*For Severe Service Control Solutions, Turn to Fisher Technology and Innovation*

## UNIQUE V260 ROTARY VALVE PROVIDES THREE-STAGE PRESSURE DROP

In the mid-1990s, a remotely-controlled throttling delivery valve in rural Saskatchewan was causing some serious noise and control problems. The valve was installed in a pipeline take-off location; Heavy crude oil travels from a main pipeline through the delivery valve to nearby storage tanks. (An asphalt manufacturing plant, some 25 miles from the storage tanks, uses the crude as a raw material.) The valve's noise levels (up to 120 decibels) were disturbing a nearby farmer, and the resulting piping vibration was starting to damage gauges.

The customer needed to maximize capacity in the pipeline and, at the same time, minimize the vibration and noise caused by the high-pressure flow. The service conditions, including a 450 psig pressure drop, made this application challenging.

Globe-style valves usually meet these service requirements, but with the valve sized in proportion to capacity demands, a globe valve would be too heavy and expensive. Instead, Fisher personnel in the Engineered Products group designed a 12-inch, three-stage Design V260 rotary valve for this critical application.

The valve's unique features restrict the flow and enable a staged pressure-drop recovery, resulting in reduced cavitation and noise. These features include:

- A characterized or drilled-hole, multi-stage Hydrodome™ attenuator that reduces noise and pipeline vibration.
- ANSI Class #600 flanges with face-to-face dimensions to match existing standards,
- Three-stage pressure drop capability - The different sized, drilled holes in the Hydrodome force the high-velocity crude through a series of restrictions, reducing noise while providing the required capacity.
- A single, downstream seal for unidirectional flow - A pressure-balanced downstream seal forces the upstream seal into the ball, in a forward-flow direction. The self-adjusting seal also provides tight shutoff.
- A “dog-bone” type ball-to-shaft connection minimizes lost motion, improves dynamic control, and provides superior throttling performance.

The valve's Hydrodome, seal, and shaft were machined by Fisher Operations personnel in Marshalltown, Iowa. They also assembled and tested the valve to verify its capacity.

The three-stage Fisher Design V260 valve was installed in this pipeline in 1995 as a field-trial unit. Its noise level was low enough (about 90 decibels) that you could converse while standing next to the valve. This one-of-a-kind Engineered Product is now in its eighth year of reliable performance.

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