Become familiar with the key points regarding diagnosis of rotating machinery such as pumps, fans, and compressors.

Characteristics

★ Learn basic knowledge about abnormalities in rotating machinery which manifest as abnormal noises, temperature, and vibrations.
★ Learn the knowledge needed in order to perform equipment diagnosis.

Curriculum

1. Never Allow the Cavitation!
2. Efficiency Drops
3. Vibration Diagnosis
4. Fan Unbalance
5. Blower Surging
6. Lubricants Show Abnormalities
7. Simplified Diagnosis Procedure
8. Precision Diagnosis Procedure

Who should take this course

Production site (factory) new recruits/maintenance personnel, plant operators/on-site workers, supervisors, and managers

Course material outline

Expected learning time
◆ 3 hours

Shortest duration
◆ 70 minutes
## Diagnosis of Rotating Machinery

### 1. Never Allow the Cavitation!
- **101** The Cavitation
- **102** Bearing Vibration Check
- **103** Looseness of Bolts
- **104** Inspection of the Intake Side
- **105** Inspection Item of Intake Side
- **106** Pump Noises: Abnormal and Normal

### 2. Efficiency Drops
- **201** Turbine Pumps and Efficiency
- **202** Efficiency Drops and Power Loss
- **203** Efficiency Characteristics Graph
- **204** Water Flow in the Turbine Pump
- **205** Water is Flowing Backward
- **206** Liner Ring and Efficiency Drop

### 3. Vibration Diagnosis
- **301** Is Cavitation Occurring?
- **302** TEST: Determine
- **303** Measurement of Vibration
- **304** Determine: Change in Amplitude
- **305** Closer Examination
- **306** Motor side Vibration Waveforms

### 4. Fan Unbalance
- **401** Abnormal Noise Occurs
- **402** Abnormal Noise
- **403** Normal Sound
- **404** TEST: Reading Total Amplitude
- **405** Vibration Assessment Standard
- **406** Summary of Inspection

### 5. Blower Surging
- **501** Surging Occurrence
- **502** Surging Occurs
- **503** QUIZ: Where to Check First?
- **504** Checking Blower Characteristics
- **505** Blower Efficiency
- **506** TEST: Throttle Valve Fitting

### 6. Lubricants Show Abnormalities
- **601** Discoloration of Lubricating Oil
- **602** ASTM Color Tester
- **603** Partial High Temperature
- **604** Screw Compressor: Lubrication
- **605** Screw Compressor: Structure

### 7. Simplified Diagnosis Procedure
- **701** Overview of Equipment
- **702** Vibration Measurement Location
- **703** Vibration Measurement Method
- **704** Velocity Assessment Standard

### 8. Precision Diagnosis Procedure
- **801** FFT Analyzer
- **802** Vibration Measurement Preparation
- **803** Vibration Measurement Method
- **804** Data Analysis for Velocity Mode
- **805** Acceleration Mode & Envelope Mode
- **806** Damaged Bearing Section
- **807** Condition Diagnosis Report
- **808** Abnormality Cause of Machine