Training Program:

Sizing, Selecting, and Applying Process Control Valves

INTRODUCTION

Extensive course materials provided contained useful information about valves/sizing and selection both theoretical and practical. You will gain a practical understanding of control valves, actuators, and positioner designs and their applications. The course also provides methods that can be used to identify specific valve problems and arrive at acceptable solutions within engineering tolerance.

WHO SHOULD ATTEND

This Intensive five-day instructional program covering the educational needs of Instrumentation and Control Engineers & Technicians, Mechanical Engineers & Technicians, Projects Engineers, Operation Engineers, Process and Utility Supervisors, and Technical Supervisory personnel involved in Sizing, Selecting, and Applying Process Control Valves. No specific prerequisite training or experience required for registration.

METHODOLOGY

This interactive Training will be highly interactive, with opportunities to advance your opinions and ideas and will include;

- Lectures
- Workshop & Work Presentation
- Case Studies and Practical Exercise
- Videos and General Discussions

CERTIFICATE

BTS attendance certificate will be issued to all attendees completing minimum of 80% of the total course duration.

COURSE OBJECTIVES

Participants will be able to:

- Compare various types of final control elements
- Understand a typical valve operation in a control loop
- Differentiate between various types of valves and the benefits of each
- Compare rising stem to rotary style valves
- Analyze a control system to determine control valve needs
- Use ISA standards for control valve specification and selection
- Size valves for any flow condition likely to be found in a process plant
- Evaluate and select actuators for specific applications
- Specify appropriate auxiliaries including positioners and I/P transducers
- Design control valve installations that are safe and trouble-free

COURSE OUTLINE

1. **Introduction:**

- Valve in Loop,
- Actuator,

- Positioner

2. **Basic Valve Types:**

- Globe Valves,
- Ball Valves,
- Plug Valves,
- Butterfly Valves

3. **Actuators:**

- Spring/Diaphragm,
- Piston,
- Vane,
- Scotch-Yoke,
- R & P

4. **Comparison:**

- Rising Stem,
- Rotary Stem,
- Accessories,
- Positioner,
- I/P Converters

5. **Valve Performance:**

- Gain,
- Time,
- Trim,

- Special Needs

6. **Flashing/Cavitation & Noise:**

- Cause/Effect,
- Prevention,
- OSHA,
- Source and Abatement

7. **Installation:**

- Performance, Safety and Others

8. **Valve Sizing:**

- Valve sizing calculation Manual,
- Valve Sizing calculation Computer

9. **Specification and Selection:**

- Process Requirements,
- Other Considerations

10. **Maintenance and Troubleshooting Considerations:**

- Special Requirements,
- Diagnostic Tools

11. **Smart Valves:**

- Available Designs,

- Applications in Industry

12. Test valves to evaluate performance factors

13. Size valves manually and with software

14. Specify valves, actuators, and auxiliaries for specific applications

15. Evaluate operation of valves with pneumatic actuators and positioners

16. Smart valve/positioner operation demonstration