



Fire protection in high-rise buildings with the Sinorix™ high-pressure water mist system

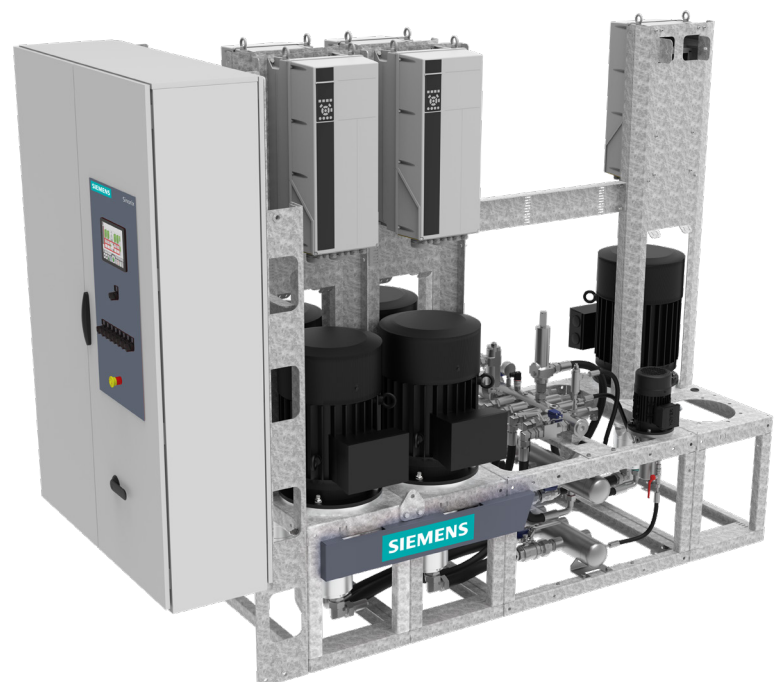
www.siemens.com/water-mist-fire-suppression

SIEMENS

Sinorix high-pressure water mist system

One fire safety solution for an entire high-rise building

- 1 Restaurant/Sky bar/Glass protection (OH1)
- 2 Kitchen/Canteen (OH1)
- 3 Hotel/Hospital (OH1)
- 4 Residential (OH1)
- 5 Office/Conference room (OH1)
- 6 Stairs (OH1)
- 7 Data centre (OH1)
- 8 Library (OH1)
- 9 Laundry room (OH3)
- 10 Storage room (OH3)
- 11 Reception/Lobby (OH1)
- 12 Atrium (OH3)
- 13 Pump room/Technical room (OH1)
- 14 Underground car park, including parking garages with electric vehicle (OH2)
- 15 Auditorium (OH4)





Protecting your tomorrow with Sinorix

High-rise buildings pose unique fire safety challenges. Access for firefighters can be highly difficult, especially on the upper levels the access for fire fighters can be very difficult, especially on the last levels of the buildings.

Evacuating people also has its own challenges and limitations. That is why it is fundamental for high-rise buildings to be equipped with an efficient and reliable fire suppression system, such as the Sinorix high-pressure water mist solution.

Faster, smarter, and safer fire suppression

Designed to protect people and valuable assets, the Sinorix high-pressure water mist system extinguishes fires with minimal water usage, while delivering maximum extinguishing effectiveness.

The fire suppression principle of high-pressure water mist works by transferring water into a fine mist that rapidly cools flames, suppresses heat and smoke, and controls oxygen at the fire source, without any harm to people or the environment. Its reliability and efficiency have been validated by strict fire safety tests.

Designed for high-rise performance

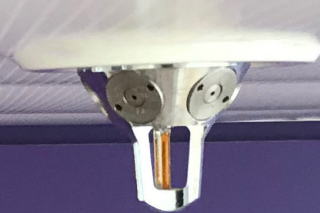
In the face of growing urban density and increasingly complex building designs, Sinorix high-pressure water mist systems offer a reliable, eco-friendly fire protection solution with advanced design.

The Sinorix system is uniquely engineered to meet the demanding requirements of high-rise buildings:

- High-pressure pumps ensure consistent performance, even on top floors
- Small-diameter stainless steel pipes reduce shaft space usage and ease installation
- Low water consumption limits water damage
- Localized activation only targets affected areas, preserving the rest of the building

In addition, innovative high-pressure water mist solutions combined with a performance-based approach can overcome the demand of modern architecture in high-rises, being well-suited for confined areas, modern tall atriums and even mass timber buildings.





Meeting the **aesthetic needs of buildings**

Functionality does not have to come at the cost of design. The Sinorix nozzle's aesthetic and discrete design perfectly blends in with any surrounding and interior architecture. In addition, the Sinorix high-pressure water mist nozzle can be manufactured in any color to match the room finishes. This allows architects and designers to integrate fire safety seamlessly into their aesthetic vision.

Simplified installation

The Sinorix high-pressure water mist system is easy to install in new buildings, as well as retrofit retrofit in existing buildings. The Sinorix high-pressure water mist pipes have a very small diameter, which makes them easy to bend, mount and connect with press fittings. This makes the installation of the Sinorix system faster than traditional sprinkler system, which can require time consuming pipe thread cutting.

Supporting **safe evacuation** and firefighter access

Fire suppression is not just about stopping flames. It is also about creating safe conditions for occupants and emergency responders. Sinorix helps control radiant heat, toxic gases, and smoke. Visibility for evacuation is improved, and the system prevents fire from spreading, while lowering temperature.

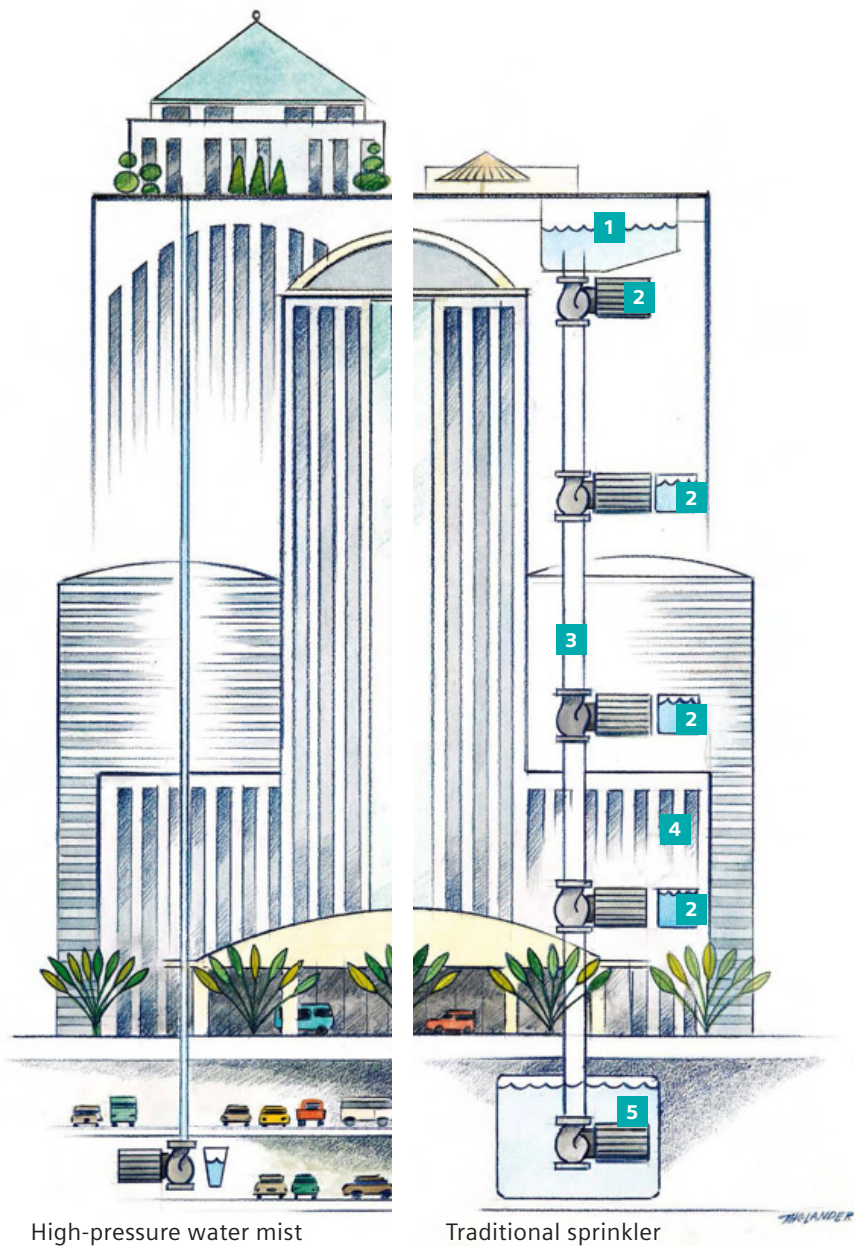
Reducing damage and downtime

One of the biggest challenges in fire recovery is secondary water damage. Traditional sprinklers often cause wide-spread flooding and costly repairs. Sinorix solves these issues with its many high-performance features, offering a clean agent fire suppression system that leaves very little water damage or residue behind. This means faster recovery, lower post-cleanup costs, and reduced downtime for building operations.

Best choice for window cooling

The excellent cooling features of the Sinorix high-pressure water mist system make it the perfect choice for protecting glass facades. Our system has passed EN-1364-1 fire resistance test for non-loadbearing elements. Instead of spraying water on the glass, the Sinorix system atomises the water in front of the glass. This three-dimensional cooling removes the risk of thermal stress cracks associated with traditional water-based sprinkler systems, and allows the use of a cheaper class of glass. This means significant savings for the building investors. In addition, the fire test has been passed by using a standard Sinorix high-pressure water mist nozzle. Traditional sprinkler systems require a dedicated sprinkler for fire protection of glass facades, which can make the sprinkler solution for glass facades more expensive.

Reduced total cost of ownership

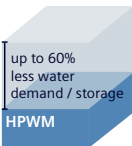


With high-pressure water mist, you gain valuable space, efficiency, and flexibility:

- 1 Rooftop freedom:** No bulky reservoir is required on top of the building, allowing you to dedicate the top floor to premium penthouse apartments.
- 2 More usable floor space:** The system maintains water pressure without the need of additional sprinkler units on multiple floors—freeing up space for other revenue-generating purposes.
- 3 Smaller pipework, easier installation:** Compared to conventional sprinkler systems, Sinorix uses riser pipes up to three times smaller in diameter, reducing installation time and saving on material costs.
- 4 Cost-effective facade protection:** There's no need for expensive fire-resistant glass or dedicated facade sprinklers, allowing budget to be redirected toward high-quality interior finishes or design upgrades.
- 5 Compact water supply:** Large water reservoirs are no longer necessary—this space can instead be repurposed, for example, as an integrated garage or other functional area.

Sinorix high-pressure water mist system (Based on Sinorix 60 bar mist nozzles)				Sprinkler system	
Standard: EN 14972				Standard: EN 12845	
Occupancy	Area of operation [m²]	Required capacity of the pump [l/min]	Required capacity of the tank for 60 minutes' supply [l]	Required capacity of the pump [l/min]	Required capacity of the tank for 60 minutes' supply [l]
OH1	72	165	9,900	360	21,600
OH2	144	390	23,400	720	43,200
OH3	216	770	46,200	1,080	64,800
OH4	360	720	43,200	1,800	108,000


 Sinorix system uses **up to 60% less water** compared to sprinkler system for fire risk areas in a high-rise building


 up to 60% less water demand / storage
HPWM


 SPRINKLER

Key components of the **Sinorix system**

The Sinorix high-pressure water mist system integrates advanced fire suppression technology through a comprehensive set of components, including a high-pressure modular pump unit, section valves, specialized nozzles, press fittings, and a stainless-steel piping network.

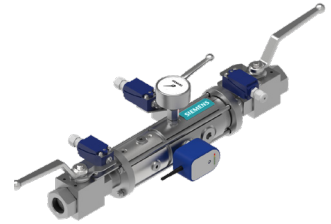
Sinorix high-pressure water mist nozzle

- 100% capacity and spray pattern tested
- High nozzle spacing (5.5m)
- Aesthetic nozzle design



Sinorix high-pressure water mist section valve

- Easy servicing, installation and testing
- Excellent performance
- High-corrosion proof



Sinorix high-pressure water mist pump unit

- Lubricated by water, making the pump maintenance free
- Durable and compact design
- Low energy consumption



Sinorix high-pressure water mist pipes and fittings

- Reduced pipe diameter
- Quick and flexible installation
- Lightweight and space-saving



Sinorix high-pressure water mist fire hose reel cabinet

- an immediate firefighting tool

- Directly integrated into the high-pressure water mist system, thus one system and technology for the entire building
- Small cabinet footprint
- Large coverage: 30m and 50m long fire hose
- Easy to operate

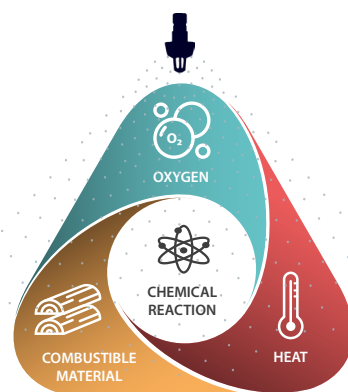


The **intelligent** use of water

How does it work?

Fire needs three elements of the “fire triangle” to ignite and burn: oxygen, heat, and combustible material. The removal of any one of these elements will extinguish a fire.

The Sinorix high-pressure water mist system goes further. It attacks two elements of the fire triangle: oxygen and heat. The uniqueness of high-pressure water mist is that it combines the suppression effect of gas and sprinkler systems. In addition to removing oxygen like gas systems, it simultaneously cools the fire like a traditional sprinkler. The cooling effect additionally lowers the risk of re-ignition.



The power behind Sinorix

The system operates with precise technical specifications, delivering water droplets ranging from 10 to 200 microns under working pressures of 60 to 100 bars through a clean water delivery system.

When activated, the system releases micro droplets through specialized nozzles, creating rapid evaporation upon contact with fire. This process expands the water volume up to 1,700 times, simultaneously providing cooling effects and oxygen displacement at the fire source. The system's efficient operation ensures comprehensive fire protection while optimizing water usage.

Engineering excellence

Our fire safety engineering team delivers expert guidance grounded in in-depth knowledge of local regulations and hands-on experience. From initial design and installation to testing, commissioning, and ongoing maintenance, we support our clients at every stage through a global network of specialists. Our water mist systems are engineered to meet the highest standards of sustainability, aesthetics, and performance - while ensuring full compliance with all relevant regulations.

Compliance with ISO standards

Quality, Environment and Health and Safety management systems at Siemens are compliant with corresponding ISO standards and are certified by classification society DNV. Achieving an ISO quality management system is proof of our commitment to the environment, quality, safety and productivity, as well as to meeting our customers' needs and providing efficient products, systems and services

Tested and approved

The design of the Sinorix high-pressure water mist system is based on full-scale fire tests. Approvals are obtained by testing according to specifications from, for example, FM Approvals and VdS, as well as following European guidelines.



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Siemens Smart Infrastructure addresses these topics by combining the real and the digital worlds.

Our technology transforms infrastructure, across buildings, electrification, and grids, at speed and scale, enabling collaborative ecosystems to accelerate our customers' digital journey to become more competitive, more resilient, and more sustainable.

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