

TRAINING TITLE

FANS AND BLOWERS

Training Duration

5 day

Training Venue and Dates

Ref. No. RM055	Fans and Blowers	5	12-16 May 2025	\$5,500	Abu Dhabi, UAE
--------------------------	-------------------------	----------	-----------------------	----------------	-----------------------

In any of the 4 or 5-star hotels. The exact venue will be informed later.

Training Fees

- \$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

This course focuses on the design, operation, selection, and maintenance of fans and blowers used in industrial applications such as HVAC systems, power plants, manufacturing, and process industries. It covers the theoretical and practical aspects of fan and blower systems, including airflow principles, performance characteristics, types of fans and blowers, energy efficiency, troubleshooting, and maintenance practices. The course is designed to provide participants with a comprehensive understanding of how to optimize fan and blower systems for efficiency and reliability while ensuring safety and compliance with industry standards.

TRAINING OBJECTIVES

By end of course participants will be able to understand

- Understand the basic principles of fan and blower operation, including airflow, pressure, and energy transfer.
- Identify the different types of fans and blowers and understand their applications in various industries.
- Select the appropriate fan or blower for specific operational requirements, such as airflow capacity, pressure, and efficiency.
- Analyze fan performance based on fan curves and system characteristics.
- Calculate fan power requirements and estimate energy consumption.

DMCT/OL/9/18(Rev3Dt:23/9/18)

- Optimize the operation and efficiency of fan and blower systems to minimize energy costs.
- Identify and troubleshoot common problems in fan and blower systems (e.g., vibration, noise, inefficiency).
- Apply best practices for maintenance to extend the life of fans and blowers and reduce downtime.
- Ensure safety and compliance with relevant industry standards (e.g., NFPA, OSHA, ANSI) during installation and operation.

WHO SHOULD ATTEND?

- Mechanical Engineers and Technicians
- Maintenance Engineers and Technicians
- Energy Managers
- Process Engineers
- HVAC Technicians and Contractors
- Facility Managers and Plant Operators

COURSE PROGRAM

Day 1: Introduction to Fans and Blowers

- Overview of fans and blowers: Definitions, applications, and differences.
- Basic principles of fluid dynamics: Airflow, pressure, and the fan laws.
- Types of fans and blowers: Axial, centrifugal, and positive displacement.
- Applications of fans and blowers in HVAC, industrial, and process systems.
- Basic fan and blower terminology: Volume flow rate, static pressure, total pressure, efficiency.
- Fan and blower curves: Understanding performance curves and selecting equipment.
- Key components: Impellers, housings, bearings, motors, and drives.

Day 2: Fan and Blower Performance and Selection

- Fan and blower system design: Calculating airflow requirements, system resistance, and pressure drops.
- Performance curves: How to read and interpret fan and blower curves (static pressure vs. airflow).
- Selecting the right fan or blower for the application: Considerations such as duty point, efficiency, and noise levels.

DMCT/OL/9/18(Rev3Dt:23/9/18)

- Effects of system resistance and ductwork design on fan performance.
- Calculation of fan power requirements: Airflow, pressure, and motor sizing.
- Understanding fan efficiency and energy consumption.
- Fan laws and scaling: How changes in speed, size, or system resistance affect performance.

Day 3: Troubleshooting and Operational Optimization

- Common issues in fan and blower systems: Low airflow, high energy consumption, vibrations, noise.
- Troubleshooting techniques: Diagnosing common problems such as imbalance, misalignment, leakage, and worn-out bearings.
- Performance degradation: Causes and remedies for performance losses over time.
- Noise and vibration control in fans and blowers: Identifying sources and solutions.
- Operational optimization: Balancing airflow and pressure, reducing energy consumption, and improving system efficiency.
- Use of variable frequency drives (VFDs) for fan speed control and energy savings.
- Airflow measurement techniques: Pitot tubes, anemometers, and velocity probes.

Day 4: Maintenance and Safety of Fans and Blowers

- Preventive maintenance practices: Cleaning, lubrication, and inspection of fan and blower components.
- Key maintenance tasks: Bearings, motors, seals, and belts.
- Common maintenance challenges and how to address them.
- Monitoring systems for fan and blower performance: Vibration sensors, temperature sensors, and online diagnostics.
- Safety considerations: Lockout/tagout procedures, safe handling of heavy fan components, and proper ventilation.
- Industry standards and guidelines: OSHA, ANSI, and NFPA standards for fan and blower systems.
- Ensuring compliance with local regulations on noise, energy efficiency, and safety.

Day 5: Energy Efficiency, Advanced Topics, and Case Studies

- Energy efficiency in fan and blower systems: Identifying inefficiencies and implementing energy-saving measures.

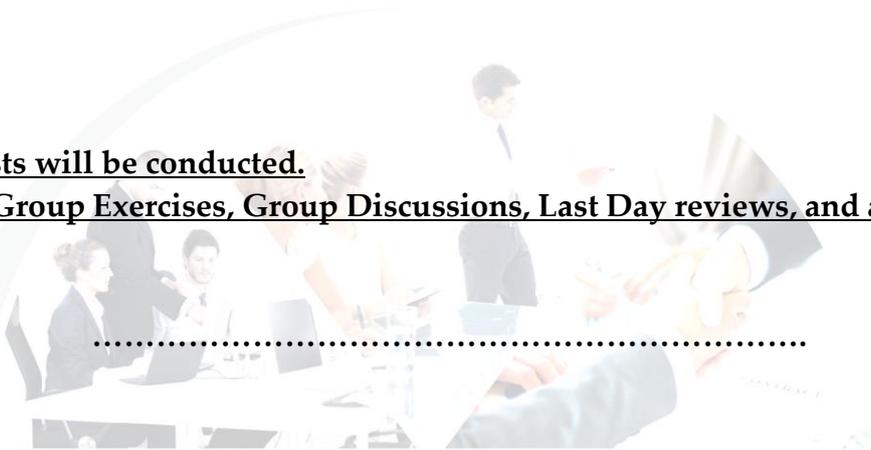
DMCT/OL/9/18(Rev3Dt:23/9/18)

- Use of variable frequency drives (VFDs) to improve efficiency and reduce energy costs.
- Energy audits for fan and blower systems: How to conduct an energy audit and identify improvement opportunities.
- Advanced topics: High-temperature applications, corrosion-resistant materials, and fan selection for hazardous environments.
- Review of key learning points and best practices.

NOTE:

Pre-& Post Tests will be conducted.

Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.



www.definettraining.com

DMCT/OL/9/18(Rev3Dt:23/9/18)

P.O BOX 45304
ABU DHABI, U.A.E

T +971 2 6264455
F +971 2 6275344

www.definettraining.com