High Pressure Water Mist System

Model: LF-WMS

General Description

Unlike traditional sprinkler systems, which only remove heat, water mist systems deliver fire suppression by removing both heat and oxygen from a fire by jetting pressurized water through specially designed nozzles. The nozzles atomise the water into micron-sized droplets, which rapidly expand into steam when they come into contact with a fire, depriving the fire of oxygen.

System Introduction

The high pressure water mist system is mainly composed of water tank, high pressure pump set, zone control valve unit, system pipeline and water mist nozzles.It always works together with the fire alarm systems.

The main technical parameters of the high-pressure water mist extinguishing equipment are shown in the following table.

Product Model	LF-WMS-(rated flow) (Imported Danfoss Nine-Plunger Pump Series)								
Rated Flow (L/min)	112	224	336	448	560	672	784	896	1008
Rated Working Pressure	14 Bar								
Rated flow of Single Pump Supplied	112 L/min								
Rated Power of Motor of Single Pump Supplied	30 kW								
Working Power Supply	AC 380V, 50 Hz (60Hz is Optional)								
Starting Mode	Automatic, manual, mechanical emergency								
Operating Ambient Temperature	4 ℃ ~ 50 ℃								

Note: Model representation of high-pressure water mist extinguishing equipment: such as LF-WMS-112
LF: LIFECO Product series;
WMS: water mist system;
112: Rated flow of the equipment (L/min);

2. Water Mist Nozzle

Connect with water mist pipe through special connectors for nozzles, which is used for high-pressure water mist, as shown in the figure.

2.1 Closed Type Wet Water Mist System

When the closed wet water mist system is in the quasi-working state, the pressure of the water in the pipeline is maintained by the pressure-stabilizing facilities such as the water tank or the pressure-stabilizing pump. When a fire occurs, the closed water mist nozzle will act as the heat-sensitive element under the action of the hot air flow in the fire field, and glass bulb will break and the nozzle start to spray water mist. At this time, the water in the pipe network changes from static to flowing, and the signal feedback device acts and sends out a signal, indicating that a certain area has been sprayed on the alarm controller.

2.2 Open Type Water Mist System

When a fire occurs, the fire detector sends a detection signal, the fire alarm system sends the alarm signal to the fire alarm controller and simultaneously sends out sound and light alarms. The fire alarm controller sends out instructions to start the zone control valve group and drive device, and the water mist system starts to work and spray water mist to put out the fire.

Main Technical Parameters

Specification and Model	Rated Flow (L/min)	Rated Working Pressure/MPa	Maximum installation spacing and height (spacing X height) for local application/m	Maximum installation spacing and height (spacing X height) in total flooding application/m
LF-WMN-03	3	100	/	3X4.5
LF-WMN-05	5	100	/	3X4.5
LF-WMN-07	7	100	3x3	3X4.5
LF-WMN-09	9	100	3x3	3X4.5
LF-WMN-10	10	100	3X3.5	3X7.5
LF-WMN-12	12	100	3X3.5	3X7.5
LF-WMN-15	15	100	3X4.0	3X7.5
LF-WMN-17	17	100	3X4.0	3X7.5
LF-WMN-20	20	100	3X4.0	3X7.5
LF-WMN-25	25	100	3X4.0	3X7.5

Note: The Model Representation of Water Mist Nozzle: Such as LF-WMN-25
LF: LIFECO Product series.
WMN: Water Mist Nozzle.
25: K-Factor/10.

3. Section Valve

In a water mist fire suppression system, valves play a crucial role in controlling the flow of water or water mist. These systems typically include various types of valves, such as:

- Deluge Valve: A deluge valve is a key component in a water mist system. It remains open and allows water to flow into the piping network when a fire detection system is activated. Deluge valves are often used in high-hazard areas.
- Control Valve: Control valves are used to regulate the flow of water or water mist in specific sections of the system. They can be manually or automatically operated based on the system design.
- Isolation Valve: Isolation valves are strategically placed in the system to isolate specific sections or zones. This allows for maintenance or repairs without affecting the entire system.
- Pre-action Valve: In some water mist systems, pre-action valves are used. These valves are kept closed until a fire is detected. Once activated, they open to allow water flow into the piping system.

3.1 Type A

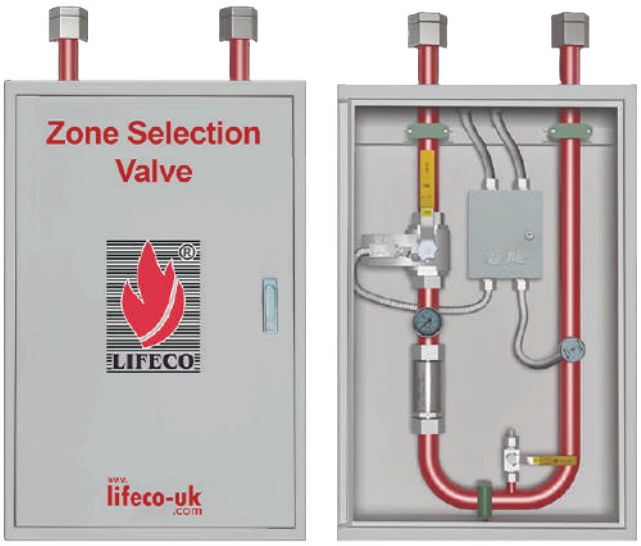
It consists of pressure switch, high-pressure manual ball valve, high-pressure electric stop valve, junction box, pressure gauge and box. The working power supply is DC24V, 0.15A, and the rated working pressure is 160 Bar.

It starts automatically when receiving the linkage signal from the fire alarm controller and the feedback valve opening signal is sent to the fire alarm controller, then the high-pressure pump supplied starts to release water mist to the enclosure for fire extinguishing, the pressure switch sends a spraying feedback signal to the fire alarm controller, as shown in the figure.

3.2 Type B

It consists of pressure switch, high-pressure electric stop valve, junction box and box. The working power supply is DC24V, 0.15A, and the rated working pressure is 160 Bar.

It starts automatically when receiving the linkage signal from the fire alarm controller and the feedback valve opening signal is sent to the fire alarm controller, then the high-pressure pump supplied starts to release water mist to the enclosure for fire extinguishing, the pressure switch sends a spraying feedback signal to the fire alarm controller, as shown in the figure.



Main technical parameters – Type A:

Product Model	LF-SVA-(Nominal Diameter)					
Nominal diameter DN	15	20	25	32	40	50
Pipe Specification (mm) (outer diameter X thickness)	φ22×2.5	φ27×2.5	Φ34×3	Φ42×3.5	Φ48×4	Φ60×5
Rated Working Pressure	160 Bar					
Working Power Supply	≥ DC24V, 0.15A					
Overall Dimensions	H=950mm		W=600mm		D=220mm	
Pipe Connection Size	WI=390mm			DI = 701nm		

Note: Model Representation of Section Valve: Such as LF-SVA-32
LF: LIFECO Product Series;
SVA: Section Valve Type A
32: Nominal Diameter.

Main technical parameters – Type B:

Product Model	LF-SVB- (Nominal Bore)						
Nominal Diameter DN	15	20	25	32	40	50	65
Specification ff Welded Pipe (mm) (Outer Diameter X Thickness)	φ22×2.5	φ27×2.5	Φ34×3	Φ42×3.5	Φ48×4	Φ60×5	Φ76×6
Rated Working Pressure	160 Bar						
Working Power Supply	≥ DC24V, 0. 15A						
Overall Dimensions (DN15~DN50)	H=540mm		W=380mm		D=220mm		
Installation Dimension (DN15~DN50)	W1=105mm			D1=70mm			
Overall Dimensions (DN65)	H=650mm		W=450mm		D=220mm		
Installation Dimension (DN65)	W>150mm			DI=110mm			

Note: Model Representation of Section Valve: Such as LF-SVB-32.
LF: LIFECO Product series;
SVB: Section Valve Type B
32: Nominal Diameter.

Applications

1. Archives, library, cultural relics and other similar places.
2. Hydraulic station, oil-immersed power transformer room, lubricating oil warehouse, turbine oil warehouse, diesel generator room, oil boiler room, fuel direct combustion engine room, oil switch cabinet room and other similar places.
3. Power distribution room, computer room, data processing room, communication room, central control room, large cable room, cable tunnel (corridor), cable shaft and other similar places.
4. Engine test rooms, traffic tunnels, tobacco warehouses and large-space warehouses.