

# Severe Erosion Damage to Export Valve Trim Minimized with Fisher® V500 Control Valve

## RESULTS

- The Fisher V500 control valve solved the frequent trim replacement problem due to severe erosion damage from entrained sand experienced in the original valve



## APPLICATION

Oil export valve

## CUSTOMER

Oil and Gas platform in Brunei

## CHALLENGE

Crude oil produced from the oil and gas separators is delivered for export through pipelines. The oil export valve handles crude oil containing entrained sand coming from the well heads. This is a challenging application, as the fine sand particles can cause severe erosion damage to the valve body and trim if improperly selected. High pressure drops during start-up can worsen the damage if the process is experiencing cavitation.

Sand erosion in the original globe valve was causing severe damage to the body, plug, and cage. Erosion was so severe that it eventually stripped away the seal ring from the plug. The valve shaft also experienced heavy erosion that eventually led to stem failure. As a result of prolonged oil production, and the amount of sand in the oil, platform personnel were changing out trim about every six months.

Seeking to find a permanent solution to the valve failures, personnel at the oil platform contacted Emerson Process Management in Asia Pacific.

*The Fisher® V500 valve uses rugged components and a choice of erosion-resistant trim materials for highly erosive and severe operating conditions.*

## SOLUTION

Engineers at Emerson Process Management, Asia Pacific, examined the trim damage caused by sand erosion and recommended a Fisher V500 eccentric-plug design with ceramic trim, installed in a reverse flow direction, to replace the original valve. In addition to providing sufficient capacity to deliver the high flow rate required in this application, the V500 features a flow passage that directs the erosive fluid away from the critical trim components. The trim parts that are closest to the vena-contracta (where the flow stream has the highest velocity) are made of ceramic to prolong service life. The rugged design of the V500 made it an ideal and cost-effective solution for this erosive application.

## RESULT

The Fisher V500 control valve was installed in the oil export line and the severe sand erosion damage is no longer an issue.

For more information on severe service solutions, go to [www.fishersevereservice.com](http://www.fishersevereservice.com).

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