Case Study

Nitrogen Generation for Modified Atmospheric Packaging

Focus:
Since 1995, this large food production plant has been a brand that people trust for high-quality healthy fresh food and can be found all throughout the United States. It specializes in meal kits, salad kits, snacks, vegetable blends, and vegetable trays.

Challenge:
The customer's existing bulk liquid nitrogen supply was expensive, and they were paying for a higher purity grade of nitrogen than required for modified atmospheric packaging applications.

Solution:
An expandable nitrogen generating system was designed to meet maximum flow demand and purity specifications of the customer.

Impact:
In less than two years, the customer is seeing a payback of nearly $85,000 annually by generating nitrogen gas on-site and has improved profitability and reduced its carbon footprint. They have since ordered additional units to expand their production capabilities.

Project Name: Food Production Plant

Location: Southern United States

Summary

The food production plant needed a way to extend the shelf life of its products and turned to on-site nitrogen generation for continuous gas supply. Modified atmospheric packaging is a process extends the shelf-life of products by displacing oxygen with nitrogen, as oxygen can have many unwanted effects such as pre-mature spoilage.

Challenge

The customer was looking to reduce safety hazards, as bulk liquid is stored in high-pressure cylinders that are dangerous and require highly trained personnel when in use or in transport. Bulk nitrogen was not ideal as production lines could be halted due to required regular cylinder change-outs, delayed deliveries, or gas shortages and bears additional fees such as tank rental, delivery, fuel, energy, and telemetry. A solution that eliminated dependence from high-pressure cylinders was needed to help improve production uptime and reduce costs.

Solution

This food production plant wanted to switch from using bulk nitrogen to an in-house nitrogen generation system, so that they could be in total control of their gas supply. The customer worked with a premier Parker distributor to size a nitrogen system that was cost-effective and expandable for future operations. Multiple Parker NITROSource units were installed along with an MXS desiccant dryer and filtration. The customer was able to reduce costs and improve efficiencies after implementation.

With decades of experience in the food industry and thousands of installations worldwide, Parker nitrogen generators are the clear-cut choice for food packagers and processers that are committed to producing reliable, high-quality products. Generating on-site nitrogen is a safe, dependable, environmentally friendly method of producing nitrogen, which reduces carbon footprint and lowers environmental impact. The Parker NITROSource generator is compliant with FDA article 21.

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NITROSource

A product of Parker's worldwide R&D resources that featuring a host of intelligent engineering solutions, unique technology and a sleek space-saving design, NITROSource is designed to work more efficiently for customers. Purely and simply, it's better inside and out.

NITROSource offers a number of significant advantages over delivered gas options, as well as traditional generator designs. So when you're considering on-site supply, NITROSource is the benchmark specification for maximum performance and lowest lifetime cost.

MX Heatless Compressed Air Dryer

Providing clean, dry compressed air in accordance ISO8573-1, the international standard for compressed air quality.

Module Construction

Allows greater flexibility, dryers can be multi-banked to provide extra compressed air drying capacity should demand increase.

This feature allows 100% standby at a fraction of the cost of alternative construction methods and also allows individual dryers to be easily isolated for routine service work, while maintaining the plant's clean, dry air supply.

Compact, lightweight design

High tensile extruded aluminium columns and manifolds reduce the footprint of the dryer, allowing for easy installation and maintenance. Fully corrosion protected inside and out and covered by a 10 year guarantee on the pressure envelope.

International approval standards

Due to the column design, MX is exempt from the pressure vessel inspection requirements of ASME meaning the elimination of costly annual checks. MX is also fully compliant with PED/CSA/UL/CRN approvals.

Consistent dewpoint performance

-40°F and -100°F dewpoint models will inhibit the growth of micro -organisms as well as eliminate downstream corrosion. Snowstorm desiccant filling provides 100% utilization of the dryer bed, preventing air channelling, significantly reducing attrition which could lead to blocked filters and loss of dewpoint.

Quiet operation

Low operational noise levels of <75 db (A) helps to support a safe working environment.

Flexible control options

MXSmart offers users flexibility and additional advanced features in electrical operation to meet plant requirements. MXP models provide ATEX Group II, category 2GD, T6 approved pneumatic control.

Energy Saving Technology (DDS)

This option automatically adapts dryer operation to the ambient inlet conditions and compressed air demand, ensuring optimum energy consumption and full utilization of the desiccant material. Compressor synchronization When the dryer is installed prior to the air receiver, MX can provide a purge economy feature that prevents the dryer from carrying out its regeneration cycle when the compressor goes off load. This saves energy and money with the elimination of the use of unnecessary purge air. Normal drying cycles automatically resumes once the compressor re-starts.

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