PENN-TROY MANUFACTURING INC.

Sluice Gates and Knife Gates

Which type is best for you?

What is a sluice?

The term sluice doesn't refer to a valve at all. In reality, a sluice is any water channel that is controlled at its head by a gate.

What is a sluice gate?

The gate that controls a sluice is a valve known as a "sluice gate." These valves are designed to seal in one direction and commonly are used to control water levels and flow rates in rivers and canals. They also are used in wastewater treatment plants.

A sluice gate can be one of several different types of valves that may have different names in any given industry. The most common type is a **vertical rising sluice gate** valve. This valve has a gate that rises (to allow fluid to flow under it) and lowers (to stop the flow.) If fluid can flow over the top of a sluice gate when it is closed, the gate is known as a **weir gate**. Sluice gates can have round, square or rectangular gates/openings.

Sluice gate valve characteristics

- Used for relatively low head-pressure applications (often 50 psi or less)
- One direction flow/sealing
- Low maintenance
- Can be mounted by pouring into a wall or mounted to wall studs, on a flange, or on a wall thimble
- Low cost
- Bubble-tight seal available (but not standard on all sluice gate valves)

What is a knife gate?

A knife gate uses a blade to cut through thick or heavy liquids that may clog other types of valves. Knife gate valves originally were designed for use in the pulp and paper industry. Employing a beveled edge, knife gates cut through the fibrous pulp encountered there. The use of knife gate valves quickly expanded to other markets, including wastewater treatment, because of the advantages they provide when dealing with sludge.

Knife gate valve characteristics

- Used for higher pressure applications (100 – 150 psi)
- In-line valve
- Bi-directional seal
- Bubble-tight seal
- Short lay lengths
- Seals eventually need to be replaced or maintained due to the nature of the materials they cut through
- When located below grade, a torque tube or extended bonnet is needed

Conclusion

Sluice gate valves and knife gate valves are very different in function and application. The bottom line is, for in-line isolation and sludge applications, a knife gate can be a good choice. But when it comes to manipulation of flow in a sluice or channel, a sluice gate is the best choice for your application.

Troy Valve's sluice gates are self-contained, meaning that if the valve is located 10 feet below the operator, the only thing you would need is an extension stem with an operating nut or a handwheel. Most sluice gates and weir gates are not self-contained, as they require the operator to be attached to either rails or some sort of mechanical operator. Troy Valve sluice gates also come bubble tight standard, seal up to 50 psi, and are made to last.

Please contact us at
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for more information.