Case Study

Deli Meat Production

Focus:
The customer specializes in the manufacturing of deli meats, cheeses and dressings for the deli industry.
Since 1905, the deli meat manufacturer has been the brand that people trust for high-quality deli ingredients and can be found all throughout the United States.

Problem:
Higher peak compressed air flows causing dew point spikes with existing desiccant dryer resulting in water in downstream production processes.

Solution:
The customer upgraded to a larger desiccant dryer with additional pre-filtration upstream of the dryer.

Impact:
With a properly sized dryer, production is now seeing clean dry air downstream. The new desiccant dryer is delivering at or below -40F dew points which is crucial to maintaining an efficient production facility and delivering high quality product.

Project Name: Deli Meat Production
Location: Southern United States

Summary

In 2020, the customer's manufacturing location expanded their production capacity, which increased their compressed air consumption as a result. A new compressed air treatment system would be required to effectively filter and dehumidify the compressed air during hot, humid summer months.

Challenge

Due to new peak compressed air flows, and high operating temperatures in the summer months, the existing desiccant dryer was unable to maintain a dew point of -40°F or lower. Additionally, the previous installation was lacking proper pre-filtration to protect the dryer. With an undersized dryer, wet compressed air would often make its way downstream into production. Most problems in a compressed air system can be directly attributed to water in one form or another.

Solution

Working with a Parker distributor, a new desiccant dryer was sized based on peak air flow, highest annual inlet temperature, and minimum inlet pressure. The customer selected a Parker externally heated desiccant air dryer rated for 4000 SCFM. Additionally, a mist eliminator and bulk water separator were installed upstream of the desiccant dryer. This combination of pre-filtration effectively removes bulk oil and water liquids prior to the dryer's high efficiency coalescing pre-filter. Proper pre-filtration ensures the dryer's desiccant bed is protected from contaminants and high quality compressed air flows downstream to the process.

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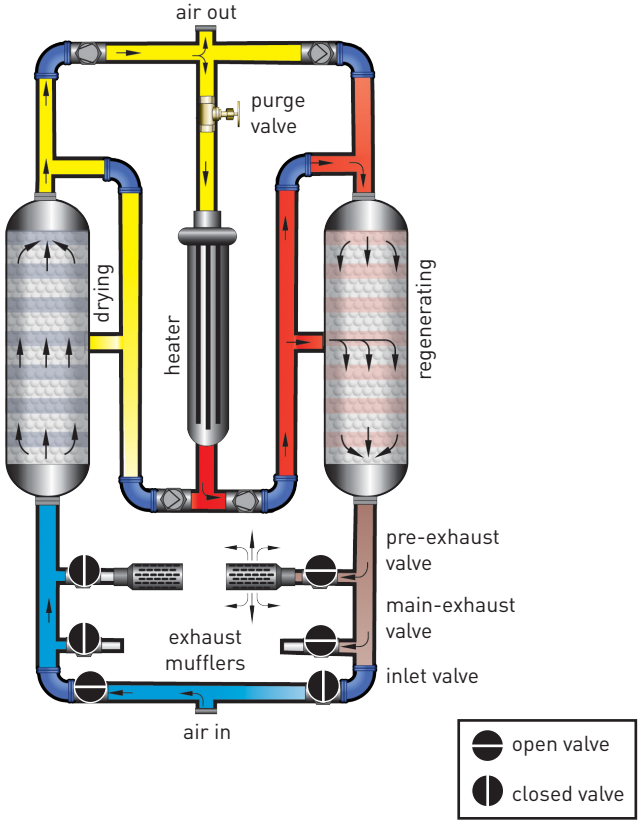
System Integrity

Clean and dry compressed air is critical in today's manufacturing industry. Contaminants such as moisture, particulates, and oil left untreated can damage plant infrastructure, tooling, and end-product quality. Parker leads the industry in manufacturing robust, quality dryers that perform even in the most challenging conditions resulting in minimal downtime.

Parker Airtek TWP Series Externally Heated Desiccant Air Dryers remove water vapor from compressed air through a process known as Pressure Swing Adsorption. A pressure dewpoint of -40°F (-40°C) is attained by directing the flow of saturated compressed air over a bed of desiccant. An Allen-Bradley® PLC controller automatically cycles the flow of compressed air between the towers while the "on-line" tower is drying, the "off-line" tower is regenerating. Parker TWP Externally Heated Dryer combines heat with a small portion of dried compressed air to reduce purge. Parker Externally Heated Dryers use a patented multi-port regeneration system causing superior desiccant bed regeneration and as a result provides better, more consistent performance. The multi-port regeneration system injects heated purge air at precise points up and down the towers length providing a more balanced distribution of heat. The Parker TWP Dryer utilizes an energy saving temperature monitoring system which senses the exiting purge air temperature. When the purge air temperature increases to a preset point at which the desiccant bed is fully heated and regenerated, the heater is turned off.

To protect the desiccant bed from excess liquid, all Parker TWP Series Externally Heated Air Dryers are designed to work with the natural pull of gravity. By directing the saturated air into the bottom of the "on-line" tower and flowing up through the bed, liquid condensate caused by system upset, is kept away from the desiccant and remains at the bottom of the tower where it can be easily exhausted during the regeneration cycle. Counter flow purging ensures optimum performance by keeping the driest desiccant at the discharge end of the dryer.

Parker Airtek TWP Series Externally Heated Desiccant Air Dryers are more energy efficient than competitors thanks to standard features such as: variable cycle control, CycleLoc® and regulated purge flow. With so many standard features, Parker dryers are the most service-friendly dryers in the industry.



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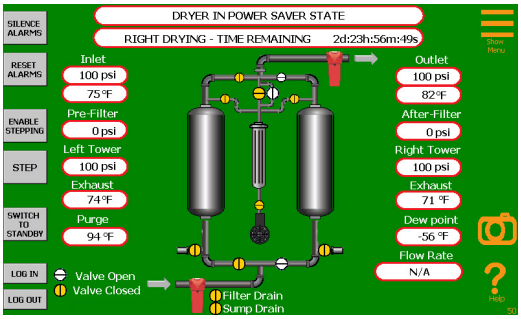
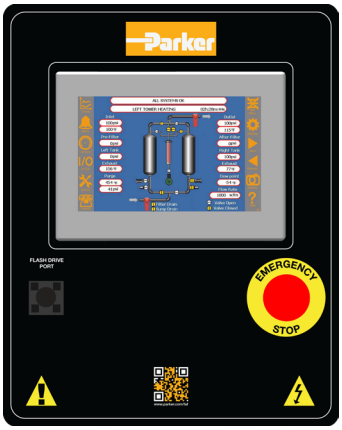
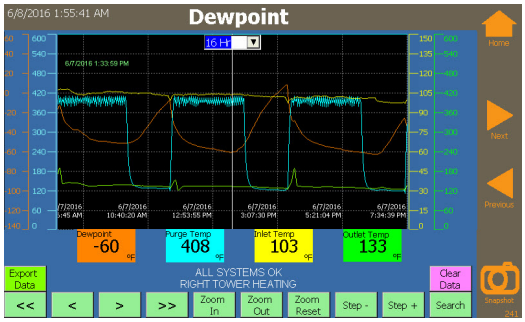
Advanced Controller

Parker Airtek's touch screen interface controller comes in an all-inclusive package for all of our heated and blower purge dryers. These dryers ranging from 200 scfm and larger include an LCD user interface and responsive data retrieval for all your important dryer information. The innovative touch screen is cutting-edge and guarantees hassle-free dryer maintenance and diagnostics.

- 7" HMI, Allen-Bradley® PLC (Micro 830) with full color graphics touch panel control for user interface
- Flash drive port for transferring data log
- Serial communications port (optional)
- Remote panel access via ethernet for communications port
- User friendly help screens assist in troubleshooting
- 120 VAC power and control solenoids (other power options available)
- Heatless backup operation with manual step down
- Alarms with alarm relay featuring Tower failed to blow down (switch failure), Tower failed to pressurize, High and low purge temperatures, High muffler pressure, Low purge pressure, High inlet temperature, Low inlet pressure, High pre and after filter differential pressures
- Includes a stuck drain switch (1500 scfm & larger), High and low user sensor values, Sensor probe failure for all sensors, and a Switch failure alarm.
- Emergency stop and stand-by mode
- PowerLoc® energy management system featuring Digital dewpoint readout/control, High humidity alarm, and Optional 4-20 mA signal output.
- Two extra user defined 4-20 mA inputs with setpoints and alarms for connection to your flow meter, power meter, etc.
- Automatic data logging 24/7, 365 days of all operational information
- Temperature pressure indication package with digital display and alarms
- ETL listed (UL/CSA Standards)







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