VALVTECHNOLOGIES

Case Study

ValvTechnologies' Success Story

Application: H-oil is a refining process where the plant tries to draw every dollar possible out of oil through high temperatures and pressures in lieu of delayed coking. Resid hydrotreating (H-oil) is upgraded with hydrogen and a hydrotreating catalyst in a three-phase equilibrium of oil, catalyst and hydrogen gas bubbles to produce more valuable lower-boiling point liquid products. The process uses internal ebulating bed pumps to lift the reactor bed for processing heavy feedstock from crude atmospheric and vacuum tower residues that have high metals, sulfur, nitrogen, asphaltenes and solid contents. This process operates at approximately 3000 psig and 800°F. A remote catalyst handling system having double and single seated ball valves prepares a fresh catalyst oil mixture which is continuously added through the reactor double-ball values into multi stage reactor trains in series. Via a separate pipeline, high-pressure hydrogen is also continuously injected through metal seated ball valves into each reactor with the fresh catalyst. The hydrogen is consumed and spent catalyst is withdrawn via double ball vales. This controls the level of catalyst activity in the reactor enabling process to produce constant yields and product quality over time. This process increases the efficiency, effectiveness and utilization to maximize the conversion of resid feedstocks to more valuable lower-boiling liquid products than can be refined downstream into, gas oils, lighter downstream feed stream, gasoline, etc.

Location: Belarus

Plant type: H-oil Unit

Industry: Downstream

Background: For the first time, Class A tightness was required by this plant. The existing product, manufactured by a ValvTechnologies' competitor, was unable to meet the user's requirements and could only guarantee Class D (visible leakage during the pressure test) shutoff. ValvTechnologies' history of supplying zero-leakage isolation valves made us a perfect solution to meet their new requirement. Not only was ValvTechnologies able to meet the Class A requirement, but it was able to exceed customer expectations with our V Series zero-leakage valves.

Solution: The cost of replacing or repairing a valve is small compared to the cost of leaking valves. Minor leaks grow to major leakage, causing frequent equipment repair or replacement and costly unscheduled plant shutdowns. Valves can have severe leakage, invisible to the eye, and internal valve leakage can go undetected for long periods of time. ValvTechnologies' decades of engineering experience led to the design of its superior, severe service zero-leakage isolation valves that exceed industry standards. In this case, it also led to ValvTechnologies' largest ever h-oil project win and the displacement of a former firmly ingrained competitor. This solution includes more than 1,100 electric, pneumatic or manually actuated V Series valves with and without purges. The pressure classes range from 600 - 2500 and A105-347H materials.

Licensor: Axens

Benefit:

The customer will recognize improved plant efficiency, safety and reliability as well as minimized wearand tear, resulting in significantly reduced maintenance and lower total cost-of-ownership.

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