



Expertise – Passion – Automation



Vocational T R A I N I N G

Pneumatic and Electro-Pneumatic Fundamentals

Introduction to industrial compressed air systems for automation

Designed as a general introduction, delegates will become familiar with the design, construction, and operation of pneumatic components, and includes circuit symbols to the latest ISO standards and how these fit within a circuit diagram. Circuit diagrams are then used for practical exercises.

Delegates gain a complete overview of a pneumatic/electro-pneumatic system, covering compressors, storage, dryers, and distribution as well as the design, construction, and operation of a range of actuators, valves, and ancillary equipment. They also learn the basics of industrial electrical usage and why, how, and when electro pneumatics are used.

There are plenty of opportunities for delegates to put theory into practice: working from circuit diagrams they will learn to select the correct pneumatic and electropneumatic components from a range of equipment and build functioning circuits, making the necessary adjustments for pressure, flow, and sequence.

A strong emphasis is placed on safety and appropriate working practices throughout the course, especially during the practical sessions.

Who is this aimed at?

- 👉 Maintenance
- 👉 Production
- 👉 Design Office
- 👉 Technical Sales
- 👉 Apprentices

Previous Knowledge required?

General engineering background is advised but no specific knowledge of pneumatics is needed as this will be covered within the training course.

Delegates and organisations benefit from

- Reduced risk of accidents
- Reduced fault-finding time and machine downtime
- Increased understanding of design principles for best use of components
- Reduced assembly errors
- Increased productivity
- Competence = Confidence= Performance

Useful Information:



3 days
Equivalent of 20 hours



£800 + vat
(not including any accommodation)



£3,400 + vat
Group rate for 6
(not including any accommodation)



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Milton Keynes
MK8 0AN



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Contents:

- SI units and conversions
- ISO symbols and Circuit diagram layout (current standards)
- The air service unit
- Single acting cylinders, double acting cylinders
- Electric actuator overview
- Cylinder end stroke damping
- Electrical positional detection techniques
- Directional control valves (theory and operation methods)
- Electrical theory (relating to industrial pneumatics)
- Valve mounting (manifold and sub-base theory and fault finding)
- Communication protocols (industrial what and why)
- Valve port labelling
- Safety requirements
- Practical construction exercises throughout

**After attending this workshop, participants will have a better understanding of:****Compressed Air production and the units and measurement scales associated with compressed air systems –**

allowing accurate setting of machines, decreasing fault finding time, reducing 'operator fiddling' occurrences, can reduce downtime.

Pneumatic symbols drawn to the relevant standards – Enables users to identify components and understand their function in a circuit. Helps improve communications regarding components and applications to create efficiencies, enables design to create circuit diagrams.

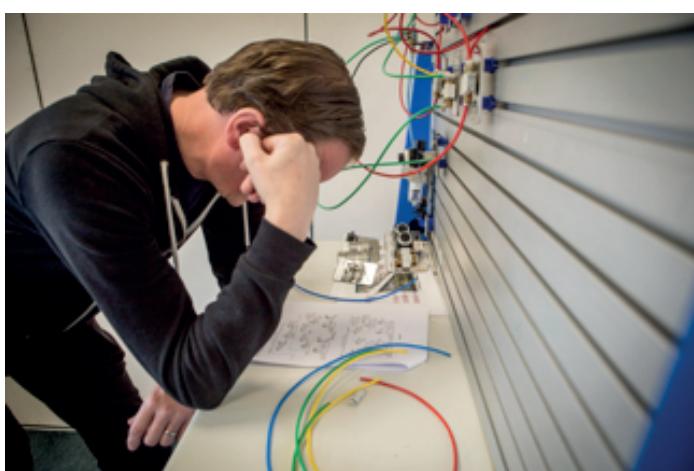
Reading pneumatic circuit diagrams – Identify components in a control application and understand how they interact. Use circuit diagrams in more complex fault-finding situations and learn to produce own solutions/diagrams.

Compressed Air Preparation for industrial use – Understand the importance of site air quality and costs of leaks, reducing service time.

Pneumatic actuator and valve working principles and terminology – Improve confidence by selecting the correct components for the task in hand. Identify how components could be adjusted to optimise system performance.

Pneumatic safe working practices – Identify potential hazards to yourself and others. Understanding why certain components are (and should be) included for safety reasons.

Electro Pneumatics in the modern workplace – Link between pneumatics and electro-pneumatics. Understand how, why and when to apply which technology.

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