

- 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 LASER-GEN SERIES NITROGEN GENERATORS

LASER-GEN SERIES

Nitron Laser-Gen Series Nitrogen Generators for Laser Cutting Industry

Megatek, as a manufacturer of nitrogen generators applying both membrane and PSA technologies, provides solutions to laser cutting industry with Nitron Laser-Gen 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 Laser-Gen 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 Laser-Gen 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 Laser-Gen 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).

NITRON LASER-GEN SERIES NITROGEN GENERATOR CAPACITIES, Nm ³ /hr					
MODEL	Production capacities, Nm ³ /h		Dimensions, mm		
	% 99.99	% 99.90	Height A (mm)	Width B (mm)	Length C (mm)
LASER-GEN-H200	14	21	2,100	1,350	1,100
LASER-GEN-H400	28	42	2,000	1,300	1,450
LASER-GEN-H600	42	62	2,500	1,750	1,200
LASER-GEN-H800	57	84	2,500	1,850	1,250
LASER-GEN-H1000	71	105	2,800	2,100	1,300

*Performance values are given for 7 barg air supply pressure

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

*Consult manufacturer for higher purities and capacities

Nitron Laser-Gen series nitrogen generators provide designs and solutions special for laser cutting applications. Top quality CMS (carbon molecular sieve) is used in the products of Nitron Laser-Gen series manufactured with PSA technology.

Nitron Laser-Gen series nitrogen generators produce nitrogen at required purity, pressure and flow rate for the laser machines.

- Metals which expose to oxygen at high temperatures are oxidized and oxidization leads to tarnish, corrosion and burr formation on the surface.
- Nitrogen is used in laser cutting process to avoid the melted metal getting oxidized.
- Clear, clean and burr-free surface is obtained at the cutting process with nitrogen gas.
- Laser beam quality is provided by applying high pressure nitrogen.
- Usage of nitrogen at high pressure avoids rebounding of small particles to lens which may occur during the laser cutting process.
- Usage of nitrogen helps cool the part faster.
- Clear cutting surface which is directly ready for coating is obtained by usage of nitrogen gas in black (carbon steel) material cutting.

PROCESS DESCRIPTION

Nitron Laser-Gen series nitrogen generators offer the best solution to laser cutting industry in a systematic way. The systems consist of:

- Air compressor and drier
- Air receiver tank
- Nitrogen generator
- Nitrogen receiver
- Nitrogen booster compressor
- Nitrogen storage tank or cylinders
- Pressure regulation

Nitron Laser-Gen series nitrogen generators are manufactured by using special design of high performance molecular sieves.

Compressed process air is purified in pre purification unit before entering into 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 switch in such a manner that one vessel is on adsorption while the other one is on regeneration step.

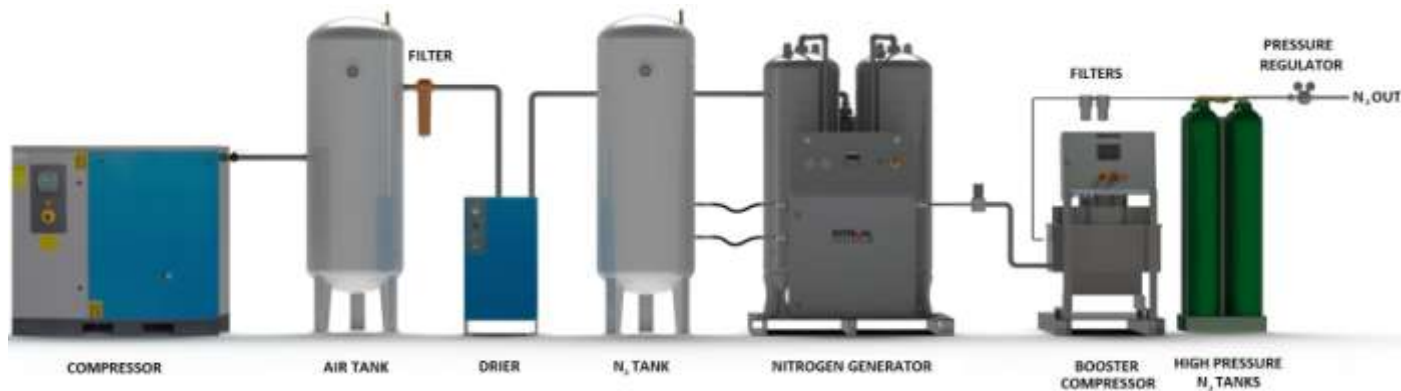
Purity control system

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 purities are 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.

NITRON LASER-GEN SERIES NITROGEN GENERATOR FLOW CHART



SAFETY AND STANDARDS

Pressure Vessels:

Pressure vessels are designed in reference to EN-13445:3 code standard. A special quality steel is used in the manufacturing process 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.

FEATURES

- High efficient PSA technology
- Product purity up to % 99.9995
- Minimum number of moving parts
- Compact and custom made 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

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
- Quality assurance for critical applications
- User friendly screen design

OPTIONS

- Remote production control
- Adjustable purity
- Air compressor
- Air receiver
- Nitrogen receiver
- Dual oxygen analyser
- Product flow totalizer
- Dew point measurement
- Special design for harsh environments
- Nitrogen booster compressor
- High pressure nitrogen storage vessel
- Nitrogen cylinder filling system

