

TECHNICAL SPECIFICATION

The bidder shall indicate whether the required specifications are met by them by marking (Yes) if it meets the requirements/comply and (No) if it is not, in front of each requirement/specification in the right-hand corner of each item. (where applicable) Variations and/or deviations from specification, if any, shall be illustrated clearly in detail. Complete technical specification details shall be provided together with following format separately.

3.1 Technical Specifications

General specifications of Suction Type Fuel Dispensing Pumps with Electronic Registers and Bill Printers

No.		Description	Comply (Yes /No)
3.2	Service	Motor Gasoline and Auto Diesel (Euro 04)	

Product Data :

	Specific Gravity @ 15 °C	Kinematic Viscosity @ 40 ° C in Cst
Motor Gasoline	0.720 – 0.775	-
Auto Diesel (Euro 04)	0.820 – 0.845	2 – 4

SECTION I : To be complied along with the Bid

3.3. Reference Standards

Design, construction and performance of the Fuel dispensing pumps shall be in compliance with the requirements of the International standards listed below.

No	Description	Comply (Yes/No)
3.3.1	<p>The Fuel Dispensing Pumps Model/s offered shall hold a pattern approval as per the requirements of International Organization of Legal Metrology (OIML) standard R 118: 1995 “Testing Procedures and Test Report format for Pattern Examination of fuel dispensers for Motor Vehicles and constituent Element” & OIML R 117-1 :2007 “Measuring System for Liquids other than water”</p> <p>A certified copy of OIML Pattern Approval or Pattern Approval issued by the authorised Local Metrological Department for Measurement Apparatus in the manufacturing country or any country accepted by the OIML and test reports shall be submitted along with the bid.</p>	

No	Description	Comply (Yes/No)
3.3.2	Design and Safety requirements (Fire and Casualty Hazard) and material specification shall be as per the requirements of Underwriter's Laboratories (UL) Standard for safety ANSI/UL 87 "Power operated Dispensing devices for Petroleum Product". or DIN EN 13617 – 1: 2004 Petrol Filling Stations – Part I : Safety Requirements for Construction & Performance of Metering pumps, dispensers & remote pumping units. If the design & safety requirement of the Fuel Dispensing Pump is covered by any other local standard applicable in any country, the Supplier shall declare the same & furnish references.	
3.3.3	Certificates issued by BASEEFA, UL, FM, CSA, or any other Internationally recognized Independent testing authority authorised to issue IEC EX certification for the electric motor and other accessories such as pulse generator, nozzle switch transmitter, Electric shut of valve, junction boxes for installation in Zone 1, Gas Group 11A classified area, as per IEC.	
3.3.4	ISO 9001 – 2015 for quality system for Manufacture & Supply of Fuel Dispensing Pumps.	
3.3.5	IEC 61000-4-11 (1994-06) Electromagnetic compatibility (EMC) – Part 4, Testing and Measuring Techniques – Section 11, Voltage dips, short interruptions and voltage variations immunity tests.	
3.3.6	IEC 61000-4-4 (1999 – 01) Electromagnetic Compatibility (EMC) – Part 4 Testing and Measurement Techniques – Section 4 Electrical fast transient/burst immunity test.	
3.3.7	IEC 61000-4-2, Electromagnetic compatibility (EMC) – Part 4, Testing and Measurement Techniques – Electrostatic discharge immunity test.	
3.3.8	IEC 61000-4.3, Electromagnetic compatibility (EMC) – Part 4, Testing and Measuring Techniques – Radiated, Radio-Frequency Electromagnetic field immunity test.	
3.3.9	The Fuel Dispensing Pump Hardware (i.e. electronic register and peripheral devices) shall be protected against lightning induced transients as per requirements IEEE C62.41.	

3.4 **Power Supply available** : 230V ±10% Single phase, 50 Hz ± 1%.

3.5. **Ambient temperature** : 5° - 40°C

3.6. **Max Relative Humidity** : 90%

3.7. Electronic Register

No	Description	Comply (Yes/No)
3.7.1	Display: LCD Display with back light for clear visibility at day/night.	
	Display Character minimum height: Volume/Amount: 25 mm Unit price : 18 mm	
	Display Cover – Plain Glass or UV resistant plastic	
3.7.2	Units : Volume: Litre Price: Rupees	
3.7.3	Unit Price (per litre value) Minimum 5 Digits including 2 decimals. (Decimals can be Dummy Zeros) Rupees (Rs.) 1.00-999.00	
3.7.4	Volume Pre-set Heavy Duty : 1 – 999 Litres	
3.7.5	Price Pre-set (Cash) / regardless of volume Rupees (Rs.) 50.00 – 99,999.00	
3.7.6	Volume Display Minimum 6 Digits including 3 decimals. 0.000 – 999.999 Litres.	
3.7.7	Price/Cash Display Minimum 7 digits including 2 decimal Rupees (Rs.) 0.00 – 99,999.99	
3.7.8	<p>Non resettable electronic totalizing counter for volume only.</p> <p>Electronic totalizer with 08 digits including 01 decimals which should reset after 9,999,999.9 Litres or with more digits with similar reset pattern (eg.99, 999,999.999Litres)</p> <p>Whatever the quantity of fuel which passes through the flow meter shall be recorded in the Electronic totalizer. This shall include the volume of fuel pumped at the beginning of each delivery which is not displayed in the main display. (i.e. 60 ml in most of dispenser makes)</p> <p>Electronic totalizer record shall not be affected (i.e. erased or changed) due to power surge, power failure, removal/interchanging of CPU chips or any hardware component.</p> <p>If CPU Chips used, they should be of same physical size and should be with same version of programme.</p> <p>In addition, Non resettable Mechanical/electro-mechanical totalizer should be available with minimum 07 Digits.</p>	

No	Description	Comply (Yes/No)
3.7.9	<p>Back-up Power</p> <p>Battery back-up shall be provided to electronic register, to retain all displayed parameters on, for a minimum period of 30 minutes during mains power failure.</p>	
3.7.10	<p>Programmable pump pre-set function and Industrial type, IP 65 rated data entry Key Pad with LCD Display with backlighting.</p> <p>Pre-sets shall be provided for volume basis as well as Cash (Value) basis.</p>	
3.7.11	<p>Ingress Protection Class</p> <p>IP 54 for electronic register compartment. (IP 64 preferable).</p>	
3.7.12	<p>Electronic hardware shall be protected against lightning.</p>	

3.8 Pumping Unit and Components

No	Description	Comply (Yes/No)
3.8.1	<p>Gear type /Vane type Motor Driven pump with bypass valve</p>	
3.8.2	<p>Strainer</p> <p>The pumping unit shall be equipped with a suction side strainer having reinforced, corrosion resistant screen for use with Motor Gasoline/Auto Diesel. It shall be easily removable for cleaning or replacement.</p>	
3.8.3	<p>Air Separator and release</p> <p>The pumping unit shall be equipped with an air eliminator unit and venting shall comply with the requirement of ANSI/UL 87 or equivalent.</p> <p>In case of small amount of air leakage in to the suction side, should there be any calibration change, it should be over delivery and not under delivery.</p>	
3.8.4	<p>Pressure Relief Devices</p> <p>Pumping unit shall be equipped with a manual or self-adjusting bypass valve capable of bypassing the entire output of the pump and fuel expansion pressure relief valve.</p>	
3.8.5	<p>Check Valve</p> <p>The pumps shall be provided with check valve on the suction side to keep the discharge lines full of fuel.</p>	

3.9. Electric Motor

No	Description	Comply (Yes/No)
3.9.1	Capacity : To meet the requirements in the clause 3.20 at the conditions given in clause 3.23 with 80% or less loading.	

3.9.2 Service Conditions

No	Description	Comply (Yes/No)
3.9.2.1	Altitude : Less than 1500 m	
3.9.2.2	Location : Outdoor, hazardous area	
3.9.2.3	Duty : Intermittent (S-3)	
3.9.2.4	Voltage & Frequency : 230V \pm 10% Single phase, 50 Hz \pm 1%.	

3.9.3 Construction Requirements

No	Description	Comply (Yes/No)
3.9.3.1	Hazardous area Certification: Zone 1, Gas Group II A according to IEC	
3.9.3.2	Enclosure : Exd II A T 3	
3.9.3.3	Cooling method : IC 411 (According to IEC 34-6)	
3.9.3.4	Degree of protection : IP 55	
3.9.3.5	Insulation class : F	
3.9.3.6	Bearings : Ball / Roller bearings with Grease lubrication.	
3.9.3.7	Earthing : Both internal and external earthing terminals should be provided.	
3.9.3.8	Balancing: Motor should be dynamically balanced.	
3.9.3.9	Stator : Should be made out of cast steel/iron	

3.9.4. Other Condition

No	Description	Comply (Yes/No)
3.9.4.1	Noise level : Shall not exceed 75 dB at 1 meter	
3.9.4.2	Vibration : Within the limits specified in ISO 2372 or equivalent.	
3.9.4.3	Terminal Box: Shall have a sufficient space to accommodate the cables. Cable entry plate should be mounted separately for easy disconnection of incoming cables.	

No	Description	Comply (Yes/No)
3.9.5	Protection Over load and short circuit protection to be provided as standard.	
3.9.6	Standards & Codes Applicable The motor shall be manufactured according to ANSI, NFPA, NEC, API, IEEE, NEMA, BS, IEC, VDE or any other equivalent International standards.	
3.9.7	Test Certification The motor has to be certified and labeled to ensure that it complies with the hazardous area classification by an Internationally recognized testing authority Permitted to issue IEC EX certificates, such as BASEEFA, PTB, UL, FM, CSA etc. The motor shall bear IEC EX Certificate No/ ATEX certificate No. & labeled accordingly. All test certificates on performance tests carried out in accordance with the standards to which the motor is manufactured shall be sent along with the motor.	
3.9.8	Electrical Wiring Diagram Electrical wiring diagram for the motor and associated components in the fuel dispensing pumps shall be provided.	

No	Description	Comply (Yes/No)
3.10	Flow Meter The metering unit shall essentially be a volumetric measuring device and the accuracy shall be maintained at different pumping rates. Fool proof sealing arrangement shall be incorporated for metering unit.	
3.11	Accuracy and Repeatability Acceptable tolerance : ± 0.25 as per CPSTL requirement Minimum measured quantity : 2 Litres as per CPSTL requirement	
3.12	Calibration Electronic Calibration which can be secured by sealing. In addition, mechanical calibration which can be secured by Sealing also acceptable.	
3.13	Manual Reset device Motor should be automatically shut off when the Nozzle is replaced on the Nozzle boot.	
3.14	Sight Glass Flow indicator shall be fixed to the delivery line in a clearly visible place.	

3.15 Dispensing Pump Cabinet

No	Description	Comply (Yes/No)
3.15.1	Materials of Construction: Top and side panels shall be AISI 316 Stainless Steel.	
3.15.2	Panel Covers: Epoxy Coated Steel or AISI 316 Stainless Steel	
3.15.3	Panel locks: Durable Panel Locks & keys shall be provided.	
3.15.4	Approximate Cabinet Dimensions : Bidder to specify 1	

No	Description	Comply (Yes/No)
3.16	Bill Printer An Industry Standard Bill Printer with programming facility to print the bills with the Total price, Unit price, quantity, CPSTL Logo and a message at the point of sale.	
3.17	Hose, Couplings & Nozzle Valve The hose shall be oil resistant with static wire and hose guard. Hose with Couplings & Nozzle valve shall comply with the requirements of ANSI/UL 87 & bear the listing marks of underwriters Laboratory. (UL)	
3.18	CPSTL Logo & Colours of Panel Covers CPSTL Logo should be printed on Panel Cover. Colour of the Panel covers should be according to CPSTL product Colour Code and will be notified at the time of ordering	
3.19	When the underground tank goes empty the meter should not run.	
3.20	The Solenoid Valve should be of Exm II T3, certified by UL, BASSEFA or FM.	

3.21.1 Flow Rate, Hose & Nozzle

No	Description	Heavy Duty
1	Minimum Flow Rate	65 litres per minute in a typical installation as described in clause 3.23
2	Nozzle	Automatic Shut off Nozzle 1" female thread (BSPT preferred) Maximum Spout outer Diameter 30 mm
3	3.Hose 3.1 Diameter 3.2 Wall Thickness 3.3 Minimum Length 3.4 Couplings	25 mm (1") Minimum 6.0 mm 4m 1" BSPT (preferred) chrome plated brass swivel couplings, male thread at one end and female thread at the other end.

3.21.2 Configuration

		Single Product
1	No. of Hoses	1
2	No. of Pump Units	1
3	No. of Flow Meters	1
4	No. of Main Displays	2
5	No. of Mechanical Totalizer	1
6	No. of Main Boards	1
7	No. of Power Supply units	1
8	No. of motors	1
9	No. of Printers	1
10	Side Display with Key Pad	1

3.22 Fuel Dispenser Marking

The name plate (marking plate) shall be in accordance with typical 94/9/EC marking & shall bear the markings according to EN 13617-1 safety requirements for construction & performance of metering pumps, dispensers & remote pumping unit.

Other essential markings shall include Model, Serial Number, Year of Manufacture & homologation number (Approval number from competent metrology authority)

3.23 Hazardous/Classified area classification

The fuel dispenser shall be certified to Ex 11 2G as per ATEX.

All electrical & non-electrical equipment & components shall be designed & constructed according to good engineering practice & in conformity with the required categories for Group II equipment of the ATEX 94/9/EC directive to ensure avoidance of any ignition sources as stipulated in EN 1127-1.

Undesirable electrical discharge shall be avoided by earthing & interconnecting all the metallic components of electrical & non electrical equipment.

3.24 Typical Installation Data

Inlet Pipe Size - 38 mm. (1.5”) diameter

Length of Suction Pipe : Horizontal – 20 m

Vertical - 3.5 m

Pipe Material – Galvanised Iron/ Mild Steel

No. of Bends - 04

No. of Tank Top Non Return Valve - 01

SECTION II To be complied before Prior Inspection

3.25 Soft ware Requirements

- 3.25.1 The interrupted delivery should be resumed only if the power is restored within 3 seconds.
- 3.25.2 Memory recalls of previous sales value or similar figures shall be retrievable only on side Display. (not on main display).
- 3.25.3 Serial Number or Identification No. of the Mother Board shall be readable in the Main Display or Keypad Display. (or etched on PCB). Serial Number printed on sticker paper will not be accepted.
- 3.25.4 A clear distinct beep at Zero Reset and a two (02) second delay of product delivery after zero reset.
- 3.25.5 Motor should automatically shut off 0 to 30 sec (user adjustable) after the product delivery is stopped. (default 10 seconds).
- 3.25.6 Internal computation of volumes should be performed to an accuracy of 3 decimal places. (4 Decimal places preferable)
- 3.25.7 Electronic Calibration Adjustment by changing a Factor or by taking the average of 3 nos of 5 Litre pumpings
- 3.25.8 It is preferable to have a key for Double Zero and dedicated keys for pre – set pumpings for Rupees 500.00 and 1000.00 in the key pad
- 3.25.9 Bill Printer setting changes to be through key pad

3.25.10 Maximum Manual Pumping to be 999 Litres or Rs 99,999.00 whichever occurs first.

3.25.11 Unit price and pump settings shall be editable by keypad with changeable password and / or key protection

3.26 Other Mechanical construction requirements

3.26.1 Mother Board chamber should be sealable

3.26.2 Intake flexible pipe should be at the bottom centre of the Dispensing Pumps.

SECTION III : To be complied within 45 days

3.27 Pattern approval from MUSSD of Sri Lanka

Pattern approval for the fuel dispensing pump model/s offered obtained from Measurement Units, Standards and Services Department of Sri Lanka at Mahena Watta, Pitipana, Homagama, Sri Lanka (Email: metroload@slt.net.lk T/P Nos. 0094-11- 2182250-1, Fax No. 0094-11-2182259) shall be submitted within 45 days after the notice of tentative selection.

Signature of the Bidder:Date:..... (Common Company Seal)