

METROL®

FLOW-SURE DV™

THE WIRELESS DUAL VALVE FROM METROL

The FLOW-SURE Dual Valve "FS-DV" consists of a Circulating Valve and Tester Valve with three layers of operability.

DESCRIPTION

FLOW-SURE denotes an intelligent, wireless basis from which Metrol's premium flow control products have been designed. All FLOW-SURE tools deliver advanced wireless diagnostics and feedback on valve position. Metrol's FLOW-SURE, downhole valves have reliably enabled multi-zone DST's since 2002, with over 500 wireless valve moves to date.

The FS-DV has three layers of operability, Wireless Telemetry, Annulus Pressure and Rupture Disc. Annulus Pressure and Wireless Telemetry instruction are integrated within the onboard command library, offering seamless flexibility and downhole visibility.

By referencing hydrostatic, the tool can be operated without pressure pulses at any time, eliminating potential conflict with other pressure operated tools. Wireless operation also enables the FS-DV to be positioned and operated below packers.

The FS-DV is mainly for use as the principal tool in a DST string, used for spotting cushions, downhole build-ups and well kill operations. However, it's equally suitable for LPLT, HPHT, underbalanced annulus, harsh environment DSTs, extended flow tests, FRACs and multi-zone DSTs.

FEATURES

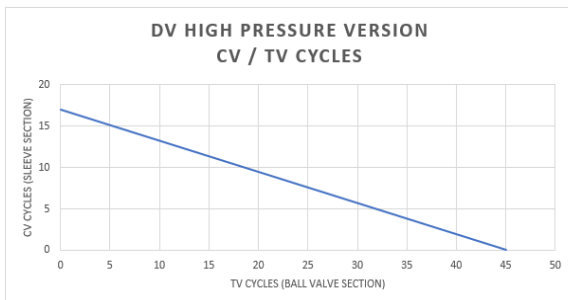
- > Integrated wireless and pressure pulse command library
- > Well test mode (annulus pressure holding tester valve open)
- > Annulus rupture disc override (virtual option available)
- > Primary metal to metal sealing Tester Valve
- > Non elastomeric, dynamic Circulation Valve seals
- > Circulation Valve equivalent full-bore ID, via 8 x 20mm bushings
- > In-hole power management and control
- > Multiple tools can be run at the same time, for discrete zonal control
- > Modular control system also available as a Ball Valve (FS-BV) or Multi-Cycle sleeve (FS-MC)
- > Large number of valve moves available

BENEFITS

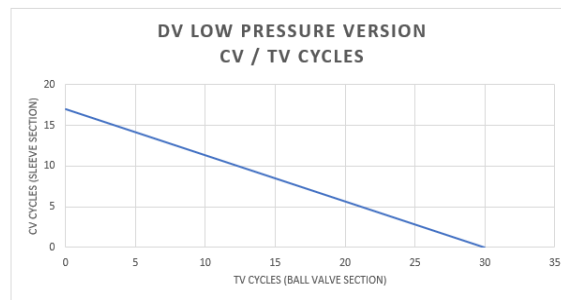
- > Tester Valve position sensors for certainty of downhole status
- > Integration with Metrol's PARAGON wireless system and high quality well test data acquisition
- > Better decision making via wireless confirmation of command execution and control system
- > Simplifies job design by reducing impact on other pressure operated tools
- > Reduction of up to 14 hours "hidden NPT" when compared with conventional DST tools
- > Adapt to operational changes using flexible wireless system

VALVE MOVES

FS-DV H (High Pressure Ball Section)



FS-DV L (Low Pressure Ball Section)



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SPECIFICATIONS

Version	FS-DV L	FS-DV H	FS-DV LHT	FS-DV HHT
Temperature Rating	150°C [302°F]	150°C [302°F]	175°C [347°F]	175°C [347°F]
Max O.D	5.5" [139.7mm]	5.5" [139.7mm]	5.5" [139.7mm]	5.5" [139.7mm]
Max I.D	2.25" [57mm]	2.25" [57mm]	2.25" [57mm]	2.25" [57mm]
Length	26.94ft [8.22 m]	26.94ft [8.22 m]	26.94ft [8.22 m]	26.94ft [8.22 m]
Ball Valve Cycles	30 cycles [60 moves]	45 cycles [90 moves]	30 cycles [60 moves]	45 cycles [90 moves]
Circulating Valve Cycles	17 cycles [34 moves]	17 cycles [34 moves]	17 cycles [34 moves]	17 cycles [34 moves]
Maximum Absolute External Pressure	12,000 psi [83 MPa]	21,000 psi [145 MPa]	12,000 psi [83 MPa]	21,000 psi [145 MPa]
Maximum Absolute Internal Pressure	16,000 psi [110 MPa]	21,000 psi [145 MPa]	16,000 psi [110 MPa]	21,000 psi [145 MPa]
Maximum Differential Pressure	10,000 psi [69 MPa]	17,500 psi [121 MPa]	10,000 psi [69 MPa]	17,500 psi [121 MPa]
Maximum Working External Pressure	10,000 psi [69 MPa]	17,500 psi [121 MPa]	10,000 psi [69 MPa]	17,500 psi [121 MPa]
Maximum Working Internal Pressure	13,500 psi [93 MPa]	17,500 psi [121 MPa]	13,500 psi [93 MPa]	17,500 psi [121 MPa]
Ball Opening Differential	5,000 psi [35MPa]	5,000 psi [35MPa]	5,000 psi [35MPa]	5,000 psi [35MPa]
Maximum Differential Across Ball	10,000 psi [69 MPa]	10,000 psi [69 MPa]	10,000 psi [69 MPa]	10,000 psi [69 MPa]
Sleeve Opening Differential	5,000 psi [35MPa]	5,000 psi [35MPa]	5,000 psi [35MPa]	5,000 psi [35MPa]
Min. Hydrostatic Required	1,200 psi [8.3 MPa]	2,500 psi [17 MPa]	1,200 psi [8.3 MPa]	2,500 psi [17 MPa]
Tensile Rating	316,000 lbf [1,406 kN]	316,000 lbf [1,406 kN]	316,000 lbf [1,406 kN]	316,000 lbf [1,406 kN]
Compression Rating	316,000 lbf [1,406 kN]	316,000 lbf [1,406 kN]	316,000 lbf [1,406 kN]	316,000 lbf [1,406 kN]
Service NACE MR-0175	H2S, acid	H2S, acid	H2S, acid	H2S, acid
Connection Type	3.5" 15.8# PH6	3.5" 15.8# PH6	3.5" 15.8# PH6	3.5" 15.8# PH6

