MAINTENANCE TROUBLESHOOTING INTERNATIONAL LLC

IFB-303

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IFB--303 INDUSTRIAL FANS AND BLOWERS

Operation and service of air handling equipment. The course covers the basic principles of fans including blowers. Fan theory as well as practical aspects involving maintenance, rebuilding, bearing installation, lubrication, and dynamic balancing are taught. The attendee should be able to read a fan curve, set up a PM program, make vibration checks, and understand various money saving methods of reducing energy and maintenance costs associated with fans and blowers. Table top reduced size fans and blowers will be used to explain principles and operation. Dealing with ductwork problems and noise issues will be discussed. Proper tensioning of V-belts as well as sheave groove inspection will be stressed to prolong motor and fan bearing life as well. Speed ratio calculation and proper belt sizing will be addressed.

DEFINITION
- What is a fan and what is a blower?

BASICS OF STATIONARY AND MOVING AIR
- Atmospheric pressure Relationships
- Static pressure & Velocity Pressure
- Bernoulli's Principle, Energy Equation
- Air Flow through Various Ducts
- Air Flow through Square and Rectangular Ducts
- Measuring Air Velocity and Flow
- Basics of Air properties and Psychometrics

TYPES OF FANS AND THEIR CHARACTERISTICS
- The Six Fan Categories
- Applications of each Fan Type
- Axial Flow Fans
- Centrifugal Fans

THE FAN LAWS
- Fan Wheel Diameter and Speed relationships also called Laws of Similarity

READING AND UNDERSTANDING FAN CURVES
- System Curve and Static Pressure
- Fan Curves Exercise on Reading and Interpreting
- Operating Close to the BEP
- Controlling Fan Air Flow
- Inlet Guide Vanes
- Exhaust Dampers
- Variable Frequency Drives
- Fans in Series — Fans in Parallel
- Selecting Fans

PROPER FAN INSTALLATION
- Foundations and Bases
- Torque Requirements for Bolts
- Proper Support of Duct Work, Expansion Joints

FAN MAINTENANCE AND TROUBLESHOOTING
- Basics of General Fan Maintenance
- Strength of Materials of Fan Construction
- Characteristics of Fan Shafting
- Inspecting for, Detecting and Controlling
- Fatigue in Fan Housings, Frames and Ductwork
- Determining RPM with a strobe light
- Slow Motion Dynamic Inspection
- Vibration Analysis and Fan Maintenance
- Condition Monitoring of Fans
- Rathbone Condition Curve
- Fan Balancing Limits and effects on Bearings
- Fan Bearing Types, when to use which type
- Lubrication of Fan Bearings
- Coupling Selection for Fans
- Alignment of Fans and Driver
- Limits and Cold offset
- Driving a Fan with V-belts and or Jack Shaft

EFFICIENCY OF FANS AND MOTORS
- Three Phase Induction Motors and Efficiency
- Variable Frequency Drives and Fan Efficiency

CLASS FORMATS AVAILABLE

- ☑ **MTI Hands-On Center $1295/person**
- ☐ **ZOOM Interactive (not offered)**
- ☑ **On-Site (Your Location) Ask for Quote**

Quick Quote Available in 48 hrs.

CLASS DURATION AND HANDS-ON

3-days, 22.5 hours of instruction
55%-60% hands-on activities

FREE TOOLS AND BOOKS

Audel Mini-Ref ($30 value)
Cook's Fan Guide ($30 value)
Sheave Gauge ($24 value)
V-Belt Tension Tester ($45 value)

Class Details: Each student will receive class books, work activity sheets, self-test progress evaluations, as well as questions from the instructor to make sure they understand the material presented. It is expected that an attendee will leave the class with the basic knowledge of the subject and possess new found skills to better equip them when they return to their job. A certificate suitable for framing will be issued to each attendee who successfully completes the course. Call, email or check the website for the next time this course is scheduled at the MTI training center. On-site sessions? Request a quick 48-hour turnaround quote. Revised: 02/01/2021