

Corporate Office

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Level 2 Pneumatics Advanced Maintenance and Repair

Course Description: This course builds on the foundations and principles presented in the Level 1 course and leads trainees through basic circuit design, logic valves, proportional valves, and basic troubleshooting. The course begins with safety followed by a brief review of fundamentals. The focus of the class then covers in-depth construction, operation, and specific use of pneumatic components. Level 1 covered the basic construction and operation of components whereas Level 2 covers more complex aspects of the components including troubleshooting individual components. In addition, proportional valves will be introduced. Once a solid foundation of component knowledge is achieved, the class will get into basic circuits and circuit design. This is followed by an introduction to Electro Pneumatics and the course wraps up with a look at logic valves.

Prerequisites: Level 1 Pneumatics or equivalent knowledge

Textbook: TBD. Parker, Festo, Bosch or SMC books are possible options

Learning Objectives:

- Recognize compressed air safety practices
- Solve basic equations involving torque, pressure, displacement, and efficiency
- Solve equations involving cylinder force, pressure, area, and volume
- Define CFM and SCFM
- Explain causes of compressor head leaks
- Determine moisture content of air from pressure/temp graphs
- Calculate inch drop per length of run given the percent grade for an air line
- Explain causes of air regulator failure
- Explain causes of air lubricator failure
- Describe Cv
- Describe symptoms of leaking seals in cylinders
- Explain causes of air motor failure
- Describe regen with directional control valves
- Explain proper placement of flow control valves in a system
- Explain the characteristics and application of proportional valves
- Predict the operation of a simple pneumatic circuit
- Describe the location of various components in a circuit to achieve sequencing
- Identify logic controls with logic circuits
- Identify basic electrical symbols from ladder diagrams
- Describe how electrical signals and feedback devices control pneumatic systems