

# MAP Application Solutions

## Background

Many industries use various chemicals in the manufacture or production of products, and require tank blanketing to ensure the chemical's integrity. Tank blanketing, or "padding", is the application of covering a liquid surface with nitrogen gas in order to protect a product from contamination, degradation, and chemical change. This protection is necessary to preserve chemicals and maintain their useful life. It is also used to fill and balance tank volumes that may change with temperature and to prevent vacuum building up and collapsing storage tanks. It also safeguards against the ingress of any ambient air.



## Application

When using chemical compounds to manufacture, the integrity of these substances determines the quality of the finished product. If tank blanketing is not used, the substance is exposed to contamination and oxygen which changes the chemical's properties. Such chemical reactions include combustion and oxidation. Using nitrogen

to blanket the chemicals also displaces impurities that may have been present, such as moisture and fills all voids within a container. With the Parker Balston Nitrogen Generator, you can achieve an inert atmosphere in the void volume and ensure the integrity and quality of the chemical, while prolonging its useful life.

## Case Study

Virtually all industries store and use many different chemical compounds. Many are stored in an inert environment to protect the material from contaminants and other effects. These chemicals could be paint, plastics, soldering, resins, epoxy, or solvents. Isotec International in Canton, Georgia used isocyanate to help make a foaming agent. This compound is a highly reactive acid that loses its properties when combined with moisture, as well as a potential fire hazard in the presence of oxygen. To ensure the quality and integrity of the chemical, Isotec contacted Parker Balston to use a Nitrogen Generator into their processes. 95% pure nitrogen was back filled to the storage vessel as the chemical was used and pulled into production. This maintained an inert atmosphere in the void volume of the vessel and kept the original integrity of the material. Using the Nitrogen Generator helped protect the quality of the isocyanate and prevented evaporation, combustion, oxidation, and moisture formation, with no need for operator attention. These conveniences allow for decreased storage costs and ease of use, in addition to improved efficiencies.



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### Features and Benefits



- Improves chemical integrity by keeping an inert atmosphere
- Lower cost by eliminating costly gas cylinders
- Compact - frees up floor space
- Hassle-free, easy to install, easy to operate
- Safe and reliable
- Maintains consistent nitrogen, reducing maintenance
- Fills all void space and creates needed headspace

### Principal Specifications HFX Series Generators

Flow Rates (SCFH) @ 100 psig @ 68°F							Pressure Correction Factors (at Indicated Operating Pressure (PSIG))									
Model	95	96	97	98	99	99.5	58	73	87	101	116	130	145	160	174	190
<b>HFX Series Nitrogen Generators</b>																
HFX-1	40	33	26	16	11	---	.52	.65	.86	1	1.15	1.35	1.44	---	---	---
HFX-3	148	120	95	70	42	---	.54	.68	.85	1	1.14	1.3	1.43	---	---	---
HFX-5	279	229	176	131	76	---	.52	.65	.85	1	1.14	1.34	1.43	---	---	---
HFX-7	452	360	283	209	120	---	.53	.66	.86	1	1.14	1.32	1.43	---	---	---
HFX-9	752	600	452	330	201	---	.44	.65	.85	1	1.1	1.3	1.4	---	---	---
HFX-11	1201	992	780	572	248	---	.44	.65	.85	1	1.2	1.4	1.6	---	---	---
<b>Nitrosource Series Nitrogen Generators</b>																
Main-Unit 159.003552	1200.7	990.6	780.5	570.4	330	210	.35	.51	.76	1	1.2	1.4	1.6	1.9	2.1	2.4
NS-1	2401.5	1981.2	1561	1140.7	660	420	.35	.51	.76	1	1.2	1.4	1.6	1.9	2.1	2.4
NS-2	3602.2	2971.8	2341.5	1711.1	990	630	.35	.51	.76	1	1.2	1.4	1.6	1.9	2.1	2.4
NS-3	4803	3962.5	3121.9	2281.4	1320	840	.35	.51	.76	1	1.2	1.4	1.6	1.9	2.1	2.4
NS-4	6003.7	4953.1	3902.4	2851.8	1650	1050	.35	.51	.76	1	1.2	1.4	1.6	1.9	2.1	2.4
NS-5	7204.5	5943.7	4682.9	3422.1	1980	1260	.35	.51	.76	1	1.2	1.4	1.6	1.9	2.1	2.4



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## Principal Specifications HFX Nitrogen Generators

Principal Specifications - HFX Series Membrane Nitrogen Generators Models HFX1, HFX-3, HFX-5, HFX-7, HFX-9, HFX-11				
Model Number	HFX-1, HFX0-1	HFX-3, HFX0-3	HFX-5, HFX0-5	HFX-7, HFX0-7, HFX-9, HFX0-9, HFX-11, HFX0-11
Atmospheric Dewpoint	-58°F (-50°C)	-58°F (-50°C)	-58°F (-50°C)	-58°F (-50°C)
Commercially Sterile	Yes	Yes	Yes	Yes
Particles > 0.01 micron	None	None	None	None
Suspended Liquids	None	None	None	None
Min/Max Operating Press.(1)	60 psig/145 psig	60 psig/145 psig	60 psig/145 psig	60 psig/145 psig
Max. Press. Drop (at 95% N <sub>2</sub> , 125 psig)	10 psig	10 psig	10 psig	10 psig
Recommended Ambient Operating Temperature	77°F (25°C)	77°F (25°C)	77°F (25°C)	77°F (25°C)
Min/Max Inlet Air Temp.	40°F/122°F (2°C/50°C)	40°F/122°F (2°C/50°C)	40°F/122°F (2°C/50°C)	40°F/122°F (2°C/50°C)
Recommended Inlet Air Temperature	77°F (25°C)	77°F (25°C)	77°F (25°C)	77°F (25°C)
Electrical Requirements (2)	None (2)	None (2)	None (2)	None (2)
Dimensions	16.3"h x 12.8"w x 7.5"d (41.4cmx32.5cmx19.1cm)	16"w x 16"d x 50"h (41cmx25cmx91cm)	16"w x 16"d x 50"h (41cmx25cmx91cm)	24"w x 20"d x 69"h (61cmx51cmx175cm)
Shipping Wt.	38 lbs. (17.3 kg)	75 lbs. (34 kg)	106 lbs. (114 kg)	250 lbs. (114 kg)

Notes:

1 Maximum operating pressure in Europe is 8 barg.

2 No electrical power required unless used with an electrical accessory, e.g., an oxygen analyzer.

### Ordering Information - Models HFX1, HFX-3, HFX-5, HFX-9, HFX-11

For assistance, call toll-free at 1-800-343-4048 8AM to 5PM Eastern Time

Model	Maintenance Kit	Maintenance Kit w/O2 Monitor	Maintenance Kit Components				Final Membrane Filter	Activated Carbon Filter
			Replacement Filter Cartridges 1st stage	Replacement Filter Cartridges 2nd stage	Replacement Filter Cartridges 3rd stage			
HFX-1, HFX0-1 (w/O2 monitor)	MK75005	MK750050	100-12-DX	100-12-BX	---	9933-05-95	1/7825-08-000	
HFX-3, HFX0-3 (w/O2 monitor)	MK7579C	MK75790C	100-12-DX	100-12-BX	---	GS-100-12-95	75620	
HFX-5, HFX0-5 (w/O2 monitor)	MK7579C	MK75790C	100-12-DX	100-12-BX	---	GS-100-12-95	75620	
HFX-7, HFX0-7 (w/O2 monitor)	MK7576	MK76760	100-18-DX	100-18-BX	100-25-BX	GS-100-25-95	75303	
HFX-9, HFX0-9 (w/O2 monitor)	MK7576	MK75760	100-18-DX	100-18-BX	100-25-BX	GS-100-25-95	75303	
HFX-11, HFX0-11 (w/O2 monitor)	MK7576	MK76760	100-18-DX	100-18-BX	100-25-BX	GS-100-25-95	75303	



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### Nitrosorce Series Membrane Nitrogen Generators

#### Principal Specifications - Nitrosorce Series Membrane Nitrogen Generators - Models Main Unit, NS-1, NS-2

Model Number	Main Unit	NS-1	NS-2
Atmospheric Dewpoint	-58°F (-50°C)	-58°F (-50°C)	-58°F (-50°C)
Commercially Sterile	Yes	Yes	Yes
Particles > 0.01 micron	None	None	None
Suspended Liquids	None	None	None
Min/Max Operating Pressure (1)	60 psig/145 psig	60 psig/145 psig	60 psig/145 psig
Max. Pressure Drop	15 psig	15 psig	15 psig
Recommended Ambient Operating Temp.	70°F (21°C)	70°F (21°C)	70°F (21°C)
Min/Max Inlet Air Temp.	50°F/104°F (10°C/40°C)	50°F/104°F (10°C/40°C)	50°F/104°F (10°C/40°C)
Recommended Inlet Air Temp.	70°F (21°C)	70°F (21°C)	70°F (21°C)
Electrical Requirements (2)	90-250 VAC 50-60 Hz	90-250 VAC 50-60 Hz	90-250 VAC 50-60 Hz
Dimensions	29" w x 20" d x 76" h (74cm x 107cm x 193cm)	29" w x 31" d x 76" h (74cm x 51cm x 193cm)	29" w x 42" d x 76" h (74cm x 79cm x 193cm)
Shipping Wt.	450 lbs.	660 lbs.	870 lbs.

#### Principal Specifications - Nitrosorce Series Model NS-3

Model Number	NS-3
Atmospheric Dewpoint	-58°F (-50°C)
Commercially Sterile	Yes
Particles > 0.01 micron	None
Suspended Liquids	None
Min/Max Operating Pressure (1)	60 psig/145 psig
Max. Pressure Drop	15 psig
Recommended Ambient Operating Temp.	70°F (21°C)
Min/Max Inlet Air Temp.	50°F/104°F (10°C/40°C)
Recommended Inlet Air Temp.	70°F (21°C)
Electrical Requirements	90-250 VAC 50-60 Hz
Dimensions	29" w x 53" d x 76" h (74cm x 107cm x 193cm)
Shipping Wt.	1290 lbs.

#### Ordering Information

For assistance, call 1-800-343-4048 8AM to 5PM EST

Description	Model #	Maintenance Kit #	O2 Sensor
Main Unit	159.003552	159.003569	2284
Sub Unit	159.003553	159.003570	
Main Unit	NS-1	159.003569	2284
Sub Unit		159.003570	
Main Unit	NS-2	159.003569	2284
2 Sub Unit		159.003570x2	
Main Unit	NS-3	159.003569	2284
3 Sub Unit		159.003570x3	

#### Notes:

1 For temperatures less than 68°F (20°C) or pressures less than 60 psig, consult factory for flows.



**Parker Hannifin Corporation**  
 Filtration and Separation Division  
 242 Neck Road, P.O. Box 8223  
 Haverhill, MA 01835-0723  
 Phone: 800-343-4048 or 978-858-0505  
 Fax: 978-556-7501  
[www.parker.com/balston](http://www.parker.com/balston)

MAP Chemical Tank Blanketing-A  
 Reprinted in U.S.A. May 2008

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