

# Refinery Eliminates Expensive Ongoing Failures with Fisher® Vee-Ball™ V300 Control Valve Upgrades

## RESULTS

- Saved an estimated \$1,188,280 USD in materials alone over six years by upgrading to Fisher® control valves
- Reduced the effects of erosion by lining valve body with tungsten carbide coating, increasing valve lifespan
- Reduced control valve maintenance and plant outage costs by increasing valve and trim durability

## APPLICATION

Valve control of slurry hydrocarbon process

## CUSTOMER

Refinery in Louisiana, USA

## CHALLENGE

The customer is a downstream energy company, with segment-leading refining and chemicals businesses. Their Louisiana refinery has a crude oil capacity of 247,000 barrels per day and processes mainly light, low-sulfur crude oil. The single-train plant's facilities include fluid catalytic cracking, alkylation, coking, hydrosulfurization units, a reformer, and aromatics units that enable it to produce a high percentage of transportation fuels, such as gasoline, diesel fuel, and jet fuel.

The refinery began experiencing an intolerable amount of erosion in eight of their rotary-style control valves. Used in a slurry hydrocarbon process, the valves were subjected to abrasive conditions that resulted in the deterioration of the body material. Maintenance personnel were forced to replace the valves every eight months for nearly six years, at a material cost of over \$160,000 USD per overhaul.

## SOLUTION

Fisher engineers worked with Emerson's local business partner, John H. Carter, to find a way to prevent the erosion of the control valve material at the customer's plant. The existing valves were upgraded to Fisher Vee-Ball V300 control valves, complete with a tungsten carbide body lining and coated trim, and a life



*Fisher® Vee-Ball™ V300 control valves provide non-clogging, high-capacity flow control of gas, steam, clean and dirty fluids, abrasive chemicals, and fibrous slurries.*



expectancy of at least six years. These long-term valves provide high-capacity control of liquid, gas, steam, and fibrous slurries, and the constant wiping action of the seal across the ball's surface allows for smooth, non-clogging operation.

Because tungsten carbide is known as an extremely hard chemical compound—approximately three times stiffer than steel—Fisher has specifically designed tungsten carbide-based control valve lining and trim for harsh severe service applications. Using this material to reinforce the V300 control valve body can provide the necessary range of abrasion and chemical resistances to meet the needs of virtually any combination of erosive particulates.

Benefits of the reinforced Fisher V300 control valves and tungsten carbide trim were significant for the customer. By maximizing the lifespan of the Vee-Ball valves and eliminating the need for costly maintenance and replacement parts, plant personnel reported an estimated savings of \$1,188,280 USD in materials alone over six years. The refinery was also able to greatly reduce the annual downtime of their slurry hydrocarbon process, leading to a significant decrease in the unit's maintenance and outage expenses.



## RESOURCES

### Brochure on Fisher Vee-Ball Control Valves

<http://www.documentation.emersonprocess.com/groups/public/documents/brochures/d350004x012.pdf>

 <http://www.Facebook.com/FisherValves>

 <http://www.Twitter.com/FisherValves>

 <http://www.YouTube.com/user/FisherControlValve>

 <http://www.Linkedin.com/groups/Fisher-3941826>



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