

What provides highly  
reliable fire protection?



Intelligent extinguishing solutions from Siemens.  
Sinorix H<sub>2</sub>O Jet – flexible, effective, and environmentally friendly.

Answers for infrastructure.

**SIEMENS**



## Flexibility – the intelligent solution for effective protection

Effective extinguishing solutions optimally protect the environment, people, and business processes from fire. Sinorix™ H<sub>2</sub>O Jet is a solution that uses the natural agent water and reflects Siemens' extensive expertise in extinguishing. Besides the latest technology, it also comprises a comprehensive service portfolio – from risk assessment, system design, installation, and commissioning to maintenance.

Sinorix H<sub>2</sub>O Jet controls and extinguishes open, fast-growing fires in a highly efficient way at low hydraulic pressure. Using a mixture of water and gas, its unique two-phase flow technology generates fine water droplets – for a maximum cooling effect. Moreover, the solution is harmless for both people and the environment.

# Sinorix H<sub>2</sub>O Jet – efficient water mist technology

## ■ Flexible and tailored

Sinorix H<sub>2</sub>O Jet is a highly flexible extinguishing solution that can be used for both object and volumetric protection to control and extinguish open fires. This means that a single object can be protected in a targeted way or an object and its surrounding area within a defined radius. Moreover, Sinorix H<sub>2</sub>O Jet mirrors the extensive expertise and profound know-how we have gained in the field: with the by Siemens patented nozzle technology combined with the innovative Sinorix CDT – Constant Discharge Technology – that provides constant flooding.

## ■ Effective extinguishing of open fires

Sinorix H<sub>2</sub>O Jet is the ideal solution where quick control or extinguishing of open fires is required. Using the natural extinguishing agent water, it effectively controls or even extinguishes a fire by reducing the heat. As water is harmless for the environment and people, Sinorix H<sub>2</sub>O Jet is a safe solution that can also be used for manned areas.

## ■ Fire safety from an experienced partner

As a leading international provider of fire safety technology – Siemens was among the first to provide innovative extinguishing solutions in combination with reliable fire detection technology 100 years ago – we have learned how fires work. The knowledge we gained has contributed to the development of innovative fire safety solutions, which provide unique protection, incorporated in a proven and integrated concept. You receive everything you need for comprehensive fire protection from one source. It's a matter of course that your solution will be tailored to your specific applications and risks of fire, combined with a comprehensive service offering – from risk assessment, application support, system design, installation and commissioning to maintenance and modernization.

All our solutions comply with international standards and regulations.

## ■ Typical applications

- Turbines and generators
- Engine test stands
- Production facilities
- Storage for flammable liquids
- Coating or painting lines

## Highlights

- Integrated solutions from one source, from risk assessment to maintenance
- Highly flexible for both object and volumetric protection
- Innovative and by Siemens patented nozzle for object protection
- Harmless for people and the environment





# Sinorix – intelligent extinguishing solutions to keep fire virtual

## ■ Sinorix – fire protection from Siemens

A perfect fire protection solution requires technology and expertise. Sinorix, the intelligent extinguishing solutions, offer you the latest technologies based on

long-term know-how and experience in fire detection and extinguishing from a global partner. The solutions are tailored to your individual needs to maximize business continuity. Fires are detected early and extinguished quickly and reliably.

Sinorix high-quality solutions protect people, environment, processes, and assets. The solutions also comprise a comprehensive service portfolio – from risk assessment, system design, installation, and commissioning to maintenance.

## Sinorix portfolio overview

### ■ Sinorix CDT (Constant Discharge Technology)

Innovation based on extinguishing with natural agents to provide constant gas discharge that allows a reduction of overpressure flaps by up to 70%.

### ■ Sinorix 1230

Solution based on the environmentally friendly extinguishing agent 3M™ Novec™ 1230 Fire Protection Fluid with 42-bar technology that enables highest extinguishing efficiency and flexibility in engineering.

### ■ Sinorix H<sub>2</sub>O Gas

Highly efficient combination of nitrogen and water extinguishing technology with an additional positive cooling effect – for secure extinguishing and reliable room protection.

### ■ Sinorix H<sub>2</sub>O Jet

Unique two-phase flow technology that generates fine water droplets at low hydraulic pressure – for efficient control of open fires as well as for accurate extinguishing in object protection.

### ■ Sinorix N<sub>2</sub> • Ar • CO<sub>2</sub>

Extinguishing solutions with natural agents for maximum flexibility in design and engineering of systems.

### ■ Sinorix 227

Extinguishing solution based on the globally known HFC 227ea with 25- and 42-bar technology for fast and reliable extinguishing.

### ■ Sinorix al-deco STD

Object protection system for machine tools offering reliable fire detection and effective extinguishing.

### ■ Sinorix Door-Fan-Test

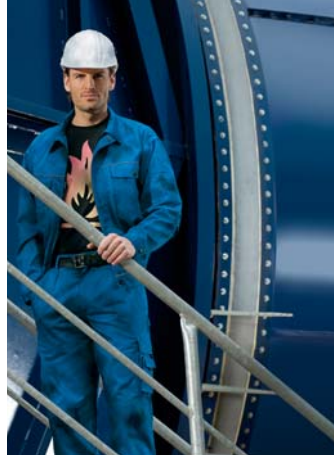
The Door-Fan-Test from Siemens offers a simple, cost-effective, and environmentally friendly method for measuring room tightness and can also be used to directly locate leaks.

**Intelligent means: partnership.**  
Sinorix – long-term experience from a global partner.

**Intelligent means: flexible.**  
Sinorix – adaptable for any risk of fire.



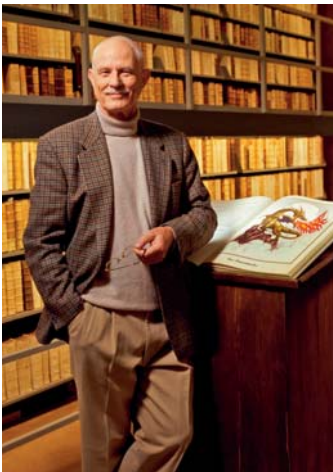
With Sinorix, you benefit from a global partner with extensive experience in fire protection – for example, Siemens already offered innovative extinguishing solutions 100 years ago. In addition, we support you with a comprehensive range of services that are tailored to your needs.



Sinorix offers solutions for every risk of fire and can be adapted to your specific object or room protection requirements in a flexible way.

**Intelligent means: innovative.**  
Sinorix – most advanced technologies for highest effectiveness.

**Intelligent means: tailored.**  
Sinorix – customized for your unique requirements.



Sinorix innovative extinguishing solutions are based on new insights and inventions and thus deliver cutting-edge technologies with the highest effectiveness. Our expertise and innovative strength are at your disposal around the world.



Sinorix extinguishing solutions are tailored to your individual applications. Whether an object or a room, a single or a multi sector needs to be protected, we support you in assessing the risk and selecting the best technology for your business.

**Intelligent means: reliable.**  
Sinorix – for optimized business continuity.

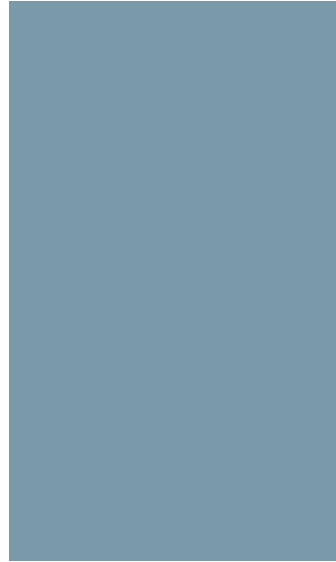
**Intelligent means: sustainable.**  
Sinorix – to protect people, environment, processes, and assets.



Long-term experience and integrated solutions tailored to your requirements ensure reliable fire protection that supports the continuity of your business processes.



Siemens offers you a comprehensive range of extinguishing solutions to protect people, environment, processes, and assets. Siemens supports you today and for years to come to make your investment a long-term win.



Nozzle for object protection

# Sinorix H<sub>2</sub>O Jet – flexible solution for efficient and safe extinguishing

Sinorix H<sub>2</sub>O Jet controls and extinguishes open, fast-growing fires in a highly efficient way. The unique two-phase flow technology uses a mixture of water and gas in order to generate fine water droplets at low hydraulic pressure – creating a high cooling effect.

## ■ Effective extinguishing through heat absorption

Sinorix H<sub>2</sub>O Jet is based on a simple principle: It extinguishes a fire by absorbing heat from it. The cooling effect is ensured through a small droplet size of only 150 – 200 µm. The smaller the water droplets, the larger the surface area available to absorb heat from and to smother a fire.

As only droplets of the right size provide maximum cooling, we carefully consider the risks of fire for your application during the planning phase to decide how Sinorix H<sub>2</sub>O Jet droplets should best be formed. In addition, choosing the appropriate nozzle either for object or volumetric protection ensures droplets of the most effective size. A hydraulic calculation software designed by Siemens and tested in a live test by an external test lab also ensures the right calculation of the system and the droplets.

## ■ Efficient and economic solution

With its unique two-phase flow technology, Sinorix H<sub>2</sub>O Jet is a low-pressure system with less than 16 bar. At the same time, it reaches the same effectiveness as a high-pressure system because it mixes nitrogen with water. The nitrogen thus acts as a propellant for the water and is carried by the same piping network.

The combination of the two-phase flow technology with the nozzles results in fine water droplets at low hydraulic pressure. This offers many advantages, including the usage of simple galvanized pipes as well as autonomous systems with steel tanks of 300 l. In addition, the moderate water quality requirements ensure cost-efficient operation.

## ■ Ideal solution for object and volumetric protection

Two different kinds of nozzles can be used with Sinorix H<sub>2</sub>O Jet. The nozzle based on the Laval principle is the right choice for object protection. Water and nitrogen are transported to the nozzle in the same pipe. At the nozzle, the water/gas mixture is accelerated, forming fine water droplets at the nozzle outlet and enabling a targeted protection of an object. For volumetric protection – which means protecting an object plus its surrounding area – the volumetric nozzle is used. Here, water and nitrogen are transported to the nozzle inlet. Then, the water/gas mixture is spread as water mist droplets.



Concept example of a Sinorix H<sub>2</sub>O Jet solution



Nozzle for volumetric protection



This nozzle has less kinetic energy than the nozzle based on the Laval principle and does not use the acceleration phenomena.

Another advantage is the high jet length of Sinorix H<sub>2</sub>O Jet. This offers the possibility to have up to 8 m clearance between the object and the nozzles. Therefore, the nozzles can be optimally positioned for highly accurate extinguishing while the object remains accessible. The big plus: Operation, maintenance or repair work are in no way disturbed.

■ **Innovative extinguishing technology**

A further advantage of the solution is the combination with our innovative Sinorix CDT – the Constant Discharge Technology. Thanks to this unique, by Siemens patented, and VdS-approved valve technology, a constant flooding can be ensured – which means that the piping network can be dimensioned smaller compared to conventional extinguishing systems.

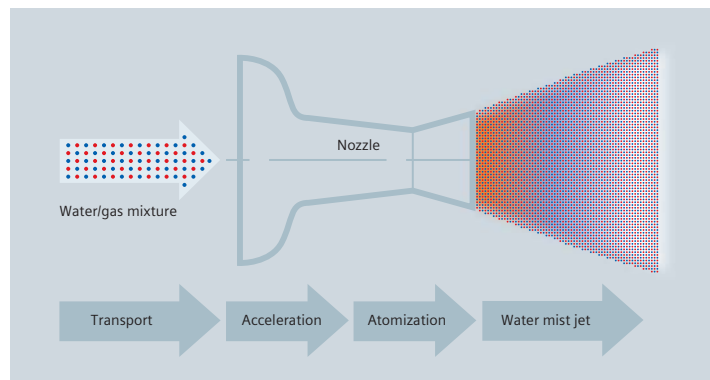
**Highlights**

- Low-pressure system with maximum effect
- Enormous cooling effect
- Small water consumption
- Object and surrounding area can be protected
- Object stays well accessible thanks to high jet length of Sinorix H<sub>2</sub>O Jet
- CDT valve technology for constant flooding

Optimized droplet size for maximum cooling effect



Nozzle based on Laval principle





Sinorix H<sub>2</sub>O Jet is safe for people and can thus be used in manned areas.

## Natural agent – safe for people and the environment

Sinorix H<sub>2</sub>O Jet uses water as extinguishing agent and nitrogen as a propellant. Both are harmless for people and the environment. Therefore, Sinorix H<sub>2</sub>O Jet can also be used for areas that are normally or occasionally manned.

### ■ Sinorix H<sub>2</sub>O Jet – a safe solution

Water and nitrogen present no hazard for people's health. This means that Sinorix H<sub>2</sub>O Jet can be used for areas that are normally or occasionally manned without the need of special personal safety precautions such as time delay devices. Water and nitrogen are always available and can be safely and easily transported, stored, and refilled.

### ■ Best prerequisites for reliable extinguishing

Water is chemically neutral and does not leave any residues or decomposition products. Furthermore, it is harmless for the environment – and has no impact at all on the ozone layer nor does it contribute to global warming.

### Highlights

- Presents no hazard to people's health or the environment
- Low maintenance costs thanks to easy and cost-efficient refilling
- Safe and easy transportation and storage





# Technical overview

Sinorix H <sub>2</sub> O Jet extinguishing solution	
Nozzle pressure	5 – 8 bar (object protection), 10 – 15 bar (volumetric protection)
Nozzle opening	1 – 3 mm
Droplet velocity	50 – 150 m/s
Droplet size	150 – 200 µm
Jet length	Up to 8 m (nozzle for object protection)
Nozzle coverage area	25 m <sup>2</sup> (nozzle for volumetric protection)
Piping network	Galvanized steel pipes, designed for 16 bar
Gas content by mass	6%
Water quality	Low requirements (filtered water)
Patents	Nozzle for object protection based on Laval principle
Approvals/standards	CNPP-tested

Sinorix H<sub>2</sub>O Jet is the ideal solution to protect an object and its surrounding area.



# Answers for infrastructure.

## ■ Megatrends driving the future

The megatrends – demographic change, urbanization, climate change, and globalization – are shaping the world today. These have an unprecedented impact on our lives and on vital sectors of our economy.

## ■ Innovative technologies to answer the associated toughest questions

Throughout a 160-year history of proven research and engineering talent, with more than 50,000 active patents, Siemens has continuously provided its customers with innovations in the areas of healthcare, energy, industry, and infrastructure – globally and locally.

## ■ Increase productivity and efficiency through complete building life cycle management

Building Technologies offers intelligent integrated solutions for industry, commercial and residential buildings, and public infrastructure. Over the entire facility's life cycle, our comprehensive and environmentally conscious portfolio of products, systems, solutions, and services for low voltage power distribution and electrical installation technology, building automation, fire safety and security ensures the:

- optimum comfort and highest energy efficiency in buildings,
- safety and security for people, processes, and assets,
- increased business productivity.



Siemens Switzerland Ltd  
Industry Sector  
Building Technologies Division  
International Headquarters  
Gubelstrasse 22  
6301 Zug  
Switzerland  
Tel +41 41 724 24 24

The information in this document contains general descriptions of technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

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