

ProCon PC-M Low Pressure Water Mist System for Machinery Spaces and Object Protection



Fire protection

Protection of a wide range of risks

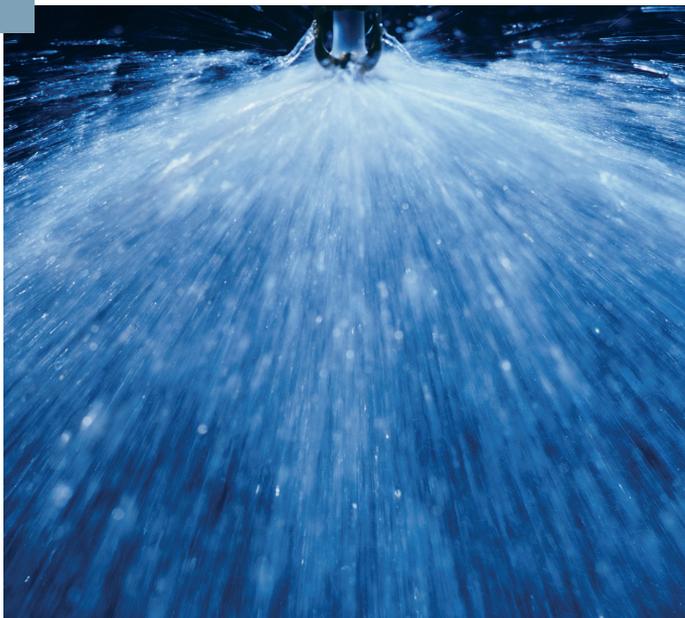
ProCon PC-M systems use innovative low pressure water mist technology. The systems are flexible enough to tackle many severe fire risks from conveyors to transformers whilst being tough enough to do so in harsh conditions.

The very nature of the term “machinery” can imply a vast array of equipment and risks which need protecting. Viking EMEA draws on almost 100 years of experience of helping end users select, engineers design and contractors install and maintain specialist fire protection measures for all types of machinery space risk.

The ProCon PC-M system creates fine droplets thus increasing the contact area for heat transfer and thereby optimising the cooling effect of the water. In addition – due to rapid vaporisation of the small water droplets within the location of the flame – a large amount of steam is produced, which prevents the oxygen from reaching the fire. An effective combination for rapid control and extinguishment of a fire. In addition, the smaller water droplets minimise the equipment distortion arising from the increase in heat.

ProCon PC-M systems operate with up to 60% less water compared to classic deluge systems. The system's water supply and pipe network can be made smaller accordingly. This saves not only cost but also space – a big advantage particularly when retrofitting in existing buildings. ProCon PC-M systems are based on low pressure water mist technology, which not only allows the use of cost-efficient system components but also increases the potential for other cost and space savings. Low pressure water mist systems can also be combined with classic sprinkler, deluge and hydrant systems all sharing an existing water supply. Furthermore, feeding-in via the fire brigade supply is possible – an additional safeguard, e.g. if the power supply for the pumps should fail.

The design of the PC-M nozzles and integrated strainer allows the use of standard galvanised pipes so expensive speciality piping systems are not required. The use of specially treated extinguishing water can also be avoided. A cap with retaining chain can protect the nozzle from outside contamination in particularly dirty environments such as surrounding conveyor belts.



Classic nozzle



ProCon PC-M nozzle

High performance

Minimum use of water

Numerous fire tests have proven that ProCon PC-M low pressure water mist systems are suitable for a multitude of applications. The system components and the design parameters of the system have been tested and certified by VdS Schadenverhütung and other independent test centres and approval bodies.

Thanks to their special nozzle design, ProCon PC-M nozzles dissipate the water so finely that, even at the low operating pressure of 4 bar, they produce water droplets with a fine distribution to take full advantage of the benefits of water mist technology.



Impulse spray nozzles

Structure and function

Great performance without complexity

The ProCon PC-M system is a classic deluge system at heart and is designed as such. With a straightforward design manual to advise particular design criteria, those familiar with deluge system design can get started immediately. The system is sub-divided into one or more extinguishing zones, each controlled by a fire detection system connected to the deluge valve.

Ultimate control

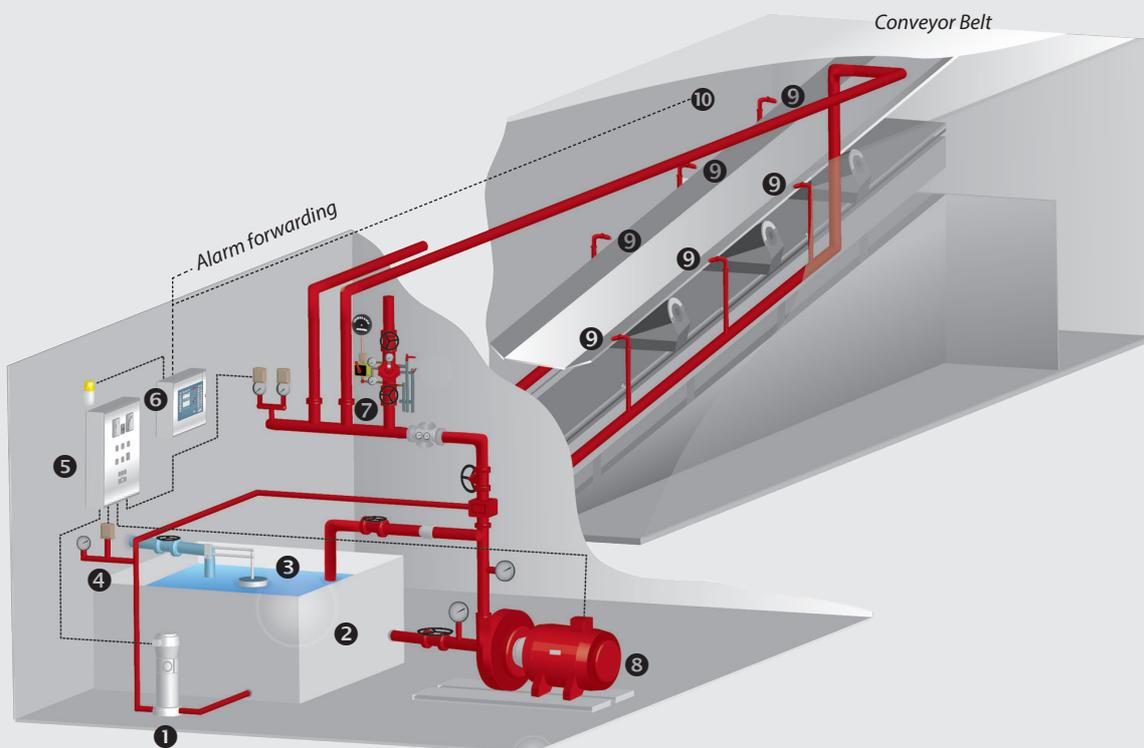
The ProCon PC-M deluge valve can be configured to operate in a multitude of ways to suit different application needs.

- Standard deluge for straightforward activation that keeps the valve open on activation – even if there is a power loss situation

- Manual release can be local to the valve, at a remote location nearby the area or object being protected, or in a control room
- Remote control or “On-Off” operation whereby the valve can be closed once the fire is extinguished, thereby further reducing the water usage

Extinguishing zones and zone partitioning

In the extinguishing zones, ProCon PC-M nozzles are aimed at the object to be protected. The ProCon PC-M nozzles require only 4 bar to operate effectively which not only reduces water demand but removes the need for expensive and complex high pressure pumps. In the event of fire the water is delivered as a mist into the source of the fire via all the ProCon PC-M nozzles installed in an extinguishing zone. This way even quickly spreading fires can be suppressed.



1 Jockey pump

2 Storage tank

3 Automatic feed mechanism

4 Town mains connection

5 Pump control cabinet

6 Fire detection and extinguishing control panel

7 Deluge valve set

8 Main pump

9 ProCon PC-M nozzle

10 Fire detector

ProCon PC-M systems can be designed both as a single-zone system for the protection of one extinguishing zone and as a multi-zone system for the protection of two or more extinguishing zones with just one water supply. Each extinguishing zone is assigned a deluge valve set which in the event of fire is triggered by the fire detection and extinguishing control technology and releases the flow of water only in the affected extinguishing zone. The more extinguishing zones there are, the more targeted the firefighting at the source of the fire and the less water needs to be used.

Water supply

The water supply to the ProCon PC-M system is generally provided by a storage tank with automatic refilling and a pump. Alternatively, in many cases, the system can be combined with a classic sprinkler, deluge or hydrant system to share the existing water supply. ProCon PC-M systems can also be connected to a suitable service water network or - using appropriate safety equipment - to the public drinking water supply. Additional safety is achieved through feeding-in a fire brigade supply, which then also allows supply if the power supply to the pumps fails, for example.

Once commissioned, the system is maintained ready to active 24 hours a day, 365 days a week. Water is provided up to the deluge valve, under pressure, ready to enter the system pipework on activation.

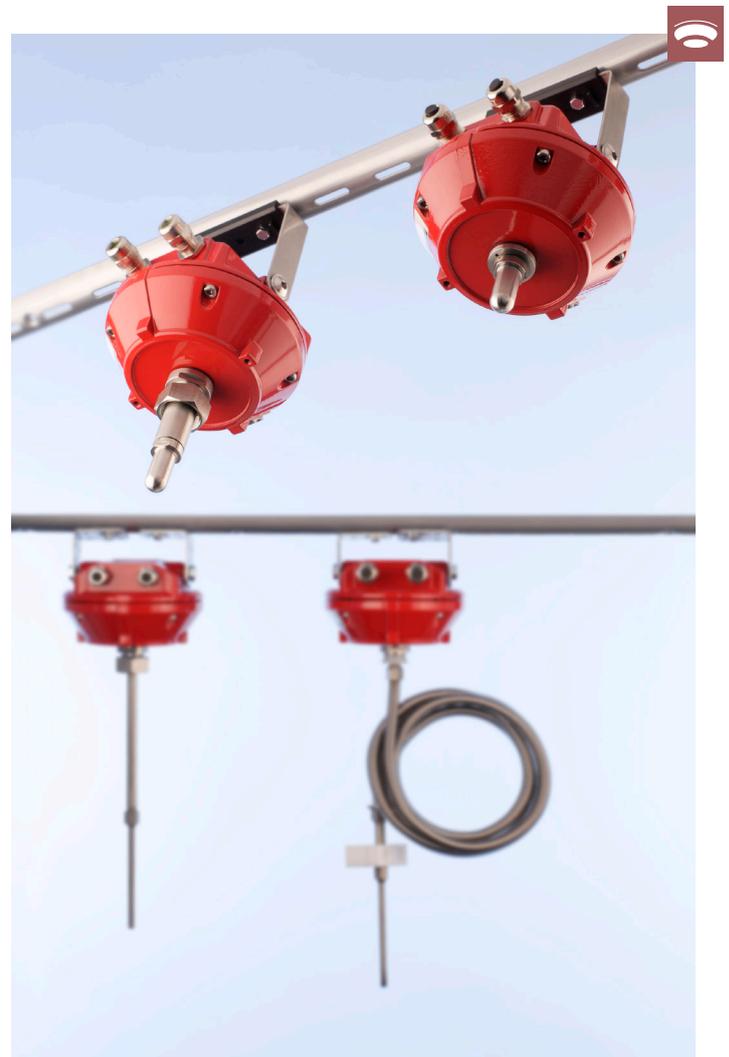
Fire detection and extinguishing control technology

The ProCon PC-M system is triggered by the proven and certified fire detection and extinguishing control technology from Viking. This guarantees optimal compatibility of electrical and mechanical system components. Unnecessary coordination efforts and interface issues between different trades can therefore be avoided.

Fire detection is adjusted to the risk of the facility to be protected – generally by means of electronic fire detectors which, in the event of a fire, send a signal to the fire detection and extinguishing control panel. This then activates the

deluge valve for the relevant extinguishing zone. At the same time acoustic and optical alarms are sounded locally and optionally transmitted to a permanently manned location, e.g. in order to alert the fire brigade.

If required, additional extinguishing zones surrounding the fire can also be activated to provide additional protection.



UniVario detectors

Applications

Machinery spaces that typically process or contain flammable fluids

Although machinery spaces may vary in their application, they all tend to either process or contain some form of flammable material, typically a flammable fluid such as hydraulic oil or lubricants. Typical examples might include:

- Conveyor belts
- Presses and stamping machines
- Motor test benches
- Compressors
- Hydraulic units including oil sump and oil tank
- Diesel emergency power generators

ProCon PC-M systems can be used for the protection of non-enclosed equipment and thus allow targeted protection of particular hazard points such as the oil-lubricated bearings of steam turbines and generators. In addition, ProCon PC-M systems can be used for cooling, e.g. of glass cladding or steel structures.

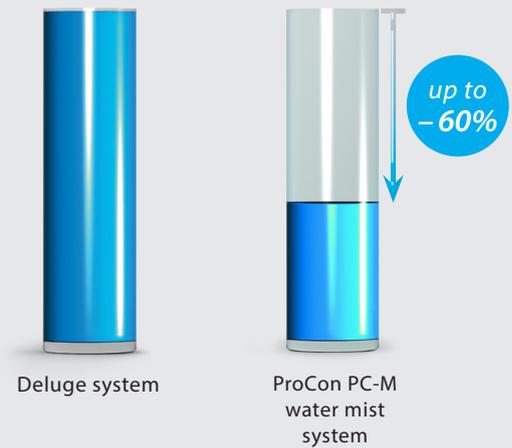


Benefits

At a glance

- Protection of investments and prevention of interruptions in operation
- Up to 60% less water compared to classic deluge systems
- Low expenditure on water supply and pipe network installation – ideal for retrofitting in existing buildings
- Use of cost-effective low pressure components
- Options for combination with classic sprinkler and hydrant systems
- Additional safeguard via fire brigade supply
- Use even under tough environmental conditions and in areas with more dirt and other contaminants
- The components used and the design parameters of the system have been tested and certified by VdS Schadenverhütung

Machine protection – Extinguishing water demand



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