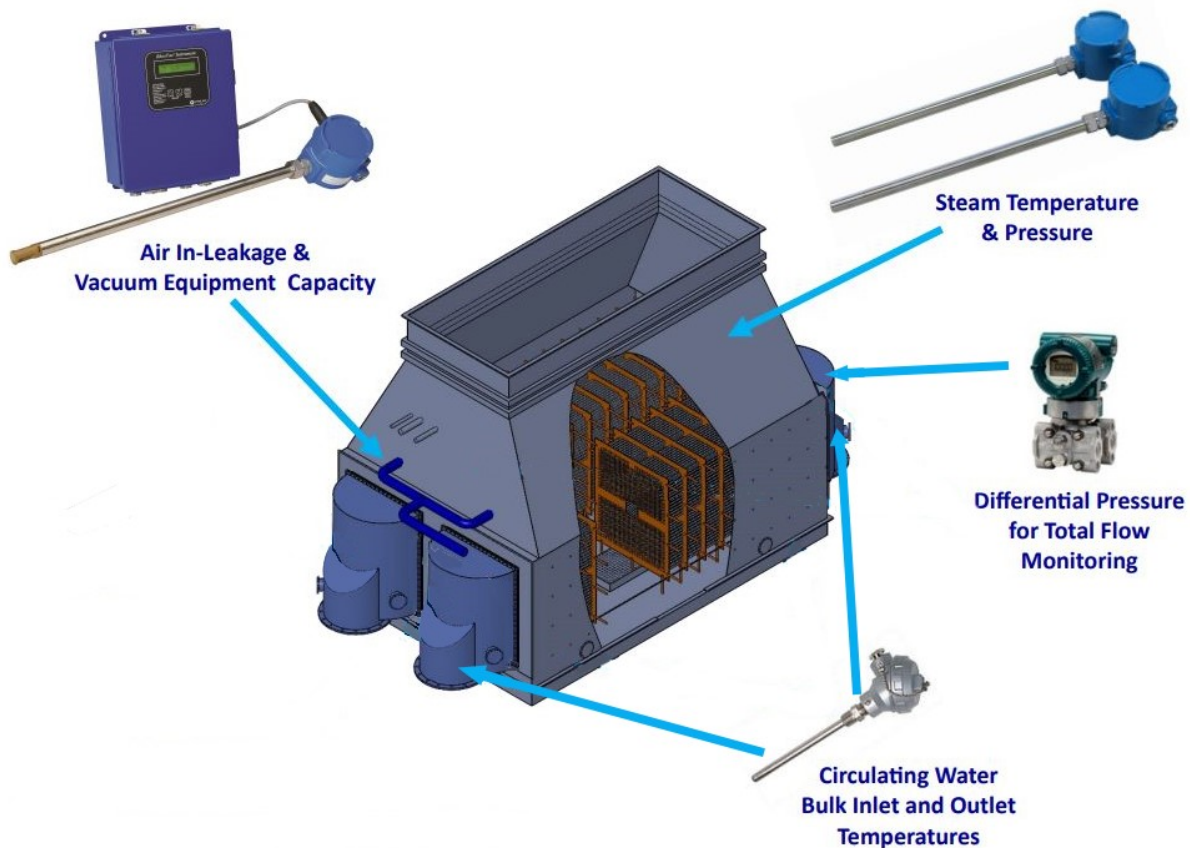


# Condenser Performance Solutions

from

*Your Condenser Performance Partner*

Bionetics' unique instrumentation and process expertise enables measurement of condenser performance to identify the sources of performance loss.



## Bionetics helps you optimize the performance of your condenser by:

- Quantifying all sources of performance degradation
- Monitoring exhauster performance and air removal efficiency
- Identifying and quantifying condenser tube micro and macro fouling
- Identifying potential sources of dissolved oxygen (DO) and condensate chemistry upset
- Providing solutions to improve condenser performance and condensate chemistry
- Providing solutions to decrease condenser pressure and generate more MW

## Instrumentation

### **RheoVac® Condenser Monitor**



- Multi-sensor probe installed in the condenser air off-takes to calculate the non-condensable flow, exhauster capacity, and water-to-air mass ratio.
- Provides direct measurement of condenser vacuum quality and stagnant zones (air binding in the air cooling zone) within the tube bundles of the condenser.

### **Rheotherm® PT Probe (Pressure & Temperature)**



- Accurately measures shell pressure and temperature using integrated pressure and temperature sensors for saturation pressure validation.
- Probe design allows shell measurement to be made within the steam spaces, eliminating pressure differentials.

### **Other Test-Grade Instruments used with Condenser Monitoring System**

#### **Temperature Probe**



- Test grade RTD sensors used to measure circulating water inlet, average intermediate and average outlet temperatures.

#### **Pressure Sensor**



- Test grade pressure sensors used to determine total condenser flow and differential pressure.

## Services and Consulting

### **Condenser Performance Evaluation**

- Examine and evaluate system drawings and station data to identify existing deficiencies and potential performance improvements

### **Condenser Inspection and Documentation**

- Verify and document condenser internal layout vs. design and identify improvement opportunities

### **Advanced Performance Analysis**

- Analyze all available instrument data and condenser information to quantify impact of all causes for condenser performance degradation
- Document performance and maintenance benefits expected from recommended actions

### **Performance Improvement Design, Modeling and Support**

- Modeling of design recommendations for condenser performance improvement
- Complete documentation (drawings, parts fabrication and assembly, materials list) for retrofit
- Work with local mechanical contractors to install the condenser retrofit

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