

Fire vehicle

Type VP 4000-200



Photograph of the vehicle

1. INTENDED USE OF THE VEHICLE

A specialised fire vehicle, designed for rapid interventions to extinguish forest fires involving solid combustible materials..

The vehicle's cabin accommodates a driver and 2 firefighter rescuers (1+2). The vehicle is equipped with a robust fire pump, a water tank, and fire-fighting equipment. Its 4x4 all-wheel drive and raised ground clearance ensure good mobility on rural terrain.

2. CHASSIS

Type: **Volvo FL 4x4R, 16tona with a day cabin, 1+2 seats**

On-road and off-road vehicle

Wheelbase: 3500 mm

Engine power 320 KS, Euro 6

Automatic gearbox with manual gear selection

With off-road tyres

3. SUPERSTRUCTURE

3.1 Compartments

The superstructure is constructed from aluminium box profiles and clad in aluminium sheet. The components are joined by welding, gluing and bolted connections to form a single unit that guarantees adjustable shelf heights in the created compartments and is connected to the vehicle's main frame via an auxiliary frame.

The interior of the superstructure is clad with aluminum ribbed panels.

The four side storage compartments and the rear storage compartment are closed with roller shutters, offering complete protection from the elements (watertight) and can be locked from the outside with a padlock and key. The roller shutters (there are five in total) are made of aluminium with a central bar, a pull strap, sealing between the slats, and rubber seals on the sides and at the top under the decorative cover.

The cabin is equipped with a roll bar for protection when driving through off-road terrain.

The cab and front tires are protected by a water jet system that sprays water through nozzles mounted on the roof and in front of the front fenders.

The storages for the hoses and nozzles are located at the rear, on both sides of the pump.

The superstructure roof is covered with non-slip aluminum ribbed sheeting.

Three white LED lights are installed on each side of the superstructure, and two white LED lights are installed on the rear of the superstructure. The lights are positioned in the upper part of the superstructure within the vehicle's overall dimensions. At the rear of the vehicle superstructure, within the clearance limits, there are 2 blue flashing modules, and at the front of the vehicle there are 2 integrated LED turn signals with a dedicated switch. The interior lighting of the superstructure in all compartments is manually activated.

The vehicle (cab roof) is equipped with blue LED light and sound signals, a three-tone wailing siren, and a public address system via a megaphone. The siren has a power output of 100 W and is controlled via a control panel in the vehicle cab. A microphone is integrated into the vehicle cab.

Non-slip footboards are fitted to the sides of the vehicle to facilitate the handling of equipment when removing or returning it to the storage compartment.

The superstructure roof is equipped with a safety railing to ensure safe and secure movement on the roof and handling of equipment.

At the rear of the vehicle, on the side, there are folding ladders for climbing onto the upper part of the superstructure.

3.2 Water tank

Water tank with a capacity of 4000 litres (+/- 5%) It is made from high-quality stainless steel sheet (INOX material), with baffles to reduce water sloshing during operation, and an electric level gauge with a reading on the pump's control panel. The tank's shape is adapted to the factory-recommended mounting.

On the top of the tank is a 500 mm diameter opening, complete with a lid and locking mechanism.

A 110 mm diameter pump outlet is fitted to the tank, positioned in the lower central part of the tank.

The reservoir is filled via a 75 mm diameter pipe (from the reservoir to the coupling), on the side of the vehicle, terminating in a forged Storz "B" stable blind coupling.

The reservoir is fitted with a 75 mm diameter overflow system.

The drain pipe on the tank is positioned so that overflowing water from the tank does not splash onto the vehicle's assemblies; it is routed centrally behind the rear wheels.

The water tank is supported on the vehicle's auxiliary frame via elastic mounts, which prevents the generation of torsional forces and enhances its ability to traverse uneven terrain.

3.3 Foam tank

200-litre foam tank made of GFK material. In addition to the opening for adding concentrate and the AT valve, the tank is fitted with all the necessary connections required for linking to the foam system. A foam level gauge is installed in the tank, with a reading instrument mounted on the control panel of the fire pump.

3.4 Fire pump

The centrifugal combined medium and high-pressure fire pump is located in the storage compartment at the rear of the vehicle and fixed to the chassis frame.

The pump is made of high-quality, lightweight aluminium alloy, and the shaft is made of stainless steel.

The pump drive is supplied via a cardan shaft from the gearbox's auxiliary power take-off (PTO), enabling prolonged pump operation.

For suction from external sources, the pump is equipped with a vacuum device.

- Manufacturer: Jöhstadt, Germany
- Type: TO 3001
- Nominal pump capacity: 2000 l/min at 10 bar and 250 l/min at 40 bar, 3 m suction height



Pump Jöhstadt TO 3001

The centrifugal fire pump complies with the EN 1028 standard in all respects..

The pump is equipped with the following connections:

- 2 outlets with 75 mm diameter non-return check valves at the rear of the vehicle (left and right of the pump),
- 1 75 mm crossbar connection for the water and foam monitor mounted on the superstructure deck
- 1 medium-pressure hose reel outlet
- 1 high-pressure hose reel outlet

3.5 Control panel

Waterproof, with manual on/off switches for drive and control functions. Positioned at the rear of the superstructure, it enables full operation and control of the pump from a single location.

Command and controls:

- command to switch on the vacuum device
- return line
- Valve for draining water from the tank into the pump
- medium pressure gauge
- high-pressure gauge
- vacumetar
- hour meter
- tank water level indicator
- STOP switch.

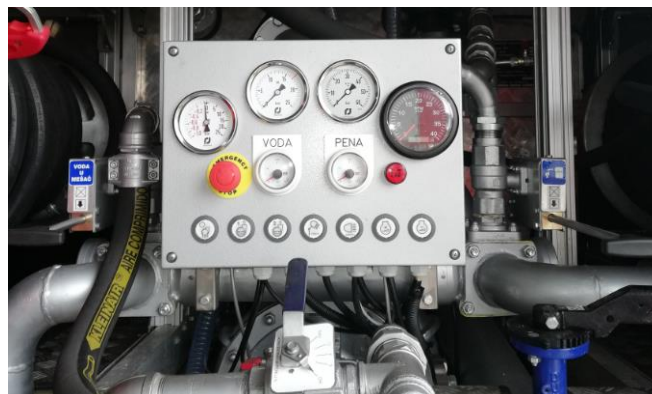


Photo of the instrument panel

3.6 Plumbing system

Installation made from stainless steel pipes with an external paint finish.

Intake:

- Ø 110 mm, for external water suction, with stable and blind Storz 'A' couplings
- Water inlet Ø 110 mm with a check valve for supplying water from the reservoir to the pump.

Push pipe:

- Two outlets with Ø 75 mm connections and with fixed and blind Storz 'B' couplings
- return line for the push bar
- A piping system has been installed on the vehicle to mount a stable monitor with a 75 mm inlet nozzle and a flow rate of up to 3,200 l/min at a pressure of 10 bar.

3.7 Nozzle monitor

An adjustable nozzle monitor with a wide-to-narrow stream pattern is used to direct the extinguishing agent (water) towards the fire. It is located on the roof of the cab at the front of the fire engine. It contains a plate valve which is used to open and close the flow of water through the nozzle, as well as a pressure gauge for monitoring the pressure.



Photo of the monitor

Technical specifications of the monitor:

- water capacity:
- water jet range at 10 bar and flow 2500 l/min:
- control
- horizontal movement
- vertical movement
- inlet diameter

Q = 2500 l/min at 8 bar
78 m
by hand
360°
-50° do +90°
75 mm

3.8 Quick intervention hose reels

The medium-pressure hose reel is installed in the rear storage compartment. The reel is equipped with a hose that complies with DIN EN 853, 30 m long, Ø32 mm, with a spray nozzle. Manual and electric hose rewind with a safety lock.



Medium-pressure hose reel



POK Turbokador 240

A high-pressure hose reel is mounted in the rear compartment. The reel is fitted with a hose conforming to DIN EN 853, 60 m long, Ø 25 mm, with a spray gun nozzle. Manual and electric hose rewind with a safety brake.



High-pressure hose reel



AVG turbo Strike 150 HP

3.9 Self-retracting winch

Voltage: 24V

Steel rope length: 28m

Towing force: 10.000 kg



3.10 Vehicle color

The painted parts of the vehicle, the cab, the body, and the frame are painted in RAL 3000 red. The fenders and bumpers are painted in RAL 9003 white.

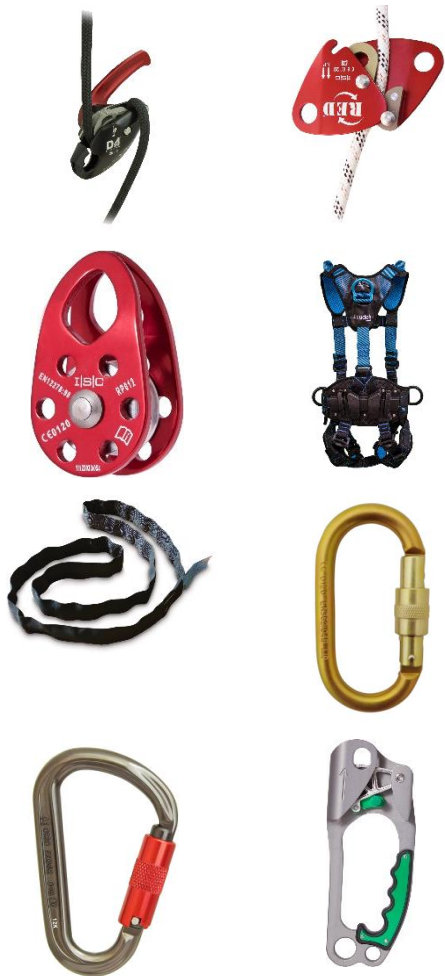
The marking and branding of the vehicles will be carried out in accordance with the requirements of the customer or end user.

4. Firefighting equipment

1.	Rechargeable portable flashlight – handheld spotlight with charger, explosion-proof (EX) protection, Nightstick XPR-5580G	2 pcs	
2.	Portable Digital Anemometer WT82	1 pc	
3.	Dräger PSS AirBoss Active SCBA, No. 3709502, with Dräger FPS 7000 full-face protective mask, including a composite cylinder. Cylinder volume: 6.8 litres, working pressure: 300 bar, Dräger composite cylinder, Type 3, No. 3353733, equipped with a “Y” quick coupling for connection of a second user, in accordance with EN 137 Type 2. The SCBA is supplied with a Dräger PSS rescue hood.	2 pcs	
4.	Spare composite compressed air cylinders with a capacity of 6.8 litres and a working pressure of 300 bar, for respiratory protection equipment. Dräger carbon composite cylinder, Type 3, Part No. 3353733.	1 pc	

5.	3M 4251 A1P2 half-face respirators with integrated filters	4 pcs	
6.	Portable first aid kit in a bag, size 400 × 300 × 150 mm, weight 5 kg, Galenika type TT1	1 pc	
7.	Hand-held fire extinguisher S-9, Vatrosprem, Part No. 4.1.05.00.000	2 pcs	
8.	Forged pickaxe 2.0 kg, Unitehna, item code 06350	1 pc	
9.	Universal shovel, Unitehna, item code 01290	1 pc	
10.	Fireman's axe, Unitehna, Article No. 12600	2 pcs	
11.	Metal rake, Unitehna, 12 teeth, Item No. 05020	2pcs	

12.	Broom with a 2 m long handle	3 pcs	
13.	Reinforcement bar cutting shears for rebar up to Ø 13 mm, length 750 mm	1 pc	
14.	Manual breaching tool equivalent to the “Hooligan” tool / Firemax Halligan Bar.	1 pc	
15.	Manual wood saw, Unitehna item code 122200	1 pc	
16.	Brush-cutting machete, Unitehna	2 pcs	
17.	Professional petrol chainsaw, bar length 50 cm, Stihl MS 361, including two spare chains.	1 pc	
18.	Semi-static rope, length 60 m, diameter 10.5 mm, compliant with EN 1891, CAMP Iridium, Ref. 605	1 pc	
19.	Semi-static rope 200 m Ø 10.5 mm (EN 1891), CAMP, Iridium Ref. No. 2005	1 pc	
20.	Mountaineering Rescue Set Complete climbing and working-at-height equipment set: Equipment Quantity	1 pc	

	Bandana 2 pcs Aluminium pulley for ropes up to 13 mm diameter 2 pcs Double pulley 2 pcs Twin pulley 2 pcs Figure-eight descender with self-locking mechanism (Petzl ID or Stop) 2 pcs Carabiner 20 pcs Screw-lock carabiner 20 pcs HMS carabiner 14 pcs Mountaineering harness 2 pcs Full-body work harness with padded leg loops, shoulder straps and waist belt with buckles for work positioning 2 pcs Sling 5 pcs Prusik loop (1.5 m) Ø 5 mm 12 pcs Hand ascender 2 pcs Chest ascender 2 pcs Webbing sling for anchors and fall protection systems, minimum width 19 mm 4 pcs Equipment bag 1 pc		
21.	Universal coupling wrench for ABC couplings, JMW Fire No. 1052101	3 pcs	
22.	Fire hydrant standpipe B/CC, JMW Fire No. 1014005	1 pc	
23.	T-handle key for underground hydrants with replaceable square spindle, JMW Fire, No. 1017001	1 pc	
24.	Universal operating wrench for above-ground hydrant, JMW Fire, No. 1017007	1 pc	

25.	Carrying straps for C-hoses, JMW Fire 900010026	4 pcs	
26.	Water collector A/2B, JMW Fire No. 1051936	1 pc	
27.	Forged A/B transition coupling, DIN 14343, JMW Fire, Item No. 1010507	1 pc	
28.	Forged B/C transition coupling, DIN 14342, JMW Fire, No. 1010506	2 pcs	
29.	Reduction coupling, forged C/D, DIN 14341, JMW Fire, No. 1010502	3 pcs	
30.	Forged blind coupling Ø 52 mm, JMW Fire No. 1010404	1 pc	
31.	Forged blind coupling Ø 75 mm, JMW Fire 1010406	1 pc	
32.	Discharge hose Ø 75 mm, length 5 m. Manufactured according to the DIN 14811 standard, with forged “Storz” couplings, OSW Fire.	1 pc	

33.	Discharge hose Ø 75 mm, length 15 m. Manufactured according to the DIN 14811 standard, with forged "Storz" couplings, OSW Fire.	2 pcs	
34.	Discharge hose Ø 52 mm, length 15 m. Manufactured according to the DIN 14811 standard, with forged "Storz" couplings, OSW Fire.	10 pcs	
35.	Discharge hose Ø 25 mm, length 20 m. Manufactured according to the DIN 14811 standard, with forged "Storz" couplings, OSW Fire.	4 pcs	
36.	Universal water nozzle Ø52 mm with ergonomic pistol grip, ball valve handle and POK Turbokador 400 turbine, flow rates 60-130-250-400 l/min at 6 bar, Ref. No. 49930, compliant with EN 15182, adjustable from straight jet to wide-angle spray, JMW Fire Turbomatic No. 1012531	3 pcs	
37.	Fog nozzle protective shield Ø 52, JMW Fire No. 1012522	2 pcs	
38.	Reducer valve Ø 52 mm with ball valve and shut-off handle, fitted with Storz couplings, JMW Fire, No. 1051960	1 pc	
39.	AWG Dividing Breeching No. 10048733, B / CBC with ball valve, compliant with EN 17407	1 pc	

40.	Fire hook with a two-piece wooden handle and threaded connection, length 3 m	1 pc	
41.	Portable floating fire pump, 1200 l/min, Niagara 2 Plus	1 pc	
42.	Portable backpack fire pump, Vallfirest VFT PRO 20L	1 pc	
43.	Mobile water tank 100 L, AutoPot FlexiTank 100L	1 pc	
44.	Petrol-powered backpack blower, air flow rate 1,550 m³/h, blowing force 35 N, air speed 74 m/s, STIHL BR 700	1 pc	
45.	Spencer B-Bak Pin spinal board, No. ST02061B, compliant with DIN EN 1865, in high-visibility colour, with a load capacity of 180 kg, supplied with Spencer immobilization straps No. ST02035A and Spencer head immobilizer No. SH00201A (1 set)	1 pc	

46.	Universal nozzle Ø 25 mm	2 pcs	
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