



**HINDUSTAN PETROLEUM CORPORATION LIMITED**  
**(A GOVERNMENT OF INDIA ENTERPRISE)**  
 CENTRAL PROCUREMENT ORGANISATION-MARKETING  
 MUMBAI REFINERY, B.D PATIL MARG, MAHUL ROAD,  
 MUMBAI-400 0074, PHONE NO: 022-25077702

**TENDER No-15000108 HD 10157(SUPPLY OF SUCTION TYPE DISP. UNITS)**

**TECHNICAL SPECIFICATIONS**

Supply & Delivery of High Hose Version Suction Type Dispensing pumps & MPDs in the height range of 2.1 Mtr to 2.3 Mtr and shall be Capable of operating in tropical conditions & in open atmosphere without overhead canopy. Humidity of max.95% and ambient temperature of - 10 to +55<sup>0</sup>c.

| S.no | Item description                                                                                                        | HPCL's Specifications                                                                                                                                                                                                                                                                                                | Vendor Comments |
|------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| (A)  | MODEL NAME:<br>Vendor to confirm<br>for the following<br>Suction Type Dispensing<br>Units/MPDs :                        |                                                                                                                                                                                                                                                                                                                      |                 |
| A.2  | <b>Item 1: Dual (Standard Duty-SD suction dispensing pump - 2 PRODUCT X 2 HOSE X 4 DISPLAY With ONE Printer on side</b> | Specify the Model No. & dimensions                                                                                                                                                                                                                                                                                   |                 |
| A.3  | <b>Item 2: Dual (Heavy Duty-HD suction dispensing pump) - 2 PRODUCT X 2 HOSE X 4 DISPLAY With ONE Printer on side</b>   | Specify the Model No. & dimensions                                                                                                                                                                                                                                                                                   |                 |
|      | DELIVERY RATE                                                                                                           | Minimum 30 litre/minute per nozzle when one side and one product in operation for Std Duty.<br>Minimum 60 litre /minute per nozzle when one side and one product in operation for Heavy Duty.                                                                                                                        |                 |
| 1    | Motor Make / Approval.<br><b>(Not applicable for Item B- STP Dual Dispensers)</b>                                       | <b>The Motor shall have CE-ATEX / UL / KHK Approval along with PESO approval; conforming to IS 2148(2004) or IS/IEC 60079- 1 or EN 60079-0-2004</b>                                                                                                                                                                  |                 |
|      | Specification :                                                                                                         | 220 Volts, Single Phase, 50 Hz, suitable HP to drive pump for attaining specified discharge ., Minimum Power Factor 0.8, Minimum HP of Motor shall be 0.75 for SD and HD Continuous Duty, Flameproof/Explosion proof. Copy of FLP certificate to be attached / made available during implementation of QA Plan / TPI |                 |
|      | Voltage range                                                                                                           | 180 - 250 Volts.                                                                                                                                                                                                                                                                                                     |                 |
|      |                                                                                                                         | Motors shall be capable of working in the                                                                                                                                                                                                                                                                            |                 |

Deviations mentioned by the bidders anywhere else in the tender other than in the deviation sheet shall not be considered.

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|   |                                                                                       | <p>voltage range specified and must have a suitable protection in the unit to prevent the motor from starting if the voltages are beyond the range specified. Suitable provision for earthing shall be provided for motor and for the dispenser to connect to earthpit ( Vendor to specify the details)</p> <p>Except against lightning strikes, motors shall be fully covered under comprehensive AMC and no charges are payable for replacement of motors during the period of warranty and Comprehensive AMC. Exceptions are applicable only for vandalism and acts of god, riots.</p> <p>If the supplier or their authorized service providers perform repairs on the motor, an undertaking should be given that none of the safety approvals like ATEX, CCOE, KHK and UL has been contravened. All the risk and liabilities in this regard are the suppliers' and their authorized service providers'.(specify the Make of motors with CCOE approval certificate)</p> |  |
|   | Capacity                                                                              | To withstand 75 Starts/Stops per Hour                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|   | Insulation                                                                            | Motor winding must comply with class F insulation range of upto 155 deg C. Thermostat rating to be 135 +/- 5 ° C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|   | Motor Characteristics<br>KVA Input<br>KW Consumed<br>Power Factor<br>Motor Efficiency | Full Load    150% Load    200% Load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|   | Maximum Temperature rise above ambient                                                | Restricted to Class F Insulation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| 2 | <b>PUMPING UNIT<br/>(Not applicable for Item B- STP Dual Dispensers)</b>              | <p>Positive displacement type with suction strainer (removable filter with 200 micron/mesh), Integral air separator and adjustable by-pass valve.</p> <p>Mesh of the Strainer shall be non-corrosive / non-reactive type.</p> <p>Pumps shall be proprietary to the vendors. OIML approval test reports for the model shall be produced. Heavy duty pump may be brought to standard duty but not vice-versa.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|   | Type                                                                                  | Internal Gear / Vane Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|   | Casting Material<br>Type of Drive                                                     | Cast iron / Superior<br>Belt Driven.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|   | Rated Head / Suction Lift (Min.)                                                      | 4.0 M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|   | Suction length in mtrs                                                                | 30 Mtrs (Max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|   | Pressure rating with By-pass valve in closed and                                      | <b>Max. Pressure not to Exceed 3.5 Kg/sq.cm.</b><br>All flange joints, pipe fittings and other fuel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |

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|          | open condition                                                                                                                                                                                    | handling components shall resist leakage at this pressure. Party to provide the testing facility for this during the TPI inspection.<br>STD Duty – 1.2 to 2 Kg/Sq.cm -<br>Heavy Duty – 1.6 to 2.8 Kg/Sq.cm                                                                                                               |  |
|          | Diameter of Suction Pipeline                                                                                                                                                                      | 50 MM                                                                                                                                                                                                                                                                                                                    |  |
|          | Suction bellows                                                                                                                                                                                   | Dispensing unit shall be provided with suitable dia of <b>stainless steel flexible bellow connector</b> at the inlet of a min. length of 90 mm or more and a counter flange with 2” internal BSP threading for connecting to the line pipe ( riser pipe from UST)below.                                                  |  |
|          | Rate of Delivery<br>These discharges are for Rated head & suction length<br>Factory Conditions must simulate a suction lift of 4.0 m & suction length of 30 mtrs. This shall form part of QA Plan | Std Duty – 30 - 40 LPM<br>Heavy Duty – 60- 80 LPM<br><br>Note: 1) Standard Duty pump must not be scaled upto Heavy Duty flow rate.<br>2) The Hoses, Nozzles and accessories should be capable of servicing for the flow rates envisaged. Vendor must give an undertaking to that effect.                                 |  |
|          | Suction Port location                                                                                                                                                                             | To be located such that it facilitates free use of tools to fasten/unfasten suction bellow coupling                                                                                                                                                                                                                      |  |
|          | Discharge side                                                                                                                                                                                    | Pre- meter filter of 80 micron (max.) size.                                                                                                                                                                                                                                                                              |  |
|          | Dry vacuum setting                                                                                                                                                                                | Shall be minimum of 10” Hg for SD and HD Pumps and Min. 15”Hg for SHD.                                                                                                                                                                                                                                                   |  |
|          | By Pass Valve                                                                                                                                                                                     | Adjustable type                                                                                                                                                                                                                                                                                                          |  |
|          | Pressure Gauge adaptor                                                                                                                                                                            | ¼”/ 3/8 NPT tapped hole closed by a threaded plug for adopting a pressure gauge.                                                                                                                                                                                                                                         |  |
|          | To avoid drain out in suction unit                                                                                                                                                                | Integral check valve                                                                                                                                                                                                                                                                                                     |  |
|          | Air Separation                                                                                                                                                                                    | As per OIML norms and the air separator shall be an integral part of the Pumping unit.                                                                                                                                                                                                                                   |  |
|          |                                                                                                                                                                                                   | <i>Each pumping unit must have a distinct and unique non- alterable identification number available physically along with name of Vendor to be stamped on the Pumping Units.</i>                                                                                                                                         |  |
| <b>3</b> | <b>METERING UNIT</b>                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                          |  |
|          | Type                                                                                                                                                                                              | Positive displacement type                                                                                                                                                                                                                                                                                               |  |
|          | Working Pressure                                                                                                                                                                                  | Max 3.5 kg/cm <sup>2</sup> . Vendor to demonstrate the withstanding of this pressure without any leakages or physical damage to the unit as per ATEX norms. vendor to demonstrate the same to TPI/HPCL on random basis at it’s facility on a test bench                                                                  |  |
|          | Accuracy                                                                                                                                                                                          | +15 ml to 0 ml at a delivery rate of 10 lpm to the rated discharge of the SD/HD pump/dispenser for <b>5 litre measurement</b> .<br>2 consecutive readings out of three readings must be within above limit to conform to the current regulation of W&M, India.<br><i>Accuracy class shall be +/- 0.3% or better when</i> |  |

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|  |                                                                                                                                                                                                                                                                                  | <p>delivered at a delivery rate of 10litres/minute or more</p> <p><i>DUs must also discharge accurately as per the accuracy class mentioned above for volumes of minimum 2 Ltr at a delivery rate of 10 LPM. Vendor to submit OIML certificate for minimum measured quantity of 2Litre.</i></p> <p>Each metering unit must have a distinct and unique identification serial numbering (embossed/Engraved/Punched ) of the supplier, available for physical verification..Name of the Vendor/identification logo to be stamped on the Metering Units. Pumping Unit and Metering Unit should have unique identification sr. no. with non-alterable type. This Physical Sr.No. shall be recorded on the invoices.</p> <p><b>Note :All measuring units should be only electronically calibrated. The electronic calibration must be possible only when W&amp;M seal is broken.</b></p> |  |
|  | <p>Type of casting<br/>Casting Material</p> <p>Material of construction<br/>Material of Piston cup must be got tested in a Govt. approved and accredited lab for every batch and TC must be made available to HPCL / HPCL's inspectors/ TPI during implementation of QA Plan</p> | <p>Pressure Die cast.Aluminium<br/>Cylinder liner - Stainless Steel (slit less)<br/>Piston Cup - PTFE (may be impregnated with 15% Graphite).<br/>Suitable for being used for dispensing petroleum fuels including ethanol doped motor spirit( up to E15) Test certificate must confirm that PTFE used is resistant to petroleum product within operating range of - 50 deg.C to +100 deg. C.<br/>O ring, Valve disc-Viton only</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|  | Provision for maintenance                                                                                                                                                                                                                                                        | Meter provided in such a position that ensures quick removal/replacement without disturbing product piping and very few moving parts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|  | SEALING ARRANGEMENT                                                                                                                                                                                                                                                              | To include sealing of metering unit, totalizer, Control Card and Calibration Switch. For control card vendor has to provide molded clear glass cover made of high quality Poly carbonate sheet / Acrylic sheet/ Pet G material. Such cover connected concealing the control card should have provision for sealing. If the calibration switch is away from Control card, in such cases the switch should be covered with e metal cover plate with sealing arrangement.                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|  |                                                                                                                                                                                                                                                                                  | <b>Metering assembly shall not have any external gear assembly and drive shaft shall be directly coupled with electronic pulsar assembly mounted on top of</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |

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|           |                      | <p><b>metering assembly. Both units – meter &amp; pulsar must be sealed and shall have a common axis shaft.</b></p> <p>Vendor to paste approved sealing diagram which is neatly printed , visible and laminated inside the DU door frame.</p> <p>Prime mover to the pulsar shall be inaccessible irrespective of sealing by Legal Metrology.</p> <p>Bidders must undertake that the flow meters in the dispensing units remain free from drift for a service of upto <b>12 million litres</b> or <b>10 years</b> which ever is earlier. Bidders shall confirm and furnish a warranty against drift beyond permissible limits as specified by the department of legal metrology upto a delivery of 12 million litres from each meter. The cost of replacement and re-stamping shall be to supplier's account, if meters have drifted before 12 million litres of delivery through each meter or drifted before 10 years. Cumulative delivery shall be ascertained through the totalizers of the dispensing pumps. In case of change of electronic cards/PCBs, processes and methods shall be established to arrive at cumulative delivery from each of the meters and shall be recorded. Philosophy of Metering Unit shall be drift free and repair free meters and defective meters shall necessarily be replaced.</p> |  |
|           |                      | <p><i>Name of the Vendor to be stamped on the Metering Units.</i></p> <p>Re-stamping charges shall be paid through a crossed DD drawn in favour of HPCL concern Regional Office by the vendor concerned.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| <b>4.</b> | <b>HOSE ASSEMBLY</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|           | Make                 | Make of Hoses shall be either Good Year or Gates or Parker make conforming to following specifications.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|           | Size                 | SD – 19mm bore X 4 mts.<br>HD –25mm bore (or suitable for the specified flow rates) X 4 mts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|           | Type                 | High Hose with Single Braid having bonded wire hard wall with reusable coupling with 360 degree swivel at nozzle end.(UL /ATEX/KHK approved) <b>Swivel joint warranty for 2 years, but will form a part of exclusions during the 8 year CAMC period.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|           | Quality              | Must be Petrol/ Diesel/ ethanol blended petrol(E15)/ resistant including premier products in MS like power and Turbojet in HSD. Conforming to the appropriate API                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |

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|    | Markings                 | Standard or EN 1360 Type III/UL 330 or equivalent. Suitable for working pressure of 3.5 Kg/sq cm. Shall be suitable for all fuels including Blended fuels.<br><br>The following information shall be clearly marked on the hose surface in intervals of one meter:<br><br>Name or brand of manufacturer,<br>Relevant standards,<br>Year of manufacturer, |  |
|    | Colour                   | Hoses would be Black in color.                                                                                                                                                                                                                                                                                                                           |  |
|    | Break away Coupling      | <b>Reusable and reconnect able at site</b><br>Breakaway coupling of suitable size (UL /ATEX/KHK approved) <i>should be mounted at top canopy end /nozzle end with an hose. Vendor to specify the make.</i>                                                                                                                                               |  |
|    | Test Certificates        | A copy of manufacturer's batch test certificate for each batch of hoses that will be supplied with DUs must be made available as a part of QA plan.                                                                                                                                                                                                      |  |
| 5. | <b>NOZZLE</b>            | Automatic Cut-off Nozzles of ZVA / TATSUNO/EMCO- WHEATON/HUSKY/OPW/CATLOW(USA) make. Nozzles shall be pressure sensitive nozzles for Preset Pumps. Nozzles shall have UL or ATEX CE or KHK approval.<br>Note: OEM s own make of nozzle if not listed above are not acceptable                                                                            |  |
|    | Size of spout (OD)       | 13/16" for SD<br>19/16" for HD                                                                                                                                                                                                                                                                                                                           |  |
|    | Threads                  | NPT threads suitable for hose coupling.                                                                                                                                                                                                                                                                                                                  |  |
|    | Material of Construction | Diecast Aluminium Body and Aluminium/ Brass Spouts. Internal parts shall be made of corrosion proof material.<br>All 'O' Rings and Gaskets should be of " VITON " make only.                                                                                                                                                                             |  |
|    |                          | Nozzles shall be Light Weight and easy to operate                                                                                                                                                                                                                                                                                                        |  |
|    |                          | Nozzles shall be suitable for all types of Fuels including Blended Fuels                                                                                                                                                                                                                                                                                 |  |
|    |                          | Nozzles shall have ' Hold Open Device '.                                                                                                                                                                                                                                                                                                                 |  |
|    |                          | Nozzles shall have replaceable Spout                                                                                                                                                                                                                                                                                                                     |  |
|    |                          | Nozzles shall have UL or Atex CE / KHK approval.                                                                                                                                                                                                                                                                                                         |  |
|    |                          | A copy of manufacturer's batch test certificate for each batch of nozzles that will be put to use must be made available as a part of QA plan.<br><b>NOTE: Hose - Nozzle assembly including</b>                                                                                                                                                          |  |

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|    |                                                          | <p><b>swivels, breakaways shall also be covered by a warrantee of two years.</b></p> <p>Batch test certificate of the manufacturer of nozzles must be furnished. Test certificate must carry the serial number of the nozzle and the date of testing of the batch. Checking the nozzle serial number against manufacturer's batch test certificate shall form a part of QAP.</p> <p><b>Nozzle Cover Colour with HPCL logo sticker on NOZZLE COVER:</b><br/> BLUE for DIESEL<br/> GREEN for PETROL</p> <p>Vendor to obtain configuration of above in case of Dual and MPDs during QAP approval</p>                                                                                                                                                                                                                                                                                                                                        |  |
| 6. | <b>ELECTRONIC REGISTER ASSEMBLY UNIT(ERA)</b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|    | Type                                                     | Microprocessor based electronic register with 3 Display.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|    | Capacity                                                 | <p>Microprocessor processing speed to take care of higher delivery and other related functions</p> <ul style="list-style-type: none"> <li>• Rates up to 100 lpm for SD &amp; HD units</li> <li>• Shall take care of DU Security levels (with provision of password protection levels- Currently Five levels of access to DU and the processor shall be able to process these levels)</li> <li>• Processor shall have capability to process multiple associated cards &amp; readers . Micro controller unit(MCU) used shall be capable &amp; have adequate speed and capacity .</li> <li>• Processor shall have capability to process encryption &amp; decryption of the data communicated among the various cards and readers connected. Micro controller unit(MCU) used shall be capable &amp; have adequate speed and capacity as per the Encryption standards.</li> <li>• Vendor to specify the details of processor used.</li> </ul> |  |
|    | Temperature resistance<br>Dry Heat Test<br>Voltage range | <p>Up to -10 degrees and +80 degree C during environmental test set-up.<br/>Suitable for working for ambient conditions <u>at - 10c to 55c.</u></p> <p>Expected voltage fluctuation 130 volts to 280 volts with tolerance <math>\pm 5\%</math>.<br/>Vendor to test the ERA box as per the IEC stds and relevant OIML stds as mentioned in last section of this annexure at ERTL/SAMEER/ANY GOVT.LABORATORY ACCREDITED BY NABL. This type test to be performed for each model of ERA (if different</p>                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |

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|   |                        | for each of DU) independent of DU testing (DUT) at these laboratories. The reports of the same shall be provided to HPCL before commencement of supplies. However, HPCL at its own discretion, will test any of the ERA Box randomly on its own at any of the laboratories. In case of foreign vendors, the same tests shall be conducted at a globally reputed laboratories/agencies in their country of origin before the supplies commence.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 7 | LCD display            | <p>Both sides of dispensing unit shall be provided with LCD with back lighting for convenient reading during day and night. <b>The characters/digits shall be displayed in black and the background shall be white.</b></p> <p><i>In case of power failure, display should remain for at least 15 minutes. DU battery shall not be used for this backup.</i> Vendor to demonstrate this during the QAP. The configuration shall be as follows:</p> <p>The size of the Displays is given below:<br/> 1) Sales Amount : 40 mm<br/> 2) Volume : 40 mm<br/> 3) Rate : Minimum 25 mm<br/> 4) Density : Minimum 25mm<br/> <b>Number of LCDS shall be as given below:</b><br/> Sales Value : 7 Digits to read upto Rs.99999.99<br/> For Volume : 6 Digits to read upto 9999.99 Litres<br/> Rate per Litre : 5 Digits to read upto Rs. 999.99<br/> For Density : 4 digits to read upto 999.9Kg/m<sup>3</sup><br/> <b>Density display for the product of active hose only.</b></p> <p><b>Density input through keypad (security level L1) or POS.</b><br/> There should be no floating decimals</p> |  |
|   | Least count            | 0.01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|   | Testing of LCD display | Segment check facility after every reset. And prior to relay start of motor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|   | Quality of LCD         | LCD shall be Static LCD display type and Industrial grade to withstand temperature range of -10 degrees C to +80 degrees C. Certificate from accredited govt. test house to be furnished to TPI/HPCL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|   | Motor Switching        | Relay operated after completion of segment check.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| 7 | <b>Pulsar</b>          | <p><b>Pulsar Types :</b></p> <p>a) Pulsars with Optical Sensors (LEDs &amp; Photo detectors ): Pulsars should have feature to make it tamper proof &amp; unidirectional . It should consist minimum of three pairs of</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |

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|  |                | <p>photoelectric sensors.</p> <p>b) Pulsars with magnetic sensors: Pulsars should have feature to make it tamper proof &amp; unidirectional.</p> <p>Pulsars technology should have a tracking mechanism of detecting an attempt of tampering. It should be self-destructing either physical or electronic or both and the same should be irreparable at site. Vendor to submit declaration that the source code and logic is retained only with more responsible higher authorities of its organization.</p> <p>Vendor has to explain the concept of tamper proof ness intended to be achieved in the technical bid.</p> <p><b>Other features :</b></p> <p>Resolution of 10 ml per pulse.</p> <p><b>. The Pulsar shall be Integral Part of the metering Unit. The entire Pulsar assembly shall be a sealed unit.</b> The Pulsar shall be directly mounted on top of the metering unit with no gear mechanism &amp; shall be sealed along with the metering unit.</p> <p>Pulsar shall be flame proof and explosion proof, if they are placed within hazardous area. Appropriate certificates shall be furnished along with the Unpriced Bid.</p> |  |
|  | Safety feature | <p>a)<b>Pulsers with Optical Sensors (LEDs &amp; Photo detectors ):</b> In the event of failure of any one of the three pair of sensors, the ERA shall annunciate same and the shall get recorded as error in history of Logs besides display of the same on LCD display and pump will continue to operate.</p> <p>In the event of second sensor failure the pump will stop and the error code shall identify the failed sensor/s and pump shall not function till repair is undertaken.</p> <p>b)<b>Pulsers with magnetic sensors :</b> In the event of any sensor failure the pump will stop and the error code shall identify the failed sensor and pump shall not function till repair is undertaken.</p> <p><b>Others :</b></p> <p>All the pulser card communication to ERA shall be in secured and standard 128 bit encryption. <i>Party to provide certification on implemented encryption standard from any of the Globally reputed agencies</i></p>                                                                                                                                                                                    |  |
|  | PCB            | <p>PCB cards should withstand noise level of 2Kv. Each PCB shall have a unique visual Sr.No. to facilitate identification besides the soft sr.no.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |

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|   |                                     | Any PCB replaced during the service shall also have this provision.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|   | ER Circuit/contacts                 | Secured contacts preferably gold plated to ensure reliable connections.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|   | Back-up time of ERA/CPU             | <p>Minimum back-up time shall be 15 minutes after power disruption to meet the power requirements of ERA and other related cards. This back up shall ensure ERA to process the functions such as data retrieval like ET readings and other audit trail functions. System should also ensure that there is no power disruption to pulsar unit.</p> <p>The above can be achieved either thru a battery back up or by providing super capacitor of reputed make(NEC or Equivalent)</p> <p>Vendor to specify the option between battery back up and Super capcaitor</p>                                                                                                                                                                                                   |  |
|   | Indicator                           | Power On, Low battery, Pulsar failure indicator on the LCD panel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|   | Operating Voltage                   | Vendor to specify.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
| 8 | Battery & Battery Charger( Back up) | <p>In case of battery system, Rechargeable battery to be supplied of Exide/Amararaja/Globally reputed approved equivalent make. <b>Battery warranty one year but excluded thereafter. Subsequently, battery/ies replaced shall be paid for by HPCL but will have to be under warranty for a period of 12 months or manufacturer's warranty (from the date of replacement) which ever is more.</b></p> <p>Battery charger shall be as per the design of the individual Battery Manufacturer. ERA shall have compatibility in it's design for the same. Batteries provided shall be safe to operate in electronic section of DUs.</p>                                                                                                                                   |  |
| 9 | TOTALIZER                           | <p>All Dispensing units shall be without EMT and necessary approvals of Legal metrology of indicating the same in their model approval shall be available. Only Electronic totalisers(ET) with LCD display are acceptable.</p> <p>Electronic Totalizer: Readings of totalizers must be available at least in two locations in non-volatile memory Totalizer reading must also be displayed on LCD. In the eventuality of a need to replace any of these two cards/locations, reference of the latest totalizer reading must be available for incorporation and updating in records of the new card on such replacement.</p> <p>However, the location of primary storage of ET shall be in properly secured and preferably in one of the cards sealed by W&amp;M .</p> |  |

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|    |                    | <p><b>Electronic Totaliser shall be of 12 digit (including decimals) with 2 digits after decimal. i.e nine full digits and two digits after decimal point</b></p> <p>Reading must be cullable on pressing of a single button.<br/>All Electronic totaliser readings shall be Non-resettable / irreversible even by the programmer.</p>                                                                                                                                                                                                                                                                                                                                               |  |
|    | Aborted Deliveries | <p>A history of aborted deliveries with non – reversible/non-erasable/non-resettable shall be recallable under the protection of a password( access as per the defined levels). The details recallable must include the following:</p> <ul style="list-style-type: none"> <li>a) Count of aborted deliveries up to 20 numbers</li> <li>b) Date and time stamp along with Volume and money totalizer readings &amp; other parameters for the above ,as described in the annex.- Errors, events &amp; trails.</li> </ul>                                                                                                                                                               |  |
|    | Hot –Keys          | Key pad shall not have hot-keys and software shall not have provision for configuring hot keys.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|    | Masking            | Masking shall be restricted to a maximum of 20ML and configurable at Level 5 in defined user levels                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|    | Protection of Data | <p>Protection of data in case of a need to replace all the cards may please be confirmed.<br/>In the eventuality of a need to replace the primary card ( where the critical data is stored), reference of the latest totalizer reading must be available from the secondary source for incorporation/transfer.</p> <p>This identified security level for any such action of replacing the cards as defined shall leave traceability and these system records with logs shall be available for scrutiny and audit trail. This history log shall be available from the DU at any point of time by accessing the same.</p> <p>Protocol/process of the above to be specified by Mfr.</p> |  |
| 10 | Solenoid valve     | <p>Via Solenoid valve of two stage or proportional valve with precise control of delivery. <b>Vendors to confirm the Cut-off level of the first stage.</b></p> <p>Pre set for both Volume &amp; Value Pre set.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |

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|    |                                       | The Solenoid valve shall have the approval of ATEX/UL/KHK.<br>Vendor to specify the make.                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 11 | <b>Key Pad &amp; Pre Set facility</b> | Shall be <b>metallic or non metallic</b> , rugged and with stand the operating conditions of DU as stated earlier and should be Alphanumeric and additional functional keys to facilitate entering of Vehicle Number, Sales Tax Registration No. etc..The keys of the pad shall be able to withstand the repeated cycle of operations during its life time and shall be durable and designed to meet the ambient operating conditions and rough usage of the user.                    |  |
| 12 | <b>Ethanol Compatibility</b>          | DUs shall be compatible and shall be able to satisfactorily dispense MS and Power Petrol blended with 15% Ethanol.(E 15). All Rubber components and seals as part of the dispensing system shall be compatible with E15. <b>Test certificate ( DUT) for the same shall be submitted from national /internationally accredited laboratories</b> .OIML certificate in this regards is also acceptable to us.                                                                            |  |
| 13 | <b>SHEET METAL</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|    | Type                                  | All panels shall be CRCA sheets only.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|    | Fabrication and finish                | Sheet steel fabrication of all panels to be done on CNC/Automatic machines .The external finish of panels should be appealing with rounded at the outer edges .The joints should appear as seamless without gaps being visible.                                                                                                                                                                                                                                                       |  |
|    | Minimum thickness and IS Std          | Load bearing members-min.1.6 mm - Non load bearing members-min.1 mm - Base frame - Range 2.25-3 mm - Ref: IS 1079 / IS 513                                                                                                                                                                                                                                                                                                                                                            |  |
|    | Foundation Bolts                      | Necessary foundation bolts required to be bolted with the foundation base frame( not in vendor scope) to be supplied.                                                                                                                                                                                                                                                                                                                                                                 |  |
| 14 | <b>GLASS</b><br>Thickness Type        | 3 mm (min.) Toughened glass with rubber beading to ensure the complete unit water proof.                                                                                                                                                                                                                                                                                                                                                                                              |  |
| 15 | <b>PAINTING</b>                       | The Panels and enclosures should be powder coated as per HPCL colour scheme for prolonged life and better finish.                                                                                                                                                                                                                                                                                                                                                                     |  |
|    |                                       | Coated / painted for superior weather and corrosion resistance.<br>No painting shall be applied to all SS surfaces. However, the non-SS surfaces shall be coated as follows:<br><ol style="list-style-type: none"> <li>1. External surfaces of bottom panel (both front and rear) shall be finished in such a way that the pasting of screen printed vinyl is possible at Retail Outlets.</li> <li>2. All other external surfaces will be coated with pure white polyester</li> </ol> |  |

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|           |                                   | powder coat with minimum thickness of 50 microns.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|           | Paint thickness                   | Minimum 50 microns                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| 16        | <b>Graphics / Artwork.</b>        | <p>Artwork / Graphics should be screen printed on approved makes of Gasoline resistant Vinyls with suitable UV overcoat in approved colours. Product stickers also should be made using the same material in approved colour. <b>5 Year Warranty should be submitted</b> for all the Artwork / Graphics. Warranty Certificate must be signed and sealed by the authorized representative of Vinyl manufacturers. Prior approval of Artwork should be taken from HPCL. Process of Artwork must be as approved by the manufacturer and HPCL.</p> <p>Vinyls used shall be either 3M or Avery Dennison make. The entire front panel should be pasted with single printed vinyl sheet as per approved art work.</p>                                                                                                                                       |  |
| <b>17</b> | <b>FLP JUNCTION BOX</b>           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|           | Type                              | Shall be suitable capacity and Flameproof/Explosion Proof. Should be UL/ATEX/KHK and CCOE approved.. A separate junction box shall be provided for automation. Location of these Junction boxes shall be approved by CCOE.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|           | Power                             | The power Junction box shall have separate port of entry for CVT (for DU electronics) and UPS (for automation )cables from the MV panel besides the port meant for DU motor power supply incomer power cable.The outgoing ports of Junction Box shall be separate for DU electronics & automation purpose & the same to be highlighted with clear markings on Junction Box. The internal outgoing power cable of automation shall be terminated at ERA section of DU with a separate terminal block provided for this purpose with markings. All the outgoing ports with required FLP glands shall be separate for motor/DU electronics /automation & the same shall be clearly marked. All internal wiring done shall be high grade Cu wire and approved by ATEX/UL. . The location of the junction box shall be in the bottom enclosure of the DU. |  |
|           | <b>Communication Junction Box</b> | A separate communication Junction Box shall be provided with sufficient terminal blocks available to terminate automation FCC cables. The communication cable between the Pump controller card ( ERA section) and this communication Junction Box should be pre-wired, terminated with suitable FLP gland. A duly plugged opening to be provided on the Junction box to allow entry                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |

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|           |                                            | of communication cable from FCC/ POS.<br>junction boxes shall be marked for proper identification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| <b>18</b> | <b>PROVISION FOR ESD</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|           |                                            | To be fixed conveniently on the Pump body must conform to Petroleum Regulations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|           | <b>Emergency stop device (ESD)</b>         | Each unit should be provided with a Red color Mushroom type "STOP" button –one ESD per DU and the same shall be mounted on one side of DU. With clear marking mentioned for the same for easy identification.<br>All the power to the dispensing unit including dispensing should stop, except display which should remain for minimum 15 minutes.<br><br>Specify the details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| <b>19</b> | <b>PACKING</b>                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|           | Wooden Crate/<br>Corrugated box            | Pumps to be covered with polythene cover and packed in Corrugated Box cartons / wooden boxes to withstand multiple loading / unloading/ handling and transportation. However, the responsibility of any damage in both the cases (Wooden Packing/or Corrugated Box Packing) till the point of use will remain vested with the Supplier. The supplier shall be held liable for all damages or breakages to the goods due to the defective or insufficient packing as well as for corrosion due to insufficient packing.<br>Attachments and spare parts of equipments and all small pieces shall be packed separately in wooden cases with adequate protection inside the case and wherever possible should be sent along with the main equipment. Each item shall be tagged so as to identify it with the main equipment and part number and reference number shall be indicated. |  |
|           | Covering                                   | Plain Polythene Covering.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|           | Stenciling/Stamping-<br>Name plate Details | Customer name (HPCL),<br>P O No. & date :<br>Model No.:<br>Pump Serial No.<br>Mfd by & at :<br>Mfd date :<br>Space for embossing HPCL asset No.<br>CCOE approval Ref. No & date<br>W&M Legal Metrology approval Ref.no & date:<br>Gross and net weights.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |
| <b>20</b> | <b>OPERATING</b>                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |

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|           | <b>ENVIRONMENT</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|           |                                       | Pumps shall be capable of operating in tropical conditions and in open atmosphere without an overhead canopy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|           |                                       | Relative Humidity – 5% - 95% ( condensed vapour )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|           |                                       | Ambient Temperature -10 deg C to + 55 deg C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| <b>21</b> | <b>COMMUNICATION &amp; AUTOMATION</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|           |                                       | <ul style="list-style-type: none"> <li>All DUs when released from the factory shall be in manual mode. Provision shall be there to convert /switch over from standalone mode to automation mode at outlet through a higher level password ( see the user levels). Same is applicable in case from automation mode to Stand alone mode through the appropriate user level. How ever, in case the outlet is automated , on receipt of automation signal from FCC, the DU shall switch over to Auto mode. Once the DU is in Auto mode, shall not revert to manual mode in case of power recycling or on failure of automation communication signal. All these events and logs of Mode changes shall get recorded along with Date and time stamp and other readings as part of “audit trail” and shall be printable</li> <li>The Dispensing Pumps should have latest version of Communication Protocol in line with International Automation Systems. <ul style="list-style-type: none"> <li>DU should have communication port with an optical isolator so that any transient voltage coming from communication cable from the fore court shall be isolated..</li> </ul> </li> </ul> <p>The pumps shall communicate with automation system thru a RS 485 communication port so that the automation system (forecourt controller / POS controller / Communication controller, etc) can effectively establish a two way communication and data can be polled by the automation system. The unit shall have an RS 485 port for communication with POS/OPT/any Automation system. For makes that support Current Loop as the default mode of communication, one RS 485 port shall also be provided with an option to switch over to RS 485 or back to Current Loop (using jumper settings).</p> <ul style="list-style-type: none"> <li>The communication protocol of electronic register assembly shall be handed over to HPCL for it’s business use on signing Non Disclosure Agreement. Also the pump manufacturer shall provide technical</li> </ul> |  |

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|  |  | <p>support with respect to protocol, pump electronics to HPCL and / or its nominated automation partner, if required. The protocol must be robust, reliable and standard to support any automation system with start and stop byte, parity checks, baud rate, two way communication, checksum for error correction, acknowledgement, etc.</p> <ul style="list-style-type: none"> <li>• The pump manufacturer should be capable to retrofit card readers (CARD READER IN DISPENSING UNIT-CRIND) in the pump at a later stage. <b>CRIND can be retrofitted in the place of printer/s</b>. Necessary provision shall be made in the pumps to retrofit the card reader and the same <b><i>should be mentioned with Graphical Text Vinyl pasted on outer surface of DU indicating the slot/position.</i></b></li> <li>• One Crind provision per DU shall be made. CRIND size should be specified by vendor. However the same shall be of Printer size or Higher. Blanking plate on opening to be provided.</li> <li>• Vendor to confirm that in all Models the position of CRIND will remain same as approved by HPCL.</li> <li>• The pump should be able to retrofit Radio Frequency Identification (RFID) readers on the outer surface of the pumps at a suitable height. The maximum size of RFID is 8"x5"x3" and it would draw 230 V AC single phase current. It shall be located at min. height of 1200 mm from the base level. <b><i>Graphical Text Vinyl to be pasted on outer surface of DU for the same.</i></b></li> <li>• Encrypted communication bus must be used from pulsar to control card (ERA/CPU) &amp; all other electronic data communications among the cards must be on a <b>secure and 128 bit encrypted platform.</b></li> <li>• Encrypted communication bus must be used from pulsar to control card (ERA), Key pad to ERA, E Cal card to ERA, ERA to display Card &amp; any other electronic data communications must be on <b>safe and secured 128 bit encrypted platform.</b></li> <li>• Communication Port shall remain</li> </ul> |  |
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|  |  | <p>protected when connected to FCC of DOMs / POSTEC/ORPACK or any other make of FCC.</p> <ul style="list-style-type: none"> <li>• If any local printers are installed at a later stage then the communication to be established through a RS 232/RS 485 port and also these printers shall work irrespective of automation system is in place or not.</li> <li>• The Printers should print receipts with a single button provided on the pump and there should be direct communication between pump controller and local printer through Rs 232/RS 485.The communication should be directly between the pump controller board and the local printer board, using RS232/RS485 to ensure receipt printing whether there is automation or not.</li> <li>• Before printing the cash memo, a provision shall be there to enter vehicle No. (Alphanumeric) by a prompt which appears on the LCD or keypad screen of DU. Cash memo thus generated shall have vehicle No.</li> <li>• All the details of Previous transaction shall appear, once the vehicle No. is entered or skipped whenever the prompt is taken onto the LCD.</li> <li>• However, if vehicle No. is not entered, the cash memo thus generated should show as “<b>Not entered</b>” against the respective fields .</li> <li>• The DUs working with Retail Automation System with FCC, the below data should be available from DU on request from POS through a standard proprietary / Industry practiced protocol(Following are minimum read and Write parameters required for the FCC Communication)</li> <li>• The Sale amount, Sale Volume, sale rate, date and time, totalizer value, sale count and DU status with real time information that matches with the current delivery, amount and volume delivered at microcontroller of the DU.</li> <li>• All unit Price, ET readings, E calibration records( K factor),Preset Amt &amp; quantity from the Keypad, Aborted deliveries, FCC/POS authorizations</li> </ul> |  |
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|  |  | <ul style="list-style-type: none"> <li>• DU shall be capable of exporting data logs, error logs, alarms to Forecourt Controller of automation system.</li> <li>• The cumulative total volume delivered, Cumulative amount, all the rate, calibration records by each microcontroller.</li> <li>• The microcontroller communication shall be capable of transmitting the preset value entered on the keypad of DU to FCC before the delivery transaction is started.</li> <li>• In case FCC has accepted &amp; initiated transaction and later automation system failed, the DU Shall allow the completion of that particular transaction. Thereafter, the DU shall not function and seek change in mode to “ Stand alone” which shall necessarily be done by the appropriate user level. In case the DU is in manual mode, and an automation signal is sensed during the progress of transaction, the DU shall complete the particular transaction in manual mode and then comes into Idle mode to switch over to Automation mode.</li> <li>• ET Readings and other logs shall get captured immediately on resumption to automation mode from stand alone mode of DU.</li> <li>• The DU protocol shall be such that the change of rates and density for all products can be done remotely through Automation system.</li> <li>• The communication protocol pertaining to DUs shall be submitted to HPCL and any agreement for non-disclosure of the same shall be signed by HPCL, if required.</li> <li>• Despite version upgrades, there should not be any change in the basic protocol of the specific model of DU. Any development on account of this shall be to Bidders account and work must be carried out so as to ensure smooth and timely integration of Automation System.</li> <li>• Non-Automation mode to automation mode: There shall be a provision for pass word protected change from Non-Automation mode to automation mode. However, there shall be an indelible, unalterable, non-settable trail of the change from Non-Automation mode to automation mode. The trail must include the</li> </ul> |  |
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|    |                    | <p>following:</p> <p>a) Count of change upto 20 changes</p> <p>b) Date and time stamp along with volume/amount totalizer readings for each change</p> <p>Format for above shall be as per attachment.</p> <p><b>In automated outlets, DU should print from Fore Court Controller and disable printing from DU. In non-automated outlets printing directly from DU.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |
| 22 | MEMO PRINTER       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |
|    | GENERAL FEATURES : | <p>Pumps should be fitted with Thermal Printer/s( to be located on side in case of Mono &amp; duals) which shall be equivalent to the POS Printer of the Automation system. MPDs should be provided and supplied with <b>Two</b> inbuilt Thermal Printers .</p> <p><b>Only one printer will be provided for dual dispensing pump/dual dispenser and this lone printer shall be able to print the output on selection of nozzle/ fuelling side being operated with selected Nozzle no. to get printed in print output.</b></p> <p>In case of Dual pumps printer shall be able to take in the input from any of the transactions delivered through any of the nozzle on either of the fuelling sides by appropriate selection of Keypad commands from any of the preset pads. The RS 232/RS485 com port of the DU shall enable communication with printers. The printers is to be provided at 1.2m above Ground level. The duplicate copy ( Second Copy) should indicate <b>“Copy/Duplicate”</b></p> <p>The print output format shall include but not limited to the following:<br/>Name of the outlet &amp; address, Tel.nos,Date/Time of transaction, CST no/GST No/VAT nos, Vehicle no( Alpha numerical),Product name, unit Rate, no. of Lts, total amt. etc &amp; Thank you.</p> <p>General and Features &amp; Technical specification of Printer is given below:</p> |     |
|    |                    | <ol style="list-style-type: none"> <li>1. Working environment : Temp- 0-50 c and Humidity 5- 85%</li> <li>2. Shall be Ultra-sized rack mounted</li> <li>3. Silent printing thru’ direct thermal printing method</li> <li>4. High Speed – 50mm/Sec</li> <li>5. High Resolution – 230dpi;8dots/mm</li> <li>6. Easier paper loading with Auto paper loading</li> <li>7. Support text and graphic printing</li> <li>8. RS – 232 C/ RS 485.</li> <li>9. Easy maintenance with self</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 12. |

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|  |                                                                  | <p>diagnostics</p> <p>10. Saw tooth Cutter</p> <p>11. Make : Fujitsu or Equivalent to meet above specifications / requirements</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|  |                                                                  | <ul style="list-style-type: none"> <li>• <b>TECHNICAL SPECIFICATIONS :</b></li> <li>1 Printing : Direct Thermal Printing</li> <li>2 Characters per line : 40 cpi</li> <li>3 Character Size : 9x24dots, 12x24dots</li> <li>4 Dimension : Shall be Compact in line with Std. Fujitsu models</li> <li>5 Interface : Serial ( Rs - 232 C, 9600bps ) / RS 485 and Parallel</li> <li>6 Print width : 2" ( 48 mm, 384 dots per line )- party to specify</li> <li>7 Printing Speed : 50mm/sec</li> <li>8 Paper supplied : Thermal roll paper</li> <li>9 Low/No paper sensor( Through indicator LED)</li> <li>10 Power: Shall work on appropriate Voltage so as to print receipt of last transaction on dispenser in the event of power failure.</li> <li>11 Print head duration: 50Km</li> <li>12 ROHS complaint</li> </ul> |  |
|  | <p><b>LOCAL PRINTING ON DU PRINTER WITH COMMAND FROM FCC</b></p> | <p>DU should, by default enable local receipt printing . Option should be available on auto as well as manual mode.</p> <p>It is clarified that selectable option will allow direct printing from the Forecourt Controller (FCC). In case, the Forecourt Controller stops communicating, the printer will take command from the DU to enable local printing.</p> <p>Facility to input and broadcast the last numeric part (4 digits or less) of vehicle number in the DU shall be provided.</p> <p>New protocol command set / logic for the same shall be furnished by the DU vendor. Changes, if any, at automation end would be carried out to allow polling by the FCC / POS computer.</p>                                                                                                                       |  |
|  |                                                                  | <p>Additionally as an option if HPCL desires it should be possible to disable &amp; disconnect local printing and connect the printer communication port directly to the FCC.</p> <p>In this case the print command to the DU Printer will be directly form the FCC &amp; the DU Mother board will be totally by passed. The Print out will be with the POS transaction ID. The FCC will be integrated to the printer protocols.</p> <p>The Printer Driver Protocols &amp; Communication port details shall be shared by the DU Vendor along with the DU protocols.</p> <p>For the above local printing option from FCC, DU vendors shall recommend the feasibility of modifying the protocols to accommodate the following</p>                                                                                     |  |

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|           |                                                                                                | <p>a) How taking the print can be prompted &amp; taking the print can be made optional i.e. can be bypassed or okayed</p> <p>b) if to be printed the method by which the Vehicle number shall be provided to the FCC using the preset key pad &amp; printed on the receipt</p> <p>Printer automation mode:</p> <p>1. after the completion of every transaction in auto mode and putting nozzle back in boot, FCC shall issue the transaction ID by default to the DU.</p> <p>2. Once print key is pressed on the DU keypad, vehicle no is being sought by DU and if required, vehicle no has to be entered through the key pad.</p> <p>3. DU's inbuilt printer shall print the receipt for the transaction with transaction ID provided by the FCC.</p> <p>All other prints possible from the DU's in built printer will remain unaffected and shall attract no change.</p> <p>In case the automation system is not operative, printer shall continue to work independently and generate printout without the transaction ID issued by FCC.</p> <p>DU should be able to capture electronic totaliser reading as soon as DU goes out of automation system and switches over to manual mode with the password provision. DU should also be able to capture electronic totaliser reading as soon as DU comes back in automation system from manual mode operation.</p> |  |
|           |                                                                                                | Note : Printers shall be rugged enough for outdoor application with out protection of canopy at retail outlet. Printer enclosure shall protect the equipment from Dust, water and moisture ingress and damage. All printers are included under CAMC of 8 years period.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|           |                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| <b>23</b> | <b>APPROVALS</b>                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|           | All the models of the Dispensing Pumps offered shall have the following valid Approvals from : | <p>All the models of the Dispensing Pumps offered shall have the following valid Approvals from:</p> <ol style="list-style-type: none"> <li>1. <b>Chief Controller of Explosives, Govt. of India( PESO)</b></li> <li>2. <b>Weights &amp; Measures Dept., Govt. of India.</b></li> <li>3. <b>OIML (Organisation of International Legal Metrology)</b></li> <li>4. <b>Atex CE / UL /KHK</b></li> </ol> <p><b>Note :</b></p> <ol style="list-style-type: none"> <li>1. <b>The CCOE and W&amp;M approvals shall be validated by Vendor from time to time and vendor to indemnify HPCL to compensate any loss due to expiry of such approvals.</b></li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |

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| 24 | <b>FLEXIBLE CONNECTORS</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| 25 | <b>CALIBRATION</b>         | <p>All the models of the Dispensing Pumps/dispenser offered shall have a Suitable <b>flexible Connector</b> at the inlet of the Pumps.</p> <p>Facility shall be incorporated to correct any error in volumes dispensed. <b>ELECTRONIC CALIBRATION ONLY TO BE PROVIDED.</b></p> <p>The Electronic Calibration shall be part of the Electronic System housed within the ERA box and shall be secured by password protection. The K factor should be limited to allow +/- 50 ml on 5 litre calibration throughout the metering unit life.</p> <p>The history of such calibrations along with K-factor shall be stored in the CPU memory of the ERA . This data also shall be made available at a secured secondary location also preferably in one of the cards sealed by W&amp;M. This data shall be recalled in the two line keypad display and also <b><i>printed through receipt printer along with DU serial number and nozzle number/side.</i></b></p> <p>Such history shall cover the last 20 error correction/calibration with dates. The sequence should be password protected.</p> <p>Typical calibration process is as under :-</p> <ul style="list-style-type: none"> <li>• Unseal access to E- Calibration</li> <li>• Enter calibration mode thru a password.</li> <li>• Choose the can size: 5 Litres</li> <li>• Start filling the can. After the can is filled enter confirmation.</li> <li>• The system should ask if the reading is valid or not.</li> <li>• If the delivery is accurate the exact value to be entered; otherwise enter the exact measured volume</li> <li>• Then system shall ask for a test delivery to confirm matching of displayed and dispensed volume; start second filling.</li> <li>• And then 3<sup>rd</sup> filling and so on until desired accuracy of calibration is achieved</li> <li>• For every electronic calibration following data will be mapped and preserved. <ul style="list-style-type: none"> <li>i)K factor – calculated by the system. The numeric value of k factor to be specified in the tender document.</li> <li>ii)Date &amp; Time of Electronic calibration</li> <li>iii)Value of Electronic Cumulative totalizer</li> <li>vi)Calibration count (Cal count is a counter register which is non reversible or non tamperable even by the designer. Whenever the electronic calibration is done this count will increment by one).</li> </ul> </li> </ul> |  |

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|  |  | <p><b>All data should be printed on the Thermal Printer “On Demand”.</b></p> <p>Calibration shall be only through keypad and not through remote control. However, in case calibration is facilitated through remote it shall not be facilitated from key pad. <i>Vendor must give an undertaking in this regard.</i></p> <p>In such an eventuality one remote for each sales area of Regional Office concerned shall be supplied at no extra cost to HPCL.</p> <p>Vendor shall specify their method of calibration<br/> <b>Calibration shall be only electronic.</b><br/> A live demonstration (CD) of E calibration procedure must be provided with supplies by the successful bidders. Meter and pulser shall have provision for sealing.<br/> <b>Access to Ecal must have provision for being sealed and the same shall be part of standard sealing procedure approved in model approval of Legal metrology.</b></p> <p>Stored calibration history along with DU sr. no (with E totaliser readings wrt to each record), rate change history( with E totaliser readings wrt to each record) and error history shall separately be <b>20 each with an irreversible (even by the designer)</b> numbering and date and time stamp. Date &amp; Time format to be freezed to DD: MM:YYYY &amp; HH:MM:SS. Once installed, the date change should not be allowed<br/> No provision of direct entry of K- Factor</p> <p>Format for this shall be given by HPCL to the successful bidder/s.</p> <p>A Video CD demonstrating following shall be submitted along with supplies. One CD shall be supplied to each regional Office detailing in a presentable format ( movie) to which DUs are consigned. The details shall be understandable and simple in graphical and animated format if required and they are:</p> <ol style="list-style-type: none"> <li>1. Installation &amp; Testing procedure</li> <li>2. Power requirement for DUs</li> <li>3. Sealing procedure</li> <li>4. Retrieval of all audit data of DU</li> <li>5. Checking of software versions</li> <li>6. Checking of Stored calibration history.</li> <li>7. Checking Rate change history</li> <li>8. Interpretation of Error history</li> <li>9. Sealing points location</li> <li>10. E Calibration procedure</li> <li>11. Reading of E- Totaliser readings</li> <li>12. Dos and Don't s of Maintenance</li> </ol> |  |
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|    |                                          | 13. Any other feature as decided by HPCL to be included in the Video                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
| 26 | <b>Electronic Register Assembly(ERA)</b> | <p>The components such as pulsers must be flameproof / explosion proof if they are inside the hazardous area. <i>The pulser input shaft shall be unidirectional and be mounted on top of the metering unit.</i></p> <p>Facility shall be incorporated to ensure that the pump does not function if the pulsar is electronically/ electrically disconnected from the ERA section.</p> <p><b>Expected voltage fluctuation 130 volts to 280 volts with tolerance <math>\pm 5\%</math> .</b></p> <p>Electronic circuit should operate at this input voltage fluctuation and should have necessary protection device for Electrical Static Discharge test at 2 KV, as per IEC 4.2 or BS EN 61000-44(1995).Test certificate to buttress all the interferences and surges shall be furnished from an approved and accredited laboratory namely ERTL/SAMEER.</p> <p>The ERA shall have protected input supply and shall have protection functions from over temp, overcurrent protection and over/under voltage protection as per IEC Standards</p> <p>Independent cabling for electronic and electrical system to be provided.</p> <p>Pump Motor should not switch on before completion of segment check sequence.</p> <p>Pump Motor to switch off if the delivery does not start within or is interrupted for 45 seconds.</p> <p>Indicator on panel for power on, low battery, pulsar failure to be provided.</p> <p>Password protection to be provided for rate changing.</p> <p>Electronic components should be capable of withstanding without damage test conditions of <math>-20^{\circ}\text{C}</math> to <math>+80^{\circ}\text{C}</math> with field operating temp. of <math>-10^{\circ}\text{C}</math> to <math>+55^{\circ}\text{C}</math>.</p> <p>This shall be tested at an approved laboratory and test reports shall form a part of your internal QA plan.</p> <p>The ERA assembly shall be designed to</p> |  |

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|  |  | <p>operate from zero to 100 litres per minute.</p> <p>Inspection of QA Plans Implemented for ERA shall form a part of QA plan for the dispensing units and HPCL and its authorized inspectors must be allowed to peruse the QA plans as well as the implementation of QA Plans for ERAs.</p> <p>Must have a for real time clock to log date and timed stamped errors &amp; events.<br/>All parameters changed should be logged and auditable. Date &amp; Time format to be freezed to DD: MM:YYYY &amp; HH:MM:SS. Once installed, the date change should not be allowed</p> <p>Software updates must be replaceable/ updateable only by authorized personnel.<br/><b>Retrieval of the history log of such software changes with version nos, date and time stamp, and ET readings etc shall be available at appropriate access levels .Specify the process.</b></p> <p>All such latest 10 software updates shall be made available with ET readings, rate changes, calibration history along with DU sr. no.</p> <p>All Such records(all software updates/card changes) shall be available for recall from the ERA/CPU card and such log shall get displayed and also be printable at a specified security level..</p> <p>Vendor must give an undertaking that the software is proprietary to them and can not be modified in the field without authorization (high level password with HPCL's written approval) and any change/ modification/ up gradation in software shall leave an indelible audit trail with date, time and number stamping.</p> <p>The last 10 such changes should be stored and it must be possible to recall both the old and new versions and settings.</p> <p>Any complete installation of the software in CPU by the OEM's will not have any provision of storing the history of earlier versions or events and such installations are allowed only with concurrence of HPCL.</p> <p>Electronic Register Assembly(CPU) shall operate on main power supply through SMPS. How ever, there shall be a provision for placing the Battery to meet the power disruptions and also shall meet the</p> |  |
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|  |  | <p>requirement of <b>15 minutes backup for ERA power requirement.</b></p> <p><b>The capacity of the battery shall be so designed to meet the power requirements of ERA , Display cards and all other associated cards to enable the reading of /display of ET and other critical audit trail functions for 15 minutes.</b> These readings shall be made available on LCD/Keypad display</p> <p>Meeting the above requirements, any alternative process or technology adopted by the manufacturer shall be specified and the same shall be proven and existing technology implemented by the vendor with satisfactory performance of the same. Vendor to provide all the relevant details of system and technology proposed.</p> <p><b>In the absence of this battery, the ERA shall not function and pump shall cease to operate. ERA shall continuously detect and sense the presence of battery at all times( on real time) of DU operation.</b></p> <p>Batteries required shall be supplied by the successful bidder.</p> <p>Charging/discharging of the battery shall be controlled as specified by the Battery manufacturer. The switch over on power disruptions shall be automatic and without disrupting power source to the ERA. Necessary provision may please be made in the circuit to facilitate this.</p> <p>Facility may also be incorporated to indicate the state of charge of battery/is. <b>If the battery power is Low, the transaction shall not start and Low Battery error shall be indicated on ERA LCD display.</b></p> <p>Batteries provided shall be safe to be used in the ERA section of DUs and may have provision for venting if required.</p> <p>All the cards with Microcontroller units shall have a unique identification soft number. Provision to access this must be restricted. <b>On unauthorized changing of any of the cards, DU must stop functioning and indicate error.</b> Provision shall be available for storing the history of changes/replacement made in any of the processors/cards of the DU.</p> <p>Software download program must be protected by a security dongle/hand held</p> |  |
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|  |  | <p>device in addition to password protection of the highest level with traceability on usage.</p> <p>All Electronic boards should have unique identification soft Numbers. These numbers shall be stored appropriately in the main PCB and must be unalterable. All the cards must work in tandem. <b>Even if one card is removed DU shall not work. Change in any card must be with prior written approval from HPCL. Enabling change of card must be with a high security level of password</b> using a handheld devise/dongle. Any changes made in PCB shall leave an unalterable audit trail. All such changes ( history of 20 records) shall be capable of being culled / read through a protectable password. All such data shall only be read and non erasable and not on <b>READ / WRITE</b> platform. All such changes done through authorized OEM personnel shall have traceability established. Procedure shall be established for recording of events of changes made in through handheld devises. <b>In other words , the replacement history of all the cards shall be tracked. This audit trail of changes of cards( last 20 changes) along with date &amp; time stamp ,ET readings, K-factor shall be made available for viewing and print.</b></p> <p>Suitable sealing arrangement may also be provided for PCBs.</p> <p>All software changes must be stored and non-erasable but only readable. The last <b>TEN(10)</b> dates and unalterable Sr. Nos. of updates and firmware version Nos. shall be capable of viewing and printing from the program under the protection of high level password.</p> <p>Provision shall be made to recall the software version as and when required and the same should be displayed on the LCD screen of the DU and printable.</p> <p>Without the written approval of HPCL, the software versions should neither be altered nor updated by any agency.</p> <p>Vendor to ensure strict confidentiality of the Pump software / Microcontroller program and not to disclose to any outside agency. In the event of such occurrences HPCL reserves the right to black list the Vendor from participating in the future tenders. The vendor, however, is required to replace the entire manipulated motherboard with new software / program free of cost to HPCL.</p> |  |
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|           |                                       | <p>A Change of electronic cards/PCBs: Must be enabled only through an authorized external dongle of the manufacturers. Any change/replacement of card/s shall be advised in writing to HPCL by the original manufacturers/ authorized service providers. A process and control shall be in place by the OEM to have the details of all the authorized OEM personal associated with the usage of the dongle at any point of time. Bidders not conforming to this shall be disqualified.</p> <p>Bidders must confirm that details of all cards include their soft numbers will be maintained by them centrally through a confidential process as a repository within their organization/s.</p> <p>Confidentiality of software: Bidders must confirm by an undertaking that all software is their proprietary and have internal processes to ensure confidentiality of software and prevent perviousness of software.<br/> <b>On unauthorized changing of any of the microprocessors/PCB, Nozzle must stop functioning and indicate the error and the log shall be made available.</b></p> <p><b>Software download program must be protected by a security dongle/ hand held devise in addition to password protection for all the Cards which affect the Legal Meteorology parameters.</b></p> |  |
|           | <b>Please specify the following :</b> | <p>All PCBs/Mirco Controllers shall be protected with:</p> <ul style="list-style-type: none"> <li>- High / low voltage protection for Electronic Circuit</li> <li>- Protection from Over current conditions</li> <li>- Thermal Cut off for excess temp.</li> <li>- Method of pulse counting.</li> <li>- Redundancy.</li> <li>- Temperature range</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| <b>30</b> | <b>Mounting of Micro Controller</b>   | <p>All micro controller and programmable ICs carrying the pump software shall be with appropriate capacity of micro controller units(MCU) as Surface Mount Devices and shall be directly soldered on the respective PCBs to ensure that un authorised access or change to micro controller or such other components is rendered impossible. It should be possible to verify the originality of the programme by the method of :</p> <ol style="list-style-type: none"> <li>1. Check Sum Error.</li> <li>2. CPLD (Compact Programmable Logistic Device). OR any other equivalent method.</li> </ol> <p>It should also be possible to verify the 'Check</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |

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|  | <p style="text-align: center;"><b>SMPS &amp; PROTECTION</b></p> | <p>Sum Error' by way of appropriate operation of the key pad or with the help of a 'Hand held Reader'.</p> <p>Bidders must confirm that the activity of checking the originality of the programme will form a part of comprehensive AMC which is incumbent with the order against this tender. Checking the originality of the programme has to be carried out during every service visit. HPCL's Regional Office advised of results of checking of the programme by way of incorporation of findings in service reports.</p> <p>The type of protection provided by the manufacturers against tampering /reprogramming of software shall be clearly specified.</p> <p>Mounting of all power handling devices along with transformer, i.e. Power / SMPS card, etc., <i>shall be on a separate board</i> for the ease of replacement of only this card during failures.<br/><b>Pl. specify</b></p> <p>Suitable surge protection device of suitable capacity must be provided for protecting electronic computing head from fluctuations and high voltage surges upto 2 KV. After easing of surge, DU must get restored on its own to normal working.</p> <p><i>The protection provided in the dispensing units against spikes shall be specified.</i></p> <p>The SMPS output shall Prevent the failure of burn outs and permanent damage of other cards/processors. Adequate intelligence and tripping mechanisms has to be built in to protect all other electronic devises/cards from overcurrent, over/under voltage, surge voltage protection and comply with relevant IEC standards.</p> <p>Methodology &amp; process adopted shall be provided for the above by the Mfr.</p> <p>During Warranty period and post warranty AMC period replacement of all spares including electronics shall be on account of Vendor, irrespective of any reason for failure of such spares. Vendor to check the power condition at outlet during the pre-installation check of DU. Vendor to specify the rating and other details of Power Conditioning equipment to be provided before commissioning of DUs to regional offices of HPCL. If the range specified is within limits mentioned in tender documents, no separate</p> |  |
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|    |                                            | <p>equipment will be provided by HPCL. If vendor still persists, it will be at vendors cost.</p> <p><b>Note: During Warranty period and post warranty CAMC period replacement of all spares including electronics shall be on account of Vendor, irrespective of any reason for failure, except lightning strikes, Vandalism, accidents.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| 31 | <b><u>Electronic Totaliser:</u></b>        | <p>DU to include the provision for a concurrent, visible display (LCD) of electronic totaliser reading. This must match ET to the last digit. This display can be anywhere including keypad. <i>For ready reference to the user, the ET reading shall be displayed on Keypad display during the idle period of DU and to last till the period an action on key pad is initiated or till the commencement of next fuel transaction of DU. The display shall mention nozzle no and relevant ET reading. This reading shall be from the Main ERA/CPU Card.</i></p> <p>Facility shall be incorporated to ensure that the <b>pump stops functioning if the ET is disconnected from the ERA section at any point of time.</b> Such an event shall be indicated on the ERA LCD and shall form a part of the stored history of errors.</p> |  |
|    |                                            | <p>Key board command shall enable the display of electronic totalizer on Keypad display or ERA LCD display. This key board command and procedure for display of ET reading shall be uniform across all models offered.</p> <p>Electronic Totaliser must indicate both Sales Total in Lts (Min.12 digits including 2 digits after decimal. ) and Money amount Total (Min. 12 Digits including 2 digits after decimal). <i>This data must be printable with date and time stamp along with relevant nozzle no and DU Serial number.</i></p> <p>Reading must be cullable on pressing of a single button.</p>                                                                                                                                                                                                                          |  |
| 33 | <b><u>Display and Memory Retention</u></b> | <p>Non-volatile memory or power failure protection available with battery/super capacitor. The display back up of the last transaction shall be for a min. period of <b>15 minutes on LCD display</b> against any power disruptions with out any external battery or DU battery as backup.</p> <p>(There shall be a separate battery/capacitor on board for this purpose(i.e LCD display) other than the DU battery. This battery/capacitor shall be able to meet the expected no. of cycles</p>                                                                                                                                                                                                                                                                                                                                   |  |

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|    |                              | <p>of operations during it's operating life- vendor to specify).</p> <p>All data should be available till 72 hours after power disruption.</p> <p>Backup for electronic totaliser should be available at all times. Facility shall also be provided to recall and print data of last 20 sale transactions. Such recall and retrieval of shall be with the usage of relevant defined password protection levels. However, such receipt printouts if not followed by actual sale transaction shall indicate that it is a duplicate copy of the original receipt.</p> <p>DU CPU/ Control Card should be provided with <b>battery backup/alternative technology</b> to protect the same from power surges/ intermittent power failure to protect the transaction data.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |
| 34 | <b><u>Other Features</u></b> | <p>1) One dispensing pump in each order must be subjected to test( DUT) to confirm the ability of the dispensing unit to withstand temperature ranges from -10c to 55c as specified earlier in this document. Test may be carried out at an accredited laboratory like Electronics Regional Test Laboratory/IIT/premier national institutes. The test procedure must be clearly indicated in the test reports furnished. During the testing, product must also be dispensed and a tabulation of such dispensation shall form part of the test report. Test certificates in support of this must be made available during inspection for QA plan or Inspection by TPI.</p> <p>Note: Vendor's QA procedure must consist of carrying out the following Tests but not limited to these tests.</p> <ol style="list-style-type: none"> <li>1. Electrical Fast Transient Test (As per IEC 61000-6-1 standard IEC 61000-4-4).</li> <li>2. Surge Test (As per IEC 61000-6-1 standard IEC 61000-4-5)</li> </ol> <p>2) In case these DUs are to be installed in Automated outlets suitable software provision for making them work only in automation mode must be available at no extra cost to HPCL. The mode could be either through change of high level protected password or modification of software as decided by HPCL at that time. DUs in automated outlets shall not dispense if they are disconnected from Automation at any point of time. Even on power</p> | 15) |

|  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
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|  |  | <p>recycling such DUs shall not dispense in stand alone or manual mode. This shall be demonstrated as a part of type test in the factory before dispatch.</p> <p>3) Vendors must undertake to supply spares for a minimum period of 15 years from the date of supply at any point of time for replacement as per the requirement.</p> <p>4) The payment terms for CAMC shall be 15 days from the date of submission of bills/ date of acknowledgement.</p> <p>5) Previous sale transaction shall not be displayable at all on the DU.</p> <p>6) In any financial year HPCL reserves the right to have the integrity of the software check done through the principle manufacturer. However, OEM/their authorized service representatives shall check this during their service visits and shall confirm in their service reports. This shall form part of Comprehensive AMC agreement. Under Comprehensive AMC, integrity of software shall be checked at least twice a year in the presence of HPCL's representative at no extra cost by the supplier/their authorized service provider.</p> <p>7) Vendor shall ensure that the pump software remains highly confidential. Vendor shall institute suitable internal processes and controls to maintain the software integrity and unauthorized handling of the same by any other agency/individuals. In case, HPCL notices any such instances, during the service period of these DUs, the vendor shall load the newer software versions countering or correcting the manipulated changes in all the affected dispensing units being operated with that version or otherwise replace with new CPU/ERA Card by removing the manipulated Control card as decided by HPCL at no extra cost.</p> <p>8) Items and assemblies like PCBs, pumps, metering units and entire electronic system shall be proprietary in design and drawings, produced under supervision and quality control as per the written down in-house quality assurance plan of the vendors. Scrutiny of this shall form a part of HPCL's QAP. A declaration to this effect must be submitted by all the Vendors along with unpriced bids. In case of any tie up with reputed firms like Wayne, Gilbarco, Petrotech and Tantsuno, a copy of the agreement with such Vendors shall be furnished. The Vendor concerned shall furnish an undertaking that the said Hydraulics for the Model offered are being made on proprietary basis to the bidder</p> |  |
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Deviations mentioned by the bidders anywhere else in the tender other than in the deviation sheet shall not be considered.



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|  |  | <p>offering such Hydraulics. Such Bids shall be accepted only upon incorporation of the changes in Hydraulics in ATEX CE, UL, KHK, Legal Metrology Model approval and PESO. These approvals shall be submitted along with the unpriced bid. In case any of these approvals are not available / not submitted at the time of bidding, HPCL reserves the right to reject such bids received without such approvals. HPCL shall verify the originals of all such approvals before opening the price bids and Vendors must produce all original approvals. Non production of originals shall call for rejection of offers. Bidders also shall furnish the details of deliveries made for proof of performance of dispensing units supplied by them directly to their clients of repute Viz., HPCL, BPCL, IOCL and Reliance or Multinational Oil Companies Viz. Exxon-Mobil, BP, Shell, Chevron, Caltex, and Total to whom supplies of dispensing units (in entirety) have been made directly by them with these makes of hydraulics. HPCL shall reject such offers received without the performance certificates (Only English or Hindi). HPCL also reserve the right to visit the works for ascertaining QA procedures that are followed in the works. Technical specifications that form the part of requirement for obtaining the above statutory approvals shall form part of Pre-qualifications criteria.</p> <p>9) List of sealing points to be given by a Video in a CD.</p> <p>10) Bidders shall submit offers shall include 2 years of Warranty for entire DU and 8 years CAMC post warranty period as per the price bid.</p> <p>11) HPCL may purchase "Out of Warranty spares" directly from the manufacturers without involving Indian Distributors. Vendor to give confirmation for this.</p> <p>12) Web Monitoring: All bidders or their authorized service providers shall integrate and comply with HPCL web enabled complaint monitoring system (ROMMS) or any other mechanism as decided by HPCL. HPCL shall provide limited access to vendors to receive and post their schedules and status of complaints received by them. All the resolution and payment release on account of CAMC contract will be controlled as per the data available on this web site .</p> <p>13) Any component which is included in the CAMC, if comes up for replacement during the pendency of CAMC, must be of the same make and quality as that of original supply or higher quality than that of the original</p> |  |
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|    |                                                     | supply.<br>14) Except exclusions specified in the tender document, all other items are included items of the Comprehensive AMC.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| 35 | <b><u>IP Protection for Hydraulics</u></b>          | IP-23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 36 | <b><u>IP Protection for Electronics</u></b>         | IP-54                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 37 | <b><u>Gas Elimination Device</u></b>                | Must conform totally to OIML 117 & 118 including latest amendments. All tests for Gas Elimination Device must form a part of pattern approval test including efficiency of Gas Elimination Device.<br>Bidders will have to have a test bench for checking and demonstrating air-separation. This will be a part of QAP. No deviations on this shall be allowed.                                                                                                                                                                                                                                   |  |
| 38 | <b><u>Foundation frame cum templates</u></b>        | The Foundation frame is not in the scope of the Vendor and shall not be supplied along with the Dispensing Pump. However, it is the responsibility of the Vendor to check the installation of the Dispensing Pumps before commissioning and Vendor shall depute their service engineer during the installation / commissioning of the DUs. HPCL shall intimate the Vendor of all such installations. NO SEPARATE PAYMENT WILL BE MADE FOR THIS ACTIVITY.                                                                                                                                          |  |
| 39 | <b><u>AVAILABILITY OF SPARES &amp; SERVICES</u></b> | For 15 years from the date of Supply of Last dispatch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|    |                                                     | Vendor to provide details of after sales service support available in India. If after sales service support is from Indian vendor, a copy of agreement with the Indian Vendor to be provided.<br>Vendor or their authorized service provider shall have relevant licence to repair and service their DUs from the respective controllers of Legal metrology of W&M departments of respective state Govt's                                                                                                                                                                                         |  |
|    |                                                     | Vendor to train and certify HPCL Engineers ,technicians for carrying out maintenance as advised                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|    |                                                     | Vendor to provide 2 simulators, along with models being supplied, for training purposes as well as for other usage like testing and development of automation solution etc, without any extra charge to HPCL. The simulators will be maintained by vendor's local service provider without any extra charges/payment for training purposes as well as for other usage like testing and development of automation solution, other application at forecourt etc, without any extra charge to HPCL. and will be vendor's property. The simulators shall be offered within Six weeks from the date of |  |

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|    |                    | LOI/Advise by HPCL.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|    |                    | Please confirm that HPCL may purchase "Out of Warrantee spares" directly from the manufactures without transacting through your Indian distributors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 40 | <b><u>CAMC</u></b> | <p>CAMC orders shall be placed on the Manufacturer only in case of Indian Vendors. For foreign Vendors the Orders shall be placed on their India service providers or partners. However, the principal responsibility shall remain that of Principal foreign Vendor. HPCL shall not be party for any mutual liabilities and disputes between Foreign Vendors and their Indian service providers. HPCL would like to deal on principal to principal basis.</p> <p><i>Note: The CAMC agreement is enclosed along with the Tender. Vendors are advised to sign &amp; stamp warrantee &amp; CAMC agreement as a token of their acceptance on the same . This signed CAMC agreement will become a part of separate CAMC Purchase Orders placed by HPCL as mentioned in Special Terms &amp; Conditions.</i></p> <p><i>All the units which are under warranty period of Two years are also subjected to the same terms and conditions of CAMC contract with respect to penalty (Penalty and resolution of Break down complaints and maintenance of these units. During this warranty period of 2 years and subsequent period of 8 years of CAMC, these units also would be under web monitoring complaint management system of HPCL ( ROMMS)</i></p> |  |
| 41 | <b><u>QAP</u></b>  | The QAP document enclosed along with the Tender is only an indicative one and successful Bidders are required to submit a final QAP incorporating all the Technical specifications and requirements of the Tender and obtain approval of HPCL prior to 3 <sup>rd</sup> Party inspection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |

NOTE: IF SPECIFICATIONS OF ANY PARTICULAR ITEM IS MENTIONED AT MORE THAN ONE PLACE, THEN THE SUPERIOR SPECIFICAIONS WILL PREVAIL.

PCBs: Vendor to confirm the following:

- i. Material to conform to NEMA standards and Vendor to specify details including the following:
  - a. Material of the substrate
  - b. PTH Cu thickness
  - c. Plating thickness
  - d. Copper clad thickness

The tests to which PCBs are subjected.

- ii. HPCL prefers PCBs which carry certification of UL or CSA or MIL-SPEC or MIL-STD or equivalent and shall be manufactured as per standards set out in ISO 9001.
- iii. Quality Assurance process for the manufacture and testing of PCBs used in the DUs manufactured by the vendor shall form a part of QA plan for the DUs offered by the vendor.

Deviations mentioned by the bidders anywhere else in the tender other than in the deviation sheet shall not be considered.

- iv. LCD: Quality Assurance process for the manufacture and testing of LCDs used in the DUs manufactured by the vendor shall form a part of QA plan for the DUs offered by the vendor.

The following type of tests and standards to be complied by ERA and other PCBs:

| Test Type                                         | IEC Standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | OIML - R117 latest                                                                                                                                                                           | Remarks on L1+ Enhanced EMI/EMC results |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| ESD                                               | 61000-4-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | +/- 6KV Contact, +/-8 KV Air- gap                                                                                                                                                            |                                         |
| Radiated EM Field                                 | 61000-4-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 26 MHz - 1000 MHz, 80% AM @ 1 KHz, 3V/m (26 MHz-500 Mhz) & 1 V/m (500MHz-1000MHz)                                                                                                            | 1                                       |
| EFT (Burst)                                       | 61000-4-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | +/-2 KV Amplitude                                                                                                                                                                            |                                         |
| Surge                                             | 61000-4-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Line to Line - 1KV, Line to Ground - 2KV                                                                                                                                                     |                                         |
| Conducted RF                                      | 61000-4-6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.15 - 80 MHz, 3 V/m, 80% AM @ 1 KHz                                                                                                                                                         |                                         |
| Voltage Dip, Interruptions                        | 61000-4-11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Voltage Variation:<br>Nom. Voltage(230V)+ 10% and<br>Nom. Voltage (230V)- 15%<br>Short Time Voltage Reduction: 100% voltage interruption for 0.5 cycle, 50% voltage interruption for 1 cycle |                                         |
| <b><u>Deviations of tech. specs. Document</u></b> | <b>Any technical deviation shall be separately indicated in the deviation sheet and the same shall be available in Unpriced bid document, otherwise it shall be presumed that all conditions are fully complied by the bidder. Bidder shall list the deviations if any as per the Sr.no of this document in a separate sheet and clearly mentioning the deviation from the given technical specifications or a NIL deviation sheet if there is no deviation. Deviations mentioned by the bidders anywhere else in the tender other than in the deviation sheet shall not be considered.</b> |                                                                                                                                                                                              |                                         |