

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

#### A. SPECIAL NOTES & HOW TO QUOTE:

- 1.0 This is a **RATE CONTRACT and NOT A FIRM COMMITMENT**. The financial limit specified in tender is purely tentative and HPCL does not guarantee utilization of any minimum financial limit nor any minimum quantities of any of the tender / PO line items. HPCL reserves the right to operate / not to operate / not to fully operate any of the schedule or items.

#### 2.0 Financial Limit:

- A. HPCL's **Basic Financial Limit for this tender is** as below which is provided below. However, the total basic financial limit of the tender shall be arrived basis vendor's quoted rate, Reverse Auction & Negotiations, if any.:

Schedule	Description	Basic FL (₹)	Total incl of taxes	EMD Amount
Schedule-1	FF Traditional Smart Transmitter PTs & DPTs	36,74,054.20	43,35,384.96	86,707.70
Schedule-2	Hart Traditional Smart Transmitter PTs & DPTs	58,24,337.53	68,72,718.29	1,37,454.37
Schedule-3	FF Remote Seal Smart Transmitter PTs & DPTs	77,01,545.71	90,87,823.94	1,81,756.48
Schedule-4	Hart Remote Seal Smart Transmitter PTs & DPTs	2,12,36,654.84	2,50,59,252.71	5,01,185.05
Schedule-5	High Pressure FF DPT	9,99,420.00	11,79,315.60	23,586.31
Schedule-6	High Pressure Hart PTs & DPTs	18,40,536.16	21,71,832.67	43,436.65

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

Schedule	Description	Basic FL (₹)	Total incl of taxes	EMD Amount
Schedule-7	High Pressure Hart Remote Seal PT	8,80,077.30	10,38,491.21	20,769.82
<b>Total</b>		<b>4,21,56,625.74</b>	<b>4,97,44,818.37</b>	

- B. The Total Financial Limit arrived post Reverse is proposed to be placed on single vendor for each schedule.
- C. In case more than 1 vendor quotes the same lowest (L-1) rate, the Total Financial Limit shall be equally apportioned between all such vendors only.
- D. However, HPCL-MR reserves the right to allocate the Total Financial Limit to the lowest Vendor and/or in any other ratio.
- E. If vendor want to quote for multiple schedule then sum total of all EMD pertaining to the respective schedule shall be submitted by the vendor.

#### 3.0 How to Quote:

- A. BIDDERS TO REFER THE ATTACHED EXCEL SHEET FOR SCHEDULE OF RATES (SOR) AND QUOTE IN MINUS (-) PERCENTAGE OR PLUS (+) PERCENTAGE OR ZERO (0) IN THE CELL F7. THE PERCENTAGE ENTERED IN CELL F7 SHALL BE APPLICABLE UNIFORMLY ON ALL THE LINE ITEMS MENTIONED IN THE EXCEL SHEET.
- B. IN GEM PRICED BID, BIDDER HAS TO QUOTE ONLY THE DELIVERED UNIT RATE (WHICH IS AUTOMATICALLY CALCULATED IN THE CELL J7 OF THE EXCEL SHEET) – **CELL HIGHLIGHTED IN RED.**
- C. DO NOT UPLOAD THIS EXCEL WITH THE TECHNICAL BID. OFFERS FROM VENDORS UPLOADING THIS EXCEL SHEET OR ANY OTHER DOCUMENT INDICATING PRICES ALONG WITH TECHNICAL BID SHALL BE REJECTED WITHOUT ANY FURTHER CORRESPONDENCE.
- D. If there is a mismatch between the rates quoted in Excel Sheet & the Rates quoted in GeM Priced Bid (online), then the rates in the GeM Priced Bid (online) shall be considered for evaluation. The percentage over SoR shall be back calculated.
- E. In case of reverse auction, the final rates arrived post successful reverse auction shall be back calculated for arriving at final percentage over SoR.
- F. For any clarification, bidders to contact the person for commercial queries before quoting.

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

#### 4.0 Invoicing by Vendor:

- A. The vendor shall generate a GST invoice as usual with exact quantity of the items executed and at the rates defined in HPCL's SAP PO. The total invoice value inclusive of GST shall be noted for generating GEM invoice.
- B. **While raising GeM invoice for executed quantities, vendor shall divide the total value of executed quantities (i.e., total delivered invoice value) by the delivered unit rate defined in GEM PO. The figure arrived shall be entered in the quantity field in GEM portal for invoicing.**
- C. The vendor shall define the percentage of taxes applicable for the PO line item for obtaining break-up of Taxable value and Tax amount.
- D. The vendor will be able to locate such GEM invoice in VSS portal which shall be selected for generation of VIT number.

#### 5.0 Declaration:

During bid submission, vendor shall mandatorily upload following declarations:

- i) Not Banned / Holiday Listing declaration.
- ii) Land Border Form – I.
- iii) Additional documents (like NSIC / ISO Certificate / any other relevant documents others than previous POs/IRN) to substantiate claim towards manufacturer / service provider of the tendered items.
- iv) Declaration that the rates quoted are inclusive of all the all overheads, charges, any other duties and including applicable taxes (GST).

Tender will be evaluated on **Overall lowest basis**.

#### **B. PRE- QUALIFICATION CRITERIA (PQC):**

The bidder shall meet the following prequalification criteria and submit supporting documents along with the offer.

In case vendor is quoting for more than one schedule, the cumulative value of PQC technical and financial criteria will be considered for PQC qualification. In case a vendor quotes for multiple schedules and does not qualify PQC based on the cumulative value of the quoted schedules, but qualifies individually for some schedules, the vendor will be accepted for the qualified schedule for which the FL is highest.

Criteria for prior experience and prior turnover (PQC) shall be relaxed by 15% for Micro and Small Enterprises subject to meeting the prescribed quality and technical specification of the tendered items.

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

#### **1.0 Note:**

- 1.1 All above indicated amount in PQC are delivered amount.
- 1.2 Average turnover shall be determined by summing up the annual turnover of each financial year and dividing the sum by three. In the event a bidder does not have any turnover in any one or two of the years of the stated financial years, the turnover for that/those years shall be taken as zero and the average turnover shall be calculated to determine the conformity to the turnover criteria. While Computing Turnover, other income shall not be considered.
- 1.3 For arriving at cost of similar work, the value of work executed shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion to the date of bid opening.
- 1.4 Both the above criteria (Financial and Technical) to be met for qualification of bidders.

#### **2.0 PQC Relaxation:**

##### **2.1 Relaxation for MSEs:**

Criteria for prior experience and prior turnover (PQC) is relaxed by 15% for Micro and Small Enterprises subject to meeting the prescribed quality and technical specification of the tendered items/services. In the case of bidder registered as MSEs, a copy of Udyam Registration Certificate to be submitted.

##### **2.2 Relaxation for Start-up: Not applicable.**

#### **3.0 Documents Required for Fulfilling PQC:**

- A. The Bidders should submit all the Documents in support of meeting the Financial & Technical criteria of PQC in the first instance itself (i.e., in the Technical/ Pre-Qualification Bid). HPCL reserves right to complete the evaluation based on the details furnished along with the Bid, without seeking any additional information.
- B. Documents for Financial Criteria:
  - i. Bidder shall submit the Complete audited balance sheets and profit and loss account for the immediate three preceding financial years, for evaluation and qualification with respect to financial criteria.
  - ii. If a Bidder is not required to get its accounts audited under Section 44AD of The Income Tax Act, 1961, a certificate from a Practicing Chartered Accountant towards the turnover of the Bidder along with copy of its Income Tax Return (not acknowledgement) should be submitted.
  - iii. In case a bidder (a Parent Company) is having wholly owned subsidiaries but only a single consolidated annual report is prepared and audited which includes the

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

- financial details of their wholly owned subsidiaries, consolidated audited annual report shall be considered for establishing the financial criteria subject to statutory auditor of the bidder certifying that separate annual report of bidder (without the financial data of subsidiaries) is not prepared and audited.
- iv. Further, in case a bidder is a subsidiary company and separate annual report of the bidder is not prepared & audited, but only a consolidated annual report of the Parent Company is available, consolidated audited annual report shall be considered for establishing the financial criteria subject to statutory auditor of the parent company certifying that separate annual report of bidder is not prepared and audited.
  - v. In case the financial year closing date is within 6 months of original bid due date and audited annual report of immediately preceding financial year is not available, Bidder has the option to submit the financial details of the three previous years immediately prior to the last financial year.
  - vi. In case the financial year closing date is within 6 – 9 months of original bid due date and audited annual report of immediately preceding financial year is not available, Bidder has the option to submit the financial details of the three previous years immediately prior to the last financial year provided Bidder submits a letter from CA stating the reasons of non-preparation/furnishing of the latest year's Audited Financial Statements.
  - vii. In case the financial year closing date is beyond 9 months of original bid due date, it is compulsory to submit the financial details of the immediate three preceding financial years.
  - viii. Example, in case, audited annual report of immediately preceding financial year (year ending 31st March) is not available and where bid closing date is up to 31st December, the financial details of the three previous years immediately prior to the last financial year may be submitted. However, in case the bid closing date is after 31st December, it is compulsory to submit the financial details of the immediate three preceding financial years only.
  - ix. If Audited Financial Report is in currency other than INR, the respective/ desired figure for calculation of above details shall be converted into equivalent INR considering the conversion factor indicated in Bidder's Audited Financial Report. In case the same is not indicated, the conversion rate of INR as on last date of Bidder's financial year shall be considered, based on TT selling exchange rate published by State Bank of India (SBI).
  - x. Bidder shall ensure that any certificate/ reports issued/ attested by a practicing - chartered accountant in India and submitted in the bid shall mandatorily include stamp, signature and UDIN number. Certificate / reports issued/ attested without UDIN number of practicing chartered accountant in India shall not be considered for evaluation.

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

- C. Documents for Technical Criteria:
- i. Copies of work order(s)/ Purchase order(s) (PO)/ Letter of Acceptance (LoA) clearly indicating the similar work defined above. Copy of invoice / Copy of Completion Certificate/s issued / Delivery Receipts / Client Acknowledgements / Payment Receipts / Client Endorsement by mail or letters/ acknowledged final report or any other document, to support/prove the successful supply of similar items to the satisfaction of HPCL. Date on this completion certificate shall comply with the 7 years' criteria mentioned above (indicating the breakup of value of work).
  - ii. In case jobs is subcontracted, the completion certificates issued by the principal owner to main contractor shall be accompanied by the completion certificate issued by main contractor to the subcontractor. Additionally, Client approval/acknowledgement for engaging bidder as a subcontractor for this job shall be provided.  
For subcontracted jobs, bidder shall also provide proof of payment like bills/invoices, payment receipt, bank statement/GST receipt etc. establishing the fact that payment has been made against the same PO/WO/Contract by the main Contractor to the bidder.
  - iii. Tender specific requirement: Nil.
  - iv. All credentials submitted in support of PQC shall mandatorily be in the name of entity bidding for this tender. Bids from Representatives or Intermediaries will not be accepted.
  - v. In case the bidder has completed the similar nature of work as a JV with another Contractor, bidder shall upload attested copy of the legal agreement for JV.
  - vi. The vendor shall provide (in the Form – X attached) details of PO / Work Order, Completion Certificates, the telephone and e-mail address of the contact person of clients, etc as per the form. Vendor shall confirm that such documentation is enclosed in the bid. However, HPCL reserves the right of getting the document cross verified, at their discretion from the document issuing authority.
  - vii. In case Bidder has executed composite works/supplies which includes any of the qualifying work(s) stated above, then value of such qualifying work(s) out of the total value of composite works shall be considered for the purpose of qualification. For composite works, in the event the value of the qualifying work(s) cannot be ascertained from the work order/ completion certificate submitted by bidder, Copy of Schedule of Rates (SOR), relevant pages of Contracts, copy of relevant pages of final bill certified by OWNER for establishing requirement of PQC or written letter from Owner specifying the nature of work with quantities and values can be submitted for qualification.
  - viii. For the purpose of evaluation, if tax value is not mentioned separately/ explicitly in the experience documents / completion certificate submitted by the bidder, the

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

value of work mentioned in the document shall be deemed to be excluding taxes and the same shall be considered for evaluation without seeking further clarification whether or not the value is including or excluding taxes and duties.

- ix. In case if the Vendor provided PO copy of HPCL for similar works in the last Seven years and does not have Completion Certificate, HPCL reserves the right to use their in-house information for assessment of Bidder's capabilities. Basis such evaluations & findings, HPCL reserves the right to reject a Bidder's offer without assigning any further reason whatsoever. HPCL reserves the right to complete the evaluation based on the details furnished (without seeking any additional information) and / or in-house data, survey or otherwise. HPCL reserves the right to reject the bids if supporting documents to qualify PQC are not submitted along with the bid.
  - x. For Indian Bidders, Order value(s) in multiple currencies shall be converted to equivalent INR at SBI TT selling exchange rate as on the date of award of such proposed qualifying work(s). Similarly, for Foreign Bidder, Order value(s), in multiple currencies shall be converted at the SBI TT selling exchange rate to equivalent USD as on date of award of such proposed qualifying work(s).
  - xi. In case a foreign bidder submits any of the Bidder's Qualification support documents in any language other than English, then it will be the responsibility of such foreign bidder to also provide the English translation copy duly authenticated by any one of the following:
    - a) Local chamber of commerce,
    - b) Indian embassy in bidder's country,
    - c) Any government approved translator/agency,
    - d) Notary Public / Apostille in bidder's country
- D. Authentication of Documents:
- i) All documents furnished by the bidder in support of meeting the Experience and Financial criteria of PQC shall be authenticated in the following manner:  
Either duly notarized by any Notary Public in the Bidder's Country or certified true copies duly signed, dated and stamped by an official authorized for this purpose in Indian Embassy/High Commission in Bidder's country  
Or  
Duly certified by Statutory Auditors of the bidder or practicing Chartered Accountant (not being an employee or a director or not having any interest in the bidder's company) where audited accounts are not mandatory as per law.  
Or  
Bidder shall submit self-certified documents in original from any one out of CEO or CFO or Company Secretary of the bidder (Limited company only) along with

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

self-certification. This option shall not be applicable to Proprietorship / Partnership firms.

- ii) In case due to internal / local regulation, bidder is unable to submit audited balance sheet, the following shall apply:
  - a) In such case CEO / CFO's certificate in original from the company or from the parent company (in case bidder is a subsidiary) stating the Turnover and Net worth of the bidding entity along with a declaration that the bidding company is not in a position to submit its financial statement as per the local / internal regulation (clearly specifying the applicable regulation) with an endorsement by Chartered Accountant / Statutory Auditor / Certified Public Accountant (not being an employee or a Director or not having any interest in the bidder(s) company / firm) shall be accepted.
  - b) Wherever Chartered Accountant / Statutory Auditor / Certified Public Accountant (not being an employee or a Director or not having any interest in the bidder(s) company / firm) is not in a position to endorse such CEO / CFO's certificate due to local regulations, CEO / CFO's certificate in original without endorsement may be accepted provided a reference of the local regulation restricting this endorsement is given in the CEO / CFO certificate.
- E. Failure to meet any of the above Pre-Qualification Criteria will render the Bid liable for rejection. Therefore, the bidder shall in his own interest furnish complete documentary evidence by way of copies of work orders, completion certificates from Clients/Consultants, Self-certification for liquidation/court receiving or similar proceedings and balance sheet including Profit and Loss Accounts, Solvency certificates etc. along with the PQC bid, in support of their fulfilling the Pre-Qualification Criteria as given above. The vendor shall produce all the above documents in original before HPCL, in case it is necessary. Any additional documents, if deemed necessary to establish the qualifying requirements may be submitted by the Bidder.
- F. Submission of authentic documents is the prime responsibility of the Bidder. However, HPCL reserves the right of getting the document cross verified, at their discretion from the document issuing authority. Bidder shall provide all necessary assistance in this regard. Notwithstanding the above, HPCL reserves the right to verify the original document before placement of order. Requirement of above certification shall not be applicable to published audited annual financial statements in English, if original booklets are submitted.

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

#### 6.0 Eligibility of Bidders:

- A. Parties who are affiliates of one another can decide which Affiliate will make a bid. Only one affiliate may submit a bid. Two or more affiliates are not permitted to make separate bids directly or indirectly. If 2 or more affiliates submit a bid, then any one or all of them are liable for disqualification.
- B. “Affiliate” of a Party shall mean any company or legal entity which:
- a) controls either directly or indirectly a Party, or
  - b) which is controlled directly or indirectly by a Party; or
  - c) is directly or indirectly controlled by a company, legal entity or partnership which directly or indirectly controls a Party. “Control” means actual control or ownership of at least a 50% voting or other controlling interest that gives the power to direct, or cause the direction of, the management and material business decisions of the controlled entity.
- C. Bids may be submitted by:
- a) Sole bidder: a single person (sole Proprietorship) or entity;
  - b) A newly formed incorporated joint venture (JV) which has not completed 3 financial years from the date of commencement of business;
  - c) Subsidiaries / Affiliates of Indian or foreign companies
- D. Fulfilment of Eligibility criteria and certain additional conditions in respect of each of the above types of bidders are stated below:
- a. The bidder (including an incorporated JV which has completed 3 financial years after date of commencement of business) shall fulfil each qualification criteria (PQC).
  - b. In case the bidder is a newly formed and incorporated joint venture and which has not completed three financial years from the date of commencement of business, then either the said JV shall fulfil each qualification criteria (PQC) or any one constituent member / promoter of such a JV shall fulfil each qualification criteria (PQC). If the bid is received with the proposal that one constituent member / promoter fulfils each qualification criteria (PQC), then this member / promoter shall be clearly identified and he/it shall assume all obligations under the contract and provide such comfort letter/guarantees as may be required by the Corporation. The guarantees shall cover inter alia the commitment of the member/ promoter to complete the entire work in all respects and in a timely fashion, being bound by all the obligations under the contract, an undertaking to provide all necessary technical and financial support to the JV to ensure completion of the contract when awarded, an undertaking not to withdraw from the JV till completion of the work, etc.

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

- c. Subsidiaries / Affiliates of Indian or foreign companies which are registered in India and having manufacturing facilities or establishment towards providing services in India are allowed to participate in this tender, subject to meeting the local content provisions as per the MII clause enclosed with the tender. Such entities can participate either on the basis of their credentials (Technical or Financial) or on the basis of the credentials (Technical or Financial) of their parent/ affiliate company, as per the PQC requirements applicable for this tender. If credentials of parent/ affiliate are sought to be relied upon, then the Indian subsidiary must meet the other PQC, either Technical or Financial. Moreover, the parent/affiliate will also provide suitable Guarantees to ensure completion of the work in all respects.
  - d. In case the parent / affiliate company is from a country which shares a land border with India, then the subsidiary / affiliate company will be eligible to bid in this tender only if the parent / affiliate company is registered with the Competent Authority constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).
- E. General Eligibility and Qualification conditions:
- a) All eligible bidders meeting the eligibility criteria as defined in Notice Inviting Tender (NIT) can participate in the tender.
  - b) A firm determined non-performing by the Corporation shall not be eligible to bid during the period so determined.
  - c) Even if a bidder meets the eligibility criteria and PQC, he shall be subject to disqualification if he or any of the constituent partners is found to have:
    - i. made misleading or false representations in the forms, statements, affidavits and attachments submitted in proof of the qualification requirements; and/ or;
    - ii. records of poor performance during the last five years, as on the date of application, such as abandoning the work, rescission of the contract for reasons which are attributable to non-performance of the contractor, inordinate delays in completion, consistent history of litigation resulting in awards against the contractor or any of the constituents, or financial failure due to bankruptcy, (the rescission of a contract of venture JV on account of reasons other than non- performance, such as the most experienced partner (major partner) of JV pulling out) and so on.

#### **C. NOTES TO BIDDERS:**

- 1.0 Order Validity:** Order shall be valid for 2 years from the date LOA/PO, whichever is earlier.  
*Note: Bidders to note that validity is mentioned as delivery period to keep order valid during validity period. Delivery timelines shall be as specified in tender document only.*

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

#### 2.0 Performance Bank Guarantee / Insurance Surety Bond:

2.1 Vendor / contractor may furnish Performance Bank Guarantee in favour of HPCL or Insurance Surety Bond for Performance Security from Insurance Regulatory and Development Authority of India (IRDAI) regulated Insurance Company only in favour of HPCL for 5% of indent value valid during the guarantee period mentioned in the tender attachments.

2.2 Vendors are required to submit Bank Guarantee from Nationalized Bank / Scheduled Bank (other than Cooperative bank). The list of Scheduled Banks as per RBI (Schedule II of RBI Act) is available on RBI website at [https://m.rbi.org.in/scripts/bs\\_viewcontent.aspx?Id=3657](https://m.rbi.org.in/scripts/bs_viewcontent.aspx?Id=3657)

From the list available under above link, Bank Guarantees from the following categories are only acceptable:

- i) Scheduled Public Sector Banks
- ii) Scheduled Private Sector Banks
- iii) Scheduled Foreign banks in India
- iv) Scheduled Small Finance Banks – **AU Small Finance Bank Limited.**

2.3 BGs will not be accepted from Payments Bank and Small Finance Bank other than bank(s) specifically mentioned above.

2.4 In case of submission e-BG by vendor: In addition to regular format, following highlighted para also should be incorporated in appropriate place of e-BG:

- a) “We.....the bank hereby under-take that no amendment or changes, if any, to this Bank Guarantee shall be carried out except with the prior consent of HPCL in writing.
- b) “Notwithstanding anything contained herein above:
  - i) Our liability under this guarantee shall not exceed Rs. ....
  - ii) This Bank Guarantee shall be valid upto and including ..... (date); and
  - iii) We are liable to pay the guarantee amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand (including through NeSL portal or any other mode) on or before the expiry of 60 days from the date of expiry of this guarantee.
  - iv) This Guarantee may be invoked in parts and our liability shall remain for the entire value/ balance value of the Guarantee till its expiry.”

2.5 Please note the, following details also for issuance of e-BG:

Sl.	Description	HPCL Details	Mandatory / Optional
1	PAN / UIN*	AAACH1118B	Beneficiary- Yes   Applicant- Yes
2	Name	Hindustan Petroleum Corporation Limited	Beneficiary- Yes   Applicant- Yes
3	Date of Incorporation	15-07-1974	Beneficiary- Yes   Applicant- Yes

**ADDITIONAL TERMS & CONDITIONS**  
**ARC FOR SMART TRANSMITTERS**

4	Email ID	User E-Mail ID	Beneficiary- Yes   Applicant- Yes
5	Contact number	User contact No	Beneficiary- Yes   Applicant- Yes
6	Legal Constitution	Company	Beneficiary- Yes   Applicant- Yes
7	Registered office address	Hindustan Petroleum corporation Limited, PB No 17, JAMSHEDJI TATA ROAD, Mumbai	Beneficiary- Yes   Applicant- Yes
8	Registered office address Pin code	400020	Beneficiary- Yes   Applicant- Yes
9	Communication address*	User Location address	Beneficiary- Yes   Applicant- Yes
10	Communication address Pin code*	User Location pin code	Beneficiary- Yes   Applicant- Yes
11	Business Unit Code*	User to provide basis PO	Mandatory for Applicant for e-BG to HPCL
12	Contract Reference Number*	SAP PO Number/ Tender No	Mandatory for Applicant for e-BG to HPCL
13	Vendor Code*	SAP Vendor code	Mandatory for Applicant for e-BG to HPCL
14	e-Portal ID*	Procurement Portal (GEM, CPPP etc)	Mandatory for Applicant for e-BG to HPCL

**3.0 Updating Bank Mandate:**

Please login to Vendor Self Service Portal (<https://vss.hpcl.co.in/vss/login>) and confirm if your bank mandate is updated in the system. In case NOT UPDATED, to initiate the bank mandate update process, vendor needs to log in to the VSS Portal and navigate to the "My Profile" tab where the bank mandate option is available. Please upload the following documents:

- (i) Bank Mandate on Vendor's letter head in HPCL's format, duly signed by vendor's bankers and the authorized signatory of the vendor.
- (ii) Copy of Cancelled Cheque
- (iii) Copy of PAN Card
- (iv) Copy of Board Resolution / Necessary authorization of the signatory signing the bank mandate

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

- (v) In case of change in Bank Account details, reason for such change should be given on the letter head of the vendor (Applicable only for existing vendors)

**NOTE:**

- (a) Please refer enclosed manual for bank mandate update procedure.
- (b) Vendors will have to courier ORIGINAL Bank Mandate Form to HPCL.
- (c) In case of New Vendor, the above specified documents shall be submitted to Purchase Department.
- (d) In case of Existing Vendor, the above specified documents shall be submitted to User Department.
- (e) Upon receipt of the same in original, Bank details shall be updated in our records and One Rupee test payment will be processed.
- (f) Updating bank account details and providing original documents for updation of bank mandate is mandatory to ensure timely payment against Purchase Orders.

#### **4.0 Force Majeure:**

The following provision shall be read as part of Force Majeure provisions contained in the GeM GTC:

“Payment in case of termination due to Force Majeure

The Contract Price attributable to the Works performed as at the date of the commencement of the relevant event of Force Majeure.

The Contractor/Seller has no entitlement and Owner/Buyer has no liability for:

- a) any costs, losses, expenses, damages or the payment of any part of the Contract Price during an event of Force Majeure; and
- b) any delay costs in any way incurred by the Contractor due to an event of Force Majeure.

Time extension for such cases will be worked out appropriately.”

#### **5.0 Dispute Resolution:**

The dispute resolution and arbitration clauses in the GeM GTC shall not apply for this tender/PO/contract. The parties expressly agree that there does not exist any arbitration clause and arbitration cannot be resorted to in case of disputes or disagreements between the Seller and the Buyer.

The dispute resolution and arbitration clauses in the GeM GTC stands deleted as between Seller and Buyer, and shall stand replaced by the below provision:

**“DISPUTE RESOLUTION**

**(A) Discussions and Resolution**

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

- (i) The parties shall attempt to resolve all dispute and difference arising out of or relating to this contract through negotiations in good faith. If any dispute or difference remains unresolved, then all such unresolved disputes or differences shall be referred to the Executive Director/SBU Head of HPCL of the concerned department and the Director/ Owner / authorized Senior Official of the contractor/supplier for an amicable solution.
- (ii) If any dispute or difference remains unsettled within sixty (60) days from the date on which either Party has served a written notice on the other Party making claims and for discussions, then the provisions of Part B (i.e., Conciliation) of this Clause shall apply.

#### **(B) CONCILIATION**

- (i) All disputes and differences covered under the Conciliation Rules, 2019 arising out of or relating to this contract including its performance or interpretation, shall be fully and finally settled through Conciliation as per the Conciliation Rules, 2019 of HPCL, as amended from time to time.
- (ii) The Conciliation Rules, 2019 of HPCL and any modification thereof shall be binding upon the Parties
- (iii) The language of the conciliation shall be English;
- (iv) The governing law of this contract shall be of India.
- (v) In case the Conciliation fails, or if there are any disputes or differences which are not covered under Conciliation Rules, 2019, then the parties shall be free to take appropriate legal remedies for adjudication of their disputes.
- (vi) The Courts having jurisdiction over the place where the contract was performed, except for enforcement of decree/judgment, shall be the court having jurisdiction to adjudicate the disputes between the parties.”

#### **6.0 Governing Law / Jurisdiction:**

The parties agree that GeM GTC clause on Governing Law/Jurisdiction shall stand deleted and replaced as follows:

##### **“JURISDICTION**

The Vendor hereby agrees that the Courts situated in location given in tender header” shall have the jurisdiction to hear and determine all actions and proceedings arising out of this contract.”

#### **7.0 Recovery of Sums Due:**

The following clause shall be in addition to the provisions of GeM GTC and shall form part of GTC:

##### **RECOVERY OF SUMS DUE**

Whenever any claim against the Vendor/Seller for payment of a sum of money arises out of or under the contract, the Corporation/Buyer shall be entitled to recover such sums from any sum then due or which at any time thereafter may become due from the

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

Vendor/Seller under this or any other contract with the Corporation/Buyer and should this sum be not sufficient to cover the recoverable amount, the Vendor/Seller shall pay to the Corporation/Buyer on demand the balance remaining due.

#### **8.0 Termination/Cancellation and Risk Purchase:**

In addition to the termination/cancellation provisions contained in GeM GTC, the following provisions shall apply:

##### **“CANCELLATION / RISK PURCHASE CLAUSE:**

a. The Corporation/Buyer reserves the right to cancel this purchase order or any part thereof and shall be entitled to rescind the contract wholly or in part with a written notice to the vendor if:

- i. The vendor/Seller fails to comply with the terms of this purchase order.
- ii. The vendor/Seller fails to deliver the goods on time and / or replace the rejected goods promptly.
- iii. The Vendor/Seller becomes bankrupt or goes into liquidation.
- iv. The vendor/Seller makes a general assignment for the benefit of creditors.
- v. A receiver is appointed for any of the property owned by the vendor.

b. Upon receipt of the said cancellation notice, the vendor shall discontinue all work on the Purchase Order and matters connected with it. The vendor/Seller is aware that the said goods are required by the Corporation/Buyer for the ultimate purpose of materials production and that non delivery may cause loss of production and consequently loss of profit to the Corporation/Buyer.

c. Therefore, in case of Termination of the contract, Corporation/Buyer shall have the right to carry out the unexecuted portion of the supply/work either by themselves or through any other vendor(s)/contractor(s) at the risk and cost of the vendor/Seller/contractor. In view of paucity of time, Corporation/Buyer shall have the right to place such unexecuted portion of the supply/work on any nominated vendor(s)/contractor(s). However, the overall liability of the vendor/Seller/Contractor shall be restricted to 100% of the total contract value.

d. The provision of this clause shall not prejudice the right of the Corporation/Buyer from invoking the provisions of Liquidated Damages.”

#### **9.0 Holiday Listing Guidelines:**

The guidelines for Holiday Listing as adopted and available on HPCL website shall be applicable to all tenders floated and all Purchase Orders/Contracts placed by HPCL.

## ADDITIONAL TERMS & CONDITIONS

### ARC FOR SMART TRANSMITTERS

---

#### 10.0 General Terms:

All other terms & conditions which are not mentioned either in tender document and / or in specification document shall be as per GeM GTC.

#### D. CONTACT PERSONS:

##### 1. For Technical Queries:

AVRATANU ROY	Manager - Warehouse	Materials Department, VR	<a href="mailto:avratanu.roy@hpcl.in">avratanu.roy@hpcl.in</a>	<a href="tel:+919239563543">+919239563543</a>
-----------------	------------------------	-----------------------------	--	---

##### 2. For Commercial Queries:

AJAY KUMAR AZAD	Chief Manager - Procurement (Refinery)	Central Procurement Organization, MR	<a href="mailto:ajaykazarad@hpcl.in">ajaykazarad@hpcl.in</a>	<a href="tel:+919867525557">+919867525557</a>
-----------------------	--	--	--	---

3. Vendor shall share their contact details like email address and phone numbers along with bid for post tender correspondence.

**SCHEDULE 1: FF Traditional Smart Transmitter PTs & DPTs**

**Attachment -1 : Traditional FF PT Common Specification**

Specification			
General	1	Area Classification	Zone-1, GROUP-IIC / T4, E-exia, Intrinsic safe Circuitry, Explosion proof Housing as per IEC 60079
	2	Enclosure Protective Paint	Epoxy/Polyurethane corrosion resistant
	3	Enclosure Protection	IP – 66 or better;
	4	Electrical Certification	EX'ia', PESO approved, Type Test Certificate to be provided with transmitter
Process	5	Service	Hydrocarbon/Water/Steam
	6	Max Ambient temperature	Up to 85 Deg C
Transmitter	7	Type	2-wire micro-processor based; Non-volatile memory, Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminium with very low copper content (<=0.6%);
	8	Power Supply	9 -32VDC
	9	Output	FF; Min. Operating Voltage: 9V
	10	Communication Type	Foundation Field Bus; IEC 1158-2/All Instrument shall support EDDL or FDT/DTM; Quiescent Current Draw: <18mA; Min. Function Blocks AI &PID LAS Capable
	11	Calibration range	As per annexure-1
	12	Damping Adjustment	Required
	13	Instrument Range	As per annexure-1
	14	Zero/Span Adjustment	Required (software zero adjustment mandatory)
	15	Accuracy	Base accuracy of plus/minus 0.04% of span with TD ratio 100:1.
	16	Response Time(msec)	160mS or better
	17	Repeatability	Bidder to specify
	18	Rangeability	100:1 or better
	19	Stability	Range > 760 mmwc = +/- 0.2% of URL for a period of min 10 years; Range < 760 mmwc = +/- 0.2% of URL for a period of min 1 year;
	20	Housing	Double compartment
	21	Housing Material	Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminium with very low copper content (<=0.6%);
22	Electrical Connection	2 No.s 1/2" NPT(F) for Cable gland with horizontal /Bottom entry; Exd Plug 1 No.	
23	Drain/Vent	Required	
Sensor	24	Sensor Type/Measuring Principle	Capacitance / Piezo resistive / Silicon resonant

	25	Sensor Material	As per item description
	26	Fill Fluid	Silicon or better
	27	Process Connection Size/Type	1/2" NPT(F)
	28	Process Connection Location	As per item description
	29	Over Range Protection	130% of max range.
Manifold	31	Type	3 Valve or 2 Valve Manifold, should be of Swagelok/Parker/Transmitter OEM make or as per approved vendor list of HPCL
	32	Material	SS316 or better
	33	Connection	1/2" NPT(F)
Options	34	Display	Min 2-Line LCD Integrated, Configurable Display with sqrt function
	35	Measuring Unit	Selectable Engineering Unit
	36	Hydrostatic Testing	Required
	37	Lightning/Surge Protection	Required, upto 1 kVa
	38	SIL Classification	SIL approved
	39	SS Tag Plate	Required, SS304
	40	Calibration Certificate	Required, 3 Point calibration
	41	Warranty Period	2 years
	42	Electromagnetic Compatibility	as per IEC-61000-4
	43	NACE compliance	Required for HAST-C 276 type sensor
Accessories	44	ATEX/FM/IEC Ex/PESO Approval	Required
	45	Cable Gland	2 no. SS316 Cable Glands (Ex-proof);
	46	O-Ring	2 Sets of O-rings(material to specify material)
	47	Blind Plug	1 no. SS Dummy plug;
	48	Brackets/Bolts	Mounting Bracket made up of SS316 as minimum to mount On 2" NB Pipe U Bolt & Nuts (SS316)

Special Notes and Requirements	
1	HP and LP Swappable/Field Selectable
2	Vendor to furnish model selection sheet of the model along with the offer.
3	Vendor to indicate conformity against each specification item. Any Non-compliance to be clearly specified with sufficient valid justifications for consideration.

4	FF Specifications: 1. Communication Protocol : Foundation Field Bus;2. STANDARD : IEC 1158-2/All Instrument shall support EDDL or FDT/DTM;3. Power Supply: 9 - 32VDC; Transmitter Output: FF; Min. Operating Voltage: 9V4. Quiescent Current Draw: <18mA; Min. Function Blocks AI &PID5. LAS Capable: Yes6. Interoperability Registered device : Test Certificate/Registration from FF/Interoperability with test clearance like ITK latest version; 7. Polarity : All Instrument shall be polarity insensitive;8. Extra Feature : Capable to detect impulse line plugging;9. Intrinsic Safe certified as per Entity Concept or FISCO approved10. Supports Peer to Peer Communication with 2 wire communication and Bus power supply.
5	* Monel sensor accuracy of plus/minus 0.055% of span with TD ratio 100:1 to be considered.
6	*Range below 500 mm H2O , accuracy of plus/minus 0.04% of span with TD ratio 10:1 to be considered.
7	Hydrogen Service: If the sensor has "Gold plated" mentioned for the transmitter type, then: 1. Wetted parts should be Gold Plated in process side. 2..Diaphragm shall be min. SS316L with Gold plating with minimum thickness 5 microns and Body Material shall be min. SS316. All other wetted parts shall be min. SS316L

#### Annexure-1 : Traditional FF PT

S. no	Transmitter Type	Range	Stock code
1	PT(SS316L)	-2500 mmH2O to +2500 mmH2O	471199500030
2	PT(SS316L)	-1 kg/cm2 to +2.1 kg/cm2	471199500031
3		-1 kg/cm2 to 50kg/cm2	471199500032
4		-1 kg/cm2 to 200kg/cm2	471199500033
5	PT Absolute (SS316L)	0 kg/cm2 abs to +2kg/cm2 abs	471199500034
6	PT (Gold Plated)	-1 to 200 kg	471199500035
7	PT (HAST C-276)	-1 to +50 kg/cm2	471199500036
8	PT (Monel)	- 1.0 Kg/cm2 to +20 Kg/cm2	471199500037

**Attachment -2 : Traditional FF DPT Common Specification**

Specification			
General	1	Area Classification	Zone-1, GROUP-IIC / T4, E-exia, Intrinsic safe Circuitry, Explosion proof Housing as per IEC 60079
	2	Enclosure Protective Paint	Epoxy/Polyurethane corrosion resistant
	3	Enclosure Protection	IP – 66 or better;
	4	Electrical Certification	EX'ia', PESO approved, Type Test Certificate to be provided with transmitter
Process	5	Service	Hydrocarbon/Water/Steam
	6	Max Ambient temperature	Up to 121 Deg C
Transmitter	7	Type	2-wire micro-processor based; Non-volatile memory, Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminium with very low copper content ( $\leq 0.6\%$ );
	8	Power Supply	9 -32VDC
	9	Output	FF; Min. Operating Voltage: 9V
	10	Communication Type	Foundation Field Bus; IEC 1158-2/All Instrument shall support EDDL or FDT/DTM; Quiescent Current Draw: $<18\text{mA}$ ; Min. Function Blocks AI &PID LAS Capable
	11	Calibration range	As per annexure-2
	12	Damping Adjustment	Required
	13	Instrument Range	As per annexure-2
	14	Zero/Span Adjustment	Required (software zero adjustment mandatory)
	15	Accuracy	Base accuracy of plus/minus 0.04% of span with TD ratio 100:1.
	16	Response Time(msec)	160mS or better
	17	Repeatability	Bidder to specify
	18	Rangeability	10:1 or better
	19	Stability	Range $> 760$ mmwc = $\pm 0.2\%$ of URL for a period of min 10 years; Range $< 760$ mmwc = $\pm 0.2\%$ of URL for a period of min 1 year;
	20	Housing	Double compartment
	21	Housing Material	Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminium with very low copper content ( $\leq 0.6\%$ );
22	Electrical Connection	2 No.s 1/2" NPT(F) for Cable gland with horizontal /Bottom entry; Exd Plug 1 No.	
23	Drain/Vent	Required	
Sensor	24	Sensor Type/Measuring Principle	Capacitance / Piezo resistive / Silicon resonant
	25	Sensor Material	As per Annexure

	26	Fill Fluid	Silicon or better
	27	Process Connection Size/Type	1/2" NPT(F)
	28	Process Connection Location	As per item description
	29	Static Pressure Rating	As per Annexure
Manifold	31	Type	3 Valve Manifold, should be of Swagelok/Parker/Transmitter OEM make or as per approved vendor list of HPCL
	32	Material	SS316 or better
	33	Connection	1/2" NPT(F)
Options	34	Display	Min 2-Line LCD Integrated, Configurable Display with sqrt function
	35	Measuring Unit	Selectable Engineering Unit
	36	Hydrostatic Testing	Required
	37	Lightning/Surge Protection	Required, upto 1 kVa
	38	SIL Classification	SIL approved
	39	SS Tag Plate	Required, SS304
	40	Calibration Certificate	Required, 3 Point calibration
	41	Warranty Period	2 years
	42	Electromagnetic Compatibility	as per IEC-61000-4
	43	NACE compliance	Required for HAST-C 276 type sensor
	44	ATEX/FM/IEC Ex/PESO Approval	Required
Accessories	45	Cable Gland	2 no. SS316 Cable Glands (Ex-proof);
	46	O-Ring	2 Sets of O-rings(material to specify material)
	47	Blind Plug	1 no. SS Dummy plug;
	48	Brackets/Bolts	Mounting Bracket made up of SS316 as minimum to mount On 2" NB Pipe U Bolt & Nuts (SS316)
	49	Oval Adaptors ( <b>for DPT</b> )	All Side Entry Transmitters shall be supplied with 2 Nos Oval Adaptors with 1/2" NPT(F) threads for process connections

Special Notes and Requirements	
1	HP and LP Swappable/Field Selectable
2	Vendor to furnish model selection sheet of the model alongwith the offer.
3	Vendor to indicate conformity against each specification item. Any Non-compliance to be clearly specified with sufficient valid justifications for consideration.
4	Transmitter model should be selected based on accuracy as mentioned in Annex. Same accuracy should be applicable from Minimum calibration span to Cal range for all models.

5	<p>Hydrogen Service: If the sensor has "Gold plated" mentioned for the transmitter type, then:</p> <ol style="list-style-type: none"> <li>1. Wetted parts should be Gold Plated in process side.</li> <li>2. Diaphragm shall be min. SS316L with Gold plating with minimum thickness 5 microns and Body Material shall be min. SS316. All other wetted parts shall be min. SS316L</li> </ol>
6	<p>FF Specifications:</p> <ol style="list-style-type: none"> <li>1. Communication Protocol : Foundation Field Bus;</li> <li>2. STANDARD : IEC 1158-2/All Instrument shall support EDDL or FDT/DTM;</li> <li>3. Power Supply: 9 -32VDC; Transmitter Output: FF; Min. Operating Voltage: 9V</li> <li>4. Quiescent Current Draw: &lt;18mA; Min. Function Blocks AI &amp;PID</li> <li>5. LAS Capable: Yes</li> <li>6. Interoperability Registered device : Test Certificate/Registration from FF/Interoperability with test clearance like ITK latest version;</li> <li>7. Polarity : All Instrument shall be polarity insensitive;</li> <li>8. Extra Feature : Capable to detect impulse line plugging;</li> <li>9. Intrinsic Safe certified as per Entity Concept or FISCO approved</li> <li>10. Supports Peer to Peer Communication with 2 wire communication and Bus power supply.</li> </ol>
7	* Monel sensor accuracy of plus/minus 0.055% of span with TD ratio 100:1 to be considered.
8	*For Range below 500 mm H2O, accuracy of plus/minus 0.04% of span with TD ratio 10:1 to be considered

#### Annexure-2 : Traditional FF DPT

S. no	Transmitter Type	Static Pressure (kg/cm2)	Range	Stock No
1	DPT(-SS316L)	58	-70 to +70 mmH2O	471199500038
2		139	-1000 mmH2O to +1000 mmH2O	471199500039
3		265	-6350 to +6350 mm H2O	471199500040
4		265	-21 kg/cm2 to +21 kg/cm2	471199500041
5		310	-6350 mmH2O to +6350 mmH2O	471199500042
6	DPT(Gold Plated)	139	-1000 mm H2O to +1000 mm H2O	471199500043
7		265	-6350 to +6350 mm H2O	471199500044
8		265	-21 kg/cm2 to +21 kg/cm2	471199500045
9		265	0 kg/cm2 to +35 kg/cm2	471199500046
10		310	-635 mm H2O to +635 mm H2O	471199500047

## SCHEDULE 2: Hart Traditional Smart Transmitter PTs & DPTs

### Attachment 1 : HART PT Common Specification

Specification			
General	1	Area Classification	Zone-1, GROUP-IIC / T4, E-exia, Intrinsic safe Circuitry, Explosion proof Housing as per IEC 60079
	2	Enclosure Protective Paint	Epoxy/Polyurethane corrosion resistant
	3	Enclosure Protection	IP – 66 or better;
	4	Electrical Certification	EX'ia', PESO approved, Type Test Certificate to be provided with transmitter
Process	5	Service	Hydrocarbon/Water/Steam
	6	Max Ambient temperature	Up to 85 Deg C
Transmitter	7	Type	2-wire micro-processor based; Non-volatile memory, Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content (<=0.6%);
	8	Power Supply	24VDC
	9	Output	4-20mA
	10	Communication Type	HART 7 and above latest version available;
	11	Calibration range	As per annexure-1
	12	Damping Adjustment	Required
	13	Instrument Range	As per annexure-1
	14	Zero/Span Adjustment	Required (software zero adjustment mandatory)
	15	Accuracy	Base accuracy of plus/minus 0.04% of span with TD ratio 100:1.
	16	Response Time(msec)	100ms or better
	17	Repeatability	Bidder to specify
	18	Rangeability	100:1 or better
	19	Stability	Range > 760 mmwc = +/- 0.2% of URL for a period of min 10 years; Range < 760 mmwc = +/- 0.2% of URL for a period of min 1 year;
	20	Housing	Double compartment
21	Housing Material	Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminium with very low copper content (<=0.6%);	
22	Electrical Connection	2 No.s 1/2" NPT(F) for Cable gland with horizontal /Bottom entry; Exd Plug 1 No.	
23	Drain/Vent	Required	
Sensor	24	Sensor Type/Measuring Principle	Capacitance / Piezo resistive / Silicon resonant
	25	Sensor Material	As per item description
	26	Fill Fluid	Silicon or better
	27	Process Connection Size/Type	1/2" NPT(F)
	28	Process Connection Location	As per item description
	29	Over Range Protection	130% of max range.

Manifold	31	Type	3 Valve or 2 Valve Manifold, should be of Swagelok/Parker/Transmitter OEM make or as per approved vendor list of HPCL
	32	Material	SS316 or better
	33	Connection	1/2" NPT(F)
Options	34	Display	Min 2-Line LCD Integrated, Configurable Display with sqrt function
	35	Measuring Unit	Selectable Engineering Unit
	36	Hydrostatic Testing	Required
	37	Lightning/Surge Protection	Required, upto 1 kVa
	38	SIL Classification	SIL approved
	39	SS Tag Plate	Required, SS304
	40	Calibration Certificate	Required, 3 Point calibration
	41	Warranty Period	2 years
	42	Electromagnetic Compatibility	as per IEC-61000-4
	43	Nace Compliance	Required for HAST-C 276 type sensor
	44	ATEX/FM/IEC Ex/PESO Approval	Required
Accessories	45	Cable Gland	2 no. SS316 Cable Glands (Ex-proof);
	46	O-Ring	2 Sets of O-rings(material to specify material)
	47	Blind Plug	1 no. SS Dummy plug;
	48	Brackets/Bolts	Mounting Bracket made up of SS316 as minimum to mount On 2" NB Pipe U Bolt & Nuts (SS316)

Special Notes and Requirements	
1	HP and LP Swappable/Field Selectable
2	Vendor to furnish model selection sheet of the model along with the offer.
3	Vendor to indicate conformity against each specification item. Any Non-compliance to be clearly specified with sufficient valid justifications for consideration.
4	Transmitter model should be selected based on accuracy as mentioned in Annex. Same accuracy should be applicable from Minimum calibration span to Cal range for all models.
5	Hydrogen Service: If the sensor has "Gold plated" mentioned for the transmitter type, then: 1. Wetted parts should be Gold Plated in process side. 2. Diaphragm shall be min. SS316L with Gold plating with minimum thickness 5 microns and Body Material shall be min. SS316. All other wetted parts shall be min. SS316L
6	Extra Feature: Capable to detect impulse line plugging;
7	* Monel sensor accuracy of plus/minus 0.055% of span with TD ratio 100:1 to be considered.
8	*Below 500 mm H2O range, accuracy of plus/minus 0.04% of span with TD ratio 10:1 to be considered
9	Transmitters shall be SIL 2 certified. SIL 2 certificate from accredited testing agency - TUV/EXIDA/SIRA is to be submitted.

**Annexure -1: Traditional Hart PT Tx Types**

<b>Traditional Hart PT Tx Types</b>			
S. no	Transmitter Type	Range	SAP code
1	PT(SS316L)	-2500 mmH2O to +2500 mmH2O	471199500048
2		-1 kg/cm2 to +2.1 kg/cm2	471199500049
3		-1 kg/cm2 to 50kg/cm2	471199500050
4		-1 kg/cm2 to 200kg/cm2	471199500051
5	PT Absolute(SS316L)	0 kg/cm2 abs to +2kg/cm2 abs	471199500052
6	PT (Gold Plated)	-1 to +200 kg/cm2	471199500053
7	PT (HAST-C 276)	-1 to +50 kg/cm2	471199500054
8	PT(monel)	- 1.0 Kg/cm2 to +20 Kg/cm2	471199500055

## Attachment 2 : HART DPT Common Specification

Specification			
General	1	Area Classification	Zone-1, GROUP-IIC / T4, E-exia, Intrinsic safe Circuitry, Explosion proof Housing as per IEC 60079
	2	Enclosure Protective Paint	Epoxy/Polyurethane corrosion resistant
	3	Enclosure Protection	IP – 66 or better;
	4	Electrical Certification	EX'ia', PESO approved, Type Test Certificate to be provided with transmitter
Process	5	Service	Hydrocarbon/Water/Steam
	6	Max Ambient temperature	Up to 121 Deg C
Transmitter	7	Type	2-wire micro-processor based; Non-volatile memory, Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content (<=0.6%);
	8	Power Supply	24VDC
	9	Output	4-20mA
	10	Communication Type	HART 7 and above latest version available;
	11	Calibration range	As per annexure-2
	12	Damping Adjustment	Required
	13	Instrument Range	As per annexure-2
	14	Zero/Span Adjustment	Required (software zero adjustment mandatory)
	15	Accuracy	Base accuracy of plus/minus 0.04% of span with TD ratio 100:1.
	16	Response Time(msec)	100ms or better
	17	Repeatability	Bidder to specify
	18	Rangeability	100:1 or better
	19	Stability	Range > 760 mmwc = +/- 0.2% of URL for a period of min 10 years; Range < 760 mmwc = +/- 0.2% of URL for a period of min 1 year;
	20	Housing	Double compartment
21	Housing Material	Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content (<=0.6%);	
22	Electrical Connection	2 No.s 1/2" NPT(F) for Cable gland with horizontal /Bottom entry; Exd Plug 1 No.	

	23	Drain/Vent	Required
Sensor	24	Sensor Type/Measuring Principle	Capacitance / Piezo resistive / Silicon resonant
	25	Sensor Material	As per item description
	26	Fill Fluid	Silicon or better
	27	Process Connection Size/Type	1/2" NPT(F)
	28	Process Connection Location	As per item description
	29	Static Pressure Rating	As per annexure
Manifold	31	Type	3 Valve Manifold, should be of Swagelok/Parker/Transmitter OEM make or as per approved vendor list of HPCL
	32	Material	SS316 or better
	33	Connection	1/2" NPT(F)
Options	34	Display	Min 2-Line LCD Integrated, Configurable Display with sqrt function
	35	Measuring Unit	Selectable Engineering Unit
	36	Hydrostatic Testing	Required
	37	Lightning/Surge Protection	Required, upto 1 kVa
	38	SIL Classification	SIL certified/SIL approved
	39	SS Tag Plate	Required, SS304
	40	Calibration Certificate	Required, 3 Point calibration
	41	Warranty Period	2 years
	42	Electromagnetic Compatibility	as per IEC-61000-4
	43	Nace Compliance	Required for HAST-C 276 type sensor
Accessories	44	ATEX/FM/IEC Ex/PESO Approval	Required
	45	Cable Gland	2 no. SS316 Cable Glands (Ex-proof);
	46	O-Ring	2 Sets of O-rings(material to specify material)
	47	Blind Plug	1 no. SS Dummy plug;
	48	Brackets/Bolts	Mounting Bracket made up of SS316 as minimum to mount On 2" NB Pipe U Bolt & Nuts (SS316)
	49	Oval Adaptors ( <b>for DPT</b> )	All Side Entry Transmitters shall be supplied with 2 Nos Oval Adaptors with 1/2" NPT(F) threads for process connections

Special Notes and Requirements	
1	HP and LP Swappable/Field Selectable
2	Vendor to furnish model selection sheet of the model alongwith the offer.
3	Vendor to indicate conformity against each specification item. Any Non-compliance to be clearly specified with sufficient valid justifications for consideration.
4	Transmitter model should be selected based on accuracy as mentioned in Annex. Same accuracy should be applicable from Minimum calibration span to Cal range for all models.
5	Hydrogen Service: If the sensor has "Gold plated" mentioned for the transmitter type, then: 1. Wetted parts should be Gold Plated in process side. 2..Diaphragm shall be min. SS316L with Gold plating with minimum thickness 5 microns and Body Material shall be min. SS316. All other wetted parts shall be min. SS316L
6	Extra Feature: Capable to detect impulse line plugging;
7	* Monel sensor accuracy of plus/minus 0.055% of span with TD ratio 100:1 to be considered.
8	*Below 500 mm H2O range, accuracy of plus/minus 0.04% of span with TD ratio 10:1 to be considered
9	Transmitters shall be SIL 2 certified. SIL 2 certificate from accredited testing agency - TUV/EXIDA/SIRA is to be submitted.

#### Annexure -2: Traditional DPT Hart Tx Types

S. no	Transmitter Type	Static Pressure(kg/cm2)	Range	SAP code
1	DPT-SS316L	58	-76 to +76 mmH2O	471199500056
2		139	-635 to +635 mmH2O	471199500057
3		265	-6350 to +6350 mmH2O	471199500058
4		265	0 to 35 kg/cm2	471199500059
5		310	-6350 mmH2O to +6350 mmH2O	471199500060
6	DPT-HAST C-276	58	-635 to +635 mmH2O	471199500061
7	DPT-Gold Plated	139	-6350 to +6350 mm H2O	471199500062

**SCHEDULE 3: FF Remote Seal Smart Transmitter PTs & DPTs**

**Attachment :1- FF Remote Seal PT & DPT Common Specification**

Specification			
General	1	Area Classification	Zone-1, GROUP-IIC / T4, E-exia, Intrinsic safe Circuitry, Explosion proof Housing as per IEC 60079
	2	Enclosure Protective Paint	Epoxy/Polyurethane corrosion resistant
	3	Enclosure Protection	IP – 66 or better;
	4	Electrical Certification	EX'ia', PESO approved, Type Test Certificate to be provided with transmitter
Transmitter	5	Type	2-wire micro-processor based; Non-volatile memory, Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content ( $\leq 0.6\%$ );
	6	Power Supply	9 -32VDC
	7	Output	FF; Min. Operating Voltage: 9V
	8	Communication Type	Foundation Field Bus; IEC 1158-2/All Instrument shall support EDDL or FDT/DTM; Quiescent Current Draw: $< 18\text{mA}$ ; Min. Function Blocks AI & PID LAS Capable
	9	Calibration range	As per annexure-1 & 2
	10	Instrument Range	As per annexure-1 & 2
	11	Damping Adjustment	Required
	12	Zero/Span Adjustment	Required (software zero adjustment mandatory)
	13	Accuracy	Base tx accuracy of $\pm 0.04\%$ of span or better within TD of 100:1, and Tx with remote seal accuracy $\pm 0.22\%$ of span or better at TD ratio of 100:1,
	14	Response Time(msec)	Tx with remote seal 500msec or better
	15	Repeatability	Bidder to specify
	16	Rangeability	100:1 or better
	17	Stability	Range $> 760$ mmwc = $\pm 0.2\%$ of URL for a period of min 10 years; Range $< 760$ mmwc = $\pm 0.2\%$ of URL for a period of min 1 year;
	18	Housing	Double compartment
	19	Housing Material	Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content ( $\leq 0.6\%$ );

	20	Electrical Connection	2 No.s 1/2" NPT(F) for Cable gland with horizontal /Bottom entry; Exd Plug 1 No.
	21	Drain/Vent	Required
Sensor	22	Sensor Type/Measuring Principle	Capacitance / Piezo resistive / Silicon resonant
	23	Sensor Material	SS316L/Refer notes and annexure
	24	Fill Fluid	Silicon or better
	26	Process Connection Size/Type	As per annexure-1 & 2
	27	Over Range Protection/Static Pressure Rating	150 % of range for PT & as per annexure for DPT
Diaphragm Seal	28	Type	Pancake/Flush Flange, As per annexure
	29	Material	As per annexure & Refer Special Notes
	30	Housing Material	As per annexure & Refer Special Notes
	31	Process Connection Size and Rating	As per annexure & Refer Special Notes
	32	Flange Material	As per annexure & Refer Special Notes
	33	Fill Fluid	Silicon or better
	34	Fill Fluid Temperature	Upto 200 C
	35	Capillary Connection Type	Repairable Welded
	36	Spacer Ring Connection	Required, SS316 with 2 No.s 1/2" (F) SS316 flushing rings + 2 No. 1/2" NPT(M) metal blind/plug
	37	Armor Material	SS304 or better with PVC sleeve
	38	Capillary Length	As per annexure
	39	Capillary Material	As per annexure & Refer Special Notes
Manifold	40	Type	NA
	41	Material	NA
	42	Connection	NA
Options	43	Display	Min 2-Line LCD Integrated, Configurable Display with sqrt rt function
	44	Measuring Unit	Selectable Engineering Unit
	45	Hydrostatic Testing	Required
	46	Lightning/Surge Protection	Required
	47	SIL Classification	SIL approved
	48	SS Tag Plate	Required, SS304
	49	Calibration Certificate	Required, 3 Point calibration
	50	Warranty Period	2 years, the warranty shall be clearly mentioned on SS Tag and affixed to Tx.
	51	NACE compliance	Required for HAST C-276 type sensor
	52	ATEX/FM/IEC Ex/PESO Approval	Required
Accessories	53	Cable Gland	2 no. SS316 Cable Glands (Ex-proof);

	54	O-Ring	2 Sets of O-rings(material to specify material)
	55	Blind Plug	1 no. SS Dummy plug;
	56	Brackets/Bolts	Mounting Bracket made up of SS316 as minimum to mount On 2" NB Pipe U Bolt & Nuts (SS316)
	57	Oval Adaptors	All Side Entry Transmitters shall be supplied with 2 Nos Oval Adaptors with 1/2" NPT(F) threads for process connections

Special Notes and Requirements	
1	HP and LP Swappable/Field Selectable
2	Diaphragm seals from OEM only will be accepted, Necessary certification in support of the same to be submitted at the time of bid submission
3	Maximum Process temperature for offered transmitters can be up to 149 Deg C. for DPT & till 121 Deg C for direct mount PT
4	Vendor to furnish model selection sheet of the model along with the offer.
5	Vendor to indicate conformity against each specification item. Any Non-compliance to be clearly specified with sufficient valid justifications for consideration.
6	Supplier to furnish configuration/maintenance manual, calibration, test reports and conformance certificate as applicable along with the supply.
7	Hydrogen Service: If the sensor has "Gold plated" mentioned for the transmitter type, then: a. Wetted parts should be Gold Plated in process side. b. Diaphragm shall be min. SS316L with Gold plating with minimum thickness 5 microns and Body Material shall be min. SS316. All other wetted parts shall be min. SS316L

#### Annexure : 1 : Remote Seal Types FF PT

S. no	Transmitter Type	Range	Size(inches)	Rating	Capillary Length (in Meter)	SAP Code
1	PT(SS316L)	0 to 20kg/cm2	1.5	150	5	471199500063
2			1.5	300	5	471199500064
3			1.5	600	5	471199500065
4			2	150	5	471199500066
5			2	300	5	471199500067
6			2	600	5	471199500068
7			3	150	5	471199500069
8			3	300	5	471199500070
9			3	600	5	471199500071
10		0 to 100kg/cm2	1.5	150	5	471199500072
11			1.5	300	5	471199500073
12			1.5	600	5	471199500075

13			1.5	1500	10	471199500074
14			2	150	5	471199500076
15			2	300	5	471199500077
16			2	600	5	471199500078
17			3	150	5	471199500079
18			3	300	5	471199500080
19			3	600	5	471199500081
20	PT(SS316L)	0 to 2 kg/cm2	1.5	300	5	471199500082
21	Absolute	0 to 2 kg/cm2	3	300	5	471199500083
22	PT(HAST-C 276)	0 to 100kg/cm2	1.5	300	5	471199500084

**Annexure: 2 : Remote Seal Types FF DPT**

Remote Seal Types FF DPT							
S. no	Transmitter Type	Static Pressure (kg/cm2)	Range	Size (inches)	Rating	Capillary Length for HP & LP (in Meter)	SAP Code
1	DPT(SS 316L)	265	-6350mmWC to +6350mmWC	1.5	150	5	471199500085
2				1.5	300	5	471199500086
3				1.5	600	5	471199500087
4				2	150	5	471199500088
5				2	300	5	471199500089
6				2	600	5	471199500090
7				3	150	5	471199500091
8				3	300	5	471199500092
9				3	600	5	471199500093
10		265	-2.1 kg/cm2 to 2.1 kg/cm2	3	1500	10	471199500094
11		265	-5kg/cm2 to +5kg/cm2	1.5	300	5	471199500095
12				2	300	5	471199500096
13				3	150	5	471199500097
14				3	300	5	471199500098
17	DPT (HAST-C 276)	265	-6350 to 6350 mmH2O	3	150	5	471199500099
18		265	-6350 to 6350 mmH2O	3	300	5	471199500100
15	DPT (gold plated)	265	-1000mmWC to +1000mmWC	2	300	5	471199500101
16				3	300	5	471199500102

**SCHEDULE 4: Hart Remote Seal Smart Transmitter PTs & DPTs**

**Attachment : 1 HART Remote Seal common specification PT & DPT**

Specification			
General	1	Area Classification	Zone-1, GROUP-IIC / T4, E-exia, Intrinsic safe Circuitry, Explosion proof Housing as per IEC 60079
	2	Enclosure Protective Paint	Epoxy/Polyurethane corrosion resistant
	3	Enclosure Protection	IP – 66 or better;
	4	Electrical Certification	EX'ia', PESO approved, Type Test Certificate to be provided with transmitter
Transmitter	5	Type	2-wire micro-processor based; Non-volatile memory, Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content ( $\leq 0.6\%$ );
	6	Power Supply	24VDC
	7	Output	4-20mA
	8	Communication Type	HART 7 and above latest version available;
	9	Calibration range	As per annexure
	10	Instrument Range	Required
	11	Damping Adjustment	As per annexure
	12	Zero/Span Adjustment	Required (software zero adjustment mandatory)
	13	Accuracy	Base tx accuracy of $\pm 0.04\%$ of span or better within TD of 100:1, and Tx with remote seal accuracy $\pm 0.22\%$ of span or better at TD ratio of 100:1,
	14	Response Time(msec)	Tx with remote seal 500msec or better
	15	Repeatability	Bidder to specify
	16	Rangeability	100:1 or better
	17	Stability	Range > 760 mmwc = $\pm 0.2\%$ of URL for a period of min 10 years; Range < 760 mmwc = $\pm 0.2\%$ of URL for a period of min 1 year;
	18	Housing	Double compartment
	19	Housing Material	Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content ( $\leq 0.6\%$ );
	20	Electrical Connection	2 No.s 1/2" NPT(F) for Cable gland with horizontal /Bottom entry; Exd Plug 1 No.
	21	Drain/Vent	Required, 1/4" NPT(F)

Sensor	22	Sensor Type/Measuring Principle	Capacitance / Piezo resistive / Silicon resonant
	23	Sensor Material	SS316L/Refer notes and annexure
	24	Fill Fluid	Silicon or better
	26	Process Connection Size/Type	As per annexure
	27	Over Range Protection/Static Pressure Rating	150 % of range for PT & as per annexure for DPT
Diaphragm Seal	28	Type	Pancake/Flush Flange, As per annexure
	29	Material	As per annexure & Refer Special Notes
	30	Housing Material	As per annexure & Refer Special Notes
	31	Process Connection Size and Rating	As per annexure & Refer Special Notes
	32	Flange Material	As per annexure & Refer Special Notes
	33	Fill Fluid	Silicon or better
	34	Fill Fluid Temperature	Upto 200 C
	35	Capillary Connection Type	Repairable Welded
	36	Spacer Ring Connection	Required, SS316 with 2 No.s 1/2" SS316 flushing rings + 2 No. 1/2" NPT(M) metal blind
	37	Armor Material	SS304 or better with PVC sleeve
	38	Capillary Length	As per annexure
39	Capillary Material	SS316 or better	
Manifold	40	Type	NA
	41	Material	NA
	42	Connection	NA
Options	43	Display	Min 2-Line LCD Integrated, Configurable Display with sqrt rt function
	44	Measuring Unit	Selectable Engineering Unit
	45	Hydrostatic Testing	Required
	46	Lightning/Surge Protection	Required
	47	SIL Classification	SIL certified/SIL approved
	48	SS Tag Plate	Required, SS304
	49	Calibration Certificate	Required, 3 Point calibration

	50	Warranty Period	2 years, the warranty shall be clearly mentioned on SS Tag and affixed to Tx.
	51	NACE compliance	Required for HAST-C 276 type transmitter sensor
	52	ATEX/FM/IEC Ex/PESO Approval	Required
Accessories	53	Cable Gland	2 no. SS316 Cable Glands (Ex-proof);
	54	O-Ring	2 Sets of O-rings(material to specify material)
	55	Blind Plug	1 no. SS Dummy plug
	56	Brackets/Bolts	Mounting Bracket made up of SS316 as minimum to mount On 2" NB Pipe U Bolt & Nuts (SS316)
	57	Oval Adaptors	All Side Entry Transmitters shall be supplied with 2 Nos Oval Adaptors with 1/2" NPT(F) threads for process connections

<b>Special Notes and Requirements</b>	
1	Diaphragm seals from OEM only will be accepted, Necessary certification in support of the same to be submitted at the time of bid submission
2	<p style="text-align: center;">HART Specifications:</p> <ol style="list-style-type: none"> <li>1. Communication Protocol: HART 7 and above latest version available;</li> <li>2. Power Supply: 24VDC (2-wire); Transmitter Output: 4-20mA</li> <li>3. Transmitter shall allow multimaster (min. 2) for configuration, calibration, diagnostics and maintenance and shall be configurable for under current and Over-Current</li> <li>4. Compliant to Namur NE recommendations</li> </ol>
3	<p style="text-align: center;">Hydrogen Service: If the sensor has "Gold plated" mentioned for the transmitter type, then:</p> <ol style="list-style-type: none"> <li>a. Wetted parts should be Gold Plated in process side.</li> <li>b. Diaphragm shall be min. SS316L with Gold plating with minimum thickness 5 microns and Body Material shall be min. SS316. All other wetted parts shall be min. SS316L</li> </ol>
4	HP and LP Swappable/Field Selectable
5	Maximum Process temperature for offered transmitters can be up to 149 Deg C. for DPT & till 121 Deg C for direct mount PT
6	Vendor to furnish model selection sheet of the model alongwith the offer.
7	Vendor to indicate conformity against each specification item. Any Non-compliance to be clearly specified with sufficient valid justifications for consideration.
8	Supplier to furnish configuration/maintenance manual, calibration, test reports and conformance certificate as applicable alongwith the supply.

9	Transmitters shall be SIL 2 certified. SIL 2 certificate from accredited testing agency -TUV/EXIDA/SIRA is to be submitted.
---	---

**Annexure: 1 Remote Seal Types Hart PT**

Remote Seal Types Hart PT						
S. no	Transmitter Type	Range	Size(inches)	Rating	Capillary Length (in Meter)	SAP Code
1	PT(SS316L)	0 to 20kg/cm2	1.5	150	5	471199500103
2			1.5	300	5	471199500104
3			1.5	600	5	471199500105
4			2	150	5	471199500106
5			2	300	5	471199500107
6			2	600	5	471199500108
7			3	150	5	471199500109
8			3	300	5	471199500110
9			3	600	5	471199500111
10		0 to 100kg/cm2	1.5	150	5	471199500112
11			1.5	300	5	471199500113
12			1.5	600	5	471199500114
13			2	150	5	471199500115
14			2	300	5	471199500116
15			2	600	5	471199500117
16			3	150	5	471199500118
17			3	300	5	471199500119
18			3	600	5	471199500120
19	PT(SS316L) Absolute	0 to 2 kg/cm2	3	300	5	471199500121
20	PT( HAST C-276)	0 to 20kg/cm2	1.5	150	5	471199500122
21		0 to 20kg/cm2	1.5	300	5	471199500123

**Annexure : 2 Remote Seal Types Hart DPT**

Remote Seal Types Hart DPT							
S. no	Transmitter Type	Static Pressure( Kg/cm2)	Range	Size(inches)	Rating	Capillary Length for HP & LP( in Meter)	SAP Code
1	DPT	265	-6350 mmWC to +6350mmWC	1.5	150	5	471199500124
2				1.5	300	5	471199500125
3				1.5	600	5	471199500126
4				2	150	5	471199500127
5				2	300	5	471199500128
6				2	600	5	471199500129
7				3	150	5	471199500130
8				3	300	5	471199500131
9				3	600	5	471199500132

10				3	900	5	471199500133
11				3	1500	10	471199500134
12		265	-5kg/cm2 to +5kg/cm2	1.5	300	5	471199500135
13				2	300	5	471199500136
14				3	150	5	471199500137
15				3	300	5	471199500138
20	DPT ( HAST C-276)			265	-6350 mmWC to +6350mmWC	3	150
16	DPT (gold plated)	265	-1000mmWC to +1000mmWC	2	300	5	471199500140
17				3	300	5	471199500141
18		265	-6350 mmWC to +6350mmWC	2	1500	5	471199500142
19		265	-2.5 kg/cm2 to +2.5kg/cm2	2	1500	5	471199500143

**SCHEDULE 5: High Pressure FF DPT**

**Attachment : 1 High Pressure DPT FF Common specification**

Specification			
General	1	Area Classification	Zone-1, GROUP-IIC / T4, E-exia, Intrinsic safe Circuitry, Explosion proof Housing as per IEC 60079
	2	Enclosure Protective Paint	Epoxy/Polyurethane corrosion resistant
	3	Enclosure Protection	IP – 66 or better;
	4	Electrical Certification	EX'ia', PESO approved, Type Test Certificate to be provided with transmitter
Process	5	Service	Hydrocarbon/Water/Steam
	6	Max Ambient temperature	Up to 85 Deg C
Transmitter	7	Type	2-wire micro-processor based; Non-volatile memory, Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content (<=0.6%);
	8	Power Supply	9 -32VDC
	9	Output	FF; Min. Operating Voltage: 9V
	10	Communication Type	Foundation Field Bus; IEC 1158-2/All Instrument shall support EDDL or FDT/DTM; Quiescent Current Draw: <18mA; Min. Function Blocks AI &PID LAS Capable
	11	Calibration range	As per annexure
	12	Damping Adjustment	Required
	13	Instrument Range	As per annexure
	14	Zero/Span Adjustment	Required (software zero adjustment mandatory)
	15	Accuracy	Base accuracy of plus/minus 0.04% of span with TD ratio 100:1.
	16	Response Time(msec)	160mS or better
	17	Repeatability	Bidder to specify
	18	Rangeability	100:1 or better
	19	Stability	Range > 760 mmwc = +/- 0.2% of URL for a period of min 10 years; Range < 760 mmwc = +/- 0.2% of URL for a period of min 1 year;
	20	Housing	Double compartment
21	Housing Material	Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content (<=0.6%);	

	22	Electrical Connection	2 No.s 1/2" NPT(F) for Cable gland with horizontal /Bottom entry; Exd Plug 1 No.
	23	Drain/Vent	Required
Sensor	24	Sensor Type/Measuring Principle	Capacitance / Piezo resistive / Silicon resonant
	25	Sensor Material	As per item description
	26	Fill Fluid	Silicon or better
	27	Process Connection Size/Type	1/2" NPT(F)
	28	Process Connection Location	As per item description
	29	Static Pressure Rating	As per Annexure
	Manifold	31	Type
32		Material	SS316 or better
33		Connection	1/2" NPT(F)
Options	34	Display	Min 2-Line LCD Integrated, Configurable Display with sqrt function
	35	Measuring Unit	Selectable Engineering Unit
	36	Hydrostatic Testing	Required
	37	Lightning/Surge Protection	Required, upto 1 kVa
	38	SIL Classification	SIL approved
	39	SS Tag Plate	Required, SS304
	40	Calibration Certificate	Required, 3 Point calibration
	41	Warranty Period	2 years
	42	Electromagnetic Compatibility	as per IEC-61000-4
	43	ATEX/FM/IEC Ex/PESO Approval	Required
Accessories	44	Cable Gland	2 no. SS316 Cable Glands (Ex-proof);
	45	O-Ring	2 Sets of O-rings(material to specify material)
	46	Blind Plug	1 no. SS Dummy plug;
	47	Brackets/Bolts	Mounting Bracket made up of SS316 as minimum to mount On 2" NB Pipe U Bolt & Nuts (SS316)
	48	Oval Adaptors( <b>for DPT</b> )	All Side Entry Transmitters shall be supplied with 2 Nos Oval Adaptors with 1/2" NPT(F) threads for process connections

Special Notes and Requirements	
1	HP and LP Swappable/Field Selectable
2	Vendor to furnish model selection sheet of the model alongwith the offer.
3	Vendor to indicate conformity against each specification item. Any Non-compliance to be clearly specified with sufficient valid justifications for consideration.
5	Transmitter model should be selected based on accuracy as mentioned in Annex. Same accuracy should be applicable from Minimum calibration span to Cal range for all models.
6	Hydrogen Service: If the sensor has "Gold plated" mentioned for the transmitter type, then: 1. Wetted parts should be Gold Plated in process side. 2..Diaphragm shall be min. SS316L with Gold plating with minimum thickness 5 microns and Body Material shall be min. SS316. All other wetted parts shall be min. SS316L
7	FF Specifications: 1. Communication Protocol : Foundation Field Bus; 2. STANDARD : IEC 1158-2/All Instrument shall support EDDL or FDT/DTM; 3. Power Supply: 9 -32VDC; Transmitter Output: FF; Min. Operating Voltage: 9V 4. Quiescent Current Draw: <18mA; Min. Function Blocks AI &PID 5. LAS Capable: Yes 6. Interoperability Registered device : Test Certificate/Registration from FF/Interoperability with test clearance like ITK latest version; 7. Polarity : All Instrument shall be polarity insensitive; 8. Extra Feature : Capable to detect impulse line plugging; 9. Intrinsic Safe certified as per Entity Concept or FISCO approved 10. Supports Peer to Peer Communication with 2 wire communication and Bus power supply.

#### Annexure: 1 Hight Pressure FF DPT Tx Types

Traditional FF DPT Tx Types				
S. no	Transmitter Type	Static Pressure (kg/cm2)	Range	SAP Code
1	DPT(-SS316L)	420	-6350 mm H2O to +6350 mm H2O	471199500144
2	DPT(Gold Plated)	420	-6350 mm H2O to +6350 mm H2O	471199500145
3	DPT(Gold Plated)	420	-2.5 kg/cm2 to +2.5 kg/cm2	471199500146

**SCHEDULE 6: High Pressure Hart PTs & DPTs**

**Attachment :1 High Pressure PT HART Common Specification**

Specification			
General	1	Area Classification	Zone-1, GROUP-IIC / T4, E-exia, Intrinsic safe Circuitry, Explosion proof Housing as per IEC 60079
	2	Enclosure Protective Paint	Epoxy/Polyurethane corrosion resistant
	3	Enclosure Protection	IP – 66 or better;
	4	Electrical Certification	EX'ia', PESO approved, Type Test Certificate to be provided with transmitter
Process	5	Service	Hydrocarbon/Water/Steam
	6	Max Ambient temperature	Up to 85 Deg C
Transmitter	7	Type	2-wire micro-processor based; Non-volatile memory, Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content (<=0.6%);
	8	Power Supply	24VDC
	9	Output	4-20mA
	10	Communication Type	HART 7 and above latest version available;
	11	Calibration range	As per annexure
	12	Damping Adjustment	Required
	13	Instrument Range	As per annexure
	14	Zero/Span Adjustment	Required (software zero adjustment mandatory)
	15	Accuracy	Base accuracy of plus/minus 0.04% of span with TD ratio 100:1.
	16	Response Time(msec)	100ms or better
	17	Repeatability	Bidder to specify
	18	Rangeability	100:1 or better
	19	Stability	Range > 760 mmwc = +/- 0.2% of URL for a period of min 10 years; Range < 760 mmwc = +/- 0.2% of URL for a period of min 1 year;
	20	Housing	Double compartment
	21	Housing Material	Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminium with very low copper content (<=0.6%);
22	Electrical Connection	2 No.s 1/2" NPT(F) for Cable gland with horizontal /Bottom entry; Exd Plug 1 No.	
23	Drain/Vent	Required	

Sensor	24	Sensor Type/Measuring Principle	Capacitance / Piezo resistive / Silicon resonant
	25	Sensor Material	As per item description
	26	Fill Fluid	Silicon or better
	27	Process Connection Size/Type	1/2" NPT(F)
	28	Process Connection Location	As per item description
	29	Over Range Protection	130% of max range.
Manifold	31	Type	3 Valve or 2 Valve Manifold, should be of Swagelok/Parker/Transmitter OEM make or as per approved vendor list of HPCL
	32	Material	SS316 or better
	33	Connection	1/2" NPT(F)
Options	34	Display	Min 2-Line LCD Integrated, Configurable Display with sqrt function
	35	Measuring Unit	Selectable Engineering Unit
	36	Hydrostatic Testing	Required
	37	Lightning/Surge Protection	Required, upto 1 kVa
	38	SIL Classification	SIL certified/SIL approved
	39	SS Tag Plate	Required, SS304
	40	Calibration Certificate	Required, 3 Point calibration
	41	Warranty Period	2 years
	42	Electromagnetic Compatibility	as per IEC-61000-4
	43	ATEX/FM/IEC Ex/PESO Approval	Required
Accessories	44	Cable Gland	2 no. SS316 Cable Glands (Ex-proof);
	45	O-Ring	2 Sets of O-rings(material to specify material)
	46	Blind Plug	1 no. SS Dummy plug;
	47	Brackets/Bolts	Mounting Bracket made up of SS316 as minimum to mount On 2" NB Pipe U Bolt & Nuts (SS316)

Special Notes and Requirements	
1	HP and LP Swappable/Field Selectable
2	Vendor to furnish model selection sheet of the model alongwith the offer.
3	Vendor to indicate conformity against each specification item. Any Non-compliance to be clearly specified with sufficient valid justifications for consideration.

4	Transmitter model should be selected based on accuracy as mentioned in Annex. Same accuracy should be applicable from Minimum calibration span to Cal range for all models.
5	Gold Plated Sensor for Hydrogen Service: 1. Wetted parts should be Gold Plated in process side. 2. Diaphragm shall be min. SS316L with Gold plating with minimum thickness 5 microns and Body Material shall be min. SS316. All other wetted parts shall be min. SS316L

#### Annexure :1 Hart PT Tx Types

Traditional Hart PT Tx Types			
S. no	Transmitter Type	Range	SAP code
1	PT (Gold Plated)	-1 to +300 kg/cm <sup>2</sup>	471199500147

#### Attachment :2 High Pressure DPT HART Common Specification

Specification			
General	1	Area Classification	Zone-1, GROUP-IIC / T3, E-exia, Intrinsic safe Circuitry, Explosion proof Housing as per IEC 60079
	2	Enclosure Protective Paint	Epoxy/Polyurethane corrosion resistant
	3	Enclosure Protection	IP – 66 or better;
	4	Electrical Certification	EX'ia', PESO approved, Type Test Certificate to be provided with transmitter
Process	5	Service	Hydrocarbon/Water/Steam
	6	Max Ambient temperature	Up to 121 Deg C
Transmitter	7	Type	2-wire micro-processor based; Non-volatile memory, Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content (<=0.6%);
	8	Power Supply	24VDC
	9	Output	4-20mA
	10	Communication Type	HART 7 and above latest version available;
	11	Calibration range	As per annexure
	12	Damping Adjustment	Required
	13	Instrument Range	As per annexure
	14	Zero/Span Adjustment	Required (software zero adjustment mandatory)
	15	Accuracy	Base accuracy of plus/minus 0.04% of span with TD ratio 100:1.
	16	Response Time(msec)	100ms or better
17	Repeatability	Bidder to specify	
18	Rangeability	100:1 or better	

	19	Stability	Range > 760 mmwc = +/- 0.2% of URL for a period of min 10 years; Range < 760 mmwc = +/- 0.2% of URL for a period of min 1 year;
	20	Housing	Double compartment
	21	Housing Material	Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content (<=0.6%);
	22	Electrical Connection	2 No.s 1/2" NPT(F) for Cable gland with horizontal /Bottom entry; Exd Plug 1 No.
	23	Drain/Vent	Required
Sensor	24	Sensor Type/Measuring Principle	Capacitance / Piezo resistive / Silicon resonant
	25	Sensor Material	As per item description
	26	Fill Fluid	Silicon or better
	27	Process Connection Size/Type	1/2" NPT(F)
	28	Process Connection Location	As per item description
	29	Static Pressure Rating	As per Annexure
Manifold	31	Type	3 Valve Manifold, should be of Swagelok/Parker/Transmitter OEM make or as per approved vendor list of HPCL
	32	Material	SS316 or better
	33	Connection	1/2" NPT(F)
Options	34	Display	Min 2-Line LCD Integrated, Configurable Display with sqrt function
	35	Measuring Unit	Selectable Engineering Unit
	36	Hydrostatic Testing	Required
	37	Lightning/Surge Protection	Required, upto 1 kVa
	38	SIL Classification	SIL certified/SIL approved
	39	SS Tag Plate	Required, SS304
	40	Calibration Certificate	Required, 3 Point calibration
	41	Warranty Period	2 years
	42	Electromagnetic Compatibility	as per IEC-61000-4
	43	ATEX/FM/IEC Ex/PESO Approval	Required
Accessories	44	Cable Gland	2 no. SS316 Cable Glands (Ex-proof);
	45	O-Ring	2 Sets of O-rings(material to specify material)
	46	Blind Plug	1 no. SS Dummy plug;

	47	Brackets/Bolts	Mounting Bracket made up of SS316 as minimum to mount On 2" NB Pipe U Bolt & Nuts (SS316)
	48	Oval Adaptors <b>(for DPT)</b>	All Side Entry Transmitters shall be supplied with 2 Nos Oval Adaptors with 1/2" NPT(F) threads for process connections

Special Notes and Requirements	
1	HP and LP Swappable/Field Selectable
2	Vendor to furnish model selection sheet of the model alongwith the offer.
3	Vendor to indicate conformity against each specification item. Any Non-compliance to be clearly specified with sufficient valid justifications for consideration.
4	Transmitter model should be selected based on accuracy as mentioned in Annex. Same accuracy should be applicable from Minimum calibration span to Cal range for all models.
5	Hydrogen Service: If the sensor has "Gold plated" mentioned for the transmitter type, then: 1. Wetted parts should be Gold Plated in process side. 2..Diaphragm shall be min. SS316L with Gold plating with minimum thickness 5 microns and Body Material shall be min. SS316. All other wetted parts shall be min. SS316L
6	Extra Feature : Capable to detect impulse line plugging.

#### Annexure: 2 Traditional DPT Hart Tx Types

Traditional DPT Hart Tx Types				
S. no	Transmitter Type	Static Pressure(kg/cm2)	Range	SAP Code
1	DPT-SS316L	420	-6350 to +6350 mmH2O	471199500148
2	DPT-Gold Plated	420	-6350 to +6350 mm H2O	471199500149

**SCHEDULE 7: High Pressure Hart Remote Seal PT**

**Attachment:1 High Pressure Remote Seal PT HART common specification**

Specification			
General	1	Area Classification	Zone-1, GROUP-IIC / T4, E-exia, Intrinsic safe Circuitry, Explosion proof Housing as per IEC 60079
	2	Enclosure Protective Paint	Epoxy/Polyurethane corrosion resistant
	3	Enclosure Protection	IP – 66 or better;
	4	Electrical Certification	EX'ia', PESO approved, Type Test Certificate to be provided with transmitter
Transmitter	5	Type	2-wire micro-processor based; Non-volatile memory, Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content ( $\leq 0.6\%$ );
	6	Power Supply	24VDC
	7	Output	4-20mA
	8	Communication Type	HART 7 and above latest version available;
	9	Calibration range	As per annexure
	10	Instrument Range	As per annexure
	11	Damping Adjustment	Required
	12	Zero/Span Adjustment	Required (software zero adjustment mandatory)
	13	Accuracy	Base tx accuracy of $\pm 0.04\%$ of span or better within TD of 100:1, and Tx with remote seal accuracy $\pm 0.2\%$ of span or better at TD ratio of 100:1,
	14	Response Time(msec)	Tx with remote seal 500msec or better
	15	Repeatability	Bidder to specify
	16	Rangeability	100:1 or better
	17	Stability	Range $> 760$ mmwc = $\pm 0.2\%$ of URL for a period of min 10 years; Range $< 760$ mmwc = $\pm 0.2\%$ of URL for a period of min 1 year;
	18	Housing	Double compartment
	19	Housing Material	Explosion proof Housing Ex(d) as per IS/IEC 60079 made with SS/Cast Aluminum with very low copper content ( $\leq 0.6\%$ );
	20	Electrical Connection	2 No.s 1/2" NPT(F) for Cable gland with horizontal /Bottom entry; Exd Plug 1 No.
	21	Drain/Vent	Required

Sensor	22	Sensor Type/Measuring Principle	Capacitance / Piezo resistive / Silicon resonant
	23	Sensor Material	SS316L/Refer notes and annexure
	24	Fill Fluid	Silicon or better
	26	Process Connection Size/Type	As per annexure
	27	Over Range Protection/Static Pressure Rating	As per annexure
Diaphragm Seal	28	Type	Pancake/Flush Flange, As per annexure
	29	Material	As per annexure
	30	Housing Material	SS316L
	31	Process Connection Size and Rating	As per annexure
	32	Flange Material	SS316 or better
	33	Fill Fluid	Silicon or better
	34	Fill Fluid Temperature	Upto 200 C
	35	Capillary Connection Type	Repairable Welded
	36	Spacer Ring Connection	Required, SS316 with 2 No.s 1/2" SS316 flushing rings + 2 No. 1/2" NPT(M) metal blind + SS316 Spiral Wound Gaskets as per specified
	37	Armor Material	SS304 or better with PVC sleeve
	38	Capillary Length	Minimum 5 meter
	39	Capillary Material	SS316 or better
Manifold	40	Type	3 / 2 Valve Manifold
	41	Material	SS316 or better
	42	Connection	1/2" NPT(F)
Options	43	Display	Min 2-Line LCD Integrated, Configurable Display with sqrt function
	44	Measuring Unit	Selectable Engineering Unit
	45	Hydrostatic Testing	Required
	46	Lightning/Surge Protection	Required
	47	SIL Classification	SIL certified/SIL approved
	48	SS Tag Plate	Required, SS304
	49	Calibration Certificate	Required, 3 Point calibration

	50	Warranty Period	2 years, the warranty shall be clearly mentioned on SS Tag and affixed to Tx.
	51	ATEX/FM/IEC Ex/PESO Approval	Required
Accessories	52	Cable Gland	2 no. SS316 Cable Glands (Ex-proof);
	53	O-Ring	2 Sets of O-rings(material to specify material)
	54	Blind Plug	1 no. SS Dummy plug;
	55	Brackets/Bolts	Mounting Bracket made up of SS316 as minimum to mount On 2" NB Pipe U Bolt & Nuts (SS316)
	56	Oval Adaptors	All Side Entry Transmitters shall be supplied with 2 Nos Oval Adaptors with 1/2" NPT(F) threads for process connections

Special Notes and Requirements	
1	Diaphragm seals from OEM only will be accepted, Necessary certification in support of the same to be submitted at the time of bid submission
2	HART Specifications: 1. Communication Protocol: HART 7 and above latest version available; 2. Power Supply: 24VDC (2-wire); Transmitter Output: 4-20mA 3. Transmitter shall allow multimaster (min. 2) for configuration, calibration, diagnostics and maintenance and shall be configurable for under current and Over-Current 4. Compliant to Namur NE recommendations
3	Transmitters shall be SIL 2 certified. SIL 2 certificate from accredited testing agency - TUV/EXIDA/SIRA is to be submitted.

**Annexure : 1 High Pressure Remote Seal Types Hart PT**

**High Pressure Remote Seal Types Hart PT**

S. no	Transmitter Type	Static Pressure kg/cm2	Range	Size(inches)	Rating	Capillary Length (in Meter)	SAP Code
1	PT(SS316L)	420	0 to 30 kg/cm2	1.5	900	5	471199500150