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|  | ***Item Title*** | ***Technical Specifications*** | | ***Technical specifications offer by the Suppliers*** |
| 1 | Passenger Electric Buses,  Quantity:  2 units | **1** | **Main Features** |  |
| 1.1 | Passenger Electric City Bus, with low Entrance, new, not exploited, without defects, year of production not earlier than 2024, the Bus should be fully staffed with standard factory  Produced parts, tested and ready for exploitation.  C:\Users\PC\Desktop\2024 წელი\REC Caucasus\ქუთაისის ავტობუსები\ანალოგიური სპეციფიკაციები\CM_product_2.jpg  This drawing has an informational character; the technical specifications are given in the text. |  |
| **2** | **Electric Motor Technical Specifications** |  |
| 2.1 | Direct Drive Electric motor. Full electric, permanently magnetic synchronous, liquid-cooled, operating range from  -30 °C to +40 °C  under certain conditions. The traction motor must be suitable for  operation at low temperatures and must have good insulation.  Mudguards Must be provided on the bottom of the electric motor,  the maximum efficiency of the traction motor must be at least 90%.  The proportion of high-efficiency zones with not less than 80%,  efficiency must be at least 85%.  Protection level: IP67. Or IP68 |  |
| 2.2 | Motor Rated Power not less than 180 kw. |  |
| 2.3 | Motor Peak Power not less than 350 kw. |  |
| 2.4 | Using the direct drive structure of the electric motor. Min.  acceleration time (with full load): from 0 km/h to 50 km/h on a flat road at maximum 15 seconds. |  |
| 2.5 | Performance of noise level on an asphalted road: Exterior not more than 80 dB(A), Interior not more than 80 dB(A) |  |
| 2.6 | Maximum speed of the Bus not less than 70 km/h. |  |
| **3** | **Chassis Technical Specifications** |  |
| 3.1 | Front axle: maintenance-free axle, Solid or independent suspension, with air bags. The maximum allowable load of the front axle not less than 7000kg |  |
| 3.2 | Rear axle: maintenance-free, with air bags. The maximum load allowance of the rear axle not less than 12000kg. |  |
| 3.3 | Front Air Suspension: at least Two rubber pneumatic mounts with two hydraulic telescopic shock absorbers. |  |
| 3.4 | Rear Air Suspension: at least Four rubber pneumatic mounts with hydraulic telescopic shock absorbers. |  |
| 3.5 | Suspension levelling system: ECAS, with kneeling function. |  |
| 3.6 | Brake System: Independent, double-circuit pneumatic, spring parking brake,  With EBS, Electronic Stability Control (ESC), Electronic parking brake system (EPB).  With Front and Rear disc brakes. |  |
| 3.7 | Electrohydraulic power steering. The steering column Must be located on the left side of the bus. |  |
| 3.8 | Number of Tires: 6 + 1(spare) |  |
| 3.9 | Tire disc (rim) size: at least R22.5 |  |
| 3.10 | Centralized lubrication system |  |
| **4** | **Technical characteristics of the cabin and Body.** |  |
| 4.1 | Number of passenger seats, not less than 20 seats, with soft coverings. Standing spaces not less than 55. The Standing space should be equipped with vertical and horizontal grab rails and straps for standing passengers. |  |
| 4.2 | Bus should be equipped at least, with 2 (front and Rear) (with 1 or 2 wings) with double-glazed windows. Rear or Middle Door must be equipped with a folding ramp for wheelchair, for persons with disabilities. |  |
| 4.3 | The floor of the bus should have as less levels and steps as possible, not to create any discomfort to standing passengers. Entrance floor level at all doors: not exceeding 340 mm. for getting on board. Measured at each door when the Bus is empty in a standstill position, with a running electric motor and open doors. |  |
| 4.4 | Cabin heating and air conditioning: The bus must be equipped with electronic air conditioner, with electrical drive, heating and cooling function, cooling capacity not less than 36000 kcal/h. Located on the roof of the bus. Heating system: Independent heater, wall-type heaters, Preferably radiators on the steps. |  |
| 4.5 | Dimensions: Length not less than 11500 mm. and not exceeding 13000 mm. Width not less than 2400 mm. and not exceeding 2600 mm. Overall Height at least 2800 mm. and not more than 3500 mm. Height in the cabin: not less than 2200(mm). Maximum turning diameter of the Bus not more than 25m. Ground clearance not less than 120(mm) |  |
| 4.6 | The flooring should be waterproof, Elastic, Non slip, made from easy-cleaning material, without excessive irregularities. |  |
| 4.7 | Roof and walls of the bus must be thermally insulated. |  |
| 4.8 | Adapted for persons with disabilities. In the lower part of the rear door, electric or manual ramp, with call buttons. with a lifting capacity of at least 250 kg. Space for at least one Wheelchair for disabled person. |  |
| 4.9 | Passenger seats with soft coverings, (seats and backs) should be anatomical type. Made of plastic or other polymeric material. Metal frame, galvanized or treated with other anti-corrosion technology, or made from stainless metall. |  |
| 4.10 | The bus must have sliding windows, equipped with locks, manually opened, at least 2 pieces on each side. Driver's window: double-glazed with built-in sliding window. |  |
| 4.11 | Electrically adjustable side mirrors with heating function. Spherical mirrors to control the internal space for the driver. |  |
| 4.12 | Driver's Seat 1 shock-absorbing , seat can be adjusted according to the height of the cushion, according to the longitudinal movement of the seat cushion, according to  the angles of inclination of the cushion and the backrest, according to the softness of the pleural cushion. |  |
| 4.13 | Semi-enclosed driver's cab. With full LCD dashboard for Driver. |  |
| 4.14 | Front Windshield with at least three-layer glass. Rear window at least Single layer glass. Both Equipped with Folding Curtains. |  |
| 4.15 | Body structure: Low-entrance structure, From rear door accessible for the wheelchairs, galvanized sheathing, all-metal body with cathode electrophoresis technology. Front and rear steel bumpers. |  |
| 4.16 | Anti-corrosion protection: Cathodic electrophoresis technology, Five-layer anti-corrosion system is applied, consisting of galvanized sheet, phosphate coating, electrophoretic paint, intermediate varnish and top coat. |  |
| 4.17 | Color of Bus must be agreed with the Purchaser. |  |
| 5 | **Battery and Electric system** |  |
| 5.1 | Rechargeable battery, capacity not less than 350 kWh, Type: Lithium ion battery, protected class: IP67. Or IP68. With a heating and insulation system. Together with an intelligent battery management system (BMS), following control functions are implemented: battery temperature detection, battery operating current detection, insulation resistance detection, temperature regulation, battery state of charge (SOC), with liquid cooling. |  |
| 5.2 | Charging system: With rated power not less than 160 KW. Dc connector with the charging connector must be located on the side of the bus. |  |
| 5.3 | Monitoring system: Equipped With at least Six-camera monitoring system. driver + cabin + front road of the bus + front passenger door + middle passenger door +  reverse monitoring. Capacity of the hard disk not less than 500GB. |  |
| 5.4 | Electrical circuit Moisture-proof 24V, single-wire with negative grounding. |  |
| 5.5 | Front, side and rear LED rolling electronic road signs. |  |
| 5.6 | Anti-fog LED headlights. |  |
| 5.7 | LED Light Passenger compartment lighting, door space lighting and driver compartment lighting. |  |
| 5.8 | USB connectors for charging in the driver's workplace area  and passenger compartment. |  |
| 5.9 | Automatic stop announcement system (with GPS). A dictating machine for background music, radio, and stop announcements is installed as an integral part of the on-board computer. It must be able to identify a specific geographic area using GPS and support reprogramming via a web interface or other software. Stop information and other content is downloaded via a web interface or other software, wirelessly, directly to a writable flash drive. Files must be named by category and played separately (stop, next stop, music, radio in any combination, with pauses and reference to geographic coordinates). The placement of the A dictating machine is agreed upon with the Buyer. |  |
| 5.10 | Voice amplifiers in the passenger compartment and microphone in the driver compartment. |  |
| 5.11 | Digital, LED information panels in front, behind and on the right Top of the bus. |  |
| 5.12 | The bus shall be equipped with Wi-Fi access point providing a reliable and stable signal of standard 802.11a/b/g/n in any part of the buses. The wi-fi modem shall be of industrial use with 2 SIM slots, operate in 3G 4G LTE networks utilizing the bands in use by the network operators in Georgia, and shall provide not less than 80 user connections simultaneously. The Wi-Fi-equipment shall be designed for the use on the vehicles and shall be protected from vibrations, shocks, dust and moisture. |  |
| 5.13 | Buses must be equipped with electrical wiring adapted to the payment systems operating in Georgia in order to install the appropriate payment system equipment on them in the future. Detailed electrical diagrams necessary for the installation of these payment systems should also be presented. Payment systems equipment information will be provided by the purchaser according to which the manufacturer shall install the electrical wiring. |  |
| 6 | **Additional Equipment** |  |
|  | Front and rear towing connections |  |
|  | Maintenance and use manual in Georgian or English Language. |  |
|  | Hydraulic jack. |  |
|  | Tire removing wrench |  |
|  | First aid kit |  |
|  | Set of maintenance spanners and wrenches |  |
|  | Fire extinguisher: 2 pc. At least 5kg capacity manual fire extinguisher. At least 1 pc automatic centralized fire extinguishing system in the battery compartment. And At least 1 pc automatic extinguishing system in the heater compartment. |  |
|  | The supplier is obliged to deliver together with the electric buses at least 1 set of all the equipment and software necessary for the electronic diagnosis of their main components, which will be compatible with both buses. The diagnostic equipment should diagnose the electric motor, battery, brake, electrical (electrical wiring, electronic control units, etc.), heating, air conditioning, and ventilation systems by specifying malfunction codes. The kit should also include instructions for detailed decoding of damage codes in electronic form. |  |
| 7 | **Specifications of the Charger** |  |
| 7.1 | Number of Charging pistols: not less than 2 |  |
| 7.2 | Input Voltage 380V ±15%, Three Phase System. |  |
| 7.3 | Output Power not less than 160 kW |  |
| 7.4 | Output Voltage not less than 200V. |  |
| 7.5 | Output Current not less than 400A. For each connector not less than 200A. |  |
| 7.6 | With TFT touch screen display, size not less than 8” Language: English. |  |
| 7.7 | Charging Cable Each not less than 5m. Length. With Pistols |  |
| 7.8 | Time required for full charging batteries 2Buses at the same time: not more than 4.5 hours.  Time required for full charging batteries of 1 Bus: not more than 2.5 hours. |  |
| 7.9 | Cooling method: Forced Fun |  |
| **8** | **Warranty Terms and conditions** |  |
| 8.1 | Basic after-sale warranty for E-bus: not less than 2 years or 150 000km (whichever comes first) 2 years or 150 000km (whichever comes first) |  |
| 8.2 | Warranty for traction battery system: : not less than 8 years or 500,000 km (whichever comes first) |  |
| 8.3 | Warranty for drive motor, high-voltage generator, five-in-one controller, bus  Controller : not less than 5 years or 300,000 km (whichever comes first) |  |
| 8.4 | Warranty for The body against the rust for not less than 8 years. |  |
| 8.5 | Warranty for wear parts: not less than 3 months or 20,000 kilometers from the date of delivery of the bus to the end user, whichever comes first.  The supplier is obliged to provide detailed regulations for warranty maintenance during the entire warranty period. (Appendix N2 -warrant service regalement) |  |
|  |  | 8.6 | After sales service for the Vehicles is: “required”  Bidder is requested to provide the name, address and phone number of the service centers in the following cities:  Kutaisi (authorized service center is required).  Letter of intent, confirmation letter or contract is acceptable.  If the supplier is not Manufacturer, should submit Manufacturer's Authorization Letter as well.  If the manufacturing defect is identified on the leading mechanisms (Electric motor, generator, battery, axles, electronic control units, Charger and other main components), prior to the first warranty service, the purchaser is authorized to require from the supplier replacing the defective item with the new one.  The defective item shall be replaced not later than within 30 (thirty) calendar days. |  |