Basic Types of Valves Flow Characteristics

- Gate Valve
- Relief Valve
- Globe Valve
- Horizontal Lift Check Valve
- Swing Check Valve

Basic Types of Valves & Flow Characteristics

- Angle Valve
- Plug Valve
- "Y" Valve

The Gate Valve

Block Valve: Either Opened or Closed

Note: Handwheel is stationary while stem rises.
Gate Valves

- Flanged
- Butt Welded
- Screwed and Socket Welded

Reference: Practice # 000.250.9817 Pg. 3

Gate & Globe Valve Dimensions – 150#

(See practice # 000.250.9810 for complete chart and notes)

Length Of Exposed Valve Stem

Rule Of The Thumb:

“To find the distance from the top of the stem to the handwheel is to use the valve nominal size”

Example:

8” Gate Valve
Socketweld & Screwed Valves

Isometric Symbols
Gasket Mark Locations:

Handwheel Orientations and Callouts for Isometrics

Handwheels oriented on horizontal or vertical centerlines
(no callout required)
Handwheel Orientations and Callouts for Isometrics (continued)

Offset handwheels with bolt holes straddling natural centerlines shall require callout for handwheel orientation.

Handwheel Orientations and Callouts for Isometrics (continued)

- Offset handwheels require bolt holes to be rotated.
- Callouts required for both handwheel and bolt hole orientation.

Exercise

Exercise PI-E8A
The Globe Valve

Throttling Valve: Allows Flow Variation

Note: Stem and handwheel rise at the same time.

Globe Valves

Drawing Symbology:

- Flanged
- Buttwelded
- Screwed and Socket Welded

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Reference: Practice # 000.250.9817 Pg. 4

Gate & Globe Valve Dimensions – 150#

(See practice # 000.250.9810 for complete chart and notes)
The Check Valve
Prevents Backflow

Note: Some check valves are limited in positions that they may be placed due to the internals.

SWING CHECK VALVE

WAFFER CHECK VALVE
Horizontal Lift Check

- Installed in horizontal position only.
- Flow moves through the body in a changing course as in globe valves
- Gravity and reverse flow close it automatically

Check Valves

Flanged

Buttwelded

Screwed and Socket Welded

Check Valve Dimensions – 150#

(See practice #000.250.9810 for complete chart and notes)
Exercise PI-E8B

The Ball Valve
Block Valve: Either Opened or Closed

Ball Valves
Drawing Symbology: Flanged, Buttwelded
Piping Plan (Drawn to Scale), Piping Isometric

Reference: Practice # 670.250.9817 Pg. 2
Ball Valve Dimensions-150#
(Rewview standard #000.250.9810 for complete chart and notes)

The Butterfly Valve

Block Valve: Either Opened or Closed

Butterfly Valves

Drawing Symbology: Piping Plan (Drawn to Scale) Piping Isometric

+Flangeless

Reference: Practice # 000.250.9817 Pg. 1
The Plug Valve

Block Valve: Either Opened or Closed

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Plug Valves

Drawing Symbology:

- Flanged
- Buttwelded
- Screwed and Socket Welded

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Reference: Practice # 000.250.9817 Pg. 4

Relief/Safety Valves

Pilot Operated Relief Valve

Steam Safety Valve

Process Pressure Relief Valve

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Relief Valves:
- Handles water and oil and opens proportionally with the increase of pressure.

Safety Valves:
- Handles steam and gas and opens fully when the pressure exceeds the maximum pressure for which the valve is set.

Flanged Relief/Safety Valves

Screwed Relief/Safety Valves

Drawing Symbology:
- Flanged
- Screwed MPTxFPT (w/pipe nipple)
- Screwed FPTxFPT (w/o pipe nipple)

Reference: Practice # 000.250.9817 Pg. 1

FLUOR
Valve Accessibility

To be our customer's benchmark for dependability, expertise & safety

Ideal Handwheel Heights

Maximum Handwheel Height
Chain Operated Valve Height

Minimum Bottom of Handwheel
E.L. 7'-6" Approx. 3'-0"

Valve Accessibility and Clearance: Vertical Stem

Valve Accessibility and Clearance: Horizontal Stem
Questions??

Test PI-T8