

# Dual-Bed (DB) Series Twin Tower PSA Nitrogen Gas Generation Systems



## PSA Nitrogen Generators

Nitrogen is used as a clean, dry, inert gas primarily for removing oxygen from products and/or production processes. Nitrogen gas is used in a wide range of industries including food, beverage, pharmaceutical, laboratory, chemical, heat treatment, electronics, transportation, oil & gas, mining and marine.

Nitrogen generators offer a cost effective, reliable, and safe alternative to traditional cylinder or liquid nitrogen gas supplies. Using a supply of clean, dry compressed air, nitrogen generators can provide an on-demand, continuous source of high-quality nitrogen gas.

Pressure Swing Adsorption (PSA) technology uses 2 sets of vessels filled with carbon molecular sieve (CMS) to separate compressed air. Oxygen and other waste gases are selectively adsorbed under pressure by the CMS, allowing nitrogen to pass through to the application.

The CMS is regenerated by releasing the pressure in one the vessels and venting the waste gases to atmosphere, while the other vessel(s) continues to separate air and deliver a continuous supply of nitrogen.

Parker's DB Series is a range of industrial twin tower PSA nitrogen generators take a supply of compressed air and deliver nitrogen with purities up to 99.999% at dewpoints down to -58°F (-50°C). These full-feature generators are the ideal choice for applications that require medium to high nitrogen purity at high flow rates.



## Advantages

- Robust, skid mounted twin tower design for high-flow industrial applications.
- Continuous, on-demand supply of nitrogen with purities ranging from 95 to 99.999%.
- High efficiency pre-filtration removes inlet air particles down to 0.1 micron.
- SS sterile air final filter provides outlet filtration efficiency of 99.9999+% at 0.01um and has full compliance with FDA and USDA requirements.
- Allen Bradley® PLC controls with 4-line LCD display.
- Includes nitrogen flow meter, outlet pressure regulator, nitrogen buffer tank and an oxygen analyzer with display.
- Zirconia O2 sensor with up to 5-year life and requires no calibration.
- Purity can be easily adjusted and set on-site.
- Stand-By Mode saves energy during periods of low demand.
- Improves safety, reliability, and lowers operating costs versus traditional cylinder or liquid nitrogen gas supplies.



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## Product Selection

Series	Model	O2 Analyzer	Example: DB-50-PPM
<b>DB</b> Dual-Bed	<b>30</b> <b>40</b> <b>50</b> <b>80</b>	<b>PCT</b> Purities between 95-99.9% <b>PPM</b> Purities between 99.95-99.999%	
	See Product Selection below for flow rates		

## Nitrogen Flow Rates in SCFH (Nm<sup>3</sup>/hr)

N2 Purity	O2 Content	DB-30-[*]	DB-40-[*]	DB-50-[*]	DB-80-[*]
99.999%	10 ppm	552 (14.5)	656 (17.2)	864 (22.7)	1381 (36.3)
99.995%	50 ppm	715 (18.8)	847 (22.3)	1115 (29.3)	1783 (46.9)
99.99%	100 ppm	1010 (26.6)	1198 (31.5)	1578 (41.5)	2525 (66.4)
99.95%	500 ppm	1365 (35.9)	1622 (42.6)	2135 (56.1)	3417 (89.8)
99.90%	0.10%	1530 (40.2)	1812 (47.6)	2390 (62.8)	3818 (100.4)
99.50%	0.50%	2178 (57.3)	2585 (68.0)	3402 (89.4)	5445 (143.1)
99%	1%	2270 (59.7)	2690 (70.7)	3545 (93.2)	5670 (149.1)
98%	2%	2950 (77.5)	3505 (92.1)	4615 (121.3)	7385 (194.1)
97%	3%	3190 (83.9)	3780 (99.4)	4980 (130.9)	7960 (209.3)
96%	4%	3945 (103.7)	4680 (123.0)	6157 (161.9)	9845 (258.8)
95%	5%	4320 (113.6)	5140 (135.10)	6765 (177.8)	10815 (284.3)

- Flow Rates based on inlet of 110 psi g (7.6 bar g) and 77°F (25°C). Nitrogen generator purity is pressure, temperature, and flow dependent.
- Higher flow and purities can be accomplished at higher pressures. Consult factory for assistance with sizing.

## Technical Specifications

Model Number <sup>1</sup>	Min. Ambient Temperature	Max. Ambient Temperature	Min. Inlet Temperature	Max. Inlet Temperature	Min. Inlet Pressure	Max. Inlet Pressure	Max. Press. Drop	Nitrogen Dewpoint	Power Supply
DB-30-[*]									
DB-40-[*]	40°F	95°F	60°F	105°F	80 psi g	140 psi g	30 psi d	-58°F	120V-1Ph-60Hz
DB-50-[*]	(5°C)	(35°C)	(16°C)	(40°C)	(5.5 bar g)	(9.7 bar g)	(2 bar d)	(-50°C)	300 Watts
DB-80-[*]									

- Replace [\*] with "PCT" for percent analyzer (purities 95-99.9%) or "PPM" for parts per million analyzer (purities 99.95-99.999%).

## Weights and Dimensions

Model Number	DB-30-[*]	DB-40-[*]	DB-50-[*]	DB-80-[*]
Dimensions (W x D x H)	64.0" x 64.0" x 90.3" (163cm x 163cm x 230cm)		64.0" x 64.0" x 92.8" (163cm x 163cm x 236cm)	64.0" x 64.0" x 103.8" (163cm x 163cm x 264cm)
Shipping Weight	3718 lbs (1686 kg)	4018 lbs (1823 kg)	4635 lbs (2102 kg)	5780 lbs (2622 kg)
Inlet/Outlet Port Size	1-1/2" NPT / 1" NPT	2" NPT / 1" NPT	2" NPT / 1-1/2" NPT	
Nitrogen Buffer Tank	240 Gal. (909 L) 30.2"W x 41.0"D x 94.0"H (77cm x 104cm x 239cm)		400 Gal. (1514 L) 39.4"W x 45.0"D x 102.2"H (100cm x 115cm x 260cm)	660 Gal. (2498 L) 48.4"D x 51.3"W x 126.8"H (123cm x 131cm x 322cm)

- Weights and dimensions shown for all models are approximate. Parker reserves the right to make changes without notification. Consult factory for general arrangement drawings.

