

# Equipment I: Piping, Valves, & Actuators

## Valves I



### Course Objectives

1. Define and describe the purpose of valves in a chemical process.
2. Describe the function and categories of valves.
3. Describe the purpose, function, operation, components, typical application, and P&ID symbol of the following valves:
  - a. Gate valves
  - b. Ball valves
  - c. Plug valves
  - d. Butterfly valvesPinch valves
  - e. Globe valve
  - f. Diaphragm valves
  - g. Needle valves
  - h. Three-way valves
  - i. Four-way valves



### Key Terms (Define the following)

valves - \_\_\_\_\_  
\_\_\_\_\_

isolation valves - \_\_\_\_\_  
\_\_\_\_\_

throttle valves - \_\_\_\_\_  
\_\_\_\_\_

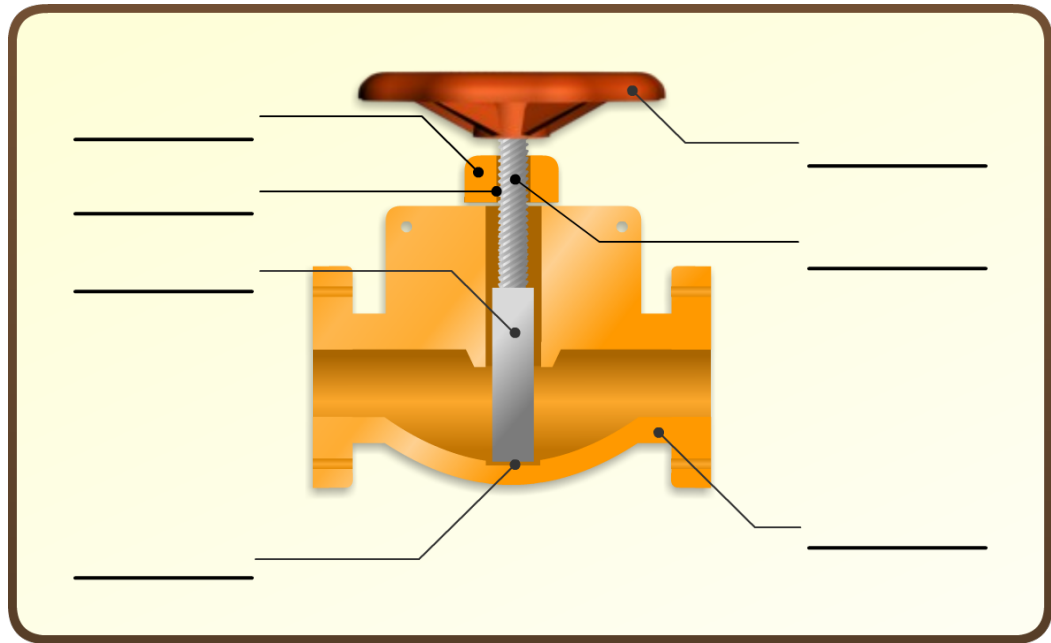
flow direction valves - \_\_\_\_\_  
\_\_\_\_\_



### Questions

1. Valves are piping devices designed to \_\_\_\_\_ and \_\_\_\_\_ the flow of fluids throughout a chemical process.

2. Label the parts of this valve.



3. List 5 isolation valves?

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_

4. List 3 throttle valves?

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_

5. List 2 flow direction valves.

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_