

**tyco**  
Fire Protection Products

# INERGEN

Gaseous Fire Suppression Systems  
with i-Flow technology

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# INERGEN

Gaseous fire suppression systems

*The production of Halon 1301 was banned for non critical applications due to its negative effects on the ozone layer. We engineered INERGEN to be environmentally kind from the very start.*



## Environment

INERGEN is non-synthetic, made exclusively of gases we already breathe: nitrogen, argon and carbon dioxide. Once discharged, it simply returns to the atmosphere in its natural state and because it poses no threat to the ozone layer or climate change, INERGEN will never be subject to future legislative restrictions.

### Efficient and Safe

Environmentally friendly and safe for people, INERGEN is effective in

suppressing fires involving virtually all combustible materials and flammable liquids.

INERGEN works by displacing a proportion of the air within the enclosure, thereby lowering the oxygen to a level that cannot sustain combustion and at the same time ensures the oxygen remains at levels within the enclosure that are safe for humans.

- // Exceptional life safety features**
- // Environmentally friendly**
- // Remote cylinder storage location**
- // Multiple hazard protection**
- // Low cost agent**

## Safety First

INERGEN is a blend of Nitrogen, Argon and CO<sub>2</sub>. It is recognised that the CO<sub>2</sub> in INERGEN provides a specific safety advantage compared to other inert gases. The UK's Halon Alternatives Group specifically assessed safe use criteria of clean agents and identifies INERGEN, due to the CO<sub>2</sub> as having benefits compared to other inert gases in respect to egress times from protected enclosures. Not only is INERGEN safe for the environment but has this extra life safety feature for people too.

## Better for People

One of the most remarkable aspects of INERGEN is that it is safe for people. INERGEN is entirely non-toxic, producing no corrosive decomposition products whatsoever. Plus, because INERGEN will not produce a fog when discharged, escape routes remain visible.

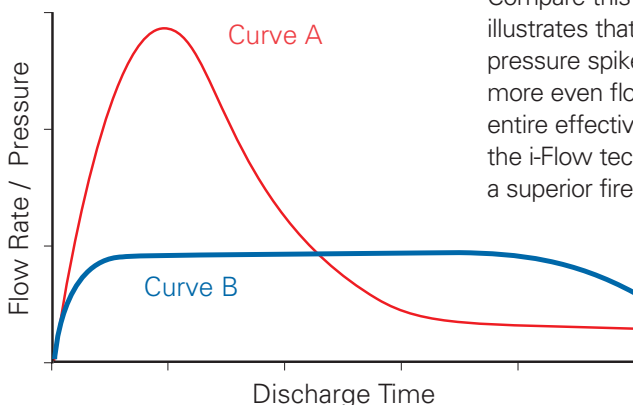
With INERGEN, the oxygen level is reduced enough to put out the fire, yet more than enough remains to breathe. In fact, those who breathe normally around INERGEN in extinguishing concentrations receive the same amount of oxygen to the brain as they would in an ordinary atmosphere, vital in cases where immediate evacuation may not be possible.



## What is i-Flow Technology

The i-Flow technology has been designed to eliminate the peak pressure spike during discharge and delivers a lower pressure into the pipework system. The specially designed valve evens out the gas flow into the protected enclosure, lowering the over pressurisation effect and reducing the venting required.

The graph below compares the pressure curves for a standard discharge system and i-Flow technology. The standard system displays a distinctive pressure 'spike' on discharge, normal for regular inert gas systems. Whilst these systems meet the requirements of EN15004, ISO 14520 and NFPA 2001 our engineers recognised that a more even discharge could offer real benefits for installers and users alike, which is illustrated by the second curve on the graph.



## Pipework Safety

The i-Flow valve is designed to close in the event of a blockage in the pipework, thus avoiding a hazardous build up of pressure - an important safety feature.



## i-Flow technology explained

Curve A shows a standard high pressure inert gas system discharge, with its distinctive peak flow and pressure spike which requires larger and higher specification pipework and a greater venting area.

Compare this with Curve B which illustrates that the peak flow and pressure spike has been eliminated and a more even flow achieved during the entire effective discharge period. This is the i-Flow technology, working to provide a superior fire suppression system.

## Matrix System - Innovation

The i-Flow Matrix system includes features to minimise installation time. In a system of 8 cylinders or less, this is achieved by using a patented horizontal check valve to facilitate interconnection of cylinders without the need to connect each one to a manifold.

The i-Flow Matrix system also incorporates a distinctive bracket design allowing far more flexibility during installation and quicker removal of cylinders from the bank during maintenance, when compared with traditional racking systems.



A close-up photograph of a young child's face on the left side, blowing a dandelion seed head. The child's eyes are closed, and their mouth is slightly open. The background is a bright, sunlit field with many dandelion seeds floating in the air, creating a bokeh effect. The overall tone is warm and natural.

**Trusted  
gaseous  
solutions  
using  
pioneering  
technology**

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## A Comprehensive Design Service

FIRENET is a windows based design package used by trained engineers as a means to accurately calculate system parameters.

The software calculates optimum pipe sizes as well as calculating the over pressure vent requirements for the given system.

## Designed to Approved Standards

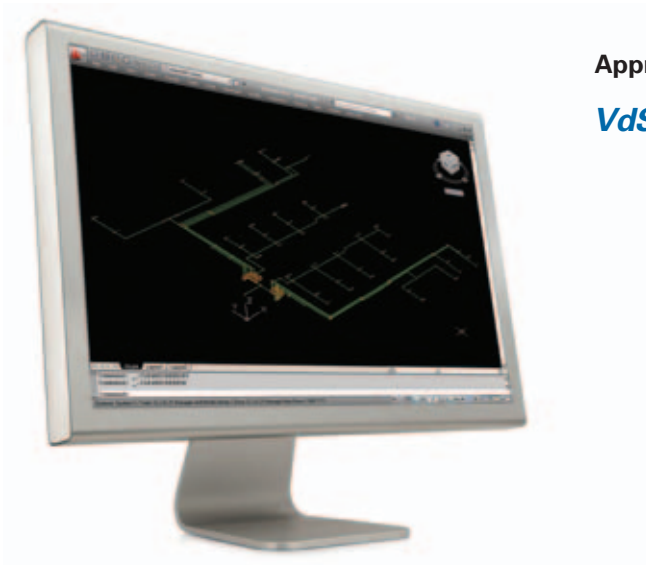
Systems are designed in accordance with EN15004, ISO 14520 or NFPA 2001 using the TYCO i-Flow design calculation software. INERGEN gas is stored in 80 litre and 140 litre 200/300 bar cylinders designed to meet the requirements of the TPED (Transportable Pressure Equipment Directive).

## Applications

- // **Telecommunications sites**
- // **Data centres**
- // **Museums and archives**
- // **Oil and gas facilities**
- // **Power generation installations**
- // **Civil and military marine**
- // **Mass transit**

## Approvals and Listings

**VdS**



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