



Safety for your life





Introduction

With the phase out of the most commonly used but environmentally damaging Halon 1301 and CO2 fire suppressant, nitrogen gases are becoming the global alternatives of choice in view of the following:

- Proven safety for people, property and the environment were natural requirements in addition to the desirable properties of effectiveness, cleanliness and zero secondary damage.
- Nitrogen gases are the best choice for extinguishing agents as they extinguish fires by oxygen depletion by lowering the normal oxygen concentration in the air from 21% to about 12%, below the limit required for combustion whilst still providing a safe and breathable atmosphere.
- The composition of a naturally occurring gas of nitrogen is a preferred choice as it provides users with all the advantages of an internationally accredited and environmentally friendly protection solution without the high costs of traditional implementation of equivalents.

The Natural Solution

Nitrogen is a gaseous clean fire suppressant comprised of 100% nitrogen which are naturally occurring gases. As nitrogen is derived from gases present in the atmosphere, it exhibits no ozone depleting potential, does not contribute to global warming, nor does it contribute unique chemical species with extended atmospheric lifetimes. Because nitrogen is totally composed of atmospheric gases, it does not pose the problems of toxicity associated with the chemically derived Halon alternatives.

Nitrogen fire suppression systems are developed to meet and exceed international standards.



Protecting life

Almost all fires are extinguished at the oxygen concentration level of below 15%. Nitrogen fire suppression systems reduces the oxygen concentration to around 12.5% to 10.5%, a level which is acceptable to human exposure over short periods of time.

One of the advantages of the nitrogen fire suppression agent is that it won't produce a fog, so that occupants are not visibly impaired on the way to the exit. Furthermore, the nitrogen fire suppressant is not toxic, and more importantly, it will not break down into toxic or corrosive decomposition by products. Halocarbon alternative agents can create dangerous levels of hydrogen fluoride when they contact with fire.

Protecting property

Nitrogen fire suppressant is ideally suited to protecting property. Upon deployment, nitrogen:

- Produces no condensation or temperature shocks that can cause harm to equipment.
- Produces no harmful or decomposition by products upon contact with heat or fire.
- Produces no residue to clean up, is colourless, odourless and electrically non-conductive.

With virtually the same density as air, the nitrogen fire suppressant spreads quickly throughout the protected area and holds its concentration longer to snuff out fires in their early stages. Most other heavier than air Halon alternatives sink to the floor and seep under doors and wells.

Nitrogen is also suitable for gas and liquid class B fires in addition to class A surface fires involving material such as wood, cloth and paper. However, it is not suitable for fires in substances that generates oxygen, like some reactive metals.



Protecting the environment

Nitrogen fire suppressant is completely environment friendly. It is composed entirely of naturally occurring gases which exists in the air we breathe.

In fact, the nitrogen gas presents no negative environmental impact which means...

- ZERO ozone depletion potential
- ZERO global warming potential
- ZERO atmospheric lifetime

When the nitrogen fire suppressant is used, its components is simply returned to the surrounding atmosphere. And because nitrogen is not a synthetic chemical, it is not subject to potential future use restriction. In fact, you would have to ban air in order to ban nitrogen.

Because nitrogen comprise of only Nitrogen, it achieves zero ODP and GWP unlike other halon replacement agents which are HFC based and are classified as Greenhouse gases in the same category as CO₂ which contribute to Global warming.

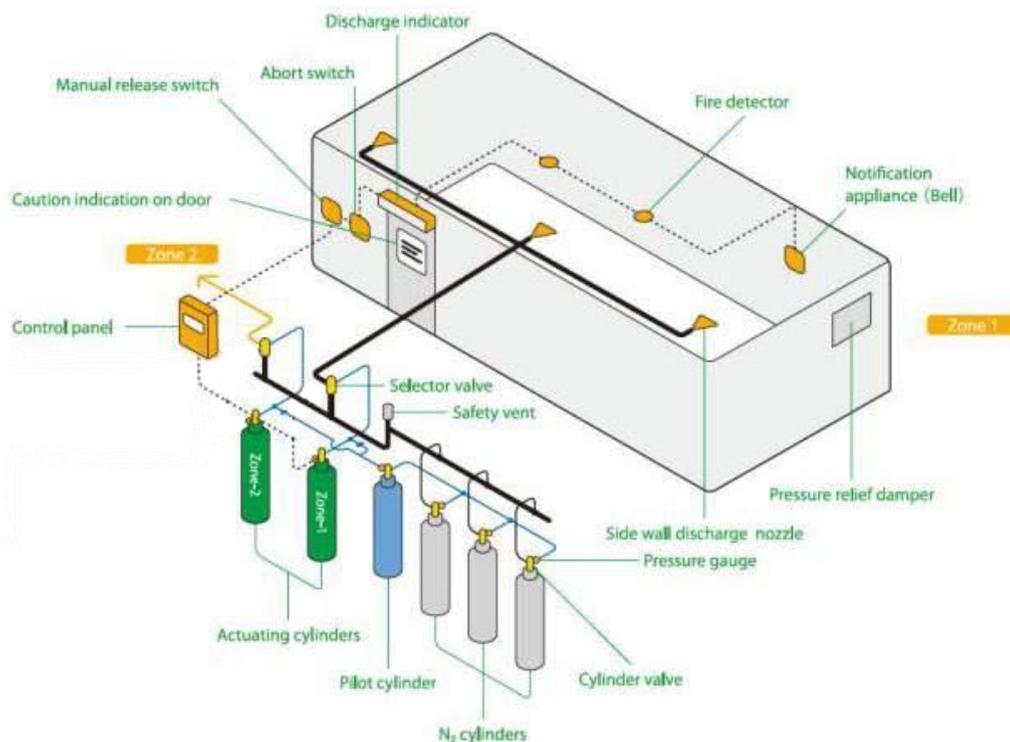
It is with these considerations in mind that the use of CO₂ is avoided in nitrogen thus avoiding possible limited product lifetime dictated by changes in global environment legislation. Your nitrogen fire suppressant could be used forever as there will never be any environmental restrictions on the use of Nitrogen, which is the biggest element of air.

Canatech's nitrogen systems are designed, installed and maintained according to NFPA 2001 (Clean Agent Fire Extinguishing Systems and ISO 14520 Gaseous Fire Extinguishing Systems) standards.

Nitrogen is a total flooding system where by the required amount of gas is discharged into an enclosed area to extinguish fire. The gas is stored as compressed gas at 50 bar or 170 bar. The system can be actuated electrically from a control panel or manually actuated from the cylinder bank. The system is normally designed as such that 95% of the gas will be discharged into the protected area within 60 seconds.

Multiple storage options are possible with nitrogen as the system has been designed for long distance delivery. This means that the cylinder bank can be stored remotely from the risk area when storage space is a concern.

When two or more areas of protection do not require flooding of gas at the same time, directional or selector valves can be used to allow the same bank of cylinders to protect multiple areas. Such sub-systems can reduce substantial equipment costs and storage area for cylinders. Maintenance and inspection locations can also be reduced accordingly.



Example of typical calculation for nitrogen total flooding requirement:

Dimensions of room to be protected	= 10.0m x 5.3m x 3.0m (H)
Volume of room to be protected	= 159.0m ³
Design Temperature	= 20°C
Extinguishing Design Concentration (NFPA 2001)	= 37.2% (for Class A & C hazards)
Flooding Factor (NFPA 2001)	= 0.4652
Therefore,	
Agent required	= Volume of room to be protected x Flooding Factor
Volume of agent required	= 159.0 x 0.4652 = 73.97m ³

Product Specification



No.	Description	Material
1	Cylinder Valve	Brass
2	Pressure gauge	Plastic
3	Discharge hose	Wire braided rubber hose
4	Pilot line hose	Brass
5	Safety relief valve	Brass
6	Selection valve zone 1	Carbon Steel
7	Selection valve zone 2	Carbon Steel
8	Nitrogen cylinder	Steel Alloy
9	Cylinder strap	Steel
10	Pilot cylinder	Steel Alloy
11	Manifold	Carbon Steel

System components

All system components as listed must be sourced from Canatech to ensure effective and safe operation.

Installation and maintenance shall be carried out according to the nitrogen System manuals.

Product Specification



68 Liter Nitrogen Cylinder

- Test pressure: 250bar
- Empty weight: 75kg
- Finishing: Red color
- Capacity: 45kg/68liter
- Manufacture to BS5045 Part 1
- Material Mn Stel thread 28.8x14" TPI
- Filling ratio 0.667
- Deverlop pressure 50bar-725psi @ 15°C
60bar-870psi @ 30°C
170bar-2465psi @ 60°C
- Part No.: CA45-N2



Pilot Cylinder

- Test pressure: 250bar
- Empty weight: 5kg
- Finishing: Red color
- Capacity: 2,2kg
- Part No.: CA-PILOT-N2



Discharge Nozzle

Material: Brass
Working Pressure: 25-42bar
Part No.:

- CA-DIS15-N2 (Size 15mm - 1/2")
- CA-DIS20-N2 (Size 20mm - 3/4")
- CA-DIS25-N2 (Size 25mm - 1")
- CA-DIS32-N2 (Size 32mm - 1 1/4")
- CA-DIS40-N2 (Size 40mm - 1 1/2")
- CA-DIS50-N2 (Size 50mm - 2")



Selection Valve (Control by Electric)

Material: Carbon Steel
Working Pressure: 25-42bar

- Part No.:
- CA-SELEC32-N2 (Size 32mm - 1 1/4")
 - CA-SELEC40-N2 (Size 40mm - 1 1/2")
 - CA-SELEC50-N2 (Size 50mm - 2")
 - CA-SELEC65-N2 (Size 65mm - 2 1/2")
 - CA-SELEC80-N2 (Size 80mm - 3")
 - CA-SELEC100-N2 (Size 100mm - 4")



Safety Relief Valve DN25 (1")

Material: Brass
Working Pressure: 25-45bar
Part No.: CA-SRV-N2



Discharge Hose

Material: wire braided rubber hose
Part No.:

- CA-15FLE-N2 (Size 15mm - 1/2")
- CA-20FLE-N2 (Size 20mm - 3/4")
- CA-25FLE-N2 (Size 25mm - 1")

Product Specification



**Hochiki Conventional
Releasing Fire Alarm
Control Panel**

Part Number: HCVR-3

- UL Listed, FM Approved and CSFM listed
- Three conventional zones
- Any single zone or any combination of zones can be configured to release
- Fully programmable using simple menu options
- Simple, single board construction
- Installer-friendly
- Compatible with a wide range of detection devices
- Configurable first stage NAC delays
- Configurable detection delays
- Built-in manual release switch and external manual release circuit
- Built-in abort circuit
- Compatible with FirePro® Xtinguish
- Compatible with various releasing valves
- Configurable releasing delays up to 60 seconds in 5-second intervals
- Configurable releasing duration up to 5 minutes in 5-second intervals
- Releasing countdown timer displayed on the panel
- Supports up to seven HCVR-SDU or HCVR-AB
- Built-in relays for Fire, Trouble, Stage 1, Stage 2, Extract and Local Fire
- Available in red or gray



Hochiki Photoelectric Smoke Detector

Part Number	SOC-24VN
Light Source	GaAlAs Infrared Emitting Diode
Nominal Rated Voltage	24 VDC
Working Voltage	8 - 35.0 VDC
Maximum Voltage	42 VDC
Supervisory Current	59µA @ 24 VDC
Surge Current	160µA max. @ 24VDC
Alarm Current	150mA max. @24 VDC
Air Velocity Range	0-4000 fpm
Maximum Humidity	95% RH Non-Condensing
Ambient Temperature	32°F to 120°F (0°C to 49°C)
Color & Case Material	Bone PC/ABS Blend
Sensitivity Test Feature	Automatic Sensitivity window verification test
Mounting	Refer to NS Conventional Detector Base Data Sheet

Product Specification



Hochiki ROR Heat Detector

Part Number	DSC-EA
Rated Voltage	24VDC
Working Voltage	15 - 30VDC
Maximum Switching Current	100mA max.
Heat Sensing Element	Air chamber composed with the diaphragm.
Operating Temp. Range	-10°C - +50°C (14°F - 122°F)
Storage Temp. Range	-30°C - +70°C (-22°F - 158°F)
Relative Humidity (at 40°C)	95% RH Non-Condensing
Dimensions	3.9" D x 1.3" H
Weight	3 oz.
Color	Bone
Applicable Standard	UL-521
Response Grade	Ordinary



Hochiki Fixed Heat Detector

Part Number	DCD 135/190
Response	135° ± 7.5°F 190° ± 7.5°F
Rated Voltage	17.7 - 30.0 VDC
Working Voltage	15.0 - 33.0 VDC
Maximum Voltage	42 VDC
Supervisory Current	40µA @ 24 VDC
Surge Current	160µA max. @ 24 VDC
Alarm Current	150µA max. @ 24 VDC
Ambient Temperature	32°F to 120°F (0°C to 49°C)
Contact Rating	N/O Contacts 150mA max. @ 24 V
Color & Case Material	Bone PC/ABS Blend
Mounting	Refer to the NS Conventional Detector Base Data Sheet



Hochiki Flame Detector

Part Number	HF-24
Rated Voltage	17.6 - 27.7 VDC
Working Voltage	15 - 30 VDC
Normal Current	200µA @ 24 VDC
Alarm Current	250mA Maximum
Response to Ultraviolet	1850 - 3000 Angstrom
Ambient Temperature	14° to 122° Fahrenheit (-10°C to +50°C)
Mounting	HSC-4R and HSB-Series Bases
Color	Ivory ACS

Product Specification



Hochiki Manual Pull Station

Part Number: HPS-DAK-SR
Contact: Form
Contact Rating: 10A @ 120 VAC
Operating Temperature: -30°F (-35°C) ~ 150°F (66°C)



Hochiki Abort Switch

Part Number: HCVR-AS-R
Switch Rating: 1A @ 30VDC
Dimension: 3.81" W x 3.81" H x 2.32" D
Finish Colour: Red



Canatech Discharge Warning Box

Part Number: CA-DCW-N2
Voltage: 24VDC
Ambient Temperature: -25 - +70 Deg
Dimensions (mm): H150 x W400 x D85
Material: Black Steel
Finish Colour: Red



Canatech Electronic Sounder and Beacon

Part Number: CA-17ESB
Voltage: 24V DC
Current Consumption 24V DC (tone 3): 14.5mA
Volume Control: 0 to -20dB adjustment
Ambient Temperature: -25°C ~ +80°C
Material: ABS plastic
Dimensions: 92.5mm(Dia.) x 110mm(H)
Weight: 278g



Hochiki Fire Alarm Bell

Part Number: FBB-150I
Rating: DC 24V, 8mA
Sound Pressure: ≥90 dB (at distance of 1m from the front)
Operating Temperature Range: -20°C - 60°C
Material: Steel, 1.2mm thickness, Chrome-plated
Color: Equivalent to Munsell 7.5R3.6/12.8
Weight: Approx. 465g



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FIRE PROTECTION