Enriching Lives

WATERMIST SYSTEM

TOTAL SAFETY AND MORE EFFICIENT

Introduction

Water mist system is a fire suppression system that uses very small droplets of water to extinguish a fire. Water droplets are effective in controlling the fire with less consumption of water.

The piping associated with water mist system is relatively smaller in size, however it is very effective in suppression of fire. Faster evaporation rate of tiny water droplets means it gets converted to vapor which eventually displaces the oxygen in the vicinity. This leads to effective extinguishing of fire.

The droplet size of water mist system varies between 10 to 1000 micron. The small droplet size decreases water requirement, enhances evaporation to extinguish and suppress fire in a shorter time.

Watermist Classifications:

Low Pressure System

Under 175 psi
or 12.1 bar

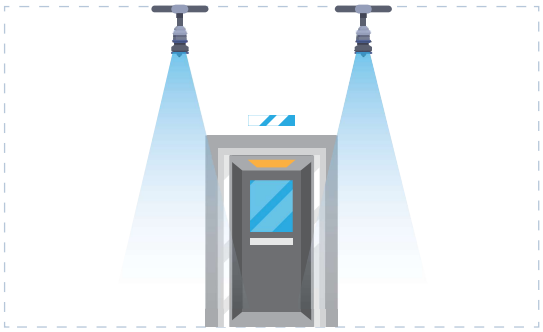
Intermediate Pressure System

175-500 psi
or 12.1 - 34.5 bar

High Pressure System

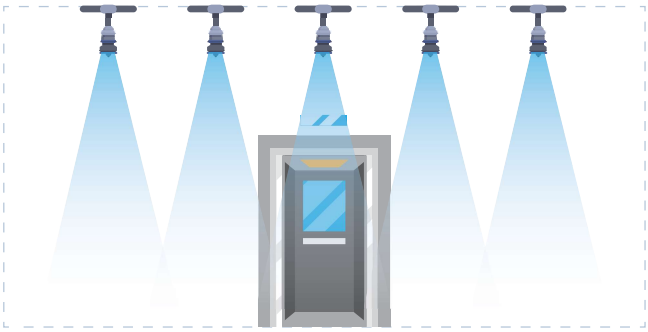
Over 500 psi
or 34.5 bar

Application



Local Application

- Designed to provide complete distribution of mist around hazard or object to be protected
- System can be activated by auto or manual release with local or remote operation



Total Flooding Application

- Designed to provide complete protection of an enclosure or space
- Complete protection of enclosure can be achieved by simultaneous operation of all nozzles in space by manual or automatic release

Benefits

- Only water is used
- Effective fire suppression
- Shield against heat radiation
- Reduced post-fire water damage
- Environment friendly
- Low water requirement.
- No evacuation is required as it doesn't harm human lives

High Pressure Water Mist

Over 500 psi or 34.5 bar

The system works by discharging high-pressure water through specialized nozzles that atomize the water and create a fine mist. There are many benefits associated with water mist fire suppression systems including speed of installation, reduced post-fire water damage, environment friendly and low water requirement.

It uses High pressure Pump skid unit to pressurise the water at **100 - 120 bar** and mist is created by specially designed high-pressure nozzles.

HP Nozzle

1 HIGH PRESSURE PUMP
Supplies water with high pressure to nozzle grid

2 ELECTRIC MOTOR
Drives the high-pressure pumps (11-37 kW each)

3 WATER TANK
Act as buffer tank between main water source tank and high pressure pump

4 CONTROL PANEL
Indicates operating parameters and is provided with switches for operation

5 PUMP SKID
Pump-set, panel, suction and discharge header pipes are mounted on single pump skid

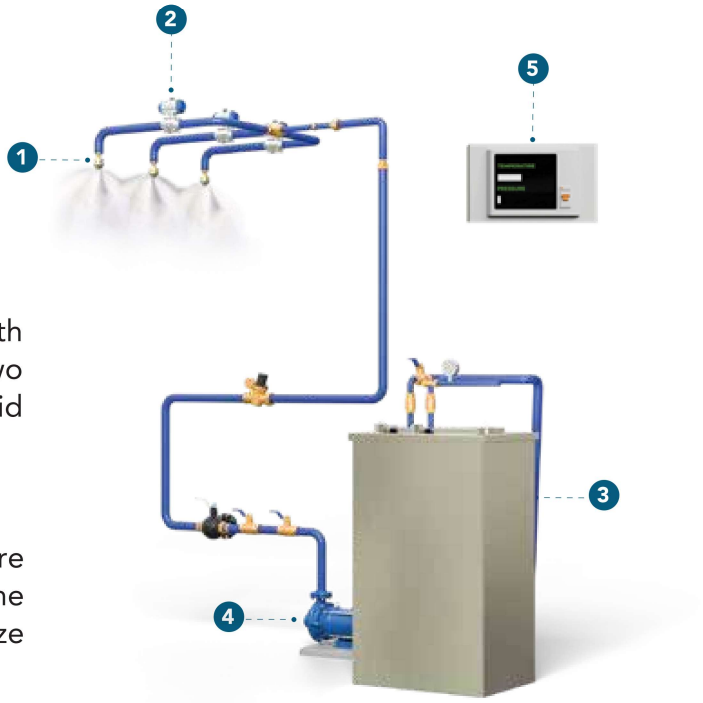
Low Pressure Water Mist

Single Fluid/Twin Fluid

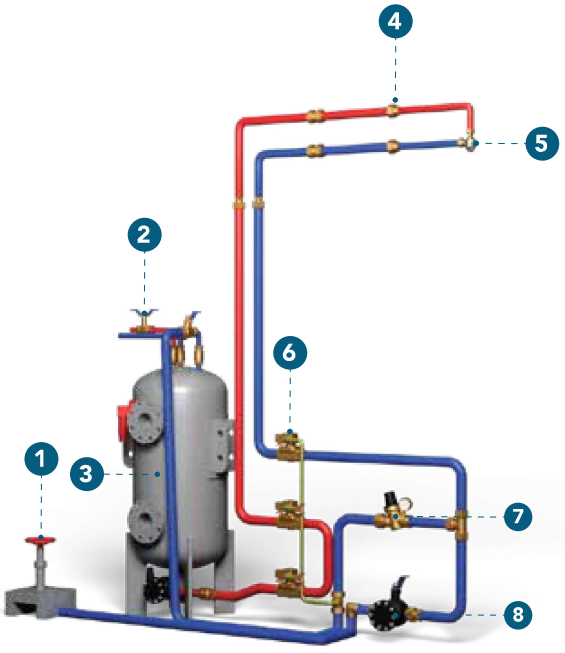
Low pressure water mist system operated with pressure range less than 12.1 bar. It consists of two types of systems, single fluid system and twin fluid system.

SINGLE FLUID

Single fluid system uses water and low-pressure water mist nozzles. When water passes through the nozzles it generates water mist particle with size ranging from **200 micron to 700 micron.**



1. LP NOZZLE
2. EPA VALVE
3. WATER TANK
4. FEED PUMP
5. CONTROL PANNEL



1. CONTROL VALVE
2. VALVE
3. WATER VESSEL
4. REDUCER
5. NOZZLE
6. ACTUATOR
7. PRV 54/9
8. PRV 400T054

TWIN FLUID

Twin fluid low pressure water mist system uses water and atomizing media to produce fine water droplets which will be used to extinguish the fire. In this system, water and atomizing media are separately supplied to mix at the water mist nozzle.

The twin fluid nozzle is an important component of the water mist system, it is an internal mixing type nozzle and has very wide range of operating parameter conditions. It can be tailored to generate the droplet size distribution in the range from **20 to 80 microns.**

> Water arriving at the cone tip, the liquid split up into a thin liquid film. This thin liquid film split into finest droplets by the atomizing air in the mixing chamber. The resulting two-phase mixture is then atomized a second time as it exists through several bore holes arranged in a circular pattern.

Applications of Watermist

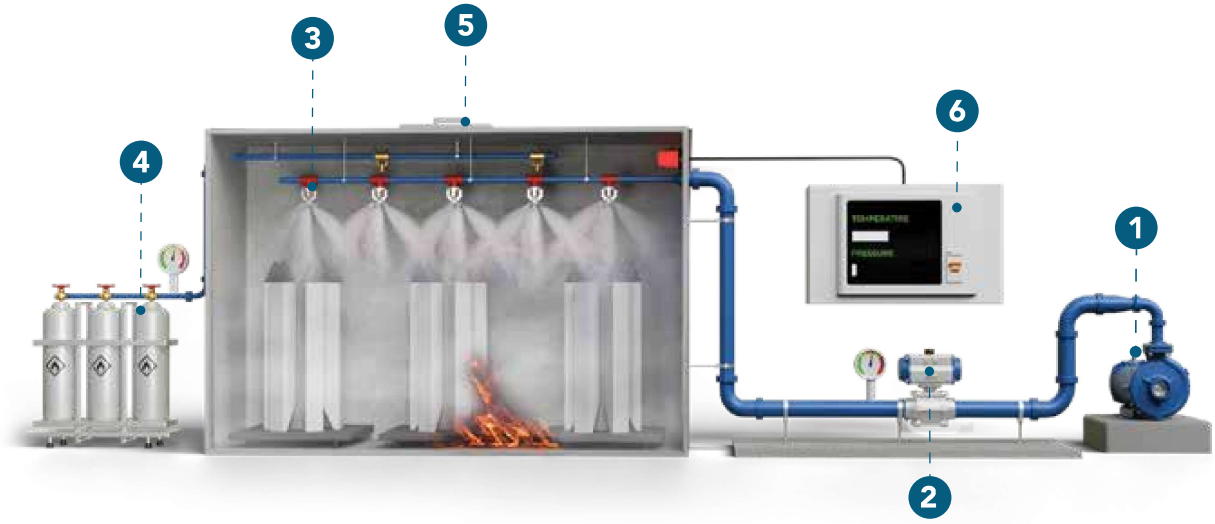
- Total Flooding of Machinery Spaces
- Local High-Risk Applications
- Other Machinery Spaces
- Gas Turbine Enclosures
- Bilges
- Accommodation Spaces
- Data Centres
- Road Tunnels
- Cable Tunnels
- Chemical Fume Hoods
- Paint Locker
- Aircraft Hangars
- Turbine Hoods, Emergency Generator Rooms, Transformers etc. on offshore

Magazine Firefighting System

Magazine Firefighting system is provided with rapid reaction sprinkling system and Quartzoid bulb sprinkling system for the magazine compartments.

Magazine Firefighting System is provided

- To protect the magazine from External Fire
- To extinguish incipient fire within the compartment



1 PUMP
Pump delivers water flow to control and extinguish fires effectively

2 QUICK RELEASE VALVE
Quickly releases water flow to affected compartment

3 NOZZLES
Control fluid flow and pressure, directing it for spraying

4 INHIBITOR GAS SYSTEM
Releases gas to suppress fire by interrupting combustion or displacing oxygen

5 BLOW OFF PLATE
Releases excess pressure to protect equipment from overpressure damage

6 CONTROL PANEL
Indicate operating parameters and provided with switches for operation

Fire Protection System Consists of

- Inhibitor Gas System
- Water Sprinkling System

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