
PRACTICAL PNEUMATICS OPERATION AND TROUBLESHOOTING FOR ENGINEERS AND TECHNICIANS



WHO SHOULD ATTEND:

- Plant Engineers
- Mechanical Engineers
- Design Engineers
- Consulting Engineers
- Plant Operations and Maintenance Personnel
- Consulting Engineers
- Process Technicians
- Mechanical Technicians
- Operation, Maintenance, Inspection and Repair Managers, Supervisors and Engineers

The Workshop

Whatever your pneumatic applications, you can increase your knowledge of the fundamentals, improve your maintenance programs and become an excellent troubleshooter of problems in this area by attending this information packed workshop. Cutaways of all major components are brought to the sessions to visually demonstrate the components construction and operation. Developing an understanding of how it works leads to an understanding of how and why it fails. Multimedia views of the equipment are given to give you as realistic a view of pneumatic systems as possible.

The pneumatics workshop is a comprehensive, highly practical and interactive two day course. You will have an opportunity to discuss pneumatic systems construction, design applications, operations, maintenance and management issues and be provided with the most up to date information and best practice in dealing with the subject. Towards the end of the workshop, you will have developed the skills and ability to recognise and solve pneumatic problems in a simple, structured and confident manner.

Pre-requisites

Fundamental knowledge of basic mechanical plant and operation thereof, with some exposure to pneumatic systems.

Practical Sessions

There are eight Practical Exercises on Pneumatic Systems.

The Program

INTRODUCTION TO PNEUMATICS

- Origin of Pneumatics
- Overview of workshop

FUNDAMENTALS

- Force
- Work
- Power
- Energy
- Mass
- Weight
- Torque
- Density
- Specific gravity
- Specific weight

Practical Exercise

AIR PREPARATION

- Characteristics of air
- Air generation and distribution
- Characteristics of pneumatic systems

Practical Exercise

SYMBOLY ISO 1219

- Symbols and standards

Practical Exercise

PNEUMATIC ELEMENTS

- Components of pneumatic systems
- Actuator and output devices
- Cylinders (single and double acting)
- Directional control Valves
- Types
- Other control valves
- Non-return valves
- Pressure Valves

Practical Exercise

BASIC CIRCUIT DESIGN

Practical Exercise

SEQUENCE CONTROL

Practical Exercise

CASCADE CIRCUITS INTRODUCTION

Practical Exercise

TROUBLESHOOTING AND FAULT FINDING PNEUMATIC SYSTEMS

- Flow chart analysis of pneumatic circuits
- Maintenance

Practical Exercise

SUMMARY AND CLOSING

- Key Concepts
- Discussion
- Summary of workshop

Workshop Objectives

Attending this highly practical two day workshop will enable you to:

- Work with basic pneumatic components
- Describe the basic physical principles of compressed air
- Understand how basic pneumatic components function in a pneumatic circuit
- Read pneumatic schematics
- Understand the operation and application of standard pneumatic valves and actuators
- Competently describe the symbols for standard pneumatic valves and actuators
- Describe air actuation and its application
- Perform simple circuit design using standard symbology and functions such as automatic return, logic control, speed control, pressure sequencing, reduced actuator forces and timing
- Work safely with pneumatic components and systems
- Troubleshoot simple pneumatic problems
- Apply a simple preventative maintenance program to lengthen pneumatic components life
- Make simple repairs to pneumatic systems
- Understand essential pneumatic terms and understand their key applications
- Discuss the correct operation, control sequences and procedures for the safe operation of various simple pneumatic systems
- Initiate an effective inspection and maintenance program
- Minimise forced outages and prevent serious damage to pneumatic equipment
- Outline the latest technologies available for electro pneumatic systems

This is not an advanced workshop but one focussing on the fundamentals. You are however expected to have some knowledge of the topic of pneumatics. Pre course reading will be provided for you if you have no knowledge whatsoever.