Reliable®

TECHNOLOGY • QUALITY • SERVICE

South-Tek Systems

# Nitrogen Generation Technology

For use in Dry and Pre-action Fire Protection Systems

ISO 9001 : 2008 certified


www.reliablesprinkler.com

# Corrosion in Sprinkler Pipework

## What is MIC?

Microbiologically-Influenced Corrosion (MIC), also known as microbial corrosion or biological corrosion, is the deterioration of metals as a result of the metabolic activity of microorganisms.

There are about a dozen of bacteria known to cause microbiologically influenced corrosion of carbon steels, stainless steels, aluminium alloys and copper alloys in waters and soils with pH 4~9 and temperature 10°C~50°C.

## What causes MIC?

Microbiologically influenced corrosion is caused by specific genera of bacteria which feed on nutrients and other elements found in water and soils. The biological activities modify the local chemistry (acid-producing) and render it more corrosive to the metals. For example, iron-oxidizing bacteria can perforate a 5mm thick 316 stainless steel tank in just over a month.

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# Corrosion in Sprinkler Pipework

Corrosion and corrosion related issues are fast becoming a major issue for the maintenance and operation of Fire Protection Systems in wet pipe, dry pipe and preaction systems. Corrosion damage to products and deposits can restrict the flow of water to sprinklers, cause financial loss through leakage, and impair the mechanical operation of a system, leaving it vulnerable to uncontrolled fire loss.

Corrosion can be due to many factors including pipe weld corrosion, residual water in dry pipe systems, trapped air in wet pipe systems, corrosive water chemistry, stagnant water and Microbiological Induced Corrosion (MIC).

Corrosion issues can be picked up during the regular inspection of a system. According to NFPA25, a system should be expected at least every 5 years for the purpose of inspecting for the presence of organic and inorganic material. Should tubercles or slime be found then then tests for MIC are required to be carried out as well as an assessment as to how obstructed the system has become and the necessary rectification action taken.

The old adage is that 'Prevention is better than cure'. Corrosion requires the presence of water and oxygen so if one of these factors is removed, corrosion can be severely inhibited. Moisture is present throughout the system, during test and within normal system air so is difficult to completely remove. We can however substitute the normal air of the system for Nitrogen, thus removing oxygen from the system. The use of 98%+ pure Nitrogen as the supervisory gas within a dry pipe or preaction system, can mitigate the corrosion of steel pipework. South-Tek Systems has been utilising Nitrogen technology for decades in industrial applications and has now developed a range of nitrogen solutions specifically for use in fire sprinkler systems.

South-Tek Systems

# $N_2$-Blast® - Corrosion Inhibiting System

Introducing the $N_2$-Blast® - *Corrosion Inhibiting System* for Dry & Pre-action Fire Protection Systems. Designed & Manufactured by South-Tek Systems, the leader in Nitrogen Generation Technology.

*How it works*

The $N_2$-Blast® produces 98%+ pure Nitrogen and introduces it to the Dry or Pre-action Fire Protection System. In doing so, Oxygen is displaced from the piping through the *AutoPurge System*™. The $N_2$-Blast® effectively inhibits Electrochemical, Galvanic and Microbiologically Influenced Corrosion (MIC), as well as moisture accumulation and ice plugs.


*Recipient of the NACE Corrosion Innovation of the Year Award*

## $N_2$-BLAST®

- Inhibits corrosion with 98%+ pure Nitrogen
- Limits the liability of early pipe replacement
- Protects installation & increases customer loyalty
- Easily integrates into new or pre-existing FPS
- Simple and inexpensive to maintain
- UL 508A listed industrial Control Panel
- CE Approved

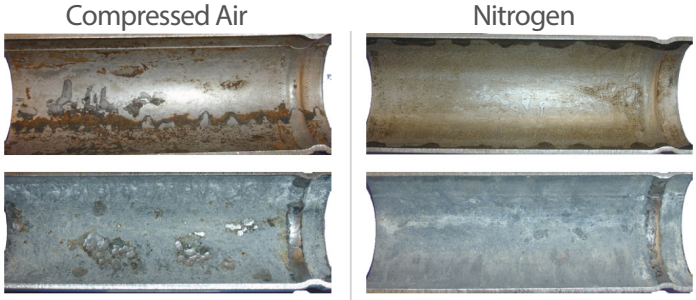
## NITROGEN

- Inert, clean, dry, non-flammable gas
- Absorbs more moisture than compressed air
- Has a true -40° to -57°C dew point
- Does not support the corrosion reaction
- Prevents the formation of ice blockages
- Prevents oxidation of non-metallic components
- Targets both Aerobic and Anaerobic Bacteria

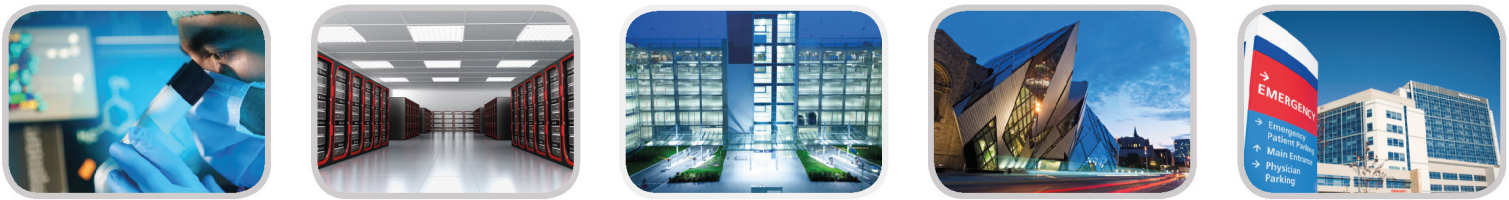
## Blast Off™ - *Leak Detection System*

- Provided exclusively with the $N_2$-Blast®
- Detects a major leak before it compromises the FPS
- Alarms if the air compressor is not working properly
- Includes a dry contact for signal out to BMS
- Protects the lifespan of the $N_2$-Blast®
- Maximizes energy efficiency

## 18 Month Exposure Results




*South-Tek Systems, the Leading Designer and Manufacturer of Nitrogen Generation Technology*




UL® CE FM APPROVED

# $N_2$-Blast® - Specifications

| | FPS-650 | FPS-1250 | FPS-1750 | FPS-3000 | FPS-6000 | FPS-15000 | FPS-20000 |
|---|---|---|---|---|---|---|---|
| Maximum FPS Capacity (Gallons/Litres) | 650 Gal. 2,460L | 1,250 Gal. 4,731 L | 1,750 Gal. 6,624 L | 3,000 Gal. 11,356 L | 6,000 Gal. 22,712 L | 15.000 Gal. 56,781 L | 20,000 Gal. 75,708 L |
| Technology | PSA | PSA | Membrane | Membrane | Membrane | PSA | PSA |
| Dimensions (mm) | 736.6 (h) 330.2 (w) 254 (d) | 1,473.2 (h) 660.4 (w) 457.2 (d) | 1,066.8 (h) 355.6 (w) 254 (d) | 1,066.8 (h) 355.6 (w) 254 (d) | 1,066.8 (h) 355.6 (w) 254 (d) | 1,803.4 (h) 863.6 (w) 1,041.4 (d) | 1,803.4 (h) 863.6 (w) 1,041.4 (d) |
| Weight[1] | 54.43kg | 120.20kg | 63.04kg | 68.49kg | 70.31kg | 361.97kg | 420.93kg |
| Mount[2] | Wall | Skid | Wall | Wall | Wall | Skid | Skid |
| Electrical | 230V/50Hz | 230V/50Hz | 230V/50Hz | 230V/50Hz | 230V/50Hz | 230V/50Hz | 230V/50Hz |
| Compressed Air SCFM | Integrated | Integrated | 3.2 | 6.0 | 10.5 | 15.0 | 23.0 |
| $N_2$ Receiver Tank Size (Gallons/Litres) | 10 Gal. 37.85L | 10 Gal. 37.85L | 28 Gal. 105.99L | 28 Gal. 105.99L | 28 Gal. 105.99L | 80 Gal. 302.83L | 80 Gal. 302.83L |
| Warranty | 1 Year[3] | 1 Year[3] | 1 Year[3] | 1 Year[3] | 1 Year[3] | 1 Year[3] | 1 Year[3] |

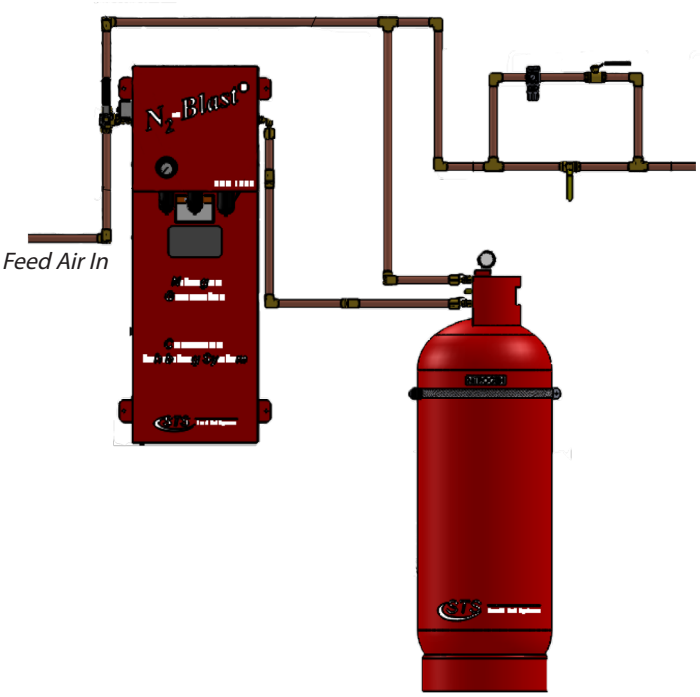
[1]The combined weight of the Nitrogen Generator and Receiver/Buffer Tank
[2]Wall mount can be provided with floor stand.
[3]Per South-Tek Systems Terms & Conditions.

## Guide Specifications

### South-Tek Systems
### Corrosion Inhibiting Nitrogen Generation System

Furnish and install a South-Tek Systems Corrosion Inhibiting Nitrogen Generation System capable of producing 98%+ pure Nitrogen in order to service all Dry and/or Preaction FPS, or as directed by the Design Engineer. Each Corrosion Inhibiting Nitrogen Generation System shall include a $N_2$-Blast® FPS
Nitrogen Generator, Feed Air Compressor, Refrigerated Air Dryer, Pre-treatment Air Filtration Package, Leak Detection System, Air Bypass Tamper Alarm, Fire Protection System Purging Device(s), Supervisory Gas Monitoring Device(s) and Nitrogen Storage Tank; or the equivalent of.

## Typical System Installation




Reliable®

# Innovative, quality-oriented fire sprinklers and devices since 1920

**Reliable Automatic Sprinkler**

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