

TORNADO

Nitrogen Gas generator

Reference : TORNADO.[Flow rate]



Description

The nitrogen generators serie TORNADO offer to you a unique, innovative solution to nitrogen gas supply.

A reliable, secure source of nitrogen can be produced from your existing compressed air supply, eliminating the need for liquid nitrogen or high pressure gas cylinders.

Conceived for a continuous operation, the TORNADO nitrogen generator can produce flow rates from a few liters per minutes to over NM³/H at purities in oxygen content residual from 10 ppm to 5%.

The generator is controlled using the latest in HMI touch screen technology to display the process, pressures, inlet air dewpoint and oxygen levels with continuous monitoring complete with alarms.



Applications

- LCMS
- Sample evaporation
- RMN
- ICP
- Food Packaging
- Laser cutting
- Oil and gas
- Electronic assembly/soldering
- Wine making and brewing

Benefits & Savings

ECONOMY SAVING

- Quick return on investment < 1 year
- After installation, the generator require minimal attention and Maintenance

RELIABILITY AND SAFETY OF USE

- Nitrogen produced at low pressure and ambient temperature removes the hazards associated with high pressure cylinders and liquid Dewar's.
- Nitrogen available on request 24H per day ensuring the walk of the process in a regular and uninterrupted way

COMPACT DESIGN AND FLEXIBLE MODULAR OPTION

- The system demands less floor space
- The modular concept means the generators can be multi banked if required (Master/Slave configuration) Evolutionary System adapting as your business grows and gas requirements change

Standard Features

- Fully regenerative PSA technology: reduced risk of gas contamination and phthalate free
- Varying flow rates and purities
- HMI touch screen technology to display the process in real time, including process variables
- Oxygen sensor display with alarm
- Air inlet dewpoint display with alarm
- Audible alarm display and Visual maintenance indication with history log
- Analogue connections
- IP address for remote access via internet connection
- Quick and easy maintenance: access from front, no rear access required
- Automatic economy mode: enable to go in standby mode when no N₂ is required

N₂

MODELS	TORNADO.										
	1110	2110	3110	2130	3130	4130	6130	8130	10130	12130	Air factor
N2 FLOW RAT ⁽¹⁾ NM3/H VIA O2 PURITY											
99.999% (10 ppm)	0.9	1.8	2.7	5.1	7.7	10.2	15.3	20.4	23.5	27.2	6.8
99.995% (50 ppm)	1.7	3.4	5.1	7.2	10.8	14.4	21.6	28.8	33.1	38.4	5.1
99.99% (100 ppm)	2.0	4.0	6.0	8.9	12.6	16.8	25.2	33.6	38.6	44.9	4.6
99.975% (250 ppm)	2.5	5.0	7.5	10.0	15.0	20.0	30.0	40.0	46.0	53.3	3.6
99.95% (500 ppm)	3.0	6.0	9.0	11.4	17.1	22.8	34.2	45.6	52.4	60.9	3.5
99.9% (0.10%)	3.6	7.2	10.8	13.2	19.8	26.4	39.6	52.8	60.7	70.5	3.4
99.5% (0.50%)	5.2	10.4	15.6	18.9	28.4	37.8	56.7	75.6	86.9	100.9	2.8
99% (1%)	5.8	11.6	17.3	21.0	31.5	42.0	63.0	84.0	96.6	112.1	2.7
98% (2%)	7.3	14.5	21.8	26.4	39.6	52.8	79.2	105.6	121.4	141.0	2.4
97% (3%)	8.3	16.7	25.0	30.3	45.5	60.6	90.9	121.2	139.4	161.8	2.2
96% (4%)	9.5	19.0	28.5	34.5	51.8	69.0	103.5	138.0	158.7	184.2	2.1
95% (5%)	10.3	20.6	30.9	37.5	56.3	75.0	112.5	150.0	172.5	200.3	2.0
DIMENSIONS											
W x H (mm)	400 x 1223 (15.7" x 48")					400 x 1823 (15.7" x 71.7")					
D (mm)	605 (23.8")	773 (30.4")	941 (37")	773 (30.4")	941 (37")	1109 (43.6")	1445 (56.8")	1781 (70")	2117 (83.3")	2453 (96.5")	

SPECIFICATIONS	
Design operating pressure range	6 - 12 barg ⁽²⁾
Design operating temperature range	5 - 50°C
Recommended operating temperature	5 - 25°C
Maximum inlet particulate	0.1 micron
Maximum inlet oil content	0.01 ppm ⁽⁴⁾
Recommended inlet dewpoint	-40°C PDP ⁽³⁾
Supply voltage	100 - 240 VAC (50 or 60Hz)
Power rating	72W

PRESSURE CORRECTION FACTORS ⁽⁵⁾							
Operating pressure (bar / psig)	6 / 87	7 / 101	8 / 116	9 / 130	10 / 145	11 / 160	12 / 174
Correction factor	0.90	1.00	1.10	1.20	1.30	1.40	1.50

TEMPERATURE CORRECTION FACTORS ⁽⁵⁾										
Inlet temperature (°C / °F)	5 / 41	10 / 50	15 / 59	20 / 68	25 / 77	30 / 86	35 / 95	40 / 104	45 / 113	50 / 122
Correction factor	0.8	0.9	0.94	1.00	1.00	0.98	0.95	0.90	0.85	0.72

(1) at 7 barg inlet pressure and 20 - 25°C inlet temperature

(2) 16 barg is available upon request

(3) recommended for high purity applications

(4) including oil vapor

(5) to be used as a rough guide only

F-DGSI France
 8, 10 rue du Bois Sauvage, bat Q18 - 91000 Evry France
 Tel. : +33(0)1 64 98 21 00
 Fax. : +33(0)1 64 98 00 43

Email : info@f-dgs.com
 Web : www.f-dgs.com

