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Technical Specification
Fire tanker ATs 3,0-40 (JAC N120) on JAC N120 chassis



**** the image is for reference only***

Fire tanker (hereinafter, ATs): a fire vehicle equipped with a fire pump, tanks for storing liquid fire extinguishing agents and the means of delivering them, designed to deliver personnel, fire-fighting equipment and gear to the scene of a fire, to extinguish the fire and to carry out emergency rescue operations.

The ATs design shall make it possible to:

– fill the tank with water through the filler neck;
– draw water from an open water source or a fire hydrant and deliver water and foam for fire-fighting purposes through fire monitors and hand nozzles;
– draw foam concentrate from an external container;
– stow the necessary fire-fighting equipment and gear in the body.

The vehicle can be used as an independent fire-fighting unit or as a pumping unit when relay pumping with one or several other vehicles.

The ATs shall comply with climatic version “U” (operation at ambient air temperatures from −45 to +40 °C), and shall be kept on standby in a room with an air temperature of not lower than +5 °C.

Technical parameters of the fire vehicle

Parameter	Value
Chassis	JAC N120
Overall dimensions L×W×H, mm, not more than	8000×2500×3000
Wheel arrangement	4×2
Engine	Diesel, rated power at least 152 kW
Vehicle condition	New, never used
Year of manufacture	Not earlier than 2026
Water tank capacity	At least 3.0 m³

Parameter	Value
Pump capacity	At least 40 l/s
Crew cab, including the driver’s seat	At least 6 persons
Pump location	Rear (in the pump compartment)
Foam concentrate tank capacity	At least 180 l
Fire-fighting equipment kit	Included
Chassis emission class	Euro 5 or higher

The ATs shall be certified in the Certification System for Mechanical Vehicles and Trailers and shall have the necessary accompanying operating documentation for registration with the State Traffic Safety Inspectorate (GIBDD).

The chassis shall be new, not modified and not converted. The chassis shall have a service book.

1. Cab

The crew cab is a four-door modular cab consisting of two sections (front and rear compartments) and shall accommodate a crew of 6 (including the driver).

The front compartment is the driver’s cab supplied with the chassis, tiltable to give access to the engine. The rear compartment is a special crew cab that shall be permanently mounted. The shock-absorbing suspensions of the driver’s cab and of the rear compartment shall be independent of each other.

The crew cab shall be of frame-and-panel design with a load-bearing frame. The load-bearing frame of the rear compartment shall be welded from rectangular steel tubes, shall provide increased safety and shall preserve the survival space if the vehicle rolls over.

The inner and outer cladding of the crew cab frame shall be made of plastic panels of glass-fibre-reinforced polymer and impact-resistant plastic. The panels shall be fixed to the frame by bonding. The front and rear walls, the roof and the floor of the outer cladding of the crew cab may be made of sheet steel.

The interior trim of the cab shall be made of durable water-repellent materials that allow the interior to be cleaned quickly and easily. The floor covering of the interior shall have an anti-slip surface.

All cab surfaces shall be thermally insulated and sound-proofed against the external environment.

Direct speech and visual (audiovisual) contact between the crew in the two compartments shall be provided through an opening in the adjoining walls of the cabs. The opening shall have a separable seal (gateway) – a seal around the contour of the opening that separates when the driver’s cab is tilted. The seal shall prevent heat exchange between the ATs interior and the outside and prevent water and dust from entering the cab compartments.

The cab doors shall open in the direction of travel and have locking devices with outside and inside handles. The inside locks shall have a device that prevents them from being opened unintentionally by the seated crew while the vehicle is moving. The handles of the locking mechanisms shall be shaped so as to prevent injuries. The doors shall have devices that hold them in the closed and open (at least 75°) positions.

The cab glazing shall be made of safety glass.

The seats of the rear compartment shall be of the locker (storage box) type; mounts for breathing apparatus shall be built into the seat backrests.

All seats shall be fitted with seat belts.

The rear compartment of the cab shall be equipped with an autonomous heater that keeps the cab interior temperature in the cold season at not lower than +15 °C.

The cab design shall preserve the survival space if the vehicle rolls over or collides with an obstacle or another vehicle.

The equipment in the cab shall be arranged so that there are no sharp corners or edges that could injure the crew. The equipment shall be fixed so that it cannot move by itself while the vehicle is in motion.

A place for installing and connecting special communication equipment shall be provided on the cab dashboard in the area of the crew commander's seat. The installation and connection of the special light and sound warning devices and their control panel shall comply with GOST R 50574-2019 and the regulatory and technical documentation for these warning devices. The equipment used shall be certified.

A place for mounting one or more fire extinguishers shall be provided in the cab.

2. Water tank

The ATs shall be fitted with a water tank made of corrosion-resistant material (high-density polyethylene) with a capacity of at least 3,000 litres. The tank shall be attached to the vehicle frame using damping elements, independently of the cab and the body.

For inspection and maintenance, the tank shall have a manhole of at least 0.45×0.45 m. The manhole shall be positioned so that the tank can be accessed without dismantling the superstructure or removing fire-fighting equipment (PTV) from the roof.

The arrangement of the internal elements of the tank shall not prevent inspection of its interior or replacement of damaged elements.

The tank shall be equipped with a device for continuous or discrete (1, 3/4, 1/2, 1/4, 0) monitoring of the water level and water consumption.

Glass tubes shall not be used in the level indicators.

The level indicator shall be clearly visible from the operator's working position.

Baffles (surge plates) shall be fitted inside the tank to damp liquid sloshing while the vehicle is moving.

The tank shall have devices that prevent excess pressure in it during filling and vacuum during emptying by the pump.

The tank design shall allow it to be emptied of water by the fire pump or by free draining.

It shall be possible to fill the tank both with the vehicle's own pump and from an external source.

The overflow drain device of the tank shall be located in an area that prevents water from reaching the wheel brakes during filling and while driving.

Each pipeline that fills the tank shall be fitted with a strainer made of corrosion-resistant mesh with a mesh size of not more than 5×5 mm.

3. Foam concentrate tank

The foam concentrate tank (foam tank) shall be made of corrosion-resistant material (high-density polyethylene). Capacity: at least 6% of the water tank capacity.

The foam tank shall have a device that prevents the foam concentrate from foaming during filling, and a device that prevents a vacuum from forming in the tank while foam concentrate is being supplied.

The pipelines and fittings of the foam concentrate filling and supply system shall be made of materials resistant to foam concentrate.

The connection between the foam concentrate tank and the pump unit shall have flexible elements that prevent fatigue failure of the tank under vibration loads from the chassis and the pump.

4. Body

The body is a prefabricated frameless structure made of aluminium sheets. The roof of the body (superstructure) has an anti-slip coating. One or two fixed ladders are fitted at the rear of the superstructure for climbing onto the roof.

The superstructure compartments for fire-fighting equipment are fitted with roller shutters made of anodised aluminium sections with a drum winding system. The superstructure compartments and the pump compartment are fitted with LED panels with diffusers.

The mounting of the three-section ladder is provided with guides, a lock and rollers.

The cases for the suction hoses and the delivery-suction hoses are made of galvanised steel. The cases are fitted with a hose strap for pulling out the suction hoses.

The rear compartment is fitted with an autonomous diesel heater supplied with fuel from the vehicle tank. LED floodlights for lighting the working areas are installed above the equipment compartments. The pump compartment door is a hinged “panel” type door on gas struts.

All doors are fitted with locking devices that hold them in the closed or open position, and with an open-door warning with an indicator in the driver’s cab.

Door openings, hatch covers and other body elements have seals that protect the compartments against precipitation and dirt.

Fire-fighting equipment with sharp edges is stored in covers and sockets (cases).

All equipment and tools in the compartments are securely fixed.

Rolled hoses stowed in the compartment are separated by partitions. Steps and walkways are made of anti-slip material.

A fixed, manually controlled fire monitor is installed at the front of the body superstructure.

Colour scheme of the fire tanker:

Colour: the special colour scheme of the fire vehicle shall comply with GOST R 50574-2019. Coating thickness at least 80 μm; the enamel shall have increased resistance to temperature conditions (from −50 °C to +70 °C) and to acids and alkalis; the underside of the vehicle shall be treated with an anti-gravel waterproofing coating and an anti-corrosion compound. Retroreflective tape used for contour marking of trucks shall be applied to the vehicle in accordance with Decree of the Government of the Russian Federation No. 720 of 10.09.2009 “On approval of the technical regulation on the safety of wheeled vehicles”.

The special light and sound signals shall be made in accordance with GOST R 50574-2019.

Audible warning system:

The special loudspeaker device shall be made in the form of a light bar (colour blue + blue) and have a power of at least 120 W, or of two flashing beacons.

The ATs shall be fitted with a blue flashing beacon mounted at the rear of the vehicle.

5. Fire pump

The ATs shall be equipped with a combined fire pump that complies with GOST R 52283-2004 “Centrifugal fire pumps. General technical requirements. Test methods” and has the following characteristics:

Characteristic	Value
Pump capacity	At least 40 l/s
Head at rated mode, m, not less than	100
Vacuum system	Automatic (twin-piston pump belt-driven from the drive shaft)

The pump shall be driven by a cardan shaft from the chassis power take-off (PTO).

The pump unit of the tanker, including the fire pump, water/foam lines, shut-off and control valves and the control and monitoring devices, shall be located in the rear (pump) compartment of the tanker.

The pump unit design shall make it possible to draw water from open water sources in automatic control mode, in which the priming vacuum system is switched on by the operator from the control panel and switched off automatically (without operator intervention) when the pump is ready for operation.

The pump unit design shall allow the foam proportioning system to operate with foam concentrate drawn either from the vehicle’s own foam tank or from an external source.

The distribution and direction of the flows of fire extinguishing agents shall be controlled by built-in manually operated shut-off and control valves, as well as by remotely controlled shut-off and control valves where access is difficult.

The pump unit shall be controlled from a single control panel.

The pump unit control panel shall be made in a single sealed housing and shall allow the operator to work in protective gloves. All indicators and displays used in the control panel shall be LED-based and shall not freeze at low temperatures.

The pump shall be made in climatic version “U”, placement category 3.1 according to GOST 15150.

The dimensions of the connections for fire-fighting equipment shall comply with GOST R 53279-2009 “Fire-fighting equipment. Fire hose couplings. General technical requirements. Test methods”.

Pump shaft material: corrosion-resistant material.

The pump bearings shall not require lubrication throughout their service life.

Complete draining of liquid from all working volumes of the water/foam lines and the pump shall be provided.

The drain plugs shall be located where they are freely accessible and where liquids can drain without getting onto the surfaces of adjacent vehicle components.

The design of the pump and the water/foam lines shall ensure their tightness at a vacuum of at least 0.08 MPa (0.8 kgf/cm²).

The design of the shut-off valves shall rule out water hammer. Valve tightness: not lower than class A according to GOST 9544-2015 “Pipeline valves. Valve seat tightness standards”.

The delivery outlets of the fire pump shall be located on the sides of the fire superstructure.

Handwheels and control handles shall be made of, or coated with, a material of low thermal conductivity. The pump unit control handles (levers) shall be shaped to allow operation in mittens.

The controls of the pump installed on the ATs shall be located within the operator’s reach, taking into account the requirements of GOST 12.2.033-78 “Occupational Safety Standards System (SSBT). Workplace for work performed standing. General ergonomic requirements”.

Each control shall have a marking next to it indicating its purpose and position. The marking shall not be placed on removable parts if these parts are to be removed during operational use of the ATs.

6. Requirements for the fire monitor

A fixed, universal (water/foam), manually controlled fire monitor with a water flow rate of at least 40 l/s shall be installed on the roof of the ATs body.

7. Requirement for shut-off and connecting fittings

The lines forming part of the pump unit shall be decoupled from the tank (flexible elements) and shall be fitted with the shut-off and connecting fittings required for the operation of the ATs.

Height of the delivery outlets above the road surface (operator platform): not more than 1300 mm.

The design of the shut-off valves shall rule out water hammer.

It shall be possible to drain liquid completely from all tanks and working volumes of the water/foam lines and the pump.

The drain plugs shall be located where they are freely accessible and where liquids can be released without getting onto the surfaces of adjacent vehicle components.

The pipeline elements of the water/foam line system may have an ovality of not more than 10% of the nominal pipe diameter, unless otherwise specified in the working documentation. Sharp transitions without fillet radii, sagging and steps in the lines are not permitted.

The design of the pump and the water/foam lines shall ensure their tightness at a vacuum of at least minus 0.08 MPa.

No leaks or dripping of liquid are permitted at the fixed joints of the pump.

The discharge outlets of the fire pump side valves shall be located on the sides of the fire superstructure.

8. Requirements for the control system

All indicators and warning devices shall be visible from the operator's working position, and their readings shall be easy to read at any time of day.

Handwheels and control handles shall be made of, or coated with, a material of low thermal conductivity. The pump unit control handles (levers) shall be shaped to allow operation in mittens.

Each control shall have a marking next to it indicating its purpose and position. The marking shall not be placed on removable parts if these parts are to be removed during operational use of the ATs.

9. Requirements for additional electrical equipment

The additional electrical equipment shall provide:

– lighting of the work area in the dark;
– compartment lighting;
– a warning in the crew cab that the doors of the crew cab or the body are open;
– operation of the air heater;
– operation of communication equipment, monitoring instruments, etc.

An autonomous heater shall be installed in the rear (pump) compartment.

Fire safety requirements shall be met when installing the additional electrical equipment and wiring.

The ATs shall be equipped with fog lights and searchlights at the front and rear of the vehicle.

The front searchlight shall be controlled from the cab from the far right-hand seat.

The ATs interior lighting shall ensure clear visibility of markings, gauge scale divisions, and measuring and monitoring instruments.

The cab shall be fitted with interior dome lights.

The ATs shall be fitted with a battery isolator switch (master switch) of the base chassis.

Electrical wiring running inside the body compartments shall have connectors that allow units and assemblies of the fire superstructure to be removed without removing the wiring.

Each power circuit of any element of the additional electrical equipment shall be fitted with a fuse (or circuit breaker) to facilitate fast troubleshooting of the system. The fuses shall be mounted in a single block.

Circuits supplying low-current devices may be fitted with a common fuse.

All wires shall be reliably protected and firmly secured to rule out breakage, chafing or wear.

Holes and cut-outs for routing wires through body or chassis elements shall be protected (finished or edged) to prevent damage to the wire insulation.

All wires shall be reliably insulated and withstand the temperature and humidity to which they are exposed.

Electrical equipment terminals (terminal clamps, etc.) and wires shall be marked.

The ATs shall have a terminal for connecting protective earthing. The terminal location shall be marked with an earthing symbol. The contact surface of the earthing device shall have an anti-corrosion coating with high electrical conductivity.

The earthing terminal location shall be electrically connected to the pump water delivery outlets.

Earthing shall be carried out with a bare stranded copper wire with a cross-section of at least 10 mm^2, fitted with a special device for attachment to earthing structures.

10. Requirements for fire-fighting and rescue equipment.

The ATs shall be equipped with fire-fighting and rescue equipment according to the attached List.

No.	Item	Quantity, pcs.
1.	Three-section ladder L-3K	1
2.	Hook ladder LSh	1
3.	Pole ladder LP	1
4.	Dividing breeching RT-80	1
5.	Suction hose V-1-125, at least 4 m long, with hose strap	2
6.	Delivery-suction hose V-2-75-10, at least 4 m long, with hose strap	2
7.	Delivery hose with couplings, DN 50, at least 20 m long	6
8.	Delivery hose with couplings, DN 80, at least 20 m long	6
9.	Delivery hose with couplings, DN 80, at least 4 m long	1
10.	Medium-expansion foam generator GPS-600	2
11.	Suction strainer SV-125 with float and nylon rope at least 11 mm in diameter and at least 12 m long	1
12.	Universal combination hand nozzles with adjustable water flow rate of at least 2 l/s:	
	DN 50	3
	DN 70	1
13.	Portable universal fire monitor with adjustable flow rate, at least 20 l/s	1
14.	Collecting breeching VS-125 with blanking caps	1
15.	Hydraulic elevator (ejector) G-600	1
16.	Fire hydrant standpipe	1
17.	Hose strap	4
18.	Hose clamp 80	2
19.	Fire rescue rope VPS-30, in a bag	1
20.	Dielectric cutters	1
21.	Dielectric gloves	1
22.	Dielectric boots	1
23.	Dielectric mat	1
24.	Coupling key 80	2
25.	Coupling key 125	2
26.	Light fire crowbar LPL	1
27.	Heavy fire crowbar LPT	1
28.	Hook for opening fire hydrant (PG) covers	1
29.	Adapter couplings:	
	GP 65×50	2
	GP 80×50	2
30.	Stored-pressure powder fire extinguisher OP-4	1

No.	Item	Quantity, pcs.
31.	Stored-pressure powder fire extinguisher OP-8	2
32.	Carpenter’s handsaw	1
33.	Carpenter’s axe	1
34.	Spade	1
35.	Water canister, 5 l	1
36.	Fuel canister, 20 l	1
37.	Electric torch with charger	3
38.	Public address system (SGU)	1
39.	Tools and accessories according to the chassis manufacturer’s list	1
40.	Spanner set, set	1
41.	Hydraulic jack	1