



## TN2 Series Membrane Nitrogen Generators

## Who Uses Nitrogen Gas?

# Making Your Own Nitrogen Makes Sense

Nitrogen (N<sub>2</sub>) is a dry, inert, colorless, odorless gas. It is commonly used in a wide range of industry applications because it prevents both fast and slow oxidization.

### Blanketing

Due to its low reactivity, nitrogen is an excellent blanketing gas. Blanketing protects a product from the environment or vice-versa. Blanketing is a common practice in the chemical, food, pharmaceutical, oil & gas, glass and metallurgical industries.

### Modified Atmosphere Packaging (MAP)

The presence of oxygen inside packaged foods and beverages promotes bacterial growth and oxidation, compromising quality and shelf life. By flushing packaged foods with high purity nitrogen, oxygen levels can be reduced to below 1%. This technique is increasingly popular and represents an easy and economical way to protect product and improve package integrity.

### Metal Processing

A number of high-temperature metallurgical processes are affected by contact with oxygen, which favors the formation of oxides. By using nitrogen to minimize the oxygen contact, quality and operating costs can be optimized.

### Electronics

The presence of oxygen and water vapor during electronic processing and packing can also lead to the formation of oxides, which compromises yield and quality. Nitrogen is used to create inert areas around the process and soldering chambers.

### Oil & Gas Extraction

Inert gases such as nitrogen are commonly used in the oil and gas industry for gas lift. High pressure gases like nitrogen are injected into the tubing in order to reduce the density of the fluids. This allows for a reduction of flowing bottom hole pressure (BHP). Nitrogen is also used during electrical generation for blanketing the seals on natural gas compressors.

The TN2 Series revolutionizes on-site nitrogen production by breaking the mold on one-size-fits-all solutions. Recognizing that the need for nitrogen production encompasses a wide variety of applications in dozens of industries, TN2 is engineered for flow rates from 0.5 to 15000 SCFH and is designed for easy operation and low maintenance. TN2 is especially suited for harsh environments like wash-down areas, explosive and hazmat situations and severe weather conditions. Talk to us about your specific needs. We have solutions available to meet your nitrogen requirements in a cost-effective and efficient manner.

## Engineered Solutions Provide Cost-Effective, On-Demand Nitrogen Production



**5** YEAR WARRANTY

# Applications

## Industrial Processes

- Annealing
- Hardening
- Autoclaving
- Sparging
- Mixing
- Plasma Cutting
- Laser Cutting
- Metallurgical Carburizing



## Food Packaging & Food Processing

- Food Preservation
- Controlled Atmospheric Storage
- Modified Atmospheric Packaging
- Ingredient Mixing
- Blanketing
- Gas Knifing
- Beer & Wine Dispensing
- Flushing
- Purging
- Canning



## Laboratory Sciences

- Carrier Gas
- Make-up Gas
- Instrument Gas
- Glove Boxes
- Fume Cupboards
- LCMS/GCMS



## Pharmaceutical Processing

- Blanketing
- Powder Transport
- Ingredient Stabilization

## Electronics Manufacturing

- Chamber Stabilization
- Positioning Gas
- Soldering
- Circuit Imprinting

## Petrochemical/Chemical Processing

- Tank Blanketing
- Tank/Line Purging
- Dry Material Transfer
- Line Pigging



## Technical Specifications

# TN2 Series Nitrogen Generators

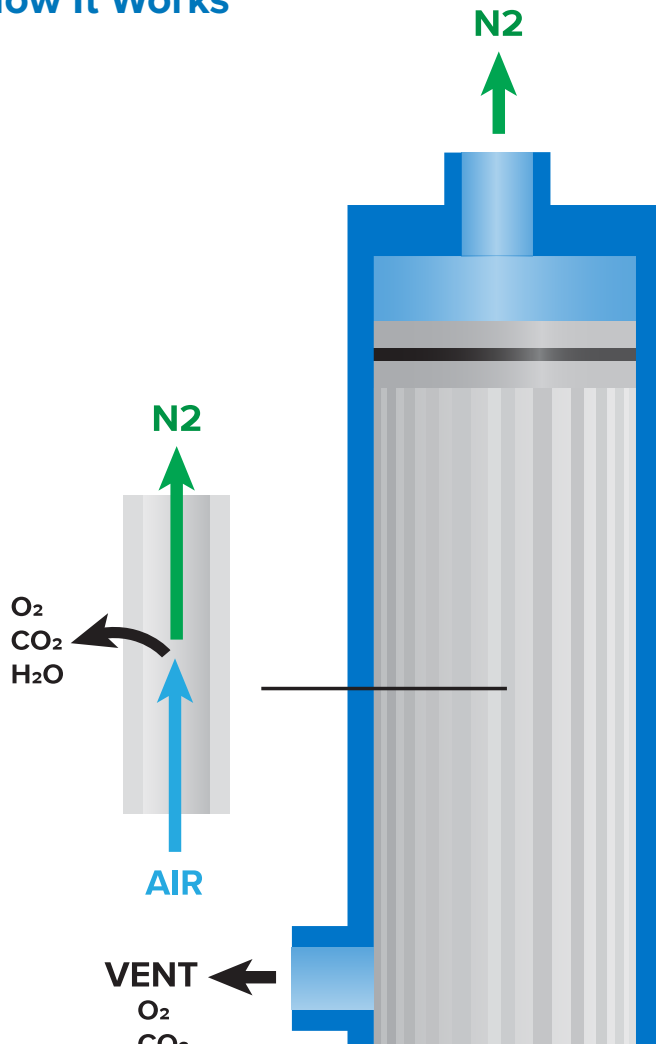
### TN2 Total

Our most common and popular nitrogen production solution includes filtration, temperature, pressure and flow control packages along with the membrane module(s). Compressed air hook-up, electric service, vent gas, and nitrogen gas outlet connection points are provided. Various options are available.

### Technical Information

<b>Operating Pressure</b>	60-200 PSI
<b>Operating Temperature (feed air)</b>	40°-140°F
<b>Ambient temperature (Normal)</b>	40°F-120°F
<b>Outlet Dew Point</b>	< -40°F PDP
<b>Voltage, Frequency</b>	110-460V / 60 Hz
<b>Sound Level</b>	< 75dB(A)
<b>Filters (1.0 Micron &amp; 0.01 Micron)</b>	Included

### How It Works



TN2 Total Flow Rates (SCFH) @ 100 PSIG, 80°F Inlet Air Conditions				
Total Series	95% Purity		99.5% Purity	
	Inlet Air	Outlet N2	Inlet Air	Outlet N2
TN2T0800	36.4	15.6	23.0	4.0
TN2T0900	62.3	25.8	39.7	5.9
TN2T1000	156.0	66.7	101.0	17.6
TN2T1100	264.0	113.0	171.0	29.7
TN2T1200	468.0	200.0	303.0	52.6
TN2T1300	768.0	328.0	497.0	86.5
TN2T1400	936.0	400.0	606.0	105.2
TN2T1500	1536	656.0	994.0	173.0
TN2T1600	1937	827.0	1253	218.0
TN2T1700	2304	984.0	1491	259.5
TN2T1800	3072	1312	1988	346.0
TN2T1900	3874	1654	2506	436.0
TN2T2000	4608	1968	2982	519.0
TN2T2100	5811	2481	3759	654.0
TN2T2200	7748	3308	5012	872.0
TN2T2300	9685	4135	6265	1090
TN2T2400	11622	4962	7518	1306

### TN2 High-Capacity

Through innovative membrane technology and product enhancements, PneuTech Nitrogen offers the high-capacity TN2 Total Nitrogen Generators. The high-capacity units deliver 70% more flow.

TN2H Total Flow Rates (SCFH) @ 100 PSIG, 80°F Inlet Air Conditions				
TN <sub>2</sub> H Series	95% Purity		99.5% Purity	
	Inlet Air	Outlet N2	Inlet Air	Outlet N2
TN2H1200	974	402	661	108
TN2H1300	1569	644	1065	172
TN2H1400	1948	804	1322	216
TN2H1500	3138	1288	2130	344
TN2H1700	4707	1932	3195	516
TN2H1800	6276	2576	4260	688
TN2H2000	9414	3864	6390	1032



## TN2 Basic

For those with the appropriate internal mechanical capabilities, we offer the option of a very simple, easy-to-assemble package made up of a high-efficiency dual filter system and membrane module. Wall- or floor- mount stands for field installation shipped separately.



<b>TN2 Basic Flow Rates</b> (SCFH) @ 100 PSIG, 80°F Inlet Air Conditions*				
TN <sub>2</sub> Basic Series	95% Purity		99.5% Purity	
	Inlet Air	Outlet N <sub>2</sub>	Inlet Air	Outlet N <sub>2</sub>
TN2B0800	22.9	10.6	13.7	3.0
TN2B0900	38.2	17.6	23.2	4.4
TN2B1000	97.1	46.0	60.0	13.2
TN2B1100	164.0	77.7	102.0	22.3
TN2B1200	291.0	138.0	180.0	39.5
TN2B1300	478.0	226.0	295.0	64.8
TN2B1400	582.0	276.0	360.0	79.0
TN2B1500	956.0	452.0	590.0	129.6
TN2B1600	1204	570.0	744.0	163.0
TN2B1700	1434	678.0	885.0	194.4
TN2B1800	1912	904.0	1180	259.2
TN2B1900	2408	1140	1488	326.0
TN2B2000	2868	1356	1770	388.8
TN2B2100	3612	1710	2232	489.0
TN2B2200	4816	2280	2976	652.0

<b>TN2BH Total Flow Rates</b> (SCFH) @ 100 PSIG, 80°F Inlet Air Conditions				
TN <sub>2</sub> BH Series	95% Purity		99.5% Purity	
	Inlet Air	Outlet N <sub>2</sub>	Inlet Air	Outlet N <sub>2</sub>
TN2BH1210	528	254	329	75
TN2BH1220	1056	508	658	150
TN2BH1230	1584	762	987	225
TN2BH1240	2112	1016	1316	300
TN2BH1310	849	407	530	121
TN2BH1320	1698	814	1060	242
TN2BH1330	2547	1221	1590	363
TN2BH1340	3396	1628	2120	484

\* For TN2 Basic units, pre-drying of compressed air is required. For applications requiring greater capacity or purity, please consult the factory for our TN2 Extended Line nitrogen generation solutions.

## TN2 GenPak

For applications where a reliable source of compressed air is not available. The package includes a high quality air compressor, wet air receiver and nitrogen generator that provides a precisely matched supply of high quality nitrogen to downstream processes. Various options are available.



## Proven Technology

PRISM® Nitrogen Membrane technology is at the core of every TN2 model. Since being developed over 50 years ago, PRISM® membranes by Air Products and Chemicals, Inc. have continued to evolve and improve, making them the unquestioned leader in state-of-the-art hollow fiber technology. Fully adjustable up to 99.9% purity, they meet even the most demanding application requirements. Because the PRISM® membranes have no moving parts, this technology provides the most maintenance-free method of on-site nitrogen production available.



# 5-Year Pneu-Assure Warranty

## Industry-Leading Peace-of-Mind

✓ **5-Year Warranty on Pressure Vessels**

✓ **2-Year Warranty on the Entire Unit**  
Regular maintenance NOT included

✓ **Guaranteed Support**  
From PneuTech and your local dealer

✓ **Technical Expertise**  
Industry-leading knowledge & experience

Warranty subject to change based on region and dealer agreement.

5-Year Warranty on Pressure Vessels requires the use of Genuine PneuTech Parts

## Cost Comparison

### *Outsourced Nitrogen vs. In-House Production*

The typical range in cost of various types of conventional sources of N<sub>2</sub> supply in the North American marketplace:

**Cylinder**  
\$8.00 - \$40.00 per 100 ft<sup>3</sup>

**Liquid Dewar**  
\$1.80 - \$4.50 per 100 ft<sup>3</sup>

**Bulk Liquid**  
\$0.40 - \$2.50 per 100 ft<sup>3</sup>

Depending on nitrogen purity required, geographic location and associated electricity costs, typical operating costs (energy and maintenance) for generating nitrogen on site:

**Low Purity 95-97%**  
\$0.06 - \$0.10 per 100 ft<sup>3</sup>

**Medium Purity 99%**  
\$0.10 - \$0.18 per 100 ft<sup>3</sup>

**High Purity 99.99%**  
\$0.17 - \$0.30 per 100 ft<sup>3</sup>

**Ultra-High Purity 99.999 %**  
\$0.26 - \$0.45 per 100 ft<sup>3</sup>

## Generate Your Own Nitrogen

Use the PneuTech Nitrogen Generation Worksheet to better understand your nitrogen requirements, applications and expenses.

Simply provide your current or future system demands and one of our highly qualified nitrogen generation system engineers will get back to you promptly.



# Other PneuTech Products



**RK Fixed Speed Rotary Screw  
5HP-50HP**



**RK Variable Speed Rotary Screw  
5HP-75HP**



**RSP VSD & Fixed Speed Rotary Screw  
75HP-450HP**



**RKHD VSD & Fixed Speed Rotary Screw  
50HP-420HP**



**FHO Inline Filtration**



**RDA Refrigerated Air Dryers  
Non-Cycling - 13-550 CFM**



**CSO Oil Water Separators**



**RDA Refrigerated Air Dryers  
Variable Speed - 800-6,000 CFM**

# Our Mission Statement

Using our combined industry experience,  
we provide knowledge, support, and superior products.

We are committed to producing positive results  
through being trustworthy, ethical, and accessible.

We are founded in the beliefs that through working together  
we can continue to transform the industry,  
while rising to turn challenges into opportunities.

## **PneuTech**

550 Albion Avenue  
Schaumburg, IL 60193  
888.966.9007  
[www.pneutech.com](http://www.pneutech.com)

PT-124-Rev1

