

## SPECIFICATION

### Specialized Cargo Vehicle (Panel Van)

## 1. Scope

This specification describes the requirements for one Panel Van Vehicle designed for the safe and secure transport of category 2 and below radioactive materials. The Vehicle will be used by the IZOTOP Company, Ukraine (“The End-User”). The Vehicle shall be designed to ensure compatibility with respective Radioactive Source containers (type B, A and other packages), Ukrainian national safety and security transport requirements or IAEA Regulations for the Safe Transport of Radioactive Material SSR-6 Rev.1 and the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) if no national regulations available.

## 2. Requirements

### 2.1. Functional and Performance Requirements

The Vehicle shall meet the following functional and performance requirements:

- 2.1.1. The Vehicle shall be new (not pre-owned) and fore fill Ukraine’s road and safety regulations (e.g.: selection of the driver side, seat belts, etc.) as well as local branch with spare parts stocks and maintenance availability. The Vehicle shall consist of a driver, co-driver and rear cargo compartments.
- 2.1.2. The Vehicle shall be a panel van with separation between the driver compartment and cargo area. The cargo area shall have the necessary cargo tie-down points for the proper securing of the material.
  - a) The driver cabin shall host the driver and co-driver for all transport operations.
  - b) The rear compartment shall function as the primary cargo area.
- 2.1.3. The Vehicle shall have the capability to move on streets and limited unimproved surfaced roads. The engine layout, tires, isolation of the chassis, heating and cooling systems shall be according to the climate conditions of Ukraine to guaranty the mobility of the Vehicle and to provide pleasant temperature in the driver compartment, independently on the season, weather conditions and location. The climatic operating temperatures for the Vehicle and equipment shall cover a temperature range from minus 25° C to plus 40° Celsius.
- 2.1.4. The Vehicle shall provide sufficient power autonomy for operating the physical protection systems during the loading and unloading operations for up to twelve (12) hours for the second vehicle.

### 2.2. Technical Requirements

The Vehicle shall meet the following technical requirements:

- 2.2.1. Vehicle use:

a) Road condition: Smooth

2.2.2. Core components:

- a) Type: Panel van L4H3;
- b) Maximum gross combination weight rating: 7,000 kg;
- c) Payload maximum: 1900 kg;
- d) Engine power:  $\geq 150$  HP;
- e) Type of fuel: Diesel;
- f) Emission level - Euro VI;
- g) Road clearance 25 cm or more;
- h) Gear box: mechanical.

2.2.3. Wheels and tyres:

- a) Set of summer and winter tires sets on steel rims;
- b) one (1) spare wheel with summer tyre and one with winter tyre, including supporting tools for replacing wheels (car-jack, wheel wrench, etc.).

2.2.4. Driveline equipment:

- a) Transmission: four (4) wheel drive;
- b) Cab Climate Unit - Manual air conditioning.

2.2.5. Cab exterior:

- a) Colour: white;
- b) Covering sheet for the windows in the cockpit to protect against sunshine and views from outside in accordance with the respective Ukraine legislation;
- c) Front fog lights;
- d) Maximum height of Vehicle according to selected roof top which guaranties upright standing inside cargo area (ceiling Hight of not less than 200 cm);
- e) Cargo doors: Rear, two (2) doors that split the rear area, and swing out;
- f) Cargo bay with edge-to-edge and retention waterproofed floor coated with secure tie down points and interior walls with smooth surfaces.

2.2.6. Driver cabin requirements:

- a) Climate control;
- b) Covering sheet for the windows in the cockpit to protect against sunshine and views from outside in accordance with the respective Ukrainian legislation;

2.2.7. Cargo Compartment Requirements

a) Interior:

- i. Cargo restraint system, including at least six (6) tie-down points for the cargo on the floor of the cargo compartment. Each tie down point shall have a working load limit of 600kg;
- ii. Six (6) Adjustable Cargo restraint chains with heavy duty locks for each chain;
- iii. One (1) fire extinguisher with fixation near the entrance of the cargo area;
- iv. There shall be heat and smoke sensors capable of sending an alarm signal to the crew compartment;
- v. Interior compartment light;
- vi. Surface of the cargo space shall be able to be decontaminated easily – no flammable surface or paneling.

2.2.4 Example of typical package dimensions that will be transported:

- i. Type B Package:
  1. Height: 150 cm; Width: 60 cm; Length: 60 cm;
  2. General container shape: Box;
  3. Weight: 250 kg;
  4. Number to be transported in one shipment: 3
- ii. Type A package:
  1. Height: 61cm; Width: 61cm; Length: 61cm;
  2. General container shape: Box, Cylinder, Irregular;
  3. Weight: 500 kg;
  4. Number to be transported in one shipment: 3
- iii. Others:
  1. Height: 28 cm; Width: 20 cm; Length: 20 cm;
  2. General container shape: Cylinder, irregular;
  3. Weight: 25 kg
  4. Number to be transported in one shipment: 10 – 15
- iv. Tie down locations and points
  - ii. It is desirable to have tie-down locations designed into each package type.
  - iii. Specific tie-down points are required on the van cargo bed.

2.2.5 Vehicle Physical Protection System requirements:

- a) Navigation and GPS enabled tracking system of the vehicle with upgrade capability for the region of Ukraine. The tracking system shall include secure SDK and

documentation files with secure API to be interfaced with the Transport Control Center of IZOTOP and SNRIU.

- b) Crew compartment intrusion system that provides the status of the driver compartment. The system shall be capable of sending alarm notifications that reports to a Transport Control Center of IZOTOP;
- c) Automatic locking system of the doors to include two (2) remote/electronic keys to lock/unlock and activate/deactivate the crew compartment security system;
- d) Remote engine immobilizer that can be initiated by the driver or the Operator's Transport Control Center;
- e) Control panel to activate and deactivate rear cargo compartment security system; and
- f) The cargo compartment shall provide for the following physical protection systems:
  - i. Cargo compartment intrusion system that provides the status of the doors, both when they are open and unsecure and when the doors are closed and secure. The system shall be capable of sending alarm notifications that reports to the Transport Control Center with activating an external siren and flashlight;
  - ii. CCTV system to be connected to monitor in the crew compartment and to the Operator's Transport Control Center;
  - iii. Heavy duty locking mechanism for the interior of the cargo compartment including electric lock to the door/s of the rear compartment
  - iv. Reinforced door hinges.

#### 2.2.6 Communication requirement:

- a) Driver duress system that the driver can activate in the event of an emergency – be integrated with the siren and flashlight and send signals to The Transport Control Center in as a call for emergency response.
- b) mobile communication based on GPRS/UMTS telecommunication system (frequencies according to end-user country) incl. 3G/UMTS/GSM mobile outdoor antenna for roof mounting.
- c) Voice interlink communication for the crew inside and outside the Vehicle,
  - i. radio frequencies according to Ukrainian regulations;
  - ii. minimum range 3 km
  - iii. two radio units with docking station for charging
  - iv. two headsets (connection to radios by cables)

### 3. Safety Requirements

The Vehicle shall comply with Ukrainian Transport regulations or the IAEA Regulations for the Safe Transport of Radioactive Material SSR-6 Rev.1 and the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) depending on which is the most stringent. As example:

- a) Class 7 placards on the sides and rear of the Vehicle in required language per local law (2 sets of stainless steel and/or aluminium to be provided);

- b) Extinguisher (dry powder);
- c) Plate holders for UN number plates on the front and rear of the Vehicle;

#### 4. Delivery

The shipment to the End-User’s premises could be organized by the Contractor. The Contractor should submit as part of the financial proposal a separate line for the DAP delivery of the goods to Kiev, Ukraine. If not, the Contractor shall submit as part of the financial proposal a separate line for the FCA supplier’s warehouse delivery.

#### 5. Design Requirements

The contractor shall introduce his design based on the requirements listed in the SOW as well the guide annexure, IAEA-End-user and SNRIU shall approve the design before the implementation and the delivery of the project.

#### 6. Quality Requirements\

- a) The Vehicle shall be manufactured, shipped in accordance with the Contractor’s (manufacturer’s) ISO quality assurance system or an equivalent quality assurance system;
- b) The Contractor shall document the compliance with this quality assurance system.

#### 7. Testing and Acceptance

The Vehicle, prior to shipment, shall be tested for conformance of the Vehicle with manufacturer’s performance specifications and the minimum requirements specified herein.

The Vehicle, before delivery, shall be tested by the Contractor together with representatives of the IAEA and the End-User to demonstrate that the performance meets the manufacturer’s performance specifications and the minimum requirements specified herein as determined by the IAEA and the End-User – one (1) day activity.

Upon the Vehicle delivery by the Contractor to the End-User, Contractor shall nominate a technical representative(s) for a period of at least three (3) working days to participate in Acceptance Testing of Vehicle and equipment at the End-User’s location.

The results of the testing of the Vehicle shall be documented by the Contractor in an acceptance protocol that shall be signed by the representative of the End-User.

#### 8. Training

The Contractor shall arrange for the training of the End-User’s personnel:

- a) Technical personnel training to include one (1) vehicle mechanics and one (1) physical protection systems mechanic training for three (3) days as part of the ‘testing and acceptance’ process (mentioned in point 7) at the end-user’s premises. The three-day

training shall be covering repair /replacement of the various original components likely to fail, and also the up graded kit items like the brake, suspension and transparent amour, and complete hydraulic and electrical system (operable window, etc.).

## 9. Deliverable Data Items

The Contractor shall provide two complete sets of operation and servicing manuals and technical drawings in Ukrainian language.

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