

Bayer Process Alumina



The Client

Alcoa World Alumina Australia
Wagerup Refinery, Western Australia

The Challenge



The production of alumina using the Bayer process creates alumina hydrate solids that precipitate out of solution and coat the insides of pipes and valves. In order to continue production, facilities must regularly caustic wash to dissolve the scale build up. The wash is NaOH at 500 g/l (30% w/w) up to 110°C. Isolation valves within the piping system must not only function when scale has precipitated and adhered to their moving parts, they must effectively prevent the wash fluids from passing into piping sections where wash is not desirable.

The Discovery

The valves were sold for Spent Liquor Filtrate Return lines in May 2013 and quickly showed their superiority. The key elements of the design options utilized in the Guided Shear Gates were highly polished gates and bodies, high temperature seat and seal materials, elimination of stagnant trapped areas within the valve body and sufficient thrust to close against an upset of severe scale accumulation.



Summary

The Guided Shear Gate valves have proved that they can withstand the most severe application as well as internal and external conditions. Guided Shear Gate valves have provided Alcoa with zero or very low maintenance, long term low cost of ownership and the highest isolation performance.