain ends. (or) SA335GRP1 meeting UT and hydro test requirement as mentioned above. The supplier shall quote seperately the testing charges.	NO	760.000	760.00	31.12.12

### General Note:

1) J tube to supplied as per DRG 4-93-170-05083/00 and as per specification DIN 17175-15Mo3 and DIN 17175-test class III-in normalized condition and UT tested as per SEP 1915,1918,1919.Hydrotested at 80 bar with plain ends.

(or)  
SA335GRP1 meeting UT and hydro test requirement as mentioned above.

Point-by-Point confirmation on the above specification and the below enquiry conditions to be indicated in the offer without fail.If there is any deviation, the same should be mentioned clearly in the offer itself.

2) TENDERS WILL BE FINALIZED ON "CONVENTIONAL TWO PART BASIS".

3) The covers should be duly super scribed with the ENQUIRY NO and DUE DATE in BOLD letter without fail.

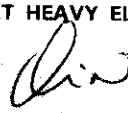
4) The offer is to be submitted within 2.00 P.M on or before the due date. LATE OFFERS WILL NOT BE CONSIDERED.

5) Terms of Delivery: Bidders should submit their offer for net FOB, Nearest port and CFR, Chennai with freight break up details. BHEL reserves the right to order on FOB or CFR basis. Hence if FOB rates are not quoted in the offer, it is liable to be rejected. The quote should be all inclusive of all charges, including testing packing, inspection

The offers should reach us 30 minutes before the time of opening of tenders.  
The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening.Late and delayed offers are liable to be rejected.

**N. GANAPATHY SUBRAMANIAN**  
Engineer  
MM / MFG. / Purchase / Tubes  
BHEL, Tiruchirappalli 620 014.

Yours faithfully,  
For BHARAT HEAVY ELECTRICALS LIMITED

  
MANAGER / PURCHASE  
(FOSSIL BOILERS)  
Yours faithfully,



# BHARAT HEAVY ELECTRICALS LIMITED

I. A. Government of India Undertaking )  
HIGH PRESSURE BOILER PLANT  
PURCHASE DEPARTMENT - FOSSIL BOILERS  
THIRUCHIRAPALLI - 620014  
TAMILNADU (INDIA)

PHONE :2577447  
GRAMS : BHARATELEC  
FAX NO: 2520719  
E-mail: agk@bheltry.co.in  
Web:

1501200042 / 20.08.2012

etc. Indian Bidders should submit their offer for FOR, Trichy (inclusive of risk in transit) & Ex-Works with the applicable freight breakup details.

6) OFFERS SHOULD BE KEPT VALID FOR A MINIMUM OF 60 DAYS. Offers with price validity less than 60 days will be liable for rejection.

7) 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.

9) 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.

10) Foreign bidders - Payment will be made on Cash against documents basis, i.e Payment will be made 45 days from the date of submission of complete set of documents as specified in the PO at our bank.

Requests for LC will be loaded at 1.5% of the basic charge.

Indian Bidders - The payment term is 100% payment after 45 days of satisfactory acceptance of materials at BHEL, Tiruchy. Offers with LC requests/advance payments are liable for rejection.

11) The offer is to be signed and sealed in original by the bidder. Without this, the offer is liable for rejection.

12) The Bidder, in the event of an order, should furnish a bank Guarantee from BHEL's consortium banks (List attached) or counter-guaranty by vendor's bank to BHEL's consortium banks, at no extra cost to BHEL, in a proforma prescribed by BHEL, provided along with the order, for an amount equivalent to 10% (Ten percent) of the value of the contract.


The BG shall be valid for period of 18 months from the date of last shipment or 12 months from the date of receipt / acceptance / at BHEL, Tiruchi which ever is later, with a claim period of two months.

13) Liquidated damages : If the supplier fails to deliver the raw materials/ components/equipments within the period specified in the contract BHEL shall deduct liquidated damages a sum equivalent to 0.5% of the price for each week of delay or part thereof upto a maximum of 15% of the price of delayed/undelivered portion to be reckoned from the contract delivery date to the date of Bill of lading/air way bill date for CFR contracts and to the cargo readiness date (i.e final inspection agency's signed date in the test certificate) for FOB contracts.

The offers should reach us 30 minutes before the time of opening of tenders. The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening. Late and delayed offers are liable to be rejected.

**N. GANAPATHY SUBRAMANIAN**  
Engineer  
MM / MFG. / Purchase / Tuhes  
BHEL, Tiruchirappalli - 620 014,

Yours faithfully,  
For **BHARAT HEAVY ELECTRICALS LIMITED**

  
**MANAGER / PURCHASE**  
(FOSSIL BOILERS)  
Yours faithfully,



# BHARAT HEAVY ELECTRICALS LIMITED

( A Government of India Undertaking )  
HIGH PRESSURE BOILER PLANT  
PURCHASE DEPARTMENT - FOSSIL BOILERS  
THIRUCHIRAPALLI - 620014  
TAMILNADU (INDIA)

PHONE :2577447  
GRAMS : BHARATELEC  
FAX NO: 2520719  
E-mail: agk@bheltry.co.in  
Web:

Page  
3/4

1501200042 / 20.08.2012

14) Risk purchase : 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.

15) 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](http://www.bhel.com).

16) The actual production of materials is permitted only after review/approval of manufacturing/testing/ Inspection drawings /documents and quality assurance plans (QAP) by BHEL, Tiruchy.

17) Five sets of additional dialects containing test certificates, copies of the approved procedures DCR, Drgs etc apart from contractual requirements are required. **SUBMISSION AND ACCEPTANCE OF TEST CERTIFICATES IS SPECIFICALLY REQUIRED BEFORE DISPATCH.**

18) End use certificates will not be given.

19) BHEL/End customer reserve the right to inspect the item ordered at any stage at vendor's works.

20) INSPECTION AGENCY - For import vendors, inspection should be by TUV (Nord) or BV or SGS. Offer should indicate the name of inspection agency.

For indigenous vendors, inspection will be by BHEL, Trichy & NPCIL.

21) Inspection charges will not be paid extra. Offers should be inclusive of the inspection charges also.

22) Chromium content should be 0.1% to 0.3% on actual analysis.

23) IN ADDITION TO THE TECHNICAL AND COMMERCIAL CONDITIONS LISTED ABOVE, VENDORS WHO ARE NOT REGISTERED VENDOR OF BHEL TRICHY HAVE TO SUBMIT THE FILLED IN SUPPLIER REGISTRATION FORMS AVAILABLE IN THE BHEL WEBSITE - [www.bhel.com](http://www.bhel.com) ALONG WITH THE TECHNICAL BID WITHOUT FAIL.

24) Vendor has to ensure proper packing, during transportation to avoid any damage during transit. Packing drawing is to be submitted for BHEL approval.

The offers should reach us 30 minutes before the time of opening of tenders. The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening. Late and delayed offers are liable to be rejected.

**N. GANAPATHY SUBRAMANIAN**  
Engineer  
MM / MFG. / Purchase Dept  
BHEL, Tiruchirappalli - 620 014;

Yours faithfully,  
For **BHARAT HEAVY ELECTRICALS LIMITED**

**MANAGER / PURCHASE**  
(FOSSIL BOILERS)  
Yours faithfully,



# BHARAT HEAVY ELECTRICALS LIMITED

( A Government of India Undertaking )  
HIGH PRESSURE BOILER PLANT  
PURCHASE DEPARTMENT - FOSSIL BOILERS  
THIRUCHIRAPALLI - 620014  
TAMILNADU (INDIA)

PHONE :2577447  
GRAMS : BHARATELEC  
FAX NO: 2520719  
E-mail: agk@bheltry.co.in  
Web:

1501200042 / 20.08.2012

25) Bidders are to confirm all the above points in their "Technical and un priced commercial bid". Incomplete offers will not be considered.

26)Tenders can be deposited in our tender box designated as "MM-TUBES-FB-150-SEC 25" located at discussion Room.1,4th floor,24 building.


**Enclosures:**

"LD clause has to be confirmed without fail."

The offers should reach us 30 minutes before the time of opening of tenders.  
The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening.Late and delayed offers are liable to be rejected.

**N. GANAPATHY SUBRAMANIAN**  
Engineer  
MM / MFG. / Purchase Tubes  
BHEL, Tiruchirappalli: 620 014

Yours faithfully,  
For **BHARAT HEAVY ELECTRICALS LIMITED**

  
**MANAGER / PURCHASE**  
(FOSSIL BOILERS)  
Yours faithfully,

8.2 Acceptance testings  
 Tubes to this Standard are only supplied with acceptance testings 1). The type of acceptance testing certificates according to DIN 50 049 shall be agreed at the time of ordering. The acceptance testing 1) is subject to the requirements in Sections 8.3 to 8.8. In addition the requirements of Sections 8.5 and 8.6 apply also for subsequent testings in response to complaints.

8.3 General test conditions

8.3.1 All testings including acceptance shall be carried out in the manufacturing works such that the production flow is not unnecessarily impeded.

8.3.2 The manufacturing works shall take steps to prevent rejected tubes and those the repair of which is not permissible from being despatched to customer.

8.4 Extent of testing (see also Table 3)

8.4.1 The tubes shall be tested in batches. They shall be divided into batches of 100 tubes according to the grades of steel, quality grades and dimensions and in the case of alloy steels, if possible, according to cast. For tubes up to an outside diameter  $\leq 51$  mm the tubes must come from the same heat-treated batch. Sample amounts of up to 50 tubes shall be distributed evenly between the individual batches. Number of pieces and surplus amounts between 51 and 100 tubes shall be considered as a complete batch.

8.4.2 In the event of subsequent testing of the chemical composition of the finished tube having been agreed in at the time of ordering, this will normally consist of one testing per cast and delivery.

8.4.3 For the tensile test two tubes shall be tested from each of the first two batches, in accordance with Section 8.4.1, and one tube from each subsequent batch chosen by the inspector.

If a delivery consists of a batch containing a maximum of 10 tubes, only one tube shall be taken.

8.4.4 The absorbed energy shall be tested on the tubes selected according to Section 8.4.3 provided their nominal wall thickness has the following values:  
 for steel 14 MoV 6.3 and X 20 CrMoV 12.1  $> 10$  mm,  
 for the steel 15 Mo 3  $> 20$  mm,  
 for all other steels  $> 30$  mm.

8.4.5 If the 0.2% yield limit at elevated temperature is to be tested, this must be stated in the order together with the required test temperature; this extent of testing shall be carried out on one specimen per cast and dimension, unless otherwise agreed.

8.4.6 The tubes shall be ring tested (see Table 14).

8.4.6.1 Quality grade I tubes selected according to Section 8.4.3 shall be ring tested following for the dimensions quoted in Table 14) using specimens taken from one end.

8.4.6.2 Quality grade III tubes shall be ring tested on the rolled lengths allowing for the dimensions quoted

In Table 14, with an extent of testing applicable all steel grades except for the steels 14 MoV 6.3 and X 20 CrMoV 12.1:  
 for tubes with an outside diameter  $\leq 51$  mm in Section 8.4.6.2.1 and

for tubes with an outside diameter  $> 51$  mm in Section 8.4.6.2.2.

The extent of testing according to Section 8.4.6.2.3 applies for tubes of all dimensions of the steel grades 14 MoV 6.3 and X 20 CrMoV 12.1.

At a subsequent subdivision of the rolled lengths into partlengths no further test specimens need to be taken, provided suitable markings show that the partlengths belong to the tested rolled length. If this cannot be guaranteed, the testings on the rolled lengths shall be dropped and in their stead the partlengths shall be tested as rolled lengths.

8.4.6.2.1 20% of the rolled lengths of Grade III tubes  $\leq 51$  mm outside diameter - except tubes of steels 14 MoV 6.3 and X 20 CrMoV 12.1 - shall be tested at one end, i.e. random-wise such that the 20% of the tubes requiring testing are chosen arbitrarily from the total batch. If ring testing is performed on part lengths, which are not related to rolled length, 20% of the part lengths shall be tested random-wise (see above) at one end. As far as heat-treated tubes are concerned steps must be taken to ensure that the part lengths come from batches which had been subjected to the same heat treatment. As far as tubes with hot-formed ends are concerned (see Section 6.3.1, paragraph 2) steps must be taken to ensure that the part lengths belong to batches from the same production run, i.e. an identical heating practice.

8.4.6.2.2 Quality grade III tubes  $> 51$  mm outside diameter shall be ring tested at both ends of each rolled length. Each part length which is not related to the rolled length, shall be tested at both ends.  
 Each part length from tubes  $> 51$  mm outside diameter can also be ring tested at one end only provided it has been verified once for the relevant manufacturing process and manufacturing works that the ring test performed on one end of a part length furnishes the same information as the information gained in a test with ring specimens taken from both ends of the original rolled length.

8.4.6.2.3 Each rolled length from quality grade III tubes manufactured from the steels 14 MoV 6.3 and X 20 CrMoV 12.1 shall be ring tested at both ends, independent of the tube diameter. The same applies to the testing of part lengths.  
 8.4.7 The manufacturer shall non-destructively test all quality grade III tubes for longitudinal defects.  
 A supplementary non-destructive testing for transverse defects and/or laminations can also be agreed on when ordering.  
 8.4.8 The internal and external condition of each tube must be checked.

8.4.9 The wall thickness, and depending on the order, either the outside diameter or the inside diameter shall be checked.

8.4.10 All tubes shall be tested for leak tightness; that is at the discretion of the manufacturer either by an hydraulic test or by a suitable non-destructive testing (e.g. Eddy current according to Stahl-Eisen Testing Sheet 1925).

8.4.11 The manufacturer shall submit all alloy steel tubes to an appropriate material identification testing.

8.5 Sampling

8.5.1 If an agreement has been reached in the order to check the chemical analysis of finished tubes, for wet analysis the required turnings must be taken over the entire wall thickness of the tube; an appropriate procedure shall be adopted for spectro-analysis 4).

8.5.2 Flat testpieces in accordance with Section 8.4.3 normally extending over the entire wall thickness and cut longitudinally from the tubes shall be used for tensile testing. The testpieces must not be heat-treated nor straightened over the gauge length. The removal of local irregularities from the flat testpieces is permissible, but the rolling skin must be allowed to remain as far as it is possible on the thinnest section of the test-piece.  
 Small diameter tubes can be tested as a whole.  
 The tensile test on tubes of  $\geq 200$  mm outside diameter can be done on transverse test specimen, provided this is compatible with the tube dimensions without requiring straightening. In this case a tube ring shall be cut off and halved.

8.5.3 A set of three DVM-specimens is taken in a transverse direction from the tubes selected according to Section 8.4.3 for the notch impact/bending test. The notch impact/bending specimens shall be taken in longitudinal direction from tubes of  $< 200$  mm outside diameter.

8.5.4 Section 8.5.2 applies logically in cases where agreement has been reached in the order on the determination of the 0.2% yield limit at elevated temperatures; since, where possible, hot tensile tests are normally performed on round test specimens sampling requires, if the occasion arises, prior agreement.

8.5.5 The specimens for the ring tests shall be taken according to DIN 50 136 (ring tensile test) and/or DIN 50 138 (ring tensile test) (see Table 3).

4) The sampling practice conforms, as a rule, to Stahl-Eisen-Prüfblatt 1905 - Probeahme und Probenbereitung für die Stöckanalyse bei Stählen - (Sampling and sample preparation for the sample analysis of steels) - (Publisher: Verlag Stahlisen mbH, Düsseldorf).

5) Handbuch für das Eisenhüttenlaboratorium (Handbook for the Ferrous Metallurgy Laboratory), Vol. 2: Die Untersuchung der metallischen Stoffe (The testing of metallic materials), Düsseldorf: Verlag Stahlisen mbH, 1966; Vol. 5 (Supplement): A 4.1 - Aufstellung empfindlicher Schiedsverfahren (Compilation of recommended arbitration analyses), B - Probeahmeverfahren (Sampling methods), C - Analyseverfahren (Analysis methods), always the latest edition (Verlag Stahlisen mbH, Düsseldorf).

8.5.6 All specimens for the tests according to Sections 8.5.2 to 8.5.5 shall be adequately identifiable in order to show which tubes and specimens go together.

8.6 Applicable test methods

8.6.1 The chemical composition shall be tested according to the methods 5) prescribed by the "Chemiker-Ausschuss des Vereins Deutscher Eisenhüttenleute" (Chemists Committee of the Association of German Ferrous Metallurgy Engineers).

8.6.2 The tensile test shall be carried out according to DIN 50 145 using the short proportional test bar according to DIN 50 125 or with specimens according to DIN 50 140.

8.6.3 The notch impact/bending test shall be carried out at room temperature in accordance with DIN 50 115 using DVM-specimens. The notch shall be cut vertically to the longitudinal axis and the surface of the tube.

8.6.4 The 0.2% yield limit at elevated temperature is determined in accordance with DIN 50 145.

8.6.5 The ring tests shall be carried out in accordance with the standards covering the annular flattening tests, ring expanding tests and ring tensile tests listed in Section 8.5.5.

8.6.5.1 The ring expanding test shall be carried out according to DIN 50 137 where the change in the diameter of the specimen expanded to fracture shall also be measured. The evaluation of the deformability of the fracture and the fracture surfaces.

8.6.5.2 In the annular flattening test according to DIN 50 136 the specimens or tube ends shall be squeezed until the definite distance  $H$  is reached between the pressure plates. For this distance  $H$  in mm applies:

$$H = \frac{(1 + c) \cdot s}{c + s/d}$$

where  $s$  = wall thickness in mm,  $d_s$  = outside diameter in mm and  $c$  is a constant. For the steel St 35.8 the constant is 0.09, for the steel St 45.8, 17 Mn 4, 19 Mn 5, 15 Mo 3, 13 CrMo 4 and 10 CrMo 10 it is 0.07 and for the steels 14 MoV 6.3 and X 20 CrMoV 12.1 it is 0.05.

If the ratio  $s/d_s$  is greater than 0.15 the distance between the plates shall be negotiated.

If an annular flattening test is performed according to Section 8.4.6 the test can be continued to fracture or until a crack appears, so as to make it possible to assess the appearance of the fractured surface. The decisive factor is that the prescribed distance between the plates is reached without cracking.

8.6.6 The non-destructive test shall always be carried out before the ring specimens are cut off.  
 Non-profiled tubes shall normally be ultrasonically tested i.e.

a) according to Stahl-Eisen Test Sheet 1915 when testing tubes of  $\geq 10$  mm outside diameter, for longitudinal defects.  
 b) according to Stahl-Eisen Test Sheet 1918, after agreement has been reached, on testing tubes having an outside diameter  $> 133$  mm, for transverse defects.

c) according to Stahl-Eisen Test Sheet 1919, after agreement has been reached on testing tubes having an outside diameter > 133 mm and a wall thickness > 8 mm, for laminations.

In cases in which the aforementioned testing methods are not applicable (such as when testing profiled tubes or tubes having outside diameters < 10 mm for longitudinal defects), agreement on the relevant testing method will have to be reached at the time of ordering.

R 6.7 Visual inspection 6) with the naked eye requires that:  
a) the whole external tube surface shall be examined in suitable lighting for surface defects,  
b) the entire inner tube surface shall be examined in suitable lighting from both tube ends for surface defects.

The surface finish of the tubes should permit detection of significant defects. For quality grade III tubes this generally denotes decapped surfaces, unless the chosen method of production or heat treatment ensures a suitable surface finish for visual inspection and ultrasonic testing.

R 6.8 The dimensions shall be checked with suitable instruments.

R 5.9 When checking leak tightness, internal hydraulic testing with water (refer to Section 8.4.10) shall generally be carried out at a uniform pressure of 80 bar. Higher test pressures require prior agreement. The test pressure shall be limited so that the yield point at 20°C will not be reached or exceeded (cf. DIN 2413 June 1972 edition Section 4.6). In the case of thin-walled large diameter tubes this will already have to be considered at pressures of 80 bar.

### R 7 Re-testing

R 7.1 If one of the selected tubes fails to pass the tests according to Sections 8.6.2 (tensile test) and 8.6.3 (inch impact/bending test) and in the case of quality grade I tubes according to Section 8.6.5 (ring test) it shall be rejected, and two further tubes shall be taken from the batch and the tests repeated. In these new tests each tube must satisfy the requirements, otherwise the whole batch must be rejected.

R 7.2 If one specimen, taken at random, from a rolled length or part length of quality grade III tubes of  $\geq 51$  mm outside diameter according to Section 8.4.6.2.1 fails in the ring check test, the test shall be repeated on the same end of the relevant rolled length or part length. If this replacement specimen proves unsatisfactory, the relevant rolled length or part length shall be rejected and the test repeated at one end of a further 20% of the rolled lengths or part lengths of the batch. If another specimen fails again, the test will have to be extended to all rolled lengths or part lengths of the batch. Rolled lengths or part lengths which fail in the ring test shall be rejected.

1) See page 1  
6) Approved, suitable non-destructive testing process can also be used instead of the visual inspection method.

If one ring test or -inner a rolled length or part length falls in s tests of quality grade III tubes according to sections 8.4.6.2.2 and 8.4.6.2.3 the test shall be repeated on the same rolled length or part length. If this specimen also fails, the relevant rolled length or part length shall be rejected. On rejection of one rolled length it is left to the discretion of the manufacturer to ring test the corresponding part length.

8.7.3 If the unsatisfactory test results were due to unfavourable heat-treatment, it is at the discretion of the manufacturer's works to submit the rejected batch to further heat-treatment and re-submit it for acceptance. The manufacturer's works are entitled to remove the defects detected in the tests according to Sections 8.4.6 (ring test) 8.4.7 (non-destructive test) and 8.4.8 (visual inspection) by suitable means and to re-submit the tubes for acceptance.

### 8.8 Test certificates

8.8.1 The acceptance test 1) shall be certified by an Acceptance Inspection Certificate A, B, or C, according to DIN 50049, Section 3 (July 1972 edition).

Note: The certificates shall give the full wording of the identification marks, according to Section 9.1.

8.8.2 If certificates require to be issued only for part of the requirements guaranteed by Acceptance Inspection Certificate A or C according to DIN 50049, the manufacturer shall additionally confirm in an Inspection Certificate according to DIN 50049 and for quality grade III tubes in an Acceptance Inspection Certificate B according to DIN 50049, that the tube material corresponds in steel grade and steel quality to DIN 17175, that all tubes have passed the leak tightness test and have an unobstructed bore, that they have been correctly annealed, or hardened and tempered over their entire lengths in a manner consistent with the tube material, and that quality grade III tubes have been manufactured from roughed-down squares or rounds, that an each test or ultrasonic test was carried out, that the chemical composition was determined according to the ladle analysis and, if agreed at the time of ordering, also the steelmaking process be quoted. With tubes of quality grade III the carrying-out of an ultrasonic test has to be additionally stated in the Acceptance Inspection Certificate B, according to DIN 50049.

### 9 Identification of the tubes

9.1 The finished tubes shall be marked approximately 300 mm from the end.

The identification consists normally of a stamp mark. Another identification practice may be adopted for thin-walled tubes. The following identification marks shall be applied:  
on both ends:  
material designation (Code No of grade of steel), for unalloyed steels the quality grade (unless quality grade II), the trade mark stamp and the inspectors stamp;  
on one end:

the cast number or an identifying mark for the cast, applicable only for steels 15 Mo 3, 13 CrMo 4, 10 CrMo 9 10, 14 MoV 6.3 and X 20 CrMoV 12 1 for

in addition, the tubes of  $\geq 159$  mm outside diameter shall be marked with the tube number for quality grade III

2) The stamp mark can be as more conspicuous according to Section 9.1 e.g. by a coloured line; the lines of the colour identification may be used for this.

### 10 Complaints

10.1 External and internal defects justify complaints, if they seriously affect the workability and serviceability of the type of steel and shape of the product.

### Further standards

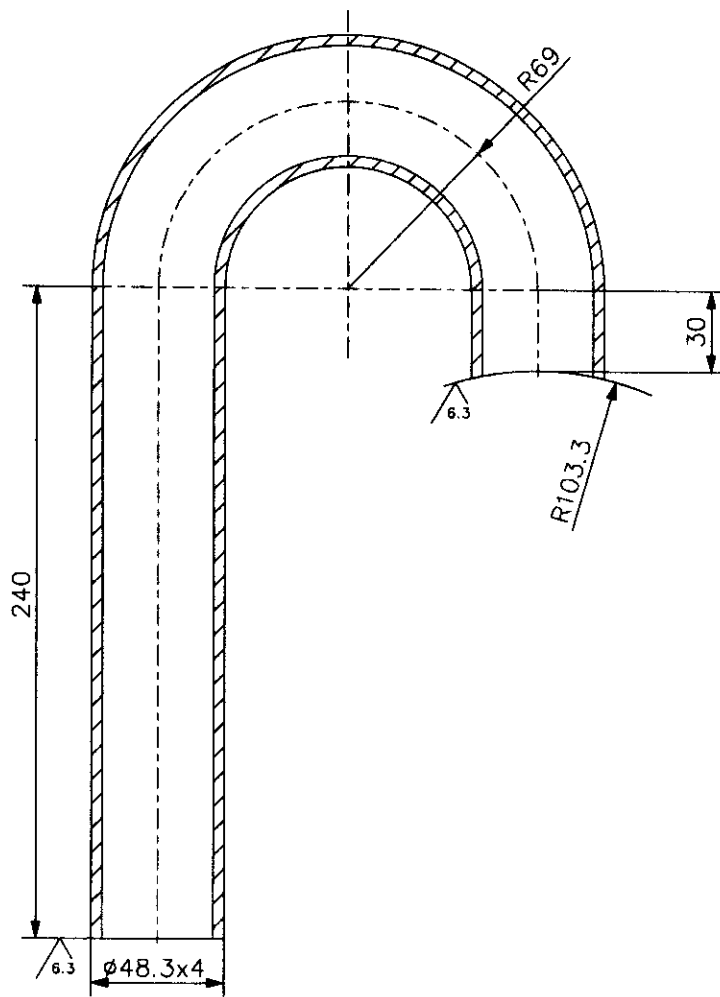
DIN 2401 Part 1 Components under internal or external pressure; pressure ratings  
DIN 8528 Part 1 Weldability; metallic materials; definitions

to prove 6) that the complaints were justified, pressure test by submission of samples from the unsatisfactory material delivered.

7) This limit applies also for tubes orders based on the inside diameter, provided the nominal outside diameter  $\geq 159$  mm.

8) See also: Explanations to the "Complaints Clause" in Quality Standards for Iron and Steel, DIN-Mitt. 40 (1961), No 2, p. 111/112.

THE INFRON OF THIS DOCUMENT IS THE PROPERTY OF BHEL  
 IT MUST NOT BE USED DIRECTLY OR INDIRECTLY  
 IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL.



**NOTES:**

1. MATERIAL SPECIFICATION : DIN 17175 - 15Mo3 / SA-335 Gr.P1.
2. J-TUBES SHALL BE EITHER HOT FORMED AND COLD FORMED & HEAT TREATED.
3. MINIMUM WALL THICKNESS AT BEND RADIUS SECTION SHALL BE 3.0mm.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT **700MWe/KAPP-3/RAPP-7**



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

DRN	NAME	SIGNATURE	DATE	NO. OF VAR
	NJR	<i>N. J. Reddy</i>	040812	
	RRV	<i>R. R. Venkatesh</i>	040812	
	APPD	<i>AS</i>	040812	

DEPT NC	GRADE OF UNTOL. DIM C/M/F	SCALE 1:2.5	WEIGHT (Kg) 2.140	REF TO ASSY / OLD DWG	ITEM NO	No OF ITEMS
------------	------------------------------	----------------	----------------------	-----------------------	---------	-------------

TITLE <b>J-TUBE</b>	CARD CODE U 01	DRAWING NO : 4-93-170-05083	REV 00
------------------------	-------------------	--------------------------------	-----------

Size A4

<b>List of Consortium Bank</b>		
	<b>Nationalised Bank</b>	<b>Nationalised Bank</b>
1	Allahabad bank	19 Vijaya Bank
2	Andhra bank	<b>Public Sector Banks</b>
3	Bank of Baroda	20 IDBI
4	Canara Bank	<b>Foreign bank</b>
5	Corporation bank	21 CITI Bank N.A
6	Central bank	22 Deutsche Bank AG
7	Indian Bank	23 The Hongkong and Shanghai Banking Corporation Limited
8	Indian Oversea Bank	24 Standard Chartered Bank
9	Oriental bank of Commerce	25 The Royal Bank of Scotland N.V.
10	Punjab National Bank	26 J P Morgan
11	Punjab & Sindh Bank	<b>Private bank</b>
12	State Bank of India	27 Axis Bank
13	State Bank of Hyderabad	28 The Federal Bank Limited
14	Syndicate Bank	29 HDFC
15	State Bank of Travancore	30 Kotak Mahindra Bank
16	UCO Bank	31 ICICI
17	Union Bank of India	32 Indusind Bank
18	United Bank of India	33 Yes Bank



## PERFORMANCE BANK GUARANTEE

429-011

In accordance of M/s. Bharat Heavy Electricals Limited (A Government of India Undertaking, a company incorporated under the Companies Act, 1956 having its Registered Office at "BHEL House" SHRI Fort, New Delhi 110 049") through its Tiruchirappalli Division (hereinafter called the Company) having agreed to exempt \_\_\_\_\_ hereinafter called the said contractor which term includes 'suppliers' for the purpose of this Bond) from the demand under the terms and conditions of the Agreement dt \_\_\_\_\_ made between \_\_\_\_\_ and \_\_\_\_\_ for \_\_\_\_\_ (hereinafter called the said agreement) for Security Deposit for the due fulfilment by the said Contractor of the terms and conditions contained in the said Agreement on production of a Bank Guarantee for Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only). We (indicate the name of the Bank), (hereinafter referred to as the Bank) at the request of \_\_\_\_\_ (Contractor(s)) do hereby undertake to pay to the company an amount not exceeding Rs. \_\_\_\_\_ against any loss or damage caused to or suffered or would be caused to or suffered by the Company by reason of any breach by the said Contractor (s) of any of the terms and conditions contained in the said Agreement.

2. 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. \_\_\_\_\_

3. 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 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. 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.

4. 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 discharge 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.

5. (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 despatched by Registered Post with Ack. Due or by telegram addressed to the above mentioned address of the Bank shall be deemed to be the claim deemed 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.

6. 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 obligation hereunder to vary any of the terms and conditions of the said Agreement or to extent 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 to surities would but for this provision have effect of so relieving us.

7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).

8. 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.

9. Any claim or dispute arising under the terms of this document shall only be enforced or settled in the Courts at Tiruchirapalli.

10. The guarantor hereby declare that it has power to execute this guarantee and the executant has full power to do so on its behalf under the Power of Attorney dated \_\_\_\_\_ granted to him by the proper authorities of the guarantor.

11. We (indicate the name of Bank) lastly undertake not to revoke the 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 set out our Bank Seal the \_\_\_\_\_ day \_\_\_\_\_ month

## **IMPORTS ENQUIRY TERMS AND CONDITIONS**

### **1. OFFER:**

Offer in ENGLISH LANGUAGE AND IN TRIPLICATE in a SEALED COVER SUPERSCRIBING the enquiry number and the due date shall be submitted addressed to:

THE MANAGER / PURCHASE / FB  
BHARAT HEAVY ELECTRICALS LIMITED  
HIGH PRESSURE BOILER PLANT  
THIRUCHIRAPPALLI – 620 014  
TAMIL NADU  
INDIA

Offers should be firm for net FOB Nearest Sea Port price and C&F Chennai port, indicating the shipping specifications and the earliest delivery irrespective of offers from overseas suppliers. Offers from indigenous sources shall be firm for FOR TIRUCHIRAPPALLI

### **2. DOCUMENTS:**

(1) Offers should be accompanied by detailed technical literature, catalogue and detailed dimensional drawings in ENGLISH and in TRIPLICATE, or otherwise, the offers will not be considered.

(2) In case overseas suppliers route their offer through their accredited selling agents, a letter of authority should be furnished mentioning

The name and address of their selling agents, who are authorized to bid, negotiate and conclude a contract on their behalf.

### **3. AGENCY COMMISSION:**

(1) In respect of offers from overseas suppliers, agency commission, if any, payable to their agents in India, shall invariably be shown separately in the Performa invoice and this will be paid by us in India, in Indian rupees, on satisfactory completion of the contract.

(2) If overseas principal has any tie-up with any third party in respect of agency commission it should be declared while submitting offers.

(3) Copies of current agency agreement / authorization letter in respect of agency commission shall be furnished along with offer, if not made available earlier.

(4) For calculation of rupee equivalent of agency commission, exchange rate as prevailing on the date of order will be taken

### **4. SPARES:**

The tenderer should quote separately for spares that are required for two years trouble free operation. The spares offer should accompany the offer of main equipment; otherwise the quotations will be overlooked.

### **5. VALIDITY:**

The offers for main equipment and spares shall be kept open for acceptance for 120 days (one hundred and twenty days) from the date of opening of the tender.

### **6. TEST CERTIFICATES, OPERATING AND MAINTENANCE MANUALS:**

The tenderer shall clearly mention in their offer, that test certificates and operation and maintenance manuals, etc., as called for in the technical specification, in the required number of copies will be provided at no extra cost. If any amount is payable as extra, the same shall be indicated separately in the offer

### **7. TERMS OF PAYMENT:**

In the event of an order the purchaser will arrange for an irrevocable letter of credit against presentation of documents. Under no circumstances confirmed and irrevocable letter of credit will be established by the purchaser.

### **8. GENERAL:**

(1) Preference will be given to suitable indigenous or ex-stock in ported offers, failing which imported offers from incoming consignment against the indigenous supplies "stock and license" will be accepted, if "stock and sale license" is not available with the indigenous suppliers, the same shall be indicated in their offer.

(2) Bank guarantee: the supplier in the event of an order, should furnish a bank guarantee from an approved bank at no extra cost in a Performa which will be supplied to the supplier, along with the order, for an amount equivalent to 10% of the value of the contract. The bank guarantee should remain in full force and effect during the period that would be taken for successful completion of the contract and shall continue to be enforceable till 12 months from the date of receipt of consignment at purchaser's site or 18 months from the date of last shipment at the port of delivery whichever is earlier.

### **9. LD/ PENALTY AND INTEREST ON ADVANCES FOR DELAY IN DELIVERY:**

" If the supplier fails to deliver the raw materials / 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 the delayed / price / total advance paid" goods, in addition to the recovery of interest at normal cash credit rate plus 2% for the unadjusted portion of the advance. If the delay in undelivered delivery of a part contributes to delay in execution of total system, LD and interest on advances will be recovered on the total contract

## INDIGENOUS ENQUIRY TERMS AND CONDITIONS

**1. QUOTATIONS:** Each tender should be sent in double cover, inner cover should be sealed with tenderer's distinctive seal and super scribed with correct tender no. Item of supply and due date of opening the outer cover should only bear the address of this office and should not have any indication that a tender is within. Two or more quotations should not be sent in one cover but the quotation against each tender should be sent separately to avoid confusion. Tender should not be addressed to any individual's name but only by designation.

b) Tenders should be free from CORRECTION AND ERASURES. Corrections if any must be attested; all amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.

c) Price should be nett F.O.R. dispatching station inclusive of risk in transit and remain valid for 60 days from the due date.

d) If any sales tax is payable as extra to the quoted price is should be specifically stated in quotations along with CST & TNGST no falling which the purchaser will not be liable for payment of sales tax. Our T.N.G.S.T no 3560005 DT. 01.04.1995 CST no 239383 DT, 11.06.1991

e) No revision of prices will be entertained after tenders are opened.

f) Manufacturer's name trademark or patent no if any should be specified. Illustrative leaflets giving technical particulars are required along with quotation wherever necessary.

g) Products with I.S.I certification marks will be preferred.

h) The purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or full without assigning any reason whatsoever.

**2. SAMPLES:** Wherever possible sample should be submitted separately whether specifically requested or not so as to reach the purchaser on or before the due date of the enquiry. They should be clearly marked with the enquiry no and the date on the outside cover to facilitate identification.

**3. PACKING AND MARKING:** The supplier shall arrange for securely protecting and packing the stores to avoid loss or damages during transit.

**4. TERMS OF PAYMENT:** Payment will be made within 30 days of satisfactory receipt of materials at site. Wherever required by the purchaser, the successful tenderer must send the Operation and Maintenance manuals, Test Certificates, drawings, etc., for the materials ordered. These should be sent immediately after dispatch of the materials and a statement to that effect should be made in the invoice. Failure to comply with this provision will result in delay in payment of the bills. Goods dispatched either by V.P.P or by the document presented through bank will not be accepted unless agreed to by the purchaser.

The duplicate copy of the invoice meant for the transporters should accompany the material as stipulated under C.E. rules 52a and 173 c (or) 57gg. A Photostat copy of the above invoice for each Delivery Chelan should be submitted along with the original bills routed through bank or submitted directly to BHEL finance department.

**5. SECURITY DEPOSIT:** For purchases over Rs. 5000/- the successful tenderers may be requested to furnish a Bank Guarantee, Security deposit for an appropriate value as may be determined by BHEL

### **6. LIQUIDATED DAMAGES PENALTY AND INTEREST ON ADVANCES FOR DELAY IN DELIVERY:**

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 up to maximum of 15% of the price of the delayed undelivered goods. In addition to the recovery of interest at normal cash credit rate plus 2% for the unadjusted portion of the advances. If the delay in delivery of a part contributes to delay in execution of total system, LD and interest on advances will be recovered on the total contract price total advance paid.

**7. RISK PURCHASE:** Alternatively the purchaser at his 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 dispatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitutes therefore. The supplier shall be liable for any loss, which the purchaser may sustain by reason of such risk purchases in addition to penalty at the rate mentioned in clause 6 above.

**8. PREFERENTIAL DELIVERY:** It should be noted if a contract is placed on a higher tenderer as a result of this invitation to tender in preference to the lowest acceptable offer in consideration of the earlier delivery, the seller will be liable to pay to the purchaser the difference between the contract rate and that of the lowest acceptable tender on the basis of final price F.O.R destination, including all eliminates of freights. Sales tax, duties and other incidents, incidental in case of failure to complete suppliers in terms of such contract within the date of delivery specified in the tender and incorporated in the contract.

**9. MODVAT CREDIT:** If any Excise Duty is payable, the chapter head / Sub -head reference and the rate of the duty should be quoted. If the tender is availing MODVAT credit for this input material, the effect of Preformed credit should be passed on to the purchaser. Tenderer under "MODVAT" shall be preferred.

**10. PURCHASE:** Preference will be given to CPSUS as per. Government guidelines.

**11. GENERAL:** The purchaser reserves the right to split up the tender and place order for individual terms with different tenderers and also increase or decrease the quantity.

Any other conditions which might have been quoted by the seller and are in contravention to the terms prescribed in the order and which have not been specifically accepted in by purchaser will not be applicable to the contract.