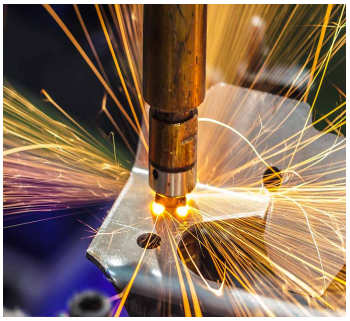
Holtec Gas Systems

Delivering the **Science** of Nitrogen Generation™

Holtec Nitro Bright™ Nitrogen Generators for Laser Cutting

Overview

Laser cutting produces extremely high temperature which encourages oxidation of metal surfaces. This oxidation can have aesthetic consequences, process consequences, and it can even decrease the rust resistance of some metals such as stainless steel.



It has been known for many years that purging with nitrogen during the cutting process will eliminate oxidation, producing an attractive, resistant surface. More recently, companies have begun to discover that the ultra high purity associated with bulk nitrogen is unecessary to produce a clean, stable cut.

Instead, using a nitrogen generator to produce nitrogen on an as-needed basis can unlock significant amounts of hidden profitability!

Benefits

Cost – Rising global nitrogen usage has resulted in sharp price increases for bulk liquid nitrogen and compressed gas cylinders. Producing your own nitrogen is less costly in nearly all circumstances. See the charts below for a cost justification that speaks for itself!

Operational Flexibility – Bulk nitrogen suppliers typically require contracts restricting you to one supplier while still giving them the ability to raise your rates. They also include tank rental fees, delivery fees, and hazardous material fees. Avoid these restrictions by generating your own nitrogen!

Convenience – You will no longer have to deal with delivery trucks or changing out packs of high-pressure cylinders. Nitrogen will be produced on-demand, as needed. This can be particularly attractive for companies located in inaccessible areas, or at significant distance from gas suppliers.

Reduced Safety Concerns – Self-generated nitrogen is generally produced and stored at 85-300 psig. You can forget about the safety concerns associated with liquid nitrogen and gas cylinders stored at 2000+ psig!

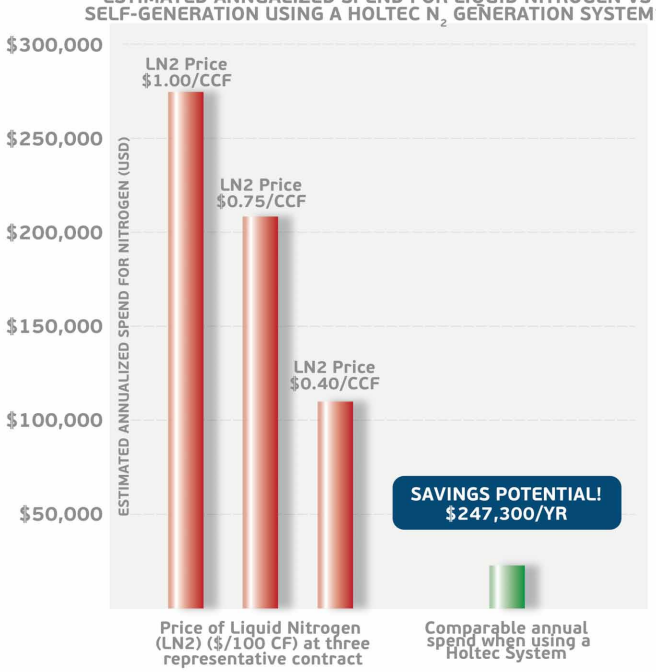
Purity Control – When you purchase liquid nitrogen, the purity is normally 99.999% N2 or better. You may not need this level of purity. When you generate your own nitrogen you can control the purity level produced with a great potential for savings.

Consumption Rates – With liquid nitrogen systems, some gas is always evaporating, which means you pay for nitrogen even when you are not using it. When producing your own nitrogen, your system is designed to produce at the rate of consumption, and you pay only for the gas you need.

Green Economy – Using a Holtec nitrogen generator will eliminate the use of fossil fuels for nitrogen delivery trucks, and reduce your reliance on the power grid.

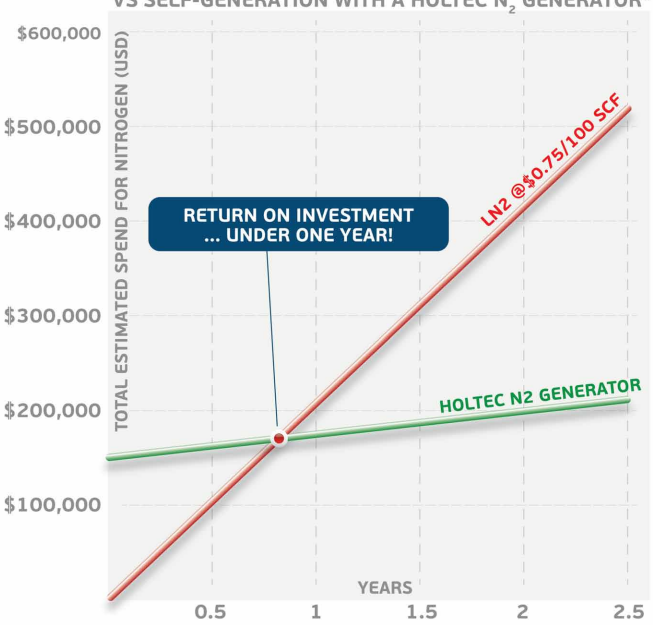
ROI

ESTIMATED ANNUALIZED SPEND FOR LIQUID NITROGEN VS SELF-GENERATION USING A HOLTEC N_2 GENERATION SYSTEM*



*Assumes 50 SCFM Nitrogen demand (24/7) usage, and 99.95% purity requirement

CUMMULATIVE SPEND FOR LIQUID NITROGEN VS SELF-GENERATION WITH A HOLTEC N_2 GENERATOR*



*Assumes 99.95% purity required, 50 SCFM Nitrogen demand (24/7), 500 psig Nitrogen output

Holtec Gas Systems

Delivering the **Science** of Nitrogen Generation™

Generating Nitrogen for Laser Cutting Overview

Why Holtec?

Experience & Know-How – With over 180 years of gas separation experience, our employees have the technical knowledge to help you choose the right solution to your exact needs. Our deep experience in the laser cutting application and a commitment to research and development has resulted in a system design that works right the first time with low maintenance and years of nitrogen delivered to guaranteed specifications.

Service – Our technicians have received training and certification from several different compressor and booster manufacturers. Our knowledge of compressors and air treatment allows us to offer a single point of contact for an integrated system, as opposed to a piecemeal approach where multiple vendors own only their piece of the total project.

Lower Operating Costs – Holtec Nitro Bright™ systems use only the highest quality of separation media, called Carbon Molecular Sieve (CMS). Our designs have been perfected to produce the lowest air-to-nitrogen ratio available today, typically only 3.5-4.7 units of air for every unit of nitrogen produced. This means less compressor horsepower is used, consuming less electricity and producing more savings and faster pay-off times!

Tailor-Made Solutions – Many companies offer their nitrogen generators ala carte from a standard menu, requiring customers to do the research to figure out exactly what they need, and this often leads to systems that are too big, too small, or simply don't work. We leverage our experience to take the guess work out of choosing your nitrogen generator and recommend the exact system you need.

Reliability – Many competitors are using lower quality CMS made in China which is known to break down after just a few years and must replaced at significant cost in time and money. Our CMS is very resilient, and if operated within manufacturer guidelines, can last 10,15, or 20+ years without replacement.

References

A few of our laser cutting success stories...

Industrial Machine and Engineering Company, Eric Merriman – "For IMEC, it has been an advantage to produce our own nitrogen as needed and no longer rely upon a supplier to ensure production is continuous. The Holtec system has exceeded my expections and support from Holtec has been a phone call away. Our experience has shown that quality gas is important, but 4 – 9's is not needed."

Schaefer's Electrical Enclosures– Using a Holtec nitrogen system since 2007, and came to us for major system upgrades in 2010 and 2014.

Thorp Equipment, Inc. – Using A Holtec nitrogen system since 2015.

Holler Metal Fabricators – Using A Holtec nitrogen system since 2009.

Compressores y Maquinaria, S.A. de C.V. – Have delivered many Holtec nitrogen systems with lubricated booster compressors for use in Mexico.

FAQ

What purity do I need?

A: Depending on the quality of the surface and the metal you plan to cut, purity requirement will typically be in the range of 99.9% - 99.99%. If cut quality does not matter at all, you may be able to use even lower purity.

How much nitrogen do I need?

A: To get a rough idea, it is possible to review bulk nitrogen purchase over a several month period. However, this average will not reflect the instantaneous usage. For exact flow requirements, consult the operators manual for the laser cutting machine.

Can I produce nitrogen at pressures high enough for laser cutting? (up to 500 psig)

A: Gaseous nitrogen is typically produced at pressures of 85-100 psig. Holtec will include a booster compressor in your quote in order to achieve the final desired pressure.

Do I need an oil-free booster compressor?

A: Oil from compresors is to be avoided for laser cutting machines. Yet oil-free compressors suffer from high cost and poorer reliability. Holtec has significant experience designing air treatment systems for use with lubricated compressors resulting in years of trouble-free operation. Most of the companies listed above (and many more) have been using lubricated boosters for many years with zero damage to the laser.

Can I keep liquid nitrogen as a backup?

A: Absolutely! However, you can send back your large rented liquid storage tank and purchase a much smaller storage tank which will drastically reduce the amount of liquid nitrogen lost to evaporation. You will still save significant expenses and have liquid nitrogen available for unexpected peak usage and if there is downtime for compressor maintenance.

Is ambient air temperature important?

A: Yes. Temperature affects capacity and air consumption and manufacturers typically will quote performance only at 70 °F. Holtec will always ensure that your actual conditions are taken into consideration.

18167 Edison Avenue, Unit I, Chesterfield, MO 63005
Phone: 1-636-532-6613 • Fax: 1-636-536-7863
Email: sales@holtecllc.com • Website: www.holtecllc.com