



Minifog ProCon XP
High-pressure water mist system

*Cool down.
Fire Protection by*

MINIMAX

FIRE PROTECTION

for enclosed equipment

Minifog ProConXP high-pressure water mist systems by Minimax offer excellent fire protection with a minimum water consumption and are ideal for turbines, machines and equipment operated in confined spaces. Typical applications are gas turbine enclosures and motor test benches. People, assets and the environment will be reliably protected around the clock, substantial investments will be secured and long, costly downtimes will be avoided.

The use of water means that no specific health and safety measures need to be taken to shield people against the extinguishant. As a rule, the protected space can be entered immediately after successful extinction of the fire, whereas in the case of the CO₂ gas extinguishing systems traditionally installed with gas turbines and motor test benches the extinguishing gas must be removed from the protected room first. Moreover, using Minifog ProConXP means that pressure relief devices may be designed much smaller than for gas extinguishing systems – pressure relief may be possible even into adjacent rooms.

Compared to classical water spray systems, Minifog ProConXP reduces the consumption of water by approx. 95 %. This extremely low water consumption reduces the risk of water damage and thermal distortion of hot machine parts to a minimum. At the same time, the water supply unit becomes considerably smaller, thus reducing its footprint and volume and, consequently, the related building costs. The Minifog ProConXP system uses pipes with much smaller diameters. This, in turn, facilitates system retrofit.

To enhance safety, the Minifog ProConXP system uses the innovative ConstantFlow technology. This technology ensures that the water pressure at the nozzles remains constant throughout the entire time of operation. As a result, the extinguishing system is as effective in the last minute as it is in the first, thus offering increased protection against re-ignition caused, e.g., by combustible liquids leaking onto hot machine parts.

The activation of the Minifog ProConXP is ideally done by means of the well-proven fire detection and extinguishing control systems by Minimax. This ensures full compatibility of electrical and mechanical system components and prevents unnecessary coordination efforts and interface issues between components of different contractors.

As one of the world's leading suppliers of comprehensive fire protection systems, Minimax produces and offers not only the full range of system components – from detectors to nozzles – for Minifog ProConXP high-pressure water mist systems, but is also able to implement the entire project, from design, installation and commissioning to subsequent service for optimal and consistent one-stop fire protection.



Classical spray nozzle



ProCon XP nozzle

STRUCTURE AN

As regards structure and function, the Minifog ProCon XP system resembles a classical water spray extinguishing system. The system comprises one or more extinguishing zones with corresponding selector valves, a water supply unit and a fire detection and control system.

Extinguishing zones and zone partitioning

A piping network with vertically or horizontally oriented ProCon XP nozzles covers the protected rooms. Since one nozzle can protect an area of up to 16 m², and since pipes with very small diameters are being used, the pipe network is much less complex than that of a classical water spray system. In the event of fire, water is sprayed through all ProCon XP nozzles installed in the extinguishing zone. At a minimum pressure of 80 bar they atomize the water into very fine droplets.

The generally very small nozzle orifices used in high-pressure water mist systems must be kept clean to guarantee their desired spray characteristic. For this reason, corrosion-resistant materials such as stainless steel are used in the Minifog ProCon XP system. Moreover, each nozzle has an integrated sieve, and only filtered water is used.

Minifog ProCon XP systems can be designed as a single-zone system to protect only one room or as a multi-zone system for the protection of two or more zones. Multi-zone systems are equipped

with selector valves, which, in the event of a fire, will be controlled by the fire detection and control panel in such a way that water is only sprayed into the room affected by the fire.

Water supply unit

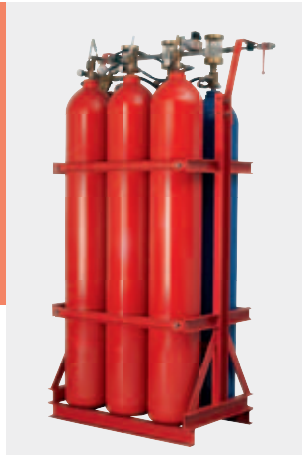
The supply of water can be realised either via a pump unit or a cylinder battery.

The pump units comprise of a break tank, the high-pressure pump and the pump control cabinet. The compact design of the unit on a common skid is space-saving and enables fast commissioning on site. The automatic refilling of water into the break tank ensures practically unlimited operability. With single-zone systems, the high-pressure pump is activated by a signal from the fire detection and control panel. With multi-zone systems the pipe network is filled with water up to the selector valves during stand by. An additional jockey pump – controlled via a pressure transmitter – maintains a constant pressure of approx. 14 bar, which drops briefly

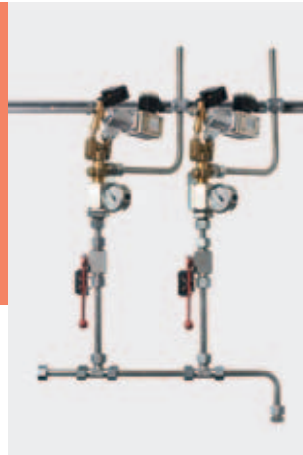
Pump unit



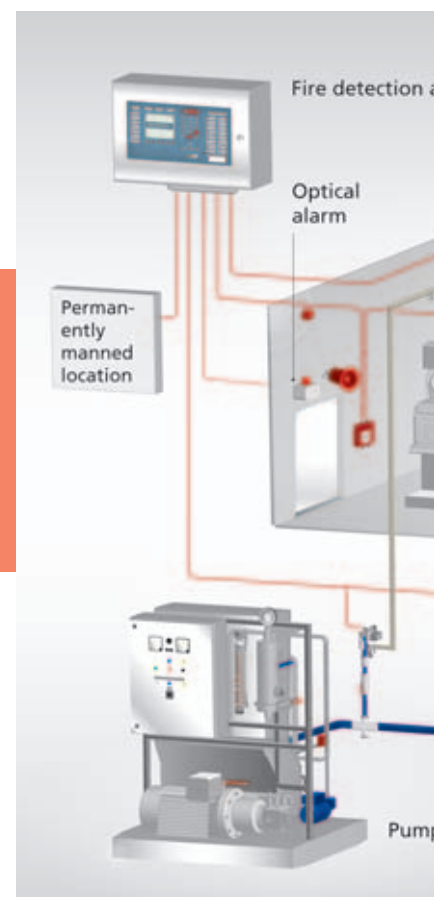
Cylinder battery



Selector valves



Multi-zone system



D FUNCTION

simply safe

when a selector valve is opened in the event of fire. This is detected by a pressure transmitter, and the high-pressure pump is then activated via the pump control cabinet.

The cylinder battery consisting of nitrogen and water cylinders allows system operation without the need of external energy for at least 10 minutes. By combining several cylinder batteries, longer operation times can be achieved. In the event of fire, the fire detection and control panel activates the pilot nitrogen cylinder. Pneumatic release devices open the other nitrogen cylinders. The compressed gas flows into the water cylinders and drives the extinguishing water into the pipework to the extinguishing nozzles.

Fire detection and control technology

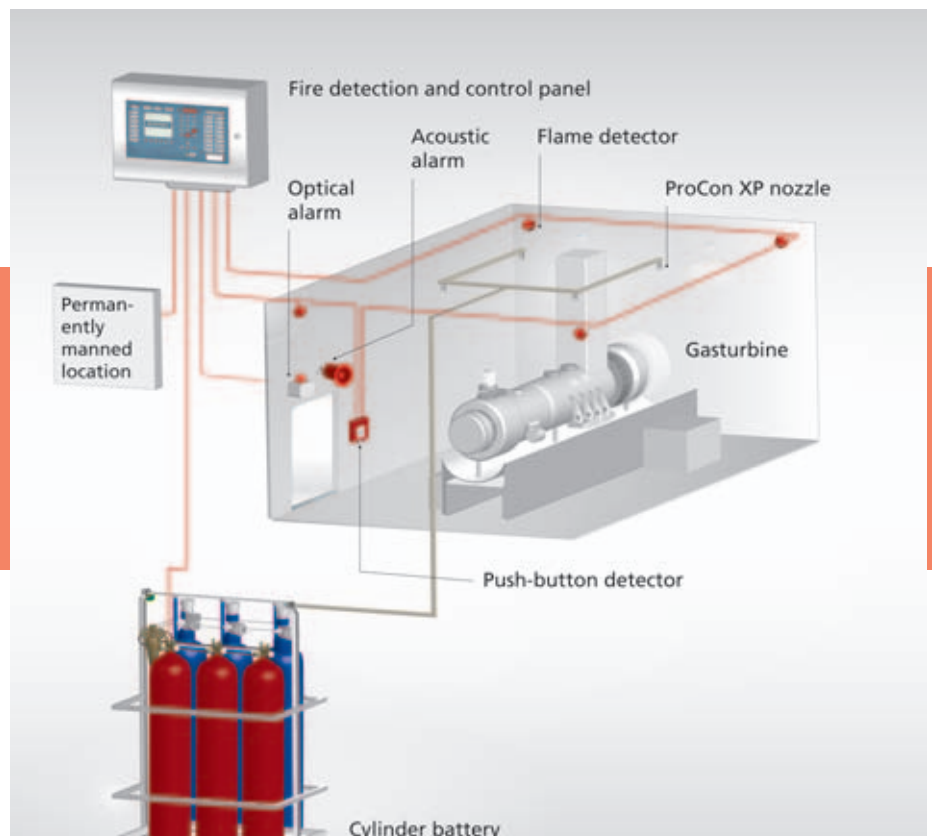
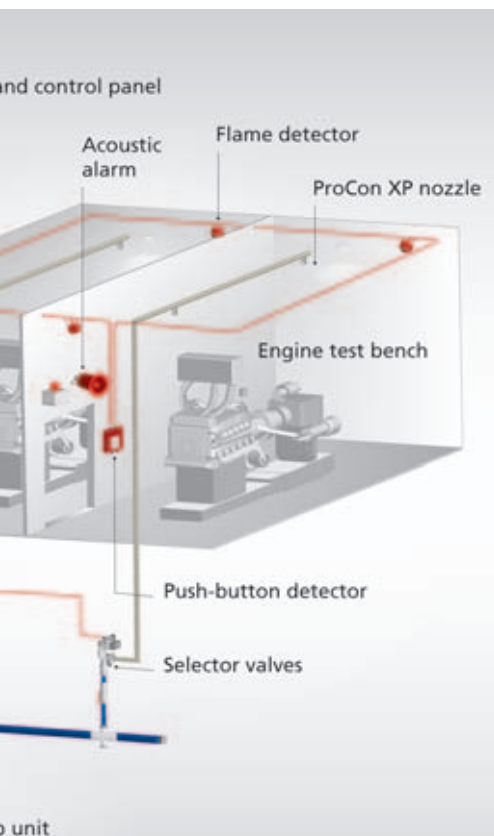
The protected rooms are ideally monitored by fast and reliable UniVario flame detectors, which transmit a signal to the FMZ5000 fire detection and control panel in the event of fire.

In addition, the extinguishing zones are equipped with electrical push-button detectors for manual activation of the Minifog ProCon XP system. In the event of a fire, the fire detection and control panel activates the water supply unit and, in multi-zone systems, also the corresponding selector valve. At the same time, it triggers an acoustic and optical alarm and transmits a signal to a permanently manned location.

Water mist extinguishing systems

Since 1993, Minimax has developed and installed high-pressure and low-pressure water mist extinguishing systems under the "Minifog" brand for a wide range of applications, thus making Minimax one of the pioneers of water mist technology. The water mist technology – often also called fine spray technology – utilises the physical properties of the water more efficiently than classic water extinguishing systems. Special nozzles and sprinklers atomize the water at increased pressures into fine droplets. The result is a larger total surface of the water, allowing it to absorb heat and to evaporate more quickly. The resulting cooling and oxygen displacing effects allow for a particularly effective fire fighting with a minimum amount of water.

Single-zone system



APPLICATION

A class of its own



The excellent suitability of Minifog ProCon XP is proven by numerous fire and extinguishing tests under life-like conditions. Both VdS Schadenverhütung and FM Global have tested and certified the components, design parameters and extinguishing effectiveness of the system. The system approvals of VdS Schadenverhütung and FM Global include engine rooms and turbine enclosures and their auxiliaries as defined in FM 5560, up to a volume of 260 m³ and a height of 5 m.

Application examples

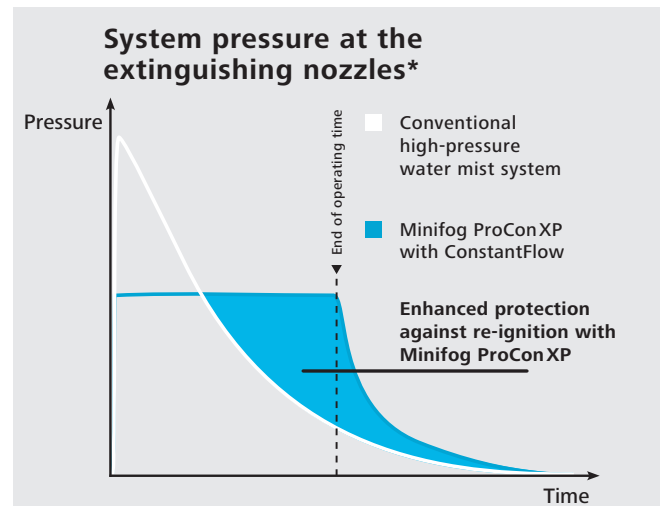
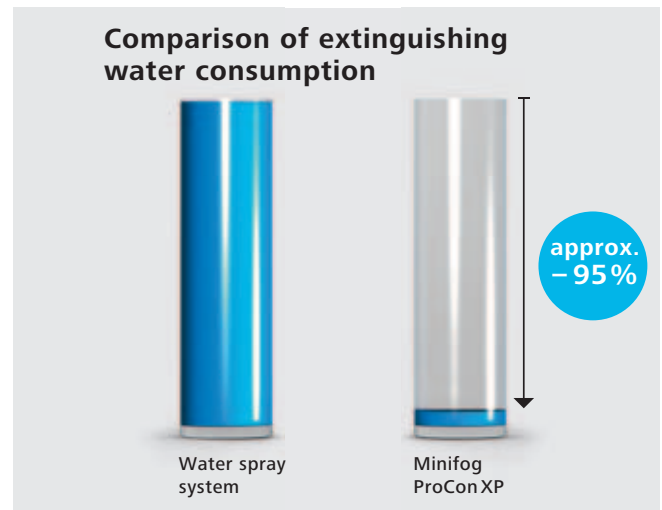
- ▶ Motor test benches
- ▶ Gas turbines
- ▶ Steam turbines
- ▶ Auxiliaries of turbines
- ▶ Gears, drive shafts and bearings
- ▶ Hydraulic units including oil sump and oil tank
- ▶ Generators
- ▶ Diesel emergency power supply units
- ▶ Machine tools
- ▶ Compressors



ADVANTAGES

at a glance

- ▶ Substantial investments will be protected, and long and costly downtimes will be prevented.
- ▶ The use of water means that no specific health and safety measures need to be taken to shield people against the extinguishing agent.
- ▶ Compared to classical water spray systems, Minifog ProConXP reduces the consumption of water by approx. 95%.
- ▶ Minifog ProConXP can be designed as a multi-zone system even if the water is to be supplied by a cylinder battery.
- ▶ Enhanced protection against re-ignition: The use of the innovative ConstantFlow technology ensures that the system pressure remains constant throughout the entire operation time even if the water is supplied by a cylinder battery.
- ▶ The use of the well-proven Minimax fire detection and control technology ensures full compatibility of electrical and mechanical system components.



*In case of water supply by a cylinder battery.

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