



An ISO 9001  
Company

## Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

MM / BOI

<b>TITLE</b>	Phone: +91 431 2574043/2574103 Fax : +91 431 252 0233 / 0525 Email : <a href="mailto:imuthu@bheltry.co.in">imuthu@bheltry.co.in</a> <a href="mailto:majothe@bheltry.co.in">majothe@bheltry.co.in</a>
<b>HIGH VELOCITY OXY FUEL(HVOF) METAL SPRAYING OF CFBC BOILERS WATERWALL PANELS FOR 216 Sq.m. for both boilers (i.e. 108 sq.m. per boiler)</b>	

	<b>Reference Number: Enquiry MM/BOI/HVOF METAL SPRAY</b>	<b>Enquiry Date: 01.01.2013</b>	<b>Due date for submission of quotation: 30.01.2013</b>
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You are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order.

BHEL/Trichy is looking for ..... Bidders for In-Situ HVOF (High Velocity Oxygen Fuel) Metal spraying of CFBC boilers Waterwall Panels for 216 Sq.m. for both boilers. (i.e. 108 sq.m. per boiler)

### ENCLOSURES :

- 1) HVOF COATING SPECIFICATION NO: PCPS:PE:5316:HVOF:01/REV.00(PAGE NO: 1 OF 1)
- 2) HVOF COATING POWDER SPECIFICATION NO: PCPS:PE:5316:HVOF:02/REV.00 (PAGE NO: 1 OF 1)
- 3) HVOF COATING APPLICATION SPEC. NO: PCPS:PE:5316:HVOF:03/REV.00(PAGE NO:1 TO 5)
- 4) SCHEDULE OF GUARANTEE SPEC. NO: PCPS:PE:5316:HVOF:04/REV.00(PAGE NO: 1 OF 1)
- 5) CHECK LIST FOR HVOF COATING SYSTEM SPEC.:PCPS:PE:5316:HVOF:05/REV.00(PAGE NO:1 OF 1 )
- 6) SKETCH NO: 4-PP-5316-0026/REV.00 (ONE PAGE)
- 7) SPECIAL CONDITIONS OF WEB TENDER. (TPFH/MM/BOI/HVOF METALSPRAY dated 31.12.2012).
- 8) TERMS & CONDITIONS (FOR IMPORT ENQUIRY) – TWO PAGES
- 9) QUOTATION DATA SHEET – ONE PAGE
- 10) PERFORMANCE BANK GUARANTEE – 4 PAGES

BHEL commercial terms & conditions with Price Bid formats and all annexure can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units) Bharat Heavy Electricals Limited) under enquiry reference “**MM/BOI/HVOF METAL SPRAY**”

Tenders should reach us before 14:00 hours on the due date  
Technical bid will be opened at 14:30 hours on the due date  
Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present.

Yours faithfully,  
For **Bharath Heavy Electricals Limited**

Purchase Officer / Purchase/ MM / BOI

**BHARAT HEAVY ELECTRICALS LIMITED, TRICHY**

**MM / BOI**

**SPECIAL CONDITIONS OF WEB TENDER**

1. This tender is for the Job of In-situ HVOF Metal Spraying of CFBC boiler water wall panels (216sq.m for both boilers, i.e., 108 sq.m. per boiler) of BECL -1&2 projects at Bhavnagar, Gujarat(state), India as per the enclosed specifications No.:PCPS:PE:5316:HVOF:01/00, 02/00, 03/00, 04/00, 05/00 AND SKETCH NO:4-PP-5316-0026/REV.00. Full details can be downloaded from BHEL's Website : [http://www.bhel.com\(Tender](http://www.bhel.com(Tender) Notifications page > NIT\_XXXXX) or from the Government tenders website : <http://tenders.gov.in> (Public Sector Units > Bharat Heavy Electricals Limited page against Ref. No.NIT\_XXXXX)
2. The offered price shall be valid for one year from the date of price bid opening.
3. The vendor shall have adequate experience in this job.
4. The tender is in TWO parts. Techno-commercial Bid consisting of Un-priced Technical Bid with Commercial terms & conditions along with Quality plan for the supply in-line with our requirements and another part containing Price Bid. Both Techno-Commercial bid and Price Bids are to be submitted in separate sealed covers. In addition to technical and commercial conditions, vendors who are not registered as vendors of BHEL, Trichy have to submit the filled in "Supplier Registration Forms" (available in [www.bhel.com](http://www.bhel.com) website) along with the technical bid. Based on this and other conditions, as well as capacity and capability, vendor will be shortlisted. Both these covers are to be put in a single cover duly super scribing the Enquiry Number. The technical bid with commercial terms and conditions will be opened on the due date and based on the acceptance of techno-commercial bid and vendor evaluation, the price bid of the qualified vendors will be opened on a suitable date with due intimation.

Following will be the criteria for short-listing the vendors

- Evaluation of dully filled Supplier Registration Forms.
  - Availability of minimum manufacturing, handling, testing and measuring facilities as detailed in the Supplier Registration Form.
  - BHEL will have the right for spot assessment of the facilities.
  - Meeting our techno-commercial requirements of the enquiry.
  - Customer approval for the vendors before ordering.
  - Accepting and entering into Integrity Pact (IP)
5. (a) Tenderers shall quote their price on FOR Despatching point basis. Materials will be transported by road through vendor own transport carriers to respective destinations indicated in the tender.

6. (b) Split-up prices must be furnished by the tenderer for the basis instrument / Equipment and for all accessories quoted.
7. Quotation data sheet as called for in the enquiry shall be filled by the tenderer in full and submitted along with the quotations. Each and every point of BHEL Specification / data sheet must be either confirmed or commented upon without fail either in typed form or in neatly hand written form bringing out clearly the deviations (if any) taken by the tenderers. However, the tenderers must make all efforts to adhere to BHEL specifications in total. OFFERS RECEIVED WITHOUT SUCH POINT TO POINT CONFIRMATIONS / COMMENTS SHALL BE CONSIDERED AS INCOMPLETE AND LIABLE FOR REJECTION.
8. Offers shall be accompanied by copies of drawings, catalogues, illustrated leaflets as called for in the tender specification.
9. Status of tender submission shall invariably be informed to BHEL either over E-Mail / Fax atleast two days in advance of due date, failing which no extension of due date is entertained.
10. No advance will be made along with order. Our Standard payment terms will be 100% within 45 days after receipt and acceptance of materials at our works / site. Payment for material will be made along with application charges after the application job is completed at site per boiler basis against "APPLICATION JOB COMPLETION CERTIFICATION" by BHEL site officials. Please note that the finalization of tender is not only on the price factor but also on your accepting our terms of payment.
11. The equipment shall be guaranteed for a period of two years from the date of commissioning with lignite firing and continuous boiler operation as per the Specification no:PCPS:PE:5316:HVOF:04/Rev.00(Page no:1 of 1)
12. Vendor to confirm for providing Bank Guarantee for 10% of order value(as per BHEL PBG format) valid for a period mentioned in point no.11.
13. The rate of excise duty prevalent on the date of quotation shall be clearly indicated in the offer itself for incorporation in the purchase order. It will be payable at the quoted rates subject to completion of delivery within the stipulated dates. However, revision due to statutory variations will be applicable.
14. "Original Invoice for Buyer" should be submitted along with the advance copy of documents to , "The Purchase Officer / Purchase /MM/BOI /BHEL/TRICHY-14, TAMILNADU, INDIA" for each of the dispatch made for processing payment.

15. Detailed offer should reach us before the due date indicated in the tender. Telegraphic offers will normally be not accepted and will be treated as incomplete.
16. Offers must reach us latest before 2.00p.m. on the date of opening of tender. Viz.: 18.01.2013. Only those vendors who have been qualified after technical bid evaluation and sample evaluation will be considered for price bid opening.
17. The materials are to be dispatched to : M/s. BECL, BHAVNAGAR, GUJARAT(ST), INDIA.
18. BHEL reserves the right to increase or decrease the tender quantity and split the tendered quantity among more than one vendor and place orders accordingly in any proportion based on commitment , requirement and supplier's capability in terms of delivery and quality as assessed by BHEL.
19. BHEL reserves the right to Negotiate with the L1 vendor.
20. BHEL reserves the right to re-float the tender opened, if L1 price is not the lowest applicable price to them inter-alia other reasons.
21. Applicable Commercial terms shall be clearly spelt out in the offer ie. Payments, Taxes & Duties, PBG, completion of works, LD clause, validity of offer etc.
22. The vendors who have already took part in Web tender for the previous enquiries and bagged orders(on one time basis) should submit vendor registration documents for qualifying to participate in this web tender which is mandatory. If this condition is not fulfilled, then their offer will be disqualified eventhough they qualify as per the Engineering specification no: PCPS:PE:5316:HVOF:01 / 02 / 03 / 04 / 05.
23. In the event of conflicting points appearing in tender documents, Engineering specification no: PCPS:PE:5316:HVOF:01 / 02 / 03 / 04 / 05 will be the binding document for technical points.
24. Full details can be downloaded from BHEL's website <http://www.bhel.com> (Tender Notifications page > NIT\_xxxxx) or from the Govt. Tenders website <http://tenders.gov.in> (Public Sector Units > Bharat Heavy Electricals Limited page against Ref. No. NIT\_xxxxx).Interested parties may submit their offers to the following address, along with vendor registration requirement in BHEL format hosted in BHEL web site.

The PURCHASE OFFICER / PURCHASE / MM / BOI, 4<sup>TH</sup> FLOOR, BLDG.79, BHARAT HEAVY ELECTRICALS LTD., HIGH PRESSURE BOILER PLANT, TIRUCHIRAPPALLI - 620 014, TAMILNADU, INDIA. Ph: (0431) 2574043 / 2574103, FAX: 2520233 / 2520525

E-Mail: [imuthu@bheltry.co.in](mailto:imuthu@bheltry.co.in), [majothi@bheltry.co.in](mailto:majothi@bheltry.co.in).



**Bharat Heavy Electricals Limited**  
PCPS – Product Engineering

Specification No: PCPS:PE:5316:HVOF:01	Rev.:00
Project: BECL-BHAVNAGAR-CFBC	Page
CUST.No: 5316 & 5317	1 of 1

### HVOF COATING SYSTEM

**System:** Involves the following:

1. Supply of HVOF coating powder as per specificationNo: PCPS:PE:5316:HVOF:02.
2. Application of in-situ HVOF coating as per specification No: PCPS:PE:5316:HVOF:03.

**Plant/Site Location:** BECL, Bhavnagar Energy Company Ltd site is located in Bhavnagar of Gujarat state, India.

**Surface to be coated:** CFBC boiler furnace water walls [Walls are formed with Carbon steel tubes and Carbon steel fins]. (For profile refer Sketch.No: 4-PP-5316-0026).

**Temperature profile:**

The combustor/Furnace will be operating at a temperature of  $900 \pm 50$  Deg C. The HVOF Coating applied on the furnace tube has to withstand the erosion and effects of boiler bed material at the above indicated working temperature.

Bed Material data: Type: Crushed refractory grog or river sand; Size Max: 1mm; Bulk density (in Kg/m<sup>3</sup>):1500-1800.

**Vendor Qualification criteria:** Vendors responding to this enquiry must fulfil the following criteria:

*"The vendor and their original powder supplier (or their principal/collaborator) should have experience on HVOF coating on CFBC boiler furnace tubes or similar application on boilers in India or abroad. The same should have been in successful operation for a period of minimum two years"*

Vendor to furnish supporting documents/ references from end user (Customer) along with the offer. Offer need not be submitted if the above point is not fulfilled by the vendor. Offers without the reference documents will be summarily rejected without assigning any reason.

**Vendor evaluation:** Vendors shall submit 50 manually coated samples of plate size 25 x 25 mm with (200-300 micron thickness) coating on one side and grit blasted surface on the other side, as required for evaluation by BHEL. Also sample powder (100 gms) along with the test certificate (of the source where it is bought) used for spraying to be submitted for our analysis and approval. The vendors will be qualified only after evaluation of the powder and coated samples by BHEL.

**Technical offer by the vendor:**

Vendor shall furnish **three separate offers:** 1.For the coating powder. 2. for the application part with BHEL facilities (Compressor, Scaffolding, oxygen, Nitrogen, fuel and storage tank) and 3. For the application part with vendors own facilities.

**Documents to be submitted in Technical Bid along with the offer:**

- Credentials confirming qualification criteria as stipulated in "Qualification Criteria"
- Schedule of Guarantee (Specn.No:PCPS:PE:5316:HVOF:04) – Duly signed
- Refer check list No: PCPS:PE:5316:HVOF:05 (Offers will be evaluated subject to complete filled in check list by vendor).

**Enclosures:**

- HVOF coating powder specificationNo: PCPS:PE:5316:HVOF:02/Rev:00
- HVOF application specification No: PCPS:PE:5316:HVOF:03/Rev:00
- HVOF coating on CFBC boiler furnace walls sketch No: 4-PP-5316-0026/Rev:00
- Schedule of Guarantee Specification No: PCPS:PE:5316:HVOF:04/Rev:00
- Check list: PCPS:PE:5316:HVOF:05/Rev:00.

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## HVOF COATING POWDER

**System:** HVOF coating powder for in-situ HVOF coating application on CFBC boiler Furnace tubes at BECL-BHAVNAGAR, Gujarat, India.

### **Introduction:**

The vendor has to supply HVOF coating powder to carry out in-situ HVOF coating application on boiler tubes inside the CFBC boiler.

### **Technical Specifications:**

- HVOF coating powder: Chromium Carbide based powder ( $Cr_2C_3+25 NiCr$ )
- Chemical composition (weight %)  $\Rightarrow$  C=9.2 to 10.8; Ni = 18 to 22; Fe= 0.3 max; Balance chrome.
- Quantity requirement: Vendor to specify the quantity based on the area to be coated as indicated below with some 5% reserve to meet any short fall arising out of re-work or any other contingency requirement at site.
- Area to be coated: The area to be coated is 108 sq. m/boiler. (For tentative location & profile refer sketch no: 4-PP-5316-0026/Rev.00 attached)
- Coating thickness: 200-300 microns with uniform taper. Taper from 200-300 micron thickness to zero over a height of 250mm.
- Coating hardness: Min. 750 HV0.3 micro hardness on coated samples.

### **Test certificates/Lab Reports:**

- The test certificates/data sheet and confirmation in respect of type of powder from powder manufacturer shall be submitted by the bidder along with the technical bid. The actual test results (not typical) for chemical and physical properties of the coating powders will also be required to be furnished for our approval before application.
- Report on powder morphology of the proposed supply shall be produced along with the offer.
- Physical & Chemical properties of the coating powder shall be supplied along with the offer.
- The test report shall indicate the screen analysis, apparent density, Hall flow and chemical composition of the powder to be used for HVOF coating.

### **Safety, Transport, storage and packing instructions:**

Considering the Hazardous nature of the Coating powder, vendor shall furnish the Material safety data sheet to BHEL. During application, the material will be handled by the vendor (trained personnel) only. All safety aspects with respect to the Hazardous nature of the powder during packing, transport, storage and application shall be the sole responsibility of the vendor.

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## HVOF COATING APPLICATION

**System:** HVOF coating application for in-situ HVOF coating on CFBC boiler Furnace tubes at BECL-BHAVNAGAR, Gujarat, India.

### **Introduction:**

The vendor has to carry out in-situ HVOF coating application on Furnace tubes inside the CFBC boiler at a height of about 19 meters from ground (approximately 10 meters from the nozzle grate). All necessary equipment, working personnel, consumables required for coating shall be arranged by the vendor. The vendor should visit the site and decide about the placement of various equipment and cables and other accessories required for carrying out the coating job.

### **I. Technical Specifications:**

A. Area to be coated: The area to be coated is approximately 108 sq.m/boiler.

B. Grit blasting: Grit blasting of boiler tubes in-situ shall be done using the following:

- Grit blasting machine: grit blasting at a min. 7 ata pressure.
- Grit : Alumina grit of size 16 - 20 mesh
- Surface finish after grit blasting: 10-15 microns
- Compressed air: Pressure and quantity to be specified by vendor.

C. HVOF coating: HVOF coating of boiler tube surfaces using chromium carbide based powder as per the requirement given below:

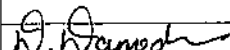
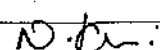
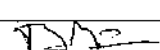
- HVOF coating system: Portable HVOF system, gas or liquid based.
- Coating thickness: 200-300 microns with uniform taper. Taper from 200-300 micron thickness to zero over a height of 250mm.
- Coating hardness: Min. 750 HV0.3 micro hardness on coated samples.
- Coating must have high bond strength and excellent corrosion resistance to thermal cycling from room temperature to 1000 Deg C. (Bond strength not less than 10000 psi shall be ensured between the coating and the tube).
- The spray process should not introduce any micro structural changes risking of cracking that could propagate into the boiler tube.

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## II. Scope of work by Vendor:

- A. Materials and consumables (Refer Specn. No: PCPS:PE:5316HVOF:01 under *technical offer by the vendor*): The vendor should arrange for alumina grit, heavy duty air compressor, grit blasting equipment, Portable HVOF coating system, oxygen, Nitrogen, fuel (gas or liquid) and other paraphernalia required for HVOF coating. Storage of gas, connected statutory licensing and approvals required in this connection from the statutory authorities and any other clearance as required to be taken care of wholly by the vendor. Removal of debris after grit blasting and coating shall be under the scope of the vendor.
- B. Spares and maintenance of equipment: The vendor should have two spray guns, two powder hoppers and necessary spares for continuous operation. Maintenance of equipment is under the scope of the vendor.
- C. Application: Application shall be as per approved application procedure. (Vendor has to apply HVOF coating on a sample piece at site and the coating thickness and surface roughness will be checked by BHEL. Only after concurrence from BHEL, vendor shall proceed with further application on Boiler tubes as per approved procedure).
- D. Repair work: In case of any re-work or repair work attributed out of vendor's negligence, the same shall be informed to BHEL and the work shall be carried out only after BHELs clearance (Technical & Commercial). Vendor has to furnish the repair procedure for approval by BHEL before proceeding with repair work.
- E. Place and duration: The work has to be carried out at BECL, Bhavnagar Energy Company Ltd., Bhavnagar of Gujarat state, India. From the date of order, vendor should mobilise the required powder and other equipment/facilities at the site for start of application within 30 days. The entire job for one boiler should be completed and handover the boiler to BHEL within 7-12 working days. If required, the work has to be carried out in all the shifts. For application on the second boiler, vendor has to make a separate visit.
- F. Quality: Surface preparation and coating quality such as surface roughness after grit blasting, coating thickness, will be monitored by the supplier. Supervision and ensuring the quality of coating and the workmanship shall be the prime responsibility of the vendor. However, BHEL will have the right to only cross check the parameters for their own reference and information. BHEL will cross check the coating thickness and surface roughness with the specified requirement. The vendor should bring calibrated surface roughness and thickness measuring instruments to site for in-situ measurement. The personnel used for HVOF coating shall be qualified & trained personnel and the procedure adopted by the vendor shall be submitted for evaluation.
- G. Safety: Safety of working personnel, machinery and materials including handling of fuel and supporting gases will be sole responsibility of the vendor. All **Statutory safety requirements** for carrying out the HVOF coating shall be taken care by the vendor. Safety equipment like safety shoes, belts, helmets, ear plugs, gas masks/ artificial respiration kits etc. has to be arranged by the vendor.
- H. Operators Qualification: Vendor shall qualify minimum 3 operators to be engaged in the HVOF coating at site as per the procedure laid down in AWS and produce records of qualification of such operators to BHEL-Trichy for verification. Vendor shall employ only those qualified operators at site for carrying out the HVOF coating.
- I. Vendor shall furnish documents on the expected resistance to wear on the basis of theoretical consideration and previous experience.

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### III. General:

1. Vendor to furnish the cleaning methodology and disposal details during and after HVOF coating at site.
2. MSDS (Material safety data sheet) to be provided by the vendor.
3. Written procedure on HVOF coating shall be furnished by the vendor.
4. Vendor has to strictly adhere and execute the application as per the schedule furnished by BHEL.
5. Vendor has to arrange two separate visits to project site for application (one visit per boiler)

### IV Special Conditions during application:

1. Vendor to arrange for his labour colony and staff residential including transport to site.
2. Construction power shall be provided at one point which can be approximately 500m away from work point. Distribution of power from common point to work to be arranged by vendor.
3. Vendor to inform requirement of construction power for his use. The construction power will be provided free of charge. Taxes and duties which are applicable are to be borne by contractor.
4. Office space shall be provided in the vicinity of site free of charge. Construction office if required is to be built by the vendor.
5. Safety standards for application shall be strictly adhered.
6. Vendor to furnish his safety plan for execution of his work at site.
7. First aid provisions to be maintained by the vendor.
8. Vendor shall be fully aware regarding site conditions, infra structures, labours, materials, consumables and other resources for his requirement by visiting site before award of work. Certificate to this effect to be provided by the vendor.
9. Necessary scaffolding, moving platforms are to be arranged by the vendor.
10. Necessary insurance, labour licenses are to be arranged by the vendor and copy to be submitted. Gate passes will be issued only on production of the above documents.
11. The vendor shall be bound by all statutory rule/regulations as applicable.
12. Daily Labour/Progress report to be submitted to BHEL.
13. Any machines, tools, tackles and other paraphernalia requirement other than specified shall be arranged by the vendor as per regulatory requirement.
14. Vendor to match power supply/Voltage requirement of their equipment with actual site supply. If the voltage requirement is not matching, vendor shall arrange for suitable transformers for their equipment.
15. Any safety requirements, transport requirement like fork lift, lifting bay, scaffolding, shall be tied up with customer/site well in advance for handling the vendor equipment.
16. Terminal connections of all vendors' equipment shall be checked by the vendor and shall arrange for proper matching fittings to be used at site.
17. Responsibility on Feasibility study/ Feasibility Survey for any practical complications and emergency response at site lies with the vendor.

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**AA.Equipment, Consumables, Instruments & Man power to be arranged by Vendor:**

(Refer Specn. No: PCPS:PE:5316:HVOF:01 under *technical offer by the vendor*)

**1. Equipment & Consumables:**

Sl.No.	Description of Equipment	OPTION: I (With BHEL facilities)	OPTION:II (With vendor facilities)	Remarks
1	Scaffolding	BHEL	Vendor	Quantity – 1 set
2	Grit blasting machine	Vendor	Vendor	Quantity - 1 set
3	HVOF metal spray system complete with powder feeder, hoses & fittings etc.	Vendor	Vendor	Quantity - 2 set
4	Any other equipment deemed necessary	Vendor	Vendor	1 Full set
5	Heavy duty compressor for grit blasting and coating work.	BHEL	Vendor	Quantity -1 set
6	Safety equipment	Vendor	Vendor	3 set (one per operator)
7	Storage Tank	BHEL	Vendor	1 set
8	Consumables (Oxygen, Nitrogen and fuel)	BHEL	Vendor	

**2. Consumables:**

Sl. No.	Description of consumable	Remarks	Vendor to specify the quantity/quality in this column. (For both option-I & II)
1	Fuel (Gas or Liquid)	Quality & Quantity to be specified	
2	Nitrogen	Quality & Quantity to be specified	
3	Compressed air	Pressure & Quantity to be specified.	

Prepared	Reviewed	Approved	Date	Rev
<i>A. Ramachandran</i>	<i>N.D.</i>	<i>[Signature]</i>	23/11/12	00



**3. Instruments (By Vendor):**

Sl. No.	Description of Instrument	Remarks
1	Surface Roughness meter	2 nos.
2	Coating thickness meter	2 nos.
3	Hardness tester	2nos.

**4. Man power (By Vendor):**

Sl. No.	Description of Instrument	Remarks	Vendor to specify man days in this column. (Refer II- E of this specification)
1	Skilled person for grit blasting & coating for all shift operation.	Man days to be specified.	
2	Unskilled person for grit blasting & coating for all shift operation.	Man days to be specified.	
3	Supervisor	Man days to be specified.	

**5. Materials and Utilities to be arranged by BHEL:**

Sl. No.	Description of Instrument	Remarks	Vendor to specify the requirement in this column.
1	Power	3Ph/1 Ph. Voltage, Amperage requirement to be specified.	
2	Water	Quantity & Pressure to be specified.	

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<i>N. Damodh</i>	<i>N. Ch.</i>	<i>PSA</i>	23/11/12	00



**Bharat Heavy Electricals Limited**  
**PCPS – Product Engineering**

Specification No: PCPS:PE:5316:HVOF:04	Rev.:00
Project: BECL-BHAVNAGAR-CFBC CUST.No: 5316 & 5317	Page 1 of 1

**SCHEDULE OF GUARANTEES:** The following need to be guaranteed for fulfilling the intent of the specification:

The vendor shall stand guarantee for the quality, life of the coating and workmanship. The life of the coating shall be minimum two years from the date of commissioning with lignite firing and continuous boiler operation. The above is in addition to their meeting out the powder quality requirements.

The guarantee includes conformity on the parameters viz. micro structure & hardness as specified. Premature peeling off due to poor powder quality, poor coating quality and improper workmanship including surface preparation and coating within the guarantee period shall be rectified and the required area shall be recoated by the vendor at their own cost within a short notice during the guarantee period within a short period of one week. Normal gradual erosion over the guarantee period due to boiler operations is excluded from the scope of guarantee.

Demonstration of guarantees:

- 1) Vendor has to demonstrate the guarantee at 3 stages:
  - Immediately after application.
  - After 1 year of boiler operation.
  - After 2 years of operation and end of warranty period.
- 2) Notwithstanding the above guarantees, damages shall be rectified by the vendor during the warranty period.
- 3) In case of non-compliance of the above, vendor has to rectify the damages in the immediate shut down provided by the customer to meet the guarantee points with a consequential extension of warranty period.
- 4) Vendor will be given chance to set right any non-compliance for 2 times; In case of failing to do so, BHEL reserves the right to set right with a third party at risk and cost to the vendor.

**ACCEPTANCE TO SCHEDULE OF GUARANTEES AS MENTIONED ABOVE**

\_\_\_\_\_  
AUTHORIZED SIGNATURE OF VENDOR

*VSM*  
23/11/12



**Bharat Heavy Electricals Limited**  
PCPS – Product Engineering

Specification No: PCPS:PE:5316:HVOF:05	Rev.:00
Project: BECL-BHAVNAGAR-CFBC	Page
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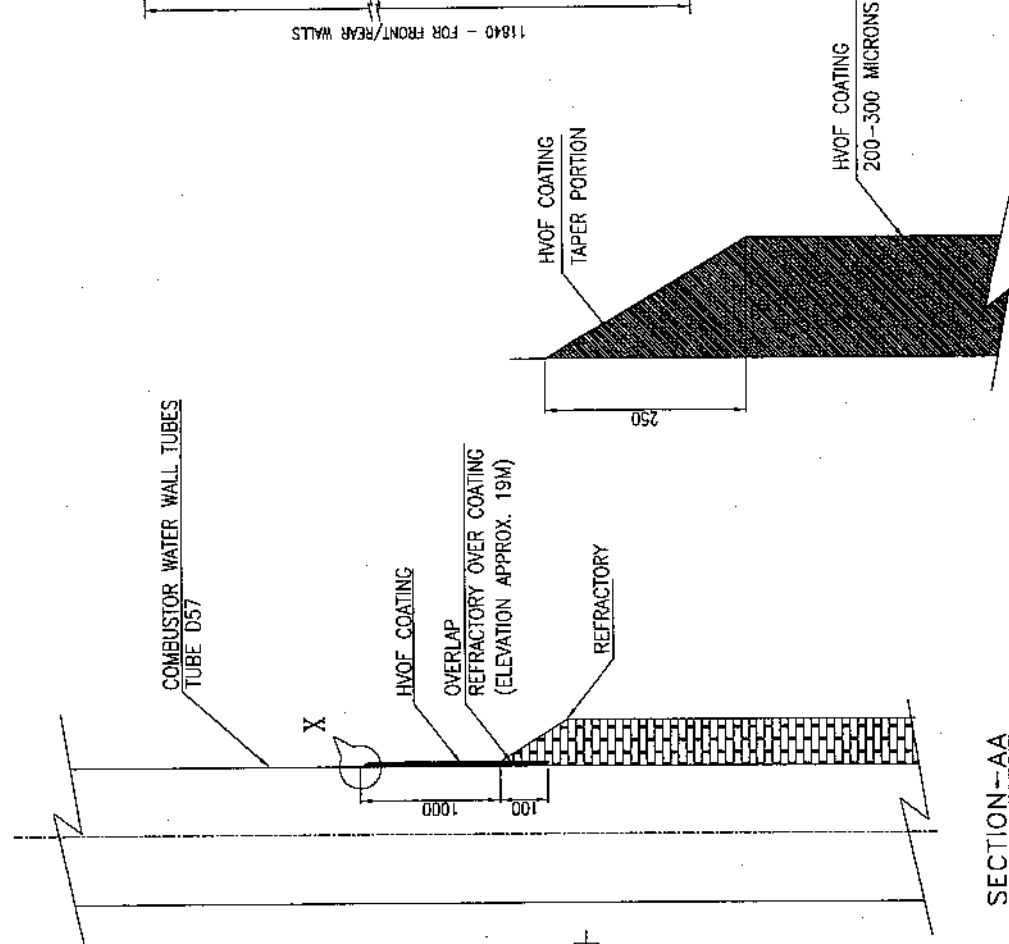
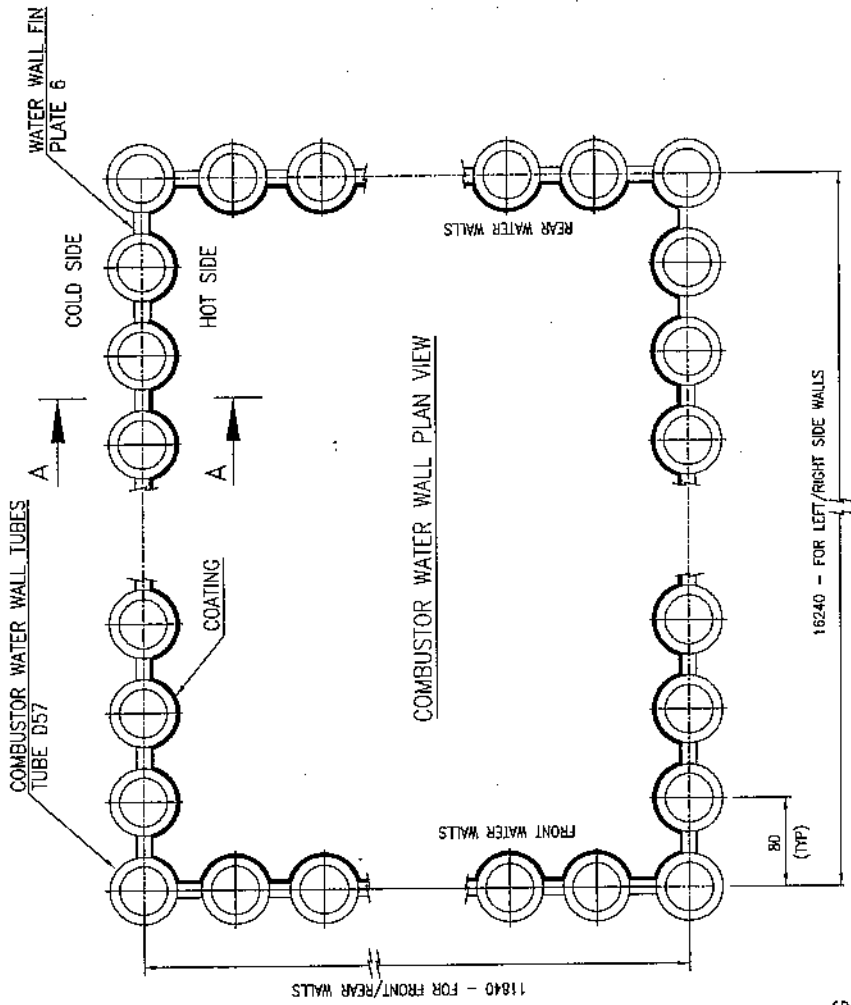
**CHECK LIST FOR HVOF COATING SYSTEM**

Sl No	Description	VENDOR CONFIRMATION (YES/NO)
I	<b>DOCUMENTS REQUIRED: Along with the Offer</b>	
1	Credentials confirming qualification criteria	
2	Schedule of Guarantee – Duly signed	
3	Test certificate of the sample powder (of the source where it is bought)	
3.1	Test certificate on powder morphology.	
3.2	Test certificate shall indicate the screen analysis, apparent density, hall flow	
3.3	Physical & chemical properties of the sample.	
4	Expected resistance to wear on the basis of theoretical consideration & previous experience. (Supporting calculation/evidence shall be produced)	
4	Sample pieces as indicated in Specn.No: PCPS:PE:5316:HVOF:01	
5	Sample powder as indicated in Specn.No: PCPS:PE:5316:HVOF:01	
6	Whether vendor has submitted 3 Technical offers?	
7	Whether vendor has filled point AA of Specn. No: PCPS:PE:5316:HVOF:03	
8	Material Safety Data sheet	
9	Typical application procedure	
II	<b>AFTER PLACEMENT OF ORDER:</b>	
1	Actual Test certificate of the supplied powder.	
1.1	Actual test certificate on powder morphology.	
1.2	Test certificate shall indicate the screen analysis, apparent density, hall flow	
1.3	Physical & chemical properties of the actual powder	
2	Equipment list with fitness certificate.	
3	Instrument list with calibration certificate.	
4	Consumable list.	
5	Actual application procedure	
6	Repair procedure	
7	Operators qualification details	
8	Cleaning methodology to be adopted at site	
9	Safety plan at site	
III	<b>GENERAL:</b>	
01		
	<i>Without the above Details/confirmation the Offer will be treated as Incomplete and Liable for Rejection.</i>	

**AUTHORIZED SIGNATURE OF VENDOR**

Prepared	Reviewed	Approved	Date	Rev
<i>G. Ramesh</i>	<i>N. D.</i>	<i>VSA</i>	23/11/20	00

**HVOF COATING ON CFBC BOILER FURNACE WALLS**



**SECTION-AA**

**DETAIL-X**

- NOTE:**
- 01. HVOF COATING TO BE DONE ON ALL 4 SIDES OF COMBUSTOR WATER WALLS OF THE CFBC BOILER.
  - 02. THE ABOVE PLAN VIEW SHOWS THE SURFACE PROFILE OF THE WATER WALL TO BE HVOF COATED.
  - 03. FOR DETAILS REFER HVOF COATING SPECIFICATION NO: PCPS:PE:5316:HVOF-01.
  - 04. TENTATIVE LOCATIONS ARE SHOWN. ACTUAL LOCATIONS WILL BE FURNISHED AT THE TIME OF APPLICATION.

PROJECT: BECL-CFBC BOILER  
CUST No: 5316 & 5317

PREPARED	CHECKED	APPROVED	SKETCH No:	REV
<i>A. Sanyal</i>	<i>N. D. Sanyal</i>	<i>T. Sanyal</i>	4-PP-5316-0026	00

## QUOTATION DATA SHEET

THE TENDERS SHALL FURNISH THE PARTICULARS CALLED FOR IN THE QUOTATION DATA SHEET ENCLOSED AND SUBMIT THE FILLED IN DATA SHEET ALONG WITH THE QUOTATION WITHOUT FAIL OFFERS WITH INCOMPLETE INFORMATION IN DATA SHEET ARE LIABLE FOR REJECTION. IN CASE OF DISCREPANCY, INFORMATION CONTAINED IN THIS DATA SHEET SHALL BE CONSIDERED FOR EVALUATION.

PLEASE STRIKE OUT WHICHEVER IS NOT APPLICABLE:

PROJECT:

ENQ.NO & DATE :

DUE DATE :

01	VALIDITY	UPTO
02	DELIVERY PERIOD	..... MONTHS / WEEKS
03	DELIVERY PLACE	
	(a) EX-WORKS PLACE	
	(b) FOR / DESPATCHING POINT	
04	EXCISE DUTY	..... % / NOT APPLICABLE
05	TAX	..... % / NOT APPLICABLE
	(a) C S T	..... % / NOT APPLICABLE
	(b) LOCAL TAXES (SUPPLY WITHIN THE STATE)	..... % / NOT APPLICABLE
06	OCTROI CHARGES	..... % / NOT APPLICABLE
07	PACKING CHARGES	..... % / NOT APPLICABLE
08	FORWARDING CHARGES	..... % / NOT APPLICABLE
09	FREIGHT CHARGES	..... % / NOT APPLICABLE
10	INSURANCE CHARGES	..... % / NOT APPLICABLE
11	TESTING / IBR CHARGES (LUMPSUM)	..... % / NOT APPLICABLE
12	COMMISSIONING CHARGES (LUMPSUM)	..... % / NOT APPLICABLE
13	PAYMENT TERMS	
14	ACCEPTANCE FOR PROVIDING BANK GUARANTEE AS PER BHEL PROFORMA	YES / NO / APPLICABLE
15	DIMENSIONAL DRGS / DATA SHHETS	ENCLOSED / NOT APPLICABLE
16	ANY OTHER ADDITIONAL FACTORS	
17	LD CLAUSE @ 0.5% PER WEEK MAXIMUM 15% FOR THE DELAYED DESPATCHING	
18	GUARANTEE PERIOD SHALL BE 18 / 24 MONTHS	

WE CONFIRM THAT THE STATUTORY LEVIES, DUTIES, TAXES ETC FURNISHED ABOVE ARE BASED ON THE LATEST GOVT NOTIFICATION. WE ALSO CONFIRM THAT WE HAVE GONE THROUGH ALL THE CONDITIONS OF THE ENQUIRY AND OUR OFFER IS ACCORDINGLY SUBMITTED

SIGNATURE WITH SEAL

**MM / BOI  
BHEL / TRICHY**

Ref:TERMS & CONDITIONS(FOR IMPORT ENQUIRY)

I OFFER:

**Offer in English Language and in Triplicate in a sealed cover** super scribing the Enquiry Number and the due date shall be submitted (addressed) to:

The Purchase Officer/Purchase/PCPS  
Building No.79, 4<sup>th</sup> Floor,  
**Bharat Heavy Electricals Limited**  
High Pressure Boiler Plant  
**TIRUCHIRAPALLI - 620 014**  
Tamil Nadu, India.  
Phone: +91 431 257 4043 / 2574103  
Fax: +91 431 252 0233 / 2520525  
Email : [imuthu@bheltry.co.in](mailto:imuthu@bheltry.co.in), [majothi@bheltry.co.in](mailto:majothi@bheltry.co.in)

Offer should be firm for net FOB Nearest Sea Port and C&F Chennai Port price indicating the shipping specifications and the earliest delivery in respect of offers from overseas suppliers. Offer from indigenous sources shall be firm for F.O.R TIRUCHIRAPALI.

II DOCUMENTS:

- (i) offer should be accompanied by detailed technical literature, Catalogue and detailed dimensional drawing in English and In Triplicate or otherwise, the offer will not be considered.
- (ii) 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 concluded a contract on their behalf.

III AGENCY COMMISSION:

- (i) In respect of the offer from Overseas suppliers, agency commission, if any, payable to their agents in India, shall invariably be shown separately in the pro forma invoice and this will be paid by us IN INDIA in Indian Rupees, on satisfactory completion of the contract.
- (ii) If overseas principal has any tie up with any third party in respect of Agency Commission it should be declared while submitting the offers.
- (iii) Copies of current Agency Agreement / Authorization Letter in respect of Agency Commission shall be furnished along with offer, if not made available earlier.
- (iv) For calculation of Rupees equivalent of Agency Commission, exchange rate as prevailing on the date of order will be taken.

IV VALIDITY:

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

V TEST CERTIFICATES, OPERATING AND MAINTENANCE MANUALS:

The tender shall clearly mention in their offer that the Test certificate and Operating 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.

## VI TERMS OF PAYMENT :

In the event of an order the Purchase 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 Purchase.

## VII GENERAL:

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

## VIII LD/PENALTY AND INTEREST ON ADVANCES FOR DELAY IN DELIVERY:

"If the supplier fails to deliver the 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 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"

(TO BE STAMPED IN ACCORDANCE WITH STAMP ACT AND THE EXPIRY DATE OF BG MUST BE AFTER 60 DAYS FROM THE DATE OF COMPLETION OF WARRANTY PERIOD)

## PERFORMANCE BANK GUARANTEE

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", SIRI Fort, New Delhi 110 049) through its High Pressure Boiler Plant Division located at Tiruverumbur, Tiruchirapalli- 620 014 (hereinafter called 'the Company') having entered into a contract with .....hereinafter called ' the said contractor ' which term includes 'suppliers' for the purpose of this Bond and under the terms and conditions of the contract No..... Dt ..... Between BHEL, Trichy and as per the contract, the contractor / supplier is to furnish a performance Bank guarantee for Rs. .... for the due performance of the equipment to be supplied under the above referred contract and for the fulfillment of all the terms and conditions of the contract, We .....(indicate the name of the bank) (herein after referred to as the bank) at the request of ..... (Contractor(s) ) do here by undertake to pay 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 under this guarantee would not wait till the disputes have been decided by any Court or Tribunal or in the arbitration proceedings or by any other authority. The payment so made by us under this Bond shall be a valid discharge of liability for payment thereunder and the Contractor(s) shall have no claim against us for making such payment.

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 discharged or till \_\_\_\_\_Office / Department/ Division of the Company certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.

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 dispatched by Registered Post with Ack.Due or by Telegram or by any Electronic media addressed to the above mentioned address of the Bank shall be deemed to be the claim / demand in writing referred to above irrespective of the fact as to whether and when the said letter reaches the Bank, as also any letter containing the said demand or claim is lodged with the bank personally.

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 obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor (s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Company against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by any reason of any such variation or extension being granted to the said Contractor(s) or for any forbearance, act or omission on the part of the company or any indulgence by the company to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating would, but for this provision, have effect of not so relieving us.

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 powers to do so on its behalf under the proper authorities granted to him/them by the guarantor.

11. We .....(indicate the name of Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the company in writing.

In witness whereof we....., (indicate the name of Bank) have hereunto setout Bank Seal the \_\_\_\_\_ day \_\_\_\_\_ month 200  
BANK E-MAIL ID:  
BANK PHONE NO.  
BANK FAX NO:

## LIST OF NATIONALISED BANKS

01. **ALLAHABAD BANK**
02. **ANDHRA BANK**
03. **BANK OF INDIA**
04. **BANK OF BARODA**
05. **BANK OF MAHARASTRA**
06. **BHARATH OVERSEAS BANK**
07. **CANARA BANK**
08. **CENTRAL BANK OF INDIA**
09. **CORPORATION BANK**
10. **DENA BANK**
11. **INDIAN BANK**
12. **INDIAN OVERSEAS BANK**
13. **OREINTAL BANK OF COMERCE**
14. **PUNJAB NATIONAL BANK**
15. **PUNJAB AND SIND BANK**
16. **STATE BANK OF INDIA**
17. **STATE BANK OF TRAVANCORE**
18. **STATE BANK OF MYSORE**
19. **STATE BANK OF BIKANER & JAIPUR**
20. **STATE BANK OF HYDERABAD**
21. **STATE BANK OF PATIALA**
22. **STATE BANK OF MAHARASTRA**
23. **SYNDICATE BANK**
24. **UCO BANK**
25. **UNION BANK OF INDIA**
26. **UNITED BANK OF INDIA**
27. **VIJAYA BANK**

<b>OTHER BANKS</b>	
<b>28</b>	<b>ABN AMRO BANK N.V.</b>
<b>29</b>	<b>CITI BANK N.A.</b>
<b>30</b>	<b>DEUTSCHE BANK AG</b>
<b>31</b>	<b>HDFC BANK LTD.</b>
<b>32</b>	<b>ICICI BANK LTD.</b>
<b>33</b>	<b>IDBI LTD.</b>
<b>34</b>	<b>STANDARD CHARTERED BANK</b>
<b>35</b>	<b>THE HONGKONG AND SHANGHAI BANKING CORPORATION LTD.</b>