

**BHARAT HEAVY ELECTRICALS LIMITED**  
**TIRUCHIRAPPALLI, TAMILNADU, INDIA**  
**MATERIALS MANAGEMENT :: FOSSIL BOILERS**  
**(SUB-DELIVERY)**

REF: MM/SD-DRUMS

DATE: 10 MAY, 2010

**SUB: VENDORS REQUIRED FOR THE SUPPLY OF BOILER DRUMS**

Bharat Heavy Electricals Limited, (BHEL) Tiruchirappalli, is looking for Vendors to Supply Boiler Drums in fully assembled condition as per BHEL Drawings, Technical Delivery Conditions, Quality Plans etc.

The list of Drawings, Technical Delivery Conditions and Quality Plans to be referred for each ratings of Boiler Drum are posted on BHEL Web Site ([www.bhel.com](http://www.bhel.com)) and on National Informatics Centre Web Site (<http://tenders.gov.in/>).

The tentative requirement of boiler drums is given below:

Fully Assembled Boiler Drums for....

**1) 270MW - 6 nos.**

**Qualification Criteria:**

Manufacturers having supplied minimum 2 Boiler Drums of respective ratings or above, to Power Plants are only qualified.

Interested Vendors may register thro' BHEL Web Site OR send e-mail to the following addresses with Company Profile along with other credentials like Product Range, Production Capability, List of Customers, List of Major Machinery & Testing Equipments, Technical Collaboration if any, Quality Manuals, Quality Accreditation, etc. The last date for registration is **15 June, 2010**.

**Contact Address:**

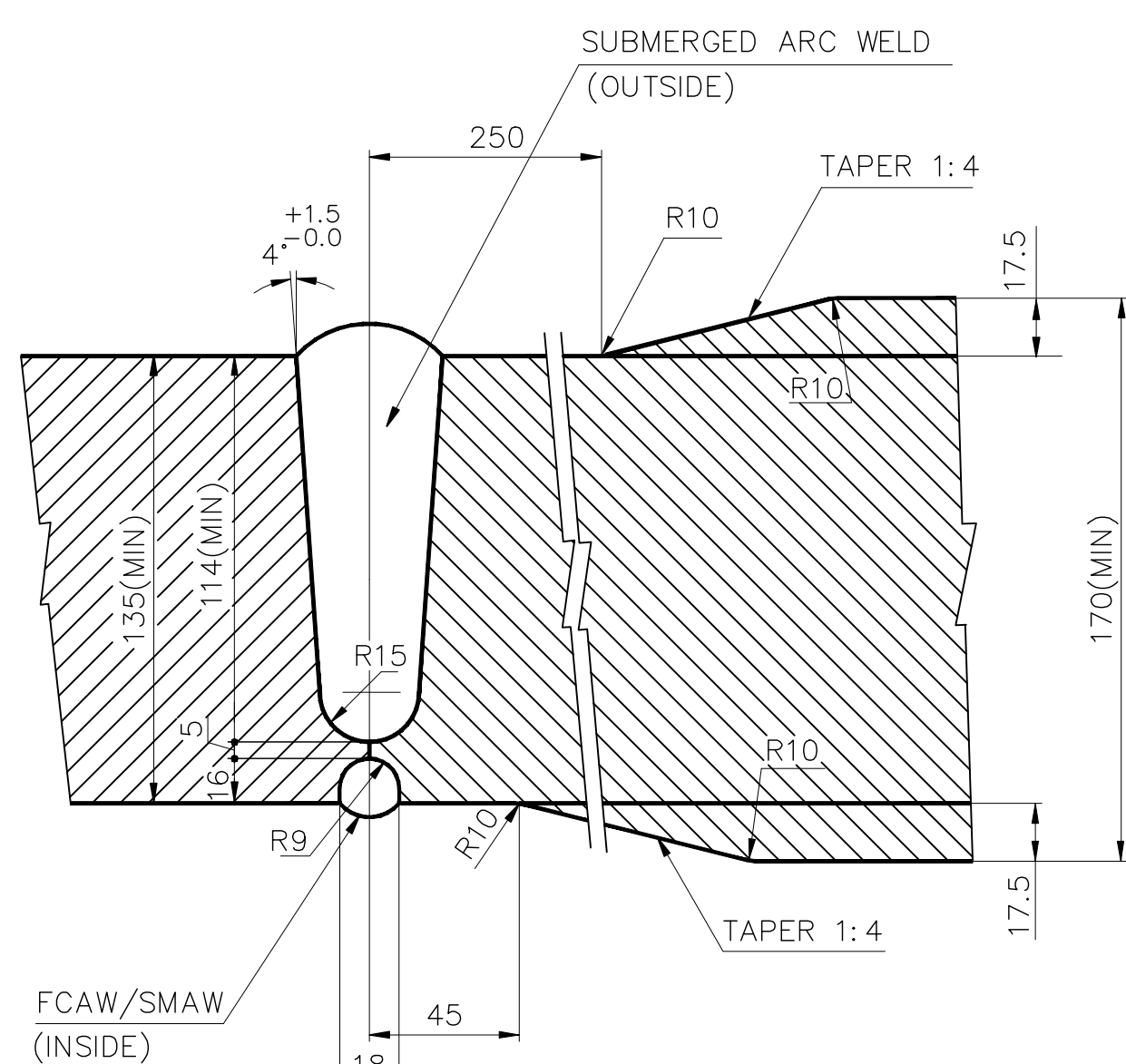
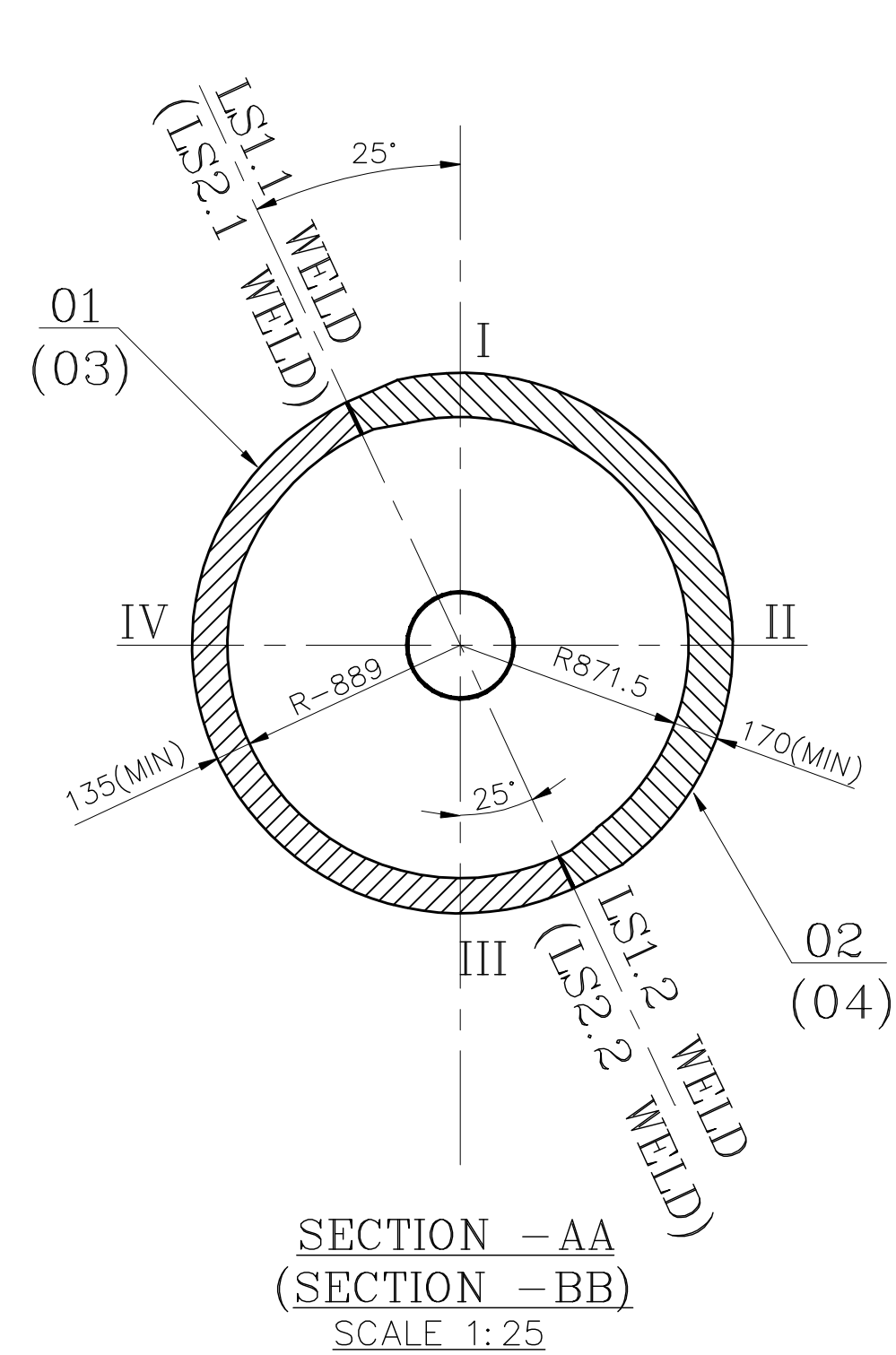
|                                                                                                                                                                                                                               |                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Dy.General Manager/Purchase(SD)<br>Materials Management (FB)<br>4 <sup>th</sup> Floor / 24 Building<br>High Pressure Boiler Plant<br>Bharat Heavy Electricals Limited<br>Tiruchirappalli – 620 014<br><u>Tamilnadu, India</u> | Phone: (0431) 2577074<br>Fax: (0431) 2520719<br>e-Mail ID: <a href="mailto:mkraj@bheltry.co.in">mkraj@bheltry.co.in</a> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                  |                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Manager/Supplier Development Cell<br>Materials Management (Mfg)<br>4 <sup>th</sup> Floor / 24 Building<br>High Pressure Boiler Plant<br>Bharat Heavy Electricals Limited<br>Tiruchirappalli – 620 014<br><u>Tamilnadu, India</u> | Phone: (0431) 2577448<br>Fax: (0431) 2520719<br>e-Mail ID: <a href="mailto:rmkrish@bheltry.co.in">rmkrish@bheltry.co.in</a> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|

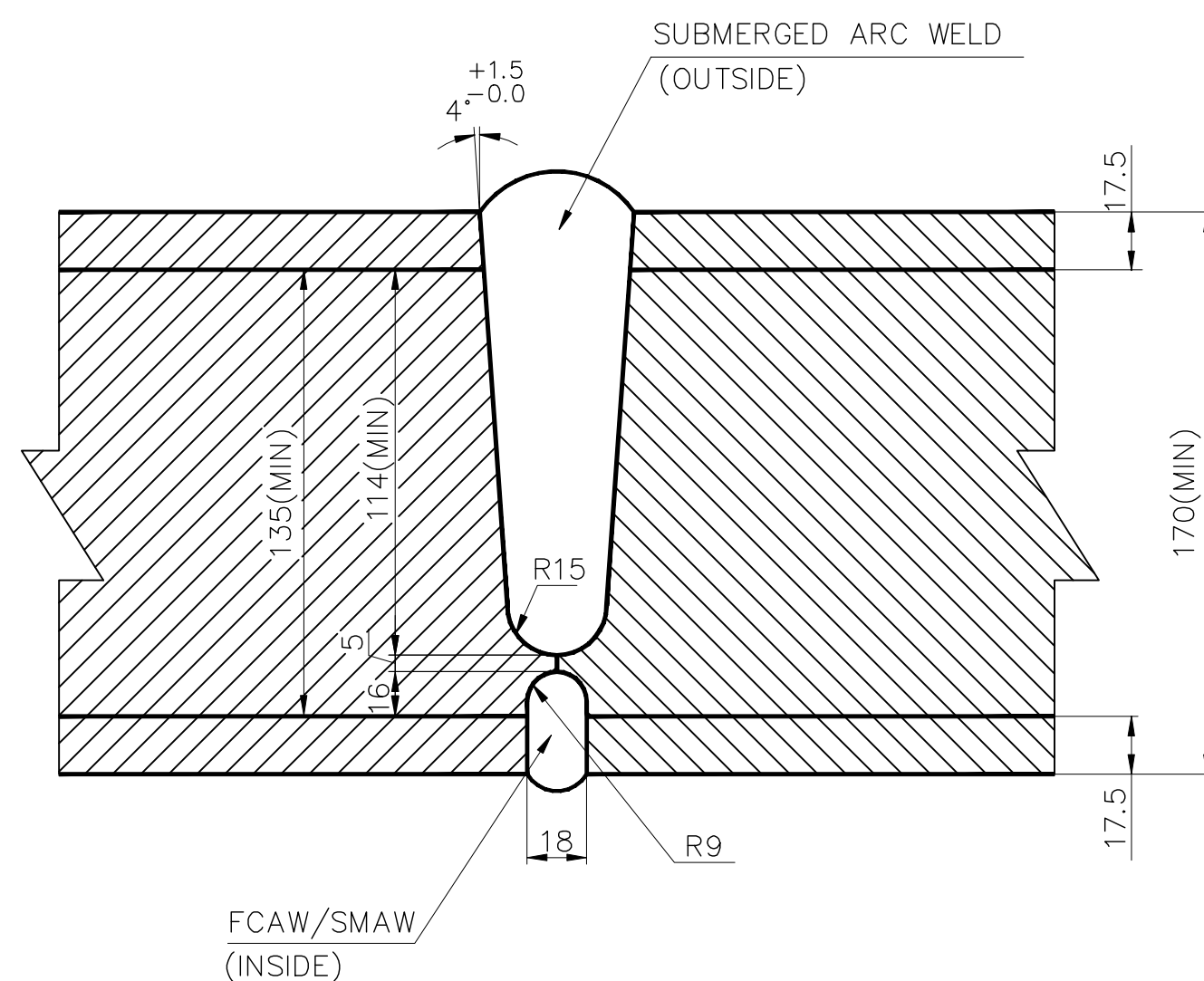
DGM/PURCHASE/SD  
Materials Management (FB)  
Bharat Heavy Electricals Limited  
Tiruchirappalli-620014

### **Supply of Complete Boiler Drums – List of Documents**

|          |                     |                                                                                     |                                |
|----------|---------------------|-------------------------------------------------------------------------------------|--------------------------------|
| Drawings | a) 270 MW – 6 Nos.  | 1.Boiler Drum-Undrilled                                                             | 1.04.126.00870/00 (1216-1.pdf) |
|          |                     | 2.Boiler Drum with stubs and drilling details                                       | 0.04.126.01324/00 (1216-2.pdf) |
|          |                     | 3. Boiler Drum with stubs and drilling details                                      | 0.04.126.01325/00 (1216-3.pdf) |
|          | b) 500 MW – 2 Nos.  | 1.Boiler drum                                                                       | 1.04.126.00856/ (0654-1.pdf)   |
|          |                     | 2.Boiler Drum with stubs and drilling details                                       | 0.04.126.01273/00 (0654-2.pdf) |
|          |                     | 3. Boiler Drum with stubs and drilling details                                      | 0.04126.01268/ (0654-3.pdf)    |
|          | c) 600 MW – 4 Nos.  | 1.Boiler drum                                                                       | 1.04.126.00669/00 (1600-1.pdf) |
|          |                     | 2.Boiler Drum with stubs and drilling details                                       | 0.04.126.01302/00 (1600-2.pdf) |
|          |                     | 3. Boiler Drum with stubs and drilling details                                      | 0.04126.01308/00 (1600-3.pdf)  |
| TDCs     | a) TDC:0:101 Rev.11 | TDC for Seamless Steel Pipes (For Boilers)                                          |                                |
|          | b) TDC:0:102 Rev.11 | TDC for Seamless Steel Tubes (For Boilers)                                          |                                |
|          | c) TDC:0:201 Rev.06 | TDC for Boiler Quality Plates to SA 299 Gr.A (Boilers)                              |                                |
|          | d) TDC:0:202 Rev.04 | TDC for Boiler Quality Plates to SA 515 & SA 387 (Boilers)                          |                                |
|          | e) TDC:0:401 Rev.01 | TDC for Carbon steel forgings to Specn. SA 105 for use in Drum Nozzles.             |                                |
|          | f) TDC:0:424 Rev.00 | TDC for Drum (Undrilled) for Boilers.                                               |                                |
| QAP      | a) SIP:PP:04/06     | Hydrostatic testing of Pressure parts (Boilers, Pressure vessels & Heat exchangers) |                                |
|          | b) SIP:PP:05/00     | Quality Assurance Diameter, Circulating and profile requirements (Boiler Drums)     |                                |
|          | c) SIP:PP:22/03     | Procedure or surface preparations and painting (Boilers and value components)       |                                |
|          | d) QCP:001/05       | QCP for fabrication of Pressure parts (other than tubular products)                 |                                |
|          | e) SIP:PP:02/00     | Quality Assurance visual inspection of Pressure parts except tubular products.      |                                |
|          | e) SIP:PP:08/00     | Quality Assurance Welding of Lifting Lugs to Boiler Drums                           |                                |



DETAIL CS1&CS3  
SCALE 1:2



DETAIL CS2  
SCALE 1:2

| TYPE OF WELD               | TYPE OF ELECTRODE             | TYPE OF FLUX                     |
|----------------------------|-------------------------------|----------------------------------|
| SHIELDED METAL ARC WELDING | E-7018-1                      | - - -                            |
| SUBMERGED ARC WELD         | WIRE US49 (ATT) OR EQUIVALENT | FLUX TAPADIA GR80M OR EQUIVALENT |
| FLUX CORED ARC WELDING     | DW 100 (OR) EQUIVALENT        | - - -                            |

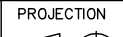
| VARIANT<br>NUMBER | ITEM<br>NUMBER | DESCRIPTION                               | STD. | DRAWING NUMBER | ITEM NO | MATERIAL CODE        | A/C/P | UNIT     | UNIT WEIGHT    | ZONE |
|-------------------|----------------|-------------------------------------------|------|----------------|---------|----------------------|-------|----------|----------------|------|
|                   |                |                                           |      |                | VAR NO  | MATERIAL SPECN       | DI    | QUANTITY |                |      |
|                   |                |                                           |      |                |         |                      |       |          |                |      |
|                   | 06             | ASSY. OF MH DOOR<br>ø406 MM OPENING(T=90) |      | 1-03-000-00005 |         | WELDMNT<br>SA 299    | A     |          | 178.64<br>2    |      |
|                   | 05             | DISHED END<br>(T=135 MIN)                 |      | 3-04-126-02369 |         | 15 911 807<br>SA 299 | A     |          | 6281.000<br>2  |      |
|                   | 04             | PL175<br>3013X6414                        |      |                |         | 15 911 797<br>SA 299 | A     |          | 26549.000<br>1 |      |
|                   | 03             | PL140<br>3013X6414                        |      |                |         | 15 911 433<br>SA 299 | A     |          | 21239.000<br>1 |      |
|                   | 02             | PL175<br>3013X7690                        |      |                |         | 15 911 797<br>SA 299 | A     |          | 31830.000<br>1 |      |
|                   | 01             | PL140<br>3013X7690                        |      |                |         | 15 911 433<br>SA 299 | A     |          | 25464.000<br>1 |      |

01. DESIGN PRESSURE : 182.5 KG/SQ.CM(G)  
02. DESIGN TEMPERATURE : 357 °C  
03. HYDRAULIC TEST PRESSURE AT SHOP : 273.75 KG/SQ.CM(G)  
04. DESIGN AS PER I.B.R.  
05. MANUFACTURE AND INSPECTION AS PER I.B.R.

01. ALLOWABLE DRUM TOLERANCES AS PER DRG. No. 0-03-000-00001

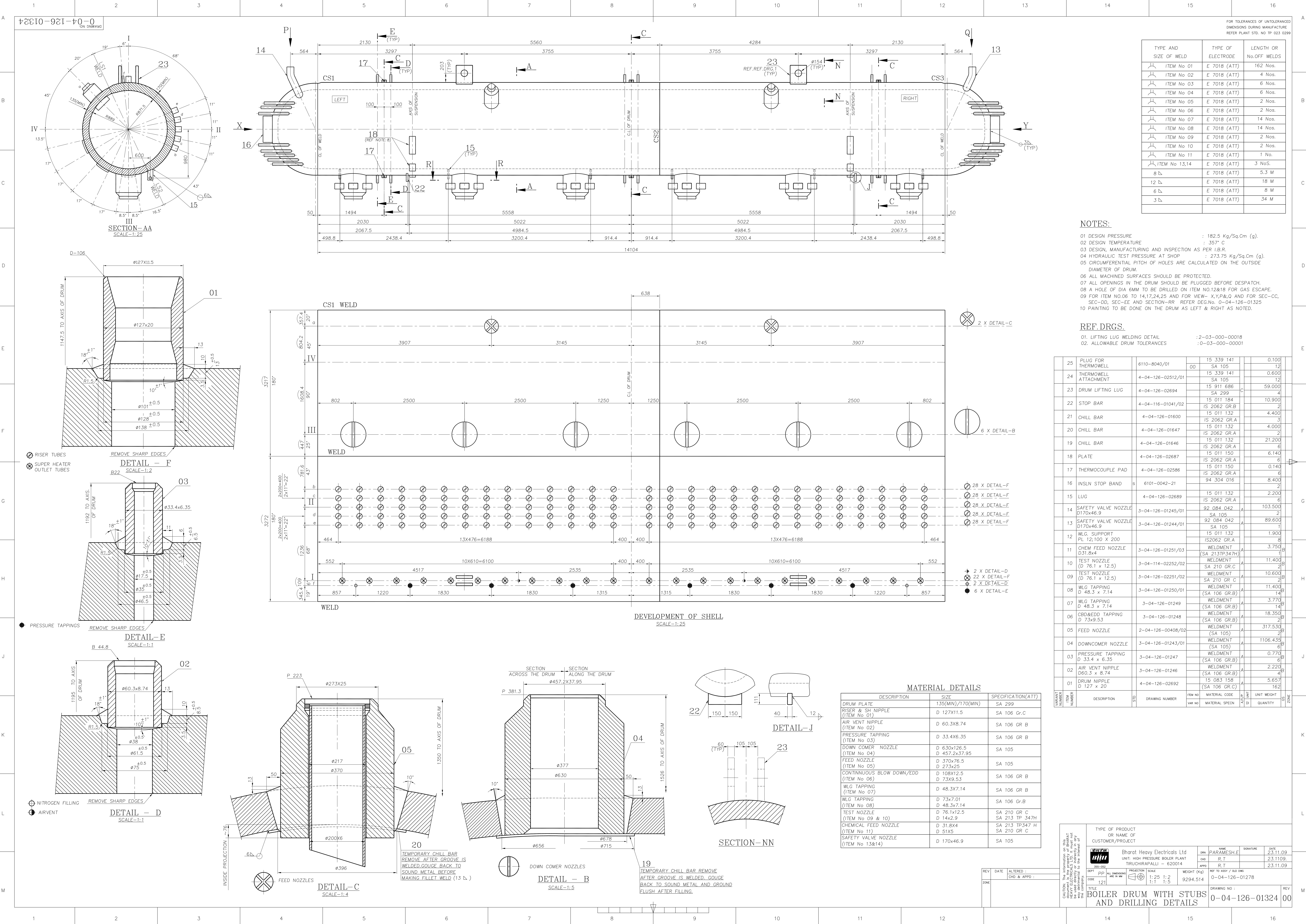
01. BOILER QUALITY PLATES : SA299 (ATT)
02. CIRCUMFERENTIAL & LONGITUDINAL SEAMS ARE TO BE 100% RADIOGRAPHED.
03. TOLERANCE ON THE FINISHED DRUM AND INSPECTION SHALL SATISFY THE I.B.R.
04. WELDING SEQUENCE : ACC TO PROCESS SHEET.
05. HEAT TREATMENT SEQUENCE : AS PER I.B.R.
06. PLACE THE MAN HOLE COVER INSIDE THE DRUM BEFORE WELDING DISHED END.

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|                                                                                       |                             |                                                                                                     |                      |                          |                                         |                   |           |                  |           |
|---------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------|----------------------|--------------------------|-----------------------------------------|-------------------|-----------|------------------|-----------|
| TYPE OF PRODUCT<br>OR NAME OF<br>CUSTOMER/PROJECT                                     |                             |                                                                                                     |                      |                          |                                         |                   |           |                  |           |
|  |                             | Bharat Heavy Electricals Ltd<br>UNIT: HIGH PRESSURE BOILER PLANT<br>TIRUCHIRAPALLI - 620014         |                      |                          | ORN                                     | NAME<br>PARAMESHE | SIGNATURE | DATE<br>24.11.09 |           |
|                                                                                       |                             |                                                                                                     |                      |                          | CHD                                     | R.T               |           | 24.11.09         |           |
|                                                                                       |                             |                                                                                                     |                      |                          | APPD                                    | R.T               |           | 24.11.09         |           |
| DEPT<br>PP                                                                            | ALL DIMENSIONS<br>ARE IN MM | PROJECTION<br> | SCALE<br>1:25<br>1:2 | WEIGHT (Kg)<br>118001.28 | REF TO ASSY / OLD DWG<br>1-04-126-00845 |                   |           |                  |           |
| CODE<br>121                                                                           |                             |                                                                                                     |                      |                          | DRAWING NO :<br>1-04-126-00870          |                   |           |                  | REV<br>00 |
| TITLE<br>BOILER DRUM(UNDRILLED)                                                       |                             |                                                                                                     |                      |                          |                                         |                   |           |                  |           |

|      |      |              |
|------|------|--------------|
| REV  | DATE | ALTERED :    |
|      |      | CHD & APPD : |
| ZONE |      |              |





| TYPE AND SIZE OF WELD | TYPE OF ELECTRODE | LENGTH OR No.OFF WELDS |
|-----------------------|-------------------|------------------------|
| ITEM No 01            | E 7018 (ATT)      | 162 Nos.               |
| ITEM No 02            | E 7018 (ATT)      | 4 Nos.                 |
| ITEM No 03            | E 7018 (ATT)      | 6 Nos.                 |
| ITEM No 04            | E 7018 (ATT)      | 6 Nos.                 |
| ITEM No 05            | E 7018 (ATT)      | 2 Nos.                 |
| ITEM No 06            | E 7018 (ATT)      | 2 Nos.                 |
| ITEM No 07            | E 7018 (ATT)      | 14 Nos.                |
| ITEM No 08            | E 7018 (ATT)      | 14 Nos.                |
| ITEM No 09            | E 7018 (ATT)      | 2 Nos.                 |
| ITEM No 10            | E 7018 (ATT)      | 2 Nos.                 |
| ITEM No 11            | E 7018 (ATT)      | 1 No.                  |
| ITEM No 13,14         | E 7018 (ATT)      | 3 Nos.                 |
| 8 $\nabla$            | E 7018 (ATT)      | 5.3 M                  |
| 12 $\nabla$           | E 7018 (ATT)      | 18 M                   |
| 6 $\nabla$            | E 7018 (ATT)      | 8 M                    |
| 3 $\nabla$            | E 7018 (ATT)      | 34 M                   |

NOTES:

01 DESIGN PRESSURE : 182.5 Kg/Sq.Cm (g).  
02 DESIGN TEMPERATURE : 357° C  
03 DESIGN, MANUFACTURING AND INSPECTION AS PER I.B.R.  
04 HYDRAULIC TEST PRESSURE AT SHOP : 273.75 Kg/Sq.Cm (g).  
05 CIRCUMFERENTIAL PITCH OF HOLES ARE CALCULATED ON THE OUTSIDE DIAMETER OF DRUM.  
06 ALL MACHINED SURFACES SHOULD BE PROTECTED.  
07 ALL OPENINGS IN THE DRUM SHOULD BE PLUGGED BEFORE DESPATCH.  
08 A HOLE OF DIA 6MM TO BE DRILLED ON ITEM NO.12&18 FOR GAS ESCAPE.  
09 FOR ITEM NO.06 TO 14,17,24,25 AND FOR VIEW- X,Y,P&Q AND FOR SEC-CC, SEC-DD, SEC-EE AND SECTION-RR REFER DEG.No. 0-04-126-01325  
10 PAINTING TO BE DONE ON THE DRUM AS LEFT & RIGHT AS NOTED.

REF. DRGS.

01. LIFTING LUG WELDING DETAIL :2-03-000-00018  
02. ALLOWABLE DRUM TOLERANCES :0-03-000-00001

|    |                                |                   |    |                         |          |
|----|--------------------------------|-------------------|----|-------------------------|----------|
| 25 | PLUG FOR THERMOWELL            | 6110-8040/01      | 00 | 15 339 141              | 0.100    |
|    |                                |                   |    | SA 105                  | 12       |
| 24 | THERMOWELL ATTACHMENT          | 4-04-126-02512/01 |    | 15 339 141              | 0.600    |
|    |                                |                   |    | SA 105                  | 12       |
| 23 | DRUM LIFTING LUG               | 4-04-126-02694    |    | 15 911 686              | 59.000   |
|    |                                |                   |    | SA 299                  | 4        |
| 22 | STOP BAR                       | 4-04-116-01041/02 |    | 15 011 184              | 10.900   |
|    |                                |                   |    | IS 2062 GR.B            | 2        |
| 21 | CHILL BAR                      | 4-04-126-01600    |    | 15 011 132              | 4.400    |
|    |                                |                   |    | IS 2062 GR.A            | 3        |
| 20 | CHILL BAR                      | 4-04-126-01647    |    | 15 011 132              | 4.000    |
|    |                                |                   |    | IS 2062 GR.A            | 2        |
| 19 | CHILL BAR                      | 4-04-126-01646    |    | 15 011 132              | 21.200   |
|    |                                |                   |    | IS 2062 GR.A            | 6        |
| 18 | PLATE                          | 4-04-126-02687    |    | 15 011 150              | 6.140    |
|    |                                |                   |    | IS 2062 GR.A            | 6        |
| 17 | THERMOCOUPLE PAD               | 4-04-126-02586    |    | 15 011 150              | 0.140    |
|    |                                |                   |    | IS 2062 GR.A            | 6        |
| 16 | INSLN STOP BAND                | 6101-0042-21      |    | 94 304 016              | 8.400    |
|    |                                |                   |    |                         | 2        |
| 15 | LUG                            | 4-04-126-02689    |    | 15 011 132              | 2.200    |
|    |                                |                   |    | IS 2062 GR.A            | 6        |
| 14 | SAFETY VALVE NOZZLE D170x46.9  | 3-04-126-01245/01 |    | 92 084 042              | 103.500  |
|    |                                |                   |    | SA 105                  | 2        |
| 13 | SAFETY VALVE NOZZLE D170x46.9  | 3-04-126-01244/01 |    | 92 084 042              | 89.600   |
|    |                                |                   |    | SA 105                  | 1        |
| 12 | WLG. SUPPORT PL 12:100 X 200   |                   |    | 15 011 132              | 1.900    |
|    |                                |                   |    | IS2062 GR.A             | 8        |
| 11 | CHEM FEED NOZZLE D31.8x4       | 3-04-126-01251/03 |    | WELDMENT (SA 213TP347H) | 3.750    |
|    |                                |                   |    |                         | 1        |
| 10 | TEST NOZZLE (D 76.1 x 12.5)    | 3-04-114-02252/02 |    | WELDMENT SA 210 GR.C    | 11.400   |
|    |                                |                   |    |                         | 8        |
| 09 | TEST NOZZLE (D 76.1 x 12.5)    | 3-04-126-02251/02 |    | WELDMENT SA 210 GR.C    | 10.600   |
|    |                                |                   |    |                         | 8        |
| 08 | WLG. TAPPING D 48.3 x 7.14     | 3-04-126-01250/01 |    | WELDMENT (SA 106 GR.B)  | 11.400   |
|    |                                |                   |    |                         | 14       |
| 07 | WLG. TAPPING D 48.3 x 7.14     | 3-04-126-01249    |    | WELDMENT (SA 106 GR.B)  | 3.770    |
|    |                                |                   |    |                         | 14       |
| 06 | CBD&EDD TAPPING D 73x9.53      | 3-04-126-01248    |    | WELDMENT (SA 106 GR.B)  | 18.350   |
|    |                                |                   |    |                         | 2        |
| 05 | FEED NOZZLE                    | 2-04-126-00408/02 |    | WELDMENT (SA 105)       | 317.530  |
|    |                                |                   |    |                         | 2        |
| 04 | DOWNCOMER NOZZLE               | 3-04-126-01243/01 |    | WELDMENT (SA 105)       | 1106.435 |
|    |                                |                   |    |                         | 6        |
| 03 | PRESSURE TAPPING D 33.4 x 6.35 | 3-04-126-01247    |    | WELDMENT (SA 106 GR.B)  | 0.770    |
|    |                                |                   |    |                         | 6        |
| 02 | AIR VENT NIPPLE D60.3 x 8.74   | 3-04-126-01246    |    | WELDMENT (SA 106 GR.B)  | 2.220    |
|    |                                |                   |    |                         | 4        |
| 01 | DRUM NIPPLE D 127 x 20         | 4-04-126-02692    |    | 15 083 158              | 5.657    |
|    |                                |                   |    | (SA 106 GR.C)           | 162      |

| DESCRIPTION                           | SIZE                         | SPECIFICATION(ATT)            |
|---------------------------------------|------------------------------|-------------------------------|
| DRUM PLATE                            | 135(MIN)/170(MIN)            | SA 299                        |
| RISER & SH NIPPLE (ITEM No 01)        | D 127X11.5                   | SA 106 Gr.C                   |
| AIR VENT NIPPLE (ITEM No 02)          | D 60.3X8.74                  | SA 106 GR B                   |
| PRESSURE TAPPING (ITEM No 03)         | D 33.4X6.35                  | SA 106 GR B                   |
| DOWN COMER NOZZLE (ITEM No 04)        | D 630x126.5<br>D 457.2x37.95 | SA 105                        |
| FEED NOZZLE (ITEM No 05)              | D 370x76.5<br>D 273x25       | SA 105                        |
| CONTINUOUS BLOW DOWN/EDD (ITEM No 06) | D 108x12.5<br>D 73x9.53      | SA 106 GR B                   |
| WLG. TAPPING (ITEM No 07)             | D 48.3X7.14                  | SA 106 GR B                   |
| WLG. TAPPING (ITEM No 08)             | D 73x7.01<br>D 48.3x7.14     | SA 106 Gr.B                   |
| TEST NOZZLE (ITEM No 09 & 10)         | D 76.1x12.5<br>D 14x2.9      | SA 210 GR C<br>SA 213 TP 347H |
| CHEMICAL FEED NOZZLE (ITEM No 11)     | D 31.8X4<br>D 51X5           | SA 213 TP347 H<br>SA 210 GR C |
| SAFETY VALVE NOZZLE (ITEM No 13&14)   | D 170x46.9                   | SA 105                        |

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|                                                                                             |     |                       |           |
|---------------------------------------------------------------------------------------------|-----|-----------------------|-----------|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT                                                 |     | DATE                  |           |
| Bharat Heavy Electricals Ltd<br>UNIT: HIGH PRESSURE BOILER PLANT<br>TIRUCHIRAPALLI - 620014 |     | 23.11.09              |           |
| DEPT                                                                                        | PP  | NAME                  | SIGNATURE |
| CODE                                                                                        | 121 | CHD                   | R.T       |
| PROJECT                                                                                     |     | APPRO                 | R.T       |
| SCALE                                                                                       |     | DATE                  |           |
| 1:25<br>1:1<br>1:5                                                                          |     | 23.11.09              |           |
| WEIGHT (Kg)                                                                                 |     | REF TO ASSY / OLD DWG |           |
| 9294.514                                                                                    |     | 0-04-126-01278        |           |
| TITLE                                                                                       |     | DRAWING NO :          |           |
| BOILER DRUM WITH STUBS AND DRILLING DETAILS                                                 |     | 0-04-126-01324 00     |           |



