

Bharat Heavy Electricals Ltd
Electronics Division
Mysore Road, Bangalore – 560 026

Corrigendum to Tender Document for "Supply of Smart Pressure/Differential pressure Transmitter (Electronic Transmitters) to IB Valley TPS 2 x 660 MW project"

TENDER REFERENCE DOC	SBA0000180
LAST DATE AND TIME FOR SUBMISSION OF TENDER	21th Dec 2015 UPTO 13:00 PM
DATE AND TIME FOR TENDER OPENING	21th Dec 2015 UPTO 13:30 PM
SUBMISSION OF TENDER	Bidder to submit tender in E-procurement site : https://bheleps.buyjunction.in/ . Refer instructions give in tender document for offer submission of bid in E-procurement site. Service provider: M-junction

Corrigendum 01 to Tender Document Contains documents as per below index:

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ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
 भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division

PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE: PR: 001- Rev 00

INSTRUCTIONS TO BIDDERS (Common for all RFQs)

Bidder is requested to read the instructions carefully and submit their quotation covering all the points:

A. GENERAL INSTRUCTIONS:

1. Any Purchase Order resulting from this enquiry shall be governed by the Instructions to Bidders (document reference: CE: PR: 001 – Rev 00), General Conditions of Contract (document reference: CE: PR: 002 - Rev 00) and Special Conditions of Contract, if any, of the enquiry.
2. Any deviations from or additions to the “General Conditions of Contract” or “Special Conditions of Contract” require BHEL’s express written consent. The general terms of business or sale of the bidder shall not apply to this tender.
3. Bidders (also includes the term suppliers / contractors wherever used in this document) are instructed to quote their most competitive price and best delivery, etc. in the offer. Prices should be indicated in both figures & words. **(Please also refer clause 11 under section B)**
4. Regret letter (either through post or by mail) indicating reasons for not quoting must be submitted without fail, in case of non-participation in this tender. If a bidder fails to respond against 3 consecutive tenders for the same item, he will be liable for removal as a registered vendor of BHEL.
5. Procurement directly from the manufacturers shall be preferred. However, if the OEM / Principal insist on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer / supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer / supplier or the manufacturer / supplier could bid directly but not both. In case bids are received from the manufacturer / supplier and his agent, bid received from the agent shall be ignored.
6. Consultant / firm (and any of its affiliates) shall not be eligible to participate in the tender/s for the related goods for the same project if they were engaged for consultancy services for the same project.
7. If an Indian representative / associate / liaison office quotes on behalf of a foreign based bidder, such representative shall furnish compulsorily the following documents:
 - a. Authorization letter to quote and negotiate on behalf of such foreign-based bidder.
 - b. Undertaking from such foreign based bidder that such contract will be honored and executed according to agreed scope of supply and commercial terms and conditions.
 - c. Undertaking shall be furnished by the Indian representative stating that the co-ordination and smooth execution of the contract and settlement of shortages / damages / replacement / repair of imported scope till system is commissioned and handed over to customer will be the sole responsibility of the Indian representative / associates / agent / liaison office.
 - d. Refer **Annexure X** on “Guidelines for Indian Agents”.
8. In case of imported scope of supply, customs clearance & customs duty payment will be to BHEL account after the consignment is received at Indian Airport / Seaport. Bidders must provide all original documents required for completing the customs clearance along with the shipment. Warehousing charges due to

incomplete or missing documentation will be recovered from the supplier's bill. All offers for imported scope of supply must be made from any of the gateway ports (within the country) indicated. **(Refer Annexure I)**

9. The offers of the bidders who are on the banned list and also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of the banned firms is available on BHEL website: **www.bhel.com**
10. Business dealings with bidders will be suspended if they are found to have indulged in any malpractices / misconduct which are contrary to business ethics like bribery, corruption, fraud, pilferage, cartel formation, submission of fake/false/forged documents, certificates, information to BHEL or if they tamper with tendering procedure affecting the ordering process or fail to execute a contract, or rejection of 3 consecutive supplies or if their firms / works are under strike / lockout for a long period.

B. GUIDELINES FOR PREPARATION OF OFFER:

1. Quotation shall be submitted in Single Part Bid, Two Part Bid or Three Part Bid, as called for in the tender:
 - **SINGLE PART BID:** Technical and Commercial Bid with prices along with price summary & filled in BHEL Standard Commercial terms and conditions in a single sealed envelope.
 - **TWO PART BID:** Unpriced offer i.e. "Techno-commercial Bid" with filled in BHEL Standard Commercial terms and conditions in a sealed envelope **along with the copy of the "Price Bid" without the prices** should be enclosed in one cover and the cover must be super scribed "**Techno-commercial offer**" and Priced offer i.e. "Price Bid" containing price summary in a separate sealed envelope and must be super scribed "**Price Bid**". Both these envelopes shall be enclosed in a single sealed envelope super scribed with enquiry number due date of tender and any other details as called for in the tender document.
 - **THREE PART BID:** Pre-qualification Bid (Part-I), Techno Commercial Bid with filled in BHEL Standard Commercial terms and conditions (Part-II), and Price Bid (Part-III). All three envelopes shall be enclosed in a single sealed envelope super scribed with enquiry number due date of tender and any other details as called for in the tender document.

If any of the offers (Part I, Part II or Part III) are not submitted before the due date and time of submission or if any part of the offer is incomplete the entire offer of the bidder is liable for rejection.

2. Supplier shall ensure to super scribe each envelope with RFQ number, RFQ Date, RFQ Due date and time, Item Description and Project clearly & boldly. Also mention on the envelope whether it is "Techno Commercial Bid" or "Price Bid" or "Pre-Qualification Bid". Please ensure complete address, department name and purchase executive name is mentioned on the envelope (before dropping in the tender box or handing over) so that the tender is available in time for bid opening.
3. BHEL standard Commercial Terms and Conditions (duly filled, signed & stamped) must accompany Technical-Commercial offer without fail and should be submitted in original only. Xerox copy will not be accepted.
4. Any of the terms and conditions not acceptable to supplier, shall be explicitly mentioned in the Techno-Commercial Bid. If no deviations are brought out in the offer it will be treated as if all terms and conditions of this enquiry are accepted by the supplier without deviation.
5. Deviation to this specification / item description, if any, shall be brought out clearly indicating "DEVIATION TO BHEL SPECIFICATION" without fail, as a part of Techno-Commercial Bid. If no deviations are brought out in the offer it will be treated as if the entire specification of this enquiry is accepted without deviation.
6. Suppliers shall submit one set of original catalogue, datasheets, bill of materials, dimensional drawings, mounting details and / or any other relevant documents called in purchase specification as part of Technical Bid.
7. "Price Bid" shall be complete in all respects containing price break-up of all components along with all

applicable taxes and duties, packing & forwarding charges (if applicable), freight charges (if applicable) etc. Once submitted no modification / addition / deletion will be allowed in the "Price Bid." Bidders are advised to thoroughly check the unit price, total price to avoid any discrepancy.

8. In addition, bidder shall also quote for erection & commissioning charges (E&C charges), documentation charges, service charges, testing Charges (type & routine), training charges, service tax, etc. wherever applicable. The price summary must indicate all the elements clearly.
9. Vendors should indicate "lump sum" charges (including To & Fro Fare, Boarding, Lodging, Local Conveyance etc.) for Supervision of Erection, Commissioning and handing over to customer. The quotation shall clearly indicate scope of work, likely duration of commissioning, pre-commissioning checklist and service tax (if any).
10. Wherever bidders require PAC (Project Authority Certificate) for import of raw materials, components required for Mega Power Projects, Export Projects or other similar projects wherein supplies are eligible for customs duty benefits, lists and quantities of such items and their values (CIF) has to be mentioned in the offer. Prices must be quoted taking into account of such benefits.
11. All quotations shall be free from corrections /overwriting. Corrections if any should be authenticated with signature and seal. Any typographical error, totaling mistakes, currency mistake, multiplication mistake, summing mistakes etc. observed in the price bids will be evaluated as per **Annexure II** "Guidelines for dealing with Discrepancy in Words & Figures – quoted in price bid". BHEL decision will be final.

C. GUIDELINES FOR OFFER SUBMISSION:

1. Offers / Quotations must be dropped in tender box before 13.00 Hrs. on or before due date mentioned in RFQ. The offers are to be dropped in the proper slot of the Tender Box kept in our reception area with caption "CE, SC&PV, DEFENCE." Tenders are opened on 3 days in a week (Monday/Wednesday/Friday). Tender must be deposited in the slot corresponding to the day (Monday - Box no.4/Wednesday - Box no. 6 /Friday - Box no.8) while depositing the offer. **(This clause will not be applicable for e-tenders)**
2. E-Mail / Internet / EDI offers received in time shall be considered only when such offers are complete in all respects. In case of offers received through E-mail, please send the offer to the email ID specified in the SCC of the tender. (Refer to SCC document of tender)
3. In cases where tender documents are bulky, or due to some reasons tender documents are required to be submitted by hand or through posts/couriers, the offers are to be handed over either of the two officers whose names are mentioned in the RFQ. (Refer to SCC document of tender)
4. Tenders will be opened on due date, time and venue as indicated in the RFQ in the presence of bidders at the venue indicated in the RFQ. In case of e-procurement, bidders can see tender results till seven days after due date and time.
5. Vendor will be solely responsible:
 - a. For submission of offers before due date and time. Offers submitted after due date and time will be treated as "Late offers" and will be rejected.
 - b. For submission of offers in the correct compartment of the tender box based on the day of due date (Monday/Wednesday/Friday). Please check before dropping your offer in the correct tender box.
 - c. For depositing offers in proper sealed condition in the tender box. If the bidder drops the tender in the wrong tender box or if the tender document is handed over to the wrong person BHEL will not be responsible for any such delays.
 - d. For offers received through email etc., suppliers are fully responsible for lack of secrecy on information and ensuring timely receipt of such offers in the tender box before due date & time.
 - e. In case of e-tender, all required documents should be uploaded before due date and time. Availability of power, internet connections, etc. will be the sole responsibility of the vendor. Wherever assistance is

needed for submission of e-tenders, help line numbers and executives of service provider of BHEL may be contacted.

Service provider: M-junction

Website address: <https://bheleps.buyjunction.in/>

Helpline no.: 033-66106426/6217/6013/6046/6176 (9:30 am to 5:30 pm)

9163348283/9163348284/9163348285/9163348286/8584008116 (5:30 pm to 8:30 pm)

Purchase Executive / BHEL will not be responsible for any of the activities relating to submission of offer.

D. PROCESSING OFFERS RECEIVED:

1. Any discount / revised offer submitted by the supplier on its own shall be accepted provided it is received on or before the due date and time of offer submission (i.e. Part-I bid). The discount shall be applied on pro-rata basis to all items unless specified otherwise by the bidder.
2. Changes in offers or Revised offers given after Part-I bid opening shall not be considered as a part of the original offer unless such changes / revisions are requested by BHEL.
3. In case there is no change in the technical scope and / or specifications and / or commercial terms & conditions, the supplier will not be allowed to change any of their bids after Technical bids are opened (after the due date and time of tender opening).
4. In case of changes in scope and/ or technical specifications and/ or commercial terms & conditions by BHEL and it accounts for price implications from vendors, all techno-commercially acceptable bidders shall be asked by BHEL (after freezing the scope, technical specifications and commercial terms & conditions) to submit the impact of such changes on their price bid. Impact price will be applicable only for changes in technical specification / commercial conditions by BHEL. The impact price must be submitted on or before the cut-off date specified by BHEL and the original price bid and the price impact bid will be opened together at the time of price bid opening.
5. BHEL EDN reserves the right to adopt Reverse Auction or standard Price Bid Opening procedure for price evaluation, at its discretion. This will be decided after completion of technical evaluation of tender. **(Refer Annexure III for Guidelines for Reverse Auction).**
6. Un-opened bids (including price bids) will be returned to the respective bidders after release of PO and receipt of order acknowledgement from the successful bidder.
7. After receipt of Purchase Order, supplier should submit required documents like drawings, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report , O & M Manuals and / or any other relevant documents as per Specification / Purchase Order, as and when required by BHEL / Customer.
8. Any deviation to the terms and conditions not mentioned in the quotation by supplier in response to this enquiry will not be considered, if put forth subsequently or after issue of Purchase Order, unless clarification is sought for by BHEL EDN and agreed upon in the Purchase Order.
9. Evaluation shall be on the basis of delivered cost (i.e. "Total Cost to BHEL").
"Total Cost to BHEL" shall include total basic cost, packing & forwarding charges, taxes and duties, freight charges, insurance, service tax for services, any other cost indicated by vendor for execution of the contract and loading factors (for non-compliance to BHEL Standard Commercial Terms & Conditions). Benefits arising out of Nil Import Duty on Mega Projects, Physical Imports or such 100% exemptions (statutory benefits), customer reimbursements of statutory duties (like Excise Duty, CST, VAT) will also be taken into account at the time of tender evaluation. (wherever applicable and as indicated in SCC document of tender)

10. For evaluation of offers in foreign currency, the exchange rate (TT selling rate of SBI) shall be taken as under:

Single part bids: Date of tender opening

Two/three part bids: Date of Part-I bid opening

Reverse Auction: Date of Part-I bid opening

In case of Performance Bank Guarantee (PBG) also, exchange rate will be considered as mentioned above for converting foreign currency to Indian currency and vice versa.

If the relevant day happens to be a bank holiday, then the exchange rate as on the previous working day of the bank (SBI) shall be taken.

11. Ranking (L-1, L-2 etc.) shall be done only for the techno-commercially acceptable offers.

E. INFORMATION ON PAYMENT TERMS:

1. All payments will be through Electronic Fund transfer (EFT). Vendor has to furnish necessary details as per BHEL standard format (**Refer Annexure IV**) for receiving all payments through NEFT. (Applicable for Indian vendors only)
2. In case of High Sea Sales transaction, customs clearance of the consignment landed on Indian Sea / Air ports will be done by BHEL based on the original HSS documents provided by vendors. All warehousing charges due to delay in submission of complete and or correct HSS documents to BHEL will be to suppliers account only. Such recovery will be made out of any of the available bills. (**Refer Annexure V**).
3. Statutory deductions, if any, will be made and the deduction certificate shall be issued. In case vendor does not provide PAN details, the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act. (Applicable for Indian vendors only).
Foreign vendors shall submit relevant details of their bankers like Swift Code, Banker's Name & Address etc.
4. Vendors must submit bills & invoices along with required supporting documents in time. Incomplete documentation / delayed submission of invoice / documents will result in corresponding delay in payment.

F. STANDARD PAYMENT TERMS OF BHEL-EDN

Purchase Orders for indigenous procurement

(a) SUPPLY WITH E&C:

- 1) 85% of basic value (excluding E&C charges) + 100% of taxes, duties and freight charges will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation whichever is later.
- 2) 15% of basic value (retention money), (excluding E&C charges) will be paid in 15 days from the date of submission of documents against supplementary invoice with proof of completion of E&C along with E & C charges (if any)

(b) SUPPLY WITH SUPERVISION OF E&C:

- 1) 90% basic value (excluding E&C charges) + 100% of taxes, duties and freight charges will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation whichever is later.
- 2) 10% of basic value (retention money), (excluding E&C charges) will be paid in 15 days from the date of completion of erection and commissioning against supplementary invoice with proof of completion of E&C along with supervision charges (if any)

(c) SUPPLY ONLY:

- 1) 100% of PO value with taxes, duties and freight will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation whichever is later.

Purchase orders for import procurement:

(d) SUPPLY WITH E&C:

- 1) 85% of the basic value (excluding E&C charges) will be paid in 45 days, against usance draft of 45 days, from the date of AWB/BOL on submission of complete set of documents.
- 2) 15% of basic value (retention money), (excluding E&C charges) will be paid in 15 days from the date of completion of E&C along with E & C charges against supplementary invoice with proof of completion of E&C (if any).

(e) SUPPLY WITH SUPERVISION OF E&C:

- 1) 90% of the value of the order will be paid on the 45th day, against usance draft of 45 days, from the date of AWB/BOL on submission of complete set of documents.
- 2) 10% of basic value (retention money) will be paid in 15 days from the date of completion of erection and commissioning against supplementary invoice with proof of completion of E&C along with supervision charges (if any).

(f) SUPPLY ONLY:

- 1) 100% of PO value will be paid against usance draft of 45 days from the date of dispatch or 15 days from the date of submission of complete set of documents whichever is later.

LOADING FACTORS FOR PAYMENT TERMS:

- 1) For offers received with requests for negotiation of documents through bank loading will be 15% of basic value (all bank charges to be borne by the seller).
(This loading factor is applicable only for purchase orders for indigenous supply).
- 2) In all cases where credit period is 30 days but not in line with the above mentioned standard payment terms offered loading applicable will be 5% of basic value.
(This loading factor is applicable only for purchase orders for indigenous supply).
- 3) For offers received with Letter of Credit payment term in place of sight draft payment term, loading applicable will be 5% of basic value. Additional loading of 5% will be applicable for payment terms as Letter of Credit with usance of less than 45 days.
(This loading factor is applicable only for purchase orders for imported supply).
- 4) For offers received with Sight Draft payment terms with usance of less than 45 days, loading of 5% will be applicable.
(This loading factor is applicable only for purchase orders for imported supply).
- 5) All payment terms with credit period of less than 30 days for indigenous supply and any other variation of payment terms are liable for rejection.
- 6) Standard payment terms indicated in para F (a), (b), (c), (d), (e) and (f) will not attract any loading.

Note 1: Basic value of Purchase Order mentioned above will include all components of the purchase order and will exclude only taxes, duties, freight and E&C charges (wherever applicable).

Wherever the Purchase Order is split into import portion and indigenous portion of supply the retention money will be 15% or 10% (as applicable) of both purchase order values put together.

Note 2: *If the E&C could not be completed till the end of the Warranty period due to reasons not attributable to the supplier, BHEL may consider releasing the retention money to the supplier against Bank Guarantee for equivalent value valid for an initial period of one year.*

G. Bank guarantee (BG) / Performance bank guarantee (PBG):

1. Bank guarantee (BG) / Performance bank guarantee (PBG) will be applicable as called in the tender documents. Such PBG shall be valid for a period of 36 months + claim period of 6 months for a value equal to 10 % of the basic value of the purchase order. No deviation for the duration of PBG / BG will be permitted.
 - a. PBG shall be from any of the BHEL consortium of bankers (**refer Annexure VI**).
 - b. PBGs from nationalized banks are also acceptable.
 - c. PBG should be sent directly by the bank to the dealing executive mentioned in the purchase order located at the address mentioned in the purchase order. PBG should be in the format indicated. (**Refer annexures VII & VIII respectively**). No deviation to these formats will be allowed.
 - d. Confirmation from any of the BHEL consortium of banks or any of the Indian Public Sector Banks is essential for the acceptance of PBGs issued by foreign banks (located outside India).
 - e. Expired BGs / PBGs will be returned only after expiry of the claim period or on completion of the contractual obligation.
 - f. **Non acceptance for submission of PBG will attract loading as indicated below**
 - i. Loading will be equal to the percentage of value for which BG / PBG is not provided. (Ex: if PBG / BG is given for 3 % of the basic value against 10% specified, loading applicable will be 7% (10 – 3 = 7 %). This value will be added to the quoted price while evaluating the lowest offer.

H. PROVISIONS APPLICABLE FOR MSE VENDORS (MICRO AND SMALL ENTERPRISES)

Vendors who qualify as MSE vendors are requested to submit applicable certificates (as specified by the Ministry of Micro, Small and Medium Enterprises) at the time of vendor registration. Vendors have to submit any of the following documents along with the tender documents in the Part I / Technical bid cover to avail the applicable benefits.

- a. Valid NSIC certificate or
- b. Entrepreneur's Memorandum part II (EM II) certificate (deemed valid for 2 years).
- c. EM II certificate with CA certificate (**in the prescribed format given in Annexure IX**) applicable for the year certifying that the investment in plant and machinery of the vendor is within permissible limits as per the MSME Act 2006 for relevant status where the deemed validity is over.
- d. Documents submitted for establishing the credentials of MSE vendors must be valid as on the date of part I / technical bid opening for the vendors to be eligible for the benefits applicable for MSE vendors. Documents submitted after the Part I / Technical bid opening date will not be considered for this tender.

PURCHASE PREFERENCE FOR MSE VENDORS:

- e. MSE vendors quoting within a price band of L1 + 15% shall be allowed to supply up to 20% of the requirement against this tender provided
 1. The MSE vendor matches the L1 price
 2. L1 price is from a non MSE vendor
 3. L1 price will be offered to the nearest vendor nearest to L1 in terms of price ranking (L2 - nearest to L1). In case of non-acceptance by the MSE vendor (L2) next ranking MSE vendor will be offered who is within the L1 + 15% band (if L3 is also within 15% band).
 4. 20% of the 20% (i.e. 4% of the total enquired quantity) will be earmarked for SC/ST owned MSE firms provided conditions as mentioned in (1) and (2) are fulfilled.

5. In case no vendor under SC / ST category firms are meeting the conditions mentioned in (1) and (2) or have not participated in the tender, in such cases the 4% quantity will be distributed among the other eligible MSE vendors who have participated in the tender.
6. Serial no. 1 to 5 will not be applicable wherever it is not possible to split the tendered quantity / items on account of customer contract requirement, or the items tendered are systems. Such information that tendered quantity will not be split will be indicated in the SCC.

I. INTEGRITY COMMITMENT IN THE TENDER PROCESS, AND EXECUTION OF CONTRACTS:

1. Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the Tender process and execution of the Contract. BHEL will, during the tender process, treat all bidder / suppliers in a transparent and fair manner, and with equity.

2. Commitment by Bidder(s)/ Contractor(s):

- a. The Bidder(s)/ Contractor(s) commit(s) to take all measures to prevent corruption and will not directly or indirectly try to influence any decision or benefit which he is not legally entitled to.
- b. The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding or any actions to restrict competition.
- c. The Bidder(s)/ Contractor(s) will not commit any offence under the relevant Acts. The Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain or pass on to others, any information or document provided by BHEL as part of business relationship.
- d. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to the relevant guidelines issued from time to time by Government of India/ BHEL.

If the Bidder(s) / Contractor(s), before award or during execution of the Contract commit(s) a transgression of the above or in any other manner such as to put his reliability or credibility in question, BHEL is entitled to disqualify the Bidder(s) / Contractor (s) from the tender process or terminate the contract and/ or take suitable action as deemed fit.

**SARAVAN
A BABU A**

Digitally signed by SARAVANA
BABU A
DN: CN = SARAVANA BABU A, C
= IN, S = Karnataka, O = BHARAT
HEAVY ELECTRICALS LIMITED,
OU = ELECTRONICS DIVISION
Date: 2014.04.12 10:15:19 +05'30'

PURCHASE EXECUTIVE

FRAUD PREVENTION POLICY

"The Bidder along with its associate/collaborators/sub-contractors/sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice."

10.2 Fraud Prevention policy and List of Nodal Officers shall be hosted on BHEL web site, vendor portals of Units/ Regions intranet.

ANNEXURE - I
LIST OF INTERNATIONAL GATEWAY AIRPORTS

For airbased consignment, terms of delivery will be on FCA basis from following listed airports only. This list is valid from 01.03.2013 to 28.02.2015. Vendors are requested to verify this list for use after 28.02.2015.

SCHEDULE NO	COUNTRY	CURRENCY CODE	AIRPORT
D01	UK	GBP	LONDON (HEATHROW)
D02	UK	GBP	NEW CASTLE
D03	UK	GBP	OXFORD. CHETLAM
D04	UK	GBP	BRISTOL. WELLINGBOROUGH
D05	UK	GBP	BIRMINGHAM
D06	UK	GBP	EAST MIDLANDS
D07	UK	GBP	MANCHESTER
D08	UK	GBP	LEEDS
D09	UK	GBP	GLASGOW
D10	FRANCE	EURO	PARIS (ROISSY) & LYON
D11	SWEDEN	EURO	STOCKHOLM
D12	SWEDEN	EURO	GOTHENBERG & MALMO
D13	ITALY	EURO	ROMA, MILAN
D14	ITALY	EURO	TURIN, BOLOGNA, FLORENCE
D15	NETHERLANDS	EURO	AMSTERDAM, ROTTERDAM
D16	AUSTRIA	EURO	VIENNA, LINZ, GRAZ
D17	BELGIUM	EURO	ANTWERP, BRUSSELS
D18	DENMARK	DKK	COPENHAGEN
D19	JAPAN	JPY	TOKYO, OSAKA
D20	SINGAPORE	SGD	SINGAPORE
D21	CANADA	CAD	TORONTO
D22	CANADA	CAD	MONTREAL
D23	USA	USD	NEW YORK, BOSTON
D24	USA	USD	CHICAGO
D25	USA	USD	SAN FRANCISCO, LOS ANGELES
D26	USA	USD	ALANTA, HOUSTON
D27	GERMANY	EURO	MUNICH, KOLN, DUSSELDORF, HANNOVER, HAMBURG, STUTTGART, DAMSTADT, MANIHIEM, NURUMBERG
D28	GERMANY	EURO	FRANKFURT
D29	GERMANY	EURO	BERLIN
D30	SWITZERLAND	SFR	BASLE, ZURICH, GENEVA
D31	SPAIN	EURO	BARCELONA
D32	AUSTRALIA	AUD	SYDNEY
D33	AUSTRALIA	AUD	MELBOURNE
D34	AUSTRALIA	AUD	PERTH
D35	CZECH	EURO	PRAGUE
D36	HONG KONG	HKD	HONG KONG
D37	NEW ZELAND	NZD	AUCKLAND
D38	RUSSIA	USD	MOSCOW
D39	SOUTH KOREA	USD	KIMPO INTERNATIONAL, INCHEON
D40	FINLAND	EURO	HELSINKI
D41	ROMANIA	EURO	BUCHAREST
D42	NORWAY	EURO	OSLO
D43	IRELAND	EURO	DUBLIN
D44	ISRAEL	USD	TEL AVIV
D45	UAE	USD	DUBAI
D46	OMAN	USD	MUSCAT
D47	EGYPT	USD	CAIRO
D48	TAIWAN	USD	TAIPEI
D49	UKRAINE	USD	KIEV
D50	CHINA	USD	SHANGHAI, SHENZHEN
D51	PHILIPINES	USD	MANILA
D52	MALAYSIA	USD	KUALALUMPUR, PE NANG
D53	CYPRUS	USD	LARNACA
D54	SOUTH AFRICA	USD	JOHANNESBERG, DURBAN
D55	SLOVAKIA	EURO	BARTISLOVA
D56	SAUDI ARABIA	SAR	RIYADH
D57	TURKEY	EURO	ISTANBUL
D58	THAILAND	USD	BANGKOK
D59	BRAZIL	USD	SAO PAULO, RIO DE JANEIRO

ANNEXURE – II
DISCREPANCY IN WORDS & FIGURES – QUOTED IN PRICE BID

Following guidelines will be followed in case of discrepancy in words & figures-quoted in price bid:

(a) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.

(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

(d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.

ANNEXURE-III
GUIDELINES FOR REVERSE AUCTION PROCEDURE

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit "online sealed bid" in the Reverse Auction. Non-submission of "online sealed bid" by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
6. Bidders have to fax the Compliance form before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
8. Reverse auction will be conducted on scheduled date & time.
9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, as provided on case-to-case basis to Service provider within two working days of Auction without fail.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
12. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the "Business Rules of Reverse Auction", which will be communicated before the Reverse Auction.
13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
15. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

ANNEXURE - IV
Electronic Funds Transfer (EFT) OR
Paylink Direct Credit Form

Please Fill up the form in **CAPITAL LETTERS** only.

TYPE OF REQUEST(Tick one): _____ CREATE _____ CHANGE

BHEL Vendor / Supplier Code:	
Company Name :	
Permanent Account Number(PAN):	
Address	

City:	PINCODE	STATE
-------	---------	-------

Contact Person(s)	
Telephone No:	
Fax No:	
e-mail id:	

1 Bank Name:	
2 Bank Address:	

3 Bank Telephone No:	
4 Bank Account No:	

5 Account Type: Savings/Cash Credit	
-------------------------------------	--

6 9 Digit Code Number of Bank and branch appearing on MICR cheque issued by Bank	
--	--

7 Bank IFSC Code(applicable for NEFT)	
--	--

8 Bank IFSC code(applicable for RTGS)		(Indian Financial System Code)
---------------------------------------	--	--------------------------------

- A I hereby certify that the particulars given above are true, correct and complete and that I, as a representative for the above named Company, hereby authorise BHEL, EDN, Bangalore to electronically deposit payments to the designated bank account.
- B If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
- C This authority remains in full force until BHEL, EDN,Bangalore receives written notification requesting a change or cancellation.
- D I have read the contents of the covering letter and agree to discharge the responsibility expected of me as a participant under ECS / EFT.

Date:

Authorised Signatory:

Designation:

Telephone No. with STD Code

Company Seal

Bank Certificate

We certify that _____ has an Account No _____ with us and we confirm that the bank details given above are correct as per our records.

Date:

(.....)

Place:

Signature

Please return completed form **along with a blank cancelled cheque or photocopy** thereof to:

Bharath Heavy Electricals Ltd,

Attn:

Electronics Division, Mysore Road,

BANGALORE - 560 026

In case of any Query, please call concerned purchase executive.

ANNEXURE - V
PRESENT PROCEDURE FOR SALE IN TRANSIT (HIGH SEA SALES)

In case of High Sea Sales, vendor should submit following documents:

1. ORIGINAL HIGH SEA SALES AGREEMENT

- Sale agreement (on Rs. 200/- non-judicial stamp paper & notarised with 2 witnesses with identity) has to be signed between BHEL and the Party importing material. The date of the sale documents should be in between the date of House Air Way Bill / Bill of Lading and before landing of the goods in Indian origin.
- The date of the stamp paper should be prior to the Air Way Bill / Bill of Lading date.
- Following shall be included in the High Sea Sales Agreement:
“THE BUYER ALSO UNDERTAKE DISCHARGES, THE OBLIGATION AND FULFILLMENT OF CONDITIONS, IF ANY, ATTACHED TO THE IMPORTATION, ASSESSMENT AND CLEARANCE OF THE GOODS IN TERMS CUSTOMS TARIFF ACT 1975, THE CUSTOMS ACT 1962 & RULES & REGULATIONS MADE THERE UNDER AND OTHER RELEVANT ACTS, ORDERS, NOTIFICATIONS”.

2. ORIGINAL INVOICES: INDIGENOUS RUPEE INVOICE & FOREIGN CURRENCY INVOICE

- Prices should be C.I.F., designated airport/seaport basis.
- I.E.C., C.S.T., K.S.T. Nos. to be mentioned.
- Description of item (Nomenclature), Unit & Quantity in both the Foreign Currency & the Indigenous Invoice in Rupee shall be exactly as per Purchase Order Description of item, Quantity and Unit. The Indigenous Invoice value shall be exactly as per Purchase Order value.
- Seller should give Foreign Currency Invoice from the original consignor. The Foreign Currency Invoice value should be at least 2% (two per cent) less than the Indigenous Rupee Invoice value in equivalent foreign currency.

4. ORIGINAL HOUSE AIR WAY BILL/ BILL OF LADING

- The sale agents should duly endorse House Air Way Bill (HAWB) for air shipments or original Bill of Lading (O.B.L.) for sea shipments and Foreign Currency Invoice in favour of BHEL-EDN.

5. ORIGINAL CARGO ARRIVAL NOTICE FROM FORWARDER.

6. ORIGINAL DELIVERY ORDER ISSUED IN NAME OF BHEL-EDN.

7. ORIGINAL PACKING LIST.

8. A LETTER TO THE COMMISSIONER OF CUSTOMS FOR EFFECTING ABOVE SALE.

9. A LETTER TO THE DEPUTY ASSESSOR (OCTROI) FOR EFFECTING ABOVE SALE IN FAVOUR OF BHEL.

REMARKS: In case vendor needs any clarifications on the above, the same may be sought in writing.



ELECTRONICS DIVISION, BANGALORE

Annexure-VI

BHEL MEMBER BANKS (LIST OF CONSORTIUM BANKS)

BANK GUARANTEE (BG) SHALL BE ISSUED FROM THE FOLLOWING BANKS ONLY:

	Nationalised Banks		Nationalised Banks
1	Allahabad Bank	19	Vijaya Bank
2	Andhra Bank		Public Sector Banks
3	Bank of Baroda	20	IDBI
4	Canara Bank		Foreign Banks
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 Ltd. (HSBC)
8	Indian Overseas 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		Private Banks
12	State Bank of India	27	Axis Bank
13	State Bank of Hyderabad	28	The Federal Bank Limited
14	Syndicate Bank	29	HDFC Bank
15	State Bank of Travancore	30	Kotak Mahindra Bank Ltd
16	UCO Bank	31	ICICI Bank
17	Union Bank of India	32	IndusInd Bank
18	United Bank of India	33	Yes Bank

Note:

- All BGs must be issued from BHEL consortium banks listed above.
- BHEL may accept BG from other Nationalised Banks also which are not listed above.
- BG will not be accepted from Scheduled Banks and Co-operative Banks.
- In case BG is issued from a bank located outside Indian territory and is issued in foreign currency, the BG must be routed through and confirmed by any one of the above mentioned consortium banks or any of the Indian Public Sector Banks.
- This list is subject to changes. Hence vendors are requested to check this list every time before issuing BGs.



Electronics Division, Bangalore

ANNEXURE-VII
PROFORMA OF PERFORMANCE BANK GUARANTEE
(For Bank Guarantees issued in Indian Rupees by Banks in India)

Note:

- To be executed in Rs. 100/- Non-Judicial stamp paper.
- To be submitted by issuing bank to Purchase Dept. directly. Please give BHEL address to banker.
- Do not enclose with Bank document.
- Modifications and additions/deletions to this BG format are not permitted.

PERFORMANCE GUARANTEE (PROFORMA OF BANK GUARANTEE)

Ref no: (BG No.) _____

THIS DEED OF GUARANTEE made and executed on the _____ day of _____ (month & year), by the _____ (Bank), registered under the Companies Act 1956/Nationalised Bank constituted under the Banking Companies (acquisition and transfer of undertakings) Act constituted under the **State Bank of India Act / Subsidiary Banks Act**, having its registered / head office at _____ represented herein by its Branch Manager / authorised representatives Sri. _____ & Sri. _____ (Hereinafter called 'guarantor' which term shall mean and include its successors and assigns)

IN FAVOUR OF BHARAT HEAVY ELECTRICALS LIMITED

_____ (Buyer's Name), a company registered under the companies Act, 1956 having its registered office at BHEL House at Siri Fort, New Delhi-110 049 and its Electronics Division at Mysore Road, Bangalore - 26 (hereinafter referred to as the 'Company' Which term shall include its successors and assigns):

Whereas the company has placed an order on _____ (State the name of the company / firm and its address) (hereinafter referred to as the 'Supplier' which term shall mean and include its liquidators, successors and assign) for the supply of system under order / Contract No _____ Dtd _____.

AND WHEREAS the supplier has agreed to supply the materials and carryout the works as detailed and in accordance with the terms set out in the said order / contract.

**Electronics Division, Bangalore**

AND WHEREAS the company is not required to pay to the supplier a sum of Rupees _____ being the 10% of the value of the goods supplied / Works performed / Services rendered under the said order / contract between the supplier and the company, till the company is satisfied with the mechanical Warranties and the performance standards stipulated in the said order / contract between the company and the supplier has been duly fulfilled, except, against a Bank Guarantee for the said sum of Rs. _____ in favour of the company by reputed Bank, in which case the company has agreed to make payment to the supplier of the said sum of Rupees _____ being (10%) of the value of the goods supplied / Works performed / Services rendered under the agreement between the supplier and the company and the Guarantor has at the request of the supplier, agreed to furnish this Guarantee subject to the terms and conditions stated below :

NOW THIS DEED WITNESSES THAT IN pursuance of the above said agreement, the guarantor hereby agrees and covenants with company is as follows:

- 1) That during the period this contract of Guarantee remains effectual, the guarantor shall be liable in respect of the amount due and owing to the company in respect of the payments to the extent of Rs _____ (in words) _____ against any loss or damage caused to or suffered by the company by reasons of any breach of the terms of the said order / contract / Agreement by the supplier
- 2) The Guarantor hereby undertakes to pay the amounts and payable under this guarantee without any demur, merely on demand from the company intimating that the amount claimed is due by way of loss or damage caused to or suffered or would be caused or suffered by any terms contained in the said order/contract. Any such demand made on the guarantor shall be conclusive as regards the amount due and payable by the Guarantor irrespective of the fact whether the contractor/supplier admits or denies.
- 3) The Guarantor further agrees that the agreement herein contained shall remain in force and effect till all supplies to be made /works to be performed / services to be rendered under the said order /contract /agreement are completed to the entire satisfaction of the company or till company certifies that the terms and conditions of the said order / contract agreement have been fully and



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properly carried out by the said supplier and accordingly discharges the Guarantee. Unless a demand or claim under this guarantee is made on the guarantor in writing on or before the expiry of claim period indicated in clause 6 below, the guarantor shall be discharged from all the liability under this guarantee thereafter.

- 4) The guarantor further agrees with the company that the company shall have the fullest liberty without the consent of the guarantor and without effecting in any manner the obligations of the guarantor hereunder to vary any of the terms of the said order / contract / agreement or extend the time of performance by the said supplier from time to time or refrain from exercising the power exercisable by the company against the said supplier or to forebear or omit to enforce any of the terms and conditions relating to the said order / contract / agreement, and the guarantor shall not be relieved of its liability in whole or in part, by reason of any act, commission or forbearance on the part of the company or by reason of any such variation, or extension being granted to the said supplier or by reason of any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving the guarantor.
- 5) The guarantor undertakes not to revoke this guarantee during its currency except with the previous consent of the company in writing.
- 6) Notwithstanding anything herein above obtained, the liability of the guarantor under these presents is restricted to Rs._____. The guarantee shall be in force till its expiry on _____ unless a demand is made on the guarantor within SIX months from the date of expiry, all the liability of the guarantor under this guarantee shall stand fully discharged. The decision of the claimant in regard to breach of contract is final and binding on the Bank.

IN WITNESS whereof, the guarantor, acting through it authorised representative has executed this deed of Guarantee on the day, month and year first above written.

(Seal of the Bank to be affixed)
For & On behalf of _____ Bank
Signature of authorized person with
seal & designation

WITNESS:

- 1.
- 2.



Electronics Division, Bangalore

ANNEXURE-VIII
PROFORMA OF PERFORMANCE BANK GUARANTEE
(For Bank Guarantees issued in Foreign Currency by Banks located outside India)

BANK NAME AND ADDRESS

Electronics Division
Bharat Heavy Electrical Limited (B.H.E.L.),
Mysore Road, P.B. No. 2606,
Bangalore- 560 026

Dear Sir,

Sub : CONTRACT PERFORMANCE GUARANTEE Ref no. Dtd.....

WHEREAS you have entered into a contract reference No & PO NO. _____
Date _____ with M/s _____ having its registered office at
_____ for the supply of _____ as detailed in your purchase
order No. _____ which is hereinafter referred to as "the said contract" and WHEREAS M/s
_____ has undertaken to produce a Bank Guarantee for 10% (Ten Percent)
of the contract price amounting to _____
(_____) to secure its obligations to Electronics Division, BHEL
having its registered office at New Delhi for the performance of the contract including the warranty of the
equipment supplied, We _____ Bank,
_____ hereby expressly, irrevocably and unreservedly undertake and
guarantee as principal obligors on behalf of M/s _____ that in the event Bharat
Heavy Electricals Ltd. (B.H.E.L.) declares to us in writing that M/s _____
has not fulfilled any obligors according to the contractual obligation of the said contract, to pay you on
demand and without demur to Bharat Heavy Electricals Ltd., Electronics Division, Mysore Road, P.B.No.
2606, Bangalore - 560 026., India an amount of _____
(in words _____) subject to
as may be determined below :

1. Notwithstanding any right M/s. _____ may have directly against or any
disputes raised by M/s. _____
_____, Your written demand shall be conclusive
evidence to us that repayment is due under the terms of the said contract and shall be binding on
us.



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2. We shall not be discharged or released from this undertaking and Guarantee by any arrangements, variations made between you and M/s. _____ with or without our consent and knowledge or by any alteration in the obligations of M/s. _____ by any forbearance whether as to payment, time, performance or otherwise.
3. This guarantee shall remain valid until the end of six months after the close of the warranty period or until the same is reported by BHEL to us whichever is earlier.
4. We agree and undertake not to revoke this guarantee during its validity unless discharged in writing by you subject to the provision of clause (7) below :
5. This guarantee shall be a continuing guarantee subject to the foregoing and shall not be discharged by any change in the constitution of the Bank or M/s. _____ .
6. This guarantee shall be governed by and constructed in accordance with the Laws of India.
7. At any time _____ Bank may render this guarantee null and void by paying to Bharat Heavy Electricals Ltd. the full amount being _____ (in words _____)
_____)

**For and On behalf of Bank
By its Authorised Signatory**

Annexure - IX
Certificate by Chartered Accountant on Letter Head

This is to certify that M/s
.....(Hereinafter referred to as 'Company')
having its registered office at is registered under MSMED Act 2006,
(Entrepreneur Memorandum No (Part-II dtd
Category: (Micro/Small). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as
on date..... **as per MSMED Act 2006 is as follows:**

- 1. For Manufacturing Enterprises:** Investment in plant and machinery (i.e., original cost excluding land and building and the items specified by the Ministry of Small Industries vide its notification No.S.O.1722 (E) dated October 5, 2006:

- 2. For Service Enterprises:** Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:
Rs.Lacs.

The above investment of Rs. Lacs in within permissible limit of
Rs..... Lacs for.....Micro / Small (Strike off which is not
applicable) Category under MSMED Act 2006.

Date:

(Signature)

Name -

Membership Number -

Seal of Chartered Accountant

Guidelines for Indian Agents
ANNEXURE - X

- **Definition of Indian Agent:** An Indian Agent of foreign principal is an individual, a partnership, an association of persons, a private or public company, that carries out specific obligation(s) towards processing of BHEL tender or finalization or execution of BHEL's contract on behalf of the foreign supplier.

In case of yes, vendor to note the following and reply accordingly:

- i. BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if the foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines - which require mandatory submission of an Agency Agreement.
- ii. It shall be incumbent on the Indian agent and the foreign principal to adhere to the relevant guidelines of Government of India, issued from time to time.
- iii. The Agency Agreement should specify the precise relationship between the foreign OEM / foreign principal and their Indian agent and their mutual interest in the business. All services to be rendered by agent/ associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/ Indian agent. Any payment, which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the Agreement and be made explicit in order to ensure compliance to laws of the country.
- iv. Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only.
- v. Tax deduction at source is applicable to the agency commission paid to the Indian agent as per the prevailing rules.
- vi. In the absence of any agency agreement, BHEL shall not deal with any Indian agent (authorized representatives / associate / consultant, or by whatever name called) and shall deal directly with the foreign principal only for all correspondence and business purposes.
- vii. The "Guidelines for Indian Agents of Foreign Suppliers" enclosed at annexure -'A' shall apply in all such cases.

- viii. The supply and execution of the Purchase Order (including indigenous supplies/ service) shall be in the scope of the OEM/ foreign principal. The OEM/ foreign principal should submit their offer inclusive of all indigenous supplies/ services and evaluation will be based on 'total cost to BHEL'. In case OEM/ foreign principal recommends placement of order(s) towards indigenous portion of supplies/ services on Indian supplier(s)/ agent on their behalf, the credentials/ capacity/ capability of the Indian supplier(s)/ agent to make the supplies/ services shall be checked by BHEL as per the extant guidelines of Supplier Evaluation, Approval & Review Procedure (SEARP), before opening of price bids. In this regard, details may be checked as per Annexure-B (copy enclosed). It will be the responsibility of the OEM/ foreign principal to get acquainted with the evaluation requirements of Indian supplier/ agent as per SEARP available on www.bhel.com.

The responsibility for successful execution of the contract (including indigenous supplies/ services) lies with the OEM/ foreign principal. All bank guarantees to this effect shall be in the scope of the OEM/ foreign principal.

--X--

Vendor's Signature with Seal

Guidelines for Indian Agents of Foreign Suppliers

- 1.0 There shall be compulsory registration of agents for all Global (Open) Tender and Limited Tender. An agent who is not registered with BHEL shall apply for registration in the registration form in line with SEARP.
- 1.1 Registered agents will file an authenticated Photostat copy duly attested by a Notary Public/Original certificate of the Principal confirming the agency agreement and giving the status being enjoyed by the agent and the commission/ remuneration/ salary/ retainership being paid by the principal to the agent before the placement of order by BHEL.
- 1.2 Wherever the Indian representatives have communicated on behalf of their principals and the foreign parties have stated that they are not paying any commission to the Indian agents, and the Indian representative is working on the basis of salary or as retainer, a written declaration to this effect should be submitted by the party (i.e. Principal) before finalizing the order.
- 2.0 **Disclosure of particulars of agents/ representatives in India, if any.**
- 2.1 Tenderers of Foreign nationality shall furnish the following details in their offers:
- 2.1.1 The Bidder(s)/ Contractor(s) of foreign origin shall disclose the name and address of the agents/ representatives in India if any and the extent of authorization and authority given to commit the Principals. In case the agent/ representative be a foreign Company, it shall be confirmed whether it is existing Company and details of the same shall be furnished.
- 2.1.2 The amount of commission/ remuneration included in the quoted price(s) for such agents/ representatives in India.
- 2.1.3 Confirmation of the Tenderer that the commission/ remuneration, if any, payable to his agents/ representatives in India, may be paid by BHEL in Indian Rupees only.
- 2.2 Tenderers of Indian Nationality shall furnish the following details in their offers:
- 2.2.1 The Bidder(s)/ Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any, indicating their nationality as well as their status, i.e. whether manufacturer or agents of manufacturer holding the Letter of Authority of the Principal specifically authorizing the agent to make an offer in India in response to tender either directly or through the agents/ representatives.
- 2.2.2 The amount of commission/ remuneration included in the price (s) quoted by the Tenderer for himself.
- 2.2.3 Confirmation of the foreign principals of the Tenderer that the commission/ remuneration, if any, reserved for the Tenderer in the quoted price(s), may be paid by BHEL in India in equivalent Indian Rupees on satisfactory completion of the Project or supplies of Stores and Spares in case of operation items.
- 2.3 In either case, in the event of contract materializing, the terms of payment will provide for payment of the commission/ remuneration, if any payable to the agents/ representatives in India in Indian Rupees on expiry of 90 days after the discharge of the obligations under the contract.
- 2.4 Failure to furnish correct and detailed information as called for in paragraph 2.0 above will render the concerned tender liable to rejection or in the event of a contract materializing, the same liable to termination by BHEL. Besides this there would be a penalty of banning business dealings with BHEL or damage or payment of a named sum.

Disclaimer Certificate For Deemed Export Benefits

I, (Name & Designation)on behalf of M/s. (Name and address of the supplier) hereby certify that we have supplied the following goods to M/s..... (Name and address of the recipient):

S.No.	Inv. No. & date	Description of goods	Unit	Qty.	Value

1. We are the manufacturer exporters/suppliers and are registered/not registered with Central Excise and have not availed and will not avail CENVAT facility in respect of the input/components used in aforesaid supplies. We have also not availed and will not avail rebate on the inputs/components used in aforesaid supplies.

OR

We are the suppliers and our supporting manufacturer(s) is/are registered/not registered with Central Excise and have not availed and will not avail CENVAT facility in respect of the inputs/components used in aforesaid supplies.

2. We also certify that we have not been issued any Advance Authorization/Duty Free Import Authorization in respect of the aforesaid supplied goods and have not availed any benefit thereon.

3. We further state that we have not drawn nor will draw any benefit for deemed export and we have no objection if M/s..... (Name and address of the recipient) draws the deemed export benefits on the supplies mentioned above. (Required to be given in case benefits are claimed by recipient of goods).

OR

We have not given disclaimer certificate to M/s..... (Name and address of the recipient) and will not give disclaimer certificate, in future, in respect of these supplies for claiming deemed export benefits (Required to be given in case benefits are claimed by DTA suppliers).



ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
 भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division

PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE: PR: 002- Rev 00

GENERAL COMMERCIAL CONDITIONS FOR CONTRACT

These 'General Commercial Conditions for Contract for Purchase' hereinafter referred to as GCC apply to all enquiries, tenders, requests for quotations, orders, contracts and agreements concerning the supply of goods and the rendering of related services (hereinafter referred to as "deliveries") to Bharat Heavy Electricals Limited and any of its units, regions or divisions (hereinafter referred to as "BHEL" or the Purchaser) or its projects / customers.

Any deviations from or additions to these GCC require BHEL's express written consent. The general terms of business or sale of the vendor shall not apply to BHEL. Acceptance, receipt of shipments or services or effecting payment shall not mean that the general terms of business or sale of the vendor have been accepted.

Orders, agreements and amendments thereto shall be binding if made or confirmed by BHEL in writing. Only the Purchasing department of BHEL is authorized to issue the Purchase Order or any amendment thereof.

Definitions: Throughout these conditions and in the specifications, the following terms shall have the meanings assigned to them, unless the subject matter or the context requires otherwise.

- 'The Purchaser' means Bharat Heavy Electricals Limited, Electronics division, Mysore road, Bangalore 560 026, a Unit of Bharat Heavy Electricals Limited (A Govt. of India Undertaking) incorporated under the Companies Act having its registered office at BHEL House, Siri Fort, New Delhi-110049, India and shall be deemed to include its successors and assigns. It may also be referred to as BHEL.
- 'The vendor' means the person, firm, company or organization on whom the Purchase Order is placed and shall be deemed to include the vendor's successors, representative heirs, executors and administrator as the case may be. It may also be referred to as Seller, Contractor or Supplier.
- 'Contract' shall mean and include the Purchase Order incorporating various agreements, viz. tender/ RFQ, offer, letter of intent / acceptance / award, the General Conditions of Contract and Special Conditions of Contract for Purchase, Specifications, Inspection / Quality Plan, Schedule of Prices and Quantities, Drawings, if any enclosed or to be provided by BHEL or his authorized nominee and the samples or patterns if any to be provided under the provisions of the contract.
- 'Parties to the Contract' shall mean the 'The Vendor' and the Purchaser as named in the main body of the Purchase Order.

Interpretation:

In the contract, except where the context requires otherwise:

- words indicating one gender include all genders;
- words indicating the singular also include the plural and words indicating the plural also include the singular;
- provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing, and
- "Written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record.

Applicable Conditions:

1. **Price Basis:** All prices shall be firm until the purchase order is executed / completed in all respects. No price variations / escalation shall be permitted unless otherwise such variations / escalations are provided for and agreed by BHEL in writing in the purchase order.
2. **Validity:** The offer will be valid for a period of 120 days from the date of technical bid opening date. Validity beyond 120 days, if required, will be specified in the SCC (special conditions of contract).
3. **Ordering and confirmation of Order:** Vendor shall send the order acceptance on their company letter head within two weeks from the date of Purchase Order or such other period as specified / agreed by BHEL. BHEL reserves the right to revoke the order placed if the order confirmation differs from the original order placed. The acceptance of goods/services/supplies by BHEL as well as payments made in this regard shall not imply acceptance of any deviations.
The purchase order will be deemed to have been accepted if no communication to the contrary is received within two weeks (or the time limit as specified / agreed by BHEL) from the date of the purchase order.
4. **Documentation:** After receipt of Purchase Order, vendor should submit required documents like drawings, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report , O & M Manuals and/or any other relevant documents as per Specification/Purchase Order, as and when required by BHEL/Customer.
At any stage within the contract period, the vendor shall notify of any error, fault or other defect found in BHEL's documents /specifications or any other items for reference. If and to the extent that (taking account of cost and time) any vendor exercising due care would have discovered the error, fault or other defect when examining the documents/specifications before submitting the tender, the time for completion shall not be extended. However if errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the vendor's documents, they shall be corrected at his cost, notwithstanding any consent or approval.
5. **Penalty:**
For delay in documentation: In the event of delay in submission of complete set of documents ((like drawings, bill of materials, datasheets, catalogues, quality plan etc. as called in tender specifications including soft copies wherever applicable) in required sets beyond three weeks (or as agreed/indicated in the Purchase Order) from the date of Purchase Order, penalty at 0.5% (half percent) per week or part thereof, limited to a maximum of 5% (five percent) of the basic material value of the Purchase Order will be applicable.

For delay in delivery: In the event of delay in agreed contractual delivery as per Purchase Order, penalty @ 0.5 % (half percent) per week or part thereof but limited to a max of 10% (ten percent) value of undelivered portion (basic material cost) will be applicable. Delivery will commence from the date of document approval by customer / BHEL or date of issue of manufacturing clearance, whichever is later. The date for which Inspection call is issued by vendor along with test certificates / test reports / Certificate of Conformance / calibration reports, as proof of completion of manufacturing will be treated as date of deemed delivery for penalty calculation. In the absence of furnishing such document indicated above as proof of completion of manufacturing along with inspection call, actual date of inspection will be considered as date of deemed delivery and BHEL will not be responsible for delay in actual date of inspection.

Penalty for delayed documentation/delayed delivery, if applicable, shall be deducted at the time of first payment. If penalty is applicable for duration of less than a week, penalty @ 0.5% (half percent) of the basic material value will be deducted.
6. **Contract variations (Increase or decrease in the scope of supply):** BHEL may vary the contracted scope as per requirements at site. If vendor is of the opinion that the variation has an effect on the agreed price or delivery period, BHEL shall be informed of this immediately in writing along with technical details. Where unit rates are available in the Contract, the same shall be applied to such additional work. Vendor shall not

perform additional work before BHEL has issued written instructions / amendment to the Purchase Order to that effect. The work which the vendor should have or could have anticipated in terms of delivering the service(s) and functionality (i.e.) as described in this agreement, or which is considered to be the result of an attributable error on the vendor's part, shall not be considered additional work.

7. **Reverse Auction:** BHEL reserves the right to follow REVERSE AUCTION PROCEDURE (ONLINE BIDDING ON NETWORK) before finalising the Purchase order on technically competent bidders, as per the guidelines given in Annexure III. In case BHEL does not resort to Reverse Auction, the price bids and price impacts (if any) already submitted and available with BHEL shall be opened as per BHEL's standard practice.
8. **Inspection:** Prior written notice of at least 10 days shall be given along with internal test certificates / COC and applicable test certificates. Materials will be inspected by BHEL-EDN-QS/CQS or BHEL nominated Third Party Inspection Agency (TPIA) or BHEL authorized Inspection Agency or Customer / Consultant or jointly by BHEL & Customer / consultant. All tests have to be conducted as applicable in line with approved Quality plan or QA Checklist or Purchase specification and original reports shall be furnished to BHEL-EDN, Bangalore for verification / acceptance for issue of dispatch clearance.
All costs related to inspections & re-inspections shall be borne by vendor. Whether the Contract provides for tests on the premises of the vendor or any of his Sub-contractor/s, vendor shall be responsible to provide such assistance, labour, materials, electricity, fuels, stores, apparatus, instruments as may be required and as may be reasonably demanded to carry out such tests efficiently. Cost of any type test or such other special tests shall be borne by BHEL only if specifically agreed to in the purchase order.
9. **Transit Insurance:** Transit insurance coverage between vendor's works and project site shall be to the account of BHEL, unless specifically agreed otherwise. However, vendor shall send intimation directly to insurance agency (as mentioned in dispatch instructions issued by BHEL) through fax/courier/e-mail, immediately on dispatch of goods for covering insurance. A copy of such intimation sent by vendor to insurance agency shall be given to BHEL along with dispatch documents. Dispatch documents will be treated as incomplete without such intimation copy. BHEL shall not be responsible for sending intimations to insurance agency on behalf of the vendor.
10. **High Sea Sales (HSS):** Customs clearance of the consignment landed on Indian Sea / Air ports will be done by BHEL based on the original HSS documents provided by vendors.
Any delay in submission of complete / correct HSS documents to BHEL may incur demurrage charges. All demurrage charges on account of incomplete / incorrect HSS documents submission by vendor will be to vendor's account and all such charges will be recovered from any of the available vendor bills with BHEL.
11. **Packaging and dispatch:** The Seller shall package the goods safely and carefully and pack them suitably in all respects considering the peculiarity of the material for normal safe transport by Sea / Air / Rail / Road to its destination suitably protected against loss, damage, corrosion in transit and the effect of tropical salt laden atmosphere. The packages shall be provided with fixtures / hooks and sling marks as may be required for easy and safe handling. If any consignment needs special handling instruction, the same shall be clearly marked with standard symbols / instructions. Hazardous material should be notified as such and their packing, transportation and other protection must conform to relevant regulations.
The packing, shipping, storage and processing of the goods must comply with the prevailing legislation and regulations concerning safety, the environment and working conditions. Any Imported/Physical Exports items packed with raw / solid wood packing material should be treated as per ISPM – 15 (fumigation) and accompanied by Phytosanitary / Fumigation certificate. If safety information sheets (MSDS – Material Safety Data Sheet) exist for an item or the packaging, vendor must provide this information without fail along with the consignment.
Each package must be marked with Consignee name, Purchase order number, Package number, Gross weight and net weight, dimensions (L x B x H) and Seller's name. Packing list of goods inside each package with PO item number and quantity must also be fixed securely outside the box to indicate the contents of each box. Total number of packages in the consignment must also be indicated.
Separate packing & identification of items should be as follows.
 1. Main Scope - All items must be tagged with part no. & item description.
 2. Commissioning spares - All items must be tagged with part no. & item description.
 3. Mandatory spares - All items must be tagged with part no. & item description.

12. Assignment of Rights & Obligations; Subcontracting: Vendor is not permitted to subcontract the delivery or any part thereof to third party or to assign the rights and obligations resulting from this agreement in whole or in part to third parties without prior written permission from BHEL. Any permission or approval given by the BHEL shall, however, not absolve the vendor of the responsibility of his obligations under the Contract.
13. Progress report: Vendor shall render such report as to the progress of work and in such form as may be called for by the concerned purchase officer from time to time. The submission and acceptance of such reports shall not prejudice the rights of BHEL in any manner.
14. Non-disclosure and Information Obligations: Vendor shall provide with all necessary information pertaining to the goods as it could be of importance to BHEL. Vendor shall not reveal confidential information that may be divulged by BHEL to Vendor's employees not involved with the tender/ contract & its execution and delivery or to third parties, unless BHEL has agreed to this in writing beforehand. Vendor shall not be entitled to use the BHEL name in advertisements and other commercial publications without prior written permission from BHEL.
15. Cancellation / Termination of contract: BHEL shall have the right to completely or partially terminate the agreement by means of written notice to that effect. Termination of the Contract, for whatever reason, shall be without prejudice to the rights of the parties accrued under the Contract up to the time of termination.
BHEL shall have the right to cancel/foreclose the Order/ Contract, wholly or in part, in case it is constrained to do so, on account of any decline, diminution, curtailment or stoppage of the business.
16. Risk Purchase Clause: In case of failure of supplier, BHEL at its discretion may make purchase of the materials / services NOT supplied / rendered in time at the RISK & COST of the supplier. Under such situation, the supplier who fails to supply the goods in time shall be wholly liable to make good to BHEL any loss due to risk purchase.
In case of items demanding services at site like erection and commissioning, vendor should send his servicemen /representatives within 7 days from the service call. In case a vendor fails to attend to the service call, BHEL at its discretion may also make arrangements to attend such service by other parties at the **RISK & COST** of the supplier. Under such situation the supplier who fails to attend the service shall be wholly liable to make good to BHEL any loss due to risk purchase / service including additional handling charges due to the change.
17. Shortages: In the event of shortage on receipt of goods and/or on opening of packages at site, all such shortages shall be made good within a reasonable time that BHEL may allow from such intimation and free of cost. In case BHEL raises an insurance claim, the cost of material limited to insurance settled amount less handling charges will have to be reimbursed by the Supplier.
Transit Damages: In the event of receipt of goods in damaged condition or having found them so upon opening of packages at site, Supplier shall make good of all such damages within a reasonable time from such intimation by BHEL. In case BHEL raises an insurance claim, the cost of material limited to insurance settled amount less handling charges will be reimbursed.
18. Remedial work: Notwithstanding any previous test or certification, BHEL may instruct the vendor to remove and replace materials/goods or remove and re-execute works/services which are not in accordance with the purchase order. Similarly BHEL may ask the vendor to supply materials or to execute any services which are urgently required for any safety reasons, whether arising out of or because of an accident, unforeseeable event or otherwise. In such an event, Vendor shall provide such services within a reasonable time as specified by BHEL.
19. Indemnity Clause: Vendor shall comply with all applicable safety regulations and take care for the safety of all persons involved. Vendor is fully responsible for the safety of its personnel or that of his subcontractor's men / property, during execution of the Purchase Order and related services. All statutory payments including PF, ESI or other related charges have to be borne by the vendor. Vendor is fully responsible for ensuring that all legal compliances are followed in course of such employment.

20. Product Information, Drawings and Documents: Drawings, technical documents or other technical information received by Vendor from BHEL or vice versa shall not, without the consent of the other party, be used for any other purpose than that for which they were provided. They may not, without the consent of the Disclosing party, otherwise be used or copied, reproduced, transmitted or communicated to third parties. All information and data contained in general product documentation, whether in electronic or any other form, are binding only to the extent that they are by reference expressly included in the contract.

Vendor, as per agreed date/s but not later than the date of delivery, provide free of charge information and drawings which are necessary to permit and enable BHEL to erect, commission, operate and maintain the product. Such information and drawings shall be supplied in as many numbers of copies as may be agreed upon.

All intellectual properties, including designs, drawings and product information etc. exchanged during the formation and execution of the Contract shall continue to be the property of the disclosing party.

21. Intellectual Property Rights, Licenses: If any Patent, design, Trade mark or any other intellectual property rights apply to the delivery (goods / related service) or accompanying documentation shall be the exclusive property of the Vendor and BHEL shall be entitled to the legal use thereof free of charge by means of a non-exclusive, worldwide, perpetual license. All intellectual property rights that arise during the execution of the Purchase Order/ contract for delivery by vendor and/or by its employees or third parties involved by the vendor for performance of the agreement shall belong to BHEL. Vendor shall perform everything necessary to obtain or establish the above mentioned rights. The Vendor guarantees that the delivery does not infringe on any of the intellectual property rights of third parties. The Vendor shall do everything necessary to obtain or establish the alternate acceptable arrangement pending resolution of any (alleged) claims by third parties. The Vendor shall indemnify BHEL against any (alleged) claims by third parties in this regard and shall reimburse BHEL for any damages suffered as a result thereof.

22. Force Majeure: Notwithstanding anything contained in the purchase order or any other document relevant thereto, neither party shall be liable for any failure or delay in performance to the extent said failures or delays are caused by the "Act of God" and occurring without its fault or negligence, provided that, force majeure will apply only if the failure to perform could not be avoided by the exercise of due care and vendor doing everything reasonably possible to resume its performance.

A party affected by an event of force majeure which may include fire, tempest, floods, earthquake, riot, war, damage by aircraft etc., shall give the other party written notice, with full details as soon as possible and in any event not later than seven (7) calendar days of the occurrence of the cause relied upon. If force majeure applies, dates by which performance obligations are scheduled to be met will be extended for a period of time equal to the time lost due to any delay so caused.

Notwithstanding above provisions, in an event of Force Majeure, BHEL reserves for itself the right to cancel the order/ contract, wholly or partly, in order to meet the overall project schedule and make alternative arrangements for completion of deliveries and other schedules.

23. Guarantee / Warranty: Wherever required, and so provided in the specifications / Purchaser Order, the Seller shall guarantee that the stores supplied shall comply with the specifications laid down, for materials, workmanship and performance. Unless otherwise specified, guarantee / warranty period shall be 30 months after the date of delivery of goods or 24 months from the date of commissioning of goods whichever is earlier. The guarantee / warranty period as described above shall apply afresh to replaced, repaired or re-executed parts of a delivery. Unless otherwise specifically provided in the Purchase Order, Vendor's liability shall be co terminus with the expiration of the applicable guarantee / warranty period.
24. Limitation of Liability: Vendor's liability towards this contract is limited to a maximum of 100% of the contract value and consequential damages are excluded. However the limits of liability will have no effect in cases of criminal negligence or wilful misconduct.
- The total liability of Vendor for all claims arising out of or relating to the performance or breach of the Contract or use of any Products or Services or any order shall not exceed the total Contract price.

25. Liability during guarantee / warranty: Vendor shall arrange replacement / repair of all the defective materials / services under its obligation under the guarantee / warranty period. The rejected goods shall be taken away by vendor and replaced / repaired. In the event of the vendor's failure to comply, BHEL may take appropriate action including disposal of rejections and replenishment by any other sources at the cost and risk of the vendor.
In case, defects attributable to vendor are detected during first time commissioning or use, vendor shall be responsible for replacement / repair of the goods as required by BHEL at vendor's cost. In all such cases expiry of guarantee / warranty will not be applicable.
26. Liability after guarantee / warranty period: At the end of the guarantee / warranty, the Vendor's liability ceases except for latent defects (latent defects are defects / performance issues notices after the guarantee / warranty has expired). The Contractor's liability for latent defects warranty for the plant and equipment including spares shall be limited to a period of six months from the end of the guarantee / warranty period of the respective plant and equipment including spares or first time commissioning whichever is later but not later than 3 (three) years from the date of shipment.
27. Compliance with Laws: Vendor shall, in performing the contract, comply with all applicable laws. The vendor shall make all remittances, give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the laws in relation to the execution and completion of the contract and for remedying of any defects; and the Contractor shall indemnify and hold BHEL harmless against and from the consequences of any failure to do so.
28. Settlement of Disputes: Except as otherwise specifically provided in the Purchase Order, decision of BHEL shall be binding on the vendor with respect to all questions relating to the interpretation or meaning of the terms and conditions and instructions herein before mentioned and as to the completion of supplies/work/services, other questions, claim, right, matter or things whatsoever in any way arising out of or relating to the contract, instructions, orders or these conditions or otherwise concerning the supply or the execution or failure to execute the order, whether arising during the schedule of supply/work or after the completion or abandonment thereof. Any disputes or differences among the parties shall to the extent possible be settled amicably between the parties thereto, failing which the disputed issues shall be settled through arbitration. Vendor shall continue to perform the contract, pending settlement of dispute(s).
29. Arbitration Clause: In case amicable settlement is not reached in the event of any dispute or difference arising out of the execution of the Contract or the respective rights and liabilities of the parties or in relation to interpretation of any provision in any manner touching upon the Contract, such dispute or difference shall (except as to any matters, the decision of which is specifically provided for therein) be referred by either party to the sole arbitration of an Arbitrator appointed by the Executive Director/ General Manager of the purchasing unit/ region/ division of BHEL. Vendor shall have no objection even if the Arbitrator so appointed is an employee of BHEL or has ever dealt/ had to deal with any matter relating to this Contract.
Subject as aforesaid the provisions of the Arbitration and Conciliation Act, 1996 of India or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceedings under this clause. It is a term of contract that the party initiating arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute. The venue for the arbitration shall be Bangalore, India. The award of the arbitrator shall be a speaking award and shall be final, conclusive and binding on all parties to this contract.
The cost of arbitration shall be borne equally by the parties. Notwithstanding the existence of any dispute or difference or any reference for the arbitration, the vendor shall proceed with and continue without hindrance the performance of the work under the contract with due diligence and expedition in a professional manner.
30. Applicable Laws and Jurisdiction of Courts: Prevailing Indian laws both substantive and procedural, including modifications thereto, shall govern the Contract. Subject to the conditions as aforesaid, the competent courts in BANGALORE alone shall have jurisdiction to consider over any matters touching upon this contract.

31. General Terms: That any non-exercise, forbearance or omission of any of the powers conferred on BHEL and /or any of its authorities will not in any manner constitute waiver of the conditions hereto contained in these presents.

That the headings used in this agreement are for convenience of reference only.

That all notices etc., to be given under the Purchase order shall be in writing, type script or printed and if sent by registered post or by courier service to the address given in this document shall be deemed to have been served on the date when in the ordinary course, they would have been delivered to the addressee.



ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division
PB 2606 , Mysore Road Bangalore , 560026 INDIA

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CE: PR: 003- Rev 00

SPECIAL COMMERCIAL CONDITIONS OF CONTRACT

Reference is brought to BHEL's Instructions to Bidders (Document Ref: CE: PR: 001- Rev 00) and General Commercial Conditions for Contract (Document Ref: CE: PR: 002- Rev 00). ~~These documents along with required annexures are available in our website: _____~~ . These two documents along with Special Conditions of Contract annexed to this RFQ will form an integral part of the contract as and when the RFQ culminates into a Purchase Order / Contract.

RFQ No: SBA0000180 RFQ Date: As per EPS
Due Date: As per EPS Project: IB Valley TPS 2 x 660 MW
Item Description: Smart Pressure/Differential pressure Transmitter (Electronic Transmitters)

Purchase Executives: In cases where tender documents are bulky, or due to some reasons tender documents are required to be submitted by hand, the offers are to be handed over to either of the following Purchase Officers:
SARAVANA BABA A or KANIMOZHI D

E-mail IDs: In case offers are sent through E mail, please send the offers to both of the following email IDs:
saravanababu@bheledn.co.in & kanimozhid@bheledn.co.in

E-tendering: Applicable / Not Applicable

Reverse Auction: Not Applicable / Will be intimated during commercial clarifications to technically acceptable vendors.
In case BHEL does not resort to Reverse Auction, the price bids and price impacts (if any) shall be opened as per BHEL's standard practice.

Splitting of tendered quantity to MSE vendors: The tendered quantity will/will not be split to MSE vendors subject to submission of relevant documents by vendors. **Refer clause H of Instructions to Bidders for conditions applicable and for information on documents to be submitted.**

Destination: Items are to be directly despatched to BHEL's Site Office or Stores/Customer's Stores located at/near Banharpalli, Jharsaguda District/City in Orrisa State.
Road Permit, if applicable, will be issued by BHEL along with Despatch Clearance.

Project Benefits:

- **Indigenous scope of supply:**
 - a) Project is Mega Power Project or Ultra Mega Power Project: Eligible for "NIL" Excise Duty. Necessary documents for availing Excise Duty exemption by suppliers will be furnished by BHEL.
 - b) Physical Export project: Eligible for complete exemption of Excise Duty & Sales Tax. Necessary documents for availing such benefits will be furnished by BHEL to suppliers.
 - c) Nuclear Power Project under a special category: Eligible for claiming Terminal Excise Duty benefit from DGFT as per present EXIM policy. Confirm submission of following in original:
 - o Disclaimer Certificate (Annexure XI)
 - o Copy of Excise Invoice attested by Suptd of Central Excise authorities with signature and seal, in blue ink, to enable BHEL to claim terminal Excise duty benefit from DGFT.
- **Imported scope of supply:** Customs duty applicable @ 17.0%.
 - a) Project is Mega Power Project or Ultra Mega Power Project: Eligible for "NIL" Customs Duty.
 - b) Physical Export project: Eligible for complete exemption of Customs Duty.

Terms of Delivery:

Indicate station of despatch: _____

Indicate place of manufacturing (wherever applicable): _____

- **Indigenous scope of supply:** Ex-works (including Packing & Forwarding charges but excluding Taxes & Duties): _____
- **Imported scope of supply:** F.C.A. (for air consignments) /F.O.B. (for sea consignments) (including Packing, Forwarding, Handling, Ancillary charges like processing of Sight Draft/ Letter of Credit, negotiation of bank documents, Export declaration, Country of Origin etc): _____

S NO.	TERMS	BHEL ACCEPTABLE TERM	BIDDER'S CONFIRMATION	DEVIATION IF ANY
01	Validity	The offer will be valid for a period of 120 days from the date of technical bid opening.	AGREE	
02	Excise Duty & Cess	<p>If applicable, indicate current rate of Excise Duty and maximum rate of Excise Duty (against proof of Excise Invoice).</p> <p>However, for calculation purpose and arriving at "Total Cost to BHEL" maximum rate of Excise Duty will be considered. In case Excise Duty remains firm throughout the contract, the same shall be specifically indicated. Otherwise, maximum Excise Duty will be considered for arriving at lowest bidder.</p> <p>However, reimbursement of Excise Duty shall be at actuals against proof of Excise Invoice only. (Within contractual delivery).</p> <p>Physical export contract eligible for complete exemption of Excise duty against submission of necessary documents by BHEL like ARE-1/CT-1 form.</p>	<p>APPLICABLE / NOT APPLICABLE</p> <p>Present rate of Excise Duty with CESS%</p> <p>Maximum rate of Excise Duty with CESS%</p>	
03	Central Sales Tax (CST)	<p>If applicable, indicate current rate of sales tax against form "C".</p> <p>For issue of original form "C", vendor has to furnish "E1/E2" form. To enable vendor give E1/E2 form, photocopy of C form will be issued by BHEL.</p> <p>Please confirm submission of "E1/E2 Sale form".</p> <p>For physical export project, Sales Tax is exempted against necessary documents furnished by BHEL.</p>	<p>APPLICABLE / NOT APPLICABLE</p> <p>Present Sales Tax rate against form "C" %</p> <p>CONFIRMED</p>	
04	Value Added Tax (VAT)	<p>If applicable, indicate current rate of VAT.</p> <p>When VAT is applicable, BHEL ROD's/ Nodal Agency's Name, TIN No. and address to be indicated in invoice. (Note that two original invoice and one tax invoice should be submitted to BHEL).</p>	<p>APPLICABLE / NOT APPLICABLE</p> <p>VAT rate at present %</p> <p>NOTED</p>	
05	Octroi	If applicable, indicate current rate of octroi.	<p>AGREE</p> <p>Present Octroi rate%</p>	
06	Freight Charges (for indigenous scope of supply)	<p>Freight charges shall be to vendor's account.</p> <p>Quote lumpsum reasonable Freight charges separately in priced offer, plus service tax if any.</p> <p>Vendor's offer will be evaluated on "Total cost basis" including freight charges.</p> <p>Vendor shall book the consignment through their approved Road carriers on "Freight pre-paid" and door delivery consignee copy attached basis. Freight charges to be claimed from BHEL along with POD (Proof of Delivery) on original L/R.</p>	<p>AGREED</p> <p>and quoted as lumpsum amount in price bid.</p> <p>Service Tax _____% (extra/inclusive in freight charges)</p>	
07	Service Tax on E&C and Training Charges	<p>If applicable, indicate current rate of Service Tax _____%</p> <p>Service Tax Regn. No. _____</p> <p>Confirmation that Service Tax register is maintained.</p>	<p>APPLICABLE / NOT APPLICABLE</p> <p>CONFIRMED</p>	
08	Parting of license for imported raw materials	In case of Mega project, Ultra-Mega project and Physical Export project where Custom Duty and Excise Duty are NIL and vendor is importing any raw materials /	AGREE	

		<p>components for the enquired item, same are eligible for Zero Customs duty. As per EXIM policy, BHEL will part the import licence with the vendors to obtain import licence by themselves and custom clear the raw materials/ components by availing zero customs duty. Hence, please furnish list of raw materials / components to be imported by you with Quantity and CIF value (for which BHEL has to share import licence). The benefit due to the above shall be passed on to BHEL and confirmed in the quotation.</p> <p>If there are no imported raw materials/components, same shall be confirmed in the offer.</p>	<p>CIF value</p> <p>Yes, benefit passed-on to BHEL in the priced quotation.</p> <p>We confirm that there are no imported components.</p>	
09	Delivery Period	Within <u>12</u> weeks from the date of issue of approved documents or manufacturing clearance by BHEL, whichever is later.	AGREE weeks	
10	Guarantee/ Warranty	<u>30</u> months from the date of delivery of goods or <u>24</u> months from the date of commissioning of goods, whichever is earlier.	AGREE	
11	Inspection agency	Materials will be inspected by : <ul style="list-style-type: none"> • BHEL • Customer/Consultant/BHEL nominated Third Party Inspection Agency (TPIA) 	AGREE	
12	Terms of Payment at the time of material supply	Refer Clause "F" of Instructions to Bidder for BHEL standard Payment terms and loading factors applicable for non-compliance against payment terms: Indigenous Scope: a)Supply with E&C b)Supply with Supervision of E&C c) Supply only Imported Scope: d)Supply with E&C e)Supply with Supervision of E&C f) Supply only Note: Kindly indicate if High Sea Sales will be operated. If yes, confirm submission of relevant documents as per Annexure V.	AGREE YES / NO CONFIRMED	
13	Performance Bank Guarantee (PBG)	PBG will be applicable for a period of 36 months + claim period of 6 months for a value equal to 10% of the basic value of the purchase order. Refer Clause "G" of Instructions to Bidders.	AGREE	
14	Terms of Payment not related to material supply	For Training: 100% will be paid in 45 days from the date of completion of Training or 15 days from the date of submission of complete set of documentation, whichever is later. Separate invoice shall be submitted for Training charges along with documentary evidence. For Engineering & Documentation Charges: 100% will be paid in 45 days from the date of approval of final documents or 15 days from the date of submission of invoice, whichever is later. Separate invoice to be submitted for Engineering & documentation charges.	AGREE	
15	Mode of despatch	Indigenous Scope: By Road on Door Delivery Consignee Copy attached basis through your approved transporter (unless otherwise indicated in Despatch Instructions), only on receipt of Despatch Clearance from BHEL. Imported Scope: By Air/Sea through BHEL approved Consolidator/Freight Forwarder, only on receipt of Despatch Clearance from BHEL.	AGREE	
16	Despatch	Complete set of despatch documents (original + 1	AGREE	

	Documents	<p>photocopy set) as per Purchase Order shall be forwarded to BHEL directly.</p> <p>Depending upon the project/customer demands, despatch documents may include one or more documents from the following: Commercial Invoice, Excise Invoice (if ED is applicable), Lorry Receipt (L/R), Packing List, Air Way Bill (AWB), Country of origin certificate, Warranty Certificate, Insurance Intimation letter, NIL Short Shipment Certificate, Original Performance Bank Guarantee (directly from issuing bank to BHEL), POD (Proof of Delivery) on original L/R, Disclaimer Certificate (as per BHEL format attached as Annexure XI) along with ER-1 form & attested excise invoice (as per project demands like Nuclear Power plant) etc.</p> <p>The precise list of despatch documents needed for a particular project will be specified in the Purchase Order.</p> <p>One set of Invoice, Packing List and L/R or AWB shall be e-mailed/faxed immediately to BHEL-EDN after despatch.</p>		
17	O & M Manuals	<p>As built Drawings, O & M Manuals and other approved documents shall be furnished in required no. of sets as per Specification/Purchase Order.</p> <p>Note: Supply of above documents (O&M) in required no. of sets along with material shall be indicated in packing list. If not mentioned BHEL may insist for submission in required sets once again.</p>	AGREE	
18	Quantity Tolerance	<p>If applicable, indicate Quantity tolerance for each of the line item.</p> <p>For Impulse/seamless/ GI pipes one random length applicable for each variety of pipes.</p>	CONFIRMED	Quantity Tolerance% Per Variety
19	Evaluation criteria for tendered item	<p>Itemwise evaluation of tendered item. Splitting of tendered quantity to MSE vendors (if any) is applicable.</p> <p style="text-align: center;">OR</p> <p>Items will not be split on itemwise lowest offer. Items to be evaluated and procured as a package.</p>	AGREE	
20	Integrity Commitment	<p>Integrity commitment will be applicable in the tender process and execution of contracts as mentioned in clause "1" of Instructions to Bidders.</p>	AGREE	

With this, it is inferred that vendor has understood and accepts all terms & conditions as indicated in Instructions to Bidders (Document Ref: CE: PR: 001- Rev 00) & General Commercial Conditions for Contract (Document Ref: CE: PR: 002- Rev 00).

VENDOR'S SIGNATURE WITH SEAL

NOTE: The above filled-in and signed-sealed document (in original) shall be furnished as part of Part-I Bid without fail. If no deviations are brought, it will be treated as if all terms and conditions of this enquiry are accepted by vendor without any deviation.

Registration of Suppliers

unregistered Supplier: Supplier visits EPS at <https://bheleps.buyjunction.in>

- a. Supplier visits EPS at <https://bheleps.buyjunction.in>
- b. Clicks "REGISTER" for registration
- c. Fills up the Registration Page form
- d. MJ will ensure Authentication of Registration ¹
- e. Supplier logs in with the ID and password
- f. Supplier Maps the signing Certificate
- g. MJ will ensure the authentication the signing certificate ¹.
- h. Supplier Logs in to the system again and views the RFQ
- i. Supplier Attaches himself to the RFQ by clicking the Interested button
- j. Supplier fills the bid template and makes necessary attachments
- k. Supplier submits his bid by clicking CONFIRM.

NB:-

¹ -- BHEL Administrator or user will have no role for approving Registration and Open Tenders and DSC for Any supplier who has registered himself from the front END which is in case of OT.

- **For registered Supplier:**

- Supplier visits EPS home page
- Supplier signs in with his/her user id and password
- Selects the RFQ Code and views it.
- Attaches himself to the RFQ by clicking the Interested button
- Supplier fills the bid template and makes necessary attachments
- Supplier submits his bid by clicking CONFIRM.

Note:

A)3 part – Here in PQ3 will constitute part 1, Techno-commercial will constitute part 2, while price bid will be part 3. Rejections can be basis of PQ3 , Techno-commercial. Techno-commercial and price will not open of PQ3 rejected suppliers, while price will not be disclosed for Techno-commercially rejected Suppliers.

B) For any clarifications related to e-procurement, bidder may contact M/s.Mjunction. Details of helpdesk are provided in their web site, <https://bheleps.buyjunction.in>



CONTENTS

SECTION	DESCRIPTION	REFERENCE NO.
A	GENERAL INSTRUCTIONS TO BIDDERS	CE/416-EDN/ELECTRONICS TRANSMITTER/GI(Pages 1)
B	PRE-QUALIFICATION REQUIREMENTS	CE/416-EDN/ELECTRONICS TRANSMITTER/PQR (Pages 5)
C	TECHNICAL SPECIFICATION FOR ELECTRONICS TRANSMITTER	CE / IBVALLEY2X660MW/ 416 / ELECTRONIC TRANSMITTERS



SECTION- A

GENERAL INSTRUCTIONS TO BIDDERS :

- 1.0 ALL REQUIRED DOCUMENTS AGAINST THIS TENDER/SPECIFICIFICATION SHALL BE SUBMITTED IN ENGLISH ONLY.
- 2.0 **Introduction** : Bidders are required to offer **ELECTRONICS TRANSMITTERs for a Thermal Power Plant of OPGCL,Odisha, INDIA, IB VALLEY 2X660MW .**
- 3.0 Pre-qualification requirements (PQR) are clearly mentioned in Section-B of this Specification. Bidder to read the same carefully and submit the details required for BHEL's acceptance **separately**.
- 4.0 In order to accept the Technical offers / proposals from Bidders for the project mentioned in this Specification (refer Sections C), certain Pre-qualification criteria are required to be met by Bidder.
- 5.0 In case Bidder does not include / incomplete/not meeting of Pre-qualification requirements (PQR) is furnished, total offer will be summarily Rejected and Bidder's Technical offers will not be Evaluated & **liable for technical rejection automatically**.
- 6.0 Technical Evaluation methodology :
 - Step 1:-**
BHEL shall initially open Bidder's PQR documents only as per Section B of this specification for review & acceptance.
 - Step 2:-**
Only after acceptance of PQR documents, BHEL shall open Bidder's Technical offers as per CI 2.0 of above for evaluation.
 - Step 3:-**
In the event of acceptance of Bidder's technical offers, the names of such Bidders along with details provided by them for PQR and details of Technical offers, shall be submitted to End users / Customers for their acceptance/approval. Commercial bids of only accepted/approved Bidders by End users / Customers, shall be considered by BHEL for further processing.
- 7.0 Bidders are required to submit offers as detailed below :
 - aa. Documents pertaining to Pre-Qualification requirement (CI AA of Section B of this Specification) shall be submitted in Part-I bid.
"CE/416/ELECTRONICS TRANSMITTER/PQR / CI AA of Section B" marked on it.
 - bb. Documents pertaining to Pre-Qualification requirement (CI BB of Section B of this Specification) shall be submitted in Part-I bid.(SRF is not applicable for registered vendors in BHEL EDN)
"CE/416/ELECTRONICS TRANSMITTER/PQR / CI BB of Section B" marked on it.
 - cc. Technical offers/proposals for the Project, whose requirements are mentioned in Sections C shall be submitted in Part-II bid , "Technical bid".
- 8.0 Whenever required during evaluation of PQR and Technical offers/bids, vendor is required to be present at BHEL Electronic Division, Bangalore, for discussions. Further in the event of order, during approval of the Vendor documents by End users/Customers, Vendor representative shall accompany BHEL representative for discussions.



SECTION- B

AA. Pre-Qualification Requirements (PQR) of Bidders for ELECTRONICS TRANSMITTER, as a part of Offer:

- 1.0 Bidder shall be the OEM of the ELECTRONICS TRANSMITTER or authorized manufacturer/dealer of OEM in India. If Bidder is not a Original Equipment Manufacturer (OEM), then Bidder to include Authorisation letter from OEM for Design, Engineering, Assembly, Testing, supply , and Servicing of the offered Transmitters. This Authorisation letter provided by OEM to Bidder shall indicate the Type and Duration of the agreement. Such authorized agents shall be legally registered in India for carrying out above activities. They have to mention clearly in the bidding as Non-OEM & OEM name to be indicated by providing above information.
- 2.0 Bidders shall note that qualifying criteria for this project is minimum of one year satisfactory operation in one or more coal based thermal power plants having unit rating of 200 MW or above for the main plant Packages (supplied only for off-site plant packages are not acceptable) , for similar measurements indicated in Section C of this specification, for verification.
- 3.0 Submit Reference List of Projects wherein offered system is supplied & commissioned, along with details of **Electronics Transmitters** and Year of Commissioning of the equipment specified in Section C.
- 4.0 Reports on successful erection & commissioning like Protocols / Minutes of the meetings with end user for current jobs for commissioning activity. End user certificates from customer with detailed plant address , designation of the customer & contact etc. for the completed jobs.
- 4.0 Type test reports for each model & series (If multiple series is offered) as per annexure-I. The offered model / series of transmitters should have successfully passed type tests as per the IEC 60770 is mandatory. List is attached as Annexure-I. These tests are applicable for 1(one) no Pressure transmitter of range 0-100 Kg/Cm² or 100-350 Kg/Cm². Similarly for tests are applicable for 1(one) no Diff. Pressure transmitter of range 0- 250 mmWc or 5-20 Kg/Cm². (From third party Accredited Lab. Only)
- 5.0 Technical literature / Manuals of offered Transmitters model series. Model list to be furnished as per annexure II.
- 6.0 Name & registered address of the Indian branch office or Indian representative for after sales service & support with Organization chart.
- 7.0 Details of Manufacturing, testing & inspection facility.
- 8.0 Bidder shall have facility in India for Engineering activities, preparation of Documents etc. to be submitted.
- 9.0 Vendors who are making offer for this tender shall have authorised representatives in India for support related to Documentation, Erection , Commissioning, servicing & any other co-ordination work required.
- 10.0 The offered model / series of transmitters should be registered model in HART Foundation.
- 11.0 One set of Calibration reports to be furnished for the offered model / series of transmitters as per the specification QP for verification of format & results. This is applicable for the foreign vendors where witness is not possible by BHEL QC(Quality control) Department physically.



**Open Tender for
Electronic Transmitters (Press/DP)**

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BB. Along with the documents related to PQR above, following details shall also be included in the Offer :

1.0 Vendors who are not registered in BHEL EDN for Electronic Transmitters shall submit duly-filled Source Request Form (SRF), which shall be downloaded by Bidder from our website "www.bhel.com". SRF along with credentials to be **furnished separately by the Bidder. If any authorised representatives in India is the bidder then SRF is also applicable for OEM for the manufacturing place. Filling of SRF is now available in above mentioned website(<http://supplier.bhel.in>) . It is to be noted that manufacturing place is only to be registered in the PMD(Product material Directory) for Electronics Transmitters. If there are multiple place of manufacturing ie. Pressure/DP Transmitters is at one factory & capillary remote seal type in different factory then both factory/manufacturing place to be registered mandatorily. Also is same situation is there in different countries then all countries manufacturing place to be registered & details to be furnished in separate SRF for complete requirement of Transmitters. Further if any model series to be offered are different manufacturing place than normally offered model series same also to be furnished in a separate SRF.
(Online submission of SRF is mandatory for PQR evaluation)**

Important note : In case Bidder does not submit details mentioned in above clauses or meet the requirements of Pre-qualification requirements, Offers will be summarily rejected and Bidder's Technical offers/proposals will not be Evaluated. Please read carefully the General instructions in Section A of this specifications.

Annexure – I Type test Requirements

TYPE TEST REQUIREMENT OF ELECTRONICS TRANSMITTER AS PER IEC 60770

Sr. No.	Test name	Reference standards	Test Type
1	Inaccuracy and measured error (with graphs in 03 cal. Ranges)	IEC 61298 -2	Performance test
2	Non-Linearity	IEC 61298 -2	Performance test
3	Hysteresis	IEC 61298 -2	Performance test
4	Non-repeatability	IEC 61298 -2	Performance test
5	Dead Band	IEC 61298 -2	Performance test
6	Start up drift	IEC 61298 -2	Functional test
7	Long term drift	IEC 61298 -2	Functional test
8	Ambient temperature	IEC 61298 -3	Temp. related Test
9	Vibration (sinusoidal)	IEC 61298 -3	Environmental Tests
10	Shock	IEC 61298 -3	Functional test
11	Mounting Position Effect	IEC 61298 -3	Functional test
12	Overrange	IEC 61298 -3	Functional test
13	Short term Supply Voltage interruptions	IEC 61298 -3	Functional test
14	Reverse supply voltage protection	IEC 61298 -3	Functional test
15	Common mode interference	IEC 61298 -3	Functional test
16	Normal mode interference (series Mode)	IEC 61298 -3	Functional test
17	Earthing	IEC 61298 -3	Functional test
18	Electrical fast transients (Bursts)	IEC 61298 -3/ IEC 61000-4-4	EMI Test
19	Surge Voltage immunity	IEC 61298 -3	EMI Test
20	Conducted sine wave RF disturbances	IEC 61298 -3	EMI Test
21	Power frequency magnetic field	IEC 61298 -3	EMI Test
22	Damped Oscillatory Magnetic Field	IEC 61298 -3	EMI Test
23	Radiated radio frequency electromagnetic field	IEC 61298 -3	EMI Test
24	Open and short circuit of Output	IEC 61298 -3	EMI Test
25	Input resistance of a transmitter with electrical inputs	IEC 61298 -2	Functional test
26	Insulation Resistance	IEC 61298 -2	Functional test
27	Dielectrics strength	IEC 61298 -2	Functional test
28	Power consumption	IEC 61298 -2	Functional test
29	Output ripple	IEC 61298 -2	Functional test



**Open Tender for
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30	Output load	IEC 61298 -3	Functional test
31	Source Impedance	IEC 61298 -3	Functional test
32	Supply voltage depressions	IEC 61298 -3	Functional test
33	Dry Heat Test		Enviromental Tests
34	Damp Heat Test	IEC 61298 -3, IEC 60068 -2-1,IEC 60068 -2-2,	Enviromental Tests
35	ESD Immunity test		EMI Test
36	Frequency response		n/a
37	Air consumption		n/a
38	Ingrass Protection (IP)		IP Test
39	Electrical output Load at Full span		Functional test
40	Supply voltage variation		Functional test
41	Life cycle test		Functional test
43	static pressure test		



**Open Tender for
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Annexure-II

**INDEX SHEET FOR MODEL OFFER FOR OUR REQUIRE-
MENT**

SI No	Type	Span	Static pressure	Model Nos	ACCURACY	Remarks
1	DPT	40 MMWC TO 100 MMWC	up to 3300mmWC			
2	DPT	30 MMWC TO 39 MMWC	up to 3300mmWC			
3	DPT	100 MMWC TO 600 MMWC	up to 105 kg/cm ²			
4	DPT	600 MMWC TO 8000 MMWC	up to 105 kg/cm ²			
5	DPT	8000 MMWC TO 5KG/CM ²	up to 105 kg/cm ²			
6	DPT	5kg/cm ² to 9kg/cm ²	up to 105 kg/cm ²			
7	DPT	9kg/cm ² to 140 kg/cm ²	up to 105 kg/cm ²			
8	DPT	600 MMWC TO 8000 MMWC	up to 210 kg/cm ²			
9	DPT	8000 MMWC TO 5KG/CM ²	up to 210 kg/cm ²			
10	DPT	5kg/cm ² to 10kg/cm ²	up to 210 kg/cm ²			
11	DPT	10kg/cm ² to 70kg/cm ²	up to 210 kg/cm ²			
12	DPT	600 MMWC TO 8000 MMWC	beyond 210 kg/cm ²			
13	DPT	8000 MMWC TO 5KG/CM ²	beyond 210 kg/cm ²			
14	DPT	5kg/cm ² to 70kg/cm ²	beyond 210 kg/cm ²			
15	DPT	5kg/cm ² to 70kg/cm ²	beyond 320 kg/cm ²			
16	PT	40 MMWC TO 100 MMWC	up to 3300mmWC			
17	PT	30 MMWC TO 39 MMWC	up to 3300mmWC			
18	PT	100 MMWC TO 600 MMWC	up to 105 kg/cm ²			
19	PT	600 MMWC TO 8000 MMWC	up to 105 kg/cm ²			
20	PT	8000 MMWC TO 2KG/CM ²	up to 105 kg/cm ²			
21	PT	2KG/CM ² TO 20 KG/CM ²	up to 20 kg/cm ²			
22	PT	20KG/CM ² TO 140 KG/CM ²	up to 140 kg/cm ²			
23	PT	140KG/CM ² TO 249 KG/CM ²	up to 320 kg/cm ²			
24	PT	250KG/CM ² TO 400 KG/CM ²	up to 500 kg/cm ²			
25	DPT Remote Seal	1000 MMWC TO 8000 MMWC	up to 77 kg/cm ²			
26	DPT Remote Seal	0.7KG/CM ² TO 5KG/CM ²	up to 77 kg/cm ²			
27	PT Remote Seal	1KG/CM ² TO 3KG/CM ²	up to 77 kg/cm ²			
28	PT Remote Seal	3.1KG/CM ² TO 14KG/CM ²	up to 77 kg/cm ²			
29	PT Remote Seal	14KG/CM ² TO 140KG/CM ²	up to 77 kg/cm ²			

Note 1

In case of Remote seal the above model is for 3"/ANSI 300# Flange in carbon Steel,if required in ss then the option code shall be provided for Capillary length is 10 meters.



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PROJECT: IB VALLEY 2X660MW THERMAL POWER PROJECT

Customer : M/s OPGCL

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PURCHASE SPECIFICATIONS FOR ELECTRONIC TRANSMITTERS

REVISION : 00

APPROVED
&
VERIFIED

SAILENDRA KUMAR KISAN

PREPARED

Sandeep

ISSUED

416

DATE

25/09/2015



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CE / IBVALLEY2X660MW / 416 / ETxR

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CONTENTS

Sl. No.	Description	Reference
1.	Scope of Supply	CE / IBVALLEY2X660MW / 416 / ETxR /SOS, Rev 01 Sheets 03
2.	Technical Requirements	CE / IBVALLEY2X660MW / 416 / ETxR /TR, Rev 01 Sheets 03
3.	Bill of Material	CE / IBVALLEY2X660MW / 416 / ETxR /BOM ,Rev 01 Sheets 06
4.	Reference Quality Plan	CE / IBVALLEY2X660MW / 416 / ETxR /QP, Rev 01 Sheets 03

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PROJECT: IB VALLEY 2X660MW THERMAL POWER PROJECT

**SCOPE OF SUPPLY
FOR
ELECTRONIC TRANSMITTERS**

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DATE

25/09/2015



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CE / IBVALLEY2X660MW / 416 / ETxR / SOS

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SCOPE OF SUPPLY

1.0 **Electronic Transmitters** as per technical Requirements Ref: CE / IBVALLEY2X660MW / 416 / ETxR / TR Rev.00 & BOM Ref: CE / IBVALLEY2X660MW / 416 / ETxR / BOM Rev.00 enclosed.

2.0 **Against each service, model type with accuracy is to be specified.**

Quantity of transmitters as follows.

Sl. No	Project	Unit-1 Qty (in Nos)	Unit-2 Qty (in Nos)	Common Qty (in Nos)	Total Qty for the project (in Nos)
1	IB Valley 2X660MW TPP	350	350	29	729

For each transmitter, accessories like required number of blind plugs, 1/2" NPT double compression Ni-plated brass cable gland, mounting bracket, U clamp (for 2" NB pipe) to be supplied. For each remote seal transmitter, additional accessories like 3" ANSI 300 RF minimum mounting flange (SS) , counter flange (CS) with adequate gaskets & fasteners etc. to be supplied.

* Above qty specified may undergo changes during detailed Engg.

3.0 **GENERAL TERMS & CONDITIONS**

3.1 Considering possibilities of change in requirement, i.e. addition & deletion of quantities at a later date after system design finalisation, the vendor must clearly quote unit price as well as lot price for all items for indisputable calculations of lot prices in case of revised quantities later.

3.2 In case of quantity change, unit rates shall be applicable. However in case of item change for a project, if the required model is not available in the original offer, the unit price of another model, for the same range but with features having the closest similarity to the required one, quoted elsewhere in another variant or another group, shall be applicable.

3.3 Although transmitter are allowed to be indigenously assembled, calibrated & certified, but considering the fact that not yet any indigenous sensors & electronics are offered, site-proven, type tested and acceptable to most customers, the sensors and electronics should preferably be procured from vendors' own principals abroad.

3.4 Transmitters shall be type tested as per IEC60770. Offered transmitters shall be in **successful operation for two (2) years in 500 MW or above capacity units in at least at two different locations on the date of bid opening.**

3.5 Model selection is sole responsibility of vendor with clear understanding of specification requirement. Any change in basic model & accessories during technical evaluation **shall not be allowed.** In case of any doubt regarding the intent of specification technically, vendor shall interact with the purchaser & get the doubts clarified well before the due date of technical bid submission to **minimize the deviation from spec. & the chances of rejection.**

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4.0 DOCUMENTS REQUIREMENT

Following documents shall be furnished to BHEL as a minimum, apart from any other documents required to be submitted as called for elsewhere or as deemed necessary. The same shall be for the complete equipment offered including Electronic Transmitters other peripherals etc.

4.1 Along with Technical offer in one (01) set with model and accuracy for the calibrated range etc, these documents are mandatory, absence of these documents your offer may be liable for technical rejection.

- a) Bill of Material with consolidated summary sheet indicating all model series numbers and corresponding quantities of Pressure Transmitters.
- b) Drawings (GA/layout/wiring/interconnection/schematic, etc.)
- c) Technical literatures/Catalogs/Clause-wise compliance/deviation list to Specification(Refer 5.0)

4.2 Within one week from the date of placement of Order for BHEL/CUSTOMER approval in four (4) sets hard copy & 1 CD soft copy in PDF format as a single file against each purchase order (P.O.):

- a) Bill of Material
- b) Data Sheet
- c) Drawings (GA/layout/wiring/interconnection/schematic, etc.)
- d) Technical literatures/Catalogs
- e) Quality Plan.

4.3 Before inspection of Material for BHEL/ CUSTOMER review & acceptance in two(02) sets & 1 CD soft copy in PDF format against each purchase order:-

- a) Test Certificates/Reports as per Check list and Approved Quality Plan.
- b) Preliminary Instruction/O&M Manual.

4.4 At the time of Material dispatch in four(4) sets to BHEL against each purchase order:-

- a) Instruction/O&M Manual
- b) Bill of Material
- c) Data Sheets
- d) Drawings (GA/layout/wiring/interconnection/schematic, etc.)
- e) Technical literatures/Catalogs.

NOTE: These documents shall be in final as-built/approved status. Apart from above one (01) set of Instruction / O&M Manual shall also be sent directly to site along with each system against each purchase order.

4.5 One (01) set soft copy of Final documents as mentioned at clause above shall also be provided to BHEL against each purchase order. The soft copy shall be CD-ROM media in PDF format and shall also submitted compatible with Windows-95/98/NT/2000 with drawing / documents in AutoCad-14 /MS-Word / MS-Excel / Acrobat / HTML formats.

NOTE: Also, drawing/documents under 4.2 to be provided in a soft copy in PDF format in CD shall be submitted to BHEL for customer approval.

5.0 In case no **Clause-wise compliance/deviation list** is furnished & deviation is found during technical evaluation, then the offer is liable for technical rejection on the grounds of not meeting the specification.



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PROJECT: IB VALLEY 2X660MW THERMAL POWER PROJECT

TECHNICAL REQUIREMENTS FOR ELECTRONIC TRANSMITTERS

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REVISION : 00

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12/10/2015



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TECHNICAL REQUIREMENTS

REQUIREMENTS FOR ELECTRONIC TRANSMITTERS

1.0 Electronic Transmitters for Pressure, Differential Pressure, Flow and Level measurement shall be furnished complete with all accessories to meet the requirements given below.

2.0 Pressure Transmitters and Differential Pressure Transmitters (for all Air & Flue Gas Applications) shall be used for measurement of Pressure as indicated in the BOM schedule of Scope of Supply. Differential Pressure Transmitters shall be used for measurement of Differential Pressure, Flow rates and Levels as indicated in the BOM schedule of Scope of Supply.

3.0 Electronic transmitters shall meet or exceed the following requirements

3.1 Type of Transmitter : Microprocessor based, 2 wire Smart type, HART Protocol compatible, with LCD indicator.

3.2 Accuracy : $\pm 0.1\%$ of calibration span or better

3.3 Repeatability : $\pm 0.05\%$ of calibration span or better

3.4 Stability : 0.1% of calibrated span for 06 months

3.5 Output signal range : 4-20 mA DC (Analog) and superimposed Digital signal on HART protocol.

3.6 Turn-down ratio (as applicable): (a) 10:1 (for vacuum/very LP appl)
(b) 30:1 (for other applications)

3.7 Response time : 250msec or better

3.8 Measuring element : Capsule / Diaphragm (SS or better)

3.9 Zero and Span drift : 0.015 % per deg. C at maximum span and 0.11% per deg. C at minimum span.

3.10 Load Impedance : 600 Ohms minimum at 24V DC.

3.11 Electrical Connection : $\frac{1}{2}$ " NPT double compression Ni-plated brass cable gland

3.12 Housing : Die cast aluminium. Protection Class shall be IP65 & above.

3.13 Overpressure (line) : 150% of the MCR pressure

3.14 Process Connection : $\frac{1}{2}$ " NPT (F).

3.15 Span and zero adjustment: Continuous, tamper proof, remote as well as manual adjustability from instrument with zero suppression and elevation facility is required.

3.16 Diagnostics : Self indicating feature.

3.17 Power Supply : 24 V dc $\pm 10\%$.

3.18 Adjustment/calibration/maintenance : Through centralized PC based System being procured by BHEL separately. Additionally transmitter should be operable through universal hand held HART communicator being procured by BHEL separately.

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- 3.19 Drain and Vent plug : Drain and Vent plug shall be provided With transmitter
- 3.20 In case of failure & return of power supply to the transmitters, no false signals endangering the system shall be issued.
- 3.21 Tag number and service engraved in stainless steel tag plate.
- 3.22 Accessories: Remote diaphragm seal with SS armoured capillary of **five(05) meters** length for HFO & oil applications suitable to service and operating conditions. Necessary flanges & fasteners both for process end as well as transmitter end shall be provided suitable to service & operating conditions. Flange shall be 3" ANSI 300 RF minimum. The flange at the transmitter end shall be stainless steel. Matching blind counter flanges with nuts, bolts, gaskets etc are to be provided.

Each transmitter shall have blind plugs, Mounting bracket, U clamp (for 2" NB pipe) and fasteners etc shall be suitable for mounting in LIE/LIR vertical impulse pipe mounting from Up/down ward.

Notes:

- 1. The offered model DDL (Device Driver list) shall be registered in HART foundation, which is mandatory for device operable by universal HART communicator & HMS system.
- 2. LVDT type transmitter is not technically acceptable.
- 3. Transmitter for Draft ranges pressure measurement shall be provided as DP transmitter model.
- 4. Transmitter for services where remote diaphragm seal type are indicated in BOM.

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PROJECT: IB VALLEY 2X660MW THERMAL POWER PROJECT

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**BILL OF MATERIAL
FOR
ELECTRONIC TRANSMITTERS**

REVISION : 00

APPROVED
&
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416

DATE

12/10/2015

BOM of Electronic transmitters for IB valley 2X660MW project

Sl no	KKS TAG	DESCRIPTION	SENSOR	MEDIUM	MCR PRESS	DESN PRESS	UOM (PRESS)	RANGE	UOM(RANGE)	Source	Remarks	Unit-1 qty	Unit-2 qty	Common qty	
1	1LCA01CF011	CEP-A DISCH FLOW	FT	COND	30.1	47	kg/cm2	DP=0-7000	mmWC	PEM	0-1000	T/hr	1	1	0
2	1LCA01CF012	CEP-A DISCH FLOW	FT	COND	30.1	47	kg/cm2	DP=0-7000	mmWC	PEM	0-1000	T/hr	1	1	0
3	1LCA02CF011	CEP-B DISCH FLOW	FT	COND	30.1	47	kg/cm2	DP=0-7000	mmWC	PEM	0-1000	T/hr	1	1	0
4	1LCA02CF012	CEP-B DISCH FLOW	FT	COND	30.1	47	kg/cm2	DP=0-7000	mmWC	PEM	0-1000	T/hr	1	1	0
5	1LCA03CF011	CEP-C DISCH FLOW	FT	COND	30.1	47	kg/cm2	DP=0-7000	mmWC	PEM	0-1000	T/hr	1	1	0
6	1LCA03CF012	CEP-C DISCH FLOW	FT	COND	30.1	47	kg/cm2	DP=0-7000	mmWC	PEM	0-1000	T/hr	1	1	0
7	1LCA20CF011	COND FLOW AT GSC O/L	FT	COND	30.1	47	kg/cm2	DP=0-7000	mmWC	PEM	0-2000	T/hr	1	1	0
8	1LCA20CF012	COND FLOW AT GSC O/L	FT	COND	30.1	47	kg/cm2	DP=0-7000	mmWC	PEM	0-2000	T/hr	1	1	0
9	1LCA92CF011	DEA I/L FLOW	FT	COND	30.1	47	kg/cm2	DP=0-3000	mmWC	PEM	0-2000	T/hr	1	1	0
10	1LCA92CF012	DEA I/L FLOW	FT	COND	30.1	47	kg/cm2	DP=0-3000	mmWC	PEM	0-2000	T/hr	1	1	0
11	1LCA92CF013	DEA I/L FLOW	FT	COND	30.1	47	kg/cm2	DP=0-3000	mmWC	PEM	0-2000	T/hr	1	1	0
12	1LCR80CF011	CYCLE MAKE UP PMP TO CONDENSER FLOW	FT	COND	5.5	11	kg/cm2	DP=0-1000	mmWC	PEM	0-60	T/hr	1	1	0
13	1LBF10CF011	MS LINE TO HPBP STN FLOW	FT	STM	247	271	kg/cm2	DP=0-70000	mmWC	PEM	0-800	T/hr	1	1	0
14	1LBF10CF012	MS LINE TO HPBP STN FLOW	FT	STM	247	271	kg/cm2	DP=0-70000	mmWC	PEM	0-800	T/hr	1	1	0
15	1LBF10CF013	MS LINE TO HPBP STN FLOW	FT	STM	247	271	kg/cm2	DP=0-70000	mmWC	PEM	0-800	T/hr	1	1	0
16	1LBF20CF011	MS LINE TO HPBP STN FLOW	FT	STM	247	271	kg/cm2	DP=0-70000	mmWC	PEM	0-800	T/hr	1	1	0
17	1LBF20CF012	MS LINE TO HPBP STN FLOW	FT	STM	247	271	kg/cm2	DP=0-70000	mmWC	PEM	0-800	T/hr	1	1	0
18	1LBF20CF013	MS LINE TO HPBP STN FLOW	FT	STM	247	271	kg/cm2	DP=0-70000	mmWC	PEM	0-800	T/hr	1	1	0
19	1LCH10CF011	HPH-6A TO DEA NRML DRN FLOW	FT	COND	24.76	31	kg/cm2	DP=0-1000	mmWC	PEM	0-250	T/hr	1	1	0
20	1LCH10CF012	HPH-6A TO DEA NRML DRN FLOW	FT	COND	24.76	31	kg/cm2	DP=0-1000	mmWC	PEM	0-250	T/hr	1	1	0
21	1LCH20CF011	HPH-6B TO DEA NRML DRN FLOW	FT	COND	24.76	31	kg/cm2	DP=0-1000	mmWC	PEM	0-250	T/hr	1	1	0
22	1LCH20CF012	HPH-6B TO DEA NRML DRN FLOW	FT	COND	24.76	31	kg/cm2	DP=0-1000	mmWC	PEM	0-250	T/hr	1	1	0
23	1LAB10CF011	BP-A DISCH FLOW	FT	FW	<u>30</u>	40	kg/cm2	DP=0-2000	mmWC	PEM	0-1400	T/hr	1	1	0
24	1LAB10CF012	BP-A DISCH FLOW	FT	FW	<u>30</u>	40	kg/cm2	DP=0-2000	mmWC	PEM	0-1400	T/hr	1	1	0
25	1LAB10CF013	BP-A DISCH FLOW	FT	FW	<u>30</u>	40	kg/cm2	DP=0-2000	mmWC	PEM	0-1400	T/hr	1	1	0
26	1LAB20CF011	BP-B DISCH FLOW	FT	FW	<u>30</u>	40	kg/cm2	DP=0-2000	mmWC	PEM	0-1400	T/hr	1	1	0
27	1LAB20CF012	BP-B DISCH FLOW	FT	FW	<u>30</u>	40	kg/cm2	DP=0-2000	mmWC	PEM	0-1400	T/hr	1	1	0
28	1LAB20CF013	BP-B DISCH FLOW	FT	FW	<u>30</u>	40	kg/cm2	DP=0-2000	mmWC	PEM	0-1400	T/hr	1	1	0
29	1LAB30CF011	BP-C DISCH FLOW	FT	FW	<u>30</u>	40	kg/cm2	DP=0-6000	mmWC	PEM	0-1000	T/hr	1	1	0
30	1LAB30CF012	BP-C DISCH FLOW	FT	FW	<u>30</u>	40	kg/cm2	DP=0-6000	mmWC	PEM	0-1000	T/hr	1	1	0
31	1LAB30CF013	BP-C DISCH FLOW	FT	FW	<u>30</u>	40	kg/cm2	DP=0-6000	mmWC	PEM	0-1000	T/hr	1	1	0
32	1LAB80CF011	FW TO ECO FLOW	FT	FW	321.5	330	kg/cm2	DP=0-7000	mmWC	PEM	0-2300	T/hr	1	1	0
33	1LAB80CF012	FW TO ECO FLOW	FT	FW	321.5	330	kg/cm2	DP=0-7000	mmWC	PEM	0-2300	T/hr	1	1	0
34	1LAB80CF013	FW TO ECO FLOW	FT	FW	321.5	330	kg/cm2	DP=0-7000	mmWC	PEM	0-2300	T/hr	1	1	0
35	1LBS51CF011	IP EXT TO DEA FLOW	FT	STM	12.99	15	kg/cm2	DP=0-3300	mmWC	PEM	0-120	T/hr	1	1	0
36	1LBS51CF012	IP EXT TO DEA FLOW	FT	STM	12.99	15	kg/cm2	DP=0-3300	mmWC	PEM	0-120	T/hr	1	1	0
37	1LBS53CF011	EXT STM FLOW TO BFPT-A	FT	STM	11.59	19	kg/cm2	DP=0-1500	mmWC	PEM	0-70	T/hr	1	1	0
38	1LBS53CF012	EXT STM FLOW TO BFPT-A	FT	STM	11.59	19	kg/cm2	DP=0-1500	mmWC	PEM	0-70	T/hr	1	1	0
39	1LBS54CF011	EXT STM FLOW TO BFPT-B	FT	STM	11.59	19	kg/cm2	DP=0-1500	mmWC	PEM	0-70	T/hr	1	1	0
40	1LBS54CF012	EXT STM FLOW TO BFPT-B	FT	STM	11.59	19	kg/cm2	DP=0-1500	mmWC	PEM	0-70	T/hr	1	1	0
41	1PGC10CF011	TG AUX DMCW PUMPs DISCH HDR FLOW	FT	DMCW	6.6	10	kg/cm2	DP=0-3500	mmWC	PEM	1400-2800	T/hr	1	1	0
42	1PGC40CF011	DMCW SG PUMPs DISCH HDR FLOW	FT	DMCW	8.8	12	kg/cm2	DP=0-3500	mmWC	PEM	700-1500	T/hr	1	1	0
43	1PCB20CF011	ACW TO PHE SUC HDR FLOW	FT	ACW	3.2	7.5	kg/cm2	DP=0-3000	mmWC	PEM	2400-4600	T/hr	1	1	0
44	1LBG10CF011	MS LINE STM FLOW TO APRDS	FT	STM	247	270	kg/cm2	DP=0-170000	mmWC	PEM	0-250	T/hr	1	1	0
45	1LBG10CF012	MS LINE STM FLOW TO APRDS	FT	STM	247	270	kg/cm2	DP=0-170000	mmWC	PEM	0-250	T/hr	1	1	0
46	1LBG20CF011	CRH LINE STM FLOW TO APRDS	FT	STM	59.15	73.1	kg/cm2	DP=0-80000	mmWC	PEM	0-50	T/hr	1	1	0
47	1LBG20CF012	CRH LINE STM FLOW TO APRDS	FT	STM	59.15	73.1	kg/cm2	DP=0-80000	mmWC	PEM	0-50	T/hr	1	1	0
48	1HFE71CF001	MIXED AIR FLOW AT MILL-A I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	TPH	1	1	0
49	1HFE71CF002	MIXED AIR FLOW AT MILL-A I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	TPH	1	1	0
50	1HFE72CF001	MIXED AIR FLOW AT MILL-B I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	TPH	1	1	0

SI no	KKS TAG	DESCRIPTION	SENSOR	MEDIUM	MCR PRESS	DESN PRESS	UOM (PRESS)	RANGE	UOM(RANGE)	Source	Remarks	Unit-1 qty	Unit-2 qty	Common qty
51	1HFE72CF002	MIXED AIR FLOW AT MILL-B I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	1	1	0
52	1HFE73CF001	MIXED AIR FLOW AT MILL-C I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	1	1	0
53	1HFE73CF002	MIXED AIR FLOW AT MILL-C I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	1	1	0
54	1HFE74CF001	MIXED AIR FLOW AT MILL-D I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	1	1	0
55	1HFE74CF002	MIXED AIR FLOW AT MILL-D I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	1	1	0
56	1HFE75CF001	MIXED AIR FLOW AT MILL-E I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	1	1	0
57	1HFE75CF002	MIXED AIR FLOW AT MILL-E I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	1	1	0
58	1HFE76CF001	MIXED AIR FLOW AT MILL-F I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	1	1	0
59	1HFE76CF002	MIXED AIR FLOW AT MILL-F I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	1	1	0
60	1HFE77CF001	MIXED AIR FLOW AT MILL-G I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	1	1	0
61	1HFE77CF002	MIXED AIR FLOW AT MILL-G I/L	FT	PY. AIR	768	861	mmWC	DP=0-101.6	mmWC	PEM	0 to 122.053	1	1	0
62	1HAC10CF001	ECO. INLET BOILER FEED WATER FLOW	FT	WATER	291.4	313.6	kg/cm2	DP=0-5000	mmWC	PEM	100 to 2200	1	1	0
63	1HAC10CF002	ECO. INLET BOILER FEED WATER FLOW	FT	WATER	291.4	313.6	kg/cm2	DP=0-5000	mmWC	PEM	100 to 2200	1	1	0
64	1HAC10CF003	ECO. INLET BOILER FEED WATER FLOW	FT	WATER	291.4	313.6	kg/cm2	DP=0-5000	mmWC	PEM	100 to 2200	1	1	0
65	1LAE21CF001	RH/DSH SPRAY WATER FLOW -A	FT	WATER	57.35	65.86	kg/cm2	DP=0-23000	mmWC	PEM	2.5 to 73	1	1	0
66	1LAE21CF002	RH/DSH SPRAY WATER FLOW -A	FT	WATER	57.35	65.86	kg/cm2	DP=0-23000	mmWC	PEM	2.5 to 73	1	1	0
67	1LAE22CF001	RH/DSH SPRAY WATER FLOW -B	FT	WATER	57.35	65.86	kg/cm2	DP=0-23000	mmWC	PEM	2.5 to 73	1	1	0
68	1LAE22CF002	RH/DSH SPRAY WATER FLOW -B	FT	WATER	57.35	65.86	kg/cm2	DP=0-23000	mmWC	PEM	2.5 to 73	1	1	0
69	1LAE71CF001	SH/DSH SPRAY WATER FLOW -A	FT	WATER	263.44	268.8	kg/cm2	DP=0-19000	mmWC	PEM	5.064 to 115.5	1	1	0
70	1LAE71CF002	SH/DSH SPRAY WATER FLOW -A	FT	WATER	263.44	268.8	kg/cm2	DP=0-19000	mmWC	PEM	5.064 to 115.5	1	1	0
71	1LAE72CF001	SH/DSH SPRAY WATER FLOW -B	FT	WATER	263.44	268.8	kg/cm2	DP=0-19000	mmWC	PEM	5.064 to 115.5	1	1	0
72	1LAE72CF002	SH/DSH SPRAY WATER FLOW -B	FT	WATER	263.44	268.8	kg/cm2	DP=0-19000	mmWC	PEM	5.064 to 115.5	1	1	0
73	1HHL10CF001	SEC. AIR FLOW - LEFT	FT	Sec. Air	191	199	mmWC	DP=0-76.2	mmWC	PEM	886.966	1	1	0
74	1HHL10CF002	SEC. AIR FLOW - LEFT	FT	Sec. Air	191	199	mmWC	DP=0-76.2	mmWC	PEM	886.966	1	1	0
75	1HHL10CF003	SEC. AIR FLOW - LEFT	FT	Sec. Air	191	199	mmWC	DP=0-76.2	mmWC	PEM	886.966	1	1	0
76	1HHL15CF001	SEC. AIR FLOW - RIGHT	FT	Sec. Air	191	199	mmWC	DP=0-76.2	mmWC	PEM	886.966	1	1	0
77	1HHL15CF002	SEC. AIR FLOW - RIGHT	FT	Sec. Air	191	199	mmWC	DP=0-76.2	mmWC	PEM	886.966	1	1	0
78	1HHL15CF003	SEC. AIR FLOW - RIGHT	FT	Sec. Air	191	199	mmWC	DP=0-76.2	mmWC	PEM	886.966	1	1	0
79	1LCL30CF101	CONDENSATE PUMP-A OUTLET FLOW	FT	COND	4	15	kg/cm2	DP=0-3000	mmWC	PEM	760	1	1	0
80	1LCL30CF102	CONDENSATE PUMP-B OUTLET FLOW	FT	COND	4	15	kg/cm2	DP=0-3000	mmWC	PEM	760	1	1	0
81	1LAB50CP011	DIFF PRESS ACROSS FDV-16	DPT	FW	321.5	470	kg/cm2	0-25	Kg/cm2	PEM		1	1	0
82	1LAB50CP012	DIFF PRESS ACROSS FDV-16	DPT	FW	321.5	470	kg/cm2	0-25	Kg/cm2	PEM		1	1	0
83	1PGC01CP010	DP ACROSS TG DMCW PUMP-A SUC STRNR	DPT	DMCW	2.6	10	kg/cm2	0-1	Kg/cm2	PEM		1	1	0
84	1PGC02CP010	DP ACROSS TG DMCW PUMP-B SUC STRNR	DPT	DMCW	2.6	10	kg/cm2	0-1	Kg/cm2	PEM		1	1	0
85	1PGC03CP010	DP ACROSS TG DMCW PUMP-C SUC STRNR	DPT	DMCW	2.6	10	kg/cm2	0-1	Kg/cm2	PEM		1	1	0
86	1PGC11CP011	DP ACROSS TG PHE-A	DPT	DMCW	6.4	10	kg/cm2	0-1.5	Kg/cm2	PEM		1	1	0
87	1PGC12CP011	DP ACROSS TG PHE-B	DPT	DMCW	6.4	10	kg/cm2	0-1.5	Kg/cm2	PEM		1	1	0
88	1PGC13CP011	DP ACROSS TG PHE-C	DPT	DMCW	6.4	10	kg/cm2	0-1.5	Kg/cm2	PEM		1	1	0
89	1PGC31CP010	DP ACROSS DMCW SG PUMP-A SUC STRNR	DPT	DMCW	2.6	12	kg/cm2	0-1	Kg/cm2	PEM		1	1	0
90	1PGC32CP010	DP ACROSS DMCW SG PUMP-B SUC STRNR	DPT	DMCW	2.6	12	kg/cm2	0-1	Kg/cm2	PEM		1	1	0
91	1PGC41CP011	DP ACROSS SG PHE-A	DPT	DMCW	8.6	12	kg/cm2	0-1.5	Kg/cm2	PEM		1	1	0
92	1PGC42CP011	DP ACROSS SG PHE-B	DPT	DMCW	8.6	12	kg/cm2	0-1.5	Kg/cm2	PEM		1	1	0
93	1PAB11CP011	DP ACROSS CONDENSER-L	DPT	COND	2.8	5	kg/cm2	0-0.6	Kg/cm2	PEM		1	1	0
94	1PAB21CP011	DP ACROSS CONDENSER-R	DPT	COND	2.8	5	kg/cm2	0-0.6	Kg/cm2	PEM		1	1	0
95	1PCB21CP011	DP ACROSS SG PHE-B PRESS	DPT	ACW	3	7.5	kg/cm2	0-1.5	Kg/cm2	PEM		1	1	0
96	1PCB22CP011	DP ACROSS SG PHE-A PRESS	DPT	ACW	3	7.5	kg/cm2	0-1.5	Kg/cm2	PEM		1	1	0
97	1PCB23CP011	DP ACROSS TG PHE-C PRESS	DPT	ACW	2.8	7.5	kg/cm2	0-1.5	Kg/cm2	PEM		1	1	0
98	1PCB24CP011	DP ACROSS TG PHE-B PRESS	DPT	ACW	2.8	7.5	kg/cm2	0-1.5	Kg/cm2	PEM		1	1	0
99	1PCB25CP011	DP ACROSS TG PHE-A PRESS	DPT	ACW	2.8	7.5	kg/cm2	0-1.5	Kg/cm2	PEM		1	1	0
100	1HFV01CP001	DYNAVANE FILTER DIFFERENTIAL PRESSURE	DPT	SEAL AIR	803	830	mmWC	(-)50 to 50	mmWC	PEM		1	1	0
101	1HAG15CP002	DIFF. PRESSURE ACROSS STARTUP SYSTEM MIXING PIECE	DPT	WATER	287	318.3	kg/cm2	0-1.5	kg/cm2	PEM		1	1	0

SI no	KKS TAG	DESCRIPTION	SENSOR	MEDIUM	MCR PRESS	DESN PRESS	UOM (PRESS)	RANGE	UOM(RANGE)	Source	Remarks	Unit-1 qty	Unit-2 qty	Common qty
102	1HAG25CP001	DIFF. PRESSURE ACROSS BOILER CIRCULATING WATER PUMP	DPT	WATER	<u>287</u>	318.3	kg/cm ²	0-25	Kg/cm2	PEM		1	1	0
103	1HAG25CP002	DIFF. PRESSURE ACROSS BOILER CIRCULATING WATER PUMP	DPT	WATER	<u>287</u>	318.3	kg/cm ²	0-25	Kg/cm2	PEM		1	1	0
104	1HJF70CP001	DIFF. PRESS. ACROSS OP. FLOOR STRAINER	DPT	HFO	22	--	kg/cm ²	0-1	Kg/cm2	PEM	Diaphragm seal	1	1	0
105	1HJF90CP001	DP ACROSS STRAINER	DPT	HFO	0	--	kg/cm ²	0-1	Kg/cm2	PEM	Diaphragm seal	1	1	0
106	1HBK10CP008	FURNACE TO HOT PA HEADER DIFF. PRESSURE	DPT	FLUE GAS/ PY. AIR	-3 / 1009	-5 / 1017	mmWC	0-1300	mmWC	PEM		1	1	0
107	1HBK15CP007	FURNACE TO HOT PA HEADER DIFF. PRESSURE	DPT	FLUE GAS/ PY. AIR	-3 / 1009	-5 / 1017	mmWC	0-1300	mmWC	PEM		1	1	0
108	1HBK15CP008	FURNACE TO HOT PA HEADER DIFF. PRESSURE	DPT	FLUE GAS/ PY. AIR	-3 / 1009	-5 / 1017	mmWC	0-1300	mmWC	PEM		1	1	0
109	1HFE10CP002	PA FAN-A SUCTION/DISCHARGE DIFF. PRESSURE	DPT	PY. AIR	-19/1068	-34/1380	mmWC	0-1800	mmWC	PEM		1	1	0
110	1HFE15CP002	PA FAN-B SUCTION/DISCHARGE DIFF. PRESSURE	DPT	PY. AIR	-19/1068	-34/1380	mmWC	0-1800	mmWC	PEM		1	1	0
111	1HHQ10CP001	DP ACROSS SCANNER AIR FILTER	DPT	SCA. AIR	312	441	mmWC	0-20	mmWC	PEM		1	1	0
112	1HLB10CP002	FD FAN-A SUCTION/DISCHARGE DIFF. PRESSURE	DPT	SEC. AIR	-16/312	-41/441	mmWC	0-650	mmWC	PEM		1	1	0
113	1HLB15CP002	FD FAN-B SUCTION/DISCHARGE DIFF. PRESSURE	DPT	SEC. AIR	-16/312	-41/441	mmWC	0-650	mmWC	PEM		1	1	0
114	1HNA60CP002	ID FAN-A SUCTION/DISCHARGE DIFF. PRESSURE	DPT	FLUE GAS	-321/ 77	-491/ 122	mmWC	(-)800 - 0	mmWC	PEM		1	1	0
115	1HNA65CP002	ID FAN-B SUCTION/DISCHARGE DIFF. PRESSURE	DPT	FLUE GAS	-321/ 77	-491/ 122	mmWC	(-)800 - 0	mmWC	PEM		1	1	0
116	1LAA01CL011	DEA FST LEVEL-LEFT	LT(DPT)	COND	11.92	14	kg/cm ²	0-3600	mm	PEM		1	1	0
117	1LAA01CL012	DEA FST LEVEL-LEFT	LT(DPT)	COND	11.92	14	kg/cm ²	0-3600	mm	PEM		1	1	0
118	1LAA02CL011	DEA FST LEVEL-RIGHT	LT(DPT)	COND	11.92	14	kg/cm ²	0-3600	mm	PEM		1	1	0
119	1GKB10CL001	SERVICE WATER O/H TANK LEVEL	LT(DPT)	WTR	Static	10	Kg/cm(sq)	0-3228	mm	PEM		1	1	0
120	1GKB20CL001	POTABLE WATER O/H TANK LEVEL	LT(DPT)	WTR	Static	10	Kg/cm(sq)	0-3060	mm	PEM		1	1	0
121	1LAD11CL011	HPH-6A LEVEL	LT(DPT)	COND	<u>24</u>	<u>30</u>	kg/cm ²	0-800	mm	PEM		1	1	0
122	1LAD11CL012	HPH-6A LEVEL	LT(DPT)	COND	<u>24</u>	<u>30</u>	kg/cm ²	0-800	mm	PEM		1	1	0
123	1LAD12CL011	HPH-6A LEVEL	LT(DPT)	COND	<u>24</u>	<u>30</u>	kg/cm ²	0-800	mm	PEM		1	1	0
124	1LAD21CL011	HPH-6B LEVEL	LT(DPT)	COND	<u>24</u>	<u>30</u>	kg/cm ²	0-800	mm	PEM		1	1	0
125	1LAD21CL012	HPH-6B LEVEL	LT(DPT)	COND	<u>24</u>	<u>30</u>	kg/cm ²	0-800	mm	PEM		1	1	0
126	1LAD22CL011	HPH-6B LEVEL	LT(DPT)	COND	<u>24</u>	<u>30</u>	kg/cm ²	0-800	mm	PEM		1	1	0
127	1LAD31CL011	HPH-7A LEVEL	LT(DPT)	COND	<u>60</u>	<u>74</u>	kg/cm ²	0-800	mm	PEM		1	1	0
128	1LAD31CL012	HPH-7A LEVEL	LT(DPT)	COND	<u>60</u>	<u>74</u>	kg/cm ²	0-800	mm	PEM		1	1	0
129	1LAD32CL011	HPH-7A LEVEL	LT(DPT)	COND	<u>60</u>	<u>74</u>	kg/cm ²	0-800	mm	PEM		1	1	0
130	1LAD41CL011	HPH-7B LEVEL	LT(DPT)	COND	<u>60</u>	<u>74</u>	kg/cm ²	0-800	mm	PEM		1	1	0
131	1LAD41CL012	HPH-7B LEVEL	LT(DPT)	COND	<u>60</u>	<u>74</u>	kg/cm ²	0-800	mm	PEM		1	1	0
132	1LAD42CL011	HPH-7B LEVEL	LT(DPT)	COND	<u>60</u>	<u>74</u>	kg/cm ²	0-800	mm	PEM		1	1	0
133	1LAD51CL011	HPH-8A LEVEL	LT(DPT)	COND	<u>75</u>	<u>94</u>	kg/cm ²	0-800	mm	PEM		1	1	0
134	1LAD51CL012	HPH-8A LEVEL	LT(DPT)	COND	<u>75</u>	<u>94</u>	kg/cm ²	0-800	mm	PEM		1	1	0
135	1LAD52CL011	HPH-8A LEVEL	LT(DPT)	COND	<u>75</u>	<u>94</u>	kg/cm ²	0-800	mm	PEM		1	1	0
136	1LAD61CL011	HPH-8B LEVEL	LT(DPT)	COND	<u>75</u>	<u>94</u>	kg/cm ²	0-800	mm	PEM		1	1	0
137	1LAD61CL012	HPH-8B LEVEL	LT(DPT)	COND	<u>75</u>	<u>94</u>	kg/cm ²	0-800	mm	PEM		1	1	0
138	1LAD62CL011	HPH-8B LEVEL	LT(DPT)	COND	<u>75</u>	<u>94</u>	kg/cm ²	0-800	mm	PEM		1	1	0
139	1PGB01CL011	DMCW OVERHEAD TANK LEVEL	LT(DPT)	DMCW	Static	10	Kg/cm(sq)	0-1645	mm	PEM		1	1	0
140	1PGB01CL012	DMCW OVERHEAD TANK LEVEL	LT(DPT)	DMCW	Static	10	Kg/cm(sq)	0-1645	mm	PEM		1	1	0
141	1HAD71CL001	WATER SEPERATOR 'A' LEVEL	LT(DPT)	WATER	271.5	292.3	kg/cm ²	0-16000	mm	PEM		1	1	0
142	1HAD71CL002	WATER SEPERATOR 'A' LEVEL	LT(DPT)	WATER	271.5	292.3	kg/cm ²	0-16000	mm	PEM		1	1	0
143	1HAD71CL003	WATER SEPERATOR 'A' LEVEL	LT(DPT)	WATER	271.5	292.3	kg/cm ²	0-16000	mm	PEM		1	1	0
144	1HAD72CL001	WATER SEPERATOR 'B' LEVEL	LT(DPT)	WATER	271.5	292.3	kg/cm ²	0-16000	mm	PEM		1	1	0
145	1HAD72CL002	WATER SEPERATOR 'B' LEVEL	LT(DPT)	WATER	271.5	292.3	kg/cm ²	0-16000	mm	PEM		1	1	0
146	1HAD72CL003	WATER SEPERATOR 'B' LEVEL	LT(DPT)	WATER	271.5	292.3	kg/cm ²	0-16000	mm	PEM		1	1	0
147	1HAG11CL001	SEPERATOR 'A' DOWNCOMER LEVEL	LT(DPT)	WATER	<u>271.5</u>	293.5	kg/cm ²	0.08-0.4	kg/cm ²	PEM		1	1	0
148	1HAG12CL001	SEPERATOR 'B' DOWNCOMER LEVEL	LT(DPT)	WATER	<u>271.5</u>	293.5	kg/cm ²	0.08-0.4	kg/cm ²	PEM		1	1	0
149	1LCL20CL001	FLASH TANK DRAIN TANK LEVEL	LT(DPT)	COND	4	7.3	kg/cm ²	0-2000	mmWc	PEM		1	1	0
150	1LCL20CL002	FLASH TANK DRAIN TANK LEVEL	LT(DPT)	COND	4	7.3	kg/cm ²	0-2000	mmWc	PEM		1	1	0
151	1LCL20CL003	FLASH TANK DRAIN TANK LEVEL	LT(DPT)	COND	4	7.3	kg/cm ²	0-2000	mmWc	PEM		1	1	0

SI no	KKS TAG	DESCRIPTION	SENSOR	MEDIUM	MCR PRESS	DESN PRESS	UOM (PRESS)	RANGE	UOM(RANGE)	Source	Remarks	Unit-1 qty	Unit-2 qty	Common qty
152	1LCA20CP011	CEP DISCH HDR PRESS	PT	COND	30.1	47	kg/cm2 (a)	0-45	kg/cm2	PEM		1	1	0
153	1LCA20CP012	CEP DISCH HDR PRESS	PT	COND	30.1	47	kg/cm2 (a)	0-45	kg/cm2	PEM		1	1	0
154	1LCA33CP011	VLV GLAND SEALING WATER HDR PRESS	PT	COND	4	7	kg/cm2 (a)	0-45	kg/cm2	PEM		1	1	0
155	1LCA33CP012	VLV GLAND SEALING WATER HDR PRESS	PT	COND	4	7	kg/cm2 (a)	0-45	kg/cm2	PEM		1	1	0
156	1LCA92CP011	DEA I/L PRESS	PT	COND	30.1	47	kg/cm2 (a)	0-45	kg/cm2	PEM		1	1	0
157	1LBA01CP011	SH LEFT OUTLET HDR PRESS	PT	STM	247	271	kg/cm2	0-320	kg/cm2	PEM		1	1	0
158	1LBA02CP011	SH RIGHT OUTLET HDR PRESS	PT	STM	247	271	kg/cm2	0-320	kg/cm2	PEM		1	1	0
159	1LBA10CP011	MS LINE PRESS	PT	STM	247	271	kg/cm2	0-320	kg/cm2	PEM		1	1	0
160	1LBA10CP012	MS LINE PRESS	PT	STM	247	271	kg/cm2	0-320	kg/cm2	PEM		1	1	0
161	1LBA10CP013	MS LINE PRESS	PT	STM	247	271	kg/cm2	0-320	kg/cm2	PEM		1	1	0
162	1LBA10CP014	MS LINE PRESS	PT	STM	247	271	kg/cm2	0-320	kg/cm2	PEM		1	1	0
163	1LBA10CP015	MS LINE PRESS	PT	STM	247	271	kg/cm2	0-320	kg/cm2	PEM		1	1	0
164	1LBA10CP016	MS LINE PRESS	PT	STM	247	271	kg/cm2	0-320	kg/cm2	PEM		1	1	0
165	1LBB01CP011	RH LEFT OUTLET HDR PRESS	PT	STM	53.37	68.5	kg/cm2	0-70	kg/cm2	PEM		1	1	0
166	1LBB02CP011	RH RIGHT OUTLET HDR PRESS	PT	STM	53.37	68.5	kg/cm2	0-70	kg/cm2	PEM		1	1	0
167	1LBB10CP011	HRH HDR PRESS	PT	STM	53.37	68.5	kg/cm2	0-70	kg/cm2	PEM		1	1	0
168	1LBB10CP012	HRH HDR PRESS	PT	STM	53.37	68.5	kg/cm2	0-70	kg/cm2	PEM		1	1	0
169	1LBC01CP011	RH LEFT INLET HDR PRESS	PT	STM	55.95	74.1	kg/cm2	0-100	kg/cm2	PEM		1	1	0
170	1LBC02CP011	RH RIGHT INLET HDR PRESS	PT	STM	55.95	74.1	kg/cm2	0-100	kg/cm2	PEM		1	1	0
171	1MAA50CP004	1st STAGE MEASUREMENT PRESS	PT	STM	247	271	kg/cm2	0-320	kg/cm2	PEM		1	1	0
172	1MAA50CP005	1st STAGE MEASUREMENT PRESS	PT	STM	247	271	kg/cm2	0-320	kg/cm2	PEM		1	1	0
173	1MAA50CP006	1st STAGE MEASUREMENT PRESS	PT	STM	247	271	kg/cm2	0-320	kg/cm2	PEM		1	1	0
174	1LAB10CP011	BP-A SUCTION PRESSURE	PT	FW	13.73	20	kg/cm2	0-25	Kg/cm2	PEM		1	1	0
175	1LAB20CP011	BP-B SUCTION PRESSURE	PT	FW	13.73	20	kg/cm2	0-25	Kg/cm2	PEM		1	1	0
176	1LAB30CP011	BP-C SUCTION PRESSURE	PT	FW	13.73	20	kg/cm2	0-25	Kg/cm2	PEM		1	1	0
177	1LAB50CP014	BFP DISCHARGE PRESS	PT	FW	321.5	470	kg/cm2	0-420	kg/cm2	PEM		1	1	0
178	1LAB50CP015	BFP DISCHARGE PRESS	PT	FW	321.5	470	kg/cm2	0-420	kg/cm2	PEM		1	1	0
179	1LAB80CP011	FW TO ECO PRESS	PT	FW	321.5	330	kg/cm2	0-420	kg/cm2	PEM		1	1	0
180	1LAA01CP011	DEA SHELL PRESS	PT	COND	11.92	14	kg/cm2	0-15	Kg/cm2	PEM		1	1	0
181	1LAA01CP012	DEA SHELL PRESS	PT	COND	11.92	14	kg/cm2	0-15	Kg/cm2	PEM		1	1	0
182	1LBQ10CP011	CRH PEGGING LINE TO DEA PRESS	PT	STM	33.95	74.1	kg/cm2 (a)	0-50	kg/cm2	PEM		1	1	0
183	1LBQ61CP011	IP EXT TO HPH-6A PRESS	PT	STM	24.98	31	kg/cm2 (a)	0-35	kg/cm2	PEM		1	1	0
184	1LBQ62CP011	IP EXT TO HPH-6B PRESS	PT	STM	24.98	31	kg/cm2 (a)	0-35	kg/cm2	PEM		1	1	0
185	1LBQ71CP011	CRH STM TO HPH-7A PRESS	PT	STM	55.95	74.1	kg/cm2 (a)	0-75	kg/cm2	PEM		1	1	0
186	1LBQ72CP011	CRH STM TO HPH-7B PRESS	PT	STM	55.95	74.1	kg/cm2 (a)	0-75	kg/cm2	PEM		1	1	0
187	1LBQ81CP011	HP EXT TO HPH-8A PRESS	PT	STM	78.18	89	kg/cm2 (a)	0-100	kg/cm2	PEM		1	1	0
188	1LBQ82CP011	HP EXT TO HPH-8B PRESS	PT	STM	78.18	89	kg/cm2 (a)	0-100	kg/cm2	PEM		1	1	0
189	1LBS21CP011	LP EXT TO LPH-2 PRESS	PT	STM	0.959	7	kg/cm2 (a)	0 - 2	kg/cm2	PEM		1	1	0
190	1LBS31CP011	LP EXT TO LPH-3 PRESS	PT	STM	2.07	7	kg/cm2 (a)	0-3	kg/cm2	PEM		1	1	0
191	1LBS41CP011	LP EXT TO LPH-4 PRESS	PT	STM	5.82	7	kg/cm2 (a)	0-8	kg/cm2	PEM		1	1	0
192	1LBS51CP011	IP EXT TO DEA PRESS	PT	STM	12.99	15	kg/cm2 (a)	0-20	kg/cm2	PEM		1	1	0
193	1LBQ91CP001	CRH LINE TO BFP TURBINES PRESS	PT	STM	33.63	74.1	kg/cm2 (a)	0-50	kg/cm2	PEM		1	1	0
194	1PCB50CP011	CMN STN AUX. TO DMCW SG PUMPS PRESS	PT	DMCW	6.8	12	Kg/cm(sq)	0-10	kg/cm2	PEM		1	1	0
195	1PGC00CP011	TG DMCW PUMPS SUC HDR PRESS	PT	DMCW	2.6	10	Kg/cm(sq)	0-5	kg/cm2	PEM		1	1	0
196	1PGC00CP012	TG DMCW PUMPS SUC HDR PRESS	PT	DMCW	2.6	10	Kg/cm(sq)	0-5	kg/cm2	PEM		1	1	0
197	1PGC01CP011	TG AUX DMCW PUMP-A DISCH HDR PRESS	PT	DMCW	6.6	10	Kg/cm(sq)	0-10	kg/cm2	PEM		1	1	0
198	1PGC02CP011	TG AUX DMCW PUMP-B DISCH HDR PRESS	PT	DMCW	6.6	10	Kg/cm(sq)	0-10	kg/cm2	PEM		1	1	0
199	1PGC03CP011	TG AUX DMCW PUMP-C DISCH HDR PRESS	PT	DMCW	6.6	10	Kg/cm(sq)	0-10	kg/cm2	PEM		1	1	0
200	1PGC10CP011	TG AUX DMCW PUMPS DISCH HDR PRESS	PT	DMCW	6.6	10	Kg/cm(sq)	0-10	kg/cm2	PEM		1	1	0
201	1PGC10CP012	TG AUX DMCW PUMPS DISCH HDR PRESS	PT	DMCW	6.6	10	Kg/cm(sq)	0-10	kg/cm2	PEM		1	1	0
202	1PGC15CP011	TG PHEs DISCH HDR PRESS	PT	DMCW	5.6	10	Kg/cm(sq)	0-10	kg/cm2	PEM		1	1	0
203	1PGC30CP011	DMCW SG PUMPS SUC HDR PRESS	PT	DMCW	2.6	12	Kg/cm(sq)	0-5	kg/cm2	PEM		1	1	0

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204	1PGC30CP012	DMCW SG PUMPs SUC HDR PRESS	PT	DMCW	2.6	12	Kg/cm(sq)	0-5	kg/cm ²	PEM		1	1	0
205	1PGC31CP011	DMCW SG PUMP-A DISCH PRESS	PT	DMCW	8.8	12	Kg/cm(sq)	0-12	kg/cm ²	PEM		1	1	0
206	1PGC32CP011	DMCW SG PUMP-B DISCH PRESS	PT	DMCW	8.8	12	Kg/cm(sq)	0-12	kg/cm ²	PEM		1	1	0
207	1PGC40CP011	DMCW SG PUMPs DISCH HDR PRESS	PT	DMCW	8.8	12	Kg/cm(sq)	0-12	kg/cm ²	PEM		1	1	0
208	1PGC40CP012	DMCW SG PUMPs DISCH HDR PRESS	PT	DMCW	8.8	12	Kg/cm(sq)	0-12	kg/cm ²	PEM		1	1	0
209	1PGC45CP011	DMCW TO SG PHE-B O/L HDR PRESS	PT	DMCW	7.8	12	Kg/cm(sq)	0-12	kg/cm ²	PEM		1	1	0
210	1PGL30CP011	DMCW TG PHE OUTLET HDR PRESS	PT	DMCW	6	10	Kg/cm(sq)	0-10	kg/cm ²	PEM		1	1	0
211	1PCB10CP011	ACW I/L TO ACW PUMPs HDR PRESS	PT	ACW	2.2	7.5	Kg/cm(sq)	0-4	kg/cm ²	PEM		1	1	0
212	1PCB10CP012	ACW I/L TO ACW PUMPs HDR PRESS	PT	ACW	2.2	7.5	Kg/cm(sq)	0-4	kg/cm ²	PEM		1	1	0
213	1PCB12CP011	ACW PUMP-B DISCH PRESS	PT	ACW	3.9	7.5	Kg/cm(sq)	0-5	kg/cm ²	PEM		1	1	0
214	1PCB13CP011	ACW PUMP-A DISCH PRESS	PT	ACW	3.9	7.5	Kg/cm(sq)	0-5	kg/cm ²	PEM		1	1	0
215	1PCB14CP011	ACW PUMPs- DISCH PRESS	PT	ACW	3.9	7.5	Kg/cm(sq)	0-5	kg/cm ²	PEM		1	1	0
216	1PCB14CP012	ACW PUMPs- DISCH PRESS	PT	ACW	3.9	7.5	Kg/cm(sq)	0-5	kg/cm ²	PEM		1	1	0
217	1PCB40CP011	ACW RETURN HEADER PRESS	PT	ACW	2	7.5	Kg/cm(sq)	0-4	kg/cm ²	PEM		1	1	0
218	1LBG10CP011	MS LINE STM PRESS TO APRDS	PT	STM	247	270	kg/cm2 (a)	0-280	kg/cm ²	PEM		1	1	0
219	1LBG20CP011	CRH LINE STM PRESS TO APRDS	PT	STM	59.15	73.1	kg/cm2 (a)	0-80	kg/cm ²	PEM		1	1	0
220	1LBG30CP011	HIGH TEMP AUX STM HDR PRESS	PT	STM	16	20	kg/cm2 (a)	0-25	kg/cm ²	PEM		1	1	0
221	1LBG30CP012	HIGH TEMP AUX STM HDR PRESS	PT	STM	16	20	kg/cm2 (a)	0-25	kg/cm ²	PEM		1	1	0
222	1LBG40CP011	LOW TEMP UNIT AUX STM HDR PRESS	PT	STM	16	20	kg/cm2 (a)	0-25	kg/cm ²	PEM		1	1	0
223	1HFE71CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-A	PT	PY. AIR	768	861	mmWC	0-1100	mmWC	PEM		1	1	0
224	1HFE72CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-B	PT	PY. AIR	768	861	mmWC	0-1100	mmWC	PEM		1	1	0
225	1HFE73CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-C	PT	PY. AIR	768	861	mmWC	0-1100	mmWC	PEM		1	1	0
226	1HFE74CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-D	PT	PY. AIR	768	861	mmWC	0-1100	mmWC	PEM		1	1	0
227	1HFE75CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-E	PT	PY. AIR	768	861	mmWC	0-1100	mmWC	PEM		1	1	0
228	1HFE76CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-F	PT	PY. AIR	768	861	mmWC	0-1100	mmWC	PEM		1	1	0
229	1HFE77CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-G	PT	PY. AIR	768	861	mmWC	0-1100	mmWC	PEM		1	1	0
230	1HFW20CP003	SEAL AIR FAN DISCH PRESSURE	PT	SEAL AIR	1023	1338	mmWC	0-80	mmWC	PEM		1	1	0
231	1HAC10CP001	ECO. INLET BOILER FEED WATER PRESSURE	PT	WATER	291.4	313.6	kg/cm ²	0 - 378.82	kg/cm ²	PEM		1	1	0
232	1HAG15CP001	WATER STORAGE DOWNCOMER PRESSURE	PT	WATER	280	293.5	kg/cm2	0-400	kg/cm ²	PEM		1	1	0
233	1HAH01CP001	WATER SEPERATOR 'A' OUTLET PRESSURE	PT	STEAM	271.5	289	kg/cm2	0-400	kg/cm ²	PEM		1	1	0
234	1HAH01CP002	WATER SEPERATOR 'A' OUTLET PRESSURE	PT	STEAM	271.5	289	kg/cm2	0-400	kg/cm ²	PEM		1	1	0
235	1HAH02CP001	WATER SEPERATOR 'B' OUTLET PRESSURE	PT	STEAM	271.5	289	kg/cm ²	0-400	kg/cm ²	PEM		1	1	0
236	1HAH02CP002	WATER SEPERATOR 'B' OUTLET PRESSURE	PT	STEAM	271.5	289	kg/cm2	0-400	kg/cm ²	PEM		1	1	0
237	1HAH71CP001	SH/DSH OUTLET PRESSURE A	PT	STEAM	261.9	278.8	kg/cm ²	0-350	kg/cm ²	PEM		1	1	0
238	1HAH72CP001	SH/DSH OUTLET PRESSURE B	PT	STEAM	261.9	278.8	kg/cm ²	0-350	kg/cm ²	PEM		1	1	0
239	1HAJ21CP001	RH/DSH OUTLET PRESSURE -A	PT	STEAM	56.5	71	kg/cm ²	0-100	kg/cm ²	PEM		1	1	0
240	1HAJ22CP001	RH/DSH OUTLET PRESSURE -B	PT	STEAM	56.5	71	kg/cm ²	0-100	kg/cm ²	PEM		1	1	0
241	1LAE20CP001	RH/DSH SPRAY WATER PRESSURE -AFTER BLOCK VALVE	PT	WATER	113.95	116.35	kg/cm2	0-150	kg/cm ²	PEM		1	1	0
242	1LAE70CP001	SH/DSH SPRAY WATER PRESSURE -AFTER BLOCK VALVE	PT	WATER	288.87	284.94	kg/cm2	0-400	kg/cm ²	PEM		1	1	0
243	1HJF51CP002	LDO HEADER PRESSURE	PT	LFO	4 to 18	--	kg/cm2	0-25	Kg/cm2	PEM		1	1	0
244	1HJF51CP003	LDO HEADER PRESSURE	PT	LFO	4 to 18	--	kg/cm2	0-25	Kg/cm2	PEM		1	1	0
245	1HJF51CP004	LDO HEADER PRESSURE	PT	LFO	4 to 18	--	kg/cm2	0-25	Kg/cm2	PEM		1	1	0
246	1HJF70CP003	HFO HEADER PRESSURE	PT	HFO	4.3 to 17.5	--	kg/cm2	0-25	Kg/cm2	PEM	Diaphragm seal	1	1	0
247	1HJF70CP004	HFO HEADER PRESSURE	PT	HFO	4.3 to 17.5	--	kg/cm2	0-25	Kg/cm2	PEM	Diaphragm seal	1	1	0
248	1HJF70CP005	HFO HEADER PRESSURE	PT	HFO	4.3 to 17.5	--	kg/cm2	0-25	Kg/cm2	PEM	Diaphragm seal	1	1	0
249	1HJM01CP001	ATOMINSING STEAM HEADER PRESSURE	PT	ATM. STEAM	7.5	--	kg/cm2	0-10	kg/cm ²	PEM		1	1	0
250	1HJM01CP002	ATOMINSING STEAM HEADER PRESSURE	PT	ATM. STEAM	7.5	--	kg/cm2	0-10	kg/cm ²	PEM		1	1	0
251	1HJN10CP001	ATOMISING AIR HEADER PRESSURE	PT	ATOM. AIR	6	--	kg/cm2	0-10	kg/cm ²	PEM		1	1	0
252	1HJN10CP002	ATOMISING AIR HEADER PRESSURE	PT	ATOM. AIR	6	--	kg/cm2	0-10	kg/cm ²	PEM		1	1	0

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253	1HJN10CP003	ATOMISING AIR HEADER PRESSURE	PT	ATOM. AIR	6	--	kg/cm2	0-10	kg/cm ²	PEM		1	1	0
254	1HBK10CP004	FURNACE PRESSURE - L	PT	FLUE GAS/ PY. AIR	-3	-5	mmWC	(-)20 to 20	mmWC	PEM		1	1	0
255	1HBK10CP005	FURNACE PRESSURE - L	PT	FLUE GAS/ PY. AIR	-3	-5	mmWC	(-)20 to 20	mmWC	PEM		1	1	0
256	1HBK15CP005	FURNACE PRESSURE (WIDE RANGE)	PT	FLUE GAS/ PY. AIR	-3	-5	mmWC	(-)1200 to 1200	mmWC	PEM		1	1	0
257	1HBK15CP006	FURNACE PRESSURE - R	PT	FLUE GAS/ PY. AIR	-3	-5	mmWC	(-)20 to 20	mmWC	PEM		1	1	0
258	1HBK20CP001	SH PLATEN OUTLET PRESSURE-L	PT	FLUE GAS	-4	-6	mmWC	(-)20 to 20	mmWC	PEM		1	1	0
259	1HBK25CP001	SH PLATEN OUTLET PRESSURE-R	PT	FLUE GAS	-4	-6	mmWC	(-)20 to 20	mmWC	PEM		1	1	0
260	1HBK30CP001	FINISH RH OUTLET PRESSURE-L	PT	FLUE GAS	-6	-8	mmWC	(-)20 to 20	mmWC	PEM		1	1	0
261	1HBK35CP001	FINISH RH OUTLET PRESSURE-R	PT	FLUE GAS	-6	-8	mmWC	(-)20 to 20	mmWC	PEM		1	1	0
262	1HBK40CP001	FINISH SUPERHEATER OUTLET PRESSURE-L	PT	FLUE GAS	-22	-28	mmWC	(-)50 to 0	mmWC	PEM		1	1	0
263	1HBK45CP001	FINISH SUPERHEATER OUTLET PRESSURE-R	PT	FLUE GAS	-22	-28	mmWC	(-)50 to 0	mmWC	PEM		1	1	0
264	1HBK50CP001	ECONOMISER INLET PRESSURE-L	PT	FLUE GAS	-44	-56	mmWC	(-)80 to 0	mmWC	PEM		1	1	0
265	1HBK55CP001	ECONOMISER INLET PRESSURE-R	PT	FLUE GAS	-44	-56	mmWC	(-)80 to 0	mmWC	PEM		1	1	0
266	1HFE10CP001	PA FAN-A SUCTION PRESSURE	PT	PY. AIR	-19	-34	mmWC	0-60	mmWC	PEM		1	1	0
267	1HFE15CP001	PA FAN-B SUCTION PRESSURE	PT	PY. AIR	-19	-34	mmWC	0-60	mmWC	PEM		1	1	0
268	1HFE20CP001	PA FAN-A OUTLET PRESSURE	PT	PY. AIR	1068	1380	mmWC	0-1500	mmWC	PEM		1	1	0
269	1HFE25CP001	PA FAN-B OUTLET PRESSURE	PT	PY. AIR	1068	1380	mmWC	0-1500	mmWC	PEM		1	1	0
270	1HFE30CP001	AH-A INLET PRESSURE	PT	PY. AIR	1047	1055	mmWC	0-1500	mmWC	PEM		1	1	0
271	1HFE35CP001	AH-B INLET PRESSURE	PT	PY. AIR	1047	1055	mmWC	0-1500	mmWC	PEM		1	1	0
272	1HFE40CP001	AH-A OUTLET PRESSURE	PT	PY. AIR	1009	1017	mmWC	0-1500	mmWC	PEM		1	1	0
273	1HFE45CP001	AH-B OUTLET PRESSURE	PT	PY. AIR	1009	1017	mmWC	0-1500	mmWC	PEM		1	1	0
274	1HHL20CP001	WIND BOX PRESSURE - L	PT	SEC.AIR	102	174	mmWC	0-130	mmWC	PEM		1	1	0
275	1HHL25CP001	WIND BOX PRESSURE - R	PT	SEC.AIR	102	174	mmWC	0-130	mmWC	PEM		1	1	0
276	1HLA10CP001	FD FAN-A OUTLET PRESSURE	PT	Sec. Air	312	441	mmWC	0-410	mmWC	PEM		1	1	0
277	1HLA15CP001	FD FAN-B OUTLET PRESSURE	PT	Sec. Air	312	441	mmWC	0-410	mmWC	PEM		1	1	0
278	1HLA20CP001	AH-A INLET PRESSURE	PT	Sec. Air	234	286	mmWC	0-310	mmWC	PEM		1	1	0
279	1HLA25CP001	AH-B INLET PRESSURE	PT	Sec. Air	234	286	mmWC	0-310	mmWC	PEM		1	1	0
280	1HLA30CP001	AH-A OUTLET PRESSURE	PT	Sec. Air	191	199	mmWC	0-250	mmWC	PEM		1	1	0
281	1HLA35CP001	AH-B OUTLET PRESSURE	PT	Sec. Air	191	199	mmWC	0-250	mmWC	PEM		1	1	0
282	1HLB10CP001	FD FAN-A SUCTION PRESSURE	PT	SEC. AIR	-16	-41	mmWC	0-60	mmWC	PEM		1	1	0
283	1HLB15CP001	FD FAN-B SUCTION PRESSURE	PT	SEC. AIR	-16	-41	mmWC	0-60	mmWC	PEM		1	1	0
284	1HNA10CP001	ECONOMISER OUTLET PRESSURE-L	PT	FLUE GAS	-78	-102	mmWC	(-)130 to 0	mmWC	PEM		1	1	0
285	1HNA20CP001	ECONOMISER OUTLET PRESSURE-R	PT	FLUE GAS	-78	-102	mmWC	(-)130 to 0	mmWC	PEM		1	1	0
286	1HNA30CP001	AH-A OUTLET PRESSURE	PT	FLUE GAS	-208	-294	mmWC	(-)400 to 0	mmWC	PEM		1	1	0
287	1HNA35CP001	AH-B OUTLET PRESSURE	PT	FLUE GAS	-208	-294	mmWC	(-)400 to 0	mmWC	PEM		1	1	0
288	1HNA60CP001	ID FAN-A INLET PRESSURE	PT	FLUE GAS	-321	-491	mmWC	(-)650 to 0	mmWC	PEM		1	1	0
289	1HNA65CP001	ID FAN-B INLET PRESSURE	PT	FLUE GAS	-321	-491	mmWC	(-)650 to 0	mmWC	PEM		1	1	0
290	1HNA70CP001	ID FAN-A OUTLET PRESSURE	PT	FLUE GAS	77	122	mmWC	0-160	mmWC	PEM		1	1	0
291	1HNA75CP001	ID FAN-B OUTLET PRESSURE	PT	FLUE GAS	77	122	mmWC	0-160	mmWC	PEM		1	1	0
292	1LBG70CP101	SCAPH SYSTEM INLET PRESSURE	PT	STM	16	20	kg/cm ²	0-25	kg/cm ²	PEM		1	1	0
293	1SGA51CP101	SERVICE WATER FOR MILL INTERTING (MILLS - D, E, F & G)	PT	SERV. WTR	6	10	kg/cm ²	0-10	kg/cm ²	PEM		1	1	0
294	1SGA51CP102	SERVICE WATER FOR MILL INTERTING (MILLS - A, B & C)	PT	SERV. WTR	6	10	kg/cm ²	0-10	kg/cm ²	PEM		1	1	0
295	9LCP01CL001	CST-1 LEVEL	LT(DPT)	WTR	1.5	7	kg/cm2	0-9500	mm	PEM		0	0	1
296	9LCP01CL002	CST-1 LEVEL	LT(DPT)	WTR	1.5	7	kg/cm2	0-9500	mm	PEM		0	0	1
297	9LCP02CL001	CST-2 LEVEL	LT(DPT)	WTR	1.5	7	kg/cm2	0-9500	mm	PEM		0	0	1
298	9LCP02CL002	CST-2 LEVEL	LT(DPT)	WTR	1.5	7	kg/cm2	0-9500	mm	PEM		0	0	1
299	9LCR41CP001	CYCLE MAKE UP PUMP-1 DISCH PRESS	PT	WTR	5.5	10	kg/cm2	0-10	kg/cm ²	PEM		0	0	1
300	9LCR42CP001	CYCLE MAKE UP PUMP-2 DISCH PRESS	PT	WTR	5.5	10	kg/cm2	0-10	kg/cm ²	PEM		0	0	1
301	9LCR43CP001	CYCLE MAKE UP PUMP-3 DISCH PRESS	PT	WTR	5.5	10	kg/cm2	0-10	kg/cm ²	PEM		0	0	1

SI no	KKS TAG	DESCRIPTION	SENSOR	MEDIUM	MCR PRESS	DESN PRESS	UOM (PRESS)	RANGE	UOM(RANGE)	Source	Remarks	Unit-1 qty	Unit-2 qty	Common qty	
302	9LCR45CP011	CYCLE MAKE UP PUMPS DISCH HDR PRESS	PT	WTR	5.5	10	kg/cm2	0-10	kg/cm2	PEM		0	0	1	
303	9LCR45CP012	CYCLE MAKE UP PUMPS DISCH HDR PRESS	PT	WTR	5.5	10	kg/cm2	0-10	kg/cm2	PEM		0	0	1	
304	9QSV10CP011	DIRTY OIL TFR PUMP SUC STRNR DP	DPT	OIL	1.5	7	kg/cm2	0-2	Kg/cm2	PEM	Diaphragm seal	0	0	1	
305	9QSV20CP011	CLEAN OIL TFR PUMP SUC STRNR DP	DPT	OIL	1.5	7	kg/cm2	0-2	Kg/cm2	PEM	Diaphragm seal	0	0	1	
306	90QHB10CP001	FURNACE PRESSURE	PT	FLUE GAS	178	237	mmWC	0-350	mmWC	Auxiliary -BHEL Trichy		0	0	1	
307	90QHB10CP002	FURNACE PRESSURE	PT	FLUE GAS	178	237	mmWC	0-350	mmWC	Auxiliary -BHEL Trichy		0	0	1	
308	90QHC10CP001	SB MAIN LINE PRESSURE	PT	STEAM	19	25	Kg/Cm2	0-30	Kg/cm2	Auxiliary -BHEL Trichy		0	0	1	
309	90QHH40CF001	FLOW BEFORE LOTV	FT	LDO	21	--	Kg/Cm2	0-2500	mmWC	Auxiliary -BHEL Trichy		0	0	1	
310	90QHH40CP001	PRESSURE BEFORE LOTV	PT	LDO	21	--	Kg/Cm2	0-30	Kg/cm2	Auxiliary -BHEL Trichy		0	0	1	
311	90QHH40CP002	PRESSURE AFTER LOTV	PT	LDO	21	--	Kg/Cm2	0-30	Kg/cm2	Auxiliary -BHEL Trichy		0	0	1	
312	90QHH40CP003	PRESSURE AFTER LOTV	PT	LDO	21	--	Kg/Cm2	0-30	Kg/cm2	Auxiliary -BHEL Trichy		0	0	1	
313	90QHH40CP004	PRESSURE AFTER LOTV	PT	LDO	21	--	Kg/Cm2	0-30	Kg/cm2	Auxiliary -BHEL Trichy		0	0	1	
314	90QHH50CP001	ATOMISING AIR HEADER PRESSURE	PT	AIR	6	--	Kg/Cm2	0-10	Kg/cm2	Auxiliary -BHEL Trichy		0	0	1	
315	90QHH50CP002	ATOMISING AIR HEADER PRESSURE	PT	AIR	6	--	Kg/Cm2	0-10	Kg/cm2	Auxiliary -BHEL Trichy		0	0	1	
316	90QHL30CF001	AIR FLOW	FT	SEC AIR	389	513	mmWC	0-76.2	mmWC	Auxiliary -BHEL Trichy		0	0	1	
317	90QHL30CF002	AIR FLOW	FT	SEC AIR	389	513	mmWC	0-76.2	mmWC	Auxiliary -BHEL Trichy		0	0	1	
318	90QHL30CP001	FD FAN OUTLET PRESSURE	PT	SEC AIR	422	557	mmWC	0-750	mmWC	Auxiliary -BHEL Trichy		0	0	1	
319	90QHL40CP001	DP ACROSS WINDBOX & FURNACE	DPT	AIR/FLUE	389/ 178	513/ 237	mmWC	0-300	mmWC	Auxiliary -BHEL Trichy		0	0	1	
320	90QHN10CP001	BOILER BANK OUTLET PRESSURE	PT	FLUE GAS	65	84	mmWC	0-120	mmWC	Auxiliary -BHEL Trichy		0	0	1	
321	90QLB10CL001	DRUM LEVEL	PT	STEAM	22.4	25	Kg/Cm2	0-750	mmWC	Auxiliary -BHEL Trichy		0	0	1	
322	90QLB10CL002	DRUM LEVEL	PT	STEAM	22.4	25	Kg/Cm2	0-750	mmWC	Auxiliary -BHEL Trichy		0	0	1	
323	90QLB10CP001	DRUM PRESSURE	PT	STEAM	22.4	25	Kg/Cm2	0-40	Kg/cm2	Auxiliary -BHEL Trichy		0	0	1	
324	HCB01CF001	SB STEAM SUPPLY FLOW	FT	STEAM	30	40	kg/cm2	DP=0-35000	mmWC	TRY(EDN)	0-25	TPH	1	1	0
325	HCB02CF001	SB RETRACT STEAM FLOW - RIGHT	FT	STEAM	30	40	kg/cm2	DP=0-200000	mmWC	TRY(EDN)	0-15	TPH	1	1	0
326	HCB04CF001	WALL BLOWER STEAM FLOW - REAR & LEFT	FT	STEAM	30	40	kg/cm2	DP=0-200000	mmWC	TRY(EDN)	0-15	TPH	1	1	0
327	HCB05CF001	SB RETRACT STEAM FLOW - LEFT	FT	STEAM	30	40	kg/cm2	DP=0-200000	mmWC	TRY(EDN)	0-15	TPH	1	1	0
328	HCB06CF001	WALL BLOWER STEAM FLOW - REAR & LEFT	FT	STEAM	30	40	kg/cm2	DP=0-200000	mmWC	TRY(EDN)	0-15	TPH	1	1	0
329	HBK10CP001	FURNACE TO WINDBOX DIFF. PRESS. - L	DPT	FLUE GAS	-3/ 102	-5/174	mmWC	0-250	mmWC	TRY(EDN)		1	1	0	
330	HBK10CP002	FURNACE TO WINDBOX DIFF. PRESS. - L	DPT	FLUE GAS	-3/ 102	-5/174	mmWC	0-250	mmWC	TRY(EDN)		1	1	0	
331	HBK10CP006	FURNACE TO HOT PA HEADER DIFF. PRESSURE	DPT	PY. AIR	-3 / 1009	-5 / 1017	mmWC	0-1300	mmWC	TRY(EDN)		1	1	0	
332	HBK10CP007	FURNACE TO HOT PA HEADER DIFF. PRESSURE	DPT	PY. AIR	-3 / 1009	-5 / 1017	mmWC	0-1300	mmWC	TRY(EDN)		1	1	0	
333	HBK15CP001	FURNACE TO WINDBOX DIFF. PRESS. - R	DPT	FLUE GAS	-3/ 102	-5/174	mmWC	0-250	mmWC	TRY(EDN)		1	1	0	
334	HBK15CP002	FURNACE TO HOT PA HEADER DIFF. PRESSURE	DPT	PY. AIR	-3 / 1009	-5 / 1017	mmWC	0-1300	mmWC	TRY(EDN)		1	1	0	
335	HFC01CP001	DP ACROSS Mill A	DPT	COAL+ AIR	200	--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
336	HFC02CP001	DP ACROSS Mill B	DPT	COAL+ AIR	200	--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
337	HFC03CP001	DP ACROSS Mill C	DPT	COAL+ AIR	200	--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
338	HFC04CP001	DP ACROSS Mill D	DPT	COAL+ AIR	200	--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
339	HFC05CP001	DP ACROSS Mill E	DPT	COAL+ AIR	200	--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
340	HFC06CP001	DP ACROSS Mill F	DPT	COAL+ AIR	200	--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
341	HFC07CP001	DP ACROSS Mill G	DPT	COAL+ AIR	200	--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
342	HF20CP001	DP AT SEAL AIR FAN DISCHARGE/ CPA HEADER	DPT	SEAL AIR	1023/ 803	1338/ 830	mmWC	0-650	mmwc	TRY(EDN)		1	1	0	
343	HF20CP002	DP AT SEAL AIR FAN DISCHARGE/ CPA HEADER	DPT	SEAL AIR	1023/ 803	1338/ 830	mmWC	0-650	mmwc	TRY(EDN)		1	1	0	
344	HF21CP001	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL A	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmWC	TRY(EDN)		1	1	0	
345	HF21CP002	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL A	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
346	HF22CP001	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL B	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmWC	TRY(EDN)		1	1	0	
347	HF22CP002	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL B	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
348	HF23CP001	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL C	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
349	HF23CP002	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL C	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
350	HF24CP001	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL D	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
351	HF24CP002	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL D	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
352	HF25CP001	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL E	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
353	HF25CP002	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL E	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
354	HF26CP001	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL F	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
355	HF26CP002	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL F	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
356	HF27CP001	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL G	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	
357	HF27CP002	SEAL AIR TO UNDER BOWL DIFF. PRESSURE MILL G	DPT	SEAL AIR	1016/--	1258/--	mmWC	0-300	mmwc	TRY(EDN)		1	1	0	

SI no	KKS TAG	DESCRIPTION	SENSOR	MEDIUM	MCR PRESS	DESN PRESS	UOM (PRESS)	RANGE	UOM(RANGE)	Source	Remarks	Unit-1 qty	Unit-2 qty	Common qty
358	HHQ20CP002	SCANNER AIR/FURNACE DIFF. PRESSURE	DPT	AIR/SEC.	562	691	mmWC	0-850	mmWC	TRY(EDN)		1	1	0
359	HHQ20CP003	SCANNER AIR/FURNACE DIFF. PRESSURE	DPT	AIR/SEC.	562	691	mmWC	0-850	mmWC	TRY(EDN)		1	1	0
360	HBK10CP003	FURNACE PRESSURE-L	PT	FLUE GAS	-3	-5	mmWC	(-)250 to 250	mmWC	TRY(EDN)		1	1	0
361	HBK15CP003	FURNACE PRESSURE-R	PT	FLUE GAS	-3	-5	mmWC	(-)250 to 250	mmWC	TRY(EDN)		1	1	0
362	HBK15CP004	FURNACE PRESSURE-R	PT	FLUE GAS	-3	-5	mmWC	(-)250 to 250	mmWC	TRY(EDN)		1	1	0
363	HCB01CP001	SB STEAM PRESSURE	PT	STEAM	262.6	272.8	kg/cm ²	0-350	Kg/cm2	TRY(EDN)		1	1	0
364	HCB01CP002	SB STEAM PRESSURE	PT	STEAM	30	40	kg/cm ²	0-60	Kg/cm2	TRY(EDN)		1	1	0
365	HCB01CP003	SB STEAM PRESSURE	PT	STEAM	30	40	kg/cm ²	0-60	Kg/cm2	TRY(EDN)		1	1	0
366	HCB03CP001	AH A&B SB STM. PRESSURE	PT	STEAM	30	40	kg/cm ²	0-60	Kg/cm2	TRY(EDN)		1	1	0
367	HCB03CP002	AH A&B SB STM. PRESSURE	PT	STEAM	30	40	kg/cm ²	0-60	Kg/cm2	TRY(EDN)		1	1	0
368	HHQ20CP001	SCANNER AIR FAN OUTLET PRESSURE	PT	SEC AIR	562	691	mmWC	0-850	mmWC	TRY(EDN)		1	1	0
369	HJF51CP001	PRESSURE BEFORE LOTV	PT	LFO	24	--	kg/cm ²	0-35	Kg/cm2	TRY(EDN)		1	1	0
370	HJF51CP005	LDO HEADER PRESSURE	PT	LFO	4 to 18	--	kg/cm ²	0-25	Kg/cm2	TRY(EDN)		1	1	0
371	HJF51CP006	LDO HEADER PRESSURE	PT	LFO	4 to 18	--	kg/cm ²	0-25	Kg/cm2	TRY(EDN)		1	1	0
372	HJF51CP007	LDO HEADER PRESSURE	PT	LFO	4 to 18	--	kg/cm ²	0-25	Kg/cm2	TRY(EDN)		1	1	0
373	HJF70CP002	PRESSURE AFTER OP. FLOOR STRAINER	PT	HFO	22	--	kg/cm ²	0-30	Kg/cm2	TRY(EDN)	Diaphragm seal	1	1	0
374	HJF70CP006	HFO HEADER PRESSURE	PT	HFO	4.3 to 17.5	--	kg/cm ²	0-25	Kg/cm2	TRY(EDN)	Diaphragm seal	1	1	0
375	HJF70CP007	HFO HEADER PRESSURE	PT	HFO	4.3 to 17.5	--	kg/cm ²	0-25	Kg/cm2	TRY(EDN)	Diaphragm seal	1	1	0
376	HJF70CP008	HFO HEADER PRESSURE	PT	HFO	4.3 to 17.5	--	kg/cm ²	0-25	Kg/cm2	TRY(EDN)	Diaphragm seal	1	1	0
377	HJM01CP003	ATOMINSING STEAM HEADER PRESSURE	PT	STEAM	7.5	--	kg/cm ²	0-10	Kg/cm2	TRY(EDN)		1	1	0
378	HJM01CP004	ATOMINSING STEAM HEADER PRESSURE	PT	STEAM	7.5	--	kg/cm ²	0-10	Kg/cm2	TRY(EDN)		1	1	0
379	HJM01CP005	ATOMINSING STEAM HEADER PRESSURE	PT	STEAM	7.5	--	kg/cm ²	0-10	Kg/cm2	TRY(EDN)		1	1	0
												350	350	29



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REV 01

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PROJECT: IB VALLEY 2X660MW THERMAL POWER PROJECT

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**REFERENCE QUALITY PLAN
FOR
ELECTRONIC TRANSMITTERS**

REVISION : 00

APPROVED
&
VERIFIED

SAILENDRA KUMAR KISAN

PREPARED


Sandeep


ISSUED

416

DATE

12/10/2015

		Manufacturer's Name & Address:-		MANUFACTURING QUALITY PLAN				Project:						
				ITEM				DOC NO:						
				Confirming to code: BS 6447 & IEC 60770				Customer: Consultant: End User :						
Sl.No	Components & Operations	Characteristics	Class	Type of Check	Quantum of Check		Reference Documents	Acceptance Norms	Format of Record		Agency			Remarks
					M	C/N				D*	M	C	N	
1	2	3	4	5	6a	6b	7	8	9		10	11		
1.00	Raw Materials													
1.01	Raw Materials & Components (Diaphragm, Sensing, Material, Housing, Electronic & other components)	a) Material properties, Size, Rating, Make, Type/Model No.	Major	Internal Test/ Checks	As per Manufacturer's Standard	-	Purchase Order Specification / Manufacturers Catalogues / Mfr Drawing	Purchase Order Specification / Manufacturers Catalogues / Mfr Drawing	Internal Records	-	P	V	V	
2.00	In Process Inspection													
2.01	Assembly & Fitting	a) Soundness of Fitting, Connections & Terminals Marking	Major	Verification	100%	-	Purchase Order Specification / Manufacturers Catalogues / Drawing	Purchase Order Specification / Manufacturers Catalogues / Drawing	Internal Records	-	P	V	V	
		b) Insulation Resistance & Dielectric strength	Major	Measurement / Visual	100%	-	-	"	-	-	P	V	V	
3.00	Final Inspection													
3.01	Routine Test	a) Dimensional details & Visual checking (Size, Rating, Make, Type/ Model No., Serial No./ Taa)	Major	Measurement / Visual	100%	10%	Purchase Order Specification / Approved Drawing / Approved Datasheet	Purchase Order Specification / Approved Drawing / Approved Datasheet	TC	✓	P	W	W	
		b) Process connection / Electric Connection	Major	Measurement / Visual	100%	10%	"	"	"	✓	P	W	W	
		c) Accuracy, Calibration & Over range test	Major	Measurement	100%	10%	Purchase Order Specification / Approved Drawing / Approved Datasheet / Mfrs Catalogues / BS 6447 / IEC-60770	Purchase Order Specification / Approved Drawing / Approved Datasheet / Mfrs Catalogues / BS 6447 / IEC-60770	"	✓	P	W	W	Communication for HART Protocol shall be checked during Calibration
		d) Effect of output load	Major	Measurement	One of Each Type	One of Each Type	Purchase Order Specification / Approved Drawing / Approved Datasheet / Mfrs Catalogues / BS 6447 / IEC-60770	Purchase Order Specification / Approved Drawing / Approved Datasheet / Mfrs Catalogues / BS 6447 / IEC-60770	TC	✓	P	W	W	
4.00	Packing & Dispatch													

		Manufacturer's Name & Address:-		MANUFACTURING QUALITY PLAN			Project:							
				ITEM			DOC NO:							
				Confirming to code: BS 6447 & IEC 60770			Customer: Consultant: End User :							
Sl.No	Components & Operations	Characteristics	Class	Type of Check	Quantum of Check		Reference Documents	Acceptance Norms	Format of Record		Agency			Remarks
					M	C/N				D*	M	C	N	
1	2	3	4	5	6a	6b	7	8	9	10	11			
		a) Completeness of TC's, COC's, Inspection Reports.	Major	Verification	100%	100%	Ord Specn & QP	Ord Specn & QP	Documents	-	P	V	V	
		b) Identification Marking / Tagging of each instrument	Major	Verification	100%	100%	Ord Specn	Ord Specn	Internal Records	-	P	V	-	
		c) Soundness of Packing against Transit Damage	Major	Verification	100%	-	Ord Specn	Ord Specn	Internal Records	-	P	-	-	
Note :		1) Manufacturer to maintain calibrated instrument having better accuracy than the item under the test. Inspection Engineer shall check the same.												
		2) Since the transmitter are imported, calibration test reports/certificates and COC will be provided for review and dispatch clearance												
Manufacturer/ Sub contractor:		Contractor: M/s. BHEL-EDN,		LEGEND: * Records identified ✓ with shall be essentially included by the contractor in QA documentation. M: Manufacturer / Sub contractor, C: Contractor /Nominated inspection agency, N: Customer Indicate " P " – Perform, " W " – Witness & " V "– Verification					For Customer use:-					
		Signature & Date							Reviewed By					
									Name & Sign of approving authority & Seal					

BHEL REPLY TO QUERY NO.1:

It was a typographical error. Below mentioned tags (90QLB10CL001-002) shall be LTs(DP type).

2 valve & 3 valve Manifold are not required along with transmitter. However, as per specification, drain and vent shall be provided for all the transmitters of the subject project.

QUERY NO.1:

Can u please confirm below s/l item no is Pt or we will consider DPT Type LT ? And also please confirm for this project, 2 valve & 3 valve Manifold will be considered along with transmitter.

BOM of Electronic transmitters for IB valley 2X660MW project

SI no	KKS TAG	DESCRIPTION	SENSOR TYPE	MEDIUM	MC R PRESS	DES N PRESS	UOM (PRESS)	RANGE	UOM(RANGE)	Source	Remarks	Unit-1 qty	Unit-2 qty	Common qty
321	90QLB10CL001	DRUM LEVEL	PT	WATER/STEAM	22.4	25	Kg/Cm ²	0-750	mmWC	Auxiliary - BHEL Trichy		0	0	1
322	90QLB10CL002	DRUM LEVEL	PT	WATER/STEAM	22.4	25	Kg/Cm ²	0-750	mmWC	Auxiliary - BHEL Trichy		0	0	1

BHEL REPLY TO QUERY NO.2

Please find point wise reply to vendor's queries for IB valley 2X660MW project for electronic transmitters.:

1) Query: Some of the tag's you have given two data's i.e one column is RANGE and other is Remarks column. So please confirm which column data we should consider

Reply : Tags you are referring are FTs for which data(DP range) furnished in "RANGE" column to be considered for model selection,data furnished in "Remarks" column is corresponding flow for these tags.

2) Query: For Sl.no.243 to 245 & 372 to 375 medium application you have mentioned as 'LFO' for these tags remote seal is required or NOT. And MCR PRESS mentioned as 4 to 18 kg/cm2. Please confirm that which Data we should consider while making quote.

Reply : Understand that query regarding LFO medium pertains to sl no 369 to 372 and not sl no 372-375.Data furnished for the referred sl numbers 243 to 245 & 369 to 372 is correct.

3) Query: : For Sl.no.309 to 313 Medium is mentioned as 'LDO' please confirm these tags whether remote seal is required or NOT

Reply : Not required

4) Query: : For Sl.no.105 MCR PRESS column is mentioned as '0' value please confirm the value.

Reply : Confirm

5) Query: : For Sl.no.119 to 120 and 139 to 140 MCR PRESS column is mentioned as 'Static' please confirm the value of pressure.

Reply : Design pressure shall be considered for the referred sl numbers 119 to 120 and 139 to 140.

6) Query: : In PT application UOM (PRESS) column some of the units are mentioned as 'kg/cm2 (a)' please let us know the abbreviation of (a). whether it is absolute or atmospheric or gauge pressure.

Reply : atmospheric

7) Query :For Sl.no. MCR PRESS mentioned as 4.3 to 17.5 kg/cm². Please confirm that which one Data we should consider while making quote.

Reply : Max value i.e 17.5Kg/cm² to be considered.

QUERY NO.2:

Clarification required based on specification & BOM against IB valley 2X660MW project for electronic transmitters.

1) Query: Some of the tag's you have given two data's i.e one column is RANGE and other is Remarks column. So please confirm which column data we should consider

2) Query: For Sl.no.243 to 245 & 372 to 375 medium application you have mentioned as 'LFO' for these tags remote seal is required or NOT. And MCR PRESS mentioned as 4 to 18 kg/cm². Please confirm that which Data we should consider while making quote.

3) Query: : For Sl.no.309 to 313 Medium is mentioned as 'LDO' please confirm these tags whether remote seal is required or NOT

4) Query: : For Sl.no.105 MCR PRESS column is mentioned as '0' value please confirm the value.

5) Query: : For Sl.no.119 to 120 and 139 to 140 MCR PRESS column is mentioned as 'Static' please confirm the value of pressure.

6) Query: : In PT application UOM (PRESS) column some of the units are mentioned as 'kg/cm² (a)' please let us know the abbreviation of (a). whether it is absolute or atmospheric or gauge pressure.

7) Query :For Sl.no. MCR PRESS mentioned as 4.3 to 17.5 kg/cm². Please confirm that which one Data we should consider while making quote.