



## Turbine Isolation and IsoTech® (PSG) Valves

### Bidirectional, Zero-Leakage Operation

**Location:** United States

**Background:** While problems with turbines are rare, routine maintenance and repair is necessary and required. It is essential that the turbine be turned with dry steam. If water gets into the steam (moisture carry-over) rapid impingement and erosion of the blades occurs. This can lead to imbalance and catastrophic failure. Any imbalance of a rotor can cause vibration requiring the turbine to be isolated and shut down immediately. In the event a turbine requires maintenance or immediate repair, it is essential to have high-quality, reliable valves for the turbine to be isolated. Failure to completely isolate a turbine can result in a complete or partial plant shutdown, causing safety concerns and increased maintenance costs.

**Requirement:** A chemical plant in the southern United States was experiencing moisture carry-over into their turbine. The turbine isolation valves were 20" wedge gate valves with a six inch bleed valve. This particular chemical plant has its own power and steam system. It has several boilers that discharge into a steam header and then the steam header furnishes steam for the plant to use and also delivers steam to the turbines. This system design allows a turbine to be isolated and removed from service for maintenance while not effecting operation of the plant. The turbines were designed with a double block-and-bleed valve assembly to ensure that the turbines could be isolated. When closed, the wedge gate valves leaked so severely that steam passed through the valves and into the turbine. The leak made it impossible to perform turbine maintenance repair and the plant would have to be completely shut down so that the turbines could be accessed. With each occurrence, the cost associated with shutting down the plant was several million dollars per shut down.

**Solution:** To solve this problem, ValvTechnologies furnished two, 20" IsoTech® valves with a 6" bleed valve and the associated bypass valves. These valves were welded together in an assembly that measured 20' in length from end-to-end. The client requested this assembly so the installation could be expedited and the total plant shut down time was kept to a minimum. The two IsoTech® and the associated assembly were installed in March of 2004 and the valves have operated numerous times since installation and continue to isolate. The IsoTech® addresses the need for true in-line reparability in large diameter, high-energy piping systems. Specifically designed for steam and feedwater applications, the IsoTech® provides bidirectional, zero-leakage operation for reduced downtime and maintenance costs as well as increased reliability and efficiency.

Steam turbine damage by water induction is a costly economic, safety and reliability concern.

For more information, contact [sales@valv.com](mailto:sales@valv.com)