Comparison Parallel Slide Gate Valve vs. Wedge Gate Valve

Our Parallel Slide Gate Valve design offers many advantages over double disc wedge gate valves in providing tight reliable shut-off in water and steam service.

One of these advantages comes from the seating method used by these valves. Our Parallel Slide Gate Valve uses position seating allowing the line force in the system to assist in the sealing of the valve seat by holding the downstream disc firmly against the downstream seat. By comparison, a double disc wedge gate valve relies upon torque force to wedge the disc into the valve body to provide shut off. This requires the valve seat in a double disc wedge gate to actually deform to provide seating. Over a short period of time this can lead to permanent deformation of the seat allowing a leak path to occur. Position seating also requires less torque to open and close than torque seating. This allows for use of a smaller actuator to operate our valve, thereby reducing operator cost.

Also, the wide flat seating surface of our valve offers an advantage in sealing surface area. Our valve has a seating surface width of up to two inches. This prevents minor scratches or seat deformation from becoming a leak path. Since a double disc wedge gate valve relies upon a line contact seating surface, it has a very thin seating surface area. A line contact seat increases the probability that a minor seat inconsistency will become a leak path. Also, the greater seating surface of our valve provides for distribution of bearing stresses over a large area thus reducing seat wear caused by everyday operation.

Due to its wide flat seats and position seated design, a parallel slide gate does not require reseating of the disc after a valve closed hot cools down. A double disc wedge gate, due to its torque seated design, may require that you reseat it after cooling due to contraction which may loosen a previously adequate seal.

In addition to the above advantages, our Parallel Slide Gate Valve also offers protection against thermally locking a valve in the closed position. This can occur when a hot valve in the closed position begins to cool. The larger valve body may cool faster than the disc causing the body to contract quicker trapping the discs between the body seats. This will then require increased torque to break the disc away from its seat. The two independent discs of the Parallel Slide Gate Valve, along with the position seated design, allows for compensation for varying rates of thermal contraction, thereby preventing thermal binding from occurring. However, since a double disc wedge gate’s seating principle calls for wedging the disc into the body it cannot compensate for varying rates of contraction and the valve then can become jammed closed, requiring more torque than available to open the valve.

The seating principle of the Parallel Slide Gate Valve makes it far superior to the double disc wedge gate valve; with a more forgiving seating method that compensates for minor seat variations and uses internal forces to provide reliable tight sealing.