

AIR DISTRIBUTION – BRANCH AIR DEMAND OPTIMIZER

The proposed system mainly focusing on PNEUMATIC BRANCH (in the branch air distribution pipeline – multiple individual machines are connected) – AIR DEMAND requirements shall be optimized to save maximum energy without affecting the individual machine performance.

KPI

- Load – Demand side pressure variation - low – high levels shall be optimized.
- Flow volume quantity shall be used to calculate / quantify the main air distribution pipeline leakage, and shall be minimized effectively.
- Maintains downstream pressure constant irrespective of the branch air distribution pipeline machine side Air demand.
- Adjust the demand side pressure variation with fast response and maintains the demand side pressure at optimum level.

**Energy Saving
~ 6 to 8 %**

- Due to reduction in the variation in the down stream pressure – the leakage level is reduced.
- The upstream pressure is maintained constantly irrespective of the down stream demand, this will reduce the air compressor stress level and ensures the longer life time of the air compressor.
- By implementing VFD retrofit with existing compressor with similar compressor side optimizer - shall improve the overall energy saving.
- The Main (Compressor outlet) Demand Side Air Management System keeps all the branch - storage reservoir pressure slightly above the demand side pressure requirements. .
- Smint Air Saver maintains the outlet pressure variation within the Minimum level.

- Increases the performance of the branch air requirement
- Decrease the air surge due to branch air requirement
- Decreasing the air pressure in the compressor outlet – Saves Air Energy
- The decrease in the branch side demand – directly saves compressor Air Energy

BENEFIT'S - VALUE

- The fast response pressure-flow control valve will maintain pressure at the demand side
- The controller optimize the pressure in the demand side (Branch side pressure requirement) when the line pressure falls below the set pressure of the demand side of variable demand load.
- The Flow – pressure control valve will adjust the flow of compressed air to “slow fill” the receiver during the interval between demand events. This will have the effect of reducing the large intermittent requirement into a much smaller average demand. Ultimately saves air-energy.
- The individual machine side optimizer is synchronized with compressor side demand management, load side demand optimizer control panels to ensure the more effective way of Air Energy saving.

INFORMATION RETRIEVAL

- Browser based monitoring and control
- Web, Mobile – Monitoring system
- Alert, event – messages
- Automatic REPORT generation and emailing
- Discard based Chatbot system
- Without visiting the web service – retrieve any information through discard application.
- AI based performance report and emailing
- Thresholds based alerts
- Trend, event, history – analysis
- Real Time Monitoring and Control
- Branch wise demand is indexed and the anomaly shall be reported