



Maximum Performance... Sustained

With John Henry Foster Air Service, Assessments and Automation.

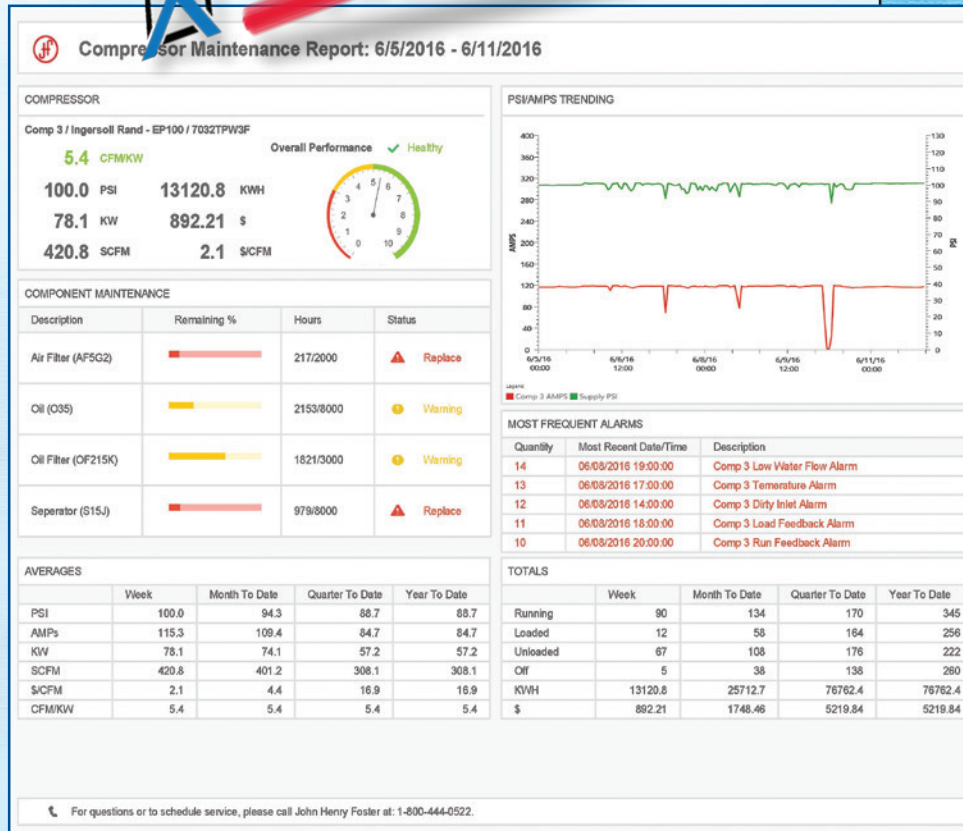
Compressed air is one of the most expensive uses of energy in a manufacturing plant. Eliminating waste and inefficient applications of compressed air is crucial to maximizing the profitability of your operation. SUSTAINING those improvements are even more important. The compressed air experts at John Henry Foster will assess your system to identify opportunities, help you implement cost saving measures AND ensure those savings are sustained for years to come.

The Difference is in the Data

Most "air audit specialists" can tell you how to save now. John Henry Foster goes a step further to ensure you sustain your savings for years to come. The difference is in the data. The **AIRx** and **AIRx Pro** controllers offer USEFUL and MEANINGFUL data to maintain peak performance of your operation. Generating meaningful report-outs requires performing detailed monitoring of all compressed air system components. The **AIRx** and **AIRx Pro** controllers by John Henry Foster provide specific health and status checks on each of the following:

- UCFM/kW
- PSI
- SCFM
- kW
- kW/hour
- Cost
- \$/cfm
- Component Health Status and run hours
- Trending PSI/Amps
- Average Performance (week, MTD, QTD, YTD)
- Most Frequent Alarms
- Total Performance (Running, Loaded/Unloaded, Off, kWh, Cost)

- ❑ IDENTIFY OPPORTUNITIES
- ❑ IMPLEMENT IMPROVEMENTS
- ❑ VALIDATE EFFICIENCY
- ❑ SUSTAIN SAVINGS



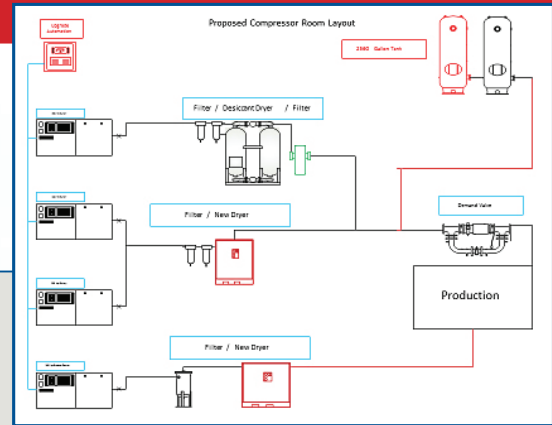
▲ Actual System Performance Report from John Henry Foster AIRx Pro Controller

REAL \$AVINGS...Sustained

John Henry Foster Turns Opportunity into Savings at Commercial Process Operation

Learning Phase (Current State of Facility)

- Automation is alarmed out (needs repaired)
- Valve is shut on 100hp water cooler
- Additional Capacity – 100 hp for growth
- Compressor Controls are out of adjustment
- Opened ball valves to help reduce water contamination in pant air system
- Current Demand Valve Bypassed
- Pressure fluctuating +/- 6psi
- Alarms on current dryers
- Dryer heater is turning on/off unnecessarily



Total System Approach & Analysis- (Finding Opportunities for Improvement)

- Investigate the current system to determine opportunity to improve operation and reduce energy consumption
- Identify inefficiencies in the system and provide data to support recommendations
- Provide options for improving existing system and upgrade additional components
- Provide financial figures for project investment, annual energy savings and return on investment
- Determine what potential Ameren Act On Energy™ incentives may be available for system improvements

Solutions Engineering and Implementation (Improvement Implementations)

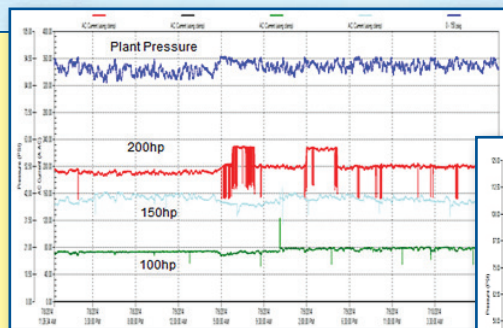
- Repaired Demand Valve
- Replace open blowing drains with PNLD
- Added 2560 gallons of additional storage
- Trim with more efficient 100hp compressor
- Base loading 200hp downstream of demand valve and running it at the lower pressure
- Switched from desiccant dryers to cycling refrigerant dryers

Validation & Sustainment (Outcome Based on Implementing JHF Recommendations)

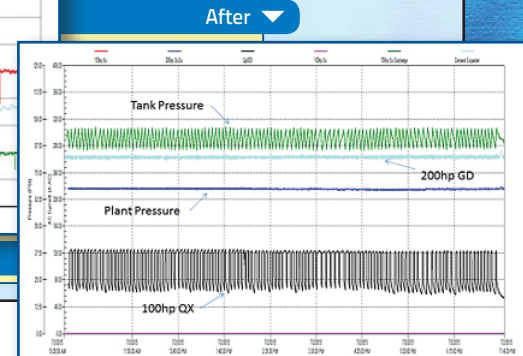
Utilizing John Henry Foster's **AIRx** controller, the facility is now able to match different demand profiles with the most efficient compressor configuration—creating the ability to add and remove base and trim units as needed during all production levels. By locating and operating the 200hp in a base load configuration, the compressor can provide full load capacity at a lower kW requirement due to operating at a lower pressure. Adding storage and repairing the demand valve have allowed the 100hp efficient compressor to be used as a trim unit (to supplement air that the base unit cannot provide) and maintain production at the proper pressure (+/- 1 psig) and flow requirements. During low demand and weekends the plant can now operate the 100 efficient compressor alone. These leaves the 150 & 100hp supplemental units for backup and future growth.

Demand reduction was achieved by switching dryer technologies and lowering plant pressure. The current desiccant dryer provided over-dried air (overkill), causing very high operating and maintenance costs. Limiting the purge air requirement and operating the heater for regeneration cycle were achieved by installing new cycling dryers. Due to the plant pressure fluctuating by +/- 10psig, the plant header pressure had to be operated at a minimum of 95psig. With the **AIRx** controller, added storage and repaired demand valve, we are able to hold the plant pressure to +/- 1psig, even in the event of the largest compressor failing.

- \$155,325 Investment
- \$37,027 Annual Savings (< 3 year payback period)
- Current kWh 2,950,670 / Proposed kWh 2,175,000
- 775,670 kWh / 88.55kW reduction
- Ameren Rebate: 775,670 x .07= \$54,296



▲ Before



▼ After

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