Introduction to Valves, Actuators, and Safe Operation Practices

Relevancy: DWP 0.1

Date/Time: Various Dates and Times

Location: Online learning platform, HSI

Summary: This learning program contains three subparts, each with lesson exams.

- 215-01 Introduction to Valves and Their Components (45 minutes)
- 215-02 Valve Actuators (40 Minutes)
- Valve Safety (18 Minutes)

Total instructional time (estimated by vendor): 1 hour, 43 minutes

Training Description and Objectives:

215-01 Introduction to Valves and Their Components (45 minutes)

Valves are the single most common piece of equipment in industrial facilities. This online training covers valve fundamentals, including the major components common to most valves and the basic types of flow control elements used in valve design. This training explains the basic design and function of valves, major valve components, and flow control elements. Using 3D animation, the training examines valve functions, body and bonnet, trim, actuators and packing, types, and markings. This lesson is part of the Valve Selection and Maintenance series.

- Discuss the overall purposes served by valves in a system or process;
- Illustrate various valve types and highlight their differences;
- Explain how valve stem leakage is controlled;
- Describe the operation of root and throttle valves;
- Identify the following valve components: body, bonnet, stem, actuator, packing, seat, and disk; and,
- Identify common valve markings and their meanings.

Language: English

Length: 45 Minutes

Final Exam: Yes

Self-paced: Yes

215-02 Valve Actuators

As discussed in Introduction to Valves and Their Components, an actuator is needed to position a valve's stem and disk assembly. The Valve Actuators training course discusses the use, selection, and design of various actuators, from simple handwheels to relatively complex electrical and hydraulic manipulators. The Valve Actuators course discusses power actuators speed and valve position indication. Valve Actuators is part of the Valve Selection and Maintenance training series.

- Describe the construction and principle of operation for the following types of valve actuators:
  - manual,
  - electric motor,
  - pneumatic,
  - hydraulic, and
  - solenoid
- Identify several types of valve position indicators.

Language: English

Length: 40 Minutes

Final Exam: Yes

Self-paced: Yes

Valve Safety (Vivid version 10214.4.1.00)

This lesson covers valve safety and includes information on the types of valves, their purposes and characteristics; valve-related incidents that may occur in the workplace and how to prevent them; injuries that could occur as a result of valve use and how to avoid them, and best practices for selecting the right tools for a job and maintaining valves.

- Describe what valves do, the materials they can consist of, and their various uses.
- Describe the different types of valves and how they function.
- Identify the potential consequences of valve incidents.
- Explain the purpose of a hazard analysis, when to conduct one, and what one should include.
- List best safe safety practices for working with valves.
- Identify the symptoms of MSDs (like sprains and strains) and the risk factors in the workplace that contribute to the development of MSDs.
- List the elements of proper posture, its benefits, and the steps to take to maintain it.
- Explain how to apply ergonomic solutions to tasks in the workplace.
- Discuss the proper selection and use of tools and personal protective equipment (PPE).
- Explain lockout and tagout requirements and good housekeeping practices.

Language: English

Length: 18 Minutes

Final Exam: Yes

Self-paced: Yes