Flow Management Diverter Valve - Hydraulic (FMDV-H)

Hydraulic Variant (UK Patent No 2583156B)

The Flow Management Diverter Valve (FMDV-H) can be utilised with any ESP application, including single ESPs, Y-Tools, encapsulated ESPs (pods) and dual ESP applications.

Its primary function is to act as a flow bypass device, with the added capabilities of preventing backflow through the ESP and reducing exposure of the ESP to well debris. The combination of these capabilities reduces wear and tear, increases reliability, and prolongs the life of the ESP unit. When the FMDV is in bypass mode, the well flow (natural flow or flow from a secondary source) bypasses the non operating ESP, eliminating the ESPs exposure to large pressure drops while also preventing unnecessary wear.

When located above a running ESP, the FMDV protects the ESP from backflow. After the running ESP is stopped, the FMDV closes and backflow of the tubing contents is diverted to the annulus. This eliminates backspin on the ESP, which can break the ESP shaft. In addition, a flapper within the FMDV prevents any solids suspended in the tubing from settling inside the pump.

The hydraulic line allows pressure testing of the tubing, without the need to run a slickline plug. The hydraulic line can also be used as a contingency option to shut the annular ports, ensuring production is always available.

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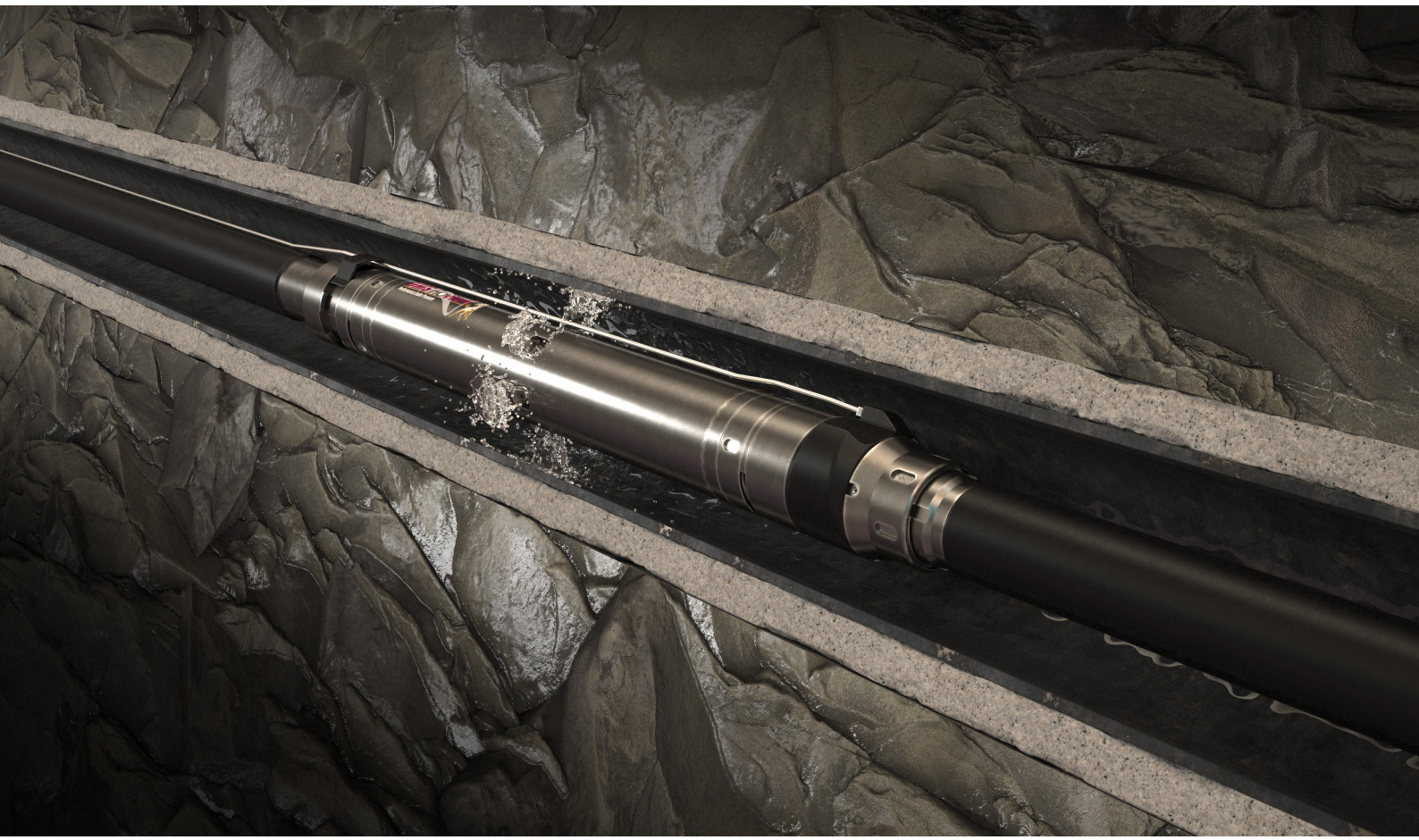

Features & Benefits

- Constant volume sealed spring chamber protects spring from exposure to well debris.
- Large operational flow range.
- Minimal distance between ports and shuttle reduces debris build up.
- Soft spring & magnet balanced, to reduce chatter at lower flow rates.
- Magnetic ring provides a strong hold down force for annular flow, preventing the valve shifting due to difference in pressure.
- Jetting holes clear debris upon ESP start up.
- Shifting & locking accessory tool available.
- High quality medical grade materials minimise erosion of key components.
- UMS Flowell Piranha lock connections allow full string torque to be applied through the FMDV in both directions.
- Protects the ESP from unnecessary wear and tear.
- Minimises exposure of the ESP to harmful well debris.
- Extends ESP operational lifetime.
- Hydraulic line facilitates pressure testing of the tubing, without the need to run a slickline plug.
- Hydraulic line can be used to shut the annular ports, ensuring production is always an option.

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Technical Specifications

Part Number	Tubing Size (in)	OD (in)	Length (in)	Thread Connections	Material	Min Flow Rate (bbl/d)	Maximum Flow Rate (bbl/d)	Min Pump Pressure (psi)	Max Pump Pressure (psi)
FMDV-H-0010-01-4140	3-1/2	6.127	64.19	3-1/2" 9.3# EUE	80ksi Low Alloy Steel	300	15,000	80	5,000
FMDV-H-0010-01-13CR	3-1/2	6.127	64.19	3-1/2" 9.3# EUE	80ksi 13CR	300	15,000	80	5,000
FMDV-H-0010-02-4140	3-1/2	6.127	64.19	3-1/2" 9.2# VAM TOP	80ksi Low Alloy Steel	300	15,000	80	5,000
FMDV-H-0010-02-13CR	3-1/2	6.127	64.19	3-1/2" 9.2# VAM TOP	80ksi 13CR	300	15,000	80	5,000

Notes:

1. Other sizes, material and thread connections available upon request.
2. OD is body diameter and doesn't include MLE cable guard.
3. Tensile, compression and torque rating matched to tubing end connection.

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FMDV Shifting Tool

Technical Specifications

Part Number	FMDV Tubing Size (in)	Maximum OD (in)	Running External Fishing Neck Size (in)	Running Tool	Retrieving Internal Fish Neck size (in)	Retrieving Tool	Retrieving Prong Part Number
FMDV-ST-100	2-7/8	2.125	1.375	OTIS 2.000" RB or SB	2.500	2.50" OTIS GS	FMDV-ST-116
FMDV-ST-000	3-1/2	2.855	1.750	OTIS 2.500" RB or SB	3.000	3.00" OTIS GS	FMDV-ST-035
FMDV-ST-200	4-1/2	3.500	1.750	OTIS 2.500" RB or SB	4.000	4.00" OTIS GS	FMDV-ST-216

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