

Global Tire Manufacturer

Focus:

A global manufacturer of light-duty truck tires.

Problem:

Existing compressed air dryers were beginning to fail leading to increased downtime & maintenance costs. Given the age of the equipment, sourcing replacement parts was difficult and the parts had long lead times.

Solution:

The customer reached out to a Parker distributor to see if they could assist in the design of a new compressed air treatment system. They ended up purchasing multiple Parker PSE dryers and ASME coalescing filters.

Impact:

The facility was able to reach optimal dewpoints with the installation while minimizing environmental impact with the PSE's R513A low GWP refrigerant.



Project Name:

Tire Manufacturer

Location:

Southeastern United States

Summary

A tire manufacturer that uses compressed air in its daily operations was in need of new compressed air dryers to meet the demands of its operations. Its current dryer configuration's dewpoints were becoming increasingly high and was adversely affecting production. Keeping up with the maintenance of the older systems was frustrating and time-consuming.

Challenge

The customer's plant-wide compressed air system was providing dewpoint readings at nearly 60°F, which was negatively impacting their production machines downstream of the compressed air dryers. Compressed air systems not equipped with an adequate air dryer are at risk of having excess humidity within and will lead to an increase in operating and maintenance costs.

Solution

The tire manufacturer worked with a local Parker distributor and decided to purchase a Parker PSE-6000 and a PSE-3800 for its facility. The local distributor provided factory support for installation and start-up to ensure satisfaction. Within hours of the dryer installations, the compressed air system realized dewpoints as low as 40°F. These new and improved dewpoints promote the longevity of equipment downstream.

Reducing environmental impact was also important to the customer, so the Parker PSE dryers were an obvious choice. The PSE compressed air dryers use a remarkably low GWP refrigerant that is up to 85% lower than alternative refrigerants, and significantly reduces environmental impact.

PoleStar Smart-E Refrigeration Dryers

PSE 325 - 6000 60Hz - UL508A



Compressed air systems inherently suffer from performance and reliability issues, most of which can be directly attributed to water in one form or another.

In fact, water accounts for up to 99.9% of the total liquid contamination found in a compressed air system. Therefore, compressed air treatment is essential for manufacturing facilities reliant on compressed air for automation.

For general purpose or non-critical use of compressed air, refrigeration dryers are an ideal choice. Refrigeration dryers utilize a closed loop cooling system to lower the temperature of the compressed air to just above freezing, causing condensation of water vapor.

Most of the condensed liquid is then removed by an integral water separator and drained away. Prior to leaving the



dryer, the compressed air is re-heated by the incoming compressed air to prevent condensation on the outside of the downstream distribution piping.

Refrigeration dryers should always be installed with general purpose and high efficiency coalescing filters and are an effective way to reduce water vapor, liquid water and water aerosols for general purpose compressed air applications. Parker's PoleStar Smart-E (PSE) dryers

are the most environmentally friendly refrigeration dryers available. Designed to work with low Global Warming Potential (GWP) refrigerant, R513A, PSE complies with the requirements of the United States Environmental Protection Agency SNAP Rules 20 & 21 and European F-Gas Regulation (EU 517/2014). This makes the Parker PSE the best choice to protect your investment, the climate and the environment.

Advantages

- State-of-the art aluminum SmartPack heat exchanger includes a large air-to-air heat exchanger to pre-cool incoming compressed air and reduce energy consumption
- Efficient SmartPack HX, electronic hot-gas valve and innovative micro-channel condensers result in lower adsorbed power and about 40% less refrigerant verses additional solutions
- Low pressure drop design of the SmartPack HX and low absorbed power of the refrigerant circuit make PSE dryers a highly competitive solution with lower operating costs vs. comparable dryers.
- Comprehensive electronic controllers, including touch screen panels on PSE700 and larger, provide indication of compressed air temperature, service reminder, data log, alarm history, integral capacitive drain control and much more.
- LED unit status indicator on model PSE1400 and larger.
- High and low pressure gauges for refrigerant circuit on models PSE700 and larger.
- Remote communication protocol, industry 4.0 ready, on all units; web server from model PSE700 and IoT ready from model PSE1400.
- Energy savings technology that enables all PSE dryers to save energy by cycling the refrigerant compressor off at partial load while maintaining a constant outlet dewpoint.
- Variable speed fans on PSE1400 and larger deliver additional cost savings at partial load and increased condensation stability.
- Compliant scroll refrigeration compressors offer longer life, lower noise and energy savings of up to 20% compared to piston alternatives.
- Inlet and outlet air connections installed on both sides of PSE2000 and larger allow for installation flexibility and simplify banking multiple units together.
- Low Global Warming Potential (GWP) refrigerant, R513A, used on all PSE units - protecting the environment.

