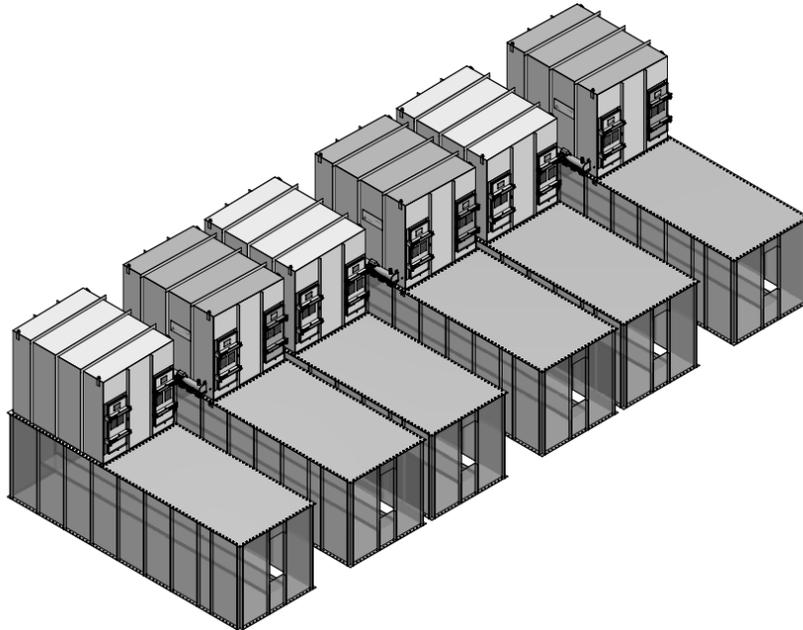


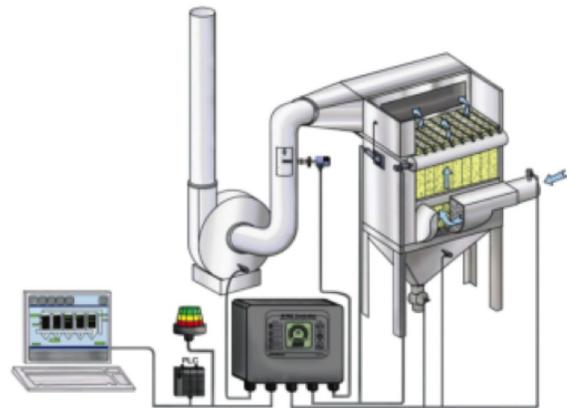
Case Study

BHA® Dust Collector Performance



A simple clean-air plenum conversion utilizing conventional bags and cages would not address this goal. As the solution continued to be developed, the customer considered two additional Parker Hannifin recommendations:

1. **FilterSense**—FilterSense is a baghouse optimization and control system that provides unparalleled notification and control of the baghouse cleaning system. Besides allowing the baghouse to clean on-demand (cleaning based upon pressure readings and not time) it electronically notifies plant personnel of any cleaning system malfunction automatically, as opposed to waiting for visual inspections.



2. **BHA ThermoPleat**® filter elements are a rigid, one-piece high-temp filter element that replace traditional filter bags/cages. Besides being highly efficient, single-piece in construction, and easy to install, they pack more filtration area into a smaller design, which, in this case, means the finished design required far fewer filters when compared to using traditional filters.

Case Study

BHA® Dust Collector Performance

Results

The total system started to come online in September of 2014. As of May 2015, there have been zero visible emission triggers. That's an 8-month period of perfect asset availability.

As the customers personnel performed the filter installation, the true benefit of the BHA ThermoPleat filter and top-load design was realized from a maintenance & safety, and cost standpoint:

| Measureable | Previous State | Current State |
|---------------------------------------|----------------------|-------------------|
| Confined Space? | Yes | No |
| Man-hours for compartment change-out | 60 (5 men, 12 hours) | 4 (4 men, 1 hour) |
| Visible emission triggers? | Yes | No |
| Pulse cycles required to maintain dP? | 1,200/hour | 120/hour |

| Year | Annual Maintenance Cost |
|-------|-------------------------|
| 2012 | \$75,000.00 |
| 2013 | \$83,000.00 |
| 2014* | \$46,000.00 |
| 2015 | \$2,000.00 |

*Drop in 2014 due to system coming online for the final 4 months

The reduction in pulse cycles has led to significant savings, both in compressed air usage and reduced energy consumption:

| Measureable | Before | After |
|----------------------------|-----------------|------------------|
| Pulse Pressure | 100psi | 75psi |
| Pulse Frequency | Every 5 seconds | Every 50 seconds |
| Actual SCF Per Pulse | 4.5 | 3.375 |
| Compressed Air Cost | \$12,656.00 | \$316.00 |
| Previous System Resistance | 15" w.c. | 12.5" w.c. |
| Fan Energy Cost | \$63,849.00 | \$53,207 |
| Total Energy Savings | | \$22,981.00 |



Case Study

BHA[®] Dust Collector Performance

Utilizing BHA ThermoPleat filters provided another unique design aspect. Because of the increased filtration area “per hole” of the BHA ThermoPleat, the conversion only required about $\frac{1}{3}$ of the horizontal space that traditional bags and cages require.

Air, and the dust carried with it, naturally speed up when entering smaller spaces. Conversely, a massive “drop-out box” was created in the existing DAP with all the filters installed at the far side of the inlet. This resulted in the majority of the particulate collected in this baghouse never even reaching the surface of the filters. Instead, it drops out into the hopper due to the low carrying velocities. This further improves performance, reduces cleaning cycle requirements, extends filter life, and improves asset availability.

