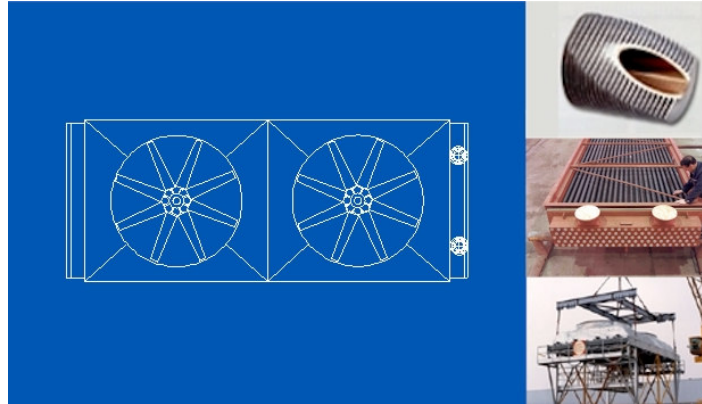




Air-Cooled Heat Exchanger Training Course



Day One

Introduction to ACHE

- Types of ACHE
- ACHE configurations
- Identification of major components
 - Headers / nozzles
 - Tubes / fins
 - Bundles / bays
 - Fans / drives

Mechanical Design

- Headers
- Tubes
- Tube-to-tubesheet joints

Thermal Design

- Tubeside design
 - Single phase heat transfer
 - Condensing
 - Pressure drop
- Airside design
 - Heat transfer
 - Pressure drop
- Temperature difference

Day Two

Aerodynamic Design

- Forced vs induced draft
- Fan types
- Fan curves
- Fan selection
- Air distribution
- Air recirculation
- Noise

ACHE Control

- Control requirements
- Control methods
 - Airflow control
 - Process fluid control
- Air recirculation systems
- Fan failure

Standards and Specifications

- Specifying ACHE
- Using datasheets
- API 661 / ISO13706

Day Three

Maintenance / Inspection

- Access for maintenance and inspection
- Regular maintenance
- Cleaning
 - Tubeside
 - Airside
- Inspection and repair

Troubleshooting

- Performance measurement
- Process troubleshooting
- Airside troubleshooting
- Resolving problems
 - Corrosion
 - Erosion
 - Fouling
 - Joint leakage
 - Thermal expansion

Debottlenecking

- Tubeside improvements
- Airside improvements