



Ref. Enquiry No.: PE/PG/RTC/E-5642/2017

Dated: 09/06/2017

TENDER ENQUIRY THROUGH E-PROCUREMENT

DUE DATE
21/06/2017
BY 1400 HRS

SUBJECT: TENDER ENQUIRY FOR RATE CONTRACT OF ULTRASONIC FLOWMETERS AS PER TECHNICAL SPECIFICATION NO. PE-TS-20-145-I916

OUR REF: TENDER ENQUIRY NO: PE/PG/RTC/E-5642/2017, DTD-08/06/2017

Dear Sir/ Ma'am,

We are pleased to invite your offer for subject package in two parts strictly as per Clause-2.0 of the enclosed "Instructions to Bidders" of the General Conditions of Contract (GCC) Rev-06 available at following link:- <http://www.bhelpem.com/Documents/GCC/GCC-Rev-06.pdf>. Please upload your best quotation/ offer on <https://bheleps.buyjunction.in> for the requirement strictly as per schedule of price format before above mentioned due date & time. The details of the tender enquiry are as mentioned below:

Sl. No	Description for which Rate Contract is desired	Tentative Quantity	Delivery required
1	ULTRASONIC FLOWMETERS - Refer Technical specification no PE-TS-20-145-I916 for detailed description.	As per BOQ cum price schedule (in Annexure-I) cumulative for the Prospective Projects (Annexure-III)	Supply: - "Four (04) months from drgs. /docs. approval in CAT-I issued by BHEL. Successful bidder to make 1st submission of drawing and other documents as per Cl. No. 13 of the Technical Specification-PE-TS-20-145-I916 within 4 weeks from the date of P.O./LOA. Vendor to re-submit documents within 7 days, taking care of all the comments of BHEL. Any deficiency in documents submitted w.r.t. agreed specification/ comments from BHEL shall be treated as non-submission and no. of days delay in submission of complete documents during approval process, on account of this, would be reduced from the delivery. The vendor shall be responsible for getting approval from BHEL as early as possible and BHEL will support the process, in full, within above time frame and terms & conditions." Supervision of E&C: - Vendor shall depute their personnel within 15 days of intimation of BHEL.

Your best quotation/offer for the above requirement, in line with our terms and conditions, should be submitted online via e-procurement system. It shall be the responsibility of the bidder to ensure that the Tender is submitted

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on or before the due date by 2 p.m. Part-I bids shall be opened at 3 p.m. on the due date in the presence of authorized representatives of the bidders, who may like to be present.

Note: -

- 1. Documents and Credential as per Technical PQR, Techno Commercial Bids and Price Bids should be uploaded on the e-procurement portal.**
- 2. Evaluation will be done on overall L1 (Total cost to BHEL) basis with necessary loading as applicable. Incomplete offer or offer for part of NIT BOM/BOQ shall be summarily rejected.**

Please refer GCC Rev-06 which is available on www.bhhelpem.com. You are requested to kindly download the same.

- 1. Rate contract on firm price basis is proposed for 2 years from placement of Rate Contract PO with a provision for further extension after review on mutual consent.**

Rate Contract is proposed to be done with 2 vendors in ratio of 60: 40, value wise at L1 FOR site price for subject package (% of splitting of RC between 2 vendors may be changed during ordering process, if L1 bidder is not customer approved); however, order for a project (only for the BOQ required as per specific project requirement) shall not be split and will be placed on single vendor.

Evaluation will be done on overall L1 (Total cost to BHEL) basis with necessary loading as applicable.

- 2. Prices shall be firm.**

- 3. Bidders to note the following: -**

- a) Rate contract shall be decided on the basis of grand Total FOR site price of Total BOQ as listed in price format [Annexure-I].
- b) Though evaluation is proposed on Grand Total FOR site, but there is % allocation weightage against BOQ quantity of each item which shall be used for arriving at price break up. Bidders need to give only their total Ex Works price for given BOQ at Row A+B Column 8 for Indian supplier and Row A+B Column 15 for Foreign Supplier in Price Format [Annexure I].
- c) Bidders also requires to mention % of taxes/ duties (against respective column for ED, CST & Service Tax) applicable for each item of the BOQ.
- d) Bidder to include freight charges in the Ex-works price for delivering the package anywhere in India.
- e) Rest of the prices shall be derived by BHEL in line with % allocation fixed for each item.
- f) **For better clarity to the bidders where value is to be filled is noted as “to be quoted” and for other columns it will be noted as “derived” which denotes shall be derived by BHEL as per % allocation fixed against each item.**
- g) **All the columns to be filled by supplier have been highlighted in yellow. Bidders do not need to write anything on the remaining columns. The bidders need to mention the word “QUOTED” in the unpriced format wherever the words “To be quoted” have been mentioned in the highlighted section of the price format. Further, in the Price format, bidders need to mention their Ex-Works price (total) and percentage of ED, CST and Service Tax as applicable.**

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- L1 rates shall be counter offered to vendors (L2, L3 & so on) in succession. If none accepts L1 rates, RC shall be done with L1 vendor for 100 % value. Vendors shall be asked to quote prices with CST against form C and same state ordering shall not be done to save VAT.
- Vendor shall be informed that evaluation shall be done on CST basis, however in case, the entire business volume goes to one vendor (or volume of business shared between the vendors in line with enquiry) having manufacturing facility in the same state, then BHEL may do suitable amendment in PO on case to case basis for taking care the provision of VAT in case of project falling in the same State where manufacturing factory of the vendor is also located.

TERMS AND CONDITIONS

- Procurement of the subject package shall be done through e-procurement.
- Enquiry No., due date etc. must be legibly super scribed on the offers as per clause no. 2.0 of "Instructions to Bidders" of the General Conditions of Contract (GCC) Rev-06.
- Offers should be uploaded in two parts online at <https://bheleps.buyjunction.in> as follows:
 - Part-I Bid:** - Documents and Credential as per Technical PQR mentioned at Annexure-IV and Techno-Commercial offer (along with un-priced copy of un-priced bid and un-priced schedule of Technical-Commercial Deviation, Annexure I & VI). *For filling up of Un-priced bid, refer Instructions mentioned in Cl. No. 3 at Page 2 of NIT.*
 - Part II Bid:** - Price Bid. *For filling up of Un-priced bid, refer Instructions mentioned in Cl. No. 3 at Page 2 of NIT.*
- Terms and conditions: -
 - Part I bid will be opened on date & time mentioned in the NIT or subsequent corrigenda/amendments, if any.
 - Techno-commercial offer of only those bidders shall be evaluated who will meet the Technical pre-qualifying requirement of the tender.**
- Vendors shall quote in accordance with the requirements mentioned in the tender documents. In case of deviations (Technical/ Commercial), the same shall be highlighted separately giving Clause references along with the Cost of withdrawal of Deviations as per **Annexure-II to GCC Rev 06 of "DEVIATION SHEET (COST OF WITHDRAWAL)"** along with reasons for taking such deviations.
However, it may be noted that part bids/ incomplete offers may be rejected.
Bidder to note all the points mentioned in "Notes" of Annexure-II to GCC Rev 06.
- Please note the following:**
 - Price format is enclosed for compliance. (Annexure-I)**
 - SCC enclosed for compliance. (Annexure-II)**
 - GCC enclosed for compliance.****GCC Rev-06 is available at <http://www.bhelpem.com/Documents/GCC/GCC-Rev-06.pdf>. You are requested to kindly download the same.**

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7. Tenders shall be submitted strictly in accordance with the requirements of the above tender documents.
8. Standard pre-printed terms & conditions of the tenderers shall not be considered valid.
9. Validity of offer shall be as per **Clause No. 7.0, "Instructions to Bidders" of GCC Rev 06.**
10. Unsolicited fresh/revised Price Bids shall not be entertained.
11. Purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any/all tender(s) in part or full without assigning any reason whatsoever.
12. Late tenders will be rejected.
13. Tenders and all correspondence thereof, shall be addressed to the undersigned by name & designation and sent at the following address:

Mr. KUNAL GANDHI, Sr. Engr./CMM
M/s Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRD & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301
Kind Attn: KUNAL GANDHI/ CMM
E-MAIL: kunalgandhi@bhelpem.co.in
Ph. No. 0120-4368574/ 9650183377

Mr. I P SINGH, SR MANAGER, CMM
M/s Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRD & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301
Kind Attn: I P SINGH/ CMM
E-MAIL: indra@bhelpem.co.in
Ph. No. 0120- 4218749, 09818989654

14. **PRE-QUALIFICATION REQUIREMENT: -**
Bidders is requested to submit the documents satisfying the "TECHNICAL PRE-QUALIFYING REQUIREMENT" as per the conditions mentioned in the PQR.
Bids of only those bidders shall be evaluated who meet the Technical pre-qualifying requirements (if applicable).
Pre-qualifying requirement for the same is attached as Annexure-IV.
15. Bidders to note that their bid shall be conditional subject to qualify PQR by registered vendors & non-registered vendors have to qualify PQR & get registered with PEM for the package.
For registration in PEM "Bidders needs to apply & get registered for subject package with PEM before P-2 (price bid opening) & hence you need to apply online for registration on PEM web portal & have to enclose acknowledgement with this effect with the bid documents else your bid will not be considered for evaluation".
16. Limit on quantity variation shall be plus 30% of Contract Value (Ex Works) till validity of Rate Contract. The Purchaser shall have the right to increase or decrease quantities and scope up to the above extent of value and Seller/ Contractor shall be bound to accept the same at the contracted prices without any escalation.

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17. Project list is indicative only, BHEL may ask for delivery anywhere in India for any of the project added in the prospective project/ existing projects during RC period.
18. Bidder has to submit "NO DEVIATION CERTIFICATE FOR COMMERCIAL TERMS AND CONDITIONS AS PER GCC (06), SCC AND NIT". In case of deviations, bidder to clearly mention the same with their techno-commercial offer as per Point No-5 of Terms and Conditions at Page 3 of NIT.
19. For supervision of E&C: -
a) Vendor shall depute their personnel within 15 days of intimation of BHEL.
b) Failure to meet Cl. No. a) above may lead to levying of LD @0.5% per week or part thereof of the total contract value for supervision of that project limited to 10% of the total supervision value.
20. All the above Tender Documents shall automatically become a part of the Order/Contract after its finalization.
21. **The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL website www.bhel.com.**
22. **"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."**
BHEL Fraud prevention policy is also uploaded in vendor's section on www.bhelpem.com.
23. **Bidders are requested to visit constantly our website to update them self for any technical or commercial change in the NIT.**
24. **All corrigenda, addenda, amendments, time extensions, clarifications etc. to the tender will be hosted on BHEL websites only (www.bhelpem.com, www.bhel.com & <https://bheleps.buyjunction.in>) under subject tender reference. Bidders are requested to visit our websites from time to time to keep themselves updated. **Bidders may go through the Sellers' manual & Help documents provided on E-Procurement Portal website & obtain required Digital Signature Certificate for participating in the subject Tender. For Bidders' convenience, the Helpdesk Nos. of E-Procurement Portal m-junction are also listed below:****

MJUNCTION HELPDESK Nos. 033-6601 1717, 9163348283 / 9163348284 / 9163348285 / 9163348286 / 8584008116 / 8584008205, eps.customercare@mjunction.in

CRM Contact Details:

Mr. Santosh Kumar - Cell No. 09717149600, santosh.kumar@mjunction.in

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Ms. Rimi Ghosh – Cell No 09650044156, rimi.ghosh@mjunction.in

25. **CIF allocation is not applicable for this tender. Bidder to quote accordingly.**
26. Bidders to submit their offers strictly in line with the enclosed price format.
27. Inspection shall be done by BHEL/ END CUSTOMER/Third party Agency (finalized by BHEL).
28. Any other taxes & duties applicable on the date of bid but not quoted by the bidders shall be to bidder account.
29. Delivery terms for dispatches shall be FOR Dispatch Station.
30. This enquiry is subject to Conditions/ limits if any imposed in PMD / Vendor registration.
31. Bidders participating through open tender will necessarily have to but class III DSCs issued by the certifying authorities in India. Basic procedure/ checklist is uploaded on www.bhel.com.
32. Non- registered bidder to submit the credentials required for Registration in BHEL PEM: -
“Online Registration Portal is operational in BHEL. Non-registered Vendors, who wish to apply for registration with BHEL-PEM, have to apply through Online Registration Portal available at www.bhelpem.com - vendor section - Online Supplier Registration. All credentials and/or documents duly signed and stamped related to registration has to be uploaded on the website and submit the application for registration. One set of hard copy of the filled-up SRF downloaded from Online Registration Portal duly signed and stamped has to be submitted.”
33. Purchaser reserves the right to split up the scope of the tender enquiry and place the orders for different scope/ items with different bidders and also increase or decrease the quantity.
34. Foreign bidders will have to quote C & F (cost & freight) basis instead of FOB.
For importing materials on C&F basis, bidders to note following:
 - a. As per Incoterms (CFR), risk transfers to buyer when the goods have been loaded on board the ship in the country of Export. Hence, shipped on board date mentioned on the clean Bill of Lading or Air way Bill, shall be treated as the date of Shipment/ Dispatch for all contractual purposes including calculation of LD.
 - b. Usance period (90 days) of the L/C shall start from the date of Bill of lading/Air Way Bill.
 - c. Bill of Lading shall be considered as equivalent document (refer clause 9.7.1 b OF GCC rev-06) for recognition of dispatch.
 - d. For claiming payment under clause 9.1.1 and 9.2.1 Bill of lading shall be considered instead of receipted LR (refer clause 9.7.2 b of GCC rev-06)
 - e. Freight is to be quoted as inclusive in basic price by vendor and is not to be quoted separately.
 - f. Insurance for evaluation purposes shall be @ 0.1 % of quoted C&F price.

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g. There will be no change in MRC payment.

35. BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).

The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.

If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).

As a reminder to the bidders, system will flash following message (in RED Color) during the course of 'online sealed bid':

"Bidders to submit online sealed bid less than or equal to their envelope sealed bid already submitted to BHEL"

Detailed guidelines of reverse auction 2016 are available in "information section" of [www. bhelpem.com](http://www.bhelpem.com), same are applicable for subject tender.

The Bidders has to quote the Single Price (i.e. Total Cost to BHEL) in Reverse Auction. Price are to be inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, ED + cess, CST against C-form/VAT, Freight as applicable, insurance charges, etc. including loading (if any). De-loading (if any) shall be done in line with SCC.

Statutory variation shall be applicable. Any new tax structure (like Goods & Services Tax) as and when implemented by the Government shall become applicable in addition to or in lieu of existing tax structure.

Note: - Applicable taxes & duties shall be determined as per location of works of bidder".

IMPORTANT INSTRUCTION TO BIDDERS IN CASE OF REVERSE AUCTION

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The Bidders has to quote the Single Price (i.e. Total Cost to BHEL) in Reverse Auction i. e Price mentioned in Row No. A+B [Column No. 8 for Indian Bidders and Column No. 15 for Foreign Bidders] with loading/de loading (if any). Price are to be inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, ED + cess, CST against C-form/VAT, Freight as applicable, including loading (if any). De-loading (if any) shall be done in line with NIT terms.

Following Condition in Reverse Auction shall be treated as follows:

Case-I (Taxes & duties and freight are identical in Reverse Auction & Conventional Price Bid)

Resolution: - Ordering shall be done on lower of the two bids (RA closing price & Conventional Price Bid). After successful completion of reverse auction L1 bidder shall be asked to submit break up in line with taxes & duties, freight quoted in their Conventional Price Bid.

Case-II (In case Bidder has quoted 'CST' in Conventional Price Bid and applicable Tax is 'VAT')

Resolution: - "Total Cost to BHEL shall be maintained by reducing proportion amount in Ex-works quoted by Bidder".

Case-III (In case Bidder has quoted 'VAT' in Conventional Price Bid and applicable Tax is 'CST')

Resolution: - Conventional Bid/RA quoted Prices shall be reduced and CST will be allowed.

Statutory variation shall be applicable.

Any new tax structure (like Goods & Services Tax) as and when implemented by the Government shall become applicable in addition to or in lieu of existing tax structure.

Note: - Applicable taxes & duties shall be determined as per location of works of bidder.

Kindly consider the same while quoting the tender.

36. L1 bidder will have to submit Bank Guarantee for each POs (irrespective of value) which will be placed under the Rate Contract finalised through this tender considering RA as original contract as per format mentioned in Annexure VI to NIT instead of format mentioned in GCC Rev 06.

The PBG Format has been attached as Annexure-VI-B.

37. Bidder to note that all other terms and condition shall be strictly as per NIT, GCC Rev. 06 & SCC. In the event of any contradiction in the terms and conditions mentioned, the order of preference shall be NIT (this letter) / SCC / GCC Rev. 06.

38. "If any bidder uploads price bid in the unpriced section (techno-commercial attachment page) of the tender in e-procurement, in that case bidder(s) shall only be responsible for such mistake and any consequences thereof. Hence all bidders are requested to be more careful at the time of uploading the Unpriced and Price Bid for Part-I and Part-II respectively to avoid mismatch".

Note: Tenderer must submit UN-PRICED Price format duly filled mentioning the word "QUOTED" in place of actual price given in sealed price bid.

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**Project
Engineering
Management**

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)



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Thanking you,
Yours faithfully,
For and on behalf of BHEL

Kunal Gandhi
9/6/17

(Signature of official with Name & Designation)

Enclosures:

- NIT (this letter itself)
- Annexure-I: Price Format
- Annexure-II: Special Conditions of Rate Contract (SCC).
- Annexure-III: List of prospective projects
- Annexure-IV: PQR (Pre-qualifying Requirement)
- Annexure-V: Technical Specification No. PE-TS-20-145-I916
- Annexure-VIA Cost of Withdrawal sheet (Annexure-II of GCC Rev. 06)
- Annexure-VIB PBG Format

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PRICE SCHEDULE- Rate Contract of Ultrasonic Flowmeters

Sl No.	ITEM No	Ref TECHNICAL SPECIFICATION (ANNEXURE-V) DATA SHEET No.	ITEM DESCRIPTION	Pipe Range	Qty	Unit Ex-Works price	Total Ex-Works (Rs.)	ED (Including cess)	CST against from C and form E	Service Tax	FREIGHT CHARGES (Inc. Service Tax)	TOTAL F.O.R. SITE PRICE (Rs.)	Unit C & F Indian Sea Port Price(Currency)	Total C & F Indian Sea Port Price(Currency)	OCEAN / MARINE INSURANCE	PORT HANDLING CHARGE (INR)	CUSTOM DUTY (INR)	INLAND FREIGHT CHARGES (INCLUDING SERVICE TAX) (INR)	TOTAL F.O.R. SITE PRICE based on derived unit-exworks prices & applicable loading for each case (Rs.)	% allocation of each Item for Ultrasonic Flowmeters w.r.t. Total Price Quoted by bidder(at Sl. No A+B of Column 8 for Indian Bidder & at Sl. no. A+B of Column 15 for foreign bidder) for deriving Values (from A.1 to A.4 at Column 8 (Indian bidder) & Column 15 (foreign bidder) of this sheet)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
						APPLICABLE FOR INDIAN BIDDERS (PRICES IN INR)							APPLICABLE FOR FOREIGN BIDDERS (BIDDER TO INDICATE THEIR CURRENCY)							
A.																				
A.1	UFM-1	DS-1	DUAL PATH transit time clamp-on UFM having 2 SET OF SENSOR	>=80 NB to <=400 NB	8	Derived	Derived	% TO BE QUOTED	% TO BE QUOTED			Derived	Derived	Derived	BHEL SCOPE TO BE LOADED ON C& F VALUE				Derived	8.81
A.2	UFM-2	DS-2	DUAL PATH transit time clamp-on UFM having 2 SET OF SENSOR	>400 NB to <=4500 NB	44	Derived	Derived	% TO BE QUOTED	% TO BE QUOTED			Derived	Derived	Derived					Derived	60.58
A.3	UFM-3	DS-3	SINGLE PATH transit time clamp-on UFM having 1 SET OF SENSOR	>=80 NB to <=400 NB	5	Derived	Derived	% TO BE QUOTED	% TO BE QUOTED			Derived	Derived	Derived					Derived	3.01
A.4	UFM-4	DS-4	SINGLE PATH transit time clamp-on UFM having 1 SET OF SENSOR	>400 NB to <=4500 NB	23	Derived	Derived	% TO BE QUOTED	% TO BE QUOTED			Derived	Derived	Derived					Derived	17.31
A.						Derived	Derived	Derived	Derived			Derived	Derived	Derived					Derived	
B. COST OF SERVICES																				
1	-	-	Man Days FOR SUPERVISION OF E&C	-	140	Derived	Derived			% TO BE QUOTED		Derived	Derived	Derived	REVERSE SERVICE TAX TO BE LOADED				Derived	10.28
A+B	GRAND TOTAL COST TO BHEL						TO BE QUOTED							TO BE QUOTED						100

NOTES

1. Unit Prices and Total Prices shall include the prices of all accessories required for the completeness of the system (such as cable gland, Transducer cable, all mounting hardware, SS nameplate, SS Chain etc.) along with UFM.
2. Cable Gland, between sensor and transmitter shall be double compression type SS cable gland.
3. Bidders are required to mention their total price in Cell highlighted in Row No. A+B (Column No. 8 for Indian Bidders and Column No 15 for Foreign Bidders). Bidders to note that here the Total Ex-Works Price = Price for Main Supply+ Cost of Services
4. Bidders are required to fill value only where "To be quoted" has been mentioned. The other cells where "Derived" has been mentioned is NOT required to be filled by bidders. The same shall be DERIVED by BH&L as per the percentage allocation mentioned in Column No. 21.
5. For simplicity, the cells required to be filled by Suppliers have been highlighted in YELLOW.
6. Further, the supplier is required to quote the prices for Excise Duty, Service Tax, CST, Freight (as applicable). The same shall be used to Derive the total F.O.R. Price.
7. Please refer Technical Specification PE-TS-20-145-916 for details.

Special Condition of Rate Contract for Ultrasonic Flowmeters

1. BHEL/PEM intends to enter into Rate Contract for the tendered Ultrasonic Flowmeters for a period of two years. The Rate Contract shall come into force from the date of issue of Purchase order for Rate Contract.
2. The items will be required against respective projects. Exact quantities and Project name shall be intimated while placing order for a specific project based on the Rate Contract. The list of tentative projects and the corresponding quantities have been mentioned in separate annexures.
3. The unit rate for each item should be quoted inclusive of ex-works including packing & forwarding (excepted sea worthy packing) for tendered specifications/sizes as per price schedule format. Other elements of prices such as Excise Duty, Sales Tax, and freight charges (Including service tax) % of Ex-works are also to be indicated. Destination may be anywhere in India as per project requirement.
4. The freight charges shall be paid on percentage on ex-works prices or actual freight charges paid to transporter whichever is lower against production of documentary evidence. Vendor to quote freight charges as percentage (%) of ex-works price for destination anywhere in India.
5. Vendor to note that Excise Duty is payable on self-manufacturing item only as per clause no 4.1.2 of GCC Rev 06 & hence for their BOI may quote Excise Duty is inclusive or Nil.
6. The prices shall remain firm during the period of two years.
7. Inspection of materials shall be carried out by BHEL / CQA and or by Customer or by an authorized agency at manufacture's works before dispatch, if required. Dispatch of material to be done, only after receipt of BHEL/Customer MDCC. It is responsibility of vendor to for obtain Material Dispatch Clearance Certificate (MDCC) from BHEL or CUSTOMER as required before dispatch of material.
8. Items have to be manufactured as per specification and supplied strictly in accordance with the approved BHEL / Customer's Drawings & Quality Plan. The items/ test certificate of items, which for any reason are not acceptable to BHEL / Customer, shall be required to be retested. No extra charge shall be payable on those account by BHEL.
9. Mode dispatch shall be by road through Schedule Bank/BHEL (PEM) approved transporters.
10. Other terms and conditions shall be as per Standard Technical specification no. PE-TS-20-145-I916 & GCC Rev 06, Enquiry letter.
11. Order shall be placed with CST for respective projects keeping FOR site price same, vendors to quote accordingly.
12. This enquiry is subject to Conditions/ limits if any imposed in PMD/ Vendor registration.
13. Tentative quantity is given in enquiry.
14. Bidders to submit offer for RC of said items ONLINE via e-Procurement System only. Complete tender in all respects duly signed & stamped on each and every page by the authorized signatory of the bidder as a token of acceptance of all the terms and conditions of tender.
15. The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendor/ 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 as soon as it comes to their notice.

Kund Handl
9/6/17
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LISTS OF PROJECTS FOR ULTRASONIC FLOWMETERS PACKAGE (PROPOSED)

With reference to proposed execution of rate contract of Ultrasonic Flowmeters package, the indicative list of projects as on date are listed below:

S.No	Project List
1	1 X 660 MW PANKI
2	2 X 660 MW MAITREE
3	1X 800 MW NORTH CHENNAI
4	2x 660 MW ENNORE
5	5 x 800 MW YADRADRI
6	4 X 270 MW BHADRADRI
7	1 X 525 MW TUTICORIN TPP

It may be noted that project list is indicative only, BHEL may ask for delivery anywhere in India for any of the project added in the prospective project list/ requirement of existing projects during RC period.

	<u>PRE-QUALIFICATION REQUIREMENTS</u>	PE-PQ-999-145-I007
		REVISION NO. DATE 29/04/2016
		SHEET NO. 1 OF 1

ENQUIRY NO: (To be filled by PG)	
PROJECT:	
PACKAGE: ULTRASONIC FLOW METERS	
1.0	Supplier should be Original equipment manufacturer (OEM) for ULTRASONIC FLOW METERS. “Supplier to comply to general points of PQR available at http://bhelpem.com/vensection/PMD/PMD.aspx in case supplier is not OEM , the offer shall be evaluated as per point no 1 of general points of PQR “
2.0	The Product being offered by the Supplier should be in use successfully in power plant or any other industrial application for at least 1 (One) year. Supplier to submit either of following supporting documents for the product: a. Copy of minimum 1 (One) Performance Certificate from end user / customer specifying that product is running successfully for 1 (One) year from date of commissioning. The certificate should clearly indicate date of commissioning, date of issue of certificate and name/designation of the certificate issuer. Copy of purchase order & technical parameter to be attached along with the performance certificate. OR b. Copy of repeat order from minimum 1 (One) purchaser. Order received by supplier from same purchaser with a gap of minimum 2 (Two) years shall be considered as repeat order. Copy of technical parameters for each order to be attached.
3.0	Supplier to furnish experience list of last 5 years indicating customer name, purchase order reference, item supplied & year of supply to establish the continuity of business.

PREPARED BY NAME: DESIGNATION	REVIEWED BY NAME: DESIGNATION	APPROVED BY NAME: DESIGNATION
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TECHNICAL SPECIFICATION
FOR
ULTRASONIC FLOW METER
(FOR RATE CONTRACT)

VOLUME II–B
SECTION C & D

SPECIFICATION No's
PE–TS–20–145–I916



TITLE
TECHNICAL SPECIFICATION
ULTRASONIC FLOW METER (FOR RATE CONTRACT)

DOC. NO. PE–TS–20–145–I916

BHARAT HEAVY ELECTRICALS LTD
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA

DEPT CODE			NAME	SIGN	DATE
	DESN	NEW			18.05.17
	CHD	SS			18.05.17
	I	APPD	DP		18.05.17

**TECHNICAL SPECIFICATION
FOR
ULTRASONIC FLOW METER**

(RATE CONTRACT)

VOLUME II-B

SECTION C & D

SPECIFICATION No. PE-TS-20-145-I 916



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT DIVISION
NOIDA, INDIA**



Technical specification for
ULTRASONIC FLOW METER
(RATE CONTRACT)

SPEC NO.: PE-TS-20-145-I916

VOLUME II B

SECTION C

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SECTION – C

▪ **SPECIFIC TECHNICAL REQUIREMENTS**



Technical specification for
ULTRASONIC FLOW METER
(RATE CONTRACT)

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SPECIFIC TECHNICAL REQUIREMENTS

- 1.0** This specification is intended for finalization of rate contract between BHEL PEM and Bidder. Standard technical detail as indicated in the specification shall be agreed upon between BHEL PEM and Bidder. Project specific technical detail shall be made available to the bidder along with project enquiry.
- 2.0** This specification covers the Design, Manufacture, Inspection and testing at manufacturer's works, proper packing for transportation and delivery to site of the complete Ultrasonic Flow Meter along with accessories.
- 3.0** The bids shall be evaluated as per NIT. Ordering shall be done separately for each project.
- 4.0** The quality plan enclosed forms the minimum requirement but not limited to be adhered to by the bidder.

5.0 GENERAL TECHNICAL INSTRUCTIONS

- i. It is not the intent here to specify all the details of design and manufacture. However, the equipment shall conform in all respects to high standard of design, engineering and workmanship and shall be capable of performing the required duties in a manner acceptable to the customer / consultant, who will interpret the meaning of drawing and specification and shall be entitled to reject any component or material which in his judgment is not in full accordance herewith.
- ii. The omission of specific reference to any component / accessory necessary for the proper performance of the equipment's shall not relieve the supplier of the responsibility of providing such facilities to complete the supply within the quoted prices.
- iii. BHEL's / Customer representatives shall be given access to the shop in which the equipment's are being manufactured or tested and all test records shall be made available to them.
- iv. The Equipment covered under this specification shall not be dispatched unless the same have been finally inspected, accepted and Material Dispatch Clearance Certificate (MDCC) is issued by BHEL / Customer.
- v. **The bidder to quote for items as per price schedule attached. The quantity as mentioned in the BOQ is only for evaluation purpose. However actual ordered quantity may vary from project to project throughout the year.**
- vi. **These rates shall be applicable for a period of 2 years from the date of issue of rate contract for the equipment.**
- vii. During rate contract in force; any other BHEL unit may also make use of rates if their specification is identical to specification of rate contract.
- viii. Inspection shall be carried out in line with pre-approved drawings/data sheet/QP.



Technical specification for
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- ix. Quality plan to be duly signed and stamped and to be furnished along with the bid as a token of acceptance. **Any deviation w.r.t Quality Plan shall not be acceptable and bid / offer shall be rejected.**
- x. Wherever in data sheet more than one options are marked, bidder to note that one option shall be selected by BHEL for a specific project and the same shall be supplied by bidder without any commercial implication with respect to rate contract.
- xi. Scope of supply shall include complete Ultrasonic Flow Meter along with accessories as indicated in the specification.
- xii. BHEL shall decide the UFM model and type as per system requirement during detail engineering.

6.0 Bidder to note that pipe sizes may vary from project to project. Same shall be informed during project specific order. No commercial implication shall be acceptable for the same.

7.0 Process pressure, temperature & flow may vary for a particular items in BOQ from project to project. Bidder to comply with these process parameters without any commercial implication.

8.0 Inspection will be conducted by BHEL and/or their authorized representatives as per the agreed inspection schedule. The inspection schedule will be submitted by the bidder for BHEL's approval at contract stage of specific project. The cost of all tests and inspections will be deemed to have been included in the rate contract. For all the type tests "Type Test Certificates" shall be furnished. In the absence of the same, such Type Tests shall be arranged at the Vendor's works in the presence of BHEL and/or their authorized representatives or in independent Test House/ Laboratory approved by BHEL.

9.0 Sea worthy packing (if applicable) for a specific project shall be provided by the bidder without any commercial implication. Same shall be informed by BHEL during project specific order. Inspection of the sea worthy packing shall be done as per the project specific sea worthy packing specification by Customer/BHEL/BHEL appointed Inspection party.

10.0 Refer Section-D Equipment specification for Code & Standards, Technical requirements, Tests & Inspection, Drawings & Documents, Packing, Marking & Applicable Datasheets.

11.0 The service description indicated in respective datasheets DS-1 to DS-4 are for reference only. The actual service description for each datasheet shall be informed during project execution based on pipe size, design/process parameters & accessories requirements.



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12.0 Supplier supervision is required for 2 days for each Ultrasonic Flow Meter during it's E&C. For instance, if 5 number of UFM are required at one site then bidder may have to visit the site 5 times for 2 full days each time, for E&C of each UFM individually. All the expenses such as boarding, lodging and travel, Air fare etc. shall be in bidder's scope, BHEL shall provide supervision charges of E&C on lump sum basis as per rate contract purchase order.

13.0 DOCUMENTATION:

(A) **Along with the bids:** No separate documentation required at the time of bids except those specifically listed **under Cl. No. 7.0 of Sec-D of Vol-II B.**

(B) **After the award of contract:** 10 sets of the following documents to be enclosed along with the contract documents for approval:

- a) Datasheet C completely filled-up.
- b) Quality plan duly signed and stamped.
- c) All Differential pressure vs Flow graphs.
- d) Calculation Sheet.
- e) Assembly dimensional drawings.
- f) GA Drawing.

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SECTION – D

- **EQUIPMENT SPECIFICATION**
- **CUSTOMER's SPECIFICATION**
 - **DATA SHEETS – A&B**
 - **DATA SHEETS – C**
 - **QUALITY PLAN**
 - **BOQ-MAIN SUPPLY**

**SCHEDULE OF SUBMISSION OF
DRAWINGS/ DOCUMENTS, EQPT. MANUFACTURE,
INSPECTION AND DISPATCH**



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EQUIPMENT SPECIFICATION



Technical specification for Ultrasonic Flow Meter with Accessories

SPEC NO.: **PE-TS-20-145-I916**

DOCUMENT NO.

VOLUME **II-B**

SECTION **D**

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1.0 SCOPE

This specification covers the Design, Manufacture, Calibration, Inspection and Testing at the manufacturer's works, proper packing for transportation and delivery to site of Ultrasonic Flow Meter for use in Utility/Captive Power Station/Combined Cycle Station.

2.0 CODES AND STANDARDS

2.1 All the equipments specified herein shall comply with the requirements of the latest issue of the relevant National and International standards.

2.2 The Ultrasonic Flow Meters shall be of proven reliability, accuracy and repeatability requiring a minimum of maintenance. The Design and Materials used for the components shall also comply with the relevant National and International standards.

3.0 TECHNICAL REQUIREMENT

The Ultrasonic Flow Meters and the accessories shall be suitable for continuous operation under an ambient temperature of 0-55°C for Transmitter and (-) 20 to 100°C for Transducer and Relative Humidity of 0-95% unless specified otherwise in volume IIB Section-B or Section-C.

All accessories required for mounting/erection of ultrasonic flow meter shall be furnished as necessary for completeness of the system. BHEL Shall furnish the pipe size and flow process parameter during project specific enquiry. Bidder to provide all necessary accessories for pipe size between 80 NB to 4500NB without any price implication.

3.1 Flow measurement

The Ultrasonic Flow Meter shall be based on transit-time flow measurement technique using a pair of transducers with each transducer sending and receiving coded ultrasonic signals through the fluid. When the fluid is flowing, signal transit-time in the downstream direction is shorter than in the upstream direction; the difference between these transit times is proportional to the flow velocity. The Ultrasonic Flow Transmitter measures this time difference and uses programmed pipe parameters to determine flow rate and direction.

3.2 Accessories:

All mounting hardware like clamping fixtures, mechanism to remove the sensors on line, interconnecting screened cables between Transducer & Transmitter, Cable Glands etc. as required to be supplied. Material of all fittings shall be SS-316.

4.0 GUARANTEE AND PERFORMANCE

The guarantee of flow measuring assembly shall be 18 months from the date of dispatch or 12 months from commissioning whichever is earlier.

5.0 TEST & INSPECTION

5.1 The bidder shall adopt suitable quality assurance plan to ensure that the equipment offered will meet the specification requirements in full.



Technical specification for
**Ultrasonic Flow Meter with
Accessories**

SPEC NO.: **PE-TS-20-145-I916**

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5.2 The quality plan forming part of this specification shall be the minimum requirements for the vendor's quality plan to be submitted with the offer. The vendor shall give at least 15 days written notice to purchaser for witnessing the tests/inspection at various stages. The expenses for all such tests/inspection shall be to manufacturer's account except for the expenses of purchaser's representatives witnessing the tests. The purchaser shall attend such tests/inspection within 15 days failing which the manufacturer may proceed with the tests which shall be deemed to have been made in purchaser's presence and shall furnish relevant test certificates to the purchaser.

5.3 Inspection will be conducted by BHEL and/or their authorized representatives as per the agreed inspection schedule. The inspection schedule will be submitted by the bidder for BHEL's approval at contract stage. The cost of all tests and inspections will be deemed to have been included in the bid. For all the type tests "Type Test Certificates" as per agreed Quality Plan shall be furnished. In the absence of the same, such Type Tests shall be arranged at the Vendor's works in the presence of BHEL and/or their authorized representatives or in independent Test House/Laboratory approved by BHEL.

6.0 SPARES AND CONSUMABLES

6.1 Commissioning Spares and consumables

As part of the main equipment supply, the bidder shall supply all commissioning spares and consumables required during Start-up,

6.2 Recommended Spares

The bidder shall furnish a list of Recommended Spares along with the normal service expectancy period and frequency of replacement; quantities recommended for 3 years operation along with unit rate against each item to enable BHEL/BHEL's Customer to place a separate order later, if required.

6.3 Special Tools & Tackles

The bidder shall furnish a list of Special Tools & Tackles included in the bid.

7.0 DRAWINGS & DOCUMENTS

DRAWINGS & DOCUMENTS

7.1 For RATE CONTRACT:

Following documents shall be submitted:

- a) Quality plan duly signed and stamped.
- b) Datasheet A & B duly signed and stamped.
- c) Schedule of submission of Drg. / Doc, Equip. Manufacture, Inspection and Dispatch.
- d) Inspection schedule.
- e) Unpriced bid format of Price Schedule.

7.2 After the award of project specific contract:

The documentation as listed below to be submitted, separately for respective projects.



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**Ultrasonic Flow Meter with
Accessories**

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7.2.1 for approval:

1. Technical data sheets for each flow UFM and accessories, in the proforma enclosed under Data sheet-B.
2. Assembly drawing of each type of flow UFM complete with all accessories indicating detailed dimensions, B.O.M. and weights.
3. Installation drawings for the flow elements.
4. Quality Plan duly signed and stamped.

7.2.2 for information:

1. Storage & commissioning instructions.
2. All relevant catalogues for the models of the UFM as well as accessories finalized.
3. O&M manuals.

7.3 Final documentation for a project specific contract:

Final documentation separately for respective projects shall contain 20 sets with 4 CD-ROMS of each of the following:

1. Verified test certificates.
2. Approved Quality Plan
3. Calibrations Reports
4. Quality Inspection Report
5. Operation & Maintenance Manuals for Flow Element Assemblies and all the accessories (Containing storage & commissioning instructions).

8.0 FOR INFORMATION

8.1 Storage and Commissioning Instruction

8.2 O&M are to be supplied as specified.

9.0 PACKING & MARKING

9.1 Each item shall be properly packed with adequate protection against friction, stresses, vibration & shock during transportation. Each packing box shall have marking as per Purchase Order.

9.2 Each assembly shall be identified with the following information.

- Tag No.
- Service.



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- Line size & thickness.
- Direction of flow.

10.0 APPLICABLE DATA SHEETS

This document shall be read in conjunction with following data sheets.

1. Data Sheet - A & B : Data sheet no. PES-145-27-DS1-0

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CUSTOMER's SPECIFICATION



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CUSTOMER'S SPECIFICATION

If applicable, Same shall be informed by BHEL during project specific order

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DATA SHEETS – A&B



DATA SHEET FOR UTRASONIC FLOW METER

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SHEET 2 OF 8

PIPE LINE DATA	PIPE SIZE (OD x THK) mm PIPE MATERIAL AVAILABLE PIPE STRAIGHT LENGTH	■ 80 NB TO 400 NB UPSTREAM : 10D DOWNSTREAM : 5D	Project Specific Line Size shall be informed during detailed Engineering.
SUPERVISION	SUPERVISION OF ERECTION AND COMMISSIONING	■ YES	

NOTES: -

- 1) All Accessories required for the completeness of the system (like cable gland, Transducer cable, all mounting hardware, SS nameplate etc.) shall be provided.
- 2) Cable Gland, as applicable shall be Double compression type SS cable gland.
- 3) If required, Transmitter shall be suitably located away from the sensor for better access and visibility. In this case minimum cable length between sensor & transmitter shall be 30 meter.



DATA SHEET FOR UTRASONIC FLOW METER

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PIPE LINE DATA	PIPE SIZE (OD x THK) mm	☒ 400 NB TO 4500 NB UPSTREAM : 10D DOWNSTREAM : 5D	Project Specific Line Size shall be informed during detailed Engineering.
	PIPE MATERIAL		
	AVAILABLE PIPE STRAIGHT LENGTH		
SUPERVISION	SUPERVISION OF ERECTION AND COMMISSIONING	☒ YES	

NOTES: -

- 1) All Accessories required for the completeness of the system (like cable gland, Transducer cable, all mounting hardware, SS nameplate etc.) shall be provided.
- 2) Cable Gland, as applicable shall be Double compression type SS cable gland.
- 3) If required, Transmitter shall be suitably located away from the sensor for better access and visibility. In this case minimum cable length between sensor & transmitter shall be 30 meter.

	DATA SHEET FOR UTRASONIC FLOW METER		SPEC NO.: PE-TS-20-145-I916	
			VOLUME II B	
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			SHEET 5	OF 8
REF. DATA SHEET No. DS-3				
DATA SHEET – A & B				
DATA SHEET – A (TO BE FILLED BY PURCHASER)			DATA SHEET – B (TO BE FILLED UP BY BIDDER)	
GENERAL	PROJECT	} To be informed during specific project	.....	
	TAG NO.		.....	
	SERVICE :		.....|.....	
	MAKE : MODEL	Bidder to indicate	.....	
TECHNICAL	TYPE	☐ TRANSIT TIME CLAMP-ON ☐ SINGLE PATH ☐ 1 SET OF SENSOR ☐ Instantaneous Flow Rate ☐ Totalized Flow	.....	
	FLOW MEASUREMENT	Isolated 4-20 mA DC linear output	.....	
	OUTPUT	± 1%	.....	
	ACCURACY	± 0.2% of calibration span	.....	
	REPEATABILITY	400:1	.....	
	RANGEABILITY	≤ 20 msec	.....	
	RESPONSE TIME	MIN. 500 OHM	.....	
	LOAD RESISTANCE	☐ YES	.....	
	HART COMPATIBILITY	2 NO + 2 NC	.....	
	CONTACT RELAY OUTPUT	Flow meter with LCD screen backlight based local display and keypad.	.....	
	DISPLAY/INDICATION	☐ 230V AC ☐ 24 VDC	.....	
	OPERATING VOLTAGE	☐ YES	.....	
	TOTALIZING FACILITIES	☐ YES	.....	
	VELOCITY MEASUREMENT	☐ YES	.....	
	FLOW MEASUREMENT	IP-67	.....	
	PROTECTION CLASS	☐ SS ☐ DIE CAST ALUMINIUM	.....	
	ENCLOSURE MATERIAL	SS Chain or Strap or Welded	.....	
	MOUNTING	☐ PLUG-IN SOCKET ☐ CABLE GLAND	.....	
	ELECTRICAL CONNECTION	RS 232 C	.....	
	COMMUNICATION PORTS	☐ YES	.....	
	SOFTWARE	☐ YES	.....	
	DIAGNOSTIC FEATURE	☐ YES	.....	
	RECORDING /LOGGING	☐ YES	.....	
PROCESS DATA	RATE OF FLOW (T/HR)	NORMAL :	} During Detailed Engineering	
	UPSTREAM WORKING PRESS (Kg/cm2g)	MAXIMUM :		
	DESIGN PRESS (Kg/cm2g)			
	NORMAL TEMP (Deg C)			
	MAXIMUM TEMP (Deg C)			
	PIPE LOCATION	☐ UNDERGROUND ☐ OVERGROUND		



DATA SHEET FOR UTRASONIC FLOW METER

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PIPE LINE DATA	PIPE SIZE (OD x THK) mm PIPE MATERIAL AVAILABLE PIPE STRAIGHT LENGTH	■ 80 NB TO 400 NB UPSTREAM : 10D DOWNSTREAM : 5D	Project Specific Line Size shall be informed during detailed Engineering.
SUPERVISION	SUPERVISION OF ERECTION AND COMMISSIONING	■ YES	

NOTES: -

- 1) All Accessories required for the completeness of the system (like cable gland, Transducer cable, all mounting hardware, SS nameplate etc.) shall be provided.
- 2) Cable Gland, as applicable shall be Double compression type SS cable gland.
- 3) If required, Transmitter shall be suitably located away from the sensor for better access and visibility. In this case minimum cable length between sensor & transmitter shall be 30 meter.



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	PIPE LOCATION	☐ UNDERGROUND ☐ OVERGROUND	
PIPE LINE DATA	PIPE SIZE (OD x THK) mm PIPE MATERIAL	☐ 400 NB TO 4500 NB	Project Specific Line Size shall be informed during detailed Engineering.
	AVAILABLE PIPE STRAIGHT LENGTH	UPSTREAM : 10D DOWNSTREAM : 5D	
SUPERVISION	SUPERVISION OF ERECTION AND COMMISSIONING	☐ YES	

NOTES: -

- 1) All Accessories required for the completeness of the system (like cable gland, Transducer cable, all mounting hardware, SS nameplate etc.) shall be provided.
- 2) Cable Gland, as applicable shall be Double compression type SS cable gland.
- 3) If required, Transmitter shall be suitably located away from the sensor for better access and visibility. In this case minimum cable length between sensor & transmitter shall be 30 meter.

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DATA SHEETS – C



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DATA SHEET – C

DATA SHEET – C
(TO BE FILLED BY PURCHASER)

GENERAL	PROJECT		
	TAG NO.		
	SERVICE :		
	MAKE : MODEL		.....
TECHNICAL	TYPE		.....
	FLOW MEASUREMENT		.....
	OUTPUT		.....
	ACCURACY		.....
	REPEATABILITY		.....
	RANGEABILITY		.....
	RESPONSE TIME		.....
	LOAD RESISTANCE		.....
	HART COMPATIBILITY		.....
	CONTACT RELAY OUTPUT		.....
	DISPLAY/INDICATION		.....
	OPERATING VOLTAGE		.....
	TOTALIZING FACILITIES		.....
	VELOCITY MEASUREMENT		.....
	FLOW MEASUREMENT		
	PROTECTION CLASS		
	ENCLOSURE MATERIAL		
	MOUNTING		
	ELECTRICAL CONNECTION		
COMMUNICATION PORTS			
SOFTWARE			
DIAGNOSTIC FEATURE			
RECORDING /LOGGING			
PROCESS DATA	RATE OF FLOW (T/HR)		
	UPSTREAM WORKING PRESS (Kg/cm2g)		
	DESIGN PRESS (Kg/cm2g)		
	NORMAL TEMP (Deg C)		
	MAXIMUM TEMP (Deg C)		
	PIPE LOCATION		



DATA SHEET FOR UTRASONIC FLOW METER

SPEC NO.: PE-TS-20-145-I916

VOLUME II B

SECTION D

REV. NO. 00

DATE :18.05.17

SHEET

2

OF 2

PIPE LINE DATA	PIPE SIZE (OD x THK) mm PIPE MATERIAL AVAILABLE PIPE STRAIGHT LENGTH		
SUPERVISION	SUPERVISION OF ERECTION AND COMMISSIONING		



Technical specification for
ULTRASONIC FLOW METER
(RATE CONTRACT)

SPEC NO.: PE-TS-20-145-I916

VOLUME II B

SECTION D

REV. NO. 00

DATE 18.05.17

QUALITY PLAN

 भारतीय BHEL QUALITY PLAN FOR ULTRASONIC FLOWMETER										QUALITY PLAN NO.: PE-QP-999-145-I 011				
VOLUME IIB														
SECTION D														
REV. NO. 00 DATE: 31.03.2014														
SHEET 19 OF 21														
Sl. No.	Component / operation	Characteristics Checked	* Category	Type/Method of Check	Extent of Check	Reference documents	Acceptance Norms	Format of Records	Agency \$ P W V	Remarks				

1	Standard Certificates	Certificate of Compliance, Warranty Certificate,	Major	Visual	As applicable	Technical documents/Approved documents	Technical catalogue/Approved documents	Technical catalogue/Approved documents	2/3	---	2, 1	
2	Visual Check	Mechanical	Major	Visual	100%	Technical catalogue/Approved documents	Technical catalogue/Approved documents	Technical catalogue/Approved documents	2/3	1	1	
3	Functional test & power ON	Electrical	Major	Visual	100%	Functional test report for meter & transducer	Approved documents	Technical catalogue/Approved documents	2/3	-	1	
4	HART Communication	Electrical	Major	---	100%	Technical catalogue/Approved documents	Technical catalogue/Approved documents	Technical catalogue/Approved documents	-	-	1	

LEGEND: \$ P - Agency Performing the Test.
 W - Agency Witnessing the Test.
 V - Agency Verifying the Test.

1 - Customer/BHEL
 2 - Vendor
 3 - Sub-vendor

	Technical specification for ULTRASONIC FLOW METER (RATE CONTRACT)	SPEC NO.: PE-TS-20-145-I916	
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BOQ-MAIN SUPPLY



Technical specification for
ULTRASONIC FLOW METER
 (RATE CONTRACT)

SPECIFICATION NO.: PE-TS-20-145-I916

VOLUME IIB

SECTION C

REV. NO. 00

DATE : 18.05.17

BOQ FOR ULTRASONIC FLOW METER FOR RATE CONTRACT

Sl No.	ITEM No	Ref DATA SHEET No.	ITEM DESCRIPTION	Pipe Range	Qty
1	UFM-1	DS-1	DUAL PATH transit time clamp-on UFM having 2 SET OF SENSOR	>=80 NB to <=400 NB	8
2	UFM-2	DS-2	DUAL PATH transit time clamp-on UFM having 2 SET OF SENSOR	>400 NB to <=4500 NB	44
3	UFM-3	DS-3	SINGLE PATH transit time clamp-on UFM having 1 SET OF SENSOR	>=80 NB to <=400 NB	5
4	UFM-4	DS-4	SINGLE PATH transit time clamp-on UFM having 1 SET OF SENSOR	>400 NB to <=4500 NB	23
5			Man Days FOR SUPERVISION OF E&C		140

	Technical specification for ULTRASONIC FLOW METER (RATE CONTRACT)	SPEC NO.: PE-TS-20-145-I916	
		VOLUME	II B
		SECTION	D
		REV. NO.	00
		DATE 18.05.17	

SCHEDULE OF SUBMISSION OF DRAWINGS/ DOCUMENTS, EQPT. MANUFACTURE, INSPECTION AND DISPATCH

	Technical specification for ULTRASONIC FLOW METER 4X270 MW BHADRADRI TPS	SPECIFICATION NO. PE-TS-411-145-I916	
		VOLUME II-B	
		SECTION D	
		REV. NO. 00	DATE: 05/06/2015
		SHEET 21 OF 21	

SCHEDULE OF SUBMISSION OF DRAWINGS / DOCUMENTS, EQUIPMENT MANUFACTURE INSPECTION AND DESPATCH

- | 1. <u>ZERO DATE</u> | <u>DATE of LOI / FOI / TOI</u> |
|--|---------------------------------------|
| 2. Submission of Data Sheets / documents / catalogues for approval. | 2 Weeks from the Zero date. |
| 3. Technical finalisation, freezing of inputs of manufacture by way of vetting of documents and technical discussions and resubmissions of documents (if required) | 6 Weeks from the Zero date. |
| 4. Inspection of Equipment as per Approved (Category-I) drawings / documents. | 18 Weeks from the Zero date. |
| 5. Release of MDCC by BHEL | 19 Weeks from the Zero date. |
| 6. Dispatch (Packaging & Dispatch) | 20 Weeks from the Zero date. |
| 7. Final documents submission as per Contract | 24 Weeks from the Zero date. |

NOTE: Delays due to non-fulfillment of the requirements of approved Quality Plan and approved Data sheets, Drawings, Catalogues and Sizing Calculations observed during inspection shall be to the Vendor's account.

Delays due to INCOMPLETE (Partly) submission of Data sheets, Drawings, Catalogues and Sizing Calculations also be considered as **"DOCUMENTS NOT SUBMITTED"**

(Signature and Stamp of the Bidder)

ANNEXURE-II: DEVIATION SHEET (COST OF WITHDRAWAL)



PROJECT:-

PACKAGE:-

TENDER ENQUIRY REFERENCE:-

NAME OF VENDOR:-

SL NO	VOULME/ SECTION	PAGE NO.	CLAUSE NO.	TECHNICAL SPECIFICATION/ TENDER DOCUMENT	COMPLETE DESCRIPTION OF DEVIATION	COST OF WITHDRAWAL OF DEVIATION	REFERENCE OF PRICE SCHEDULE ON WHICH COST OF WITHDRAWAL OF DEVIATION IS APPLICABLE	NATURE OF COST OF WITHDRAWAL OF DEVIATION (POSITIVE/ NEGATIVE)	REASON FOR QUOTING DEVIATION
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TECHNICAL DEVIATIONS

COMMERCIAL DEVIATIONS

PARTICULARS OF BIDDERS/ AUTHORISED REPRESENTATIVE

NAME	DESIGNATIONS	SIGN & DATE	
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NOTES:

- For self manufactured items of bidder, cost of withdrawal of deviation will be applicable on the basic price (i.e. excluding taxes, duties & freight) only.
- For directly dispatchable items, cost of withdrawal of deviation will be applicable on the basic price including taxes, duties & freight.
- All the bidders have to list out all their Technical & Commercial Deviations (if any) in detail in the above format.
- Any deviation not mentioned above and shown separately or found hidden in offer, will not be taken cognizance of.
- Bidder shall submit duly filled unpriced copy of above format indicating "quoted" in "cost of withdrawal of deviation" column of the schedule above along with their Techno-commercial offer, wherever applicable.
- Bidder shall furnish price copy of above format along with price bid.
- The final decision of acceptance/ rejection of the deviations quoted by the bidder shall be at discretion of the Purchaser.
- Bidders to note that any deviation (technical/commercial) not listed in above and asked after Part-I opening shall not be considered.
- For deviations w.r.t. Payment terms, Liquidated damages, Firm prices and submission of E1/ E2 forms before claiming 10% payment, if a bidder chooses not to give any cost of withdrawal of deviation loading as per Annexure-VIII of GCC, Rev-06 will apply. For any other deviation mentioned in un-priced copy of this format submitted with Part-I bid but not mentioned in priced copy of this format submitted with Priced bid, the cost of withdrawal of deviation shall be taken as NIL.
- Any deviation mentioned in priced copy of this format, but not mentioned in the un-priced copy, shall not be accepted.
- All techno-commercial terms and conditions of NIT shall be deemed to have been accepted by the bidder, other than those listed in unpriced copy of this format.
- Cost of withdrawal is to be given separately for each deviation. In no event bidder should club cost of withdrawal of more than one deviation else cost of withdrawal of such deviations which have been clubbed together shall be considered as NIL.
- In case nature of cost of withdrawal (positive/negative) is not specified it shall be assumed as positive.
- In case of discrepancy in the nature of impact (positive/ negative), positive will be considered for evaluation and negative for ordering.

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of the Bharat Heavy Electricals Limited ¹ (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____ through its Unit at.....(name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) having its registered office at _____ ² hereinafter referred to as the 'Contractor/Supplier', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated³ valued at Rs.....⁴ (Rupees -----)/FC.....(in words.....) for⁵ (hereinafter called the 'Contract') and the Contractor having agreed to provide a Contract Performance Guarantee, equivalent to% (.... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

we,, (hereinafter referred to as the Bank), having registered/Head office at and inter alia a branch at being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer a maximum amount Rs ----- (Rupees -----) without any demur, immediately on a demand from the Employer, .

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Contractor/ Supplier in any suit or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the contractors/supplier shall have no claim against us for making such payment.

We thebank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Contractor/Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Contractor/Supplier and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor/Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Contractor/Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

This Guarantee shall remain in force upto and including.....⁶ and shall be extended from time to time for such period as may be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor/Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the⁷we shall be discharged from all liabilities under this guarantee thereafter.

We, BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....⁸
- b) This Guarantee shall be valid up to⁹
- c) Unless the Bank is served a written claim or demand on or before¹⁰ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated.....

Place of Issue.....

¹ NAME AND ADDRESS OF EMPLOYER I.e Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

⁴ PROJECT/SUPPLY DETAILS

⁵ BG AMOUNT IN FIGURES AND WORDS

⁶ VALIDITY DATE

⁷ DATE OF EXPIRY OF CLAIM PERIOD

⁸ BG AMOUNT IN FIGURES AND WORDS.

⁹ VALIDITY DATE

¹⁰ DATE OF EXPIRY OF CLAIM PERIOD

Note:

1. Units are advised that expiry of claim period may be kept 2/3 months after validity date.
2. In Case of Bank Guarantees submitted by Foreign Vendors-
 - a. **From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India)** can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.
 - b. **From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)**
 - b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by **any of the Consortium Banks only** will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank (BHEL's Consortium Bank). It is advisable that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.
 - b.2 In case, Foreign Vendors intend to provide BG from Overseas Branch of our Consortium Bank (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at sl.no. b.1 will required to be followed.
 - b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). In case, of Foreign Vendors, the BG Format provided to them should clearly specify the same.
 - b.4 The BG should clearly specify that the demand or other document can be presented in electronic form.