

NITRON PGN SERIES PSA NITROGEN GENERATORS

PGN SERIES

NITRON nitrogen generators have highest performance CMS featured with low investment and running costs.

Megatek, as a manufacturer of nitrogen generators applying both membrane and PSA technologies, provides solutions to laser cutting industry with Nitron PGN series nitrogen generators. Customized engineering studies performed with high technology and efficiency principles created the unique Nitron brand which offer lasting on-site economic and reliable nitrogen production solutions.

Stand-alone units or completely turn-key basis integrated systems are designed pursuant to customers' needs in laser cutting industry.

Pressing "START" button is enough to start Nitron PGN series nitrogen generators. Sole requirement of nitrogen production is adequate amount of compressed air. When nitrogen demand cease, system goes to "STAND BY" and air consumption stops. System restarts production when nitrogen consumption commences.

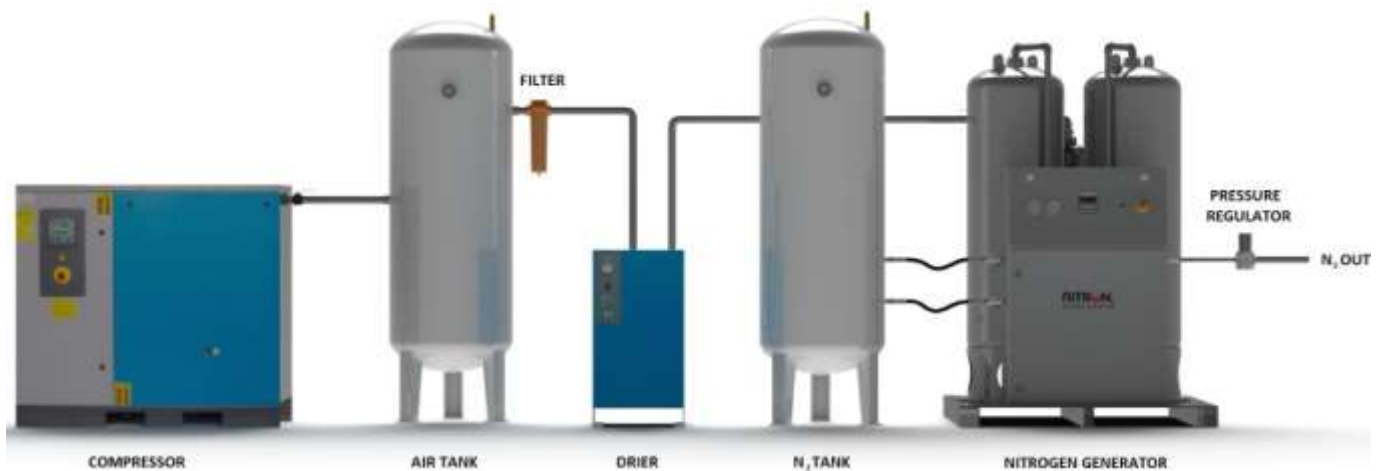
Nitron PGN series nitrogen generators are designed and manufactured with experienced engineers. This solution is by far reliable when compared to alternative nitrogen supply methods owing to low pressure operation and few moving parts. Periodical maintenance can be easily performed by user and service support is given on demand.



With Nitron PGN series nitrogen generators, you can produce nitrogen gas on your site. On-site solutions enable you to make uncomparable savings when compared to alternative supply methods (compressed gas cylinder and bulk liquid supply).

- Highest efficient PSA technology
- Purity up to % 99.9995
- Significant savings over bulk liquid or bottled nitrogen
- Few moving parts
- Compact and ergonomic design
- Integrated skid mounted with air treatment package
- Activated carbon tower instead of filter
- Quick cycle system
- Improved PLC program
- Automatic stand-by function
- Spare parts from own stock
- Touch screen panel with trend analysis
- Online oxygen monitoring and off- spec control system

NITRON PGN SERIES PSA NITROGEN GENERATOR



SAFETY AND STANDARDS

Pressure Vessels:

Pressure vessels are designed in reference to EN-13445:3 code standard. Steel used in manufacturing process is the special quality steel used in the manufacture of pressure vessels pursuant to EN standards.

Piping: DIN

Pressure vessels: EN13445:3

Electrical works: IEC

Surface treatment and painting: Three layer of epoxy primer and aliphatic polyurethane.

Adherence to safety, environment, health management standards and regulations is the basic principle of Megatek. Besides, our strength is built upon 15-years of extensive experience on industrial plant design.

PROCESS DESCRIPTION

Standard membrane nitrogen production system consists of four main parts. Air compressor, air treatment, air separation and nitrogen control system.

Air compressor

Air is the raw material of the nitrogen generator. Air compressor pressurize the air absorbed from the atmosphere to the ideal pressure and supply it to the nitrogen generator. Oil injected screw compressors or oil free compressors are convenient type of air compressors.

Air treatment

Quality of compressed air is essential in preserving the performance of PSA nitrogen generators. Water, oil, dust particles and oil vapor must be kept away via air treatment system. Nitron nitrogen generators include basic air treatment within the skid.

Air separation system

NITRON Nitrogen Generators are manufactured by using special design of high performance molecular sieves.

Compressed process air is purified in pre purification unit before entering to the air separation vessels. Oxygen molecules in air are adsorbed on carbon molecular sieves (CMS), while nitrogen molecules pass through and supplied to customer use.

Upon completion of nitrogen production from first adsorber vessel, an equalization step occurs.

Second adsorber vessel which is nearly atmospheric pressure is pressurised to an intermediate pressure via transfer of remaining gas from the first vessel.

Then first vessel undergoes depressurisation and the adsorbed oxygen molecules are released to atmosphere.

At the same time, second vessel undergoes to operating pressure and begins to produce nitrogen. Two air separation vessels are switching such manner so that one vessel is on adsorption while the other one is on regeneration step.

Nitrogen control system

Purity of the nitrogen produced in the air separation system can be adjusted according to the application field.

Oxygen in the product nitrogen is continuously measured. If oxygen concentration in product gas is higher than preset value, product valve is automatically closed and off-spec valve open till product purity is reached to preset value. In critical applications, off-spec / product valve system is very important for quality assurance.

Adjustable product purity option can be added if different product purity is required. In that case operators will be able to set maximum oxygen concentration in product line. In those plants higher product purity can be achieved by lower product flowrate which is the general rule of nitrogen generators.

FEATURES

- High efficient PSA technology
- Product purity up to % 99.9995
- Minimum number of moving parts
- Compact design
- Skid mounted
- Activated carbon tower instead of filter
- Quick cycle program
- Improved PLC program
- Automatic stand-by function
- Spare parts from own stock
- Touch screen panel with trend analysis
- On-line oxygen monitoring and off-spec control system

Remote production control
Adjustable purity
Air compressor
Air receiver
Nitrogen receiver
Dual oxygen analyser

ADVANTAGES

- Low cost and reliable nitrogen production
- Nitrogen production at required purity
- Lower maintenance cost
- Minimum space requirement
- Easy installation takes a few hours only
- Longer life time of CMS
- Quick start up
- High efficient, safe and fully automatic process
- No energy consumption when nitrogen consumption stops
- Emergency spare parts supply
- User friendly screen design
- Quality assurance for critical applications

OPTIONS

Product flow totalizer
Dew point measurement
Special design for harsh environments
Nitrogen booster compressor
High pressure nitrogen storage vessel
Nitrogen cylinder filling system

NITRON PGN SERIES PSA NITROGEN GENERATOR CAPACITIES, Nm³/hr

MODEL	% 95	% 97	% 98	% 99	% 99.5	% 99.9	% 99.95	% 99.99	A (mm)	B (mm)	C (mm)
PGN 100	26	21	19	15	12	8	6.7	4.4	1,900	1,200	750
PGN 150	38	31	28	22	18	12	10	6.6	2,000	1,300	800
PGN 200	52	42	38	30	24	16	13	8.6	2,050	1,250	1,100
PGN 250	62	50	45	36	28	19	16	11	2,200	1,500	900
PGN 300	78	63	57	45	36	24	20	13	2,200	1,550	900
PGN 350	90	73	66	52	42	28	23	15	2,200	1,600	1,100
PGN 400	104	84	76	60	48	32	27	18	2,200	1,700	1,100
PGN 450	117	95	86	68	54	36	30	20	2,300	1,700	1,150
PGN 500	130	105	95	75	60	40	33	22	2,300	1,750	1,150
PGN 550	144	116	105	83	66	44	37	24	2,300	1,750	1,200
PGN 600	156	126	114	90	72	48	40	27	2,500	1,750	1,200
PGN 650	169	137	124	98	78	52	44	29	2,500	1,850	1,250
PGN 700	182	147	133	105	84	56	47	32	2,500	1,850	1,250
PGN 800	208	168	152	120	96	64	54	36	2,500	1,850	1,250
PGN 900	234	189	171	135	108	72	60	40	2,800	2,025	1,300
PGN 1000	260	210	190	150	120	80	67	45	2,800	2,100	1,300
PGN 1250	325	263	238	188	150	100	84	55	3,000	2,280	1,380
PGN 1500	390	315	285	225	180	120	101	66	3,300	2,450	1,600
PGN 2000	557	450	407	321	257	171	144	95	3,300	2,700	1,680
PGN 2500	697	563	509	402	321	214	179	118	3,600	2,850	1,800
PGN 3000	835	675	611	482	386	257	215	141	3,800	3,150	2,000

*Performance values are given for 7 barg air supply pressure

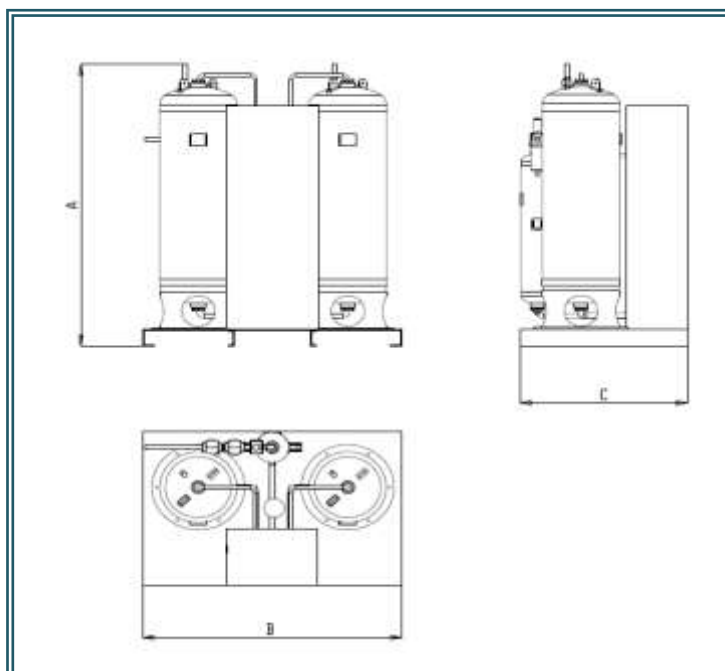
*Nm³/h is flow calculated at 0 °C ve 1013 mbar

* Megatek can change dimensions and specifications

*Consult manufacturer for higher purities and capacities



PGN 400



NITRON PGN SERIES MINI NITROGEN GENERATOR CAPACITIES, Nm ³ /hr											
MODEL	% 95	% 97	% 98	% 99	% 99.5	% 99.9	% 99.95	% 99.99	A (mm)	B (mm)	C (mm)
PGN MINI 20	5.4	4.4	3.8	3	2.6	1.6	1.4	0.9	1,500	600	450
PGN MINI 40	11	9	8	6	5.2	3.2	2.8	1.8	1,500	800	600
PGN MINI 60	16	13	11	9	7.8	4.8	4.2	2.8	1,900	800	600
PGN MINI 80	21	18	15	12	10	6.4	5.6	3.7	1,900	1,00	750

*Performance values are given for 7 barg air supply pressure

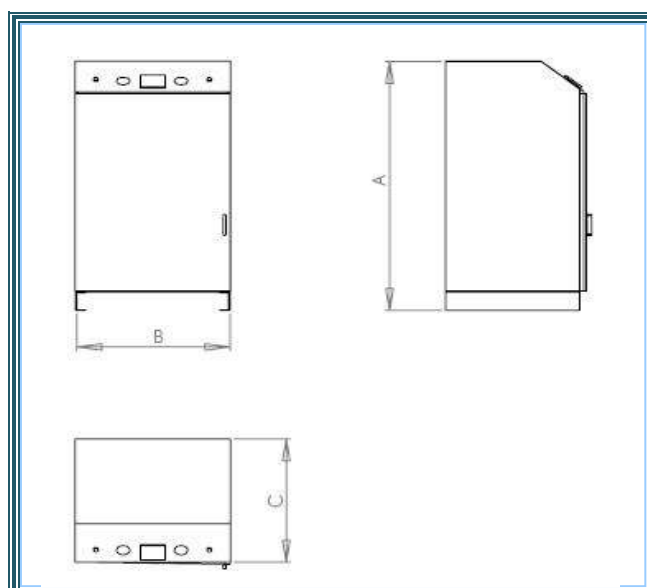
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PGN MINI 40



Air factor

Nitrogen purity	% 95	% 97	% 98	% 99	% 99.5	% 99.9	% 99.95	% 99.99
Air consumption/N ₂ production	2.03	2.4	2.5	2.9	3.2	4.3	4.8	5.5

Air pressure factor

Air pressure, barg	5	5.5	6	7	7.5	8	9	10
Nitrogen production factor	0.75	0.81	0.88	1	1.06	1.13	1.25	1.38