Fundamentals of Fluid Power—Pneumatics

FESTO

Level 1

This pneumatic training certification covers the use of compressed air for control and signaling. It provides a comprehensive overview of compressors, storage, dryers, distribution, and the design, construction, and operation of various actuators, valves, and ancillary equipment. Relevant ISO symbols are introduced and included in circuit diagrams. This certification ensures competence in the safe operation and maintenance of one of the most common automation elements in industry.

Industry Recognized Certification Topics

- Safety practices for working with pneumatic systems
- Basis design principles for creating pneumatic systems
- Pascal and Boyle's Laws
- Structure, function and application of single-acting and double-acting cylinders
- Calculating basic parameters
- Direct and indirect actuation
- Application and function of 3/2 and 5/2-way valves
- Methods of actuation of directional control valves
- Analyzing circuits
- Options for pressure measurement
- Pressure-dependent control systems
- Distinguishing flow control
- Logic operations: explaining and implementing AND/OR/NOT operations
- Function and application of limit switches
- Time delay valves
- Realizing oscillating movement
- Economic considerations of using pneumatic components

Industry Recognized Certification Competencies

- Demonstrate safety standards and best practices adhering to safety protocols in pneumantic systems
- Interpret and draw pneumatic symbols
- Identify components of a pneumatic system
- Utilize circuit simulation software to design, test and optimize circuits
- Understand the principles and applications fo vacuum systems
- Construct and troubleshoot pneumatic circuits
- Understand the practical application of Pascal and Boyles law
- Explain and understand conditioning and distribution of air
- Determine root cause of component failure
- Make speed adjustments to actuators
- Explain the force/pressure/area relationship
- Describe the different states an actuator can assume and the importance of each
- Utilize simulation software to demonstrate basic diagnositic principles
- Identify/explain function of pneumatic components

Units - 4 / Labs - 12