HSE FUNCTION

FIRE PROTECTION SECTOR

**Tender documentation for procurement procedure**

**TERMS OF REFERENCE FOR PROCUREMENT OF TWO FIRE TRUCKS**

Water and foam fire fighting vehicle VP2000/100 with requested superstructure which is, according to its structure and firefighting equipment, classified into a group of vehicles used for fighting fires burning flammable liquids and flammable solids. The vehicle is intended for use in the warehouse storing raw oil and for the field operations outside urban thoroghfares (rural areas).

The vehicle must comprise undercarriage and superstructure and must accommodate all requested firefighting equipment. Completely furnished vehicle must be in accordance with special requirements of the client and in accordance with safety and technical requirements set by SRPS EN 1846-2 (EN 1846-2).

Roadworthiness Certificate confirming that the vehicle meets all requirements of the standard SRPS EN 1846-2 (EN 1846-2) must be obtained from a domestic accredited laboratory.

The vehicle's cabin must ensure the transport of two firefighters and one driver.

The vehicle must be furbished with firefighting pump with accompanying installations, water tanks (2,000L) and foam (1,000L) and with firefighting equipment needed for fire fighting and rescue operations.

Compliance of the chosen undercarriage with the selected superstructure sollution and accommodation of firefighting equipment must be supplied in the form of a preliminary design – technical drawing on a mimumum A3 format sheet with overall dimensions specified, containing detailed specification of selected equipment, storage tanks, firefighting pump with drive shaft and other.

The preliminary design must contain all vehicle views and cross-sections, material and method of installation of superstructure, catalogue documentation of the undercarriage and equipment, compliant with total capacity of the offered vehicle.

All fire protection equipment must be in compliance with SRPS, EN, DIN and other applicable standards and the bidder is required to submit adequate corroborating documentation (certificates, attests, certificates of compliance, test reports, technical documentation, homologation documentation (Certificate of Conformity and Whole Vehicle Type Approval)...) of the manufacturers, certified and translated into Serbian by a certified translator – to be submitted with the bid.

The bid includes all costs incurred prior to delivery of the vehicle to theclient and all such costs shall be born by the supplier, including vehicle homologation costs.

The bidder is required to ensure regular annual servicing of the superstructure and undercarriage for entire duration of the guarantee period as well as servicing warranty (provision of spare parts) for the superstructure for a period of minimum 10 years after the expiration of the warranty. – to be submitted with the bid

The bidder must be in possession of Certificate ISO 9001 – to be submitted with the bid

REQUIREMENTS TO BE MET BY THE SUPPLIER:

Warranty conditions – warranties to be issued by the Supplier for the offered fire truck from the delivery date;

Minimum 6-year warranty for the chassis and paint, including rim paint

Minimum 5-year warranty or 100,000 kilometers for the engine, other assemblies and engines

Minimum 5-year warranty for accessories (superstructure and fire protection equipment for firefighters)

Minimum 2-year warranty for the exhaust system and battery.

In the case of replacement of any part or equipment, the Supplier must undertake to obtain warranty for all replaced parts, assemblies and engines for the time period which is not shorter than the warranty period set out in the preceding paragraphs which set out the warranties for the chassis and paint, engine, other assemblies and engines, exhaust system, battery and fire fighting and rescue equipment from the moment of delivery.

If any deficiency occurs during the warranty period due to which the vehicles is not operational, operates improperly or its futher use is not safe, including installed fire fighting and rescue equipment, the supplier must undertake to remove any and all deficiencies on the spot or in the service shop, at its cost, including costs of vehicle transfer or shippment to the nearest authorised service shop.

Time period during which the vehicle is in the service ship, during the warranty period, which exceeds 15 days shall not be included in the warranty period.

At the time of vehicle delivery, the supplier is also required to supply a copy of the workshop handbook for the said vehicle with instruction manual.

Supplier must undertake to supply all documentation needed for the vehicle registration and technical inspection at the time of vehicle delivery.

During the warranty period, vehicle supplier is obliged to procure servicing of vehicle and installed equipment at the authorised service shop within or outside the servicing period.

For firefighting and fire protection (portable pump, breathing apparatus, engines and other) equipment which is supplied with the vehice but is not built-in functional and integral part of the vehicle, the supplier is obliged to procure servicing during the warranty period.

Requested equipment for firefigthing and rescue actions must be compliant with SRPS EN, EN or DIN norms and standards. After the expiration of the warranty period, the supplier must undertake to provide spare parts for the said good for additional period of 10 years.

 The supplier is oblited to complete electrical wiring installation for the external reflector, light and sound signals and communication equipment and ensure power supply for all.

 Supplier is obliged to train the user and make minutes thereof.

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| **Technical description** | **Requirements** | **Offered** |
| Vehicle make and type | Manufacturer's designation |  |
| Gross vehicle weight, [t] | specify |  |
| Free-body diagram (for all terrains) | 4 x 4 |  |
| Vehicle overall dimensions | specify |  |
|  |
| **Vehicle** |
| Motor | Manufacturer's designation |  |
| Maximum power, [kW] | min 180 |  |
| Number of revolutions at maximum power, [o/min] | specify |  |
| Exhaust emissin, SCR technology | EURO 6 |  |
| Engine brake | Manufacturer's designation, description |  |
| Speed limiter | Yes |  |
| Mechanical protection for radiator and lower engine block | Yes |  |
| Engine cooling water system adopted for standstill operation for hours | Yes |  |
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| **Engine connections** |
| Engine  | Yes, for a long-operating life pump |  |
|  |
| **Rear axle** |
| Loading capacity according to purpose, [t] | specify |  |
| Planetary gears | Yes |  |
| Differential lock | Yes |  |
| Rear vehicle clearanse, [mm] | min 300 |  |
|  |
| **Front axle** |
| Capacity according to its purpose, [t] | Specify |  |
| Front vehicle clearanse, [mm] | min 300 |  |
|  |
| **Fuel tank** | Material |  |
| Capacity | min 200 L i.e. four hour opearation with equipment operated by the engine or minimum 300 km  |  |
| Locking possibility | Yes |  |
| Fuel filter heater | Yes |  |
| Fuel/water separator | Yes |  |
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| **Wheels** |  |  |
| Rim | Specify |  |
| Tyres according to intended purpose, for off-road conditions | Specify |  |
| Spare wheel with electric disassembling mechanism  | Yes |  |
| Air brake system | Double cirulate |  |
| Brake drum | Yes |  |
| Load adjusted brake control | Yes |  |
| ABS, EBS system | Yes |  |
| Air dehumidifier | Yes |  |
| Trailer brake controller | Yes |  |
| Brake system operating pressure | Specify |  |
| Trailer operating pressure | Specify |  |
| Snow chains | self-tensioning |  |
| Wheel chokes | Yes |  |
| Rigid connection for towing | Yes |  |
| Connector for quick engine startup | Yes |  |
| Pressure control valve | Yes |  |
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| **Cabin** |
| Four post cab | Specify |  |
| Cabin with three seats | Yes, description, dimensions |  |
| Adjustable air suspension driver's seat, with integrated safety belt | Yes |  |
| Clectrically adjustable heated rear-view mirrors | Yes |  |
| Air-conditioning | Yes |  |
| Additional heater, webasto | Yes |  |
| Central lock | Yes |  |
| FM radio  | Yes |  |
| Additional mirror in front of the windshield | Yes |  |
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| **Cabin equipment** |  |  |
| Digital tachograph | Yes |  |
| Driver information system | Yes |  |
| Operating parameter monitoring system | Yes |  |
| Cruise control | Yes |  |
| GPS module | Yes |  |
| Additional night lights and off-road lights | Yes |  |
| Integrated permanent fuel monitoring system  | Yes |  |
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| **Steering wheel** |
| Servo mechanism | Yes |  |
| Adjustable steering wheel | Yes |  |
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| **Electrical equipment** |
| Operating voltage for installations, [v] | 24 v |  |
| Battery capacity, [Ah] | min 180 Ah |  |
| Central circuit breaker | Yes |  |
| Electricity connects (2 x 7-pin outlet or adapter) | Yes |  |
| Fog lights | Front and rear |  |
| Brush guards | Yes |  |
| Additional slots for explosimeter and manual portable torch chargers  | 2 pcs, 12 V |  |
| FM slot with connections | Yes |  |
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| **Other** |
| Rigid trailer drawba, central position, directly connectd tot the chassis (possibility of towing fully loaded vehicle in off-road conditions – mud) | Yes |  |
| Mudguards | Yes |  |
| Under-ride guards | Yes |  |
| Tool kit, accessories and equipment (with a truck jack in accordance with the weight of a fully loaded vehicle) | Yes |  |
| Air sirens | Yes |  |
| Master key | Yes |  |
| Pulling winch | Force on the first tow rope 5 t. Tow rope length of 30m, 8mm in diameter. Electrical winch drive of 24 V.Remote control via 10 m cable |  |
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| **Documentation** |
| Operation and Maintenance Instructions | In Serbian |  |
| Parts catalogue and diagrams for offered vehicles | Yes |  |
| Training of drivers and operators on site | Yes |  |
| Warranty period for entire vehicle | min. 5 years |  |
| Servicing interval for main fuel - Eurodizel | min. 50,000 km |  |
| Servicing interval according to engine operating hours | Specify |  |
| Authorised service shops in Serbia | Yes, specify |  |
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| **Vehicle superstructure** | **Requirements** | **Offered** |
| Superstructure dimensions | Superstructure length - specify |  |
| Superstructure height - specify |  |
| Superstructure width -specify |  |
| Installation of 2,000L water storage tank | Connection between auxiliary frame and tank via elastic supports according to manufacturer's recommendations |  |
| Material | Superstructure must be of aluminium box stainless steel profiles and aluminium eloxy sheets with parts mutually joined by welding, gluing or bolts into a unique unit which is connected to a vehicle frame via auxiliary frame. Interior of the superstructure shall be clad with aluminium ribbed sheet metal. The roof of the superstructure shall be covered with aluminium anti-skid ribbed sheet metal |  |
| Interior | Clad in ribbed aluminium sheet metal |  |
| Storage systems: | Minimum 4 side storage systems and 1 in the rear, with roll up doors, fully protected against external effects and with external lock in accordance with EN 1846-2.Aluminium roll up doors, double-rivetted between lamellas and sealing rubber profiles on the upper side underneath the mask. Roll up door must have a mechanism for LED lights turning on/off when the doors are opened/ closed. All roll up doors must be equipped with a pull ribbon. All roll up doors must be equipped with lock and a key.  |  |
| Storage area | Sufficient for equipment envisaged. Envisage adequate carriers with fixing ribbons. Installed movable storages – shelves must be additionally secured with limiters which prevent their sliding off. Moveable storages must incude one classical drawer, vertical drawers and a bracket for breathing apparatus which will serve as their storage area and enable firefighters to put them on easier. Brackets, pedestals should be envisaged to fix the equipment in storage area (hoses, nozzles, S apparatuses, etc.)Consult the client about the layout of such equipment during construction. |  |
| Equipment access | In accordance with EN 1846-2  |  |
| Walkway | From the vehicle side, foldable walkways for easier manipulation during equipment take out and returning into storage area. Walkways are foldable, anti-slip and must be of the same colour as the superstructure when in closed position. Foldable walkway, when opened, exceed the vehicle's overall dimensions and are properly marked with flourescent ribbons.  |  |
| Upper part of the superstructure | Clad in protective anti-slip material. Equipment positioned in the upper part of the superstructure must be properly fixed and protected |  |
| Light signals | Protected, in the upper part of the cabin, roof lights with four LED blinkers. Front mask with two blue LED blinkers which will be visible to the drivers in front of the fire truck. On the upper side in the back, install minimum 4 LED blinkers. Everything shall operate at 24V. |  |
| Sound signals  | Sound sinalisation shall include wailing siren with PA system (100W amplifier), instrument panel with microphone to be installed in the driver's cabin.  |  |
| Brackets on the superstructure | Brackets for ladders (with mounted "rolnica" which facilitates lowering/raising of the ladders), firefighting hooks and brooms on the upper portion of the superstructure. The roof of the superstructure is to be fixed to ensure safe and secure movement on the roof and manipulation of equipment. |  |
| Ladders for climbing on superstructure | In accordance with EN 1846-2  |  |
| Exterior and interior lighting of the superstructure | Exterior in accordance with EN 1846-2, interior should have automatic on/off at the opening/closing of roll up doors in all boxes |  |
| Reflector | Lighting reflector positioned on the front right-hand side on the exterior of the cabin, minimum power 70W (maximum power) with 24V voltage and possibility to change the beam direction both vertically and horizontally |  |
| Finish and paint | Undercarriage is to be painted in RAL 9005 black with mudguards to be painted in yellow. Door cabin logo and writings shall be made of reflective foil according to buyer's requirements. |  |
| Water tank capacity | 2,000 L |  |
| Material | Stainless steel |  |
| Shape | Adjusted to superstructure with elastic support with wavebarriers within the tanks in order to prevent sudden overspill. |  |
| Tank hatch | On top of the tank with the possibility to open from the upper side of the superstructure, minimum diameter being 480 mm with locking mechanism |  |
| Water level gauge | Water level indicator on the pump's control panel |  |
| Pump connects | The connects must be of dimensions compliant with pump capacity |  |
| Tank filling attachments | Tank filling is to be enabled via pipeline with fixed diameter of 75 mm (from the tank to the coupling) on either side of the vehicle. It should finish with a cast iron Storz "B" stable and blind flange. |  |
| Water discharge attachment | Ø 52 mm, on the tank's lowest poit with a fitting towards the side of the vehicle and fitted with a ball valve  |  |
| Tank vent | Venting pipe on the tank positioned to ensure that overspilled water from the tank does not get into the vehicles assemblies and damage them (either temporarily or permanently)  |  |
| Foam tank capacity | 1,000 L |  |
| Material | Stainless steel |  |
| Shape | Adjusted to the superstructure, with elastic support and waveprotectors within the tank to prevent sudder overspill.  |  |
| Tank hatch | On top of the tank with the possibility to open from the upper side of the superstructure, minimum diameter being 480 mm with locking mechanism |  |
| AT valve | sub-pressure and overpressure regulation |  |
| Foam level gauge | foam level indicator on the pump control panel |  |
| Connector, pump pre-mix attachment | minimum Ø 25 mm in accordance with the pump capacity |  |
| Foam discharge attachment | Ø 25 mm |  |
| Stable pump is positioned in the storage in the rear part of the vehicle | Average pressure is minimum 10 bar /4,000 L/min. and high pressure up to 40 bars/200 L/min and a drive shaftFixed on the supporting frame of the superstructure. By opening roll up door of the rear storage system (pump storage), installed LED lights are automatically turned on along with the pump control panel. Stable pump should also have the possibility of operating at medium and high pressure at the same time. |  |
| Standard | EN 1028 |  |
| Protection | Automatic overheat protection |  |
| Medium pressure level: | Minimum 2 vents with non-return valves 75 mm in diameter on the rear side of the vehicle (on the right and left-hand side of the pump)  |  |
| Medium pressure winch | 1 outlet NO 25 |  |
| High pressure winch | 1 outlet minimum NO19 |  |
| Two-piston device for water suction (vacuum) | Automatic start up/shutdown |  |
| Pre-mixer | Automatic dosages in all pump operating ranges - 1%, 3%, 6%Possibility of foam sucction from external vessel |  |
| Control instrument panel – water-resistant with manul startup/shutdown and control functions (circuit breakers) | Positioned in the rear of the superstructure:- pump startup command, - auxiliary drive (pump) startup indicator- engine (pump) revoluation indicator,- command for opening/closing the valve – water entering the pump from the tank,- command for opening /closing the valve – foam entering the mixer and for foaming dosages of1%, 3% and 6% - command for startup /shutdown of the foam suction from external source i.e. rinsing of installations,- command for medium pressure winch startup - command for high pressure winch startup - medium (normal) pressure gauge, - high pressure gauge, - mano-vacuum gauge- work hour counter, - tank water level indicator, - command panel lighting,- exterior lighting startup switch.All commands and instruments must fitted in the way to enable easy inspection and to ensure their functionality  |  |
| Water and foam ejector capacity  | Minimalno 3,000 Ll/min, with adjustable capacity |  |
| Nozzle  | Full-stream or dispersed jet |  |
| Range  | Water- min. 50 m , foam – min. 40 m  |  |
| Commands | Remote/ manual commands with the possibility for turning corner horizontally (360 degrees) and vertically (-15o to +75o mm ) |  |
| Suction hose | Ø 110 mm, for external water suctionØ 25 mm attachment for foam suction outside of the vehicle |  |
| Discharge hose | Minimum 2 outlets with attachments Ø 75mm, 1 medium pressure winch outlet, 1 high pressure winch outlet, hose for pre-mixer, water for pump circulation – return line line for stable monitor nozzle  |  |
| Pre-mixer | Automatic dosages in all pump operating ranges: 1% , 3%, 6% |  |
| Control instrument panel – water-resistant with manual startup and shutdown of drive and control functions (switches) | Positioned in the rear part of the superstructure Requirements are specified under the pump engine |  |
| Medium pressure hydrualic winch | Reinforced rubber hose in line with the standard EN 1947, minimum lenght: 45 m Ø 25 for piston nozzle with 200 L/min capacity at 8 bars and an accessory for foam. Electric hose rewinding mechanism |  |
| High pressure hydrualic winch | Reinforced multilayer rubber hose in line with the standard EN 1947, length: 60m with Ø 19, piston nozzle with 200 L/min capacity at 40 bars and an accessory for foam. Electric hose rewinding mechanism |  |
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| **Firefighting and rescue equipment** | **Requirements** |  |
| Portable battery-driven torch with EX fire protection | 3 |  |
| Portable battery-driven torch with EX fire protection for helmets | 3 |  |
| Hand-held LED battery with a charger | 2 |  |
| Suction hose coupling ø 110 , 1.6 m  | 4 |  |
| Suction basket coupling ø 110  | 1 |  |
| Suction basket and basket net  | 1 |  |
| Hydrant key T  | 1 |  |
| Hydrant key for aboveground fire hydrant | 4 |  |
| Rope bag for suction basket | 2 |  |
| Master key ABC, for STORZ couplings | 6 |  |
| Busbar A/2B | 1 |  |
| Manifold B/C/B/C | 1 |  |
| Cast iron reducing coupling A/B | 4 |  |
| Suction fire house Ø 52 mm, 15 m long with cast iron couplings AWG , rubber coated on both sides – oil resistant | 10 |  |
| Suction fire house Ø 52 mm, 75 m long with cast iron couplings AWG , rubber coated on both sides – oil resistant | 15 |  |
| Medium-expansion foam nozzle, 200 L/min. | 1 |  |
| High-expansion foam nozzle, 200 L/min. | 1 |  |
| High-expansion foam nozzle, 400 L/min. | 2 |  |
| Monsoon nozzle  | 1 |  |
| Protector – fan of nozzles, Ø 52 mm | 2 |  |
| Master nozzle Ø 52 mm for water, with a handrail, handle with ball valve and turbine, minimum flowrate 200 L/min at 8 bars, with the possibility of changing the shape fo water stream from full-stream to spray  | 2 |  |
| Sealing blind flange ø 52mm | 4 |  |
| Sealing blind flange ø75 mm | 4 |  |
| Storz cast iron reducing coupling C/D,  | 4 |  |
| Self-contained breathing aparatus with composite cylinders for compressed air, with capacity approx. 6 -7 L, 300 bars | 2 |  |
| Spare composite cylinders for compressed air with capacity of approx. 6-7 L, 300 bars for self-contained breathing aparatus | 2 |  |
| Cast iron reducing coupling B/C | 4 |  |
| Spray buffer F 75 | 1 |  |
| Backpack water pump 25 lit | 3 |  |
| Pickaxe  | 1 |  |
| Crowbar | 2 |  |
| Wood-axe  | 2 |  |
| Rebar scissors  | 1 |  |
| Hammer 3 kg with extended handle | 1 |  |
| Firefighting brooms | 4 |  |
| Cramp | 2 |  |
| Shovel | 2 |  |
| Firefighting hooks | 2 |  |
| Three-piece aluminium extension ladders, with add-ons, total lenght - 5 m. | 1 |  |
| First aid kit in a bag, dimensions | 2 |  |
| Climbing rope, Ø 16 mm in diameter, 50 m long. | 2 |  |
| Rubber fishing waders | 3 |  |
| Handheld powder fire extenguisher, S-9 kg | 2 |  |
| Portable fire extinguisher, CO2-5 kg | 2 |  |
| Wood chainsaw for professional use | 1 |  |

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