

Ethanol blending optimisation

How the installation of a new blend valve actuator has improved operations for one US terminal

The ethanol blending process is a critical part of petrol terminal operation and has a significant impact on product quality, meeting environmental regulations and profitability.

Optimising the process is very important, but does present some control challenges. For example, thermal expansion of petrol and ethanol do not occur at the same rate, and the blended mixture has to be isolated from water due to ethanol's miscibility in water.

For these reasons, many terminals blend in real time while loading directly into the tanker trucks, but the required control strategy does not allow much room for problems or inconsistencies. Getting the needed control begins with accurate, consistent and reliable valve actuation.



Beck 11E-169 Rotary Valve Actuator on an ethanol/petrol blending application

Another way

One of the largest petroleum-based companies in the US identified ethanol blend valve actuators as a key to improving the blending process at a truck terminal in the state of Louisiana.

Inexpensive conventional electric actuators were in use on the 2" ethanol blend valves but an evaluation of the actuator performance proved they were not responsive enough. In this case, wide dead bands typical of many

traditional electric actuators caused process dead time and overshoot, which led to poor control, cycling and variability. The result was an inability to closely control the ethanol concentration in the mixture and the risk of producing an out-of-specification blend in a truck.

Poor control is always costly, but producing an out-of-specification blend can run up very high expenses. When a bad blend is created,

the entire truckload must be pumped out and reprocessed.

In an effort to avoid these costly problems, plant personnel decided to test two Beck electric actuators on ethanol blend valves. The impact on blending control was immediate: the ethanol concentration target of the mixture is 10%±0.4% and after a short time with the Beck electric actuators installed, plant personnel reported that the concentration of ethanol

in the mixture had never been closer to the 10% target.

This success has seen the petroleum company recommend using Beck on all blend valve applications and is in the process of upgrading its terminals throughout the US. 

For more information:

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