THE DOWNHOLE VISUAL ANALYTICS COMPANY

REAL-TIME VIDEO

WedgeCam®

Safety valves with broken off flappers are a common problem seen in older wells targeted for workover, or newer wells in which misfortune has struck. These flappers can become damaged due to corrosion over time or if struck with a bottom-hole assembly while performing downhole operations. When the flapper breaks off inside the safety valve and falls to the bottom of the valve, they typically cannot be retrieved to surface as the ID above the valve is smaller than the flapper. They are also notoriously difficult to mill out.

If this restriction caused by the flapper could be removed and a quick solution could be found to resume intervention operations, the potential savings for an operator could be several weeks of rig time and millions of dollars in costs.

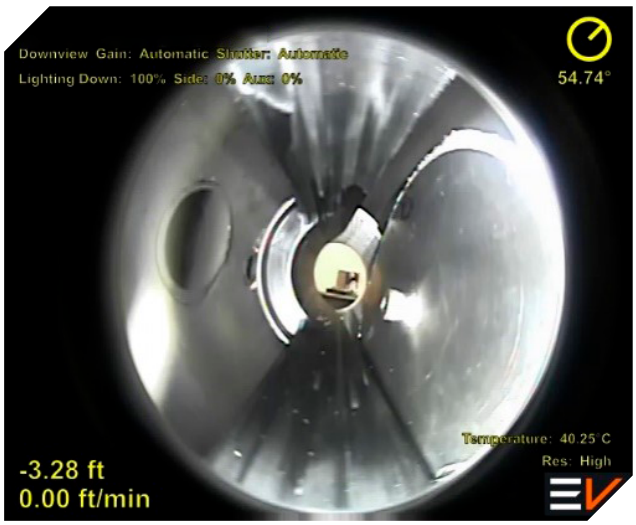
SOLUTION

Through the application of high-definition video, combined with a high strength Wedge attachment which can be customized for the safety valve in question, EV's WedgeCam® service now brings an industry-unique solution to this commonly occurring issue.

The WedgeCam® solution utilizes real-time video footage to identify the location of the flapper window and the location of the broken off flapper. The geometry of the wedge profile directly manipulates the flapper up, and aids in returning it back into the flapper window. The wide angle lens of EV's HD360 downview camera increases the field of view to 185° allowing for visual confirmation of flapper while passing.

The WedgeCam® system includes a motorized section to allow the wedge attachment to be rotated 360 degrees to ensure the orientation of the wedge is aligned correctly with the flapper window. This alignment is monitored and controlled in real-time by the field engineer.

Once the flapper has been manipulated back into its window, the flow tubes can be utilized to lock it into place, and a wireline safety valve or other safety device can be deployed in lieu of the inactive valve, allowing operations to continue without a lengthy, costly workover process.



APPLICATIONS

Applications include:

- Safety Valve Inspection
- Flapper Manipulation
- Wellbore Inspections

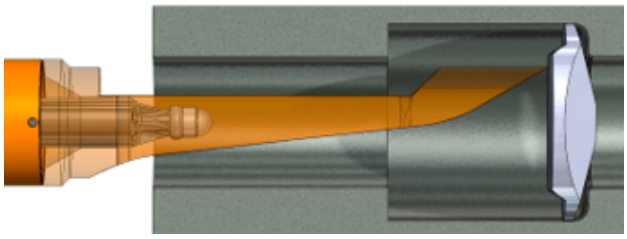
evcam.com

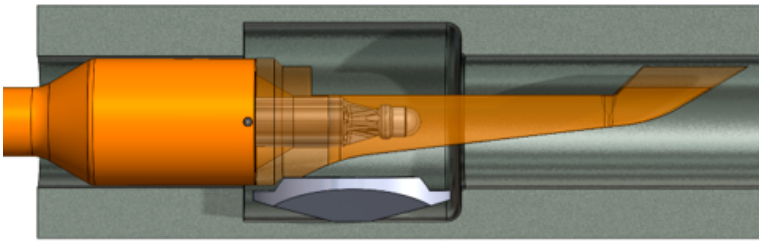
TECHNICAL FEATURES

WedgeCam® solutions are available for real-time operations with EV's Optis R-series cameras, enabling live video images via mono-conductor electric line, electrically enabled coiled tubing and fibre-optic enabled coiled tubing conveyance systems. The wide angle lens of EV's HD360 downview camera increases the field of view to 185° allowing for visual confirmation of flapper while passing.

As sizes and internal specifications of safety valves can vary based on the requirement and manufacturer, wedges can be manufactured to specification, thanks to EV's dedicated in-house engineering capabilities. For campaigns of varying safety valve sizes, the system can be adapted easily with different sized-wedges and are easy to swap out.

All EV products are supported by ISO 9001 certified design and manufacturing processes and are constructed from high-strength, corrosion resistant materials throughout.

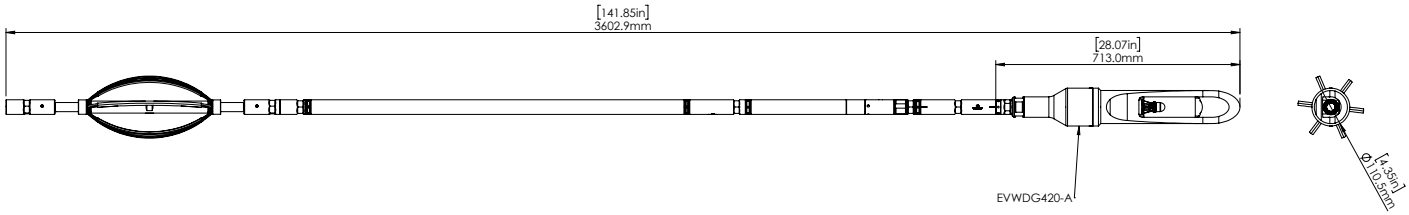




Safety Valve Suitability	>3.50 in	>89.0 mm
Typical Tool Length	141.85 in	3602.9 mm
Video Output	High Definition Real-Time	
Compatible Cameras (Real-Time) †	Optis® R125, Optis® R150, Optis® HD360	

† See separate datasheet for camera specifications

Example Toolstring



© 2019 EV Offshore Limited. All Rights Reserved.