

NITROSWING® NS-112

PSA Modular Nitrogen Generator



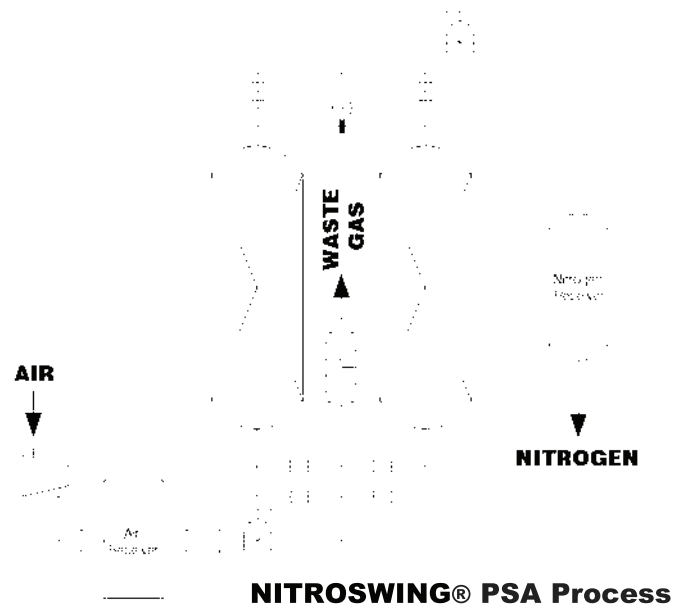
Key features

- 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
- Nitrogen Pressure Transmitter for Optimal Monitoring and Automated Idle-Mode

The NITROSWING® NS-112 generators set consists of a main generator and a second PSA generator called Dual Bank. The Dual Bank generator is driven via a multi-pole cable connection from the master NITROSWING® generator.

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-112

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	36.8	42.8	48.6	57.6	59.4	67.8	83.2	103	97.8	118	138	166	165	189	202	232	218	252
	scfm	23.2	27	30.7	36.4	37.5	42.8	52.6	65.1	61.8	74.5	87.2	105	104	119	128	147	138	159
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	238	268	248	294	288	292	296	332	308	350	358	428	388	468	426	522	426	512
	scfm	150	169	157	186	182	184	187	210	195	221	226	270	245	296	269	330	269	323
Min. Air / N ₂ Receiver ⁽²⁾	litre	750	800	600	900	650	1000	950	1200	1050	1250	1200	1450	1350	1550	1550	1750	1550	1800
	gallon	203	216	162	243	176	270	257	324	284	338	324	392	365	419	419	473	419	486
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

Power Requirements

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

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

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

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

Connections

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

Dimensions (mm/in)

	L	W	H	Weight (kg/lb)	
Master	520/20	2323/91.5	1422/56	1026	2262
Dual Bank	520/20	2323/91.5	1202/47.3	983	2167

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

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

Non contractual document. Subject to modifications without prior notice.