

YT32/G1 ladder fire truck

Technical specifications



Weave:		Audit:		Approve:	
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1. Product overview and characteristics

YT32/G1 ladder fire truck is the main battle vehicle for urban fire fighting that inherits the mature technology of our company's existing lifting trucks and integrates high-altitude rescue and fire extinguishing functions. It has the characteristics of mobility and flexibility, strong site adaptability, fast rescue speed, and high technical safety, and is widely used in the fire and rescue work of medium and high-rise buildings such as towns, mines, oil fields and factories, and is a necessary equipment for extinguishing fires in middle and high-rise buildings, rescuing people in distress, and rescuing property.

[Product Advantages & Highlights]

1. The YT32/G1 ladder fire truck chassis is selected from Germany Mercedes-Benz Arocs 3346E6 fire truck special chassis, which has advanced performance, large bearing capacity, national VI emissions, and sufficient power reserve.

2. The fire protection system has perfect functions and outstanding pump performance. It adopts the CB10/100-RSD fire pump produced by AWG Fittings GmbH, which is driven by a full-power PTO and has sufficient power reserve. The platform water cannon is an American Elk PLKD10/80-7200EXM electronically controlled dual-purpose fire cannon, which can achieve high-altitude fire extinguishing.

The car-mounted stainless steel fire fighting fluid tank has a liquid capacity of 6200kg: 4100kg water, 2100kg foam, the water inlet and control valve are fully configured, convenient to operate, and the fire pipeline adopts aluminum alloy telescopic water pipe.

3. The distributed control technology of the whole vehicle based on PLC and CAN bus can realize automatic leveling when getting off the



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car, real-time leveling on the vehicle, platform load weighing, platform ultrasonic anti-collision detection, attitude dynamic monitoring and one-button operation to close the vehicle, which is leading technology.

1) Advanced ladder telescopic control technology can realize the automatic deceleration stop of ladder telescopic and retractable, and the ladder operation is more stable.

2) The hydraulic system adopts LS load-sensitive control system of variable piston pump, which is energy-saving and efficient, and has good operating performance.

4. The whole vehicle can realize the rescue of the working platform and the fire fighting operation of the platform.

5. The driving state of the working platform can be flipped horizontally by 90°, which has a wider driving field of view and safer driving.

6. It has the function of aligning the ladder pedal to improve the safety of the rescued personnel climbing along the ladder.

7. Fast and efficient, strong rescue ability, outrigger action time 30s, boarding action time 70s.

2. Main performance parameters of the vehicle

project		unit	parameter	remark
Dime nsio nal para me te rs	Dimensions (length× width× height)	mm	11340×2530×4000	The announcement shall prevail
	wheelbase	mm	4800+1350	—
Driv ing perf orma nce para me te rs	The number of passengers in the cab	perso n	2	—
	Engine power rating	Kw	336	National VI emissions
	curb weight	medic al histo ry	25550	The announcement shall prevail
	Full load quality	medic al histo ry	31900	The announcement shall prevail
	specific power	kW/t	≥10.5	—
	Maximum speed	km/h	90	The announcement shall prevail
	Approach angle	°	16	—
	Leaving the corner	°	8	—
	Maximum climb	%	30	—
Job	Work platform load	medic	450	—

perf orma nce para mete rs			al histo ry		
	Maximum working height		m	32	31.5~32.4
	Maximum working radius		m	19	—
	Maximum allowable wind speed		m/s	12.5 (Level 6)	—
	Outrigge r span	Longitudinal	mm	6400	—
		Transverse	mm	5200	—
	Ladder luffing angle		°	-15~+75	—
	Outrigger Deployment Time		s	≤30	—
	Ladder frame combination action time		s	≤70	—
	Slewing range		—	360° full rotation	—
Maximum slewing speed		r/min	0.1~1.0	—	
Fire perf orma nce para mete rs	Liquid capaci ty	water	medic al histo ry	4100	The test report shall prevail
		foam	medic al histo ry	2100	
	Fire pump	Model	—	CB10/100-RSD	—
		Rated flow rate	L/s	≥70	The test report shall prevail
		Rated pressure	MPa	≥1.5	

	water cannon	Model	—	PLKD10/80-7200EXM	—
		Rated flow rate	L/s	64	
		Rated pressure	MPa	≤1.0	The test report shall prevail
		range	m	≥75	
	Fire cannon	Model	—	PLKD10/80-7200EXM	—
		Rated flow rate	L/s	64	The test report shall prevail
		Rated pressure	MPa	≤1.0	
		range	m	≥70	
		Pitch angle	°	-45 ~ +45	—
	Angle of rotation	°		-45 ~ +45	—

3. Main configuration of vehicles

Vehicle Name	YT32/G1 ladder fire truck
Vehicle chassis	
Chassis model	Mercedes-Benz Arocs 3346E6
Drive form	6×4
motor	Model: Mercedes-Benz OM470 LA; Engine displacement: 10.677L; Rated power/speed: 336kW/1600rpm;

	Maximum torque/speed: 2200N·m/1000–1120r/min; Emission standard: National VI; In-line six-cylinder turbocharged intercooled diesel engine, high-pressure common rail.
Gearbox	Fully automatic intelligent gearbox with 16 forward gears and 4 reverse gears
Power take-off	Chassis original imported full-power power take-off; Chassis original imported gearbox side power take-off.
Electrical system	Generator: 28V/100A; Battery: 2×12V/170A.h, battery box lid lockable, with main power switch in the cab.
Fuel tank	290L steel fuel tank with locking fuel cap, fuel filler with filter, fuel coarse filter and heatable oil-water separator.
Urea tank	60L urea tank
tyre	Front axle: 385/65 R22.5, radial wire tires, 2 in total; 2. 3 bridges: 315/80 R22.5, radial wire tires, a total of 8 tires; Spare tire: 1 (with the car). (Note: The tire specifications are subject to the actual delivery due to the production reasons of the chassis manufacturer)
cab	1. Mercedes-Benz Arocs medium-sized roofed cab, with 2 occupants, four-point suspension in the cab, and hydraulic flipping device in the cab; 2. Roof sunroof, air vents, central door lock, electrically adjustable heated rearview mirrors, wide-angle rearview mirrors on both sides, passenger side lower mirror, front view mirror; 3. The driver's air suspension seat is adjustable, the height,

	<p>angle, front and rear positions are adjustable, the co-pilot can fold the seat, all of which are equipped with three-point seat belts, electric doors and windows on the driver's side and the co-pilot's side, and radio;</p> <p>4. Driver and crew cabin environmental protection air conditioning system, heating air and defrost system, dust filter.</p>
Braking system	<p>1. Dual-circuit compressed air brake, double-cylinder air compressor, constant braking pressure up to 10 bar;</p> <p>2. External inflation interface of compressed gas on the front end of the frame;</p> <p>3. Front and rear disc brakes, which can automatically adjust the brake pad shoe clearance;</p> <p>4. Mercedes-Benz Telligent® electronically controlled intelligent braking system, electronically controlled air handling unit (EAPU), heated type; ABS brake anti-lock device and ASR anti-slip system are standard;</p> <p>5. Mercedes-Benz engine assisted braking;</p> <p>6. The brake system is equipped with a heated dryer;</p> <p>7. Slope start (anti-slip) auxiliary function;</p> <p>8. Spring-loaded electronic handbrake.</p>
Fire water system	
	material 304 stainless steel
Fire tank	Plate thickness The side and bottom plates are 4mm, and the rest are 3mm.
	Liquid capacity Water: 4100kg + foam: 2100kg
	The format of the anti-swing plate mesh in the tank is set with

	<p>vertical and horizontal anti-swing plates.</p> <p>The water tank is equipped with a DN100 overflow pipe with an overflow cap</p> <p>The water tank is equipped with an electronic level gauge</p> <p>The top of the tank is painted with anti-slip paint, and the surface of the tank is sprayed with anti-corrosion material</p> <p>The water tank is equipped with 4×DN80 interface, and the foam tank is equipped with 1×DN50 foam interface</p> <p>Water tank: 1 \geq ϕ450mm manhole, with quick locking/opening function, automatic pressure relief when the tank pressure exceeds 0.1MPa, and the manhole cover is painted green.</p> <p>Foam tank: 1 manhole \geq ϕ450mm, with quick lock/opening function, automatic pressure relief when the tank pressure exceeds 0.1MPa, and the manhole cover is painted yellow.</p>
Fire pump	<p>Model: CB10/100-RSD;</p> <p>Inlet diameter: DN150, outlet diameter: DN100;</p> <p>cast iron housing, copper impeller, stainless steel impeller shaft;</p> <p>Bare pump parameters: flow rate: 100L/s@1.0MPa;</p> <p>Parameters of on-board pump: \geq1.5MPa, \geq70L/s.</p>
Foam system	Automatic foam proportional mixing system, mixing ratio 1-10%.
vacuum pump	<p>Hill Vacuum Pump (24V);</p> <p>The vacuum degree \geq 85kPa, and the maximum water introduction depth \geq 7m.</p>
Fire cannon	<p>Brand: Elke;</p> <p>Model: PLKD10/80-7200EXM Electric Remote Control Fire Cannon;</p> <p>Naked cannon parameters: rated flow rate 4800L/min, rated working pressure 1.0MPa;</p>

	Vehicle gun parameters: $\leq 1.0 \text{ MPa}$, 64 L/s ; Slewing angle: $-45^\circ \sim +45^\circ$; Pitch angle: $-45^\circ \sim +45^\circ$; $\geq 150 \text{ m}$ wireless remote control operation.			
Waterway control	Waterway control mode: electronically controlled pneumatic Control panel location: rear side of the car body			
Fire pipeline	Get off: aluminum alloy pipe + stainless steel bellows Get on the bus: aluminum alloy telescopic water pipe + stainless steel wire braided metal corrugated hose			
Fire interface configuration	interface	specification	valve	location
	External water supply interface	4×DN80	Manual ball valve with interface	2 on each side of the body
	Pump external suction interface	2×DN150	The interface is equipped with a stuffy cover	1 on each side of the car body
	Outlet water interface	4×DN80	Manual ball valve with interface	2 on each side of the body
	Upper muzzle	DN100	Manual butterfly valve	inside the work bucket
	Water cannon pipeline	DN125	Pneumatic butterfly valve	Under the turntable
	Water jug suction	1×	Pneumatic	Pump room

	port	DN150	butterfly valve	
	Foam system external suction foam interface	1×DN50	Pneumatic ball valve with stuffy cover	The right side of the body
	Foam system tank suction foam interface	1×DN50	Pneumatic ball valves	Pump room
	Pump to the water tank inlet	1×DN80	Pneumatic butterfly valve	Pump room
	Water filling interface outside the pitcher	4×DN80	The interface is equipped with a stuffy cover	2 on each side of the body
	Tank outlet	1×DN40	Manual ball valve	The right side of the body
	Foam tank outsourcing foam/sewage interface	1×DN50	Manual ball valve with interface	The right side of the body
	Interface form: standard is a clip type (fast), the inner buckle type is optional, and it is recommended to use the internal buckle type in cold areas.			
Electrical control system				
console	Boarding console position: left side of the turntable (with seat) and working platform; There is a wire communication device			

	<p>between the two control consoles;</p> <p>Vehicle control type: computer control;</p> <p>Computer display: color LCD screen; It can display the ladder luffing, the operation curve of the telescopic work, the rotation orientation of the ladder frame, the working height of the ladder frame, the luffing angle, the working radius and other data, and the fault can be queried through the display screen.</p>
Outriggers leveled	Auto-leveling + manual leveling
Warning lights and sirens	<p>2 red LED strobe round warning lights are installed on the top of the cab;</p> <p>Siren and amplification device installed in the cab, power: 200W;</p> <p>Both sides of the tank are equipped with flashing warning lights;</p> <p>There is a strobe warning light on the left and right sides of the rear, all red.</p>
Sign lights and lights	<p>The car body is equipped with safety side marker lights, rear profile lights, and yellow turn signals on both sides;</p> <p>The equipment box is equipped with lighting;</p> <p>ladder lighting;</p> <p>Work lighting on the work platform.</p>
Automatic charging device	The battery can be charged with 220V mains, and the charging plug will automatically fall off when the fire truck starts.
Imaging system	360° panoramic monitoring system (including navigation, driving record, reversing image, reversing radar)
Hydraulic control system	
Hydraulic system form	Pressure/flow control variable piston pump + load sensitive control system

System maximum pressure	24MPa
Emergency power unit	Well-known battery pump, one-button start-stop control
Work platform	
Material	High-strength steel brackets, aluminum alloy platforms, doors
Work platform	<p>Profile frame structure, welded by high-strength seamless profiles, opening size $\leq 500\text{mm}$;</p> <p>The bottom plate adopts anti-slip pattern plate;</p> <p>There is a flipping mechanism and a folding door at the back, which is easy to put away the platform and save space.</p>
Leveling method	Electromechanical and hydraulic intelligent automatic leveling system
Device settings	<p>The working platform is equipped with an anemometer;</p> <p>The working platform is equipped with a weighing overload alarm device;</p> <p>Radar anti-collision devices in front, below, left and right of the platform.</p>
Self-protection device	It is equipped with working bucket spray self-protection, internal control of the working platform, and manual control valve.
Upper body	
Hoardings and equipment boxes	Getting on and off the ladder: 1 piece on the left side of the car body, 1 piece on the right side;
	Body frame: all-aluminum alloy frame
	Body hoarding: adhesive aluminum alloy flat plate
	Body walking platform: lay anti-slip aluminum alloy plates

	Equipment box door: aluminum alloy flip door or roller shutter door with lock
Body color	The ladder frame is milky white; The outer surface of the cab, tank and hoarding is fire red.
Optional configuration	
Fire protection system	In the cold areas of the north, electric heating ball valves are installed at the outlet of the fire waterway
Electrical system	on-board radios and walkie-talkies; Fire monitoring video transmission device.

4. Description of main components

1. Ladder

The ladder frame adopts the form of a four-section telescopic truss structure, and each ladder is welded with high-strength special-shaped steel pipes. The pre-deformation technology of the curved ladder frame is used to offset the partial deformation of the entire ladder frame after loading, and improve the safety of the ladder frame and the stability of expansion and contraction. The telescopic system is composed of a telescopic cylinder and a two-stage wire rope system, the two-section ladder is driven by a telescopic cylinder, and the three-section ladder frame is driven by two sets of wire ropes to realize the synchronous expansion and contraction of the ladder truck.

2. Work platform

The working platform is a high-strength steel frame structure, which realizes various actions of operating the whole machine on the platform; fire water cannons can be used for high-altitude remote fire extinguishing; Intercom equipment is installed to communicate with ground personnel.

The platform leveling adopts electro-hydraulic proportional control technology to realize the continuous and smooth leveling of the platform, and sets up the emergency manual leveling function, the emergency manual leveling adopts a single-foot pedaling type, only need to continuously press the leveling foot pedal, the leveling of the working platform can be realized, and the operation is simple and convenient.

3. Turntable

The turntable adopts a double-sided double-vertical plate box structure; The rotary mechanism driven by the hydraulic motor is arranged in the front of the turntable, and the planetary reduction system is adopted, which can rotate 360° continuously and the action is smooth; The luffing cylinder is placed on both sides of the inner turntable; The left side is equipped with a boarding console, which is the main console of the vehicle, and the turntable console is equipped with adjustable leather seats, which is more comfortable to operate.

4. Subframe

Large box structure, made of high-strength steel, light weight and high strength; The fuel tank is built into the subframe box, which effectively saves space; The "H" shaped legs are used to effectively improve the stability of the vehicle and reduce the deformation of the frame. The outrigger has two modes: manual leveling and computer automatic leveling, with high leveling accuracy and fast leveling speed.

5. Electrical system

The whole machine adopts electro-hydraulic proportional control, and the main electrical components are imported from abroad, and the control system is highly reliable. The vehicle is equipped with three operating devices: the dismount console at the rear of the vehicle

controls the action of the vehicle's outriggers, the water supply, the operation of the water pump, and the foam mixing of the fire protection system; The operation of the vehicle can be the turntable control table and the working platform control table, which can realize the rotation of the turntable, ladder luffing, telescopic and telescopic and remote control operation of the fire cannon.

A wired intercom device is used between the turntable control table and the working platform control table. There should be various control function switches and parameter displays on the console, lighting devices at night, anti-reflective function in the sun, and operation signs.

In addition to controlling the vehicle action and the automatic protection device of the vehicle, the electrical system also adds the following device signals and lights: water cannon searchlight for ladder frame and working platform; Outrigger flashing warning light; External lighting and signaling devices for fire fighting vehicles that meet national standards.

6. Hydraulic system

The hydraulic system adopts pressure/flow control variable piston pump, electro-hydraulic proportional control technology for the whole vehicle, low starting pressure of the system, fast deployment speed of vehicle operation, good leveling and follow-up of the working platform, stable speed, energy saving and high efficiency. The load-sensitive electro-hydraulic proportional multi-way valve is used to get off the car, and the post-valve compensation control is adopted, with anti-flow saturation function, good synchronization, and automatic leveling + manual leveling function. The car adopts a well-known brand load feedback electro-hydraulic proportional valve, bus

control, to realize the rotation, luffing and telescopic action control of the load, with valve core status monitoring and fault alarm, good consistency and safety. The system is equipped with a maximum pressure control valve, which can effectively prevent the system pressure from overloading.

Each actuation cylinder of the vehicle is equipped with a balance valve or hydraulic lock, which can effectively ensure the smooth and safe locking of the hydraulic cylinder in different positions and in any state (sudden power interruption or hydraulic system failure), and the rotary table rotation brake is reliable. The hydraulic rigid pipe is made of high-precision galvanized seamless steel pipe, and the key control elements are made of well-known brands to ensure the safe and reliable operation of the system, smooth action and good micro-movement.

The hydraulic system power is driven by the chassis side-mounted power take-off, and a set of hydraulic system backup power sources are set up, driven by the battery pump, and the backup power can realize all actions when the vehicle is retracted. The hydraulic oil tank is equipped with a sewage ball valve, which is convenient and fast to check and replace the hydraulic oil.

7. Hoardings and equipment boxes

The upper plane of the walkway board is made of 3mm thick anti-slip aluminum alloy tread plate; The hoarding and equipment box are made of aluminum alloy frame structure, which is made of aluminum alloy flat plates. The equipment box is equipped with a locking aluminum alloy flip door or roller shutter door according to the space. The design of the equipment box is based on the principle of ergonomics, the equipment layout is compact and reasonable, the equipment is fixed firmly and reliably, and it is easy to take and place. Hoardings and

equipment boxes are equipped with lighting systems and drainage holes.

5. Safety control system

The unique safety device and control system ensure the safety and reliability of the vehicle in fire fighting and rescue combat. When the electrical control system fails, the car can be collected by emergency control hydraulic handle, and the hydraulic emergency control system is set with a safety amplitude control function to ensure the safe recovery of the boom.

Table of main safety controls		
serial number	name	description
1	Working range limits	The vehicle has a definite amplitude limit according to the different luffing angles of the ladder frame to ensure that the vehicle is always operating within the safe range.
2	Soft leg control	During the operation and boarding process, when any leg is weak, there is an audible and visual alarm signal, and the ladder frame cannot continue to move in the direction of danger, but can move in the direction of safety.
3	Interlock device for getting on and off the train	When the dismount outriggers do not reliably support the ground or are not leveled, all actions on the bus cannot be executed; When the ladder frame does not fall back into the ladder frame support, all actions of getting off the car cannot be executed.
4	Deceleration and stop device for	When the vehicle ladder frame is close to the luffing boundary angle, the ladder frame is

	ladder luffing, telescopic and contracting to the limit position	fully retracted or fully extended, the action speed is automatically reduced, and the action is automatically stopped when the extreme value is reached.
5	The middle fall protection device of the ladder frame	When the ladder frame and the platform are close to the tank or cab on the side or above, the ladder frame can be lowered to the ladder frame bracket only when the ladder frame is returned to the center and then aligned.
6	Platform anti-collision protection	The front and bottom of the platform are equipped with radar anti-collision devices, which will automatically stop all movements of the platform and ladder frame in an unsafe direction when approaching obstacles, and corresponding icons and text prompts will appear on the screen.
7	Work platform overload control	When the load on the work platform is overweight, the corresponding icons and text prompts will appear on the screen, and an alarm should be given at the same time, and the load on the work platform should be reduced.
8	Protect the cab control	When the ladder frame is within a certain range above the cab, limit the action of the boom to avoid damage caused by collision with the boom or working platform, etc., and the screen will appear corresponding icons and text prompts, and an alarm will be provided at the same time.

9	Anti-tipping protection of the working platform	In any case, as long as the inclination between the working platform and the horizontal plane exceeds 10°, the current action stops automatically and the engine stalls.
10	Wind speed monitoring protection	Equipped with an anemometer to monitor the wind speed, if it exceeds a certain wind speed, it will automatically stop the ladder erection and extension action, and alarm.

6. Random spare parts and packing list

6.1. YT32/G1 ladder fire truck spare parts table

serial number	Name, specification and model	unit	quantity	remark
1	Rotary seal R10-F200×184.5×6.3	piece	6	
2	0-ring 95×3.55	piece	1	GB/T3452.1-2005
3	0-ring 71×3.55	piece	1	GB/T3452.1-2005
4	Stroke switch	piece	1	NGCPB10AX01C
5	Proximity switch	piece	1	NBB4-12GM50-E3-V1
6	Proximity switch	piece	2	NBB8-18GM60-A2-V1
7	Proximity switch	piece	2	NBB8-18GM50-E2-V1
8	Relay	piece	2	JQ201S-PL0
9	Relay	piece	1	JQ202S-FL0
10	Step light	piece	1	ML810
11	Lights	piece	1	43-4113A
12	fuse	piece	2	0495030.Z 30A
13	0-ring 118×5.3	piece	1	
14	0-ring 140×5.3	piece	1	
15	0-ring 165×5.3	piece	1	

16	Oil cup M10×1	piece	2	JB/T7940. 1-1995
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6.2. YT32/G1 ladder fire truck tool table

serial number	Name, specification and model	unit	quantity	remark
1	Allen wrench 3-17	cover	1	
2	Live wrench 6 inches	item	1	
3	Live wrench 12 inches	item	1	
4	Flathead screwdriver 150×6	item	1	
5	Phillips screwdriver 150×6	item	1	
6	Butter gun	item	1	
7	Double-gear carp tongs 8 inches	item	1	
8	Fire safety belt assembly	root	4	
9	Hook head wrench 90-155	item	1	
10	Water hose wrapping cloth	item	8	
11	Water belt bridge protection	item	2	
12	Ground hydrant wrench	item	1	
13	Underground fire hydrant wrench	item	1	
14	Data distribution trolley bag	item	1	
15	Portable explosion-proof searchlight	only	2	
16	Dry powder fire extinguisher	tool	1	
17	Rubber hammer	piece	1	
18	Suction pipe Φ150 L=2000	root	4	
19	Water Filter 150	item	1	
20	Water Filter Interface 150	item	1	
21	Male snail ring 150	item	1	

22	4.1m telescopic ladder (with hook)	item	1	
23	JII150/80×2-1.6 Water Collector (Quick Plug)	only	2	
24	Fire pneumatic valve operating lever	item	2	When the vehicle is equipped with an internal buckle interface, this tool is not available
25	Cassette Fire Hose 20-80-20	root	4	
26	Cassette reducer KJK65 female/80 male	item	4	
27	Special-shaped interface KXK80 internal buckle/80 female	item	4	
28	Special-shaped interface KXK65 internal buckle/80 female	item	4	
29	FJ150 150 Male/80 Buckle × 2-1.6 Second Water Collector (Inner Buckle)	only	2	When the vehicle is equipped with a cassette interface, the tool is not available
30	Buckle fire hose 20-80-20	cover	1	
31	Reducer KJ65 internal buckle/80 internal buckle	item	1	
32	Fire pneumatic valve manual operating lever	item	2	
33	Trolley safety toolbox	item	1	
34	Plastic toolbox 21 inches	item	1	

6.3. YT32/G1 ladder fire truck packing list

serial number	Name	unit	quantity	remark
1	YT32/G1 product certificate	sheet	1	
2	YT32/G1 ladder fire truck operation manual	volume	1	

3	YT32/G1 ladder fire truck maintenance manual	volume	1	
4	YT32/G1 ladder fire truck parts atlas	volume	1	
5	Mercedes-Benz chassis packing list and its prescribed documents	volume	1	
6	RSD pump use and maintenance instructions	volume	1	
7	Elk Fire Gun Usage and Maintenance Manual	volume	1	

7. Vehicle photos (for reference only)



