

24000-DN300-2 供水系统技术规格书

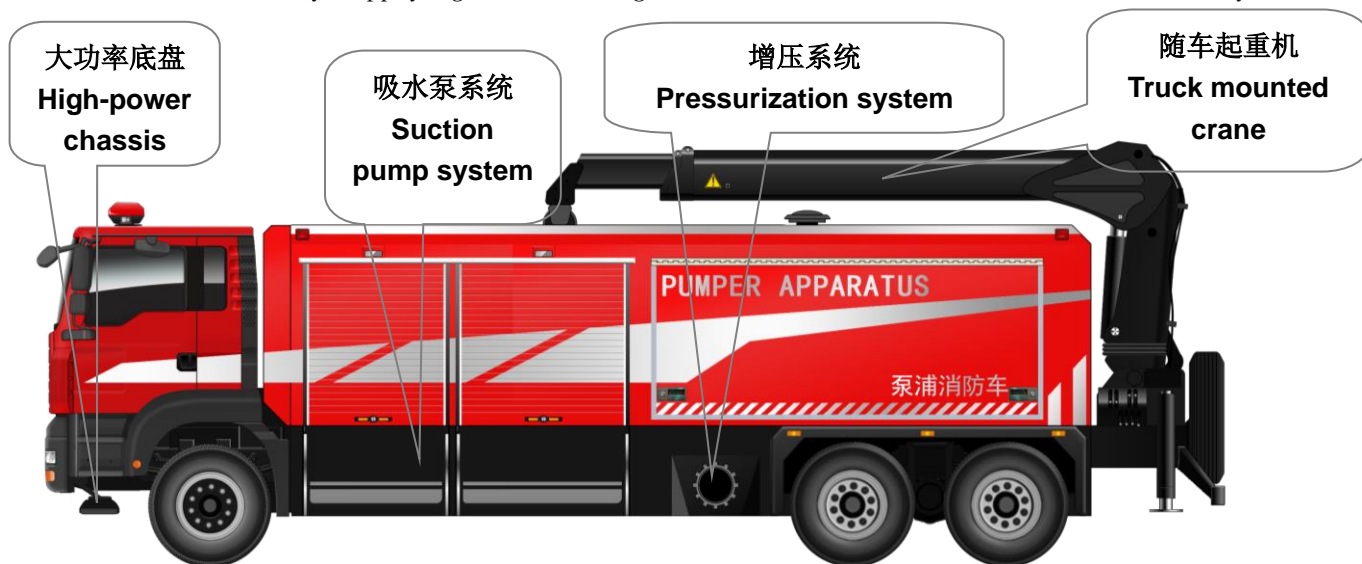
24000-DN300-2 Technical Specification for Water Supply System

1. 系统概述 System overview

1.1 系统组成及功能 System composition and function

系统由一辆泵浦消防车及两辆水带敷设消防车（每台车含 DN300 水带 2000m），具备从开放水源快速取水并向 2000 米至 4000 米以外远程供水与排涝抽水的基本功能。

The system consists of one pump fire truck and two hose laying fire trucks (each vehicle contains DN300 hose 2000m), which has the basic function of quickly drawing water from an open water source and remotely supplying and draining water from 2000 meters to 4000 meters away



【泵浦消防车】

Pump fire truck



【水带敷设消防车】

【Water hose laying fire truck】

1.2 系统主要性能 System main performance

1、具备消防供水、灭火作战及排洪救援等功能。

1. It has the functions of fire water supply, fire fighting operation and flood drainage and rescue.

2、垂直取水时，系统的吸水泵能从 ≥ 20 米深水源以 ≥ 400 升/秒额定流量取水；

2. When taking water vertically, the suction pump of the system can draw water from a ≥ 20 -meter deep water source with a rated flow rate of ≥ 400 liters per second;

3、双干线水平供水时，系统能以 ≥ 400 升/秒的流量输送到2000米以外的火灾现场，终端供水压力 ≥ 0.6 兆帕；

3. When the double trunk line is supplied horizontally, the system can be transported to the fire scene 2000 meters away with a flow rate of ≥ 400 liters / second, and the terminal water supply pressure ≥ 0.6 MPa;

4、可满足连续供水时间不低于168小时；

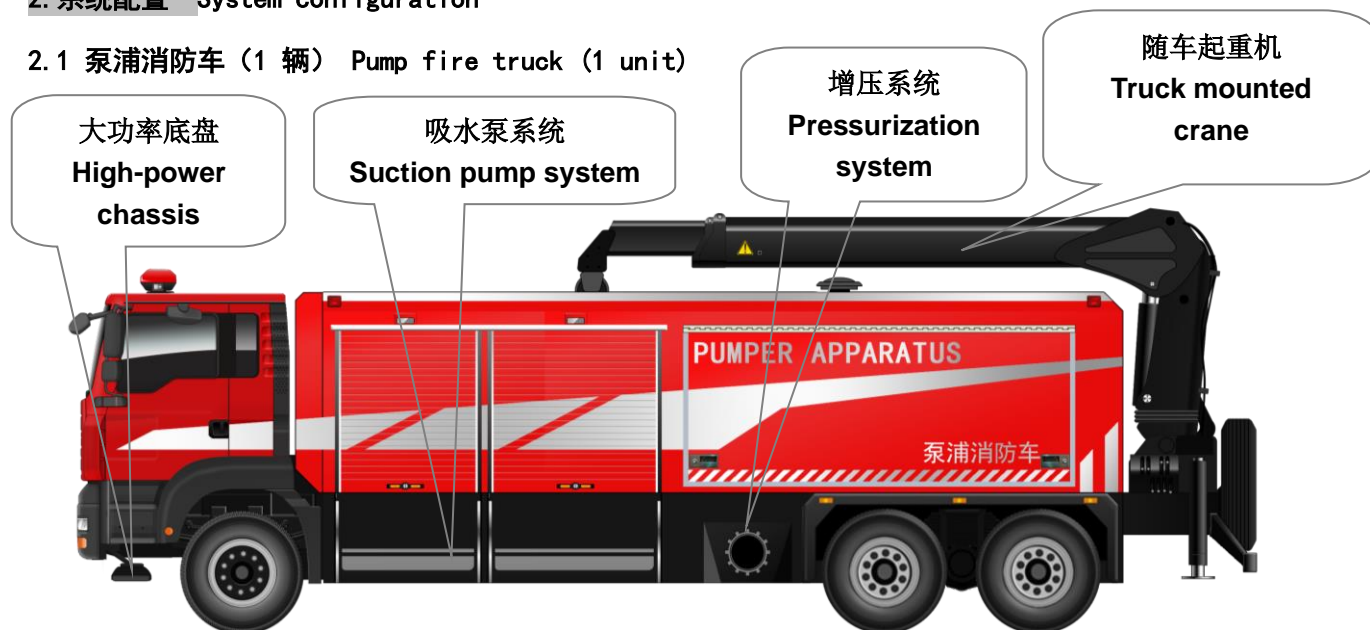
4. It can meet the continuous water supply time of not less than 168 hours;

1.3 系统供水示意图 Schematic diagram of the system water supply



2. 系统配置 System configuration

2.1 泵浦消防车 (1 辆) Pump fire truck (1 unit)



泵浦消防车主要由底盘、吸水系统、增压系统、随车起重机及整车车厢等组成。

The pump fire truck is mainly composed of chassis, water absorption system, pressurization system, truck mounted crane and vehicle carriage.

吸水系统共二套，其中一套由底盘发动机驱动，另一套由独立发动机驱动。

There are two suction systems, one of which is driven by a chassis engine and the other is driven by an independent engine.

每套吸水系统均由发动机通过液压系统及液压卷盘向液压浮泵提供动力。

Each suction system is powered by an engine to the hydraulic float pump through a hydraulic system and hydraulic reel.

2.1.1 底盘 chassis

泵浦消防车选用汕德卡底盘。

The pump fire truck adopts Shandeka chassis.

功率Power: 540HP

排放标准Emission standard: China VI

驱动方式Drive mode: 6×4

最高车速Maximum speed: ≥ 90 km/h (fully loaded)

满载质量Full load mass: 33 tons

轴距Wheelbase: 5800mm +1400mm

接近角 Approach angle: $\geq 14^\circ$

离去角Departure angle: $\geq 14^\circ$

轮胎Wheel tires: 底盘原厂原装钢丝轮胎 (含备胎1个)

original steel wire tires of the chassis (including 1 spare tire).

驾驶室 Cab

结 构: 原车驾驶室 Structure: Original cab

乘 员: 2人 Passengers: 2 people

附加设备: 除原车设备外,加装100W警报器、警灯开关、电台电源线桩头,液晶显示倒车系统,驾驶室内预留车载电台电源接口和安装位置。

Additional equipment: In addition to the original equipment, 100W siren, police light switch, radio power cord pile head, LCD display reversing are installed System, in-cab reserved on-board radio power interface and installation location.

2.1.2 自动脱离充电系统 Automatic disengagement from the charging system

1)产品型号 Product model: RICHIEN-240015A-0

2)主要组成 Main composition

系统包括自动脱离控制器(包括供电插头、特制电磁铁、行程开关等)、充电系统(智能充电器、充电状态指示灯)、驾驶室声光报警器及标配输入、输出软质多层橡胶保护线缆,长度各3米。

The system includes automatic disengagement controller (including power supply plug, special electromagnet, stroke switch, etc.), charging system (smart charger, charging status indicator), cab audible and visual alarm and standard input and output soft multi-layer rubber protection cables, each with a length of 3 meters.

3 性能参数 Performance parameters

自动脱离控制器 Automatically disengage from the controller

额定电流: 20 A; 脱离时间: 1S-2S.

Rated current: 20 A; Disengagement time: 1S-2S.

充电系统 Charging system

供电: AC 180 V-240 V[~]0.5-2.1 A 50/60Hz 效率>97%

Power supply: AC 180 V-240 V[~]0.5-2.1 A 50/60Hz Efficiency>97%

充 电: DC 27.6 V/2-15 A(智能调节)

Charging: DC 27.6 V/2-15 A (intelligent adjustment)

4)主要特点 Key features

车辆停放在车库内时可由充电器对蓄电池进行智能补偿充电,保证车辆随时出警。

When the vehicle is parked in the garage, the charger can intelligently compensate and charge the battery to ensure that the vehicle can be alerted at any time.

启动车辆,“嘀”声脱离提醒;若未脱离,声光报警,可选择手动脱离。

Start the vehicle and “beep” to get rid of the reminder; If it is not disengaged, sound and light alarm, manual disengagement can be selected

产品具有多重保护功能:未脱离报警、充电状态指示、IP55 防护等级、多层防护强电线缆。

The product has multiple protection functions: unseparated alarm, charging status indication,

IP55 protection level, multi-layer protection strong current cable.

2.1.3 吸水泵组 (两套) Suction pump set (two sets)

1) 浮泵 Floating pump

浮泵由底盘发动机通过全功率取力器提供动力, 通过液压系统、控制系统对吸水泵进行驱动、控制和操作。

The floating pump is powered by the chassis engine through a full-power power take-off, and the suction pump is driven, controlled and operated by the hydraulic system and control system.

品 牌 BRAND: ZISHU

水泵型式: 单级单吸离心泵

Water pump type: single-stage single-suction centrifugal pump

组 成: 大流量消防泵、液压马达、浮箱、滤网等

Components: large flow fire pump, hydraulic motor, floating box, filter, etc

重 量: ≤100kg

Weight: ≤100kg

出口口径: 250mm

Export caliber: 250mm

进水方向: 底部进水 (浮艇泵工作稳定更好)

Water inlet direction: bottom water inlet (pontoon pump works

标准工况: 流量: 12000L/min, 压力 0.4MPa, 配滤网

Standard working conditions: flow: 12000L/min, pressure 0.4MPa, with filter

工作温度: -25°C ~ +50°C

Working temperature: -25° C ~ +50° C

泵体材质: 泵体及叶轮均为铸造高强度轻合金

Pump body material: The pump body and impeller are cast high-strength light alloy

滤 网: 水泵进水口设有滤网, 可有效防止吸入杂物

Filter: The water inlet of the water pump is equipped with a filter, which can effectively prevent the inhalation of debris



表面处理: 泵体及叶轮采用防腐工艺进行处理, 具有耐海水腐蚀性能

Surface treatment: The pump body and impeller are treated by anti-corrosion process, which has seawater corrosion resistance

浮箱: 箱体材质为轻质材料成型

Floating box: The box body is made of lightweight material

清理工具: 随车配有滤网表面杂物清理专用工具, 可在滤网堵塞后有效进行清理

Cleaning tool: The car is equipped with a special tool for cleaning debris on the surface of the filter, which can effectively clean up after the filter is blocked

2) 液压系统 Hydraulic system

系统组成: 液压系统由柱塞泵、控制阀、进回油胶管卷盘、液压马达等组成。

System composition: The hydraulic system is composed of plunger pump, control valve, inlet and return hose reel, hydraulic motor, etc.

动力传递: Power Transmission:

系统通过发动机驱动液压柱塞泵提供液压动力, 在液压阀的控制下, 通过液压胶管供给液压马达驱动吸水泵。

The system provides hydraulic power through the engine driven hydraulic piston pump, and under the control of the hydraulic valve, the hydraulic motor is supplied through the hydraulic hose to drive the suction pump.

二套液压胶管卷盘安装于吊臂两侧, 浮泵放置在车顶。

Two sets of hydraulic hose reels are installed on both sides of the boom, and the floating pump is placed on the roof.

取水作业时, 操作人员操作随车起重机及卷扬机的将浮泵轻松、顺畅、快速地吊至取水地点。

During water intake operations, the operator operates the crane and hoist to lift the floating pump to the water intake point easily, smoothly and quickly.

3) 取水水带 water intake hose

系统配置DN250水带120m (20米、10米各四根)。

System configuration: DN250 hose 120m (four each of 20 meters and 10 meters)

4) 控制系统Control system

全自动或手动控制及显示系统, 可实时显示发动机转速等, 当系统异常时可自动声光报警, 所有控制手柄、开关、指示灯都设有不锈钢腐蚀工艺的中文标识。

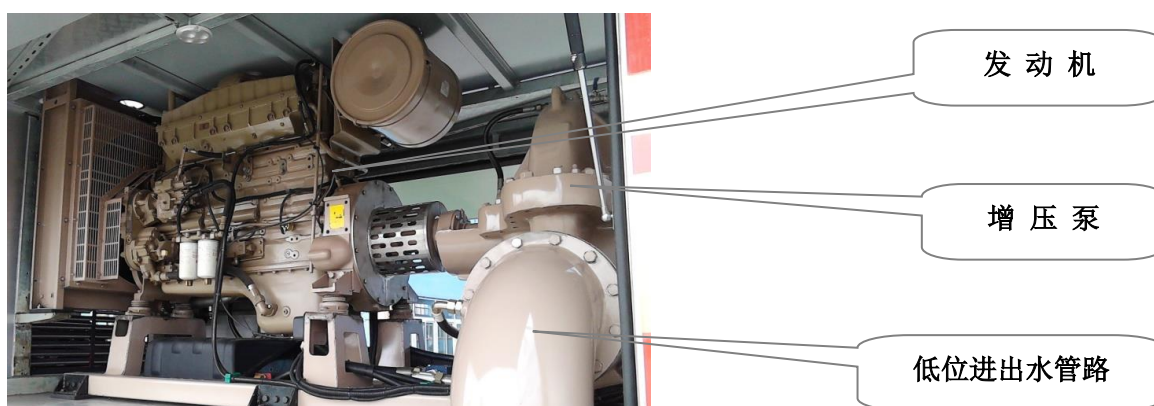
Fully automatic or manual control and display system, can display engine speed in real time, etc., when the system is abnormal, automatic sound and light alarm, all control handles, switches, indicator lights are equipped with stainless steel corrosion process Chinese

identification.

2.1.4 增压泵组 Booster pump set

增压泵系统由发动机、增压泵、低位进出水管路、控制系统等组成。

The booster pump system is composed of engine, booster pump, low-level inlet and outlet pipelines, control system, etc.



1) 发动机(德国MAN技术) Engine (German MAN Technology)

品 牌: VMAN

Brand: VMAN

型 号: FDE22B1000

Model: FDE22B1000

额定功率: 1000HP

Rated power: 1000HP

2) 增压泵Booster pump

型 号: TBC10/400G

Model: TBC10/400G

结构型式: 单级双吸式

Structural type: single-stage double suction type

额定流量: 400L/s

Rated flow: 400L/s

额定压力: 1.0Mpa

Rated pressure: 1.0MPa

进水管径: 2×250mm (与吸水泵出水管路相匹配)

Inlet pipe diameter: 2×250mm (matching the suction pump outlet line)

出水管径: 2×300mm (与供水干线水带直径相匹配)

Outlet pipe diameter: 2×300mm (matching the diameter of the water supply main)

工作温度: -25°C ~ +50°C

Working temperature: -25° C ~ +50° C

控制系统: 具备工况监控、报警、过载保护和计时、紧急停机等功能。

Control system: with working condition monitoring, alarm, overload protection and timing, emergency stop and other functions.

2.1.5 随车起重机 Truck mounted crane

1) 功能function

随车起重机安装于车尾，可左右旋转旋转 90 度；

The truck-mounted crane is installed at the rear of the vehicle and can rotate 90 degrees left and right;

垂直取水时，起重机用于施放、吊挂吸水泵及吸水大口径水带；

When taking water vertically, the crane is used to cast and hang the suction pump and the large-diameter water hose that sucks water;

坡道取水时，起重机的卷扬机用于施放、回收吸水泵。

When the ramp draws water, the crane's hoist is used to cast and recover the suction pump.

2) 性能参数Performance parameters

起重能力: 18t. m

Lifting capacity: 18t. m

最大工作半径: 17m

Maximum working radius: 17m

回转角度: 360°

Swing angle: 360°

卷扬机一: 0.8T/60m

Winch one: 0.8T/60m

卷扬机二: 4T/20m

Winch two: 4T/20m

2.1.6 厢体Body

骨架采用高强度多孔钢焊接结构，表面粘结铝合金板，保证整体强度和刚度，箱门开启灵活、封闭严密；合适位置设置脚踏板，方便操作。

The skeleton adopts high-strength porous steel welded structure, and the surface is bonded with aluminum alloy plate to ensure the overall strength and rigidity, and the door is opened flexibly and tightly closed; Set the foot pedal in the right position for easy operation.

2.1.7 泵浦消防车随车器材Pump fire truck equipment

| 序号 serial number | 名称 Name | 规格/型号 Specifications/ Model Numbers | 单位 Unit | 数量 Quantity | 备注 Remark |
|------------------------|---|---|---------------|----------------|--------------|
| 1 | 水带总成 Water hose assembly | DN250-10-20 | 条 strip | 4 | |
| 2 | 水带总成 Water hose assembly | DN250-10-10 | 条 strip | 4 | |
| 3 | 水带接口扳手 Hose interface wrench | DN250 | 副 deputy | 2 | |
| 4 | 水带接口扳手 Hose interface wrench | DN300 | 副 deputy | 2 | |
| 5 | 牵引绳 Tow rope | 30m | 根 root | 4 | |
| 6 | 垂直供水弯管 Vertical water supply bend | DN250 | 套 cover | 2 | |
| 7 | 滤网清理工具 Filter cleaning tool | 通用型 Universal type | 套 cover | 1 | |
| 8 | 浮泵吊具 Floating pump spreader | 双泵型 Double pump type | 套 cover | 1 | |
| 9 | 浮泵推杆 Float pump pusher | 3m | 根 root | 2 | 伸缩型 |
| 10 | 车轮止动块 Wheel stop block | 通用型 Universal type | 套 cover | 1 | |
| 11 | 对讲机 intercom | | 台 platform | 1 | |
| 12 | 底盘随车工具 Chassis vehicle tools | | 套 cover | 1 | |

2.2 水带敷设消防车 (2辆) Fire trucks for hose laying (2 units)

水带敷设消防车由运载底盘、收带机、清洗系统、可存放 2000 米 DN300 大口径水带的水带箱组成，主要功能是水带的储放、运输、铺设、回收等。

The hose laying fire truck is composed of a carrying chassis, a tape receiver, a cleaning system, and a water hose tank that can store a 2000 meter DN300 large-diameter water hose, and its main function is the storage, transportation, laying, and recycling of the water hose.

大功率重型底盘
High-power heavy-duty

收带系统
Retracting system

水带箱
Water belt box

DN300 水带 2000 米
DN300 water belt 2000



2.2.1 底盘Bottom plate

水带敷设消防车选用重汽汕德卡底盘。

The hose laying fire truck adopts the chassis of Sinotruk Shandeka.

功 率: 400HP

Power: 400HP

排放标准: 国六

Emission standard: China VI

驱动方式: 6×4

Drive mode: 6×4

最高车速: ≥90km/h (满载时)

Maximum speed: ≥90km/h (fully loaded)

满载质量: 33 吨

Full load mass: 33 tons

轴 距: 5800mm +1400mm

Wheelbase: 5800mm +1400mm

接 近 角: ≥14°

Approach angle: ≥14°

离 去 角: ≥14°

Departure angle: ≥14°

轮 胎: 底盘原厂原装钢丝轮胎 (含备胎 1 个)。

Wheel tires: original steel wire tires of the chassis (including 1 spare tire).

驾 驶 室 Cab

结 构: 原车驾驶室

Structure: Original cab

乘 员: 2 人

Passengers: 2 people

附加设备: 除原车设备外, 加装 100W 警报器、警灯开关、电台电源线桩头, 液晶显示倒车系统, 驾驶室内预留车载电台电源接口和安装位置。

Additional equipment: In addition to the original equipment, 100W siren, police light switch, radio power cord pile head, LCD display reversing are installed

System, in-cab reserved on-board radio power interface and installation location.

2.2.2 自动脱离充电系统 Automatic disengagement from the charging system

1) 产品型号: ZISHU-240015A-0

Product model: ZISHU-240015A-0

2) 主要组成 Main composition

系统包括自动脱离控制器 (包括供电插头、特制电磁铁、行程开关等)、充电系统 (智能充电器、充电状态指示灯)、驾驶室声光报警器及标配输入、输出软质多层橡胶保护线缆, 长度各 3 米。

The system includes automatic disengagement controller (including power supply plug, special electromagnet, stroke switch, etc.), charging system (smart charger, charging status indicator), cab audible and visual alarm and standard input and output soft multi-layer rubber protection cables, each with a length of 3 meters.

3) 性能参数 Performance parameters

自动脱离控制器 Automatically disengage from the controller

额定电流: 20 A; 脱离时间: 1S-2S。

Rated current: 20 A; Disengagement time: 1S-2S.

充电系统 Charging system

供电: AC 180 V-240 V~0.5-2.1 A 50/60Hz 效率>97%

Power supply: AC 180 V-240 V~0.5-2.1 A 50/60Hz Efficiency>97%

充电: DC 27.6 V/2-15 A (智能调节)

Charging: DC 27.6 V/2-15 A (intelligent adjustment)

4) 主要特点 Key features

车辆停放在车库内时可由充电器对蓄电池进行智能补偿充电, 保证车辆随时出警。

When the vehicle is parked in the garage, the charger can intelligently compensate and charge the battery to ensure that the vehicle can be alerted at any time.

启动车辆, “嘀”声脱离提醒; 若未脱离, 声光报警, 可选择手动脱离。

Start the vehicle and “beep” to get rid of the reminder; If it is not disengaged, sound and light alarm, manual disengagement can be selected.

产品具有多重保护功能: 未脱离报警、充电状态指示、IP55 防护等级、多层防护强电线缆。

The product has multiple protection functions: unseparated alarm, charging status indication, IP55 protection level, multi-layer protection strong current cable.

2.2.3 自动收带/自动摆放系统 Automatic retraction/automatic placement system

主要组成: 水带收卷系统包括自动导带机构、自动收卷机构、自动摆放系统、水带清洗装置、液压动力及自动控制系统等。

Main components: hose winding system includes automatic guide belt mechanism, automatic winding mechanism, automatic placement system, hose cleaning device, hydraulic power and automatic control system.

主要功能: 可自动回收水带、自动摆放水带，并可根据需要实时对水带进行局部清洗。

回收水带速度 0~3km/h，施放水带速度 0~15km/h。

Main functions: automatic recovery of water hose, automatic placement of water hose, and local cleaning of water hose in real time as needed.

The speed of the recovery hose is 0~3km/h, and the speed of the casting hose is 0~15km/h.

主要特点: Key Features:

1) 自动导带机构向车头方向可收卷水带，保证地面水带平顺回收；

1) The automatic conduction belt mechanism can rewind the water hose in the direction of the front of the car to ensure the smooth recovery of the ground water belt;

2) 自动收卷机构具有双压紧机构，保证持续具有足够收卷力，具有接口自动感应功能；

2) The automatic winding mechanism has a double pressing mechanism to ensure that it continues to have sufficient winding force, and has the function of automatic sensing of the interface;

3) 由液压动力单元、高压清洗机、水箱、高压喷头等组成的水带清洗装置可在需要时
对水带上下表面进行清洗，保证水带干净存放。

3) The hose cleaning device composed of hydraulic power unit, high-pressure washer, water tank, high-pressure nozzle, etc. can be used when needed

Clean the upper and lower surfaces of the hose to ensure that the hose is stored cleanly.

4) 系统由液压系统提供动力，操作轻便快捷。

4) The system is powered by the hydraulic system, and the operation is light and fast.

5) 水带收取速度可调，回收水带速度 0~3km/h。

5) The receiving speed of the hose is adjustable, and the speed of the recycling hose is 0~3km/h.

3、消防水带存放箱 Fire hose storage box

功能: 用于承载 DN300mm 大口径消防水带 2000m 及各类接口等设备。

Function: used to carry DN300mm large diameter fire hose 2000m and various interfaces and other equipment.

材质: 本体主骨架为高强度型钢焊接，器材架为铝合金型材。

Material: The main skeleton of the body is welded by high-strength section steel, and the equipment frame is made of aluminum alloy profile.

结 构: 全钢焊接一体式框架结构, 牢固可靠, 确保强度和刚度; 蒙板采用高强度粘胶粘结铝板。

Structure: all-steel welded one-piece frame structure, firm and reliable, ensuring strength and rigidity; The mask is made of high-strength viscose bonded aluminum plate.

警示标识: 每台车箱体设有反光带; 箱体上方周边安装红蓝相间频闪灯。

Warning sign: each car box is equipped with reflective tape; Red and blue strobe lights are installed around the perimeter above the cabinet.

4、大口径水带 Large caliber hose

品 牌: ZY—FIRE

Brand: ZY—FIRE

型 号: DN300-10-100

Model number: DN300-10-100

水带口径: DN300

Water hose caliber: DN300

水带长度: 100m/root

Hose length: 100m/root

工作压力: 1.0MPa

Working pressure: 1.0MPa

爆破压力: 3.0 MPa

Burst pressure: 3.0 MPa

工作温度: -10℃ ~ +50℃

Working temperature: -10° C ~ +50° C

水带材质: 一次成型双面聚胺酯水带

Water hose material: one-time molding double-sided polyurethane water hose

延 伸 率: ≥3%

Elongation: ≥3%

膨 胀 率: ≥4%

Expansion rate: ≥4%

柔 软 性: 水带具备良好的柔软性, 能轻易弯曲、对折

Softness: The hose has good softness and can be easily bent and folded in half

接口型式: 由 DN300 高强度锻压铝合金接头连接 (接口型式与国际标准保持一致, 并完全互换)。

Interface type: connected by DN300 high-strength forged aluminum alloy joint (interface type is consistent with international standards and fully interchangeable).

5、随车器材 (每台车配置) On-board equipment (per vehicle configuration)

| 序号 serial number | 名称 Nama | 规格/型号 Specifications/Model Numbers | 单位 unit | 数量 quantity | 备注 remark |
|------------------------|--|--|-------------|----------------|--------------|
| 1 | 水带总成 Water hose assembly | DN300-10-100 | 条 strip | 20 | |
| 2 | 收带引导器 Retracting guide | DN150-10m/DN30 | | | |
| 3 | 水带接口扳手 Hose interface wrench | DN300 | 副 deputy | 2 | |
| 4 | 多功能分水器 Multifunctional water divider | DN300/DN150-2+8-DN80 | 套 cover | 2 | |
| 5 | 分水器 Water divider | DN150/DN80*4 | 套 cover | 4 | |
| 6 | 水带堵漏工具 Hose plugging tool | 大口径通用型 Large-caliber universal type | 套 cover | 2 | |
| 7 | 车轮止动块 Wheel stop block | 通用型 Universal type | 套 cover | 1 | |
| 8 | 底盘随车工具 Chassis vehicle tools | | 套 cover | 1 | |

三、系统车辆其它技术要求 Other technical requirements of the system vehicle

(一) 整车要求: Vehicle requirements

1、整车性能符合 GB7956.1-2014 《消防车 第1部分:通用技术条件》的规定。

1. The vehicle performance complies with the provisions of GB7956.1-2014 "Fire Trucks Part 1: General Technical Conditions".

2、整车外观保持平整、光洁、美观,所有焊接牢固可靠。

2. The appearance of the whole vehicle is kept flat, smooth and beautiful, and all welding is firm and reliable.

3、水带箱、器材箱和收带机操作均有符合使用要求的照明灯。

3. The operation of the hose box, equipment box and belt receiver all have lighting that meets the requirements of use.

4、整车涂装为消防红烤漆,外观喷涂造型及相关标识按用户要求制作。

4. The whole vehicle coating is fire-fighting red baking paint, and the appearance spraying shape and related logos are made according to user requirements.

5、警灯、警报及通信装置:驾驶室内预留相关通信接口,配备数字车载台;在副驾驶位置安装电子报警器、警灯开关;车顶安装有长排警灯,报警器及扩音装置≥200W,车体两侧及尾部安装爆闪警示标

识。

5. Police lights, alarms and communication devices: relevant communication interfaces are reserved in the cab and equipped with digital on-board stations; Installation of electronic sirens and police light switches in the passenger seat; The roof is equipped with a long row of police lights, sirens and PA devices $\geq 200W$, and flashing warning signs are installed on the sides and rear of the body.