

Valves Operation & Maintenance

Course general description:

Valves have many uses, including controlling water for irrigation, industrial uses for controlling processes, residential uses such as on/off and pressure control. A valve is a device or natural object that regulates, directs or controls the flow of a fluid (gases, liquids, solids, or slurries) by opening, closing, or partially obstructing (throttling). Valves are technically fittings, but are usually discussed as a separate category. The word is derived from the Latin valva, This Course address a detailed knowledge of valves Describe its :, principals , Glossary ,Terminologies, operation, maintenance (corrective, preventive, predictive) , overhauling criteria , acceptance testing and troubleshooting

Audience:

This course is designed for:

1. Mechanical engineers
2. Process engineers
3. Maintenance Engineers
4. Supervisors from different disciplines

Course objectives:

By end of the course participants will gain:

1. Valves different functions and applications
2. Clarify various types of valves
3. Identify all common valves components and their functions
4. Identify difference between linear motion valves & quarter turn valves
5. Describe operating principles of various types of valves
6. Explain non return valves(check valves)
7. How to use appropriate tools to maintain valves
8. Explain assembly and disassembly criteria of valves
9. Implementing elements of valve Maintenance rules
10. Demonstrate valve test & setup
11. Recognize and respond to valves abnormal condition and take relevant remedy
12. Know common valves terminologies
13. Be familiar with Items found in nameplates & bridge wall marking of valves
14. Automatic valves and their assistive devices
15. Learn how to deal with Troubleshooting and repairing activities of valves
16. Learn Preventive maintenance for valves
17. Learn Testing for valves according to API 598

Course duration:

5 days

Course location:

Cairo-Dubai-Istanbul

Course contents:

Day-1

- Pretest
- Function of valves
- What are controlling parameters for valves?
- What are different actuators types for valves?
- Linear motion & quarter turn valves

- What does valve sizing refer to?
- Valves terminologies

Day-2

- Valves different types
- Application for each valve types
- Application for each valve types
- What are the main components of valves ?
- Normally close valve and normally open valve mean ?
- Valve cavitation & flashing
- Valve coeff. Of flow Cv and it's equation

Day-3

- PRV valves & Application examples
- Valves ends Different types
- Disassembly & assembly of valves components
- Stem rising & Non stem rising valves
- Solid wedge & Flexible wedge & split wedge gate valves
- Comparison between features of gate valves & globe valves
- What is difference between Full Bore Valve and Reduced Bore Valve & When to use

Day-4

- Advantage and disadvantage for each valve type
- On / off valves and throttling valves
- Valves greasing
- Corrective maintenance & preventive maintenance for valves
- Static seal and dynamic seals at valves
- Data found on nameplate & Bridge wall marking of valves
- One Piece, multi Pieces Ball Valves Features & Differences

Day-5

- Trunnion and floating ball valves
- Lift, wafer & swing check valves applications
- Lug type & wafer type butterfly valves
- Material of construction (MOC) of the valves
- Low pressure Closure test & high pressure closure test on Valves
- Inspection of valves according to API 598
- Shell test on valves
- Mfr. Data for valves and meaning
- Plug & diaphragm valves
- Posttest

Methodology:

50% lectures & concepts

10% Videos

10% Case studies

10% Exercises

10% Discussions

10% Software (if applicable or examples)

Course code: (TEME023)