

NITROSWING® NS-21

PSA Modular Nitrogen Generator

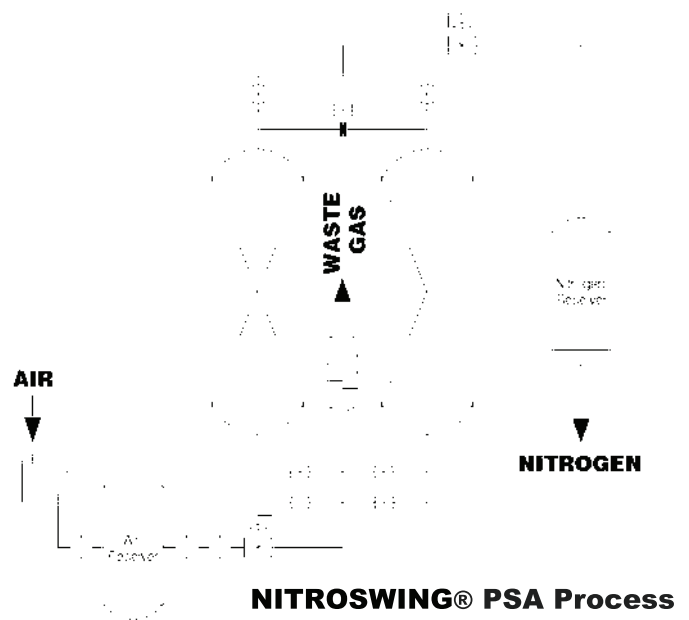


Key features

- Adsorber Module(s) in Anodised Aluminium
- Set of External Feed Air Filters
- Pneumatic Valves
- Internal Piping in Stainless Steel 316
- Maintenance-free Exhaust Silencers
- Air Flow Regulation
- Local Instrumentation
- Control System with Siemens SIMATIC® colour 7" Touch Screen
- Operator Interface and Data logging
- Standard Profinet Industrial Ethernet Interface
- Nitrogen Pressure Transmitter for Optimal Monitoring and Automated Idle-Mode

The Nitrogen Production Process

The NITROSWING® generators extract the available nitrogen in the ambient air from the other gases by applying the Pressure Swing Adsorption (PSA) technology. During the PSA process, compressed and cleaned ambient air is led to a molecular sieve bed, which allows the nitrogen to pass through as a product gas, but adsorbs other gases. The sieve releases the adsorbed gases to the atmosphere, when the outlet valve is closed and the bed pressure returns to ambient pressure. Subsequently the bed will be purged with nitrogen before fresh compressed air will enter for a new production cycle. In order to guarantee a constant product flow, the NITROSWING® nitrogen generators use modules of two molecular sieve beds, which alternatively switch between the adsorption and the regeneration phase. Under normal operating conditions and with correct maintenance the molecular sieve beds will have an almost indefinite lifetime.



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

Industrial Applications

- Blanketing of Chemicals and Pharmaceuticals
- Gas Assisted Injection Moulding (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 & Beverage Processing and Packaging

Performance of NITROSWING® PSA Nitrogen Generator NS-21

Oxygen Content		10 ppm		50 ppm		100 ppm		500 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	7.5	10	7.5	10
	psig	110	145	110	145	110	145	110	145	110	145	110	145	110	145	110	145	110	145
Product Flow rate ⁽¹⁾	m ³ /h	7.1	8.2	9.3	11.1	11.3	13	16	19.7	18.8	22.6	26.4	31.8	31.8	36.3	38.9	44.5	41.9	48.2
	scfm	4.5	5.2	5.9	7	7.1	8.2	10.1	12.4	11.9	14.3	16.7	20.1	20.1	22.9	24.6	28.1	26.5	30.4
Product Pressure	bar(g)	6	8	6	8	6	8	6	8	6	8	6	8	6	8	5.8	7.8	5.7	7.7
	psig	87	116	87	116	87	116	87	116	87	116	87	116	87	116	84	113	83	112
Feed Air Consumption ⁽¹⁾	m ³ /h	45.8	51.5	47.7	56.4	48.4	56.1	56.7	63.7	59.1	67.3	68.7	82.2	74.6	89.6	81.7	100	81.7	98.3
	scfm	28.9	32.5	30.1	35.6	30.6	35.4	35.8	40.2	37.3	42.5	43.4	51.9	47.1	56.6	51.6	63.2	51.6	62.1
Min. Air / N2 Receiver ⁽²⁾	litre	250	250	250	300	250	300	300	350	300	350	300	400	350	400	350	400	350	400
	gallon	68	68	68	81	68	81	81	95	81	95	81	108	95	108	95	108	95	108
Dew Point ⁽³⁾	°C/°F	≤ -40 / -40																	
Sound Level L _{eq}	dB(A)	< 75																	

(1) Definition of m³ refers to atmospheric conditions 20 °C, 1013 mbar and dry basis.

Indicated flow rates are valid for operation of the generator at atmospheric conditions 20 °C / 68 °F, 1013 mbar / 14.7 psi and 60% RH.

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

(3) Dew point at atmospheric pressure

Feed Air Requirements

Supply Pressure	6.0 / 10.0 bar(g) 87 / 145 psig
Supply Temperature	5 / 45 °C 41 / 113 °F

Min. Air Quality ⁽⁴⁾ Class 0.4.0 to ISO 8573.1

(4) Feed air quality at air filter outlet. Improper feed air quality may cause damage to the nitrogen generator not covered under warranty

Power Requirements

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

Conformity & Certifications

2014/68 EU	(PED – Cat. 1, Mod. H)
2014/30/CE	(Electromagnetic Compatibility)
2006/42/CE	(Machinery Directive)
2014/35/CE	(Low Voltage Directive)

Connections

Feed Air Inlet	G 1"
Nitrogen Send	G ½"
Nitrogen Return ⁽⁵⁾	G 1"
Nitrogen Outlet ⁽⁵⁾	G 1"

(5) Only in case of on-board installation of a residual oxygen analyser and/or a product flow meter.

Dimensions & Weight

L	W	H	Weight
520	1183	1422	476 kg
20	46.6	56	1050 Lb

Installation Requirements

Well ventilated and weather protected environment with ambient temperatures between +5 °C / +41 °F and +45 °C / +113 °F. Classified areas excluded.

Product protected by international patents

Nr. EP2047897A1, EP2047897B1, EP2052769A1, EP2052769B1

Peripheral Equipment & Options

- Dual Bank Unit(s)
- Feed Air Unit
- Supporting Frame for Air Filters
- Oxygen Analyser with Zirconium-Oxide Sensor
- Electronic Product Flow Meter
- Feed Air / Product Moisture Analyser
- Feed Air / Product Temperature Transmitters
- Nitrogen Sterile Filters
- Telemetry for Remote Monitoring
- Nitrogen Booster & Cylinder filling System

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