

Modular PSA Nitrogen Generators

NITROSWING NS-45



Typical Applications

- Blanketing of Chemicals and Pharmaceuticals
- Gas Assisted Injection Molding (GAIM)
- Heat Treatment of Ferrous & Non-Ferrous Metals
- Inerting of Flammable Liquids
- Laser Cutting
- Prevention of Dust Explosions
- Re-flow and Wave Soldering of PCBs
- UV-Curing of Coatings

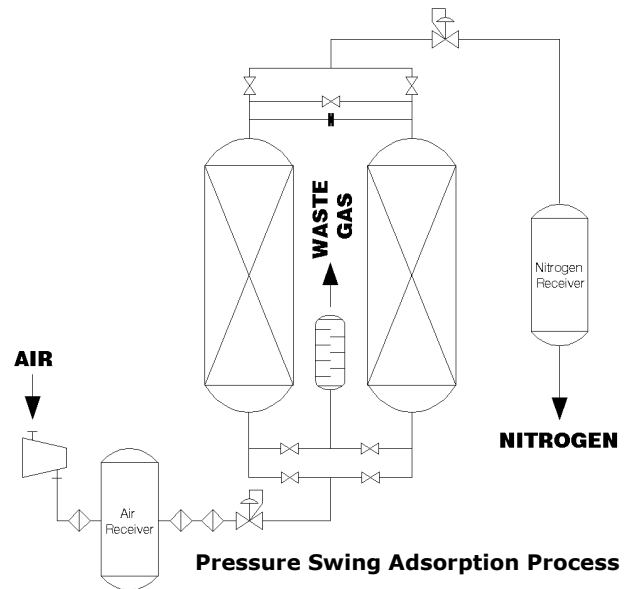
Food Applications

NITROSWING® PSA nitrogen generators can be configured for use in food processing and packaging however, it is recommended to consult IGS before purchasing a generator for any food application.

The Nitrogen Production Process

IGS Nitrogen PSA Generators separate nitrogen (N₂) from compressed air utilizing pressure swing adsorption technology. Compressed air, which consists of approximately 21% oxygen and 78% nitrogen, is passed through a bed of carbon molecular sieve (CMS). The sieve preferentially adsorbs O₂ and moisture over N₂ allowing the N₂ to pass through as a product gas at pressure. While one of the towers is in the adsorption phase the other tower is regenerated by de-pressurizing at which time the sieve releases the adsorbed gases to the atmosphere and the cycle is then repeated.

A solid state programmable controller operates the process valves on an alternating cycle with built-in logic for automatic stop/start. Nitrogen flow and purity remain constant regardless of the peak usage demands. Under normal operating conditions and with correct maintenance the carbon molecular sieve will have an almost indefinite lifetime.



Standard Components

- Feed Air Filters
- Adsorber Vessel Module(s)
- Pneumatic Valves
- Internal Piping & Fittings in SS316
- Exhaust Muffler
- Air and Nitrogen Pressure Regulation
- Local Instrumentation
- Control System with Allen-Bradley PLC
- Pressure Switch for Automated Idle-Mode

Advantages

- Safety:
Low Operating Pressures, no Hazardous Storage
- Economy:
Low Operating Costs, Easily Expandable
- Convenience:
Fully Automatic and Unattended Operation
- Reliability:
Easy to Install and Maintain

NITROSWING NS-45 Series Specifications & Performance

Oxygen Content		10 ppm		100 ppm		0.1 vol. %		0.5 vol. %		1 vol. %		2 vol. %		3 vol. %	
Feed Air Pressure	bar(g)	7.5	10	7.5	10	7.5	10	7.5	10	7.5	10	7.5	10	7.5	10
	psig	110	150	110	150	110	150	110	150	110	150	110	150	110	150
Product Flowrate ⁽¹⁾	Nm ³ /h	On Request		17.4	20.6	29.6	31.2	55	60.6	64	80.3	78.5	107.3	88.6	112.8
	scfh	On Request		672	794	1,140	1,201	2,121	2,334	2,467	3,095	3,025	4,136	3,414	4,347
Product Pressure	bar(g)	On Request		6	8	6	8	6	8	5.9	7.9	5.8	7.7	5.7	7.5
	psig	On Request		87	115	87	115	87	115	85	114	84	110	82	108
Feed Air Consumption	Nm ³ /min	On Request		1.57	1.87	1.91	2.03	2.55	2.83	2.51	3.17	2.80	3.85	2.95	3.78
	scfm	On Request		60.4	71.9	73.7	78.2	98.3	108.9	96.6	122	107.9	148.5	113.8	145.9
Min. Air / N ₂ Receiver ⁽²⁾	liter	On Request		800	950	1,000	1,250	1,250	1,600	1,500	1,850	1,950	2,500	2,450	3,150
	gallon	On Request		211	251	264	330	330	423	396	489	515	660	647	832
Dew Point ⁽³⁾	°C / °F	-40 / -40													
Sound Level L _{eq}	dB(A)	< 75													

(1) Flow rates at standard atmospheric conditions (20 °C / 70 °F, 1013 mbar / 14.7 psi and 60% RH.

(2) Smaller receiver volumes will result in lower product pressures. Please contact manufacturer for details.

(3) Dew point at atmospheric pressure.

Feed Air Requirements

Compressor FAD Flow rate ⁽⁴⁾	1.2 x Air Cons.
Min. Inlet Pressure	7.0/9.5 bar(g) 100/140 psig
Max. Inlet Temperature	+35 °C +95 °F
Min. Air Quality ⁽⁵⁾	ISO 8573.1 Class 1.4.1

Power Requirements

Power Supply	110–230 V / 50–60 Hz
Power Consumption	max. 0.3 kW

Certifications

97/23/CE (Pressure Equipment Directive)
98/37/CE (Machinery Directive)

(4) Increased compressor flow rate in order to compensate evt. compressor performance tolerance and ambient temperature fluctuations.

(5) Improper feed air quality may cause damage to the nitrogen generator not covered under warranty.

Connections

Feed Air Inlet	G 1"
Nitrogen Return ⁽⁶⁾ / Outlet	G ½"
Off-Spec Connections ⁽⁶⁾	G ½"

Dimensions & Weights

L	W	H	Weight	
520	2,310	1,340	mm	945 kg
20	91	53	in.	2,083 lb.

(6) Only in case of on-board installation of oxygen analyzer and/or a product flow meter.

Options

- Dual Bank Unit
- Oxygen Analyzer with Zirconium Oxide Cell
- Electronic Product Flow Meter
- Sterile Filters
- Telemetry
- Nitrogen Booster
- Nitrogen Cylinder Filling System

Installation Requirements

Well ventilated and protected environment with temperatures between +41 °F / 5 °C + and +104 °F / +40 °C. Classified areas excluded.

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