

Sinorix® Engineered Fire Suppression Systems

Sinorix 1230 I Sinorix 227 Fire-Suppression Agents (with Novec™ 1230 Fire Protection Fluid & HFC-227ea)

Sinorix 5112 Fire-Suppression Agent (with FK-5-1-12 Fire-Protection Fluid)

ARCHITECT AND ENGINEER SPECIFICATIONS

System Overview

Sinorix is an intelligent, customizable and environmentally friendly fire-suppression solution that protects mission-critical areas and prevents collateral damage. Sinorix Engineered Fire Suppression responds to and suppresses fires at their initial stages, through its high-tech, rapid suppression.

Sinorix, which is an effective solution for upgrading from Halon systems, is EPA approved, is recommended for use under the following conditions:

- suitable for protecting high-value assets, whereas other fire-protection methods could pose as a damage
- where an electrically non-conductive medium is needed
- where storage efficiency is critical

Specifications

Sinorix by Siemens — Fire Safety is used for total flooding hazard protection. The protection is achieved by one (1) or more interconnected cylinder assemblies configured to achieve the specified design concentration.

Each engineered fire-suppression system and its components are designed, tested and listed to ®Underwriters Laboratories (UL), Inc; Factory Mutual (FM), and NFPA 2001 standards for clean-agent fire suppression systems, as identified by ®UL File No. EX4724 and with NFPA Standard No. 2001 Clean Agent Fire Suppression Agent Systems.

Upon completion of system installation, a final checkout inspection is made by a qualified inspector trained by the manufacturer. All materials furnished by the manufacturer are warranted against defects in material or workmanship for a period of one year from the date of manufacture.

Each Sinorix system may be designed to distribute agent to protected areas with temperatures as low as 32°F (0°C) and as high as 120°F (49°C).

Sinorix is installed in full compliance with the manufacturers' installation manual referenced in the ®UL Listed, the FM Approved and with NFPA Standard — No. 2001.

Piping and Fittings

Ferrous piping is used — either black or galvanized — conforming to ASTM A-53 or A-106, or other materials conforming to these strength requirements.

The thickness of the pipe wall must be calculated in accordance with ANSI B-31.1, Power Piping Code.

Dry air or nitrogen is blown through the piping to remove chips or other debris prior to installation of the nozzles.

All pipe ends are thoroughly reamed after cutting, and all oil and chips are removed. All piping must be securely fastened with particular attention being given to fastening near nozzles to prevent pipe movement due to the reaction force during discharge.

All fittings used are either 300 pounds (136.1 kg.) or 600 pounds (136.1 kg.) in class, in accordance with NFPA Standard 2001.

Features

Sinorix 1230 System

Sinorix 1230 is an automatic, waterless suppression system used to protect vital assets and artifacts. The system uses Novec 1230 clean agent (Model CPY-1230), which suppresses fire at low concentrations, and is safe for sensitive electronic equipment because it is electrically non-conductive.

Model CPY-1230 is safe for human exposure at design concentrations, and has the following characteristics:

- ODP of zero
- GWP of 1
- Atmospheric lifetime of 3-5 days

Sinorix 227 System

Sinorix 227 is another type of automatic, waterless suppression system. Sinorix 227 is comprised of an HFC227ea clean agent (Model CPY-227), which suppresses fire at low concentrations. It is safe for sensitive electronic equipment because it is electrically non-conductive.

The minimum design concentration for total flood applications shall be in accordance with National Fire Protection Agency (NFPA) 2001.

Sinorix 5112 System

Sinorix 5112 is also an automatic, waterless suppression solution used for protection of any organization's most vital assets. The clean agent for the Sinorix Fire Suppression System uses FK-5-1-12 Fire Protection Fluid.

FK-5-1-12 is a clean agent that suppresses fire at low concentrations. Since it is electrically non-conductive, it is safe for sensitive electronic equipment.

Sinorix 5112 is safe for human exposure at design concentrations, and has the following characteristics:

- Zero ODP
- GWP of 1
- Atmospheric lifetime of 3-5 days

Special Note for Canadian Users

All Canadian installations should be in accordance with the Canadian Standard for the Installation of Fire Alarm Systems - CAN / ©ULC-S524 and Canadian Electrical Code, Part 1. Final acceptance is subject to the authority having jurisdiction (AHJ).

NFPA 72 and ANSI 117.1 conform to ADAAG Equivalent Facilitation Guidelines in using fewer, higher intensity strobes within the same protected area.

Cylinder Valves

The cylinders for Sinorix come packaged in the following different valve sizes: CPY-35 / CPY-70; CPY-150 / CPY-250; CPY-375 / CPY-560 — as well as standalone cylinder valves, CPY-900 and CPY-1200. The Model CPY-35 / CPY-70 assembly — which uses a valve with a 1-inch (2.5 cm.) unified Victaulic outlet — includes a mounting bracket with strap; a top-plug adapter, and low-pressure switch.

The Model CPY-150 / CPY-250 assembly — which uses a valve with a 1.5-inch (3.8 cm.), unified Victaulic outlet — includes mounting brackets with straps; a top-plug adapter; liquid-level indicator and low-pressure switch.

Model CPY-375 / CPY-560 — which uses a valve with a 2.5-inch (6.4 cm.), unified Victaulic outlet — includes mounting brackets with straps; a top-plug adapter; liquid-level indicator and low-pressure switch.

The standalone CPY-900 cylinder and the 1,200-pound (544.3 kg.) standalone cylinder (Model CPY-1200), use a valve with a 4-inch (10.2 cm.), unified Victaulic outlet.

Model CPY-1200 includes mounting brackets with straps; and both the 900-pound (408.2 kg.) and 1,200-pound (544.3 kg.) tanks have a top-plug adapter; liquid-level indicator and low-pressure switch.



The cylinders can be charged with HFC-227ea suppression agent, Novec 1230 Fluid or with FK-5-1-12 Fire Protection Fluid, and are pressurized with dry nitrogen to a total pressure of 360 psig (24.84 bars) at 70°F (21.1°C) to assure rapid discharge at temperatures as low as 32°F (0°C) storage temperature. The cylinders are manufactured, rested, and marked in accordance with Department of Transportation (DOT) specification 4BW500 or 4BA500.

Cylinders 150 pounds (68 kg.) and larger are fitted with lifting lugs for ease of handling. Model CPY-900 and CPY-1200 agent cylinders are produced with a specially designed base that provides two (2) functions:

- The base for Model CPY-1200 allows for a pallet jack to be inserted for trouble-free handling. Model CPY-1200 has been designed to pass through standard doorways and elevators.
- The base is also designed to distribute the weight across a floor area of a fully charged cylinder. Cylinders are securely mounted since they are furnished to hold mounting brackets.

Each cylinder is furnished with a pressure Supervisory switch, which creates a Supervisory command at the control panel if the pressure in the cylinder drops to 291 psig. Cylinders with a capacity of 150 pounds or more are equipped with a liquid-level indicator for determining the weight of the Sinorix charge in each cylinder.

The liquid-level indicator consists of a brass dip tube, a stainless steel float, and a magnetic tape. The magnetic tape and stainless-steel float work together to indicate the liquid level in the cylinder. This number can then be compared with future readings to ensure the liquid level is static. Additionally, a graph found in each installation manual* illustrates how tape measurements can be converted into pounds (lbs.) of agent, factoring in temperature at the installed location.

Models CPY-35 | CPY-70; CPY-150 | CPY-250, and CPY-375 | CPY-560 agent cylinders are of a pressure-seated, high-flow-rate design that incorporates a brass piston with seal — pressure releasing for valve operation, safety-disc assembly, pressure-actuation outlet port and pressure gauge.

The cylinder valve used for Model CPY-900 as well as Model CPY-1200 incorporates a similar design as the other cylinder valves, but is produced using '304 stainless steel' (rather than brass.)

The cylinder valves are provided with an anti-recoil plug fitted to the valve discharge outlet to prevent rocketing or spinning of the cylinder, in the event of discharge while the cylinder is not bracketed or not otherwise held securely in place.

Solenoids

Electronic-releasing solenoids are specially designed for the controlled release of clean agent for the Sinorix system.



Model CPYEC-2-24 is the 24VDC, supervised electronic-releasing solenoid used with Sinorix Engineered Fire Suppression Systems. Specifically, CPYEC-2-24 functions via a pin that sits in a latched position — without obtaining system power. Model CPYEC-2-24 can be manually activated via Model CPY-LMC2, or can open upon receiving a signal from the control panel.

When released, the latching solenoid opens the cylinder valve and extinguishing medium is discharged into the system. Model CPYEC-2-24, which is sold separately, fits on tanks with a top-plug diameter of 1.25 inches (3.2 cm.)

National Pipe Thread (NPT) fitting makes connection between the supervised solenoid and the cylinder valve convenient and straightforward. The solenoid is furnished with 36" (91.4 cm.) pigtailed.

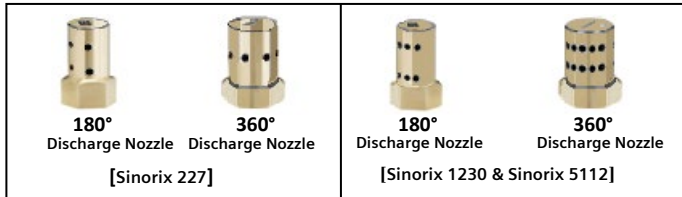
Note: Refer to solenoid datasheet, #6624, for further information.

*Denotes Sinorix IOMs:
500-697971 (for 1230)
500-697967 (for 227)
A6V13437188 (for 5112)

Engineered System Nozzles

The Sinorix Engineered System Nozzles are designed to provide rapid, thorough mixing of suppression agent with the air in the protected space, while providing coverage for a large area.

Engineered system nozzles are made in five (5) pipe sizes: 1/2" (1.3 cm.) | 3/4" (1.9 cm.) | 1" (2.5 cm.) | 1-1/4" (3.2 cm.) | 1-1/2" (3.8 cm.) and 2" (5.1 cm.)



All available sizes have 180° and 360° discharge patterns. The nozzles have a standard female pipe thread for attachment to the discharge piping. Standard nozzles are made of brass.

Nozzles are spaced in accordance with the instructions in the installation manual, and as required by UL and FM.

Pressure-Operated Switch

The Pressure-Operated Switch is of three-pole, double-throw type, and is activated by the Sinorix pressure agent in the system-discharge piping at the time of agent emission. The pressure-operated switch may be used to signal the fire-alarm control panel when discharge occurs.

As a result, the panel will perform its assigned shutdown | interlock functions in the event of manual mechanical release of the system.

The pressure-operated switch – if desired – can also be used to perform shutdown | interlock functions directly.

Actuating pressure is obtained from the outlet of a tee located anywhere in the discharge piping.

Connection from the tee to the pressure switch can be made via:

- 1/4-inch (0.64 cm.) O.D. copper tubing
- 1/8-inch (0.32 cm.) or 1/4-inch (0.64 cm.) schedule, 40-pipe and 300-pound-class malleable iron or ductile-iron fittings



CPY-POS

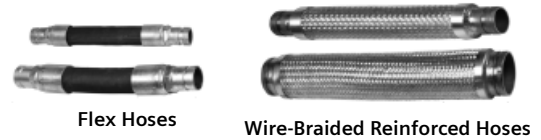
The maximum length of connecting tubing or pipes is either:

- 50 feet for the 1" (2.54 cm.) or 1-1/2" (3.81 cm.) valve
- 30 feet for the 2-1/2" (6.4 cm.) or 4" (10.2 cm.) valve

Flexible and Wire-Braid-Reinforced Discharge Hoses

The flexible and wire-braid discharge hoses are used to facilitate connections between cylinder valves and system manifold (or piping).

The flexible and wire-braid discharge hoses minimize the effects of variations in the height of cylinder valve outlets, due to dimension tolerances necessary in cylinder manufacture and floor irregularities.



Flexible and wire-braid discharge hoses are provided in the following sizes:

1" (2.5 cm.) | 1-1/2" (3.8 cm.)

2-1/2" (6.4 cm.) and 4" (10.2 cm.)

Hoses used in Primary-to-Secondary Cylinder Configurations

The purpose of the flex hose is to connect cylinders into a primary-to-secondary configuration, where the primary cylinder (with releasing solenoid) supplies pressure release up to seven (7) extra cylinders, depending on valve size.



Flexible Braided Hoses

Hoses are fitted with swivel nuts for connection to the 1/8-inch (0.32 cm.) port on the primary cylinder and to 1/4-inch (0.64 cm.) tees on pressure actuators on secondary cylinders. The tees used with flexible hoses are fitted with 1/8-inch (0.32 cm.) N.P.T. male for connection to pressure actuators.

The hoses are furnished in three (3) lengths to suit all cylinder sizes: 35 lbs. through 1200 lbs. To simplify installation and ease servicing of cylinders, 1/4-inch (0.64 cm.) flexible hose can be used in place of 1/4-inch (0.64 cm.) copper tubing, thus eliminating the need to flare tubing.

Pressure-Actuated Control Head

— Engineered for Pneumatic & Manual Actuation —

The pressure-actuated head (Model CPY-PAS2) allows for pneumatic pressure actuation of Sinorix cylinders.

Model CPY-PAS2 is to be mounted directly on the top-plug adapter assembly.



CPY-PAS2

The pressure from the port on the cylinder valve is self-venting to prevent accidental system discharge in the event of a gradual build up of pressure in a pilot line.

Lever-Actuated Local Manual Release

Model CPY-LMC2 is the optional emergency-release button that manually depresses the cylinder valve in order to discharge the clean agent used in Sinorix Engineered Fire Suppression systems.



CPY-LMC2

Model CPY-LMC2 mounts directly on top of an Electric Solenoid with Supervision (Model CPYEC-2-24), which –in turn – mounts directly on top of the Sinorix cylinder valve.

When using Model CPY-LMC2, the Siemens Pressure Operated Switch (Model CPY-POS) must also be installed in order for the fire alarm control panel.

Flapper Check Valves

Each flapper check valve serves as a 'stop gap,' preventing loss of agent in the event any of the agent-storage cylinder valves are not connected to the manifold at the time of agent discharge. Additionally check valves put a stop to agent back-flow in 'Main | Reserve' or 'Manifold' configuration.



CPY-FCV

Flapper check valves offer a lower friction co-efficient than legacy valves, and are currently available in 2-inch (5.1 cm.) | 3-inch (7.6 cm.) and 4-inch (10.2 cm.) sizes.

Maintenance Switch

Utilized in conjunction with Sinorix, the maintenance switch (Model CPY-MTS) is a flush-mounted, silk-screened faceplate with a key-switch. Specifically, the maintenance switch manually disconnects actuation circuits in the Sinorix Engineered Fire Suppression system to prevent accidental discharge during maintenance operations.



CPY-MTS

Two (2) light-emitting diodes (LEDs) indicate:

- 'System Armed'
- 'System Inactive'

When the key is inserted and turned, the 'System Inactive' indicator illuminates. The key can only be removed in the 'System Armed' position.

Abort Station

Model AW-1 Abort Station employs a momentary, normally closed contact 'dead-man type' push-button switch, which – while held in – prevents discharge of the clean agent. Upon release of the push button, the Sinorix Engineered Fire-Suppression System will follow the sequence of events as programmed in the releasing panel, ultimately resulting in the release of the Sinorix agent.



AW-1

Model AW-1 consists of a momentary contact switch with a large red 'mushroom head' for ease of operation. It is mounted on a steel plate. Screw type terminals are provided for connection to the agent-release circuit. The entire assembly mounts on a standard 2-1/2" (6.4 cm.) deep, (2) two-gang electrical box.

Main | Reserve Selector Switch

The main | reserve selector switch (Model CPY-MRS) serves as a means for transferring the electrical supply from a Sinorix main cylinder to a reserve cylinder. The switch is mounted on a steel cover plate.



CPY-MRS

Screw-type terminals are provided. The entire assembly is capable for mounting on a standard 2-1/2" (6.4cm.) deep, two-gang electrical box.

Room Placards

There are eight (8) different types of caution and notice Room Placards for Sinorix Fire Suppression Systems.

Each placard is made from Gravoply1 Engraving Stock or equivalent.



Each placard is red stock with engraved white lettering. Font size for each placard is approximate to what is shown in this document. Each placard comes prepared with double-sided, fixed adhesive on the reverse.

Each placard is wall mounted at eye level.

Manual Release Station

The standard model for the Sinorix Manual Release Station is the double-action Model MH-501, which contains one (1) normally open contact. Model MH-501 is intended for use with Siemens — Fire Safety low-voltage systems, but has a rating of 120VAC for connection to other systems.



MH-501

The Manual Releasing Station (MH-501) is constructed of durable, molded polycarbonate material, matte-finished in red with raised lettering in white. The housing contains a 'push-in tab,' which must first be operated, permitting access to the pull-down lever, which — when operated — locks in position after releasing a spring-loaded contact switch. Restoring the system to *Normal* can only be accomplished by opening the cover of the hinged housing with a reset key and then closing and locking the cover.

The Manual Release Station is constructed with a molded housing, fitted with a pull-down lever and a 'push-in' tab. Since the manual release station is 'dual-action type,' it is necessary to first operate the 'push-in tab' in order to provide access to the pull-down lever, which — when operated — locks in position after releasing a spring-loaded contact switch to effect actuation of the release circuit.

The body of the control is hinged to a back-plate assembly to which it is locked with a socket head screw. Resetting the control after operation requires opening the control momentarily, and then locking the body to the back plate.

Sinorix Agent-Release Notification Appliances

MTH-MC-R-AR (MTH-R)

The Model MTH-MC series of strobes provides up to four (4) selectable candela settings (15 | 30 | 75 and 110cd). The Model MTH-MC series of strobes also provides a non-synchronized strobe appliance when connected directly to a Siemens fire-alarm control panel (FACP).



MTH-MC-R-AR

Siemens Multi-Tone Strobe notification appliances use a Xenon flashtube with solid-state circuitry enclosed in a polycarbonate lens to provide maximum visibility and reliability for effective visible signaling.

ST-MC-R-AR

The Model ST-MC Strobe Appliances can provide a non-synchronized strobe appliance when connected directly to a Siemens Fire Alarm Control Panel (FACP), or provide a synchronized strobe appliance when connected to a notification appliance circuit running the Siemens dual-sync (DSC) protocol.



ST-MC-R-AR

Specifically, ST-MC-R-AR Agent-release strobes have an integrated strobe mounting plates that mount to a single or double-gang, 4" backbox (10.2 cm.) Siemens Model SHBBS surface backbox. Additionally, ST-MC series of strobes use a Xenon flashtube with solid-state circuitry enclosed in a polycarbonate lens to provide maximum visibility and reliability for effective visible signaling. All inputs are polarized for compatibility with standard, reverse polarity supervision of circuit wiring by the FACP.

MB-6-24AC-R

The Model MB-6-24AC-R Motor Bells are also used in Sinorix applications. Each bell provides high sound output with low current draw, and has a shell size of 6" (15.2 cm.)



MB-6-24AC-R

The low-frequency aluminum shells provide better audibility through walls, doors and other structures. Additionally, each MB-6 appliance has essential radio-frequency interference (RFI) suppression that minimizes any induced noise from the notification appliance circuit (NAC).

Mounting options include surface | semi-flush | outdoor and concealed conduit installation. A built-in trim plate makes semi-flush installs less expensive.

Notice: This marketing data sheet is not intended to be used for system design or installation purposes. For the most up-to-date information, refer to each product's installation instructions. For detailed Sinorix ordering information, refer to the product-specific data sheet.