# *ANNEX II + III :* TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

**Contract title: Public procurement for emergency medical vehicle and medical equipment**

**Ref. Number:** **HR-RS00084 -07 L01**

**LOT no. 1** **- Ambulance vehicles with installed and attached medical equipment**

**Columns 1-2 should be completed by the Project partner**

**Columns 3-4 should be completed by the tenderer**

**Column 5 is reserved for the evaluation committee**

Annex III - the Contractor's technical offer

The tenderers are requested to complete the template on the next pages:

* Column 2 is completed by the Project partner shows the required specifications (not to be modified by the tenderer),
* Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words “compliant” or “yes” are not sufficient)
* Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offeredspecifications.

The requirements set out in the technical specifications represent the minimum technical characteristics which offered goods must satisfy, unless stated otherwise, and tenderers are not allowed to modify technical specification in any way.

For each item for which it is not explicitly stated that it is allowed to offer goods of the equal characteristics, i.e. for each item where it is not stated “or equivalent”, for the purposes of this tender documentation it is assumed that words “or equivalent” are stated, and tenderer is allowed to offer equivalent goods / goods of equivalent characteristics.

| **1.**  **Item Number** | **2.**  **Specifications Required** | **3.**  **Specifications Offered** | **4.**  **Notes, remarks,  ref to documentation** | **5.**  **Evaluation Committee’s notes** |
| --- | --- | --- | --- | --- |
| **1.** | **Ambulance vehicle with installed and attached medical equipment (1 pcs.)** |  |  |  |
| **Scope of use:** transport and medical treatment of the patients ("SC" ambulance vehicle - an "M1" type vehicle intended for the transport of sick or injured persons and equipped with special equipment for such a purpose, in accordance to the article 11. of the national “Rulebook on the division of motor vehicles and trailers and the technical conditions for vehicles in traffic on roads”); |  |  |  |
| **Approval/certification of use:**  - medical vehicle must be in accordance to the valid legal regulations of the Republic of Serbia, the “Rulebook on the division of motor vehicles and trailers and the technical conditions for vehicles in traffic on roads” and the “Law on Traffic Safety”, as well as other specific legislation;  - vehicle must be completely new, unused, with all new construction, fitted with completely new parts  - all installed and attached medical equipment in the vehicle must be certified/registered in accordance to the national “Law on Medical Devices” and “Rulebook on registration of medical device” of the Republic of Serbia;  - vehicles must be accompanied by the all-necessary documentation for their traffic registration  -the vehicle must be in accordance with EN 1789 standard. |  |  |  |
| **VEHICLE SPECIFICATION:**  **1. Dimensions (min):** length min: 5300 mm – max 5500 mm ; width without rearview mirror min 2000 mm max: 2100 mm; height 2500 mm;  **2. Wheelbase (min):** 3400mm  **3. Useful load capacity (min):** 1200kg  **4. Number of doors:** 4 pcs. (of which one right side sliding)  **5. Engine power (min):** 100 kW  **6. Engine volume (min):** 2100 cm3  **7. Engine Euro norm (min):** Euro 6d-final/Euro 6.3  **8. Gear box:** manual (6 gears)  9. **Fuel:** euro diesel, front-wheel drive  **10. Cargo space specification:**  - length of cargo space (min): 2900 mm  - width of cargo space (min): 1850 mm  - height of cargo space (min): 1700 mm  - volume of useful space (min): 11 m3  **11. Vehicle equipment (minimum):**  - coded key  - trip computer  - electric power steering adjustable in at least one axis  - ABS+EBD(electronic brake force distribution) - - ESC (electric stability control) + Hill-Holder  - airbags for driver and passenger  - electric front windows  - electrically adjustable mirrors with defrosting  - radio (factory) with a screen diagonal of at least 5″  - Bluetooth + USB port for the radio device  - radio and Bluetooth device controls on the steering wheel  - central locking with remote control  - cruise control with speed limit adjustment  - driver's seat adjustable in height and lumbar  - driver's armrest  - right sliding door with glass  - rear double-leaf glazed door  - battery capacity min. 105Ah  - alternator minimum 200A  - air conditioning with additional rear air conditioning outlet in the patient area  - reverse sound signal  - rear parking sensors  - rear suspension of the vehicle adapted for the transport of passengers, not for cargo: on the rear axle, rigid links and a maximum of one movement per wheel on the rear axle  - standard-sized spare wheel  **Marking of the ambulance vehicle:**  - International emergency medical sign above the windshield on the rear parts of the sides and on the windows of both rear door wings - reflective color.  - Inverted inscription AMBULANCE in blue (readable in a mirror) on the hood of the vehicle.  -Red reflective strip, along the entire perimeter of the vehicle and the edge of the roof, inscription of the user's name on the left and right front doors in Cyrillic.  **- Vehicle colour: white**  - ECE R65 certified light console, min. width 1400mm, with 2 light groups; electronic horn with a howling tone 12V 100W,300mA/7.8A installed in the console; two certified ECE R65 blinkers in the vehicle bumper; rear light console; control panel located in the driver's cabin  **Patient compartment requirements (minimum):**  - the interior of the patient area should be covered with panelling/plating adapted to the shape of the vehicle and not reduce the useful space; plating resistant to all means for washing and disinfection on a chemical and biological basis  - thermo-sound isolation installed  - On the left side of the vehicle, a full-height cabinet is installed, adapted to additional equipment such as: defibrillator, aspirator, respirator, splints, bags and small medical supplies. The cabinet is fixed via steel reinforcements that serve to securely fix all additional devices that are fixed to it.  - The cabinet should have two sliding doors made of tempered glass of minimum dimensions with double opening. The doors must be protected from self-opening.  - On the right side, in the upper zone, there should be a compartment for medical supplies with a sliding glass door of minimum dimensions 1000mmx300mm protected from self-opening.  -All glass must be ECE R43 approved.  - The vehicle ceiling is made of polyester. It should have channels for uniform cooling of the space, 2 handles of minimum length 1200mm, fixed to steel reinforcements, as well as an infusion box for two bottles.  - A partition between the driver's and patient's compartment with a sliding glass for voice communication. The glass must be ECE-R43 approved. On the patient side, smooth polyester with a doctor's seat. On the driver's side, car upholstery.  - The vehicle floor is made on a reinforced hard surface (waterproof plywood) covered with high-quality underlay, laterally framed by aholder and a drain for water drainage during washing. The vehicle floor is antistatic with an anti-slip layer, acid-resistant and antibacterial.  The sliding side and rear doors are covered with polyester panels with insulation, and the windows have foils that provide one-way visibility.  The entire interior of the patient area is made so that all joints are sealed and act as a single compact unit, and can be dismantled if necessary. White interior design and all panels with thermal and acoustic insulation without cold bridges.  **Electronic installation**  - The main line from the battery has a main fuse and a switch that interrupts the supply to the patient area if necessary.  - In the patient area, in the electrical box, there is a fuse housing from which the installation is distributed to each consumer.  - The fuse housing should have LED signal lights that indicate a blown fuse. Each connection and consumer, in addition to the main fuse, is provided with a separate fuse easily accessible on the dashboard. 3 12V power sockets are installed on the cabinet.  - External connector with two direct sockets in the vehicle, converter for charging the battery and devices, engine start lock when charging with 220V, protection against overcharging and discharging.  - 220V socket connected directly to a regular converter.  **Vehicle consumer management system**  - It consists of a control panel in the patient area. The system allows medical staff to independently operate lighting, air conditioning, heating, ventilation, etc.  **Two-way roof fan**  - Heating of the patient area with a 2-speed hot heater connected to the vehicle system.  - Additional independent diesel heater of min. 2KW that uses fuel from the tank and operates independently of the engine  **Air** conditioning of the patient area, either with a separate air conditioner, or by upgrading the basic air conditioner.  - In the polyester ceiling light, targeted independent lights are installed in the area above the stretcher, which allows targeted lighting of the patient's entire body. Neon or LED lighting is installed along the entire length of the vehicle. All lights are switched on independently from the control panel in the patient area.  **Seats in patients’ area:** One seat in the direction of travel by the side doors and one seat on the partition by the patient's head. All seats have 3-point seat belts. **Handrails**: Handrails on the side and rear doors fixed to the body. Additional equipment: PP apparatus, waste bin.  Other equipment:  **Oxygen installation** Two supporting structures with fixtures for 2 10l oxygen bottles in the left box with a sliding glass of minimum dimensions 1200mm x 300mm with sliding opening up and down which allows for an insight into the pressure in the bottles and easy bottle replacement without moving the stretcher.  - Two DIN sockets in the upper zone  - Pressure reducer  - Flowmeter with the possibility of adjusting the flow from a minimum of 0-30l  **Automatic medical folding stretcher with fixators and loading ramp**  One-piece stretcher on wheels, self-loading type, with anatomical mattress and straps for patient fixation. Stretcher dimensions: length max. 1955 mm; width max. 590 mm; height with wheels extended max. 850 mm Adjustment of the back and foot parts of the stretcher Made of aluminum Foldable telescopic handle for placing infusion solution. Minimum 4 telescopic handles for easier handling. Wheels with a diameter of min. 200mm with the possibility of locking Load capacity min. 250 Kg. The stretcher has side stops that fold at an angle of 180 degrees and fold horizontally. 10G certified. Easy loading of the stretcher into the vehicle with factory fasteners and a folding ramp that locks the stretcher in place when lifted, and releases the stretcher when lowered without using a special command.  **Cardiology chair**: Patient chair made of aluminum. It has a minimum of 4 wheels and 6 handles, of which at least 2 are telescopic Minimum dimensions of the unfolded chair: depth 700mm, width 500mm, height 900mm Minimum load capacity 150kg Maximum weight 9kg It has a foldable footrest with fixation straps.  - fire extinguisher and trash can |  |  |  |
| **1.1** | **Defibrillator (1 pcs):**  **General requirements:**  - portable biphasic defibrillator/monitor with pedals and pads  - the device meets EN 1789 standard or equivalent  - device operable on AC 220V  - the device should have integrated two sizes of external defibrillation paddles (for children and adults)  - hock delivery control on both the external defibrillation electrodes and the device Energy charging control on both the device and the external defibrillation electrodes Print control on both the device and the external defibrillation electrodes  - battery-powered charging time maximum 8 seconds up to 360 J and 6 seconds up to 200 J  - automatic self-test of the defibrillator's correctness when turned on and during operation. Audio and visual interface in Serbian  - possibility of 12-channel ECG monitoring (I, II, III, aVF, aVL, aVR and V1, V2, V3, V4, V5, V6), HR Battery capacity: minimum 150 discharges at an energy of 360J  - upgradeability  - the device must have an integrated AED module  - operation of the device on batteries (NiMH) and AC mains (230V, 50Hz), with a battery charge indicator on the device  - the device must have a printer  - the device must have an integrated external non-invasive pacemaker with "fixed" and "on demand" operating modes  - acing amplitude from 0 to 200 mA, frequency from 30 to 180 ppm Minimum 210 minutes of monitoring on battery power Battery charging time maximum 3 hours  - possibility of operation at temperatures from 0ºC to 45ºC  - NIBP measurement range for systolic pressure: 40-260 mmHg, for diastolic 20-200 mmHg  - compact flash memory card for recording at least 100 events with corresponding ECG trace and sound recording  - integrated internal memory (without expansion with memory cards) for storing at least 24h of monitored parameters  -the device must have a module for SpO2 measurement in the range of 0 to 100%, accuracy ≤ 2%, with a pulse measurement range of 25 to 240 ppm  - the device must have the ability to be upgraded via plug & play module EtCO2 measurement in the range of 0 to 99 mmHg  - the accuracy of EtCO2 measurement for the range of 0 to 38 mmHg must be at least ± 2 mmHg ECG amplitude adjustment: 2.5; 5; 10; 20; 40 mm/mV and automatic  -visual indication of compression rate when performing CPR in three levels Protection level minimum IP44  - minimum 8.4-inch diagonal screen with high resolution of 800x600 |  |  |  |
| **1.2** | **Transport aspirator** (1 pcs.):   * Color screen at least 4.3” * Weight maximum 2.5kg * Dimensions approximately 206x137x130mm +-5% * Internal battery capacity minimum 7.5 hours * Operating modes: Volumetric (volume controlled), pressure controlled and spontaneous breathing controlled * Spontaneous ventilation mode: CPAP+ASB, with pressure support ASB available for non-invasive ventilation (NIV) * Inspiratory O2 concentration can be varied between 21% and 100% via O2 supply Gas types can be set for oxygen concentrator (O2 93%) and for medical oxygen * The mechanical ventilator is driven by a turbine * Replaceable hygienic inlet filter protects the device from viral and bacterial contamination * The device is equipped with a Bluetooth interface * The device has an SD card slot The device has protection against dust and water according to the standard at least IP54 * The device meets at least the following standards: EN 60601-1, EN 60601-1-2, EN 60601-1-6, EN 60601-1-8, EN 60601-1-12, EN 62366-1, EN 1789, EN 13718-1, EN 794-3, ISO 10651-3, ISO 10993-1, RTCA DO-160 G, MIL-STD 810 G * The device operating temperature is at least -20 °C to +50 °C * Ambient pressure compensation Maximum inspiratory flow rate minimum 150l/min * Start ventilation by entering patient height from minimum 50 – 250cm * Volume controlled operating modes: IPPV, SIMV, manual mode * Pressure controlled operating modes: PCV, aPCV, BiLevel + ASB, PRVC + ASB * Spontaneous breathing controlled operating modes: CPAP, CPAP+ASB * Emergency modes: Ventilation for neonate, child and adult Inspiratory oxygen concentration from 21% to 100% * Respiratory frequency from 0 to 40 * PEEP from 0 to 20 mbar * Inspiratory trigger 1-15l/min Expiratory trigger 5-80% of maximum flow * Can be carried by handle or shoulder strap Portable system can be wall-mounted with certification for fixation on 10G * The portable system is housed in a protective PVC-coated bag with reflective strips. * The device is supplied with a factory docking station for wall fixation in the restroom. |  |  |  |
| **1.3** | **Mechanical chest compression device (1 pcs.):**   * A device for chest compression during resuscitation * Possibility of autonomous battery operation for at least 90 minutes * At least 3 operating modes (continuous, 30:2, 15:2) * Ability to select compression depth from 30 mm to 53 mm in 1 mm increments * With a compression rate of 110 per minute, with a rigid connection between the device and the plate on which the patient is placed * Integrated system for continuous capnometry (EtCO2) together with a sensor. |  |  |  |
| **1.4** | **Transport respirator (1 pcs.):**  - Electrically powered suction device for field and transport use, using high vacuum, with high flow.  Designed for use in emergency vehicles according to IEC 60601-1-12 and according to ISO10079-1.  Size up to 350 mm x 350 mm x 200 mm  Weight up to 4 kg (with battery)  Reusable canister capacity 1000 ml Vacuum indicator accuracy ±5% of full scale  Suction patient hose (non-sterile) with an internal diameter of min 8 mm and a length of min 1.5 m  Operating temperature from 0-40 degrees Celsius  Operation/charging on AC 100-240 VAC, 50-60 Hz Operation/charging on DC 12-28 VDC  Battery 12VDC 2 Ah, NiMH, Rechargeable  Battery charging time 4 hours to full charge  At 500 and more mmHg flow greater than 25 l/min Maximum vacuum: ˃500 mmHg (66.5 kPa)  Vacuum range: 80-500+ mmHg (11-66.5 kPa) Vacuum indicator accuracy: ±5% of full scale  Approximate battery operating time (free airflow) at various vacuum settings (±10%): at maximum load. minimum 40 minutes  Approximate noise level (free airflow) at various vacuum settings: maximum up to 58 dBA  Display as vacuum strength indicator  Filter efficiency is 99.97% down to 0.3µm particle size |  |  |  |
| **1.5** | **EKG** (1 pcs.)  Touch screen with a diagonal of at least 4.3 inches Integrated three-channel printer with a width of at least 80 mm. The device supports direct printing via an external printer.  The device has the function of real-time sampling, pre-sampling and conditional sampling  Simple design with six rubber function keys  HR measurement range: 30-300 bpm  ECG filter: 25, 35, 45 Hz  Low-pass filter: 75, 100, 150 Hz  Sensitivity adjustment: 2.5, 5, 10, 20 mm/mV  The device has the function of measuring the following ECG parameters: P time limit, PR interphase, QRS time limit, QT interphase, QTC interphase, RV5swing, SV1swing, RV6swing, SV2swing, RV5+SV1swing, P axis, QRS axis , T axis  Diagnostic analysis of at least 140 types Defibrillation resistant up to 5000V/360J  Time required to recover baseline after lead change: ≤ 1 second  Data storage method: U-disk and built-in memory Battery power supply: Rechargeable Lithium-ion battery with a capacity of at least 4 hours of continuous operation  Device weight maximum: 2 kg |  |  |  |
| **1.6** | **Portable ultrasound device (1 pcs)**  Waterproof according to IPX7 standard  Modes (min): B, M, Color flow map, Pulse, Wave Doppler  The probe has “+” and “-” buttons (focus, depth, Doppler adjustment), as well as a button for "freezing" the display  Possibility of zooming with two fingers (“pinch”) Possibility of connection to a phone and tablet DICOM connection and wireless data exchange Carrying bag |  |  |  |
| **1.7** | **Video laryngoscope (1 pcs)**  Battery status displayed by icon  Maximum dimensions: 200(H) x 100(W) x 120(D) mm  Data can be shared via HDMI, USB cable or WIFI  Screen of at least 3.5 inches with a resolution of at least 640x960 pixels  The screen has a "touchscreen" function Classification: IP66 Illumination intensity, at least 600 Lux  Light temperature at the light source 5000 K Field of view: 60°  Image depth: 10-80 mm  Rechargeable battery for continuous use of at least 4 hours  Weight with battery maximum: 0.3 kg |  |  |  |
| **1.8** | **Inhaler (1 pcs)**  Inhalation takes less than 5 minutes for 2.5ml of inhalation solution.  Optional interval nebulization for combined physiotherapy.  Autoclavable soft masks (large or small, optional)  Autoclavable nebulizer - with variable droplet size range thanks to blue and red nozzle connectors with interrupter (for non-intermittent inhalation) and two nozzles:  Total output min 590mg/min  MMD (mean particle diameter) max 2.9 um percentage of particles smaller than 5 um min 75% Second nozzle  Total output min 450mg/min  MMD (mean particle diameter) max 2.2 um % of particles smaller than 5 um min 85%  PIF control system integrated into the nebulizer  Possibility of inhalation by children and adults |  |  |  |