

Technical Description

Crane Nuclear offers to provide the services as described in this Technical Description subject to the pricing, terms and conditions delineated in the Commercial Description.

Principles of Air Operated Valves

Standard Class Size:	6 students per instructor
Course Duration:	3 days
Prerequisite:	None
Supplied Materials:	A training manual for each student
Suggested Training Aides:	Various control valves and accessories
Suggested Attendees:	Plant instrument and control technicians, electricians and their foreman, engineering, QC and operations personnel

Course Description:

This course introduces the various types of air-operated control valves used in the modern power generation industry. The course is structured around an examination of the major components of the actuator, positioning system accessories, and controllers/transmitters. The criteria for selecting, sizing and applying the actuator are discussed. Basic pneumatic principles are reviewed and the various types of positioning systems are covered.

Course Terminal Objectives:

Each student will be required to pass a written test with a minimum score of 80% in order to successfully complete this course. Upon successful completion of this training course, the student will:

- Identify the basic types of air-operated valves.
- Describe the operation of pneumatic actuators and positioning systems.
- State the major factors to be considered in the selection and application of valves, actuators and positioning systems.

Course Enabling Objectives:

After completing this course, the student will:

- Identify the major components of the process control loop and be able to describe the significant functions of each component.

- Understand the difference between an on/off valve and a control valve.
- Identify the major general categories of air operated control valves.
- Explain the construction, characteristics and use of globe, butterfly and ball valves.
- Define valve trim, balanced and unbalanced.
- Define Cv.
- List at least three factors considered in control valve selection.
- State at least two factors in control valve sizing.
- State at least two sources of noise in a control valve.
- Describe the difference between closed-loop and open-loop control.
- Identify the purpose of a control valve actuator.
- Explain the two basic kinds of AOV actuators and their basic operation.
- List five basic functions of an actuator.
- Identify at least three factors used in actuator selection.
- Explain the reasons for applying a valve positioner.
- Understand how to set the benchset of an actuator.
- Identify the forces acting on a typical valve and actuator.

Course Benefits:

- Increase the plant's self-sufficiency in AOV maintenance.
- Increase the reliability of the plant's AOVs.
- Reduce the plant's cost of AOV maintenance.