

# Chemical Tank Blanketing

## Market Application Publication



### 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.



### 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

## Application:

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.



## Case Study:

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.



# Specifications and Ordering Information:

## Flow Rates (SCFH)

% Nitrogen	DB-5	DB-10	DB-15	DB-20	DB-1200	DB-1600	DB-1900	DB-2500	DB-4000
99.999	33	66	99	132	186	248	295	389	622
99.995	74	148	222	296	522	696	826	1088	1741
99.99	141	281	421	561	630	840	997	1312	2100
99.95	204	409	613	817	951	1268	1505	1981	3170
99.9	240	480	720	960	1077	1435	1703	3343	3590
99.5	345	689	1034	1378	1635	2178	2585	3402	5445
99	416	831	1247	1663	1995	2652	3150	4150	6640
98	499	998	1496	1995	2445	3250	3860	5088	8138
97	570	1140	1710	2280	2800	3732	4430	5836	9330
96	630	1259	1889	2518	3050	4066	4540	5984	9574
95	694	1387	2081	2774	3300	4400	5220	6880	11010



## Principal Specifications - Models DB-5, DB-10, DB-15, DB-20

Model Number	DB-5, DB-10	DB-15, DB-20
Feed Pressure	110 psig	110 psig
Temperature	80°F	80°F
Ambient Pressure	1 Atm.	1 Atm.
Maximum Pressure	140 PSIG	140 PSIG
Temperature Range	60°F - 105°F	60°F - 105°F
Dewpoint	40°F atmospheric dewpoint or better	40°F atmospheric dewpoint or better
Residual Oil Content	Trace	Trace
Particles	<.01 micron	<.01 micron
Atmospheric Dewpoint	-58°F (-50°C)	-58°F (-50°C)
Commercially Sterile	Yes	Yes
Particles >.1 micron	None	None
Suspended Liquids	None	None
Recommended Inlet Pressure (Min.)	110 psig (7.6 barg)	110 psig (7.6 barg)
Max Inlet Pressure	140 psig (9.7 barg)	140 psig (9.7 barg)
Max Outlet Pressure (Based on nominal conditions and standard 60 gallon nitrogen tank)	80 psig	DB-15: 80 psig @ 95-99.99% Purity DB-20: 80 psig @ 98-99.99% Purity 75 psig @ 97% Purity 70 psig @ 95-96% Purity
Min. / Max. Ambient Temperature	40°F/95°F (4°C/35°C)	40°F/95°F (4°C/35°C)
Dimensions	28.5"L x 32.25"D x 78"H	28.5"L x 50"D x 78"H
Weight (with tank)	620 lbs (DB-5), 830 lbs (DB-10)	1240 lbs (DB-15), 1450 lbs (DB-20)
Inlet/Outlet	1/2" NPT/ 1/2" NPT	1" NPT/3/4" NPT
Electrical Requirement	120VAC/60Hz, 1.5 Amp	120VAC/60Hz, 1.5 Amp

## Principal Specifications - Models DB-1200, DB-1600, DB-1900, DB-2500 and DB-4000

Dual Bed Nitrogen Generator	DB-1200	DB-1600	DB-1900	DB-2500	DB-4000
Atmospheric Dewpoint	-58°F (-50°C)	-58°F (-50°C)	-58°F (-50°C)	-58°F (-50°C)	-58°F (-50°C)
Particles > .1 micron	None	None	None	None	None
Suspended Liquids	None	None	None	None	None
Recommended Inlet Pressure	110 psig (7.6 barg)	110 psig (7.6 barg)	110 psig (7.6 barg)	110 psig (7.6 barg)	110 psig (7.6 barg)
Max Outlet Pressure	80 psig	80 psig	80 psig	80 psig	80 psig
Min/Max Ambient Temperature	40°F/95°F (4°C/35°C)	40°F/95°F (4°C/35°C)	40°F/95°F (4°C/35°C)	40°F/95°F (4°C/35°C)	40°F/95°F (4°C/35°C)
Inlet Port Size	1-1/2" NPT (female)	1-1/2" NPT (female)	2" NPT (female)	2" NPT (female)	2" NPT (female)
Outlet Port Size	1" NPT (female)	1" NPT (female)	1-1/2" NPT (female)	1-1/2" NPT (female)	1-1/2" NPT (female)
Electrical Requirements	120VAC/60 Hz	120VAC/60 Hz	120VAC/60 Hz	120VAC/60 Hz	120VAC/60 Hz
Dimensions	78"w x 48"d x 98"h (198cmx122cmx254cm)	78"w x 48"d x 92"h (198cmx122cmx234cm)	72"w x 54"d x 101"h (183cmx137cmx257cm)	72"w x 54"d x 125"h (183cmx137cmx318cm)	84"w x 72"d x 138"h (213cmx183cmx351cm)
Shipping Wt.	3,800 lbs. (1,724 kg)	3,800 lbs. (1,724 kg)	4,300 lbs. (1,951 kg)	6,500 lbs. (2,948 kg)	7,100 lbs. (3,221 kg)

# Specifications and Ordering Information:

## HFX Series Flow Rates and Pressure Correction

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
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	---	---	---



## Principal Specifications - HFX Series Membrane Nitrogen Generators

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	12.8" w x 7.5" d x 16.3" h (32cm x 19.1cm x 41cm)	16" w x 16" d x 50" h (41cm x 25cm x 91cm)	16" w x 16" d x 50" h (41cm x 25cm x 91cm)	24" w x 20" d x 69" h (61cm x 51cm x 175cm)
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.

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.balstonfilters.com

