

**GEISMAR**



## ROAD RAIL VEHICLE FOR FIRE FIGHTING

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# V2R 830 LAI

**TECHNICAL SPECIFICATIONS**

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## 1 GENERAL

The V2R 830 LAI is a road rail self propelled vehicle specially designed for fire fighting.

It is mainly based on a road rigid vehicle fitted with a railway interface device for running on 1 435 mm gauge tracks. It can be put on track and derailed by its own means in high safety conditions.

The V2R 830 LAI is fitted with a water tank and the equipment suitable to extinguish different type of fire. Fire fighting and rescue accessories can be supplied if requested by customer.

The vehicle can be used on road in two wheel drive configuration. On railway tracks, it fully complies with the dimensions of the UIC loading gauge.

## 2 GENERAL TECHNICAL FEATURES

The road vehicle is a rigid Renault Truck model C370.19 2M. Its main features are as follows:

Nominal Power .....	270 kW
Length .....	8 116 mm
Width .....	2 539 mm
Wheel base .....	4 500 mm
Maximum height .....	~ 3 600 mm
Maximum height (on rail track) .....	~ 3 900 mm
GWVR .....	19 000 kg
Road travel characteristics :	
Maximum speed .....	90 km/h
Maximum gradient .....	~ 50 %
Rail travel characteristics :	
Rail gauge.....	1 435 mm
Maximum speed.....	30 km/h
Maximum gradient .....	40 ‰
Minimum curve radius.....	50 m

## 3 DESCRIPTION AND OPERATION

### 3.1 Frame

The frame is mainly made of two parallel girders with reinforced steel transverse beams. A secondary steel frame is strongly assembled to this last and holds the rail interface device as the fire fighting equipment provided.

Hooks are provided on both ends for towing purposes.

### 3.2 Engine

Engine main features are as follow:

Type.....	Diesel turbo charged
Intake air cooling.....	Air-air exchanger
Maximum power.....	270 kW (370 HP) at 1900 rpm
Maximum torque .....	173 daN.m at 1400 rpm
Cooling .....	Water circuit with radiator
Electrical equipment.....	24 V

### 3.3 Transmission

Transmission in road mode is ensured by means of the cinematic chain of the road rigid vehicle. The two rear wheels can drive.

The gearbox is semi-automatically operated with electronic control enabling 12 forward gears and 3 reverse gears totally synchronised.

### 3.4 Interface rail device

Running on railway track is assured by specific rail wheels diameter 550 mm which can be retracted under the road rigid frame by means of hydraulic rams. The system provides an optimal stability and minimal stresses of the vehicle frame during rail travel.

A hydrostatic transmission electrically controlled allows a continuous speed variation in both running directions. This transmission including a variable displacement pump and four variable displacement motors drives the 4 railway wheels.

A special device allows to lock up the steering road axle when running on rail.

### 3.5 Brakes

The road braking is assured by:

- The main pneumatic type brake with two independent circuits acting on the front and the rear axles;
- The emergency brake ensured by one of these circuits;
- The mechanical parking brake made of two spring cylinders acting on the vehicle rear wheels.

Rail braking is provided by:

- The hydraulic motors dynamic brake when releasing the translation lever;
- Direct brake applying on railway wheels
- Emergency negative brake

All the braking controls are set in the driving cab.

### **3.6 Suspension**

The suspension is provided by means of leaf springs with parabolic blades, shock absorbers and stabilising bars. This suspension is specially designed to allow road running on rough ground.

### **3.7 Driving cab**

The surelevated driving cab is equipped with :

- 4 sliding doors ;
- Heat protection on all glaces ;
- Upholstered bench seat with box underneath for 4 persons ;
- Safety belts on all seats ;
- Safety roll bar made of inox tubing
- ventilating/heating/air conditioning device ;
- Structure cab reinforcement for water monitor.

### **3.8 Body**

The body is made of aluminium with chests closing by sliding curtain.

- Platform on the roof, with access ladder.
- Box on the roof (2 500x500x400)
- Ladder support
- Electrical equipment with light and sound warning signal. Lighting of chests and surround. Rear control panel for water pump.
- Integrated stores for fire fighting accessories

### **3.9 Fire fighting equipments**

The fire fighting is suitable to extinguish all kinds of fire. It consists in:

- Polyester tank for water : 2 700 l.
- Emulsifier tank : 400 l.
- Water pump – Maximum flow : 2 000 l/min – Nominal pressure 15 bar.
- Automatic pre-mixer water/emulsifier.
- Hydraulic system for : tank vacuuming, external vacuuming, discharge on monitor, discharge on hose reel, external discharge.
- First aid hose reel equipped with 40 m of semi-rigid DN 20 hose.
- Electric water gun with monitor (+90° to -45° on 320°) – Flow:475 to 1350 l/mim (to be defined) controlled from the driving cab
- Two 20 m semi-rigid DN 25 hose
- Twenty Ø 70-40 m hoses

## **4 SELF-PROTECTION DEVICE**

A self-protection device is assembled on the vehicle.

It allows the watering of the cabin, of front and rear wheels over a 5 minutes period.

- Supplied by an independent electric pump
- 100l/min Flow
- 500l reserve in the principal tank
- control from the driving cabin by a “punch” button type

## **5 TOOLS**

The vehicle is supplied with a complete toolbox suitable for its maintenance.

## **6 ACCESSORIES**

The truck is delivered with the following accessories:

- One fire extinguishers;
- Safety triangle;
- Wheel socket;
- Hydraulic jack;
- Linking bar;

## **7 LIGHTNING AND WARNING DEVICE**

The equipment includes:

- Two orange rotating lights
- Two blue rotating lights
- 2 searchlights, fixed on front top of the cab
- 2 searchlights, fixed on rear top of the body
- Electronic two-tone horn
- One battery switch

## 8 VIDEO CONTROLLER

The railway system has its own cameras necessary to its full safety implementation.

However in order to increase the safety of goods and people, the vehicle is equipped with a high position retreat camera at the back of the equipment in order to optimize the driver vision while backward operations.

2 thermal and obstacles detection cameras are placed at the rear and front of the vehicle.

A portable thermal camera is installed in cabin.

## 9 ANTI-CORROSION TREATMENT AND PAINTING

An anti-corrosion treatment is applied on all metallic elements.

Our standard paint is:

Driving cab, body .....	Red NF.X.08008
Frame, wheels .....	Manufacturer type
Bumpers, head lights surrounds .....	White

## 10 DOCUMENTATIONS

The following manuals are provided with the vehicle:

- 1 operating manual and 1 copy on CD-Rom
- 1 spare parts manual and 1 copy on CD-Rom.

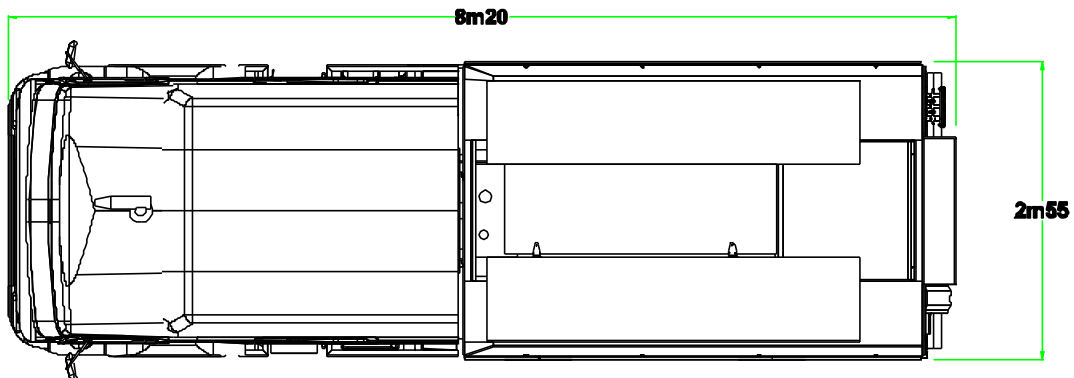
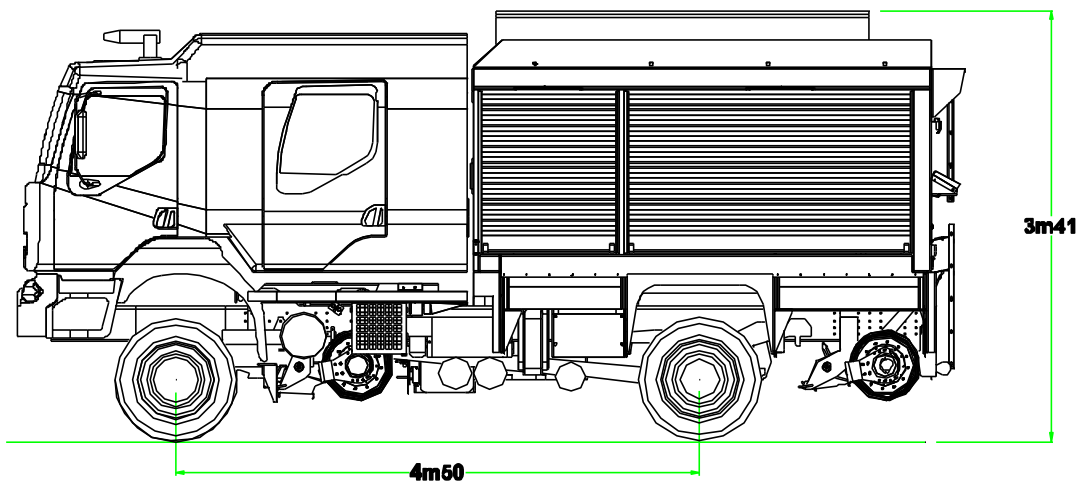
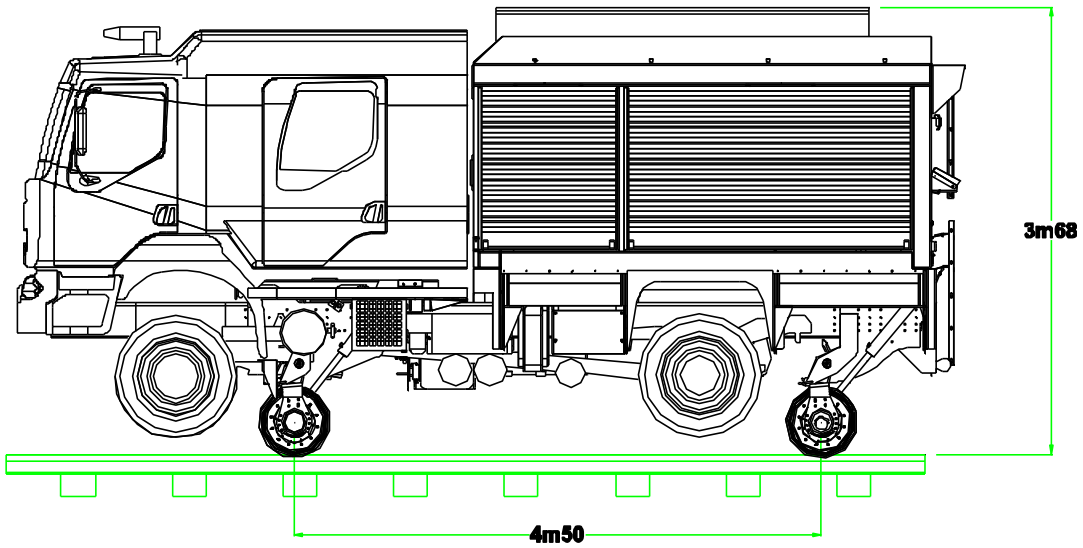
All signs plates are provided in English language (to be defined with customer).

## 11 FIRE FIGHTING ACCESSORIES (OPTION)

Fire fighting accessories can be supplied on request as an option.

List of accessories must be determined jointly with customer at time of order.

## 12 GENERAL ASSEMBLY DRAWING







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***We reserve the right to modify any equipment specification of the present offer to take into account the latest technical improvements and working conditions at the date of manufacturing.***

***In case of any discrepancy between our offer and the attached documentation, the technical specification of our offer should be taken into consideration. Photographs may include options.***

***Masses and dimensions may vary  $\pm$  5 %.***