



# *Potter Nitrogen Generators*

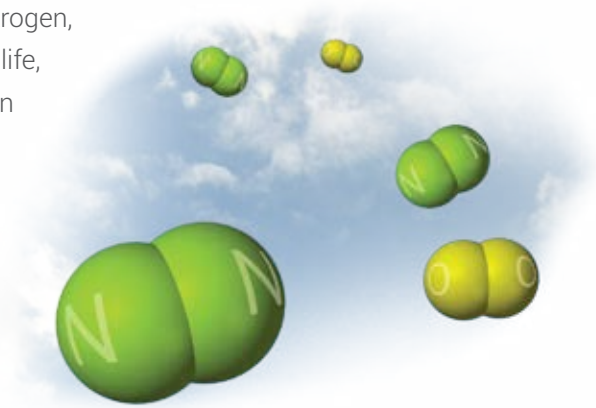




# *What is nitrogen?*

## *Nitrogen—the inert gas*

Earth's atmosphere—the air we breathe—is composed of nitrogen, oxygen, and water vapor. While this atmosphere is great for life, it is unfortunately very reactive with metals. When oxygen in the presence of water, reacts with metals, such as steel pipe, oxidation of the metal occurs. This oxidation of metal is what leads to the orange/red corrosion (rust) in fire sprinkler pipes. The key to limiting this reaction is eliminating the oxygen, the water, or both.



## *The ingredients of corrosion*

### ***No oxygen, no problem.***

Knowing that oxygen is part of the problem, it is necessary to remove it from the sprinkler system. Luckily, even though air contains the issue (oxygen), it also contains a solution (nitrogen). Nitrogen is the perfect substitute for oxygen. It is inert, globally available, and in an inexhaustible supply.



Nitrogen Generators take the atmospheric air and separate out the oxygen. Up to 99% pure nitrogen is then pumped into the sprinkler system to displace the oxygenated air.

### ***No water, no problem.***

While oxygen is a chief contributor to corrosion, so is humidity. The nitrogen generator offers the added benefit of injecting dry nitrogen into the system. The nitrogen delivered to the system has a low dew point of -58°F, effectively drying out the fire sprinkler system.



Since corrosion requires all 3 (water, oxygen, and metal), getting both the water and oxygen out has a two folded effect on slowing corrosion.



# Potter Nitrogen Generators

Potter Nitrogen Generator Systems provide a low cost, reliable, and efficient method of producing up to 99% pure nitrogen at the point of usage. When attached to fire sprinkler systems they slow oxygen corrosion; filling system piping with clean, dry nitrogen. The mechanism is a pre-engineered, turn-key system, and connects to a new or existing system. All necessary parts are included.

## Nitrogen Generation

Atmospheric air contains nitrogen (78.1%), oxygen (20.9%), argon (1%), carbon dioxide, water vapor, and traces of inert gases. The dried and filtered compressed air is voided of anything but nitrogen using a hollow fiber membrane separation process. All other gases permeate through the walls of the hollow fibers, escaping the module case through side ventilation. Due to its diffusion rate, nitrogen permeates much slower and exits out of the end of the module case with a purity of up to 99% at -58°F dew point. The required amount of nitrogen is fed into the sprinkler system piping. Pressure switches monitor the nitrogen pressure and start and stop the compressor as needed.

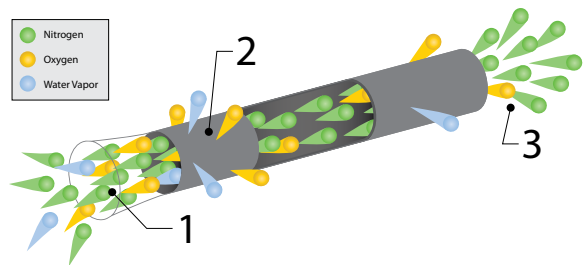


### Benefits of nitrogen as a supervisory gas:

- Both an inert and dry gas
- Non-flammable and environmentally friendly
- Reduces oxygen cell corrosion in steel and galvanized systems
- Protects sprinkler components from oxidation
- Reduces moisture in sprinkler systems. This helps reduce MIC (Microbiologically Influenced Corrosion)

### Principal of Operation:

1. Conditioned, dried, and compressed air enters fiber bore.
2. Oxygen and water vapor permeate the membrane.
3. Up to 99% pure nitrogen gas exits.



## Size Your System

Sizing your Nitrogen Generator system requires three important pieces of information:

1

### Supervisory Pressure:

This is the air pressure required to keep the dry valve closed, usually ranging between 20 and 40 PSI.

2

### Largest Riser in Gallons:

This is the total volume (in gallons) of the largest riser to ensure NFPA requirements of 30 minute fill time.

3

### Total System Capacity:

This is the total volume (in gallons) of all the risers that are being supplied by the Nitrogen Generator.



# Integrated Systems

Potter's line of Integrated Nitrogen Systems is designed specifically for smaller dry and pre-action fire sprinkler systems. When space is a premium, these units easily fit where others can't. Just pipe directly from the nitrogen outlet to the air maintenance device to start protecting the system from corrosion.



## NGP-250

- Completely integrated unit
- Handles up to 500 gallons of total sprinkler pipe capacity
- No EXTRA compressor needed for NFPA required 30 minute fill for 250 gallon system
- 30 gallon storage tank
- 1/3 HP oil-less air compressor
- Skid mounted – simple installation
- Fits through standard 32" door
- Portable Nitrogen Analyzer included

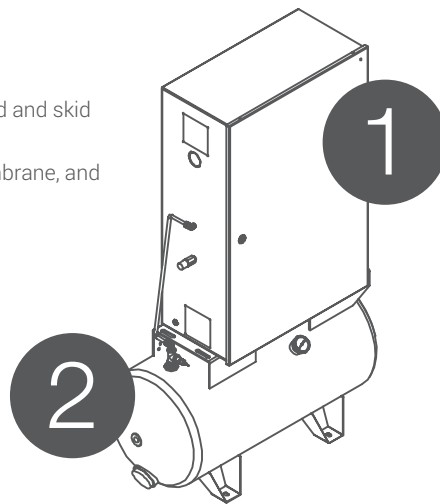
## NGP-500

- Completely integrated unit
- Handles up to 1200 gallons of total sprinkler pipe capacity
- No EXTRA compressor needed for NFPA required 30 minute fill for 500 gallon system
- 30 gallon storage tank
- 1 HP oil-less air compressor
- Skid mounted – simple installation
- Fits through standard 32" door
- Portable Nitrogen Analyzer included

## Integrated Layout

Our integrated Nitrogen Generators are completely self-contained and skid mounted.

1. Nitrogen cabinet (houses the air compressor, nitrogen membrane, and nitrogen analyzer)
2. Storage tank



Every nitrogen application is different. It is recommended that our Nitrogen Sizing Guide is filled out in order to correctly size the Nitrogen Generator. This ensures that you will receive the best engineered product for your application.

Scan this QR code or visit [www.PotterNitrogen.com](http://www.PotterNitrogen.com) to fill out the sizing guide form!





# Modular Systems

Potter's Nitrogen Generators are the world class leader in providing dependable Nitrogen to Dry and Pre-action Sprinkler systems<sup>2</sup>. Our fully modular line of products allows us to design a unit specifically for your fire sprinkler system. To ensure your unit meets all corresponding NFPA requirements for fire sprinkler systems economically, select compressor package (NGP-750 to NGP-2200) and membrane package (M1 to M5).

## Compressor Packages

### NGP-750

- Meets NFPA required 30 minute fill for 750 gallon riser<sup>1</sup>
- 30 gallon tank
- 2 HP oil-less air compressor
- Refrigerated dryer
- Includes all filters, relief valves, and gauges

*Available with M1 membrane package*

### NGP-1100

- Meets NFPA required 30 minute fill for 1100 gallon riser<sup>1</sup>
- 30 gallon tank
- 2 HP High Performance oil-less air compressor
- Refrigerated dryer
- Includes all filters, relief valves, and gauges

*Available with M1 or M2 membrane package*

### NGP-1275

- Meets NFPA required 30 minute fill for 1275 gallon riser<sup>1</sup>
- 30 gallon tank
- 2 HP Ultra High Performance oil-less air compressor
- Refrigerated dryer
- Includes all filters, relief valves, and gauges

*Available with M1, M2, or M3 membrane package*

### NGP-1750

- Meets NFPA required 30 minute fill for 1750 gallon riser<sup>1</sup>
- 80 gallon tank (30 gallon tank with M2 Membrane Package)
- 5 HP lubricated air compressor
- Refrigerated dryer
- Includes all filters, relief valves and gauges

*Available with M2, M3, or M4 membrane package*

### NGP-2200

- Meets NFPA required 30 minute fill for 2200 gallon riser<sup>1</sup>
- 80 gallon tank (30 gallon tank with M2 Membrane Package)
- 5 HP High performance lubricated air compressor
- Refrigerated dryer
- Includes all filters, relief valves and gauges

*Available with M2, M3, M4, or M5 membrane package*

## Membrane Packages



**M1:** 1,275 gallon total system capacity

**M2:** 3,050 gallon total system capacity

**M3:** 5,100 gallon total system capacity

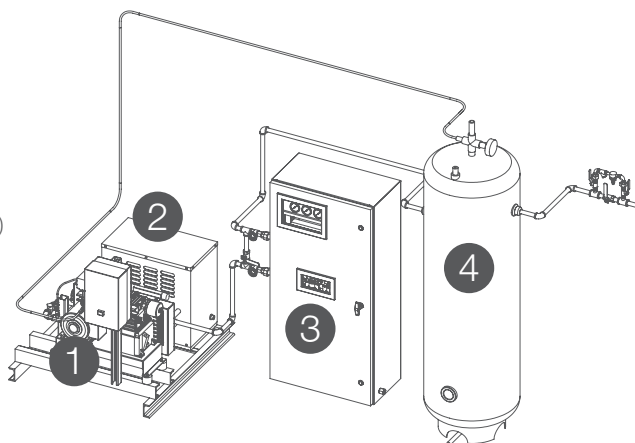
**M4:** 7,885 gallon total system capacity

**M5:** 15,880 gallon total system capacity

## Modular Layout

Nitrogen Generators have 4 main components:

1. Air compressor
2. Refrigerated dryer
3. Nitrogen cabinet (houses the nitrogen membrane)
4. Storage tank



<sup>2</sup> NFPA 13 - 7.2.6.8.1 Where nitrogen or other approved gas is used, the supply shall be from a reliable source.



# Specifications

## NGP-250

## NGP-500

Largest Riser Fill (gal)	250	500
Max Total System Capacity (gal)	500	1200
Operating Pressure (PSI)	100	100
Compressor HP	1/3	1
Compressor Type	Oil-less	Oil-less
Electrical Requirements	<b>Single Phase:</b> 7.2A @ 115V 3.5A @ 208V 3.1A @ 230V	<b>Single Phase:</b> 18A @ 115V 7.7A @ 208V 9A @ 230V
Skid Dimensions (HxWxD)	56.5" x 41" x 16"	56.5" x 41" x 16"
Skid Weight (lb)	245	255
Tank Size (gal)	30	30
Nitrogen Membrane Type	Hollow Fiber	Hollow Fiber
Pre-filters	1 X Coalescing	1 X Coalescing

### Each Potter Nitrogen Generator system includes:

- Pre-engineered and sized air compressor system
- Refrigerated air dryer (Not used in NGP-250/500)
- Air treatment filtration
- Nitrogen generator
- Nitrogen analyzer – detachable for portable use during purge process
- Nitrogen storage tank
- Pressure controls and gauges
- All relief valves, check valves, and isolation valves

## NGP-750

## NGP-1100

## NGP-1275

## NGP-1750

## NGP-2200

Largest Riser Fill (gal)	750	1100	1275	1750	2200
Max Total System Capacity (gal) - Membrane Package	1,275 - M1	1,275 - M1 3,050 - M2	1,275 - M1 3,050 - M2 5,100 - M3	3,050 - M2 5,100 - M3 7,885 - M4	3,050 - M2 5,100 - M3 7,885 - M4 15,880 - M5
Operating Pressure (PSI)	100	100	100	175	175
Compressor HP	2	2	2	5	5
Compressor Type	Oil-less	Oil-less	Oil-less	Lubricated	Lubricated
Electrical Requirements	<b>Single Phase:</b> 11A @ 208V 11.6A @ 230V  <b>Three Phase:</b> 9.2A @ 208V 9.2V @ 230V 4.6A @ 460V	<b>Single Phase:</b> 11A @ 208V 11.6A @ 230V  <b>Three Phase:</b> 9.2A @ 208V 9.2V @ 230V 4.6A @ 460V	<b>Single Phase:</b> 11A @ 208V 11.6A @ 230V  <b>Three Phase:</b> 9.2A @ 208V 9.2V @ 230V 4.6A @ 460V	<b>Three Phase:</b> 16.6A @ 208V 15A @ 230V 7.5A @ 460V	<b>Three Phase:</b> 16.6A @ 208V 15A @ 230V 7.5A @ 460V
Skid Dimensions (HxWxD)	28"x32"x37"	28"x32"x37"	28"x32"x37"	38.5"x35"x42"	35.5"x35"x42"
Skid Weight (lb)	275	275	275	500	500
Refrigerated Dryer Additional Electrical Requirement	15A @ 120V	15A @ 120V	15A @ 120V	15A @ 120V	15A @ 120V
Tank Size (gal)	30	30	30	80	80
Tank Dimensions (D x H)	16" x 44"	16" x 44"	16" x 44"	20" x 69"	20" x 69"
Tank Weight (lb)	85	85	85	198	198

## Engineering Specifications

For engineering specifications and CAD drawings on our complete line of Corrosion Solutions Products, please visit: [www.PotterNitrogen.com](http://www.PotterNitrogen.com)



# Nitrogen Accessories

## Potter's IntelliPurge™ Nitrogen System

In order to combat corrosion in dry and pre-action systems, it is important that dry 98%+ pure nitrogen is delivered throughout the entire sprinkler system. The Potter IntelliPurge™ Nitrogen Purge Valve (INS-PV) offers the latest in Nitrogen Purging technology by consistently monitoring and controlling the purging process. The INS-PV is equipped with a long lasting nitrogen sensor that allows end of the line monitoring for each fire sprinkler system. Utilizing a custom control module, the INS-PV is able to detect when the system has reached correct nitrogen levels and turn off purging. This limits the run time on the nitrogen generator compressor, while ensuring the proper levels of corrosion control.

### IntelliPurge™ Nitrogen Purge Valve (INS-PV)

Stock # 1119478

Features:

- Consistent Nitrogen Level Monitoring – Local Display
- Intelligent Control – Stops purging as soon as the system is protected.
- BMS connectivity and notification
- Advanced IntelliDry Purging Method – Designed for freezer applications, where moisture is not an option
- Simple Installation – Attached to our Potter Purge Valve, no wall mounting or bracing required
- Power Required: 24V AC/DC
- NEMA 2 Enclosure
- Optional IntelliPurge™ Remote Annunciator (INS-RA) allows convenient control of multiple INS-PV units



### IntelliPurge™ Remote Annunciator (INS-RA)

Stock # 1119476

Features:

- Allows for remote control of up to 27 INS-PV purge valves
- Records history of all purging events, nitrogen samples, and faults for all networked INS-PV units
- 24V DC

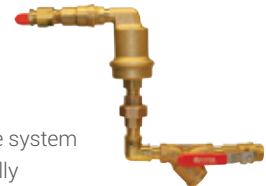


### Self Purging Valve (NGP-SPV)

Stock # 1119784

Features:

- Displaces corrosive oxygen from the system
- Ensures high purity nitrogen is equally distributed throughout the system
- Delivers up to 99% nitrogen throughout all branch lines
- Provides a location to monitor nitrogen purity



### Automatic Self-Purging Valve (NGP-SPV AUTO)

Stock # 1119799

Features:

- Potter self-purging valve with automatic valve and programmable control
- Automatically closes when the purging process is complete
- Helps extend the life of the nitrogen generator
- Can be programmed for cyclic purging



### Annual Maintenance Kit (NGP-MK)

Stock # 1119785

Features:

- Includes two coalescing filters to remove contaminants and oil vapors from the incoming air supply
- Comes with two replacement filters



### Air Maintenance Device (NGP-AMD-1)

Stock # 1119787

Features:

- Controls the supervisory air pressure in a dry pipe system
- Used when nitrogen sources are at a higher pressure than the desired system pressure
- Integrated regulator maintains a constant pressure



### Portable Nitrogen Analyzer (NGP-PSN2)

Stock # 1119796

Features:

- Displays exact nitrogen purity levels
- Portable unit allows for end of line purity check

*All Potter Nitrogen Generators include an NGP-PSN2*





Comprehensive nitrogen solutions backed by over 115 years of fire sprinkler monitoring.

Minimizing your liability for damage caused by leaking or broken fire sprinkler pipes requires diligent corrosion monitoring. You need a resource you can trust to protect all of the sprinkler systems you design or install.

With more than 115 years of sprinkler monitoring experience, Potter is *the* trusted source for corrosion monitoring and prevention. With our comprehensive suite of corrosion solutions, you can rest assured that whether you want to protect your investment in a fire sprinkler system, or need to find a more permanent solution to a corrosion problem, Potter has the most innovative and reliable products on the market to get the job done.

Potter Electric Signal Company, LLC

1609 Park 370 Place

St. Louis, MO 63042

P: 866-572-3005

F: 314-595-6999

[www.PotterNitrogen.com](http://www.PotterNitrogen.com)

